

Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Unit Price R45

BetaPERT distribution with parameters:

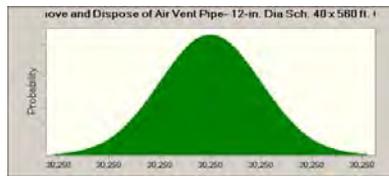
Minimum	\$1.50	(=Q45)
Likeliest	\$2.00	(=R45)
Maximum	\$3.00	(=S45)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Quantity L47

Normal distribution with parameters:

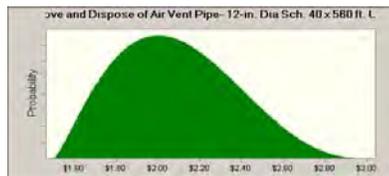
Mean	30,250	(=L47)
Std. Dev.	0	(=0.000001)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Unit Price R47

BetaPERT distribution with parameters:

Minimum	\$1.50	(=Q47)
Likeliest	\$2.00	(=R47)
Maximum	\$3.00	(=S47)

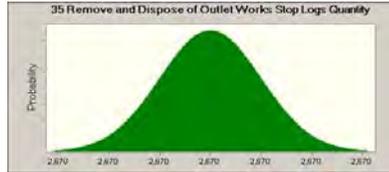


Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Quantity

Cell: L48

Normal distribution with parameters:

Mean	2,670	(=L48)
Std. Dev.	0	(=0.000001)

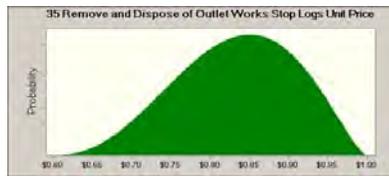


Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Unit Price

Cell: R48

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q48)
Likeliest	\$0.85	(=R48)
Maximum	\$1.00	(=S48)

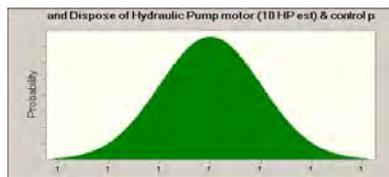


Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel

Cell: L49

Normal distribution with parameters:

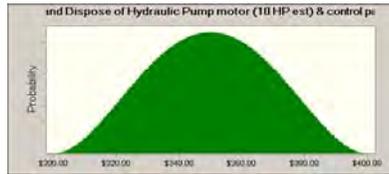
Mean	1	(=L49)
Std. Dev.	0	(=0.000001)



Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel

BetaPERT distribution with parameters:

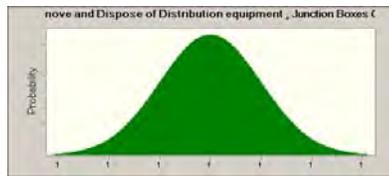
Minimum	\$300.00	(=Q49)
Likeliest	\$350.00	(=R49)
Maximum	\$400.00	(=S49)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Quality

Normal distribution with parameters:

Mean	1	(=L50)
Std. Dev.	0	(=0.000001)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Under

BetaPERT distribution with parameters:

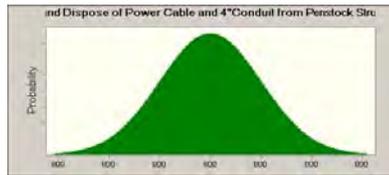
Minimum	\$1,500.00	(=Q50)
Likeliest	\$1,700.00	(=R50)
Maximum	\$2,000.00	(=S50)



Assumption: 38 Remove and Dispose of Power Cable and 4" Conduit from Penstock Structure **Cell: L51**

Normal distribution with parameters:

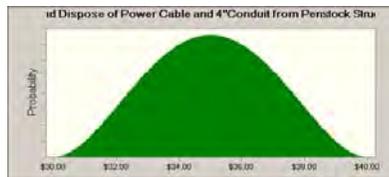
Mean	800	(=L51)
Std. Dev.	0	(=0.000001)



Assumption: 38 Remove and Dispose of Power Cable and 4" Conduit from Penstock Structure **Cell: R51**

BetaPERT distribution with parameters:

Minimum	\$30.00	(=Q51)
Likeliest	\$35.00	(=R51)
Maximum	\$40.00	(=S51)

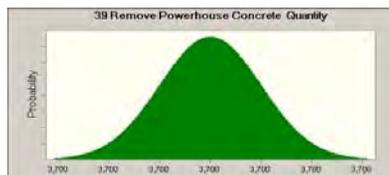


Assumption: 39 Remove Powerhouse Concrete Quantity

Cell: L52

Normal distribution with parameters:

Mean	3,700	(=L52)
Std. Dev.	0	(=0.000001)



Assumption: 39 Remove Powerhouse Concrete Unit Price

Cell: R52

BetaPERT distribution with parameters:

Minimum	\$270.00	(=Q52)
Likeliest	\$350.00	(=R52)
Maximum	\$1,000.00	(=S52)

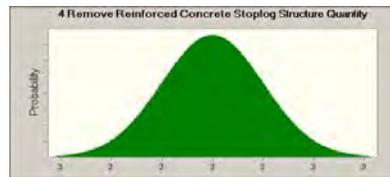


Assumption: 4 Remove Reinforced Concrete Stoplog Structure Quantity

Cell: L17

Normal distribution with parameters:

Mean	3	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 4 Remove Reinforced Concrete Stoplog Structure Unit Price

Cell: R17

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q17)
Likeliest	\$215.00	(=R17)
Maximum	\$380.00	(=S17)

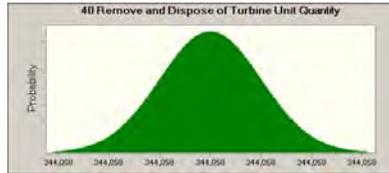


Assumption: 40 Remove and Dispose of Turbine Unit Quantity

Cell: L53

Normal distribution with parameters:

Mean	344,058	(=L53)
Std. Dev.	0	(=0.000001)

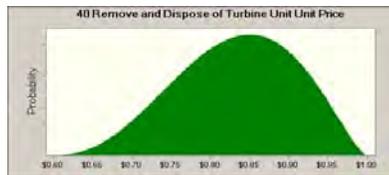


Assumption: 40 Remove and Dispose of Turbine Unit Unit Price

Cell: R53

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q53)
Likeliest	\$0.85	(=R53)
Maximum	\$1.00	(=S53)

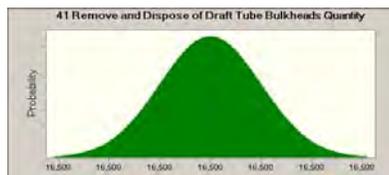


Assumption: 41 Remove and Dispose of Draft Tube Bulkheads Quantity

Cell: L54

Normal distribution with parameters:

Mean	16,500	(=L54)
Std. Dev.	0	(=0.000001)

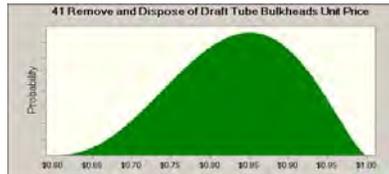


Assumption: 41 Remove and Dispose of Draft Tube Bulkheads Unit Price

Cell: R54

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q54)
Likeliest	\$0.85	(=R54)
Maximum	\$1.00	(=S54)

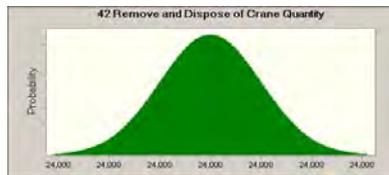


Assumption: 42 Remove and Dispose of Crane Quantity

Cell: L55

Normal distribution with parameters:

Mean	24,000	(=L55)
Std. Dev.	0	(=0.000001)

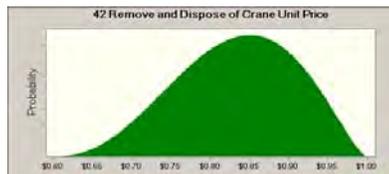


Assumption: 42 Remove and Dispose of Crane Unit Price

Cell: R55

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q55)
Likeliest	\$0.85	(=R55)
Maximum	\$1.00	(=S55)

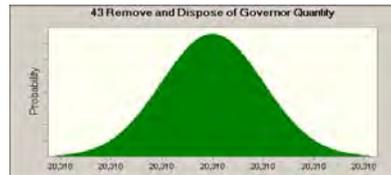


Assumption: 43 Remove and Dispose of Governor Quantity

Cell: L56

Normal distribution with parameters:

Mean	20,310	(=L56)
Std. Dev.	0	(=0.000001)

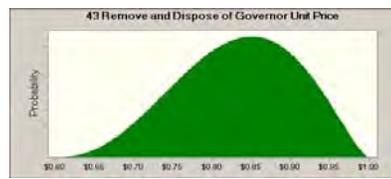


Assumption: 43 Remove and Dispose of Governor Unit Price

Cell: R56

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q56)
Likeliest	\$0.85	(=R56)
Maximum	\$1.00	(=S56)

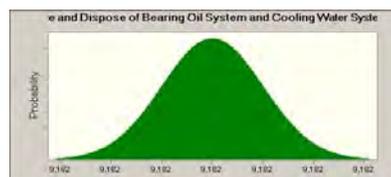


Assumption: 44 Remove and Dispose of Bearing Oil System and Cooling Water System

Cell: L57

Normal distribution with parameters:

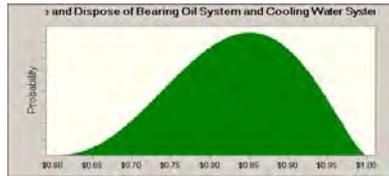
Mean	9,182	(=L57)
Std. Dev.	0	(=0.000001)



Assumption: 44 Remove and Dispose of Bearing Oil System and Cooling Water System Unit Price

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q57)
Likeliest	\$0.85	(=R57)
Maximum	\$1.00	(=S57)

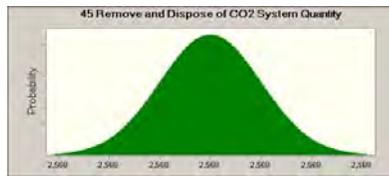


Assumption: 45 Remove and Dispose of CO2 System Quantity

Cell: L58

Normal distribution with parameters:

Mean	2,568	(=L58)
Std. Dev.	0	(=0.000001)

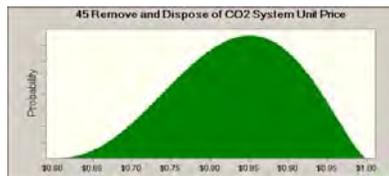


Assumption: 45 Remove and Dispose of CO2 System Unit Price

Cell: R58

BetaPERT distribution with parameters:

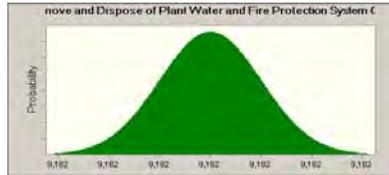
Minimum	\$0.60	(=Q58)
Likeliest	\$0.85	(=R58)
Maximum	\$1.00	(=S58)



Assumption: 46 Remove and Dispose of Plant Water and Fire Protection System Quantity Cell: L59

Normal distribution with parameters:

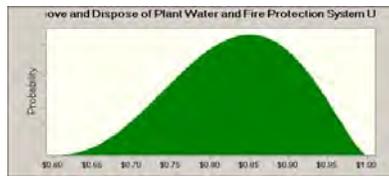
Mean	9,182	(=L59)
Std. Dev.	0	(=0.000001)



Assumption: 46 Remove and Dispose of Plant Water and Fire Protection System Unit Price Cell: R59

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q59)
Likeliest	\$0.85	(=R59)
Maximum	\$1.00	(=S59)

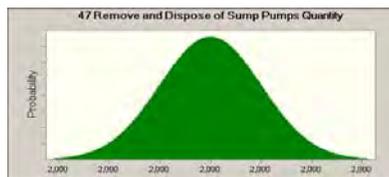


Assumption: 47 Remove and Dispose of Sump Pumps Quantity

Cell: L60

Normal distribution with parameters:

Mean	2,000	(=L60)
Std. Dev.	0	(=0.000001)



Assumption: 47 Remove and Dispose of Sump Pumps Unit Price

Cell: R60

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q60)
Likeliest	\$0.85	(=R60)
Maximum	\$1.00	(=S60)

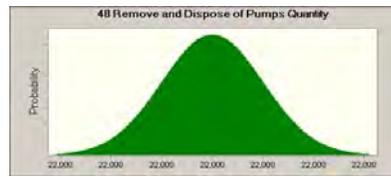


Assumption: 48 Remove and Dispose of Pumps Quantity

Cell: L61

Normal distribution with parameters:

Mean	22,000	(=L61)
Std. Dev.	0	(=0.000001)



Assumption: 48 Remove and Dispose of Pumps Unit Price

Cell: R61

BetaPERT distribution with parameters:

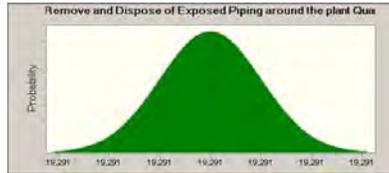
Minimum	\$0.60	(=Q61)
Likeliest	\$0.85	(=R61)
Maximum	\$1.00	(=S61)



Assumption: 49 Remove and Dispose of Exposed Piping around the plant Quantity Cell: L62

Normal distribution with parameters:

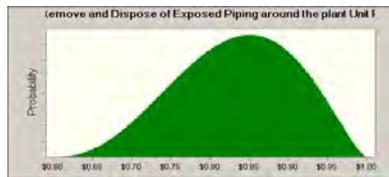
Mean 19,291 (=L62)
Std. Dev. 0 (=0.000001)



Assumption: 49 Remove and Dispose of Exposed Piping around the plant Unit Price Cell: R62

BetaPERT distribution with parameters:

Minimum \$0.60 (=Q62)
Likeliest \$0.85 (=R62)
Maximum \$1.00 (=S62)

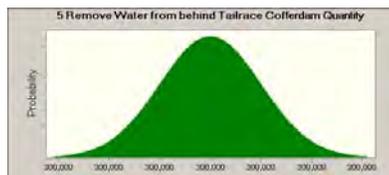


Assumption: 5 Remove Water from behind Tailrace Cofferdam Quantity

Cell: L18

Normal distribution with parameters:

Mean 300,000 (=L18)
Std. Dev. 0 (=0.000001)



Assumption: 5 Remove Water from behind Tailrace Cofferdam Unit Price

Cell: R18

Normal distribution with parameters:

Mean	\$0.01	(=R18)
Std. Dev.	\$0.00	(=0.000001)



Assumption: 50 Remove and Dispose of Unwatering Piping Quantity

Cell: L63

Normal distribution with parameters:

Mean	19,291	(=L63)
Std. Dev.	0	(=0.000001)

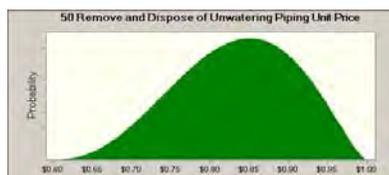


Assumption: 50 Remove and Dispose of Unwatering Piping Unit Price

Cell: R63

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q63)
Likeliest	\$0.85	(=R63)
Maximum	\$1.00	(=S63)



Assumption: 51 Remove and Dispose of Drainage Piping Quantity

Cell: L64

Normal distribution with parameters:

Mean	9,518	(=L64)
Std. Dev.	0	(=0.000001)

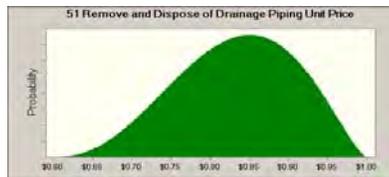


Assumption: 51 Remove and Dispose of Drainage Piping Unit Price

Cell: R64

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q64)
Likeliest	\$0.85	(=R64)
Maximum	\$1.00	(=S64)

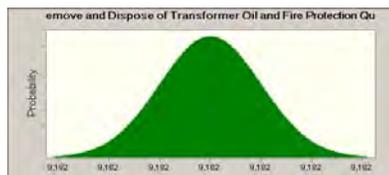


Assumption: 52 Remove and Dispose of Transformer Oil and Fire Protection Quantity

Cell: L65

Normal distribution with parameters:

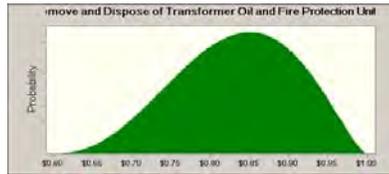
Mean	9,182	(=L65)
Std. Dev.	0	(=0.000001)



Assumption: 52 Remove and Dispose of Transformer Oil and Fire Protection Unit Price Cell: R65

BetaPERT distribution with parameters:

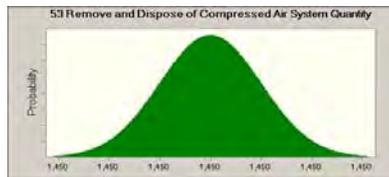
Minimum	\$0.60	(=Q65)
Likeliest	\$0.85	(=R65)
Maximum	\$1.00	(=S65)



Assumption: 53 Remove and Dispose of Compressed Air System Quantity Cell: L66

Normal distribution with parameters:

Mean	1,450	(=L66)
Std. Dev.	0	(=0.000001)



Assumption: 53 Remove and Dispose of Compressed Air System Unit Price Cell: R66

BetaPERT distribution with parameters:

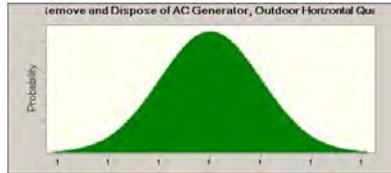
Minimum	\$0.60	(=Q66)
Likeliest	\$0.85	(=R66)
Maximum	\$1.00	(=S66)



Assumption: 54 Remove and Dispose of AC Generator, Outdoor Horizontal Quantity Cell: L67

Normal distribution with parameters:

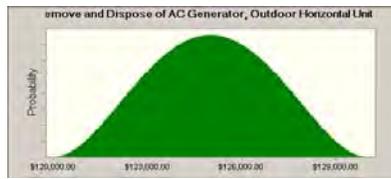
Mean	1	(=L67)
Std. Dev.	0	(=0.000001)



Assumption: 54 Remove and Dispose of AC Generator, Outdoor Horizontal Unit Price Cell: R67

BetaPERT distribution with parameters:

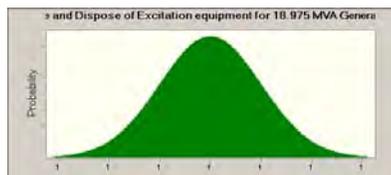
Minimum	\$120,000.00	(=Q67)
Likeliest	\$125,000.00	(=R67)
Maximum	\$130,000.00	(=S67)



Assumption: 55 Remove and Dispose of Excitation equipment for 18.975 MVA Generator Cell: L68

Normal distribution with parameters:

Mean	1	(=L68)
Std. Dev.	0	(=0.000001)



Assumption: 55 Remove and Dispose of Excitation equipment for 18.975 MVA Generator

BetaPERT distribution with parameters:

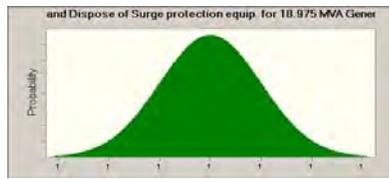
Minimum	\$1,500.00	(=Q68)
Likeliest	\$2,000.00	(=R68)
Maximum	\$3,000.00	(=S68)



Assumption: 56 Remove and Dispose of Surge protection equip. for 18.975 MVA Generator

Normal distribution with parameters:

Mean	1	(=L69)
Std. Dev.	0	(=0.000001)



Assumption: 56 Remove and Dispose of Surge protection equip. for 18.975 MVA Generator

BetaPERT distribution with parameters:

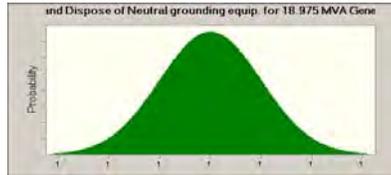
Minimum	\$1,500.00	(=Q69)
Likeliest	\$2,000.00	(=R69)
Maximum	\$3,000.00	(=S69)



Assumption: 57 Remove and Dispose of Neutral grounding equip. for 18.975 MVA Generators

Normal distribution with parameters:

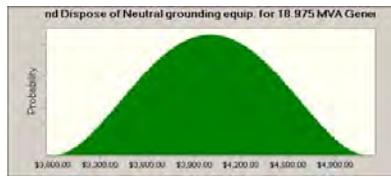
Mean	1	(=L70)
Std. Dev.	0	(=0.000001)



Assumption: 57 Remove and Dispose of Neutral grounding equip. for 18.975 MVA Generators

BetaPERT distribution with parameters:

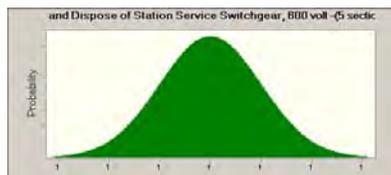
Minimum	\$3,000.00	(=Q70)
Likeliest	\$4,000.00	(=R70)
Maximum	\$5,000.00	(=S70)



Assumption: 58 Remove and Dispose of Station Service Switchgear, 600 volt -(5 sections)

Normal distribution with parameters:

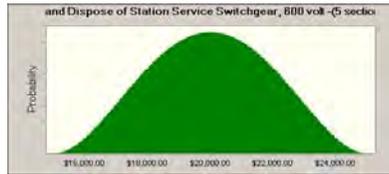
Mean	1	(=L71)
Std. Dev.	0	(=0.000001)



Assumption: 58 Remove and Dispose of Station Service Switchgear, 600 volt -(5 sections) Cell: R71

BetaPERT distribution with parameters:

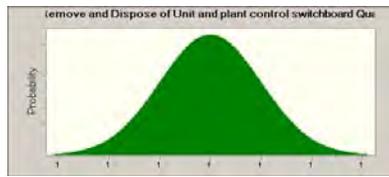
Minimum	\$15,000.00	(=Q71)
Likeliest	\$20,000.00	(=R71)
Maximum	\$25,000.00	(=S71)



Assumption: 59 Remove and Dispose of Unit and plant control switchboard Quantity Cell: L72

Normal distribution with parameters:

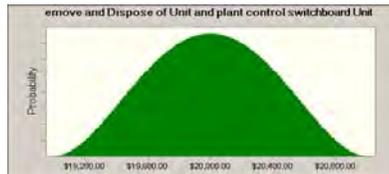
Mean	1	(=L72)
Std. Dev.	0	(=0.000001)



Assumption: 59 Remove and Dispose of Unit and plant control switchboard Unit Price Cell: R72

BetaPERT distribution with parameters:

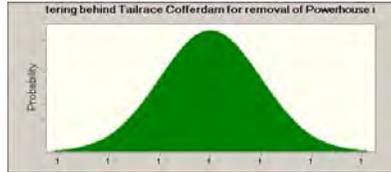
Minimum	\$19,000.00	(=Q72)
Likeliest	\$20,000.00	(=R72)
Maximum	\$21,000.00	(=S72)



Assumption: 6 Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse Cells

Normal distribution with parameters:

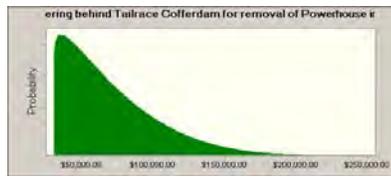
Mean 1 (=L19)
Std. Dev. 0 (=0.000001)



Assumption: 6 Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse Cells

BetaPERT distribution with parameters:

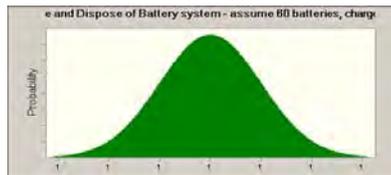
Minimum \$30,000.00 (=Q19)
Likeliest \$35,000.00 (=R19)
Maximum \$250,000.00 (=S19)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge

Normal distribution with parameters:

Mean 1 (=L73)
Std. Dev. 0 (=0.000001)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge Cell: R73

BetaPERT distribution with parameters:

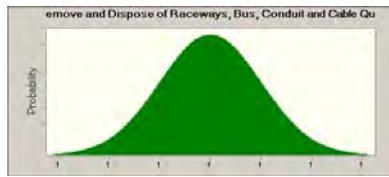
Minimum	\$9,000.00	(=Q73)
Likeliest	\$10,000.00	(=R73)
Maximum	\$12,000.00	(=S73)



Assumption: 61 Remove and Dispose of Raceways, Bus, Conduit and Cable Quantity Cell: L74

Normal distribution with parameters:

Mean	1	(=L74)
Std. Dev.	0	(=0.000001)



Assumption: 61 Remove and Dispose of Raceways, Bus, Conduit and Cable Unit Price Cell: R74

BetaPERT distribution with parameters:

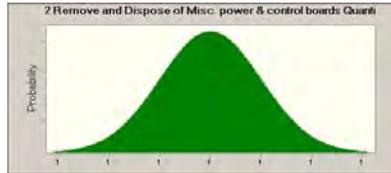
Minimum	\$14,000.00	(=Q74)
Likeliest	\$15,000.00	(=R74)
Maximum	\$17,000.00	(=S74)



Assumption: 62 Remove and Dispose of Misc. power & control boards Quantity Cell: L75

Normal distribution with parameters:

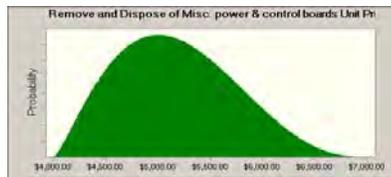
Mean 1 (=L75)
 Std. Dev. 0 (=0.000001)



Assumption: 62 Remove and Dispose of Misc. power & control boards Unit Price Cell: R75

BetaPERT distribution with parameters:

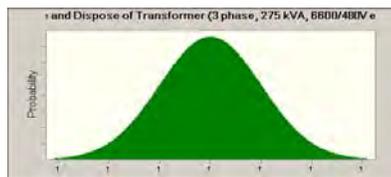
Minimum \$4,000.00 (=Q75)
 Likeliest \$5,000.00 (=R75)
 Maximum \$7,000.00 (=S75)



Assumption: 63 Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480V etc.) Cell: L76

Normal distribution with parameters:

Mean 1 (=L76)
 Std. Dev. 0 (=0.000001)



Assumption: 63 Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480V @ 11000 ft) Cost: UR76

BetaPERT distribution with parameters:

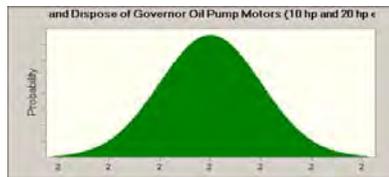
Minimum	\$9,000.00	(=Q76)
Likeliest	\$10,000.00	(=R76)
Maximum	\$11,000.00	(=S76)



Assumption: 64 Remove and Dispose of Governor Oil Pump Motors (10 hp and 20 hp @ 11000 ft) Cost: L77

Normal distribution with parameters:

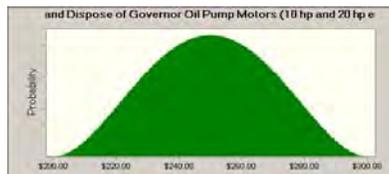
Mean	2	(=L77)
Std. Dev.	0	(=0.000001)



Assumption: 64 Remove and Dispose of Governor Oil Pump Motors (10 hp and 20 hp @ 11000 ft) Cost: R77

BetaPERT distribution with parameters:

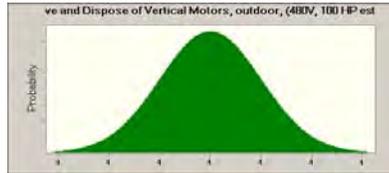
Minimum	\$200.00	(=Q77)
Likeliest	\$250.00	(=R77)
Maximum	\$300.00	(=S77)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est. Cost = L78)

Normal distribution with parameters:

Mean	4	(=L78)
Std. Dev.	0	(=0.000001)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est. Cost = R78)

BetaPERT distribution with parameters:

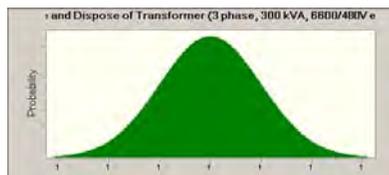
Minimum	\$500.00	(=Q78)
Likeliest	\$600.00	(=R78)
Maximum	\$700.00	(=S78)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est. Cost = L79)

Normal distribution with parameters:

Mean	1	(=L79)
Std. Dev.	0	(=0.000001)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V @ 11000 ft) Case:UR79

BetaPERT distribution with parameters:

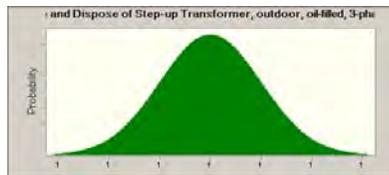
Minimum	\$9,000.00	(=Q79)
Likeliest	\$10,000.00	(=R79)
Maximum	\$13,000.00	(=S79)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase Case:L80

Normal distribution with parameters:

Mean	1	(=L80)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase Case:R80

BetaPERT distribution with parameters:

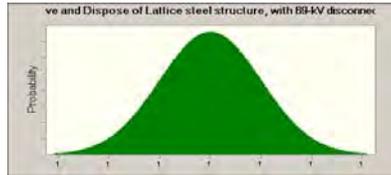
Minimum	\$90,000.00	(=Q80)
Likeliest	\$100,000.00	(=R80)
Maximum	\$120,000.00	(=S80)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnect Cell L81

Normal distribution with parameters:

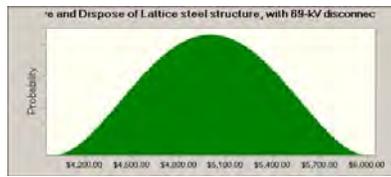
Mean	1	(=L81)
Std. Dev.	0	(=0.000001)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnect Cell R81

BetaPERT distribution with parameters:

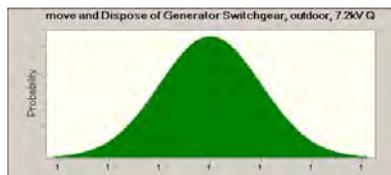
Minimum	\$4,000.00	(=Q81)
Likeliest	\$5,000.00	(=R81)
Maximum	\$6,000.00	(=S81)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Quantity: L82

Normal distribution with parameters:

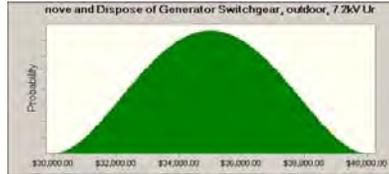
Mean	1	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Unit ~~Cost~~ R82

BetaPERT distribution with parameters:

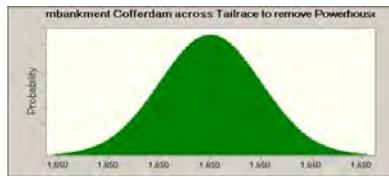
Minimum	\$30,000.00	(=Q82)
Likeliest	\$35,000.00	(=R82)
Maximum	\$40,000.00	(=S82)



Assumption: 7 Construct Embankment Cofferdam across Tailrace to remove Powerhouse ~~Cost~~ L20

Normal distribution with parameters:

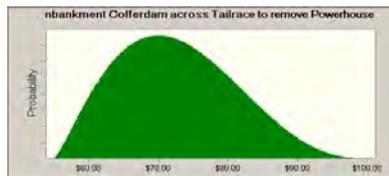
Mean	1,650	(=L20)
Std. Dev.	0	(=0.000001)



Assumption: 7 Construct Embankment Cofferdam across Tailrace to remove Powerhouse ~~Cost~~ R20

BetaPERT distribution with parameters:

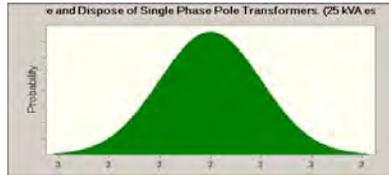
Minimum	\$55.00	(=Q20)
Likeliest	\$70.00	(=R20)
Maximum	\$100.00	(=S20)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es) Cell: L83

Normal distribution with parameters:

Mean	3	(=L83)
Std. Dev.	0	(=0.000001)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es) Cell: L83

BetaPERT distribution with parameters:

Minimum	\$1,500.00	(=Q83)
Likeliest	\$2,000.00	(=R83)
Maximum	\$3,000.00	(=S83)



Assumption: 71 Remove Concrete in Penstock Intake Structure Quantity

Cell: L84

Normal distribution with parameters:

Mean	460	(=L84)
Std. Dev.	0	(=0.000001)

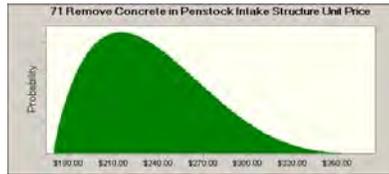


Assumption: 71 Remove Concrete in Penstock Intake Structure Unit Price

Cell: R84

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q84)
Likeliest	\$215.00	(=R84)
Maximum	\$380.00	(=S84)

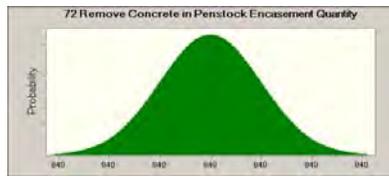


Assumption: 72 Remove Concrete in Penstock Encasement Quantity

Cell: L85

Normal distribution with parameters:

Mean	840	(=L85)
Std. Dev.	0	(=0.000001)

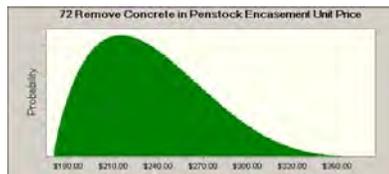


Assumption: 72 Remove Concrete in Penstock Encasement Unit Price

Cell: R85

BetaPERT distribution with parameters:

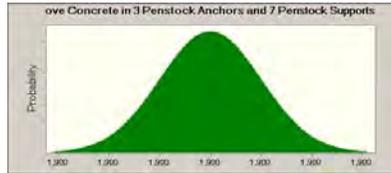
Minimum	\$170.00	(=Q85)
Likeliest	\$215.00	(=R85)
Maximum	\$380.00	(=S85)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports **Cell: L86**

Normal distribution with parameters:

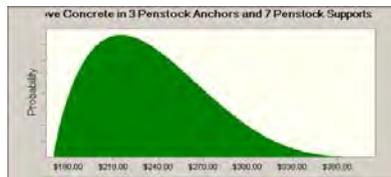
Mean 1,900 (=L86)
Std. Dev. 0 (=0.000001)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports **Cell: R86**

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q86)
Likeliest \$215.00 (=R86)
Maximum \$380.00 (=S86)



Assumption: 74 Remove Steel Footbridge to Intake Structure Quantity

Cell: L87

Normal distribution with parameters:

Mean 11,000 (=L87)
Std. Dev. 0 (=0.000001)

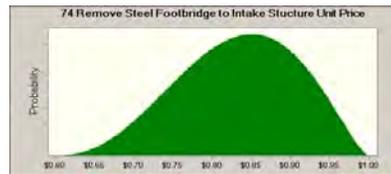


Assumption: 74 Remove Steel Footbridge to Intake Structure Unit Price

Cell: R87

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q87)
Likeliest	\$0.85	(=R87)
Maximum	\$1.00	(=S87)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Quantity **Cell: L88**

Normal distribution with parameters:

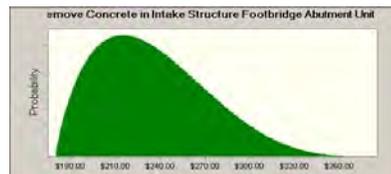
Mean	5	(=L88)
Std. Dev.	0	(=0.000001)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Unit Price **Cell: R88**

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q88)
Likeliest	\$215.00	(=R88)
Maximum	\$380.00	(=S88)

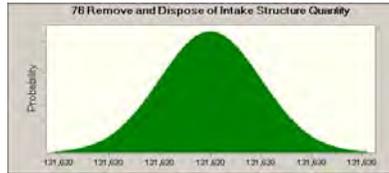


Assumption: 76 Remove and Dispose of Intake Structure Quantity

Cell: L89

Normal distribution with parameters:

Mean	131,630	(=L89)
Std. Dev.	0	(=0.000001)

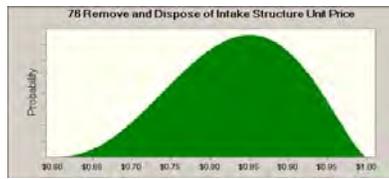


Assumption: 76 Remove and Dispose of Intake Structure Unit Price

Cell: R89

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q89)
Likeliest	\$0.85	(=R89)
Maximum	\$1.00	(=S89)

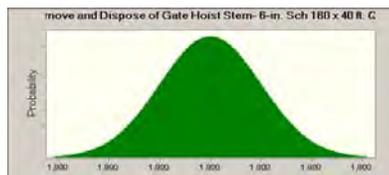


Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Quantity

Cell: L90

Normal distribution with parameters:

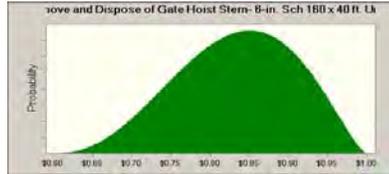
Mean	1,800	(=L90)
Std. Dev.	0	(=0.000001)



Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Unit Price R90

BetaPERT distribution with parameters:

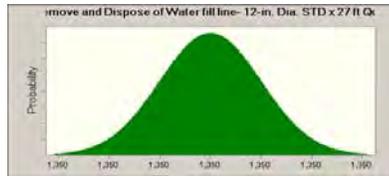
Minimum	\$0.60	(=Q90)
Likeliest	\$0.85	(=R90)
Maximum	\$1.00	(=S90)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Quantity Cell: L91

Normal distribution with parameters:

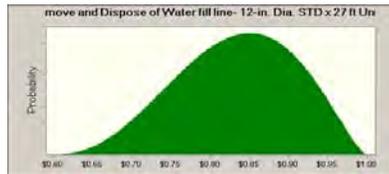
Mean	1,350	(=L91)
Std. Dev.	0	(=0.000001)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Unit Price Cell: R91

BetaPERT distribution with parameters:

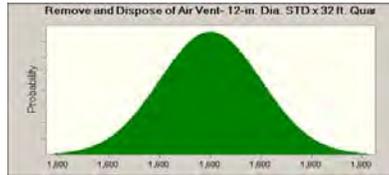
Minimum	\$0.60	(=Q91)
Likeliest	\$0.85	(=R91)
Maximum	\$1.00	(=S91)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Quantity Cell: L92

Normal distribution with parameters:

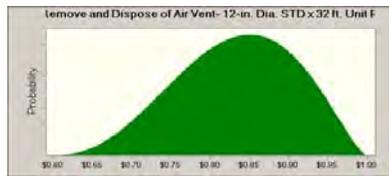
Mean 1,600 (=L92)
 Std. Dev. 0 (=0.000001)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Unit Price Cell: R92

BetaPERT distribution with parameters:

Minimum \$0.60 (=Q92)
 Likeliest \$0.85 (=R92)
 Maximum \$1.00 (=S92)

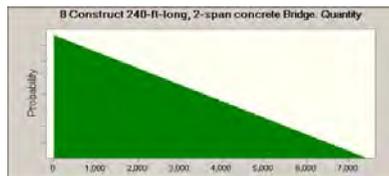


Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Quantity Cell: L21

Cell: L21

Triangular distribution with parameters:

Minimum 0 (=K21)
 Likeliest 0 (=L21)
 Maximum 7,440 (=M21)

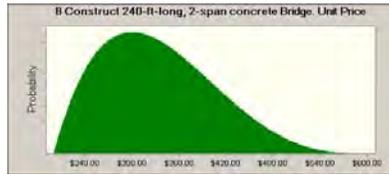


Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Unit Price

Cell: R21

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q21)
Likeliest	\$300.00	(=R21)
Maximum	\$600.00	(=S21)

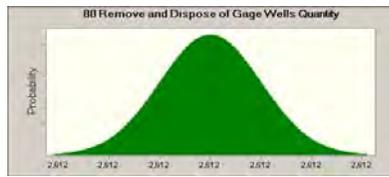


Assumption: 80 Remove and Dispose of Gage Wells Quantity

Cell: L93

Normal distribution with parameters:

Mean	2,612	(=L93)
Std. Dev.	0	(=0.000001)



Assumption: 80 Remove and Dispose of Gage Wells Unit Price

Cell: R93

BetaPERT distribution with parameters:

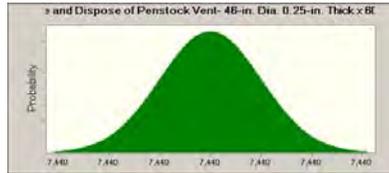
Minimum	\$0.60	(=Q93)
Likeliest	\$0.85	(=R93)
Maximum	\$1.00	(=S93)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. L94

Normal distribution with parameters:

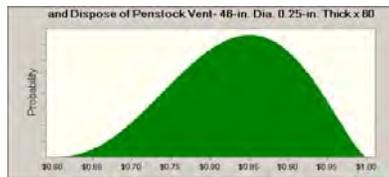
Mean	7,440	(=L94)
Std. Dev.	0	(=0.000001)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. L94

BetaPERT distribution with parameters:

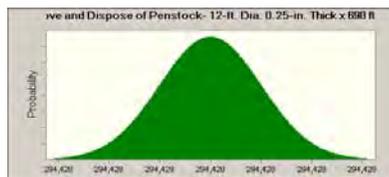
Minimum	\$0.60	(=Q94)
Likeliest	\$0.85	(=R94)
Maximum	\$1.00	(=S94)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. L95

Normal distribution with parameters:

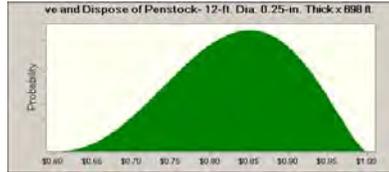
Mean	294,428	(=L95)
Std. Dev.	0	(=0.000001)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Unit: FR95

BetaPERT distribution with parameters:

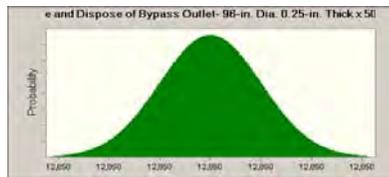
Minimum	\$0.60	(=Q95)
Likeliest	\$0.85	(=R95)
Maximum	\$1.00	(=S95)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 506 ft. Unit: L96

Normal distribution with parameters:

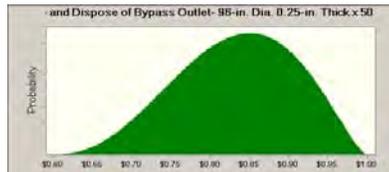
Mean	12,850	(=L96)
Std. Dev.	0	(=0.000001)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 506 ft. Unit: R96

BetaPERT distribution with parameters:

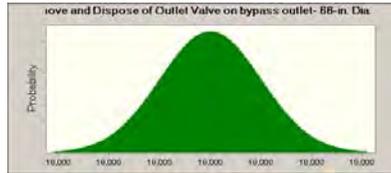
Minimum	\$0.60	(=Q96)
Likeliest	\$0.85	(=R96)
Maximum	\$1.00	(=S96)



Assumption: 84 Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia. Quantity 197

Normal distribution with parameters:

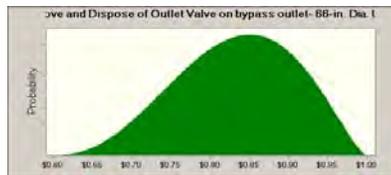
Mean	18,000	(=L97)
Std. Dev.	0	(=0.000001)



Assumption: 84 Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia. Unit Price 97

BetaPERT distribution with parameters:

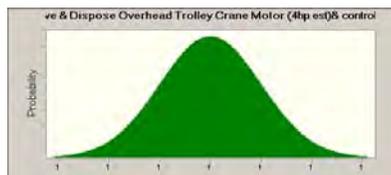
Minimum	\$0.60	(=Q97)
Likeliest	\$0.85	(=R97)
Maximum	\$1.00	(=S97)



Assumption: 85 Remove & Dispose Overhead Trolley Crane Motor (4hp est)& control System 198

Normal distribution with parameters:

Mean	1	(=L98)
Std. Dev.	0	(=0.000001)



Assumption: 85 Remove & Dispose Overhead Trolley Crane Motor (4hp est)& control Cell: R98

BetaPERT distribution with parameters:

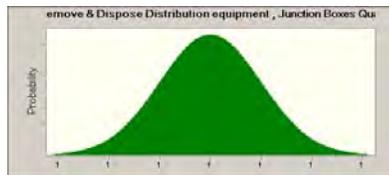
Minimum	\$900.00	(=Q98)
Likeliest	\$1,000.00	(=R98)
Maximum	\$1,300.00	(=S98)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Quantity Cell: L99

Normal distribution with parameters:

Mean	1	(=L99)
Std. Dev.	0	(=0.000001)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Unit Price Cell: R99

BetaPERT distribution with parameters:

Minimum	\$2,000.00	(=Q99)
Likeliest	\$2,500.00	(=R99)
Maximum	\$3,000.00	(=S99)

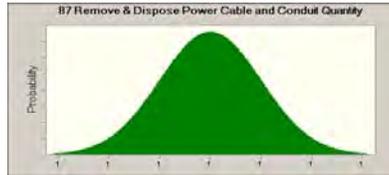


Assumption: 87 Remove & Dispose Power Cable and Conduit Quantity

Cell: L100

Normal distribution with parameters:

Mean	1	(=L100)
Std. Dev.	0	(=0.000001)

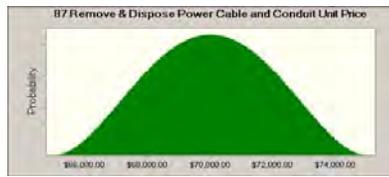


Assumption: 87 Remove & Dispose Power Cable and Conduit Unit Price

Cell: R100

BetaPERT distribution with parameters:

Minimum	\$65,000.00	(=Q100)
Likeliest	\$70,000.00	(=R100)
Maximum	\$75,000.00	(=S100)



Assumption: 88 Temporary Access Roads Quantity

Cell: L101

Normal distribution with parameters:

Mean	2.6	(=L101)
Std. Dev.	0.0	(=0.000001)



Assumption: 88 Temporary Access Roads Unit Price

Cell: R101

BetaPERT distribution with parameters:

Minimum	\$150,000.00	(=Q101)
Likeliest	\$250,000.00	(=S101)
Maximum	\$300,000.00	(=R101)

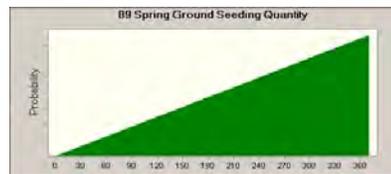


Assumption: 89 Spring Ground Seeding Quantity

Cell: L102

Triangular distribution with parameters:

Minimum	0	(=M102)
Likeliest	370	(=L102)
Maximum	370	(=K102)



Assumption: 89 Spring Ground Seeding Unit Price

Cell: R102

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q102)
Likeliest	\$3,500.00	(=R102)
Maximum	\$4,000.00	(=S102)

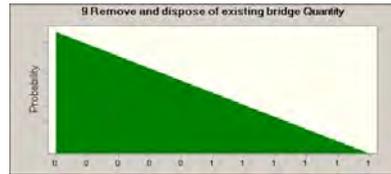


Assumption: 9 Remove and dispose of existing bridge Quantity

Cell: L22

Triangular distribution with parameters:

Minimum	0	(=K22)
Likeliest	0	(=L22)
Maximum	1	(=M22)

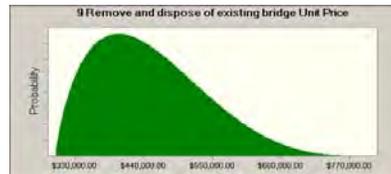


Assumption: 9 Remove and dispose of existing bridge Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$300,000.00	(=Q22)
Likeliest	\$400,000.00	(=R22)
Maximum	\$800,000.00	(=S22)

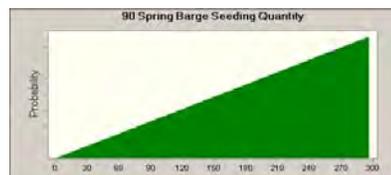


Assumption: 90 Spring Barge Seeding Quantity

Cell: L103

Triangular distribution with parameters:

Minimum	0	(=M103)
Likeliest	296	(=L103)
Maximum	296	(=K103)

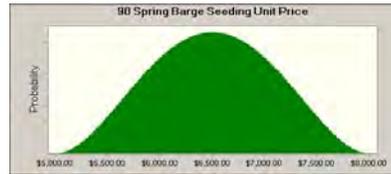


Assumption: 90 Spring Barge Seeding Unit Price

Cell: R103

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q103)
Likeliest	\$6,500.00	(=R103)
Maximum	\$8,000.00	(=S103)

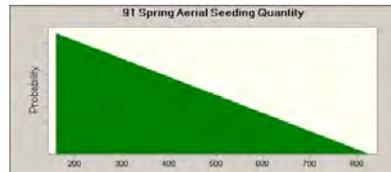


Assumption: 91 Spring Aerial Seeding Quantity

Cell: L104

Triangular distribution with parameters:

Minimum	159	(=K104)
Likeliest	159	(=L104)
Maximum	825	(=M104)

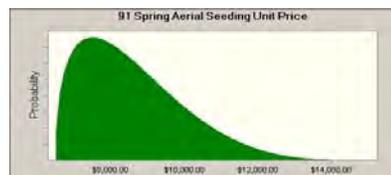


Assumption: 91 Spring Aerial Seeding Unit Price

Cell: R104

BetaPERT distribution with parameters:

Minimum	\$6,500.00	(=Q104)
Likeliest	\$7,500.00	(=R104)
Maximum	\$15,000.00	(=S104)



Assumption: 92 Fall Ground Seeding Quantity

Cell: L105

Triangular distribution with parameters:

Minimum	207	(=K105)
Likeliest	413	(=L105)
Maximum	619	(=M105)



Assumption: 92 Fall Ground Seeding Unit Price

Cell: R105

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q105)
Likeliest	\$3,500.00	(=R105)
Maximum	\$4,000.00	(=S105)

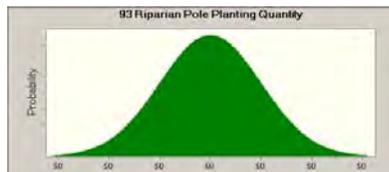


Assumption: 93 Riparian Pole Planting Quantity

Cell: L106

Normal distribution with parameters:

Mean	50	(=L106)
Std. Dev.	0	(=0.000001)

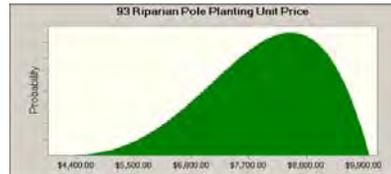


Assumption: 93 Riparian Pole Planting Unit Price

Cell: R106

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q106)
Likeliest	\$8,500.00	(=R106)
Maximum	\$10,000.00	(=S106)



Assumption: 94 Weed Management Quantity

Cell: L107

Triangular distribution with parameters:

Minimum	206	(=K107)
Likeliest	413	(=L107)
Maximum	619	(=M107)



Assumption: 94 Weed Management Unit Price

Cell: R107

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q107)
Likeliest	\$1,500.00	(=R107)
Maximum	\$2,000.00	(=S107)

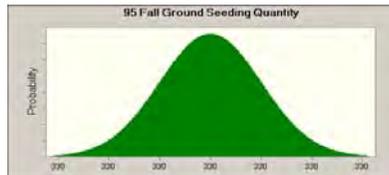


Assumption: 95 Fall Ground Seeding Quantity

Cell: L108

Normal distribution with parameters:

Mean 330 (=L108)
Std. Dev. 0 (=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price

Cell: R108

BetaPERT distribution with parameters:

Minimum \$3,000.00 (=Q108)
Likeliest \$3,500.00 (=R108)
Maximum \$4,000.00 (=S108)

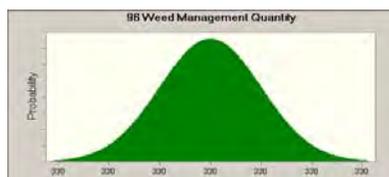


Assumption: 96 Weed Management Quantity

Cell: L109

Normal distribution with parameters:

Mean 330 (=L109)
Std. Dev. 0 (=0.000001)

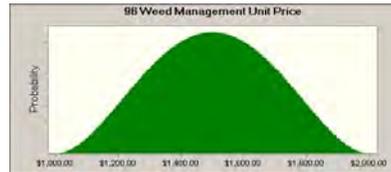


Assumption: 96 Weed Management Unit Price

Cell: R109

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q109)
Likeliest	\$1,500.00	(=R109)
Maximum	\$2,000.00	(=S109)



Assumption: 97 Clear and Grub Disposal Area Quantity

Cell: L110

Normal distribution with parameters:

Mean	29	(=L110)
Std. Dev.	0	(=0.000001)



Assumption: 97 Clear and Grub Disposal Area Unit Price

Cell: R110

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q110)
Likeliest	\$6,000.00	(=R110)
Maximum	\$7,000.00	(=S110)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi Q111

Triangular distribution with parameters:

Minimum	0	(=K111)
Likeliest	13,500	(=L111)
Maximum	17,000	(=M111)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi R111

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q111)
Likeliest	\$40.00	(=R111)
Maximum	\$45.00	(=S111)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Q112

Triangular distribution with parameters:

Minimum	0	(=K112)
Likeliest	5	(=L112)
Maximum	5	(=M112)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Unit Price

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q112)
Likeliest	\$6,000.00	(=R112)
Maximum	\$7,000.00	(=S112)

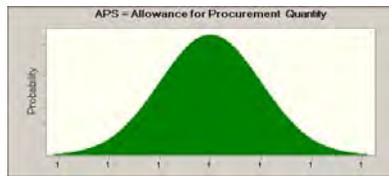


Assumption: APS = Allowance for Procurement Quantity

Cell: L206

Normal distribution with parameters:

Mean	1	(=L206)
Std. Dev.	0	(=0.000001)

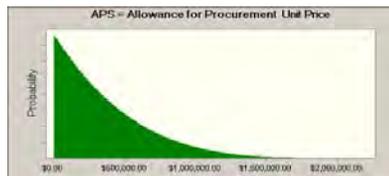


Assumption: APS = Allowance for Procurement Unit Price

Cell: R206

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q206)
Likeliest	\$0.00	(=R206)
Maximum	\$2,208,432.00	(=S206)

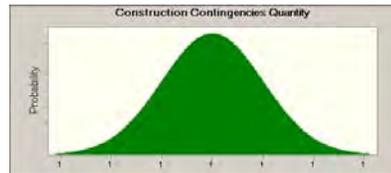


Assumption: Construction Contingencies Quantity

Cell: L209

Normal distribution with parameters:

Mean	1	(=L209)
Std. Dev.	0	(=0.000001)

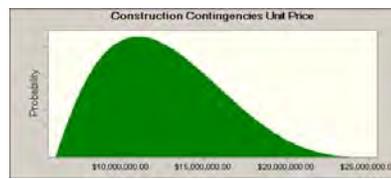


Assumption: Construction Contingencies Unit Price

Cell: R209

BetaPERT distribution with parameters:

Minimum	\$6,000,000.00	(=Q209)
Likeliest	\$11,000,000.00	(=R209)
Maximum	\$25,000,000.00	(=S209)

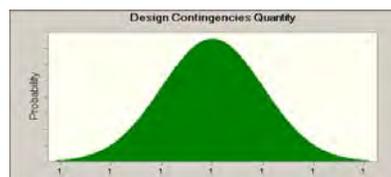


Assumption: Design Contingencies Quantity

Cell: L205

Normal distribution with parameters:

Mean	1	(=L205)
Std. Dev.	0	(=0.000001)

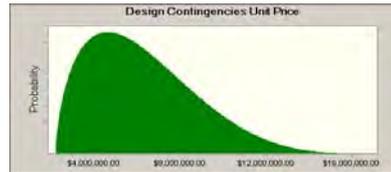


Assumption: Design Contingencies Unit Price

Cell: R205

BetaPERT distribution with parameters:

Minimum	\$2,211,170.00	(=Q205)
Likeliest	\$4,620,559.00	(=R205)
Maximum	\$16,772,800.00	(=S205)

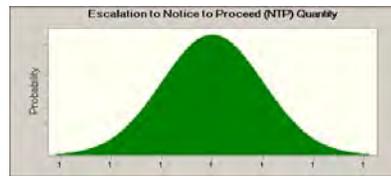


Assumption: Escalation to Notice to Proceed (NTP) Quantity

Cell: L202

Normal distribution with parameters:

Mean	1	(=L202)
Std. Dev.	0	(=0.000001)

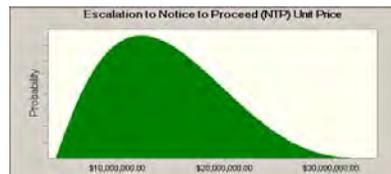


Assumption: Escalation to Notice to Proceed (NTP) Unit Price

Cell: R202

BetaPERT distribution with parameters:

Minimum	\$4,120,771.00	(=Q202)
Likeliest	\$12,124,687.00	(=R202)
Maximum	\$33,445,153.00	(=S202)

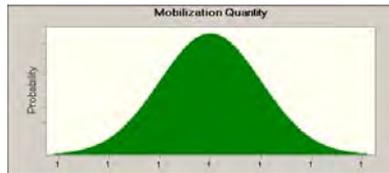


Assumption: Mobilization Quantity

Cell: L200

Normal distribution with parameters:

Mean	1	(=L200)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R200

BetaPERT distribution with parameters:

Minimum	\$1,200,000.00	(=Q200)
Likeliest	\$1,700,000.00	(=R200)
Maximum	\$3,000,000.00	(=S200)



Assumption: Non-Contract Cost Quantity

Cell: L211

Normal distribution with parameters:

Mean	1	(=L211)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R211

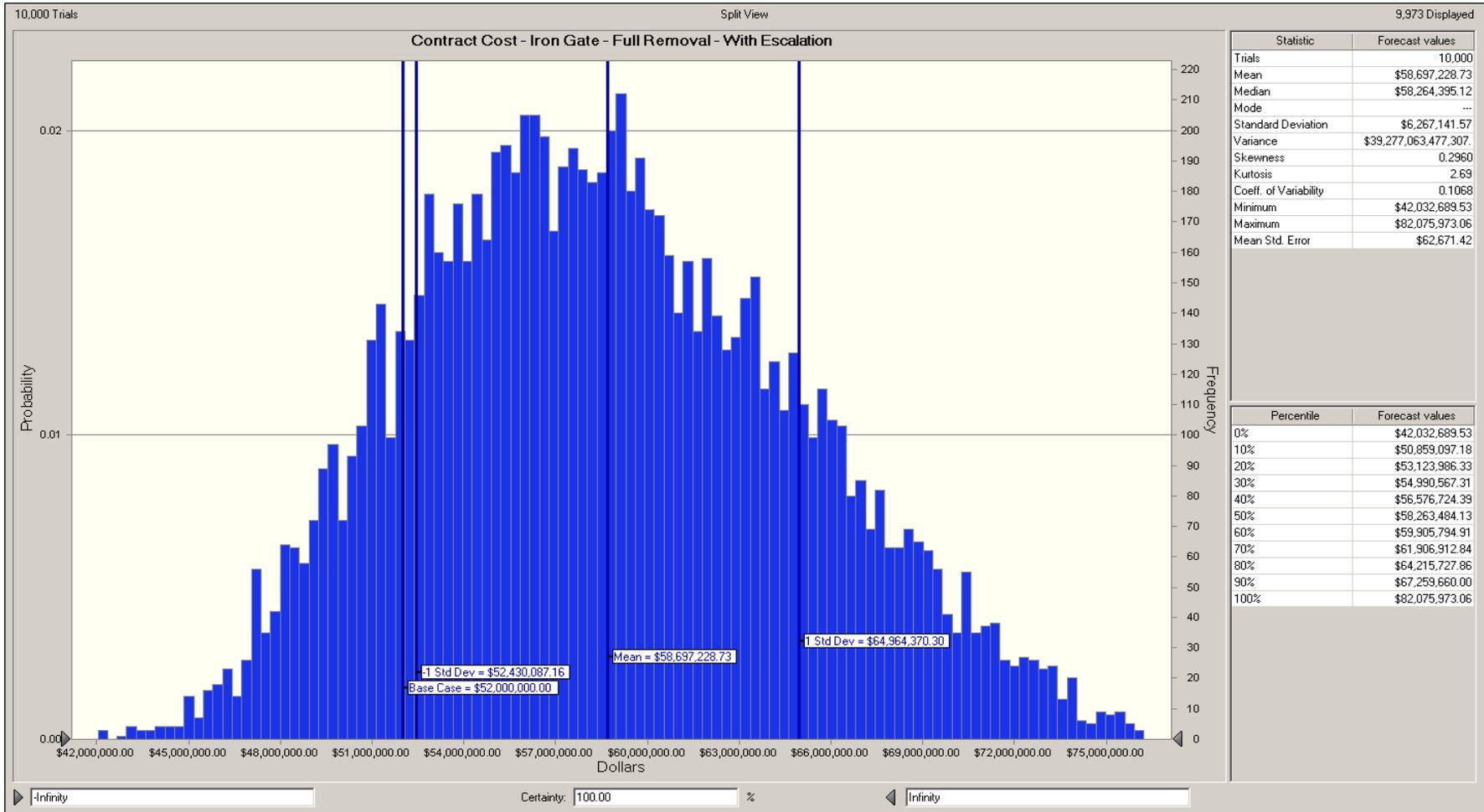
BetaPERT distribution with parameters:

Minimum	\$20,000,000.00	(=Q211)
Likeliest	\$35,000,000.00	(=R211)
Maximum	\$90,000,000.00	(=S211)

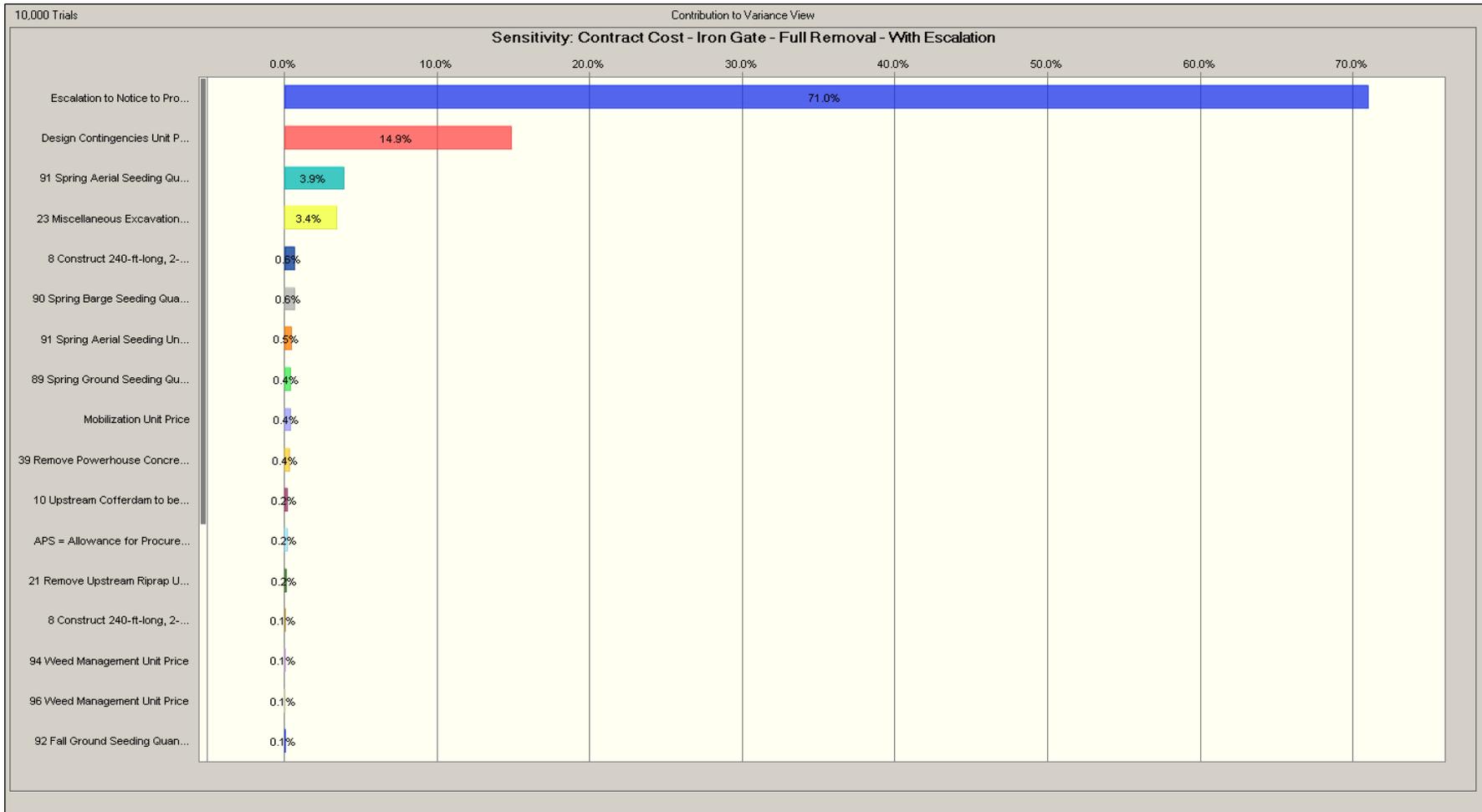


End of Assumptions

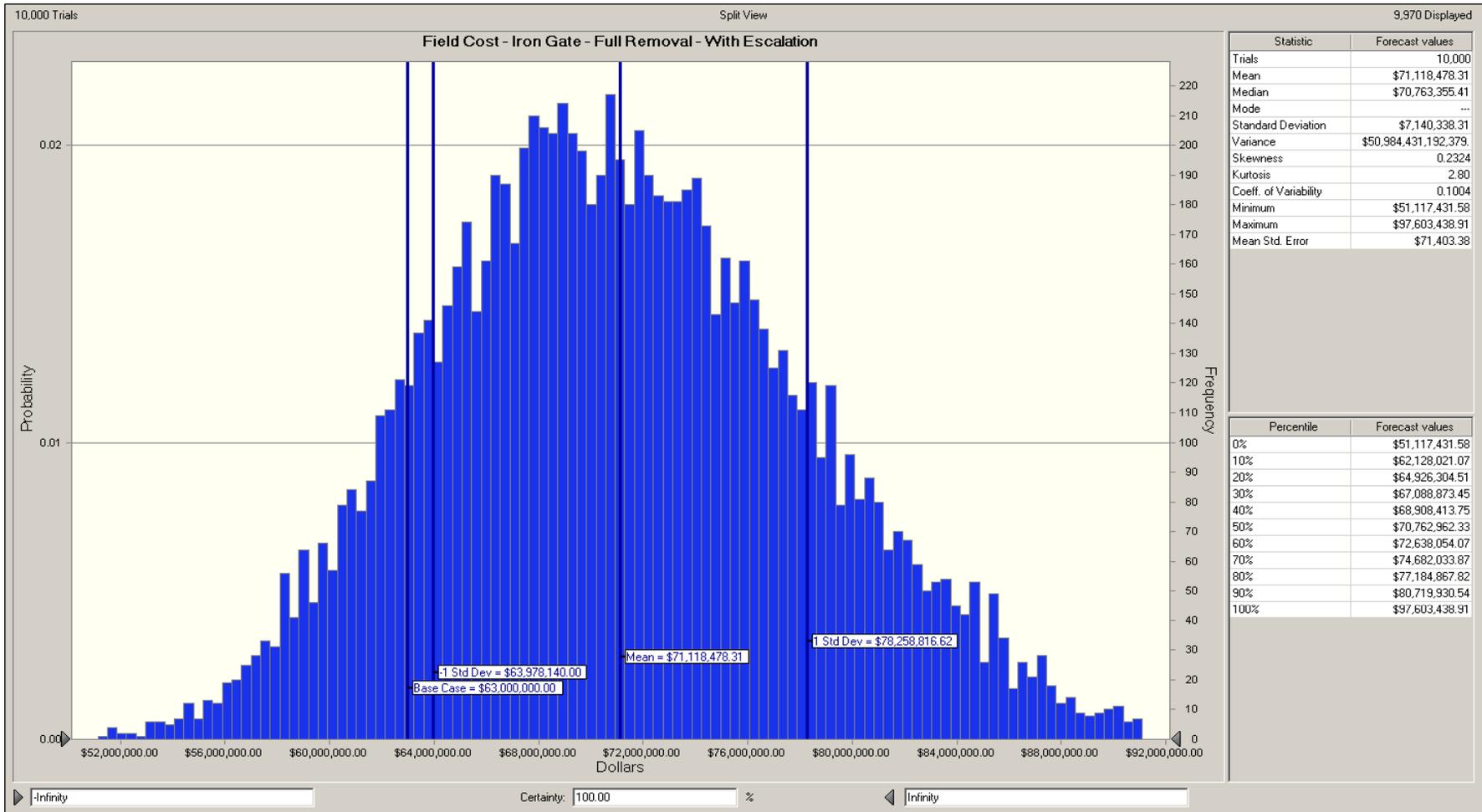
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



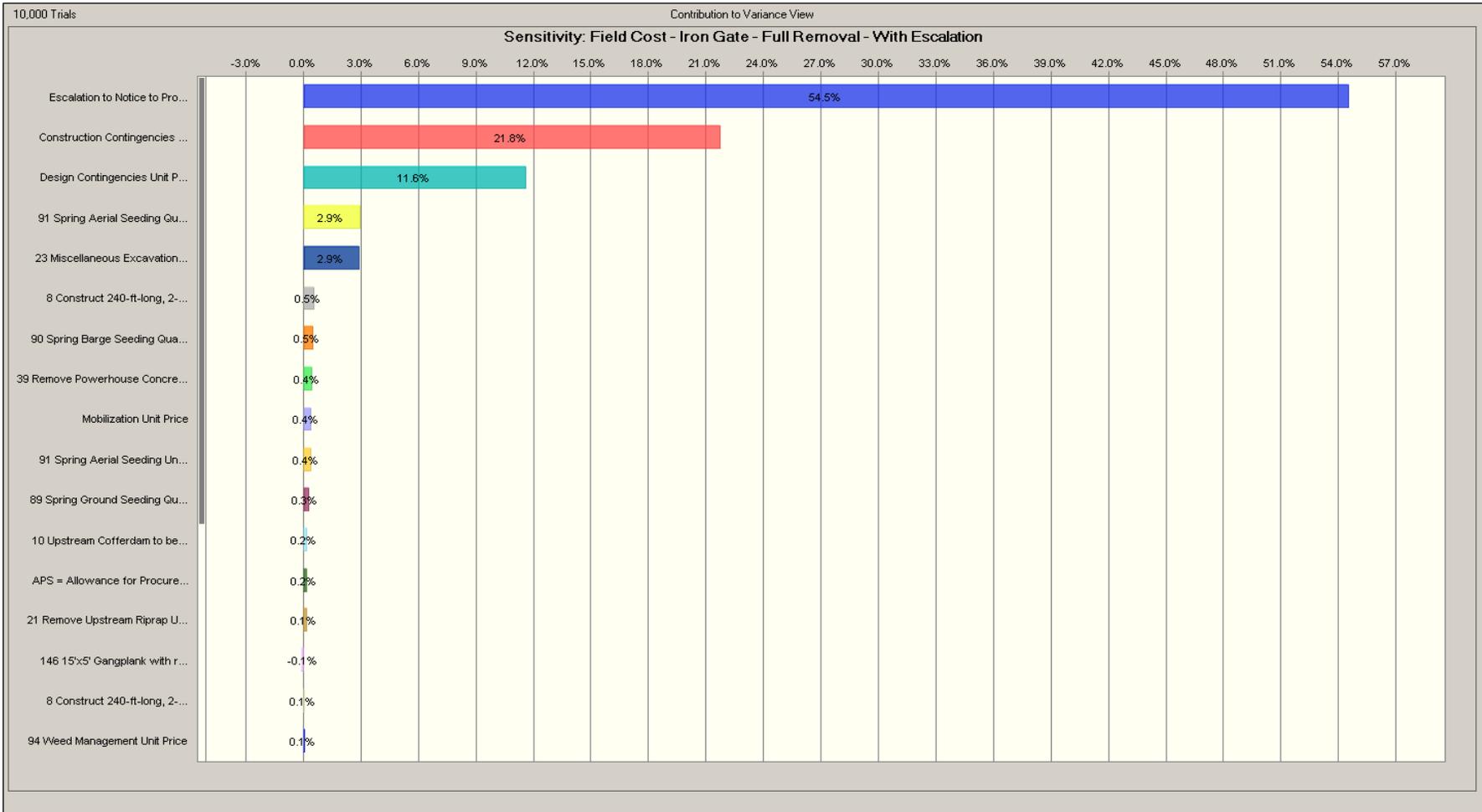
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



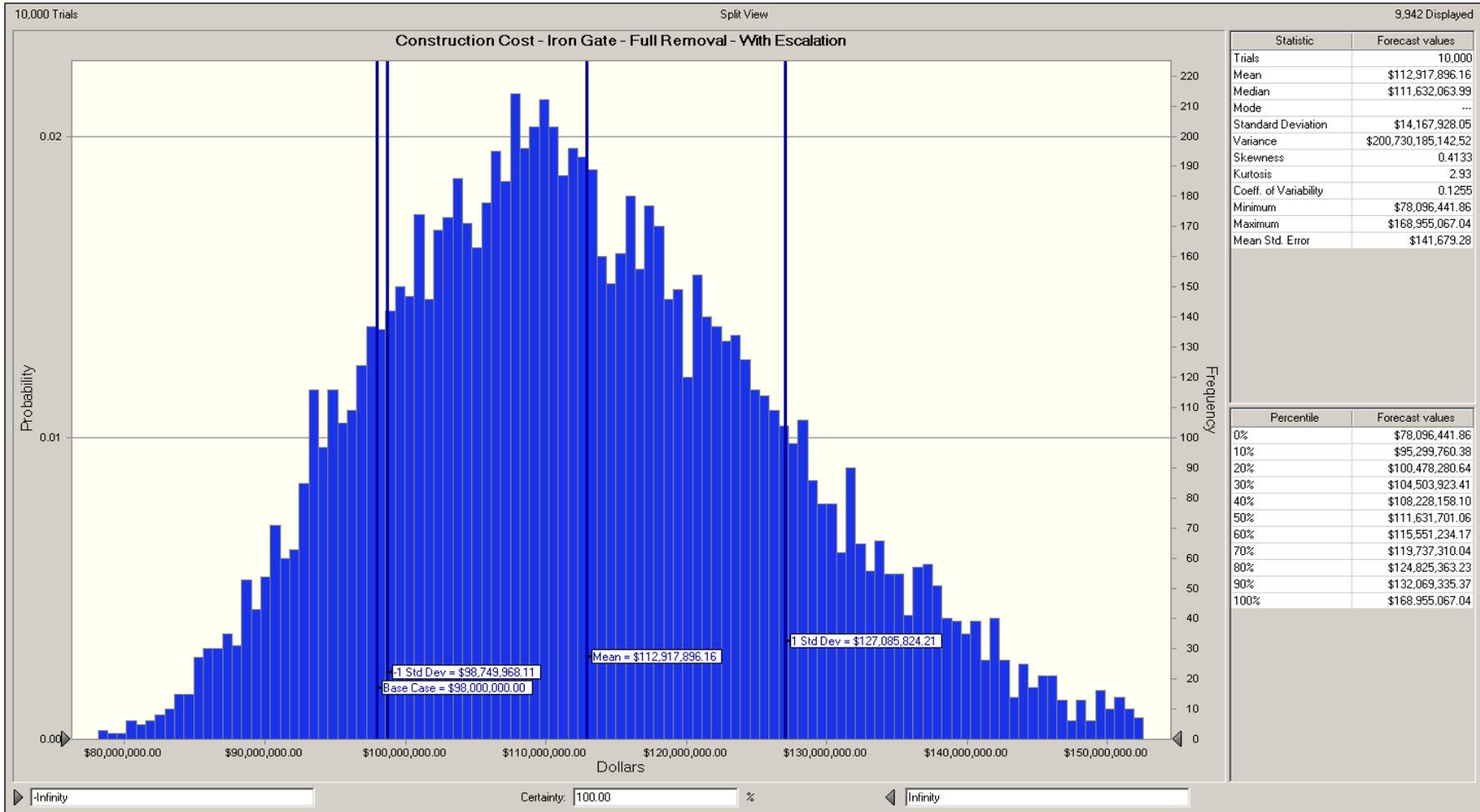
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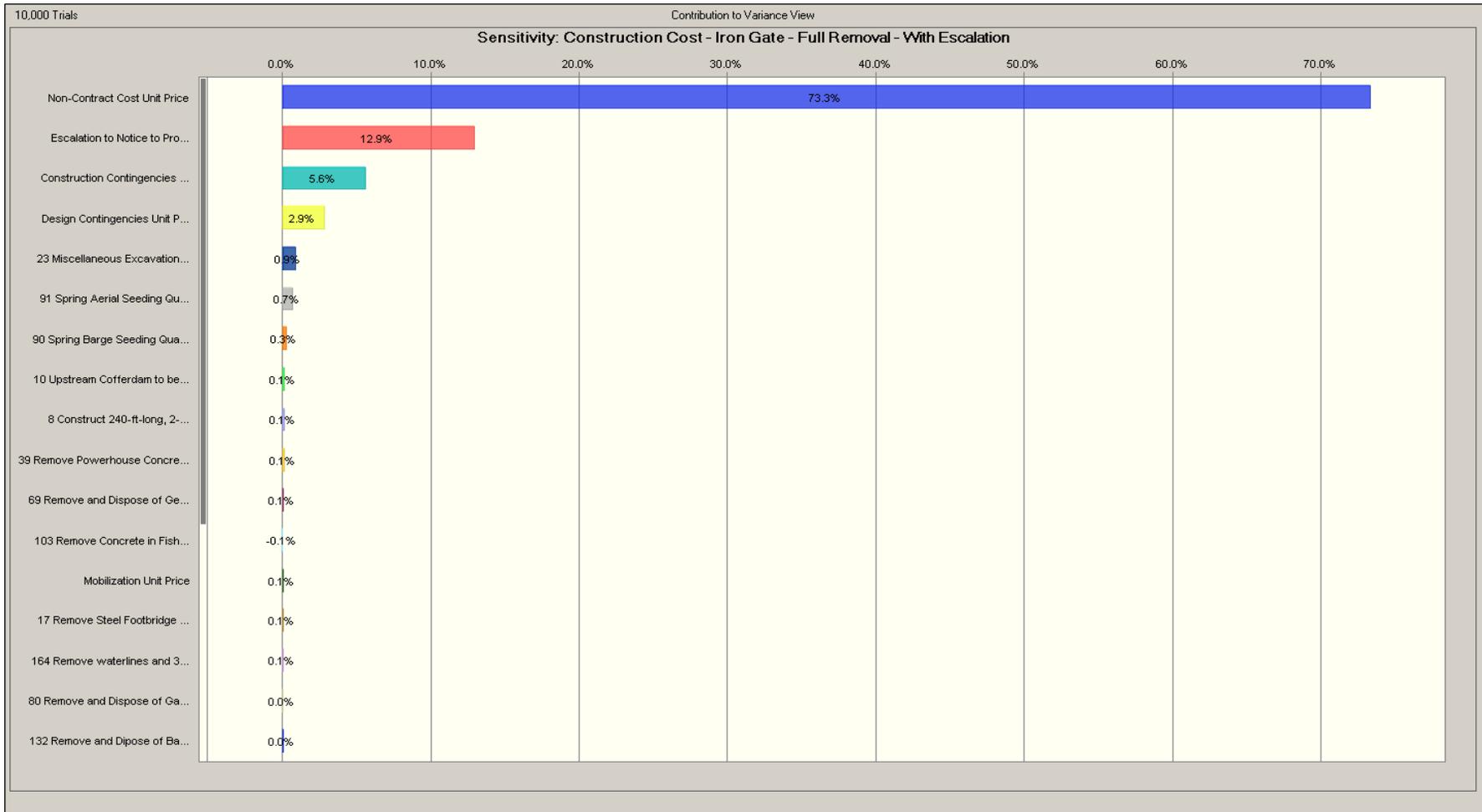
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



ESTIMATE WORKSHEET

FEATURE:			PROJECT:										
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon										
			WOID:	AF652	ESTIMATE LEVEL:			Feasibility					
			REGION:	MP	PRICE LEVEL:			Jul-2010					
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-04\Iron Gate\Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls\Iron Gate - Full - with Esc									
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir	8130	1	1	1	LS	\$190,000.00	\$200,000.00	\$210,000.00	\$190,000.00	\$200,000.00	\$210,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure	8130	0	0	0	LS				\$0.00	\$0.00	\$0.00
	3	Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S for Flap Gate	8130	31	31	31	CY	\$1,300.00	\$1,500.00	\$1,800.00	\$40,300.00	\$46,500.00	\$55,800.00
	4	Remove Reinforced Concrete Stoplog Structure	8130	3	3	3	CY	\$170.00	\$215.00	\$380.00	\$510.00	\$645.00	\$1,140.00
	5	Remove Water from behind Tailrace Cofferdam	8130	300,000	300,000	300,000	GAL	\$0.01	\$0.01	\$0.01	\$3,000.00	\$3,000.00	\$3,000.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry	8130	1	1	1	LS	\$30,000.00	\$35,000.00	\$250,000.00	\$30,000.00	\$35,000.00	\$250,000.00
	7	Construct Embankment Cofferdam across Tailrace to remove Powerhouse in dry	8130	1,650	1,850	1,650	CY	\$55.00	\$70.00	\$100.00	\$90,750.00	\$115,500.00	\$165,000.00
	8	Construct 240-ft-long, 2-span concrete Bridge.	8130	0	0	7,440	SF	\$200.00	\$300.00	\$600.00	\$0.00	\$0.00	\$4,464,000.00
	9	Remove and dispose of existing bridge	8130	0	0	1	LS	\$300,000.00	\$400,000.00	\$800,000.00	\$0.00	\$0.00	\$800,000.00
	10	Upstream Cofferdam to be Removed in the Wet	8313	20,000	20,000	20,000	CY	\$55.00	\$70.00	\$100.00	\$1,100,000.00	\$1,400,000.00	\$2,000,000.00
	11	Remove 9' dia hinged blind flange	8420	19,000	19,000	19,000	LBS	\$1.50	\$2.00	\$3.00	\$28,500.00	\$38,000.00	\$57,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe	8420	2,900	2,900	2,900	LBS	\$1.50	\$2.00	\$3.00	\$4,350.00	\$5,800.00	\$8,700.00
	13	Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operator	8420	110,000	110,000	110,000	LBS	\$12.00	\$15.00	\$18.00	\$1,320,000.00	\$1,650,000.00	\$1,980,000.00
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension	8130	580	580	580	CY	\$170.00	\$215.00	\$380.00	\$98,600.00	\$124,700.00	\$220,400.00
	15	Remove Concrete in Diversion Tunnel Intake Structure	8130	530	530	530	CY	\$170.00	\$215.00	\$380.00	\$90,100.00	\$113,950.00	\$201,400.00
	16	Remove Concrete in Diversion Tunnel Gate Tower	8130	410	410	410	CY	\$170.00	\$215.00	\$380.00	\$69,700.00	\$88,150.00	\$155,800.00
	17	Remove Steel Footbridge to Gate Tower	8130	13,000	13,000	13,000	LBS	\$0.85	\$0.85	\$1.00	\$11,050.00	\$11,050.00	\$13,000.00
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment	8130	20	20	20	CY	\$170.00	\$215.00	\$380.00	\$3,400.00	\$4,300.00	\$7,600.00
	19	Place Concrete Plugs for Diversion Tunnel	8130	43	43	43	CY	\$1,100.00	\$1,200.00	\$1,300.00	\$47,300.00	\$51,600.00	\$55,900.00
	20	Remove Concrete Closure Gates in Gate Tower	8130	61	61	61	CY	\$900.00	\$1,000.00	\$1,300.00	\$54,900.00	\$61,000.00	\$79,300.00
	21	Remove Upstream Riprap	8313	80,000	80,000	80,000	CY	\$10.00	\$13.00	\$17.00	\$800,000.00	\$1,040,000.00	\$1,360,000.00
	22	Remove Downstream Riprap	8313	30,000	30,000	30,000	CY	\$10.00	\$13.00	\$17.00	\$300,000.00	\$390,000.00	\$510,000.00
	23	Miscellaneous Excavation	8313	880,000	880,000	925,000	CY	\$10.00	\$13.00	\$17.00	\$8,800,000.00	\$11,440,000.00	\$15,725,000.00
	24	Cutoff Wall Concrete Demolition	8313	1,000	1,250	1,500	CY	\$170.00	\$215.00	\$380.00	\$170,000.00	\$268,750.00	\$570,000.00
	25	Earth Fill Crest Raise	8313	13,000	13,000	13,000	CY	\$10.00	\$13.00	\$17.00	\$130,000.00	\$169,000.00	\$221,000.00
	26	Sheetpile Crest Raise	8313	800	800	800	LF	\$200.00	\$250.00	\$300.00	\$160,000.00	\$200,000.00	\$240,000.00
	27	Remove 5 monitoring wells	8313	5	5	5	EA	\$1,900.00	\$2,000.00	\$2,200.00	\$9,500.00	\$10,000.00	\$11,000.00
	28	Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H	8420	4,500	4,500	4,500	LBS	\$0.60	\$0.85	\$1.00	\$2,700.00	\$3,825.00	\$4,500.00
	29	Remove and Dispose of Intake structure	8420	72,000	72,000	72,000	LBS	\$0.60	\$0.70	\$0.85	\$43,200.00	\$50,400.00	\$61,200.00
	30	Remove and Dispose of Sluice and Diversion Tunnel Gate	8420	28,000	28,000	28,000	LBS	\$0.60	\$0.85	\$1.00	\$16,800.00	\$23,800.00	\$28,000.00
	31	Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft.	8420	7,500	7,500	7,500	LBS	\$0.60	\$0.85	\$1.00	\$4,500.00	\$6,375.00	\$7,500.00
	32	Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft.	8420	4,650	4,650	4,650	LBS	\$1.50	\$2.00	\$3.00	\$6,975.00	\$9,300.00	\$13,950.00
	33	Remove and Dispose of Transition Gate Structure	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	34	Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft.	8420	30,250	30,250	30,250	LBS	\$1.50	\$2.00	\$3.00	\$45,375.00	\$60,500.00	\$90,750.00
	35	Remove and Dispose of Outlet Works Stop Logs	8420	2,670	2,670	2,670	LBS	\$0.60	\$0.85	\$1.00	\$1,602.00	\$2,269.50	\$2,670.00
	36	Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel	8430	1	1	1	EA	\$300.00	\$350.00	\$400.00	\$300.00	\$350.00	\$400.00
	37	Remove and Dispose of Distribution equipment, Junction Boxes	8430	1	1	1	EA	\$1,500.00	\$1,700.00	\$2,000.00	\$1,500.00	\$1,700.00	\$2,000.00
	38	Remove and Dispose of Power Cable and 4"Conduit from Penstock Structure	8430	800	800	800	FT	\$30.00	\$35.00	\$40.00	\$24,000.00	\$28,000.00	\$32,000.00
	39	Remove Powerhouse Concrete	8130	3,700	3,700	3,700	CY	\$270.00	\$350.00	\$1,000.00	\$999,000.00	\$1,295,000.00	\$3,700,000.00
	40	Remove and Dispose of Turbine Unit	8420	344,058	344,058	344,058	LBS	\$0.60	\$0.85	\$1.00	\$206,434.80	\$292,449.30	\$344,058.00
	41	Remove and Dispose of Draft Tube Bulkheads	8420	16,500	16,500	16,500	LBS	\$0.60	\$0.85	\$1.00	\$9,900.00	\$14,025.00	\$16,500.00
	42	Remove and Dispose of Crane	8420	24,000	24,000	24,000	LBS	\$0.60	\$0.85	\$1.00	\$14,400.00	\$20,400.00	\$24,000.00
	43	Remove and Dispose of Governor	8420	20,310	20,310	20,310	LBS	\$0.60	\$0.85	\$1.00	\$12,186.00	\$17,263.50	\$20,310.00
	44	Remove and Dispose of Bearing Oil System and Cooling Water System	8420	9,182	9,182	9,182	LBS	\$0.60	\$0.85	\$1.00	\$5,509.20	\$7,804.70	\$9,182.00
	45	Remove and Dispose of CO2 System	8420	2,568	2,568	2,568	LBS	\$0.60	\$0.85	\$1.00	\$1,540.80	\$2,182.80	\$2,568.00
	46	Remove and Dispose of Plant Water and Fire Protection System	8420	9,182	9,182	9,182	LBS	\$0.60	\$0.85	\$1.00	\$5,509.20	\$7,804.70	\$9,182.00
	47	Remove and Dispose of Sump Pumps	8420	2,000	2,000	2,000	LBS	\$0.60	\$0.85	\$1.00	\$1,200.00	\$1,700.00	\$2,000.00
	48	Remove and Dispose of Pumps	8420	22,000	22,000	22,000	LBS	\$0.60	\$0.85	\$1.00	\$13,200.00	\$18,700.00	\$22,000.00
	49	Remove and Dispose of Exposed Piping around the plant	8420	19,291	19,291	19,291	LBS	\$0.60	\$0.85	\$1.00	\$11,574.60	\$16,397.35	\$19,291.00
	50	Remove and Dispose of Unwatering Piping	8420	19,291	19,291	19,291	LBS	\$0.60	\$0.85	\$1.00	\$11,574.60	\$16,397.35	\$19,291.00
	51	Remove and Dispose of Drainage Piping	8420	9,518	9,518	9,518	LBS	\$0.60	\$0.85	\$1.00	\$5,710.80	\$8,090.30	\$9,518.00
	52	Remove and Dispose of Transformer Oil and Fire Protection	8420	9,182	9,182	9,182	LBS	\$0.60	\$0.85	\$1.00	\$5,509.20	\$7,804.70	\$9,182.00
	53	Remove and Dispose of Compressed Air System	8420	1,450	1,450	1,450	LBS	\$0.60	\$0.85	\$1.00	\$870.00	\$1,232.50	\$1,450.00
	54	Remove and Dispose of AC Generator, Outdoor Horizontal	8430	1	1	1	EA	\$120,000.00	\$125,000.00	\$130,000.00	\$120,000.00	\$125,000.00	\$130,000.00
	55	Remove and Dispose of Excitation equipment for 18.975 MVA Generator	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00

FEATURE:		PROJECT:											
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Escalation NOT included SUMMARY ESTIMATE		Klamath River, Northern California/Southern Oregon											
		WOID: AF652	ESTIMATE LEVEL: Feasibility										
		REGION: MP	PRICE LEVEL: Jul-2010										
		FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-04\Iron Gate\Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls\Iron Gate - Full - with Esc										
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	56	Remove and Dispose of Surge protection equip. for 18.975 MVA Generator	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	57	Remove and Dispose of Neutral grounding equip. for 18.975 MVA Generator	8430	1	1	1	EA	\$3,000.00	\$4,000.00	\$5,000.00	\$3,000.00	\$4,000.00	\$5,000.00
	58	Remove and Dispose of Station Service Switchgear, 600 volt -(5 sections)	8430	1	1	1	EA	\$15,000.00	\$20,000.00	\$25,000.00	\$15,000.00	\$20,000.00	\$25,000.00
	59	Remove and Dispose of Unit and plant control switchboard	8430	1	1	1	EA	\$19,000.00	\$20,000.00	\$21,000.00	\$19,000.00	\$20,000.00	\$21,000.00
	60	Remove and Dispose of Battery system - assume 60 batteries, charger,	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$12,000.00	\$9,000.00	\$10,000.00	\$12,000.00
	61	Remove and Dispose of Raceways, Bus, Conduit and Cable	8430	1	1	1	EA	\$14,000.00	\$15,000.00	\$17,000.00	\$14,000.00	\$15,000.00	\$17,000.00
	62	Remove and Dispose of Misc. power & control boards	8430	1	1	1	EA	\$4,000.00	\$5,000.00	\$7,000.00	\$4,000.00	\$5,000.00	\$7,000.00
	63	Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480V est.)	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$11,000.00	\$9,000.00	\$10,000.00	\$11,000.00
	64	Remove and Dispose of Governor Oil Pump Motors (10 hp and 20 hp est.)	8430	2	2	2	EA	\$200.00	\$250.00	\$300.00	\$400.00	\$500.00	\$600.00
	65	Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est.)	8430	4	4	4	EA	\$500.00	\$800.00	\$700.00	\$2,000.00	\$2,400.00	\$2,800.00
	66	Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est.)	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$13,000.00	\$9,000.00	\$10,000.00	\$13,000.00
	67	Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase,	8430	1	1	1	EA	\$90,000.00	\$100,000.00	\$120,000.00	\$90,000.00	\$100,000.00	\$120,000.00
	68	Remove and Dispose of Lattice steel structure, with 69-kV disconnect	8430	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	69	Remove and Dispose of Generator Switchgear, outdoor, 7.2kV	8430	1	1	1	EA	\$30,000.00	\$35,000.00	\$40,000.00	\$30,000.00	\$35,000.00	\$40,000.00
	70	Remove and Dispose of Single Phase Pole Transformers. (25 kVA est.)	8430	3	3	3	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$4,500.00	\$6,000.00	\$9,000.00
	71	Remove Concrete in Penstock Intake Structure	8130	460	460	460	CY	\$170.00	\$215.00	\$380.00	\$78,200.00	\$98,900.00	\$174,800.00
	72	Remove Concrete in Penstock Encasement	8130	840	840	840	CY	\$170.00	\$215.00	\$380.00	\$142,800.00	\$180,600.00	\$319,200.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	8130	1,900	1,900	1,900	CY	\$170.00	\$215.00	\$380.00	\$323,000.00	\$408,500.00	\$722,000.00
	74	Remove Steel Footbridge to Intake Structure	8130	11,000	11,000	11,000	LBS	\$0.60	\$0.85	\$1.00	\$6,600.00	\$9,350.00	\$11,000.00
	75	Remove Concrete in Intake Structure Footbridge Abutment	8130	5	5	5	CY	\$170.00	\$215.00	\$380.00	\$850.00	\$1,075.00	\$1,900.00
	76	Remove and Dispose of Intake Structure	8420	131,630	131,630	131,630	LBS	\$0.60	\$0.85	\$1.00	\$78,978.00	\$111,885.50	\$131,630.00
	77	Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft.	8420	1,800	1,800	1,800	LBS	\$0.60	\$0.85	\$1.00	\$1,080.00	\$1,530.00	\$1,800.00
	78	Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft	8420	1,350	1,350	1,350	LBS	\$0.60	\$0.85	\$1.00	\$810.00	\$1,147.50	\$1,350.00
	79	Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft.	8420	1,600	1,600	1,600	LBS	\$0.60	\$0.85	\$1.00	\$960.00	\$1,360.00	\$1,600.00
	80	Remove and Dispose of Gage Wells	8420	2,612	2,612	2,612	LBS	\$0.60	\$0.85	\$1.00	\$1,567.20	\$2,220.20	\$2,612.00
	81	Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft.	8420	7,440	7,440	7,440	LBS	\$0.60	\$0.85	\$1.00	\$4,464.00	\$6,324.00	\$7,440.00
	82	Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft.	8420	294,428	294,428	294,428	LBS	\$0.60	\$0.85	\$1.00	\$176,656.80	\$250,263.80	\$294,428.00
	83	Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft.	8420	12,850	12,850	12,850	LBS	\$0.60	\$0.85	\$1.00	\$7,710.00	\$10,922.50	\$12,850.00
	84	Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia.	8420	18,000	18,000	18,000	LBS	\$0.60	\$0.85	\$1.00	\$10,800.00	\$15,300.00	\$18,000.00
	85	Remove & Dispose Overhead Trolley Crane Motor (4hp est)& controls	8430	1	1	1	EA	\$900.00	\$1,000.00	\$1,300.00	\$900.00	\$1,000.00	\$1,300.00
	86	Remove & Dispose Distribution equipment , Junction Boxes	8430	1	1	1	EA	\$2,000.00	\$2,500.00	\$3,000.00	\$2,000.00	\$2,500.00	\$3,000.00
	87	Remove & Dispose Power Cable and Conduit	8430	1	1	1	EA	\$65,000.00	\$70,000.00	\$75,000.00	\$65,000.00	\$70,000.00	\$75,000.00
	88	Temporary Access Roads	8140	2.6	2.6	2.6	MILE	\$150,000.00	\$300,000.00	\$250,000.00	\$390,000.00	\$780,000.00	\$650,000.00
	89	Spring Ground Seeding	8220	370	370	0	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$1,110,000.00	\$1,295,000.00	\$0.00
	90	Spring Barge Seeding	8220	296	296	0	ACRE	\$5,000.00	\$6,500.00	\$8,000.00	\$1,480,000.00	\$1,924,000.00	\$0.00
	91	Spring Aerial Seeding	8220	159	159	825	ACRE	\$6,500.00	\$7,500.00	\$15,000.00	\$1,033,500.00	\$1,192,500.00	\$12,375,000.00
	92	Fall Ground Seeding	8220	207	413	619	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$621,000.00	\$1,445,500.00	\$2,476,000.00
	93	Riparian Pole Planting	8220	50	50	50	ACRE	\$4,000.00	\$8,500.00	\$10,000.00	\$200,000.00	\$425,000.00	\$500,000.00
	94	Weed Management	8220	206	413	619	ACRE	\$1,000.00	\$1,500.00	\$2,000.00	\$206,000.00	\$619,500.00	\$1,238,000.00
	95	Fall Ground Seeding	8220	330	330	330	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$990,000.00	\$1,155,000.00	\$1,320,000.00
	96	Weed Management	8220	330	330	330	ACRE	\$1,000.00	\$1,500.00	\$2,000.00	\$330,000.00	\$495,000.00	\$660,000.00
	97	Clear and Grub Disposal Area	8313	29	29	29	ACRE	\$5,000.00	\$6,000.00	\$7,000.00	\$145,000.00	\$174,000.00	\$203,000.00
	98	Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi	8313	0	13,500	17,000	CY	\$35.00	\$40.00	\$45.00	\$0.00	\$540,000.00	\$765,000.00
	99	Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi	8313	0	5	5	ACRE	\$5,000.00	\$6,000.00	\$7,000.00	\$0.00	\$30,000.00	\$35,000.00
	100	4' thick gravel surfacing-Prepare Haul Road - 1.25 mi	8313	0	5,300	5,300	TON	\$60.00	\$70.00	\$80.00	\$0.00	\$371,000.00	\$424,000.00
	101	Remove Building No. 2	8130	800	800	800	SF	\$55.00	\$60.00	\$65.00	\$44,000.00	\$48,000.00	\$52,000.00
	102	Remove Building No. 3	8130	1,088	1,088	1,088	SF	\$55.00	\$60.00	\$65.00	\$59,840.00	\$65,280.00	\$70,720.00
	103	Remove Concrete in Fish Ladder	8130	950	950	950	CY	\$170.00	\$215.00	\$380.00	\$161,500.00	\$204,250.00	\$361,000.00
	104	Remove Concrete in Holding Ponds #1 thru #6	8130	420	420	420	CY	\$170.00	\$215.00	\$380.00	\$71,400.00	\$90,300.00	\$159,600.00
	105	Remove Concrete in Fish Facility Items	8130	380	380	380	CY	\$170.00	\$215.00	\$380.00	\$64,600.00	\$81,700.00	\$144,400.00
	106	Remove Miscellaneous Metalwork in Fish Facilities	8130	12,000	12,000	12,000	LBS	\$0.60	\$0.85	\$1.00	\$7,200.00	\$10,200.00	\$12,000.00
	107	Remove Concrete associated with 30"-dia. Water Supply Line	8130	68	68	68	CY	\$170.00	\$215.00	\$380.00	\$11,560.00	\$14,620.00	\$25,840.00
	108	Remove Concrete in Aerator Structure	8130	50	50	50	CY	\$170.00	\$215.00	\$380.00	\$8,500.00	\$10,750.00	\$19,000.00
	109	Remove Wood in Aerator Structure	8130	6,000	6,000	6,000	LBS	\$0.65	\$0.70	\$0.85	\$3,900.00	\$4,200.00	\$5,100.00
	110	Remove Structural Steel in Aerator Structure	8130	2,500	2,500	2,500	LBS	\$0.60	\$0.85	\$1.00	\$1,500.00	\$2,125.00	\$2,500.00
	111	Remove Asphalt Pavement	8130	39,000	39,000	39,000	SF	\$5.00	\$6.00	\$7.00	\$195,000.00	\$234,000.00	\$273,000.00

ESTIMATE WORKSHEET

FEATURE:			PROJECT:											
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon											
			WOID:	AF652	ESTIMATE LEVEL:					Feasibility				
			REGION:	MP	PRICE LEVEL:					Jul-2010				
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-04\Iron Gate\Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls\Iron Gate - Full - with Esc										

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	112	Remove Restroom Building near Aerator Structure	8130	340	340	340	SF	\$55.00	\$60.00	\$65.00	\$18,700.00	\$20,400.00	\$22,100.00
	113	Remove Storage Shed near Aerator Structure	8130	90	90	90	SF	\$55.00	\$60.00	\$65.00	\$4,950.00	\$5,400.00	\$5,850.00
	114	Remove Toe Drain Pipe	8313	280	260	260	LF	\$15.00	\$20.00	\$25.00	\$3,900.00	\$5,200.00	\$6,500.00
	115	Remove Toe Drain Manhole	8313	25	25	25	LF	\$45.00	\$50.00	\$55.00	\$1,125.00	\$1,250.00	\$1,375.00
	116	Berm Removal	8313	53,000	53,000	53,000	CY	\$10.00	\$13.00	\$17.00	\$530,000.00	\$689,000.00	\$901,000.00
	117	Remove and Dipose of Intake Structures Trashracks	8420	5,000	5,000	5,000	LBS	\$0.60	\$0.75	\$0.85	\$3,000.00	\$3,750.00	\$4,250.00
	118	Remove and Dipose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft.	8420	76,640	76,640	76,640	LBS	\$0.60	\$0.85	\$1.00	\$45,984.00	\$65,144.00	\$76,640.00
	119	Remove and Dipose of Sluice Gate Valve- 30-in. H. x 30-in. W.	8420	3,000	3,000	3,000	LBS	\$0.60	\$0.85	\$1.00	\$1,800.00	\$2,550.00	\$3,000.00
	120	Remove and Dipose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft.	8420	360	360	360	LBS	\$0.60	\$0.85	\$1.00	\$216.00	\$306.00	\$360.00
	121	Remove and Dipose of Butterfly Valve- 30-in. Dia.	8420	2,435	2,435	2,435	LBS	\$0.60	\$0.85	\$1.00	\$1,461.00	\$2,069.75	\$2,435.00
	122	Remove and Dipose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft.	8420	7,200	7,200	7,200	LBS	\$0.60	\$0.85	\$1.00	\$4,320.00	\$6,120.00	\$7,200.00
	123	Remove and Dipose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft.	8420	15,872	15,872	15,872	LBS	\$0.60	\$0.85	\$1.00	\$9,523.20	\$13,491.20	\$15,872.00
	124	Remove and Dipose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft.	8420	4,505	4,505	4,505	LBS	\$0.60	\$0.85	\$1.00	\$2,703.00	\$3,829.25	\$4,505.00
	125	Remove and Dipose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft.	8420	29,088	29,088	29,088	LBS	\$0.60	\$0.85	\$1.00	\$17,452.80	\$24,724.80	\$29,088.00
	126	Remove and Dipose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft.	8420	6,972	6,972	6,972	LBS	\$0.60	\$0.85	\$1.00	\$4,183.20	\$5,926.20	\$6,972.00
	127	Remove and Dipose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft.	8420	2,176	2,176	2,176	LBS	\$0.60	\$0.85	\$1.00	\$1,305.60	\$1,849.60	\$2,176.00
	128	Remove and Dipose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft.	8420	1,932	1,932	1,932	LBS	\$0.60	\$0.85	\$1.00	\$1,159.20	\$1,642.20	\$1,932.00
	129	Remove and Dipose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft.	8420	3,588	3,588	3,588	LBS	\$0.60	\$0.85	\$1.00	\$2,152.80	\$3,049.80	\$3,588.00
	130	Remove and Dipose of Piping- 3-in. Dia. STD x 64 ft.	8420	1,088	1,088	1,088	LBS	\$0.60	\$0.85	\$1.00	\$652.80	\$924.80	\$1,088.00
	131	Remove and Dipose of Gate Valves	8420	21,792	21,792	21,792	LBS	\$0.60	\$0.85	\$1.00	\$13,075.20	\$18,523.20	\$21,792.00
	132	Remove and Dipose of Basin #1	8420	2,880	2,880	2,880	LBS	\$0.60	\$0.85	\$1.00	\$1,728.00	\$2,448.00	\$2,880.00
	133	Remove and Dipose of Basin #2	8420	3,860	3,860	3,860	LBS	\$0.60	\$0.85	\$1.00	\$2,316.00	\$3,281.00	\$3,860.00
	134	Remove and Dipose of Basin #3	8420	2,880	2,880	2,880	LBS	\$0.60	\$0.85	\$1.00	\$1,728.00	\$2,448.00	\$2,880.00
	135	Remove and Dipose of Basin #4	8420	3,580	3,580	3,580	LBS	\$0.60	\$0.85	\$1.00	\$2,148.00	\$3,043.00	\$3,580.00
	136	Remove and Dipose of Basin #5	8420	1,440	1,440	1,440	LBS	\$0.60	\$0.85	\$1.00	\$864.00	\$1,224.00	\$1,440.00
	137	Remove and Dipose of Basin #6	8420	1,440	1,440	1,440	LBS	\$0.60	\$0.85	\$1.00	\$864.00	\$1,224.00	\$1,440.00
	138	Remove and Dipose of Holding Tank	8420	7,400	7,400	7,400	LBS	\$0.60	\$0.85	\$1.00	\$4,440.00	\$6,290.00	\$7,400.00
	139	Remove and Dipose of Misc: motors, control panels, cables and conduit	8430	1	1	1	EA	\$1,000.00	\$1,500.00	\$2,000.00	\$1,000.00	\$1,500.00	\$2,000.00
	140	Concrete total-Wanaka Springs	BLM	28	28	28	CY	\$200.00	\$300.00	\$400.00	\$5,600.00	\$8,400.00	\$11,200.00
	141	Double pipe railings-Wanaka Springs	BLM	60	60	60	LF	\$35.00	\$40.00	\$45.00	\$2,100.00	\$2,400.00	\$2,700.00
	142	Wood picnic tables to be removed and hauled -Wanaka Springs	BLM	5	5	5	EA	\$90.00	\$100.00	\$120.00	\$450.00	\$500.00	\$600.00
	143	25'X5' Wooden floating dock -Wanaka Springs	BLM	125	125	125	SF	\$15.00	\$20.00	\$25.00	\$1,875.00	\$2,500.00	\$3,125.00
	144	Rip and reseed site and access road-Wanaka Springs	BLM	2.5	2.5	2.5	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$50,000.00	\$62,500.00	\$75,000.00
	145	Signs to be removed and hauled away-Wanaka Springs	BLM	3	3	3	EA	\$250.00	\$300.00	\$350.00	\$750.00	\$900.00	\$1,050.00
	146	15'x5' Gangplank with railings-Wanaka Springs	BLM	75.00	75.00	75.00	SF	\$15.00	\$20.00	\$25.00	\$1,125.00	\$1,500.00	\$1,875.00
	147	Concrete total-Juniper Point	BLM	19.00	19.00	19.00	CY	\$200.00	\$300.00	\$400.00	\$3,800.00	\$5,700.00	\$7,600.00
	148	2, 4'x4' Concrete toilet vaults-Juniper Point	BLM	32.00	32.00	32.00	SF	\$90.00	\$100.00	\$120.00	\$2,880.00	\$3,200.00	\$3,840.00
	149	Wood picnic tables to be removed and hauled -Juniper Point	BLM	8.00	8.00	8.00	EA	\$90.00	\$100.00	\$120.00	\$720.00	\$800.00	\$960.00
	150	Signs to be removed and hauled away-Juniper Point	BLM	4	4	4	EA	\$250.00	\$300.00	\$350.00	\$1,000.00	\$1,200.00	\$1,400.00
	151	Dock pipe railing-Juniper Point	BLM	50	50	50	LF	\$35.00	\$40.00	\$45.00	\$1,750.00	\$2,000.00	\$2,250.00
	152	50'x5' Composite dock with poly floats-Juniper Point	BLM	250	250	250	SF	\$15.00	\$20.00	\$25.00	\$3,750.00	\$5,000.00	\$6,250.00
	153	20'x5' Composite gangplank with railings-Juniper Point	BLM	100	100	100	SF	\$15.00	\$20.00	\$25.00	\$1,500.00	\$2,000.00	\$2,500.00
	154	Bury 3' dia boulders on site-Juniper Point	BLM	50	50	50	EA				\$0.00	\$0.00	\$0.00
	155	Regrade to natural contour, rip and reseed-Juniper Point	BLM	2	2	2	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$40,000.00	\$50,000.00	\$60,000.00
	156	Concrete total-Camp Creek	BLM	110	110	110	CY	\$200.00	\$300.00	\$400.00	\$22,000.00	\$33,000.00	\$44,000.00
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek	BLM	855	855	855	CY	\$20.00	\$25.00	\$30.00	\$17,100.00	\$21,375.00	\$25,650.00
	158	Well house 10'x16' concrete block building-Camp Creek	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	159	2, 20'x5' Composite decking gangplanks-Camp Creek	BLM	200	200	200	SF	\$15.00	\$20.00	\$25.00	\$3,000.00	\$4,000.00	\$5,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame -Camp Creek	BLM	200	200	200	SF	\$15.00	\$20.00	\$25.00	\$3,000.00	\$4,000.00	\$5,000.00
	161	Concrete block double toilet bldg 10'x16'-Camp Creek	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	162	Dump stations and approx. 2000 gal buried -Camp Creek	BLM	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	163	Power poles and lines-Camp Creek	BLM	3	3	3	POLES	\$1,000.00	\$1,500.00	\$2,000.00	\$3,000.00	\$4,500.00	\$6,000.00
	164	Remove waterlines and 3 faucets and regrade-Camp Creek	BLM	600	600	600	LF	\$4.00	\$5.00	\$6.00	\$2,400.00	\$3,000.00	\$3,600.00
	165	Recycle/bury approx. 3' dia. boulders-Camp Creek	BLM	5	5	5	EA				\$0.00	\$0.00	\$0.00
	166	Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek	BLM	5	5	5	EA	\$90.00	\$100.00	\$120.00	\$450.00	\$500.00	\$600.00
	167	Relocate concrete tables-Camp Creek	BLM	12	12	12	EA	\$90.00	\$100.00	\$120.00	\$1,080.00	\$1,200.00	\$1,440.00

ESTIMATE WORKSHEET

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE	PROJECT: <p style="text-align: center;">Klamath River, Northern California/Southern Oregon</p> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP PRICE LEVEL: Jul-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-04\Iron Gate\Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls\Iron Gate - Full - with Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	168	Regrade, rip and reseed-Camp Creek	BLM	4	4	4	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$80,000.00	\$100,000.00	\$120,000.00
	169	Signs to be removed and hauled away-Camp Creek	BLM	7	7	7	EA	\$250.00	\$300.00	\$350.00	\$1,750.00	\$2,100.00	\$2,450.00
	170	50'x4'x3' Dock concrete abutment-Dutch Creek	BLM	22	22	22	CY	\$200.00	\$300.00	\$400.00	\$4,400.00	\$6,600.00	\$8,800.00
	171	Double pipe railing-Dutch Creek	BLM	100	100	100	LF	\$35.00	\$40.00	\$45.00	\$3,500.00	\$4,000.00	\$4,500.00
	172	Concrete total-Mirror Cove	BLM	89	89	89	CY	\$200.00	\$300.00	\$400.00	\$17,800.00	\$26,700.00	\$35,800.00
	173	10'x16' Toilet vault-Mirror Cove	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	174	2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove	BLM	300	300	300	SF	\$15.00	\$20.00	\$25.00	\$4,500.00	\$6,000.00	\$7,500.00
	175	Double pipe railings on dock-Mirror Cove	BLM	80	80	80	LF	\$35.00	\$40.00	\$45.00	\$2,800.00	\$3,200.00	\$3,600.00
	176	Bury 3' dia. boulders on site-Mirror Cove	BLM	120	120	120	EA				\$0.00	\$0.00	\$0.00
	177	Regrade site, rip and reseed-Mirror Cove	BLM	3	3	3	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$60,000.00	\$75,000.00	\$90,000.00
	178	Signs to be removed and hauled away-Mirror Cove	BLM	7	7	7	EA	\$250.00	\$300.00	\$350.00	\$1,750.00	\$2,100.00	\$2,450.00
	179	1 Concrete picnic table base-Overlook Point	BLM	1	1	1	CY	\$200.00	\$300.00	\$400.00	\$200.00	\$300.00	\$400.00
	180	Steel frame table to be removed and hauled away-Overlook Point	BLM	1	1	1	EA	\$90.00	\$100.00	\$120.00	\$90.00	\$100.00	\$120.00
	181	Regrade steep access road and site to natural contours, rip and reseed-Overlook Point	BLM	0.5	0.5	0.5	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$10,000.00	\$12,500.00	\$15,000.00
	182	80'x25'x4" Concrete boat ramp to be removed-Long Gulch	BLM	25	25	25	CY	\$200.00	\$300.00	\$400.00	\$5,000.00	\$7,500.00	\$10,000.00
	183	Remove picnic tables (steel frame with planks) & haul away-Long Gulch	BLM	2	2	2	EA	\$90.00	\$100.00	\$120.00	\$180.00	\$200.00	\$240.00
	184	Regrade ramp area to natural contours, rip, reseed-Long Gulch	BLM	0.05	0.05	0.05	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$1,000.00	\$1,250.00	\$1,500.00
		Subtotal 1											
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	\$1,200,000.00	\$1,700,000.00	\$3,000,000.00	\$1,200,000.00	\$1,700,000.00	\$3,000,000.00
		Subtotal 1 w/ mobilization											
		Escalation to Notice to Proceed (NTP) NOT INCLUDED											
		Design Contingencies (MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	\$2,331,941.00	\$3,745,246.00	\$8,987,192.00	\$2,331,941.00	\$3,745,246.00	\$8,987,192.00
		APS = Allowance for Procurement Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)		1	1	1	ls	\$0.00	\$0.00	\$1,439,193.00	\$0.00	\$0.00	\$1,439,193.00
		CONTRACT COST									\$28,000,000.00	\$39,000,000.00	\$73,000,000.00
		Construction Contingencies (MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	\$5,000,000.00	\$8,000,000.00	\$19,000,000.00	\$5,000,000.00	\$8,000,000.00	\$19,000,000.00
		FIELD COST									\$33,000,000.00	\$47,000,000.00	\$92,000,000.00
		Non-Contract Cost (MPL ~ 52%; MP ~ 55%; MPH ~ 61%)		1	1	1	ls	\$17,000,000.00	\$26,000,000.00	\$58,000,000.00	\$17,000,000.00	\$26,000,000.00	\$58,000,000.00
		CONSTRUCTION COST									\$50,000,000.00	\$73,000,000.00	\$150,000,000.00

Notes: This estimate does not include non-contract costs and should not be used for funding purposes.
 Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)

QUANTITIES				PRICES			
BY: See Group Worksheets	CHECKED: See Group Worksheets	BY: Craig Grush, P.E.	CHECKED:	DATE PREPARED: 1/20/2011	PEER REVIEW: See Group Worksheets	DATE PREPARED: 06/09/11	PEER REVIEW: ACP 6/10/11

Crystal Ball Report - Full

Simulation started on 6/10/2011 at 8:56:15

Simulation stopped on 6/10/2011 at 8:58:04

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 109.22
Trials/second (average) 92
Random numbers per sec 33,692

Crystal Ball data:

Assumptions 368
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP

UNIT PRICES BY *Craig A. Grush*

DATE 6/10/2011

DATE	PEER REVIEWER(S)	CODE
6/13	<i>John Bolin</i> Signature	85
7/11	<i>John G. Bohach</i> Signature	68170
	Signature	
	Printed Name	
Author Initials		PEER REVIEW NOT REQUIRED

Forecasts

Worksheet: [Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Gate -

Forecast: Construction Cost - Iron Gate - Full Removal - Without Escalation

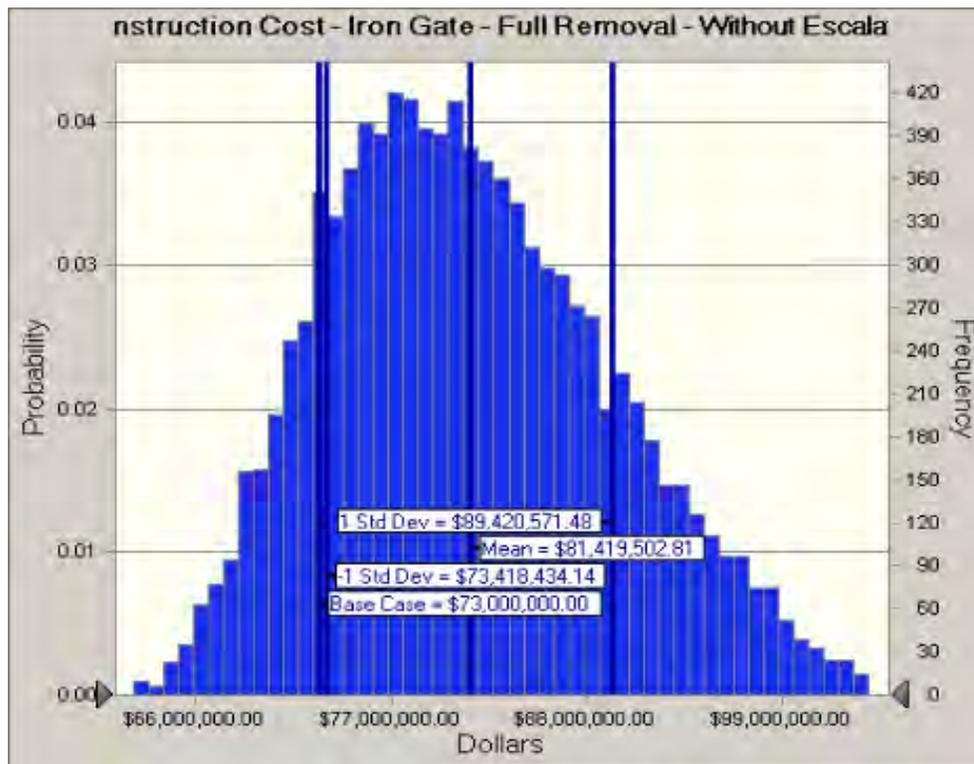
Cell: U212

Summary:

Entire range is from \$62,552,728.83 to \$111,061,157.88

Base case is \$73,000,000.00

After 10,000 trials, the std. error of the mean is \$80,010.69



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Construction Cost - Iron Gate - Full Removal - Without Escalation (cont'd)Cell: U212

Statistics:	Forecast values
Trials	10,000
Mean	\$81,419,502.81
Median	\$80,677,169.51
Mode	\$74,671,554.42
Standard Deviation	\$8,001,068.67
Variance	\$64,017,099,883,108.10
Skewness	0.4003
Kurtosis	2.73
Coeff. of Variability	0.0983
Minimum	\$62,552,728.83
Maximum	\$111,061,157.88
Range Width	\$48,508,429.05
Mean Std. Error	\$80,010.69

Percentiles:	Forecast values
0%	\$62,552,728.83
10%	\$71,589,588.14
20%	\$74,312,305.56
30%	\$76,487,393.93
40%	\$78,539,062.89
50%	\$80,676,830.29
60%	\$82,849,674.54
70%	\$85,328,926.03
80%	\$88,314,747.69
90%	\$92,529,897.46
100%	\$111,061,157.88

Forecast: Contract Cost - Iron Gate - Full Removal - Without Escalation

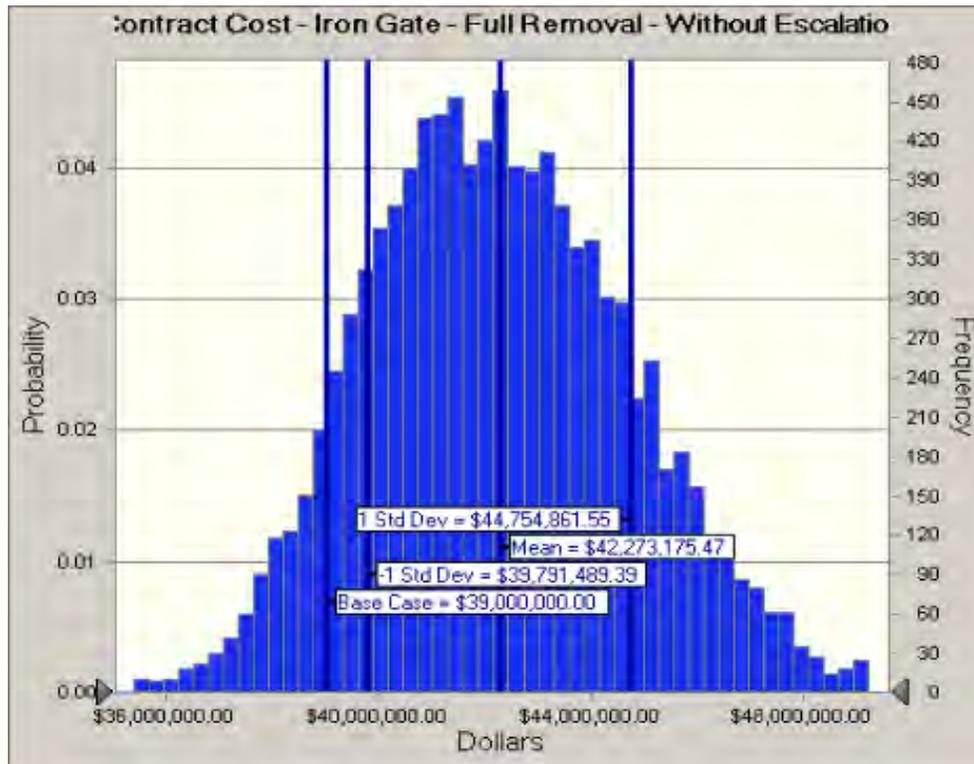
Cell: U208

Summary:

Entire range is from \$35,389,239.97 to \$51,959,357.98

Base case is \$39,000,000.00

After 10,000 trials, the std. error of the mean is \$24,816.86



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Contract Cost - Iron Gate - Full Removal - Without Escalation (cont'd) Cell: U208

Statistics:	Forecast values
Trials	10,000
Mean	\$42,273,175.47
Median	\$42,155,009.65
Mode	\$39,581,970.62
Standard Deviation	\$2,481,686.08
Variance	\$6,158,765,802,687.24
Skewness	0.2636
Kurtosis	2.92
Coeff. of Variability	0.0587
Minimum	\$35,389,239.97
Maximum	\$51,959,357.98
Range Width	\$16,570,118.01
Mean Std. Error	\$24,816.86

Percentiles:	Forecast values
0%	\$35,389,239.97
10%	\$39,191,300.29
20%	\$40,111,216.73
30%	\$40,840,853.19
40%	\$41,480,237.84
50%	\$42,154,922.64
60%	\$42,818,481.20
70%	\$43,535,627.49
80%	\$44,378,121.27
90%	\$45,567,716.60
100%	\$51,959,357.98

Forecast: Field Cost - Iron Gate - Full Removal - Without Escalation

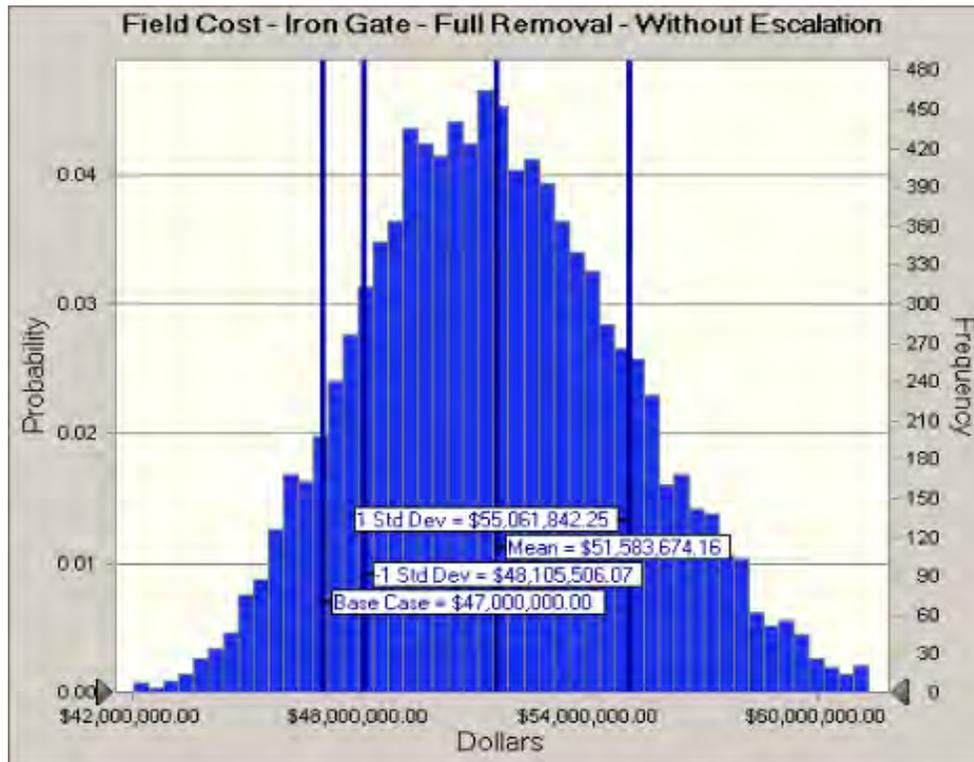
Cell: U210

Summary:

Entire range is from \$42,050,901.56 to \$65,689,097.16

Base case is \$47,000,000.00

After 10,000 trials, the std. error of the mean is \$34,781.68



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Field Cost - Iron Gate - Full Removal - Without Escalation (cont'd)

Cell: U210

Statistics:	Forecast values
Trials	10,000
Mean	\$51,583,674.16
Median	\$51,403,442.13
Mode	\$45,586,542.62
Standard Deviation	\$3,478,168.09
Variance	\$12,097,653,259,200.60
Skewness	0.2894
Kurtosis	2.94
Coeff. of Variability	0.0674
Minimum	\$42,050,901.56
Maximum	\$65,689,097.16
Range Width	\$23,638,195.61
Mean Std. Error	\$34,781.68

Percentiles:	Forecast values
0%	\$42,050,901.56
10%	\$47,205,433.43
20%	\$48,581,198.80
30%	\$49,580,715.74
40%	\$50,508,339.83
50%	\$51,403,186.96
60%	\$52,309,369.28
70%	\$53,323,150.30
80%	\$54,517,274.60
90%	\$56,220,560.34
100%	\$65,689,097.16

End of Forecasts

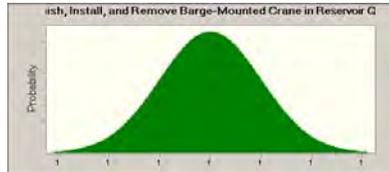
Assumptions

Worksheet: [Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Gate -

Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir Quantity Cell: L14

Normal distribution with parameters:

Mean 1 (=L14)
Std. Dev. 0 (=0.000001)



Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir Unit Price Cell: R14

BetaPERT distribution with parameters:

Minimum \$190,000.00 (=Q14)
Likeliest \$200,000.00 (=R14)
Maximum \$210,000.00 (=S14)



Assumption: 10 Upstream Cofferdam to be Removed in the Wet Quantity

Cell: L23

Normal distribution with parameters:

Mean 20,000 (=L23)
Std. Dev. 0 (=0.000001)



Assumption: 10 Upstream Cofferdam to be Removed in the Wet Unit Price

Cell: R23

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q23)
Likeliest	\$70.00	(=R23)
Maximum	\$100.00	(=S23)



Assumption: 100 4' thick gravel surfacing-Prepare Haul Road - 1.25 mi Quantity

Cell: L113

Triangular distribution with parameters:

Minimum	0	(=K113)
Likeliest	5,300	(=L113)
Maximum	5,300	(=M113)

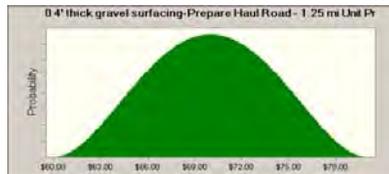


Assumption: 100 4' thick gravel surfacing-Prepare Haul Road - 1.25 mi Unit Price

Cell: R113

BetaPERT distribution with parameters:

Minimum	\$60.00	(=Q113)
Likeliest	\$70.00	(=R113)
Maximum	\$80.00	(=S113)

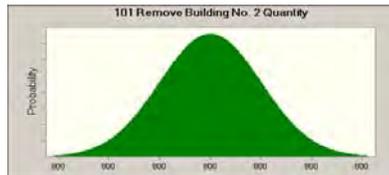


Assumption: 101 Remove Building No. 2 Quantity

Cell: L114

Normal distribution with parameters:

Mean 800 (=L114)
Std. Dev. 0 (=0.000001)



Assumption: 101 Remove Building No. 2 Unit Price

Cell: R114

BetaPERT distribution with parameters:

Minimum \$55.00 (=Q114)
Likeliest \$60.00 (=R114)
Maximum \$65.00 (=S114)

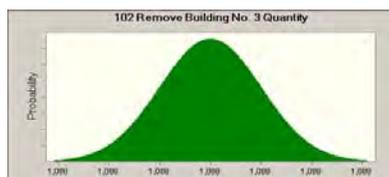


Assumption: 102 Remove Building No. 3 Quantity

Cell: L115

Normal distribution with parameters:

Mean 1,088 (=L115)
Std. Dev. 0 (=0.000001)



Assumption: 102 Remove Building No. 3 Unit Price

Cell: R115

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q115)
Likeliest	\$60.00	(=R115)
Maximum	\$65.00	(=S115)



Assumption: 103 Remove Concrete in Fish Ladder Quantity

Cell: L116

Normal distribution with parameters:

Mean	950	(=L116)
Std. Dev.	0	(=0.000001)



Assumption: 103 Remove Concrete in Fish Ladder Unit Price

Cell: R116

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q116)
Likeliest	\$215.00	(=R116)
Maximum	\$380.00	(=S116)

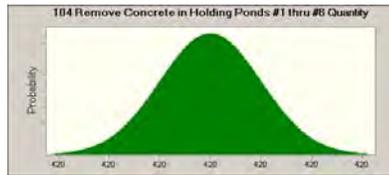


Assumption: 104 Remove Concrete in Holding Ponds #1 thru #6 Quantity

Cell: L117

Normal distribution with parameters:

Mean	420	(=L117)
Std. Dev.	0	(=0.000001)

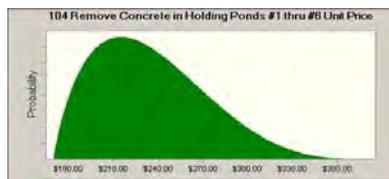


Assumption: 104 Remove Concrete in Holding Ponds #1 thru #6 Unit Price

Cell: R117

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q117)
Likeliest	\$215.00	(=R117)
Maximum	\$380.00	(=S117)



Assumption: 105 Remove Concrete in Fish Facility Items Quantity

Cell: L118

Normal distribution with parameters:

Mean	380	(=L118)
Std. Dev.	0	(=0.000001)

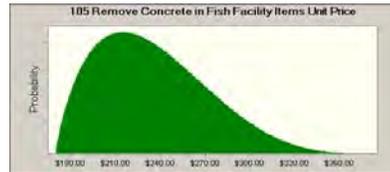


Assumption: 105 Remove Concrete in Fish Facility Items Unit Price

Cell: R118

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q118)
Likeliest	\$215.00	(=R118)
Maximum	\$380.00	(=S118)

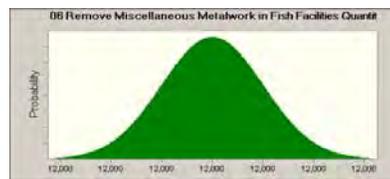


Assumption: 106 Remove Miscellaneous Metalwork in Fish Facilities Quantity

Cell: L119

Normal distribution with parameters:

Mean	12,000	(=L119)
Std. Dev.	0	(=0.000001)

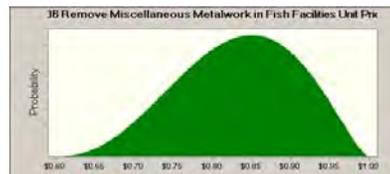


Assumption: 106 Remove Miscellaneous Metalwork in Fish Facilities Unit Price

Cell: R119

BetaPERT distribution with parameters:

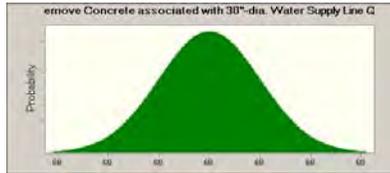
Minimum	\$0.60	(=Q119)
Likeliest	\$0.85	(=R119)
Maximum	\$1.00	(=S119)



Assumption: 107 Remove Concrete associated with 30"-dia. Water Supply Line Quantity **Cell: L120**

Normal distribution with parameters:

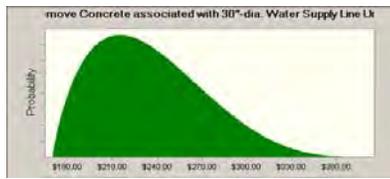
Mean 68 (=L120)
Std. Dev. 0 (=0.000001)



Assumption: 107 Remove Concrete associated with 30"-dia. Water Supply Line Unit Price **Cell: R120**

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q120)
Likeliest \$215.00 (=R120)
Maximum \$380.00 (=S120)



Assumption: 108 Remove Concrete in Aerator Structure Quantity

Cell: L121

Normal distribution with parameters:

Mean 50 (=L121)
Std. Dev. 0 (=0.000001)



Assumption: 108 Remove Concrete in Aerator Structure Unit Price

Cell: R121

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q121)
Likeliest	\$215.00	(=R121)
Maximum	\$380.00	(=S121)

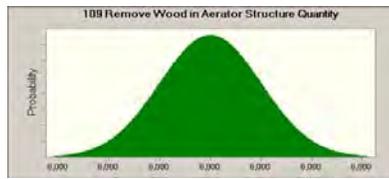


Assumption: 109 Remove Wood in Aerator Structure Quantity

Cell: L122

Normal distribution with parameters:

Mean	6,000	(=L122)
Std. Dev.	0	(=0.000001)



Assumption: 109 Remove Wood in Aerator Structure Unit Price

Cell: R122

BetaPERT distribution with parameters:

Minimum	\$0.65	(=Q122)
Likeliest	\$0.70	(=R122)
Maximum	\$0.85	(=S122)



Assumption: 11 Remove 9' dia hinged blind flange Quantity

Cell: L24

Normal distribution with parameters:

Mean	19,000	(=L24)
Std. Dev.	0	(=0.000001)



Assumption: 11 Remove 9' dia hinged blind flange Unit Price

Cell: R24

BetaPERT distribution with parameters:

Minimum	\$1.50	(=Q24)
Likeliest	\$2.00	(=R24)
Maximum	\$3.00	(=S24)



Assumption: 110 Remove Structural Steel in Aerator Structure Quantity

Cell: L123

Normal distribution with parameters:

Mean	2,500	(=L123)
Std. Dev.	0	(=0.000001)



Assumption: 110 Remove Structural Steel in Aerator Structure Unit Price

Cell: R123

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q123)
Likeliest	\$0.85	(=R123)
Maximum	\$1.00	(=S123)

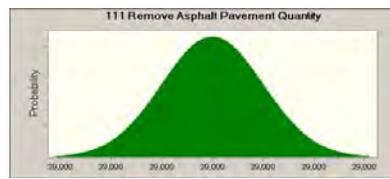


Assumption: 111 Remove Asphalt Pavement Quantity

Cell: L124

Normal distribution with parameters:

Mean	39,000	(=L124)
Std. Dev.	0	(=0.000001)

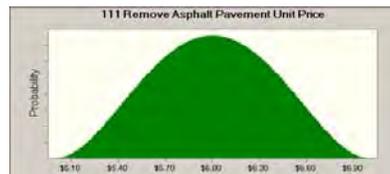


Assumption: 111 Remove Asphalt Pavement Unit Price

Cell: R124

BetaPERT distribution with parameters:

Minimum	\$5.00	(=Q124)
Likeliest	\$6.00	(=R124)
Maximum	\$7.00	(=S124)

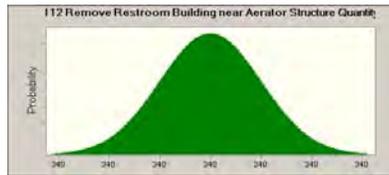


Assumption: 112 Remove Restroom Building near Aerator Structure Quantity

Cell: L125

Normal distribution with parameters:

Mean	340	(=L125)
Std. Dev.	0	(=0.000001)



Assumption: 112 Remove Restroom Building near Aerator Structure Unit Price

Cell: R125

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q125)
Likeliest	\$60.00	(=R125)
Maximum	\$65.00	(=S125)

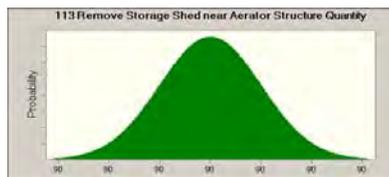


Assumption: 113 Remove Storage Shed near Aerator Structure Quantity

Cell: L126

Normal distribution with parameters:

Mean	90	(=L126)
Std. Dev.	0	(=0.000001)



Assumption: 113 Remove Storage Shed near Aerator Structure Unit Price

Cell: R126

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q126)
Likeliest	\$60.00	(=R126)
Maximum	\$65.00	(=S126)

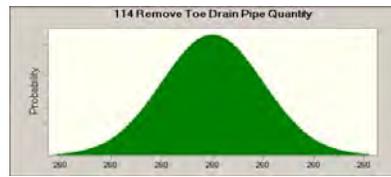


Assumption: 114 Remove Toe Drain Pipe Quantity

Cell: L127

Normal distribution with parameters:

Mean	260	(=L127)
Std. Dev.	0	(=0.000001)



Assumption: 114 Remove Toe Drain Pipe Unit Price

Cell: R127

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q127)
Likeliest	\$20.00	(=R127)
Maximum	\$25.00	(=S127)



Assumption: 115 Remove Toe Drain Manhole Quantity

Cell: L128

Normal distribution with parameters:

Mean	25	(=L128)
Std. Dev.	0	(=0.000001)



Assumption: 115 Remove Toe Drain Manhole Unit Price

Cell: R128

BetaPERT distribution with parameters:

Minimum	\$45.00	(=Q128)
Likeliest	\$50.00	(=R128)
Maximum	\$55.00	(=S128)



Assumption: 116 Berm Removal Quantity

Cell: L129

Normal distribution with parameters:

Mean	53,000	(=L129)
Std. Dev.	0	(=0.000001)



Assumption: 116 Berm Removal Unit Price

Cell: R129

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q129)
Likeliest	\$13.00	(=R129)
Maximum	\$17.00	(=S129)

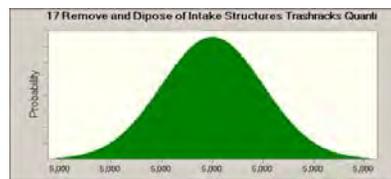


Assumption: 117 Remove and Dipose of Intake Structures Trashracks Quantity

Cell: L130

Normal distribution with parameters:

Mean	5,000	(=L130)
Std. Dev.	0	(=0.000001)

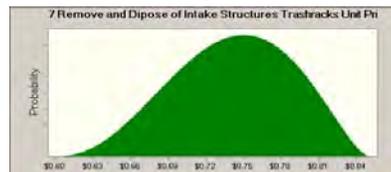


Assumption: 117 Remove and Dipose of Intake Structures Trashracks Unit Price

Cell: R130

BetaPERT distribution with parameters:

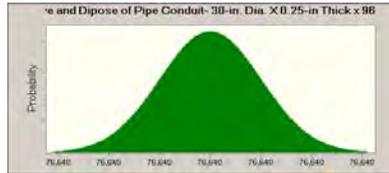
Minimum	\$0.60	(=Q130)
Likeliest	\$0.75	(=R130)
Maximum	\$0.85	(=S130)



Assumption: 118 Remove and Dispose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 96-ft L131

Normal distribution with parameters:

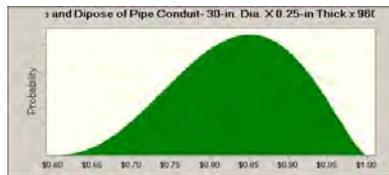
Mean 76,640 (=L131)
Std. Dev. 0 (=0.000001)



Assumption: 118 Remove and Dispose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 96-ft L131

BetaPERT distribution with parameters:

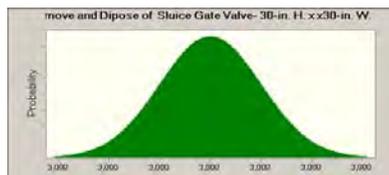
Minimum \$0.60 (=Q131)
Likeliest \$0.85 (=R131)
Maximum \$1.00 (=S131)



Assumption: 119 Remove and Dispose of Sluice Gate Valve- 30-in. H. x x30-in. W. Quantity 132

Normal distribution with parameters:

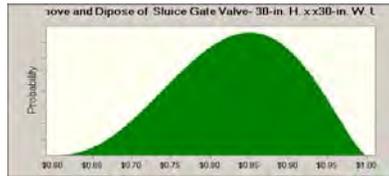
Mean 3,000 (=L132)
Std. Dev. 0 (=0.000001)



Assumption: 119 Remove and Dispose of Sluice Gate Valve- 30-in. H. x x30-in. W. Unit Price

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q132)
Likeliest	\$0.85	(=R132)
Maximum	\$1.00	(=S132)

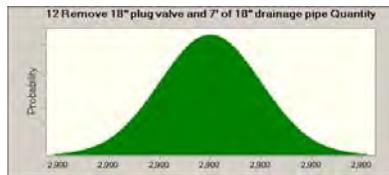


Assumption: 12 Remove 18" plug valve and 7' of 18" drainage pipe Quantity

Cell: L25

Normal distribution with parameters:

Mean	2,900	(=L25)
Std. Dev.	0	(=0.000001)

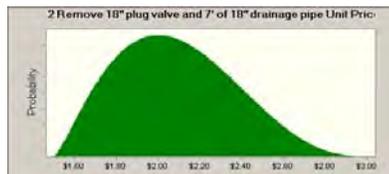


Assumption: 12 Remove 18" plug valve and 7' of 18" drainage pipe Unit Price

Cell: R25

BetaPERT distribution with parameters:

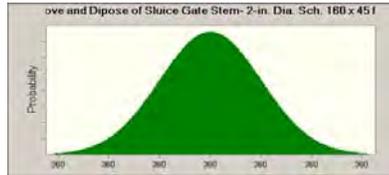
Minimum	\$1.50	(=Q25)
Likeliest	\$2.00	(=R25)
Maximum	\$3.00	(=S25)



Assumption: 120 Remove and Dispose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft **Cell: L133**

Normal distribution with parameters:

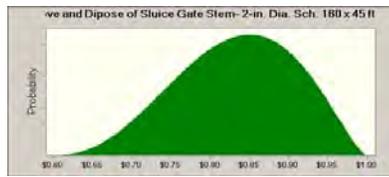
Mean 360 (=L133)
 Std. Dev. 0 (=0.000001)



Assumption: 120 Remove and Dispose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft **Cell: R133**

BetaPERT distribution with parameters:

Minimum \$0.60 (=Q133)
 Likeliest \$0.85 (=R133)
 Maximum \$1.00 (=S133)

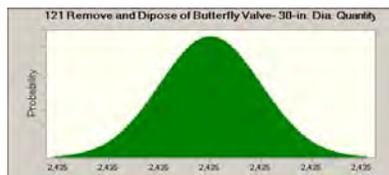


Assumption: 121 Remove and Dispose of Butterfly Valve- 30-in. Dia. Quantity

Cell: L134

Normal distribution with parameters:

Mean 2,435 (=L134)
 Std. Dev. 0 (=0.000001)

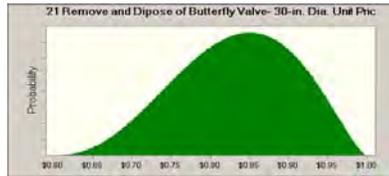


Assumption: 121 Remove and Dispose of Butterfly Valve- 30-in. Dia. Unit Price

Cell: R134

BetaPERT distribution with parameters:

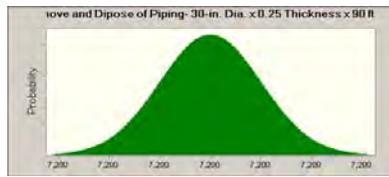
Minimum	\$0.60	(=Q134)
Likeliest	\$0.85	(=R134)
Maximum	\$1.00	(=S134)



Assumption: 122 Remove and Dispose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Unit Price

Normal distribution with parameters:

Mean	7,200	(=L135)
Std. Dev.	0	(=0.000001)



Assumption: 122 Remove and Dispose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Unit Price

BetaPERT distribution with parameters:

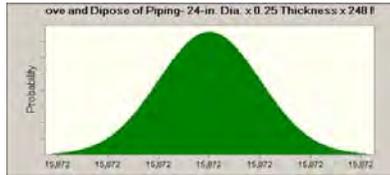
Minimum	\$0.60	(=Q135)
Likeliest	\$0.85	(=R135)
Maximum	\$1.00	(=S135)



Assumption: 123 Remove and Dispose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. ~~Cost~~ ~~Unit~~ 136

Normal distribution with parameters:

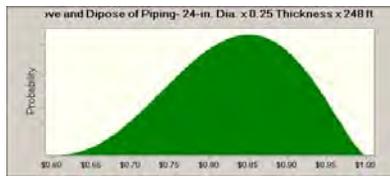
Mean	15,872	(=L136)
Std. Dev.	0	(=0.000001)



Assumption: 123 Remove and Dispose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. ~~Cost~~ ~~Unit~~ 136

BetaPERT distribution with parameters:

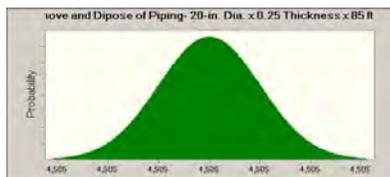
Minimum	\$0.60	(=Q136)
Likeliest	\$0.85	(=R136)
Maximum	\$1.00	(=S136)



Assumption: 124 Remove and Dispose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. ~~Cost~~ ~~Unit~~ 137

Normal distribution with parameters:

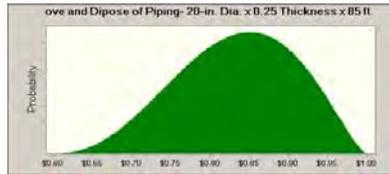
Mean	4,505	(=L137)
Std. Dev.	0	(=0.000001)



Assumption: 124 Remove and Dispose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Unit R137

BetaPERT distribution with parameters:

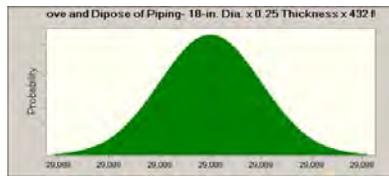
Minimum	\$0.60	(=Q137)
Likeliest	\$0.85	(=R137)
Maximum	\$1.00	(=S137)



Assumption: 125 Remove and Dispose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Unit R138

Normal distribution with parameters:

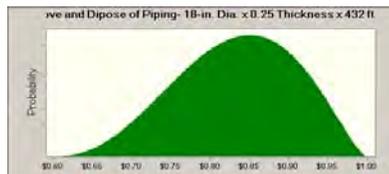
Mean	29,088	(=L138)
Std. Dev.	0	(=0.000001)



Assumption: 125 Remove and Dispose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Unit R138

BetaPERT distribution with parameters:

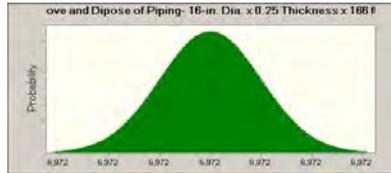
Minimum	\$0.60	(=Q138)
Likeliest	\$0.85	(=R138)
Maximum	\$1.00	(=S138)



Assumption: 126 Remove and Dispose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Quantity 139

Normal distribution with parameters:

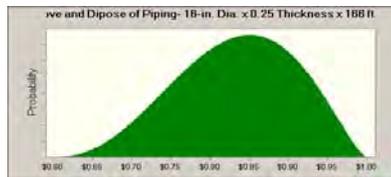
Mean	6,972	(=L139)
Std. Dev.	0	(=0.000001)



Assumption: 126 Remove and Dispose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Quantity 139

BetaPERT distribution with parameters:

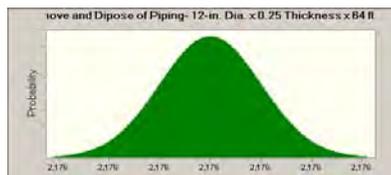
Minimum	\$0.60	(=Q139)
Likeliest	\$0.85	(=R139)
Maximum	\$1.00	(=S139)



Assumption: 127 Remove and Dispose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Quantity 140

Normal distribution with parameters:

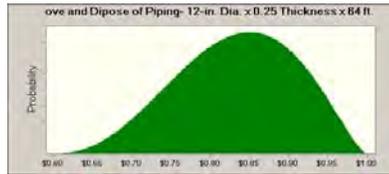
Mean	2,176	(=L140)
Std. Dev.	0	(=0.000001)



Assumption: 127 Remove and Dispose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. ~~Unit R140~~

BetaPERT distribution with parameters:

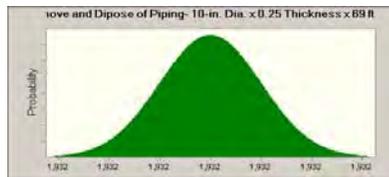
Minimum	\$0.60	(=Q140)
Likeliest	\$0.85	(=R140)
Maximum	\$1.00	(=S140)



Assumption: 128 Remove and Dispose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. ~~Unit R141~~

Normal distribution with parameters:

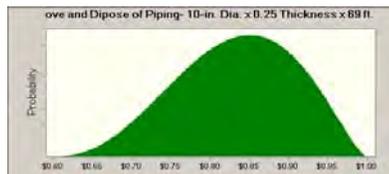
Mean	1,932	(=L141)
Std. Dev.	0	(=0.000001)



Assumption: 128 Remove and Dispose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. ~~Unit R141~~

BetaPERT distribution with parameters:

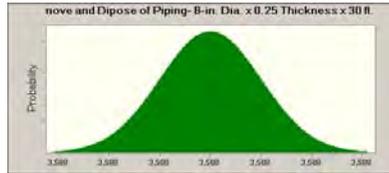
Minimum	\$0.60	(=Q141)
Likeliest	\$0.85	(=R141)
Maximum	\$1.00	(=S141)



Assumption: 129 Remove and Dispose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Unit: \$142

Normal distribution with parameters:

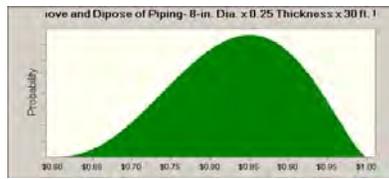
Mean 3,588 (=L142)
 Std. Dev. 0 (=0.000001)



Assumption: 129 Remove and Dispose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Unit: \$142

BetaPERT distribution with parameters:

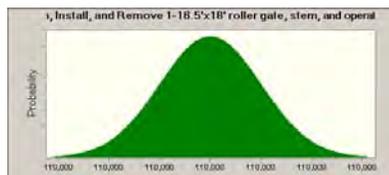
Minimum \$0.60 (=Q142)
 Likeliest \$0.85 (=R142)
 Maximum \$1.00 (=S142)



Assumption: 13 Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operation. Unit: \$126

Normal distribution with parameters:

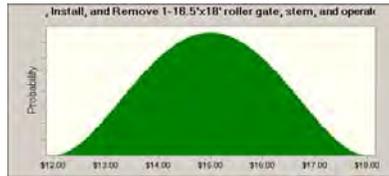
Mean 110,000 (=L26)
 Std. Dev. 0 (=0.000001)



Assumption: 13 Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operation Cell: R26

BetaPERT distribution with parameters:

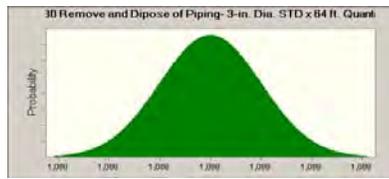
Minimum	\$12.00	(=Q26)
Likeliest	\$15.00	(=R26)
Maximum	\$18.00	(=S26)



Assumption: 130 Remove and Dipose of Piping- 3-in. Dia. STD x 64 ft. Quantity Cell: L143

Normal distribution with parameters:

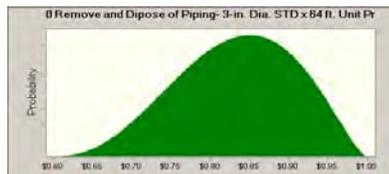
Mean	1,088	(=L143)
Std. Dev.	0	(=0.000001)



Assumption: 130 Remove and Dipose of Piping- 3-in. Dia. STD x 64 ft. Unit Price Cell: R143

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q143)
Likeliest	\$0.85	(=R143)
Maximum	\$1.00	(=S143)

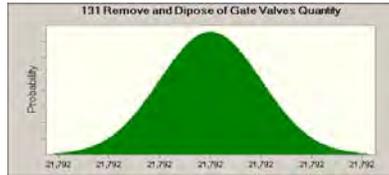


Assumption: 131 Remove and Dispose of Gate Valves Quantity

Cell: L144

Normal distribution with parameters:

Mean	21,792	(=L144)
Std. Dev.	0	(=0.000001)

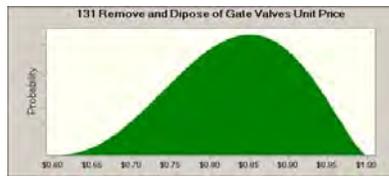


Assumption: 131 Remove and Dispose of Gate Valves Unit Price

Cell: R144

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q144)
Likeliest	\$0.85	(=R144)
Maximum	\$1.00	(=S144)

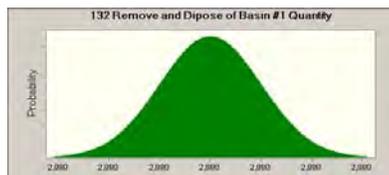


Assumption: 132 Remove and Dispose of Basin #1 Quantity

Cell: L145

Normal distribution with parameters:

Mean	2,880	(=L145)
Std. Dev.	0	(=0.000001)



Assumption: 132 Remove and Dipose of Basin #1 Unit Price

Cell: R145

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q145)
Likeliest	\$0.85	(=R145)
Maximum	\$1.00	(=S145)



Assumption: 133 Remove and Dipose of Basin #2 Quantity

Cell: L146

Normal distribution with parameters:

Mean	3,860	(=L146)
Std. Dev.	0	(=0.000001)

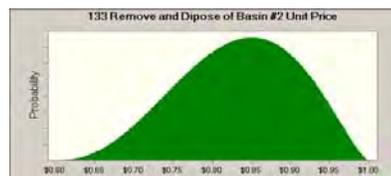


Assumption: 133 Remove and Dipose of Basin #2 Unit Price

Cell: R146

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q146)
Likeliest	\$0.85	(=R146)
Maximum	\$1.00	(=S146)

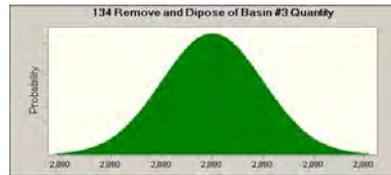


Assumption: 134 Remove and Dispose of Basin #3 Quantity

Cell: L147

Normal distribution with parameters:

Mean	2,880	(=L147)
Std. Dev.	0	(=0.000001)

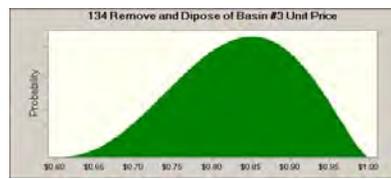


Assumption: 134 Remove and Dispose of Basin #3 Unit Price

Cell: R147

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q147)
Likeliest	\$0.85	(=R147)
Maximum	\$1.00	(=S147)

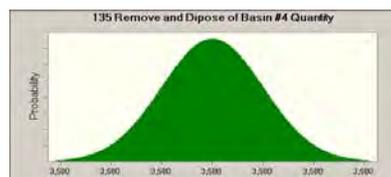


Assumption: 135 Remove and Dispose of Basin #4 Quantity

Cell: L148

Normal distribution with parameters:

Mean	3,580	(=L148)
Std. Dev.	0	(=0.000001)



Assumption: 135 Remove and Dispose of Basin #4 Unit Price

Cell: R148

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q148)
Likeliest	\$0.85	(=R148)
Maximum	\$1.00	(=S148)

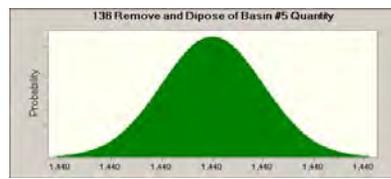


Assumption: 136 Remove and Dispose of Basin #5 Quantity

Cell: L149

Normal distribution with parameters:

Mean	1,440	(=L149)
Std. Dev.	0	(=0.000001)

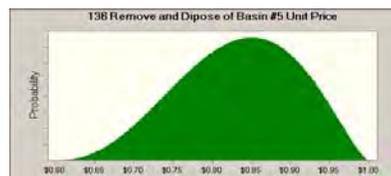


Assumption: 136 Remove and Dispose of Basin #5 Unit Price

Cell: R149

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q149)
Likeliest	\$0.85	(=R149)
Maximum	\$1.00	(=S149)

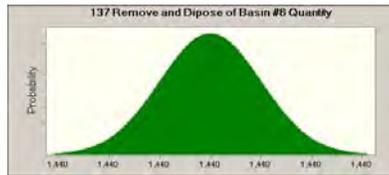


Assumption: 137 Remove and Dipose of Basin #6 Quantity

Cell: L150

Normal distribution with parameters:

Mean	1,440	(=L150)
Std. Dev.	0	(=0.000001)



Assumption: 137 Remove and Dipose of Basin #6 Unit Price

Cell: R150

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q150)
Likeliest	\$0.85	(=R150)
Maximum	\$1.00	(=S150)

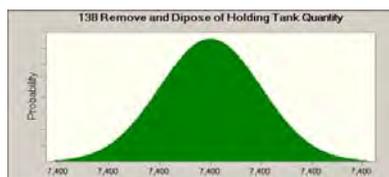


Assumption: 138 Remove and Dipose of Holding Tank Quantity

Cell: L151

Normal distribution with parameters:

Mean	7,400	(=L151)
Std. Dev.	0	(=0.000001)



Assumption: 138 Remove and Dispose of Holding Tank Unit Price

Cell: R151

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q151)
Likeliest	\$0.85	(=R151)
Maximum	\$1.00	(=S151)

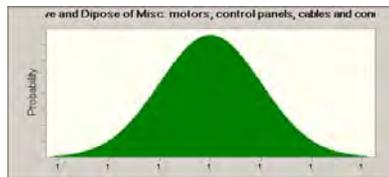


Assumption: 139 Remove and Dispose of Misc: motors, control panels, cables and cond

Cell: L152

Normal distribution with parameters:

Mean	1	(=L152)
Std. Dev.	0	(=0.000001)



Assumption: 139 Remove and Dispose of Misc: motors, control panels, cables and cond

Cell: R152

BetaPERT distribution with parameters:

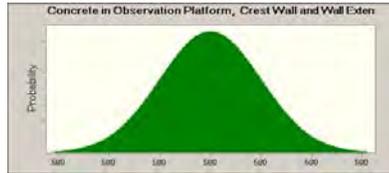
Minimum	\$1,000.00	(=Q152)
Likeliest	\$1,500.00	(=R152)
Maximum	\$2,000.00	(=S152)



Assumption: 14 Remove Concrete in Observation Platform, Crest Wall and Wall Extensions **Cell: L27**

Normal distribution with parameters:

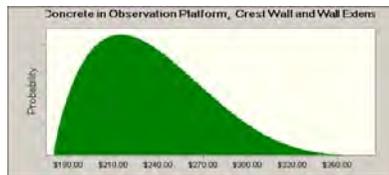
Mean 580 (=L27)
Std. Dev. 0 (=0.000001)



Assumption: 14 Remove Concrete in Observation Platform, Crest Wall and Wall Extensions **Cell: R27**

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q27)
Likeliest \$215.00 (=R27)
Maximum \$380.00 (=S27)

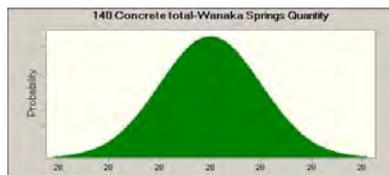


Assumption: 140 Concrete total-Wanaka Springs Quantity

Cell: L153

Normal distribution with parameters:

Mean 28 (=L153)
Std. Dev. 0 (=0.000001)

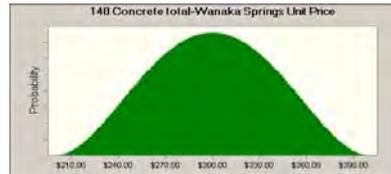


Assumption: 140 Concrete total-Wanaka Springs Unit Price

Cell: R153

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q153)
Likeliest	\$300.00	(=R153)
Maximum	\$400.00	(=S153)

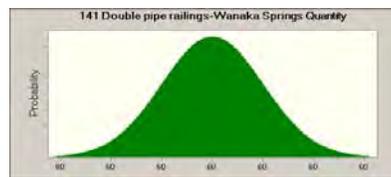


Assumption: 141 Double pipe railings-Wanaka Springs Quantity

Cell: L154

Normal distribution with parameters:

Mean	60	(=L154)
Std. Dev.	0	(=0.000001)

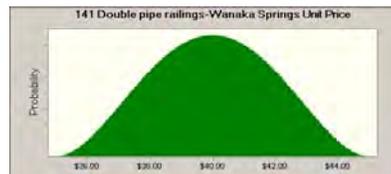


Assumption: 141 Double pipe railings-Wanaka Springs Unit Price

Cell: R154

BetaPERT distribution with parameters:

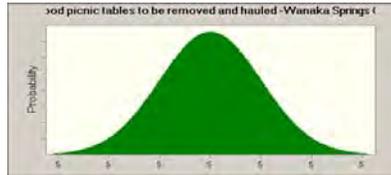
Minimum	\$35.00	(=Q154)
Likeliest	\$40.00	(=R154)
Maximum	\$45.00	(=S154)



Assumption: 142 Wood picnic tables to be removed and hauled -Wanaka Springs Quantity **Cell: L155**

Normal distribution with parameters:

Mean	5	(=L155)
Std. Dev.	0	(=0.000001)



Assumption: 142 Wood picnic tables to be removed and hauled -Wanaka Springs Unit Price **Cell: P155**

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q155)
Likeliest	\$100.00	(=R155)
Maximum	\$120.00	(=S155)

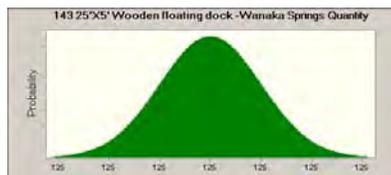


Assumption: 143 25'X5' Wooden floating dock -Wanaka Springs Quantity

Cell: L156

Normal distribution with parameters:

Mean	125	(=L156)
Std. Dev.	0	(=0.000001)



Assumption: 143 25'X5' Wooden floating dock -Wanaka Springs Unit Price

Cell: R156

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q156)
Likeliest	\$20.00	(=R156)
Maximum	\$25.00	(=S156)

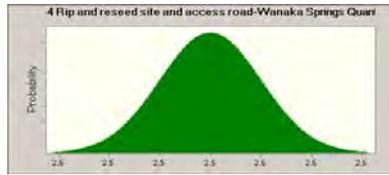


Assumption: 144 Rip and reseed site and access road-Wanaka Springs Quantity

Cell: L157

Normal distribution with parameters:

Mean	2.5	(=L157)
Std. Dev.	0.0	(=0.000001)



Assumption: 144 Rip and reseed site and access road-Wanaka Springs Unit Price

Cell: R157

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q157)
Likeliest	\$25,000.00	(=R157)
Maximum	\$30,000.00	(=S157)



Assumption: 145 Signs to be removed and hauled away-Wanaka Springs Quantity Cell: L158

Normal distribution with parameters:

Mean	3	(=L158)
Std. Dev.	0	(=0.000001)



Assumption: 145 Signs to be removed and hauled away-Wanaka Springs Unit PriceCell: R158

BetaPERT distribution with parameters:

Minimum	\$250.00	(=Q158)
Likeliest	\$300.00	(=R158)
Maximum	\$350.00	(=S158)



Assumption: 146 15'x5' Gangplank with railings-Wanaka Springs Quantity

Cell: L159

Normal distribution with parameters:

Mean	75.00	(=L159)
Std. Dev.	0.00	(=0.000001)



Assumption: 146 15'x5' Gangplank with railings-Wanaka Springs Unit Price

Cell: R159

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q159)
Likeliest	\$20.00	(=R159)
Maximum	\$25.00	(=S159)



Assumption: 147 Concrete total-Juniper Point Quantity

Cell: L160

Normal distribution with parameters:

Mean	19.00	(=L160)
Std. Dev.	0.00	(=0.000001)



Assumption: 147 Concrete total-Juniper Point Unit Price

Cell: R160

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q160)
Likeliest	\$300.00	(=R160)
Maximum	\$400.00	(=S160)

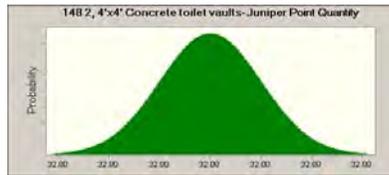


Assumption: 148 2, 4'x4' Concrete toilet vaults-Juniper Point Quantity

Cell: L161

Normal distribution with parameters:

Mean	32.00	(=L161)
Std. Dev.	0.00	(=0.000001)



Assumption: 148 2, 4'x4' Concrete toilet vaults-Juniper Point Unit Price

Cell: R161

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q161)
Likeliest	\$100.00	(=R161)
Maximum	\$120.00	(=S161)

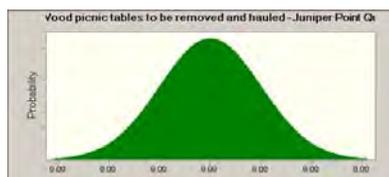


Assumption: 149 Wood picnic tables to be removed and hauled -Juniper Point Quantity

Cell: L162

Normal distribution with parameters:

Mean	8.00	(=L162)
Std. Dev.	0.00	(=0.000001)



Assumption: 149 Wood picnic tables to be removed and hauled -Juniper Point Unit Price Cell: R162

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q162)
Likeliest	\$100.00	(=R162)
Maximum	\$120.00	(=S162)



Assumption: 15 Remove Concrete in Diversion Tunnel Intake Structure Quantity Cell: L28

Normal distribution with parameters:

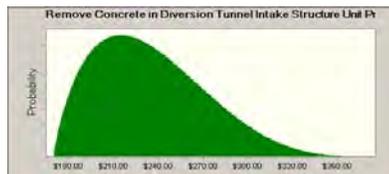
Mean	530	(=L28)
Std. Dev.	0	(=0.000001)



Assumption: 15 Remove Concrete in Diversion Tunnel Intake Structure Unit Price Cell: R28

BetaPERT distribution with parameters:

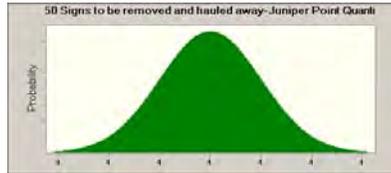
Minimum	\$170.00	(=Q28)
Likeliest	\$215.00	(=R28)
Maximum	\$380.00	(=S28)



Assumption: 150 Signs to be removed and hauled away-Juniper Point Quantity Cell: L163

Normal distribution with parameters:

Mean 4 (=L163)
 Std. Dev. 0 (=0.000001)



Assumption: 150 Signs to be removed and hauled away-Juniper Point Unit Price Cell: R163

BetaPERT distribution with parameters:

Minimum \$250.00 (=Q163)
 Likeliest \$300.00 (=R163)
 Maximum \$350.00 (=S163)

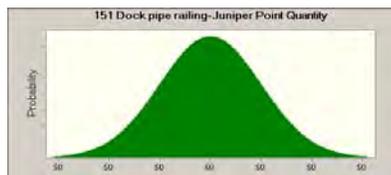


Assumption: 151 Dock pipe railing-Juniper Point Quantity

Cell: L164

Normal distribution with parameters:

Mean 50 (=L164)
 Std. Dev. 0 (=0.000001)

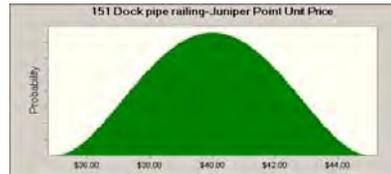


Assumption: 151 Dock pipe railing-Juniper Point Unit Price

Cell: R164

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q164)
Likeliest	\$40.00	(=R164)
Maximum	\$45.00	(=S164)

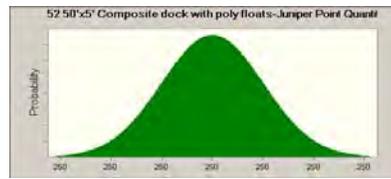


Assumption: 152 50'x5' Composite dock with poly floats-Juniper Point Quantity

Cell: L165

Normal distribution with parameters:

Mean	250	(=L165)
Std. Dev.	0	(=0.000001)

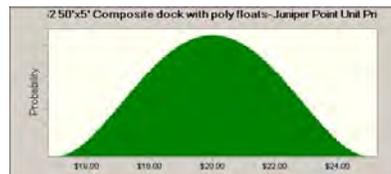


Assumption: 152 50'x5' Composite dock with poly floats-Juniper Point Unit Price

Cell: R165

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q165)
Likeliest	\$20.00	(=R165)
Maximum	\$25.00	(=S165)



Assumption: 153 20'x5' Composite gangplank with railings-Juniper Point Quantity Cell: L166

Normal distribution with parameters:

Mean	100	(=L166)
Std. Dev.	0	(=0.000001)



Assumption: 153 20'x5' Composite gangplank with railings-Juniper Point Unit PriceCell: R166

BetaPERT distribution with parameters:

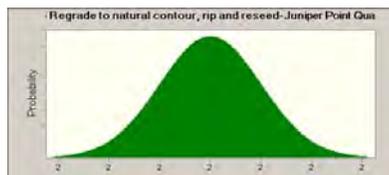
Minimum	\$15.00	(=Q166)
Likeliest	\$20.00	(=R166)
Maximum	\$25.00	(=S166)



Assumption: 155 Regrade to natural contour, rip and reseed-Juniper Point QuantityCell: L168

Normal distribution with parameters:

Mean	2	(=L168)
Std. Dev.	0	(=0.000001)



Assumption: 155 Regrade to natural contour, rip and reseed-Juniper Point Unit Price Cell: R168

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q168)
Likeliest	\$25,000.00	(=R168)
Maximum	\$30,000.00	(=S168)

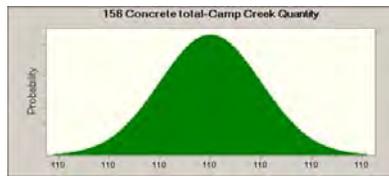


Assumption: 156 Concrete total-Camp Creek Quantity

Cell: L169

Normal distribution with parameters:

Mean	110	(=L169)
Std. Dev.	0	(=0.000001)



Assumption: 156 Concrete total-Camp Creek Unit Price

Cell: R169

BetaPERT distribution with parameters:

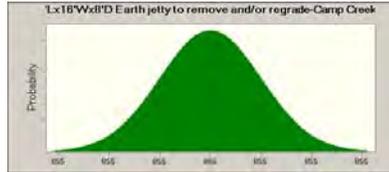
Minimum	\$200.00	(=Q169)
Likeliest	\$300.00	(=R169)
Maximum	\$400.00	(=S169)



Assumption: 157 180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek Cell R170

Normal distribution with parameters:

Mean	855	(=L170)
Std. Dev.	0	(=0.000001)



Assumption: 157 180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek Cell R170

BetaPERT distribution with parameters:

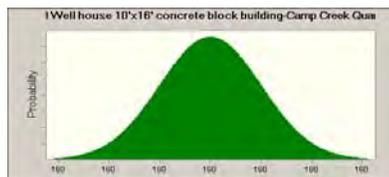
Minimum	\$20.00	(=Q170)
Likeliest	\$25.00	(=R170)
Maximum	\$30.00	(=S170)



Assumption: 158 Well house 10'x16' concrete block building-Camp Creek Quantity Cell: L171

Normal distribution with parameters:

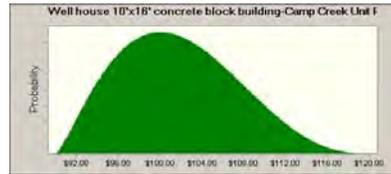
Mean	160	(=L171)
Std. Dev.	0	(=0.000001)



Assumption: 158 Well house 10'x16' concrete block building-Camp Creek Unit Price Cell: R171

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q171)
Likeliest	\$100.00	(=R171)
Maximum	\$120.00	(=S171)



Assumption: 159 2, 20'x5' Composite decking gangplanks-Camp Creek Quantity Cell: L172

Normal distribution with parameters:

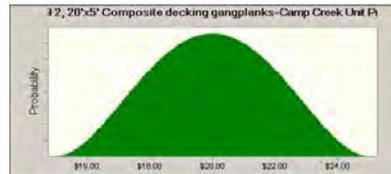
Mean	200	(=L172)
Std. Dev.	0	(=0.000001)



Assumption: 159 2, 20'x5' Composite decking gangplanks-Camp Creek Unit Price Cell: R172

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q172)
Likeliest	\$20.00	(=R172)
Maximum	\$25.00	(=S172)



Assumption: 16 Remove Concrete in Diversion Tunnel Gate Tower Quantity

Cell: L29

Normal distribution with parameters:

Mean	410	(=L29)
Std. Dev.	0	(=0.000001)

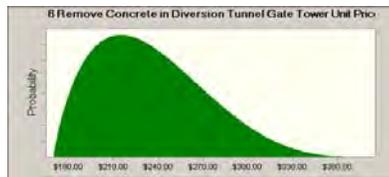


Assumption: 16 Remove Concrete in Diversion Tunnel Gate Tower Unit Price

Cell: R29

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q29)
Likeliest	\$215.00	(=R29)
Maximum	\$380.00	(=S29)

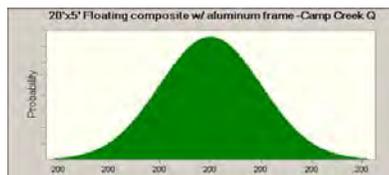


Assumption: 160 2, 20'x5' Floating composite w/ aluminum frame -Camp Creek Quantity

Cell: L173

Normal distribution with parameters:

Mean	200	(=L173)
Std. Dev.	0	(=0.000001)



Assumption: 160 2, 20'x5' Floating composite w/ aluminum frame -Camp Creek Unit Price R173

BetaPERT distribution with parameters:

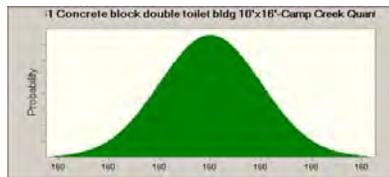
Minimum	\$15.00	(=Q173)
Likeliest	\$20.00	(=R173)
Maximum	\$25.00	(=S173)



Assumption: 161 Concrete block double toilet bldg 10'x16'-Camp Creek Quantity Cell: L174

Normal distribution with parameters:

Mean	160	(=L174)
Std. Dev.	0	(=0.000001)



Assumption: 161 Concrete block double toilet bldg 10'x16'-Camp Creek Unit Price Cell: R174

BetaPERT distribution with parameters:

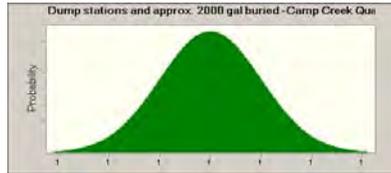
Minimum	\$90.00	(=Q174)
Likeliest	\$100.00	(=R174)
Maximum	\$120.00	(=S174)



Assumption: 162 Dump stations and approx. 2000 gal buried -Camp Creek QuantityCell: L175

Normal distribution with parameters:

Mean	1	(=L175)
Std. Dev.	0	(=0.000001)



Assumption: 162 Dump stations and approx. 2000 gal buried -Camp Creek Unit PriceCell: R175

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q175)
Likeliest	\$5,000.00	(=R175)
Maximum	\$6,000.00	(=S175)

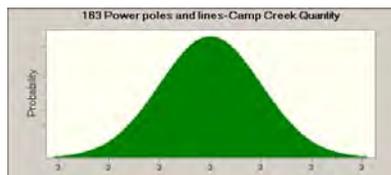


Assumption: 163 Power poles and lines-Camp Creek Quantity

Cell: L176

Normal distribution with parameters:

Mean	3	(=L176)
Std. Dev.	0	(=0.000001)



Assumption: 163 Power poles and lines-Camp Creek Unit Price

Cell: R176

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q176)
Likeliest	\$1,500.00	(=R176)
Maximum	\$2,000.00	(=S176)

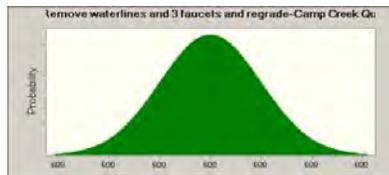


Assumption: 164 Remove waterlines and 3 faucets and regrade-Camp Creek Quantities

Cell: L177

Normal distribution with parameters:

Mean	600	(=L177)
Std. Dev.	0	(=0.000001)



Assumption: 164 Remove waterlines and 3 faucets and regrade-Camp Creek Unit Price

Cell: R177

BetaPERT distribution with parameters:

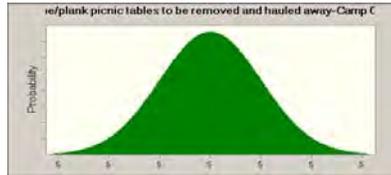
Minimum	\$4.00	(=Q177)
Likeliest	\$5.00	(=R177)
Maximum	\$6.00	(=S177)



Assumption: 166 Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek

Normal distribution with parameters:

Mean	5	(=L179)
Std. Dev.	0	(=0.000001)



Assumption: 166 Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q179)
Likeliest	\$100.00	(=R179)
Maximum	\$120.00	(=S179)

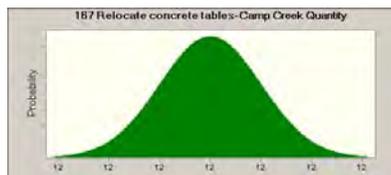


Assumption: 167 Relocate concrete tables-Camp Creek Quantity

Cell: L180

Normal distribution with parameters:

Mean	12	(=L180)
Std. Dev.	0	(=0.000001)



Assumption: 167 Relocate concrete tables-Camp Creek Unit Price

Cell: R180

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q180)
Likeliest	\$100.00	(=R180)
Maximum	\$120.00	(=S180)

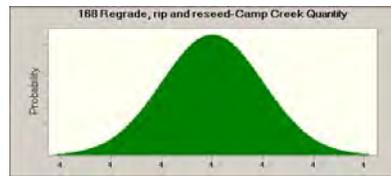


Assumption: 168 Regrade, rip and reseed-Camp Creek Quantity

Cell: L181

Normal distribution with parameters:

Mean	4	(=L181)
Std. Dev.	0	(=0.000001)



Assumption: 168 Regrade, rip and reseed-Camp Creek Unit Price

Cell: R181

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q181)
Likeliest	\$25,000.00	(=R181)
Maximum	\$30,000.00	(=S181)



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

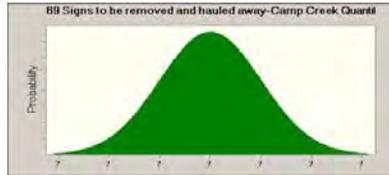
Iron Gate - Full Removal Crystal Ball - without Escalation - 2011-04.xls

Assumption: 169 Signs to be removed and hauled away-Camp Creek Quantity

Cell: L182

Normal distribution with parameters:

Mean 7 (=L182)
Std. Dev. 0 (=0.000001)



Assumption: 169 Signs to be removed and hauled away-Camp Creek Unit Price

Cell: R182

BetaPERT distribution with parameters:

Minimum \$250.00 (=Q182)
Likeliest \$300.00 (=R182)
Maximum \$350.00 (=S182)



Assumption: 17 Remove Steel Footbridge to Gate Tower Quantity

Cell: L30

Normal distribution with parameters:

Mean 13,000 (=L30)
Std. Dev. 0 (=0.000001)

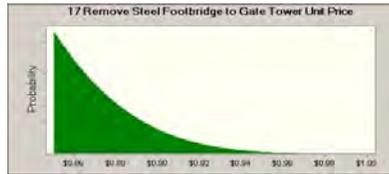


Assumption: 17 Remove Steel Footbridge to Gate Tower Unit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$0.85	(=Q30)
Likeliest	\$0.85	(=R30)
Maximum	\$1.00	(=S30)

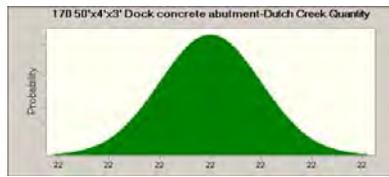


Assumption: 170 50'x4'x3' Dock concrete abutment-Dutch Creek Quantity

Cell: L183

Normal distribution with parameters:

Mean	22	(=L183)
Std. Dev.	0	(=0.000001)

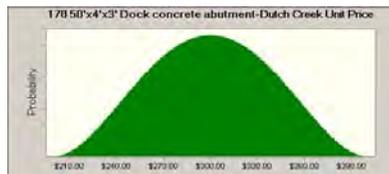


Assumption: 170 50'x4'x3' Dock concrete abutment-Dutch Creek Unit Price

Cell: R183

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q183)
Likeliest	\$300.00	(=R183)
Maximum	\$400.00	(=S183)



Assumption: 171 Double pipe railing-Dutch Creek Quantity

Cell: L184

Normal distribution with parameters:

Mean	100	(=L184)
Std. Dev.	0	(=0.000001)



Assumption: 171 Double pipe railing-Dutch Creek Unit Price

Cell: R184

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q184)
Likeliest	\$40.00	(=R184)
Maximum	\$45.00	(=S184)

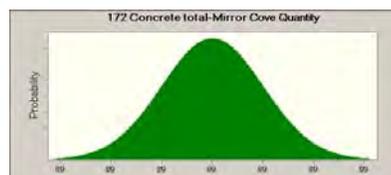


Assumption: 172 Concrete total-Mirror Cove Quantity

Cell: L185

Normal distribution with parameters:

Mean	89	(=L185)
Std. Dev.	0	(=0.000001)



Assumption: 172 Concrete total-Mirror Cove Unit Price

Cell: R185

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q185)
Likeliest	\$300.00	(=R185)
Maximum	\$400.00	(=S185)

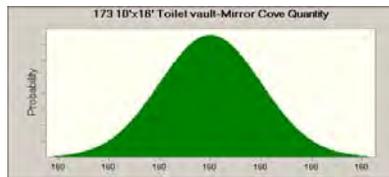


Assumption: 173 10'x16' Toilet vault-Mirror Cove Quantity

Cell: L186

Normal distribution with parameters:

Mean	160	(=L186)
Std. Dev.	0	(=0.000001)



Assumption: 173 10'x16' Toilet vault-Mirror Cove Unit Price

Cell: R186

BetaPERT distribution with parameters:

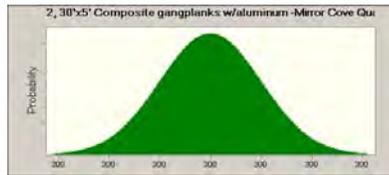
Minimum	\$90.00	(=Q186)
Likeliest	\$100.00	(=R186)
Maximum	\$120.00	(=S186)



Assumption: 174 2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove Quantity Cell: L187

Normal distribution with parameters:

Mean	300	(=L187)
Std. Dev.	0	(=0.000001)



Assumption: 174 2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove Unit Price Cell: R187

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q187)
Likeliest	\$20.00	(=R187)
Maximum	\$25.00	(=S187)

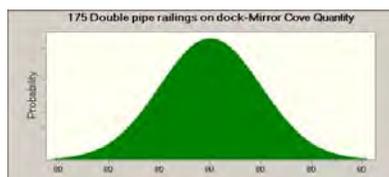


Assumption: 175 Double pipe railings on dock-Mirror Cove Quantity

Cell: L188

Normal distribution with parameters:

Mean	80	(=L188)
Std. Dev.	0	(=0.000001)

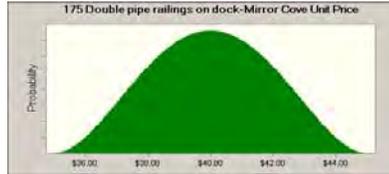


Assumption: 175 Double pipe railings on dock-Mirror Cove Unit Price

Cell: R188

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q188)
Likeliest	\$40.00	(=R188)
Maximum	\$45.00	(=S188)

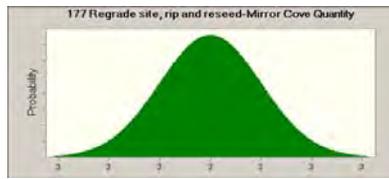


Assumption: 177 Regrade site, rip and reseed-Mirror Cove Quantity

Cell: L190

Normal distribution with parameters:

Mean	3	(=L190)
Std. Dev.	0	(=0.000001)



Assumption: 177 Regrade site, rip and reseed-Mirror Cove Unit Price

Cell: R190

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q190)
Likeliest	\$25,000.00	(=R190)
Maximum	\$30,000.00	(=S190)

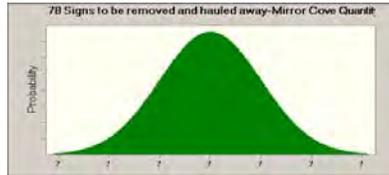


Assumption: 178 Signs to be removed and hauled away-Mirror Cove Quantity

Cell: L191

Normal distribution with parameters:

Mean	7	(=L191)
Std. Dev.	0	(=0.000001)



Assumption: 178 Signs to be removed and hauled away-Mirror Cove Unit Price

Cell: R191

BetaPERT distribution with parameters:

Minimum	\$250.00	(=Q191)
Likeliest	\$300.00	(=R191)
Maximum	\$350.00	(=S191)

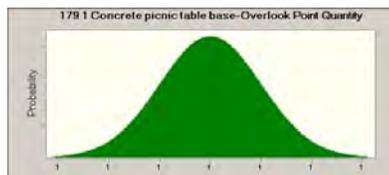


Assumption: 179 1 Concrete picnic table base-Overlook Point Quantity

Cell: L192

Normal distribution with parameters:

Mean	1	(=L192)
Std. Dev.	0	(=0.000001)

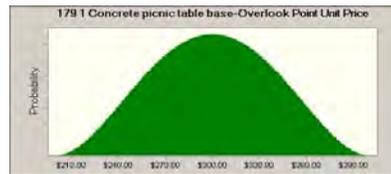


Assumption: 179 1 Concrete picnic table base-Overlook Point Unit Price

Cell: R192

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q192)
Likeliest	\$300.00	(=R192)
Maximum	\$400.00	(=S192)

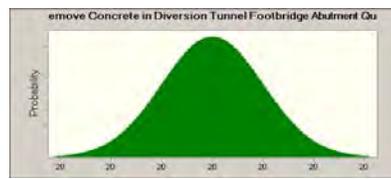


Assumption: 18 Remove Concrete in Diversion Tunnel Footbridge Abutment Quantity

Cell: L31

Normal distribution with parameters:

Mean	20	(=L31)
Std. Dev.	0	(=0.000001)

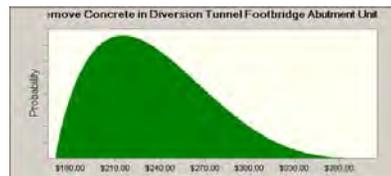


Assumption: 18 Remove Concrete in Diversion Tunnel Footbridge Abutment Unit Price

Cell: R31

BetaPERT distribution with parameters:

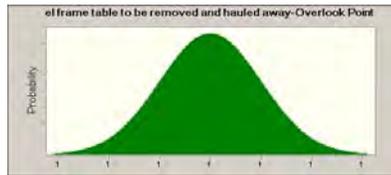
Minimum	\$170.00	(=Q31)
Likeliest	\$215.00	(=R31)
Maximum	\$380.00	(=S31)



Assumption: 180 Steel frame table to be removed and hauled away-Overlook Point Cell: R193

Normal distribution with parameters:

Mean	1	(=L193)
Std. Dev.	0	(=0.000001)



Assumption: 180 Steel frame table to be removed and hauled away-Overlook Point Cell: R193

BetaPERT distribution with parameters:

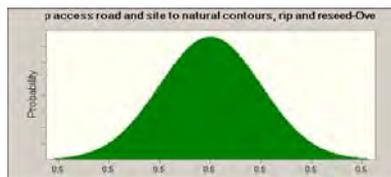
Minimum	\$90.00	(=Q193)
Likeliest	\$100.00	(=R193)
Maximum	\$120.00	(=S193)



Assumption: 181 Regrade steep access road and site to natural contours, rip and reseed-Overlook Point Cell: L194

Normal distribution with parameters:

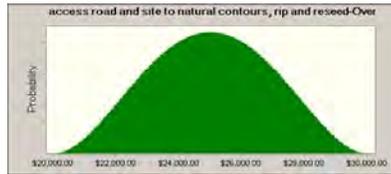
Mean	0.5	(=L194)
Std. Dev.	0.0	(=0.000001)



Assumption: 181 Regrade steep access road and site to natural contours, rip and reseed-Over Cell: R194

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q194)
Likeliest	\$25,000.00	(=R194)
Maximum	\$30,000.00	(=S194)



Assumption: 182 80'x25'x4" Concrete boat ramp to be removed-Long Gulch Quantity Cell: L195

Normal distribution with parameters:

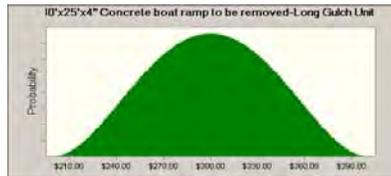
Mean	25	(=L195)
Std. Dev.	0	(=0.000001)



Assumption: 182 80'x25'x4" Concrete boat ramp to be removed-Long Gulch Unit Price Cell: R195

BetaPERT distribution with parameters:

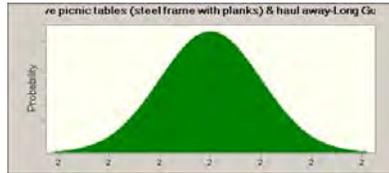
Minimum	\$200.00	(=Q195)
Likeliest	\$300.00	(=R195)
Maximum	\$400.00	(=S195)



Assumption: 183 Remove picnic tables (steel frame with planks) & haul away-Long Gulch Cell 196

Normal distribution with parameters:

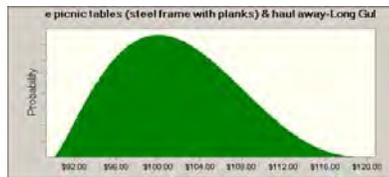
Mean	2	(=L196)
Std. Dev.	0	(=0.000001)



Assumption: 183 Remove picnic tables (steel frame with planks) & haul away-Long Gulch Cell 196

BetaPERT distribution with parameters:

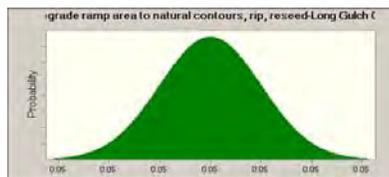
Minimum	\$90.00	(=Q196)
Likeliest	\$100.00	(=R196)
Maximum	\$120.00	(=S196)



Assumption: 184 Regrade ramp area to natural contours, rip, reseed-Long Gulch Cell 197

Normal distribution with parameters:

Mean	0.05	(=L197)
Std. Dev.	0.00	(=0.000001)



Assumption: 184 Regrade ramp area to natural contours, rip, reseed-Long Gulch Unit Price

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q197)
Likeliest	\$25,000.00	(=R197)
Maximum	\$30,000.00	(=S197)

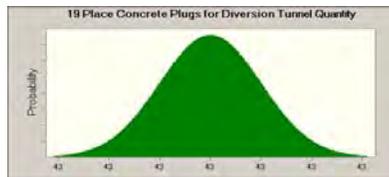


Assumption: 19 Place Concrete Plugs for Diversion Tunnel Quantity

Cell: L32

Normal distribution with parameters:

Mean	43	(=L32)
Std. Dev.	0	(=0.000001)

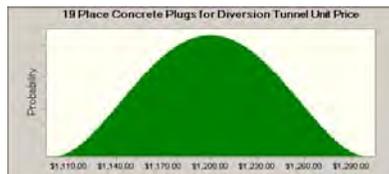


Assumption: 19 Place Concrete Plugs for Diversion Tunnel Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$1,100.00	(=Q32)
Likeliest	\$1,200.00	(=R32)
Maximum	\$1,300.00	(=S32)



Assumption: 20 Remove Concrete Closure Gates in Gate Tower Quantity

Cell: L33

Normal distribution with parameters:

Mean 61 (=L33)
Std. Dev. 0 (=0.000001)



Assumption: 20 Remove Concrete Closure Gates in Gate Tower Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum \$900.00 (=Q33)
Likeliest \$1,000.00 (=R33)
Maximum \$1,300.00 (=S33)



Assumption: 21 Remove Upstream Riprap Quantity

Cell: L34

Normal distribution with parameters:

Mean 80,000 (=L34)
Std. Dev. 0 (=0.000001)



Assumption: 21 Remove Upstream Riprap Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q34)
Likeliest	\$13.00	(=R34)
Maximum	\$17.00	(=S34)

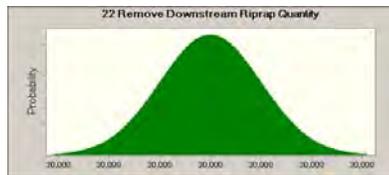


Assumption: 22 Remove Downstream Riprap Quantity

Cell: L35

Normal distribution with parameters:

Mean	30,000	(=L35)
Std. Dev.	0	(=0.000001)



Assumption: 22 Remove Downstream Riprap Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q35)
Likeliest	\$13.00	(=R35)
Maximum	\$17.00	(=S35)

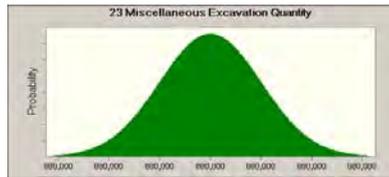


Assumption: 23 Miscellaneous Excavation Quantity

Cell: L36

Normal distribution with parameters:

Mean	880,000	(=L36)
Std. Dev.	0	(=0.000001)



Assumption: 23 Miscellaneous Excavation Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q36)
Likeliest	\$13.00	(=R36)
Maximum	\$17.00	(=S36)



Assumption: 24 Cutoff Wall Concrete Demolition Quantity

Cell: L37

Triangular distribution with parameters:

Minimum	1,000	(=K37)
Likeliest	1,250	(=L37)
Maximum	1,500	(=M37)

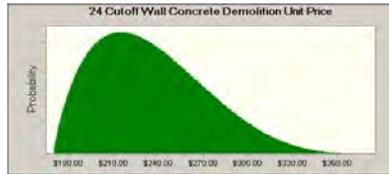


Assumption: 24 Cutoff Wall Concrete Demolition Unit Price

Cell: R37

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q37)
Likeliest	\$215.00	(=R37)
Maximum	\$380.00	(=S37)



Assumption: 25 Earth Fill Crest Raise Quantity

Cell: L38

Normal distribution with parameters:

Mean	13,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Earth Fill Crest Raise Unit Price

Cell: R38

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q38)
Likeliest	\$13.00	(=R38)
Maximum	\$17.00	(=S38)



Assumption: 26 Sheetpile Crest Raise Quantity

Cell: L39

Normal distribution with parameters:

Mean	800	(=L39)
Std. Dev.	0	(=0.000001)



Assumption: 26 Sheetpile Crest Raise Unit Price

Cell: R39

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q39)
Likeliest	\$250.00	(=R39)
Maximum	\$300.00	(=S39)

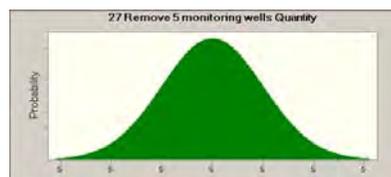


Assumption: 27 Remove 5 monitoring wells Quantity

Cell: L40

Normal distribution with parameters:

Mean	5	(=L40)
Std. Dev.	0	(=0.000001)



Assumption: 27 Remove 5 monitoring wells Unit Price

Cell: R40

BetaPERT distribution with parameters:

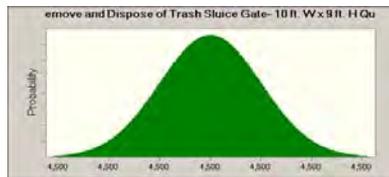
Minimum	\$1,900.00	(=Q40)
Likeliest	\$2,000.00	(=R40)
Maximum	\$2,200.00	(=S40)



Assumption: 28 Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H QuantityCell: L41

Normal distribution with parameters:

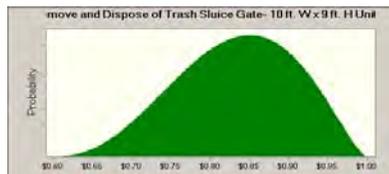
Mean	4,500	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H Unit PriceCell: R41

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q41)
Likeliest	\$0.85	(=R41)
Maximum	\$1.00	(=S41)

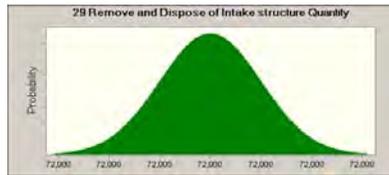


Assumption: 29 Remove and Dispose of Intake structure Quantity

Cell: L42

Normal distribution with parameters:

Mean	72,000	(=L42)
Std. Dev.	0	(=0.000001)

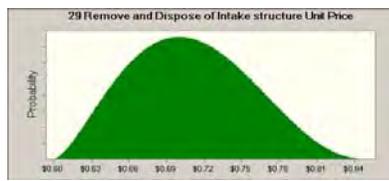


Assumption: 29 Remove and Dispose of Intake structure Unit Price

Cell: R42

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q42)
Likeliest	\$0.70	(=R42)
Maximum	\$0.85	(=S42)

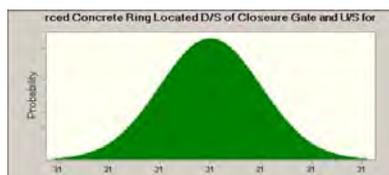


Assumption: 3 Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S for

Cell: L16

Normal distribution with parameters:

Mean	31	(=L16)
Std. Dev.	0	(=0.000001)



Assumption: 3 Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S R16

BetaPERT distribution with parameters:

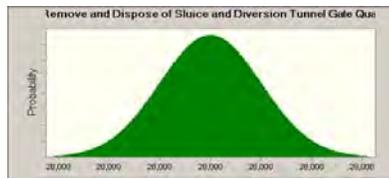
Minimum	\$1,300.00	(=Q16)
Likeliest	\$1,500.00	(=R16)
Maximum	\$1,800.00	(=S16)



Assumption: 30 Remove and Dispose of Sluice and Diversion Tunnel Gate Quantity Cell: L43

Normal distribution with parameters:

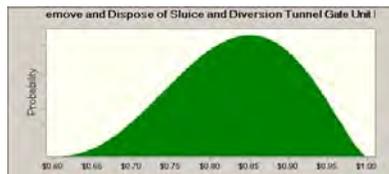
Mean	28,000	(=L43)
Std. Dev.	0	(=0.000001)



Assumption: 30 Remove and Dispose of Sluice and Diversion Tunnel Gate Unit Price Cell: R43

BetaPERT distribution with parameters:

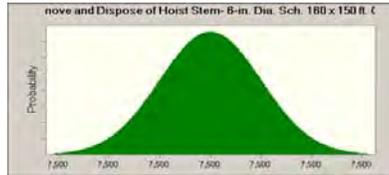
Minimum	\$0.60	(=Q43)
Likeliest	\$0.85	(=R43)
Maximum	\$1.00	(=S43)



Assumption: 31 Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Quantity: L44

Normal distribution with parameters:

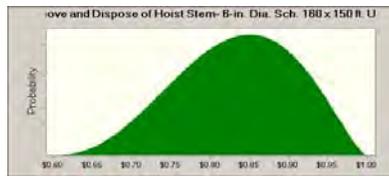
Mean	7,500	(=L44)
Std. Dev.	0	(=0.000001)



Assumption: 31 Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Unit Cost: R44

BetaPERT distribution with parameters:

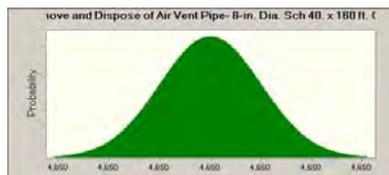
Minimum	\$0.60	(=Q44)
Likeliest	\$0.85	(=R44)
Maximum	\$1.00	(=S44)



Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Quantity: L45

Normal distribution with parameters:

Mean	4,650	(=L45)
Std. Dev.	0	(=0.000001)



Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Unit Price R45

BetaPERT distribution with parameters:

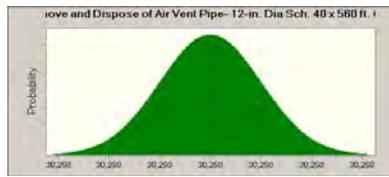
Minimum	\$1.50	(=Q45)
Likeliest	\$2.00	(=R45)
Maximum	\$3.00	(=S45)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Quantity L47

Normal distribution with parameters:

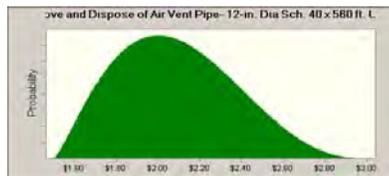
Mean	30,250	(=L47)
Std. Dev.	0	(=0.000001)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Unit Price R47

BetaPERT distribution with parameters:

Minimum	\$1.50	(=Q47)
Likeliest	\$2.00	(=R47)
Maximum	\$3.00	(=S47)



Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Quantity

Cell: L48

Normal distribution with parameters:

Mean	2,670	(=L48)
Std. Dev.	0	(=0.000001)

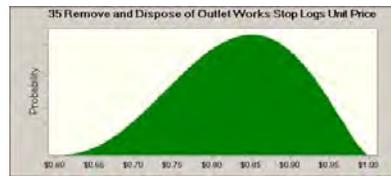


Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Unit Price

Cell: R48

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q48)
Likeliest	\$0.85	(=R48)
Maximum	\$1.00	(=S48)

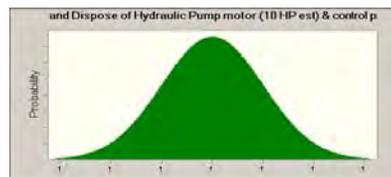


Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel

Cell: L49

Normal distribution with parameters:

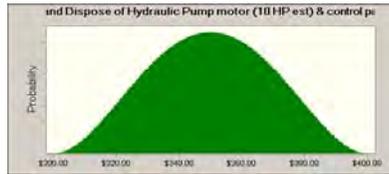
Mean	1	(=L49)
Std. Dev.	0	(=0.000001)



Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel

BetaPERT distribution with parameters:

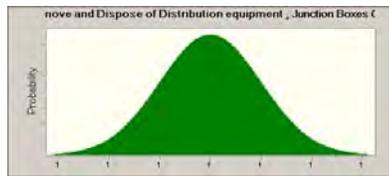
Minimum	\$300.00	(=Q49)
Likeliest	\$350.00	(=R49)
Maximum	\$400.00	(=S49)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Quality

Normal distribution with parameters:

Mean	1	(=L50)
Std. Dev.	0	(=0.000001)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Under

BetaPERT distribution with parameters:

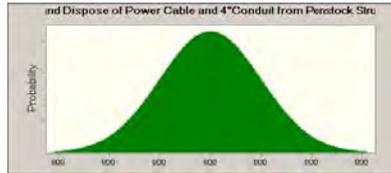
Minimum	\$1,500.00	(=Q50)
Likeliest	\$1,700.00	(=R50)
Maximum	\$2,000.00	(=S50)



Assumption: 38 Remove and Dispose of Power Cable and 4" Conduit from Penstock Structure **Cell: L51**

Normal distribution with parameters:

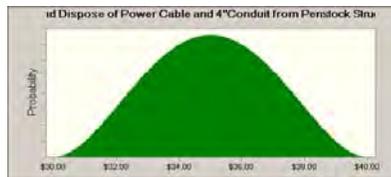
Mean	800	(=L51)
Std. Dev.	0	(=0.000001)



Assumption: 38 Remove and Dispose of Power Cable and 4" Conduit from Penstock Structure **Cell: R51**

BetaPERT distribution with parameters:

Minimum	\$30.00	(=Q51)
Likeliest	\$35.00	(=R51)
Maximum	\$40.00	(=S51)

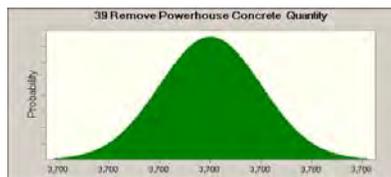


Assumption: 39 Remove Powerhouse Concrete Quantity

Cell: L52

Normal distribution with parameters:

Mean	3,700	(=L52)
Std. Dev.	0	(=0.000001)

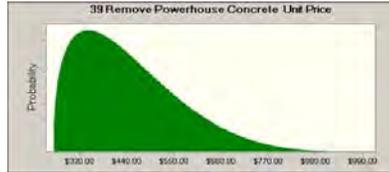


Assumption: 39 Remove Powerhouse Concrete Unit Price

Cell: R52

BetaPERT distribution with parameters:

Minimum	\$270.00	(=Q52)
Likeliest	\$350.00	(=R52)
Maximum	\$1,000.00	(=S52)

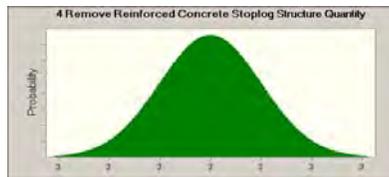


Assumption: 4 Remove Reinforced Concrete Stoplog Structure Quantity

Cell: L17

Normal distribution with parameters:

Mean	3	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 4 Remove Reinforced Concrete Stoplog Structure Unit Price

Cell: R17

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q17)
Likeliest	\$215.00	(=R17)
Maximum	\$380.00	(=S17)

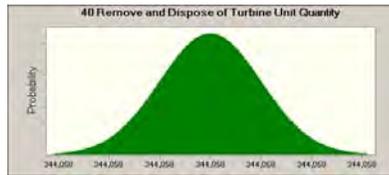


Assumption: 40 Remove and Dispose of Turbine Unit Quantity

Cell: L53

Normal distribution with parameters:

Mean	344,058	(=L53)
Std. Dev.	0	(=0.000001)

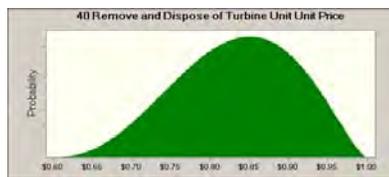


Assumption: 40 Remove and Dispose of Turbine Unit Unit Price

Cell: R53

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q53)
Likeliest	\$0.85	(=R53)
Maximum	\$1.00	(=S53)

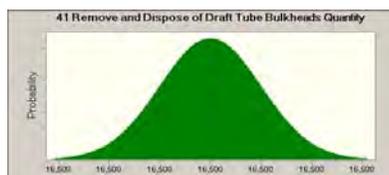


Assumption: 41 Remove and Dispose of Draft Tube Bulkheads Quantity

Cell: L54

Normal distribution with parameters:

Mean	16,500	(=L54)
Std. Dev.	0	(=0.000001)

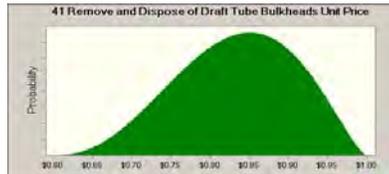


Assumption: 41 Remove and Dispose of Draft Tube Bulkheads Unit Price

Cell: R54

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q54)
Likeliest	\$0.85	(=R54)
Maximum	\$1.00	(=S54)

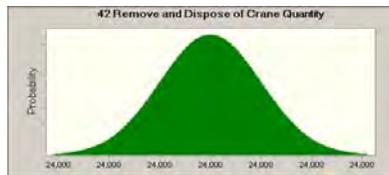


Assumption: 42 Remove and Dispose of Crane Quantity

Cell: L55

Normal distribution with parameters:

Mean	24,000	(=L55)
Std. Dev.	0	(=0.000001)

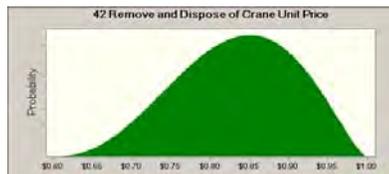


Assumption: 42 Remove and Dispose of Crane Unit Price

Cell: R55

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q55)
Likeliest	\$0.85	(=R55)
Maximum	\$1.00	(=S55)

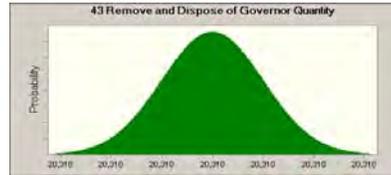


Assumption: 43 Remove and Dispose of Governor Quantity

Cell: L56

Normal distribution with parameters:

Mean	20,310	(=L56)
Std. Dev.	0	(=0.000001)

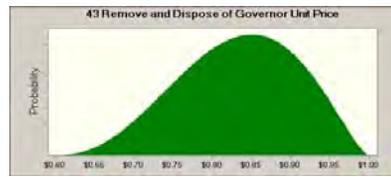


Assumption: 43 Remove and Dispose of Governor Unit Price

Cell: R56

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q56)
Likeliest	\$0.85	(=R56)
Maximum	\$1.00	(=S56)

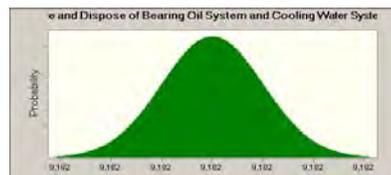


Assumption: 44 Remove and Dispose of Bearing Oil System and Cooling Water System

Cell: L57

Normal distribution with parameters:

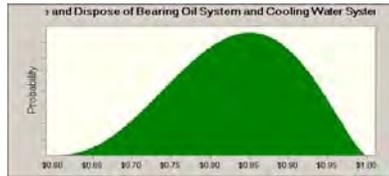
Mean	9,182	(=L57)
Std. Dev.	0	(=0.000001)



Assumption: 44 Remove and Dispose of Bearing Oil System and Cooling Water System Unit Price

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q57)
Likeliest	\$0.85	(=R57)
Maximum	\$1.00	(=S57)

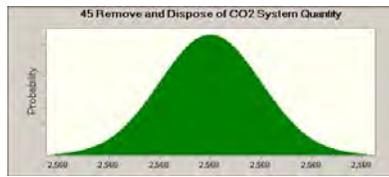


Assumption: 45 Remove and Dispose of CO2 System Quantity

Cell: L58

Normal distribution with parameters:

Mean	2,568	(=L58)
Std. Dev.	0	(=0.000001)

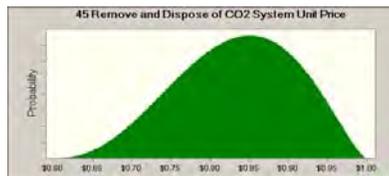


Assumption: 45 Remove and Dispose of CO2 System Unit Price

Cell: R58

BetaPERT distribution with parameters:

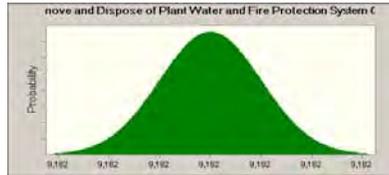
Minimum	\$0.60	(=Q58)
Likeliest	\$0.85	(=R58)
Maximum	\$1.00	(=S58)



Assumption: 46 Remove and Dispose of Plant Water and Fire Protection System Quantity Cell: L59

Normal distribution with parameters:

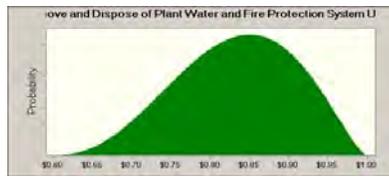
Mean	9,182	(=L59)
Std. Dev.	0	(=0.000001)



Assumption: 46 Remove and Dispose of Plant Water and Fire Protection System Unit Price Cell: R59

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q59)
Likeliest	\$0.85	(=R59)
Maximum	\$1.00	(=S59)

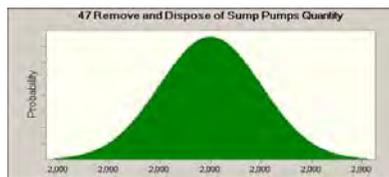


Assumption: 47 Remove and Dispose of Sump Pumps Quantity

Cell: L60

Normal distribution with parameters:

Mean	2,000	(=L60)
Std. Dev.	0	(=0.000001)



Assumption: 47 Remove and Dispose of Sump Pumps Unit Price

Cell: R60

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q60)
Likeliest	\$0.85	(=R60)
Maximum	\$1.00	(=S60)

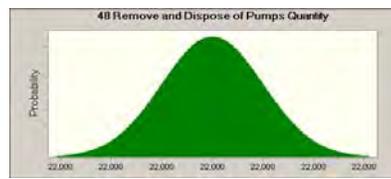


Assumption: 48 Remove and Dispose of Pumps Quantity

Cell: L61

Normal distribution with parameters:

Mean	22,000	(=L61)
Std. Dev.	0	(=0.000001)



Assumption: 48 Remove and Dispose of Pumps Unit Price

Cell: R61

BetaPERT distribution with parameters:

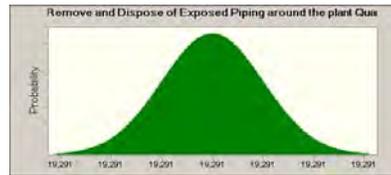
Minimum	\$0.60	(=Q61)
Likeliest	\$0.85	(=R61)
Maximum	\$1.00	(=S61)



Assumption: 49 Remove and Dispose of Exposed Piping around the plant Quantity Cell: L62

Normal distribution with parameters:

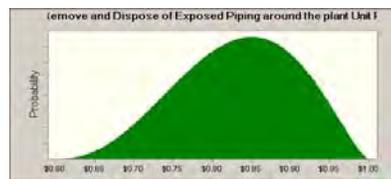
Mean	19,291	(=L62)
Std. Dev.	0	(=0.000001)



Assumption: 49 Remove and Dispose of Exposed Piping around the plant Unit Price Cell: R62

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q62)
Likeliest	\$0.85	(=R62)
Maximum	\$1.00	(=S62)

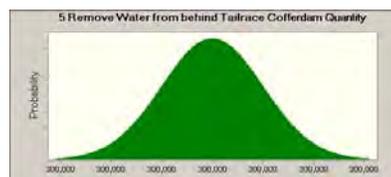


Assumption: 5 Remove Water from behind Tailrace Cofferdam Quantity

Cell: L18

Normal distribution with parameters:

Mean	300,000	(=L18)
Std. Dev.	0	(=0.000001)

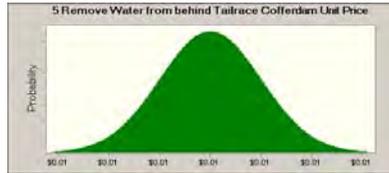


Assumption: 5 Remove Water from behind Tailrace Cofferdam Unit Price

Cell: R18

Normal distribution with parameters:

Mean	\$0.01	(=R18)
Std. Dev.	\$0.00	(=0.000001)

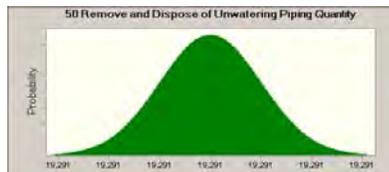


Assumption: 50 Remove and Dispose of Unwatering Piping Quantity

Cell: L63

Normal distribution with parameters:

Mean	19,291	(=L63)
Std. Dev.	0	(=0.000001)

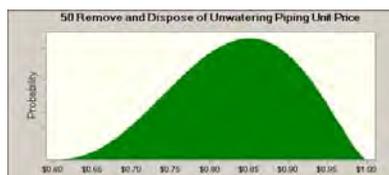


Assumption: 50 Remove and Dispose of Unwatering Piping Unit Price

Cell: R63

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q63)
Likeliest	\$0.85	(=R63)
Maximum	\$1.00	(=S63)



Assumption: 51 Remove and Dispose of Drainage Piping Quantity

Cell: L64

Normal distribution with parameters:

Mean	9,518	(=L64)
Std. Dev.	0	(=0.000001)

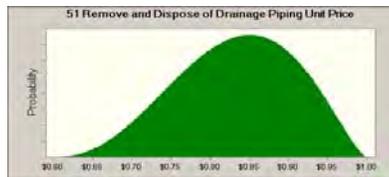


Assumption: 51 Remove and Dispose of Drainage Piping Unit Price

Cell: R64

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q64)
Likeliest	\$0.85	(=R64)
Maximum	\$1.00	(=S64)

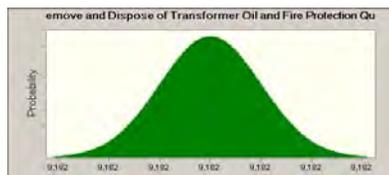


Assumption: 52 Remove and Dispose of Transformer Oil and Fire Protection Quantity

Cell: L65

Normal distribution with parameters:

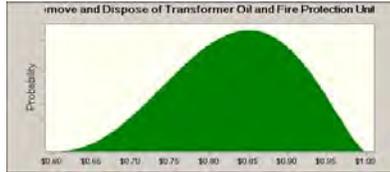
Mean	9,182	(=L65)
Std. Dev.	0	(=0.000001)



Assumption: 52 Remove and Dispose of Transformer Oil and Fire Protection Unit Price Cell: R65

BetaPERT distribution with parameters:

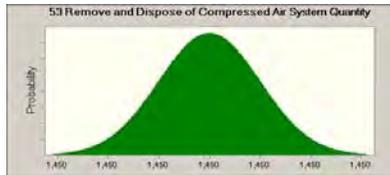
Minimum	\$0.60	(=Q65)
Likeliest	\$0.85	(=R65)
Maximum	\$1.00	(=S65)



Assumption: 53 Remove and Dispose of Compressed Air System Quantity Cell: L66

Normal distribution with parameters:

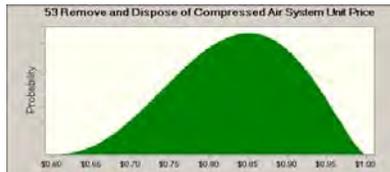
Mean	1,450	(=L66)
Std. Dev.	0	(=0.000001)



Assumption: 53 Remove and Dispose of Compressed Air System Unit Price Cell: R66

BetaPERT distribution with parameters:

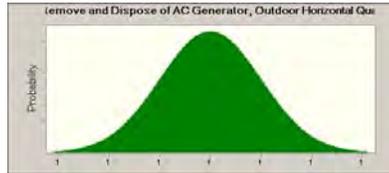
Minimum	\$0.60	(=Q66)
Likeliest	\$0.85	(=R66)
Maximum	\$1.00	(=S66)



Assumption: 54 Remove and Dispose of AC Generator, Outdoor Horizontal Quantity Cell: L67

Normal distribution with parameters:

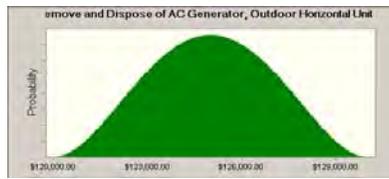
Mean	1	(=L67)
Std. Dev.	0	(=0.000001)



Assumption: 54 Remove and Dispose of AC Generator, Outdoor Horizontal Unit Price Cell: R67

BetaPERT distribution with parameters:

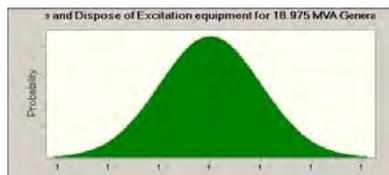
Minimum	\$120,000.00	(=Q67)
Likeliest	\$125,000.00	(=R67)
Maximum	\$130,000.00	(=S67)



Assumption: 55 Remove and Dispose of Excitation equipment for 18.975 MVA Generator Cell: L68

Normal distribution with parameters:

Mean	1	(=L68)
Std. Dev.	0	(=0.000001)



Assumption: 55 Remove and Dispose of Excitation equipment for 18.975 MVA Generator

BetaPERT distribution with parameters:

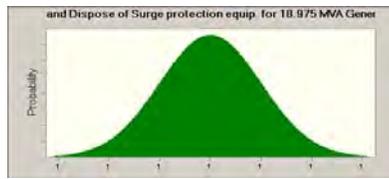
Minimum	\$1,500.00	(=Q68)
Likeliest	\$2,000.00	(=R68)
Maximum	\$3,000.00	(=S68)



Assumption: 56 Remove and Dispose of Surge protection equip. for 18.975 MVA Generator

Normal distribution with parameters:

Mean	1	(=L69)
Std. Dev.	0	(=0.000001)



Assumption: 56 Remove and Dispose of Surge protection equip. for 18.975 MVA Generator

BetaPERT distribution with parameters:

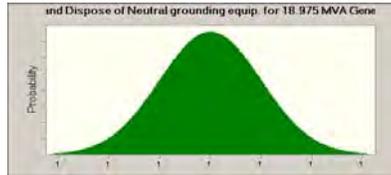
Minimum	\$1,500.00	(=Q69)
Likeliest	\$2,000.00	(=R69)
Maximum	\$3,000.00	(=S69)



Assumption: 57 Remove and Dispose of Neutral grounding equip. for 18.975 MVA Generators

Normal distribution with parameters:

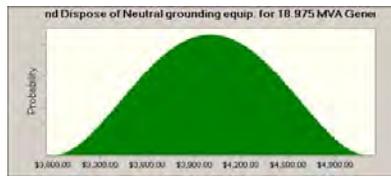
Mean	1	(=L70)
Std. Dev.	0	(=0.000001)



Assumption: 57 Remove and Dispose of Neutral grounding equip. for 18.975 MVA Generators

BetaPERT distribution with parameters:

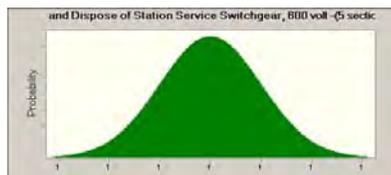
Minimum	\$3,000.00	(=Q70)
Likeliest	\$4,000.00	(=R70)
Maximum	\$5,000.00	(=S70)



Assumption: 58 Remove and Dispose of Station Service Switchgear, 600 volt -(5 sections)

Normal distribution with parameters:

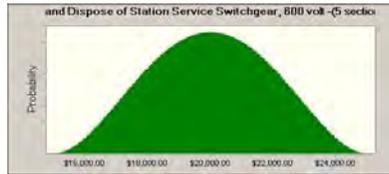
Mean	1	(=L71)
Std. Dev.	0	(=0.000001)



Assumption: 58 Remove and Dispose of Station Service Switchgear, 600 volt -(5 sections) Cell: R71

BetaPERT distribution with parameters:

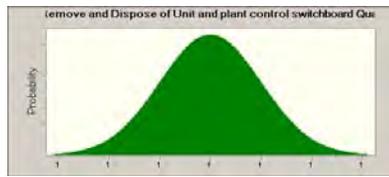
Minimum	\$15,000.00	(=Q71)
Likeliest	\$20,000.00	(=R71)
Maximum	\$25,000.00	(=S71)



Assumption: 59 Remove and Dispose of Unit and plant control switchboard Quantity Cell: L72

Normal distribution with parameters:

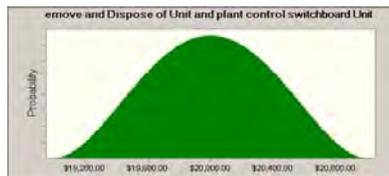
Mean	1	(=L72)
Std. Dev.	0	(=0.000001)



Assumption: 59 Remove and Dispose of Unit and plant control switchboard Unit Price Cell: R72

BetaPERT distribution with parameters:

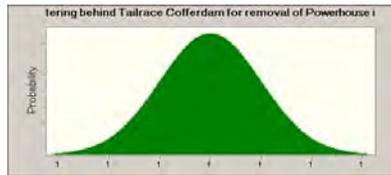
Minimum	\$19,000.00	(=Q72)
Likeliest	\$20,000.00	(=R72)
Maximum	\$21,000.00	(=S72)



Assumption: 6 Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse Cells

Normal distribution with parameters:

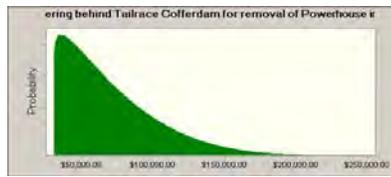
Mean	1	(=L19)
Std. Dev.	0	(=0.000001)



Assumption: 6 Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse Cells

BetaPERT distribution with parameters:

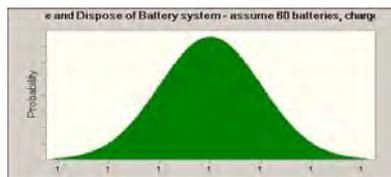
Minimum	\$30,000.00	(=Q19)
Likeliest	\$35,000.00	(=R19)
Maximum	\$250,000.00	(=S19)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge

Normal distribution with parameters:

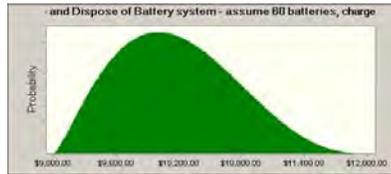
Mean	1	(=L73)
Std. Dev.	0	(=0.000001)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge Cell: R73

BetaPERT distribution with parameters:

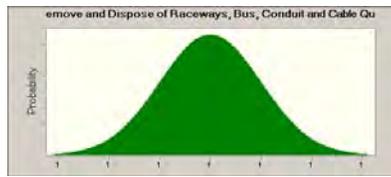
Minimum	\$9,000.00	(=Q73)
Likeliest	\$10,000.00	(=R73)
Maximum	\$12,000.00	(=S73)



Assumption: 61 Remove and Dispose of Raceways, Bus, Conduit and Cable Quantity Cell: L74

Normal distribution with parameters:

Mean	1	(=L74)
Std. Dev.	0	(=0.000001)



Assumption: 61 Remove and Dispose of Raceways, Bus, Conduit and Cable Unit Price Cell: R74

BetaPERT distribution with parameters:

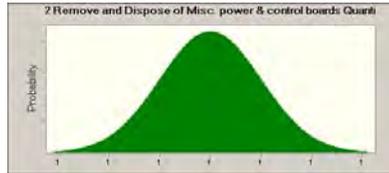
Minimum	\$14,000.00	(=Q74)
Likeliest	\$15,000.00	(=R74)
Maximum	\$17,000.00	(=S74)



Assumption: 62 Remove and Dispose of Misc. power & control boards Quantity **Cell: L75**

Normal distribution with parameters:

Mean	1	(=L75)
Std. Dev.	0	(=0.000001)



Assumption: 62 Remove and Dispose of Misc. power & control boards Unit Price **Cell: R75**

BetaPERT distribution with parameters:

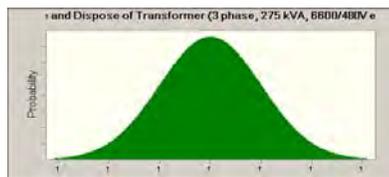
Minimum	\$4,000.00	(=Q75)
Likeliest	\$5,000.00	(=R75)
Maximum	\$7,000.00	(=S75)



Assumption: 63 Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480V etc.) **Cell: L76**

Normal distribution with parameters:

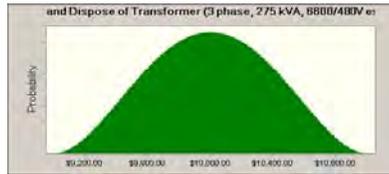
Mean	1	(=L76)
Std. Dev.	0	(=0.000001)



Assumption: 63 Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480V @ 1000 ft) Cost: UR76

BetaPERT distribution with parameters:

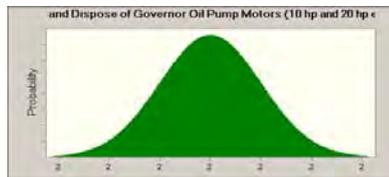
Minimum	\$9,000.00	(=Q76)
Likeliest	\$10,000.00	(=R76)
Maximum	\$11,000.00	(=S76)



Assumption: 64 Remove and Dispose of Governor Oil Pump Motors (10 hp and 20 hp @ 1000 ft) Cost: L77

Normal distribution with parameters:

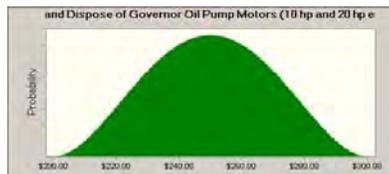
Mean	2	(=L77)
Std. Dev.	0	(=0.000001)



Assumption: 64 Remove and Dispose of Governor Oil Pump Motors (10 hp and 20 hp @ 1000 ft) Cost: R77

BetaPERT distribution with parameters:

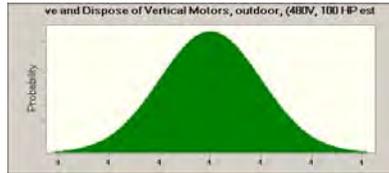
Minimum	\$200.00	(=Q77)
Likeliest	\$250.00	(=R77)
Maximum	\$300.00	(=S77)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est. Cost L78

Normal distribution with parameters:

Mean	4	(=L78)
Std. Dev.	0	(=0.000001)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est. Cost R78

BetaPERT distribution with parameters:

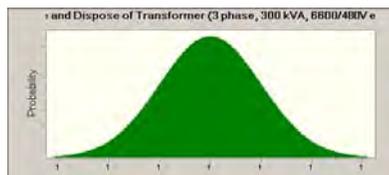
Minimum	\$500.00	(=Q78)
Likeliest	\$600.00	(=R78)
Maximum	\$700.00	(=S78)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 660V/480V est. Cost L79

Normal distribution with parameters:

Mean	1	(=L79)
Std. Dev.	0	(=0.000001)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V oil-filled) Case:UR79

BetaPERT distribution with parameters:

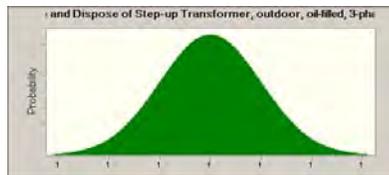
Minimum	\$9,000.00	(=Q79)
Likeliest	\$10,000.00	(=R79)
Maximum	\$13,000.00	(=S79)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase Case:L80

Normal distribution with parameters:

Mean	1	(=L80)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase Case:R80

BetaPERT distribution with parameters:

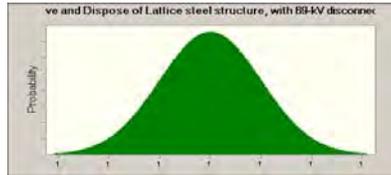
Minimum	\$90,000.00	(=Q80)
Likeliest	\$100,000.00	(=R80)
Maximum	\$120,000.00	(=S80)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnect Cell L81

Normal distribution with parameters:

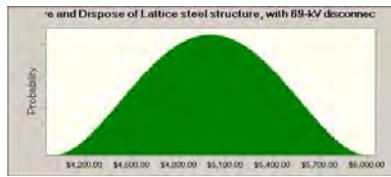
Mean	1	(=L81)
Std. Dev.	0	(=0.000001)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnect Cell R81

BetaPERT distribution with parameters:

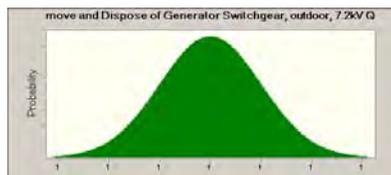
Minimum	\$4,000.00	(=Q81)
Likeliest	\$5,000.00	(=R81)
Maximum	\$6,000.00	(=S81)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Quantity: L82

Normal distribution with parameters:

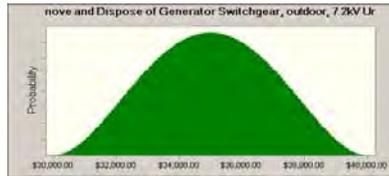
Mean	1	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Unit ~~Cost~~ R82

BetaPERT distribution with parameters:

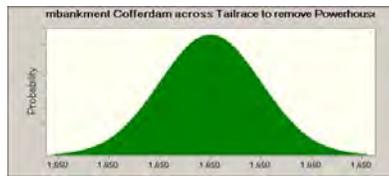
Minimum	\$30,000.00	(=Q82)
Likeliest	\$35,000.00	(=R82)
Maximum	\$40,000.00	(=S82)



Assumption: 7 Construct Embankment Cofferdam across Tailrace to remove Powerhouse ~~Cost~~ L20

Normal distribution with parameters:

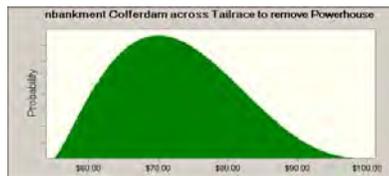
Mean	1,650	(=L20)
Std. Dev.	0	(=0.000001)



Assumption: 7 Construct Embankment Cofferdam across Tailrace to remove Powerhouse ~~Cost~~ R20

BetaPERT distribution with parameters:

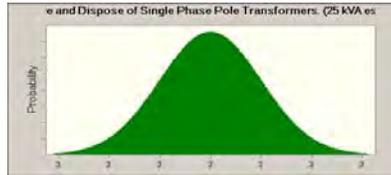
Minimum	\$55.00	(=Q20)
Likeliest	\$70.00	(=R20)
Maximum	\$100.00	(=S20)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es) Cell: L83

Normal distribution with parameters:

Mean 3 (=L83)
 Std. Dev. 0 (=0.000001)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es) Cell: R83

BetaPERT distribution with parameters:

Minimum \$1,500.00 (=Q83)
 Likeliest \$2,000.00 (=R83)
 Maximum \$3,000.00 (=S83)

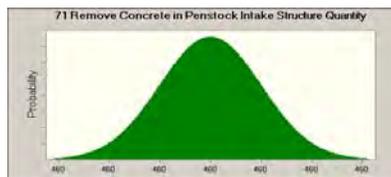


Assumption: 71 Remove Concrete in Penstock Intake Structure Quantity

Cell: L84

Normal distribution with parameters:

Mean 460 (=L84)
 Std. Dev. 0 (=0.000001)

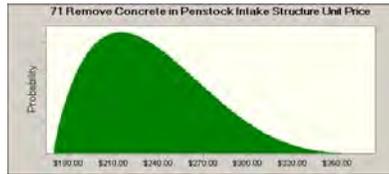


Assumption: 71 Remove Concrete in Penstock Intake Structure Unit Price

Cell: R84

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q84)
Likeliest	\$215.00	(=R84)
Maximum	\$380.00	(=S84)

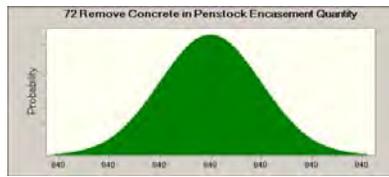


Assumption: 72 Remove Concrete in Penstock Encasement Quantity

Cell: L85

Normal distribution with parameters:

Mean	840	(=L85)
Std. Dev.	0	(=0.000001)

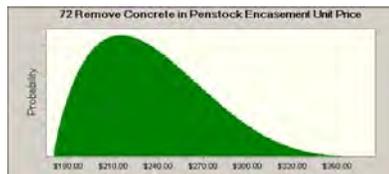


Assumption: 72 Remove Concrete in Penstock Encasement Unit Price

Cell: R85

BetaPERT distribution with parameters:

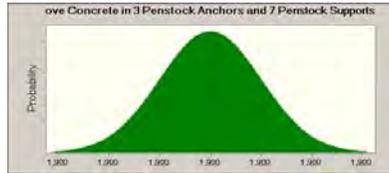
Minimum	\$170.00	(=Q85)
Likeliest	\$215.00	(=R85)
Maximum	\$380.00	(=S85)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports Cell: L86

Normal distribution with parameters:

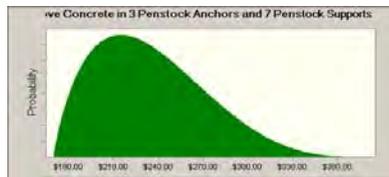
Mean 1,900 (=L86)
Std. Dev. 0 (=0.000001)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports Cell: R86

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q86)
Likeliest \$215.00 (=R86)
Maximum \$380.00 (=S86)



Assumption: 74 Remove Steel Footbridge to Intake Structure Quantity

Cell: L87

Normal distribution with parameters:

Mean 11,000 (=L87)
Std. Dev. 0 (=0.000001)



Assumption: 74 Remove Steel Footbridge to Intake Structure Unit Price

Cell: R87

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q87)
Likeliest	\$0.85	(=R87)
Maximum	\$1.00	(=S87)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Quantity

Cell: L88

Normal distribution with parameters:

Mean	5	(=L88)
Std. Dev.	0	(=0.000001)

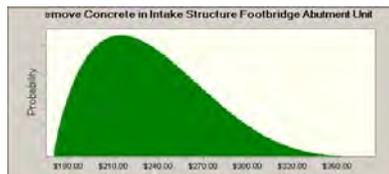


Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Unit Price

Cell: R88

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q88)
Likeliest	\$215.00	(=R88)
Maximum	\$380.00	(=S88)

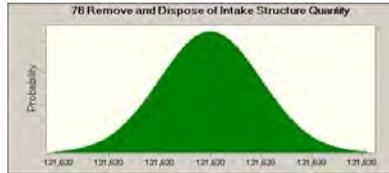


Assumption: 76 Remove and Dispose of Intake Structure Quantity

Cell: L89

Normal distribution with parameters:

Mean	131,630	(=L89)
Std. Dev.	0	(=0.000001)

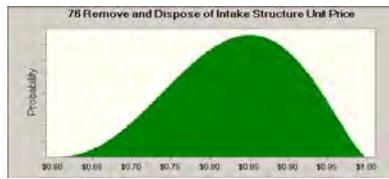


Assumption: 76 Remove and Dispose of Intake Structure Unit Price

Cell: R89

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q89)
Likeliest	\$0.85	(=R89)
Maximum	\$1.00	(=S89)

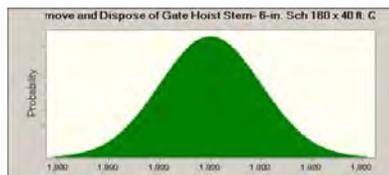


Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Quantity

Cell: L90

Normal distribution with parameters:

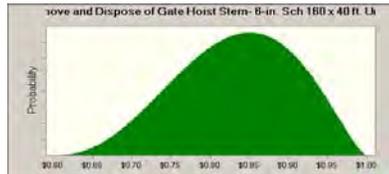
Mean	1,800	(=L90)
Std. Dev.	0	(=0.000001)



Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Unit Price R90

BetaPERT distribution with parameters:

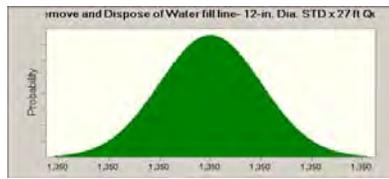
Minimum	\$0.60	(=Q90)
Likeliest	\$0.85	(=R90)
Maximum	\$1.00	(=S90)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Quantity Cell: L91

Normal distribution with parameters:

Mean	1,350	(=L91)
Std. Dev.	0	(=0.000001)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Unit Price Cell: R91

BetaPERT distribution with parameters:

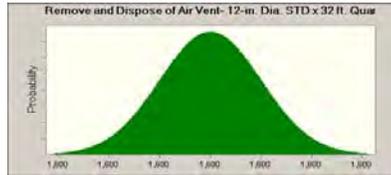
Minimum	\$0.60	(=Q91)
Likeliest	\$0.85	(=R91)
Maximum	\$1.00	(=S91)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Quantity Cell: L92

Normal distribution with parameters:

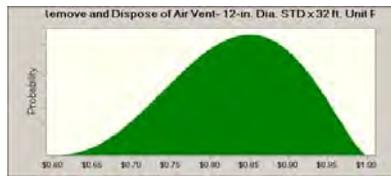
Mean 1,600 (=L92)
 Std. Dev. 0 (=0.000001)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Unit Price Cell: R92

BetaPERT distribution with parameters:

Minimum \$0.60 (=Q92)
 Likeliest \$0.85 (=R92)
 Maximum \$1.00 (=S92)

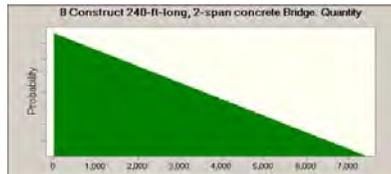


Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Quantity Cell: L21

Cell: L21

Triangular distribution with parameters:

Minimum 0 (=K21)
 Likeliest 0 (=L21)
 Maximum 7,440 (=M21)

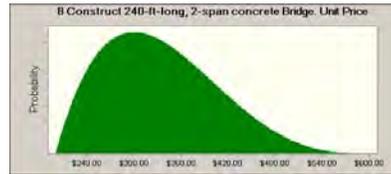


Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Unit Price

Cell: R21

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q21)
Likeliest	\$300.00	(=R21)
Maximum	\$600.00	(=S21)



Assumption: 80 Remove and Dispose of Gage Wells Quantity

Cell: L93

Normal distribution with parameters:

Mean	2,612	(=L93)
Std. Dev.	0	(=0.000001)

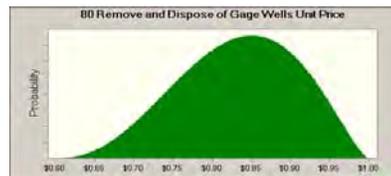


Assumption: 80 Remove and Dispose of Gage Wells Unit Price

Cell: R93

BetaPERT distribution with parameters:

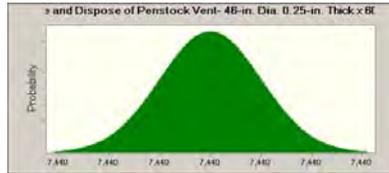
Minimum	\$0.60	(=Q93)
Likeliest	\$0.85	(=R93)
Maximum	\$1.00	(=S93)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. L94

Normal distribution with parameters:

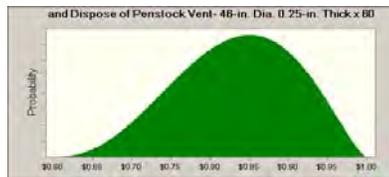
Mean	7,440	(=L94)
Std. Dev.	0	(=0.000001)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. L94

BetaPERT distribution with parameters:

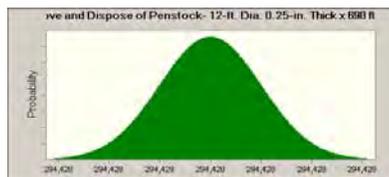
Minimum	\$0.60	(=Q94)
Likeliest	\$0.85	(=R94)
Maximum	\$1.00	(=S94)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. L95

Normal distribution with parameters:

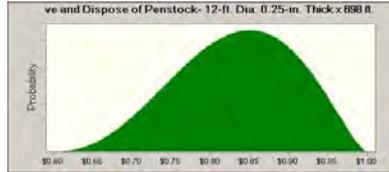
Mean	294,428	(=L95)
Std. Dev.	0	(=0.000001)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Cell: R95

BetaPERT distribution with parameters:

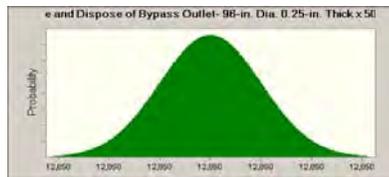
Minimum	\$0.60	(=Q95)
Likeliest	\$0.85	(=R95)
Maximum	\$1.00	(=S95)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 506 ft. Cell: L96

Normal distribution with parameters:

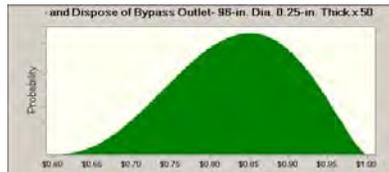
Mean	12,850	(=L96)
Std. Dev.	0	(=0.000001)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 506 ft. Cell: R96

BetaPERT distribution with parameters:

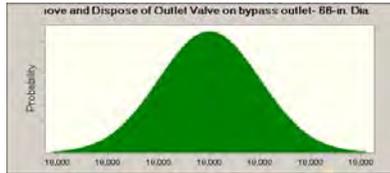
Minimum	\$0.60	(=Q96)
Likeliest	\$0.85	(=R96)
Maximum	\$1.00	(=S96)



Assumption: 84 Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia. Quantity

Normal distribution with parameters:

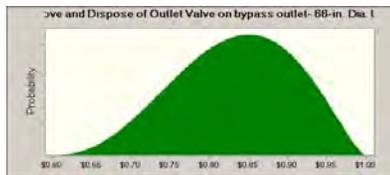
Mean 18,000 (=L97)
 Std. Dev. 0 (=0.000001)



Assumption: 84 Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia. Unit Price

BetaPERT distribution with parameters:

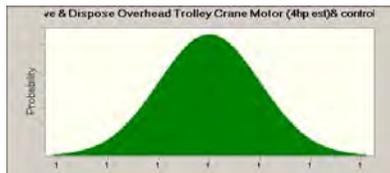
Minimum \$0.60 (=Q97)
 Likeliest \$0.85 (=R97)
 Maximum \$1.00 (=S97)



Assumption: 85 Remove & Dispose Overhead Trolley Crane Motor (4hp est)& control

Normal distribution with parameters:

Mean 1 (=L98)
 Std. Dev. 0 (=0.000001)



Assumption: 85 Remove & Dispose Overhead Trolley Crane Motor (4hp est)& control Cell: R98

BetaPERT distribution with parameters:

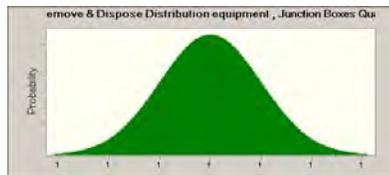
Minimum	\$900.00	(=Q98)
Likeliest	\$1,000.00	(=R98)
Maximum	\$1,300.00	(=S98)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Quantity Cell: L99

Normal distribution with parameters:

Mean	1	(=L99)
Std. Dev.	0	(=0.000001)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Unit Price Cell: R99

BetaPERT distribution with parameters:

Minimum	\$2,000.00	(=Q99)
Likeliest	\$2,500.00	(=R99)
Maximum	\$3,000.00	(=S99)

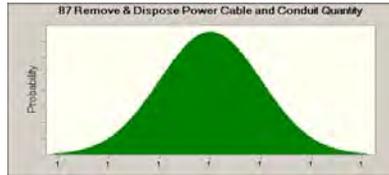


Assumption: 87 Remove & Dispose Power Cable and Conduit Quantity

Cell: L100

Normal distribution with parameters:

Mean	1	(=L100)
Std. Dev.	0	(=0.000001)

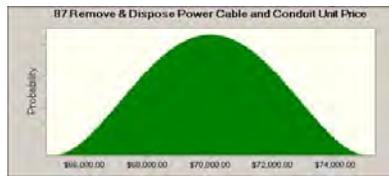


Assumption: 87 Remove & Dispose Power Cable and Conduit Unit Price

Cell: R100

BetaPERT distribution with parameters:

Minimum	\$65,000.00	(=Q100)
Likeliest	\$70,000.00	(=R100)
Maximum	\$75,000.00	(=S100)



Assumption: 88 Temporary Access Roads Quantity

Cell: L101

Normal distribution with parameters:

Mean	2.6	(=L101)
Std. Dev.	0.0	(=0.000001)

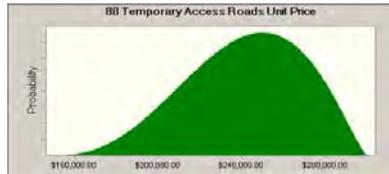


Assumption: 88 Temporary Access Roads Unit Price

Cell: R101

BetaPERT distribution with parameters:

Minimum	\$150,000.00	(=Q101)
Likeliest	\$250,000.00	(=S101)
Maximum	\$300,000.00	(=R101)

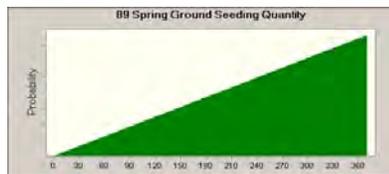


Assumption: 89 Spring Ground Seeding Quantity

Cell: L102

Triangular distribution with parameters:

Minimum	0	(=M102)
Likeliest	370	(=L102)
Maximum	370	(=K102)



Assumption: 89 Spring Ground Seeding Unit Price

Cell: R102

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q102)
Likeliest	\$3,500.00	(=R102)
Maximum	\$4,000.00	(=S102)

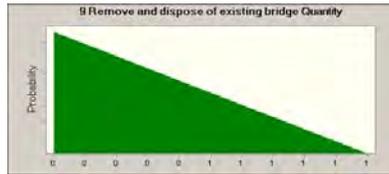


Assumption: 9 Remove and dispose of existing bridge Quantity

Cell: L22

Triangular distribution with parameters:

Minimum	0	(=K22)
Likeliest	0	(=L22)
Maximum	1	(=M22)

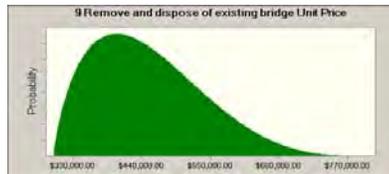


Assumption: 9 Remove and dispose of existing bridge Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$300,000.00	(=Q22)
Likeliest	\$400,000.00	(=R22)
Maximum	\$800,000.00	(=S22)

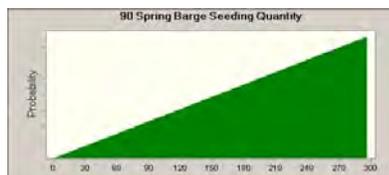


Assumption: 90 Spring Barge Seeding Quantity

Cell: L103

Triangular distribution with parameters:

Minimum	0	(=M103)
Likeliest	296	(=L103)
Maximum	296	(=K103)

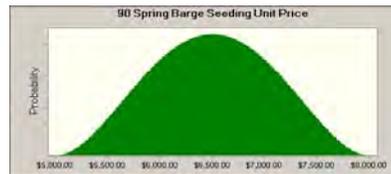


Assumption: 90 Spring Barge Seeding Unit Price

Cell: R103

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q103)
Likeliest	\$6,500.00	(=R103)
Maximum	\$8,000.00	(=S103)

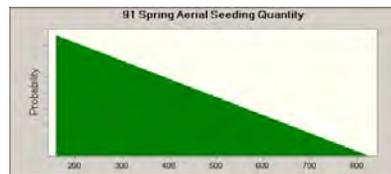


Assumption: 91 Spring Aerial Seeding Quantity

Cell: L104

Triangular distribution with parameters:

Minimum	159	(=K104)
Likeliest	159	(=L104)
Maximum	825	(=M104)

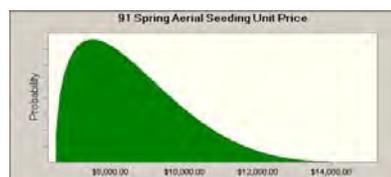


Assumption: 91 Spring Aerial Seeding Unit Price

Cell: R104

BetaPERT distribution with parameters:

Minimum	\$6,500.00	(=Q104)
Likeliest	\$7,500.00	(=R104)
Maximum	\$15,000.00	(=S104)



Assumption: 92 Fall Ground Seeding Quantity

Cell: L105

Triangular distribution with parameters:

Minimum	207	(=K105)
Likeliest	413	(=L105)
Maximum	619	(=M105)



Assumption: 92 Fall Ground Seeding Unit Price

Cell: R105

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q105)
Likeliest	\$3,500.00	(=R105)
Maximum	\$4,000.00	(=S105)

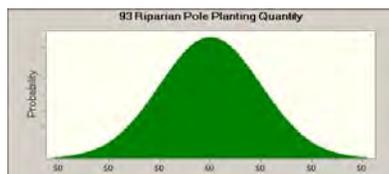


Assumption: 93 Riparian Pole Planting Quantity

Cell: L106

Normal distribution with parameters:

Mean	50	(=L106)
Std. Dev.	0	(=0.000001)

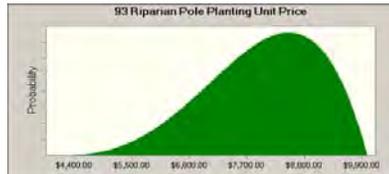


Assumption: 93 Riparian Pole Planting Unit Price

Cell: R106

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q106)
Likeliest	\$8,500.00	(=R106)
Maximum	\$10,000.00	(=S106)

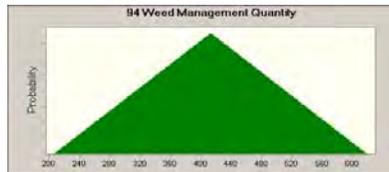


Assumption: 94 Weed Management Quantity

Cell: L107

Triangular distribution with parameters:

Minimum	206	(=K107)
Likeliest	413	(=L107)
Maximum	619	(=M107)



Assumption: 94 Weed Management Unit Price

Cell: R107

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q107)
Likeliest	\$1,500.00	(=R107)
Maximum	\$2,000.00	(=S107)

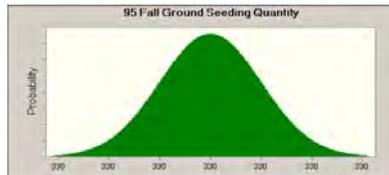


Assumption: 95 Fall Ground Seeding Quantity

Cell: L108

Normal distribution with parameters:

Mean	330	(=L108)
Std. Dev.	0	(=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price

Cell: R108

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q108)
Likeliest	\$3,500.00	(=R108)
Maximum	\$4,000.00	(=S108)



Assumption: 96 Weed Management Quantity

Cell: L109

Normal distribution with parameters:

Mean	330	(=L109)
Std. Dev.	0	(=0.000001)

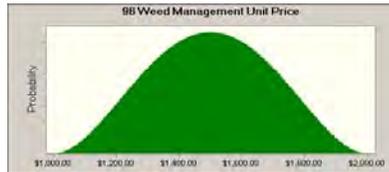


Assumption: 96 Weed Management Unit Price

Cell: R109

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q109)
Likeliest	\$1,500.00	(=R109)
Maximum	\$2,000.00	(=S109)

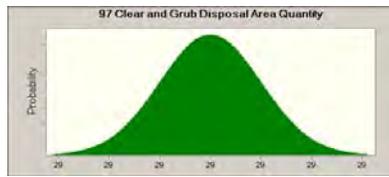


Assumption: 97 Clear and Grub Disposal Area Quantity

Cell: L110

Normal distribution with parameters:

Mean	29	(=L110)
Std. Dev.	0	(=0.000001)



Assumption: 97 Clear and Grub Disposal Area Unit Price

Cell: R110

BetaPERT distribution with parameters:

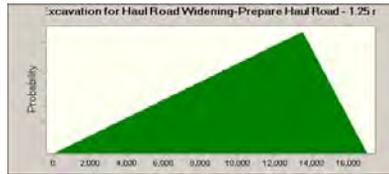
Minimum	\$5,000.00	(=Q110)
Likeliest	\$6,000.00	(=R110)
Maximum	\$7,000.00	(=S110)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi Q111

Triangular distribution with parameters:

Minimum	0	(=K111)
Likeliest	13,500	(=L111)
Maximum	17,000	(=M111)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi U111

BetaPERT distribution with parameters:

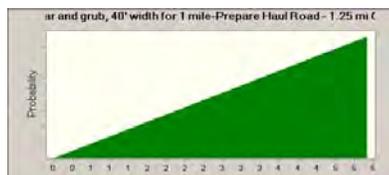
Minimum	\$35.00	(=Q111)
Likeliest	\$40.00	(=R111)
Maximum	\$45.00	(=S111)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Q112

Triangular distribution with parameters:

Minimum	0	(=K112)
Likeliest	5	(=L112)
Maximum	5	(=M112)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Unit Price

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q112)
Likeliest	\$6,000.00	(=R112)
Maximum	\$7,000.00	(=S112)

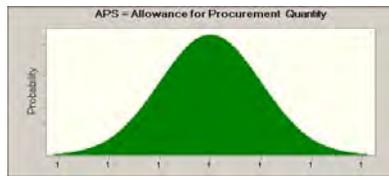


Assumption: APS = Allowance for Procurement Quantity

Cell: L206

Normal distribution with parameters:

Mean	1	(=L206)
Std. Dev.	0	(=0.000001)



Assumption: APS = Allowance for Procurement Unit Price

Cell: R206

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q206)
Likeliest	\$0.00	(=R206)
Maximum	\$1,439,193.00	(=S206)

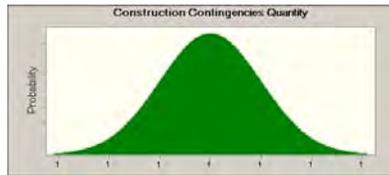


Assumption: Construction Contingencies Quantity

Cell: L209

Normal distribution with parameters:

Mean	1	(=L209)
Std. Dev.	0	(=0.000001)



Assumption: Construction Contingencies Unit Price

Cell: R209

BetaPERT distribution with parameters:

Minimum	\$5,000,000.00	(=Q209)
Likeliest	\$8,000,000.00	(=R209)
Maximum	\$19,000,000.00	(=S209)

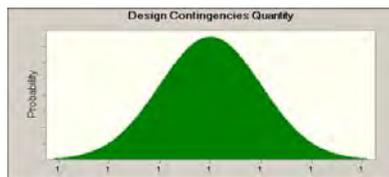


Assumption: Design Contingencies Quantity

Cell: L205

Normal distribution with parameters:

Mean	1	(=L205)
Std. Dev.	0	(=0.000001)

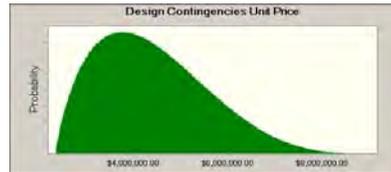


Assumption: Design Contingencies Unit Price

Cell: R205

BetaPERT distribution with parameters:

Minimum	\$2,331,941.00	(=Q205)
Likeliest	\$3,745,246.00	(=R205)
Maximum	\$8,987,192.00	(=S205)

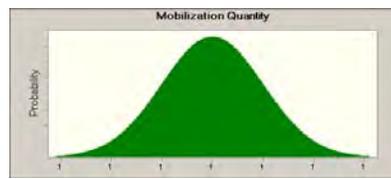


Assumption: Mobilization Quantity

Cell: L200

Normal distribution with parameters:

Mean	1	(=L200)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R200

BetaPERT distribution with parameters:

Minimum	\$1,200,000.00	(=Q200)
Likeliest	\$1,700,000.00	(=R200)
Maximum	\$3,000,000.00	(=S200)



Assumption: Non-Contract Cost Quantity

Cell: L211

Normal distribution with parameters:

Mean	1	(=L211)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R211

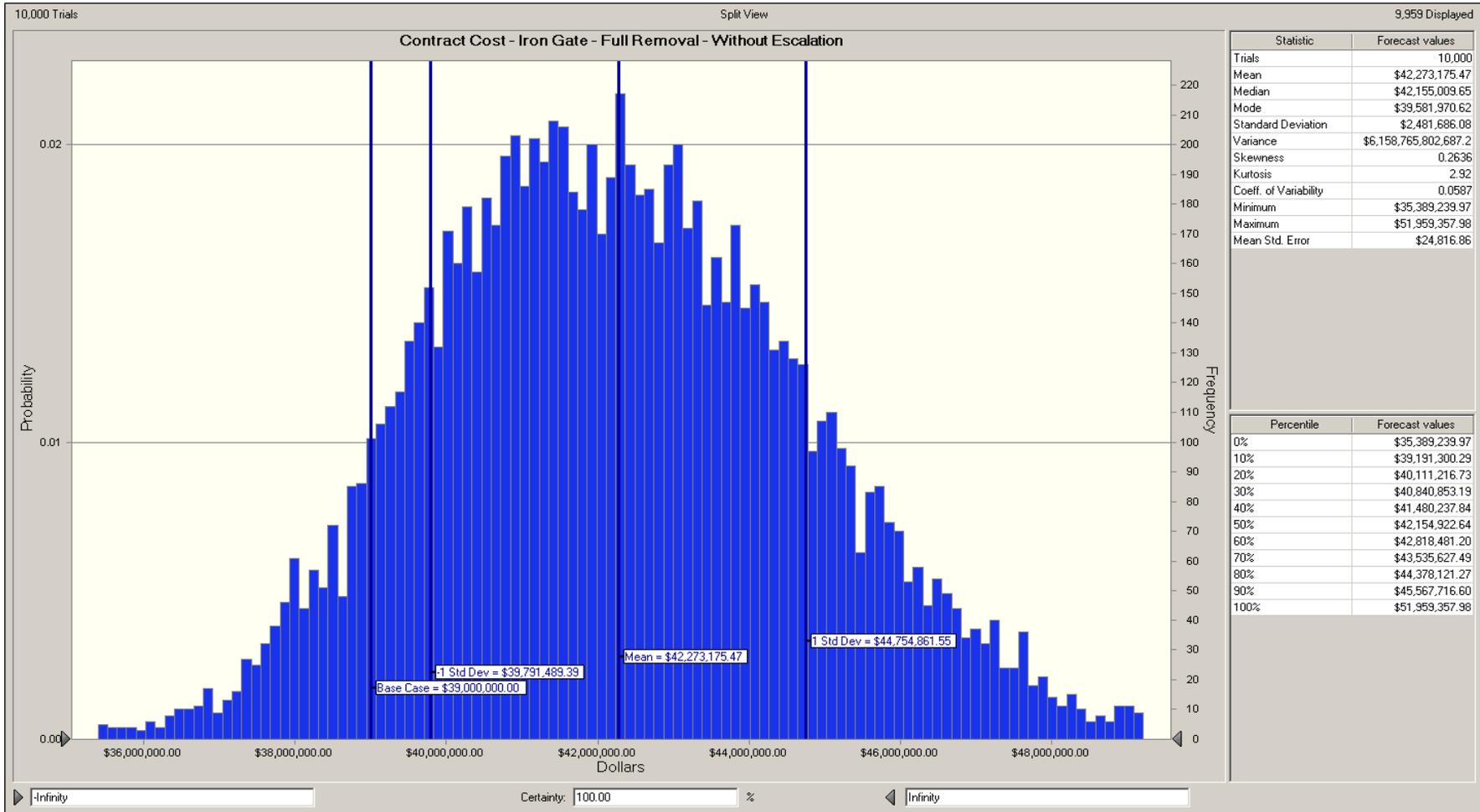
BetaPERT distribution with parameters:

Minimum	\$17,000,000.00	(=Q211)
Likeliest	\$26,000,000.00	(=R211)
Maximum	\$58,000,000.00	(=S211)

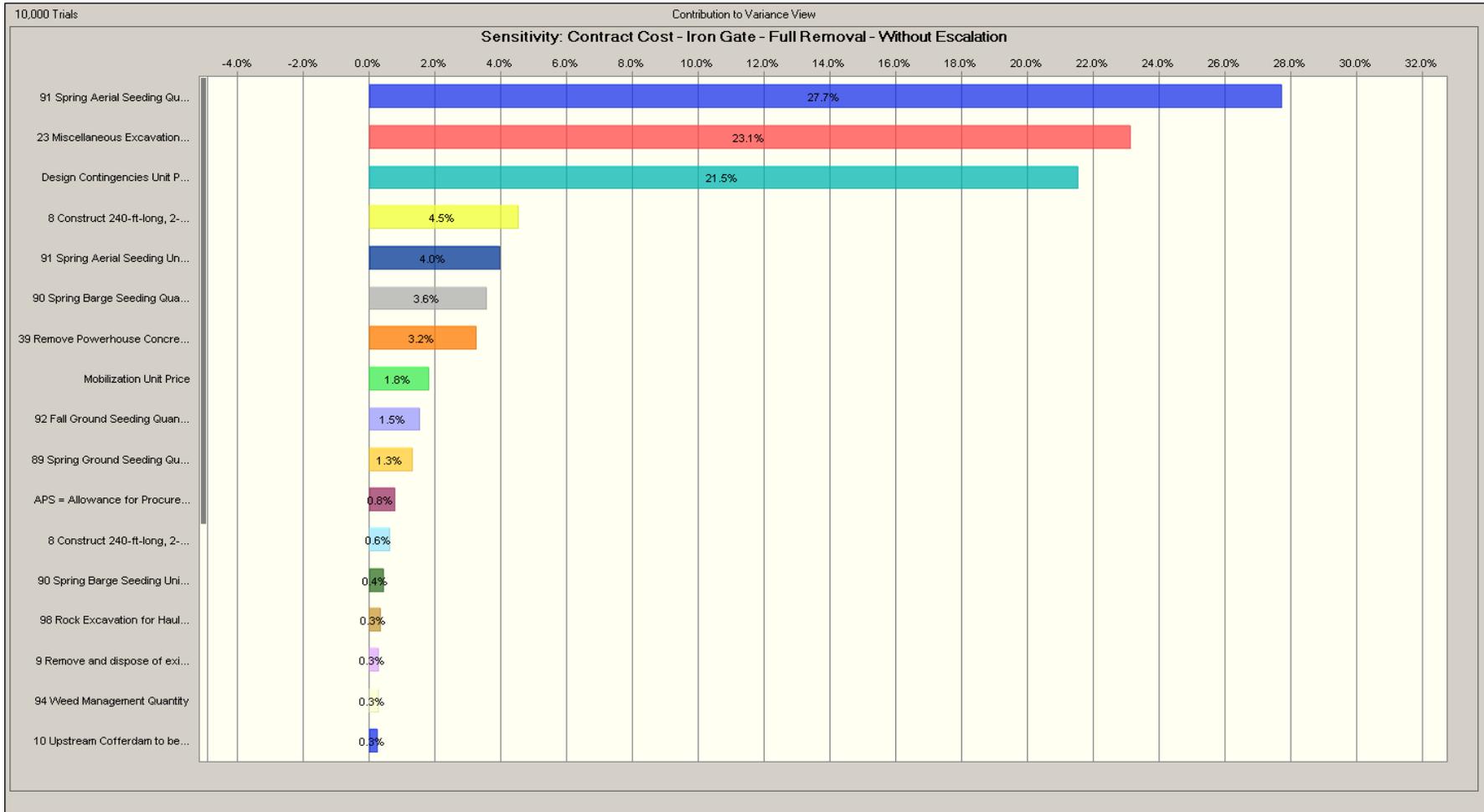


End of Assumptions

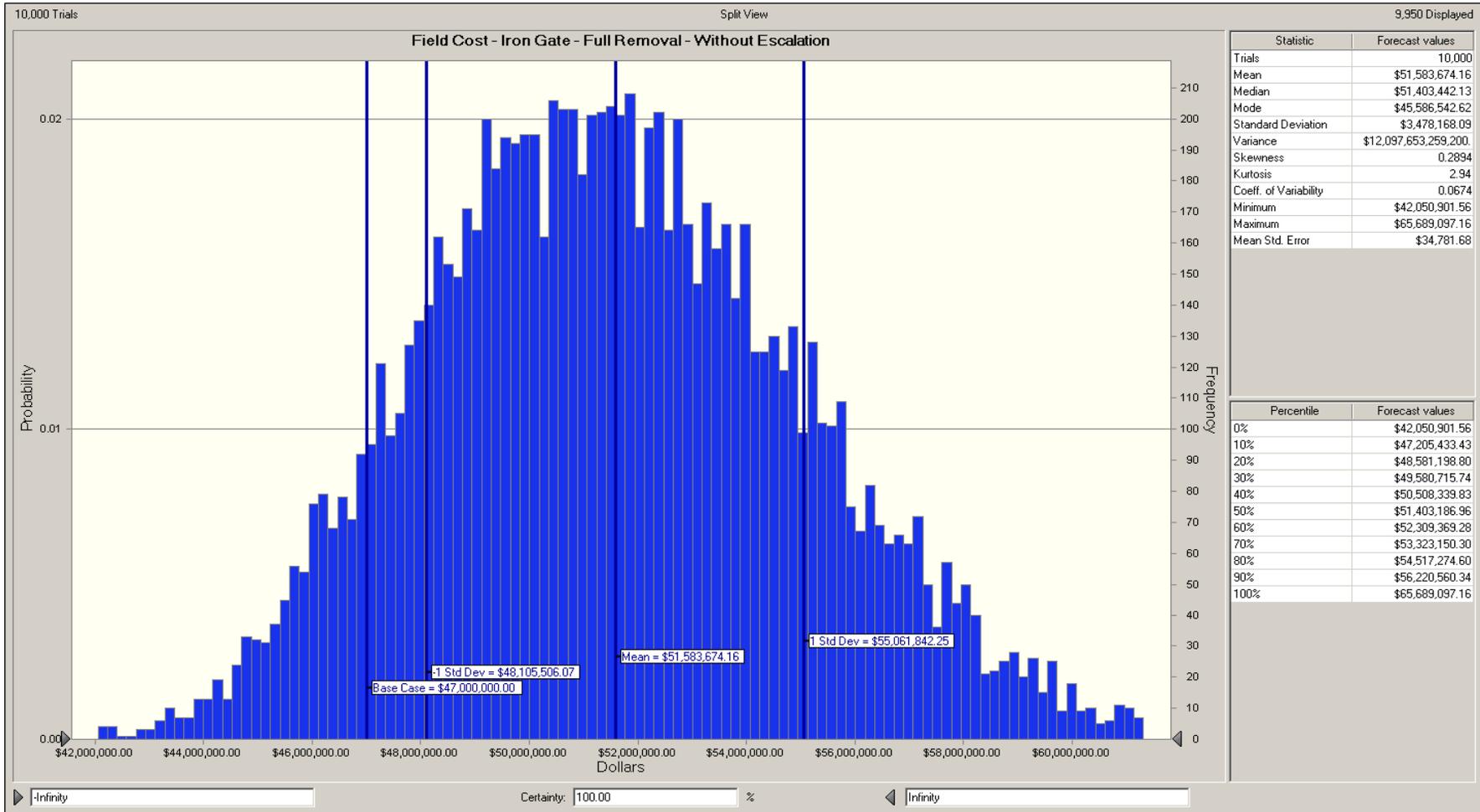
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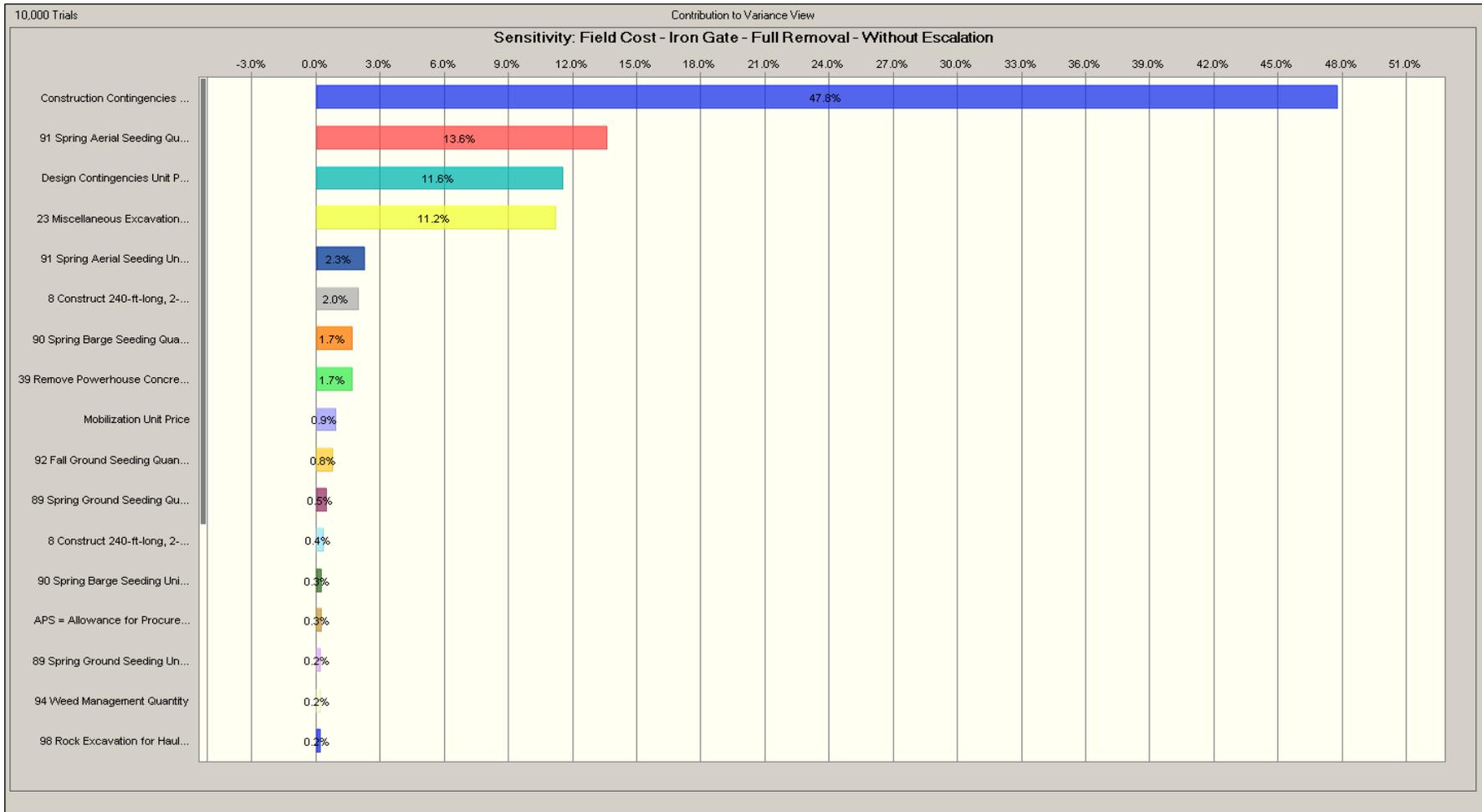
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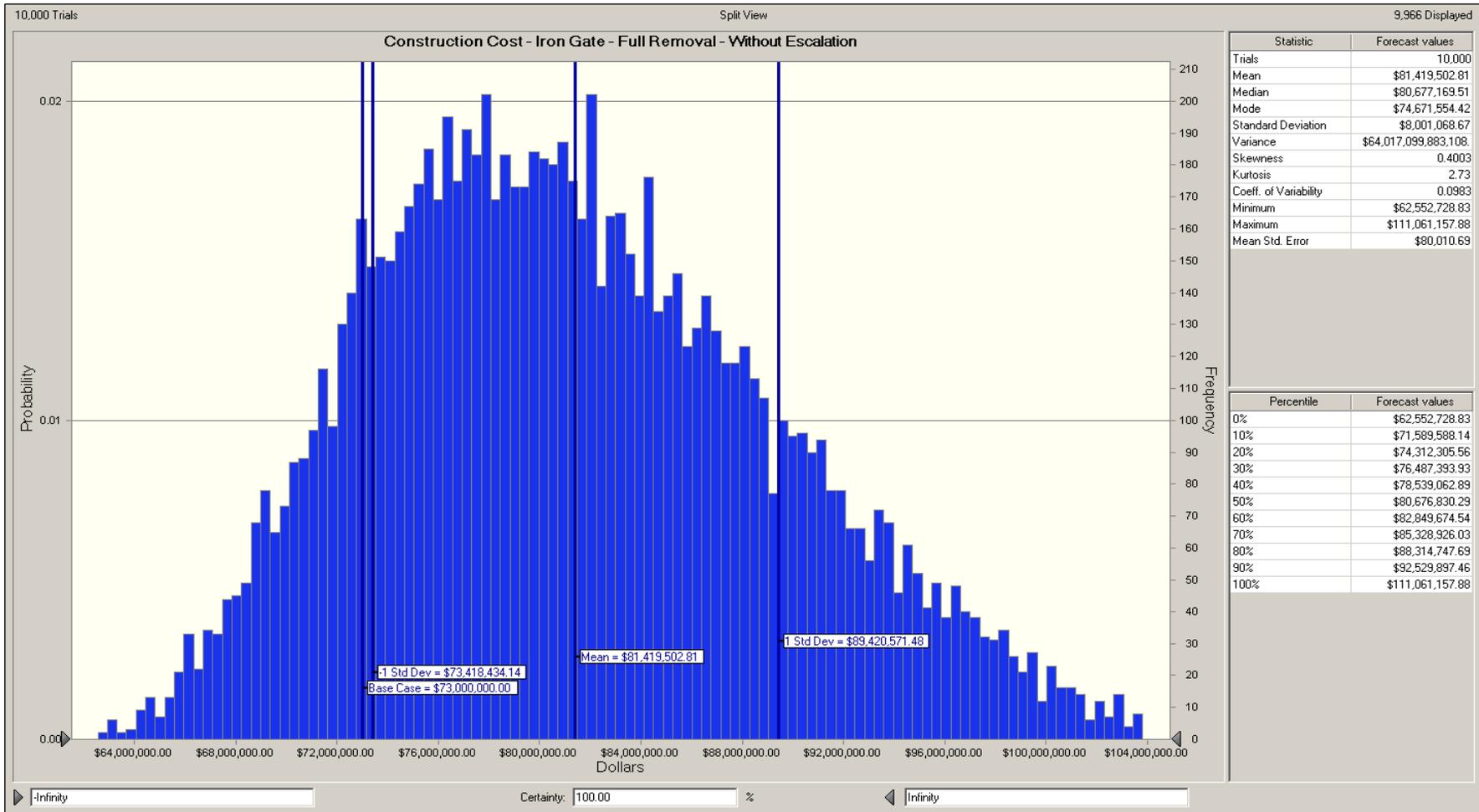
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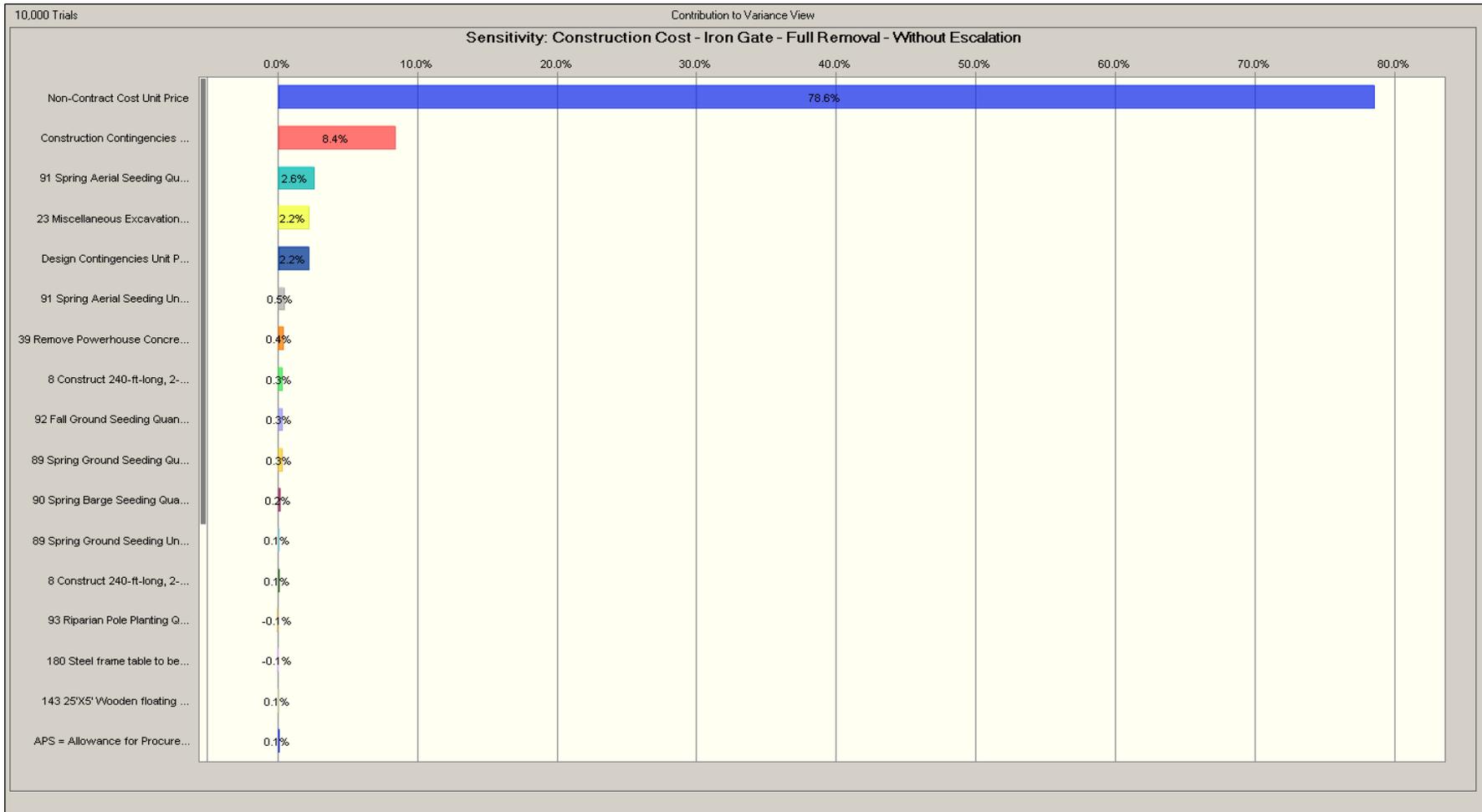
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PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



FEATURE:			PROJECT:										
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon										
			WOID: AF652	ESTIMATE LEVEL: Feasibility									
			REGION: MP	PRICE LEVEL: Jul-2010									
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls\Iron Gate - Full - with Esc									
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir	8130	1	1	1	LS	\$190,000.00	\$200,000.00	\$210,000.00	\$190,000.00	\$200,000.00	\$210,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure	8130	0	0	0	LS				\$0.00	\$0.00	\$0.00
	3	Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S for Flap Gate	8130	31	31	31	CY	\$1,300.00	\$1,500.00	\$1,800.00	\$40,300.00	\$46,500.00	\$55,800.00
	4	Remove Reinforced Concrete Stoplog Structure	8130	3	3	3	CY	\$170.00	\$215.00	\$380.00	\$510.00	\$645.00	\$1,140.00
	5	Remove Water from behind Tailrace Cofferdam	8130	0	0	0	GAL				\$0.00	\$0.00	\$0.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry	8130	0	0	0	LS				\$0.00	\$0.00	\$0.00
	7	Construct Embankment Cofferdam across Tailrace to remove Powerhouse in dry	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	8	Construct 240-ft-long, 2-span concrete Bridge.	8130	0	0	7,440	SF	\$200.00	\$300.00	\$600.00	\$0.00	\$0.00	\$4,464,000.00
	9	Remove and dispose of existing bridge	8130	0	0	1	LS	\$300,000.00	\$400,000.00	\$800,000.00	\$0.00	\$0.00	\$800,000.00
	10	Upstream Cofferdam to be Removed in the Wet	8313	20,000	20,000	20,000	CY	\$55.00	\$70.00	\$100.00	\$1,100,000.00	\$1,400,000.00	\$2,000,000.00
	11	Remove 9' dia hinged blind flange	8420	19,000	19,000	19,000	LBS	\$1.50	\$2.00	\$3.00	\$28,500.00	\$38,000.00	\$57,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe	8420	2,900	2,900	2,900	LBS	\$1.50	\$2.00	\$3.00	\$4,350.00	\$5,800.00	\$8,700.00
	13	Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operator	8420	110,000	110,000	110,000	LBS	\$12.00	\$16.00	\$18.00	\$1,320,000.00	\$1,650,000.00	\$1,980,000.00
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension	8130	580	580	580	CY	\$170.00	\$215.00	\$380.00	\$98,600.00	\$124,700.00	\$220,400.00
	15	Remove Concrete in Diversion Tunnel Intake Structure	8130	530	530	530	CY	\$170.00	\$215.00	\$380.00	\$90,100.00	\$113,950.00	\$201,400.00
	16	Remove Concrete in Diversion Tunnel Gate Tower	8130	410	410	410	CY	\$170.00	\$215.00	\$380.00	\$69,700.00	\$88,150.00	\$155,800.00
	17	Remove Steel Footbridge to Gate Tower	8130	13,000	13,000	13,000	LBS	\$0.85	\$0.85	\$1.00	\$11,050.00	\$11,050.00	\$13,000.00
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment	8130	20	20	20	CY	\$170.00	\$215.00	\$380.00	\$3,400.00	\$4,300.00	\$7,600.00
	19	Place Concrete Plugs for Diversion Tunnel	8130	43	43	43	CY	\$1,100.00	\$1,200.00	\$1,300.00	\$47,300.00	\$51,600.00	\$55,900.00
	20	Remove Concrete Closure Gates in Gate Tower	8130	61	61	61	CY	\$900.00	\$1,000.00	\$1,300.00	\$54,900.00	\$61,000.00	\$79,300.00
	21	Remove Upstream Riprap	8313	80,000	80,000	80,000	CY	\$10.00	\$13.00	\$17.00	\$800,000.00	\$1,040,000.00	\$1,360,000.00
	22	Remove Downstream Riprap	8313	30,000	30,000	30,000	CY	\$10.00	\$13.00	\$17.00	\$300,000.00	\$390,000.00	\$510,000.00
	23	Miscellaneous Excavation	8313	880,000	880,000	925,000	CY	\$10.00	\$13.00	\$17.00	\$8,800,000.00	\$11,440,000.00	\$15,725,000.00
	24	Cutoff Wall Concrete Demolition	8313	1,000	1,250	1,500	CY	\$170.00	\$215.00	\$380.00	\$170,000.00	\$268,750.00	\$570,000.00
	25	Earth Fill Crest Raise	8313	13,000	13,000	13,000	CY	\$10.00	\$13.00	\$17.00	\$130,000.00	\$169,000.00	\$221,000.00
	26	Sheetpile Crest Raise	8313	800	800	800	LF	\$200.00	\$250.00	\$300.00	\$160,000.00	\$200,000.00	\$240,000.00
	27	Remove 5 monitoring wells	8313	5	5	5	EA	\$1,900.00	\$2,000.00	\$2,200.00	\$9,500.00	\$10,000.00	\$11,000.00
	28	Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H	8420	4,500	4,500	4,500	LBS	\$0.60	\$0.85	\$1.00	\$2,700.00	\$3,825.00	\$4,500.00
	29	Remove and Dispose of Intake structure	8420	72,000	72,000	72,000	LBS	\$0.60	\$0.70	\$0.85	\$43,200.00	\$50,400.00	\$61,200.00
	30	Remove and Dispose of Sluice and Diversion Tunnel Gate	8420	28,000	28,000	28,000	LBS	\$0.60	\$0.85	\$1.00	\$16,800.00	\$23,800.00	\$28,000.00
	31	Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft.	8420	7,500	7,500	7,500	LBS	\$0.60	\$0.85	\$1.00	\$4,500.00	\$6,375.00	\$7,500.00
	32	Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft.	8420	4,650	4,650	4,650	LBS	\$1.50	\$2.00	\$3.00	\$6,975.00	\$9,300.00	\$13,950.00
	33	Remove and Dispose of Transition Gate Structure	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	34	Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft.	8420	30,250	30,250	30,250	LBS	\$1.50	\$2.00	\$3.00	\$45,375.00	\$60,500.00	\$90,750.00
	35	Remove and Dispose of Outlet Works Stop Logs	8420	2,670	2,670	2,670	LBS	\$0.60	\$0.85	\$1.00	\$1,602.00	\$2,269.50	\$2,670.00
	36	Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel	8430	1	1	1	EA	\$300.00	\$350.00	\$400.00	\$300.00	\$350.00	\$400.00
	37	Remove and Dispose of Distribution equipment, Junction Boxes	8430	1	1	1	EA	\$1,500.00	\$1,700.00	\$2,000.00	\$1,500.00	\$1,700.00	\$2,000.00
	38	Remove and Dispose of Power Cable and 4"Conduit from Penstock Structure	8430	800	800	800	FT	\$30.00	\$35.00	\$40.00	\$24,000.00	\$28,000.00	\$32,000.00
	39	Remove Powerhouse Concrete	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	40	Remove and Dispose of Turbine Unit	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	41	Remove and Dispose of Draft Tube Bulkheads	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	42	Remove and Dispose of Crane	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	43	Remove and Dispose of Governor	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	44	Remove and Dispose of Bearing Oil System and Cooling Water System	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	45	Remove and Dispose of CO2 System	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	46	Remove and Dispose of Plant Water and Fire Protection System	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	47	Remove and Dispose of Sump Pumps	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	48	Remove and Dispose of Pumps	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	49	Remove and Dispose of Exposed Piping around the plant	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	50	Remove and Dispose of Unwatering Piping	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	51	Remove and Dispose of Drainage Piping	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	52	Remove and Dispose of Transformer Oil and Fire Protection	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	53	Remove and Dispose of Compressed Air System	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	53A	Remove Petroleum Products from Mechanical Equipment	8420	1,100	1,100	1,100	GAL	\$9.00	\$10.00	\$12.00	\$9,900.00	\$11,000.00	\$13,200.00
	54	Remove and Dispose of AC Generator, Outdoor Horizontal	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00

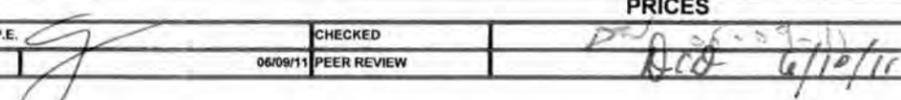
FEATURE:			PROJECT:									
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon									
			WOID: AF652		ESTIMATE LEVEL: Feasibility							
			REGION: MP		PRICE LEVEL: Jul-2010							
			FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls\Iron Gate - Full - with Esc									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	55	Remove and Dispose of Excitation equipment for 18.975 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	56	Remove and Dispose of Surge protection equip. for 18.975 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	57	Remove and Dispose of Neutral grounding equip. for 18.975 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	58	Remove and Dispose of Station Service Switchgear, 600 volt (-5 sections)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	59	Remove and Dispose of Unit and plant control switchboard	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	60	Remove and Dispose of Battery system - assume 60 batteries, charger,	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$12,000.00	\$9,000.00	\$10,000.00	\$12,000.00
	61	Remove and Dispose of Raceways, Bus, Conduit and Cable	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	62	Remove and Dispose of Misc. power & control boards	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	63	Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480V est.)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	64	Remove and Dispose of Governor Oil Pump Motors (10 hp and 20 hp est.)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	65	Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est.)	8430	4	4	4	EA	\$500.00	\$600.00	\$700.00	\$2,000.00	\$2,400.00	\$2,800.00
	66	Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est.)	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$13,000.00	\$9,000.00	\$10,000.00	\$13,000.00
	67	Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase,	8430	1	1	1	EA	\$90,000.00	\$100,000.00	\$120,000.00	\$90,000.00	\$100,000.00	\$120,000.00
	68	Remove and Dispose of Lattice steel structure, with 69-kV disconnect	8430	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	69	Remove and Dispose of Generator Switchgear, outdoor, 7.2kV	8430	1	1	1	EA	\$30,000.00	\$35,000.00	\$40,000.00	\$30,000.00	\$35,000.00	\$40,000.00
	70	Remove and Dispose of Single Phase Pole Transformers. (25 kVA est.)	8430	3	3	3	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$4,500.00	\$6,000.00	\$9,000.00
	71	Remove Concrete in Penstock Intake Structure	8130	460	460	460	CY	\$170.00	\$215.00	\$380.00	\$78,200.00	\$98,900.00	\$174,800.00
	72	Remove Concrete in Penstock Encasement	8130	840	840	840	CY	\$170.00	\$215.00	\$380.00	\$142,800.00	\$180,600.00	\$319,200.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	8130	1,900	1,900	1,900	CY	\$170.00	\$215.00	\$380.00	\$323,000.00	\$408,500.00	\$722,000.00
	74	Remove Steel Footbridge to Intake Structure	8130	11,000	11,000	11,000	LBS	\$0.60	\$0.85	\$1.00	\$6,600.00	\$9,350.00	\$11,000.00
	75	Remove Concrete in Intake Structure Footbridge Abutment	8130	5	5	5	CY	\$170.00	\$215.00	\$380.00	\$850.00	\$1,075.00	\$1,900.00
	76	Remove and Dispose of Intake Structure	8420	131,630	131,630	131,630	LBS	\$0.60	\$0.85	\$1.00	\$78,978.00	\$111,885.50	\$131,630.00
	77	Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft.	8420	1,800	1,800	1,800	LBS	\$0.60	\$0.85	\$1.00	\$1,080.00	\$1,530.00	\$1,800.00
	78	Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft	8420	1,350	1,350	1,350	LBS	\$0.60	\$0.85	\$1.00	\$810.00	\$1,147.50	\$1,350.00
	79	Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft.	8420	1,600	1,600	1,600	LBS	\$0.60	\$0.85	\$1.00	\$960.00	\$1,360.00	\$1,600.00
	80	Remove and Dispose of Gage Wells	8420	2,612	2,612	2,612	LBS	\$0.60	\$0.85	\$1.00	\$1,567.20	\$2,220.20	\$2,612.00
	81	Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft.	8420	7,440	7,440	7,440	LBS	\$0.60	\$0.85	\$1.00	\$4,464.00	\$6,324.00	\$7,440.00
	82	Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft.	8420	294,428	294,428	294,428	LBS	\$0.60	\$0.85	\$1.00	\$176,656.80	\$250,263.80	\$294,428.00
	83	Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft.	8420	12,850	12,850	12,850	LBS	\$0.60	\$0.85	\$1.00	\$7,710.00	\$10,922.50	\$12,850.00
	84	Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia.	8420	18,000	18,000	18,000	LBS	\$0.60	\$0.85	\$1.00	\$10,800.00	\$15,300.00	\$18,000.00
	85	Remove & Dispose Overhead Trolley Crane Motor (4hp est)& controls	8430	1	1	1	EA	\$900.00	\$1,000.00	\$1,300.00	\$900.00	\$1,000.00	\$1,300.00
	86	Remove & Dispose Distribution equipment , Junction Boxes	8430	1	1	1	EA	\$2,000.00	\$2,500.00	\$3,000.00	\$2,000.00	\$2,500.00	\$3,000.00
	87	Remove & Dispose Power Cable and Conduit	8430	1	1	1	EA	\$65,000.00	\$70,000.00	\$75,000.00	\$65,000.00	\$70,000.00	\$75,000.00
	88	Temporary Access Roads	8140	2.6	2.6	2.6	MILE	\$150,000.00	\$300,000.00	\$250,000.00	\$390,000.00	\$780,000.00	\$650,000.00
	89	Spring Ground Seeding	8220	370	370	0	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$1,110,000.00	\$1,295,000.00	\$0.00
	90	Spring Barge Seeding	8220	296	296	0	ACRE	\$5,000.00	\$8,500.00	\$8,000.00	\$1,480,000.00	\$1,924,000.00	\$0.00
	91	Spring Aerial Seeding	8220	159	159	825	ACRE	\$6,500.00	\$7,500.00	\$15,000.00	\$1,033,500.00	\$1,192,500.00	\$12,375,000.00
	92	Fall Ground Seeding	8220	207	413	619	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$621,000.00	\$1,445,500.00	\$2,476,000.00
	93	Riparian Pole Planting	8220	50	50	50	ACRE	\$4,000.00	\$8,500.00	\$10,000.00	\$200,000.00	\$425,000.00	\$500,000.00
	94	Weed Management	8220	206	413	619	ACRE	\$1,000.00	\$1,500.00	\$2,000.00	\$206,000.00	\$619,500.00	\$1,238,000.00
	95	Fall Ground Seeding	8220	330	330	330	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$990,000.00	\$1,155,000.00	\$1,320,000.00
	96	Weed Management	8220	330	330	330	ACRE	\$1,000.00	\$1,500.00	\$2,000.00	\$330,000.00	\$495,000.00	\$660,000.00
	97	Clear and Grub Disposal Area	8313	29	29	29	ACRE	\$5,000.00	\$6,000.00	\$7,000.00	\$145,000.00	\$174,000.00	\$203,000.00
	98	Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi	8313	0	13,500	17,000	CY	\$35.00	\$40.00	\$45.00	\$0.00	\$540,000.00	\$765,000.00
	99	Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi	8313	0	5	5	ACRE	\$5,000.00	\$6,000.00	\$7,000.00	\$0.00	\$30,000.00	\$35,000.00
	100	4' thick gravel surfacing-Prepare Haul Road - 1.25 mi	8313	0	5,300	5,300	TON	\$60.00	\$70.00	\$80.00	\$0.00	\$371,000.00	\$424,000.00
	101	Remove Building No. 2	8130	800	800	800	SF	\$55.00	\$60.00	\$65.00	\$44,000.00	\$48,000.00	\$52,000.00
	102	Remove Building No. 3	8130	1,088	1,088	1,088	SF	\$55.00	\$60.00	\$65.00	\$59,840.00	\$65,280.00	\$70,720.00
	103	Remove Concrete in Fish Ladder	8130	950	950	950	CY	\$170.00	\$215.00	\$380.00	\$161,500.00	\$204,250.00	\$361,000.00
	104	Remove Concrete in Holding Ponds #1 thru #6	8130	420	420	420	CY	\$170.00	\$215.00	\$380.00	\$71,400.00	\$90,300.00	\$159,600.00
	105	Remove Concrete in Fish Facility Items	8130	380	380	380	CY	\$170.00	\$215.00	\$380.00	\$64,600.00	\$81,700.00	\$144,400.00
	106	Remove Miscellaneous Metalwork in Fish Facilities	8130	12,000	12,000	12,000	LBS	\$0.60	\$0.85	\$1.00	\$7,200.00	\$10,200.00	\$12,000.00
	107	Remove Concrete associated with 30"-dia. Water Supply Line	8130	68	68	68	CY	\$170.00	\$215.00	\$380.00	\$11,560.00	\$14,620.00	\$25,840.00
	108	Remove Concrete in Aerator Structure	8130	50	50	50	CY	\$170.00	\$215.00	\$380.00	\$8,500.00	\$10,750.00	\$19,000.00
	109	Remove Wood in Aerator Structure	8130	6,000	6,000	6,000	LBS	\$0.65	\$0.70	\$0.85	\$3,900.00	\$4,200.00	\$5,100.00
	110	Remove Structural Steel in Aerator Structure	8130	2,500	2,500	2,500	LBS	\$0.60	\$0.85	\$1.00	\$1,500.00	\$2,125.00	\$2,500.00

ESTIMATE WORKSHEET

FEATURE:			PROJECT:									
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon									
			WOID: AF652		ESTIMATE LEVEL: Feasibility							
			REGION: MP		PRICE LEVEL: Jul-2010							
			FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls\Iron Gate - Full - with Esc									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	111	Remove Asphalt Pavement	8130	39,000	39,000	39,000	SF	\$5.00	\$6.00	\$7.00	\$195,000.00	\$234,000.00	\$273,000.00
	112	Remove Restroom Building near Aerator Structure	8130	340	340	340	SF	\$55.00	\$60.00	\$65.00	\$18,700.00	\$20,400.00	\$22,100.00
	113	Remove Storage Shed near Aerator Structure	8130	90	90	90	SF	\$55.00	\$60.00	\$65.00	\$4,950.00	\$5,400.00	\$5,850.00
	114	Remove Toe Drain Pipe	8313	260	260	260	LF	\$15.00	\$20.00	\$25.00	\$3,900.00	\$5,200.00	\$6,500.00
	115	Remove Toe Drain Manhole	8313	25	25	25	LF	\$45.00	\$50.00	\$55.00	\$1,125.00	\$1,250.00	\$1,375.00
	116	Berm Removal	8313	53,000	53,000	53,000	CY	\$10.00	\$13.00	\$17.00	\$530,000.00	\$689,000.00	\$901,000.00
	117	Remove and Dipose of Intake Structures Trashracks	8420	5,000	5,000	5,000	LBS	\$0.60	\$0.75	\$0.85	\$3,000.00	\$3,750.00	\$4,250.00
	118	Remove and Dipose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft.	8420	76,640	76,640	76,640	LBS	\$0.60	\$0.85	\$1.00	\$45,984.00	\$65,144.00	\$76,640.00
	119	Remove and Dipose of Sluice Gate Valve- 30-in. H. x 30-in. W.	8420	3,000	3,000	3,000	LBS	\$0.60	\$0.85	\$1.00	\$1,800.00	\$2,550.00	\$3,000.00
	120	Remove and Dipose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft.	8420	360	360	360	LBS	\$0.60	\$0.85	\$1.00	\$216.00	\$306.00	\$360.00
	121	Remove and Dipose of Butterfly Valve- 30-in. Dia.	8420	2,435	2,435	2,435	LBS	\$0.60	\$0.85	\$1.00	\$1,461.00	\$2,069.75	\$2,435.00
	122	Remove and Dipose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft.	8420	7,200	7,200	7,200	LBS	\$0.60	\$0.85	\$1.00	\$4,320.00	\$6,120.00	\$7,200.00
	123	Remove and Dipose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft.	8420	15,872	15,872	15,872	LBS	\$0.60	\$0.85	\$1.00	\$9,523.20	\$13,491.20	\$15,872.00
	124	Remove and Dipose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft.	8420	4,505	4,505	4,505	LBS	\$0.60	\$0.85	\$1.00	\$2,703.00	\$3,829.25	\$4,505.00
	125	Remove and Dipose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft.	8420	29,088	29,088	29,088	LBS	\$0.60	\$0.85	\$1.00	\$17,452.80	\$24,724.80	\$29,088.00
	126	Remove and Dipose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft.	8420	6,972	6,972	6,972	LBS	\$0.60	\$0.85	\$1.00	\$4,183.20	\$5,926.20	\$6,972.00
	127	Remove and Dipose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft.	8420	2,176	2,176	2,176	LBS	\$0.60	\$0.85	\$1.00	\$1,305.60	\$1,849.60	\$2,176.00
	128	Remove and Dipose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft.	8420	1,932	1,932	1,932	LBS	\$0.60	\$0.85	\$1.00	\$1,159.20	\$1,642.20	\$1,932.00
	129	Remove and Dipose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft.	8420	3,588	3,588	3,588	LBS	\$0.60	\$0.85	\$1.00	\$2,152.80	\$3,049.80	\$3,588.00
	130	Remove and Dipose of Piping- 3-in. Dia. STD x 64 ft.	8420	1,088	1,088	1,088	LBS	\$0.60	\$0.85	\$1.00	\$652.80	\$924.80	\$1,088.00
	131	Remove and Dipose of Gate Valves	8420	21,792	21,792	21,792	LBS	\$0.60	\$0.85	\$1.00	\$13,075.20	\$18,523.20	\$21,792.00
	132	Remove and Dipose of Basin #1	8420	2,880	2,880	2,880	LBS	\$0.60	\$0.85	\$1.00	\$1,728.00	\$2,448.00	\$2,880.00
	133	Remove and Dipose of Basin #2	8420	3,860	3,860	3,860	LBS	\$0.60	\$0.85	\$1.00	\$2,316.00	\$3,281.00	\$3,860.00
	134	Remove and Dipose of Basin #3	8420	2,880	2,880	2,880	LBS	\$0.60	\$0.85	\$1.00	\$1,728.00	\$2,448.00	\$2,880.00
	135	Remove and Dipose of Basin #4	8420	3,580	3,580	3,580	LBS	\$0.60	\$0.85	\$1.00	\$2,148.00	\$3,043.00	\$3,580.00
	136	Remove and Dipose of Basin #5	8420	1,440	1,440	1,440	LBS	\$0.60	\$0.85	\$1.00	\$864.00	\$1,224.00	\$1,440.00
	137	Remove and Dipose of Basin #6	8420	1,440	1,440	1,440	LBS	\$0.60	\$0.85	\$1.00	\$864.00	\$1,224.00	\$1,440.00
	138	Remove and Dipose of Holding Tank	8420	7,400	7,400	7,400	LBS	\$0.60	\$0.85	\$1.00	\$4,440.00	\$6,290.00	\$7,400.00
	139	Remove and Dipose of Misc: motors, control panels, cables and conduit	8430	1	1	1	EA	\$1,000.00	\$1,500.00	\$2,000.00	\$1,000.00	\$1,500.00	\$2,000.00
	140	Concrete total-Wanaka Springs	BLM	28	28	28	CY	\$200.00	\$300.00	\$400.00	\$5,600.00	\$8,400.00	\$11,200.00
	141	Double pipe railings-Wanaka Springs	BLM	60	60	60	LF	\$35.00	\$40.00	\$45.00	\$2,100.00	\$2,400.00	\$2,700.00
	142	Wood picnic tables to be removed and hauled -Wanaka Springs	BLM	5	5	5	EA	\$90.00	\$100.00	\$120.00	\$450.00	\$500.00	\$600.00
	143	25'X5' Wooden floating dock -Wanaka Springs	BLM	125	125	125	SF	\$15.00	\$20.00	\$25.00	\$1,875.00	\$2,500.00	\$3,125.00
	144	Rip and reseed site and access road-Wanaka Springs	BLM	2.5	2.5	2.5	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$50,000.00	\$62,500.00	\$75,000.00
	145	Signs to be removed and hauled away-Wanaka Springs	BLM	3	3	3	EA	\$250.00	\$300.00	\$350.00	\$750.00	\$900.00	\$1,050.00
	146	15'x5' Gangplank with railings-Wanaka Springs	BLM	75.00	75.00	75.00	SF	\$15.00	\$20.00	\$25.00	\$1,125.00	\$1,500.00	\$1,875.00
	147	Concrete total-Juniper Point	BLM	19.00	19.00	19.00	CY	\$200.00	\$300.00	\$400.00	\$3,800.00	\$5,700.00	\$7,600.00
	148	2, 4'x4' Concrete toilet vaults-Juniper Point	BLM	32.00	32.00	32.00	SF	\$90.00	\$100.00	\$120.00	\$2,880.00	\$3,200.00	\$3,840.00
	149	Wood picnic tables to be removed and hauled -Juniper Point	BLM	8.00	8.00	8.00	EA	\$90.00	\$100.00	\$120.00	\$720.00	\$800.00	\$960.00
	150	Signs to be removed and hauled away-Juniper Point	BLM	4	4	4	EA	\$250.00	\$300.00	\$350.00	\$1,000.00	\$1,200.00	\$1,400.00
	151	Dock pipe railing-Juniper Point	BLM	50	50	50	LF	\$35.00	\$40.00	\$45.00	\$1,750.00	\$2,000.00	\$2,250.00
	152	50'x5' Composite dock with poly floats-Juniper Point	BLM	250	250	250	SF	\$15.00	\$20.00	\$25.00	\$3,750.00	\$5,000.00	\$6,250.00
	153	20'x5' Composite gangplank with railings-Juniper Point	BLM	100	100	100	SF	\$15.00	\$20.00	\$25.00	\$1,500.00	\$2,000.00	\$2,500.00
	154	Bury 3' dia boulders on site-Juniper Point	BLM	50	50	50	EA				\$0.00	\$0.00	\$0.00
	155	Regrade to natural contour, rip and reseed-Juniper Point	BLM	2	2	2	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$40,000.00	\$50,000.00	\$60,000.00
	156	Concrete total-Camp Creek	BLM	110	110	110	CY	\$200.00	\$300.00	\$400.00	\$22,000.00	\$33,000.00	\$44,000.00
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek	BLM	855	855	855	CY	\$20.00	\$25.00	\$30.00	\$17,100.00	\$21,375.00	\$25,650.00
	158	Well house 10'x16' concrete block building-Camp Creek	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	159	2, 20'x5' Composite decking gangplanks-Camp Creek	BLM	200	200	200	SF	\$15.00	\$20.00	\$25.00	\$3,000.00	\$4,000.00	\$5,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame -Camp Creek	BLM	200	200	200	SF	\$15.00	\$20.00	\$25.00	\$3,000.00	\$4,000.00	\$5,000.00
	161	Concrete block double toilet bldg 10'x16'-Camp Creek	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	162	Dump stations and approx. 2000 gal buried -Camp Creek	BLM	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	163	Power poles and lines-Camp Creek	BLM	3	3	3	POLES	\$1,000.00	\$1,500.00	\$2,000.00	\$3,000.00	\$4,500.00	\$6,000.00
	164	Remove waterlines and 3 faucets and regrade-Camp Creek	BLM	600	600	600	LF	\$4.00	\$5.00	\$6.00	\$2,400.00	\$3,000.00	\$3,600.00
	165	Recycle/bury approx. 3' dia. boulders-Camp Creek	BLM	5	5	5	EA				\$0.00	\$0.00	\$0.00
	166	Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek	BLM	5	5	5	EA	\$90.00	\$100.00	\$120.00	\$450.00	\$500.00	\$600.00

FEATURE:			PROJECT:										
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon										
			WOID: AF652	ESTIMATE LEVEL: Feasibility									
			REGION: MP	PRICE LEVEL: Jul-2010									
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls\Iron Gate - Full - with Esc									
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	167	Relocate concrete tables-Camp Creek	BLM	12	12	12	EA	\$90.00	\$100.00	\$120.00	\$1,080.00	\$1,200.00	\$1,440.00
	168	Regrade, rip and reseed-Camp Creek	BLM	4	4	4	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$80,000.00	\$100,000.00	\$120,000.00
	169	Signs to be removed and hauled away-Camp Creek	BLM	7	7	7	EA	\$250.00	\$300.00	\$350.00	\$1,750.00	\$2,100.00	\$2,450.00
	170	50'x4'x3' Dock concrete abutment-Dutch Creek	BLM	22	22	22	CY	\$200.00	\$300.00	\$400.00	\$4,400.00	\$6,600.00	\$8,800.00
	171	Double pipe railing-Dutch Creek	BLM	100	100	100	LF	\$35.00	\$40.00	\$45.00	\$3,500.00	\$4,000.00	\$4,500.00
	172	Concrete total-Mirror Cove	BLM	89	89	89	CY	\$200.00	\$300.00	\$400.00	\$17,800.00	\$26,700.00	\$35,600.00
	173	10'x18' Toilet vault-Mirror Cove	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	174	2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove	BLM	300	300	300	SF	\$15.00	\$20.00	\$25.00	\$4,500.00	\$6,000.00	\$7,500.00
	175	Double pipe railings on dock-Mirror Cove	BLM	80	80	80	LF	\$35.00	\$40.00	\$45.00	\$2,800.00	\$3,200.00	\$3,600.00
	176	Bury 3' dia. boulders on site-Mirror Cove	BLM	120	120	120	EA				\$0.00	\$0.00	\$0.00
	177	Regrade site, rip and reseed-Mirror Cove	BLM	3	3	3	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$60,000.00	\$75,000.00	\$90,000.00
	178	Signs to be removed and hauled away-Mirror Cove	BLM	7	7	7	EA	\$250.00	\$300.00	\$350.00	\$1,750.00	\$2,100.00	\$2,450.00
	179	1 Concrete picnic table base-Overlook Point	BLM	1	1	1	CY	\$200.00	\$300.00	\$400.00	\$200.00	\$300.00	\$400.00
	180	Steel frame table to be removed and hauled away-Overlook Point	BLM	1	1	1	EA	\$90.00	\$100.00	\$120.00	\$90.00	\$100.00	\$120.00
	181	Regrade steep access road and site to natural contours, rip and reseed-Overlook Point	BLM	0.5	0.5	0.5	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$10,000.00	\$12,500.00	\$15,000.00
	182	80'x25'x4" Concrete boat ramp to be removed-Long Gulch	BLM	25	25	25	CY	\$200.00	\$300.00	\$400.00	\$5,000.00	\$7,500.00	\$10,000.00
	183	Remove picnic tables (steel frame with planks) & haul away-Long Gulch	BLM	2	2	2	EA	\$90.00	\$100.00	\$120.00	\$180.00	\$200.00	\$240.00
	184	Regrade ramp area to natural contours, rip, reseed-Long Gulch	BLM	0.05	0.05	0.05	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$1,000.00	\$1,250.00	\$1,500.00
		Subtotal 1									\$22,862,689.80	\$31,481,501.80	\$54,737,683.00
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	\$1,150,000.00	\$1,550,000.00	\$2,700,000.00	\$1,150,000.00	\$1,550,000.00	\$2,700,000.00
		Subtotal 1 w/ mobilization									\$24,012,689.80	\$33,031,501.80	\$57,437,683.00
		Escalation to Notice to Proceed (NTP) from Unit Price Level (July 2010) to NTP (Jan. 2020) MPL - 1.5% / year for 10 yr.; MP - 3.0% / year for 10 yr.; MPH - 4.375% / year for 10 yr.		1	1	1	ls	\$3,855,017.00	\$11,360,075.00	\$30,700,034.00	\$3,855,017.00	\$11,360,075.00	\$30,700,034.00
		Design Contingencies (MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	\$2,132,293.20	\$4,608,423.20	\$14,835,116.00	\$2,132,293.20	\$4,608,423.20	\$14,835,116.00
		APS = Allowance for Procurement Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)		1	1	1	ls	\$0.00	\$0.00	\$2,027,167.00	\$0.00	\$0.00	\$2,027,167.00
		CONTRACT COST									\$30,000,000.00	\$49,000,000.00	\$105,000,000.00
		Construction Contingencies (MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	\$6,000,000.00	\$10,000,000.00	\$25,000,000.00	\$6,000,000.00	\$10,000,000.00	\$25,000,000.00
		FIELD COST									\$36,000,000.00	\$59,000,000.00	\$130,000,000.00
		Non-Contract Cost (MPL ~ 62%; MP ~ 65%; MPH ~ 71%)		1	1	1	ls	\$22,000,000.00	\$38,000,000.00	\$90,000,000.00	\$22,000,000.00	\$38,000,000.00	\$90,000,000.00
		CONSTRUCTION COST									\$58,000,000.00	\$97,000,000.00	\$220,000,000.00
Notes: This estimate does not include non-contract costs and should not be used for funding purposes. Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)													
QUANTITIES							PRICES						
BY	See Group Worksheets	CHECKED: See Group Worksheets	BY	Craig Grush, P.E.	CHECKED								
DATE PREPARED	1/20/2011	PEER REVIEW: See Group Worksheets	DATE PREPARED	06/09/11	PEER REVIEW								

Crystal Ball Report - Full

Simulation started on 6/9/2011 at 12:10:15

Simulation stopped on 6/9/2011 at 12:11:46

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 91.92
Trials/second (average) 109
Random numbers per sec 34,378

Crystal Ball data:

Assumptions 316
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP

UNIT PRICES BY Craig A. Gross

DATE 6/10/2011

DATE	PEER REVIEWED	CODE
6/13/2011	John Robert	86
3/11	John G. Bobcock	68170
	Signature	
	Printed Name	
Author Initials		PEER REVIEW NOT REQUIRED

Forecasts

Worksheet: [Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls]Iron Gate -

Forecast: Construction Cost - Iron Gate - Partial Removal - With Escalation

Cell: U213

Summary:

Entire range is from \$75,404,618.75 to \$162,860,213.33

Base case is \$97,000,000.00

After 10,000 trials, the std. error of the mean is \$137,289.83



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Construction Cost - Iron Gate - Partial Removal - With Escalation (cont'd)Cell: U213

Statistics:	Forecast values
Trials	10,000
Mean	\$110,479,819.46
Median	\$109,087,313.27
Mode	---
Standard Deviation	\$13,728,982.51
Variance	\$188,484,960,781,948.00
Skewness	0.4127
Kurtosis	2.85
Coeff. of Variability	0.1243
Minimum	\$75,404,618.75
Maximum	\$162,860,213.33
Range Width	\$87,455,594.58
Mean Std. Error	\$137,289.83

Percentiles:	Forecast values
0%	\$75,404,618.75
10%	\$93,767,338.93
20%	\$98,415,945.58
30%	\$102,209,429.55
40%	\$105,672,063.18
50%	\$109,085,604.34
60%	\$112,840,460.48
70%	\$117,026,821.08
80%	\$122,141,311.63
90%	\$129,317,858.83
100%	\$162,860,213.33

Forecast: Contract Cost - Iron Gate - Partial Removal - With Escalation

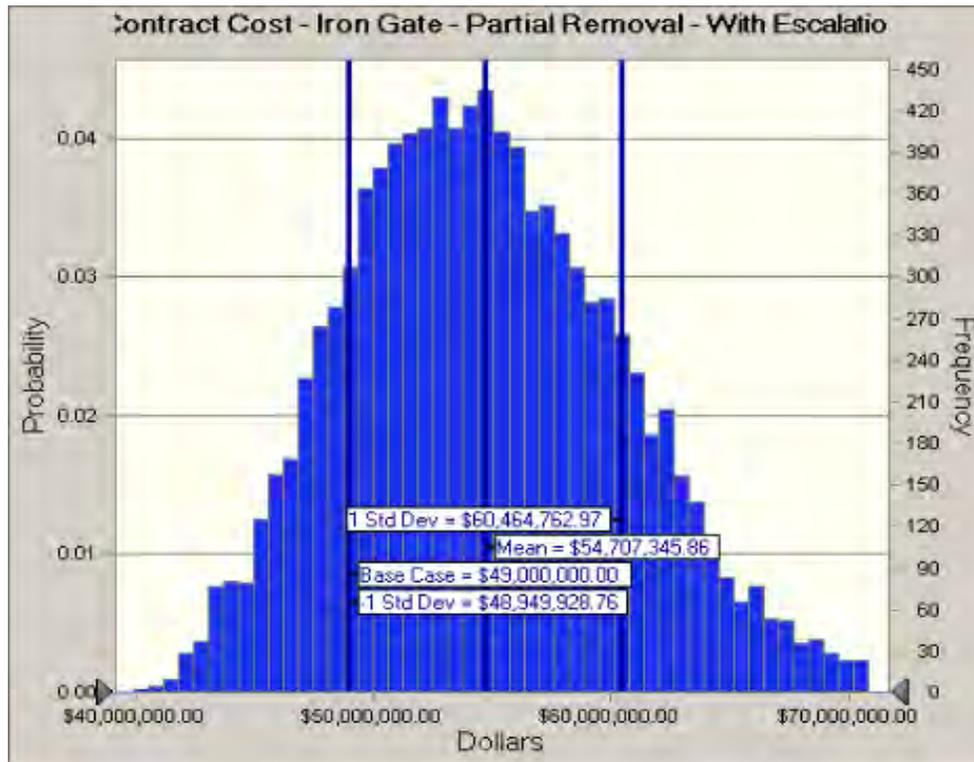
Cell: U209

Summary:

Entire range is from \$39,942,666.88 to \$74,835,866.62

Base case is \$49,000,000.00

After 10,000 trials, the std. error of the mean is \$57,574.17



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Contract Cost - Iron Gate - Partial Removal - With Escalation (cont'd) Cell: U209

Statistics:	Forecast values
Trials	10,000
Mean	\$54,707,345.86
Median	\$54,359,322.45
Mode	---
Standard Deviation	\$5,757,417.11
Variance	\$33,147,851,763,164.60
Skewness	0.3155
Kurtosis	2.81
Coeff. of Variability	0.1052
Minimum	\$39,942,666.88
Maximum	\$74,835,866.62
Range Width	\$34,893,199.74
Mean Std. Error	\$57,574.17

Percentiles:	Forecast values
0%	\$39,942,666.88
10%	\$47,510,494.63
20%	\$49,646,851.68
30%	\$51,312,319.93
40%	\$52,841,857.78
50%	\$54,358,280.38
60%	\$55,855,857.63
70%	\$57,605,146.25
80%	\$59,634,282.62
90%	\$62,395,043.81
100%	\$74,835,866.62

Forecast: Field Cost - Iron Gate - Partial Removal - With Escalation

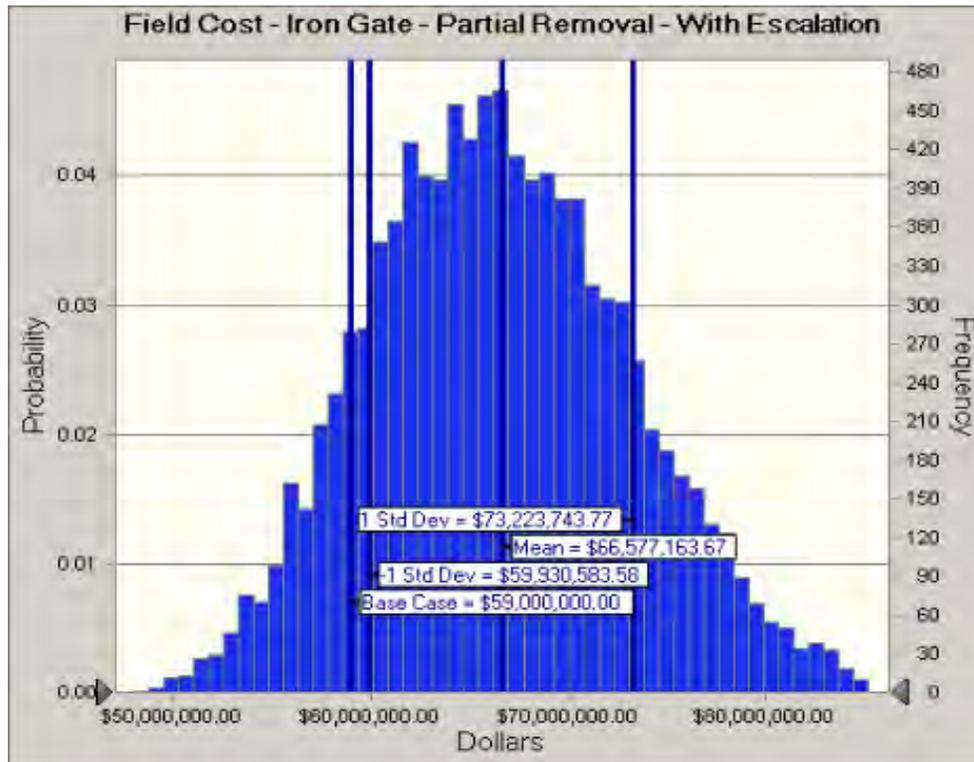
Cell: U211

Summary:

Entire range is from \$47,810,801.37 to \$94,042,919.58

Base case is \$59,000,000.00

After 10,000 trials, the std. error of the mean is \$66,465.80



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Field Cost - Iron Gate - Partial Removal - With Escalation (cont'd)

Cell: U211

Statistics:	Forecast values
Trials	10,000
Mean	\$66,577,163.67
Median	\$66,258,166.52
Mode	---
Standard Deviation	\$6,646,580.09
Variance	\$44,177,026,924,018.40
Skewness	0.2604
Kurtosis	2.90
Coeff. of Variability	0.0998
Minimum	\$47,810,801.37
Maximum	\$94,042,919.58
Range Width	\$46,232,118.22
Mean Std. Error	\$66,465.80

Percentiles:	Forecast values
0%	\$47,810,801.37
10%	\$58,167,046.92
20%	\$60,810,650.95
30%	\$62,739,029.22
40%	\$64,564,643.49
50%	\$66,257,074.54
60%	\$68,003,218.04
70%	\$69,947,571.37
80%	\$72,204,356.40
90%	\$75,411,155.33
100%	\$94,042,919.58

End of Forecasts

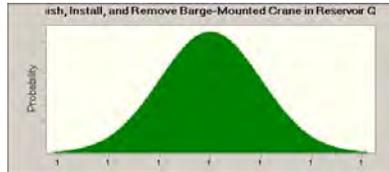
Assumptions

Worksheet: [Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls]Iron Gate -

Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir Quantity Cell: L14

Normal distribution with parameters:

Mean	1	(=L14)
Std. Dev.	0	(=0.000001)



Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir Unit Price Cell: R14

BetaPERT distribution with parameters:

Minimum	\$190,000.00	(=Q14)
Likeliest	\$200,000.00	(=R14)
Maximum	\$210,000.00	(=S14)

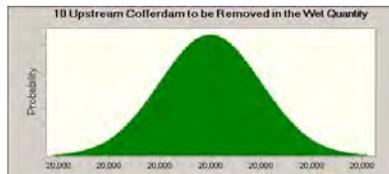


Assumption: 10 Upstream Cofferdam to be Removed in the Wet Quantity

Cell: L23

Normal distribution with parameters:

Mean	20,000	(=L23)
Std. Dev.	0	(=0.000001)



Assumption: 10 Upstream Cofferdam to be Removed in the Wet Unit Price

Cell: R23

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q23)
Likeliest	\$70.00	(=R23)
Maximum	\$100.00	(=S23)



Assumption: 100 4' thick gravel surfacing-Prepare Haul Road - 1.25 mi Quantity

Cell: L114

Triangular distribution with parameters:

Minimum	0	(=K114)
Likeliest	5,300	(=L114)
Maximum	5,300	(=M114)



Assumption: 100 4' thick gravel surfacing-Prepare Haul Road - 1.25 mi Unit Price

Cell: R114

BetaPERT distribution with parameters:

Minimum	\$60.00	(=Q114)
Likeliest	\$70.00	(=R114)
Maximum	\$80.00	(=S114)



Assumption: 101 Remove Building No. 2 Quantity

Cell: L115

Normal distribution with parameters:

Mean	800	(=L115)
Std. Dev.	0	(=0.000001)



Assumption: 101 Remove Building No. 2 Unit Price

Cell: R115

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q115)
Likeliest	\$60.00	(=R115)
Maximum	\$65.00	(=S115)



Assumption: 102 Remove Building No. 3 Quantity

Cell: L116

Normal distribution with parameters:

Mean	1,088	(=L116)
Std. Dev.	0	(=0.000001)



Assumption: 102 Remove Building No. 3 Unit Price

Cell: R116

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q116)
Likeliest	\$60.00	(=R116)
Maximum	\$65.00	(=S116)



Assumption: 103 Remove Concrete in Fish Ladder Quantity

Cell: L117

Normal distribution with parameters:

Mean	950	(=L117)
Std. Dev.	0	(=0.000001)



Assumption: 103 Remove Concrete in Fish Ladder Unit Price

Cell: R117

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q117)
Likeliest	\$215.00	(=R117)
Maximum	\$380.00	(=S117)



Assumption: 104 Remove Concrete in Holding Ponds #1 thru #6 Quantity

Cell: L118

Normal distribution with parameters:

Mean 420 (=L118)
Std. Dev. 0 (=0.000001)



Assumption: 104 Remove Concrete in Holding Ponds #1 thru #6 Unit Price

Cell: R118

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q118)
Likeliest \$215.00 (=R118)
Maximum \$380.00 (=S118)



Assumption: 105 Remove Concrete in Fish Facility Items Quantity

Cell: L119

Normal distribution with parameters:

Mean 380 (=L119)
Std. Dev. 0 (=0.000001)



Assumption: 105 Remove Concrete in Fish Facility Items Unit Price

Cell: R119

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q119)
Likeliest	\$215.00	(=R119)
Maximum	\$380.00	(=S119)

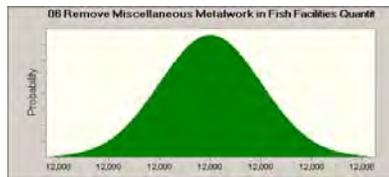


Assumption: 106 Remove Miscellaneous Metalwork in Fish Facilities Quantity

Cell: L120

Normal distribution with parameters:

Mean	12,000	(=L120)
Std. Dev.	0	(=0.000001)

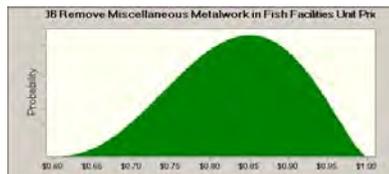


Assumption: 106 Remove Miscellaneous Metalwork in Fish Facilities Unit Price

Cell: R120

BetaPERT distribution with parameters:

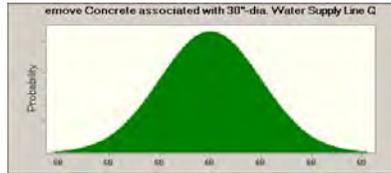
Minimum	\$0.60	(=Q120)
Likeliest	\$0.85	(=R120)
Maximum	\$1.00	(=S120)



Assumption: 107 Remove Concrete associated with 30"-dia. Water Supply Line Quantity L121

Normal distribution with parameters:

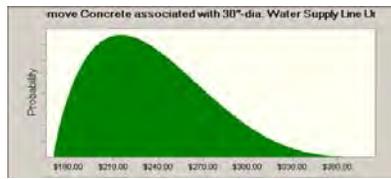
Mean	68	(=L121)
Std. Dev.	0	(=0.000001)



Assumption: 107 Remove Concrete associated with 30"-dia. Water Supply Line Unit Price L121

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q121)
Likeliest	\$215.00	(=R121)
Maximum	\$380.00	(=S121)



Assumption: 108 Remove Concrete in Aerator Structure Quantity

Cell: L122

Normal distribution with parameters:

Mean	50	(=L122)
Std. Dev.	0	(=0.000001)

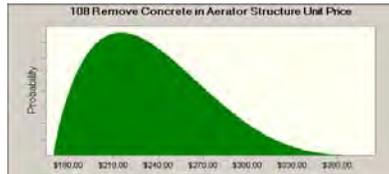


Assumption: 108 Remove Concrete in Aerator Structure Unit Price

Cell: R122

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q122)
Likeliest	\$215.00	(=R122)
Maximum	\$380.00	(=S122)

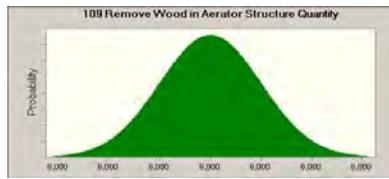


Assumption: 109 Remove Wood in Aerator Structure Quantity

Cell: L123

Normal distribution with parameters:

Mean	6,000	(=L123)
Std. Dev.	0	(=0.000001)



Assumption: 109 Remove Wood in Aerator Structure Unit Price

Cell: R123

BetaPERT distribution with parameters:

Minimum	\$0.65	(=Q123)
Likeliest	\$0.70	(=R123)
Maximum	\$0.85	(=S123)



Assumption: 11 Remove 9' dia hinged blind flange Quantity

Cell: L24

Normal distribution with parameters:

Mean	19,000	(=L24)
Std. Dev.	0	(=0.000001)



Assumption: 11 Remove 9' dia hinged blind flange Unit Price

Cell: R24

BetaPERT distribution with parameters:

Minimum	\$1.50	(=Q24)
Likeliest	\$2.00	(=R24)
Maximum	\$3.00	(=S24)

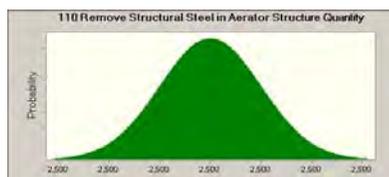


Assumption: 110 Remove Structural Steel in Aerator Structure Quantity

Cell: L124

Normal distribution with parameters:

Mean	2,500	(=L124)
Std. Dev.	0	(=0.000001)



Assumption: 110 Remove Structural Steel in Aerator Structure Unit Price

Cell: R124

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q124)
Likeliest	\$0.85	(=R124)
Maximum	\$1.00	(=S124)

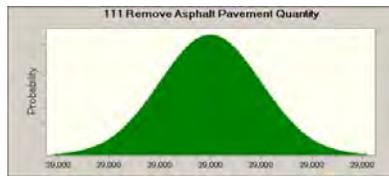


Assumption: 111 Remove Asphalt Pavement Quantity

Cell: L125

Normal distribution with parameters:

Mean	39,000	(=L125)
Std. Dev.	0	(=0.000001)

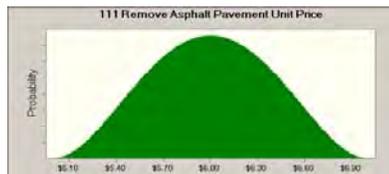


Assumption: 111 Remove Asphalt Pavement Unit Price

Cell: R125

BetaPERT distribution with parameters:

Minimum	\$5.00	(=Q125)
Likeliest	\$6.00	(=R125)
Maximum	\$7.00	(=S125)



Assumption: 112 Remove Restroom Building near Aerator Structure Quantity

Cell: L126

Normal distribution with parameters:

Mean	340	(=L126)
Std. Dev.	0	(=0.000001)



Assumption: 112 Remove Restroom Building near Aerator Structure Unit Price

Cell: R126

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q126)
Likeliest	\$60.00	(=R126)
Maximum	\$65.00	(=S126)

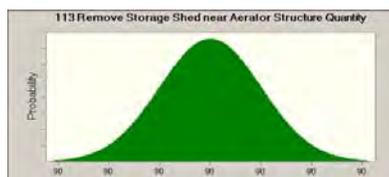


Assumption: 113 Remove Storage Shed near Aerator Structure Quantity

Cell: L127

Normal distribution with parameters:

Mean	90	(=L127)
Std. Dev.	0	(=0.000001)



Assumption: 113 Remove Storage Shed near Aerator Structure Unit Price

Cell: R127

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q127)
Likeliest	\$60.00	(=R127)
Maximum	\$65.00	(=S127)

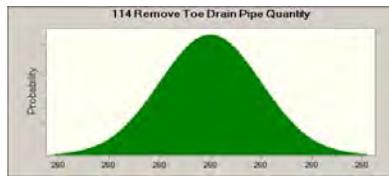


Assumption: 114 Remove Toe Drain Pipe Quantity

Cell: L128

Normal distribution with parameters:

Mean	260	(=L128)
Std. Dev.	0	(=0.000001)



Assumption: 114 Remove Toe Drain Pipe Unit Price

Cell: R128

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q128)
Likeliest	\$20.00	(=R128)
Maximum	\$25.00	(=S128)

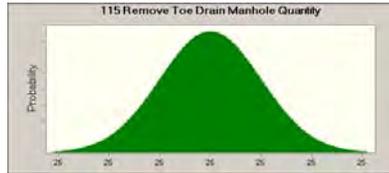


Assumption: 115 Remove Toe Drain Manhole Quantity

Cell: L129

Normal distribution with parameters:

Mean	25	(=L129)
Std. Dev.	0	(=0.000001)



Assumption: 115 Remove Toe Drain Manhole Unit Price

Cell: R129

BetaPERT distribution with parameters:

Minimum	\$45.00	(=Q129)
Likeliest	\$50.00	(=R129)
Maximum	\$55.00	(=S129)



Assumption: 116 Berm Removal Quantity

Cell: L130

Normal distribution with parameters:

Mean	53,000	(=L130)
Std. Dev.	0	(=0.000001)



Assumption: 116 Berm Removal Unit Price

Cell: R130

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q130)
Likeliest	\$13.00	(=R130)
Maximum	\$17.00	(=S130)

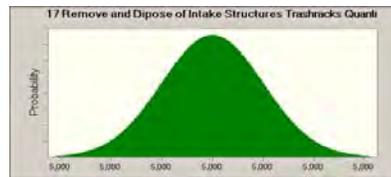


Assumption: 117 Remove and Dipose of Intake Structures Trashracks Quantity

Cell: L131

Normal distribution with parameters:

Mean	5,000	(=L131)
Std. Dev.	0	(=0.000001)



Assumption: 117 Remove and Dipose of Intake Structures Trashracks Unit Price

Cell: R131

BetaPERT distribution with parameters:

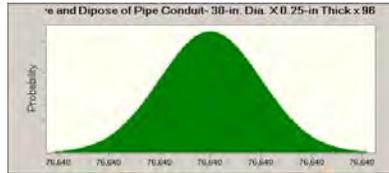
Minimum	\$0.60	(=Q131)
Likeliest	\$0.75	(=R131)
Maximum	\$0.85	(=S131)



Assumption: 118 Remove and Dispose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 96-ft L132

Normal distribution with parameters:

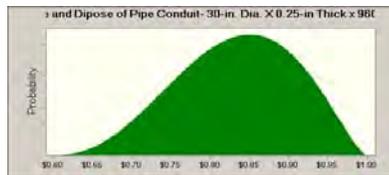
Mean	76,640	(=L132)
Std. Dev.	0	(=0.000001)



Assumption: 118 Remove and Dispose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 96-ft L132

BetaPERT distribution with parameters:

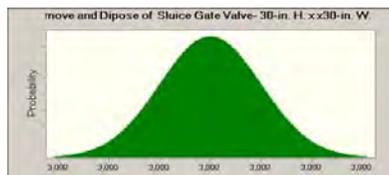
Minimum	\$0.60	(=Q132)
Likeliest	\$0.85	(=R132)
Maximum	\$1.00	(=S132)



Assumption: 119 Remove and Dispose of Sluice Gate Valve- 30-in. H. x 30-in. W. Quantity 133

Normal distribution with parameters:

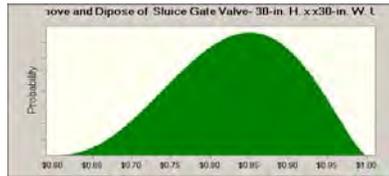
Mean	3,000	(=L133)
Std. Dev.	0	(=0.000001)



Assumption: 119 Remove and Dispose of Sluice Gate Valve- 30-in. H. x x30-in. W. Unit Price

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q133)
Likeliest	\$0.85	(=R133)
Maximum	\$1.00	(=S133)

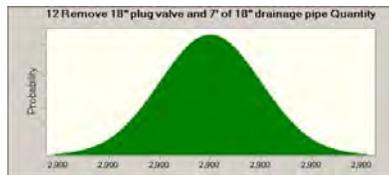


Assumption: 12 Remove 18" plug valve and 7' of 18" drainage pipe Quantity

Cell: L25

Normal distribution with parameters:

Mean	2,900	(=L25)
Std. Dev.	0	(=0.000001)

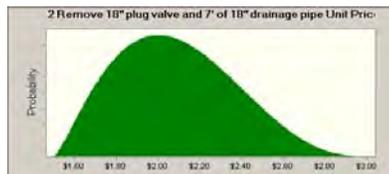


Assumption: 12 Remove 18" plug valve and 7' of 18" drainage pipe Unit Price

Cell: R25

BetaPERT distribution with parameters:

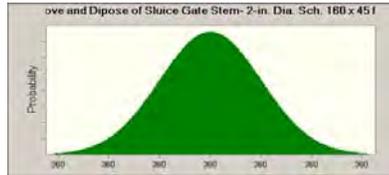
Minimum	\$1.50	(=Q25)
Likeliest	\$2.00	(=R25)
Maximum	\$3.00	(=S25)



Assumption: 120 Remove and Dispose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft Cell: L134

Normal distribution with parameters:

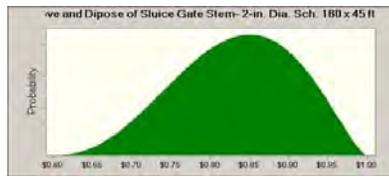
Mean 360 (=L134)
 Std. Dev. 0 (=0.000001)



Assumption: 120 Remove and Dispose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft Cell: R134

BetaPERT distribution with parameters:

Minimum \$0.60 (=Q134)
 Likeliest \$0.85 (=R134)
 Maximum \$1.00 (=S134)

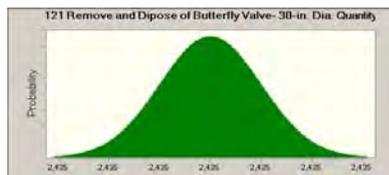


Assumption: 121 Remove and Dispose of Butterfly Valve- 30-in. Dia. Quantity

Cell: L135

Normal distribution with parameters:

Mean 2,435 (=L135)
 Std. Dev. 0 (=0.000001)

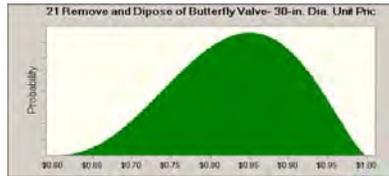


Assumption: 121 Remove and Dispose of Butterfly Valve- 30-in. Dia. Unit Price

Cell: R135

BetaPERT distribution with parameters:

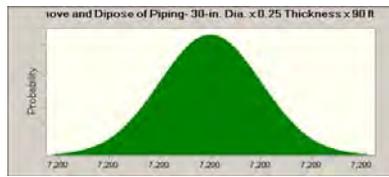
Minimum	\$0.60	(=Q135)
Likeliest	\$0.85	(=R135)
Maximum	\$1.00	(=S135)



Assumption: 122 Remove and Dispose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Unit Price

Normal distribution with parameters:

Mean	7,200	(=L136)
Std. Dev.	0	(=0.000001)



Assumption: 122 Remove and Dispose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Unit Price

BetaPERT distribution with parameters:

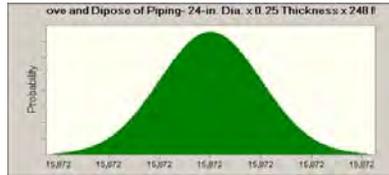
Minimum	\$0.60	(=Q136)
Likeliest	\$0.85	(=R136)
Maximum	\$1.00	(=S136)



Assumption: 123 Remove and Dispose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Cost = \$137

Normal distribution with parameters:

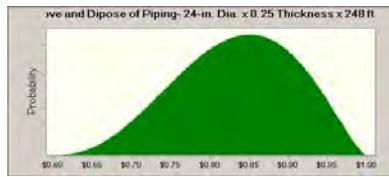
Mean	15,872	(=L137)
Std. Dev.	0	(=0.000001)



Assumption: 123 Remove and Dispose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Cost = \$137

BetaPERT distribution with parameters:

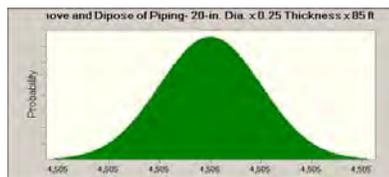
Minimum	\$0.60	(=Q137)
Likeliest	\$0.85	(=R137)
Maximum	\$1.00	(=S137)



Assumption: 124 Remove and Dispose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Cost = \$138

Normal distribution with parameters:

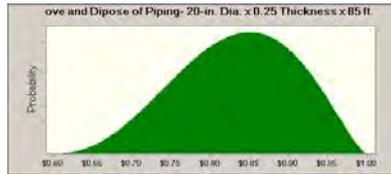
Mean	4,505	(=L138)
Std. Dev.	0	(=0.000001)



Assumption: 124 Remove and Dispose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Unit R138

BetaPERT distribution with parameters:

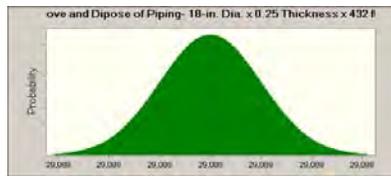
Minimum	\$0.60	(=Q138)
Likeliest	\$0.85	(=R138)
Maximum	\$1.00	(=S138)



Assumption: 125 Remove and Dispose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Unit L139

Normal distribution with parameters:

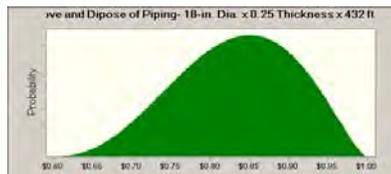
Mean	29,088	(=L139)
Std. Dev.	0	(=0.000001)



Assumption: 125 Remove and Dispose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Unit R139

BetaPERT distribution with parameters:

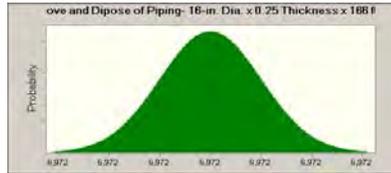
Minimum	\$0.60	(=Q139)
Likeliest	\$0.85	(=R139)
Maximum	\$1.00	(=S139)



Assumption: 126 Remove and Dispose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Quantity 140

Normal distribution with parameters:

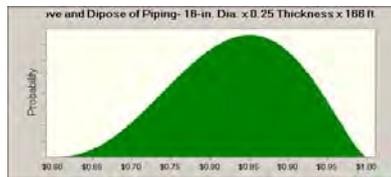
Mean	6,972	(=L140)
Std. Dev.	0	(=0.000001)



Assumption: 126 Remove and Dispose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Quantity 140

BetaPERT distribution with parameters:

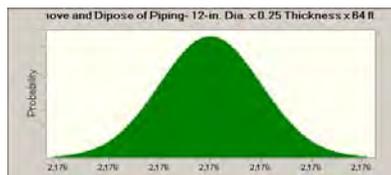
Minimum	\$0.60	(=Q140)
Likeliest	\$0.85	(=R140)
Maximum	\$1.00	(=S140)



Assumption: 127 Remove and Dispose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Quantity 141

Normal distribution with parameters:

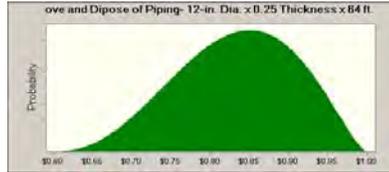
Mean	2,176	(=L141)
Std. Dev.	0	(=0.000001)



Assumption: 127 Remove and Dispose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. ~~Unit R141~~

BetaPERT distribution with parameters:

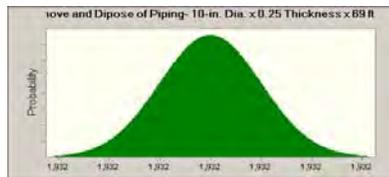
Minimum	\$0.60	(=Q141)
Likeliest	\$0.85	(=R141)
Maximum	\$1.00	(=S141)



Assumption: 128 Remove and Dispose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. ~~Unit R142~~

Normal distribution with parameters:

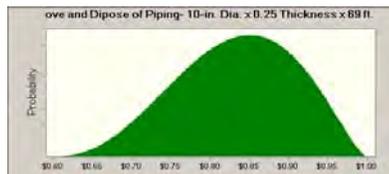
Mean	1,932	(=L142)
Std. Dev.	0	(=0.000001)



Assumption: 128 Remove and Dispose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. ~~Unit R142~~

BetaPERT distribution with parameters:

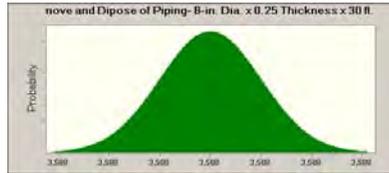
Minimum	\$0.60	(=Q142)
Likeliest	\$0.85	(=R142)
Maximum	\$1.00	(=S142)



Assumption: 129 Remove and Dispose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Cell L143

Normal distribution with parameters:

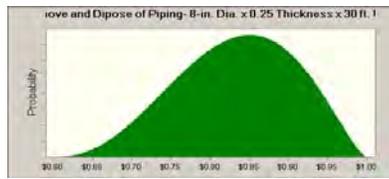
Mean	3,588	(=L143)
Std. Dev.	0	(=0.000001)



Assumption: 129 Remove and Dispose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Cell R143

BetaPERT distribution with parameters:

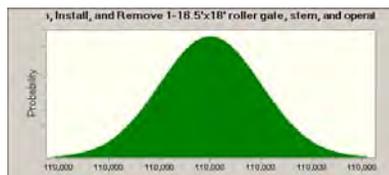
Minimum	\$0.60	(=Q143)
Likeliest	\$0.85	(=R143)
Maximum	\$1.00	(=S143)



Assumption: 13 Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operation Cell L26

Normal distribution with parameters:

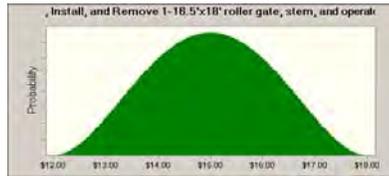
Mean	110,000	(=L26)
Std. Dev.	0	(=0.000001)



Assumption: 13 Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operation Cell: J26

BetaPERT distribution with parameters:

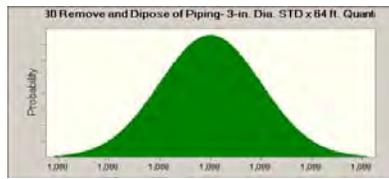
Minimum	\$12.00	(=Q26)
Likeliest	\$15.00	(=R26)
Maximum	\$18.00	(=S26)



Assumption: 130 Remove and Dispose of Piping- 3-in. Dia. STD x 64 ft. Quantity Cell: L144

Normal distribution with parameters:

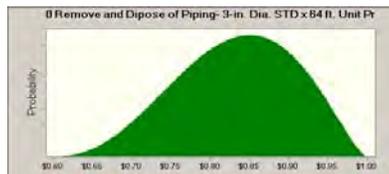
Mean	1,088	(=L144)
Std. Dev.	0	(=0.000001)



Assumption: 130 Remove and Dispose of Piping- 3-in. Dia. STD x 64 ft. Unit Price Cell: R144

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q144)
Likeliest	\$0.85	(=R144)
Maximum	\$1.00	(=S144)

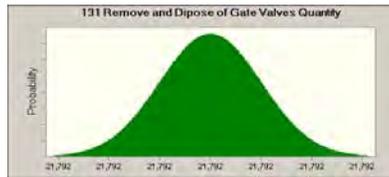


Assumption: 131 Remove and Dispose of Gate Valves Quantity

Cell: L145

Normal distribution with parameters:

Mean	21,792	(=L145)
Std. Dev.	0	(=0.000001)

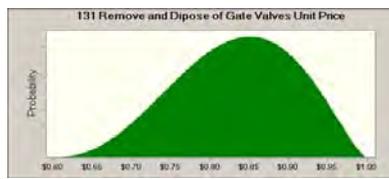


Assumption: 131 Remove and Dispose of Gate Valves Unit Price

Cell: R145

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q145)
Likeliest	\$0.85	(=R145)
Maximum	\$1.00	(=S145)

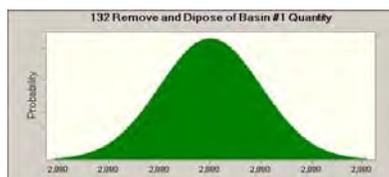


Assumption: 132 Remove and Dispose of Basin #1 Quantity

Cell: L146

Normal distribution with parameters:

Mean	2,880	(=L146)
Std. Dev.	0	(=0.000001)



Assumption: 132 Remove and Dipose of Basin #1 Unit Price

Cell: R146

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q146)
Likeliest	\$0.85	(=R146)
Maximum	\$1.00	(=S146)

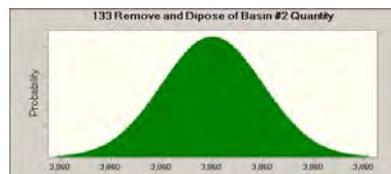


Assumption: 133 Remove and Dipose of Basin #2 Quantity

Cell: L147

Normal distribution with parameters:

Mean	3,860	(=L147)
Std. Dev.	0	(=0.000001)

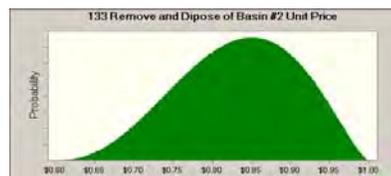


Assumption: 133 Remove and Dipose of Basin #2 Unit Price

Cell: R147

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q147)
Likeliest	\$0.85	(=R147)
Maximum	\$1.00	(=S147)

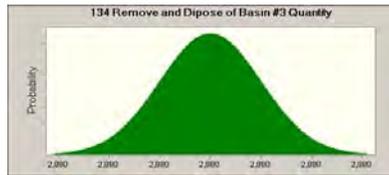


Assumption: 134 Remove and Dispose of Basin #3 Quantity

Cell: L148

Normal distribution with parameters:

Mean	2,880	(=L148)
Std. Dev.	0	(=0.000001)

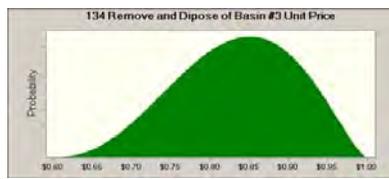


Assumption: 134 Remove and Dispose of Basin #3 Unit Price

Cell: R148

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q148)
Likeliest	\$0.85	(=R148)
Maximum	\$1.00	(=S148)

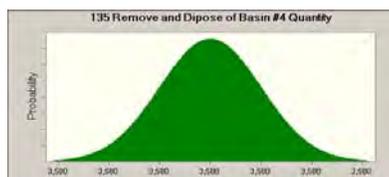


Assumption: 135 Remove and Dispose of Basin #4 Quantity

Cell: L149

Normal distribution with parameters:

Mean	3,580	(=L149)
Std. Dev.	0	(=0.000001)



Assumption: 135 Remove and Dispose of Basin #4 Unit Price

Cell: R149

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q149)
Likeliest	\$0.85	(=R149)
Maximum	\$1.00	(=S149)

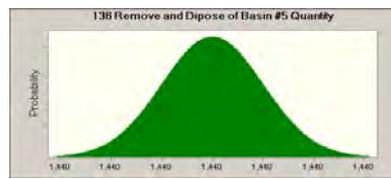


Assumption: 136 Remove and Dispose of Basin #5 Quantity

Cell: L150

Normal distribution with parameters:

Mean	1,440	(=L150)
Std. Dev.	0	(=0.000001)

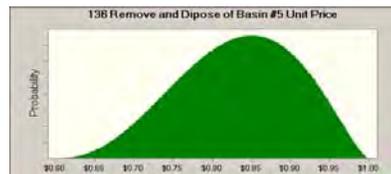


Assumption: 136 Remove and Dispose of Basin #5 Unit Price

Cell: R150

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q150)
Likeliest	\$0.85	(=R150)
Maximum	\$1.00	(=S150)

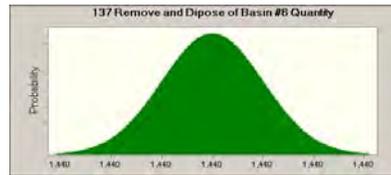


Assumption: 137 Remove and Dispose of Basin #6 Quantity

Cell: L151

Normal distribution with parameters:

Mean	1,440	(=L151)
Std. Dev.	0	(=0.000001)

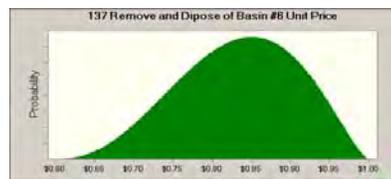


Assumption: 137 Remove and Dispose of Basin #6 Unit Price

Cell: R151

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q151)
Likeliest	\$0.85	(=R151)
Maximum	\$1.00	(=S151)

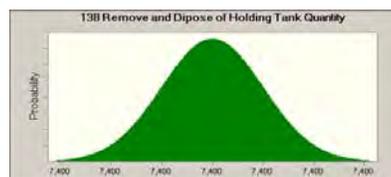


Assumption: 138 Remove and Dispose of Holding Tank Quantity

Cell: L152

Normal distribution with parameters:

Mean	7,400	(=L152)
Std. Dev.	0	(=0.000001)



Assumption: 138 Remove and Dispose of Holding Tank Unit Price

Cell: R152

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q152)
Likeliest	\$0.85	(=R152)
Maximum	\$1.00	(=S152)

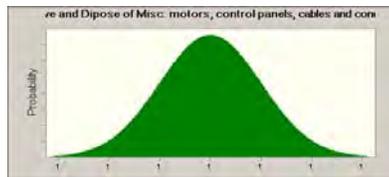


Assumption: 139 Remove and Dispose of Misc: motors, control panels, cables and cond

Cell: L153

Normal distribution with parameters:

Mean	1	(=L153)
Std. Dev.	0	(=0.000001)



Assumption: 139 Remove and Dispose of Misc: motors, control panels, cables and cond

Cell: R153

BetaPERT distribution with parameters:

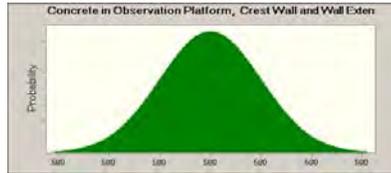
Minimum	\$1,000.00	(=Q153)
Likeliest	\$1,500.00	(=R153)
Maximum	\$2,000.00	(=S153)



Assumption: 14 Remove Concrete in Observation Platform, Crest Wall and Wall Extensions Cell: L27

Normal distribution with parameters:

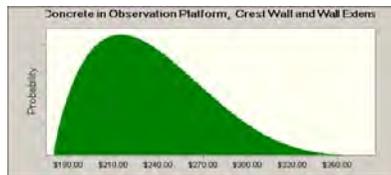
Mean 580 (=L27)
Std. Dev. 0 (=0.000001)



Assumption: 14 Remove Concrete in Observation Platform, Crest Wall and Wall Extensions Cell: R27

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q27)
Likeliest \$215.00 (=R27)
Maximum \$380.00 (=S27)

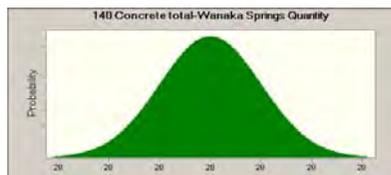


Assumption: 140 Concrete total-Wanaka Springs Quantity

Cell: L154

Normal distribution with parameters:

Mean 28 (=L154)
Std. Dev. 0 (=0.000001)

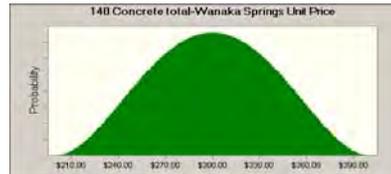


Assumption: 140 Concrete total-Wanaka Springs Unit Price

Cell: R154

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q154)
Likeliest	\$300.00	(=R154)
Maximum	\$400.00	(=S154)

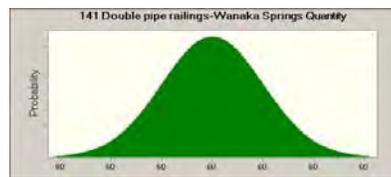


Assumption: 141 Double pipe railings-Wanaka Springs Quantity

Cell: L155

Normal distribution with parameters:

Mean	60	(=L155)
Std. Dev.	0	(=0.000001)

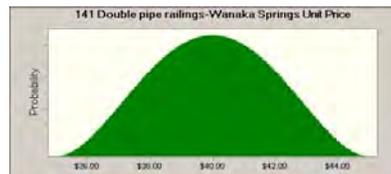


Assumption: 141 Double pipe railings-Wanaka Springs Unit Price

Cell: R155

BetaPERT distribution with parameters:

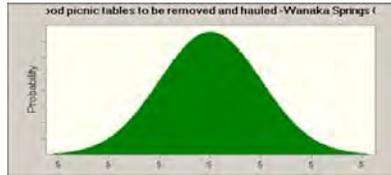
Minimum	\$35.00	(=Q155)
Likeliest	\$40.00	(=R155)
Maximum	\$45.00	(=S155)



Assumption: 142 Wood picnic tables to be removed and hauled -Wanaka Springs Quantity **Cell: L156**

Normal distribution with parameters:

Mean	5	(=L156)
Std. Dev.	0	(=0.000001)



Assumption: 142 Wood picnic tables to be removed and hauled -Wanaka Springs Unit Price **Cell: R156**

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q156)
Likeliest	\$100.00	(=R156)
Maximum	\$120.00	(=S156)

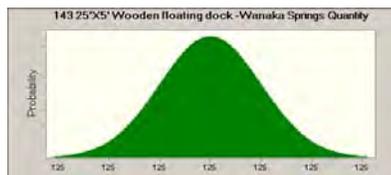


Assumption: 143 25'X5' Wooden floating dock -Wanaka Springs Quantity

Cell: L157

Normal distribution with parameters:

Mean	125	(=L157)
Std. Dev.	0	(=0.000001)



Assumption: 143 25'X5' Wooden floating dock -Wanaka Springs Unit Price

Cell: R157

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q157)
Likeliest	\$20.00	(=R157)
Maximum	\$25.00	(=S157)

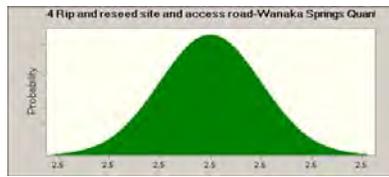


Assumption: 144 Rip and reseed site and access road-Wanaka Springs Quantity

Cell: L158

Normal distribution with parameters:

Mean	2.5	(=L158)
Std. Dev.	0.0	(=0.000001)



Assumption: 144 Rip and reseed site and access road-Wanaka Springs Unit Price

Cell: R158

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q158)
Likeliest	\$25,000.00	(=R158)
Maximum	\$30,000.00	(=S158)



Assumption: 145 Signs to be removed and hauled away-Wanaka Springs Quantity Cell: L159

Normal distribution with parameters:

Mean 3 (=L159)
Std. Dev. 0 (=0.000001)



Assumption: 145 Signs to be removed and hauled away-Wanaka Springs Unit PriceCell: R159

BetaPERT distribution with parameters:

Minimum \$250.00 (=Q159)
Likeliest \$300.00 (=R159)
Maximum \$350.00 (=S159)



Assumption: 146 15'x5' Gangplank with railings-Wanaka Springs Quantity

Cell: L160

Normal distribution with parameters:

Mean 75.00 (=L160)
Std. Dev. 0.00 (=0.000001)



Assumption: 146 15'x5' Gangplank with railings-Wanaka Springs Unit Price

Cell: R160

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q160)
Likeliest	\$20.00	(=R160)
Maximum	\$25.00	(=S160)



Assumption: 147 Concrete total-Juniper Point Quantity

Cell: L161

Normal distribution with parameters:

Mean	19.00	(=L161)
Std. Dev.	0.00	(=0.000001)



Assumption: 147 Concrete total-Juniper Point Unit Price

Cell: R161

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q161)
Likeliest	\$300.00	(=R161)
Maximum	\$400.00	(=S161)

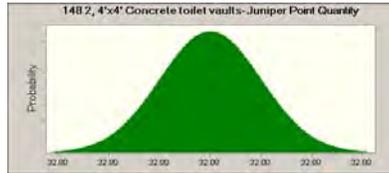


Assumption: 148 2, 4'x4' Concrete toilet vaults-Juniper Point Quantity

Cell: L162

Normal distribution with parameters:

Mean	32.00	(=L162)
Std. Dev.	0.00	(=0.000001)



Assumption: 148 2, 4'x4' Concrete toilet vaults-Juniper Point Unit Price

Cell: R162

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q162)
Likeliest	\$100.00	(=R162)
Maximum	\$120.00	(=S162)

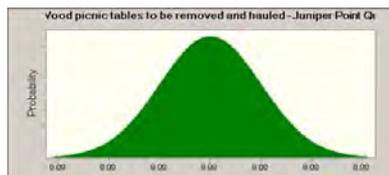


Assumption: 149 Wood picnic tables to be removed and hauled -Juniper Point Quantity

Cell: L163

Normal distribution with parameters:

Mean	8.00	(=L163)
Std. Dev.	0.00	(=0.000001)



Assumption: 149 Wood picnic tables to be removed and hauled -Juniper Point Unit Price **Cell: R163**

BetaPERT distribution with parameters:

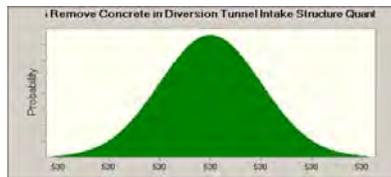
Minimum	\$90.00	(=Q163)
Likeliest	\$100.00	(=R163)
Maximum	\$120.00	(=S163)



Assumption: 15 Remove Concrete in Diversion Tunnel Intake Structure Quantity **Cell: L28**

Normal distribution with parameters:

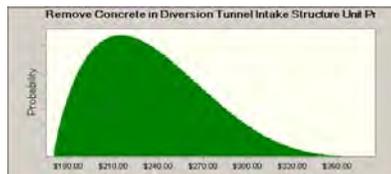
Mean	530	(=L28)
Std. Dev.	0	(=0.000001)



Assumption: 15 Remove Concrete in Diversion Tunnel Intake Structure Unit Price **Cell: R28**

BetaPERT distribution with parameters:

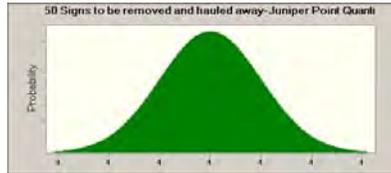
Minimum	\$170.00	(=Q28)
Likeliest	\$215.00	(=R28)
Maximum	\$380.00	(=S28)



Assumption: 150 Signs to be removed and hauled away-Juniper Point Quantity Cell: L164

Normal distribution with parameters:

Mean 4 (=L164)
 Std. Dev. 0 (=0.000001)



Assumption: 150 Signs to be removed and hauled away-Juniper Point Unit Price Cell: R164

BetaPERT distribution with parameters:

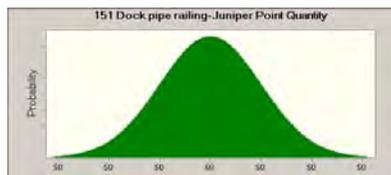
Minimum \$250.00 (=Q164)
 Likeliest \$300.00 (=R164)
 Maximum \$350.00 (=S164)



Assumption: 151 Dock pipe railing-Juniper Point Quantity Cell: L165

Normal distribution with parameters:

Mean 50 (=L165)
 Std. Dev. 0 (=0.000001)



Assumption: 151 Dock pipe railing-Juniper Point Unit Price

Cell: R165

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q165)
Likeliest	\$40.00	(=R165)
Maximum	\$45.00	(=S165)

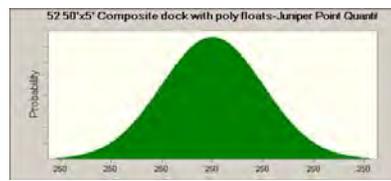


Assumption: 152 50'x5' Composite dock with poly floats-Juniper Point Quantity

Cell: L166

Normal distribution with parameters:

Mean	250	(=L166)
Std. Dev.	0	(=0.000001)

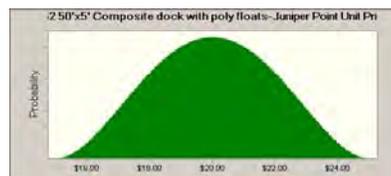


Assumption: 152 50'x5' Composite dock with poly floats-Juniper Point Unit Price

Cell: R166

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q166)
Likeliest	\$20.00	(=R166)
Maximum	\$25.00	(=S166)



Assumption: 153 20'x5' Composite gangplank with railings-Juniper Point Quantity Cell: L167

Normal distribution with parameters:

Mean	100	(=L167)
Std. Dev.	0	(=0.000001)



Assumption: 153 20'x5' Composite gangplank with railings-Juniper Point Unit PriceCell: R167

BetaPERT distribution with parameters:

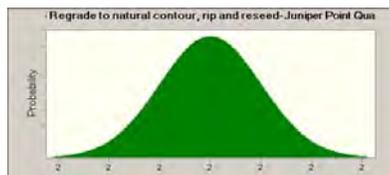
Minimum	\$15.00	(=Q167)
Likeliest	\$20.00	(=R167)
Maximum	\$25.00	(=S167)



Assumption: 155 Regrade to natural contour, rip and reseed-Juniper Point QuantityCell: L169

Normal distribution with parameters:

Mean	2	(=L169)
Std. Dev.	0	(=0.000001)



Assumption: 155 Regrade to natural contour, rip and reseed-Juniper Point Unit Price Cell: R169

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q169)
Likeliest	\$25,000.00	(=R169)
Maximum	\$30,000.00	(=S169)

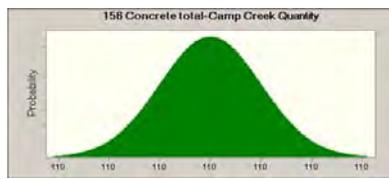


Assumption: 156 Concrete total-Camp Creek Quantity

Cell: L170

Normal distribution with parameters:

Mean	110	(=L170)
Std. Dev.	0	(=0.000001)



Assumption: 156 Concrete total-Camp Creek Unit Price

Cell: R170

BetaPERT distribution with parameters:

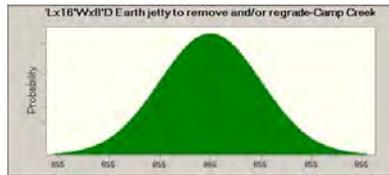
Minimum	\$200.00	(=Q170)
Likeliest	\$300.00	(=R170)
Maximum	\$400.00	(=S170)



Assumption: 157 180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek Cell R171

Normal distribution with parameters:

Mean	855	(=L171)
Std. Dev.	0	(=0.000001)



Assumption: 157 180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek Cell R171

BetaPERT distribution with parameters:

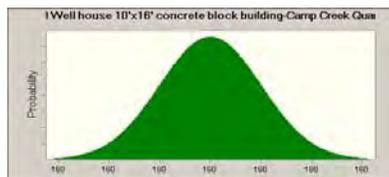
Minimum	\$20.00	(=Q171)
Likeliest	\$25.00	(=R171)
Maximum	\$30.00	(=S171)



Assumption: 158 Well house 10'x16' concrete block building-Camp Creek Quantity Cell: L172

Normal distribution with parameters:

Mean	160	(=L172)
Std. Dev.	0	(=0.000001)



Assumption: 158 Well house 10'x16' concrete block building-Camp Creek Unit Price Cell: R172

BetaPERT distribution with parameters:

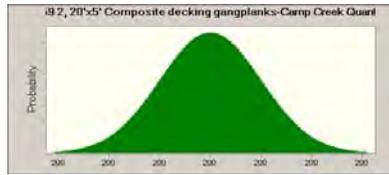
Minimum	\$90.00	(=Q172)
Likeliest	\$100.00	(=R172)
Maximum	\$120.00	(=S172)



Assumption: 159 2, 20'x5' Composite decking gangplanks-Camp Creek Quantity Cell: L173

Normal distribution with parameters:

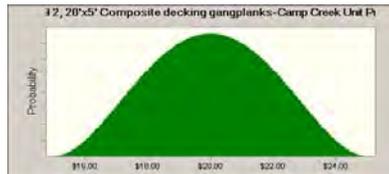
Mean	200	(=L173)
Std. Dev.	0	(=0.000001)



Assumption: 159 2, 20'x5' Composite decking gangplanks-Camp Creek Unit Price Cell: R173

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q173)
Likeliest	\$20.00	(=R173)
Maximum	\$25.00	(=S173)



Assumption: 16 Remove Concrete in Diversion Tunnel Gate Tower Quantity

Cell: L29

Normal distribution with parameters:

Mean	410	(=L29)
Std. Dev.	0	(=0.000001)

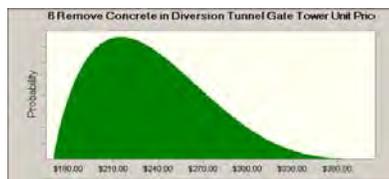


Assumption: 16 Remove Concrete in Diversion Tunnel Gate Tower Unit Price

Cell: R29

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q29)
Likeliest	\$215.00	(=R29)
Maximum	\$380.00	(=S29)

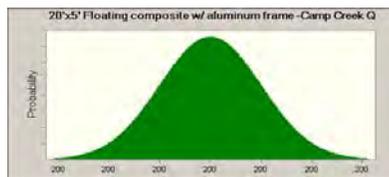


Assumption: 160 2, 20'x5' Floating composite w/ aluminum frame -Camp Creek Quantity

Cell: L174

Normal distribution with parameters:

Mean	200	(=L174)
Std. Dev.	0	(=0.000001)



Assumption: 160 2, 20'x5' Floating composite w/ aluminum frame -Camp Creek Unit Price R174

BetaPERT distribution with parameters:

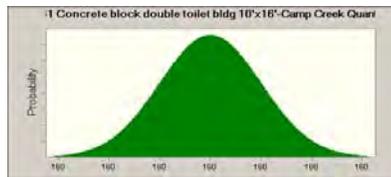
Minimum	\$15.00	(=Q174)
Likeliest	\$20.00	(=R174)
Maximum	\$25.00	(=S174)



Assumption: 161 Concrete block double toilet bldg 10'x16'-Camp Creek Quantity Cell: L175

Normal distribution with parameters:

Mean	160	(=L175)
Std. Dev.	0	(=0.000001)



Assumption: 161 Concrete block double toilet bldg 10'x16'-Camp Creek Unit Price Cell: R175

BetaPERT distribution with parameters:

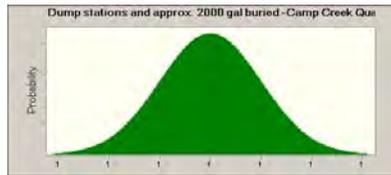
Minimum	\$90.00	(=Q175)
Likeliest	\$100.00	(=R175)
Maximum	\$120.00	(=S175)



Assumption: 162 Dump stations and approx. 2000 gal buried -Camp Creek Quantity Cell: L176

Normal distribution with parameters:

Mean	1	(=L176)
Std. Dev.	0	(=0.000001)



Assumption: 162 Dump stations and approx. 2000 gal buried -Camp Creek Unit Price Cell: R176

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q176)
Likeliest	\$5,000.00	(=R176)
Maximum	\$6,000.00	(=S176)

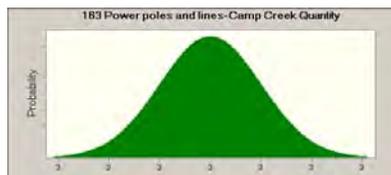


Assumption: 163 Power poles and lines-Camp Creek Quantity

Cell: L177

Normal distribution with parameters:

Mean	3	(=L177)
Std. Dev.	0	(=0.000001)



Assumption: 163 Power poles and lines-Camp Creek Unit Price

Cell: R177

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q177)
Likeliest	\$1,500.00	(=R177)
Maximum	\$2,000.00	(=S177)

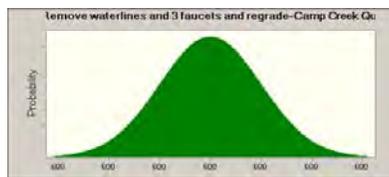


Assumption: 164 Remove waterlines and 3 faucets and regrade-Camp Creek Quantities

Cell: L178

Normal distribution with parameters:

Mean	600	(=L178)
Std. Dev.	0	(=0.000001)



Assumption: 164 Remove waterlines and 3 faucets and regrade-Camp Creek Unit Price

Cell: R178

BetaPERT distribution with parameters:

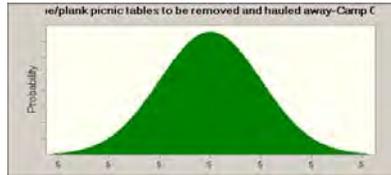
Minimum	\$4.00	(=Q178)
Likeliest	\$5.00	(=R178)
Maximum	\$6.00	(=S178)



Assumption: 166 Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek

Normal distribution with parameters:

Mean 5 (=L180)
 Std. Dev. 0 (=0.000001)



Assumption: 166 Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek

BetaPERT distribution with parameters:

Minimum \$90.00 (=Q180)
 Likeliest \$100.00 (=R180)
 Maximum \$120.00 (=S180)

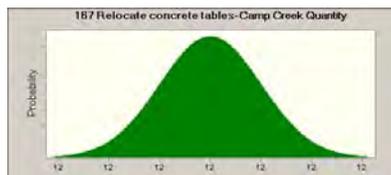


Assumption: 167 Relocate concrete tables-Camp Creek Quantity

Cell: L181

Normal distribution with parameters:

Mean 12 (=L181)
 Std. Dev. 0 (=0.000001)



Assumption: 167 Relocate concrete tables-Camp Creek Unit Price

Cell: R181

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q181)
Likeliest	\$100.00	(=R181)
Maximum	\$120.00	(=S181)

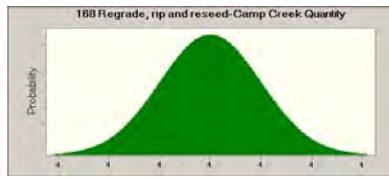


Assumption: 168 Regrade, rip and reseed-Camp Creek Quantity

Cell: L182

Normal distribution with parameters:

Mean	4	(=L182)
Std. Dev.	0	(=0.000001)



Assumption: 168 Regrade, rip and reseed-Camp Creek Unit Price

Cell: R182

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q182)
Likeliest	\$25,000.00	(=R182)
Maximum	\$30,000.00	(=S182)



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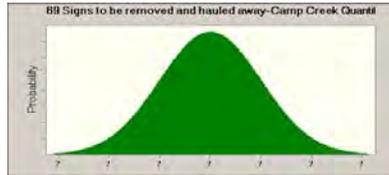
Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls

Assumption: 169 Signs to be removed and hauled away-Camp Creek Quantity

Cell: L183

Normal distribution with parameters:

Mean 7 (=L183)
Std. Dev. 0 (=0.000001)



Assumption: 169 Signs to be removed and hauled away-Camp Creek Unit Price

Cell: R183

BetaPERT distribution with parameters:

Minimum \$250.00 (=Q183)
Likeliest \$300.00 (=R183)
Maximum \$350.00 (=S183)



Assumption: 17 Remove Steel Footbridge to Gate Tower Quantity

Cell: L30

Normal distribution with parameters:

Mean 13,000 (=L30)
Std. Dev. 0 (=0.000001)

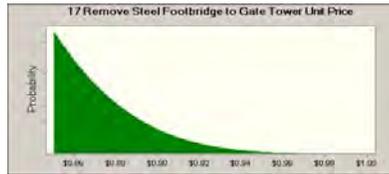


Assumption: 17 Remove Steel Footbridge to Gate Tower Unit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$0.85	(=Q30)
Likeliest	\$0.85	(=R30)
Maximum	\$1.00	(=S30)

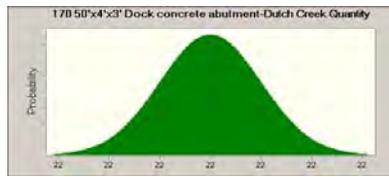


Assumption: 170 50'x4'x3' Dock concrete abutment-Dutch Creek Quantity

Cell: L184

Normal distribution with parameters:

Mean	22	(=L184)
Std. Dev.	0	(=0.000001)

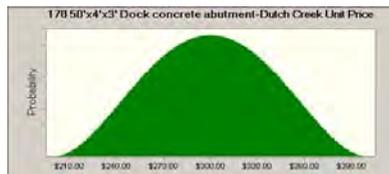


Assumption: 170 50'x4'x3' Dock concrete abutment-Dutch Creek Unit Price

Cell: R184

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q184)
Likeliest	\$300.00	(=R184)
Maximum	\$400.00	(=S184)



Assumption: 171 Double pipe railing-Dutch Creek Quantity

Cell: L185

Normal distribution with parameters:

Mean	100	(=L185)
Std. Dev.	0	(=0.000001)



Assumption: 171 Double pipe railing-Dutch Creek Unit Price

Cell: R185

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q185)
Likeliest	\$40.00	(=R185)
Maximum	\$45.00	(=S185)



Assumption: 172 Concrete total-Mirror Cove Quantity

Cell: L186

Normal distribution with parameters:

Mean	89	(=L186)
Std. Dev.	0	(=0.000001)

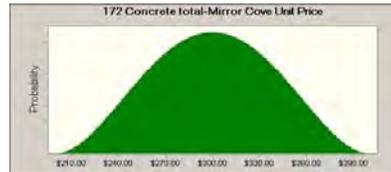


Assumption: 172 Concrete total-Mirror Cove Unit Price

Cell: R186

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q186)
Likeliest	\$300.00	(=R186)
Maximum	\$400.00	(=S186)

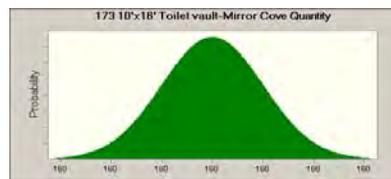


Assumption: 173 10'x16' Toilet vault-Mirror Cove Quantity

Cell: L187

Normal distribution with parameters:

Mean	160	(=L187)
Std. Dev.	0	(=0.000001)



Assumption: 173 10'x16' Toilet vault-Mirror Cove Unit Price

Cell: R187

BetaPERT distribution with parameters:

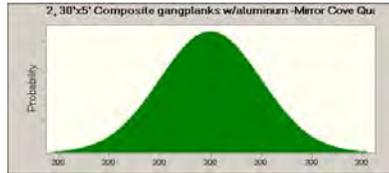
Minimum	\$90.00	(=Q187)
Likeliest	\$100.00	(=R187)
Maximum	\$120.00	(=S187)



Assumption: 174 2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove Quantity Cell: L188

Normal distribution with parameters:

Mean	300	(=L188)
Std. Dev.	0	(=0.000001)



Assumption: 174 2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove Unit Price Cell: R188

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q188)
Likeliest	\$20.00	(=R188)
Maximum	\$25.00	(=S188)

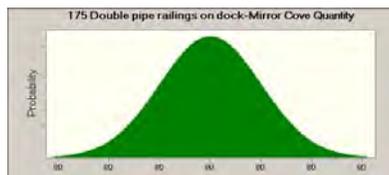


Assumption: 175 Double pipe railings on dock-Mirror Cove Quantity

Cell: L189

Normal distribution with parameters:

Mean	80	(=L189)
Std. Dev.	0	(=0.000001)



Assumption: 175 Double pipe railings on dock-Mirror Cove Unit Price

Cell: R189

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q189)
Likeliest	\$40.00	(=R189)
Maximum	\$45.00	(=S189)

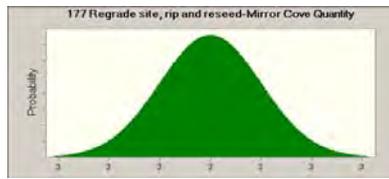


Assumption: 177 Regrade site, rip and reseed-Mirror Cove Quantity

Cell: L191

Normal distribution with parameters:

Mean	3	(=L191)
Std. Dev.	0	(=0.000001)



Assumption: 177 Regrade site, rip and reseed-Mirror Cove Unit Price

Cell: R191

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q191)
Likeliest	\$25,000.00	(=R191)
Maximum	\$30,000.00	(=S191)



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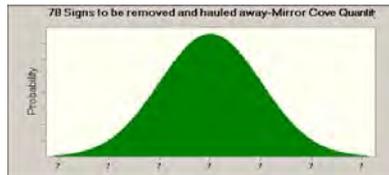
Iron Gate - Partial Removal Crystal Ball - with Escalation - 2011-04.xls

Assumption: 178 Signs to be removed and hauled away-Mirror Cove Quantity

Cell: L192

Normal distribution with parameters:

Mean 7 (=L192)
Std. Dev. 0 (=0.000001)



Assumption: 178 Signs to be removed and hauled away-Mirror Cove Unit Price

Cell: R192

BetaPERT distribution with parameters:

Minimum \$250.00 (=Q192)
Likeliest \$300.00 (=R192)
Maximum \$350.00 (=S192)

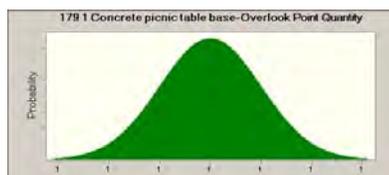


Assumption: 179 1 Concrete picnic table base-Overlook Point Quantity

Cell: L193

Normal distribution with parameters:

Mean 1 (=L193)
Std. Dev. 0 (=0.000001)



Assumption: 179 1 Concrete picnic table base-Overlook Point Unit Price

Cell: R193

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q193)
Likeliest	\$300.00	(=R193)
Maximum	\$400.00	(=S193)

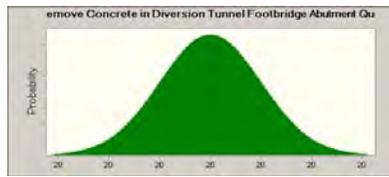


Assumption: 18 Remove Concrete in Diversion Tunnel Footbridge Abutment Quantity

Cell: L31

Normal distribution with parameters:

Mean	20	(=L31)
Std. Dev.	0	(=0.000001)

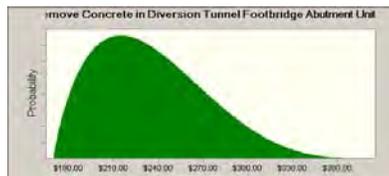


Assumption: 18 Remove Concrete in Diversion Tunnel Footbridge Abutment Unit Price

Cell: R31

BetaPERT distribution with parameters:

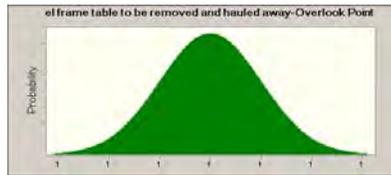
Minimum	\$170.00	(=Q31)
Likeliest	\$215.00	(=R31)
Maximum	\$380.00	(=S31)



Assumption: 180 Steel frame table to be removed and hauled away-Overlook Point Cell: R194

Normal distribution with parameters:

Mean	1	(=L194)
Std. Dev.	0	(=0.000001)



Assumption: 180 Steel frame table to be removed and hauled away-Overlook Point Cell: R194

BetaPERT distribution with parameters:

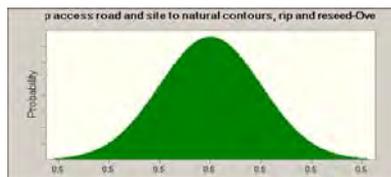
Minimum	\$90.00	(=Q194)
Likeliest	\$100.00	(=R194)
Maximum	\$120.00	(=S194)



Assumption: 181 Regrade steep access road and site to natural contours, rip and reseed-Overlook Point Cell: R195

Normal distribution with parameters:

Mean	0.5	(=L195)
Std. Dev.	0.0	(=0.000001)



Assumption: 181 Regrade steep access road and site to natural contours, rip and reseed-Over Cell: R195

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q195)
Likeliest	\$25,000.00	(=R195)
Maximum	\$30,000.00	(=S195)



Assumption: 182 80'x25'x4" Concrete boat ramp to be removed-Long Gulch Quantity Cell: L196

Normal distribution with parameters:

Mean	25	(=L196)
Std. Dev.	0	(=0.000001)



Assumption: 182 80'x25'x4" Concrete boat ramp to be removed-Long Gulch Unit Price Cell: R196

BetaPERT distribution with parameters:

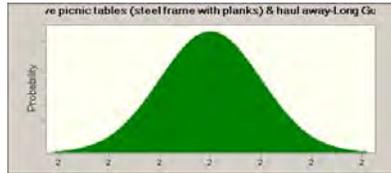
Minimum	\$200.00	(=Q196)
Likeliest	\$300.00	(=R196)
Maximum	\$400.00	(=S196)



Assumption: 183 Remove picnic tables (steel frame with planks) & haul away-Long Gulch L197

Normal distribution with parameters:

Mean	2	(=L197)
Std. Dev.	0	(=0.000001)



Assumption: 183 Remove picnic tables (steel frame with planks) & haul away-Long Gulch R197

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q197)
Likeliest	\$100.00	(=R197)
Maximum	\$120.00	(=S197)



Assumption: 184 Regrade ramp area to natural contours, rip, reseed-Long Gulch Q198

Normal distribution with parameters:

Mean	0.05	(=L198)
Std. Dev.	0.00	(=0.000001)



Assumption: 184 Regrade ramp area to natural contours, rip, reseed-Long Gulch Unit Price

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q198)
Likeliest	\$25,000.00	(=R198)
Maximum	\$30,000.00	(=S198)

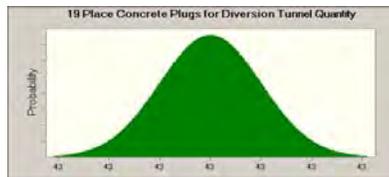


Assumption: 19 Place Concrete Plugs for Diversion Tunnel Quantity

Cell: L32

Normal distribution with parameters:

Mean	43	(=L32)
Std. Dev.	0	(=0.000001)

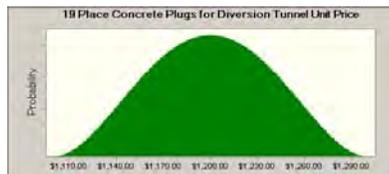


Assumption: 19 Place Concrete Plugs for Diversion Tunnel Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$1,100.00	(=Q32)
Likeliest	\$1,200.00	(=R32)
Maximum	\$1,300.00	(=S32)



Assumption: 20 Remove Concrete Closure Gates in Gate Tower Quantity

Cell: L33

Normal distribution with parameters:

Mean 61 (=L33)
Std. Dev. 0 (=0.000001)



Assumption: 20 Remove Concrete Closure Gates in Gate Tower Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum \$900.00 (=Q33)
Likeliest \$1,000.00 (=R33)
Maximum \$1,300.00 (=S33)



Assumption: 21 Remove Upstream Riprap Quantity

Cell: L34

Normal distribution with parameters:

Mean 80,000 (=L34)
Std. Dev. 0 (=0.000001)



Assumption: 21 Remove Upstream Riprap Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q34)
Likeliest	\$13.00	(=R34)
Maximum	\$17.00	(=S34)

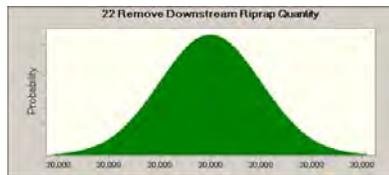


Assumption: 22 Remove Downstream Riprap Quantity

Cell: L35

Normal distribution with parameters:

Mean	30,000	(=L35)
Std. Dev.	0	(=0.000001)



Assumption: 22 Remove Downstream Riprap Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q35)
Likeliest	\$13.00	(=R35)
Maximum	\$17.00	(=S35)

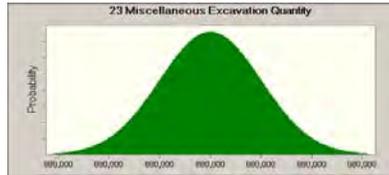


Assumption: 23 Miscellaneous Excavation Quantity

Cell: L36

Normal distribution with parameters:

Mean 880,000 (=L36)
 Std. Dev. 0 (=0.000001)



Assumption: 23 Miscellaneous Excavation Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum \$10.00 (=Q36)
 Likeliest \$13.00 (=R36)
 Maximum \$17.00 (=S36)



Assumption: 24 Cutoff Wall Concrete Demolition Quantity

Cell: L37

Triangular distribution with parameters:

Minimum 1,000 (=K37)
 Likeliest 1,250 (=L37)
 Maximum 1,500 (=M37)

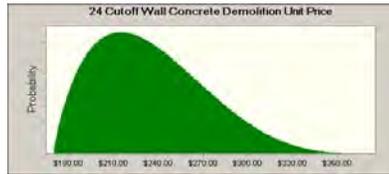


Assumption: 24 Cutoff Wall Concrete Demolition Unit Price

Cell: R37

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q37)
Likeliest	\$215.00	(=R37)
Maximum	\$380.00	(=S37)

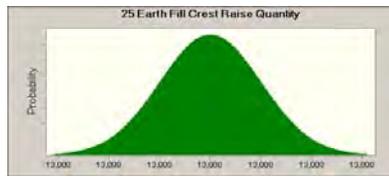


Assumption: 25 Earth Fill Crest Raise Quantity

Cell: L38

Normal distribution with parameters:

Mean	13,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Earth Fill Crest Raise Unit Price

Cell: R38

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q38)
Likeliest	\$13.00	(=R38)
Maximum	\$17.00	(=S38)

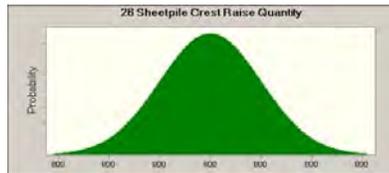


Assumption: 26 Sheetpile Crest Raise Quantity

Cell: L39

Normal distribution with parameters:

Mean	800	(=L39)
Std. Dev.	0	(=0.000001)



Assumption: 26 Sheetpile Crest Raise Unit Price

Cell: R39

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q39)
Likeliest	\$250.00	(=R39)
Maximum	\$300.00	(=S39)



Assumption: 27 Remove 5 monitoring wells Quantity

Cell: L40

Normal distribution with parameters:

Mean	5	(=L40)
Std. Dev.	0	(=0.000001)



Assumption: 27 Remove 5 monitoring wells Unit Price

Cell: R40

BetaPERT distribution with parameters:

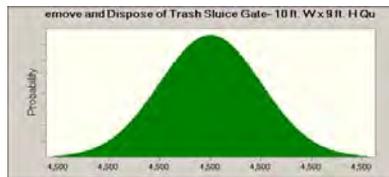
Minimum	\$1,900.00	(=Q40)
Likeliest	\$2,000.00	(=R40)
Maximum	\$2,200.00	(=S40)



Assumption: 28 Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H QuantityCell: L41

Normal distribution with parameters:

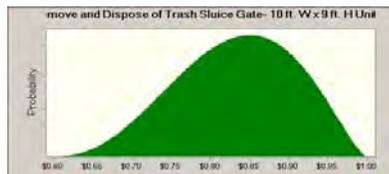
Mean	4,500	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H Unit PriceCell: R41

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q41)
Likeliest	\$0.85	(=R41)
Maximum	\$1.00	(=S41)



Assumption: 29 Remove and Dispose of Intake structure Quantity

Cell: L42

Normal distribution with parameters:

Mean	72,000	(=L42)
Std. Dev.	0	(=0.000001)

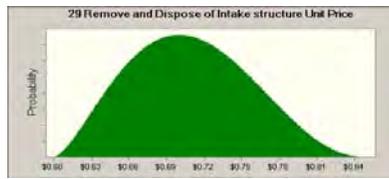


Assumption: 29 Remove and Dispose of Intake structure Unit Price

Cell: R42

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q42)
Likeliest	\$0.70	(=R42)
Maximum	\$0.85	(=S42)

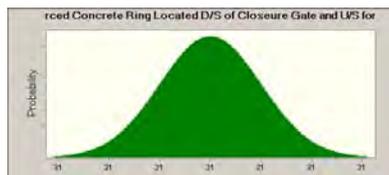


Assumption: 3 Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S for

Cell: L16

Normal distribution with parameters:

Mean	31	(=L16)
Std. Dev.	0	(=0.000001)



Assumption: 3 Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S R16

BetaPERT distribution with parameters:

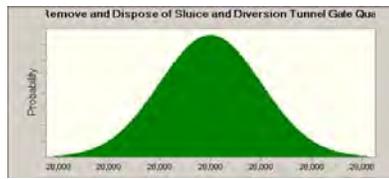
Minimum	\$1,300.00	(=Q16)
Likeliest	\$1,500.00	(=R16)
Maximum	\$1,800.00	(=S16)



Assumption: 30 Remove and Dispose of Sluice and Diversion Tunnel Gate Quantity Cell: L43

Normal distribution with parameters:

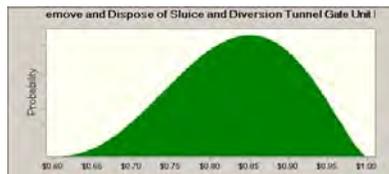
Mean	28,000	(=L43)
Std. Dev.	0	(=0.000001)



Assumption: 30 Remove and Dispose of Sluice and Diversion Tunnel Gate Unit Price Cell: R43

BetaPERT distribution with parameters:

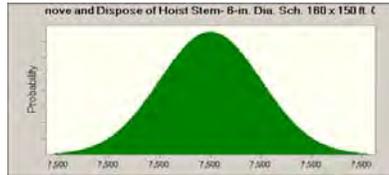
Minimum	\$0.60	(=Q43)
Likeliest	\$0.85	(=R43)
Maximum	\$1.00	(=S43)



Assumption: 31 Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Quantity: L44

Normal distribution with parameters:

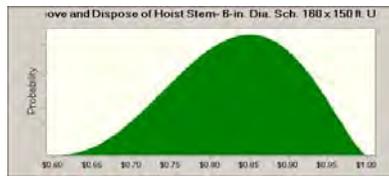
Mean 7,500 (=L44)
Std. Dev. 0 (=0.000001)



Assumption: 31 Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Unit Cost: R44

BetaPERT distribution with parameters:

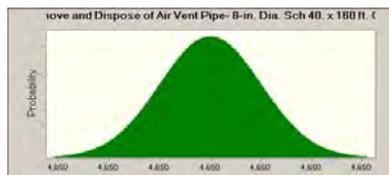
Minimum \$0.60 (=Q44)
Likeliest \$0.85 (=R44)
Maximum \$1.00 (=S44)



Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Quantity: L45

Normal distribution with parameters:

Mean 4,650 (=L45)
Std. Dev. 0 (=0.000001)



Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Unit Price R45

BetaPERT distribution with parameters:

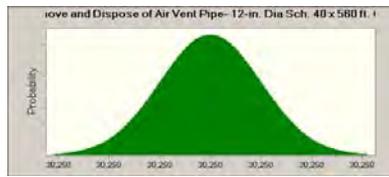
Minimum	\$1.50	(=Q45)
Likeliest	\$2.00	(=R45)
Maximum	\$3.00	(=S45)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Quantity L47

Normal distribution with parameters:

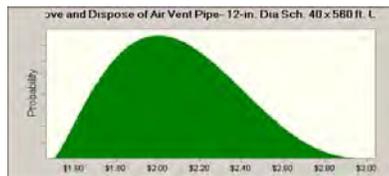
Mean	30,250	(=L47)
Std. Dev.	0	(=0.000001)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Unit Price R47

BetaPERT distribution with parameters:

Minimum	\$1.50	(=Q47)
Likeliest	\$2.00	(=R47)
Maximum	\$3.00	(=S47)



Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Quantity

Cell: L48

Normal distribution with parameters:

Mean	2,670	(=L48)
Std. Dev.	0	(=0.000001)

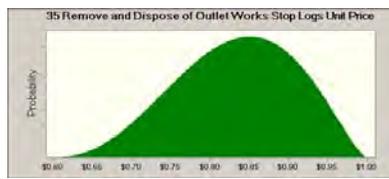


Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Unit Price

Cell: R48

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q48)
Likeliest	\$0.85	(=R48)
Maximum	\$1.00	(=S48)

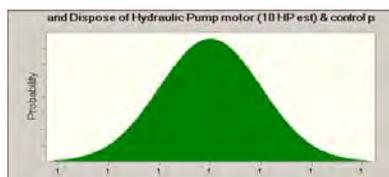


Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel

Cell: L49

Normal distribution with parameters:

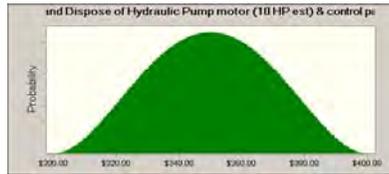
Mean	1	(=L49)
Std. Dev.	0	(=0.000001)



Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel

BetaPERT distribution with parameters:

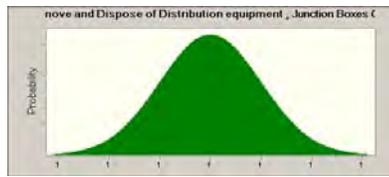
Minimum	\$300.00	(=Q49)
Likeliest	\$350.00	(=R49)
Maximum	\$400.00	(=S49)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Quality

Normal distribution with parameters:

Mean	1	(=L50)
Std. Dev.	0	(=0.000001)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Under

BetaPERT distribution with parameters:

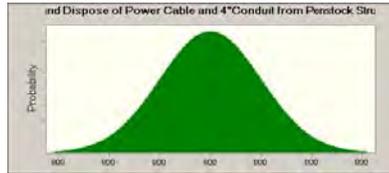
Minimum	\$1,500.00	(=Q50)
Likeliest	\$1,700.00	(=R50)
Maximum	\$2,000.00	(=S50)



Assumption: 38 Remove and Dispose of Power Cable and 4" Conduit from Penstock Structure

Normal distribution with parameters:

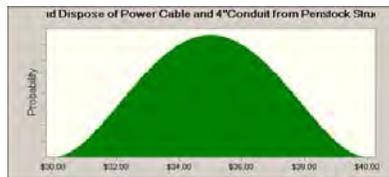
Mean	800	(=L51)
Std. Dev.	0	(=0.000001)



Assumption: 38 Remove and Dispose of Power Cable and 4" Conduit from Penstock Structure

BetaPERT distribution with parameters:

Minimum	\$30.00	(=Q51)
Likeliest	\$35.00	(=R51)
Maximum	\$40.00	(=S51)

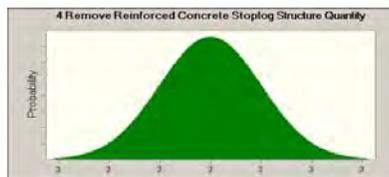


Assumption: 4 Remove Reinforced Concrete Stoplog Structure Quantity

Cell: L17

Normal distribution with parameters:

Mean	3	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 4 Remove Reinforced Concrete Stoplog Structure Unit Price

Cell: R17

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q17)
Likeliest	\$215.00	(=R17)
Maximum	\$380.00	(=S17)

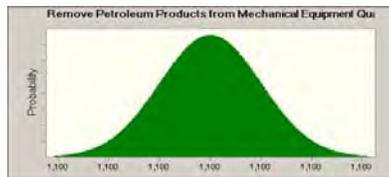


Assumption: 53A Remove Petroleum Products from Mechanical Equipment Quantity

Cell: L67

Normal distribution with parameters:

Mean	1,100	(=L67)
Std. Dev.	0	(=0.000001)



Assumption: 53A Remove Petroleum Products from Mechanical Equipment Unit Price

Cell: R67

BetaPERT distribution with parameters:

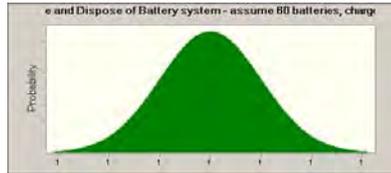
Minimum	\$9.00	(=Q67)
Likeliest	\$10.00	(=R67)
Maximum	\$12.00	(=S67)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge Cell L74

Normal distribution with parameters:

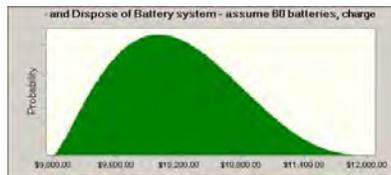
Mean	1	(=L74)
Std. Dev.	0	(=0.000001)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge Cell R74

BetaPERT distribution with parameters:

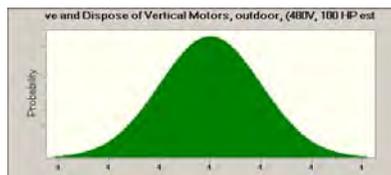
Minimum	\$9,000.00	(=Q74)
Likeliest	\$10,000.00	(=R74)
Maximum	\$12,000.00	(=S74)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est.) Cell L79

Normal distribution with parameters:

Mean	4	(=L79)
Std. Dev.	0	(=0.000001)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est. Cost: R79)

BetaPERT distribution with parameters:

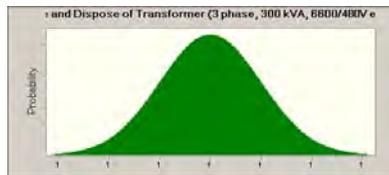
Minimum	\$500.00	(=Q79)
Likeliest	\$600.00	(=R79)
Maximum	\$700.00	(=S79)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est. Cost: L80)

Normal distribution with parameters:

Mean	1	(=L80)
Std. Dev.	0	(=0.000001)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est. Cost: R80)

BetaPERT distribution with parameters:

Minimum	\$9,000.00	(=Q80)
Likeliest	\$10,000.00	(=R80)
Maximum	\$13,000.00	(=S80)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase, L81

Normal distribution with parameters:

Mean	1	(=L81)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase, R81

BetaPERT distribution with parameters:

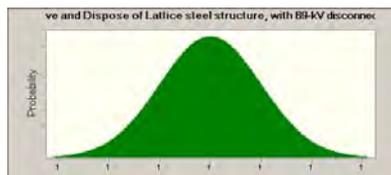
Minimum	\$90,000.00	(=Q81)
Likeliest	\$100,000.00	(=R81)
Maximum	\$120,000.00	(=S81)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnect, L82

Normal distribution with parameters:

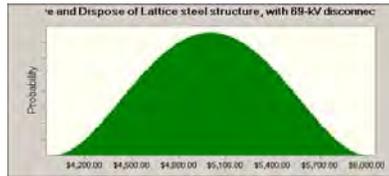
Mean	1	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnection Cell R82

BetaPERT distribution with parameters:

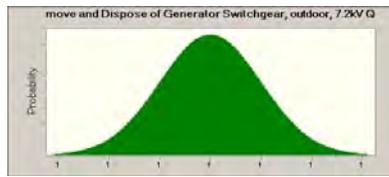
Minimum	\$4,000.00	(=Q82)
Likeliest	\$5,000.00	(=R82)
Maximum	\$6,000.00	(=S82)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Quantity: L83

Normal distribution with parameters:

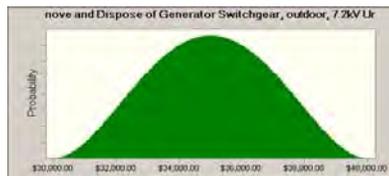
Mean	1	(=L83)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Unit Price R83

BetaPERT distribution with parameters:

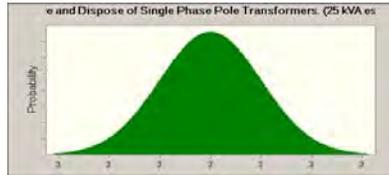
Minimum	\$30,000.00	(=Q83)
Likeliest	\$35,000.00	(=R83)
Maximum	\$40,000.00	(=S83)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es) Cell: L84

Normal distribution with parameters:

Mean 3 (=L84)
Std. Dev. 0 (=0.000001)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es) Cell: L84

BetaPERT distribution with parameters:

Minimum \$1,500.00 (=Q84)
Likeliest \$2,000.00 (=R84)
Maximum \$3,000.00 (=S84)



Assumption: 71 Remove Concrete in Penstock Intake Structure Quantity

Cell: L85

Normal distribution with parameters:

Mean 460 (=L85)
Std. Dev. 0 (=0.000001)

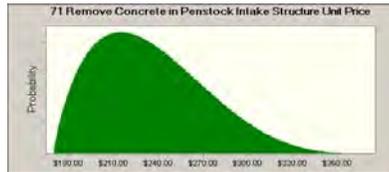


Assumption: 71 Remove Concrete in Penstock Intake Structure Unit Price

Cell: R85

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q85)
Likeliest	\$215.00	(=R85)
Maximum	\$380.00	(=S85)

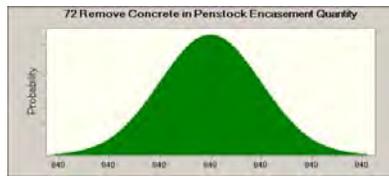


Assumption: 72 Remove Concrete in Penstock Encasement Quantity

Cell: L86

Normal distribution with parameters:

Mean	840	(=L86)
Std. Dev.	0	(=0.000001)

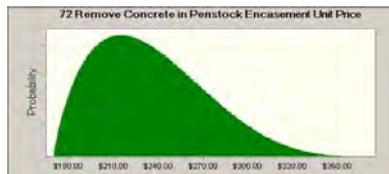


Assumption: 72 Remove Concrete in Penstock Encasement Unit Price

Cell: R86

BetaPERT distribution with parameters:

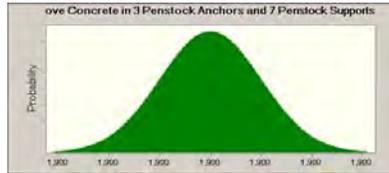
Minimum	\$170.00	(=Q86)
Likeliest	\$215.00	(=R86)
Maximum	\$380.00	(=S86)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports **Cell: L87**

Normal distribution with parameters:

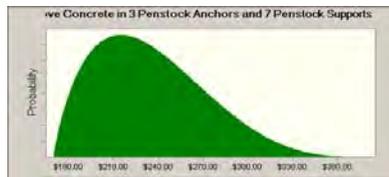
Mean 1,900 (=L87)
 Std. Dev. 0 (=0.000001)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports **Cell: R87**

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q87)
 Likeliest \$215.00 (=R87)
 Maximum \$380.00 (=S87)

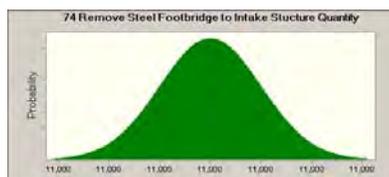


Assumption: 74 Remove Steel Footbridge to Intake Structure Quantity

Cell: L88

Normal distribution with parameters:

Mean 11,000 (=L88)
 Std. Dev. 0 (=0.000001)



Assumption: 74 Remove Steel Footbridge to Intake Structure Unit Price

Cell: R88

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q88)
Likeliest	\$0.85	(=R88)
Maximum	\$1.00	(=S88)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Quantity **Cell: L89**

Normal distribution with parameters:

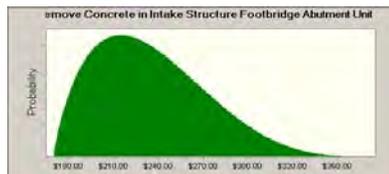
Mean	5	(=L89)
Std. Dev.	0	(=0.000001)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Unit Price **Cell: R89**

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q89)
Likeliest	\$215.00	(=R89)
Maximum	\$380.00	(=S89)



Assumption: 76 Remove and Dispose of Intake Structure Quantity

Cell: L90

Normal distribution with parameters:

Mean	131,630	(=L90)
Std. Dev.	0	(=0.000001)

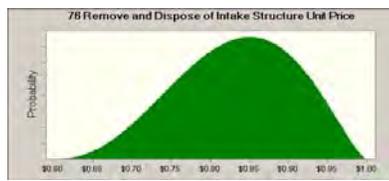


Assumption: 76 Remove and Dispose of Intake Structure Unit Price

Cell: R90

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q90)
Likeliest	\$0.85	(=R90)
Maximum	\$1.00	(=S90)

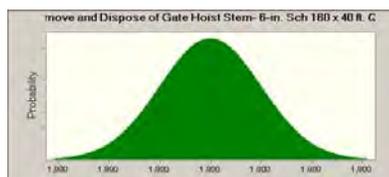


Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Quantity

Cell: L91

Normal distribution with parameters:

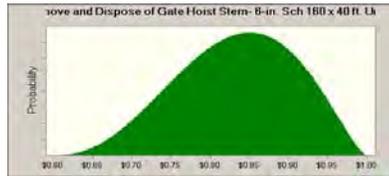
Mean	1,800	(=L91)
Std. Dev.	0	(=0.000001)



Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Unit Price R91

BetaPERT distribution with parameters:

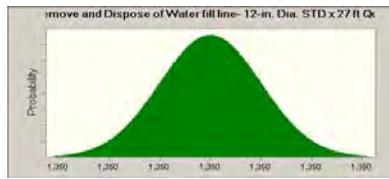
Minimum	\$0.60	(=Q91)
Likeliest	\$0.85	(=R91)
Maximum	\$1.00	(=S91)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Quantity Cell: L92

Normal distribution with parameters:

Mean	1,350	(=L92)
Std. Dev.	0	(=0.000001)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Unit Price Cell: R92

BetaPERT distribution with parameters:

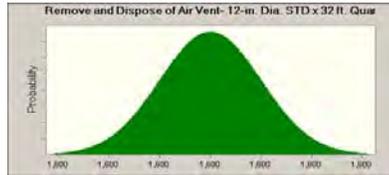
Minimum	\$0.60	(=Q92)
Likeliest	\$0.85	(=R92)
Maximum	\$1.00	(=S92)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Quantity Cell: L93

Normal distribution with parameters:

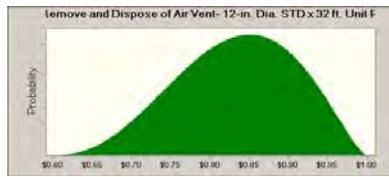
Mean 1,600 (=L93)
 Std. Dev. 0 (=0.000001)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Unit Price Cell: R93

BetaPERT distribution with parameters:

Minimum \$0.60 (=Q93)
 Likeliest \$0.85 (=R93)
 Maximum \$1.00 (=S93)

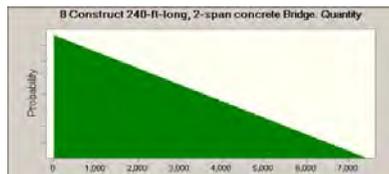


Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Quantity Cell: L21

Cell: L21

Triangular distribution with parameters:

Minimum 0 (=K21)
 Likeliest 0 (=L21)
 Maximum 7,440 (=M21)

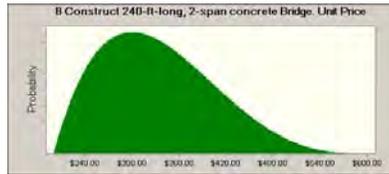


Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Unit Price

Cell: R21

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q21)
Likeliest	\$300.00	(=R21)
Maximum	\$600.00	(=S21)

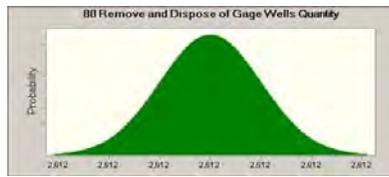


Assumption: 80 Remove and Dispose of Gage Wells Quantity

Cell: L94

Normal distribution with parameters:

Mean	2,612	(=L94)
Std. Dev.	0	(=0.000001)



Assumption: 80 Remove and Dispose of Gage Wells Unit Price

Cell: R94

BetaPERT distribution with parameters:

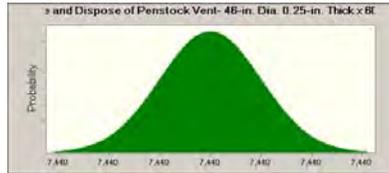
Minimum	\$0.60	(=Q94)
Likeliest	\$0.85	(=R94)
Maximum	\$1.00	(=S94)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. @ \$195

Normal distribution with parameters:

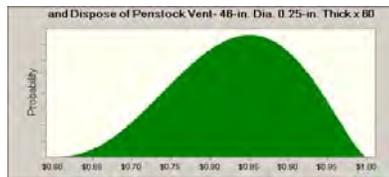
Mean	7,440	(=L95)
Std. Dev.	0	(=0.000001)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. @ \$195

BetaPERT distribution with parameters:

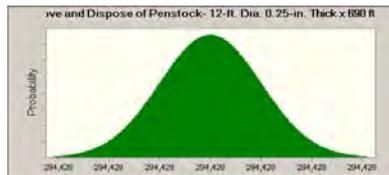
Minimum	\$0.60	(=Q95)
Likeliest	\$0.85	(=R95)
Maximum	\$1.00	(=S95)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. @ \$196

Normal distribution with parameters:

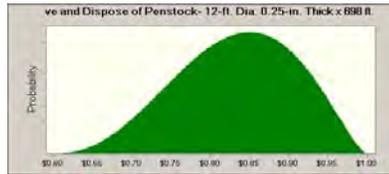
Mean	294,428	(=L96)
Std. Dev.	0	(=0.000001)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Cell: R96

BetaPERT distribution with parameters:

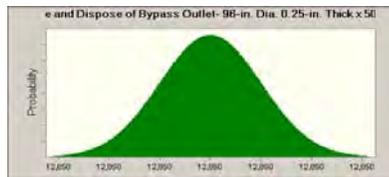
Minimum	\$0.60	(=Q96)
Likeliest	\$0.85	(=R96)
Maximum	\$1.00	(=S96)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 506 ft. Cell: L97

Normal distribution with parameters:

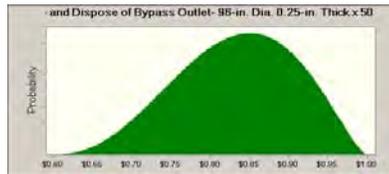
Mean	12,850	(=L97)
Std. Dev.	0	(=0.000001)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 506 ft. Cell: R97

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q97)
Likeliest	\$0.85	(=R97)
Maximum	\$1.00	(=S97)



Assumption: 85 Remove & Dispose Overhead Trolley Crane Motor (4hp est)& control Cell: R99

BetaPERT distribution with parameters:

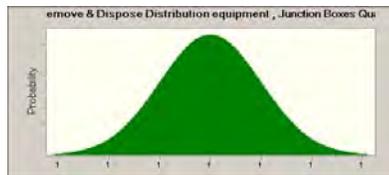
Minimum	\$900.00	(=Q99)
Likeliest	\$1,000.00	(=R99)
Maximum	\$1,300.00	(=S99)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Quantity: L100

Normal distribution with parameters:

Mean	1	(=L100)
Std. Dev.	0	(=0.000001)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Unit Price: R100

BetaPERT distribution with parameters:

Minimum	\$2,000.00	(=Q100)
Likeliest	\$2,500.00	(=R100)
Maximum	\$3,000.00	(=S100)

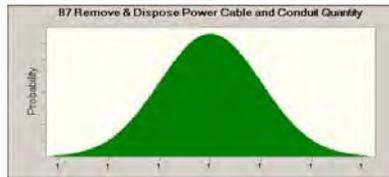


Assumption: 87 Remove & Dispose Power Cable and Conduit Quantity

Cell: L101

Normal distribution with parameters:

Mean	1	(=L101)
Std. Dev.	0	(=0.000001)

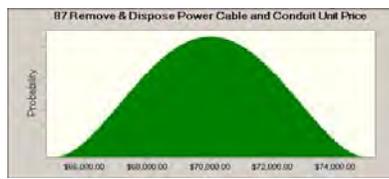


Assumption: 87 Remove & Dispose Power Cable and Conduit Unit Price

Cell: R101

BetaPERT distribution with parameters:

Minimum	\$65,000.00	(=Q101)
Likeliest	\$70,000.00	(=R101)
Maximum	\$75,000.00	(=S101)



Assumption: 88 Temporary Access Roads Quantity

Cell: L102

Normal distribution with parameters:

Mean	2.6	(=L102)
Std. Dev.	0.0	(=0.000001)

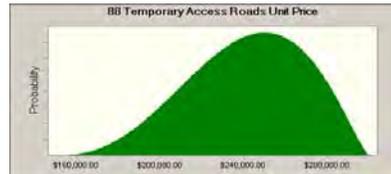


Assumption: 88 Temporary Access Roads Unit Price

Cell: R102

BetaPERT distribution with parameters:

Minimum	\$150,000.00	(=Q102)
Likeliest	\$250,000.00	(=S102)
Maximum	\$300,000.00	(=R102)

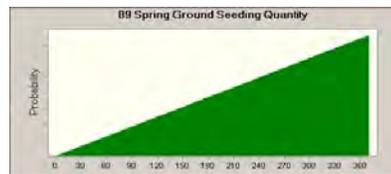


Assumption: 89 Spring Ground Seeding Quantity

Cell: L103

Triangular distribution with parameters:

Minimum	0	(=M103)
Likeliest	370	(=L103)
Maximum	370	(=K103)



Assumption: 89 Spring Ground Seeding Unit Price

Cell: R103

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q103)
Likeliest	\$3,500.00	(=R103)
Maximum	\$4,000.00	(=S103)

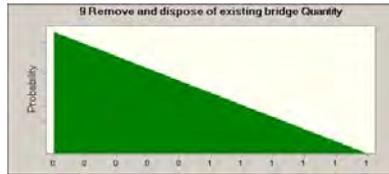


Assumption: 9 Remove and dispose of existing bridge Quantity

Cell: L22

Triangular distribution with parameters:

Minimum	0	(=K22)
Likeliest	0	(=L22)
Maximum	1	(=M22)

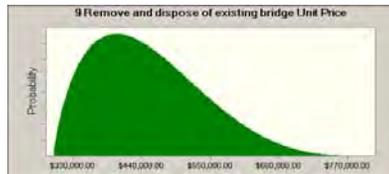


Assumption: 9 Remove and dispose of existing bridge Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$300,000.00	(=Q22)
Likeliest	\$400,000.00	(=R22)
Maximum	\$800,000.00	(=S22)

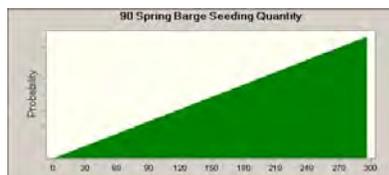


Assumption: 90 Spring Barge Seeding Quantity

Cell: L104

Triangular distribution with parameters:

Minimum	0	(=M104)
Likeliest	296	(=L104)
Maximum	296	(=K104)

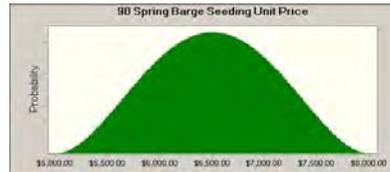


Assumption: 90 Spring Barge Seeding Unit Price

Cell: R104

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q104)
Likeliest	\$6,500.00	(=R104)
Maximum	\$8,000.00	(=S104)

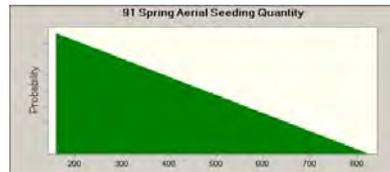


Assumption: 91 Spring Aerial Seeding Quantity

Cell: L105

Triangular distribution with parameters:

Minimum	159	(=K105)
Likeliest	159	(=L105)
Maximum	825	(=M105)

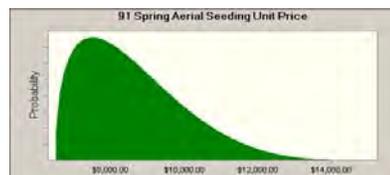


Assumption: 91 Spring Aerial Seeding Unit Price

Cell: R105

BetaPERT distribution with parameters:

Minimum	\$6,500.00	(=Q105)
Likeliest	\$7,500.00	(=R105)
Maximum	\$15,000.00	(=S105)



Assumption: 92 Fall Ground Seeding Quantity

Cell: L106

Triangular distribution with parameters:

Minimum	207	(=K106)
Likeliest	413	(=L106)
Maximum	619	(=M106)



Assumption: 92 Fall Ground Seeding Unit Price

Cell: R106

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q106)
Likeliest	\$3,500.00	(=R106)
Maximum	\$4,000.00	(=S106)

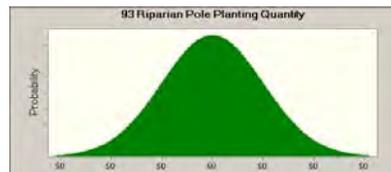


Assumption: 93 Riparian Pole Planting Quantity

Cell: L107

Normal distribution with parameters:

Mean	50	(=L107)
Std. Dev.	0	(=0.000001)

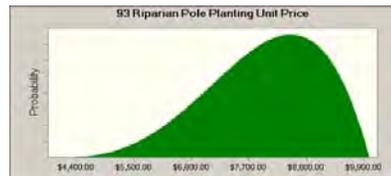


Assumption: 93 Riparian Pole Planting Unit Price

Cell: R107

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q107)
Likeliest	\$8,500.00	(=R107)
Maximum	\$10,000.00	(=S107)

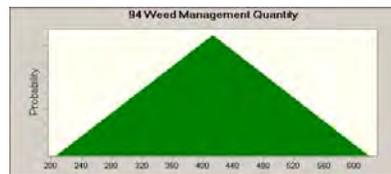


Assumption: 94 Weed Management Quantity

Cell: L108

Triangular distribution with parameters:

Minimum	206	(=K108)
Likeliest	413	(=L108)
Maximum	619	(=M108)



Assumption: 94 Weed Management Unit Price

Cell: R108

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q108)
Likeliest	\$1,500.00	(=R108)
Maximum	\$2,000.00	(=S108)



Assumption: 95 Fall Ground Seeding Quantity

Cell: L109

Normal distribution with parameters:

Mean 330 (=L109)
Std. Dev. 0 (=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price

Cell: R109

BetaPERT distribution with parameters:

Minimum \$3,000.00 (=Q109)
Likeliest \$3,500.00 (=R109)
Maximum \$4,000.00 (=S109)

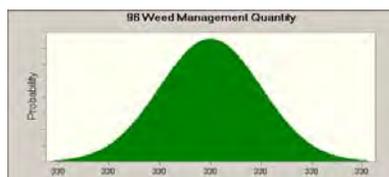


Assumption: 96 Weed Management Quantity

Cell: L110

Normal distribution with parameters:

Mean 330 (=L110)
Std. Dev. 0 (=0.000001)

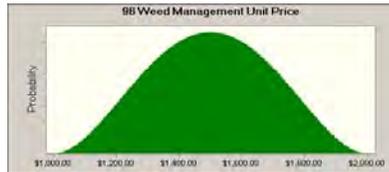


Assumption: 96 Weed Management Unit Price

Cell: R110

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q110)
Likeliest	\$1,500.00	(=R110)
Maximum	\$2,000.00	(=S110)



Assumption: 97 Clear and Grub Disposal Area Quantity

Cell: L111

Normal distribution with parameters:

Mean	29	(=L111)
Std. Dev.	0	(=0.000001)



Assumption: 97 Clear and Grub Disposal Area Unit Price

Cell: R111

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q111)
Likeliest	\$6,000.00	(=R111)
Maximum	\$7,000.00	(=S111)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi Quantity

Triangular distribution with parameters:

Minimum	0	(=K112)
Likeliest	13,500	(=L112)
Maximum	17,000	(=M112)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi Unit

BetaPERT distribution with parameters:

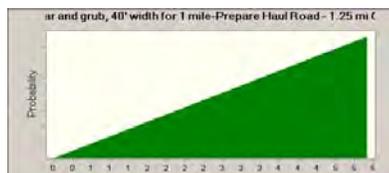
Minimum	\$35.00	(=Q112)
Likeliest	\$40.00	(=R112)
Maximum	\$45.00	(=S112)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Quantity

Triangular distribution with parameters:

Minimum	0	(=K113)
Likeliest	5	(=L113)
Maximum	5	(=M113)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Unit Price

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q113)
Likeliest	\$6,000.00	(=R113)
Maximum	\$7,000.00	(=S113)

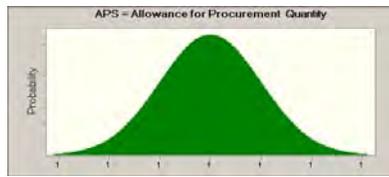


Assumption: APS = Allowance for Procurement Quantity

Cell: L207

Normal distribution with parameters:

Mean	1	(=L207)
Std. Dev.	0	(=0.000001)

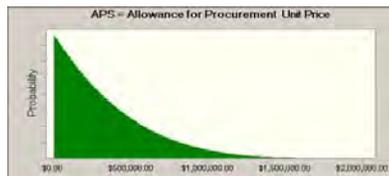


Assumption: APS = Allowance for Procurement Unit Price

Cell: R207

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q207)
Likeliest	\$0.00	(=R207)
Maximum	\$2,027,167.00	(=S207)

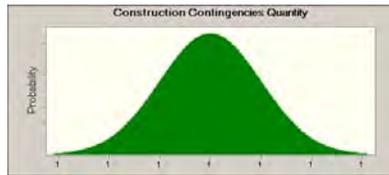


Assumption: Construction Contingencies Quantity

Cell: L210

Normal distribution with parameters:

Mean	1	(=L210)
Std. Dev.	0	(=0.000001)



Assumption: Construction Contingencies Unit Price

Cell: R210

BetaPERT distribution with parameters:

Minimum	\$6,000,000.00	(=Q210)
Likeliest	\$10,000,000.00	(=R210)
Maximum	\$25,000,000.00	(=S210)

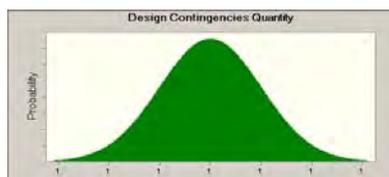


Assumption: Design Contingencies Quantity

Cell: L206

Normal distribution with parameters:

Mean	1	(=L206)
Std. Dev.	0	(=0.000001)

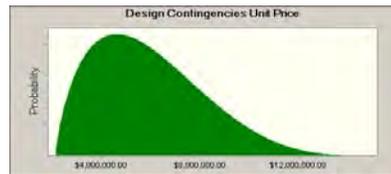


Assumption: Design Contingencies Unit Price

Cell: R206

BetaPERT distribution with parameters:

Minimum	\$2,132,293.20	(=Q206)
Likeliest	\$4,608,423.20	(=R206)
Maximum	\$14,835,116.00	(=S206)

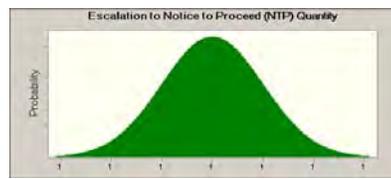


Assumption: Escalation to Notice to Proceed (NTP) Quantity

Cell: L203

Normal distribution with parameters:

Mean	1	(=L203)
Std. Dev.	0	(=0.000001)



Assumption: Escalation to Notice to Proceed (NTP) Unit Price

Cell: R203

BetaPERT distribution with parameters:

Minimum	\$3,855,017.00	(=Q203)
Likeliest	\$11,360,075.00	(=R203)
Maximum	\$30,700,034.00	(=S203)

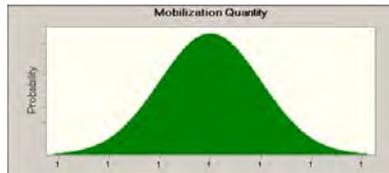


Assumption: Mobilization Quantity

Cell: L201

Normal distribution with parameters:

Mean	1	(=L201)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R201

BetaPERT distribution with parameters:

Minimum	\$1,150,000.00	(=Q201)
Likeliest	\$1,550,000.00	(=R201)
Maximum	\$2,700,000.00	(=S201)



Assumption: Non-Contract Cost Quantity

Cell: L212

Normal distribution with parameters:

Mean	1	(=L212)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R212

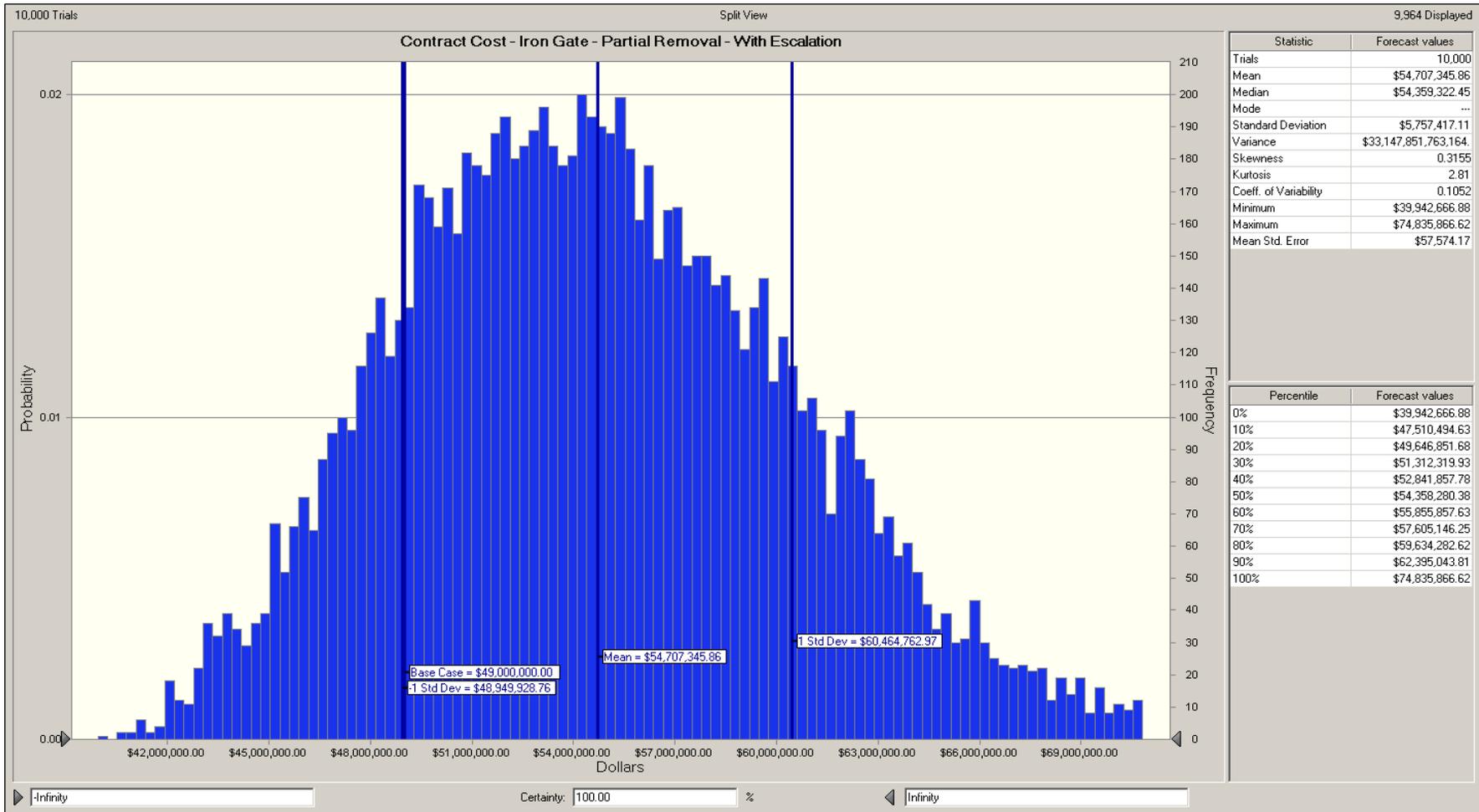
BetaPERT distribution with parameters:

Minimum	\$22,000,000.00	(=Q212)
Likeliest	\$38,000,000.00	(=R212)
Maximum	\$90,000,000.00	(=S212)

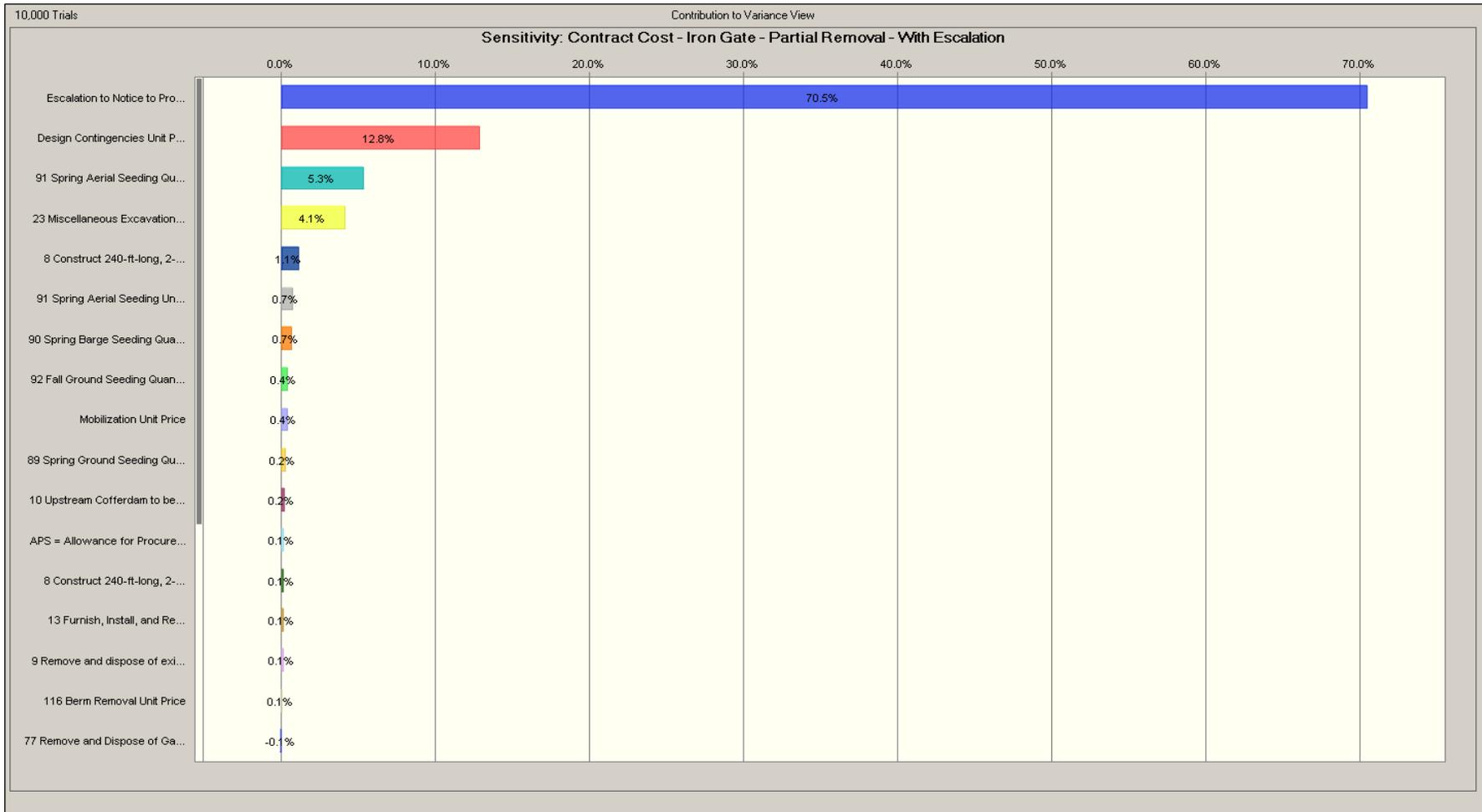


End of Assumptions

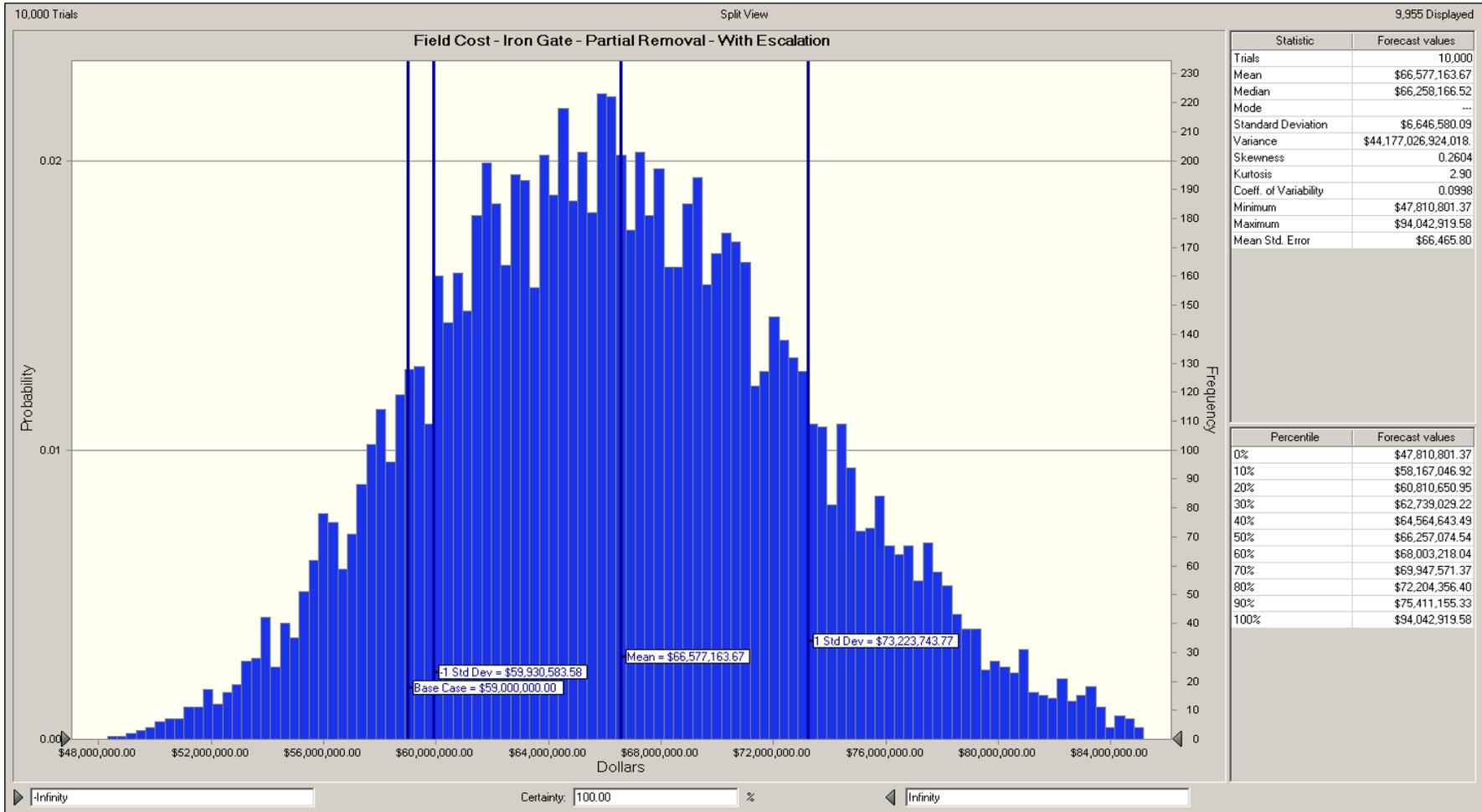
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



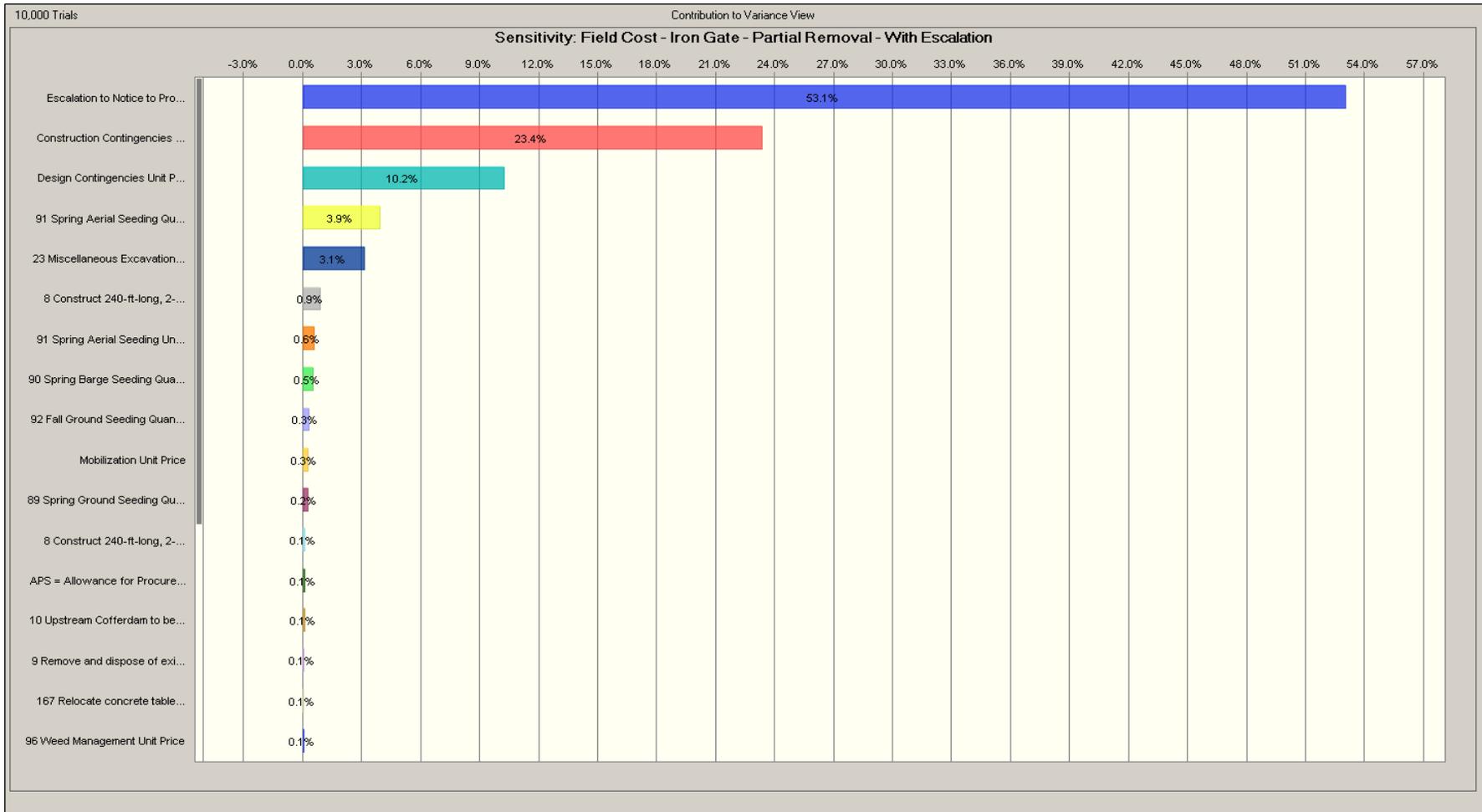
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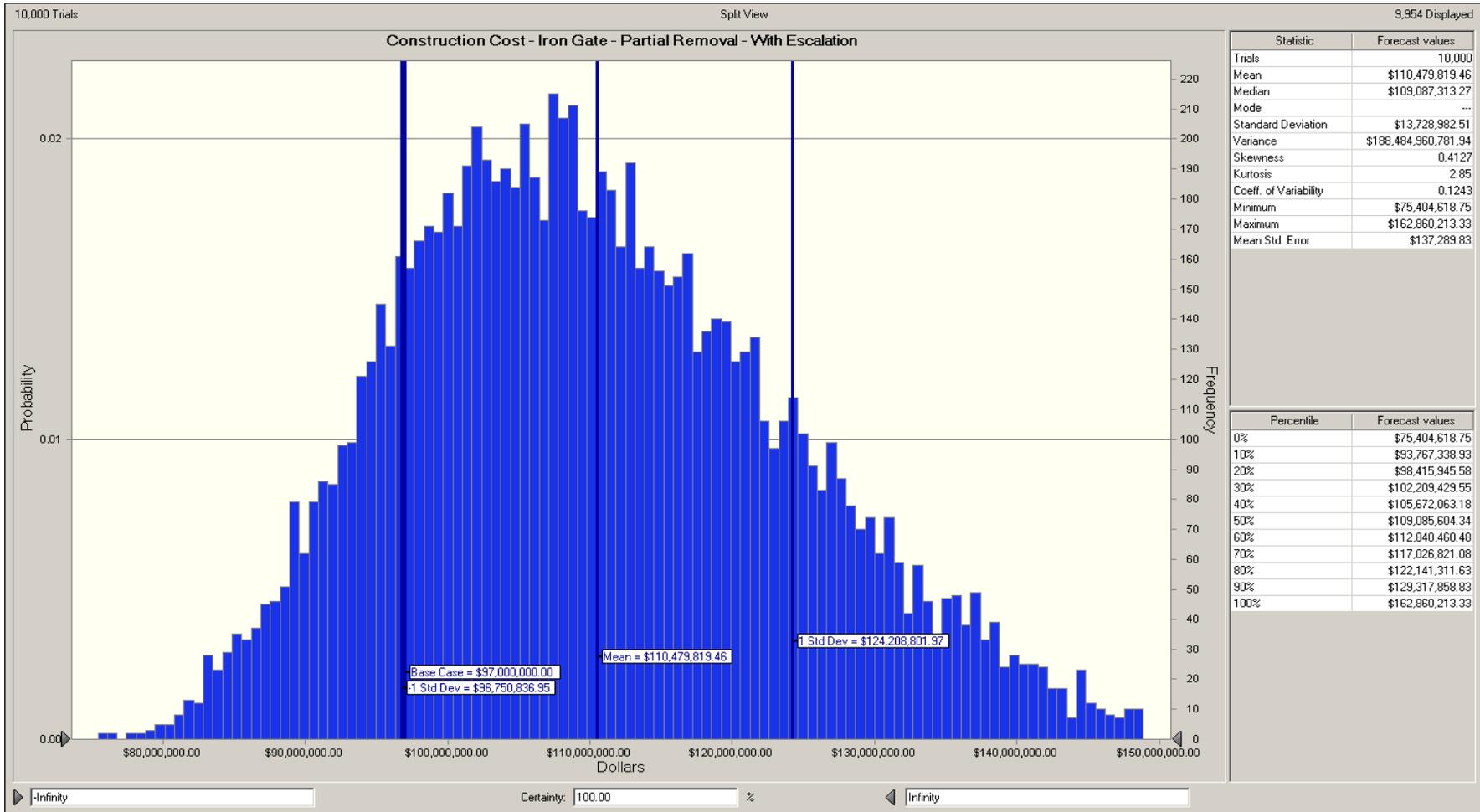
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



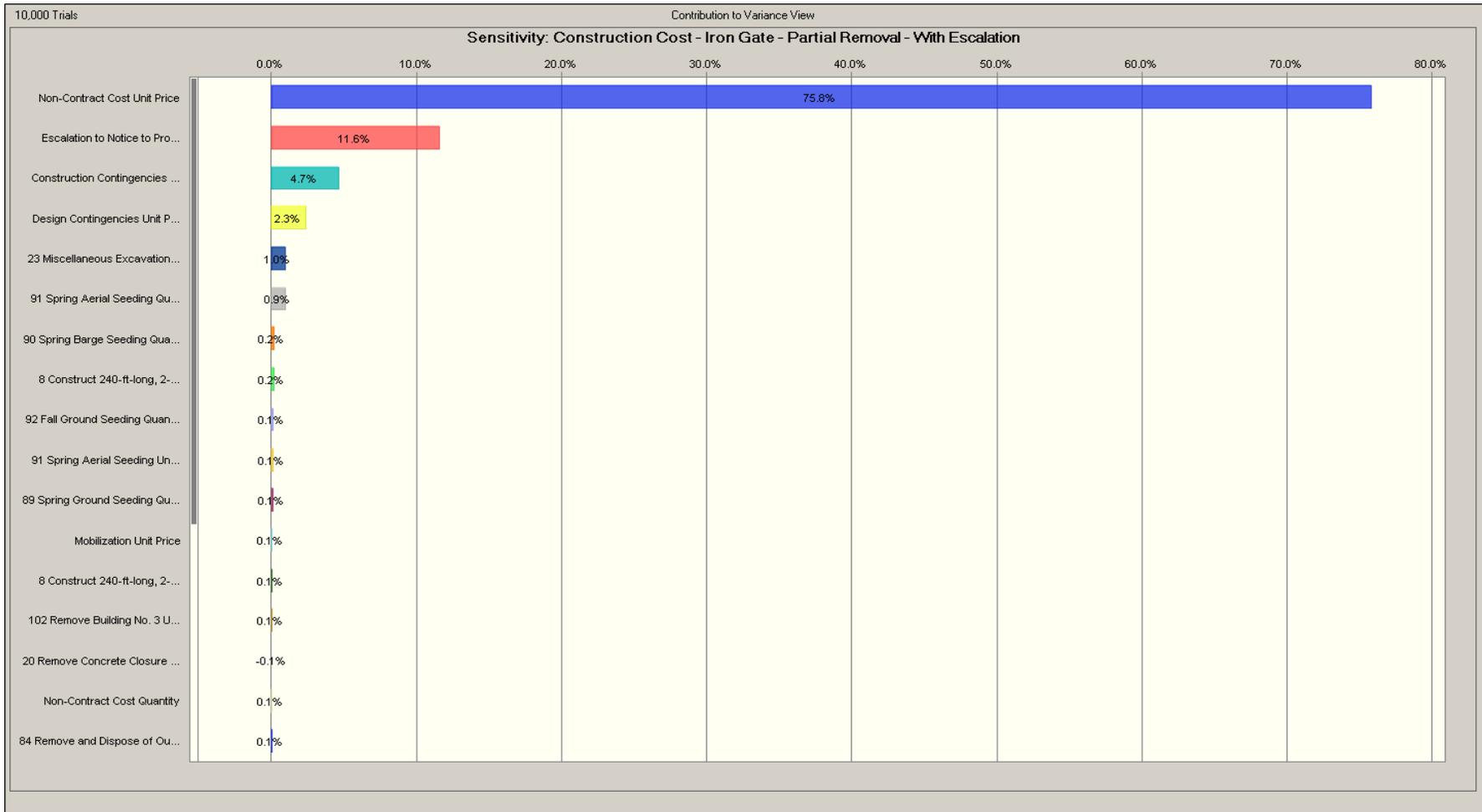
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FEATURE:			PROJECT:									
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon									
			WOID: AF652		ESTIMATE LEVEL: Feasibility							
			REGION: MP		PRICE LEVEL: Jul-2010							
			FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls\Iron Gate - Partial-without Esc									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir	8130	1	1	1	LS	\$190,000.00	\$200,000.00	\$210,000.00	\$190,000.00	\$200,000.00	\$210,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure	8130	0	0	0	LS				\$0.00	\$0.00	\$0.00
	3	Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S for Flap Gate	8130	31	31	31	CY	\$1,300.00	\$1,500.00	\$1,800.00	\$40,300.00	\$46,500.00	\$55,800.00
	4	Remove Reinforced Concrete Stoplog Structure	8130	3	3	3	CY	\$170.00	\$215.00	\$380.00	\$510.00	\$645.00	\$1,140.00
	5	Remove Water from behind Tailrace Cofferdam	8130	0	0	0	GAL				\$0.00	\$0.00	\$0.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry	8130	0	0	0	LS				\$0.00	\$0.00	\$0.00
	7	Construct Embankment Cofferdam across Tailrace to remove Powerhouse in dry	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	8	Construct 240-ft-long, 2-span concrete Bridge.	8130	0	0	7,440	SF	\$200.00	\$300.00	\$600.00	\$0.00	\$0.00	\$4,464,000.00
	9	Remove and dispose of existing bridge	8130	0	0	1	LS	\$300,000.00	\$400,000.00	\$800,000.00	\$0.00	\$0.00	\$800,000.00
	10	Upstream Cofferdam to be Removed in the Wet	8313	20,000	20,000	20,000	CY	\$55.00	\$70.00	\$100.00	\$1,100,000.00	\$1,400,000.00	\$2,000,000.00
	11	Remove 9' dia hinged blind flange	8420	19,000	19,000	19,000	LBS	\$1.50	\$2.00	\$3.00	\$28,500.00	\$38,000.00	\$57,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe	8420	2,900	2,900	2,900	LBS	\$1.50	\$2.00	\$3.00	\$4,350.00	\$5,800.00	\$8,700.00
	13	Furnish, Install, and Remove 1-16.5x18' roller gate, stem, and operator	8420	110,000	110,000	110,000	LBS	\$12.00	\$15.00	\$18.00	\$1,320,000.00	\$1,650,000.00	\$1,980,000.00
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension	8130	580	580	580	CY	\$170.00	\$215.00	\$380.00	\$98,600.00	\$124,700.00	\$220,400.00
	15	Remove Concrete in Diversion Tunnel Intake Structure	8130	530	530	530	CY	\$170.00	\$215.00	\$380.00	\$90,100.00	\$113,950.00	\$201,400.00
	16	Remove Concrete in Diversion Tunnel Gate Tower	8130	410	410	410	CY	\$170.00	\$215.00	\$380.00	\$69,700.00	\$88,150.00	\$155,800.00
	17	Remove Steel Footbridge to Gate Tower	8130	13,000	13,000	13,000	LBS	\$0.85	\$0.85	\$1.00	\$11,050.00	\$11,050.00	\$13,000.00
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment	8130	20	20	20	CY	\$170.00	\$215.00	\$380.00	\$3,400.00	\$4,300.00	\$7,600.00
	19	Place Concrete Plugs for Diversion Tunnel	8130	43	43	43	CY	\$1,100.00	\$1,200.00	\$1,300.00	\$47,300.00	\$51,600.00	\$55,900.00
	20	Remove Concrete Closure Gates in Gate Tower	8130	61	61	61	CY	\$900.00	\$1,000.00	\$1,300.00	\$54,900.00	\$61,000.00	\$79,300.00
	21	Remove Upstream Riprap	8313	80,000	80,000	80,000	CY	\$10.00	\$13.00	\$17.00	\$800,000.00	\$1,040,000.00	\$1,360,000.00
	22	Remove Downstream Riprap	8313	30,000	30,000	30,000	CY	\$10.00	\$13.00	\$17.00	\$300,000.00	\$390,000.00	\$510,000.00
	23	Miscellaneous Excavation	8313	880,000	880,000	925,000	CY	\$10.00	\$13.00	\$17.00	\$8,800,000.00	\$11,440,000.00	\$15,725,000.00
	24	Cutoff Wall Concrete Demolition	8313	1,000	1,250	1,500	CY	\$170.00	\$215.00	\$380.00	\$170,000.00	\$268,750.00	\$570,000.00
	25	Earth Fill Crest Raise	8313	13,000	13,000	13,000	CY	\$10.00	\$13.00	\$17.00	\$130,000.00	\$169,000.00	\$221,000.00
	26	Sheetpile Crest Raise	8313	800	800	800	LF	\$200.00	\$250.00	\$300.00	\$160,000.00	\$200,000.00	\$240,000.00
	27	Remove 5 monitoring wells	8313	5	5	5	EA	\$1,900.00	\$2,000.00	\$2,200.00	\$9,500.00	\$10,000.00	\$11,000.00
	28	Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H	8420	4,500	4,500	4,500	LBS	\$0.60	\$0.85	\$1.00	\$2,700.00	\$3,825.00	\$4,500.00
	29	Remove and Dispose of Intake structure	8420	72,000	72,000	72,000	LBS	\$0.60	\$0.70	\$0.85	\$43,200.00	\$50,400.00	\$61,200.00
	30	Remove and Dispose of Sluice and Diversion Tunnel Gate	8420	28,000	28,000	28,000	LBS	\$0.60	\$0.85	\$1.00	\$16,800.00	\$23,800.00	\$28,000.00
	31	Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft.	8420	7,500	7,500	7,500	LBS	\$0.60	\$0.85	\$1.00	\$4,500.00	\$6,375.00	\$7,500.00
	32	Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft.	8420	4,650	4,650	4,650	LBS	\$1.50	\$2.00	\$3.00	\$6,975.00	\$9,300.00	\$13,950.00
	33	Remove and Dispose of Transition Gate Structure	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	34	Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft.	8420	30,250	30,250	30,250	LBS	\$1.50	\$2.00	\$3.00	\$45,375.00	\$60,500.00	\$90,750.00
	35	Remove and Dispose of Outlet Works Stop Logs	8420	2,670	2,670	2,670	LBS	\$0.60	\$0.85	\$1.00	\$1,602.00	\$2,269.50	\$2,670.00
	36	Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel	8430	1	1	1	EA	\$300.00	\$350.00	\$400.00	\$300.00	\$350.00	\$400.00
	37	Remove and Dispose of Distribution equipment, Junction Boxes	8430	1	1	1	EA	\$1,500.00	\$1,700.00	\$2,000.00	\$1,500.00	\$1,700.00	\$2,000.00
	38	Remove and Dispose of Power Cable and 4"Conduit from Penstock Structure	8430	800	800	800	FT	\$30.00	\$35.00	\$40.00	\$24,000.00	\$28,000.00	\$32,000.00
	39	Remove Powerhouse Concrete	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	40	Remove and Dispose of Turbine Unit	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	41	Remove and Dispose of Draft Tube Bulkheads	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	42	Remove and Dispose of Crane	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	43	Remove and Dispose of Governor	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	44	Remove and Dispose of Bearing Oil System and Cooling Water System	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	45	Remove and Dispose of CO2 System	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	46	Remove and Dispose of Plant Water and Fire Protection System	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	47	Remove and Dispose of Sump Pumps	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	48	Remove and Dispose of Pumps	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	49	Remove and Dispose of Exposed Piping around the plant	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	50	Remove and Dispose of Unwatering Piping	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	51	Remove and Dispose of Drainage Piping	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	52	Remove and Dispose of Transformer Oil and Fire Protection	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	53	Remove and Dispose of Compressed Air System	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	53A	Remove Petroleum Products from Mechanical Equipment	8420	1,100	1,100	1,100	GAL	\$9.00	\$10.00	\$12.00	\$9,900.00	\$11,000.00	\$13,200.00
	54	Remove and Dispose of AC Generator, Outdoor Horizontal	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00

ESTIMATE WORKSHEET

FEATURE:			PROJECT:									
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon									
			WOID: AF652		ESTIMATE LEVEL: Feasibility							
			REGION: MP		PRICE LEVEL: Jul-2010							
			FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls\Iron Gate - Partial-without Esc									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	55	Remove and Dispose of Excitation equipment for 18.975 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	56	Remove and Dispose of Surge protection equip. for 18.975 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	57	Remove and Dispose of Neutral grounding equip. for 18.975 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	58	Remove and Dispose of Station Service Switchgear, 600 volt -(5 sections)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	59	Remove and Dispose of Unit and plant control switchboard	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	60	Remove and Dispose of Battery system - assume 60 batteries, charger,	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$12,000.00	\$9,000.00	\$10,000.00	\$12,000.00
	61	Remove and Dispose of Raceways, Bus, Conduit and Cable	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	62	Remove and Dispose of Misc. power & control boards	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	63	Remove and Dispose of Transformer (3 phase, 275 kVA, 6600/480V est.)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	64	Remove and Dispose of Governor Oil Pump Motors (10 hp and 20 hp est.)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	65	Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est.)	8430	4	4	4	EA	\$500.00	\$600.00	\$700.00	\$2,000.00	\$2,400.00	\$2,800.00
	66	Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est.)	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$13,000.00	\$9,000.00	\$10,000.00	\$13,000.00
	67	Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase,	8430	1	1	1	EA	\$90,000.00	\$100,000.00	\$120,000.00	\$90,000.00	\$100,000.00	\$120,000.00
	68	Remove and Dispose of Lattice steel structure, with 69-kV disconnect	8430	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	69	Remove and Dispose of Generator Switchgear, outdoor, 7.2kV	8430	1	1	1	EA	\$30,000.00	\$35,000.00	\$40,000.00	\$30,000.00	\$35,000.00	\$40,000.00
	70	Remove and Dispose of Single Phase Pole Transformers. (25 kVA est.)	8430	3	3	3	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$4,500.00	\$6,000.00	\$9,000.00
	71	Remove Concrete in Penstock Intake Structure	8130	460	460	460	CY	\$170.00	\$215.00	\$380.00	\$78,200.00	\$98,900.00	\$174,800.00
	72	Remove Concrete in Penstock Encasement	8130	840	840	840	CY	\$170.00	\$215.00	\$380.00	\$142,800.00	\$180,600.00	\$319,200.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	8130	1,900	1,900	1,900	CY	\$170.00	\$215.00	\$380.00	\$323,000.00	\$408,500.00	\$722,000.00
	74	Remove Steel Footbridge to Intake Structure	8130	11,000	11,000	11,000	LBS	\$0.60	\$0.85	\$1.00	\$6,600.00	\$9,350.00	\$11,000.00
	75	Remove Concrete in Intake Structure Footbridge Abutment	8130	5	5	5	CY	\$170.00	\$215.00	\$380.00	\$850.00	\$1,075.00	\$1,900.00
	76	Remove and Dispose of Intake Structure	8420	131,630	131,630	131,630	LBS	\$0.60	\$0.85	\$1.00	\$78,978.00	\$111,885.50	\$131,630.00
	77	Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft.	8420	1,800	1,800	1,800	LBS	\$0.60	\$0.85	\$1.00	\$1,080.00	\$1,530.00	\$1,800.00
	78	Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft	8420	1,350	1,350	1,350	LBS	\$0.60	\$0.85	\$1.00	\$810.00	\$1,147.50	\$1,350.00
	79	Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft.	8420	1,600	1,600	1,600	LBS	\$0.60	\$0.85	\$1.00	\$960.00	\$1,360.00	\$1,600.00
	80	Remove and Dispose of Gage Wells	8420	2,612	2,612	2,612	LBS	\$0.60	\$0.85	\$1.00	\$1,567.20	\$2,220.20	\$2,612.00
	81	Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft.	8420	7,440	7,440	7,440	LBS	\$0.60	\$0.85	\$1.00	\$4,464.00	\$6,324.00	\$7,440.00
	82	Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft.	8420	294,428	294,428	294,428	LBS	\$0.60	\$0.85	\$1.00	\$176,656.80	\$250,263.80	\$294,428.00
	83	Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft.	8420	12,850	12,850	12,850	LBS	\$0.60	\$0.85	\$1.00	\$7,710.00	\$10,922.50	\$12,850.00
	84	Remove and Dispose of Outlet Valve on bypass outlet- 66-in. Dia.	8420	18,000	18,000	18,000	LBS	\$0.60	\$0.85	\$1.00	\$10,800.00	\$15,300.00	\$18,000.00
	85	Remove & Dispose Overhead Trolley Crane Motor (4hp est)& controls	8430	1	1	1	EA	\$900.00	\$1,000.00	\$1,300.00	\$900.00	\$1,000.00	\$1,300.00
	86	Remove & Dispose Distribution equipment , Junction Boxes	8430	1	1	1	EA	\$2,000.00	\$2,500.00	\$3,000.00	\$2,000.00	\$2,500.00	\$3,000.00
	87	Remove & Dispose Power Cable and Conduit	8430	1	1	1	EA	\$65,000.00	\$70,000.00	\$75,000.00	\$65,000.00	\$70,000.00	\$75,000.00
	88	Temporary Access Roads	8140	2.6	2.6	2.6	MILE	\$150,000.00	\$300,000.00	\$250,000.00	\$390,000.00	\$780,000.00	\$650,000.00
	89	Spring Ground Seeding	8220	370	370	0	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$1,110,000.00	\$1,295,000.00	\$0.00
	90	Spring Barge Seeding	8220	296	296	0	ACRE	\$5,000.00	\$6,500.00	\$8,000.00	\$1,480,000.00	\$1,924,000.00	\$0.00
	91	Spring Aerial Seeding	8220	159	159	825	ACRE	\$6,500.00	\$7,500.00	\$15,000.00	\$1,033,500.00	\$1,192,500.00	\$12,375,000.00
	92	Fall Ground Seeding	8220	207	413	619	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$621,000.00	\$1,445,500.00	\$2,476,000.00
	93	Riparian Pole Planting	8220	50	50	50	ACRE	\$4,000.00	\$8,500.00	\$10,000.00	\$200,000.00	\$425,000.00	\$500,000.00
	94	Weed Management	8220	206	413	619	ACRE	\$1,000.00	\$1,500.00	\$2,000.00	\$206,000.00	\$619,500.00	\$1,238,000.00
	95	Fall Ground Seeding	8220	330	330	330	ACRE	\$3,000.00	\$3,500.00	\$4,000.00	\$990,000.00	\$1,155,000.00	\$1,320,000.00
	96	Weed Management	8220	330	330	330	ACRE	\$1,000.00	\$1,500.00	\$2,000.00	\$330,000.00	\$495,000.00	\$660,000.00
	97	Clear and Grub Disposal Area	8313	29	29	29	ACRE	\$5,000.00	\$6,000.00	\$7,000.00	\$145,000.00	\$174,000.00	\$203,000.00
	98	Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi	8313	0	13,500	17,000	CY	\$35.00	\$40.00	\$45.00	\$0.00	\$540,000.00	\$765,000.00
	99	Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi	8313	0	5	5	ACRE	\$5,000.00	\$6,000.00	\$7,000.00	\$0.00	\$30,000.00	\$35,000.00
	100	4' thick gravel surfacing-Prepare Haul Road - 1.25 mi	8313	0	5,300	5,300	TON	\$60.00	\$70.00	\$80.00	\$0.00	\$371,000.00	\$424,000.00
	101	Remove Building No. 2	8130	800	800	800	SF	\$55.00	\$60.00	\$65.00	\$44,000.00	\$48,000.00	\$52,000.00
	102	Remove Building No. 3	8130	1,088	1,088	1,088	SF	\$55.00	\$60.00	\$65.00	\$59,840.00	\$65,280.00	\$70,720.00
	103	Remove Concrete in Fish Ladder	8130	950	950	950	CY	\$170.00	\$215.00	\$380.00	\$161,500.00	\$204,250.00	\$361,000.00
	104	Remove Concrete in Holding Ponds #1 thru #6	8130	420	420	420	CY	\$170.00	\$215.00	\$380.00	\$71,400.00	\$90,300.00	\$159,600.00
	105	Remove Concrete in Fish Facility Items	8130	380	380	380	CY	\$170.00	\$215.00	\$380.00	\$64,600.00	\$81,700.00	\$144,400.00
	106	Remove Miscellaneous Metalwork in Fish Facilities	8130	12,000	12,000	12,000	LBS	\$0.60	\$0.85	\$1.00	\$7,200.00	\$10,200.00	\$12,000.00
	107	Remove Concrete associated with 30"-dia. Water Supply Line	8130	68	68	68	CY	\$170.00	\$215.00	\$380.00	\$11,560.00	\$14,620.00	\$25,840.00
	108	Remove Concrete in Aerator Structure	8130	50	50	50	CY	\$170.00	\$215.00	\$380.00	\$8,500.00	\$10,750.00	\$19,000.00
	109	Remove Wood in Aerator Structure	8130	6,000	6,000	6,000	LBS	\$0.65	\$0.70	\$0.85	\$3,900.00	\$4,200.00	\$5,100.00
	110	Remove Structural Steel in Aerator Structure	8130	2,500	2,500	2,500	LBS	\$0.60	\$0.85	\$1.00	\$1,500.00	\$2,125.00	\$2,500.00

FEATURE:			PROJECT:										
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon										
			WOID: AF652	ESTIMATE LEVEL: Feasibility									
			REGION: MP	PRICE LEVEL: Jul-2010									
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls\Iron Gate - Partial-without Esc									
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	111	Remove Asphalt Pavement	8130	39,000	39,000	39,000	SF	\$5.00	\$6.00	\$7.00	\$195,000.00	\$234,000.00	\$273,000.00
	112	Remove Restroom Building near Aerator Structure	8130	340	340	340	SF	\$55.00	\$60.00	\$65.00	\$18,700.00	\$20,400.00	\$22,100.00
	113	Remove Storage Shed near Aerator Structure	8130	90	90	90	SF	\$55.00	\$60.00	\$65.00	\$4,950.00	\$5,400.00	\$5,850.00
	114	Remove Toe Drain Pipe	8313	260	260	260	LF	\$15.00	\$20.00	\$25.00	\$3,900.00	\$5,200.00	\$6,500.00
	115	Remove Toe Drain Manhole	8313	25	25	25	LF	\$45.00	\$50.00	\$55.00	\$1,125.00	\$1,250.00	\$1,375.00
	116	Berm Removal	8313	53,000	53,000	53,000	CY	\$10.00	\$13.00	\$17.00	\$530,000.00	\$689,000.00	\$901,000.00
	117	Remove and Dispose of Intake Structures Trashracks	8420	5,000	5,000	5,000	LBS	\$0.60	\$0.75	\$0.85	\$3,000.00	\$3,750.00	\$4,250.00
	118	Remove and Dispose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft.	8420	76,640	76,640	76,640	LBS	\$0.60	\$0.85	\$1.00	\$45,984.00	\$65,144.00	\$76,640.00
	119	Remove and Dispose of Sluice Gate Valve- 30-in. H. x 30-in. W.	8420	3,000	3,000	3,000	LBS	\$0.60	\$0.85	\$1.00	\$1,800.00	\$2,550.00	\$3,000.00
	120	Remove and Dispose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft.	8420	360	360	360	LBS	\$0.60	\$0.85	\$1.00	\$216.00	\$306.00	\$360.00
	121	Remove and Dispose of Butterfly Valve- 30-in. Dia.	8420	2,435	2,435	2,435	LBS	\$0.60	\$0.85	\$1.00	\$1,461.00	\$2,069.75	\$2,435.00
	122	Remove and Dispose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft.	8420	7,200	7,200	7,200	LBS	\$0.60	\$0.85	\$1.00	\$4,320.00	\$6,120.00	\$7,200.00
	123	Remove and Dispose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft.	8420	15,872	15,872	15,872	LBS	\$0.60	\$0.85	\$1.00	\$9,523.20	\$13,491.20	\$15,872.00
	124	Remove and Dispose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft.	8420	4,505	4,505	4,505	LBS	\$0.60	\$0.85	\$1.00	\$2,703.00	\$3,829.25	\$4,505.00
	125	Remove and Dispose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft.	8420	29,088	29,088	29,088	LBS	\$0.60	\$0.85	\$1.00	\$17,452.80	\$24,724.80	\$29,088.00
	126	Remove and Dispose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft.	8420	6,972	6,972	6,972	LBS	\$0.60	\$0.85	\$1.00	\$4,183.20	\$5,926.20	\$6,972.00
	127	Remove and Dispose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft.	8420	2,176	2,176	2,176	LBS	\$0.60	\$0.85	\$1.00	\$1,305.60	\$1,849.60	\$2,176.00
	128	Remove and Dispose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft.	8420	1,932	1,932	1,932	LBS	\$0.60	\$0.85	\$1.00	\$1,159.20	\$1,642.20	\$1,932.00
	129	Remove and Dispose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft.	8420	3,588	3,588	3,588	LBS	\$0.60	\$0.85	\$1.00	\$2,152.80	\$3,049.80	\$3,588.00
	130	Remove and Dispose of Piping- 3-in. Dia. STD x 64 ft.	8420	1,088	1,088	1,088	LBS	\$0.60	\$0.85	\$1.00	\$652.80	\$924.80	\$1,088.00
	131	Remove and Dispose of Gate Valves	8420	21,792	21,792	21,792	LBS	\$0.60	\$0.85	\$1.00	\$13,075.20	\$18,523.20	\$21,792.00
	132	Remove and Dispose of Basin #1	8420	2,880	2,880	2,880	LBS	\$0.60	\$0.85	\$1.00	\$1,728.00	\$2,448.00	\$2,880.00
	133	Remove and Dispose of Basin #2	8420	3,860	3,860	3,860	LBS	\$0.60	\$0.85	\$1.00	\$2,316.00	\$3,281.00	\$3,860.00
	134	Remove and Dispose of Basin #3	8420	2,880	2,880	2,880	LBS	\$0.60	\$0.85	\$1.00	\$1,728.00	\$2,448.00	\$2,880.00
	135	Remove and Dispose of Basin #4	8420	3,580	3,580	3,580	LBS	\$0.60	\$0.85	\$1.00	\$2,148.00	\$3,043.00	\$3,580.00
	136	Remove and Dispose of Basin #5	8420	1,440	1,440	1,440	LBS	\$0.60	\$0.85	\$1.00	\$864.00	\$1,224.00	\$1,440.00
	137	Remove and Dispose of Basin #6	8420	1,440	1,440	1,440	LBS	\$0.60	\$0.85	\$1.00	\$864.00	\$1,224.00	\$1,440.00
	138	Remove and Dispose of Holding Tank	8420	7,400	7,400	7,400	LBS	\$0.60	\$0.85	\$1.00	\$4,440.00	\$6,290.00	\$7,400.00
	139	Remove and Dispose of Misc: motors, control panels, cables and conduit	8430	1	1	1	EA	\$1,000.00	\$1,500.00	\$2,000.00	\$1,000.00	\$1,500.00	\$2,000.00
	140	Concrete total-Wanaka Springs	BLM	28	28	28	CY	\$200.00	\$300.00	\$400.00	\$5,600.00	\$8,400.00	\$11,200.00
	141	Double pipe railings-Wanaka Springs	BLM	60	60	60	LF	\$35.00	\$40.00	\$45.00	\$2,100.00	\$2,400.00	\$2,700.00
	142	Wood picnic tables to be removed and hauled -Wanaka Springs	BLM	5	5	5	EA	\$90.00	\$100.00	\$120.00	\$450.00	\$500.00	\$600.00
	143	25'X5' Wooden floating dock -Wanaka Springs	BLM	125	125	125	SF	\$15.00	\$20.00	\$25.00	\$1,875.00	\$2,500.00	\$3,125.00
	144	Rip and reseed site and access road-Wanaka Springs	BLM	2.5	2.5	2.5	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$50,000.00	\$62,500.00	\$75,000.00
	145	Signs to be removed and hauled away-Wanaka Springs	BLM	3	3	3	EA	\$250.00	\$300.00	\$350.00	\$750.00	\$900.00	\$1,050.00
	146	15'x5' Gangplank with railings-Wanaka Springs	BLM	75.00	75.00	75.00	SF	\$15.00	\$20.00	\$25.00	\$1,125.00	\$1,500.00	\$1,875.00
	147	Concrete total-Juniper Point	BLM	19.00	19.00	19.00	CY	\$200.00	\$300.00	\$400.00	\$3,800.00	\$5,700.00	\$7,600.00
	148	2, 4'x4' Concrete toilet vaults-Juniper Point	BLM	32.00	32.00	32.00	SF	\$90.00	\$100.00	\$120.00	\$2,880.00	\$3,200.00	\$3,840.00
	149	Wood picnic tables to be removed and hauled -Juniper Point	BLM	8.00	8.00	8.00	EA	\$90.00	\$100.00	\$120.00	\$720.00	\$800.00	\$960.00
	150	Signs to be removed and hauled away-Juniper Point	BLM	4	4	4	EA	\$250.00	\$300.00	\$350.00	\$1,000.00	\$1,200.00	\$1,400.00
	151	Dock pipe railing-Juniper Point	BLM	50	50	50	LF	\$35.00	\$40.00	\$45.00	\$1,750.00	\$2,000.00	\$2,250.00
	152	50'x5' Composite dock with poly floats-Juniper Point	BLM	250	250	250	SF	\$15.00	\$20.00	\$25.00	\$3,750.00	\$5,000.00	\$6,250.00
	153	20'x5' Composite gangplank with railings-Juniper Point	BLM	100	100	100	SF	\$15.00	\$20.00	\$25.00	\$1,500.00	\$2,000.00	\$2,500.00
	154	Bury 3' dia boulders on site-Juniper Point	BLM	50	50	50	EA				\$0.00	\$0.00	\$0.00
	155	Regrade to natural contour, rip and reseed-Juniper Point	BLM	2	2	2	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$40,000.00	\$50,000.00	\$60,000.00
	156	Concrete total-Camp Creek	BLM	110	110	110	CY	\$200.00	\$300.00	\$400.00	\$22,000.00	\$33,000.00	\$44,000.00
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek	BLM	855	855	855	CY	\$20.00	\$25.00	\$30.00	\$17,100.00	\$21,375.00	\$25,650.00
	158	Well house 10'x16' concrete block building-Camp Creek	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	159	2, 20'x5' Composite decking gangplanks-Camp Creek	BLM	200	200	200	SF	\$15.00	\$20.00	\$25.00	\$3,000.00	\$4,000.00	\$5,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame -Camp Creek	BLM	200	200	200	SF	\$15.00	\$20.00	\$25.00	\$3,000.00	\$4,000.00	\$5,000.00
	161	Concrete block double toilet bldg 10'x16'-Camp Creek	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	162	Dump stations and approx. 2000 gal buried -Camp Creek	BLM	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	163	Power poles and lines-Camp Creek	BLM	3	3	3	POLES	\$1,000.00	\$1,500.00	\$2,000.00	\$3,000.00	\$4,500.00	\$6,000.00
	164	Remove waterlines and 3 faucets and regrade-Camp Creek	BLM	600	600	600	LF	\$4.00	\$5.00	\$6.00	\$2,400.00	\$3,000.00	\$3,600.00
	165	Recycle/bury approx. 3' dia. boulders-Camp Creek	BLM	5	5	5	EA				\$0.00	\$0.00	\$0.00
	166	Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek	BLM	5	5	5	EA	\$90.00	\$100.00	\$120.00	\$450.00	\$500.00	\$600.00

ESTIMATE WORKSHEET

FEATURE:			PROJECT:										
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon										
			WOID: AF652	ESTIMATE LEVEL: Feasibility									
			REGION: MP	PRICE LEVEL: Jul-2010									
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls\Iron Gate - Partial-without Esc									
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	167	Relocate concrete tables-Camp Creek	BLM	12	12	12	EA	\$90.00	\$100.00	\$120.00	\$1,080.00	\$1,200.00	\$1,440.00
	168	Regrade, rip and reseed-Camp Creek	BLM	4	4	4	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$80,000.00	\$100,000.00	\$120,000.00
	169	Signs to be removed and hauled away-Camp Creek	BLM	7	7	7	EA	\$250.00	\$300.00	\$350.00	\$1,750.00	\$2,100.00	\$2,450.00
	170	50'x4'x3' Dock concrete abutment-Dutch Creek	BLM	22	22	22	CY	\$200.00	\$300.00	\$400.00	\$4,400.00	\$6,600.00	\$8,800.00
	171	Double pipe railing-Dutch Creek	BLM	100	100	100	LF	\$35.00	\$40.00	\$45.00	\$3,500.00	\$4,000.00	\$4,500.00
	172	Concrete total-Mirror Cove	BLM	89	89	89	CY	\$200.00	\$300.00	\$400.00	\$17,800.00	\$26,700.00	\$35,600.00
	173	10'x16' Toilet vault-Mirror Cove	BLM	160	160	160	SF	\$90.00	\$100.00	\$120.00	\$14,400.00	\$16,000.00	\$19,200.00
	174	2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove	BLM	300	300	300	SF	\$15.00	\$20.00	\$25.00	\$4,500.00	\$6,000.00	\$7,500.00
	175	Double pipe railings on dock-Mirror Cove	BLM	80	80	80	LF	\$35.00	\$40.00	\$45.00	\$2,800.00	\$3,200.00	\$3,600.00
	176	Bury 3' dia. boulders on site-Mirror Cove	BLM	120	120	120	EA				\$0.00	\$0.00	\$0.00
	177	Regrade site, rip and reseed-Mirror Cove	BLM	3	3	3	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$60,000.00	\$75,000.00	\$90,000.00
	178	Signs to be removed and hauled away-Mirror Cove	BLM	7	7	7	EA	\$250.00	\$300.00	\$350.00	\$1,750.00	\$2,100.00	\$2,450.00
	179	1 Concrete picnic table base-Overlook Point	BLM	1	1	1	CY	\$200.00	\$300.00	\$400.00	\$200.00	\$300.00	\$400.00
	180	Steel frame table to be removed and hauled away-Overlook Point	BLM	1	1	1	EA	\$90.00	\$100.00	\$120.00	\$90.00	\$100.00	\$120.00
	181	Regrade steep access road and site to natural contours, rip and reseed-Overlook Point	BLM	0.5	0.5	0.5	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$10,000.00	\$12,500.00	\$15,000.00
	182	80'x25'x4" Concrete boat ramp to be removed-Long Gulch	BLM	25	25	25	CY	\$200.00	\$300.00	\$400.00	\$5,000.00	\$7,500.00	\$10,000.00
	183	Remove picnic tables (steel frame with planks) & haul away-Long Gulch	BLM	2	2	2	EA	\$90.00	\$100.00	\$120.00	\$180.00	\$200.00	\$240.00
	184	Regrade ramp area to natural contours, rip, reseed-Long Gulch	BLM	0.05	0.05	0.05	ACRE	\$20,000.00	\$25,000.00	\$30,000.00	\$1,000.00	\$1,250.00	\$1,500.00
		Subtotal 1									\$22,862,689.80	\$31,481,501.80	\$54,737,683.00
		Mobilization (MPL ~ 5%, MP ~ 5%, MPH ~ 5%)		1	1	1	ls	\$1,150,000.00	\$1,550,000.00	\$2,700,000.00	\$1,150,000.00	\$1,550,000.00	\$2,700,000.00
		Subtotal 1 w/ mobilization											
		Escalation to Notice to Proceed (NTP) NOT INCLUDED											
		Design Contingencies (MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	\$1,987,310.20	\$2,988,498.20	\$8,241,250.00	\$1,987,310.20	\$2,968,498.20	\$8,241,250.00
		APS = Allowance for Procurement Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)		1	1	1	ls	\$0.00	\$0.00	\$1,321,067.00	\$0.00	\$0.00	\$1,321,067.00
		CONTRACT COST									\$26,000,000.00	\$36,000,000.00	\$67,000,000.00
		Construction Contingencies (MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	\$5,000,000.00	\$8,000,000.00	\$17,000,000.00	\$5,000,000.00	\$8,000,000.00	\$17,000,000.00
		FIELD COST									\$31,000,000.00	\$44,000,000.00	\$84,000,000.00
		Non-Contract Cost (MPL ~ 62%; MP ~ 65%; MPH ~ 71%)		1	1	1	ls	\$19,000,000.00	\$29,000,000.00	\$61,000,000.00	\$19,000,000.00	\$29,000,000.00	\$61,000,000.00
		CONSTRUCTION COST									\$50,000,000.00	\$73,000,000.00	\$145,000,000.00
Notes: This estimate does not include non-contract costs and should not be used for funding purposes. Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)													
QUANTITIES							PRICES						
BY	See Group Worksheets	CHECKED:	See Group Worksheets	BY	Craig Grush, P.E.	CHECKED		DATE PREPARED	06/09/11	PEER REVIEW			
DATE PREPARED	1/20/2011	PEER REVIEW:	See Group Worksheets	DATE PREPARED		PEER REVIEW							

Crystal Ball Report - Full

Simulation started on 6/10/2011 at 9:57:37

Simulation stopped on 6/10/2011 at 9:59:04

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 87.95
Trials/second (average) 114
Random numbers per sec 35,703

Crystal Ball data:

Assumptions 314
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP

UNIT PRICES BY *Craig A. Grushy*

DATE 6/10/2011

DATE	PEER REVIEWER(S)	CODE
6/13 2011	<i>John G. Babcock</i> Signature	42 68170
	Signature	
	Printed Name	
Author Initials	PEER REVIEW NOT REQUIRED	

Forecasts

Worksheet: [Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Ga

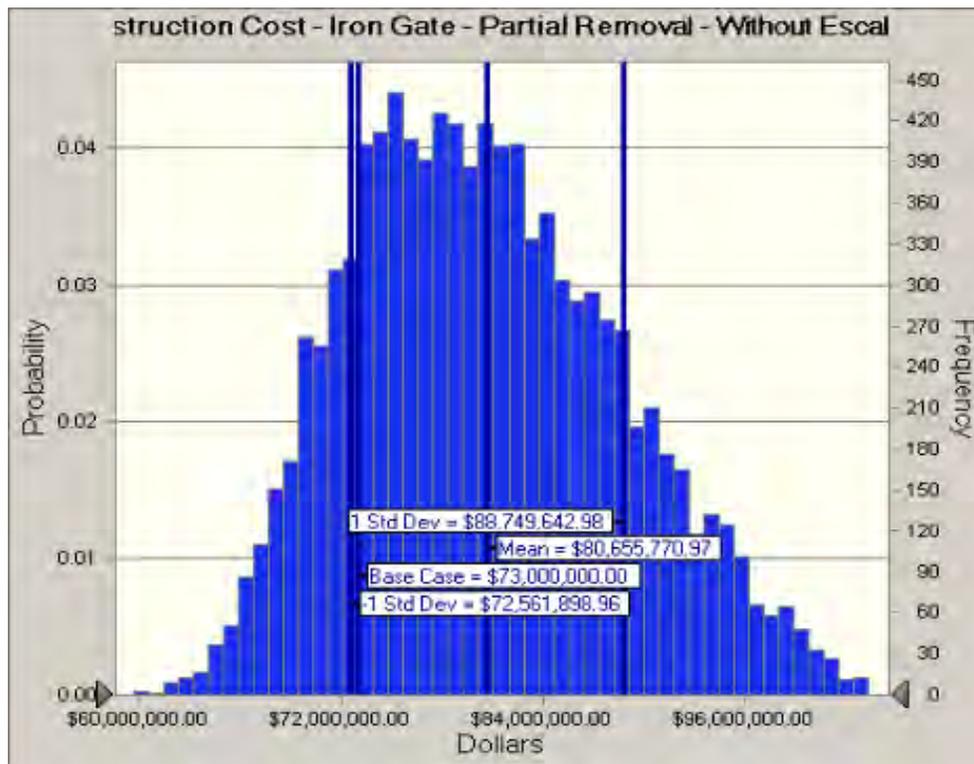
Forecast: Construction Cost - Iron Gate - Partial Removal - Without Escalation Cell: U213

Summary:

Entire range is from \$59,628,216.89 to \$112,210,033.22

Base case is \$73,000,000.00

After 10,000 trials, the std. error of the mean is \$80,938.72



Forecast: Construction Cost - Iron Gate - Partial Removal - Without Escalation (cont'd): U213

Statistics:	Forecast values
Trials	10,000
Mean	\$80,655,770.97
Median	\$79,976,487.07
Mode	---
Standard Deviation	\$8,093,872.01
Variance	\$65,510,764,135,266.40
Skewness	0.4055
Kurtosis	2.80
Coeff. of Variability	0.1004
Minimum	\$59,628,216.89
Maximum	\$112,210,033.22
Range Width	\$52,581,816.32
Mean Std. Error	\$80,938.72

Percentiles:	Forecast values
0%	\$59,628,216.89
10%	\$70,682,901.57
20%	\$73,468,191.57
30%	\$75,603,656.13
40%	\$77,789,689.74
50%	\$79,976,275.24
60%	\$82,158,206.59
70%	\$84,638,947.52
80%	\$87,695,453.96
90%	\$91,761,720.85
100%	\$112,210,033.22

Forecast: Contract Cost - Iron Gate - Partial Removal - Without Escalation

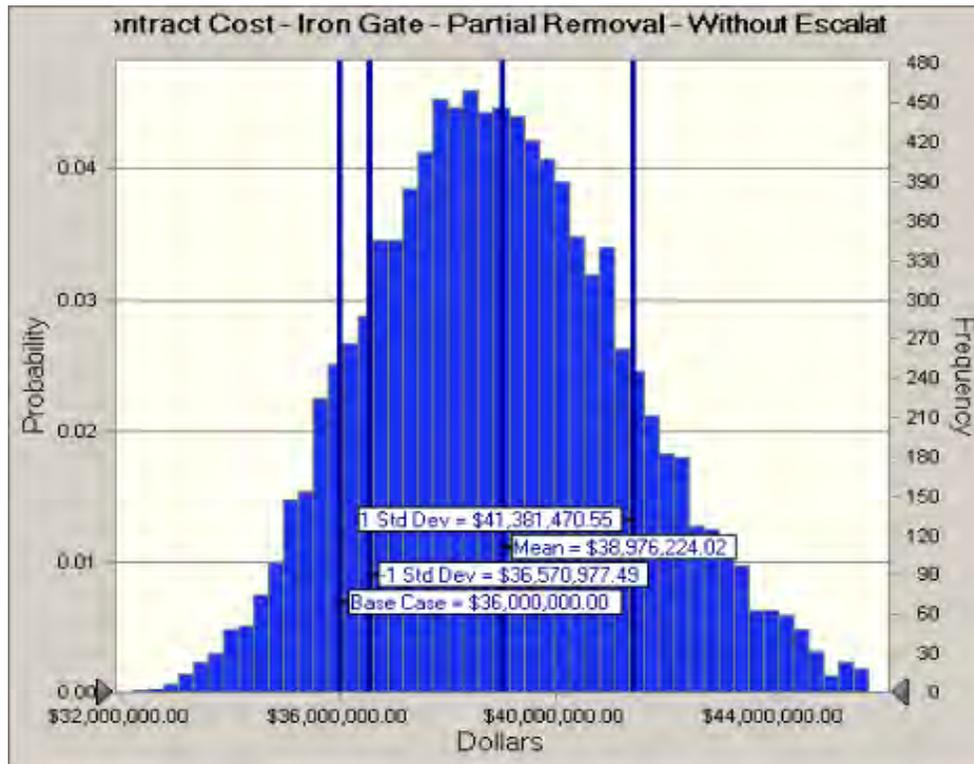
Cell: U209

Summary:

Entire range is from \$31,131,097.71 to \$50,493,623.02

Base case is \$36,000,000.00

After 10,000 trials, the std. error of the mean is \$24,052.47



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Contract Cost - Iron Gate - Partial Removal - Without Escalation (cont'd) Cell: U209

Statistics:	Forecast values
Trials	10,000
Mean	\$38,976,224.02
Median	\$38,853,244.63
Mode	---
Standard Deviation	\$2,405,246.53
Variance	\$5,785,210,871,411.96
Skewness	0.3132
Kurtosis	3.07
Coeff. of Variability	0.0617
Minimum	\$31,131,097.71
Maximum	\$50,493,623.02
Range Width	\$19,362,525.31
Mean Std. Error	\$24,052.47

Percentiles:	Forecast values
0%	\$31,131,097.71
10%	\$35,948,919.72
20%	\$36,894,129.27
30%	\$37,624,782.99
40%	\$38,241,315.11
50%	\$38,853,047.21
60%	\$39,468,762.12
70%	\$40,159,658.85
80%	\$40,962,370.88
90%	\$42,148,355.91
100%	\$50,493,623.02

Forecast: Field Cost - Iron Gate - Partial Removal - Without Escalation

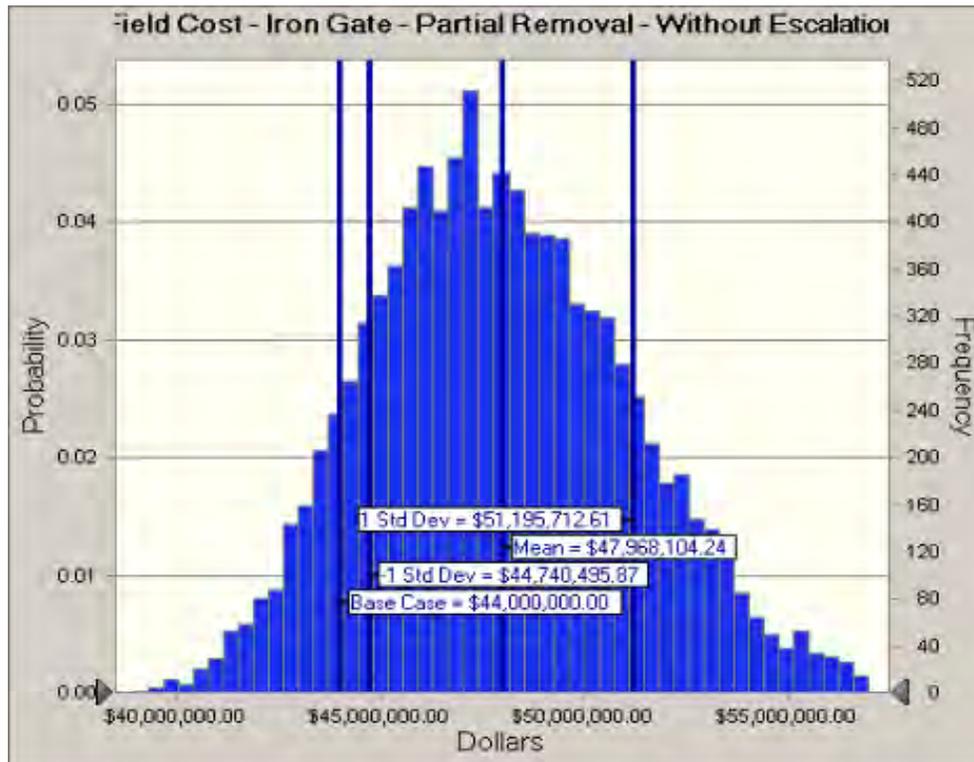
Cell: U211

Summary:

Entire range is from \$38,364,725.39 to \$62,227,069.23

Base case is \$44,000,000.00

After 10,000 trials, the std. error of the mean is \$32,276.08



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Field Cost - Iron Gate - Partial Removal - Without Escalation (cont'd)

Cell: U211

Statistics:	Forecast values
Trials	10,000
Mean	\$47,968,104.24
Median	\$47,760,415.30
Mode	---
Standard Deviation	\$3,227,608.37
Variance	\$10,417,455,796,011.10
Skewness	0.3025
Kurtosis	2.94
Coeff. of Variability	0.0673
Minimum	\$38,364,725.39
Maximum	\$62,227,069.23
Range Width	\$23,862,343.84
Mean Std. Error	\$32,276.08

Percentiles:	Forecast values
0%	\$38,364,725.39
10%	\$43,922,591.27
20%	\$45,181,435.71
30%	\$46,112,379.85
40%	\$46,959,852.20
50%	\$47,759,546.56
60%	\$48,634,405.46
70%	\$49,569,096.78
80%	\$50,696,119.83
90%	\$52,293,940.01
100%	\$62,227,069.23

End of Forecasts

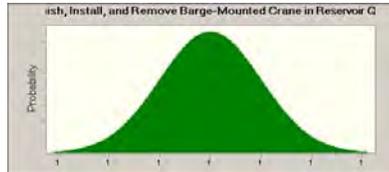
Assumptions

Worksheet: [Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]Iron Gate

Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir Quantity Cell: L14

Normal distribution with parameters:

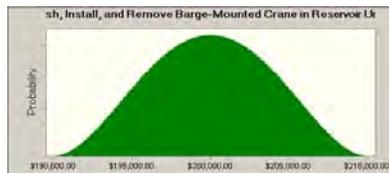
Mean	1	(=L14)
Std. Dev.	0	(=0.000001)



Assumption: 1 Furnish, Install, and Remove Barge-Mounted Crane in Reservoir Unit Price Cell: R14

BetaPERT distribution with parameters:

Minimum	\$190,000.00	(=Q14)
Likeliest	\$200,000.00	(=R14)
Maximum	\$210,000.00	(=S14)

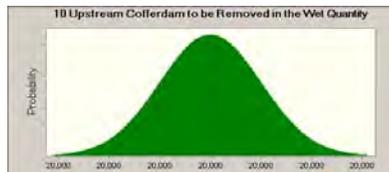


Assumption: 10 Upstream Cofferdam to be Removed in the Wet Quantity

Cell: L23

Normal distribution with parameters:

Mean	20,000	(=L23)
Std. Dev.	0	(=0.000001)



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls

Assumption: 10 Upstream Cofferdam to be Removed in the Wet Unit Price

Cell: R23

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q23)
Likeliest	\$70.00	(=R23)
Maximum	\$100.00	(=S23)



Assumption: 100 4' thick gravel surfacing-Prepare Haul Road - 1.25 mi Quantity

Cell: L114

Triangular distribution with parameters:

Minimum	0	(=K114)
Likeliest	5,300	(=L114)
Maximum	5,300	(=M114)

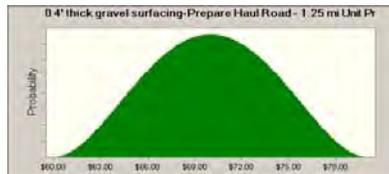


Assumption: 100 4' thick gravel surfacing-Prepare Haul Road - 1.25 mi Unit Price

Cell: R114

BetaPERT distribution with parameters:

Minimum	\$60.00	(=Q114)
Likeliest	\$70.00	(=R114)
Maximum	\$80.00	(=S114)



Assumption: 101 Remove Building No. 2 Quantity

Cell: L115

Normal distribution with parameters:

Mean 800 (=L115)
Std. Dev. 0 (=0.000001)



Assumption: 101 Remove Building No. 2 Unit Price

Cell: R115

BetaPERT distribution with parameters:

Minimum \$55.00 (=Q115)
Likeliest \$60.00 (=R115)
Maximum \$65.00 (=S115)

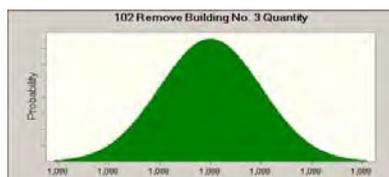


Assumption: 102 Remove Building No. 3 Quantity

Cell: L116

Normal distribution with parameters:

Mean 1,088 (=L116)
Std. Dev. 0 (=0.000001)



Assumption: 102 Remove Building No. 3 Unit Price

Cell: R116

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q116)
Likeliest	\$60.00	(=R116)
Maximum	\$65.00	(=S116)



Assumption: 103 Remove Concrete in Fish Ladder Quantity

Cell: L117

Normal distribution with parameters:

Mean	950	(=L117)
Std. Dev.	0	(=0.000001)



Assumption: 103 Remove Concrete in Fish Ladder Unit Price

Cell: R117

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q117)
Likeliest	\$215.00	(=R117)
Maximum	\$380.00	(=S117)



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

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Assumption: 104 Remove Concrete in Holding Ponds #1 thru #6 Quantity

Cell: L118

Normal distribution with parameters:

Mean	420	(=L118)
Std. Dev.	0	(=0.000001)

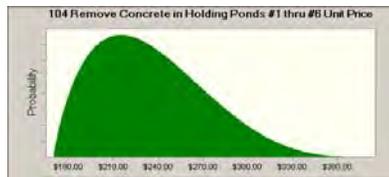


Assumption: 104 Remove Concrete in Holding Ponds #1 thru #6 Unit Price

Cell: R118

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q118)
Likeliest	\$215.00	(=R118)
Maximum	\$380.00	(=S118)



Assumption: 105 Remove Concrete in Fish Facility Items Quantity

Cell: L119

Normal distribution with parameters:

Mean	380	(=L119)
Std. Dev.	0	(=0.000001)



Assumption: 105 Remove Concrete in Fish Facility Items Unit Price

Cell: R119

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q119)
Likeliest	\$215.00	(=R119)
Maximum	\$380.00	(=S119)

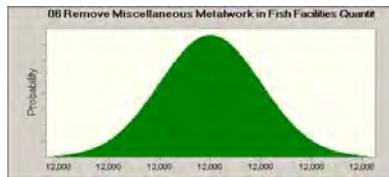


Assumption: 106 Remove Miscellaneous Metalwork in Fish Facilities Quantity

Cell: L120

Normal distribution with parameters:

Mean	12,000	(=L120)
Std. Dev.	0	(=0.000001)

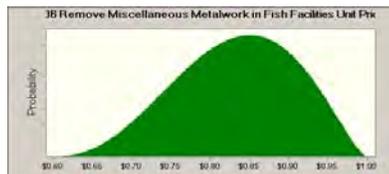


Assumption: 106 Remove Miscellaneous Metalwork in Fish Facilities Unit Price

Cell: R120

BetaPERT distribution with parameters:

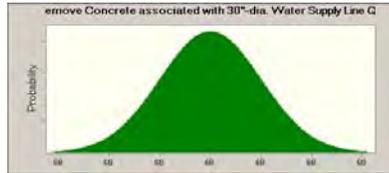
Minimum	\$0.60	(=Q120)
Likeliest	\$0.85	(=R120)
Maximum	\$1.00	(=S120)



Assumption: 107 Remove Concrete associated with 30"-dia. Water Supply Line Quantity **Cell: L121**

Normal distribution with parameters:

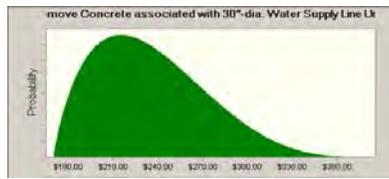
Mean 68 (=L121)
Std. Dev. 0 (=0.000001)



Assumption: 107 Remove Concrete associated with 30"-dia. Water Supply Line Unit **Cell: R121**

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q121)
Likeliest \$215.00 (=R121)
Maximum \$380.00 (=S121)

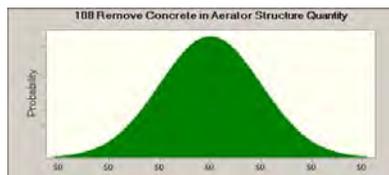


Assumption: 108 Remove Concrete in Aerator Structure Quantity

Cell: L122

Normal distribution with parameters:

Mean 50 (=L122)
Std. Dev. 0 (=0.000001)

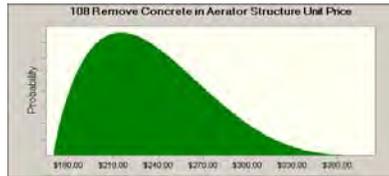


Assumption: 108 Remove Concrete in Aerator Structure Unit Price

Cell: R122

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q122)
Likeliest	\$215.00	(=R122)
Maximum	\$380.00	(=S122)

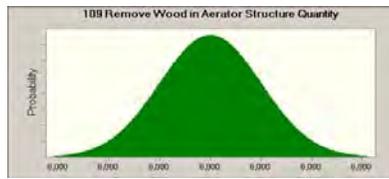


Assumption: 109 Remove Wood in Aerator Structure Quantity

Cell: L123

Normal distribution with parameters:

Mean	6,000	(=L123)
Std. Dev.	0	(=0.000001)



Assumption: 109 Remove Wood in Aerator Structure Unit Price

Cell: R123

BetaPERT distribution with parameters:

Minimum	\$0.65	(=Q123)
Likeliest	\$0.70	(=R123)
Maximum	\$0.85	(=S123)



Assumption: 11 Remove 9' dia hinged blind flange Quantity

Cell: L24

Normal distribution with parameters:

Mean	19,000	(=L24)
Std. Dev.	0	(=0.000001)



Assumption: 11 Remove 9' dia hinged blind flange Unit Price

Cell: R24

BetaPERT distribution with parameters:

Minimum	\$1.50	(=Q24)
Likeliest	\$2.00	(=R24)
Maximum	\$3.00	(=S24)



Assumption: 110 Remove Structural Steel in Aerator Structure Quantity

Cell: L124

Normal distribution with parameters:

Mean	2,500	(=L124)
Std. Dev.	0	(=0.000001)



Assumption: 110 Remove Structural Steel in Aerator Structure Unit Price

Cell: R124

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q124)
Likeliest	\$0.85	(=R124)
Maximum	\$1.00	(=S124)

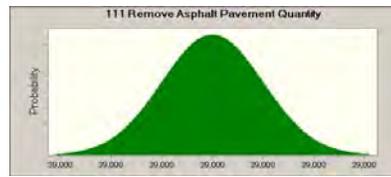


Assumption: 111 Remove Asphalt Pavement Quantity

Cell: L125

Normal distribution with parameters:

Mean	39,000	(=L125)
Std. Dev.	0	(=0.000001)

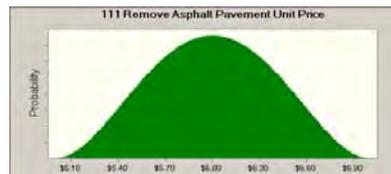


Assumption: 111 Remove Asphalt Pavement Unit Price

Cell: R125

BetaPERT distribution with parameters:

Minimum	\$5.00	(=Q125)
Likeliest	\$6.00	(=R125)
Maximum	\$7.00	(=S125)

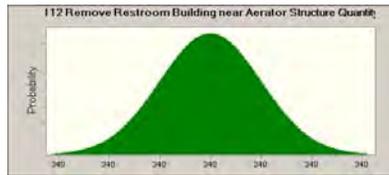


Assumption: 112 Remove Restroom Building near Aerator Structure Quantity

Cell: L126

Normal distribution with parameters:

Mean	340	(=L126)
Std. Dev.	0	(=0.000001)



Assumption: 112 Remove Restroom Building near Aerator Structure Unit Price

Cell: R126

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q126)
Likeliest	\$60.00	(=R126)
Maximum	\$65.00	(=S126)

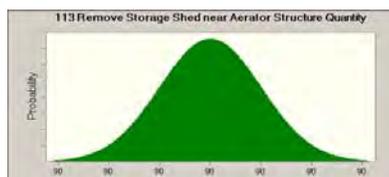


Assumption: 113 Remove Storage Shed near Aerator Structure Quantity

Cell: L127

Normal distribution with parameters:

Mean	90	(=L127)
Std. Dev.	0	(=0.000001)



Assumption: 113 Remove Storage Shed near Aerator Structure Unit Price

Cell: R127

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q127)
Likeliest	\$60.00	(=R127)
Maximum	\$65.00	(=S127)

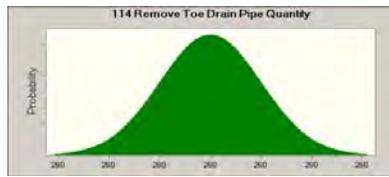


Assumption: 114 Remove Toe Drain Pipe Quantity

Cell: L128

Normal distribution with parameters:

Mean	260	(=L128)
Std. Dev.	0	(=0.000001)



Assumption: 114 Remove Toe Drain Pipe Unit Price

Cell: R128

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q128)
Likeliest	\$20.00	(=R128)
Maximum	\$25.00	(=S128)



Assumption: 115 Remove Toe Drain Manhole Quantity

Cell: L129

Normal distribution with parameters:

Mean	25	(=L129)
Std. Dev.	0	(=0.000001)



Assumption: 115 Remove Toe Drain Manhole Unit Price

Cell: R129

BetaPERT distribution with parameters:

Minimum	\$45.00	(=Q129)
Likeliest	\$50.00	(=R129)
Maximum	\$55.00	(=S129)

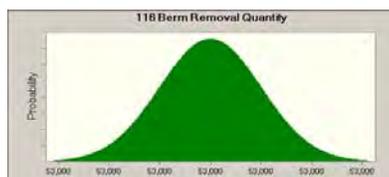


Assumption: 116 Berm Removal Quantity

Cell: L130

Normal distribution with parameters:

Mean	53,000	(=L130)
Std. Dev.	0	(=0.000001)



Assumption: 116 Berm Removal Unit Price

Cell: R130

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q130)
Likeliest	\$13.00	(=R130)
Maximum	\$17.00	(=S130)

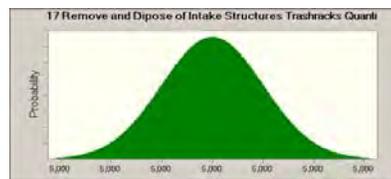


Assumption: 117 Remove and Dipose of Intake Structures Trashracks Quantity

Cell: L131

Normal distribution with parameters:

Mean	5,000	(=L131)
Std. Dev.	0	(=0.000001)

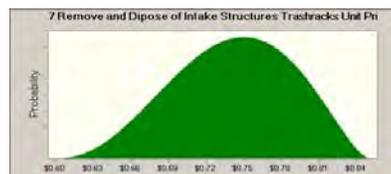


Assumption: 117 Remove and Dipose of Intake Structures Trashracks Unit Price

Cell: R131

BetaPERT distribution with parameters:

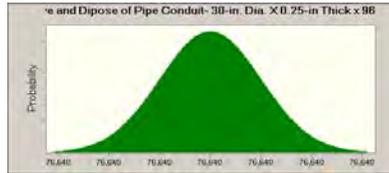
Minimum	\$0.60	(=Q131)
Likeliest	\$0.75	(=R131)
Maximum	\$0.85	(=S131)



Assumption: 118 Remove and Dispose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 96-ft L132

Normal distribution with parameters:

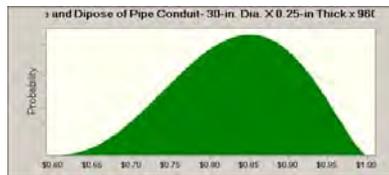
Mean 76,640 (=L132)
Std. Dev. 0 (=0.000001)



Assumption: 118 Remove and Dispose of Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 96-ft L132

BetaPERT distribution with parameters:

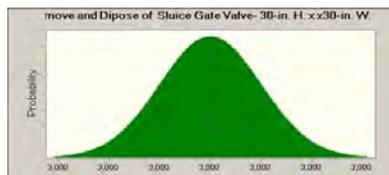
Minimum \$0.60 (=Q132)
Likeliest \$0.85 (=R132)
Maximum \$1.00 (=S132)



Assumption: 119 Remove and Dispose of Sluice Gate Valve- 30-in. H. x x30-in. W. Quantity 133

Normal distribution with parameters:

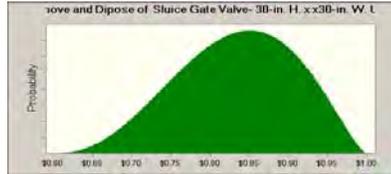
Mean 3,000 (=L133)
Std. Dev. 0 (=0.000001)



Assumption: 119 Remove and Dispose of Sluice Gate Valve- 30-in. H. x x30-in. W. Unit Price

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q133)
Likeliest	\$0.85	(=R133)
Maximum	\$1.00	(=S133)

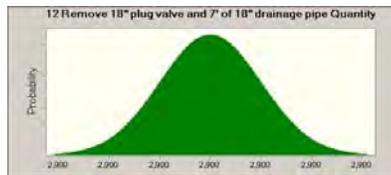


Assumption: 12 Remove 18" plug valve and 7' of 18" drainage pipe Quantity

Cell: L25

Normal distribution with parameters:

Mean	2,900	(=L25)
Std. Dev.	0	(=0.000001)

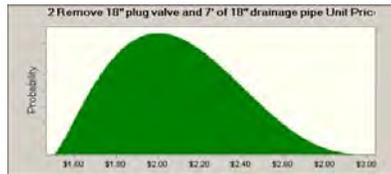


Assumption: 12 Remove 18" plug valve and 7' of 18" drainage pipe Unit Price

Cell: R25

BetaPERT distribution with parameters:

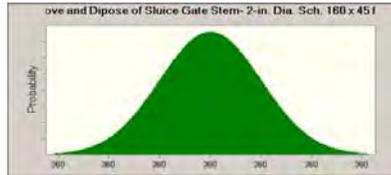
Minimum	\$1.50	(=Q25)
Likeliest	\$2.00	(=R25)
Maximum	\$3.00	(=S25)



Assumption: 120 Remove and Dispose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft Cell: L134

Normal distribution with parameters:

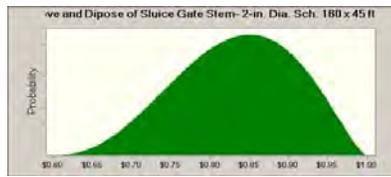
Mean 360 (=L134)
 Std. Dev. 0 (=0.000001)



Assumption: 120 Remove and Dispose of Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft Cell: R134

BetaPERT distribution with parameters:

Minimum \$0.60 (=Q134)
 Likeliest \$0.85 (=R134)
 Maximum \$1.00 (=S134)

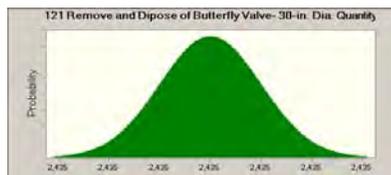


Assumption: 121 Remove and Dispose of Butterfly Valve- 30-in. Dia. Quantity

Cell: L135

Normal distribution with parameters:

Mean 2,435 (=L135)
 Std. Dev. 0 (=0.000001)

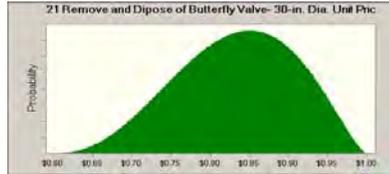


Assumption: 121 Remove and Dispose of Butterfly Valve- 30-in. Dia. Unit Price

Cell: R135

BetaPERT distribution with parameters:

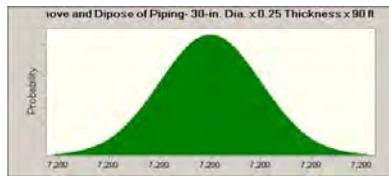
Minimum	\$0.60	(=Q135)
Likeliest	\$0.85	(=R135)
Maximum	\$1.00	(=S135)



Assumption: 122 Remove and Dispose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. ~~Cell: R136~~

Normal distribution with parameters:

Mean	7,200	(=L136)
Std. Dev.	0	(=0.000001)



Assumption: 122 Remove and Dispose of Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. ~~Cell: R136~~

BetaPERT distribution with parameters:

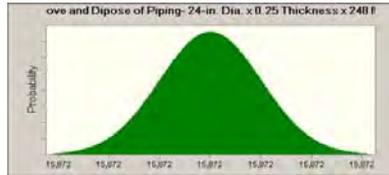
Minimum	\$0.60	(=Q136)
Likeliest	\$0.85	(=R136)
Maximum	\$1.00	(=S136)



Assumption: 123 Remove and Dispose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Cost = \$137

Normal distribution with parameters:

Mean	15,872	(=L137)
Std. Dev.	0	(=0.000001)



Assumption: 123 Remove and Dispose of Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Cost = \$137

BetaPERT distribution with parameters:

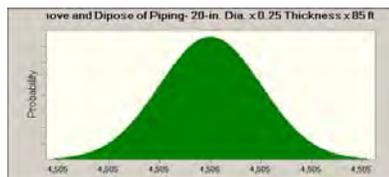
Minimum	\$0.60	(=Q137)
Likeliest	\$0.85	(=R137)
Maximum	\$1.00	(=S137)



Assumption: 124 Remove and Dispose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Cost = \$138

Normal distribution with parameters:

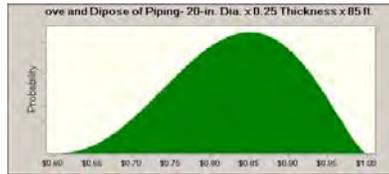
Mean	4,505	(=L138)
Std. Dev.	0	(=0.000001)



Assumption: 124 Remove and Dispose of Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Unit R138

BetaPERT distribution with parameters:

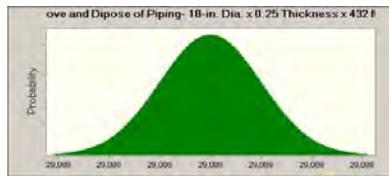
Minimum	\$0.60	(=Q138)
Likeliest	\$0.85	(=R138)
Maximum	\$1.00	(=S138)



Assumption: 125 Remove and Dispose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Unit R139

Normal distribution with parameters:

Mean	29,088	(=L139)
Std. Dev.	0	(=0.000001)



Assumption: 125 Remove and Dispose of Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Unit R139

BetaPERT distribution with parameters:

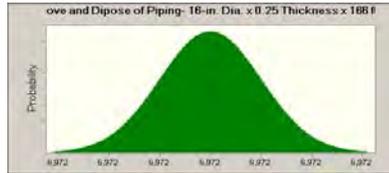
Minimum	\$0.60	(=Q139)
Likeliest	\$0.85	(=R139)
Maximum	\$1.00	(=S139)



Assumption: 126 Remove and Dispose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Quantity 140

Normal distribution with parameters:

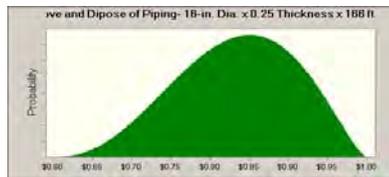
Mean	6,972	(=L140)
Std. Dev.	0	(=0.000001)



Assumption: 126 Remove and Dispose of Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Quantity 140

BetaPERT distribution with parameters:

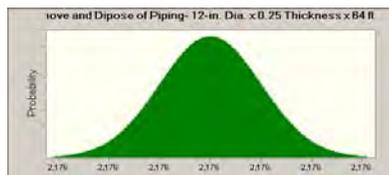
Minimum	\$0.60	(=Q140)
Likeliest	\$0.85	(=R140)
Maximum	\$1.00	(=S140)



Assumption: 127 Remove and Dispose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Quantity 141

Normal distribution with parameters:

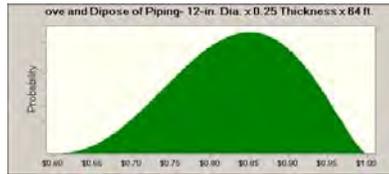
Mean	2,176	(=L141)
Std. Dev.	0	(=0.000001)



Assumption: 127 Remove and Dispose of Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. ~~Unit R141~~

BetaPERT distribution with parameters:

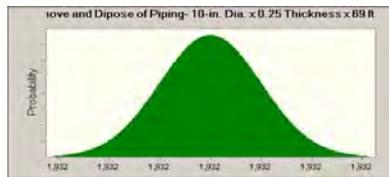
Minimum	\$0.60	(=Q141)
Likeliest	\$0.85	(=R141)
Maximum	\$1.00	(=S141)



Assumption: 128 Remove and Dispose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. ~~Unit R142~~

Normal distribution with parameters:

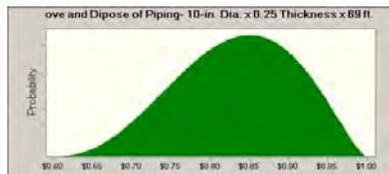
Mean	1,932	(=L142)
Std. Dev.	0	(=0.000001)



Assumption: 128 Remove and Dispose of Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. ~~Unit R142~~

BetaPERT distribution with parameters:

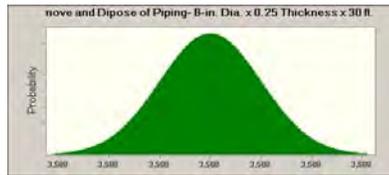
Minimum	\$0.60	(=Q142)
Likeliest	\$0.85	(=R142)
Maximum	\$1.00	(=S142)



Assumption: 129 Remove and Dispose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Cell L143

Normal distribution with parameters:

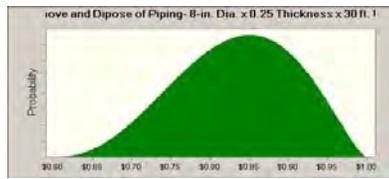
Mean	3,588	(=L143)
Std. Dev.	0	(=0.000001)



Assumption: 129 Remove and Dispose of Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Cell R143

BetaPERT distribution with parameters:

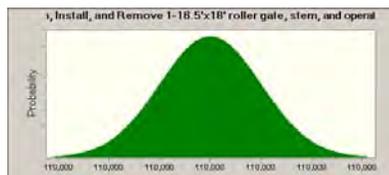
Minimum	\$0.60	(=Q143)
Likeliest	\$0.85	(=R143)
Maximum	\$1.00	(=S143)



Assumption: 13 Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operation Cell L26

Normal distribution with parameters:

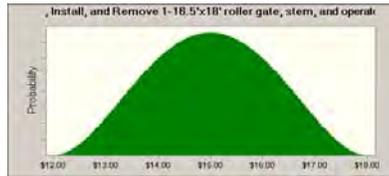
Mean	110,000	(=L26)
Std. Dev.	0	(=0.000001)



Assumption: 13 Furnish, Install, and Remove 1-16.5'x18' roller gate, stem, and operation Cell: R26

BetaPERT distribution with parameters:

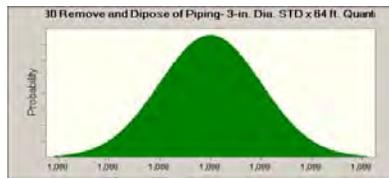
Minimum	\$12.00	(=Q26)
Likeliest	\$15.00	(=R26)
Maximum	\$18.00	(=S26)



Assumption: 130 Remove and Dispose of Piping- 3-in. Dia. STD x 64 ft. Quantity Cell: L144

Normal distribution with parameters:

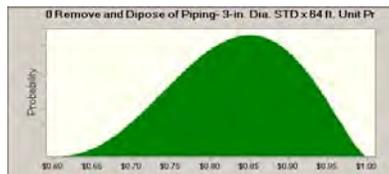
Mean	1,088	(=L144)
Std. Dev.	0	(=0.000001)



Assumption: 130 Remove and Dispose of Piping- 3-in. Dia. STD x 64 ft. Unit Price Cell: R144

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q144)
Likeliest	\$0.85	(=R144)
Maximum	\$1.00	(=S144)

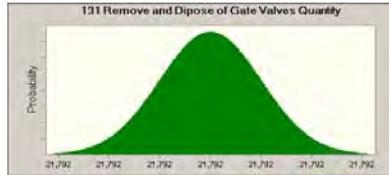


Assumption: 131 Remove and Dispose of Gate Valves Quantity

Cell: L145

Normal distribution with parameters:

Mean	21,792	(=L145)
Std. Dev.	0	(=0.000001)

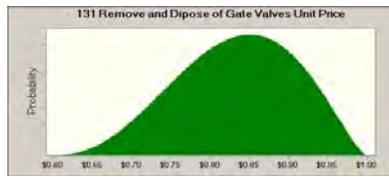


Assumption: 131 Remove and Dispose of Gate Valves Unit Price

Cell: R145

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q145)
Likeliest	\$0.85	(=R145)
Maximum	\$1.00	(=S145)

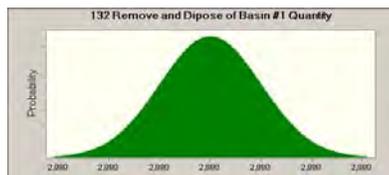


Assumption: 132 Remove and Dispose of Basin #1 Quantity

Cell: L146

Normal distribution with parameters:

Mean	2,880	(=L146)
Std. Dev.	0	(=0.000001)



Assumption: 132 Remove and Dipose of Basin #1 Unit Price

Cell: R146

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q146)
Likeliest	\$0.85	(=R146)
Maximum	\$1.00	(=S146)



Assumption: 133 Remove and Dipose of Basin #2 Quantity

Cell: L147

Normal distribution with parameters:

Mean	3,860	(=L147)
Std. Dev.	0	(=0.000001)

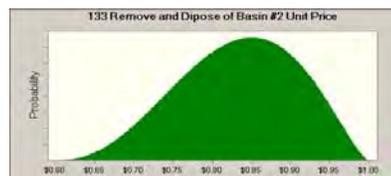


Assumption: 133 Remove and Dipose of Basin #2 Unit Price

Cell: R147

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q147)
Likeliest	\$0.85	(=R147)
Maximum	\$1.00	(=S147)

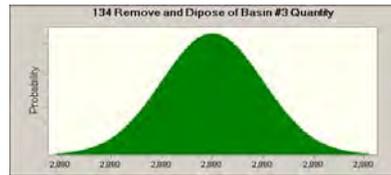


Assumption: 134 Remove and Dispose of Basin #3 Quantity

Cell: L148

Normal distribution with parameters:

Mean	2,880	(=L148)
Std. Dev.	0	(=0.000001)

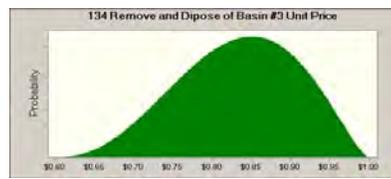


Assumption: 134 Remove and Dispose of Basin #3 Unit Price

Cell: R148

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q148)
Likeliest	\$0.85	(=R148)
Maximum	\$1.00	(=S148)

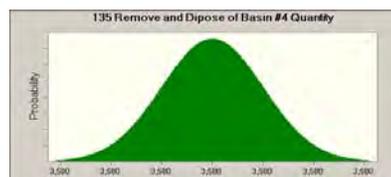


Assumption: 135 Remove and Dispose of Basin #4 Quantity

Cell: L149

Normal distribution with parameters:

Mean	3,580	(=L149)
Std. Dev.	0	(=0.000001)



Assumption: 135 Remove and Dispose of Basin #4 Unit Price

Cell: R149

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q149)
Likeliest	\$0.85	(=R149)
Maximum	\$1.00	(=S149)

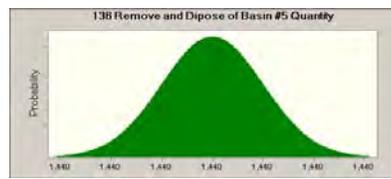


Assumption: 136 Remove and Dispose of Basin #5 Quantity

Cell: L150

Normal distribution with parameters:

Mean	1,440	(=L150)
Std. Dev.	0	(=0.000001)

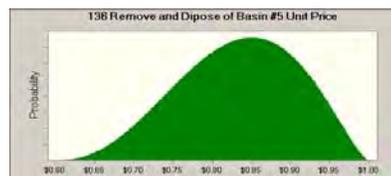


Assumption: 136 Remove and Dispose of Basin #5 Unit Price

Cell: R150

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q150)
Likeliest	\$0.85	(=R150)
Maximum	\$1.00	(=S150)

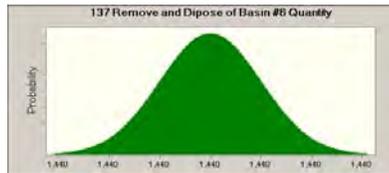


Assumption: 137 Remove and Dispose of Basin #6 Quantity

Cell: L151

Normal distribution with parameters:

Mean	1,440	(=L151)
Std. Dev.	0	(=0.000001)



Assumption: 137 Remove and Dispose of Basin #6 Unit Price

Cell: R151

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q151)
Likeliest	\$0.85	(=R151)
Maximum	\$1.00	(=S151)

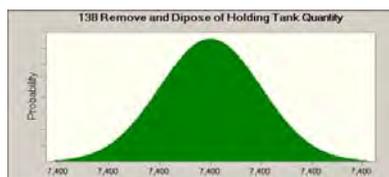


Assumption: 138 Remove and Dispose of Holding Tank Quantity

Cell: L152

Normal distribution with parameters:

Mean	7,400	(=L152)
Std. Dev.	0	(=0.000001)



Assumption: 138 Remove and Dispose of Holding Tank Unit Price

Cell: R152

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q152)
Likeliest	\$0.85	(=R152)
Maximum	\$1.00	(=S152)

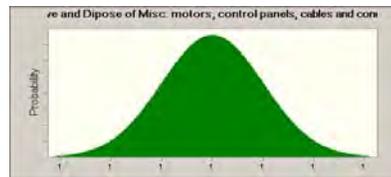


Assumption: 139 Remove and Dispose of Misc: motors, control panels, cables and cond

Cell: L153

Normal distribution with parameters:

Mean	1	(=L153)
Std. Dev.	0	(=0.000001)



Assumption: 139 Remove and Dispose of Misc: motors, control panels, cables and cond

Cell: R153

BetaPERT distribution with parameters:

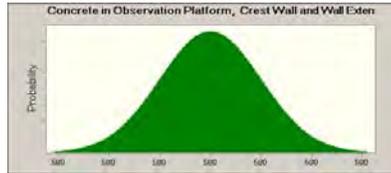
Minimum	\$1,000.00	(=Q153)
Likeliest	\$1,500.00	(=R153)
Maximum	\$2,000.00	(=S153)



Assumption: 14 Remove Concrete in Observation Platform, Crest Wall and Wall Extensions Cell: L27

Normal distribution with parameters:

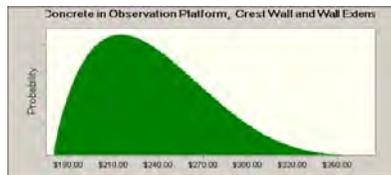
Mean	580	(=L27)
Std. Dev.	0	(=0.000001)



Assumption: 14 Remove Concrete in Observation Platform, Crest Wall and Wall Extensions Cell: R27

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q27)
Likeliest	\$215.00	(=R27)
Maximum	\$380.00	(=S27)

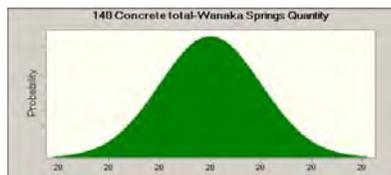


Assumption: 140 Concrete total-Wanaka Springs Quantity

Cell: L154

Normal distribution with parameters:

Mean	28	(=L154)
Std. Dev.	0	(=0.000001)



Assumption: 140 Concrete total-Wanaka Springs Unit Price

Cell: R154

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q154)
Likeliest	\$300.00	(=R154)
Maximum	\$400.00	(=S154)

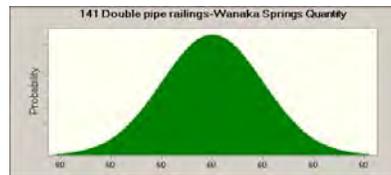


Assumption: 141 Double pipe railings-Wanaka Springs Quantity

Cell: L155

Normal distribution with parameters:

Mean	60	(=L155)
Std. Dev.	0	(=0.000001)

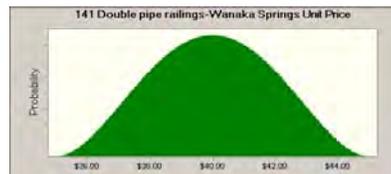


Assumption: 141 Double pipe railings-Wanaka Springs Unit Price

Cell: R155

BetaPERT distribution with parameters:

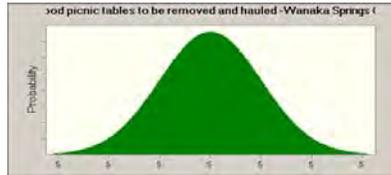
Minimum	\$35.00	(=Q155)
Likeliest	\$40.00	(=R155)
Maximum	\$45.00	(=S155)



Assumption: 142 Wood picnic tables to be removed and hauled -Wanaka Springs Quantity

Normal distribution with parameters:

Mean 5 (=L156)
 Std. Dev. 0 (=0.000001)



Assumption: 142 Wood picnic tables to be removed and hauled -Wanaka Springs Unit Price

BetaPERT distribution with parameters:

Minimum \$90.00 (=Q156)
 Likeliest \$100.00 (=R156)
 Maximum \$120.00 (=S156)

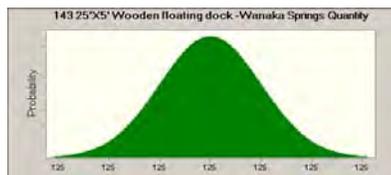


Assumption: 143 25'X5' Wooden floating dock -Wanaka Springs Quantity

Cell: L157

Normal distribution with parameters:

Mean 125 (=L157)
 Std. Dev. 0 (=0.000001)



Assumption: 143 25'X5' Wooden floating dock -Wanaka Springs Unit Price

Cell: R157

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q157)
Likeliest	\$20.00	(=R157)
Maximum	\$25.00	(=S157)

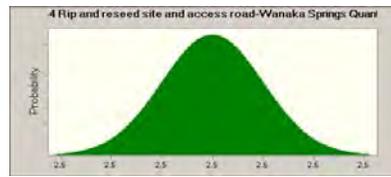


Assumption: 144 Rip and reseed site and access road-Wanaka Springs Quantity

Cell: L158

Normal distribution with parameters:

Mean	2.5	(=L158)
Std. Dev.	0.0	(=0.000001)



Assumption: 144 Rip and reseed site and access road-Wanaka Springs Unit Price

Cell: R158

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q158)
Likeliest	\$25,000.00	(=R158)
Maximum	\$30,000.00	(=S158)



Assumption: 145 Signs to be removed and hauled away-Wanaka Springs Quantity Cell: L159

Normal distribution with parameters:

Mean 3 (=L159)
Std. Dev. 0 (=0.000001)



Assumption: 145 Signs to be removed and hauled away-Wanaka Springs Unit PriceCell: R159

BetaPERT distribution with parameters:

Minimum \$250.00 (=Q159)
Likeliest \$300.00 (=R159)
Maximum \$350.00 (=S159)

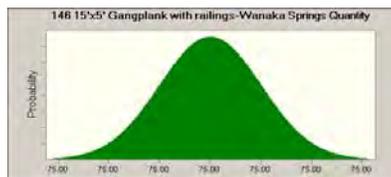


Assumption: 146 15'x5' Gangplank with railings-Wanaka Springs Quantity

Cell: L160

Normal distribution with parameters:

Mean 75.00 (=L160)
Std. Dev. 0.00 (=0.000001)



Assumption: 146 15'x5' Gangplank with railings-Wanaka Springs Unit Price

Cell: R160

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q160)
Likeliest	\$20.00	(=R160)
Maximum	\$25.00	(=S160)



Assumption: 147 Concrete total-Juniper Point Quantity

Cell: L161

Normal distribution with parameters:

Mean	19.00	(=L161)
Std. Dev.	0.00	(=0.000001)



Assumption: 147 Concrete total-Juniper Point Unit Price

Cell: R161

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q161)
Likeliest	\$300.00	(=R161)
Maximum	\$400.00	(=S161)

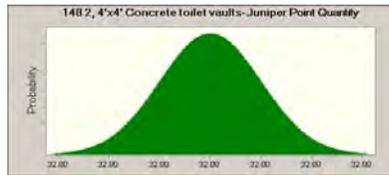


Assumption: 148 2, 4'x4' Concrete toilet vaults-Juniper Point Quantity

Cell: L162

Normal distribution with parameters:

Mean	32.00	(=L162)
Std. Dev.	0.00	(=0.000001)



Assumption: 148 2, 4'x4' Concrete toilet vaults-Juniper Point Unit Price

Cell: R162

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q162)
Likeliest	\$100.00	(=R162)
Maximum	\$120.00	(=S162)

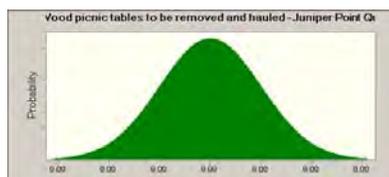


Assumption: 149 Wood picnic tables to be removed and hauled -Juniper Point Quantity

Cell: L163

Normal distribution with parameters:

Mean	8.00	(=L163)
Std. Dev.	0.00	(=0.000001)



Assumption: 149 Wood picnic tables to be removed and hauled -Juniper Point Unit Price Cell: R163

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q163)
Likeliest	\$100.00	(=R163)
Maximum	\$120.00	(=S163)



Assumption: 15 Remove Concrete in Diversion Tunnel Intake Structure Quantity Cell: L28

Normal distribution with parameters:

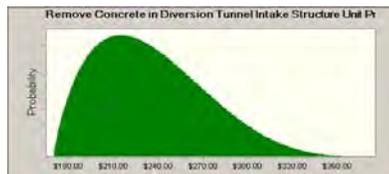
Mean	530	(=L28)
Std. Dev.	0	(=0.000001)



Assumption: 15 Remove Concrete in Diversion Tunnel Intake Structure Unit Price Cell: R28

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q28)
Likeliest	\$215.00	(=R28)
Maximum	\$380.00	(=S28)

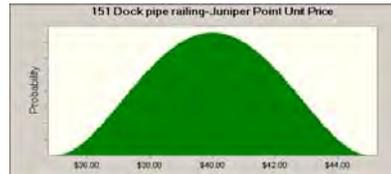


Assumption: 151 Dock pipe railing-Juniper Point Unit Price

Cell: R165

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q165)
Likeliest	\$40.00	(=R165)
Maximum	\$45.00	(=S165)

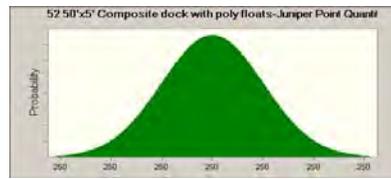


Assumption: 152 50'x5' Composite dock with poly floats-Juniper Point Quantity

Cell: L166

Normal distribution with parameters:

Mean	250	(=L166)
Std. Dev.	0	(=0.000001)

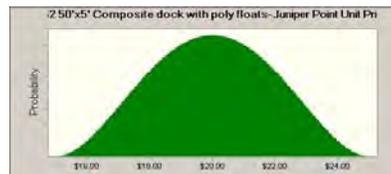


Assumption: 152 50'x5' Composite dock with poly floats-Juniper Point Unit Price

Cell: R166

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q166)
Likeliest	\$20.00	(=R166)
Maximum	\$25.00	(=S166)



Assumption: 153 20'x5' Composite gangplank with railings-Juniper Point Quantity Cell: L167

Normal distribution with parameters:

Mean	100	(=L167)
Std. Dev.	0	(=0.000001)



Assumption: 153 20'x5' Composite gangplank with railings-Juniper Point Unit PriceCell: R167

BetaPERT distribution with parameters:

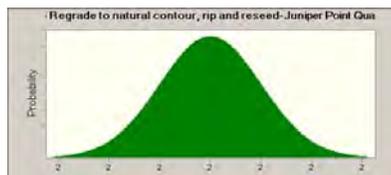
Minimum	\$15.00	(=Q167)
Likeliest	\$20.00	(=R167)
Maximum	\$25.00	(=S167)



Assumption: 155 Regrade to natural contour, rip and reseed-Juniper Point QuantityCell: L169

Normal distribution with parameters:

Mean	2	(=L169)
Std. Dev.	0	(=0.000001)



Assumption: 155 Regrade to natural contour, rip and reseed-Juniper Point Unit Price Cell: R169

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q169)
Likeliest	\$25,000.00	(=R169)
Maximum	\$30,000.00	(=S169)

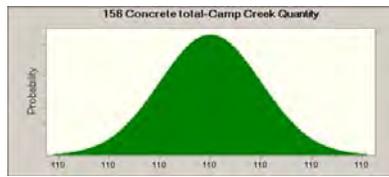


Assumption: 156 Concrete total-Camp Creek Quantity Cell: L170

Cell: L170

Normal distribution with parameters:

Mean	110	(=L170)
Std. Dev.	0	(=0.000001)



Assumption: 156 Concrete total-Camp Creek Unit Price Cell: R170

Cell: R170

BetaPERT distribution with parameters:

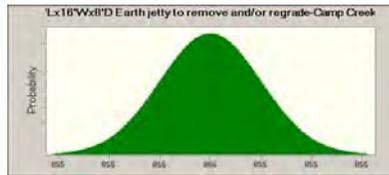
Minimum	\$200.00	(=Q170)
Likeliest	\$300.00	(=R170)
Maximum	\$400.00	(=S170)



Assumption: 157 180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek Cell R171

Normal distribution with parameters:

Mean	855	(=L171)
Std. Dev.	0	(=0.000001)



Assumption: 157 180'Lx16'Wx8'D Earth jetty to remove and/or regrade-Camp Creek Cell R171

BetaPERT distribution with parameters:

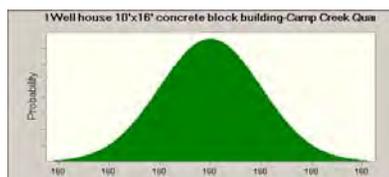
Minimum	\$20.00	(=Q171)
Likeliest	\$25.00	(=R171)
Maximum	\$30.00	(=S171)



Assumption: 158 Well house 10'x16' concrete block building-Camp Creek Quantity Cell: L172

Normal distribution with parameters:

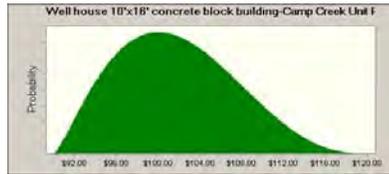
Mean	160	(=L172)
Std. Dev.	0	(=0.000001)



Assumption: 158 Well house 10'x16' concrete block building-Camp Creek Unit Price Cell: R172

BetaPERT distribution with parameters:

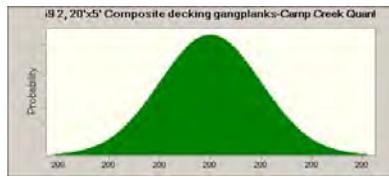
Minimum	\$90.00	(=Q172)
Likeliest	\$100.00	(=R172)
Maximum	\$120.00	(=S172)



Assumption: 159 2, 20'x5' Composite decking gangplanks-Camp Creek Quantity Cell: L173

Normal distribution with parameters:

Mean	200	(=L173)
Std. Dev.	0	(=0.000001)



Assumption: 159 2, 20'x5' Composite decking gangplanks-Camp Creek Unit Price Cell: R173

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q173)
Likeliest	\$20.00	(=R173)
Maximum	\$25.00	(=S173)



Assumption: 16 Remove Concrete in Diversion Tunnel Gate Tower Quantity

Cell: L29

Normal distribution with parameters:

Mean	410	(=L29)
Std. Dev.	0	(=0.000001)



Assumption: 16 Remove Concrete in Diversion Tunnel Gate Tower Unit Price

Cell: R29

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q29)
Likeliest	\$215.00	(=R29)
Maximum	\$380.00	(=S29)

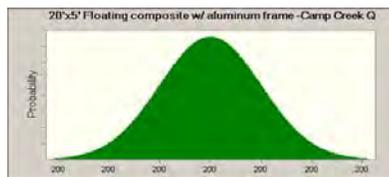


Assumption: 160 2, 20'x5' Floating composite w/ aluminum frame -Camp Creek Quantity

Cell: L174

Normal distribution with parameters:

Mean	200	(=L174)
Std. Dev.	0	(=0.000001)



Assumption: 160 2, 20'x5' Floating composite w/ aluminum frame -Camp Creek Unit Price R174

BetaPERT distribution with parameters:

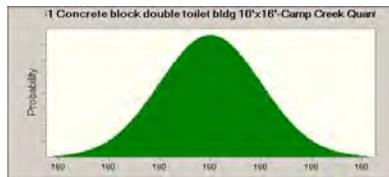
Minimum	\$15.00	(=Q174)
Likeliest	\$20.00	(=R174)
Maximum	\$25.00	(=S174)



Assumption: 161 Concrete block double toilet bldg 10'x16'-Camp Creek Quantity Cell: L175

Normal distribution with parameters:

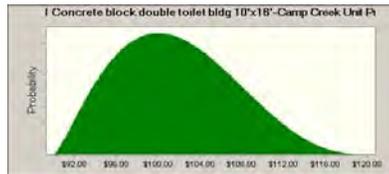
Mean	160	(=L175)
Std. Dev.	0	(=0.000001)



Assumption: 161 Concrete block double toilet bldg 10'x16'-Camp Creek Unit Price Cell: R175

BetaPERT distribution with parameters:

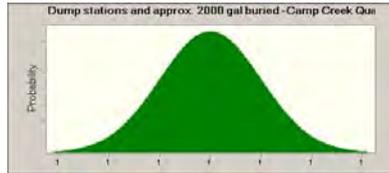
Minimum	\$90.00	(=Q175)
Likeliest	\$100.00	(=R175)
Maximum	\$120.00	(=S175)



Assumption: 162 Dump stations and approx. 2000 gal buried -Camp Creek Quantity Cell: L176

Normal distribution with parameters:

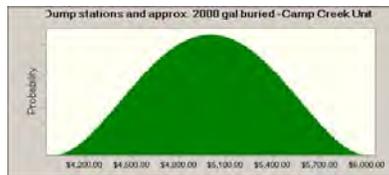
Mean	1	(=L176)
Std. Dev.	0	(=0.000001)



Assumption: 162 Dump stations and approx. 2000 gal buried -Camp Creek Unit Price Cell: R176

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q176)
Likeliest	\$5,000.00	(=R176)
Maximum	\$6,000.00	(=S176)

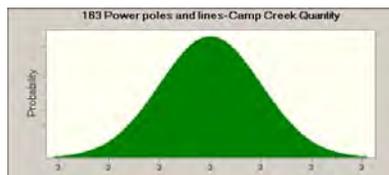


Assumption: 163 Power poles and lines-Camp Creek Quantity

Cell: L177

Normal distribution with parameters:

Mean	3	(=L177)
Std. Dev.	0	(=0.000001)



Assumption: 163 Power poles and lines-Camp Creek Unit Price

Cell: R177

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q177)
Likeliest	\$1,500.00	(=R177)
Maximum	\$2,000.00	(=S177)

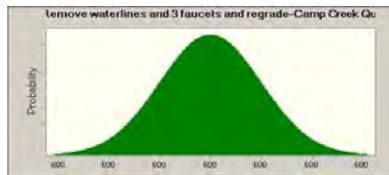


Assumption: 164 Remove waterlines and 3 faucets and regrade-Camp Creek Quantities

Cell: L178

Normal distribution with parameters:

Mean	600	(=L178)
Std. Dev.	0	(=0.000001)



Assumption: 164 Remove waterlines and 3 faucets and regrade-Camp Creek Unit Price

Cell: R178

BetaPERT distribution with parameters:

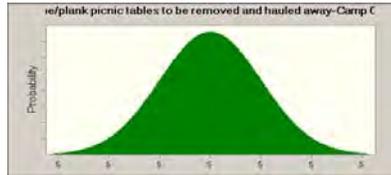
Minimum	\$4.00	(=Q178)
Likeliest	\$5.00	(=R178)
Maximum	\$6.00	(=S178)



Assumption: 166 Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek

Normal distribution with parameters:

Mean	5	(=L180)
Std. Dev.	0	(=0.000001)



Assumption: 166 Steel pipe/plank picnic tables to be removed and hauled away-Camp Creek

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q180)
Likeliest	\$100.00	(=R180)
Maximum	\$120.00	(=S180)

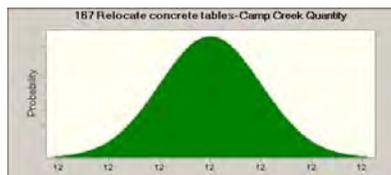


Assumption: 167 Relocate concrete tables-Camp Creek Quantity

Cell: L181

Normal distribution with parameters:

Mean	12	(=L181)
Std. Dev.	0	(=0.000001)

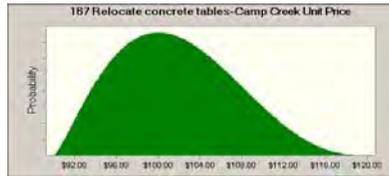


Assumption: 167 Relocate concrete tables-Camp Creek Unit Price

Cell: R181

BetaPERT distribution with parameters:

Minimum	\$90.00	(=Q181)
Likeliest	\$100.00	(=R181)
Maximum	\$120.00	(=S181)

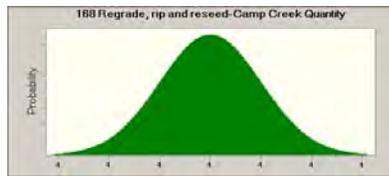


Assumption: 168 Regrade, rip and reseed-Camp Creek Quantity

Cell: L182

Normal distribution with parameters:

Mean	4	(=L182)
Std. Dev.	0	(=0.000001)



Assumption: 168 Regrade, rip and reseed-Camp Creek Unit Price

Cell: R182

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q182)
Likeliest	\$25,000.00	(=R182)
Maximum	\$30,000.00	(=S182)



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

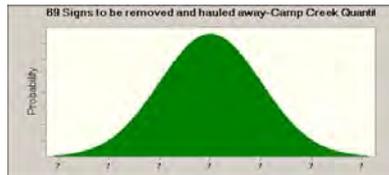
Iron Gate - Partial Removal Crystal Ball - without Escalation - 2011-04.xls

Assumption: 169 Signs to be removed and hauled away-Camp Creek Quantity

Cell: L183

Normal distribution with parameters:

Mean 7 (=L183)
Std. Dev. 0 (=0.000001)



Assumption: 169 Signs to be removed and hauled away-Camp Creek Unit Price

Cell: R183

BetaPERT distribution with parameters:

Minimum \$250.00 (=Q183)
Likeliest \$300.00 (=R183)
Maximum \$350.00 (=S183)



Assumption: 17 Remove Steel Footbridge to Gate Tower Quantity

Cell: L30

Normal distribution with parameters:

Mean 13,000 (=L30)
Std. Dev. 0 (=0.000001)

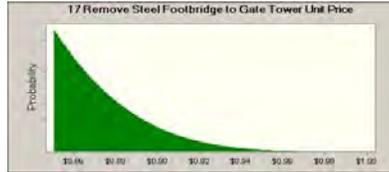


Assumption: 17 Remove Steel Footbridge to Gate Tower Unit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$0.85	(=Q30)
Likeliest	\$0.85	(=R30)
Maximum	\$1.00	(=S30)

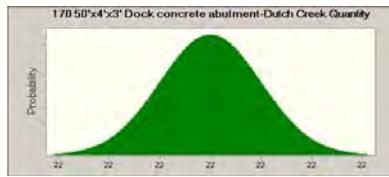


Assumption: 170 50'x4'x3' Dock concrete abutment-Dutch Creek Quantity

Cell: L184

Normal distribution with parameters:

Mean	22	(=L184)
Std. Dev.	0	(=0.000001)

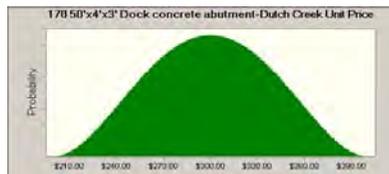


Assumption: 170 50'x4'x3' Dock concrete abutment-Dutch Creek Unit Price

Cell: R184

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q184)
Likeliest	\$300.00	(=R184)
Maximum	\$400.00	(=S184)



Assumption: 171 Double pipe railing-Dutch Creek Quantity

Cell: L185

Normal distribution with parameters:

Mean	100	(=L185)
Std. Dev.	0	(=0.000001)



Assumption: 171 Double pipe railing-Dutch Creek Unit Price

Cell: R185

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q185)
Likeliest	\$40.00	(=R185)
Maximum	\$45.00	(=S185)



Assumption: 172 Concrete total-Mirror Cove Quantity

Cell: L186

Normal distribution with parameters:

Mean	89	(=L186)
Std. Dev.	0	(=0.000001)

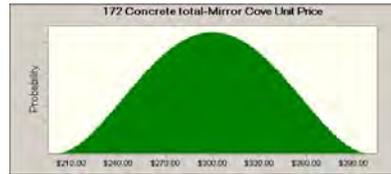


Assumption: 172 Concrete total-Mirror Cove Unit Price

Cell: R186

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q186)
Likeliest	\$300.00	(=R186)
Maximum	\$400.00	(=S186)

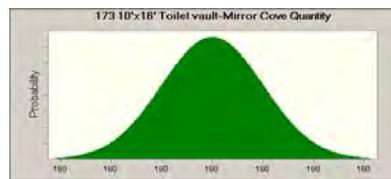


Assumption: 173 10'x16' Toilet vault-Mirror Cove Quantity

Cell: L187

Normal distribution with parameters:

Mean	160	(=L187)
Std. Dev.	0	(=0.000001)



Assumption: 173 10'x16' Toilet vault-Mirror Cove Unit Price

Cell: R187

BetaPERT distribution with parameters:

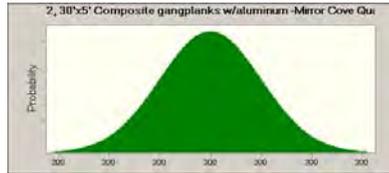
Minimum	\$90.00	(=Q187)
Likeliest	\$100.00	(=R187)
Maximum	\$120.00	(=S187)



Assumption: 174 2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove Quantity Cell: L188

Normal distribution with parameters:

Mean	300	(=L188)
Std. Dev.	0	(=0.000001)



Assumption: 174 2, 30'x5' Composite gangplanks w/aluminum -Mirror Cove Unit Price Cell: R188

BetaPERT distribution with parameters:

Minimum	\$15.00	(=Q188)
Likeliest	\$20.00	(=R188)
Maximum	\$25.00	(=S188)

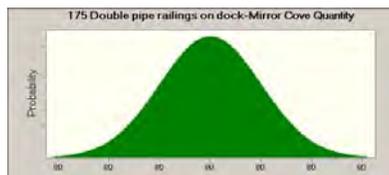


Assumption: 175 Double pipe railings on dock-Mirror Cove Quantity

Cell: L189

Normal distribution with parameters:

Mean	80	(=L189)
Std. Dev.	0	(=0.000001)



Assumption: 175 Double pipe railings on dock-Mirror Cove Unit Price

Cell: R189

BetaPERT distribution with parameters:

Minimum	\$35.00	(=Q189)
Likeliest	\$40.00	(=R189)
Maximum	\$45.00	(=S189)

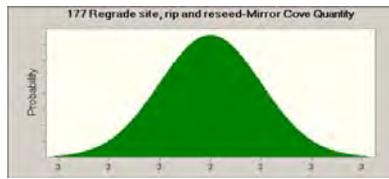


Assumption: 177 Regrade site, rip and reseed-Mirror Cove Quantity

Cell: L191

Normal distribution with parameters:

Mean	3	(=L191)
Std. Dev.	0	(=0.000001)



Assumption: 177 Regrade site, rip and reseed-Mirror Cove Unit Price

Cell: R191

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q191)
Likeliest	\$25,000.00	(=R191)
Maximum	\$30,000.00	(=S191)

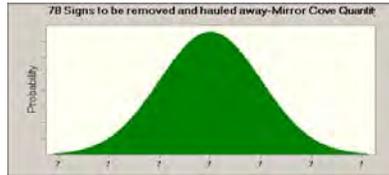


Assumption: 178 Signs to be removed and hauled away-Mirror Cove Quantity

Cell: L192

Normal distribution with parameters:

Mean 7 (=L192)
Std. Dev. 0 (=0.000001)



Assumption: 178 Signs to be removed and hauled away-Mirror Cove Unit Price

Cell: R192

BetaPERT distribution with parameters:

Minimum \$250.00 (=Q192)
Likeliest \$300.00 (=R192)
Maximum \$350.00 (=S192)

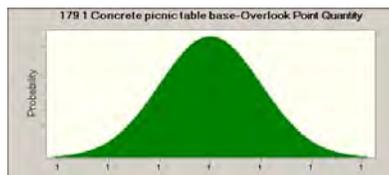


Assumption: 179 1 Concrete picnic table base-Overlook Point Quantity

Cell: L193

Normal distribution with parameters:

Mean 1 (=L193)
Std. Dev. 0 (=0.000001)



Assumption: 179 1 Concrete picnic table base-Overlook Point Unit Price

Cell: R193

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q193)
Likeliest	\$300.00	(=R193)
Maximum	\$400.00	(=S193)

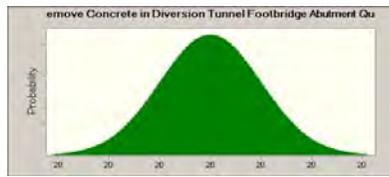


Assumption: 18 Remove Concrete in Diversion Tunnel Footbridge Abutment Quantity

Cell: L31

Normal distribution with parameters:

Mean	20	(=L31)
Std. Dev.	0	(=0.000001)

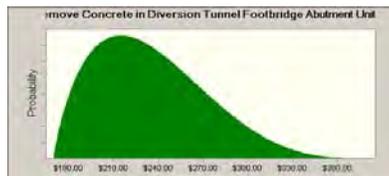


Assumption: 18 Remove Concrete in Diversion Tunnel Footbridge Abutment Unit Price

Cell: R31

BetaPERT distribution with parameters:

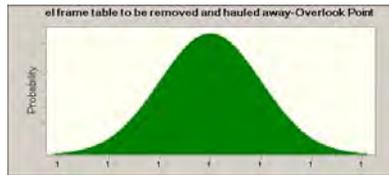
Minimum	\$170.00	(=Q31)
Likeliest	\$215.00	(=R31)
Maximum	\$380.00	(=S31)



Assumption: 180 Steel frame table to be removed and hauled away-Overlook Point Cell R194

Normal distribution with parameters:

Mean	1	(=L194)
Std. Dev.	0	(=0.000001)



Assumption: 180 Steel frame table to be removed and hauled away-Overlook Point Cell R194

BetaPERT distribution with parameters:

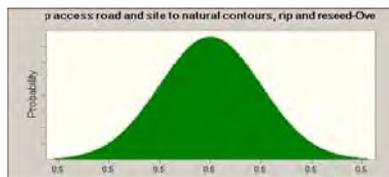
Minimum	\$90.00	(=Q194)
Likeliest	\$100.00	(=R194)
Maximum	\$120.00	(=S194)



Assumption: 181 Regrade steep access road and site to natural contours, rip and reseed-Overlook Point Cell R195

Normal distribution with parameters:

Mean	0.5	(=L195)
Std. Dev.	0.0	(=0.000001)



Assumption: 181 Regrade steep access road and site to natural contours, rip and reseed-Over Cell: R195

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q195)
Likeliest	\$25,000.00	(=R195)
Maximum	\$30,000.00	(=S195)



Assumption: 182 80'x25'x4" Concrete boat ramp to be removed-Long Gulch Quantity Cell: L196

Normal distribution with parameters:

Mean	25	(=L196)
Std. Dev.	0	(=0.000001)



Assumption: 182 80'x25'x4" Concrete boat ramp to be removed-Long Gulch Unit Price Cell: R196

BetaPERT distribution with parameters:

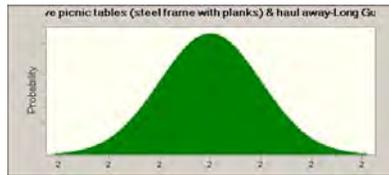
Minimum	\$200.00	(=Q196)
Likeliest	\$300.00	(=R196)
Maximum	\$400.00	(=S196)



Assumption: 183 Remove picnic tables (steel frame with planks) & haul away-Long Gulch 197

Normal distribution with parameters:

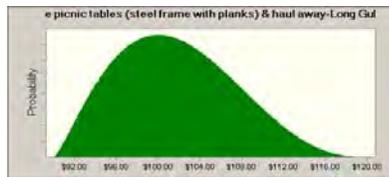
Mean 2 (=L197)
Std. Dev. 0 (=0.000001)



Assumption: 183 Remove picnic tables (steel frame with planks) & haul away-Long Gulch 197

BetaPERT distribution with parameters:

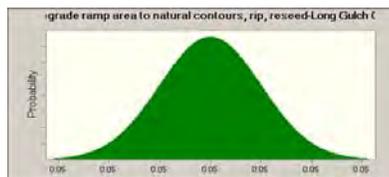
Minimum \$90.00 (=Q197)
Likeliest \$100.00 (=R197)
Maximum \$120.00 (=S197)



Assumption: 184 Regrade ramp area to natural contours, rip, reseed-Long Gulch 198

Normal distribution with parameters:

Mean 0.05 (=L198)
Std. Dev. 0.00 (=0.000001)



Assumption: 184 Regrade ramp area to natural contours, rip, reseed-Long Gulch Unit Price

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q198)
Likeliest	\$25,000.00	(=R198)
Maximum	\$30,000.00	(=S198)

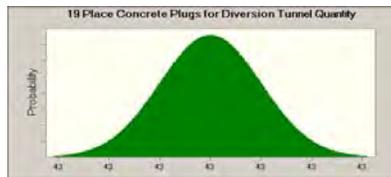


Assumption: 19 Place Concrete Plugs for Diversion Tunnel Quantity

Cell: L32

Normal distribution with parameters:

Mean	43	(=L32)
Std. Dev.	0	(=0.000001)



Assumption: 19 Place Concrete Plugs for Diversion Tunnel Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$1,100.00	(=Q32)
Likeliest	\$1,200.00	(=R32)
Maximum	\$1,300.00	(=S32)



Assumption: 20 Remove Concrete Closure Gates in Gate Tower Quantity

Cell: L33

Normal distribution with parameters:

Mean 61 (=L33)
Std. Dev. 0 (=0.000001)

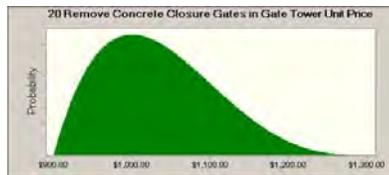


Assumption: 20 Remove Concrete Closure Gates in Gate Tower Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum \$900.00 (=Q33)
Likeliest \$1,000.00 (=R33)
Maximum \$1,300.00 (=S33)



Assumption: 21 Remove Upstream Riprap Quantity

Cell: L34

Normal distribution with parameters:

Mean 80,000 (=L34)
Std. Dev. 0 (=0.000001)



Assumption: 21 Remove Upstream Riprap Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q34)
Likeliest	\$13.00	(=R34)
Maximum	\$17.00	(=S34)

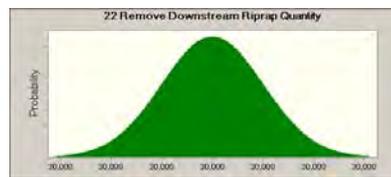


Assumption: 22 Remove Downstream Riprap Quantity

Cell: L35

Normal distribution with parameters:

Mean	30,000	(=L35)
Std. Dev.	0	(=0.000001)



Assumption: 22 Remove Downstream Riprap Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q35)
Likeliest	\$13.00	(=R35)
Maximum	\$17.00	(=S35)

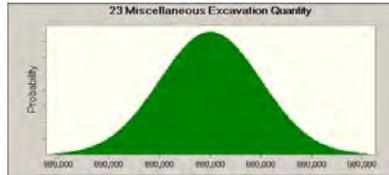


Assumption: 23 Miscellaneous Excavation Quantity

Cell: L36

Normal distribution with parameters:

Mean	880,000	(=L36)
Std. Dev.	0	(=0.000001)



Assumption: 23 Miscellaneous Excavation Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q36)
Likeliest	\$13.00	(=R36)
Maximum	\$17.00	(=S36)



Assumption: 24 Cutoff Wall Concrete Demolition Quantity

Cell: L37

Triangular distribution with parameters:

Minimum	1,000	(=K37)
Likeliest	1,250	(=L37)
Maximum	1,500	(=M37)

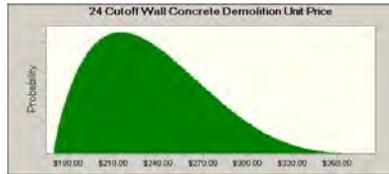


Assumption: 24 Cutoff Wall Concrete Demolition Unit Price

Cell: R37

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q37)
Likeliest	\$215.00	(=R37)
Maximum	\$380.00	(=S37)



Assumption: 25 Earth Fill Crest Raise Quantity

Cell: L38

Normal distribution with parameters:

Mean	13,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Earth Fill Crest Raise Unit Price

Cell: R38

BetaPERT distribution with parameters:

Minimum	\$10.00	(=Q38)
Likeliest	\$13.00	(=R38)
Maximum	\$17.00	(=S38)



Assumption: 26 Sheetpile Crest Raise Quantity

Cell: L39

Normal distribution with parameters:

Mean 800 (=L39)
Std. Dev. 0 (=0.000001)



Assumption: 26 Sheetpile Crest Raise Unit Price

Cell: R39

BetaPERT distribution with parameters:

Minimum \$200.00 (=Q39)
Likeliest \$250.00 (=R39)
Maximum \$300.00 (=S39)

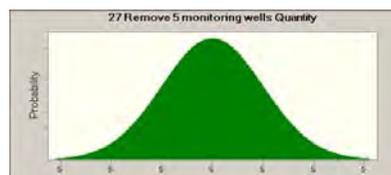


Assumption: 27 Remove 5 monitoring wells Quantity

Cell: L40

Normal distribution with parameters:

Mean 5 (=L40)
Std. Dev. 0 (=0.000001)



Assumption: 27 Remove 5 monitoring wells Unit Price

Cell: R40

BetaPERT distribution with parameters:

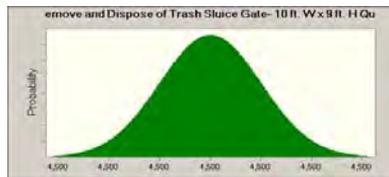
Minimum	\$1,900.00	(=Q40)
Likeliest	\$2,000.00	(=R40)
Maximum	\$2,200.00	(=S40)



Assumption: 28 Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H QuantityCell: L41

Normal distribution with parameters:

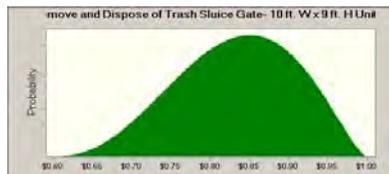
Mean	4,500	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove and Dispose of Trash Sluice Gate- 10 ft. W x 9 ft. H Unit PriceCell: R41

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q41)
Likeliest	\$0.85	(=R41)
Maximum	\$1.00	(=S41)



Assumption: 29 Remove and Dispose of Intake structure Quantity

Cell: L42

Normal distribution with parameters:

Mean	72,000	(=L42)
Std. Dev.	0	(=0.000001)

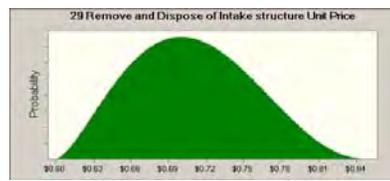


Assumption: 29 Remove and Dispose of Intake structure Unit Price

Cell: R42

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q42)
Likeliest	\$0.70	(=R42)
Maximum	\$0.85	(=S42)

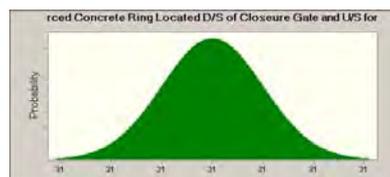


Assumption: 3 Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S for

Cell: L16

Normal distribution with parameters:

Mean	31	(=L16)
Std. Dev.	0	(=0.000001)



Assumption: 3 Remove Reinforced Concrete Ring Located D/S of Closure Gate and U/S R16

BetaPERT distribution with parameters:

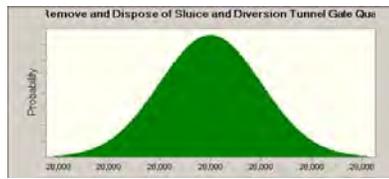
Minimum	\$1,300.00	(=Q16)
Likeliest	\$1,500.00	(=R16)
Maximum	\$1,800.00	(=S16)



Assumption: 30 Remove and Dispose of Sluice and Diversion Tunnel Gate Quantity Cell: L43

Normal distribution with parameters:

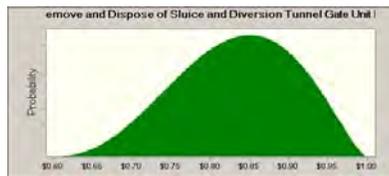
Mean	28,000	(=L43)
Std. Dev.	0	(=0.000001)



Assumption: 30 Remove and Dispose of Sluice and Diversion Tunnel Gate Unit Price Cell: R43

BetaPERT distribution with parameters:

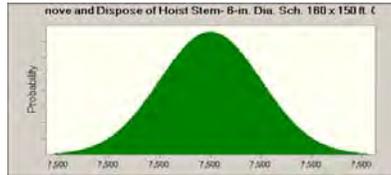
Minimum	\$0.60	(=Q43)
Likeliest	\$0.85	(=R43)
Maximum	\$1.00	(=S43)



Assumption: 31 Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Quantity: L44

Normal distribution with parameters:

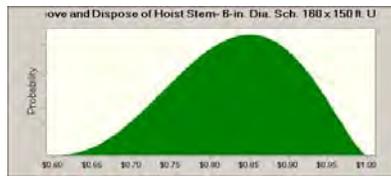
Mean 7,500 (=L44)
Std. Dev. 0 (=0.000001)



Assumption: 31 Remove and Dispose of Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Unit Cost: R44

BetaPERT distribution with parameters:

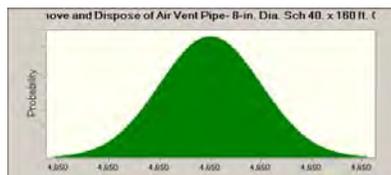
Minimum \$0.60 (=Q44)
Likeliest \$0.85 (=R44)
Maximum \$1.00 (=S44)



Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Quantity: L45

Normal distribution with parameters:

Mean 4,650 (=L45)
Std. Dev. 0 (=0.000001)



Assumption: 32 Remove and Dispose of Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Unit Price R45

BetaPERT distribution with parameters:

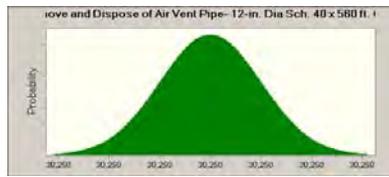
Minimum	\$1.50	(=Q45)
Likeliest	\$2.00	(=R45)
Maximum	\$3.00	(=S45)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Quantity L47

Normal distribution with parameters:

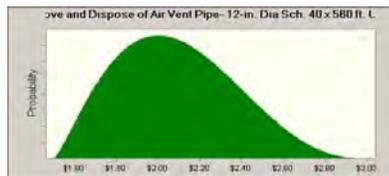
Mean	30,250	(=L47)
Std. Dev.	0	(=0.000001)



Assumption: 34 Remove and Dispose of Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. Unit Price R47

BetaPERT distribution with parameters:

Minimum	\$1.50	(=Q47)
Likeliest	\$2.00	(=R47)
Maximum	\$3.00	(=S47)



Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Quantity

Cell: L48

Normal distribution with parameters:

Mean	2,670	(=L48)
Std. Dev.	0	(=0.000001)

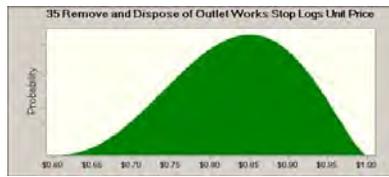


Assumption: 35 Remove and Dispose of Outlet Works Stop Logs Unit Price

Cell: R48

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q48)
Likeliest	\$0.85	(=R48)
Maximum	\$1.00	(=S48)

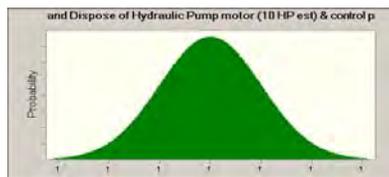


Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel

Cell: L49

Normal distribution with parameters:

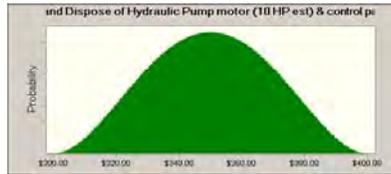
Mean	1	(=L49)
Std. Dev.	0	(=0.000001)



Assumption: 36 Remove and Dispose of Hydraulic Pump motor (10 HP est) & control panel

BetaPERT distribution with parameters:

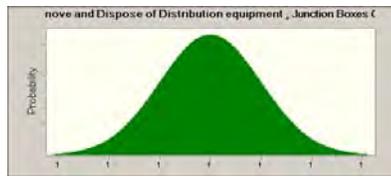
Minimum	\$300.00	(=Q49)
Likeliest	\$350.00	(=R49)
Maximum	\$400.00	(=S49)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Quality

Normal distribution with parameters:

Mean	1	(=L50)
Std. Dev.	0	(=0.000001)



Assumption: 37 Remove and Dispose of Distribution equipment , Junction Boxes Under

BetaPERT distribution with parameters:

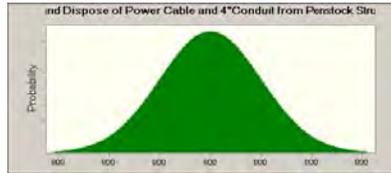
Minimum	\$1,500.00	(=Q50)
Likeliest	\$1,700.00	(=R50)
Maximum	\$2,000.00	(=S50)



Assumption: 38 Remove and Dispose of Power Cable and 4" Conduit from Penstock Structure **Cell: L51**

Normal distribution with parameters:

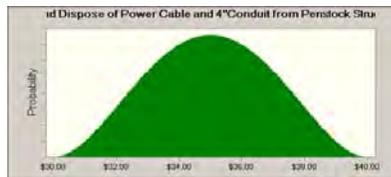
Mean	800	(=L51)
Std. Dev.	0	(=0.000001)



Assumption: 38 Remove and Dispose of Power Cable and 4" Conduit from Penstock Structure **Cell: R51**

BetaPERT distribution with parameters:

Minimum	\$30.00	(=Q51)
Likeliest	\$35.00	(=R51)
Maximum	\$40.00	(=S51)

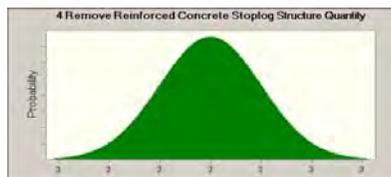


Assumption: 4 Remove Reinforced Concrete Stoplog Structure Quantity

Cell: L17

Normal distribution with parameters:

Mean	3	(=L17)
Std. Dev.	0	(=0.000001)

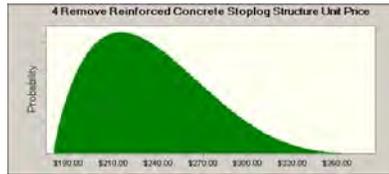


Assumption: 4 Remove Reinforced Concrete Stoplog Structure Unit Price

Cell: R17

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q17)
Likeliest	\$215.00	(=R17)
Maximum	\$380.00	(=S17)

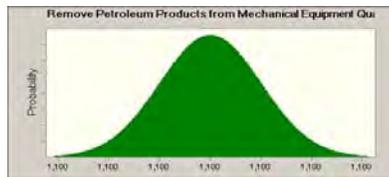


Assumption: 53A Remove Petroleum Products from Mechanical Equipment Quantity

Cell: L67

Normal distribution with parameters:

Mean	1,100	(=L67)
Std. Dev.	0	(=0.000001)



Assumption: 53A Remove Petroleum Products from Mechanical Equipment Unit Price

Cell: R67

BetaPERT distribution with parameters:

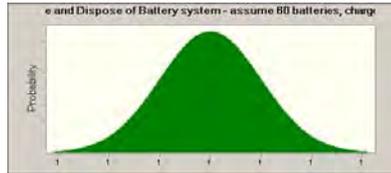
Minimum	\$9.00	(=Q67)
Likeliest	\$10.00	(=R67)
Maximum	\$12.00	(=S67)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge Cell L74

Normal distribution with parameters:

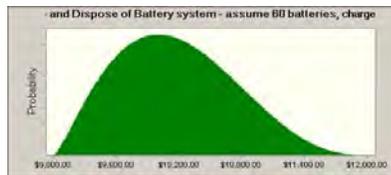
Mean	1	(=L74)
Std. Dev.	0	(=0.000001)



Assumption: 60 Remove and Dispose of Battery system - assume 60 batteries, charge Cell R74

BetaPERT distribution with parameters:

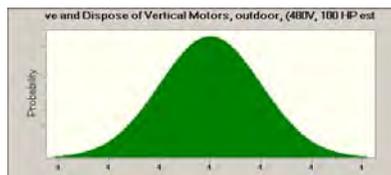
Minimum	\$9,000.00	(=Q74)
Likeliest	\$10,000.00	(=R74)
Maximum	\$12,000.00	(=S74)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est.) Cell L79

Normal distribution with parameters:

Mean	4	(=L79)
Std. Dev.	0	(=0.000001)



Assumption: 65 Remove and Dispose of Vertical Motors, outdoor, (480V, 100 HP est. Cost) R79

BetaPERT distribution with parameters:

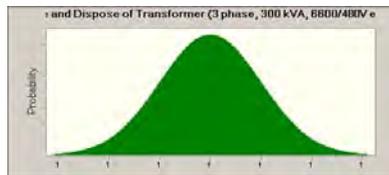
Minimum	\$500.00	(=Q79)
Likeliest	\$600.00	(=R79)
Maximum	\$700.00	(=S79)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est. Cost) L80

Normal distribution with parameters:

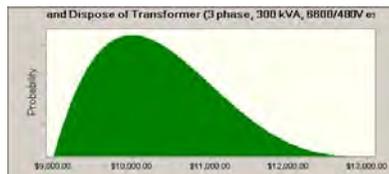
Mean	1	(=L80)
Std. Dev.	0	(=0.000001)



Assumption: 66 Remove and Dispose of Transformer (3 phase, 300 kVA, 6600/480V est. Cost) R80

BetaPERT distribution with parameters:

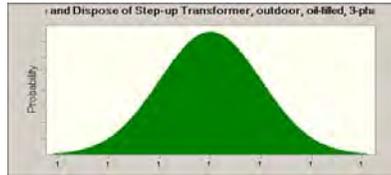
Minimum	\$9,000.00	(=Q80)
Likeliest	\$10,000.00	(=R80)
Maximum	\$13,000.00	(=S80)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase, L81

Normal distribution with parameters:

Mean	1	(=L81)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove and Dispose of Step-up Transformer, outdoor, oil-filled, 3-phase, R81

BetaPERT distribution with parameters:

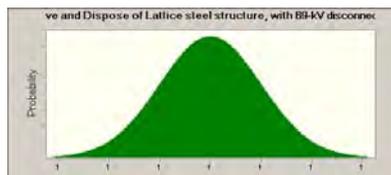
Minimum	\$90,000.00	(=Q81)
Likeliest	\$100,000.00	(=R81)
Maximum	\$120,000.00	(=S81)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnect, L82

Normal distribution with parameters:

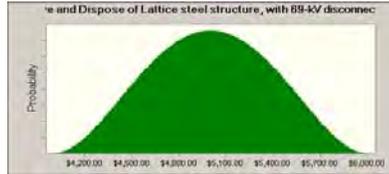
Mean	1	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 68 Remove and Dispose of Lattice steel structure, with 69-kV disconnection Cell R82

BetaPERT distribution with parameters:

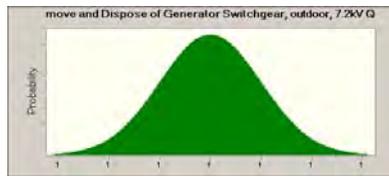
Minimum	\$4,000.00	(=Q82)
Likeliest	\$5,000.00	(=R82)
Maximum	\$6,000.00	(=S82)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Quantity: L83

Normal distribution with parameters:

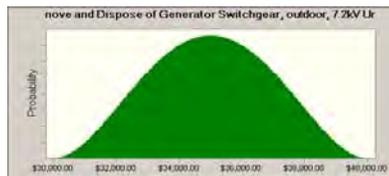
Mean	1	(=L83)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove and Dispose of Generator Switchgear, outdoor, 7.2kV Unit Price R83

BetaPERT distribution with parameters:

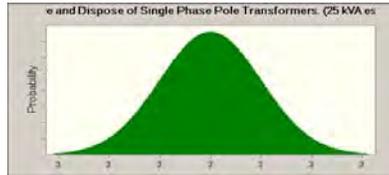
Minimum	\$30,000.00	(=Q83)
Likeliest	\$35,000.00	(=R83)
Maximum	\$40,000.00	(=S83)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es) Cell: L84

Normal distribution with parameters:

Mean	3	(=L84)
Std. Dev.	0	(=0.000001)



Assumption: 70 Remove and Dispose of Single Phase Pole Transformers. (25 kVA es) Cell: L84

BetaPERT distribution with parameters:

Minimum	\$1,500.00	(=Q84)
Likeliest	\$2,000.00	(=R84)
Maximum	\$3,000.00	(=S84)



Assumption: 71 Remove Concrete in Penstock Intake Structure Quantity

Cell: L85

Normal distribution with parameters:

Mean	460	(=L85)
Std. Dev.	0	(=0.000001)

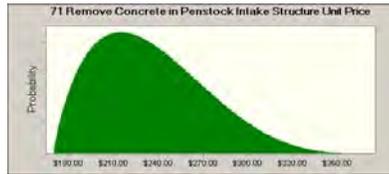


Assumption: 71 Remove Concrete in Penstock Intake Structure Unit Price

Cell: R85

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q85)
Likeliest	\$215.00	(=R85)
Maximum	\$380.00	(=S85)

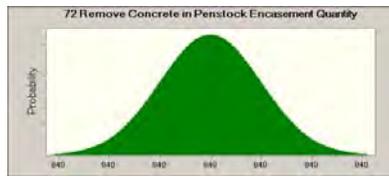


Assumption: 72 Remove Concrete in Penstock Encasement Quantity

Cell: L86

Normal distribution with parameters:

Mean	840	(=L86)
Std. Dev.	0	(=0.000001)

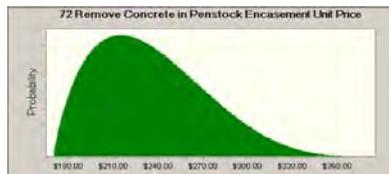


Assumption: 72 Remove Concrete in Penstock Encasement Unit Price

Cell: R86

BetaPERT distribution with parameters:

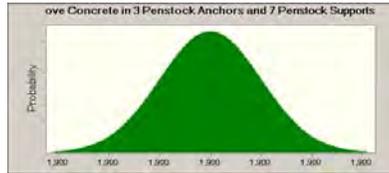
Minimum	\$170.00	(=Q86)
Likeliest	\$215.00	(=R86)
Maximum	\$380.00	(=S86)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports **Cell: L87**

Normal distribution with parameters:

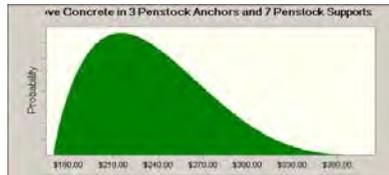
Mean 1,900 (=L87)
Std. Dev. 0 (=0.000001)



Assumption: 73 Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports **Cell: R87**

BetaPERT distribution with parameters:

Minimum \$170.00 (=Q87)
Likeliest \$215.00 (=R87)
Maximum \$380.00 (=S87)



Assumption: 74 Remove Steel Footbridge to Intake Structure Quantity

Cell: L88

Normal distribution with parameters:

Mean 11,000 (=L88)
Std. Dev. 0 (=0.000001)



Assumption: 74 Remove Steel Footbridge to Intake Structure Unit Price

Cell: R88

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q88)
Likeliest	\$0.85	(=R88)
Maximum	\$1.00	(=S88)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Quantity **Cell: L89**

Normal distribution with parameters:

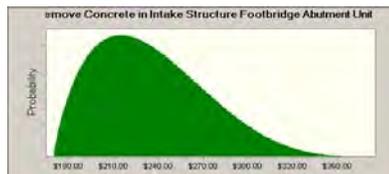
Mean	5	(=L89)
Std. Dev.	0	(=0.000001)



Assumption: 75 Remove Concrete in Intake Structure Footbridge Abutment Unit Price **Cell: R89**

BetaPERT distribution with parameters:

Minimum	\$170.00	(=Q89)
Likeliest	\$215.00	(=R89)
Maximum	\$380.00	(=S89)



Assumption: 76 Remove and Dispose of Intake Structure Quantity

Cell: L90

Normal distribution with parameters:

Mean	131,630	(=L90)
Std. Dev.	0	(=0.000001)

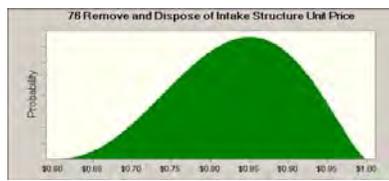


Assumption: 76 Remove and Dispose of Intake Structure Unit Price

Cell: R90

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q90)
Likeliest	\$0.85	(=R90)
Maximum	\$1.00	(=S90)

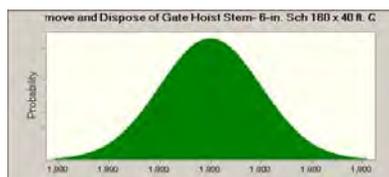


Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Quantity

Cell: L91

Normal distribution with parameters:

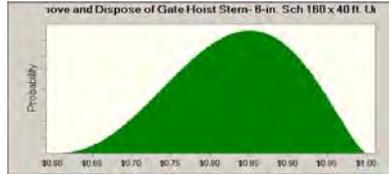
Mean	1,800	(=L91)
Std. Dev.	0	(=0.000001)



Assumption: 77 Remove and Dispose of Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Unit Price R91

BetaPERT distribution with parameters:

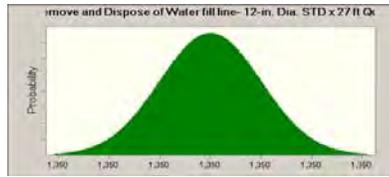
Minimum	\$0.60	(=Q91)
Likeliest	\$0.85	(=R91)
Maximum	\$1.00	(=S91)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Quantity Cell: L92

Normal distribution with parameters:

Mean	1,350	(=L92)
Std. Dev.	0	(=0.000001)



Assumption: 78 Remove and Dispose of Water fill line- 12-in. Dia. STD x 27 ft Unit Price Cell: R92

BetaPERT distribution with parameters:

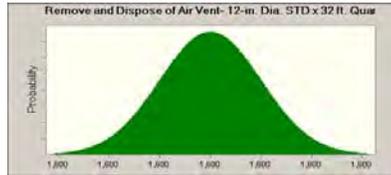
Minimum	\$0.60	(=Q92)
Likeliest	\$0.85	(=R92)
Maximum	\$1.00	(=S92)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Quantity Cell: L93

Normal distribution with parameters:

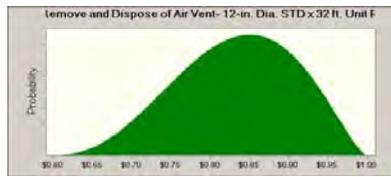
Mean 1,600 (=L93)
 Std. Dev. 0 (=0.000001)



Assumption: 79 Remove and Dispose of Air Vent- 12-in. Dia. STD x 32 ft. Unit Price Cell: R93

BetaPERT distribution with parameters:

Minimum \$0.60 (=Q93)
 Likeliest \$0.85 (=R93)
 Maximum \$1.00 (=S93)

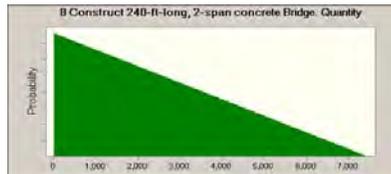


Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Quantity

Cell: L21

Triangular distribution with parameters:

Minimum 0 (=K21)
 Likeliest 0 (=L21)
 Maximum 7,440 (=M21)

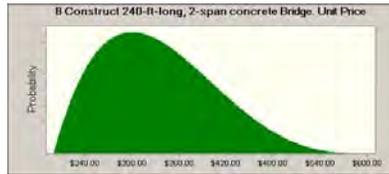


Assumption: 8 Construct 240-ft-long, 2-span concrete Bridge. Unit Price

Cell: R21

BetaPERT distribution with parameters:

Minimum	\$200.00	(=Q21)
Likeliest	\$300.00	(=R21)
Maximum	\$600.00	(=S21)

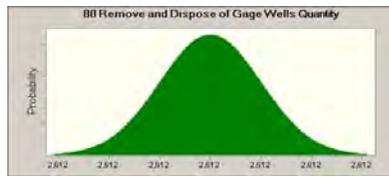


Assumption: 80 Remove and Dispose of Gage Wells Quantity

Cell: L94

Normal distribution with parameters:

Mean	2,612	(=L94)
Std. Dev.	0	(=0.000001)



Assumption: 80 Remove and Dispose of Gage Wells Unit Price

Cell: R94

BetaPERT distribution with parameters:

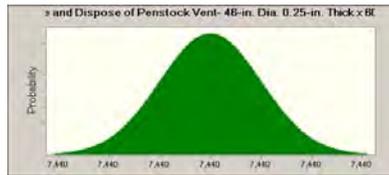
Minimum	\$0.60	(=Q94)
Likeliest	\$0.85	(=R94)
Maximum	\$1.00	(=S94)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 600 ft. @ \$195

Normal distribution with parameters:

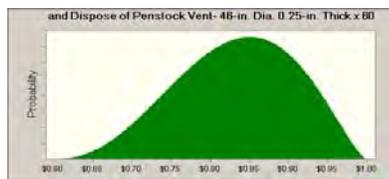
Mean	7,440	(=L95)
Std. Dev.	0	(=0.000001)



Assumption: 81 Remove and Dispose of Penstock Vent- 46-in. Dia. 0.25-in. Thick x 600 ft. @ \$195

BetaPERT distribution with parameters:

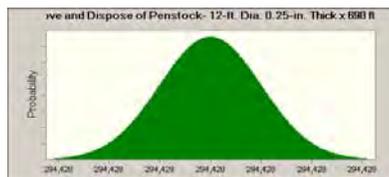
Minimum	\$0.60	(=Q95)
Likeliest	\$0.85	(=R95)
Maximum	\$1.00	(=S95)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. @ \$196

Normal distribution with parameters:

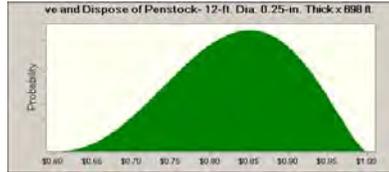
Mean	294,428	(=L96)
Std. Dev.	0	(=0.000001)



Assumption: 82 Remove and Dispose of Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Cell: R96

BetaPERT distribution with parameters:

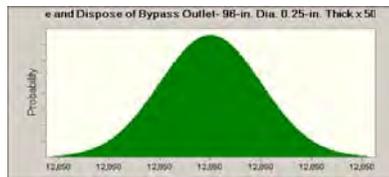
Minimum	\$0.60	(=Q96)
Likeliest	\$0.85	(=R96)
Maximum	\$1.00	(=S96)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 506 ft. Cell: L97

Normal distribution with parameters:

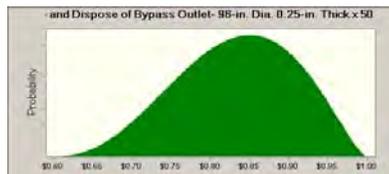
Mean	12,850	(=L97)
Std. Dev.	0	(=0.000001)



Assumption: 83 Remove and Dispose of Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 506 ft. Cell: R97

BetaPERT distribution with parameters:

Minimum	\$0.60	(=Q97)
Likeliest	\$0.85	(=R97)
Maximum	\$1.00	(=S97)



Assumption: 85 Remove & Dispose Overhead Trolley Crane Motor (4hp est)& control Cell: R99

BetaPERT distribution with parameters:

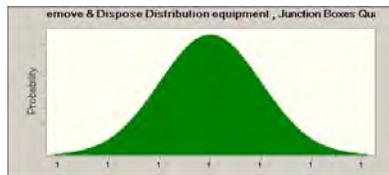
Minimum	\$900.00	(=Q99)
Likeliest	\$1,000.00	(=R99)
Maximum	\$1,300.00	(=S99)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Quantity: L100

Normal distribution with parameters:

Mean	1	(=L100)
Std. Dev.	0	(=0.000001)



Assumption: 86 Remove & Dispose Distribution equipment , Junction Boxes Unit Cost: R100

BetaPERT distribution with parameters:

Minimum	\$2,000.00	(=Q100)
Likeliest	\$2,500.00	(=R100)
Maximum	\$3,000.00	(=S100)

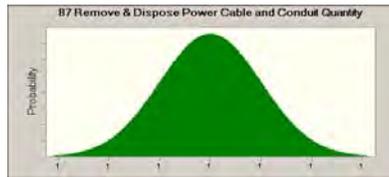


Assumption: 87 Remove & Dispose Power Cable and Conduit Quantity

Cell: L101

Normal distribution with parameters:

Mean	1	(=L101)
Std. Dev.	0	(=0.000001)

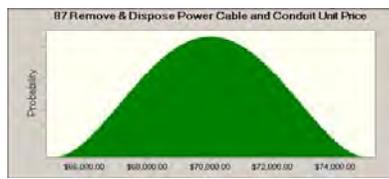


Assumption: 87 Remove & Dispose Power Cable and Conduit Unit Price

Cell: R101

BetaPERT distribution with parameters:

Minimum	\$65,000.00	(=Q101)
Likeliest	\$70,000.00	(=R101)
Maximum	\$75,000.00	(=S101)



Assumption: 88 Temporary Access Roads Quantity

Cell: L102

Normal distribution with parameters:

Mean	2.6	(=L102)
Std. Dev.	0.0	(=0.000001)



Assumption: 88 Temporary Access Roads Unit Price

Cell: R102

BetaPERT distribution with parameters:

Minimum	\$150,000.00	(=Q102)
Likeliest	\$250,000.00	(=S102)
Maximum	\$300,000.00	(=R102)

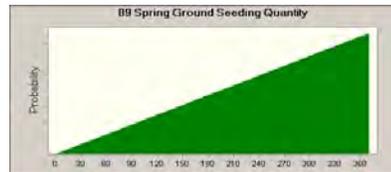


Assumption: 89 Spring Ground Seeding Quantity

Cell: L103

Triangular distribution with parameters:

Minimum	0	(=M103)
Likeliest	370	(=L103)
Maximum	370	(=K103)



Assumption: 89 Spring Ground Seeding Unit Price

Cell: R103

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q103)
Likeliest	\$3,500.00	(=R103)
Maximum	\$4,000.00	(=S103)

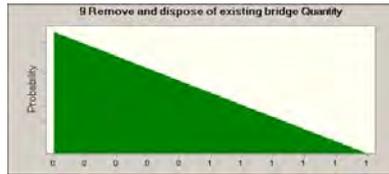


Assumption: 9 Remove and dispose of existing bridge Quantity

Cell: L22

Triangular distribution with parameters:

Minimum	0	(=K22)
Likeliest	0	(=L22)
Maximum	1	(=M22)

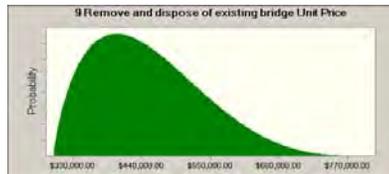


Assumption: 9 Remove and dispose of existing bridge Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$300,000.00	(=Q22)
Likeliest	\$400,000.00	(=R22)
Maximum	\$800,000.00	(=S22)

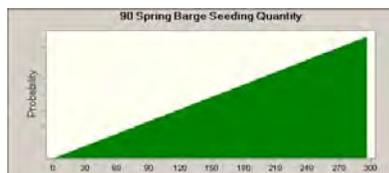


Assumption: 90 Spring Barge Seeding Quantity

Cell: L104

Triangular distribution with parameters:

Minimum	0	(=M104)
Likeliest	296	(=L104)
Maximum	296	(=K104)



Assumption: 90 Spring Barge Seeding Unit Price

Cell: R104

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q104)
Likeliest	\$6,500.00	(=R104)
Maximum	\$8,000.00	(=S104)

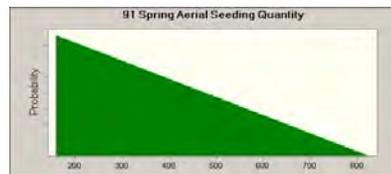


Assumption: 91 Spring Aerial Seeding Quantity

Cell: L105

Triangular distribution with parameters:

Minimum	159	(=K105)
Likeliest	159	(=L105)
Maximum	825	(=M105)

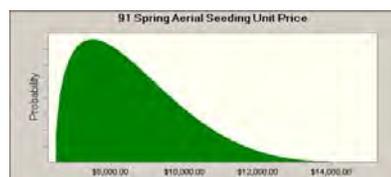


Assumption: 91 Spring Aerial Seeding Unit Price

Cell: R105

BetaPERT distribution with parameters:

Minimum	\$6,500.00	(=Q105)
Likeliest	\$7,500.00	(=R105)
Maximum	\$15,000.00	(=S105)

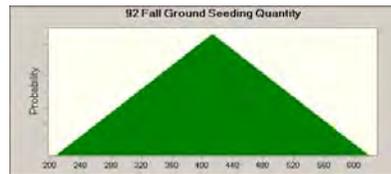


Assumption: 92 Fall Ground Seeding Quantity

Cell: L106

Triangular distribution with parameters:

Minimum	207	(=K106)
Likeliest	413	(=L106)
Maximum	619	(=M106)



Assumption: 92 Fall Ground Seeding Unit Price

Cell: R106

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q106)
Likeliest	\$3,500.00	(=R106)
Maximum	\$4,000.00	(=S106)

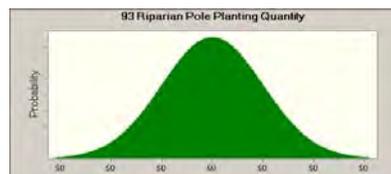


Assumption: 93 Riparian Pole Planting Quantity

Cell: L107

Normal distribution with parameters:

Mean	50	(=L107)
Std. Dev.	0	(=0.000001)

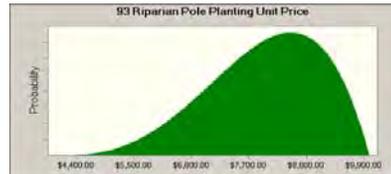


Assumption: 93 Riparian Pole Planting Unit Price

Cell: R107

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q107)
Likeliest	\$8,500.00	(=R107)
Maximum	\$10,000.00	(=S107)



Assumption: 94 Weed Management Quantity

Cell: L108

Triangular distribution with parameters:

Minimum	206	(=K108)
Likeliest	413	(=L108)
Maximum	619	(=M108)



Assumption: 94 Weed Management Unit Price

Cell: R108

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q108)
Likeliest	\$1,500.00	(=R108)
Maximum	\$2,000.00	(=S108)

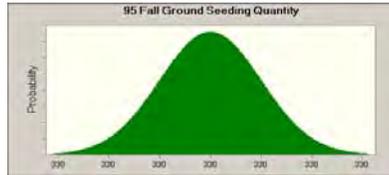


Assumption: 95 Fall Ground Seeding Quantity

Cell: L109

Normal distribution with parameters:

Mean 330 (=L109)
Std. Dev. 0 (=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price

Cell: R109

BetaPERT distribution with parameters:

Minimum \$3,000.00 (=Q109)
Likeliest \$3,500.00 (=R109)
Maximum \$4,000.00 (=S109)

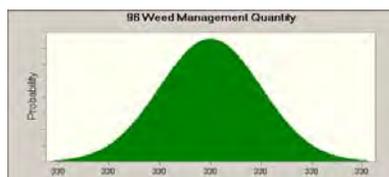


Assumption: 96 Weed Management Quantity

Cell: L110

Normal distribution with parameters:

Mean 330 (=L110)
Std. Dev. 0 (=0.000001)

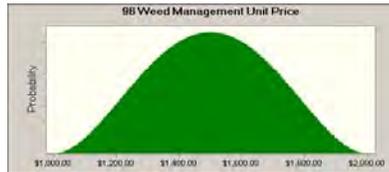


Assumption: 96 Weed Management Unit Price

Cell: R110

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q110)
Likeliest	\$1,500.00	(=R110)
Maximum	\$2,000.00	(=S110)

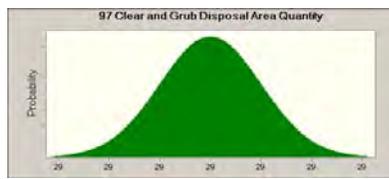


Assumption: 97 Clear and Grub Disposal Area Quantity

Cell: L111

Normal distribution with parameters:

Mean	29	(=L111)
Std. Dev.	0	(=0.000001)



Assumption: 97 Clear and Grub Disposal Area Unit Price

Cell: R111

BetaPERT distribution with parameters:

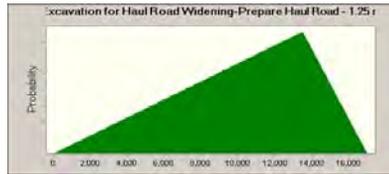
Minimum	\$5,000.00	(=Q111)
Likeliest	\$6,000.00	(=R111)
Maximum	\$7,000.00	(=S111)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi Quality 112

Triangular distribution with parameters:

Minimum	0	(=K112)
Likeliest	13,500	(=L112)
Maximum	17,000	(=M112)



Assumption: 98 Rock Excavation for Haul Road Widening-Prepare Haul Road - 1.25 mi Unit 112

BetaPERT distribution with parameters:

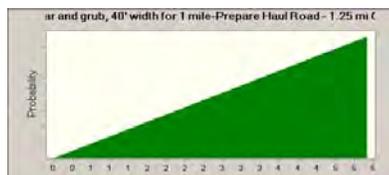
Minimum	\$35.00	(=Q112)
Likeliest	\$40.00	(=R112)
Maximum	\$45.00	(=S112)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Quality 113

Triangular distribution with parameters:

Minimum	0	(=K113)
Likeliest	5	(=L113)
Maximum	5	(=M113)



Assumption: 99 Clear and grub, 40' width for 1 mile-Prepare Haul Road - 1.25 mi Unit Price

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q113)
Likeliest	\$6,000.00	(=R113)
Maximum	\$7,000.00	(=S113)

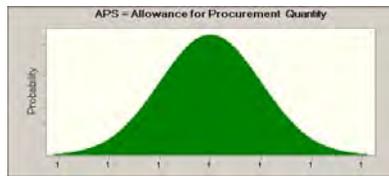


Assumption: APS = Allowance for Procurement Quantity

Cell: L207

Normal distribution with parameters:

Mean	1	(=L207)
Std. Dev.	0	(=0.000001)



Assumption: APS = Allowance for Procurement Unit Price

Cell: R207

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q207)
Likeliest	\$0.00	(=R207)
Maximum	\$1,321,067.00	(=S207)

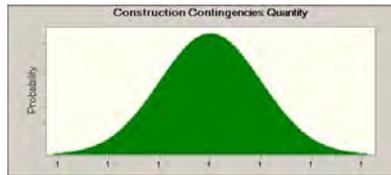


Assumption: Construction Contingencies Quantity

Cell: L210

Normal distribution with parameters:

Mean	1	(=L210)
Std. Dev.	0	(=0.000001)

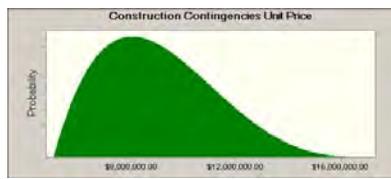


Assumption: Construction Contingencies Unit Price

Cell: R210

BetaPERT distribution with parameters:

Minimum	\$5,000,000.00	(=Q210)
Likeliest	\$8,000,000.00	(=R210)
Maximum	\$17,000,000.00	(=S210)

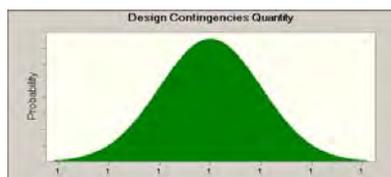


Assumption: Design Contingencies Quantity

Cell: L206

Normal distribution with parameters:

Mean	1	(=L206)
Std. Dev.	0	(=0.000001)

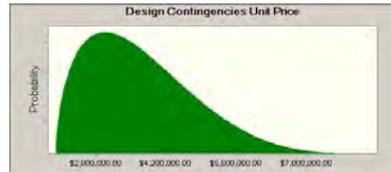


Assumption: Design Contingencies Unit Price

Cell: R206

BetaPERT distribution with parameters:

Minimum	\$1,987,310.20	(=Q206)
Likeliest	\$2,968,498.20	(=R206)
Maximum	\$8,241,250.00	(=S206)

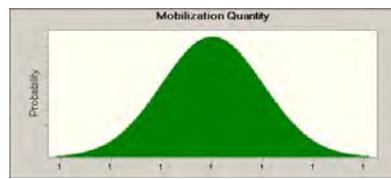


Assumption: Mobilization Quantity

Cell: L201

Normal distribution with parameters:

Mean	1	(=L201)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R201

BetaPERT distribution with parameters:

Minimum	\$1,150,000.00	(=Q201)
Likeliest	\$1,550,000.00	(=R201)
Maximum	\$2,700,000.00	(=S201)



Assumption: Non-Contract Cost Quantity

Cell: L212

Normal distribution with parameters:

Mean	1	(=L212)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R212

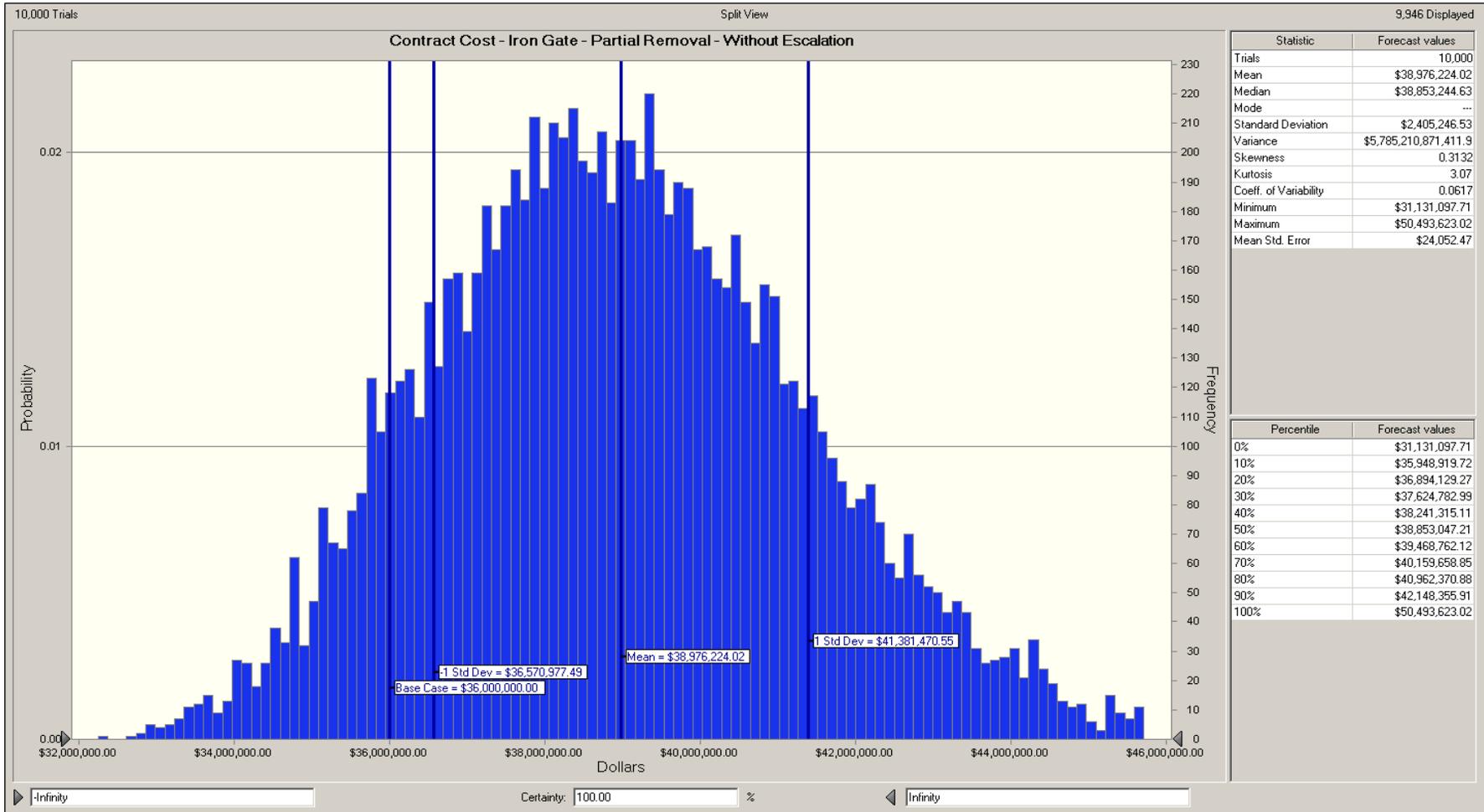
BetaPERT distribution with parameters:

Minimum	\$19,000,000.00	(=Q212)
Likeliest	\$29,000,000.00	(=R212)
Maximum	\$61,000,000.00	(=S212)

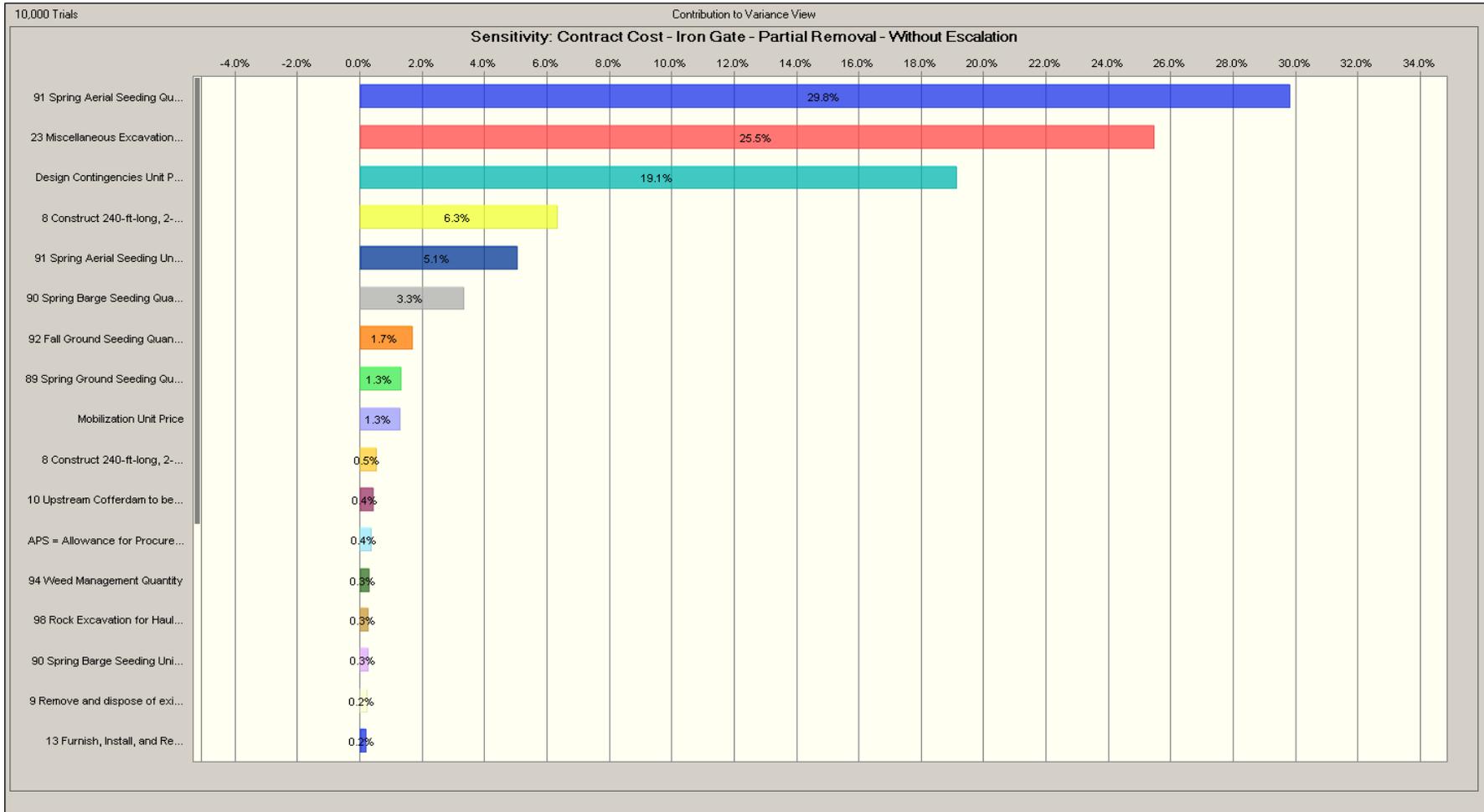


End of Assumptions

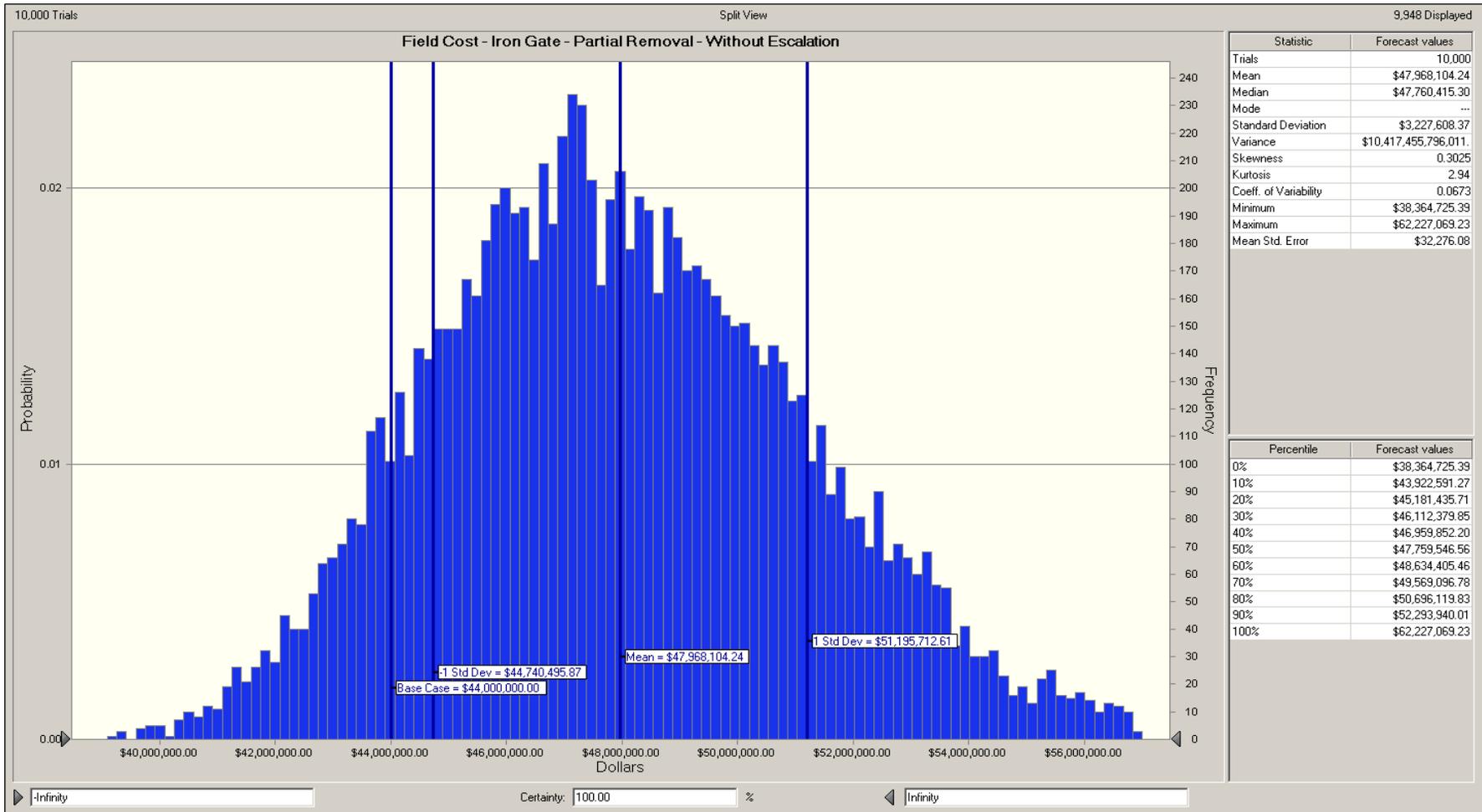
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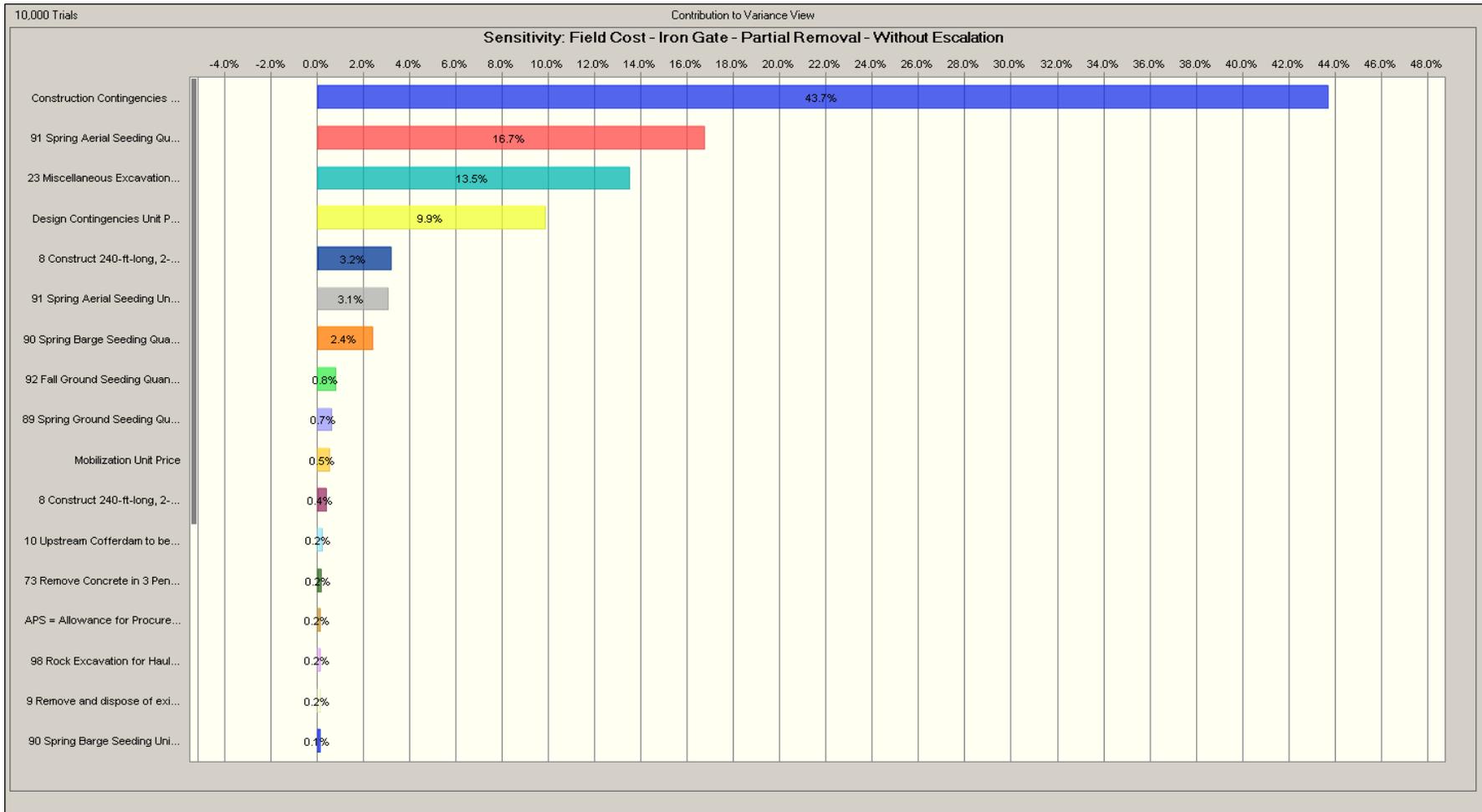
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



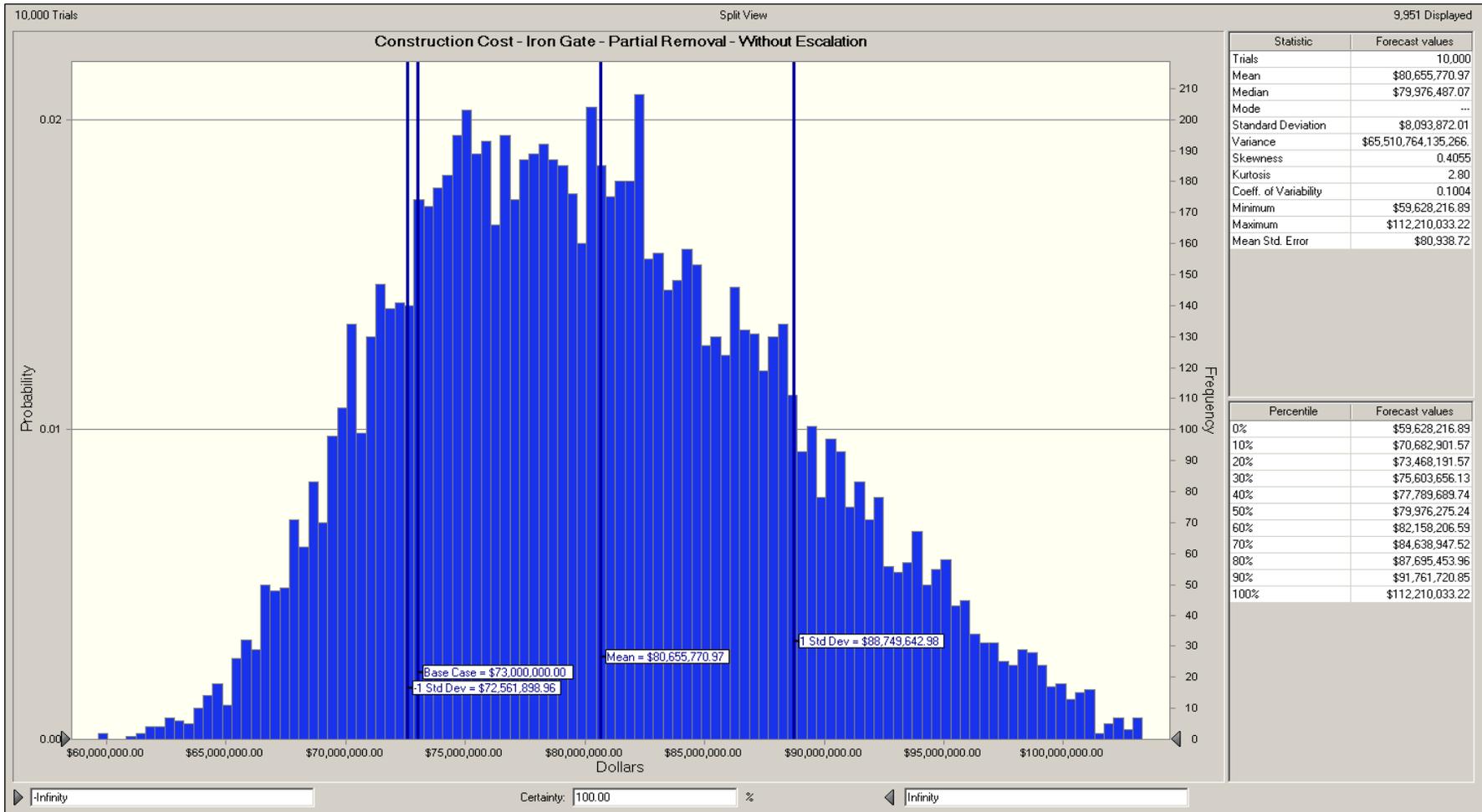
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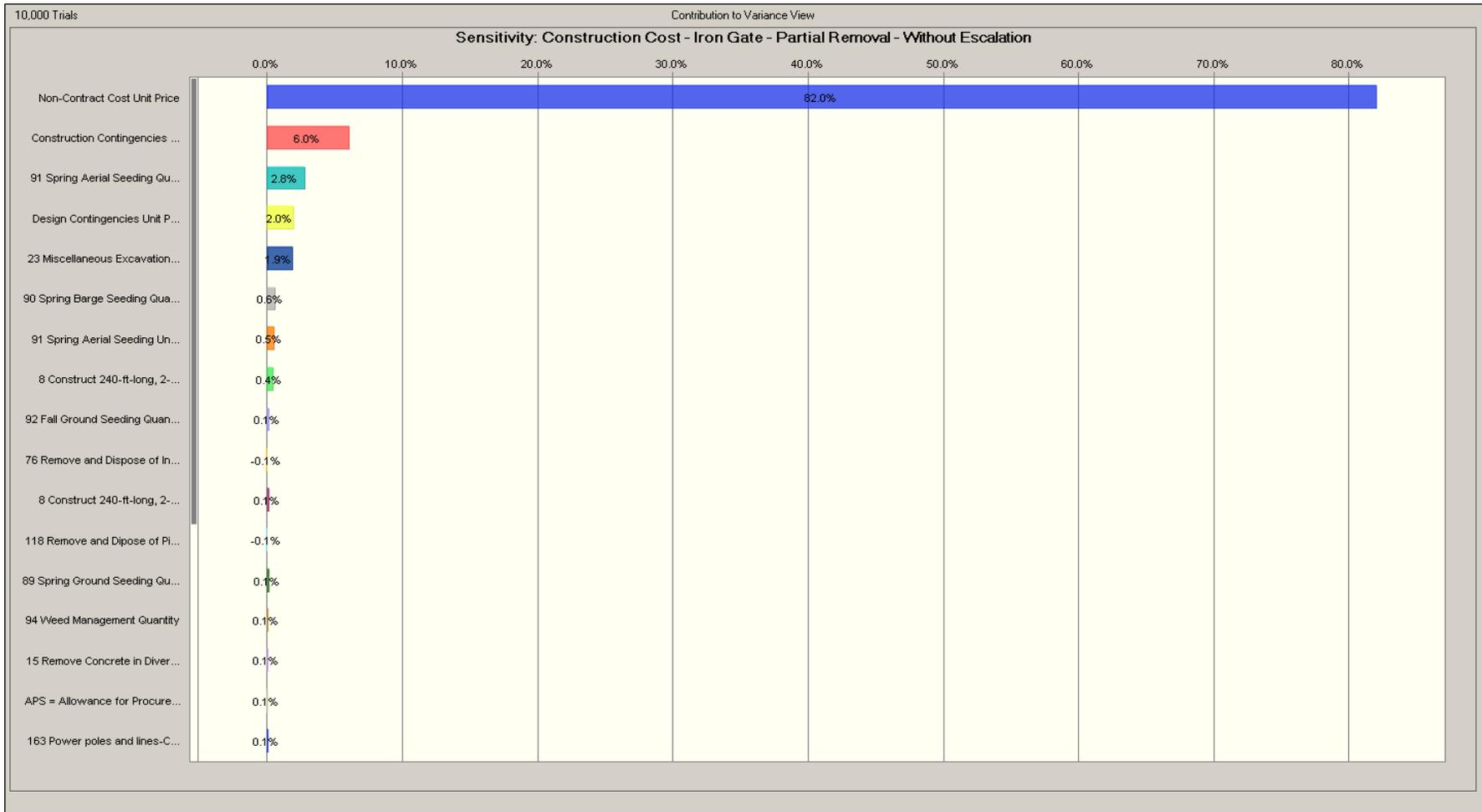
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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Diversion & Care

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge is used for removal of existing closure gates and installation of new roller gate. Barge is located on reservoir for approximately 1 week.	86-68130	1	ls		\$210,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure. Installation requires a dive depth of approximately 150 feet. Air vent consists of 12-inch diameter HDPE pipe.	86-68130	150	lf		DELETED
	3	Remove Reinforced Concrete Ring. Located just downstream of closure gate and upstream of flap gate. Tunnel work	86-68130	31	cy	\$1,800.00	\$55,800.00
	4	Remove Reinforced Concrete Stoplog Structure. Located at downstream end of diversion tunnel.	86-68130	3	cy	\$380.00	\$1,140.00
	5	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	300,000	gals	\$0.01	\$3,000.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$250,000.00
		SUBTOTAL THIS SHEET					\$519,940.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY  Craig A. Grash, P.E.	CHECKED  06-06-11
DATE PREPARED 02/19/11	PEER REVIEW / DATE Tom Hepler P.E. 2/19/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Diversion & Care

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	8	Construct 240-ft-long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft2 of deck for similar concrete bridge at Upper San Joaquin priced out in 2009.	86-68130	7,440	ft2	\$600.00	\$4,464,000.00
	9	Remove and dispose of existing bridge. Bridge is approximately 227 feet long. Consists of 9 spans @ about 25 feet (steel girders) with reinforced concrete decking (about 16 feet wide). Piers appear to be timber posts, supported on 4 or 5 pile berths. Rails along both sides are timber with concrete wheel guards. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	1	ls		\$800,000.00
SUBTOTAL THIS SHEET							\$5,264,000.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Diversion & Care
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL	86-68420				
		All items are necessary for the removal of Iron Gate Dam.					
	11	Remove 1 - 9' dia. hinged blind flange and associated metal work, including 5' of pipe spool. This will require installing and removing all fasteners on the blind flange. It assumed that these fasteners are on-site (Assume contains paint with heavy metals) Tunnel work		19,000	lbs	\$3.00	\$57,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe Weight of plug valve used: 2,000 lbs Tunnel work		2,900	lbs	\$3.00	\$8,700.00
	13	Furnish, install and remove 1 - 16.5'x18' roller gate, stem, and operator Total roller gate weight approximately: 75,900 lbs. Installation and removal requires a dive depth of approximately 150 feet.		110,000	lbs	\$18.00	\$1,980,000.00
		DIVERSION AND CARE SUBTOTAL					\$9,994,640.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED M. Gulsvig	BY Craig A. Grush, P.E.	CHECKED 06-08-11
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/11	DATE PREPARED 06/08/11	PEER REVIEW / DATE DCD 6/10/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 6 _ OF _ 41 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam				Klamath River Northern California/Southern Oregon			
		WOID: AF652		ESTIMATE LEVEL: Feasibility			
		REGION: MP		UNIT PRICE LEVEL: July-2010			
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\SSummary							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension. Observation Platform is reinforced concrete slab located on right abutment. Buried crest wall on left abutment consists of unreinforced controlled low strength material. Reinforced extension on right abutment includes reinforced concrete wall and stairs to trash gate.	86-68130	580	yd3	\$380.00	\$220,400.00
		Items are associated with the Diversion Tunnel.					
		All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure. Remove concrete upstream of Sta. 3+00. Concrete removal requires a dive depth of 150 feet.	86-68130	530	yd3	\$380.00	\$201,400.00
	16	Remove Concrete in Diversion Tunnel Gate Tower. Remove concrete down to elev. 2254.	86-68130	410	yd3	\$380.00	\$155,800.00
	17	Remove Steel Footbridge to Gate Tower. This bridge provides access from the dam crest to the gate tower for the diversion tunnel. Assume contains paint with heavy metals.	86-68130	13,000	lbs	\$1.00	\$13,000.00
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment. Includes stairs over sheetpile wall.	86-68130	20	yd3	\$380.00	\$7,600.00
	19	Place Concrete Plugs for Diversion Tunnel. There will be 3 plugs total. Two placed vertically and one horiz. Plugs will be 2 feet thick, reinforced concrete, 3,000 psi min. Location of plugs and info about openings is as follows: Upstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 3+01.0. Downstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 12+68.5. Gate tower; horizontal plug at elev. 2254, 15.5-ft by 7.5-ft, reinf. concrete, rectangular shape.	86-68130	43	yd3	\$1,300.00	\$55,900.00
SUBTOTAL THIS SHEET							\$654,100.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Sheena Barnes, Jonathan East	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

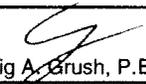
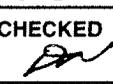
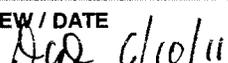
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 8 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	21	Upstream Riprap Assume max size 250 lbs, ave. 100 lbs. to waste area by truck	86-68313	80,000	yd3	\$17.00	\$1,360,000.00
	22	Downstream Riprap Assume max size 2500 lbs, ave. 500 lbs. to waste area by truck	86-68313	30,000	yd3	\$17.00	\$510,000.00
	23	Miscellaneous Excavation Consists of finer earth fill materials 300,000 cy to spillway chute by truck remainder to waste area by truck	86-68313	925,000	yd3	\$17.00	\$15,725,000.00
	24	Cutoff Wall Concrete Demolition The 2 concrete cutoff walls are embedded in the Zone III core but do not appear to be anchored into bedrock.	86-68313	1,500	yd3	\$380.00	\$570,000.00
	25	Earth Fill Crest Raise Treat as miscellaneous excavation to waste area by truck	86-68313	13,000	yd3	\$17.00	\$221,000.00
	26	Sheetpile Crest Raise Remove sheetpile wall crest raise Total height 13', embedded 9', type CS55.	86-68313	800	lin ft	\$300.00	\$240,000.00
		Monitoring Well Removal					
	27	Remove 5 monitoring wells assume 150 length, 6" diameter remove as excavation progresses	86-68313	5	each	\$2,200.00	\$11,000.00
		SUBTOTAL THIS SHEET					\$18,637,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Brush, P.E.	CHECKED  06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 9 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Spillway Structure:					
	28	Trash Sluice Gate- 10 ft. W x 9 ft. H Total gate weight approximately: 3500 lbs. Total gate hoist weight approximately: 1000 lbs Total weight approximately:	86-68420	4,500	lbs	\$1.00	\$4,500.00
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
		Remove and dispose of the following equipment of the Diversion Tunnel:					
	29	Intake structure Trash Racks- 4 rack each 10 ft. W x 33 ft. H Each rack weights approximately: 18,000 lbs Total weight approximately:	86-68420	72,000	lbs	\$0.85	\$61,200.00
		Trash rack removal requires a dive depth of 150 feet. (Assume contains asbestos)					
	30	Sluice and Diversion Tunnel Gate Gate Hoist- 2-10-in. Dia. Hydraulic cylinders Gate hoist weight approx: 10,000 lbs ea. Framework- I-Beam framework securing hoists Total framework weight approx: 8,000 lbs Total weight approximately:	86-68420	28,000	lbs	\$1.00	\$28,000.00
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
	31	Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Stem weight is 50 lbs/ft. (Assume contains paint with heavy metals & petroleum products)	86-68420	7,500	lbs	\$1.00	\$7,500.00
		SUBTOTAL THIS SHEET					\$101,200.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 10 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	32	Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Near Sluice Gate Pipe weight is 29 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	4,650	lbs	\$3.00	\$13,950.00
	33	Transition Gate Structure Flap Gate- 96-in. Dia. With 4 ft. pipe Total weight approximately: (Assume contains paint with heavy metals) Tunnel work	86-68420	8,000	lbs		DELETED
	34	Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. From Gate to Outlet Works Pipe weight is 54 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	30,250	lbs	\$3.00	\$90,750.00
	35	Outlet Works Stop Logs (steel) Total logs weight approximately: 2,310 lbs Total guide weight approximately: 360 lbs Total weight approximately: (Assume contains paint with heavy metals)	86-68420	2,670	lbs	\$1.00	\$2,670.00
SUBTOTAL THIS SHEET							\$107,370.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

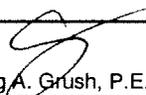
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 11 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Diversion Tunnel Gate Intake Structure:					
	36	Hydraulic Pump motor (10 HP est) & control panel Total weight approximately: 250 lbs.	86-68430	1	EA	\$400.00	\$400.00
	37	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	38	Power Cable and 4"Conduit from Penstock Structure (3 conductor 6 AWG est.) Total weight approximately: 10,400 lbs.	86-68430	800	feet	\$40.00	\$32,000.00
		DAM SUBTOTAL					\$19,613,370.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 11/18/10	PEER REVIEW / DATE  6/10/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Turbine Unit 25,000 hp, 158 ft. of head, 180 RPM D3 is calculated at 8.85 ft. Turbine weight calculated approx:	86-68420	344,058	lbs	\$1.00	\$344,058.00
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
	41	Draft Tube Bulkheads- 3-Bulkhead approx. 10 ft. W. x 10 ft. H Bulkhead weight approximately: 3000 lbs each 3-Framework weight approx: 2500 lbs each Total bulkhead weight approx:	86-68420	16,500	lbs	\$1.00	\$16,500.00
		(Assume contains paint with heavy metals and/or asbestos)					
		Remove and dispose of the following equipment of the Powerhouse Structure:					
	42	Crane- No Crane at Site, but embedded rails still exist Above Ground Steel Rails-200 ft. length Crane is presently used at J. C. Boyle	86-68420	24,000	lbs	\$1.00	\$24,000.00
		(Assume contains paint with heavy metals & petroleum products)					
	43	Governor- Accumulator tank for air over oil cylinders Governor control panel cabinet Pump for Oil Total weight approximately:	86-68420	20,310	lbs	\$1.00	\$20,310.00
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
		SUBTOTAL THIS SHEET					\$404,868.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 14 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	44	Bearing Oil System and Cooling Water System- Steel Piping of various sizes Valves of various sizes Total weight approximately:	86-68420	9,182	lbs	\$1.00	\$9,182.00
		(Assume contains paint with heavy metals & petroleum products)					
	45	CO2 System- Various sizes of piping and valves Total weight approximately:	86-68420	2,568	lbs	\$1.00	\$2,568.00
		(Assume contains paint with heavy metals & petroleum products)					
	46	Plant Water and Fire Protection System- Various sizes of piping and valves Total weight approximately:	86-68420	9,182	lbs	\$1.00	\$9,182.00
		(Assume contains paint with heavy metals)					
	47	Sump Pumps- 2-Powerhouse water removal sump pumps Sump weight approximately: 1000 lbs each Total weight approximately:	86-68420	2,000	lbs	\$1.00	\$2,000.00
		(Assume contains petroleum products and/or asbestos)					
	48	Pumps- 4-Large pumps near outlet Pump weight approximately: 3000 lbs each 4-Pump Suction Inlet Bulkhead gates approx. 10 ft. H. x 10 ft. W. Bulkhead weight approximately: 2500 lbs each Total weight approximately:	86-68420	22,000	lbs	\$1.00	\$22,000.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$44,932.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	49	Exposed Piping around the plant- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	19,291	lbs	\$1.00	\$19,291.00
	50	Unwatering Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	19,291	lbs	\$1.00	\$19,291.00
	51	Drainage Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	9,518	lbs	\$1.00	\$9,518.00
	52	Transformer Oil and Fire Protection- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	9,182	lbs	\$1.00	\$9,182.00
	53	Compressed Air System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	1,450	lbs	\$1.00	\$1,450.00
SUBTOTAL THIS SHEET							\$58,732.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>C</i> Craig A. Grish, P.E.	CHECKED <i>DW</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>Doc</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 16 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	54	AC Generator, Outdoor Horizontal 18.975 MVA (18 MW); 0.95PF, 6,600V, 180 RPM, 3 Ph, including rotating exciter Total weight approximately: 387,500 lbs. Stator: 124,600 lbs., Rotor: 189,300 lbs. Exciter Assembly: 17,000 lbs. Heaviest lift: 186,700 lbs.	86-68430	1	EA	\$130,000.00	\$130,000.00
	55	Excitation equipment for 18.975 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
	56	Surge protection equip. for 18.975 MVA Generator Total weight approximately: 800 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
	57	Neutral grounding equip. for 18.975 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
	58	Station Service Switchgear, 600 volt (-5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$25,000.00	\$25,000.00
	59	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$21,000.00	\$21,000.00
		SUBTOTAL THIS SHEET					\$187,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 17 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	60	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$12,000.00	\$12,000.00
	61	Raceways, Bus, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 100 lin. Ft. cabletray, 40 lin. Ft. non-segregated phase bus) Total weight approximately: 9,000 lbs.	86-68430	1	EA	\$17,000.00	\$17,000.00
	62	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$7,000.00	\$7,000.00
	63	Transformer (3 phase, 275 kVA, 6600/480V est.) in power house Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$11,000.00	\$11,000.00
	64	Governor Oil Pump Motors (10 hp and 20 hp est.) Total weight approximately: 450 lbs.	86-68430	2	EA	\$300.00	\$600.00
	65	Vertical Motors, outdoor, (480V, 100 HP est.) Outdoor for fish water pumps Total weight approximately: 2,000 lbs.	86-68430	4	EA	\$700.00	\$2,800.00
		SUBTOTAL THIS SHEET					\$50,400.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 18 _ OF _ 41 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line				Klamath River Northern California/Southern Oregon			
WOID: AF652		ESTIMATE LEVEL: Feasibility		REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	66	Transformer (3 phase, 300 kVA, 6600/480V est.) Outdoor for fish water pumps Total weight approximately: 2,900 lbs.	86-68430	1	EA	\$13,000.00	\$13,000.00
		Remove and dispose of the following equipment in switchyard/powerplant deck:					
	67	Step-up Transformer, outdoor, oil-filled, 3-phase, 18,947 kVA, 6,600/69,000 volt Total weight approximately: 58,000 lbs.	86-68430	1	EA	\$120,000.00	\$120,000.00
	68	Lattice steel structure, with 69-kV disconnect switches and insulators	86-68430	1	EA	\$6,000.00	\$6,000.00
	69	Generator Switchgear, outdoor, 7.2kV-includes unit breaker (5 Sections @ 2,400 lbs each section 3 ft x 7.5 ft x 95 inches high), 20 ft. non-seg. bus Total weight approximately: 12,000 lbs.	86-68430	1	EA	\$40,000.00	\$40,000.00
	70	Single Phase Pole Transformers. (25 kVA est.) Total weight approximately: 1050 lbs.	86-68430	3	EA	\$3,000.00	\$9,000.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$4,633,932.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

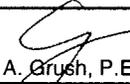
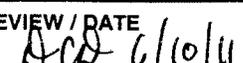
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 19 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	71	Remove Concrete in Penstock Intake Structure.	86-68130	460	yd3	\$380.00	\$174,800.00
	72	Remove Concrete in Penstock Encasement. Encasement runs through embankment from intake structure to penstock anchor No. 1.	86-68130	840	yd3	\$380.00	\$319,200.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	86-68130	1,900	yd3	\$380.00	\$722,000.00
	74	Remove Steel Footbridge to Intake Structure. This bridge provides access from the left abutment to the penstock intake structure. Assume contains paint with heavy metals.	86-68130	11,000	lbs	\$1.00	\$11,000.00
	75	Remove Concrete in Intake Structure Footbridge Abutment.	86-68130	5	yd3	\$380.00	\$1,900.00
		SUBTOTAL THIS SHEET					\$1,228,900.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

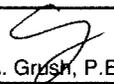
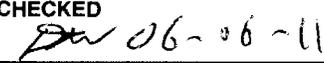
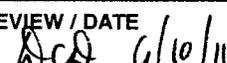
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 20 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Power Conduit (Penstock):					
	76	Intake Structure-					
		Wheel Gate- 16.75 ft. H. x 22.33 ft. W. Gate weight approximately: 30,000 lbs					
		Wheel Gate Hoist- 2-6-in. Dia. Hydraulic Cylinders Wheel gate hoist weight approx: 10,000 lbs					
		Framework- I-Beam framework securing hoists Total framework weight approx: 10,000 lbs					
		Trash rack- 17.5 ft. W. x 45.75 ft. H. Trashrack weight approximately: 44,400 lbs					
		Stop logs- Total logs weight approximately: 29,250 lbs Total guide weight approximately: 3,600 lbs					
		Slide Gate- 30-in. W. x 42-in. H. Slide Gate weight approximately: 3,240 lbs					
		Sluice Gate- 12-in. W. x 12-in. H. Sluice Gate weight approximately: 1,140 lbs					
		Total weight approximately:	86-68420	131,630	lbs	\$1.00	\$131,630.00
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
	77	Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Stem weight 45 lbs/ft.	86-68420	1,800	lbs	\$1.00	\$1,800.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$133,430.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grish, P.E.	CHECKED  Dan Drake
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE  Dan Drake 6/10/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 21 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	78	Water fill line- 12-in. Dia. STD x 27 ft Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,350	lbs	\$1.00	\$1,350.00
	79	Air Vent- 12-in. Dia. STD x 32 ft. Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,600	lbs	\$1.00	\$1,600.00
		Power Conduit (Penstock) Continued:					
	80	Gage Wells-					
		10-in. Dia. STD x 32 ft. weights 41 lbs/ft.	86-68420	1,312	lbs	\$1.00	\$1,312.00
		12-in. Dia. STD x 26 ft. weights 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,300	lbs	\$1.00	\$1,300.00
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Pipe weight 124 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	7,440	lbs	\$1.00	\$7,440.00
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Pipe weight 386 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	294,428	lbs	\$1.00	\$294,428.00
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Pipe weight 257 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	12,850	lbs	\$1.00	\$12,850.00
	84	Outlet Valve on bypass outlet- 66-in. Dia. Assumed to be a Fixed Cone Valve with controls Valve weight approximately: (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	18,000	lbs	\$1.00	\$18,000.00
		SUBTOTAL THIS SHEET					\$338,280.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE  6/10/11

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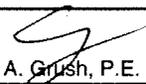
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 22 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Penstock Intake Structure:					
	85	Overhead Trolley Crane Motor (4hp est)& controls Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,300.00	\$1,300.00
	86	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
	87	Power Cable and Conduit 1800 ft. 4" Conduit with 3 conductor 6 AWG est. 1200 ft. 1.5" Conduit with 3 conductor 12 AWG est. Total weight approximately: 11,000 lbs.	86-68430	1	EA	\$75,000.00	\$75,000.00
		PENSTOCK SUBTOTAL					\$1,779,910.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

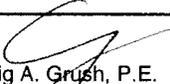
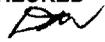
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 25 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Res Reveg

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	825	Acres	\$15,000.00	\$12,375,000.00
		Idaho fescue (Festuca idahoensis)	3300	lbs	PLS		
		Blue wildrye (Elymus glaucus)	3300	lbs	PLS		
		Small fescue (Vulpia microstachys)	3300	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	4950	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	413	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	206	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	3300	lbs	PLS		
		California brome (Bromus carinatus)	6600	lbs	PLS		
		Squirreltail (Elymus elymoides)	3300	lbs	PLS		
		Wood mulch	1650000	lbs			
		Tackifier	99000	lbs			
	92	FALL GROUND SEEDING:	86-68220	619	Acres	\$4,000.00	\$2,476,000.00
		Idaho fescue (Festuca idahoensis)	2475	lbs	PLS		
		Blue wildrye (Elymus glaucus)	2475	lbs	PLS		
		Small fescue (Vulpia microstachys)	2475	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	3713	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	309	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	155	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	2475	lbs	PLS		
		California brome (Bromus carinatus)	4950	lbs	PLS		
		Squirreltail (Elymus elymoides)	2475	lbs	PLS		
		Wood mulch	190385	lbs			
		Tackifier	11423	lbs			
		SUBTOTAL THIS SHEET					\$14,851,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Res Reveg		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		WATER AND ENVIRONMENTAL						
	93	RIPARIAN POLE PLANTING: (1,000 ea/acre)	86-68220	50	Acres	\$10,000.00	\$500,000.00	
		Narrowleaf willow (<i>Salix exigua</i>)	35000	cutting				
		Arroyo willow (<i>Salix lasiolepis</i>)	10000	cutting				
		Shining willow (<i>Salix lucida</i>)	5000	cutting				
		Herbivore screen	50000	each				
		Chemical herbivore deterrent	1000	gal				
	94	WEED MANAGEMENT:	86-68220	619	Acres	\$2,000.00	\$1,238,000.00	
		Herbicide, post-emergent	1238	lbs AI				
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION						
	95	FALL GROUND SEEDING:	86-68220	330	Acres	\$4,000.00	\$1,320,000.00	
		Idaho fescue (<i>Festuca idahoensis</i>)	1320	lbs PLS				
		Blue wildrye (<i>Elymus glaucus</i>)	1320	lbs PLS				
		Small fescue (<i>Vulpia microstachys</i>)	1320	lbs PLS				
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1980	lbs PLS				
		Sandberg bluegrass (<i>Poa secunda</i>)	165	lbs PLS				
		Spike bentgrass (<i>Agrostis exarata</i>)	82.5	lbs PLS				
		Western needlegrass (<i>Achnatherum occidentale</i>)	1320	lbs PLS				
		California brome (<i>Bromus carinatus</i>)	2640	lbs PLS				
		Squirreltail (<i>Elymus elymoides</i>)	1320	lbs PLS				
		Wood mulch	660000	lbs				
		Tackifier	39600	lbs				
	96	WEED MANAGEMENT:	86-68220	330	Acres	\$2,000.00	\$660,000.00	
		Herbicide, post-emergent	31	lbs AI				
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$19,219,000.00	

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED DW 06-06-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCO 6/10/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 27 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and remove the earth fill embankment and concrete cutoff walls of Iron Gate Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area Estimated haul distance 1 1/4 mile. Disposed fill estimated to be 20' deep and traffic compacted (15% bulking factor).	86-68313	29	acre	\$7,000.00	\$203,000.00
		Prepare Haul Road - 1.25 mi 2 way traffic - off road dumps or scrapers					
	98	Rock Excavation for Haul Road Widening hard basalt rock	86-68313	17,000	yd3	\$45.00	\$765,000.00
	99	Clear and grub, 40' width for 1 mile	86-68313	5	acre	\$7,000.00	\$35,000.00
	100	4' thick gravel surfacing	86-68313	5,300	ton	\$80.00	\$424,000.00
		300,000 cubic yards to be disposed of in spillway chute. Filling to start in stilling basin for access to chute.					
		ROAD IMPROVEMENTS SUBTOTAL					\$1,427,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

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ESTIMATE WORKSHEET

SHEET 28 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2. <i>Located just north of the Powerhouse. Single story, hip roof, prefab metal structure on concrete slab. Office, lockers, and shop. 20 ft x 40 ft.</i>	86-8130	800	ft2	\$65.00	\$52,000.00
	102	Remove Building No. 3. <i>Located between circular holding ponds. Single story, hip roof, prefab metal structure on concrete walls. Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>	86-68130	1,088	ft2	\$65.00	\$70,720.00
	103	Remove Concrete in Fish Ladder. <i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20, and retaining wall (which serves as a support for part of the fish ladder, and which is the left wall of the tunnel outlet structure).</i>	86-68130	950	yd3	\$380.00	\$361,000.00
	104	Remove Concrete in Holding Ponds #1 thru #6. <i>Includes 6 circular ponds.</i>	86-68130	420	yd3	\$380.00	\$159,600.00
	105	Remove Concrete in Fish Facility Items. <i>Includes holding tank between pool 20 and Bldg. No. 3, tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3, flumes (to holding ponds), and gate basins #1 thru #6.</i>	86-68130	380	yd3	\$380.00	\$144,400.00
	106	Remove Miscellaneous Metalwork in Fish Facilities. <i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank), fish basket (in dope tank), rotating sweeps & stationary sweeps (in circular ponds), frames, gratings, handrail, and ladders. Assume contains paint with heavy metals.</i>	86-68130	12,000	lbs	\$1.00	\$12,000.00
		SUBTOTAL THIS SHEET					\$799,720.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

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ESTIMATE WORKSHEET

SHEET 29 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	107	Remove Concrete associated with 30"-dia. Water Supply Line. <i>Includes intake structure and 4 water supply line anchors (all on upstream side of dam).</i>	86-68130	68	yd3	\$380.00	\$25,840.00
	108	Remove Concrete in Aerator Structure. <i>Located southeast of powerhouse, across the road, and up the slope. Supplies air for the 30"-dia. water supply line. Includes anchor blocks, thrust blocks, pipe supports, and aerator box.</i>	86-68130	50	yd3	\$380.00	\$19,000.00
	109	Remove Wood in Aerator Structure. <i>Consists of lumber pressure-treated with chromated copper arsenate. Volume of lumber approximately 200 ft3. Assumed to weigh 30 lbs/ft3.</i>	86-68130	6,000	lbs	\$0.85	\$5,100.00
	110	Remove Structural Steel in Aerator Structure. <i>Includes three 6 in WF beams, each about 13 ft long, misc. angles & connection hardware, walkway supports, ladders, cages, and guardrails for landings & steps. Assume contains paint with heavy metals.</i>	86-68130	2,500	lbs	\$1.00	\$2,500.00
	111	Remove Asphalt Pavement. <i>Located around powerhouse and fish facility ponds and tanks.</i>	86-68130	39,000	ft2	\$7.00	\$273,000.00
	112	Remove Restroom Building near Aerator Structure. <i>Metal building.</i>	86-68130	340	ft2	\$65.00	\$22,100.00
	113	Remove Storage Shed near Aerator Structure. <i>Metal building.</i>	86-68130	90	ft2	\$65.00	\$5,850.00
		SUBTOTAL THIS SHEET					\$353,390.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

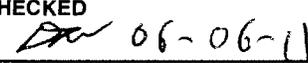
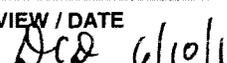
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 30 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Fish Hatchery Berm Removal					
	114	Toe Drain Pipe <i>30" diameter RCP dispose of off site</i>	86-68313	260	lin ft	\$25.00	\$6,500.00
	115	Toe Drain Manhole <i>48" diameter precast concrete dispose of off site</i>	86-68313	25	lin ft	\$55.00	\$1,375.00
	116	Berm Removal <i>to be removed concurrent with dam constructed with random fill to waste area by truck</i>	86-68313	53,000	yd3	\$17.00	\$901,000.00
		SUBTOTAL THIS SHEET					\$908,875.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Brush, P.E.	CHECKED  06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 11/18/10	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 32 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	120	Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	360	lbs	\$1.00	\$360.00
	121	Butterfly Valve- 30-in. Dia. Valve weight approximately: 2435 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	2,435	lbs	\$1.00	\$2,435.00
	122	Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Pipe weight 80 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	7,200	lbs	\$1.00	\$7,200.00
	123	Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Pipe weight 64 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	15,872	lbs	\$1.00	\$15,872.00
	124	Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Pipe weight 53 lbs/ft. (Assume contains paint with heavy metals)	86-68420	4,505	lbs	\$1.00	\$4,505.00
	125	Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Pipe weight 48 lbs/ft. (Assume contains paint with heavy metals)	86-68420	29,088	lbs	\$1.00	\$29,088.00
	126	Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Pipe weight 42 lbs/ft. (Assume contains paint with heavy metals)	86-68420	6,972	lbs	\$1.00	\$6,972.00
		SUBTOTAL THIS SHEET					\$66,432.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

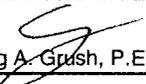
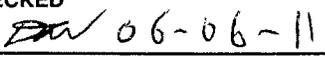
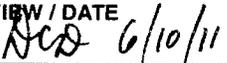
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 33 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	127	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Pipe weight 34 lbs/ft. (Assume contains paint with heavy metals)	86-68420	2,176	lbs	\$1.00	\$2,176.00
	128	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Pipe weight 28 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,932	lbs	\$1.00	\$1,932.00
	129	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Pipe weight 23 lbs/ft. (Assume contains paint with heavy metals)	86-68420	3,588	lbs	\$1.00	\$3,588.00
	130	Piping- 3-in. Dia. STD x 64 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,088	lbs	\$1.00	\$1,088.00
	131	Gate Valves- 24-in. Dia. Gate Valve- 1 total 24-in. Gate Valve weight approx: 3,800 lbs 18-in. Dia. Gate Valve- 7 total 18-in. Gate Valve weight approx: 1748 lbs ea 16-in. Dia. Gate Valve- 2 total 16-in. Gate Valve weight approx: 1465 lbs ea 12-in. Dia. Gate Valve- 1 total 12-in. Gate Valve weight approx: 722 lbs 8-in. Dia. Gate Valve- 6 total 8-in. Gate Valve weight approx: 339 lbs ea 3-in. Dia. Gate Valve- 1 total 3 -in. Gate Valve weight approx: 70 lbs Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	21,792	lbs	\$1.00	\$21,792.00
SUBTOTAL THIS SHEET							\$30,576.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 34 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	132	Basin #1-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	2,880	lbs	\$1.00	\$2,880.00
	133	Basin #2-					
		Slide Gate- 4-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,860	lbs	\$1.00	\$3,860.00
	134	Basin #3-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	2,880	lbs	\$1.00	\$2,880.00
		SUBTOTAL THIS SHEET					\$9,620.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 35 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	135	Basin #4-					
		Slide Gates-					
		24-in. Slide Gate manually operated					
		24-in. Slide Gate weight approx: 700 lbs					
		2-18-in. Slide Gate manually operated					
		18-in. Slide Gate weight approx: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,580	lbs	\$1.00	\$3,580.00
	136	Basin #5-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$1.00	\$1,440.00
	137	Basin #6-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$1.00	\$1,440.00
		SUBTOTAL THIS SHEET					\$6,460.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED <i>PN</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>DCD</i> 6/10/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Fish Facilities:					
	139	Misc: motors, control panels, cables and conduit Total weight approximately: 800 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
		FISH SPAWNING FACILITY SUBTOTAL					\$2,268,363.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 11/18/10	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 38 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Wanaka Springs					
	140	Concrete total	BLM	28	CY	\$400.00	\$11,200.00
		1 Dock Pier 25'x5'x5' (23 CY)					
		1 Concrete table base (2 CY)					
		3 Concrete fire rings/garbage bases (1 CY)					
		3 Concrete sign bases (2 CY)					
	141	Double pipe railings	BLM	60	LF	\$45.00	\$2,700.00
	142	Wood picnic tables to be removed and hauled away	BLM	5	EA	\$120.00	\$600.00
	143	25'X5' Wooden floating dock	BLM	125	SF	\$25.00	\$3,125.00
	144	Rip and reseed site and access road	BLM	2.5	ACRE	\$30,000.00	\$75,000.00
	145	Signs to be removed and hauled away	BLM	3	EA	\$350.00	\$1,050.00
	146	15'x5' Gangplank with railings	BLM	75	SF	\$25.00	\$1,875.00
		Juniper Point					
	147	Concrete total	BLM	19	CY	\$400.00	\$7,600.00
		1 Dock abutment 25'x4'x3' (11 CY)					
		15 Concrete fire rings (5 CY)					
		1 Picnic table base (2 CY)					
		4 Sign bases (1 CY)					
	148	2, 4'x4' Concrete toilet vaults	BLM	32	SF	\$120.00	\$3,840.00
	149	Wood picnic tables to be removed and hauled away	BLM	8	EA	\$120.00	\$960.00
	150	Signs to be removed and hauled away	BLM	4	EA	\$350.00	\$1,400.00
	151	Dock pipe railing	BLM	50	LF	\$45.00	\$2,250.00
	152	50'x5' Composite dock with poly floats	BLM	250	SF	\$25.00	\$6,250.00
	153	20'x5' Composite gangplank with railings	BLM	100	SF	\$25.00	\$2,500.00
	154	Bury 3' dia boulders on site	BLM	50	EA	Included in regrade item	
	155	Regrade to natural contour, rip and reseed	BLM	2	ACRE	\$30,000.00	\$60,000.00
		SUBTOTAL THIS SHEET					\$180,350.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 39 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Camp Creek					
	156	Concrete total	BLM	110	CY	\$400.00	\$44,000.00
		80'x25'x1' Boat ramp (75 CY)					
		Main dock platform piers 25'x4'x3' (11 CY)					
		15 Fire ring bases (6 CY)					
		Step/dock abutment 8'x6'x5' (9 CY)					
		6 Sign bases (2 CY)					
		1 Block foundation sign base (3 CY)					
		2 Picnic table bases (4 CY)					
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade	BLM	855	CY	\$30.00	\$25,650.00
	158	Well house 10'x16' concrete block building	BLM	160	SF	\$120.00	\$19,200.00
	159	2, 20'x5' Composite decking gangplanks w/ aluminum frame railings	BLM	200	SF	\$25.00	\$5,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame docks	BLM	200	SF	\$25.00	\$5,000.00
	161	Concrete block double toilet bldg 10'x16'	BLM	160	SF	\$120.00	\$19,200.00
	162	Dump stations and approx. 2000 gal buried concrete tank	BLM	1	EA	\$6,000.00	\$6,000.00
	163	Power poles and lines	BLM	3	POLES	\$2,000.00	\$6,000.00
	164	Remove waterlines and 3 faucets and regrade	BLM	600	LF	\$6.00	\$3,600.00
	165	Recycle/bury approx. 3' dia. boulders	BLM	75	EA	Included in regrade item	
	166	Steel pipe/plank picnic tables to be removed and hauled away	BLM	5	EA	\$120.00	\$600.00
	167	Relocate concrete tables	BLM	12	EA	\$120.00	\$1,440.00
	168	Regrade, rip and reseed	BLM	4	ACRE	\$30,000.00	\$120,000.00
	169	Signs to be removed and hauled away	BLM	7	EA	\$350.00	\$2,450.00
		Dutch Creek					
	170	50'x4'x3' Dock concrete abutment	BLM	22	CY	\$400.00	\$8,800.00
	171	Double pipe railing	BLM	100	LF	\$45.00	\$4,500.00
		SUBTOTAL THIS SHEET					\$271,440.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 40 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mirror Cove					
	172	Concrete total		89	CY	\$400.00	\$35,600.00
		80'x25'x0.5' Boat ramp (37 CY)					
		2 Concrete boat dock abutments: 6'x8'x1.5' and 6'x30'x5' (36 CY)					
		12 Fire ring foundations (4 CY)					
		2 Sets of concrete stairs (9 CY)					
		7 Sign foundations (3 CY)					
	173	10'x16' Toilet vault		160	SF	\$120.00	\$19,200.00
	174	2, 30'x5' Composite gangplanks w/aluminum frame and railings		300	SF	\$25.00	\$7,500.00
	175	Double pipe railings on dock		80	LF	\$45.00	\$3,600.00
	176	Bury 3' dia. boulders on site		120	EA	Included in regrade item	
	177	Regrade site, rip and reseed		3	ACRE	\$30,000.00	\$90,000.00
	178	Signs to be removed and hauled away		7	EA	\$350.00	\$2,450.00
		Overlook Point					
	179	1 Concrete picnic table base		1	CY	\$400.00	\$400.00
	180	Steel frame table to be removed and hauled away		1	EA	\$120.00	\$120.00
	181	Regrade steep access road and site to natural contours, rip and reseed		0.5	ACRE	\$30,000.00	\$15,000.00
		Long Gulch					
	182	80'x25'x4" Concrete boat ramp to be removed		25	CY	\$400.00	\$10,000.00
	183	Remove picnic tables (steel frame with planks) & haul away		2	EA	\$120.00	\$240.00
	184	Regrade ramp area to natural contours, rip, reseed		0.05	ACRE	\$30,000.00	\$1,500.00
		RECREATIONAL FACILITIES REMOVAL SUBTOTAL					\$637,400.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 86-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 06/08/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 41 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Recreational Facilities to be Removed Iron Gate Reservoir Most Probable High SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		839,100	CY	\$0.00	\$0.00
		Diversion and Care					\$9,994,640.00
		Dam Removal					\$19,613,370.00
		Powerhouse/Switchyard/Transmission Line Removal					\$4,633,932.00
		Penstock Removal					\$1,779,910.00
		Reservoir Vegetative Restoration					\$19,219,000.00
		Road Improvements					\$1,427,000.00
		Fish Spawning Facility Removal					\$2,268,363.00
		Recreational Facilities to be Removed					\$637,400.00
		Subtotal					\$59,573,615.00
		Mobilization	5%	+/-			\$3,000,000.00
		Subtotal 1 with Mobilization					\$62,573,615.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 4.375%/yr compounding over 10 years)					\$33,445,153.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$96,018,768.00
		Design Contingencies	15%	+/-			\$16,772,800.00
		Allowance for Procurement Strategies (APS)	2%	+/-			\$2,208,432.00
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$115,000,000.00
		Construction Contingencies	25%	+/-			\$25,000,000.00
		FIELD COST					\$140,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 2%, Engineering Design ~ 6%, Permitting ~ 4%, Procurement ~ 2%, Construction Management ~ 11%, and Closeout ~ 1%)	61%	+/-			\$90,000,000.00
		CONSTRUCTION COST					\$230,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Refer to Previous Sheets	Refer to Previous Sheets	 Craig A. Grush, P.E.	 06-06-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
	Refer to Previous Sheets	06/03/11	 6/10/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge is used for removal of existing closure gates and installation of new roller gate. Barge is located on reservoir for approximately 1 week.	86-68130	1	ls		\$190,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure. Installation requires a dive depth of approximately 150 feet. Air vent consists of 12-inch diameter HDPE pipe.	86-68130	150	#		DELETED
	3	Remove Reinforced Concrete Ring. Located just downstream of closure gate and upstream of flap gate. Tunnel work	86-68130	31	cy	\$1,300.00	\$40,300.00
	4	Remove Reinforced Concrete Stoplog Structure. Located at downstream end of diversion tunnel.	86-68130	3	cy	\$170.00	\$510.00
	5	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	300,000	gals	\$0.01	\$3,000.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$30,000.00
SUBTOTAL THIS SHEET							\$263,810.00

QUANTITIES		PRICES	
BY Rick Berk	CHECKED Jonathan East	BY Craig A. <i>[Signature]</i> P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 02/19/11	PEER REVIEW / DATE Tom Hepler P.E. 2/19/11	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Diversion and Care		Klamath River Northern California/Southern Oregon	
		WOID: AF652	ESTIMATE LEVEL: Appraisal
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx)Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	8	Construct 240-ft-long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft2 of deck for similar concrete bridge at Upper San Joaquin priced out in 2009.	86-68130	0	ft2	\$200.00	
	9	Remove and dispose of existing bridge. Bridge is approximately 227 feet long. Consists of 9 spans @ about 25 feet (steel girders) with reinforced concrete decking (about 16 feet wide). Piers appear to be timber posts, supported on 4 or 5 pile bents. Rails along both sides are timber with concrete wheel guards. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	0	ls	\$300,000.00	
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY Craig A. Grush, P.E.	CHECKED [Signature] 06-06-11
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE [Signature] 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Diversion & Care
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL	86-68420				
		All items are necessary for the removal of Iron Gate Dam.					
	11	Remove 1 - 9' dia. hinged blind flange and associated metal work, including 5' of pipe spool. This will require installing and removing all fasteners on the blind flange. It assumed that these fasteners are on-site (Assume contains paint with heavy metals) Tunnel work		19,000	lbs	\$1.50	\$28,500.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe Weight of plug valve used: 2,000 lbs Tunnel work		2,900	lbs	\$1.50	\$4,350.00
	13	Furnish, install and remove 1 - 16.5'x18' roller gate, stem, and operator Total roller gate weight approximately: 75,900 lbs. Installation and removal requires a dive depth of approximately 150 feet.		110,000	lbs	\$12.00	\$1,320,000.00
		DIVERSION AND CARE SUBTOTAL					\$2,807,410.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED M. Gulsvig	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 06-08-11
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/11	DATE PREPARED 06/08/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 6 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension. Observation Platform is reinforced concrete slab located on right abutment. Buried crest wall on left abutment consists of unreinforced controlled low strength material. Reinforced extension on right abutment includes reinforced concrete wall and stairs to trash gate.	86-68130	580	yd3	\$170.00	\$98,600.00
		Items are associated with the Diversion Tunnel.					
		All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure. Remove concrete upstream of Sta. 3+00. Concrete removal requires a dive depth of 150 feet.	86-68130	530	yd3	\$170.00	\$90,100.00
	16	Remove Concrete in Diversion Tunnel Gate Tower. Remove concrete down to elev. 2254.	86-68130	410	yd3	\$170.00	\$69,700.00
	17	Remove Steel Footbridge to Gate Tower. This bridge provides access from the dam crest to the gate tower for the diversion tunnel.	86-68130	13,000	lbs	\$0.85	\$11,050.00
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment. Includes stairs over sheetpile wall.	86-68130	20	yd3	\$170.00	\$3,400.00
	19	Place Concrete Plugs for Diversion Tunnel. There will be 3 plugs total. Two placed vertically and one horiz. Plugs will be 2 feet thick, reinforced concrete, 3,000 psi min. Location of plugs and info about openings is as follows: Upstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 3+01.0. Downstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 12+68.5. Gate tower; horizontal plug at elev. 2254, 15.5-ft by 7.5-ft, reinf. concrete, rectangular shape.	86-68130	43	yd3	\$1,100.00	\$47,300.00
		SUBTOTAL THIS SHEET					\$320,150.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Sheena Barnes, Jonathan East	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 8 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	21	Upstream Riprap Assume max size 250 lbs, ave. 100 lbs. to waste area by truck	86-68313	80,000	yd3	\$10.00	\$800,000.00
	22	Downstream Riprap Assume max size 2500 lbs, ave. 500 lbs. to waste area by truck	86-68313	30,000	yd3	\$10.00	\$300,000.00
	23	Miscellaneous Excavation Consists of finer earth fill materials 300,000 cy to spillway chute by truck remainder to waste area by conveyor belt.	86-68313	880,000	yd3	\$10.00	\$8,800,000.00
	24	Cutoff Wall Concrete Demolition The 2 concrete cutoff walls are embedded in the Zone III core but do not appear to be anchored into bedrock.	86-68313	1,000	yd3	\$170.00	\$170,000.00
	25	Earth Fill Crest Raise Treat as miscellaneous excavation to waste area by conveyor belt.	86-68313	13,000	yd3	\$10.00	\$130,000.00
	26	Sheetpile Crest Raise Remove sheetpile wall crest raise Total height 13', embedded 9', type CS55.	86-68313	800	lin ft	\$200.00	\$160,000.00
		Monitoring Well Removal					
	27	Remove 5 monitoring wells assume 150 length, 6" diameter remove as excavation progresses	86-68313	5	each	\$1,900.00	\$9,500.00
		SUBTOTAL THIS SHEET					\$10,369,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE 6/10/11

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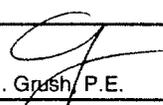
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 9 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Spillway Structure:					
	28	Trash Sluice Gate- 10 ft. W x 9 ft. H Total gate weight approximately: 3500 lbs. Total gate hoist weight approximately: 1000 lbs Total weight approximately:	86-68420	4,500	lbs	\$0.60	\$2,700.00
		Remove and dispose of the following equipment of the Diversion Tunnel:					
	29	Intake structure Trash Racks- 4 rack each 10 ft. W x 33 ft. H Each rack weights approximately: 18,000 lbs Total weight approximately:	86-68420	72,000	lbs	\$0.60	\$43,200.00
		Trash rack removal requires a dive depth of 150 feet.					
	30	Sluice and Diversion Tunnel Gate Gate Hoist- 2-10-in. Dia. Hydraulic cylinders Gate hoist weight approx: 10,000 lbs ea. Framework- I-Beam framework securing hoists Total framework weight approx: 8,000 lbs Total weight approximately:	86-68420	28,000	lbs	\$0.60	\$16,800.00
	31	Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Stem weight is 50 lbs/ft.	86-68420	7,500	lbs	\$0.60	\$4,500.00
		SUBTOTAL THIS SHEET					\$67,200.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush / P.E.	CHECKED  06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

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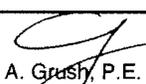
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ESTIMATE WORKSHEET

SHEET 10 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	32	Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Near Sluice Gate Pipe weight is 29 lbs/ft. Tunnel work	86-68420	4,650	lbs	\$1.50	\$6,975.00
	33	Transition Gate Structure Flap Gate - 96 in. Dia. With 4 ft. pipe Total weight approximately: Tunnel work	86-68420	8,000	lbs		DELETED
	34	Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. From Gate to Outlet Works Pipe weight is 54 lbs/ft. Tunnel work	86-68420	30,250	lbs	\$1.50	\$45,375.00
	35	Outlet Works Stop Logs Total logs weight approximately: 2,310 lbs Total guide weight approximately: 360 lbs Total weight approximately:	86-68420	2,670	lbs	\$0.60	\$1,602.00
SUBTOTAL THIS SHEET							\$53,952.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grushy, P.E.	CHECKED  06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 11 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Diversion Tunnel Gate Intake Structure:					
	36	Hydraulic Pump motor (10 HP est) & control panel Total weight approximately: 250 lbs.	86-68430	1	EA	\$300.00	\$300.00
	37	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
	38	Power Cable and 4"Conduit from Penstock Structure (3 conductor 6 AWG est.) Total weight approximately: 10,400 lbs.	86-68430	800	feet	\$30.00	\$24,000.00
		DAM SUBTOTAL					\$10,891,502.00

QUANTITIES		PRICES	
BY D. Berk CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11	PEER REVIEW / DATE L. Rossi 11/1/10
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 13 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Turbine Unit 25,000 hp, 158 ft. of head, 180 RPM D3 is calculated at 8.85 ft. Turbine weight calculated approx:	86-68420	344,058	lbs	\$0.60	\$206,434.80
	41	Draft Tube Bulkheads- 3-Bulkhead approx. 10 ft. W. x 10 ft. H Bulkhead weight approximately: 3000 lbs each 3-Framework weight approx: 2500 lbs each Total bulkhead weight approx:	86-68420	16,500	lbs	\$0.60	\$9,900.00
		Remove and dispose of the following equipment of the Powerhouse Structure:					
	42	Crane- No Crane at Site, but embedded rails still exist Above Ground Steel Rails-200 ft. length Crane is presently used at J. C. Boyle	86-68420	24,000	lbs	\$0.60	\$14,400.00
	43	Governor- Accumulator tank for air over oil cylinders Governor control panel cabinet Pump for Oil Total weight approximately:	86-68420	20,310	lbs	\$0.60	\$12,186.00
		SUBTOTAL THIS SHEET					\$242,920.80

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

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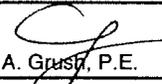
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 14 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	44	Bearing Oil System and Cooling Water System- Steel Piping of various sizes Valves of various sizes Total weight approximately:	86-68420	9,182	lbs	\$0.60	\$5,509.20
	45	CO2 System- Various sizes of piping and valves Total weight approximately:	86-68420	2,568	lbs	\$0.60	\$1,540.80
	46	Plant Water and Fire Protection System- Various sizes of piping and valves Total weight approximately:	86-68420	9,182	lbs	\$0.60	\$5,509.20
	47	Sump Pumps- 2-Powerhouse water removal sump pumps Sump weight approximately: 1000 lbs each Total weight approximately:	86-68420	2,000	lbs	\$0.60	\$1,200.00
	48	Pumps- 4-Large pumps near outlet Pump weight approximately: 3000 lbs each 4-Pump Suction Inlet Bulkhead gates approx. 10 ft. H. x 10 ft. W. Bulkhead weight approximately: 2500 lbs each Total weight approximately:	86-68420	22,000	lbs	\$0.60	\$13,200.00
		SUBTOTAL THIS SHEET					\$26,959.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Gustaf, P.E.	CHECKED  06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 15 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx)Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	49	Exposed Piping around the plant- Various sizes of piping and valves Total weight approximately:	86-68420	19,291	lbs	\$0.60	\$11,574.60
	50	Unwatering Piping- Various sizes of piping and valves Total weight approximately:	86-68420	19,291	lbs	\$0.60	\$11,574.60
	51	Drainage Piping- Various sizes of piping and valves Total weight approximately:	86-68420	9,518	lbs	\$0.60	\$5,710.80
	52	Transformer Oil and Fire Protection- Various sizes of piping and valves Total weight approximately:	86-68420	9,182	lbs	\$0.60	\$5,509.20
	53	Compressed Air System- Various sizes of piping and valves Total weight approximately:	86-68420	1,450	lbs	\$0.60	\$870.00
		SUBTOTAL THIS SHEET					\$35,239.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE 6/10/11

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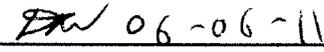
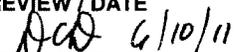
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 16 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx]Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	54	AC Generator, Outdoor Horizontal 18.975 MVA (18 MW); 0.95PF, 6,600V, 180 RPM, 3 Ph, including rotating exciter Total weight approximately: 387,500 lbs. Stator: 124,600 lbs., Rotor: 189,300 lbs. Exciter Assembly: 17,000 lbs. Heaviest lift: 186,700 lbs.	86-68430	1	EA	\$120,000.00	\$120,000.00
	55	Excitation equipment for 18.975 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
	56	Surge protection equip. for 18.975 MVA Generator Total weight approximately: 800 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
	57	Neutral grounding equip. for 18.975 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
	58	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$15,000.00	\$15,000.00
	59	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$19,000.00	\$19,000.00
		SUBTOTAL THIS SHEET					\$160,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

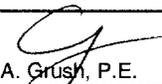
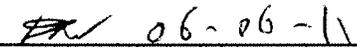
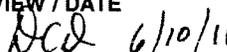
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 17 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	60	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	61	Raceways, Bus, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 100 lin. Ft. cabletray, 40 lin. Ft. non-segregated phase bus) Total weight approximately: 9,000 lbs.	86-68430	1	EA	\$14,000.00	\$14,000.00
	62	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$4,000.00	\$4,000.00
	63	Transformer (3 phase, 275 kVA, 6600/480V est.) in power house Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	64	Governor Oil Pump Motors (10 hp and 20 hp est.) Total weight approximately: 450 lbs.	86-68430	2	EA	\$200.00	\$400.00
	65	Vertical Motors, outdoor, (480V, 100 HP est.) Outdoor for fish water pumps Total weight approximately: 2,000 lbs.	86-68430	4	EA	\$500.00	\$2,000.00
		SUBTOTAL THIS SHEET					\$38,400.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 18 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	66	Transformer (3 phase, 300 kVA, 6600/480V est.) Outdoor for fish water pumps Total weight approximately: 2,900 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
		Remove and dispose of the following equipment in switchyard/powerplant deck:					
	67	Step-up Transformer, outdoor, oil-filled, 3-phase, 18,947 kVA, 6,600/69,000 volt Total weight approximately: 58,000 lbs.	86-68430	1	EA	\$90,000.00	\$90,000.00
	68	Lattice steel structure, with 69-kV disconnect switches and insulators	86-68430	1	EA	\$4,000.00	\$4,000.00
	69	Generator Switchgear, outdoor, 7.2kV-includes unit breaker (5 Sections @ 2,400 lbs each section 3 ft x 7.5 ft x 95 inches high), 20 ft. non-seg. bus Total weight approximately: 12,000 lbs.	86-68430	1	EA	\$30,000.00	\$30,000.00
	70	Single Phase Pole Transformers. (25 kVA est.) Total weight approximately: 1050 lbs.	86-68430	3	EA	\$1,500.00	\$4,500.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$1,640,019.20

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 19 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\SSummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	71	Remove Concrete in Penstock Intake Structure.	86-68130	460	yd3	\$170.00	\$78,200.00
	72	Remove Concrete in Penstock Encasement. Encasement runs through embankment from intake structure to penstock anchor No. 1.	86-68130	840	yd3	\$170.00	\$142,800.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	86-68130	1,900	yd3	\$170.00	\$323,000.00
	74	Remove Steel Footbridge to Intake Structure. This bridge provides access from the left abutment to the penstock intake structure.	86-68130	11,000	lbs	\$0.60	\$6,600.00
	75	Remove Concrete in Intake Structure Footbridge Abutment.	86-68130	5	yd3	\$170.00	\$850.00
		SUBTOTAL THIS SHEET					\$551,450.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>C</i> Craig A. Grush, P.E.	CHECKED <i>DW</i> 06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>DEB</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 20 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Power Conduit (Penstock):					
	76	Intake Structure-					
		Wheel Gate- 16.75 ft. H. x 22.33 ft. W.					
		Gate weight approximately: 30,000 lbs					
		Wheel Gate Hoist- 2-6-in. Dia. Hydraulic Cylinders					
		Wheel gate hoist weight approx: 10,000 lbs					
		Framework- I-Beam framework securing hoists					
		Total framework weight approx: 10,000 lbs					
		Trash rack- 17.5 ft. W. x 45.75 ft. H.					
		Trashrack weight approximately: 44,400 lbs					
		Stop logs-					
		Total logs weight approximately: 29,250 lbs					
		Total guide weight approximately: 3,600 lbs					
		Slide Gate- 30-in. W. x 42-in. H.					
		Slide Gate weight approximately: 3,240 lbs					
		Sluice Gate- 12-in. W. x 12-in. H.					
		Sluice Gate weight approximately: 1,140 lbs					
		Total weight approximately:	86-68420	131,630	lbs	\$0.60	\$78,978.00
	77	Gate Hoist Stem- 6-in. Sch 160 x 40 ft.	86-68420	1,800	lbs	\$0.60	\$1,080.00
		Stem weight 45 lbs/ft.					
		SUBTOTAL THIS SHEET					\$80,058.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

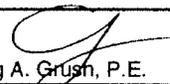
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 21 _ OF _ 41 _

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Penstock		Klamath River Northern California/Southern Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	78	Water fill line- 12-in. Dia. STD x 27 ft Pipe weight 50 lbs/ft.	86-68420	1,350	lbs	\$0.60	\$810.00
	79	Air Vent- 12-in. Dia. STD x 32 ft. Pipe weight 50 lbs/ft.	86-68420	1,600	lbs	\$0.60	\$960.00
		Power Conduit (Penstock) Continued:					
	80	Gage Wells-					
		10-in. Dia. STD x 32 ft. weights 41 lbs/ft.	86-68420	1,312	lbs	\$0.60	\$787.20
		12-in. Dia. STD x 26 ft. weights 50 lbs/ft.	86-68420	1,300	lbs	\$0.60	\$780.00
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Pipe weight 124 lbs/ft.	86-68420	7,440	lbs	\$0.60	\$4,464.00
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Pipe weight 386 lbs/ft.	86-68420	294,428	lbs	\$0.60	\$176,656.80
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Pipe weight 257 lbs/ft.	86-68420	12,850	lbs	\$0.60	\$7,710.00
	84	Outlet Valve on bypass outlet- 66-in. Dia. Assumed to be a Fixed Cone Valve with controls Valve weight approximately:	86-68420	18,000	lbs	\$0.60	\$10,800.00
SUBTOTAL THIS SHEET							\$202,968.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

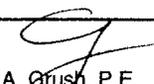
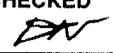
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 22 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Penstock Intake Structure:					
	85	Overhead Trolley Crane Motor (4hp est)& controls Total weight approximately: 500 lbs.	86-68430	1	EA	\$900.00	\$900.00
	86	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	87	Power Cable and Conduit 1800 ft. 4" Conduit with 3 conductor 6 AWG est. 1200 ft. 1.5" Conduit with 3 conductor 12 AWG est. Total weight approximately: 11,000 lbs.	86-68430	1	EA	\$65,000.00	\$65,000.00
		PENSTOCK SUBTOTAL					\$902,376.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 24 OF 41

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
WOID:		AF652		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING:	86-68220	370	Acres	\$3,000.00	\$1,110,000.00
		Idaho fescue (Festuca idahoensis)	1578	lbs PLS			
		Blue wildrye (Elymus glaucus)	1578	lbs PLS			
		Small fescue (Vulpia microstachys)	1578	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2366	lbs PLS			
		Sandberg bluegrass (Poa secunda)	197	lbs PLS			
		Spike bentgrass (Agrostis exarata)	99	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	1578	lbs PLS			
		California brome (Bromus carinatus)	3155	lbs PLS			
		Squirreltail (Elymus elymoides)	1578	lbs PLS			
		Wood mulch	788760	lbs			
		Tackifier	47326	lbs			
	90	SPRING BARGE SEEDING:	86-68220	296	Acres	\$5,000.00	\$1,480,000.00
		Idaho fescue (Festuca idahoensis)	1262	lbs PLS			
		Blue wildrye (Elymus glaucus)	1262	lbs PLS			
		Small fescue (Vulpia microstachys)	1262	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1893	lbs PLS			
		Sandberg bluegrass (Poa secunda)	158	lbs PLS			
		Spike bentgrass (Agrostis exarata)	79	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	1262	lbs PLS			
		California brome (Bromus carinatus)	2524	lbs PLS			
		Squirreltail (Elymus elymoides)	1262	lbs PLS			
		Wood mulch	631008	lbs			
		Tackifier	37860	lbs			
		SUBTOTAL THIS SHEET					\$2,590,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

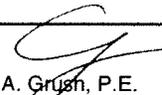
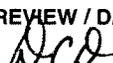
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 25 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	159	Acres	\$6,500.00	\$1,033,500.00
		Idaho fescue (Festuca idahoensis)	460	lbs	PLS		
		Blue wildrye (Elymus glaucus)	460	lbs	PLS		
		Small fescue (Vulpia microstachys)	460	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	691	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	58	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	29	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	460	lbs	PLS		
		California brome (Bromus carinatus)	921	lbs	PLS		
		Squirreltail (Elymus elymoides)	460	lbs	PLS		
		Wood mulch	230233	lbs			
		Tackifier	13814	lbs			
	92	FALL GROUND SEEDING:	86-68220	207	Acres	\$3,000.00	\$621,000.00
		Idaho fescue (Festuca idahoensis)	825	lbs	PLS		
		Blue wildrye (Elymus glaucus)	825	lbs	PLS		
		Small fescue (Vulpia microstachys)	825	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1238	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	103	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	52	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	825	lbs	PLS		
		California brome (Bromus carinatus)	1650	lbs	PLS		
		Squirreltail (Elymus elymoides)	825	lbs	PLS		
		Wood mulch	63462	lbs			
		Tackifier	3808	lbs			
		SUBTOTAL THIS SHEET					\$1,654,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 26 OF 41

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration		Klamath River Northern California/Southern Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		WATER AND ENVIRONMENTAL						
	93	RIPARIAN POLE PLANTING:	86-68220	50	Acres	\$4,000.00	\$200,000.00	
		Narrowleaf willow (Salix exigua)	14000	cutting				
		Arroyo willow (Salix lasiolepis)	4000	cutting				
		Shining willow (Salix lucida)	2000	cutting				
		Herbivore screen	20000	each				
		Chemical herbivore deterrent	400	gal				
	94	WEED MANAGEMENT:	86-68220	206	Acres	\$1,000.00	\$206,000.00	
		Herbicide, post-emergent	413	lbs AI				
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION						
	95	FALL GROUND SEEDING:	86-68220	330	Acres	\$3,000.00	\$990,000.00	
		Idaho fescue (Festuca idahoensis)	1320	lbs PLS				
		Blue wildrye (Elymus glaucus)	1320	lbs PLS				
		Small fescue (Vulpia microstachys)	1320	lbs PLS				
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1980	lbs PLS				
		Sandberg bluegrass (Poa secunda)	165	lbs PLS				
		Spike bentgrass (Agrostis exarata)	82.5	lbs PLS				
		Western needlegrass (Achnatherum occidentale)	1320	lbs PLS				
		California brome (Bromus carinatus)	2640	lbs PLS				
		Squirreltail (Elymus elymoides)	1320	lbs PLS				
		Wood mulch	660000	lbs				
		Tackifier	39600	lbs				
	96	WEED MANAGEMENT:	86-68220	330	Acres	\$1,000.00	\$330,000.00	
		Herbicide, post-emergent	31	lbs AI				
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$6,360,500.00	

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 27 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and remove the earth fill embankment and concrete cutoff walls of Iron Gate Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area Transport by conveyor belt. Disposed fill estimated to be 20' deep and traffic compacted (15% bulking factor).	86-68313	29	acre	\$5,000.00	\$145,000.00
		Prepare Haul Road - 1.25 mi 2 way traffic - off road dumps or scrapers					
	98	Rock Excavation for Haul Road Widening hard basalt rock	86-68313	0	yd3	\$35.00	
	99	Clear and grub, 40' width for 1 mile	86-68313	0	acre	\$5,000.00	
	100	4' thick gravel surfacing	86-68313	0	ton	\$60.00	
		300,000 cubic yards to be disposed of in spillway chute. Filling to start in stilling basin for access to chute.					
		ROAD IMPROVEMENTS SUBTOTAL					\$145,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 28 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2. <i>Located just north of the Powerhouse. Single story, hip roof, prefab metal structure on concrete slab. Office, lockers, and shop. 20 ft x 40 ft.</i>	86-8130	800	ft2	\$55.00	\$44,000.00
	102	Remove Building No. 3. <i>Located between circular holding ponds. Single story, hip roof, prefab metal structure on concrete walls. Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>	86-68130	1,088	ft2	\$55.00	\$59,840.00
	103	Remove Concrete in Fish Ladder. <i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20, and retaining wall (which serves as a support for part of the fish ladder, and which is the left wall of the tunnel outlet structure).</i>	86-68130	950	yd3	\$170.00	\$161,500.00
	104	Remove Concrete in Holding Ponds #1 thru #6. <i>Includes 6 circular ponds.</i>	86-68130	420	yd3	\$170.00	\$71,400.00
	105	Remove Concrete in Fish Facility Items. <i>Includes holding tank between pool 20 and Bldg. No. 3, tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3, flumes (to holding ponds), and gate basins #1 thru #6.</i>	86-68130	380	yd3	\$170.00	\$64,600.00
	106	Remove Miscellaneous Metalwork in Fish Facilities. <i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank), fish basket (in dope tank), rotating sweeps & stationary sweeps (in circular ponds), frames, gratings, handrail, and ladders.</i>	86-68130	12,000	lbs	\$0.60	\$7,200.00
		SUBTOTAL THIS SHEET					\$408,540.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Gruen, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 29 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	107	Remove Concrete associated with 30"-dia. Water Supply Line. <i>Includes intake structure and 4 water supply line anchors (all on upstream side of dam).</i>	86-68130	68	yd3	\$170.00	\$11,560.00
	108	Remove Concrete in Aerator Structure. <i>Located southeast of powerhouse, across the road, and up the slope. Supplies air for the 30"-dia. water supply line. Includes anchor blocks, thrust blocks, pipe supports, and aerator box.</i>	86-68130	50	yd3	\$170.00	\$8,500.00
	109	Remove Wood in Aerator Structure. <i>Consists of lumber pressure-treated with chromated copper arsenate. Volume of lumber approximately 200 ft3. Assumed to weigh 30 lbs/ft3.</i>	86-68130	6,000	lbs	\$0.65	\$3,900.00
	110	Remove Structural Steel in Aerator Structure. <i>Includes three 6 in WF beams, each about 13 ft long, misc. angles & connection hardware, walkway supports, ladders, cages, and guardrails for landings & steps.</i>	86-68130	2,500	lbs	\$0.60	\$1,500.00
	111	Remove Asphalt Pavement. <i>Located around powerhouse and fish facility ponds and tanks.</i>	86-68130	39,000	ft2	\$5.00	\$195,000.00
	112	Remove Restroom Building near Aerator Structure. <i>Metal building.</i>	86-68130	340	ft2	\$55.00	\$18,700.00
	113	Remove Storage Shed near Aerator Structure. <i>Metal building.</i>	86-68130	90	ft2	\$55.00	\$4,950.00
		SUBTOTAL THIS SHEET					\$244,110.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 30 _ OF _ 41 _

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility		Klamath River Northern California/Southern Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Fish Hatchery Berm Removal					
	114	Toe Drain Pipe <i>30" diameter RCP dispose of off site</i>	86-68313	260	lin ft	\$15.00	\$3,900.00
	115	Toe Drain Manhole <i>48" diameter precast concrete dispose of off site</i>	86-68313	25	lin ft	\$45.00	\$1,125.00
	116	Berm Removal <i>to be removed concurrent with dam constructed with random fill to waste area by conveyor belt.</i>	86-68313	53,000	yd3	\$10.00	\$530,000.00
SUBTOTAL THIS SHEET							\$535,025.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

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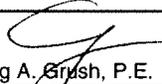
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 31 _ OF _ 41 _

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility		Klamath River Northern California/Southern Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Fish Structures:					
	117	Intake Structures Trashracks- 8.5ft. W. x 10.75 ft. H.					
		Trashracks weight approximately:	86-68420	5,000	lbs	\$0.60	\$3,000.00
	118	Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft. Pipe Weight 80 lbs/ft.	86-68420	76,640	lbs	\$0.60	\$45,984.00
	119	Sluice Gate Valve- 30-in. H. x x30-in. W. Gate weight Approximately: 3,000 lbs	86-68420	3,000	lbs	\$0.60	\$1,800.00
		SUBTOTAL THIS SHEET					\$50,784.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Tumage	BY  Craig A. Brush, P.E.	CHECKED  06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

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ESTIMATE WORKSHEET

SHEET _ 32 _ OF _ 41 _

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility		Klamath River Northern California/Southern Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	120	Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft. Pipe weight 8 lbs/ft.	86-68420	360	lbs	\$0.60	\$216.00
	121	Butterfly Valve- 30-in. Dia. Valve weight approximately: 2435 lbs	86-68420	2,435	lbs	\$0.60	\$1,461.00
	122	Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Pipe weight 80 lbs/ft.	86-68420	7,200	lbs	\$0.60	\$4,320.00
	123	Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Pipe weight 64 lbs/ft.	86-68420	15,872	lbs	\$0.60	\$9,523.20
	124	Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Pipe weight 53 lbs/ft.	86-68420	4,505	lbs	\$0.60	\$2,703.00
	125	Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Pipe weight 48 lbs/ft.	86-68420	29,088	lbs	\$0.60	\$17,452.80
	126	Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Pipe weight 42 lbs/ft.	86-68420	6,972	lbs	\$0.60	\$4,183.20
		SUBTOTAL THIS SHEET					\$39,859.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 33 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	127	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Pipe weight 34 lbs/ft.	86-68420	2,176	lbs	\$0.60	\$1,305.60
	128	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Pipe weight 28 lbs/ft.	86-68420	1,932	lbs	\$0.60	\$1,159.20
	129	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Pipe weight 23 lbs/ft.	86-68420	3,588	lbs	\$0.60	\$2,152.80
	130	Piping- 3-in. Dia. STD x 64 ft. Pipe weight 8 lbs/ft.	86-68420	1,088	lbs	\$0.60	\$652.80
	131	Gate Valves- 24-in. Dia. Gate Valve- 1 total 24-in. Gate Valve weight approx: 3,800 lbs 18-in. Dia. Gate Valve- 7 total 18-in. Gate Valve weight approx: 1748 lbs ea 16-in. Dia. Gate Valve- 2 total 16-in. Gate Valve weight approx: 1465 lbs ea 12-in. Dia. Gate Valve- 1 total 12-in. Gate Valve weight approx: 722 lbs 8-in. Dia. Gate Valve- 6 total 8-in. Gate Valve weight approx: 339 lbs ea 3-in. Dia. Gate Valve- 1 total 3-in. Gate Valve weight approx: 70 lbs Total weight approximately:	86-68420	21,792	lbs	\$0.60	\$13,075.20
		SUBTOTAL THIS SHEET					\$18,345.60

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 34 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility		PROJECT: Klamath River Northern California/Southern Oregon	
WOID: AF652		ESTIMATE LEVEL: Feasibility	
REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:		C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	132	Basin #1-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		Total weight approximately:	86-68420	2,880	lbs	\$0.60	\$1,728.00
	133	Basin #2-					
		Slide Gate- 4-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		Total weight approximately:	86-68420	3,860	lbs	\$0.60	\$2,316.00
	134	Basin #3-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		Total weight approximately:	86-68420	2,880	lbs	\$0.60	\$1,728.00
SUBTOTAL THIS SHEET							\$5,772.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 35 OF 41

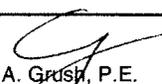
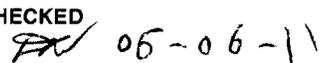
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	135	Basin #4-					
		Slide Gates-					
		24-in. Slide Gate manually operated					
		24-in. Slide Gate weight approx: 700 lbs					
		2-18-in. Slide Gate manually operated					
		18-in. Slide Gate weight approx: 490 lbs ea					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		Total weight approximately:	86-68420	3,580	lbs	\$0.60	\$2,148.00
	136	Basin #5-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		Total weight approximately:	86-68420	1,440	lbs	\$0.60	\$864.00
	137	Basin #6-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		Total weight approximately:	86-68420	1,440	lbs	\$0.60	\$864.00
		SUBTOTAL THIS SHEET					\$3,876.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility		PROJECT: Klamath River Northern California/Southern Oregon	
WOID: AF652		ESTIMATE LEVEL: Feasibility	
REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:		C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx)Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Fish Facilities:					
	139	Misc: motors, control panels, cables and conduit Total weight approximately: 800 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
		FISH SPAWNING FACILITY SUBTOTAL					\$1,311,751.80

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  05-06-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 38 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Wanaka Springs					
	140	Concrete total	BLM	28	CY	\$200.00	\$5,600.00
		1 Dock Pier 25'x5'x5' (23 CY)					
		1 Concrete table base (2 CY)					
		3 Concrete fire rings/garbage bases (1 CY)					
		3 Concrete sign bases (2 CY)					
	141	Double pipe railings	BLM	60	LF	\$35.00	\$2,100.00
	142	Wood picnic tables to be removed and hauled away	BLM	5	EA	\$90.00	\$450.00
	143	25'X5' Wooden floating dock	BLM	125	SF	\$15.00	\$1,875.00
	144	Rip and reseed site and access road	BLM	2.5	ACRE	\$20,000.00	\$50,000.00
	145	Signs to be removed and hauled away	BLM	3	EA	\$250.00	\$750.00
	146	15'x5' Gangplank with railings	BLM	75	SF	\$15.00	\$1,125.00
		Juniper Point					
	147	Concrete total	BLM	19	CY	\$200.00	\$3,800.00
		1 Dock abutment 25'x4'x3' (11 CY)					
		15 Concrete fire rings (5 CY)					
		1 Picnic table base (2 CY)					
		4 Sign bases (1 CY)					
	148	2, 4'x4' Concrete toilet vaults	BLM	32	SF	\$90.00	\$2,880.00
	149	Wood picnic tables to be removed and hauled away	BLM	8	EA	\$90.00	\$720.00
	150	Signs to be removed and hauled away	BLM	4	EA	\$250.00	\$1,000.00
	151	Dock pipe railing	BLM	50	LF	\$35.00	\$1,750.00
	152	50'x5' Composite dock with poly floats	BLM	250	SF	\$15.00	\$3,750.00
	153	20'x5' Composite gangplank with railings	BLM	100	SF	\$15.00	\$1,500.00
	154	Bury 3' dia boulders on site	BLM	50	EA	Included in regrade item	
	155	Regrade to natural contour, rip and reseed	BLM	2	ACRE	\$20,000.00	\$40,000.00
		SUBTOTAL THIS SHEET					\$117,300.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 39 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Recreational Facilities to be Removed Iron Gate Reservoir Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xls\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Camp Creek					
	156	Concrete total	BLM	110	CY	\$200.00	\$22,000.00
		80'x25'x1' Boat ramp (75 CY)					
		Main dock platform piers 25'x4'x3' (11 CY)					
		15 Fire ring bases (6 CY)					
		Step/dock abutment 8'x6'x5' (9 CY)					
		6 Sign bases (2 CY)					
		1 Block foundation sign base (3 CY)					
		2 Picnic table bases (4 CY)					
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade	BLM	855	CY	\$20.00	\$17,100.00
	158	Well house 10'x16' concrete block building	BLM	160	SF	\$90.00	\$14,400.00
	159	2, 20'x5' Composite decking gangplanks w/ aluminum frame railings	BLM	200	SF	\$15.00	\$3,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame docks	BLM	200	SF	\$15.00	\$3,000.00
	161	Concrete block double toilet bldg 10'x16'	BLM	160	SF	\$90.00	\$14,400.00
	162	Dump stations and approx. 2000 gal buried concrete tank	BLM	1	EA	\$4,000.00	\$4,000.00
	163	Power poles and lines	BLM	3	POLES	\$1,000.00	\$3,000.00
	164	Remove waterlines and 3 faucets and regrade	BLM	600	LF	\$4.00	\$2,400.00
	165	Recycle/bury approx. 3' dia. boulders	BLM	75	EA	Included in regrade item	
	166	Steel pipe/plank picnic tables to be removed and hauled away	BLM	5	EA	\$90.00	\$450.00
	167	Relocate concrete tables	BLM	12	EA	\$90.00	\$1,080.00
	168	Regrade, rip and reseed	BLM	4	ACRE	\$20,000.00	\$80,000.00
	169	Signs to be removed and hauled away	BLM	7	EA	\$250.00	\$1,750.00
		Dutch Creek					
	170	50'x4'x3' Dock concrete abutment	BLM	22	CY	\$200.00	\$4,400.00
	171	Double pipe railing	BLM	100	LF	\$35.00	\$3,500.00
		SUBTOTAL THIS SHEET					\$174,480.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 06/02/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 40 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Recreational Facilities to be Removed Iron Gate Reservoir Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx)Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mirror Cove					
	172	Concrete total		89	CY	\$200.00	\$17,800.00
		80'x25'x0.5' Boat ramp (37 CY)					
		2 Concrete boat dock abutments: 6'x8'x1.5' and 6'x30'x5' (36 CY)					
		12 Fire ring foundations (4 CY)					
		2 Sets of concrete stairs (9 CY)					
		7 Sign foundations (3 CY)					
	173	10'x16' Toilet vault		160	SF	\$90.00	\$14,400.00
	174	2, 30'x5' Composite gangplanks w/aluminum frame and railings		300	SF	\$15.00	\$4,500.00
	175	Double pipe railings on dock		80	LF	\$35.00	\$2,800.00
	176	Bury 3' dia. boulders on site		120	EA	Included in regrade item	
	177	Regrade site, rip and reseed		3	ACRE	\$20,000.00	\$60,000.00
	178	Signs to be removed and hauled away		7	EA	\$250.00	\$1,750.00
		Overlook Point					
	179	1 Concrete picnic table base		1	CY	\$200.00	\$200.00
	180	Steel frame table to be removed and hauled away		1	EA	\$90.00	\$90.00
	181	Regrade steep access road and site to natural contours, rip and reseed		0.5	ACRE	\$20,000.00	\$10,000.00
		Long Gulch					
	182	80'x25'x4" Concrete boat ramp to be removed		25	CY	\$200.00	\$5,000.00
	183	Remove picnic tables (steel frame with planks) & haul away		2	EA	\$90.00	\$180.00
	184	Regrade ramp area to natural contours, rip, reseed		0.05	ACRE	\$20,000.00	\$1,000.00
		RECREATIONAL FACILITIES REMOVAL SUBTOTAL					\$409,500.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Orush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 11/18/10	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: REVISION #1 Klamath River Dams Removal Recreational Facilities to be Removed Iron Gate Reservoir Most Probable Low SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		839,100	CY	\$0.00	\$0.00
		Diversion and Care					\$2,807,410.00
		Dam Removal					\$10,891,502.00
		Powerhouse/Switchyard/Transmission Line Removal					\$1,640,019.20
		Penstock Removal					\$902,376.00
		Reservoir Vegetative Restoration					\$6,360,500.00
		Road Improvements					\$145,000.00
		Fish Spawning Facility Removal					\$1,311,751.80
		Recreational Facilities to be Removed					\$409,500.00
		Subtotal					\$24,468,059.00
		Mobilization	5%	+/-			\$1,200,000.00
		Subtotal 1 with Mobilization					\$25,668,059.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 1.5%/yr compounding over 10 years)					\$4,120,771.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$29,788,830.00
		Design Contingencies	8%	+/-			\$2,211,170.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$32,000,000.00
		Construction Contingencies	18%	+/-			\$6,000,000.00
		FIELD COST					\$38,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 3%, Permitting ~ 2%, Procurement ~ 1%, Construction Management ~ 9%, and Closeout ~ 1%)	52%	+/-			\$20,000,000.00
		CONSTRUCTION COST					\$58,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grish, P.E.	CHECKED [Signature] 06-06-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 06/02/11	PEER REVIEW / DATE [Signature] 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 1 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge is used for removal of existing closure gates and installation of new roller gate. Barge is located on reservoir for approximately 1 week.	86-68130	1	ls		\$200,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure. Installation requires a dive depth of approximately 150 feet. Air vent consists of 12-inch diameter HDPE pipe.	86-68130	150	lf		DELETED
	3	Remove Reinforced Concrete Ring. Located just downstream of closure gate and upstream of flap gate. Tunnel work	86-68130	31	cy	\$1,500.00	\$46,500.00
	4	Remove Reinforced Concrete Stoplog Structure. Located at downstream end of diversion tunnel.	86-68130	3	cy	\$215.00	\$645.00
	5	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	300,000	gals	\$0.01	\$3,000.00
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$35,000.00
SUBTOTAL THIS SHEET							\$285,145.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Tom Hepler P.E. 11/2/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

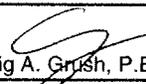
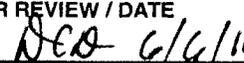
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 41

FEATURE: REVISION #2 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#2 - MP Feas Est - 4-2011.xlsx\Diversion & Care
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	8	Construct 240-ft-long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft2 of deck for similar concrete bridge at Upper San Joaquin priced out in 2009.	86-68130	0	ft2	\$300.00	
	9	Remove and dispose of existing bridge. Bridge is approximately 227 feet long. Consists of 9 spans @ about 25 feet (steel girders) with reinforced concrete decking (about 16 feet wide). Piers appear to be timber posts, supported on 4 or 5 pile bents. Rails along both sides are timber with concrete wheel guards. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	0	ls	\$400,000.00	
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY  Craig A. Grish, P.E.	CHECKED  06-06-11
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE  6/6/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 41

FEATURE: REVISION #2 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#2 - MP Feas Est - 4-2011.xlsx\Diversion & Care
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL	86-68420				
		All items are necessary for the removal of Iron Gate Dam.					
	11	Remove 1 - 9' dia. hinged blind flange and associated metal work, including 5' of pipe spool. This will require installing and removing all fasteners on the blind flange. It assumed that these fasteners are on-site (Assume contains paint with heavy metals) Tunnel work		19,000	lbs	\$2.00	\$38,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe Weight of plug valve used: 2,000 lbs Tunnel work		2,900	lbs	\$2.00	\$5,800.00
	13	Furnish, install and remove 1 - 16.5'x18' roller gate, stem, and operator Total roller gate weight approximately: 75,900 lbs. Installation and removal requires a dive depth of approximately 150 feet.		110,000	lbs	\$15.00	\$1,650,000.00
		DIVERSION AND CARE SUBTOTAL					\$3,494,445.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-08-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 06/08/11	PEER REVIEW / DATE <i>[Signature]</i> 6/8/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 6 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension. Observation Platform is reinforced concrete slab located on right abutment. Buried crest wall on left abutment consists of unreinforced controlled low strength material. Reinforced extension on right abutment includes reinforced concrete wall and stairs to trash gate.	86-68130	580	yd3	\$215.00	\$124,700.00
		Items are associated with the Diversion Tunnel. All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure. Remove concrete upstream of Sta. 3+00. Concrete removal requires a dive depth of 150 feet.	86-68130	530	yd3	\$215.00	\$113,950.00
	16	Remove Concrete in Diversion Tunnel Gate Tower. Remove concrete down to elev. 2254.	86-68130	410	yd3	\$215.00	\$88,150.00
	17	Remove Steel Footbridge to Gate Tower. This bridge provides access from the dam crest to the gate tower for the diversion tunnel. Assume contains paint with heavy metal.	86-68130	13,000	lbs	\$0.85	\$11,050.00
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment. Includes stairs over sheetpile wall.	86-68130	20	yd3	\$215.00	\$4,300.00
	19	Place Concrete Plugs for Diversion Tunnel. There will be 3 plugs total. Two placed vertically and one horiz. Plugs will be 2 feet thick, reinforced concrete, 3,000 psi min. Location of plugs and info about openings is as follows: Upstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 3+01.0. Downstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 12+68.5. Gate tower; horizontal plug at elev. 2254, 15.5-ft by 7.5-ft, reinf. concrete, rectangular shape.	86-68130	43	yd3	\$1,200.00	\$51,600.00
		SUBTOTAL THIS SHEET					\$393,750.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Sheena Barnes, Jonathan East	BY Craig A. Grush, P.E.	CHECKED [Signature] 09-19-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE [Signature] 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 8 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	21	Upstream Riprap Assume max size 250 lbs, ave. 100 lbs. to wase area by truck	86-68313	80,000	yd3	\$13.00	\$1,040,000.00
	22	Downstream Riprap Assume max size 2500 lbs, ave. 500 lbs. to wase area by truck	86-68313	30,000	yd3	\$13.00	\$390,000.00
	23	Miscellaneous Excavation Consists of finer earth fill materials 300,000 cy to spillway chute by truck remainder to waste area by truck	86-68313	880,000	yd3	\$13.00	\$11,440,000.00
	24	Cutoff Wall Concrete Demolition The 2 concrete cutoff walls are embedded in the Zone III core but do not appear to be anchored into bedrock.	86-68313	1,250	yd3	\$215.00	\$268,750.00
	25	Earth Fill Crest Raise Treat as miscellaneous excavation to wase area by truck	86-68313	13,000	yd3	\$13.00	\$169,000.00
	26	Sheetpile Crest Raise Remove sheetpile wall crest raise Total height 13', embedded 9', type CS55.	86-68313	800	lin ft	\$250.00	\$200,000.00
		Monitoring Well Removal					
	27	Remove 5 monitoring wells assume 150 length, 6" diameter remove as excavation progresses	86-68313	5	each	\$2,000.00	\$10,000.00
		SUBTOTAL THIS SHEET					\$13,517,750.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Spillway Structure:					
	28	Trash Sluice Gate- 10 ft. W x 9 ft. H Total gate weight approximately: 3500 lbs. Total gate hoist weight approximately: 1000 lbs Total weight approximately:	86-68420	4,500	lbs	\$0.85	\$3,825.00
		(Assume contains paint with heavy metals & petroleum products)					
		Remove and dispose of the following equipment of the Diversion Tunnel:					
	29	Intake structure Trash Racks- 4 rack each 10 ft. W x 33 ft. H Each rack weights approximately: 18,000 lbs Total weight approximately:	86-68420	72,000	lbs	\$0.70	\$50,400.00
	30	Sluice and Diversion Tunnel Gate Gate Hoist- 2-10-in. Dia. Hydraulic cylinders Gate hoist weight approx: 10,000 lbs ea. Framework- I-Beam framework securing hoists Total framework weight approx: 8,000 lbs Total weight approximately:	86-68420	28,000	lbs	\$0.85	\$23,800.00
		(Assume contains paint with heavy metals & petroleum products)					
	31	Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Stem weight is 50 lbs/ft. (Assume contains paint with heavy metals & petroleum products)	86-68420	7,500	lbs	\$0.85	\$6,375.00
SUBTOTAL THIS SHEET							\$84,400.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 10 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	32	Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Near Sluice Gate Pipe weight is 29 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	4,650	lbs	\$2.00	\$9,300.00
	33	Transition Gate Structure Flap Gate - 96 in. Dia. With 4 ft. pipe Total weight approximately: (Assume contains paint with heavy metals) Tunnel work	86-68420	8,000	lbs		DELETED
	34	Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. From Gate to Outlet Works Pipe weight is 54 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	30,250	lbs	\$2.00	\$60,500.00
	35	Outlet Works Stop Logs Total logs weight approximately: 2,310 lbs Total guide weight approximately: 360 lbs Total weight approximately: (Assume contains paint with heavy metals)	86-68420	2,670	lbs	\$0.85	\$2,269.50
SUBTOTAL THIS SHEET							\$72,069.50

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 11 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam		PROJECT: Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Diversion Tunnel Gate Intake Structure:					
	36	Hydraulic Pump motor (10 HP est) & control panel Total weight approximately: 250 lbs.	86-68430	1	EA	\$350.00	\$350.00
	37	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$1,700.00	\$1,700.00
	38	Power Cable and 4"Conduit from Penstock Structure (3 conductor 6 AWG est.) Total weight approximately: 10,400 lbs.	86-68430	800	feet	\$35.00	\$28,000.00
		DAM SUBTOTAL					\$14,159,019.50

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 13 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Turbine Unit 25,000 hp, 158 ft. of head, 180 RPM D3 is calculated at 8.85 ft. Turbine weight calculated approx:	86-68420	344,058	lbs	\$0.85	\$292,449.30
		(Assume contains paint with heavy metals & petroleum products)					
	41	Draft Tube Bulkheads- 3-Bulkhead approx. 10 ft. W. x 10 ft. H Bulkhead weight approximately: 3000 lbs each 3-Framework weight approx: 2500 lbs each Total bulkhead weight approx:	86-68420	16,500	lbs	\$0.85	\$14,025.00
		(Assume contains paint with heavy metals)					
		Remove and dispose of the following equipment of the Powerhouse Structure:					
	42	Crane- No Crane at Site, but embedded rails still exist Above Ground Steel Rails-200 ft. length Crane is presently used at J. C. Boyle	86-68420	24,000	lbs	\$0.85	\$20,400.00
		(Assume contains paint with heavy metals & petroleum products)					
	43	Governor- Accumulator tank for air over oil cylinders Governor control panel cabinet Pump for Oil Total weight approximately:	86-68420	20,310	lbs	\$0.85	\$17,263.50
		(Assume contains paint with heavy metals & petroleum products)					
SUBTOTAL THIS SHEET							\$344,137.80

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 09-19-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

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ESTIMATE WORKSHEET

SHEET 14 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	44	Bearing Oil System and Cooling Water System- Steel Piping of various sizes Valves of various sizes Total weight approximately:	86-68420	9,182	lbs	\$0.85	\$7,804.70
		(Assume contains paint with heavy metals & petroleum products)					
	45	CO2 System- Various sizes of piping and valves Total weight approximately:	86-68420	2,568	lbs	\$0.85	\$2,182.80
		(Assume contains paint with heavy metals & petroleum products)					
	46	Plant Water and Fire Protection System- Various sizes of piping and valves Total weight approximately:	86-68420	9,182	lbs	\$0.85	\$7,804.70
		(Assume contains paint with heavy metals)					
	47	Sump Pumps- 2-Powerhouse water removal sump pumps Sump weight approximately: 1000 lbs each Total weight approximately:	86-68420	2,000	lbs	\$0.85	\$1,700.00
		(Assume contains petroleum products)					
	48	Pumps- 4-Large pumps near outlet Pump weight approximately: 3000 lbs each 4-Pump Suction Inlet Bulkhead gates approx. 10 ft. H. x 10 ft. W. Bulkhead weight approximately: 2500 lbs each Total weight approximately:	86-68420	22,000	lbs	\$0.85	\$18,700.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$38,192.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

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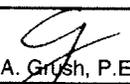
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 15 _ OF _ 41 _

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	49	Exposed Piping around the plant- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	19,291	lbs	\$0.85	\$16,397.35
	50	Unwatering Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	19,291	lbs	\$0.85	\$16,397.35
	51	Drainage Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	9,518	lbs	\$0.85	\$8,090.30
	52	Transformer Oil and Fire Protection- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	9,182	lbs	\$0.85	\$7,804.70
	53	Compressed Air System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	1,450	lbs	\$0.85	\$1,232.50
SUBTOTAL THIS SHEET							\$49,922.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Grush, P.E.	CHECKED  04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

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ESTIMATE WORKSHEET

SHEET _ 16 _ OF _ 41 _

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	54	AC Generator, Outdoor Horizontal 18.975 MVA (18 MW); 0.95PF, 6,600V, 180 RPM, 3 Ph, including rotating exciter Total weight approximately: 387,500 lbs. Stator: 124,600 lbs., Rotor: 189,300 lbs. Exciter Assembly: 17,000 lbs. Heaviest lift: 186,700 lbs.	86-68430	1	EA	\$125,000.00	\$125,000.00
	55	Excitation equipment for 18.975 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	56	Surge protection equip. for 18.975 MVA Generator Total weight approximately: 800 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	57	Neutral grounding equip. for 18.975 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	1	EA	\$4,000.00	\$4,000.00
	58	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
	59	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
SUBTOTAL THIS SHEET							\$173,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Fossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

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ESTIMATE WORKSHEET

SHEET 17 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	60	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	61	Raceways, Bus, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 100 lin. Ft. cabletray, 40 lin. Ft. non-segregated phase bus) Total weight approximately: 9,000 lbs.	86-68430	1	EA	\$15,000.00	\$15,000.00
	62	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
	63	Transformer (3 phase, 275 kVA, 6600/480V est.) in power house Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	64	Governor Oil Pump Motors (10 hp and 20 hp est.) Total weight approximately: 450 lbs.	86-68430	2	EA	\$250.00	\$500.00
	65	Vertical Motors, outdoor, (480V, 100 HP est.) Outdoor for fish water pumps Total weight approximately: 2,000 lbs.	86-68430	4	EA	\$600.00	\$2,400.00
		SUBTOTAL THIS SHEET					\$42,900.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 09-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

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ESTIMATE WORKSHEET

SHEET _ 18 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	66	Transformer (3 phase, 300 kVA, 6600/480V est.) Outdoor for fish water pumps Total weight approximately: 2,900 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
		Remove and dispose of the following equipment in switchyard/powerplant deck:					
	67	Step-up Transformer, outdoor, oil-filled, 3-phase, 18,947 kVA, 6,600/69,000 volt Total weight approximately: 58,000 lbs.	86-68430	1	EA	\$100,000.00	\$100,000.00
	68	Lattice steel structure, with 69-kV disconnect switches and insulators	86-68430	1	EA	\$5,000.00	\$5,000.00
	69	Generator Switchgear, outdoor, 7.2kV-includes unit breaker (5 Sections @ 2,400 lbs each section 3 ft x 7.5 ft x 95 inches high), 20 ft. non-seg. bus Total weight approximately: 12,000 lbs.	86-68430	1	EA	\$35,000.00	\$35,000.00
	70	Single Phase Pole Transformers. (25 kVA est.) Total weight approximately: 1050 lbs.	86-68430	3	EA	\$2,000.00	\$6,000.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$2,099,152.20

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

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ESTIMATE WORKSHEET

SHEET _ 19 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	71	Remove Concrete in Penstock Intake Structure.	86-68130	460	yd3	\$215.00	\$98,900.00
	72	Remove Concrete in Penstock Encasement. Encasement runs through embankment from intake structure to penstock anchor No. 1.	86-68130	840	yd3	\$215.00	\$180,600.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	86-68130	1,900	yd3	\$215.00	\$408,500.00
	74	Remove Steel Footbridge to Intake Structure. This bridge provides access from the left abutment to the penstock intake structure. Assume contains paint with heavy metals.	86-68130	11,000	lbs	\$0.85	\$9,350.00
	75	Remove Concrete in Intake Structure Footbridge Abutment.	86-68130	5	yd3	\$215.00	\$1,075.00
SUBTOTAL THIS SHEET							\$698,425.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

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ESTIMATE WORKSHEET

SHEET _ 21 _ OF _ 41 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock				Klamath River Northern California/Southern Oregon			
WOID: AF484		ESTIMATE LEVEL: Feasibility		REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	78	Water fill line- 12-in. Dia. STD x 27 ft Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,350	lbs	\$0.85	\$1,147.50
	79	Air Vent- 12-in. Dia. STD x 32 ft. Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,600	lbs	\$0.85	\$1,360.00
		Power Conduit (Penstock) Continued:					
	80	Gage Wells-					
		10-in. Dia. STD x 32 ft. weights 41 lbs/ft.	86-68420	1,312	lbs	\$0.85	\$1,115.20
		12-in. Dia. STD x 26 ft. weights 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,300	lbs	\$0.85	\$1,105.00
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Pipe weight 124 lbs/ft. (Assume contains paint with heavy metals)	86-68420	7,440	lbs	\$0.85	\$6,324.00
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Pipe weight 386 lbs/ft. (Assume contains paint with heavy metals)	86-68420	294,428	lbs	\$0.85	\$250,263.80
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Pipe weight 257 lbs/ft. (Assume contains paint with heavy metals)	86-68420	12,850	lbs	\$0.85	\$10,922.50
	84	Outlet Valve on bypass outlet- 66-in. Dia. Assumed to be a Fixed Cone Valve with controls Valve weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	18,000	lbs	\$0.85	\$15,300.00
SUBTOTAL THIS SHEET							\$287,538.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Penstock Intake Structure:					
	85	Overhead Trolley Crane Motor (4hp est)& controls Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	86	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$2,500.00	\$2,500.00
	87	Power Cable and Conduit 1800 ft. 4" Conduit with 3 conductor 6 AWG est. 1200 ft. 1.5" Conduit with 3 conductor 12 AWG est. Total weight approximately: 11,000 lbs.	86-68430	1	EA	\$70,000.00	\$70,000.00
		PENSTOCK SUBTOTAL					\$1,172,878.50

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 24 _ OF _ 41 _

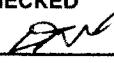
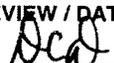
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING:	86-68220	370	Acres	\$3,500.00	\$1,295,000.00
		Idaho fescue (Festuca idahoensis)	1578	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1578	lbs	PLS		
		Small fescue (Vulpia microstachys)	1578	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2366	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	197	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	99	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1578	lbs	PLS		
		California brome (Bromus carinatus)	3155	lbs	PLS		
		Squirreltail (Elymus elymoides)	1578	lbs	PLS		
		Wood mulch	788760	lbs			
		Tackifier	47326	lbs			
	90	SPRING BARGE SEEDING:	86-68220	296	Acres	\$6,500.00	\$1,924,000.00
		Idaho fescue (Festuca idahoensis)	1262	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1262	lbs	PLS		
		Small fescue (Vulpia microstachys)	1262	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1893	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	158	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	79	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1262	lbs	PLS		
		California brome (Bromus carinatus)	2524	lbs	PLS		
		Squirreltail (Elymus elymoides)	1262	lbs	PLS		
		Wood mulch	631008	lbs			
		Tackifier	37860	lbs			
		SUBTOTAL THIS SHEET					\$3,219,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration		Klamath River Northern California/Southern Oregon	
		WOID: AF484	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	159	Acres	\$7,500.00	\$1,192,500.00
		Idaho fescue (Festuca idahoensis)	460	lbs PLS			
		Blue wildrye (Elymus glaucus)	460	lbs PLS			
		Small fescue (Vulpia microstachys)	460	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	691	lbs PLS			
		Sandberg bluegrass (Poa secunda)	58	lbs PLS			
		Spike bentgrass (Agrostis exarata)	29	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	460	lbs PLS			
		California brome (Bromus carinatus)	921	lbs PLS			
		Squirreltail (Elymus elymoides)	460	lbs PLS			
		Wood mulch	230233	lbs			
		Tackifier	13814	lbs			
	92	FALL GROUND SEEDING:	86-68220	413	Acres	\$3,500.00	\$1,445,500.00
		Idaho fescue (Festuca idahoensis)	1650	lbs PLS			
		Blue wildrye (Elymus glaucus)	1650	lbs PLS			
		Small fescue (Vulpia microstachys)	1650	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2475	lbs PLS			
		Sandberg bluegrass (Poa secunda)	206	lbs PLS			
		Spike bentgrass (Agrostis exarata)	103	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	1650	lbs PLS			
		California brome (Bromus carinatus)	3300	lbs PLS			
		Squirreltail (Elymus elymoides)	1650	lbs PLS			
		Wood mulch	126923	lbs			
		Tackifier	7615	lbs			
SUBTOTAL THIS SHEET							\$2,638,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY  Craig A. Grush, P.E.	CHECKED  04-14-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/14/11	PEER REVIEW / DATE  4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 26 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF484	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Res Reveg	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING:	86-68220	50	Acres	\$8,500.00	\$425,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	24500	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	7000	cutting			
		Shining willow (<i>Salix lucida</i>)	3500	cutting			
		Herbivore screen	35000	each			
		Chemical herbivore deterrent	700	gal			
	94	WEED MANAGEMENT:	86-68220	413	Acres	\$1,500.00	\$619,500.00
		Herbicide, post-emergent	825	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING:	86-68220	330	Acres	\$3,500.00	\$1,155,000.00
		Idaho fescue (<i>Festuca idahoensis</i>)	1320	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	1320	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	1320	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1980	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	165	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	82.5	lbs PLS			
		Western needlegrass (<i>Achnatherum occidentale</i>)	1320	lbs PLS			
		California brome (<i>Bromus carinatus</i>)	2640	lbs PLS			
		Squirreltail (<i>Elymus elymoides</i>)	1320	lbs PLS			
		Wood mulch	660000	lbs			
		Tackifier	39600	lbs			
	96	WEED MANAGEMENT:	86-68220	330	Acres	\$1,500.00	\$495,000.00
		Herbicide, post-emergent	31	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$9,331,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Crush, P.E.	CHECKED DW 04-14-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/14/11	PEER REVIEW / DATE DCW 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 27 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Road Improvements				PROJECT: Klamath River Northern California/Southern Oregon			
		WOID: AF484	ESTIMATE LEVEL: Feasibility				
		REGION: MP	UNIT PRICE LEVEL: July-2010				
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal					
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL These quantities represent the work required to prepare a disposal site and remove the earth fill embankment and concrete cutoff walls of Iron Gate Dam to original ground surface.					
		General Sitework Clear and Grub Disposal Area Estimated haul distance 1 1/4 mile. Disposed fill estimated to be 20' deep and traffic compacted (15% bulking factor).	86-68313	29	acre	\$6,000.00	\$174,000.00
		Prepare Haul Road - 1.25 mi 2 way traffic - off road dumps or scrapers					
	98	Rock Excavation for Haul Road Widening hard basalt rock	86-68313	13,500	yd3	\$40.00	\$540,000.00
	99	Clear and grub, 40' width for 1 mile	86-68313	5	acre	\$6,000.00	\$30,000.00
	100	4' thick gravel surfacing	86-68313	5,300	ton	\$70.00	\$371,000.00
		300,000 cubic yards to be disposed of in spillway chute. Filling to start in stilling basin for access to chute.					
ROAD IMPROVEMENTS SUBTOTAL							\$1,115,000.00
QUANTITIES				PRICES			
BY Randy Kuzniakowski		CHECKED Tuti Tierney		BY Craig A. Grust, P.E.		CHECKED [Signature] 09-14-11	
DATE PREPARED 11/01/10		PEER REVIEW / DATE Daniel W. Osmun 11/1/10		DATE PREPARED 04/14/11		PEER REVIEW / DATE [Signature] 4/14/11	

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 28 _ OF _ 41 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility				Klamath River Northern California/Southern Oregon			
WOID:		AF484		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Rec Fac Removal			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2. <i>Located just north of the Powerhouse. Single story, hip roof, prefab metal structure on concrete slab. Office, lockers, and shop. 20 ft x 40 ft.</i>	86-8130	800	ft2	\$60.00	\$48,000.00
	102	Remove Building No. 3. <i>Located between circular holding ponds. Single story, hip roof, prefab metal structure on concrete walls. Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>	86-68130	1,088	ft2	\$60.00	\$65,280.00
	103	Remove Concrete in Fish Ladder. <i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20, and retaining wall (which serves as a support for part of the fish ladder, and which is the left wall of the tunnel outlet structure).</i>	86-68130	950	yd3	\$215.00	\$204,250.00
	104	Remove Concrete in Holding Ponds #1 thru #6. <i>Includes 6 circular ponds.</i>	86-68130	420	yd3	\$215.00	\$90,300.00
	105	Remove Concrete in Fish Facility Items. <i>Includes holding tank between pool 20 and Bldg. No. 3, tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3, flumes (to holding ponds), and gate basins #1 thru #6.</i>	86-68130	380	yd3	\$215.00	\$81,700.00
	106	Remove Miscellaneous Metalwork in Fish Facilities. <i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank), fish basket (in dope tank), rotating sweeps & stationary sweeps (in circular ponds), frames, gratings, handrail, and ladders. Assume contains paint with heavy metals.</i>	86-68130	12,000	lbs	\$0.85	\$10,200.00
SUBTOTAL THIS SHEET							\$499,730.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-19-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 29 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	107	Remove Concrete associated with 30"-dia. Water Supply Line. <i>Includes intake structure and 4 water supply line anchors (all on upstream side of dam).</i>	86-68130	68	yd3	\$215.00	\$14,620.00
	108	Remove Concrete in Aerator Structure. <i>Located southeast of powerhouse, across the road, and up the slope. Supplies air for the 30"-dia. water supply line. Includes anchor blocks, thrust blocks, pipe supports, and aerator box.</i>	86-68130	50	yd3	\$215.00	\$10,750.00
	109	Remove Wood in Aerator Structure. <i>Consists of lumber pressure-treated with chromated copper arsenate. Volume of lumber approximately 200 ft3. Assumed to weigh 30 lbs/ft3.</i>	86-68130	6,000	lbs	\$0.70	\$4,200.00
	110	Remove Structural Steel in Aerator Structure. <i>Includes three 6 in WF beams, each about 13 ft long, misc. angles & connection hardware, walkway supports, ladders, cages, and guardrails for landings & steps. Assume contains paint with heavy metals.</i>	86-68130	2,500	lbs	\$0.85	\$2,125.00
	111	Remove Asphalt Pavement. <i>Located around powerhouse and fish facility ponds and tanks.</i>	86-68130	39,000	ft2	\$6.00	\$234,000.00
	112	Remove Restroom Building near Aerator Structure. <i>Metal building.</i>	86-68130	340	ft2	\$60.00	\$20,400.00
	113	Remove Storage Shed near Aerator Structure. <i>Metal building.</i>	86-68130	90	ft2	\$60.00	\$5,400.00
		SUBTOTAL THIS SHEET					\$291,495.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 09-19-11
DATE PREPARED 11/02/10	PEER REVIEW / DATE Rick Benik P.E. 11/2/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 30 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Fish Hatchery Berm Removal					
	114	Toe Drain Pipe <i>30" diameter RCP dispose of off site</i>	86-68313	260	lin ft	\$20.00	\$5,200.00
	115	Toe Drain Manhole <i>48" diameter precast concrete dispose of off site</i>	86-68313	25	lin ft	\$50.00	\$1,250.00
	116	Berm Removal <i>to be removed concurrent with dam constructed with random fill to waste area by truck</i>	86-68313	53,000	yd3	\$13.00	\$689,000.00
		SUBTOTAL THIS SHEET					\$695,450.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 31 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Fish Structures:					
	117	Intake Structures Trashracks- 8.5ft. W. x 10.75 ft. H.					
		Trashracks weight approximately:	86-68420	5,000	lbs	\$0.75	\$3,750.00
	118	Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft.	86-68420	76,640	lbs	\$0.85	\$65,144.00
		Pipe Weight 80 lbs/ft. (Assume contains paint with heavy metals)					
	119	Sluice Gate Valve- 30-in. H. x x30-in. W.					
		Gate weight Approximately: 3,000 lbs	86-68420	3,000	lbs	\$0.85	\$2,550.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$71,444.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 32 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	120	Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	360	lbs	\$0.85	\$306.00
	121	Butterfly Valve- 30-in. Dia. Valve weight approximately: 2435 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	2,435	lbs	\$0.85	\$2,069.75
	122	Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Pipe weight 80 lbs/ft. (Assume contains paint with heavy metals)	86-68420	7,200	lbs	\$0.85	\$6,120.00
	123	Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Pipe weight 64 lbs/ft. (Assume contains paint with heavy metals)	86-68420	15,872	lbs	\$0.85	\$13,491.20
	123	Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Pipe weight 53 lbs/ft. (Assume contains paint with heavy metals)	86-68420	4,505	lbs	\$0.85	\$3,829.25
	124	Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Pipe weight 48 lbs/ft. (Assume contains paint with heavy metals)	86-68420	29,088	lbs	\$0.85	\$24,724.80
	125	Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Pipe weight 42 lbs/ft. (Assume contains paint with heavy metals)	86-68420	6,972	lbs	\$0.85	\$5,926.20
		SUBTOTAL THIS SHEET					\$56,467.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Tumage	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 33 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	126	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Pipe weight 34 lbs/ft. (Assume contains paint with heavy metals)	86-68420	2,176	lbs	\$0.85	\$1,849.60
	127	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Pipe weight 28 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,932	lbs	\$0.85	\$1,642.20
	128	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Pipe weight 23 lbs/ft. (Assume contains paint with heavy metals)	86-68420	3,588	lbs	\$0.85	\$3,049.80
	130	Piping- 3-in. Dia. STD x 64 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,088	lbs	\$0.85	\$924.80
	131	Gate Valves- 24-in. Dia. Gate Valve- 1 total 24-in. Gate Valve weight approx: 3,800 lbs 18-in. Dia. Gate Valve- 7 total 18-in. Gate Valve weight approx: 1748 lbs ea 16-in. Dia. Gate Valve- 2 total 16-in. Gate Valve weight approx: 1465 lbs ea 12-in. Dia. Gate Valve- 1 total 12-in. Gate Valve weight approx: 722 lbs 8-in. Dia. Gate Valve- 6 total 8-in. Gate Valve weight approx: 339 lbs ea 3-in. Dia. Gate Valve- 1 total 3-in. Gate Valve weight approx: 70 lbs Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	21,792	lbs	\$0.85	\$18,523.20
SUBTOTAL THIS SHEET							\$25,989.60

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 34 _ OF _ 41 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		MECHANICAL						
	132	Basin #1-						
		Slide Gate- 2-18-in. manually operated						
		Slide Gate weight approximately: 490 lbs ea						
		(Assume contains paint with heavy metals & petroleum products)						
		Stop logs-						
		Total logs weight approximately: 1500 lbs						
		Total guide weight approximately: 400 lbs						
		(Assume contains paint with heavy metals)						
		Total weight approximately:	86-68420	2,880	lbs	\$0.85	\$2,448.00	
	133	Basin #2-						
		Slide Gate- 4-18-in. manually operated						
		Slide Gate weight approximately: 490 lbs ea						
		(Assume contains paint with heavy metals & petroleum products)						
		Stop logs-						
		Total logs weight approximately: 1500 lbs						
		Total guide weight approximately: 400 lbs						
		(Assume contains paint with heavy metals)						
		Total weight approximately:	86-68420	3,860	lbs	\$0.85	\$3,281.00	
	134	Basin #3-						
		Slide Gate- 2-18-in. manually operated						
		Slide Gate weight approximately: 490 lbs ea						
		(Assume contains paint with heavy metals & petroleum products)						
		Stop logs-						
		Total logs weight approximately: 1500 lbs						
		Total guide weight approximately: 400 lbs						
		(Assume contains paint with heavy metals)						
		Total weight approximately:	86-68420	2,880	lbs	\$0.85	\$2,448.00	
		SUBTOTAL THIS SHEET						\$8,177.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	135	Basin #4-					
		Slide Gates-					
		24-in. Slide Gate manually operated					
		24-in. Slide Gate weight approx: 700 lbs					
		2-18-in. Slide Gate manually operated					
		18-in. Slide Gate weight approx: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,580	lbs	\$0.85	\$3,043.00
	136	Basin #5-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$0.85	\$1,224.00
	137	Basin #6-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$0.85	\$1,224.00
		SUBTOTAL THIS SHEET					\$5,491.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Gosh, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 10/29/10	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 38 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Wanaka Springs					
	140	Concrete total	BLM	28	CY	\$300.00	\$8,400.00
		1 Dock Pier 25'x5'x5' (23 CY)					
		1 Concrete table base (2 CY)					
		3 Concrete fire rings/garbage bases (1 CY)					
		3 Concrete sign bases (2 CY)					
	141	Double pipe railings	BLM	60	LF	\$40.00	\$2,400.00
	142	Wood picnic tables to be removed and hauled away	BLM	5	EA	\$100.00	\$500.00
	143	25'X5' Wooden floating dock	BLM	125	SF	\$20.00	\$2,500.00
	144	Rip and reseed site and access road	BLM	2.5	ACRE	\$25,000.00	\$62,500.00
	145	Signs to be removed and hauled away	BLM	3	EA	\$300.00	\$900.00
	146	15'x5' Gangplank with railings	BLM	75	SF	\$20.00	\$1,500.00
		Juniper Point					
	147	Concrete total	BLM	19	CY	\$300.00	\$5,700.00
		1 Dock abutment 25'x4'x3' (11 CY)					
		15 Concrete fire rings (5 CY)					
		1 Picnic table base (2 CY)					
		4 Sign bases (1 CY)					
	148	2, 4'x4' Concrete toilet vaults	BLM	32	SF	\$100.00	\$3,200.00
	149	Wood picnic tables to be removed and hauled away	BLM	8	EA	\$100.00	\$800.00
	150	Signs to be removed and hauled away	BLM	4	EA	\$300.00	\$1,200.00
	151	Dock pipe railing	BLM	50	LF	\$40.00	\$2,000.00
	152	50'x5' Composite dock with poly floats	BLM	250	SF	\$20.00	\$5,000.00
	153	20'x5' Composite gangplank with railings	BLM	100	SF	\$20.00	\$2,000.00
	154	Bury 3' dia boulders on site	BLM	50	EA	Included in regrade item	
	155	Regrade to natural contour, rip and reseed	BLM	2	ACRE	\$25,000.00	\$50,000.00
		SUBTOTAL THIS SHEET					\$148,600.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 39 _ OF _ 41 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Reservoir Most Probable				Klamath River Northern California/Southern Oregon			
WOID:		AF484		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Camp Creek					
	156	Concrete total	BLM	110	CY	\$300.00	\$33,000.00
		80'x25'x1' Boat ramp (75 CY)					
		Main dock platform piers 25'x4'x3' (11 CY)					
		15 Fire ring bases (6 CY)					
		Step/dock abutment 8'x6'x5' (9 CY)					
		6 Sign bases (2 CY)					
		1 Block foundation sign base (3 CY)					
		2 Picnic table bases (4 CY)					
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade	BLM	855	CY	\$25.00	\$21,375.00
	158	Well house 10'x16' concrete block building	BLM	160	SF	\$100.00	\$16,000.00
	159	2, 20'x5' Composite decking gangplanks w/ aluminum frame railings	BLM	200	SF	\$20.00	\$4,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame docks	BLM	200	SF	\$20.00	\$4,000.00
	161	Concrete block double toilet bldg 10'x16'	BLM	160	SF	\$100.00	\$16,000.00
	162	Dump stations and approx. 2000 gal buried concrete tank	BLM	1	EA	\$5,000.00	\$5,000.00
	163	Power poles and lines	BLM	3	POLES	\$1,500.00	\$4,500.00
	164	Remove waterlines and 3 faucets and regrade	BLM	600	LF	\$5.00	\$3,000.00
	165	Recycle/bury approx. 3' dia. boulders	BLM	75	EA	Included in regrade item	
	166	Steel pipe/plank picnic tables to be removed and hauled away	BLM	5	EA	\$100.00	\$500.00
	167	Relocate concrete tables	BLM	12	EA	\$100.00	\$1,200.00
	168	Regrade, rip and reseed	BLM	4	ACRE	\$25,000.00	\$100,000.00
	169	Signs to be removed and hauled away	BLM	7	EA	\$300.00	\$2,100.00
		Dutch Creek					
	170	50'x4'x3' Dock concrete abutment	BLM	22	CY	\$300.00	\$6,600.00
	171	Double pipe railing	BLM	100	LF	\$40.00	\$4,000.00
SUBTOTAL THIS SHEET							\$221,275.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 04-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 40 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Reservoir Most Probable	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mirror Cove					
	172	Concrete total		89	CY	\$300.00	\$26,700.00
		80'x25'x0.5' Boat ramp (37 CY)					
		2 Concrete boat dock abutments: 6'x8'x1.5' and 6'x30'x5' (36 CY)					
		12 Fire ring foundations (4 CY)					
		2 Sets of concrete stairs (9 CY)					
		7 Sign foundations (3 CY)					
	173	10'x16' Toilet vault		160	SF	\$100.00	\$16,000.00
	174	2, 30'x5' Composite gangplanks w/aluminum frame and railings		300	SF	\$20.00	\$6,000.00
	175	Double pipe railings on dock		80	LF	\$40.00	\$3,200.00
	176	Bury 3' dia. boulders on site		120	EA	Included in regrade item	
	177	Regrade site, rip and reseed		3	ACRE	\$25,000.00	\$75,000.00
	178	Signs to be removed and hauled away		7	EA	\$300.00	\$2,100.00
		Overlook Point					
	179	1 Concrete picnic table base		1	CY	\$300.00	\$300.00
	180	Steel frame table to be removed and hauled away		1	EA	\$100.00	\$100.00
	181	Regrade steep access road and site to natural contours, rip and reseed		0.5	ACRE	\$25,000.00	\$12,500.00
		Long Gulch					
	182	80'x25'x4" Concrete boat ramp to be removed		25	CY	\$300.00	\$7,500.00
	183	Remove picnic tables (steel frame with planks) & haul away		2	EA	\$100.00	\$200.00
	184	Regrade ramp area to natural contours, rip, reseed		0.05	ACRE	\$25,000.00	\$1,250.00
RECREATIONAL FACILITIES REMOVAL SUBTOTAL							\$520,725.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 09-14-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/14/11	PEER REVIEW / DATE <i>[Signature]</i> 4/14/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option Iron Gate Dam & Powerplant Removal Most Probable SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\Iron Gate\Klamath Dams Removal - Iron Gate - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		839,100	CY	\$0.00	\$0.00
		Diversion and Care					\$3,494,445.00
		Dam Removal					\$14,159,019.50
		Powerhouse/Switchyard/Transmission Line Removal					\$2,099,152.20
		Penstock Removal					\$1,172,878.50
		Reservoir Vegetative Restoration					\$9,331,500.00
		Road Improvements					\$1,115,000.00
		Fish Spawning Facility Removal					\$1,662,033.80
		Recreational Facilities to be Removed					\$520,725.00
		Subtotal					\$33,554,754.00
		Mobilization	5%	+/-			\$1,700,000.00
		Subtotal 1 with Mobilization					\$35,254,754.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 3%/yr compounding over 10 years)					\$12,124,687.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$47,379,441.00
		Design Contingencies	10%	+/-			\$4,620,559.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$52,000,000.00
		Construction Contingencies	20%	+/-			\$11,000,000.00
		FIELD COST					\$63,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	55%	+/-			\$35,000,000.00
		CONSTRUCTION COST					\$98,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grish, P.E.	CHECKED 07-18-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/18/11	PEER REVIEW / DATE 4/20/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge is used for removal of existing closure gates and installation of new roller gate. Barge is located on reservoir for approximately 1 week.	86-68130	1	ls		\$210,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure. Installation requires a dive depth of approximately 150 feet. Air vent consists of 12-inch diameter HDPE pipe.	86-68130	150	lf		DELETED
	3	Remove Reinforced Concrete Ring. Located just downstream of closure gate and upstream of flap gate. Tunnel work	86-68130	31	cy	\$1,800.00	\$55,800.00
	4	Remove Reinforced Concrete Stoplog Structure. Located at downstream end of diversion tunnel.	86-68130	3	cy	\$380.00	\$1,140.00
	6	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	300,000	gals		DELETED
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		DELETED
SUBTOTAL THIS SHEET							\$266,940.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/19/11	PEER REVIEW / DATE Tom Hepler P.E. 2/19/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	8	Construct 240-ft-long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft2 of deck for similar concrete bridge at Upper San Joaquin priced out in 2009.	86-68130	7,440	ft2	\$600.00	\$4,464,000.00
	9	Remove and dispose of existing bridge. Bridge is approximately 227 feet long. Consists of 9 spans @ about 25 feet (steel girders) with reinforced concrete decking (about 16 feet wide). Piers appear to be timber posts, supported on 4 or 5 pile bents. Rails along both sides are timber with concrete wheel guards. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	1	ls		\$800,000.00
SUBTOTAL THIS SHEET							\$5,264,000.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE Tom Hepler, P.E. 1/7/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCD 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 41

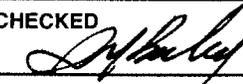
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Diversion & Care
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL	86-68420				
		All items are necessary for the removal of Iron Gate Dam.					
	11	Remove 1 - 9' dia. hinged blind flange and associated metal work, including 5' of pipe spool. This will require installing and removing all fasteners on the blind flange. It assumed that these fasteners are on-site (Assume contains paint with heavy metals) Tunnel work		19,000	lbs	\$3.00	\$57,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe Weight of plug valve used: 2,000 lbs Tunnel work		2,900	lbs	\$3.00	\$8,700.00
	13	Furnish, install and remove 1 - 16.5'x18' roller gate, stem, and operator Total roller gate weight approximately: 75,900 lbs. Installation and removal requires a dive depth of approximately 150 feet.		110,000	lbs	\$18.00	\$1,980,000.00
		DIVERSION AND CARE SUBTOTAL					\$9,576,640.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED M. Gulsvig	BY Craig A. Gulsh, P.E.	CHECKED 
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/11	DATE PREPARED 06/08/11	PEER REVIEW / DATE  6/10/11

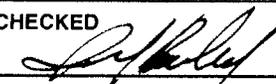
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension. Observation Platform is reinforced concrete slab located on right abutment. Buried crest wall on left abutment consists of unreinforced controlled low strength material. Reinforced extension on right abutment includes reinforced concrete wall and stairs to trash gate.	86-68130	580	yd3	\$380.00	\$220,400.00
		Items are associated with the Diversion Tunnel.					
		All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure. Remove concrete upstream of Sta. 3+00. Concrete removal requires a dive depth of 160 feet.	86-68130	530	yd3	\$380.00	\$201,400.00
	16	Remove Concrete in Diversion Tunnel Gate Tower. Remove concrete down to elev. 2254.	86-68130	410	yd3	\$380.00	\$155,800.00
	17	Remove Steel Footbridge to Gate Tower. This bridge provides access from the dam crest to the gate tower for the diversion tunnel. Assume contains paint with heavy metals.	86-68130	13,000	lbs	\$1.00	\$13,000.00
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment. Includes stairs over sheetpile wall.	86-68130	20	yd3	\$380.00	\$7,600.00
	19	Place Concrete Plugs for Diversion Tunnel. There will be 3 plugs total. Two placed vertically and one horiz. Plugs will be 2 feet thick, reinforced concrete, 3,000 psi min. Location of plugs and info about openings is as follows: Upstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 3+01.0. Downstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 12+68.5. Gate tower; horizontal plug at elev. 2254, 15.5-ft by 7.5-ft, reinf. concrete, rectangular shape.	86-68130	43	yd3	\$1,300.00	\$55,900.00
SUBTOTAL THIS SHEET							\$654,100.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Sheena Barnes, Jonathan East	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 02/19/11	PEER REVIEW / DATE Rick Benik P.E. 2/22/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCD 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	21	Upstream Riprap Assume max size 250 lbs, ave. 100 lbs. to waste area by truck	86-68313	80,000	yd3	\$17.00	\$1,360,000.00
	22	Downstream Riprap Assume max size 2500 lbs, ave. 500 lbs. to waste area by truck	86-68313	30,000	yd3	\$17.00	\$510,000.00
	23	Miscellaneous Excavation Consists of finer earth fill materials 300,000 cy to spillway chute by truck remainder to waste area by truck	86-68313	925,000	yd3	\$17.00	\$15,725,000.00
	24	Cutoff Wall Concrete Demolition The 2 concrete cutoff walls are embedded in the Zone III core but do not appear to be anchored into bedrock.	86-68313	1,500	yd3	\$380.00	\$570,000.00
	25	Earth Fill Crest Raise Treat as miscellaneous excavation to waste area by truck	86-68313	13,000	yd3	\$17.00	\$221,000.00
	26	Sheetpile Crest Raise Remove sheetpile wall crest raise Total height 13', embedded 9', type CS55.	86-68313	800	lin ft	\$300.00	\$240,000.00
		Monitoring Well Removal					
	27	Remove 5 monitoring wells assume 150 length, 6" diameter remove as excavation progresses	86-68313	5	each	\$2,200.00	\$11,000.00
		SUBTOTAL THIS SHEET					\$18,637,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE Daniel W. Osmun 1/7/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCO 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Spillway Structure:					
	28	Trash Sluice Gate- 10 ft. W x 9 ft. H Total gate weight approximately: 3500 lbs. Total gate hoist weight approximately: 1000 lbs Total weight approximately:	86-68420	4,500	lbs	\$1.00	\$4,500.00
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
		Remove and dispose of the following equipment of the Diversion Tunnel:					
	29	Intake structure Trash Racks- 4 rack each 10 ft. W x 33 ft. H Each rack weights approximately: 18,000 lbs Total weight approximately:	86-68420	72,000	lbs	\$0.85	\$61,200.00
		Trash rack removal requires a dive depth of 150 feet. (Assume contains asbestos)					
	30	Sluice and Diversion Tunnel Gate Gate Hoist- 2-10-in. Dia. Hydraulic cylinders Gate hoist weight approx: 10,000 lbs ea. Framework- I-Beam framework securing hoists Total framework weight approx: 8,000 lbs Total weight approximately:	86-68420	28,000	lbs	\$1.00	\$28,000.00
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
	31	Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Stem weight is 50 lbs/ft. (Assume contains paint with heavy metals & petroleum products)	86-68420	7,500	lbs	\$1.00	\$7,500.00
		SUBTOTAL THIS SHEET					\$101,200.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Gustaf, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

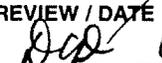
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	32	Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Near Sluice Gate Pipe weight is 29 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	4,650	lbs	\$3.00	\$13,950.00
	33	Transition Gate Structure Flap Gate- 96-in. Dia. With 4 ft. pipe Total weight approximately: (Assume contains paint with heavy metals) Tunnel work	86-68420	8,000	lbs		DELETED
	34	Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. From Gate to Outlet Works Pipe weight is 54 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	30,250	lbs	\$3.00	\$90,750.00
	35	Outlet Works Stop Logs (steel) Total logs weight approximately: 2,310 lbs Total guide weight approximately: 360 lbs Total weight approximately: (Assume contains paint with heavy metals)	86-68420	2,670	lbs	\$1.00	\$2,670.00
		SUBTOTAL THIS SHEET					\$107,370.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grash, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Diversion Tunnel Gate Intake Structure:					
	36	Hydraulic Pump motor (10 HP est) & control panel Total weight approximately: 250 lbs.	86-68430	1	EA	\$400.00	\$400.00
	37	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	38	Power Cable and 4"Conduit from Penstock Structure (3 conductor 6 AWG est.) Total weight approximately: 10,400 lbs.	86-68430	800	feet	\$40.00	\$32,000.00
		DAM SUBTOTAL					\$19,613,370.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 11/18/10	PEER REVIEW / DATE  6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Turbine Unit 25,000 hp, 158 ft. of head, 180 RPM D3 is calculated at 8.85 ft. Turbine weight calculated approx: (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	344,058	lbs		DELETED
	41	Draft Tube Bulkheads- 3-Bulkhead approx. 10 ft. W. x 10 ft. H Bulkhead weight approximately: 3000 lbs each 3-Framework weight approx: 2500 lbs each Total bulkhead weight approx: (Assume contains paint with heavy metals and/or asbestos)	86-68420	16,500	lbs		DELETED
		Remove and dispose of the following equipment of the Powerhouse Structure:					
	42	Crane- No Crane at Site, but embedded rails still exist Above Ground Steel Rails-200 ft. length Crane is presently used at J. C. Boyle (Assume contains paint with heavy metals & petroleum products)	86-68420	24,000	lbs		DELETED
	43	Governor- Accumulator tank for air over oil cylinders Governor control panel cabinet Pump for Oil Total weight approximately: (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	20,310	lbs		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xisx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	44	Bearing Oil System and Cooling Water System- Steel Piping of various sizes Valves of various sizes Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	9,182	lbs		DELETED
	45	CO2 System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	2,568	lbs		DELETED
	46	Plant Water and Fire Protection System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	9,182	lbs		DELETED
	47	Sump Pumps- 2 Powerhouse water removal sump pumps Sump weight approximately: 1000 lbs each Total weight approximately: (Assume contains petroleum products and/or asbestos)	86-68420	2,000	lbs		DELETED
	48	Pumps- 4 Large pumps near outlet Pump weight approximately: 3000 lbs each 4 Pump Suction Inlet Bulkhead gates approx. 10 ft. H. x 10 ft. W. Bulkhead weight approximately: 2500 lbs each Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	22,000	lbs		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCB 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xls\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	49	Exposed Piping around the plant- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	10,204	lbs		DELETED
	50	Unwatering Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	10,204	lbs		DELETED
	51	Drainage Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	9,518	lbs		DELETED
	52	Transformer Oil and Fire Protection- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	9,182	lbs		DELETED
	53	Compressed Air System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	1,450	lbs		DELETED
	53A	Remove Petroleum Products from Mechanical Equipment. Includes quantities for the following equipment: From Item 42, unit bearing oil system, DTE heavy oil, 275 gal. From Item 41, unit governor oil sump and accumulator tank, hydraulic oil, 800 gal. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.	86-68420	1,100	gal	\$12.00	\$13,200.00
SUBTOTAL THIS SHEET							\$13,200.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	54	AC Generator, Outdoor Horizontal 18.975 MVA (18 MW); 0.95PF, 6,600V, 180 RPM, 3 Ph, including rotating exciter Total weight approximately: 387,600 lbs. Stator: 124,600 lbs., Rotor: 189,300 lbs. Exciter Assembly: 17,000 lbs. Heaviest lift: 186,700 lbs.	86-68430	1	EA		DELETED
	55	Excitation equipment for 18.975 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	1	EA		DELETED
	56	Surge protection equip. for 18.975 MVA Generator Total weight approximately: 800 lbs.	86-68430	1	EA		DELETED
	57	Neutral grounding equip. for 18.975 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
	58	Station Service Switchgear, 600-volt (6 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
	59	Unit and plant control switchboard 6 cubicles (400 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>C. Gush</i> Craig A. Gush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

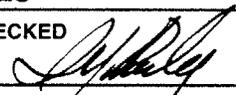
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ESTIMATE WORKSHEET

SHEET 17 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	60	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$12,000.00	\$12,000.00
	61	Raceways, Bus, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 100 lin. Ft. cabletray, 40 lin. Ft. non-segregated phase bus) Total weight approximately: 9,000 lbs.	86-68430	1	EA		DELETED
	62	Misc. power & control boards 10 boards (60 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
	63	Transformer (3 phase, 275 kVA, 6600/480V est.) in power house Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
	64	Governor Oil Pump Motors (10 hp and 20 hp est.) Total weight approximately: 450 lbs.	86-68430	2	EA		DELETED
	65	Vertical Motors, outdoor, (480V, 100 HP est.) Outdoor for fish water pumps Total weight approximately: 2,000 lbs.	86-68430	4	EA	\$700.00	\$2,800.00
		SUBTOTAL THIS SHEET					\$14,800.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Gush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

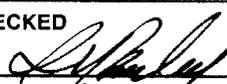
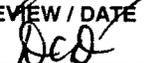
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	66	Transformer (3 phase, 300 kVA, 6600/480V est.) Outdoor for fish water pumps Total weight approximately: 2,900 lbs.	86-68430	1	EA	\$13,000.00	\$13,000.00
		Remove and dispose of the following equipment in switchyard/powerplant deck:					
	67	Step-up Transformer, outdoor, oil-filled, 3-phase, 18,947 kVA, 6,600/69,000 volt Total weight approximately: 58,000 lbs.	86-68430	1	EA	\$120,000.00	\$120,000.00
	68	Lattice steel structure, with 69-kV disconnect switches and insulators	86-68430	1	EA	\$6,000.00	\$6,000.00
	69	Generator Switchgear, outdoor, 7.2kV-includes unit breaker (5 Sections @ 2,400 lbs each section 3 ft x 7.5 ft x 95 inches high), 20 ft. non-seg. bus Total weight approximately: 12,000 lbs.	86-68430	1	EA	\$40,000.00	\$40,000.00
	70	Single Phase Pole Transformers. (25 kVA est.) Total weight approximately: 1050 lbs.	86-68430	3	EA	\$3,000.00	\$9,000.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$216,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>C. A. Grish</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	71	Remove Concrete in Penstock Intake Structure.	86-68130	460	yd3	\$380.00	\$174,800.00
	72	Remove Concrete in Penstock Encasement. Encasement runs through embankment from intake structure to penstock anchor No. 1.	86-68130	840	yd3	\$380.00	\$319,200.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	86-68130	1,900	yd3	\$380.00	\$722,000.00
	74	Remove Steel Footbridge to Intake Structure. This bridge provides access from the left abutment to the penstock intake structure. Assume contains paint with heavy metals.	86-68130	11,000	lbs	\$1.00	\$11,000.00
	75	Remove Concrete in Intake Structure Footbridge Abutment.	86-68130	5	yd3	\$380.00	\$1,900.00
		SUBTOTAL THIS SHEET					\$1,228,900.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY Craig A. Grish, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Power Conduit (Penstock):					
	76	Intake Structure-					
		Wheel Gate- 16.75 ft. H. x 22.33 ft. W. Gate weight approximately: 30,000 lbs					
		Wheel Gate Hoist- 2-6-in. Dia. Hydraulic Cylinders <i>Wheel gate hoist weight approx: 10,000 lbs</i>					
		Framework- I-Beam framework securing hoists Total framework weight approx: 10,000 lbs					
		Trash rack- 17.5 ft. W. x 45.75 ft. H. Trashrack weight approximately: 44,400 lbs					
		Stop logs- Total logs weight approximately: 29,250 lbs <i>Total guide weight approximately: 3,600 lbs</i>					
		Slide Gate- 30-in. W. x 42-in. H. <i>Slide Gate weight approximately: 3,240 lbs</i>					
		Sluice Gate- 12-in. W. x 12-in. H. Sluice Gate weight approximately: 1,140 lbs					
		Total weight approximately:	86-68420	131,630	lbs	\$1.00	\$131,630.00
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
	77	Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Stem weight 45 lbs/ft.	86-68420	1,800	lbs	\$1.00	\$1,800.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$133,430.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Gush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 21 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	78	Water fill line- 12-in. Dia. STD x 27 ft Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,350	lbs	\$1.00	\$1,350.00
	79	Air Vent- 12-in. Dia. STD x 32 ft. Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,600	lbs	\$1.00	\$1,600.00
		Power Conduit (Penstock) Continued:					
	80	Gage Wells- 10-in. Dia. STD x 32 ft. weights 41 lbs/ft. 12-in. Dia. STD x 26 ft. weights 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,312	lbs	\$1.00	\$1,312.00
			86-68420	1,300	lbs	\$1.00	\$1,300.00
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Pipe weight 124 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	7,440	lbs	\$1.00	\$7,440.00
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Pipe weight 386 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	294,428	lbs	\$1.00	\$294,428.00
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Pipe weight 257 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	12,850	lbs	\$1.00	\$12,850.00
	84	Outlet Valve on bypass outlet- 66-in. Dia. Assumed to be a Fixed Cone Valve with controls Valve weight approximately: (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	18,000	lbs	\$1.00	\$18,000.00
SUBTOTAL THIS SHEET							\$338,280.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grish, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

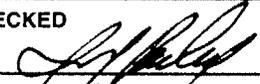
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Penstock Intake Structure:					
	85	Overhead Trolley Crane Motor (4hp est)& controls Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,300.00	\$1,300.00
	86	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
	87	Power Cable and Conduit 1800 ft. 4" Conduit with 3 conductor 6 AWG est. 1200 ft. 1.5" Conduit with 3 conductor 12 AWG est. Total weight approximately: 11,000 lbs.	86-68430	1	EA	\$75,000.00	\$75,000.00
		PENSTOCK SUBTOTAL					\$1,779,910.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

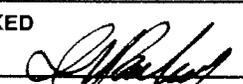
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon				
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REGION: MP	UNIT PRICE LEVEL: July-2010				
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	825	Acres	\$15,000.00	\$12,375,000.00
		Idaho fescue (Festuca idahoensis)	3300	lbs	PLS		
		Blue wildrye (Elymus glaucus)	3300	lbs	PLS		
		Small fescue (Vulpia microstachys)	3300	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	4950	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	413	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	206	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	3300	lbs	PLS		
		California brome (Bromus carinatus)	6600	lbs	PLS		
		Squirreltail (Elymus elymoides)	3300	lbs	PLS		
		Wood mulch	1650000	lbs			
		Tackifier	99000	lbs			
	92	FALL GROUND SEEDING:	86-68220	619	Acres	\$4,000.00	\$2,476,000.00
		Idaho fescue (Festuca idahoensis)	2475	lbs	PLS		
		Blue wildrye (Elymus glaucus)	2475	lbs	PLS		
		Small fescue (Vulpia microstachys)	2475	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	3713	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	309	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	155	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	2475	lbs	PLS		
		California brome (Bromus carinatus)	4950	lbs	PLS		
		Squirreltail (Elymus elymoides)	2475	lbs	PLS		
		Wood mulch	190385	lbs			
		Tackifier	11423	lbs			
		SUBTOTAL THIS SHEET					\$14,851,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 02/03/11	PEER REVIEW / DATE 02/28/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCD 6/10/11

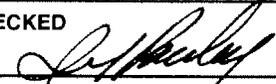
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		WATER AND ENVIRONMENTAL						
	93	RIPARIAN POLE PLANTING: (1,000 ea/acre)	86-68220	50	Acres	\$10,000.00	\$500,000.00	
		Narrowleaf willow (<i>Salix exigua</i>)	35000	cutting				
		Arroyo willow (<i>Salix lasiolepis</i>)	10000	cutting				
		Shining willow (<i>Salix lucida</i>)	5000	cutting				
		Herbivore screen	50000	each				
		Chemical herbivore deterrent	1000	gal				
	94	WEED MANAGEMENT:	86-68220	619	Acres	\$2,000.00	\$1,238,000.00	
		Herbicide, post-emergent	1238	lbs AI				
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION						
	95	FALL GROUND SEEDING:	86-68220	330	Acres	\$4,000.00	\$1,320,000.00	
		Idaho fescue (<i>Festuca idahoensis</i>)	1320	lbs PLS				
		Blue wildrye (<i>Elymus glaucus</i>)	1320	lbs PLS				
		Small fescue (<i>Vulpia microstachys</i>)	1320	lbs PLS				
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1980	lbs PLS				
		Sandberg bluegrass (<i>Poa secunda</i>)	165	lbs PLS				
		Spike bentgrass (<i>Agrostis exarata</i>)	82.5	lbs PLS				
		Western needlegrass (<i>Achnatherum occidentale</i>)	1320	lbs PLS				
		California brome (<i>Bromus carinatus</i>)	2640	lbs PLS				
		Squirreltail (<i>Elymus elymoides</i>)	1320	lbs PLS				
		Wood mulch	660000	lbs				
		Tackifier	39600	lbs				
	96	WEED MANAGEMENT:	86-68220	330	Acres	\$2,000.00	\$660,000.00	
		Herbicide, post-emergent	31	lbs AI				
	RESERVOIR VEGETATIVE RESTORATION SUBTOTAL						\$19,219,000.00	

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  / 6/10/11

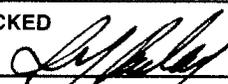
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and remove the earth fill embankment and concrete cutoff walls of Iron Gate Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area Estimated haul distance 1 1/4 mile. Disposed fill estimated to be 20' deep and traffic compacted (15% bulking factor). Prepare Haul Road - 1.25 mi 2 way traffic - off road dumps or scrapers	86-68313	29	acre	\$7,000.00	\$203,000.00
	98	Rock Excavation for Haul Road Widening hard basalt rock	86-68313	17,000	yd3	\$45.00	\$765,000.00
	99	Clear and grub, 40' width for 1 mile	86-68313	5	acre	\$7,000.00	\$35,000.00
	100	4' thick gravel surfacing	86-68313	5,300	ton	\$80.00	\$424,000.00
		300,000 cubic yards to be disposed of in spillway chute. Filling to start in stilling basin for access to chute.					
		ROAD IMPROVEMENTS SUBTOTAL					\$1,427,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE Daniel W. Osmun 1/7/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCO 6/10/11

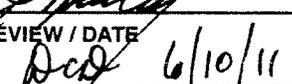
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2. <i>Located just north of the Powerhouse. Single story, hip roof, prefab metal structure on concrete slab. Office, lockers, and shop. 20 ft x 40 ft.</i>	86-8130	800	ft2	\$65.00	\$52,000.00
	102	Remove Building No. 3. <i>Located between circular holding ponds. Single story, hip roof, prefab metal structure on concrete walls. Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>	86-68130	1,088	ft2	\$65.00	\$70,720.00
	103	Remove Concrete in Fish Ladder. <i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20, and retaining wall (which serves as a support for part of the fish ladder, and which is the left wall of the tunnel outlet structure).</i>	86-68130	950	yd3	\$380.00	\$361,000.00
	104	Remove Concrete in Holding Ponds #1 thru #6. <i>Includes 6 circular ponds.</i>	86-68130	420	yd3	\$380.00	\$159,600.00
	105	Remove Concrete in Fish Facility Items. <i>Includes holding tank between pool 20 and Bldg. No. 3, tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3, flumes (to holding ponds), and gate basins #1 thru #6.</i>	86-68130	380	yd3	\$380.00	\$144,400.00
	106	Remove Miscellaneous Metalwork in Fish Facilities. <i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank), fish basket (in dope tank), rotating sweeps & stationary sweeps (in circular ponds), frames, gratings, handrail, and ladders. Assume contains paint with heavy metals.</i>	86-68130	12,000	lbs	\$1.00	\$12,000.00
SUBTOTAL THIS SHEET							\$799,720.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCD 6/10/11

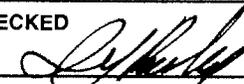
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	107	Remove Concrete associated with 30"-dia. Water Supply Line. <i>Includes intake structure and 4 water supply line anchors (all on upstream side of dam).</i>	86-68130	68	yd3	\$380.00	\$25,840.00
	108	Remove Concrete in Aerator Structure. <i>Located southeast of powerhouse, across the road, and up the slope. Supplies air for the 30"-dia. water supply line. Includes anchor blocks, thrust blocks, pipe supports, and aerator box.</i>	86-68130	50	yd3	\$380.00	\$19,000.00
	109	Remove Wood in Aerator Structure. <i>Consists of lumber pressure-treated with chromated copper arsenate. Volume of lumber approximately 200 ft3. Assumed to weigh 30 lbs/ft3.</i>	86-68130	6,000	lbs	\$0.85	\$5,100.00
	110	Remove Structural Steel in Aerator Structure. <i>Includes three 6 in WF beams, each about 13 ft long, misc. angles & connection hardware, walkway supports, ladders, cages, and guardrails for landings & steps. Assume contains paint with heavy metals.</i>	86-68130	2,500	lbs	\$1.00	\$2,500.00
	111	Remove Asphalt Pavement. <i>Located around powerhouse and fish facility ponds and tanks.</i>	86-68130	39,000	ft2	\$7.00	\$273,000.00
	112	Remove Restroom Building near Aerator Structure. <i>Metal building.</i>	86-68130	340	ft2	\$65.00	\$22,100.00
	113	Remove Storage Shed near Aerator Structure. <i>Metal building.</i>	86-68130	90	ft2	\$65.00	\$5,850.00
		SUBTOTAL THIS SHEET					\$353,390.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Fish Hatchery Berm Removal					
	114	Toe Drain Pipe <i>30" diameter RCP dispose of off site</i>	86-68313	260	lin ft	\$25.00	\$6,500.00
	115	Toe Drain Manhole <i>48" diameter precast concrete dispose of off site</i>	86-68313	25	lin ft	\$55.00	\$1,375.00
	116	Berm Removal <i>to be removed concurrent with dam constructed with random fill to waste area by truck</i>	86-68313	53,000	yd3	\$17.00	\$901,000.00
SUBTOTAL THIS SHEET							\$908,875.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE Daniel W. Osmun 1/7/11	DATE PREPARED 11/18/10	PEER REVIEW / DATE  6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Fish Structures:					
	117	Intake Structures Trashracks- 8.5ft. W. x 10.75 ft. H.					
		Trashracks weight approximately: (Assume contains asbestos)	86-68420	5,000	lbs	\$0.85	\$4,250.00
	118	Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft.	86-68420	76,640	lbs	\$1.00	\$76,640.00
		Pipe Weight 80 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)					
	119	Sluice Gate Valve- 30-in. H. x 30-in. W.					
		Gate weight Approximately: 3,000 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	3,000	lbs	\$1.00	\$3,000.00
SUBTOTAL THIS SHEET							\$83,890.00

QUANTITIES		PRICES	
BY M. Guilsvig	CHECKED T. J. Turnage	BY Craig A. Brush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon		
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	REGION: MP	UNIT PRICE LEVEL: July-2010	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	120	Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	360	lbs	\$1.00	\$360.00
	121	Butterfly Valve- 30-in. Dia. Valve weight approximately: 2435 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	2,435	lbs	\$1.00	\$2,435.00
	122	Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Pipe weight 80 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	7,200	lbs	\$1.00	\$7,200.00
	123	Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Pipe weight 64 lbs/ft. (Assume contains paint with heavy metals and/or asbestos)	86-68420	15,872	lbs	\$1.00	\$15,872.00
	124	Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Pipe weight 53 lbs/ft. (Assume contains paint with heavy metals)	86-68420	4,505	lbs	\$1.00	\$4,505.00
	125	Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Pipe weight 48 lbs/ft. (Assume contains paint with heavy metals)	86-68420	29,088	lbs	\$1.00	\$29,088.00
	126	Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Pipe weight 42 lbs/ft. (Assume contains paint with heavy metals)	86-68420	6,972	lbs	\$1.00	\$6,972.00
SUBTOTAL THIS SHEET							\$66,432.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 33 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	127	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Pipe weight 34 lbs/ft. (Assume contains paint with heavy metals)	86-68420	2,176	lbs	\$1.00	\$2,176.00
	128	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Pipe weight 28 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,932	lbs	\$1.00	\$1,932.00
	129	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Pipe weight 23 lbs/ft. (Assume contains paint with heavy metals)	86-68420	3,588	lbs	\$1.00	\$3,588.00
	130	Piping- 3-in. Dia. STD x 64 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,088	lbs	\$1.00	\$1,088.00
	131	Gate Valves- 24-in. Dia. Gate Valve- 1 total 24-in. Gate Valve weight approx: 3,800 lbs 18-in. Dia. Gate Valve- 7 total 18-in. Gate Valve weight approx: 1748 lbs ea 16-in. Dia. Gate Valve- 2 total 16-in. Gate Valve weight approx: 1465 lbs ea 12-in. Dia. Gate Valve- 1 total 12-in. Gate Valve weight approx: 722 lbs 8-in. Dia. Gate Valve- 6 total 8-in. Gate Valve weight approx: 339 lbs ea 3-in. Dia. Gate Valve- 1 total 3 -in. Gate Valve weight approx: 70 lbs Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	21,792	lbs	\$1.00	\$21,792.00
		SUBTOTAL THIS SHEET					\$30,576.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

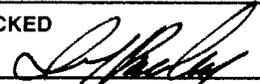
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	132	Basin #1-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	2,880	lbs	\$1.00	\$2,880.00
	133	Basin #2-					
		Slide Gate- 4-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,860	lbs	\$1.00	\$3,860.00
	134	Basin #3-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	2,880	lbs	\$1.00	\$2,880.00
		SUBTOTAL THIS SHEET					\$9,620.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCC 6/10/11

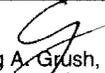
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	135	Basin #4-					
		Slide Gates-					
		24-in. Slide Gate manually operated					
		24-in. Slide Gate weight approx: 700 lbs					
		2-18-in. Slide Gate manually operated					
		18-in. Slide Gate weight approx: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,580	lbs	\$1.00	\$3,580.00
	136	Basin #5-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$1.00	\$1,440.00
	137	Basin #6-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$1.00	\$1,440.00
SUBTOTAL THIS SHEET							\$6,460.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Brush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE DCO 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Fish Facilities:					
	139	Misc: motors, control panels, cables and conduit Total weight approximately: 800 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
		FISH SPAWNING FACILITY SUBTOTAL					\$2,268,363.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 38 OF 41

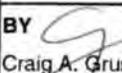
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Wanaka Springs						
	140	Concrete total	BLM	28	CY	\$400.00	\$11,200.00	
		1 Dock Pier 25'x5'x5' (23 CY)						
		1 Concrete table base (2 CY)						
		3 Concrete fire rings/garbage bases (1 CY)						
		3 Concrete sign bases (2 CY)						
	141	Double pipe railings	BLM	60	LF	\$45.00	\$2,700.00	
	142	Wood picnic tables to be removed and hauled away	BLM	5	EA	\$120.00	\$600.00	
	143	25'X5' Wooden floating dock	BLM	125	SF	\$25.00	\$3,125.00	
	144	Rip and reseed site and access road	BLM	2.5	ACRE	\$30,000.00	\$75,000.00	
	145	Signs to be removed and hauled away	BLM	3	EA	\$350.00	\$1,050.00	
	146	15'x5' Gangplank with railings	BLM	75	SF	\$25.00	\$1,875.00	
		Juniper Point						
	147	Concrete total	BLM	19	CY	\$400.00	\$7,600.00	
		1 Dock abutment 25'x4'x3' (11 CY)						
		15 Concrete fire rings (5 CY)						
		1 Picnic table base (2 CY)						
		4 Sign bases (1 CY)						
	148	2, 4'x4' Concrete toilet vaults	BLM	32	SF	\$120.00	\$3,840.00	
	149	Wood picnic tables to be removed and hauled away	BLM	8	EA	\$120.00	\$960.00	
	150	Signs to be removed and hauled away	BLM	4	EA	\$350.00	\$1,400.00	
	151	Dock pipe railing	BLM	50	LF	\$45.00	\$2,250.00	
	152	50'x5' Composite dock with poly floats	BLM	250	SF	\$25.00	\$6,250.00	
	153	20'x5' Composite gangplank with railings	BLM	100	SF	\$25.00	\$2,500.00	
	154	Bury 3' dia boulders on site	BLM	50	EA	Included in regrade item		
	155	Regrade to natural contour, rip and reseed	BLM	2	ACRE	\$30,000.00	\$60,000.00	
		SUBTOTAL THIS SHEET						\$180,350.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 01/04/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Camp Creek					
	156	Concrete total	BLM	110	CY	\$400.00	\$44,000.00
		80'x25'x1' Boat ramp (75 CY)					
		Main dock platform piers 25'x4'x3' (11 CY)					
		15 Fire ring bases (6 CY)					
		Step/dock abutment 8'x6'x5' (9 CY)					
		6 Sign bases (2 CY)					
		1 Block foundation sign base (3 CY)					
		2 Picnic table bases (4 CY)					
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade	BLM	855	CY	\$30.00	\$25,650.00
	158	Well house 10'x16' concrete block building	BLM	160	SF	\$120.00	\$19,200.00
	159	2, 20'x5' Composite decking gangplanks w/ aluminum frame railings	BLM	200	SF	\$25.00	\$5,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame docks	BLM	200	SF	\$25.00	\$5,000.00
	161	Concrete block double toilet bldg 10'x16'	BLM	160	SF	\$120.00	\$19,200.00
	162	Dump stations and approx. 2000 gal buried concrete tank	BLM	1	EA	\$6,000.00	\$6,000.00
	163	Power poles and lines	BLM	3	POLES	\$2,000.00	\$6,000.00
	164	Remove waterlines and 3 faucets and regrade	BLM	600	LF	\$6.00	\$3,600.00
	165	Recycle/bury approx. 3' dia. boulders	BLM	75	EA	Included in regrade item	
	166	Steel pipe/plank picnic tables to be removed and hauled away	BLM	5	EA	\$120.00	\$600.00
	167	Relocate concrete tables	BLM	12	EA	\$120.00	\$1,440.00
	168	Regrade, rip and reseed	BLM	4	ACRE	\$30,000.00	\$120,000.00
	169	Signs to be removed and hauled away	BLM	7	EA	\$350.00	\$2,450.00
		Dutch Creek					
	170	50'x4'x3' Dock concrete abutment	BLM	22	CY	\$400.00	\$8,800.00
	171	Double pipe railing	BLM	100	LF	\$45.00	\$4,500.00
SUBTOTAL THIS SHEET							\$271,440.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 01/04/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 40 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xls\Rec Fac Removal
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mirror Cove					
	172	Concrete total		89	CY	\$400.00	\$35,600.00
		80'x25'x0.5' Boat ramp (37 CY)					
		2 Concrete boat dock abutments: 6'x8'x1.5' and 6'x30'x5' (36 CY)					
		12 Fire ring foundations (4 CY)					
		2 Sets of concrete stairs (9 CY)					
		7 Sign foundations (3 CY)					
	173	10'x16' Toilet vault		160	SF	\$120.00	\$19,200.00
	174	2, 30'x5' Composite gangplanks w/aluminum frame and railings		300	SF	\$25.00	\$7,500.00
	175	Double pipe railings on dock		80	LF	\$45.00	\$3,600.00
	176	Bury 3' dia. boulders on site		120	EA	Included in regrade item	
	177	Regrade site, rip and reseed		3	ACRE	\$30,000.00	\$90,000.00
	178	Signs to be removed and hauled away		7	EA	\$350.00	\$2,450.00
		Overlook Point					
	179	1 Concrete picnic table base		1	CY	\$400.00	\$400.00
	180	Steel frame table to be removed and hauled away		1	EA	\$120.00	\$120.00
	181	Regrade steep access road and site to natural contours, rip and reseed		0.5	ACRE	\$30,000.00	\$15,000.00
		Long Gulch					
	182	80'x25'x4" Concrete boat ramp to be removed		25	CY	\$400.00	\$10,000.00
	183	Remove picnic tables (steel frame with planks) & haul away		2	EA	\$120.00	\$240.00
	184	Regrade ramp area to natural contours, rip, reseed		0.05	ACRE	\$30,000.00	\$1,500.00
		RECREATIONAL FACILITIES REMOVAL SUBTOTAL					\$637,400.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 01/04/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/08/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

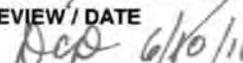
ESTIMATE WORKSHEET

SHEET _ 41 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Reservoir Most Probable High SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Rec Fac Removal	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		839,100	CY	\$0.00	\$0.00
		Diversion and Care					\$9,576,640.00
		Dam Removal					\$19,613,370.00
		Powerhouse/Switchyard/Transmission Line Removal					\$216,000.00
		Penstock Removal					\$1,779,910.00
		Reservoir Vegetative Restoration					\$19,219,000.00
		Road Improvements					\$1,427,000.00
		Fish Spawning Facility Removal					\$2,268,363.00
		Recreational Facilities to be Removed					\$637,400.00
		Subtotal					\$54,737,683.00
		Mobilization	5%	+/-			\$2,700,000.00
		Subtotal 1 with Mobilization					\$57,437,683.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 4.375%/yr compounding over 10 years)					\$30,700,034.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$88,137,717.00
		Design Contingencies	15%	+/-			\$14,835,116.00
		Allowance for Procurement Strategies (APS)	2%	+/-			\$2,027,167.00
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$105,000,000.00
		Construction Contingencies	25%	+/-			\$25,000,000.00
		FIELD COST					\$130,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 2%, Engineering Design ~ 6%, Permitting ~ 4%, Procurement ~ 2%, Construction Management ~ 11%, and Closeout ~ 1%)	71%	+/-			\$90,000,000.00
		CONSTRUCTION COST					\$220,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 06/06/11	PEER REVIEW / DATE  6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge is used for removal of existing closure gates and installation of new roller gate. Barge is located on reservoir for approximately 1 week.	86-68130	1	ls		\$190,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure. Installation requires a dive depth of approximately 150 feet. Air vent consists of 12 inch diameter HDPE pipe.	86-68130	150	lf		DELETED
	3	Remove Reinforced Concrete Ring. Located just downstream of closure gate and upstream of flap gate. Tunnel work	86-68130	31	cy	\$1,300.00	\$40,300.00
	4	Remove Reinforced Concrete Stoplog Structure. Located at downstream end of diversion tunnel.	86-68130	3	cy	\$170.00	\$510.00
	5	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	300,000	gals		DELETED
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		DELETED
SUBTOTAL THIS SHEET							\$230,810.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 02/19/11	PEER REVIEW / DATE Tom Hepler P.E. 2/19/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	8	Construct 240-ft-long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft2 of deck for similar concrete bridge at Upper San Joaquin priced out in 2009.	86-68130	0	ft2	\$200.00	
	9	Remove and dispose of existing bridge. Bridge is approximately 227 feet long. Consists of 9 spans @ about 25 feet (steel girders) with reinforced concrete decking (about 16 feet wide). Piers appear to be timber posts, supported on 4 or 5 pile bents. Rails along both sides are timber with concrete wheel guards. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	0	ls	\$300,000.00	
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY Craig A. Gush, P.E.	CHECKED 06-06-11
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 5 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Diversion & Care
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL	86-68420				
		All items are necessary for the removal of Iron Gate Dam.					
	11	Remove 1 - 9' dia. hinged blind flange and associated metal work, including 5' of pipe spool. This will require installing and removing all fasteners on the blind flange. It assumed that these fasteners are on-site (Assume contains paint with heavy metals) Tunnel work		19,000	lbs	\$1.50	\$28,500.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe Weight of plug valve used: 2,000 lbs Tunnel work		2,900	lbs	\$1.50	\$4,350.00
	13	Furnish, install and remove 1 - 16.5'x18' roller gate, stem, and operator Total roller gate weight approximately: 75,900 lbs. Installation and removal requires a dive depth of approximately 150 feet.		110,000	lbs	\$12.00	\$1,320,000.00
DIVERSION AND CARE SUBTOTAL							\$2,683,660.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED M. Gulsvig	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-08-11
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/11	DATE PREPARED 06/08/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 6 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension.	86-68130	580	yd3	\$170.00	\$98,600.00
		Observation Platform is reinforced concrete slab located on right abutment.					
		Buried crest wall on left abutment consists of unreinforced controlled low strength material.					
		Reinforced extension on right abutment includes reinforced concrete wall and stairs to trash gate.					
		Items are associated with the Diversion Tunnel.					
		All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure.	86-68130	530	yd3	\$170.00	\$90,100.00
		Remove concrete upstream of Sta. 3+00.					
		Concrete removal requires a dive depth of 150 feet.					
	16	Remove Concrete in Diversion Tunnel Gate Tower.	86-68130	410	yd3	\$170.00	\$69,700.00
		Remove concrete down to elev. 2254.					
	17	Remove Steel Footbridge to Gate Tower.	86-68130	13,000	lbs	\$0.85	\$11,050.00
		This bridge provides access from the dam crest to the gate tower for the diversion tunnel.					
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment. Includes stairs over sheetpile wall.	86-68130	20	yd3	\$170.00	\$3,400.00
	19	Place Concrete Plugs for Diversion Tunnel.	86-68130	43	yd3	\$1,100.00	\$47,300.00
		There will be 3 plugs total. Two placed vertically and one horiz.					
		Plugs will be 2 feet thick, reinforced concrete, 3,000 psi min.					
		Location of plugs and info about openings is as follows:					
		Upstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 3+01.0.					
		Downstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 12+68.5.					
		Gate tower; horizontal plug at elev. 2254, 15.5-ft by 7.5-ft, reinf. concrete, rectangular shape.					
SUBTOTAL THIS SHEET							\$320,150.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Sheena Barnes, Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 02/19/11	PEER REVIEW / DATE Rick Benik P.E. 2/22/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 8 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon												
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID:</td> <td style="width:20%;">AF652</td> <td style="width:30%;">ESTIMATE LEVEL:</td> <td style="width:20%;">Feasibility</td> </tr> <tr> <td>REGION:</td> <td>MP</td> <td>UNIT PRICE LEVEL:</td> <td>July-2010</td> </tr> <tr> <td>FILE:</td> <td colspan="3">C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary</td> </tr> </table>	WOID:	AF652	ESTIMATE LEVEL:	Feasibility	REGION:	MP	UNIT PRICE LEVEL:	July-2010	FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary		
WOID:	AF652	ESTIMATE LEVEL:	Feasibility										
REGION:	MP	UNIT PRICE LEVEL:	July-2010										
FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary												

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	21	Upstream Riprap Assume max size 250 lbs, ave. 100 lbs. to waste area by truck	86-68313	80,000	yd3	\$10.00	\$800,000.00
	22	Downstream Riprap Assume max size 2500 lbs, ave. 500 lbs. to waste area by truck	86-68313	30,000	yd3	\$10.00	\$300,000.00
	23	Miscellaneous Excavation Consists of finer earth fill materials 300,000 cy to spillway chute by truck remainder to waste area by conveyor belt.	86-68313	880,000	yd3	\$10.00	\$8,800,000.00
	24	Cutoff Wall Concrete Demolition The 2 concrete cutoff walls are embedded in the Zone III core but do not appear to be anchored into bedrock.	86-68313	1,000	yd3	\$170.00	\$170,000.00
	25	Earth Fill Crest Raise Treat as miscellaneous excavation to waste area by conveyor belt.	86-68313	13,000	yd3	\$10.00	\$130,000.00
	26	Sheetpile Crest Raise Remove sheetpile wall crest raise Total height 13', embedded 9', type CS55.	86-68313	800	lin ft	\$200.00	\$160,000.00
		Monitoring Well Removal					
	27	Remove 5 monitoring wells assume 150 length, 6" diameter remove as excavation progresses	86-68313	5	each	\$1,900.00	\$9,500.00
		SUBTOTAL THIS SHEET					\$10,369,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE Daniel W. Osmun 1/7/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 9 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Spillway Structure:					
	28	Trash Sluice Gate- 10 ft. W x 9 ft. H Total gate weight approximately: 3500 lbs. Total gate hoist weight approximately: 1000 lbs Total weight approximately:	86-68420	4,500	lbs	\$0.60	\$2,700.00
		Remove and dispose of the following equipment of the Diversion Tunnel:					
	29	Intake structure Trash Racks- 4 rack each 10 ft. W x 33 ft. H Each rack weights approximately: 18,000 lbs Total weight approximately:	86-68420	72,000	lbs	\$0.60	\$43,200.00
		Trash rack removal requires a dive depth of 150 feet.					
	30	Sluice and Diversion Tunnel Gate Gate Hoist- 2-10-in. Dia. Hydraulic cylinders Gate hoist weight approx: 10,000 lbs ea. Framework- I-Beam framework securing hoists Total framework weight approx: 8,000 lbs Total weight approximately:	86-68420	28,000	lbs	\$0.60	\$16,800.00
	31	Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Stem weight is 50 lbs/ft.	86-68420	7,500	lbs	\$0.60	\$4,500.00
SUBTOTAL THIS SHEET							\$67,200.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/2011	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	32	Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Near Sluice Gate Pipe weight is 29 lbs/ft. Tunnel work	86-68420	4,650	lbs	\$1.50	\$6,975.00
	33	Transition Gate Structure Flap Gate -96-in. Dia. With 4 ft. pipe Total weight approximately: Tunnel work	86-68420	8,000	lbs		DELETED
	34	Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. From Gate to Outlet Works Pipe weight is 54 lbs/ft. Tunnel work	86-68420	30,250	lbs	\$1.50	\$45,375.00
	35	Outlet Works Stop Logs Total logs weight approximately: 2,310 lbs Total guide weight approximately: 360 lbs Total weight approximately:	86-68420	2,670	lbs	\$0.60	\$1,602.00
SUBTOTAL THIS SHEET							\$53,952.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Gush, P.E.	CHECKED <i>DK</i> 06-06-11
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/2011	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>DKD</i> 6/10/11

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ESTIMATE WORKSHEET

SHEET 11 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Diversion Tunnel Gate Intake Structure:					
	36	Hydraulic Pump motor (10 HP est) & control panel Total weight approximately: 250 lbs.	86-68430	1	EA	\$300.00	\$300.00
	37	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
	38	Power Cable and 4"Conduit from Penstock Structure (3 conductor 6 AWG est.) Total weight approximately: 10,400 lbs.	86-68430	800	feet	\$30.00	\$24,000.00
		DAM SUBTOTAL					\$10,891,502.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED January 3, 2011	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Turbine Unit 25,000 hp, 158 ft. of head, 180 RPM D3 is calculated at 8.85 ft. Turbine weight calculated approx:	86-68420	344,068	lbs		DELETED
	41	Draft Tube Bulkheads- 3-Bulkhead approx. 10 ft. W. x 10 ft. H Bulkhead weight approximately: 3000 lbs each 3-Framework weight approx: 2500 lbs each Total bulkhead weight approx:	86-68420	16,500	lbs		DELETED
		Remove and dispose of the following equipment of the Powerhouse Structure:					
	42	Crane- No Crane at Site, but embedded rails still exist Above Ground Steel Rails 200 ft. length Crane is presently used at J. C. Boyle	86-68420	24,000	lbs		DELETED
	43	Governor- Accumulator tank for air over oil cylinders Governor control panel cabinet Pump for Oil Total weight approximately:	86-68420	20,310	lbs		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Tumage	BY <i>CG</i> Craig A. Gush, P.E.	CHECKED <i>DW</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE Dan Drake 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>DCD</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
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	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	44	Bearing Oil System and Cooling Water System- Steel Piping of various sizes Valves of various sizes Total weight approximately:	86-68420	9,182	lbs		DELETED
	45	CO2 System- Various sizes of piping and valves Total weight approximately:	86-68420	2,568	lbs		DELETED
	46	Plant Water and Fire Protection System- Various sizes of piping and valves Total weight approximately:	86-68420	9,182	lbs		DELETED
	47	Sump Pumps- 2-Powerhouse water removal sump pumps Sump weight approximately: 1000 lbs each Total weight approximately:	86-68420	2,000	lbs		DELETED
	48	Pumps- 4-Large pumps near outlet Pump weight approximately: 3000 lbs each 4-Pump Suction Inlet Bulkhead gates approx. 10 ft. H. x 10 ft. W. Bulkhead weight approximately: 2500 lbs each Total weight approximately:	86-68420	22,000	lbs		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE Dan Drake 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Exposed Piping around the plant- Various sizes of piping and valves Total weight approximately:	86-68420	10,294	lbs		DELETED
	50	Unwatering Piping- Various sizes of piping and valves Total weight approximately:	86-68420	10,294	lbs		DELETED
	51	Drainage Piping- Various sizes of piping and valves Total weight approximately:	86-68420	9,518	lbs		DELETED
	52	Transformer Oil and Fire Protection- Various sizes of piping and valves Total weight approximately:	86-68420	9,182	lbs		DELETED
	53	Compressed Air System- Various sizes of piping and valves Total weight approximately:	86-68420	4,450	lbs		DELETED
	53A	Remove Petroleum Products from Mechanical Equipment. Includes quantities for the following equipment: From Item 42, unit bearing oil system, DTE heavy oil, 275 gal. From Item 41, unit governor oil sump and accumulator tank, hydraulic oil, 800 gal. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.	86-68420	1,100	gal	\$9.00	\$9,900.00
SUBTOTAL THIS SHEET							\$9,900.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE Dan Drake 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	54	AC Generator, Outdoor Horizontal 18.975 MVA (18 MW); 0.95PF, 6,600V, 180 RPM, 3 Ph., including rotating exciter Total weight approximately: 387,600 lbs. Stator: 124,600 lbs., Rotor: 180,300 lbs. Exciter Assembly: 17,000 lbs. Heaviest lift: 186,700 lbs.	86-68430	1	EA		DELETED
	55	Excitation equipment for 18.975 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.-	86-68430	1	EA		DELETED
	56	Surge protection equip. for 18.975 MVA Generator Total weight approximately: 800 lbs.-	86-68430	1	EA		DELETED
	57	Neutral grounding equip. for 18.975 MVA Generator includes transformer Total weight approximately: 500 lbs.-	86-68430	1	EA		DELETED
	58	Station Service Switchgear, 600-volt (5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.-	86-68430	1	EA		DELETED
	59	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx]Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	60	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	61	Raceways, Bus, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 100 lin. Ft. cabletray, 40 lin. Ft. non-segregated phase bus) Total weight approximately: 9,000 lbs.	86-68430	1	EA		DELETED
	62	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 0 in Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
	63	Transformer (3 phase, 275 kVA, 6600/480V est.) in power house Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
	64	Governor Oil Pump Motors (10 hp and 20 hp est.) Total weight approximately: 450 lbs.	86-68430	2	EA		DELETED
	65	Vertical Motors, outdoor, (480V, 100 HP est.) Outdoor for fish water pumps Total weight approximately: 2,000 lbs.	86-68430	4	EA	\$500.00	\$2,000.00
SUBTOTAL THIS SHEET							\$11,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx)Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	66	Transformer (3 phase, 300 kVA, 6600/480V est.) Outdoor for fish water pumps Total weight approximately: 2,900 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
		Remove and dispose of the following equipment in switchyard/powerplant deck:					
	67	Step-up Transformer, outdoor, oil-filled, 3-phase, 18,947 kVA, 6,600/69,000 volt Total weight approximately: 58,000 lbs.	86-68430	1	EA	\$90,000.00	\$90,000.00
	68	Lattice steel structure, with 69-kV disconnect switches and insulators	86-68430	1	EA	\$4,000.00	\$4,000.00
	69	Generator Switchgear, outdoor, 7.2kV-includes unit breaker (5 Sections @ 2,400 lbs each section 3 ft x 7.5 ft x 95 inches high), 20 ft. non-seg. bus Total weight approximately: 12,000 lbs.	86-68430	1	EA	\$30,000.00	\$30,000.00
	70	Single Phase Pole Transformers. (25 kVA est.) Total weight approximately: 1050 lbs.	86-68430	3	EA	\$1,500.00	\$4,500.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$158,400.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx)Summary		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	71	Remove Concrete in Penstock Intake Structure.	86-68130	460	yd3	\$170.00	\$78,200.00
	72	Remove Concrete in Penstock Encasement. Encasement runs through embankment from intake structure to penstock anchor No. 1.	86-68130	840	yd3	\$170.00	\$142,800.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	86-68130	1,900	yd3	\$170.00	\$323,000.00
	74	Remove Steel Footbridge to Intake Structure. This bridge provides access from the left abutment to the penstock intake structure.	86-68130	11,000	lbs	\$0.60	\$6,600.00
	75	Remove Concrete in Intake Structure Footbridge Abutment.	86-68130	5	yd3	\$170.00	\$850.00
SUBTOTAL THIS SHEET							\$551,450.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE  6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx]Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Power Conduit (Penstock):					
	76	Intake Structure-					
		Wheel Gate- 16.75 ft. H. x 22.33 ft. W. Gate weight approximately: 30,000 lbs					
		Wheel Gate Hoist- 2-6-in. Dia. Hydraulic Cylinders Wheel gate hoist weight approx: 10,000 lbs					
		Framework- I-Beam framework securing hoists Total framework weight approx: 10,000 lbs					
		Trash rack- 17.5 ft. W. x 45.75 ft. H. Trashrack weight approximately: 44,400 lbs					
		Stop logs- Total logs weight approximately: 29,250 lbs Total guide weight approximately: 3,600 lbs					
		Slide Gate- 30-in. W. x 42-in. H. Slide Gate weight approximately: 3,240 lbs					
		Sluice Gate- 12-in. W. x 12-in. H. Sluice Gate weight approximately: 1,140 lbs					
		Total weight approximately:	86-68420	131,630	lbs	\$0.60	\$78,978.00
	77	Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Stem weight 45 lbs/ft.	86-68420	1,800	lbs	\$0.60	\$1,080.00
		SUBTOTAL THIS SHEET					\$80,058.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 21 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	78	Water fill line- 12-in. Dia. STD x 27 ft Pipe weight 50 lbs/ft.	86-68420	1,350	lbs	\$0.60	\$810.00
	79	Air Vent- 12-in. Dia. STD x 32 ft. Pipe weight 50 lbs/ft.	86-68420	1,600	lbs	\$0.60	\$960.00
		Power Conduit (Penstock) Continued:					
	80	Gage Wells-					
		10-in. Dia. STD x 32 ft. weights 41 lbs/ft.	86-68420	1,312	lbs	\$0.60	\$787.20
		12-in. Dia. STD x 26 ft. weights 50 lbs/ft.	86-68420	1,300	lbs	\$0.60	\$780.00
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Pipe weight 124 lbs/ft.	86-68420	7,440	lbs	\$0.60	\$4,464.00
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Pipe weight 386 lbs/ft.	86-68420	294,428	lbs	\$0.60	\$176,656.80
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Pipe weight 257 lbs/ft.	86-68420	12,850	lbs	\$0.60	\$7,710.00
	84	Outlet Valve on bypass outlet- 66-in. Dia. Assumed to be a Fixed Cone Valve with controls Valve weight approximately:	86-68420	18,000	lbs	\$0.60	\$10,800.00
SUBTOTAL THIS SHEET							\$202,968.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Gush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

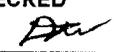
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\SSummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Penstock Intake Structure:					
	85	Overhead Trolley Crane Motor (4hp est)& controls Total weight approximately: 500 lbs.	86-68430	1	EA	\$900.00	\$900.00
	86	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	87	Power Cable and Conduit 1800 ft. 4" Conduit with 3 conductor 6 AWG est. 1200 ft. 1.5" Conduit with 3 conductor 12 AWG est. Total weight approximately: 11,000 lbs.	86-68430	1	EA	\$65,000.00	\$65,000.00
		PENSTOCK SUBTOTAL					\$902,376.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i> 06-26-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE L. Rossi 1/10/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Ssummary		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING:	86-68220	370	Acres	\$3,000.00	\$1,110,000.00
		Idaho fescue (Festuca idahoensis)	1578	lbs PLS			
		Blue wildrye (Elymus glaucus)	1578	lbs PLS			
		Small fescue (Vulpia microstachys)	1578	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2366	lbs PLS			
		Sandberg bluegrass (Poa secunda)	197	lbs PLS			
		Spike bentgrass (Agrostis exarata)	99	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	1578	lbs PLS			
		California brome (Bromus carinatus)	3155	lbs PLS			
		Squirreltail (Elymus elymoides)	1578	lbs PLS			
		Wood mulch	788760	lbs			
		Tackifier	47326	lbs			
	90	SPRING BARGE SEEDING:	86-68220	296	Acres	\$5,000.00	\$1,480,000.00
		Idaho fescue (Festuca idahoensis)	1262	lbs PLS			
		Blue wildrye (Elymus glaucus)	1262	lbs PLS			
		Small fescue (Vulpia microstachys)	1262	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1893	lbs PLS			
		Sandberg bluegrass (Poa secunda)	158	lbs PLS			
		Spike bentgrass (Agrostis exarata)	79	lbs PLS			
		Western needlegrass (Achnatherum occidentale)	1262	lbs PLS			
		California brome (Bromus carinatus)	2524	lbs PLS			
		Squirreltail (Elymus elymoides)	1262	lbs PLS			
		Wood mulch	631008	lbs			
		Tackifier	37860	lbs			
		SUBTOTAL THIS SHEET					\$2,590,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY  Craig A. Grush, P.E.	CHECKED  06-06-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE 02/28/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE  6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\SSummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	159	Acres	\$6,500.00	\$1,033,500.00
		Idaho fescue (Festuca idahoensis)	460	lbs	PLS		
		Blue wildrye (Elymus glaucus)	460	lbs	PLS		
		Small fescue (Vulpia microstachys)	460	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	691	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	58	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	29	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	460	lbs	PLS		
		California brome (Bromus carinatus)	921	lbs	PLS		
		Squirreltail (Elymus elymoides)	460	lbs	PLS		
		Wood mulch	230233	lbs			
		Tackifier	13814	lbs			
	92	FALL GROUND SEEDING:	86-68220	207	Acres	\$3,000.00	\$621,000.00
		Idaho fescue (Festuca idahoensis)	825	lbs	PLS		
		Blue wildrye (Elymus glaucus)	825	lbs	PLS		
		Small fescue (Vulpia microstachys)	825	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1238	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	103	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	52	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	825	lbs	PLS		
		California brome (Bromus carinatus)	1650	lbs	PLS		
		Squirreltail (Elymus elymoides)	825	lbs	PLS		
		Wood mulch	63462	lbs			
		Tackifier	3808	lbs			
		SUBTOTAL THIS SHEET					\$1,654,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE 02/28/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx)Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		WATER AND ENVIRONMENTAL						
	93	RIPARIAN POLE PLANTING:	86-68220	50	Acres	\$4,000.00	\$200,000.00	
		Narrowleaf willow (<i>Salix exigua</i>)	14000	cutting				
		Arroyo willow (<i>Salix lasiolepis</i>)	4000	cutting				
		Shining willow (<i>Salix lucida</i>)	2000	cutting				
		Herbivore screen	20000	each				
		Chemical herbivore deterrent	400	gal				
	94	WEED MANAGEMENT:	86-68220	206	Acres	\$1,000.00	\$206,000.00	
		Herbicide, post-emergent	413	lbs AI				
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION						
	95	FALL GROUND SEEDING:	86-68220	330	Acres	\$3,000.00	\$990,000.00	
		Idaho fescue (<i>Festuca idahoensis</i>)	1320	lbs PLS				
		Blue wildrye (<i>Elymus glaucus</i>)	1320	lbs PLS				
		Small fescue (<i>Vulpia microstachys</i>)	1320	lbs PLS				
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1980	lbs PLS				
		Sandberg bluegrass (<i>Poa secunda</i>)	165	lbs PLS				
		Spike bentgrass (<i>Agrostis exarata</i>)	82.5	lbs PLS				
		Western needlegrass (<i>Achnatherum occidentale</i>)	1320	lbs PLS				
		California brome (<i>Bromus carinatus</i>)	2640	lbs PLS				
		Squirreltail (<i>Elymus elymoides</i>)	1320	lbs PLS				
		Wood mulch	660000	lbs				
		Tackifier	39600	lbs				
	96	WEED MANAGEMENT:	86-68220	330	Acres	\$1,000.00	\$330,000.00	
		Herbicide, post-emergent	31	lbs AI				
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL						\$6,360,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx)Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and remove the earth fill embankment and concrete cutoff walls of Iron Gate Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area Transport by conveyor belt. Disposed fill estimated to be 20' deep and traffic compacted (15% bulking factor).	86-68313	29	acre	\$5,000.00	\$145,000.00
		Prepare Haul Road - 1.25 mi 2 way traffic - off road dumps or scrapers					
	98	Rock Excavation for Haul Road Widening hard basalt rock	86-68313	0	yd3	\$35.00	
	99	Clear and grub, 40' width for 1 mile	86-68313	0	acre	\$5,000.00	
	100	4' thick gravel surfacing	86-68313	0	ton	\$60.00	
		300,000 cubic yards to be disposed of in spillway chute. Filling to start in stilling basin for access to chute.					
		ROAD IMPROVEMENTS SUBTOTAL					\$145,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE Daniel W. Osmun 1/7/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2. <i>Located just north of the Powerhouse. Single story, hip roof, prefab metal structure on concrete slab. Office, lockers, and shop. 20 ft x 40 ft.</i>	86-8130	800	ft2	\$55.00	\$44,000.00
	102	Remove Building No. 3. <i>Located between circular holding ponds. Single story, hip roof, prefab metal structure on concrete walls. Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>	86-68130	1,088	ft2	\$55.00	\$59,840.00
	103	Remove Concrete in Fish Ladder. <i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20, and retaining wall (which serves as a support for part of the fish ladder, and which is the left wall of the tunnel outlet structure).</i>	86-68130	950	yd3	\$170.00	\$161,500.00
	104	Remove Concrete in Holding Ponds #1 thru #6. <i>Includes 6 circular ponds.</i>	86-68130	420	yd3	\$170.00	\$71,400.00
	105	Remove Concrete in Fish Facility Items. <i>Includes holding tank between pool 20 and Bldg. No. 3, tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3, flumes (to holding ponds), and gate basins #1 thru #6.</i>	86-68130	380	yd3	\$170.00	\$64,600.00
	106	Remove Miscellaneous Metalwork in Fish Facilities. <i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank), fish basket (in dope tank), rotating sweeps & stationary sweeps (in circular ponds), frames, gratings, handrail, and ladders.</i>	86-68130	12,000	lbs	\$0.60	\$7,200.00
SUBTOTAL THIS SHEET							\$408,540.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY Craig A. Brush, P.E.	CHECKED 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	107	Remove Concrete associated with 30"-dia. Water Supply Line. <i>Includes intake structure and 4 water supply line anchors (all on upstream side of dam).</i>	86-68130	68	yd3	\$170.00	\$11,560.00
	108	Remove Concrete in Aerator Structure. <i>Located southeast of powerhouse, across the road, and up the slope. Supplies air for the 30"-dia. water supply line. Includes anchor blocks, thrust blocks, pipe supports, and aerator box.</i>	86-68130	50	yd3	\$170.00	\$8,500.00
	109	Remove Wood in Aerator Structure. <i>Consists of lumber pressure-treated with chromated copper arsenate. Volume of lumber approximately 200 ft3. Assumed to weigh 30 lbs/ft3.</i>	86-68130	6,000	lbs	\$0.65	\$3,900.00
	110	Remove Structural Steel in Aerator Structure. <i>Includes three 6 in WF beams, each about 13 ft long, misc. angles & connection hardware, walkway supports, ladders, cages, and guardrails for landings & steps.</i>	86-68130	2,500	lbs	\$0.60	\$1,500.00
	111	Remove Asphalt Pavement. <i>Located around powerhouse and fish facility ponds and tanks.</i>	86-68130	39,000	ft2	\$5.00	\$195,000.00
	112	Remove Restroom Building near Aerator Structure. <i>Metal building.</i>	86-68130	340	ft2	\$55.00	\$18,700.00
	113	Remove Storage Shed near Aerator Structure. <i>Metal building.</i>	86-68130	90	ft2	\$55.00	\$4,950.00
SUBTOTAL THIS SHEET							\$244,110.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 30 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx)Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Fish Hatchery Berm Removal					
	114	Toe Drain Pipe <i>30" diameter RCP dispose of off site</i>	86-68313	260	lin ft	\$15.00	\$3,900.00
	115	Toe Drain Manhole <i>48" diameter precast concrete dispose of off site</i>	86-68313	25	lin ft	\$45.00	\$1,125.00
	116	Berm Removal <i>to be removed concurrent with dam constructed with random fill to waste area by conveyor belt.</i>	86-68313	53,000	yd3	\$10.00	\$530,000.00
		SUBTOTAL THIS SHEET					\$535,025.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE Daniel W. Osmun 1/7/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\SjSummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Fish Structures:					
	117	Intake Structures Trashracks- 8.5ft. W. x 10.75 ft. H. Trashracks weight approximately:	86-68420	5,000	lbs	\$0.60	\$3,000.00
	118	Pipe Conduit- 30-in. Dia. X 0.25-in Thick x 960 ft. Pipe Weight 80 lbs/ft.	86-68420	76,640	lbs	\$0.60	\$45,984.00
	119	Sluice Gate Valve- 30-in. H. x x30-in. W. Gate weight Approximately: 3,000 lbs	86-68420	3,000	lbs	\$0.60	\$1,800.00
		SUBTOTAL THIS SHEET					\$50,784.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Brush, P.E.	CHECKED <i>AW</i> 06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>DCD</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 32 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx)Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	120	Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft. Pipe weight 8 lbs/ft.	86-68420	360	lbs	\$0.60	\$216.00
	121	Butterfly Valve- 30-in. Dia. Valve weight approximately: 2435 lbs	86-68420	2,435	lbs	\$0.60	\$1,461.00
	122	Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Pipe weight 80 lbs/ft.	86-68420	7,200	lbs	\$0.60	\$4,320.00
	123	Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Pipe weight 64 lbs/ft.	86-68420	15,872	lbs	\$0.60	\$9,523.20
	124	Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Pipe weight 53 lbs/ft.	86-68420	4,505	lbs	\$0.60	\$2,703.00
	125	Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Pipe weight 48 lbs/ft.	86-68420	29,088	lbs	\$0.60	\$17,452.80
	126	Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Pipe weight 42 lbs/ft.	86-68420	6,972	lbs	\$0.60	\$4,183.20
		SUBTOTAL THIS SHEET					\$39,859.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Tumage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 33 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	127	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Pipe weight 34 lbs/ft.	86-68420	2,176	lbs	\$0.60	\$1,305.60
	128	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Pipe weight 28 lbs/ft.	86-68420	1,932	lbs	\$0.60	\$1,159.20
	129	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Pipe weight 23 lbs/ft.	86-68420	3,588	lbs	\$0.60	\$2,152.80
	130	Piping- 3-in. Dia. STD x 64 ft. Pipe weight 8 lbs/ft.	86-68420	1,088	lbs	\$0.60	\$652.80
	131	Gate Valves- 24-in. Dia. Gate Valve- 1 total 24-in. Gate Valve weight approx: 3,800 lbs 18-in. Dia. Gate Valve- 7 total 18-in. Gate Valve weight approx: 1748 lbs ea 16-in. Dia. Gate Valve- 2 total 16-in. Gate Valve weight approx: 1465 lbs ea 12-in. Dia. Gate Valve- 1 total 12-in. Gate Valve weight approx: 722 lbs 8-in. Dia. Gate Valve- 6 total 8-in. Gate Valve weight approx: 339 lbs ea 3-in. Dia. Gate Valve- 1 total 3 -in. Gate Valve weight approx: 70 lbs Total weight approximately:	86-68420	21,792	lbs	\$0.60	\$13,075.20
SUBTOTAL THIS SHEET							\$18,345.60

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 34 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	132	Basin #1-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		Total weight approximately:	86-68420	2,880	lbs	\$0.60	\$1,728.00
	133	Basin #2-					
		Slide Gate- 4-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		Total weight approximately:	86-68420	3,860	lbs	\$0.60	\$2,316.00
	134	Basin #3-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		Total weight approximately:	86-68420	2,880	lbs	\$0.60	\$1,728.00
		SUBTOTAL THIS SHEET					\$5,772.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\SSummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	135	Basin #4-					
		Slide Gates-					
		24-in. Slide Gate manually operated					
		24-in. Slide Gate weight approx: 700 lbs					
		2-18-in. Slide Gate manually operated					
		18-in. Slide Gate weight approx: 490 lbs ea					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		Total weight approximately:	86-68420	3,580	lbs	\$0.60	\$2,148.00
	136	Basin #5-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		Total weight approximately:	86-68420	1,440	lbs	\$0.60	\$864.00
	137	Basin #6-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		Total weight approximately:	86-68420	1,440	lbs	\$0.60	\$864.00
		SUBTOTAL THIS SHEET					\$3,876.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE R. Frisz 1/12/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE <i>[Signature]</i> 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 38 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Wanaka Springs					
	140	Concrete total	BLM	28	CY	\$200.00	\$5,600.00
		1 Dock Pier 25'x5'x5' (23 CY)					
		1 Concrete table base (2 CY)					
		3 Concrete fire rings/garbage bases (1 CY)					
		3 Concrete sign bases (2 CY)					
	141	Double pipe railings	BLM	60	LF	\$35.00	\$2,100.00
	142	Wood picnic tables to be removed and hauled away	BLM	5	EA	\$90.00	\$450.00
	143	25'X5' Wooden floating dock	BLM	125	SF	\$15.00	\$1,875.00
	144	Rip and reseed site and access road	BLM	2.5	ACRE	\$20,000.00	\$50,000.00
	145	Signs to be removed and hauled away	BLM	3	EA	\$250.00	\$750.00
	146	15'x5' Gangplank with railings	BLM	75	SF	\$15.00	\$1,125.00
		Juniper Point					
	147	Concrete total	BLM	19	CY	\$200.00	\$3,800.00
		1 Dock abutment 25'x4'x3' (11 CY)					
		15 Concrete fire rings (5 CY)					
		1 Picnic table base (2 CY)					
		4 Sign bases (1 CY)					
	148	2, 4'x4' Concrete toilet vaults	BLM	32	SF	\$90.00	\$2,880.00
	149	Wood picnic tables to be removed and hauled away	BLM	8	EA	\$90.00	\$720.00
	150	Signs to be removed and hauled away	BLM	4	EA	\$250.00	\$1,000.00
	151	Dock pipe railing	BLM	50	LF	\$35.00	\$1,750.00
	152	50'x5' Composite dock with poly floats	BLM	250	SF	\$15.00	\$3,750.00
	153	20'x5' Composite gangplank with railings	BLM	100	SF	\$15.00	\$1,500.00
	154	Bury 3' dia boulders on site	BLM	50	EA	Included in regrade item	
	155	Regrade to natural contour, rip and reseed	BLM	2	ACRE	\$20,000.00	\$40,000.00
		SUBTOTAL THIS SHEET					\$117,300.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED [Signature] 06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE [Signature] 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 39 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Camp Creek					
	156	Concrete total	BLM	110	CY	\$200.00	\$22,000.00
		80'x25'x1' Boat ramp (75 CY)					
		Main dock platform piers 25'x4'x3' (11 CY)					
		15 Fire ring bases (6 CY)					
		Step/dock abutment 8'x6'x5' (9 CY)					
		6 Sign bases (2 CY)					
		1 Block foundation sign base (3 CY)					
		2 Picnic table bases (4 CY)					
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade	BLM	855	CY	\$20.00	\$17,100.00
	158	Well house 10'x16' concrete block building	BLM	160	SF	\$90.00	\$14,400.00
	159	2, 20'x5' Composite decking gangplanks w/ aluminum frame railings	BLM	200	SF	\$15.00	\$3,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame docks	BLM	200	SF	\$15.00	\$3,000.00
	161	Concrete block double toilet bldg 10'x16'	BLM	160	SF	\$90.00	\$14,400.00
	162	Dump stations and approx. 2000 gal buried concrete tank	BLM	1	EA	\$4,000.00	\$4,000.00
	163	Power poles and lines	BLM	3	POLES	\$1,000.00	\$3,000.00
	164	Remove waterlines and 3 faucets and regrade	BLM	600	LF	\$4.00	\$2,400.00
	165	Recycle/bury approx. 3' dia. boulders	BLM	75	EA	Included in regrade item	
	166	Steel pipe/plank picnic tables to be removed and hauled away	BLM	5	EA	\$90.00	\$450.00
	167	Relocate concrete tables	BLM	12	EA	\$90.00	\$1,080.00
	168	Regrade, rip and reseed	BLM	4	ACRE	\$20,000.00	\$80,000.00
	169	Signs to be removed and hauled away	BLM	7	EA	\$250.00	\$1,750.00
		Dutch Creek					
	170	50'x4'x3' Dock concrete abutment	BLM	22	CY	\$200.00	\$4,400.00
	171	Double pipe railing	BLM	100	LF	\$35.00	\$3,500.00
		SUBTOTAL THIS SHEET					\$174,480.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED DW 06-06-11
DATE PREPARED 01/03/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE DCW 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 40 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mirror Cove					
	172	Concrete total		89	CY	\$200.00	\$17,800.00
		80'x25'x0.5' Boat ramp (37 CY)					
		2 Concrete boat dock abutments: 6'x8'x1.5' and 6'x30'x5' (36 CY)					
		12 Fire ring foundations (4 CY)					
		2 Sets of concrete stairs (9 CY)					
		7 Sign foundations (3 CY)					
	173	10'x16' Toilet vault		160	SF	\$90.00	\$14,400.00
	174	2, 30'x5' Composite gangplanks w/aluminum frame and railings		300	SF	\$15.00	\$4,500.00
	175	Double pipe railings on dock		80	LF	\$35.00	\$2,800.00
	176	Bury 3' dia. boulders on site		120	EA	Included in regrade item	
	177	Regrade site, rip and reseed		3	ACRE	\$20,000.00	\$60,000.00
	178	Signs to be removed and hauled away		7	EA	\$250.00	\$1,750.00
		Overlook Point					
	179	1 Concrete picnic table base		1	CY	\$200.00	\$200.00
	180	Steel frame table to be removed and hauled away		1	EA	\$90.00	\$90.00
	181	Regrade steep access road and site to natural contours, rip and reseed		0.5	ACRE	\$20,000.00	\$10,000.00
		Long Gulch					
	182	80'x25'x4" Concrete boat ramp to be removed		25	CY	\$200.00	\$5,000.00
	183	Remove picnic tables (steel frame with planks) & haul away		2	EA	\$90.00	\$180.00
	184	Regrade ramp area to natural contours, rip, reseed		0.05	ACRE	\$20,000.00	\$1,000.00
		RECREATIONAL FACILITIES REMOVAL SUBTOTAL					\$409,500.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED 10/03/11	PEER REVIEW / DATE Rick Benik P.E. 1/6/11	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 41 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Reservoir Most Probable Low SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		839,100	CY	\$0.00	\$0.00
		Diversion and Care					\$2,683,660.00
		Dam Removal					\$10,891,502.00
		Powerhouse/Switchyard/Transmission Line Removal					\$158,400.00
		Penstock Removal					\$902,376.00
		Reservoir Vegetative Restoration					\$6,360,500.00
		Road Improvements					\$145,000.00
		Fish Spawning Facility Removal					\$1,311,751.80
		Recreational Facilities to be Removed					\$409,500.00
		Subtotal					\$22,862,689.80
		Mobilization	5%	+/-			\$1,150,000.00
		Subtotal 1 with Mobilization					\$24,012,689.80
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 1.5%/yr compounding over 10 years)					\$3,855,017.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$27,867,706.80
		Design Contingencies	8%	+/-			\$2,132,293.20
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$30,000,000.00
		Construction Contingencies	18%	+/-			\$6,000,000.00
		FIELD COST					\$36,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 1%, Engineering Design ~ 3%, Permitting ~ 2%, Procurement ~ 1%, Construction Management ~ 9%, and Closeout ~ 1%)	62%	+/-			\$22,000,000.00
		CONSTRUCTION COST					\$58,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grush, P.E.	CHECKED 06-06-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 06/03/11	PEER REVIEW / DATE 6/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Furnish, Install, and Remove Barge-Mounted Crane in Reservoir for Dam Removal. Barge is used for removal of existing closure gates and installation of new roller gate. Barge is located on reservoir for approximately 1 week.	86-68130	1	ls		\$200,000.00
	2	Furnish, Install, and Remove Temporary Air Vent Hose from Barge to Diversion Tunnel Intake Structure. Installation requires a dive depth of approximately 150 feet. Air vent consists of 12-inch diameter HDPE pipe.	86-68130	150	lf		DELETED
	3	Remove Reinforced Concrete Ring. Located just downstream of closure gate and upstream of flap gate. Tunnel work	86-68130	31	cy	\$1,500.00	\$46,500.00
	4	Remove Reinforced Concrete Stoplog Structure. Located at downstream end of diversion tunnel.	86-68130	3	cy	\$215.00	\$645.00
	5	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 1 day.	86-68130	300,000	gals		DELETED
	6	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		DELETED
SUBTOTAL THIS SHEET							\$247,145.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/19/11	PEER REVIEW / DATE Tom Hepler P.E. 2/19/11	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 41

FEATURE: REVISION #1 Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Appraisal <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Diversion & Care
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	8	Construct 240-ft-long, 2-span concrete Bridge. 31-ft deck width (two 12-ft lanes, two 2-ft shoulders, additional width for jersey barriers along each side). To be constructed near existing bridge, which is to be kept in service until new bridge is ready for service. Design loading is HS-20 truck. Cost is based on unit cost per ft2 of deck for similar concrete bridge at Upper San Joaquin priced out in 2009.	86-68130	0	ft2	\$300.00	
	9	Remove and dispose of existing bridge. Bridge is approximately 227 feet long. Consists of 9 spans @ about 25 feet (steel girders) with reinforced concrete decking (about 16 feet wide). Piers appear to be timber posts, supported on 4 or 5 pile bents. Rails along both sides are timber with concrete wheel guards. Assume wood is pressure-treated. Assume girders contain paint with heavy metals.	86-68130	0	ls	\$400,000.00	
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Rick Benik	BY Craig A. Grush, P.E.	CHECKED [Signature] 06-06-11
DATE PREPARED 11/08/10	PEER REVIEW / DATE Tom Hepler, P.E. 11/08/10	DATE PREPARED 06/03/11	PEER REVIEW / DATE [Signature] 6/6/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 5 _ OF _ 41 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Diversion and Care				Klamath River Northern California/Southern Oregon			
WOID: AF121		ESTIMATE LEVEL: Feasibility		REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - REV1 - MP Feas Est - 4-2011.xls\Diversion & Care			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL	86-68420				
		All items are necessary for the removal of Iron Gate Dam.					
	11	Remove 1 - 9' dia. hinged blind flange and associated metal work, including 5' of pipe spool. This will require installing and removing all fasteners on the blind flange. It assumed that these fasteners are on-site (Assume contains paint with heavy metals) Tunnel work		19,000	lbs	\$2.00	\$38,000.00
	12	Remove 18" plug valve and 7' of 18" drainage pipe Weight of plug valve used: 2,000 lbs Tunnel work		2,900	lbs	\$2.00	\$5,800.00
	13	Furnish, install and remove 1 - 16.5'x18' roller gate, stem, and operator Total roller gate weight approximately: 75,900 lbs. Installation and removal requires a dive depth of approximately 150 feet.		110,000	lbs	\$15.00	\$1,650,000.00
DIVERSION AND CARE SUBTOTAL							\$3,340,945.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 06-08-11
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/2011	DATE PREPARED 06/08/11	PEER REVIEW / DATE DCD 6/8/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 6 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	14	Remove Concrete in Observation Platform, Crest Wall and Wall Extension.	86-68130	580	yd3	\$215.00	\$124,700.00
		Observation Platform is reinforced concrete slab located on right abutment. Buried crest wall on left abutment consists of unreinforced controlled low strength material. Reinforced extension on right abutment includes reinforced concrete wall and stairs to trash gate.					
		Items are associated with the Diversion Tunnel. All concrete is reinforced concrete.					
	15	Remove Concrete in Diversion Tunnel Intake Structure.	86-68130	530	yd3	\$215.00	\$113,950.00
		Remove concrete upstream of Sta. 3+00. Concrete removal requires a dive depth of 150 feet.					
	16	Remove Concrete in Diversion Tunnel Gate Tower.	86-68130	410	yd3	\$215.00	\$88,150.00
		Remove concrete down to elev. 2254.					
	17	Remove Steel Footbridge to Gate Tower.	86-68130	13,000	lbs	\$0.85	\$11,050.00
		This bridge provides access from the dam crest to the gate tower for the diversion tunnel. Assume contains paint with heavy metal.					
	18	Remove Concrete in Diversion Tunnel Footbridge Abutment. Includes stairs over sheetpile wall.	86-68130	20	yd3	\$215.00	\$4,300.00
	19	Place Concrete Plugs for Diversion Tunnel.	86-68130	43	yd3	\$1,200.00	\$51,600.00
		There will be 3 plugs total. Two placed vertically and one horiz. Plugs will be 2 feet thick, reinforced concrete, 3,000 psi min. Location of plugs and info about openings is as follows: Upstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 3+01.0. Downstream portal; vertical plug, 15.5-ft-wide by 16.5-ft-high, horseshoe shape, at Sta. 12+68.5. Gate tower; horizontal plug at elev. 2254, 15.5-ft by 7.5-ft, reinf. concrete, rectangular shape.					
		SUBTOTAL THIS SHEET					\$393,750.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Sheena Barnes, Jonathan East	BY Craig A. Grish, P.E.	CHECKED
DATE PREPARED 02/19/11	PEER REVIEW / DATE Rick Benik P.E. 2/22/11	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 8 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	21	Upstream Riprap Assume max size 250 lbs, ave. 100 lbs. to waste area by truck	86-68313	80,000	yd3	\$13.00	\$1,040,000.00
	22	Downstream Riprap Assume max size 2500 lbs, ave. 500 lbs. to waste area by truck	86-68313	30,000	yd3	\$13.00	\$390,000.00
	23	Miscellaneous Excavation Consists of finer earth fill materials 300,000 cy to spillway chute by truck remainder to waste area by truck	86-68313	880,000	yd3	\$13.00	\$11,440,000.00
	24	Cutoff Wall Concrete Demolition The 2 concrete cutoff walls are embedded in the Zone III core but do not appear to be anchored into bedrock.	86-68313	1,250	yd3	\$215.00	\$268,750.00
	25	Earth Fill Crest Raise Treat as miscellaneous excavation to waste area by truck	86-68313	13,000	yd3	\$13.00	\$169,000.00
	26	Sheetpile Crest Raise Remove sheetpile wall crest raise Total height 13', embedded 9', type CS55.	86-68313	800	lin ft	\$250.00	\$200,000.00
		Monitoring Well Removal					
	27	Remove 5 monitoring wells assume 150 length, 6" diameter remove as excavation progresses	86-68313	5	each	\$2,000.00	\$10,000.00
		SUBTOTAL THIS SHEET					\$13,517,750.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 11/24/10	PEER REVIEW / DATE Daniel W. Osmun 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Spillway Structure:					
	28	Trash Sluice Gate- 10 ft. W x 9 ft. H Total gate weight approximately: 3500 lbs. Total gate hoist weight approximately: 1000 lbs Total weight approximately:	86-68420	4,500	lbs	\$0.85	\$3,825.00
		(Assume contains paint with heavy metals & petroleum products)					
		Remove and dispose of the following equipment of the Diversion Tunnel:					
	29	Intake structure Trash Racks- 4 rack each 10 ft. W x 33 ft. H Each rack weights approximately: 18,000 lbs Total weight approximately:	86-68420	72,000	lbs	\$0.70	\$50,400.00
	30	Sluice and Diversion Tunnel Gate Gate Hoist- 2-10-in. Dia. Hydraulic cylinders Gate hoist weight approx: 10,000 lbs ea. Framework- I-Beam framework securing hoists Total framework weight approx: 8,000 lbs Total weight approximately:	86-68420	28,000	lbs	\$0.85	\$23,800.00
		(Assume contains paint with heavy metals & petroleum products)					
	31	Hoist Stem- 6-in. Dia. Sch. 160 x 150 ft. Stem weight is 50 lbs/ft. (Assume contains paint with heavy metals & petroleum products)	86-68420	7,500	lbs	\$0.85	\$6,375.00
		SUBTOTAL THIS SHEET					\$84,400.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Tumage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/2011	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 10 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	32	Air Vent Pipe- 8-in. Dia. Sch 40. x 160 ft. Near Sluice Gate Pipe weight is 29 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	4,650	lbs	\$2.00	\$9,300.00
	33	Transition Gate Structure Flap Gate - 96 in. Dia. With 4 ft. pipe Total weight approximately: (Assume contains paint with heavy metals) Tunnel work	86-68420	8,000	lbs		DELETED
	34	Air Vent Pipe- 12-in. Dia Sch. 40 x 560 ft. From Gate to Outlet Works Pipe weight is 54 lbs/ft. (Assume contains paint with heavy metals) Tunnel work	86-68420	30,250	lbs	\$2.00	\$60,500.00
	35	Outlet Works Stop Logs Total logs weight approximately: 2,310 lbs Total guide weight approximately: 360 lbs Total weight approximately: (Assume contains paint with heavy metals)	86-68420	2,670	lbs	\$0.85	\$2,269.50
SUBTOTAL THIS SHEET							\$72,069.50

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/22/11	PEER REVIEW / DATE Dan Drake 3/3/2011	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

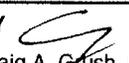
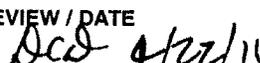
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 11 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Diversion Tunnel Gate Intake Structure:					
	36	Hydraulic Pump motor (10 HP est) & control panel Total weight approximately: 250 lbs.	86-68430	1	EA	\$350.00	\$350.00
	37	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$1,700.00	\$1,700.00
	38	Power Cable and 4"Conduit from Penstock Structure (3 conductor 6 AWG est.) Total weight approximately: 10,400 lbs.	86-68430	800	feet	\$35.00	\$28,000.00
		DAM SUBTOTAL					\$14,159,019.50

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 24, 2010	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 13 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Turbine Unit 25,000 hp, 158 ft. of head, 180 RPM D3 is calculated at 8.85 ft. Turbine weight calculated approx: (Assume contains paint with heavy metals & petroleum products)	86-68420	344,058	lbs		DELETED
	41	Draft Tube Bulkheads- 3-Bulkhead approx. 10 ft. W. x 10 ft. H Bulkhead weight approximately: 3000 lbs each 3-Framework weight approx: 2500 lbs each Total bulkhead weight approx: (Assume contains paint with heavy metals)	86-68420	16,500	lbs		DELETED
		Remove and dispose of the following equipment of the Powerhouse Structure:					
	42	Crane- No Crane at Site, but embedded rails still exist Above Ground Steel Rails-200 ft. length Crane is presently used at J. C. Boyle (Assume contains paint with heavy metals & petroleum products)	86-68420	24,000	lbs		DELETED
	43	Governor- Accumulator tank for air over oil cylinders Governor control panel cabinet Pump for Oil Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	20,310	lbs		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grash, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 14 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	44	Bearing Oil System and Cooling Water System- Steel Piping of various sizes Valves of various sizes Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	0,182	lbs		DELETED
	45	CO2 System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	2,568	lbs		DELETED
	46	Plant Water and Fire Protection System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	0,182	lbs		DELETED
	47	Sump Pumps- 2 Powerhouse water removal sump pumps Sump weight approximately: 1000 lbs each Total weight approximately: (Assume contains petroleum products)	86-68420	2,000	lbs		DELETED
	48	Pumps- 4 Large pumps near outlet Pump weight approximately: 3000 lbs each 4 Pump Suction Inlet Bulkhead gates approx. 10 ft. H. x 10 ft. W. Bulkhead weight approximately: 2500 lbs each Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	22,000	lbs		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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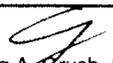
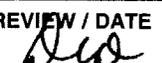
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 15 OF 41

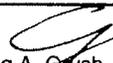
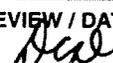
FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	49	Exposed Piping around the plant- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	10,294	lbs		DELETED
	50	Unwatering Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	10,294	lbs		DELETED
	51	Drainage Piping- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals)	86-68420	9,518	lbs		DELETED
	52	Transformer Oil and Fire Protection- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	9,182	lbs		DELETED
	53	Compressed Air System- Various sizes of piping and valves Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	1,460	lbs		DELETED
	53A	Remove Petroleum Products from Mechanical Equipment. Includes quantities for the following equipment: From Item 42, unit bearing oil system, DTE heavy oil, 275 gal. From Item 41, unit governor oil sump and accumulator tank, hydraulic oil, 800 gal. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.	86-68420	1,100	gal	\$10.00	\$11,000.00
		SUBTOTAL THIS SHEET					\$11,000.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY  Craig A. Brush, P.E.	CHECKED 
DATE PREPARED 12/08/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	54	AC Generator, Outdoor Horizontal 18.975 MVA (18 MW); 0.95PF, 6,600V, 180 RPM, 3 Ph, including rotating exciter Total weight approximately: 387,500 lbs. Stator: 124,600 lbs., Rotor: 180,300 lbs. Exciter Assembly: 17,000 lbs. Heaviest lift: 186,700 lbs.	86-68430	1	EA		DELETED
	55	Excitation equipment for 18.975 MVA Generator (2 sections) Total weight approximately: 1,000 lbs.	86-68430	1	EA		DELETED
	56	Surge protection equip. for 18.975 MVA Generator Total weight approximately: 800 lbs.	86-68430	1	EA		DELETED
	57	Neutral grounding equip. for 18.975 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
	58	Station Service Switchgear, 600 volt (5 sections) (400 lbs each section), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
	59	Unit and plant control switchboard 5 cubicles (400 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 24, 2010	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 17 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	60	Battery system - assume 60 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	61	Raceways, Bus, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 100 lin. Ft. cabletray, 40 lin. Ft. non-segregated phase bus) Total weight approximately: 9,000 lbs.	86-68430	1	EA		DELETED
	62	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
	63	Transformer (3 phase, 275 kVA, 6600/480V est.) in power house Total weight approximately: 2,000 lbs.	86-68430	1	EA		DELETED
	64	Governor Oil Pump Motors (10 hp and 20 hp est.) Total weight approximately: 450 lbs.	86-68430	2	EA		DELETED
	65	Vertical Motors, outdoor, (480V, 100 HP est.) Outdoor for fish water pumps Total weight approximately: 2,000 lbs.	86-68430	4	EA	\$600.00	\$2,400.00
		SUBTOTAL THIS SHEET					\$12,400.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grish, P.E.	CHECKED 
DATE PREPARED November 24, 2010	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 18 _ OF _ 41 _

FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF121	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Ssummary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	66	Transformer (3 phase, 300 kVA, 6600/480V est.) Outdoor for fish water pumps Total weight approximately: 2,900 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
		Remove and dispose of the following equipment in switchyard/powerplant deck:					
	67	Step-up Transformer, outdoor, oil-filled, 3-phase, 18,947 kVA, 6,600/69,000 volt Total weight approximately: 58,000 lbs.	86-68430	1	EA	\$100,000.00	\$100,000.00
	68	Lattice steel structure, with 69-kV disconnect switches and insulators	86-68430	1	EA	\$5,000.00	\$5,000.00
	69	Generator Switchgear, outdoor, 7.2kV-includes unit breaker (5 Sections @ 2,400 lbs each section 3 ft x 7.5 ft x 95 inches high), 20 ft. non-seg. bus Total weight approximately: 12,000 lbs.	86-68430	1	EA	\$35,000.00	\$35,000.00
	70	Single Phase Pole Transformers. (25 kVA est.) Total weight approximately: 1050 lbs.	86-68430	3	EA	\$2,000.00	\$6,000.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$179,400.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED November 24, 2010	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 19 _ OF _ 41 _

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	71	Remove Concrete in Penstock Intake Structure.	86-68130	460	yd3	\$215.00	\$98,900.00
	72	Remove Concrete in Penstock Encasement. Encasement runs through embankment from intake structure to penstock anchor No. 1.	86-68130	840	yd3	\$215.00	\$180,600.00
	73	Remove Concrete in 3 Penstock Anchors and 7 Penstock Supports	86-68130	1,900	yd3	\$215.00	\$408,500.00
	74	Remove Steel Footbridge to Intake Structure. This bridge provides access from the left abutment to the penstock intake structure. Assume contains paint with heavy metals.	86-68130	11,000	lbs	\$0.85	\$9,350.00
	75	Remove Concrete in Intake Structure Footbridge Abutment.	86-68130	5	yd3	\$215.00	\$1,075.00
		SUBTOTAL THIS SHEET					\$698,425.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY <i>[Signature]</i> Craig A. Gush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 20 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment of the Power Conduit (Penstock):					
	76	Intake Structure-					
		Wheel Gate- 16.75 ft. H. x 22.33 ft. W. Gate weight approximately: 30,000 lbs					
		Wheel Gate Hoist- 2-6-in. Dia. Hydraulic Cylinders Wheel gate hoist weight approx: 10,000 lbs					
		Framework- I-Beam framework securing hoists Total framework weight approx: 10,000 lbs					
		Trash rack- 17.5 ft. W. x 45.75 ft. H. Trashrack weight approximately: 44,400 lbs					
		Stop logs- Total logs weight approximately: 29,250 lbs Total guide weight approximately: 3,600 lbs					
		Slide Gate- 30-in. W. x 42-in. H. Slide Gate weight approximately: 3,240 lbs					
		Sluice Gate- 12-in. W. x 12-in. H. Sluice Gate weight approximately: 1,140 lbs					
		Total weight approximately:	86-68420	131,630	lbs	\$0.85	\$111,885.50
		(Assume contains paint with heavy metals & petroleum products)					
	77	Gate Hoist Stem- 6-in. Sch 160 x 40 ft. Stem weight 45 lbs/ft.	86-68420	1,800	lbs	\$0.85	\$1,530.00
		(Assume contains paint with heavy metals & petroleum products)					
		SUBTOTAL THIS SHEET					\$113,415.50

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Grash, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 21 OF 41

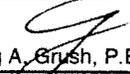
FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock		Klamath River Northern California/Southern Oregon	
		WOID: AF121	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SSummary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	78	Water fill line- 12-in. Dia. STD x 27 ft Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,350	lbs	\$0.85	\$1,147.50
	79	Air Vent- 12-in. Dia. STD x 32 ft. Pipe weight 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,600	lbs	\$0.85	\$1,360.00
		Power Conduit (Penstock) Continued:					
	80	Gage Wells-					
		10-in. Dia. STD x 32 ft. weights 41 lbs/ft.	86-68420	1,312	lbs	\$0.85	\$1,115.20
		12-in. Dia. STD x 26 ft. weights 50 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,300	lbs	\$0.85	\$1,105.00
	81	Penstock Vent- 46-in. Dia. 0.25-in. Thick x 60 ft. Pipe weight 124 lbs/ft. (Assume contains paint with heavy metals)	86-68420	7,440	lbs	\$0.85	\$6,324.00
	82	Penstock- 12-ft. Dia. 0.25-in. Thick x 698 ft. Pipe weight 386 lbs/ft. (Assume contains paint with heavy metals)	86-68420	294,428	lbs	\$0.85	\$250,263.80
	83	Bypass Outlet- 96-in. Dia. 0.25-in. Thick x 50 ft. Pipe weight 257 lbs/ft. (Assume contains paint with heavy metals)	86-68420	12,850	lbs	\$0.85	\$10,922.50
	84	Outlet Valve on bypass outlet- 66-in. Dia. Assumed to be a Fixed Cone Valve with controls Valve weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	18,000	lbs	\$0.85	\$15,300.00
SUBTOTAL THIS SHEET							\$287,538.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Brush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at the Penstock Intake Structure:					
	85	Overhead Trolley Crane Motor (4hp est)& controls Total weight approximately: 500 lbs.	86-68430	1	EA	\$1,000.00	\$1,000.00
	86	Distribution equipment , Junction Boxes Total weight approximately: 200 lbs.	86-68430	1	EA	\$2,500.00	\$2,500.00
	87	Power Cable and Conduit 1800 ft. 4" Conduit with 3 conductor 6 AWG est. 1200 ft. 1.5" Conduit with 3 conductor 12 AWG est. Total weight approximately: 11,000 lbs.	86-68430	1	EA	\$70,000.00	\$70,000.00
		PENSTOCK SUBTOTAL					\$1,172,878.50

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 24, 2010	PEER REVIEW / DATE L. Rossi 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 24 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING: 370 acres	86-68220	370	Acres	\$3,500.00	\$1,295,000.00
		Idaho fescue (Festuca idahoensis)	1578	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1578	lbs	PLS		
		Small fescue (Vulpia microstachys)	1578	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2366	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	197	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	99	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1578	lbs	PLS		
		California brome (Bromus carinatus)	3155	lbs	PLS		
		Squirreltail (Elymus elymoides)	1578	lbs	PLS		
		Wood mulch	788760	lbs			
		Tackifier	47326	lbs			
	90	SPRING BARGE SEEDING: 296 acres	86-68220	296	Acres	\$6,500.00	\$1,924,000.00
		Idaho fescue (Festuca idahoensis)	1262	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1262	lbs	PLS		
		Small fescue (Vulpia microstachys)	1262	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1893	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	158	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	79	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1262	lbs	PLS		
		California brome (Bromus carinatus)	2524	lbs	PLS		
		Squirreltail (Elymus elymoides)	1262	lbs	PLS		
		Wood mulch	631008	lbs			
		Tackifier	37860	lbs			
		SUBTOTAL THIS SHEET					\$3,219,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/11	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 25 OF 41

FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration		Klamath River Northern California/Southern Oregon	
		WOID: AF121	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING: 159 acres	86-68220	159	Acres	\$7,500.00	\$1,192,500.00
		Idaho fescue (Festuca idahoensis)	460	lbs	PLS		
		Blue wildrye (Elymus glaucus)	460	lbs	PLS		
		Small fescue (Vulpia microstachys)	460	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	691	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	58	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	29	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	460	lbs	PLS		
		California brome (Bromus carinatus)	921	lbs	PLS		
		Squirreltail (Elymus elymoides)	460	lbs	PLS		
		Wood mulch	230233	lbs			
		Tackifier	13814	lbs			
	92	FALL GROUND SEEDING: 413 acres	86-68220	413	Acres	\$3,500.00	\$1,445,500.00
		Idaho fescue (Festuca idahoensis)	1650	lbs	PLS		
		Blue wildrye (Elymus glaucus)	1650	lbs	PLS		
		Small fescue (Vulpia microstachys)	1650	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	2475	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	206	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	103	lbs	PLS		
		Western needlegrass (Achnatherum occidentale)	1650	lbs	PLS		
		California brome (Bromus carinatus)	3300	lbs	PLS		
		Squirreltail (Elymus elymoides)	1650	lbs	PLS		
		Wood mulch	126923	lbs			
		Tackifier	7615	lbs			
SUBTOTAL THIS SHEET							\$2,638,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/11	BY <i>[Signature]</i> Craig A. Gush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 26 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
WATER AND ENVIRONMENTAL							
	93	RIPARIAN POLE PLANTING: 50 acres	86-68220	50	Acres	\$8,500.00	\$425,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	24500	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	7000	cutting			
		Shining willow (<i>Salix lucida</i>)	3500	cutting			
		Herbivore screen	35000	each			
		Chemical herbivore deterrent	700	gal			
	94	WEED MANAGEMENT: 413 acres	86-68220	413	Acres	\$1,500.00	\$619,500.00
		Herbicide, post-emergent	825	lbs AI			
MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION							
	95	FALL GROUND SEEDING: 330 acres	86-68220	330	Acres	\$3,500.00	\$1,155,000.00
		Idaho fescue (<i>Festuca idahoensis</i>)	1320	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	1320	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	1320	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1980	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	165	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	82.5	lbs PLS			
		Western needlegrass (<i>Achnatherum occidentale</i>)	1320	lbs PLS			
		California brome (<i>Bromus carinatus</i>)	2640	lbs PLS			
		Squirreltail (<i>Elymus elymoides</i>)	1320	lbs PLS			
		Wood mulch	660000	lbs			
		Tackifier	39600	lbs			
	96	WEED MANAGEMENT: 330 acres	86-68220	330	Acres	\$1,500.00	\$495,000.00
		Herbicide, post-emergent	31	lbs AI			
RESERVOIR VEGETATIVE RESTORATION SUBTOTAL							\$9,331,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Crush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare a disposal site and remove the earth fill embankment and concrete cutoff walls of Iron Gate Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area Estimated haul distance 1 1/4 mile. Disposed fill estimated to be 20' deep and traffic compacted (15% bulking factor).	86-68313	29	acre	\$6,000.00	\$174,000.00
		Prepare Haul Road - 1.25 mi 2 way traffic - off road dumps or scrapers					
	98	Rock Excavation for Haul Road Widening hard basalt rock	86-68313	13,500	yd3	\$40.00	\$540,000.00
	99	Clear and grub, 40' width for 1 mile	86-68313	5	acre	\$6,000.00	\$30,000.00
	100	4' thick gravel surfacing	86-68313	5,300	ton	\$70.00	\$371,000.00
		300,000 cubic yards to be disposed of in spillway chute. Filling to start in stilling basin for access to chute.					
		ROAD IMPROVEMENTS SUBTOTAL					\$1,115,000.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 11/24/10	PEER REVIEW / DATE Daniel W. Osmun 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 28 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	101	Remove Building No. 2. <i>Located just north of the Powerhouse. Single story, hip roof, prefab metal structure on concrete slab. Office, lockers, and shop. 20 ft x 40 ft.</i>	86-8130	800	ft2	\$60.00	\$48,000.00
	102	Remove Building No. 3. <i>Located between circular holding ponds. Single story, hip roof, prefab metal structure on concrete walls. Houses fish facility dope tank and holding tanks. 22.67 ft x 48 ft.</i>	86-68130	1,088	ft2	\$60.00	\$65,280.00
	103	Remove Concrete in Fish Ladder. <i>Includes diffusion pools 1 thru 4, ladder pools 5 thru 20, and retaining wall (which serves as a support for part of the fish ladder, and which is the left wall of the tunnel outlet structure).</i>	86-68130	950	yd3	\$215.00	\$204,250.00
	104	Remove Concrete in Holding Ponds #1 thru #6. <i>Includes 6 circular ponds.</i>	86-68130	420	yd3	\$215.00	\$90,300.00
	105	Remove Concrete in Fish Facility Items. <i>Includes holding tank between pool 20 and Bldg. No. 3, tanks around & housed by Bldg. No. 3, ramp to Bldg. No. 3, flumes (to holding ponds), and gate basins #1 thru #6.</i>	86-68130	380	yd3	\$215.00	\$81,700.00
	106	Remove Miscellaneous Metalwork in Fish Facilities. <i>Includes steel and aluminum mechanical sweep (in 12-ft-wide holding tank), fish basket (in dope tank), rotating sweeps & stationary sweeps (in circular ponds), frames, gratings, handrail, and ladders. Assume contains paint with heavy metals.</i>	86-68130	12,000	lbs	\$0.85	\$10,200.00
		SUBTOTAL THIS SHEET					\$499,730.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY Craig A. Erush, P.E.	CHECKED
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 29 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	107	Remove Concrete associated with 30"-dia. Water Supply Line. <i>Includes intake structure and 4 water supply line anchors (all on upstream side of dam).</i>	86-68130	68	yd3	\$215.00	\$14,620.00
	108	Remove Concrete in Aerator Structure. <i>Located southeast of powerhouse, across the road, and up the slope. Supplies air for the 30"-dia. water supply line. Includes anchor blocks, thrust blocks, pipe supports, and aerator box.</i>	86-68130	50	yd3	\$215.00	\$10,750.00
	109	Remove Wood in Aerator Structure. <i>Consists of lumber pressure-treated with chromated copper arsenate. Volume of lumber approximately 200 ft3. Assumed to weigh 30 lbs/ft3.</i>	86-68130	6,000	lbs	\$0.70	\$4,200.00
	110	Remove Structural Steel in Aerator Structure. <i>Includes three 6 in WF beams, each about 13 ft long, misc. angles & connection hardware, walkway supports, ladders, cages, and guardrails for landings & steps. Assume contains paint with heavy metals.</i>	86-68130	2,500	lbs	\$0.85	\$2,125.00
	111	Remove Asphalt Pavement. <i>Located around powerhouse and fish facility ponds and tanks.</i>	86-68130	39,000	ft2	\$6.00	\$234,000.00
	112	Remove Restroom Building near Aerator Structure. <i>Metal building.</i>	86-68130	340	ft2	\$60.00	\$20,400.00
	113	Remove Storage Shed near Aerator Structure. <i>Metal building.</i>	86-68130	90	ft2	\$60.00	\$5,400.00
		SUBTOTAL THIS SHEET					\$291,495.00

QUANTITIES		PRICES	
BY Rose Reynolds, Stephen Latham	CHECKED Jonathan East, Sheena Barnes	BY Craig A. Brush, P.E.	CHECKED
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

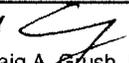
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 30 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Fish Hatchery Berm Removal					
	114	Toe Drain Pipe <i>30" diameter RCP dispose of off site</i>	86-68313	260	lin ft	\$20.00	\$5,200.00
	115	Toe Drain Manhole <i>48" diameter precast concrete dispose of off site</i>	86-68313	25	lin ft	\$50.00	\$1,250.00
	116	Berm Removal <i>to be removed concurrent with dam constructed with random fill to wase area by truck</i>	86-68313	53,000	yd3	\$13.00	\$689,000.00
		SUBTOTAL THIS SHEET					\$695,450.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/24/10	PEER REVIEW / DATE Daniel W. Osmun 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 32 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID: AF121</td> <td>ESTIMATE LEVEL: Feasibility</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table>		WOID: AF121	ESTIMATE LEVEL: Feasibility	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF121	ESTIMATE LEVEL: Feasibility				
REGION: MP	UNIT PRICE LEVEL: July-2010				
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	120	Sluice Gate Stem- 2-in. Dia. Sch. 160 x 45 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	360	lbs	\$0.85	\$306.00
	121	Butterfly Valve- 30-in. Dia. Valve weight approximately: 2435 lbs (Assume contains paint with heavy metals & petroleum products)	86-68420	2,435	lbs	\$0.85	\$2,069.75
	122	Piping- 30-in. Dia. x 0.25 Thickness x 90 ft. Pipe weight 80 lbs/ft. (Assume contains paint with heavy metals)	86-68420	7,200	lbs	\$0.85	\$6,120.00
	123	Piping- 24-in. Dia. x 0.25 Thickness x 248 ft. Pipe weight 64 lbs/ft. (Assume contains paint with heavy metals)	86-68420	15,872	lbs	\$0.85	\$13,491.20
	123	Piping- 20-in. Dia. x 0.25 Thickness x 85 ft. Pipe weight 53 lbs/ft. (Assume contains paint with heavy metals)	86-68420	4,505	lbs	\$0.85	\$3,829.25
	124	Piping- 18-in. Dia. x 0.25 Thickness x 432 ft. Pipe weight 48 lbs/ft. (Assume contains paint with heavy metals)	86-68420	29,088	lbs	\$0.85	\$24,724.80
	125	Piping- 16-in. Dia. x 0.25 Thickness x 166 ft. Pipe weight 42 lbs/ft. (Assume contains paint with heavy metals)	86-68420	6,972	lbs	\$0.85	\$5,926.20
SUBTOTAL THIS SHEET							\$56,467.20

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Crush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 33 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	126	Piping- 12-in. Dia. x 0.25 Thickness x 64 ft. Pipe weight 34 lbs/ft. (Assume contains paint with heavy metals)	86-68420	2,176	lbs	\$0.85	\$1,849.60
	127	Piping- 10-in. Dia. x 0.25 Thickness x 69 ft. Pipe weight 28 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,932	lbs	\$0.85	\$1,642.20
	128	Piping- 8-in. Dia. x 0.25 Thickness x 30 ft. Pipe weight 23 lbs/ft. (Assume contains paint with heavy metals)	86-68420	3,588	lbs	\$0.85	\$3,049.80
	130	Piping- 3-in. Dia. STD x 64 ft. Pipe weight 8 lbs/ft. (Assume contains paint with heavy metals)	86-68420	1,088	lbs	\$0.85	\$924.80
	131	Gate Valves- 24-in. Dia. Gate Valve- 1 total 24-in. Gate Valve weight approx: 3,800 lbs 18-in. Dia. Gate Valve- 7 total 18-in. Gate Valve weight approx: 1748 lbs ea 16-in. Dia. Gate Valve- 2 total 16-in. Gate Valve weight approx: 1465 lbs ea 12-in. Dia. Gate Valve- 1 total 12-in. Gate Valve weight approx: 722 lbs 8-in. Dia. Gate Valve- 6 total 8-in. Gate Valve weight approx: 339 lbs ea 3-in. Dia. Gate Valve- 1 total 3 -in. Gate Valve weight approx: 70 lbs Total weight approximately: (Assume contains paint with heavy metals & petroleum products)	86-68420	21,792	lbs	\$0.85	\$18,523.20
		SUBTOTAL THIS SHEET					\$25,989.60

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Brush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 34 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	132	Basin #1-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	2,880	lbs	\$0.85	\$2,448.00
	133	Basin #2-					
		Slide Gate- 4-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,860	lbs	\$0.85	\$3,281.00
	134	Basin #3-					
		Slide Gate- 2-18-in. manually operated					
		Slide Gate weight approximately: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	2,880	lbs	\$0.85	\$2,448.00
SUBTOTAL THIS SHEET							\$8,177.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY Craig A. Grash, P.E.	CHECKED
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE DDD 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 35 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable Fish Spawning Facility	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx)Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	135	Basin #4-					
		Slide Gates-					
		24-in. Slide Gate manually operated					
		24-in. Slide Gate weight approx: 700 lbs					
		2-18-in. Slide Gate manually operated					
		18-in. Slide Gate weight approx: 490 lbs ea					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 1500 lbs					
		Total guide weight approximately: 400 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	3,580	lbs	\$0.85	\$3,043.00
	136	Basin #5-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$0.85	\$1,224.00
	137	Basin #6-					
		Slide Gate- 18-in. manually operated					
		Slide Gate weight approximately: 490 lbs					
		(Assume contains paint with heavy metals & petroleum products)					
		Stop logs-					
		Total logs weight approximately: 750 lbs					
		Total guide weight approximately: 200 lbs					
		(Assume contains paint with heavy metals)					
		Total weight approximately:	86-68420	1,440	lbs	\$0.85	\$1,224.00
		SUBTOTAL THIS SHEET					\$5,491.00

QUANTITIES		PRICES	
BY M. Gulsvig	CHECKED T. J. Turnage	BY <i>[Signature]</i> Craig A. Brush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 38 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable	PROJECT: Klamath River Northern California/Southern Oregon				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID: AF121</td> <td style="width:70%;">ESTIMATE LEVEL: Feasibility</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table>		WOID: AF121	ESTIMATE LEVEL: Feasibility	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF121	ESTIMATE LEVEL: Feasibility				
REGION: MP	UNIT PRICE LEVEL: July-2010				
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SSummary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Wanaka Springs					
	140	Concrete total	BLM	28	CY	\$300.00	\$8,400.00
		1 Dock Pier 25'x5'x5' (23 CY)					
		1 Concrete table base (2 CY)					
		3 Concrete fire rings/garbage bases (1 CY)					
		3 Concrete sign bases (2 CY)					
	141	Double pipe railings	BLM	60	LF	\$40.00	\$2,400.00
	142	Wood picnic tables to be removed and hauled away	BLM	5	EA	\$100.00	\$500.00
	143	25'X5' Wooden floating dock	BLM	125	SF	\$20.00	\$2,500.00
	144	Rip and reseed site and access road	BLM	2.5	ACRE	\$25,000.00	\$62,500.00
	145	Signs to be removed and hauled away	BLM	3	EA	\$300.00	\$900.00
	146	15'x5' Gangplank with railings	BLM	75	SF	\$20.00	\$1,500.00
		Juniper Point					
	147	Concrete total	BLM	19	CY	\$300.00	\$5,700.00
		1 Dock abutment 25'x4'x3' (11 CY)					
		15 Concrete fire rings (5 CY)					
		1 Picnic table base (2 CY)					
		4 Sign bases (1 CY)					
	148	2, 4'x4' Concrete toilet vaults	BLM	32	SF	\$100.00	\$3,200.00
	149	Wood picnic tables to be removed and hauled away	BLM	8	EA	\$100.00	\$800.00
	150	Signs to be removed and hauled away	BLM	4	EA	\$300.00	\$1,200.00
	151	Dock pipe railing	BLM	50	LF	\$40.00	\$2,000.00
	152	50'x5' Composite dock with poly floats	BLM	250	SF	\$20.00	\$5,000.00
	153	20'x5' Composite gangplank with railings	BLM	100	SF	\$20.00	\$2,000.00
	154	Bury 3' dia boulders on site	BLM	50	EA	Included in regrade item	
	155	Regrade to natural contour, rip and reseed	BLM	2	ACRE	\$25,000.00	\$50,000.00
		SUBTOTAL THIS SHEET					\$148,600.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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ESTIMATE WORKSHEET

SHEET 39 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Reservoir Most Probable	PROJECT: Klamath River Northern California/Southern Oregon				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID: AF121</td> <td style="width:70%;">ESTIMATE LEVEL: Feasibility</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table>		WOID: AF121	ESTIMATE LEVEL: Feasibility	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF121	ESTIMATE LEVEL: Feasibility				
REGION: MP	UNIT PRICE LEVEL: July-2010				
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xls\Summary					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Camp Creek					
	156	Concrete total	BLM	110	CY	\$300.00	\$33,000.00
		80'x25'x1' Boat ramp (75 CY)					
		Main dock platform piers 25'x4'x3' (11 CY)					
		15 Fire ring bases (6 CY)					
		Step/dock abutment 8'x6'x5' (9 CY)					
		6 Sign bases (2 CY)					
		1 Block foundation sign base (3 CY)					
		2 Picnic table bases (4 CY)					
	157	180'Lx16'Wx8'D Earth jetty to remove and/or regrade	BLM	855	CY	\$25.00	\$21,375.00
	158	Well house 10'x16' concrete block building	BLM	160	SF	\$100.00	\$16,000.00
	159	2, 20'x5' Composite decking gangplanks w/ aluminum frame railings	BLM	200	SF	\$20.00	\$4,000.00
	160	2, 20'x5' Floating composite w/ aluminum frame docks	BLM	200	SF	\$20.00	\$4,000.00
	161	Concrete block double toilet bldg 10'x16'	BLM	160	SF	\$100.00	\$16,000.00
	162	Dump stations and approx. 2000 gal buried concrete tank	BLM	1	EA	\$5,000.00	\$5,000.00
	163	Power poles and lines	BLM	3	POLES	\$1,500.00	\$4,500.00
	164	Remove waterlines and 3 faucets and regrade	BLM	600	LF	\$5.00	\$3,000.00
	165	Recycle/bury approx. 3' dia. boulders	BLM	75	EA	Included in regrade item	
	166	Steel pipe/plank picnic tables to be removed and hauled away	BLM	5	EA	\$100.00	\$500.00
	167	Relocate concrete tables	BLM	12	EA	\$100.00	\$1,200.00
	168	Regrade, rip and reseed	BLM	4	ACRE	\$25,000.00	\$100,000.00
	169	Signs to be removed and hauled away	BLM	7	EA	\$300.00	\$2,100.00
		Dutch Creek					
	170	50'x4'x3' Dock concrete abutment	BLM	22	CY	\$300.00	\$6,600.00
	171	Double pipe railing	BLM	100	LF	\$40.00	\$4,000.00
		SUBTOTAL THIS SHEET					\$221,275.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY <i>Craig A. Grush, P.E.</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 11/24/10	PEER REVIEW / DATE Rick Benik P.E. 12/9/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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ESTIMATE WORKSHEET

SHEET 41 OF 41

FEATURE: Klamath River Dams Removal Partial Removal Option Iron Gate Dam & Powerplant Removal Most Probable SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\Iron Gate\Klamath Dams Removal - Iron Gate - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SUMMARY
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		839,100	CY	\$0.00	\$0.00
		Diversion and Care					\$3,340,945.00
		Dam Removal					\$14,159,019.50
		Powerhouse/Switchyard/Transmission Line Removal					\$179,400.00
		Penstock Removal					\$1,172,878.50
		Reservoir Vegetative Restoration					\$9,331,500.00
		Road Improvements					\$1,115,000.00
		Fish Spawning Facility Removal					\$1,662,033.80
		Recreational Facilities to be Removed					\$520,725.00
		Subtotal					\$31,481,501.80
		Mobilization	5%	+/-			\$1,550,000.00
		Subtotal 1 with Mobilization					\$33,031,501.80
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 3%/yr compounding over 10 years)					\$11,360,075.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$44,391,576.80
		Design Contingencies	10%	+/-			\$4,608,423.20
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$49,000,000.00
		Construction Contingencies	20%	+/-			\$10,000,000.00
		FIELD COST					\$59,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	65%	+/-			\$38,000,000.00
		CONSTRUCTION COST					\$97,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Brush, P.E.	CHECKED
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/03/11

Attachment F

Monte Carlo Simulation Reports

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED
ESTIMATE WORKSHEET

FEATURE:			PROJECT:									
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon									
			WOID: AF652		ESTIMATE LEVEL: Feasibility							
			REGION: MP		PRICE LEVEL: Jul-2010							
			FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\JC Boyle - Full Removal Crystal Ball - with Escalation - 2011-04.xls\Copco 2 - Full - with Esc									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	1	Removal of Diversion Conduit Bulkheads.	8130	14	14	14	CY	\$725.00	\$850.00	\$950.00	\$10,150.00	\$11,900.00	\$13,300.00
	2	Remove Water from behind Tailrace Cofferdam.	8130	500,000	500,000	500,000	GAL	\$0.01	\$0.01	\$0.01	\$5,000.00	\$5,000.00	\$5,000.00
	3	Provide Dewatering behind Tailrace Cofferdam	8130	1	1	1	LS	\$28,000.00	\$30,000.00	\$160,000.00	\$28,000.00	\$30,000.00	\$160,000.00
	4	Construct Embankment Cofferdam in Tailrace around Powerhouse	8130	2,000	2,000	2,000	CY	\$50.00	\$60.00	\$100.00	\$100,000.00	\$120,000.00	\$200,000.00
	5	Remove Spillway Concrete	8130	2,500	2,500	2,500	CY	\$130.00	\$260.00	\$390.00	\$325,000.00	\$650,000.00	\$975,000.00
	6	Remove Monorail Structural Steel Components	8130	15,000	15,000	15,000	LBS	\$0.45	\$0.65	\$0.75	\$6,750.00	\$9,750.00	\$11,250.00
	7	Remove Fish Ladder Concrete	8130	1,600	1,600	1,600	CY	\$130.00	\$260.00	\$390.00	\$208,000.00	\$416,000.00	\$624,000.00
	8	Remove Gravity Dam Section Concrete	8130	600	600	600	CY	\$130.00	\$260.00	\$390.00	\$78,000.00	\$156,000.00	\$234,000.00
	9	Remove Timber Equipment Ramp on left side of Dam	8130	10,500	10,500	10,500	LBS	\$0.50	\$0.55	\$0.70	\$5,250.00	\$5,775.00	\$7,350.00
	10	Remove Pressure-Treated Lumber from Footbridge around Intake Structure	8130	3,600	3,600	3,600	LBS	\$0.50	\$0.55	\$0.70	\$1,800.00	\$1,980.00	\$2,520.00
	11	Remove Storage Shed located on access road	8130	1,728	1,728	1,728	SF	\$38.00	\$40.00	\$42.00	\$65,664.00	\$69,120.00	\$72,576.00
	12	Remove Warehouse located on access road	8130	1,920	1,920	1,920	SF	\$38.00	\$40.00	\$42.00	\$72,960.00	\$76,800.00	\$80,640.00
	13	Remove Fire System Control Bldg. on left abutment.	8130	385	385	385	SF	\$38.00	\$40.00	\$42.00	\$14,630.00	\$15,400.00	\$16,170.00
	14	Remove Dam Communication Bldg. on left abutment.	8130	331	331	331	SF	\$38.00	\$40.00	\$42.00	\$12,578.00	\$13,240.00	\$13,902.00
	15	Remove Concrete Slab on left abutment for former Control House	8130	6	6	6	CY	\$130.00	\$260.00	\$390.00	\$780.00	\$1,560.00	\$2,340.00
	16	Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment.	8130	1	1	1	CY	\$130.00	\$260.00	\$390.00	\$130.00	\$260.00	\$390.00
	17	Remove Reservoir Level Gauge House on Dam Crest	8130	24	24	24	SF	\$38.00	\$40.00	\$42.00	\$912.00	\$960.00	\$1,008.00
	18	Upstream Riprap	8313	2,220	2,220	2,220	CY	\$8.00	\$9.00	\$12.00	\$17,760.00	\$19,980.00	\$26,640.00
	19	Downstream Riprap	8313	1,850	1,850	1,850	CY	\$8.00	\$9.00	\$12.00	\$14,800.00	\$16,650.00	\$22,200.00
	20	Miscellaneous Excavation	8313	132,500	132,500	132,500	CY	\$8.00	\$9.00	\$12.00	\$1,060,000.00	\$1,192,500.00	\$1,590,000.00
	21	Cutoff Wall Concrete Demolition	8313	70	70	70	CY	\$130.00	\$260.00	\$390.00	\$9,100.00	\$18,200.00	\$27,300.00
	22	Cutoff Wall Anchors	8313	285	285	285	EA	\$9.00	\$10.00	\$12.00	\$2,565.00	\$2,850.00	\$3,420.00
	23	Remove & Dispose Hand Rails and Light Poles	8420	5,000	5,000	5,000	LBS	\$0.45	\$0.65	\$0.75	\$2,250.00	\$3,250.00	\$3,750.00
	24	Remove & Dispose Spillway Radial Gates and Hoists	8420	124,000	124,000	124,000	LBS	\$0.45	\$0.65	\$0.75	\$55,800.00	\$80,600.00	\$93,000.00
	25	Remove & Dispose Stop Logs and Slots (steel)	8420	92,000	92,000	92,000	LBS	\$0.45	\$0.65	\$0.75	\$41,400.00	\$59,800.00	\$69,000.00
	26	Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure	8420	4,200	4,200	4,200	LBS	\$0.45	\$0.65	\$0.75	\$1,890.00	\$2,730.00	\$3,150.00
	27	Remove & Dispose of Spillway gate motor & control panel	8430	1	1	1	EA	\$500.00	\$600.00	\$700.00	\$500.00	\$600.00	\$700.00
	28	Remove & Dispose of Distribution equipment , panelboards	8430	1	1	1	EA	\$5,500.00	\$6,000.00	\$6,500.00	\$5,500.00	\$6,000.00	\$6,500.00
	29	Remove Powerhouse Concrete down to Elevation 3324.0	8130	1,500	1,500	1,500	CY	\$300.00	\$370.00	\$800.00	\$450,000.00	\$555,000.00	\$1,200,000.00
	30	Remove Structural Steel Items associated with Powerhouse	8130	94,000	94,000	94,000	LBS	\$0.45	\$0.65	\$0.75	\$42,300.00	\$61,100.00	\$70,500.00
	31	Remove Warehouse near Powerhouse	8130	5,200	5,200	5,200	SF	\$38.00	\$40.00	\$42.00	\$197,600.00	\$208,000.00	\$218,400.00
	32	Remove & Dispose of 2 - Governor oil systems	8420	52,500	52,500	52,500	LBS	\$0.45	\$0.65	\$0.75	\$23,625.00	\$34,125.00	\$39,375.00
	33	Remove & Dispose of Cooling water and bearing oil systems	8420	6,500	6,500	6,500	LBS	\$0.45	\$0.65	\$0.75	\$2,925.00	\$4,225.00	\$4,875.00
	34	Remove & Dispose of 2 - Francis Turbines	8420	560,000	560,000	560,000	LBS	\$0.45	\$0.65	\$0.75	\$252,000.00	\$364,000.00	\$420,000.00
	35	Remove & Dispose of 150 Ton crane	8420	240,000	240,000	240,000	LBS	\$0.45	\$0.65	\$0.75	\$108,000.00	\$156,000.00	\$180,000.00
	36	Remove & Dispose of Compressed Air systems	8420	1,100	1,100	1,100	LBS	\$0.45	\$0.65	\$0.75	\$495.00	\$715.00	\$825.00
	37	Remove & Dispose of 2 - CO2 systems	8420	6,600	6,600	6,600	LBS	\$0.45	\$0.65	\$0.75	\$2,970.00	\$4,290.00	\$4,950.00
	38	Remove & Dispose of Plant Water and Fire Protection	8420	3,100	3,100	3,100	LBS	\$0.45	\$0.65	\$0.75	\$1,395.00	\$2,015.00	\$2,325.00
	39	Remove & Dispose of Transformer Oil Fire protection	8420	6,500	6,500	6,500	LBS	\$0.45	\$0.65	\$0.75	\$2,925.00	\$4,225.00	\$4,875.00
	40	Remove & Dispose of Unwatering Piping	8420	33,000	33,000	33,000	LBS	\$0.45	\$0.65	\$0.75	\$14,850.00	\$21,450.00	\$24,750.00
	41	Remove & Dispose of Drainage Piping	8420	10,000	10,000	10,000	LBS	\$0.45	\$0.65	\$0.75	\$4,500.00	\$6,500.00	\$7,500.00
	42	Remove & Dispose of 2-Oil Sump pumps	8420	2,000	2,000	2,000	LBS	\$0.45	\$0.65	\$0.75	\$900.00	\$1,300.00	\$1,500.00
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	8420	65,000	65,000	65,000	LBS	\$0.45	\$0.65	\$0.75	\$29,250.00	\$42,250.00	\$48,750.00
	44	Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA	8430	2	2	2	EA	\$150,000.00	\$200,000.00	\$250,000.00	\$300,000.00	\$400,000.00	\$500,000.00
	45	Remove & Dispose of Excitation equipment for 53/50 MVA Generator	8430	2	2	2	EA	\$12,000.00	\$12,500.00	\$13,000.00	\$24,000.00	\$25,000.00	\$26,000.00
	46	Remove & Dispose of Surge protection equip. for 53/50 MVA Generator	8430	2	2	2	EA	\$6,000.00	\$7,000.00	\$8,000.00	\$12,000.00	\$14,000.00	\$16,000.00
	47	Remove & Dispose of Neutral grounding equip. for 53/50 MVA Generator	8430	2	2	2	EA	\$2,000.00	\$3,000.00	\$4,000.00	\$4,000.00	\$6,000.00	\$8,000.00

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED
ESTIMATE WORKSHEET

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE	PROJECT: <p align="center">Klamath River, Northern California/Southern Oregon</p> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP PRICE LEVEL: Jul-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\JC Boyle - Full Removal Crystal Ball - with Escalation - 2011-04.xls\Copco 2 - Full - with Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	48	Remove & Dispose of Generator Switchgear, 15kV - (6 sections)	8430	1	1	1	EA	\$19,000.00	\$20,000.00	\$21,000.00	\$19,000.00	\$20,000.00	\$21,000.00
	49	Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections)	8430	1	1	1	EA	\$8,000.00	\$9,000.00	\$10,000.00	\$8,000.00	\$9,000.00	\$10,000.00
	50	Remove & Dispose of Unit and plant control switchboard	8430	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	51	Remove & Dispose of Battery system	8430	1	1	1	EA	\$7,000.00	\$8,000.00	\$9,000.00	\$7,000.00	\$8,000.00	\$9,000.00
	52	Remove & Dispose of Raceways, Conduit and Cable	8430	1	1	1	EA	\$10,000.00	\$11,000.00	\$12,000.00	\$10,000.00	\$11,000.00	\$12,000.00
	53	Remove & Dispose of Misc. power & control boards	8430	1	1	1	EA	\$5,000.00	\$6,000.00	\$7,000.00	\$5,000.00	\$6,000.00	\$7,000.00
	54	Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	55	Remove & Dispose of Gantry Crane control equipment (3 cubicles)	8430	1	1	1	EA	\$5,000.00	\$6,000.00	\$7,000.00	\$5,000.00	\$6,000.00	\$7,000.00
	56	Remove & Dispose of Conduit and Cable	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$11,000.00	\$9,000.00	\$10,000.00	\$11,000.00
	57	Remove & Dispose of Exterior Lighting	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	58	Remove & Dispose of Transmission Line No. 59	8430	1.66	1.86	1.66	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$33,200.00	\$41,500.00	\$49,800.00
	59	Remove & Dispose of Transmission Line No. 98	8430	0.24	0.24	0.24	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$4,800.00	\$6,000.00	\$7,200.00
	60	Remove & Dispose of Transmission Line No. 58	8430	1.66	1.86	1.66	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$33,200.00	\$41,500.00	\$49,800.00
	61	Remove Intake Structure Concrete	8130	1,600	1,800	1,600	CY	\$130.00	\$260.00	\$390.00	\$208,000.00	\$416,000.00	\$624,000.00
	62	Remove Fish Screen Building	8130	1,300	1,300	1,300	SF	\$38.00	\$40.00	\$42.00	\$49,400.00	\$52,000.00	\$54,600.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe	8130	22,000	22,000	22,000	LBS	\$0.45	\$0.65	\$0.75	\$9,900.00	\$14,300.00	\$16,500.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe	8130	1,100	1,100	1,100	CY	\$130.00	\$260.00	\$390.00	\$143,000.00	\$286,000.00	\$429,000.00
	65	Remove Open Concrete Flume.	8130	26,000	26,000	26,000	CY	\$220.00	\$260.00	\$390.00	\$5,720,000.00	\$6,760,000.00	\$10,140,000.00
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers	8130	11,500	11,500	11,500	LBS	\$0.45	\$0.65	\$0.75	\$5,175.00	\$7,475.00	\$8,625.00
	67	Remove Forebay Concrete	8130	2,500	2,500	2,500	CY	\$220.00	\$260.00	\$390.00	\$550,000.00	\$650,000.00	\$975,000.00
	68	Place Concrete Plugs at Tunnel Portals	8130	30	30	30	CY	\$900.00	\$1,000.00	\$1,100.00	\$27,000.00	\$30,000.00	\$33,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel	8130	1,800	1,800	1,800	CY	\$220.00	\$260.00	\$390.00	\$396,000.00	\$468,000.00	\$702,000.00
	70	Remove Headgate Control Building at Flume Entrance	8130	330	330	330	SF	\$38.00	\$40.00	\$42.00	\$12,540.00	\$13,200.00	\$13,860.00
	71	Remove Forebay Spillway Gate House	8130	570	570	570	SF	\$38.00	\$40.00	\$42.00	\$21,660.00	\$22,800.00	\$23,940.00
	72	Remove Forebay Control Building.	8130	470	470	470	SF	\$38.00	\$40.00	\$42.00	\$17,860.00	\$18,800.00	\$19,740.00
	73	Remove Communication Tower next to Forebay Control Building	8130	7,100	7,100	7,100	LBS	\$0.45	\$0.65	\$0.75	\$3,195.00	\$4,615.00	\$5,325.00
	74	Remove Insulated Generator Building next to Forebay Control Building	8130	72	72	72	SF	\$38.00	\$40.00	\$42.00	\$2,736.00	\$2,880.00	\$3,024.00
	75	Remove Fixed Wheel Gate (gate, Frame and Hoist)	8420	55,000	55,000	55,000	LBS	\$0.45	\$0.65	\$0.75	\$24,750.00	\$35,750.00	\$41,250.00
	76	Remove Trash rack and trash rake (steel)	8420	75,000	75,000	75,000	LBS	\$0.45	\$0.50	\$0.70	\$33,750.00	\$37,500.00	\$52,500.00
	77	Remove stop Logs and slots (steel)	8420	136,000	136,000	136,000	LBS	\$0.45	\$0.65	\$0.75	\$61,200.00	\$88,400.00	\$102,000.00
	78	Remove Traveling Water Screen	8420	124,000	124,000	124,000	LBS	\$0.45	\$0.65	\$0.75	\$55,800.00	\$80,600.00	\$93,000.00
	79	Remove Fish By-Pass and Supports (steel)	8420	610,000	610,000	610,000	LBS	\$0.45	\$0.65	\$0.75	\$274,500.00	\$396,500.00	\$457,500.00
	80	Remove Radial Gates and Hoists	8420	16,500	16,500	16,500	LBS	\$0.45	\$0.65	\$0.75	\$7,425.00	\$10,725.00	\$12,375.00
	81	Remove Trash rack and trash rake (steel)	8420	43,500	43,500	43,500	LBS	\$0.45	\$0.50	\$0.70	\$19,575.00	\$21,750.00	\$30,450.00
	82	Remove Stop Logs and slots (steel)	8420	14,500	14,500	14,500	LBS	\$0.45	\$0.65	\$0.75	\$6,525.00	\$9,425.00	\$10,875.00
	83	Remove & Dispose Penstocks and bifurcation (steel)	8420	1,600,000	1,600,000	1,600,000	LBS	\$0.45	\$0.65	\$0.75	\$720,000.00	\$1,040,000.00	\$1,200,000.00
	84	Remove & Dispose Surge Tank (steel)	8420	79,000	79,000	79,000	LBS	\$0.45	\$0.65	\$0.75	\$35,550.00	\$51,350.00	\$59,250.00
	85	Remove & Dispose 2 - 108" Butterfly valves	8420	148,000	148,000	148,000	LBS	\$0.45	\$0.65	\$0.75	\$66,600.00	\$96,200.00	\$111,000.00
	86	Remove & Dispose Gate, Stem and Frame	8420	28,000	28,000	28,000	LBS	\$0.45	\$0.65	\$0.75	\$12,600.00	\$18,200.00	\$21,000.00
	87	Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream	8420	250,000	250,000	250,000	LBS	\$0.45	\$0.50	\$0.70	\$112,500.00	\$125,000.00	\$175,000.00
	88	Temporary Access Roads	8140	2	2	2	MILE	\$85,000.00	\$150,000.00	\$100,000.00	\$170,000.00	\$300,000.00	\$200,000.00
	89	Spring Ground Seeding	8220	247	247	0	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$741,000.00	\$864,500.00	\$0.00
	90	Spring Barge Seeding	8220	0	0	0	ACRES				\$0.00	\$0.00	\$0.00
	91	Spring Aerial Seeding	8220	0	0	247	ACRES	\$6,500.00	\$7,500.00	\$15,000.00	\$0.00	\$0.00	\$3,705,000.00
	92	Fall Ground Seeding	8220	62	124	185	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$186,000.00	\$434,000.00	\$740,000.00
	93	Riparian Pole Planting	8220	54	54	54	ACRES	\$4,000.00	\$8,500.00	\$10,000.00	\$216,000.00	\$459,000.00	\$540,000.00
	94	Weed Management	8220	62	124	185	ACRES	\$1,000.00	\$1,500.00	\$2,000.00	\$62,000.00	\$186,000.00	\$370,000.00
	95	Fall Ground Seeding	8220	99	99	99	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$297,000.00	\$346,500.00	\$396,000.00

ESTIMATE WORKSHEET

FEATURE:			PROJECT:											
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon											
			WOID:	AF652	ESTIMATE LEVEL:					Feasibility				
			REGION:	MP	PRICE LEVEL:					Jul-2010				
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\JC Boyle - Full Removal Crystal Ball - with Escalation - 2011-04.xls\Copco 2 - Full - with Esc										

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	96	Weed Management	8220	99	99	99	ACRES	\$1,000.00	\$1,500.00	\$2,000.00	\$99,000.00	\$148,500.00	\$198,000.00
	97	Clear and Grub Disposal Area (Embankment)	8313	10	10	7	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$40,000.00	\$50,000.00	\$42,000.00
	98	Clear and Grub, 40' width	8313	2.4	2.4	2.4	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$9,600.00	\$12,000.00	\$14,400.00
	99	4" thick gravel surfacing	8313	0	2,150	2,150	TON	\$20.00	\$30.00	\$40.00	\$0.00	\$64,500.00	\$86,000.00
	100	Clear and Grub Disposal Area (For Concrete)	8313	4	0	0	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$16,000.00	\$0.00	\$0.00
	101	Clear and grub, 20' width	8313	1	0	0	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$0.00	\$0.00
	102	4" thick gravel surfacing	8313	0	0	0	TON				\$0.00	\$0.00	\$0.00
	103	Soil Cover over Concrete Rubble	8313	13,000	13,000	0	CY	\$25.00	\$140.00	\$150.00	\$325,000.00	\$1,820,000.00	\$0.00
	104	Dispose of Concrete Rubble from Dam	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	105	Dispose of Concrete Rubble from Flume/Forebay	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	106	Dispose of Concrete Rubble from Power House	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	107	Embankment Fill in Wasteway (Forebay) Scour Hole	8313	0	0	41,000	CY	\$25.00	\$140.00	\$150.00	\$0.00	\$0.00	\$6,150,000.00
	108	Topsy Recreation Area - Concrete total	BLM	68	68	68	CY	\$175.00	\$220.00	\$320.00	\$11,900.00	\$14,960.00	\$21,760.00
	109	Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite decking	BLM	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	110	Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform	BLM	200	200	200	SF	\$12.00	\$13.00	\$14.00	\$2,400.00	\$2,600.00	\$2,800.00
	111	Topsy Recreation Area - Regrade to natural contour and reseed	BLM	300	300	300	SF	\$3.00	\$4.00	\$5.00	\$900.00	\$1,200.00	\$1,500.00
	112	Pioneer Park - Picnic tables to be removed and hauled away	BLM	12	12	12	EA	\$55.00	\$60.00	\$65.00	\$660.00	\$720.00	\$780.00
	113	Pioneer Park - 12 Concrete fire rings	BLM	5	5	5	CY	\$175.00	\$220.00	\$320.00	\$875.00	\$1,100.00	\$1,600.00
	114	Pioneer Park - Portable toilets to be removed and hauled away	BLM	2	2	2	EA	\$900.00	\$1,000.00	\$1,200.00	\$1,800.00	\$2,000.00	\$2,400.00
	115	Pioneer Park - Signs to be removed and hauled away	BLM	6	6	6	EA	\$135.00	\$150.00	\$160.00	\$810.00	\$900.00	\$960.00
	116	Pioneer Park - Dumpster to be removed and hauled away	BLM	1	1	1	EA	\$900.00	\$1,000.00	\$1,200.00	\$900.00	\$1,000.00	\$1,200.00
	117	Pioneer Park - Remove paved access road	BLM	200	200	200	LF	\$230.00	\$250.00	\$270.00	\$46,000.00	\$50,000.00	\$54,000.00
	118	Pioneer Park - Regrage to natural contour, rip, plant and seed parking and recreation site	BLM	1	1	1	ACRES	\$19,000.00	\$20,000.00	\$22,000.00	\$9,500.00	\$10,000.00	\$11,000.00
	Subtotal 1										\$14,604,690.00	\$20,597,050.00	\$35,199,745.00
	Mobilization	(MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	\$730,000.00	\$1,050,000.00	\$1,750,000.00	\$730,000.00	\$1,050,000.00	\$1,750,000.00
	Subtotal 1 w/ mobilization										\$2,461,844.00	\$7,444,775.00	\$19,749,377.00
	Escalation to Notice to Proceed (NTP)				1	1	ls	\$2,461,844.00	\$7,444,775.00	\$19,749,377.00	\$2,461,844.00	\$7,444,775.00	\$19,749,377.00
	from Unit Price Level (July 2010) to NTP (Jan. 2020)												
	MPL - 1.5% / year for 10 yr.; MP - 3.0% /year for 10 yr.; MPH - 4.375% / year for 10 yr.												
	Design Contingencies	(MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	\$1,203,466.00	\$2,908,175.00	\$8,996,798.00	\$1,203,466.00	\$2,908,175.00	\$8,996,798.00
	APS = Allowance for Procurement	Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)		1	1	1	ls	\$0.00	\$0.00	\$1,304,080.00	\$0.00	\$0.00	\$1,304,080.00
	CONTRACT COST										\$19,000,000.00	\$32,000,000.00	\$67,000,000.00
	Construction Contingencies	(MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	\$4,000,000.00	\$6,000,000.00	\$16,000,000.00	\$4,000,000.00	\$6,000,000.00	\$16,000,000.00
	FIELD COST										\$23,000,000.00	\$38,000,000.00	\$83,000,000.00
	Non-Contract Cost	(MPL ~ 52%; MP ~ 55%; MPH ~ 61%)		1	1	1	ls	\$12,000,000.00	\$21,000,000.00	\$52,000,000.00	\$12,000,000.00	\$21,000,000.00	\$52,000,000.00
	CONSTRUCTION COST										\$35,000,000.00	\$59,000,000.00	\$135,000,000.00

Notes: This estimate does not include non-contract costs and should not be used for funding purposes.
Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)

QUANTITIES				PRICES			
BY	See Group Worksheets	CHECKED:	See Group Worksheets	BY	Craig Grush, P.E.	CHECKED	
DATE PREPARED	1/20/2011	PEER REVIEW:	See Group Worksheets	DATE PREPARED	05/25/11	PEER REVIEW	

Crystal Ball Report - Full

Simulation started on 6/8/2011 at 6:51:29

Simulation stopped on 6/8/2011 at 6:52:37

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 67.59
Trials/second (average) 148
Random numbers per sec 35,211

Crystal Ball data:

Assumptions 238
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP

UNIT PRICES BY

DATE

Craig L. Gray
GA
6/8/2011

DATE	PEER REVIEWER(S)	CODE
6/8/11	<i>[Signature]</i> Signature	8174
	<i>DAN MARR</i> Printer Name	
	Signature	
	Printer Name	
Author initials		PEER REVIEW NOT REQUIRED

Forecasts

Worksheet: [JC Boyle - Full Removal Crystal Ball - with Escalation - 2011-04.xls]JC Boyle - Ful

Forecast: Construction Cost - JC Boyle - Full Removal - With Escalation

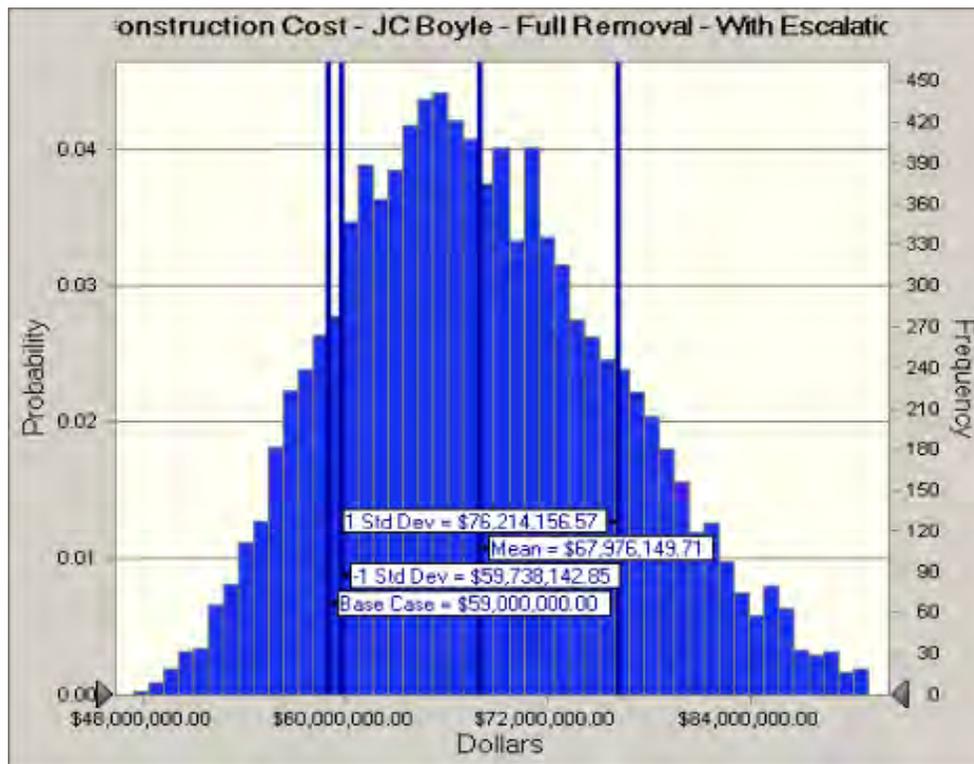
Cell: U146

Summary:

Entire range is from \$47,412,732.61 to \$98,309,455.64

Base case is \$59,000,000.00

After 10,000 trials, the std. error of the mean is \$82,380.07



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Full Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Construction Cost - JC Boyle - Full Removal - With Escalation (cont'd) Cell: U146

Statistics:	Forecast values
Trials	10,000
Mean	\$67,976,149.71
Median	\$67,291,572.36
Mode	\$60,532,044.08
Standard Deviation	\$8,238,006.86
Variance	\$67,864,757,095,121.70
Skewness	0.3457
Kurtosis	2.77
Coeff. of Variability	0.1212
Minimum	\$47,412,732.61
Maximum	\$98,309,455.64
Range Width	\$50,896,723.04
Mean Std. Error	\$82,380.07

Percentiles:	Forecast values
0%	\$47,412,732.61
10%	\$57,697,844.30
20%	\$60,740,227.88
30%	\$63,093,663.62
40%	\$65,217,366.50
50%	\$67,291,551.45
60%	\$69,570,804.95
70%	\$72,038,631.40
80%	\$75,092,359.27
90%	\$79,203,569.30
100%	\$98,309,455.64

Forecast: Contract Cost - JC Boyle - Full Removal - With Escalation

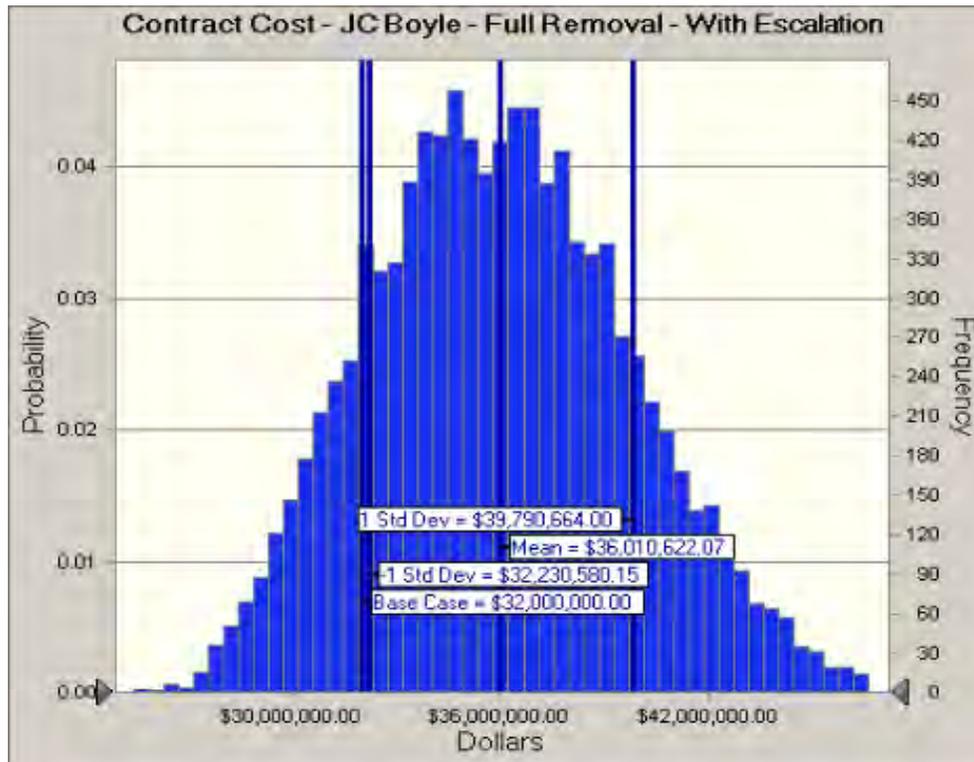
Cell: U142

Summary:

Entire range is from \$25,388,769.20 to \$51,824,200.87

Base case is \$32,000,000.00

After 10,000 trials, the std. error of the mean is \$37,800.42



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Full Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Contract Cost - JC Boyle - Full Removal - With Escalation (cont'd)

Cell: U142

Statistics:	Forecast values
Trials	10,000
Mean	\$36,010,622.07
Median	\$35,883,202.31
Mode	\$30,700,759.15
Standard Deviation	\$3,780,041.92
Variance	\$14,288,716,945,925.10
Skewness	0.2556
Kurtosis	2.84
Coeff. of Variability	0.1050
Minimum	\$25,388,769.20
Maximum	\$51,824,200.87
Range Width	\$26,435,431.68
Mean Std. Error	\$37,800.42

Percentiles:	Forecast values
0%	\$25,388,769.20
10%	\$31,180,506.06
20%	\$32,660,172.52
30%	\$33,842,578.82
40%	\$34,831,563.72
50%	\$35,882,562.07
60%	\$36,871,717.69
70%	\$37,927,741.87
80%	\$39,189,733.19
90%	\$40,997,606.84
100%	\$51,824,200.87

Forecast: Field Cost - JC Boyle - Full Removal - With Escalation

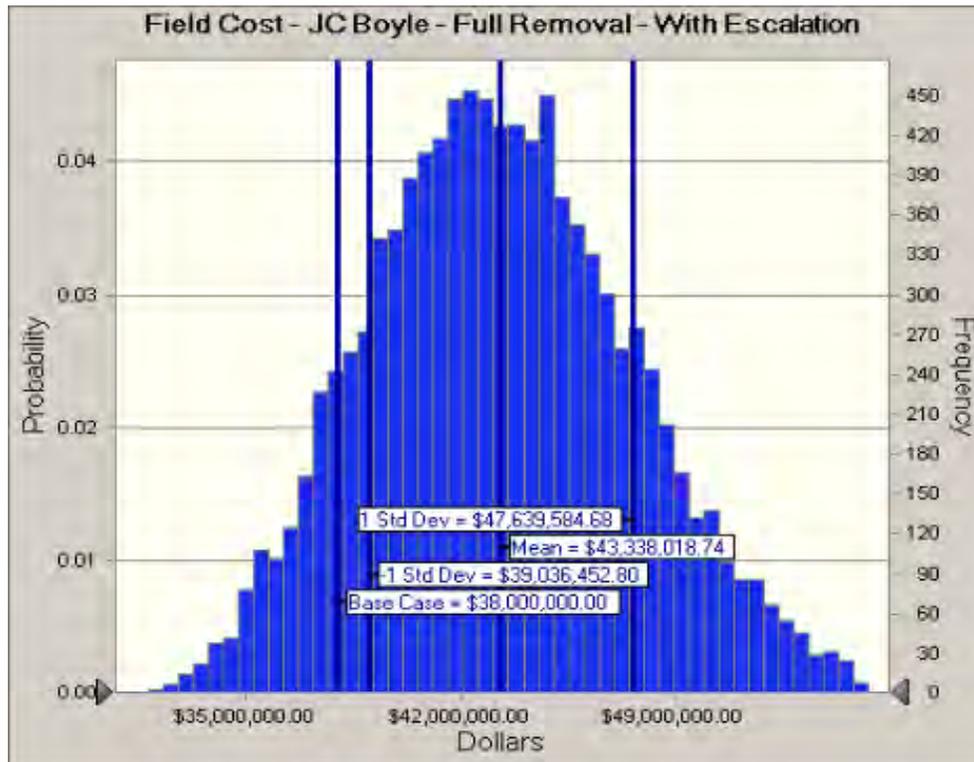
Cell: U144

Summary:

Entire range is from \$30,860,482.29 to \$63,881,896.37

Base case is \$38,000,000.00

After 10,000 trials, the std. error of the mean is \$43,015.66



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Full Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Field Cost - JC Boyle - Full Removal - With Escalation (cont'd)

Cell: U144

Statistics:	Forecast values
Trials	10,000
Mean	\$43,338,018.74
Median	\$43,145,684.12
Mode	\$40,145,266.91
Standard Deviation	\$4,301,565.94
Variance	\$18,503,469,554,630.10
Skewness	0.2367
Kurtosis	2.87
Coeff. of Variability	0.0993
Minimum	\$30,860,482.29
Maximum	\$63,881,896.37
Range Width	\$33,021,414.08
Mean Std. Error	\$43,015.66

Percentiles:	Forecast values
0%	\$30,860,482.29
10%	\$37,815,541.82
20%	\$39,584,983.23
30%	\$40,919,040.43
40%	\$42,055,804.59
50%	\$43,143,231.93
60%	\$44,332,483.57
70%	\$45,492,458.18
80%	\$46,980,596.34
90%	\$48,980,267.51
100%	\$63,881,896.37

End of Forecasts

Assumptions

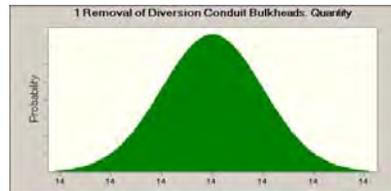
Worksheet: [JC Boyle - Full Removal Crystal Ball - with Escalation - 2011-04.xls]JC Boyle - Ful

Assumption: 1 Removal of Diversion Conduit Bulkheads. Quantity

Cell: L14

Normal distribution with parameters:

Mean	14	(=L14)
Std. Dev.	0	(=0.000001)

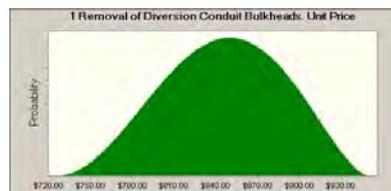


Assumption: 1 Removal of Diversion Conduit Bulkheads. Unit Price

Cell: R14

BetaPERT distribution with parameters:

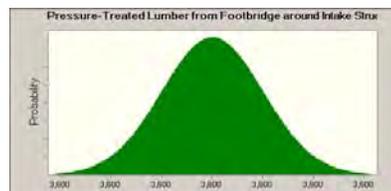
Minimum	\$725.00	(=Q14)
Likeliest	\$850.00	(=R14)
Maximum	\$950.00	(=S14)



Assumption: 10 Remove Pressure-Treated Lumber from Footbridge around Intake Structure

Normal distribution with parameters:

Mean	3,600	(=L23)
Std. Dev.	0	(=0.000001)



Assumption: 10 Remove Pressure-Treated Lumber from Footbridge around Intake Structure

BetaPERT distribution with parameters:

Minimum	\$0.50	(=Q23)
Likeliest	\$0.55	(=R23)
Maximum	\$0.70	(=S23)

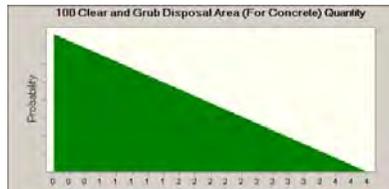


Assumption: 100 Clear and Grub Disposal Area (For Concrete) Quantity

Cell: L113

Triangular distribution with parameters:

Minimum	0	(=M113)
Likeliest	0	(=L113)
Maximum	4	(=K113)



Assumption: 100 Clear and Grub Disposal Area (For Concrete) Unit Price

Cell: R113

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q113)
Likeliest	\$5,000.00	(=R113)
Maximum	\$6,000.00	(=S113)

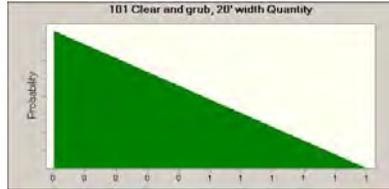


Assumption: 101 Clear and grub, 20' width Quantity

Cell: L114

Triangular distribution with parameters:

Minimum	0	(=M114)
Likeliest	0	(=L114)
Maximum	1	(=K114)



Assumption: 101 Clear and grub, 20' width Unit Price

Cell: R114

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q114)
Likeliest	\$5,000.00	(=R114)
Maximum	\$6,000.00	(=S114)

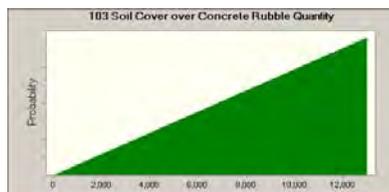


Assumption: 103 Soil Cover over Concrete Rubble Quantity

Cell: L116

Triangular distribution with parameters:

Minimum	0	(=M116)
Likeliest	13,000	(=L116)
Maximum	13,000	(=K116)

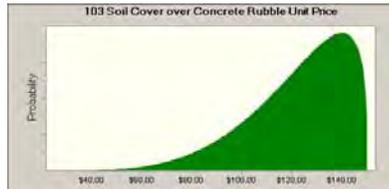


Assumption: 103 Soil Cover over Concrete Rubble Unit Price

Cell: R116

BetaPERT distribution with parameters:

Minimum	\$25.00	(=Q116)
Likeliest	\$140.00	(=R116)
Maximum	\$150.00	(=S116)

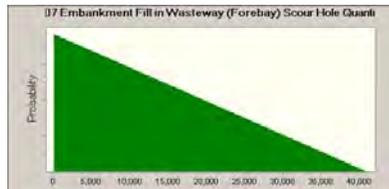


Assumption: 107 Embankment Fill in Wasteway (Forebay) Scour Hole Quantity

Cell: L120

Triangular distribution with parameters:

Minimum	0	(=K120)
Likeliest	0	(=L120)
Maximum	41,000	(=M120)



Assumption: 107 Embankment Fill in Wasteway (Forebay) Scour Hole Unit Price

Cell: R120

BetaPERT distribution with parameters:

Minimum	\$25.00	(=Q120)
Likeliest	\$140.00	(=R120)
Maximum	\$150.00	(=S120)

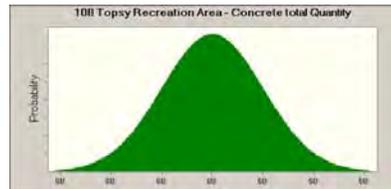


Assumption: 108 Topsy Recreation Area - Concrete total Quantity

Cell: L121

Normal distribution with parameters:

Mean	68	(=L121)
Std. Dev.	0	(=0.000001)



Assumption: 108 Topsy Recreation Area - Concrete total Unit Price

Cell: R121

BetaPERT distribution with parameters:

Minimum	\$175.00	(=Q121)
Likeliest	\$220.00	(=R121)
Maximum	\$320.00	(=S121)

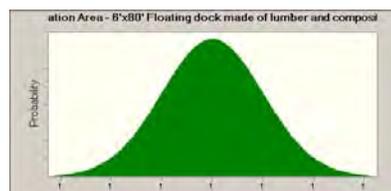


Assumption: 109 Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite

Cell: L122

Normal distribution with parameters:

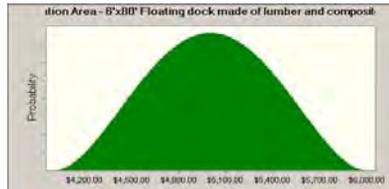
Mean	1	(=L122)
Std. Dev.	0	(=0.000001)



Assumption: 109 Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite **Cell: D122**

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q122)
Likeliest	\$5,000.00	(=R122)
Maximum	\$6,000.00	(=S122)

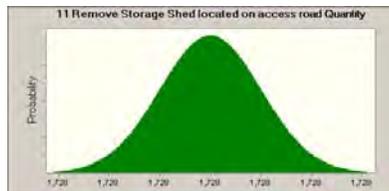


Assumption: 11 Remove Storage Shed located on access road Quantity

Cell: L24

Normal distribution with parameters:

Mean	1,728	(=L24)
Std. Dev.	0	(=0.000001)

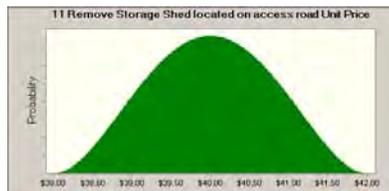


Assumption: 11 Remove Storage Shed located on access road Unit Price

Cell: R24

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q24)
Likeliest	\$40.00	(=R24)
Maximum	\$42.00	(=S24)



Assumption: 110 Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform

Normal distribution with parameters:

Mean	200	(=L123)
Std. Dev.	0	(=0.000001)



Assumption: 110 Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform

BetaPERT distribution with parameters:

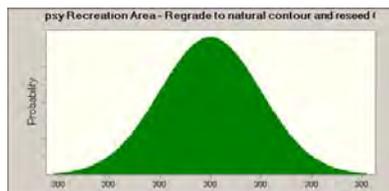
Minimum	\$12.00	(=Q123)
Likeliest	\$13.00	(=R123)
Maximum	\$14.00	(=S123)



Assumption: 111 Topsy Recreation Area - Regrade to natural contour and reseed

Normal distribution with parameters:

Mean	300	(=L124)
Std. Dev.	0	(=0.000001)



Assumption: 111 Topsy Recreation Area - Regrade to natural contour and reseed Unit Price: 124

BetaPERT distribution with parameters:

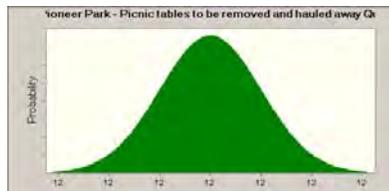
Minimum	\$3.00	(=Q124)
Likeliest	\$4.00	(=R124)
Maximum	\$5.00	(=S124)



Assumption: 112 Pioneer Park - Picnic tables to be removed and hauled away Quantity: L125

Normal distribution with parameters:

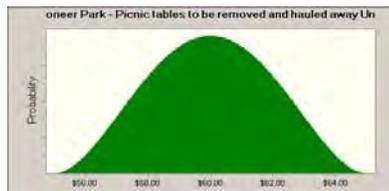
Mean	12	(=L125)
Std. Dev.	0	(=0.000001)



Assumption: 112 Pioneer Park - Picnic tables to be removed and hauled away Unit Price: R125

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q125)
Likeliest	\$60.00	(=R125)
Maximum	\$65.00	(=S125)



Assumption: 113 Pioneer Park - 12 Concrete fire rings Quantity

Cell: L126

Normal distribution with parameters:

Mean	5	(=L126)
Std. Dev.	0	(=0.000001)

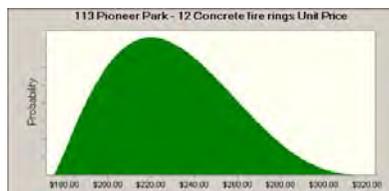


Assumption: 113 Pioneer Park - 12 Concrete fire rings Unit Price

Cell: R126

BetaPERT distribution with parameters:

Minimum	\$175.00	(=Q126)
Likeliest	\$220.00	(=R126)
Maximum	\$320.00	(=S126)

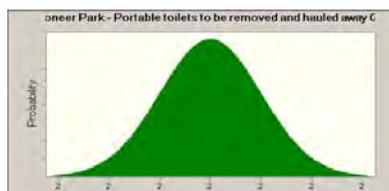


Assumption: 114 Pioneer Park - Portable toilets to be removed and hauled away Quantity

Cell: L127

Normal distribution with parameters:

Mean	2	(=L127)
Std. Dev.	0	(=0.000001)



Assumption: 114 Pioneer Park - Portable toilets to be removed and hauled away Unit Price Cell: D127

BetaPERT distribution with parameters:

Minimum	\$900.00	(=Q127)
Likeliest	\$1,000.00	(=R127)
Maximum	\$1,200.00	(=S127)



Assumption: 115 Pioneer Park - Signs to be removed and hauled away Quantity Cell: L128

Normal distribution with parameters:

Mean	6	(=L128)
Std. Dev.	0	(=0.000001)



Assumption: 115 Pioneer Park - Signs to be removed and hauled away Unit Price Cell: R128

BetaPERT distribution with parameters:

Minimum	\$135.00	(=Q128)
Likeliest	\$150.00	(=R128)
Maximum	\$160.00	(=S128)



Assumption: 116 Pioneer Park - Dumpster to be removed and hauled away Quantity Cell: L129

Normal distribution with parameters:

Mean	1	(=L129)
Std. Dev.	0	(=0.000001)



Assumption: 116 Pioneer Park - Dumpster to be removed and hauled away Unit Price Cell: R129

BetaPERT distribution with parameters:

Minimum	\$900.00	(=Q129)
Likeliest	\$1,000.00	(=R129)
Maximum	\$1,200.00	(=S129)

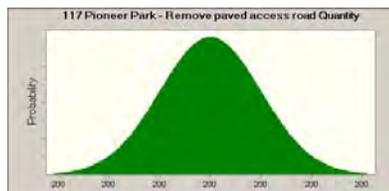


Assumption: 117 Pioneer Park - Remove paved access road Quantity

Cell: L130

Normal distribution with parameters:

Mean	200	(=L130)
Std. Dev.	0	(=0.000001)

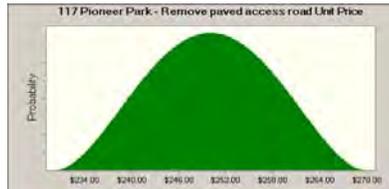


Assumption: 117 Pioneer Park - Remove paved access road Unit Price

Cell: R130

BetaPERT distribution with parameters:

Minimum	\$230.00	(=Q130)
Likeliest	\$250.00	(=R130)
Maximum	\$270.00	(=S130)

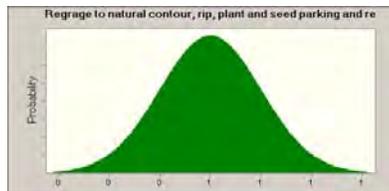


Assumption: 118 Pioneer Park - Regrade to natural contour, rip, plant and seed parking and re

Cell: L131

Normal distribution with parameters:

Mean	1	(=L131)
Std. Dev.	0	(=0.000001)



Assumption: 118 Pioneer Park - Regrade to natural contour, rip, plant and seed parking and re

Cell: R131

BetaPERT distribution with parameters:

Minimum	\$19,000.00	(=Q131)
Likeliest	\$20,000.00	(=R131)
Maximum	\$22,000.00	(=S131)



Assumption: 12 Remove Warehouse located on access road Quantity

Cell: L25

Normal distribution with parameters:

Mean	1,920	(=L25)
Std. Dev.	0	(=0.000001)



Assumption: 12 Remove Warehouse located on access road Unit Price

Cell: R25

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q25)
Likeliest	\$40.00	(=R25)
Maximum	\$42.00	(=S25)



Assumption: 13 Remove Fire System Control Bldg. on left abutment. Quantity

Cell: L26

Normal distribution with parameters:

Mean	385	(=L26)
Std. Dev.	0	(=0.000001)



Assumption: 13 Remove Fire System Control Bldg. on left abutment. Unit Price **Cell: R26**

BetaPERT distribution with parameters:

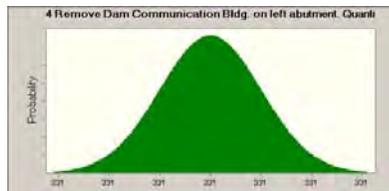
Minimum	\$38.00	(=Q26)
Likeliest	\$40.00	(=R26)
Maximum	\$42.00	(=S26)



Assumption: 14 Remove Dam Communication Bldg. on left abutment. Quantity **Cell: L27**

Normal distribution with parameters:

Mean	331	(=L27)
Std. Dev.	0	(=0.000001)



Assumption: 14 Remove Dam Communication Bldg. on left abutment. Unit Price **Cell: R27**

BetaPERT distribution with parameters:

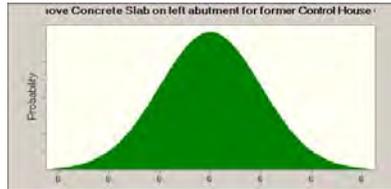
Minimum	\$38.00	(=Q27)
Likeliest	\$40.00	(=R27)
Maximum	\$42.00	(=S27)



Assumption: 15 Remove Concrete Slab on left abutment for former Control House Q Cell Q28

Normal distribution with parameters:

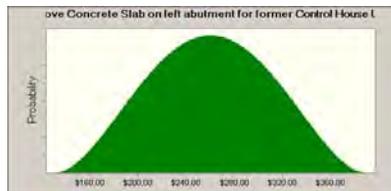
Mean 6 (=L28)
Std. Dev. 0 (=0.000001)



Assumption: 15 Remove Concrete Slab on left abutment for former Control House U Cell R28

BetaPERT distribution with parameters:

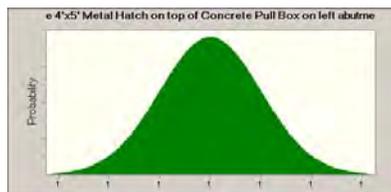
Minimum \$130.00 (=Q28)
Likeliest \$260.00 (=R28)
Maximum \$390.00 (=S28)



Assumption: 16 Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment Q Cell Q29

Normal distribution with parameters:

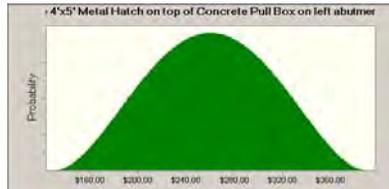
Mean 1 (=L29)
Std. Dev. 0 (=0.000001)



Assumption: 16 Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment Cell: R29

BetaPERT distribution with parameters:

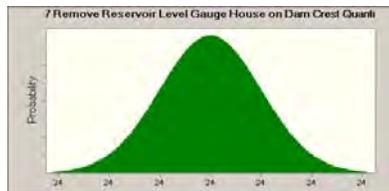
Minimum	\$130.00	(=Q29)
Likeliest	\$260.00	(=R29)
Maximum	\$390.00	(=S29)



Assumption: 17 Remove Reservoir Level Gauge House on Dam Crest Quantity Cell: L30

Normal distribution with parameters:

Mean	24	(=L30)
Std. Dev.	0	(=0.000001)



Assumption: 17 Remove Reservoir Level Gauge House on Dam Crest Unit Price Cell: R30

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q30)
Likeliest	\$40.00	(=R30)
Maximum	\$42.00	(=S30)

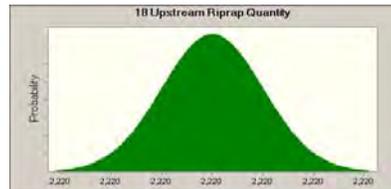


Assumption: 18 Upstream Riprap Quantity

Cell: L31

Normal distribution with parameters:

Mean	2,220	(=L31)
Std. Dev.	0	(=0.000001)



Assumption: 18 Upstream Riprap Unit Price

Cell: R31

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q31)
Likeliest	\$9.00	(=R31)
Maximum	\$12.00	(=S31)

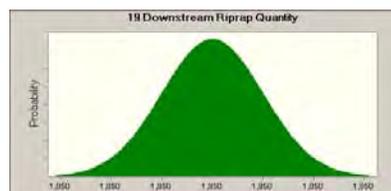


Assumption: 19 Downstream Riprap Quantity

Cell: L32

Normal distribution with parameters:

Mean	1,850	(=L32)
Std. Dev.	0	(=0.000001)



Assumption: 19 Downstream Riprap Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q32)
Likeliest	\$9.00	(=R32)
Maximum	\$12.00	(=S32)

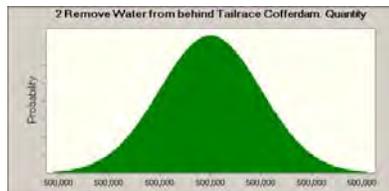


Assumption: 2 Remove Water from behind Tailrace Cofferdam. Quantity

Cell: L15

Normal distribution with parameters:

Mean	500,000	(=L15)
Std. Dev.	0	(=0.000001)



Assumption: 2 Remove Water from behind Tailrace Cofferdam. Unit Price

Cell: R15

Normal distribution with parameters:

Mean	\$0.01	(=R15)
Std. Dev.	\$0.00	(=0.000001)

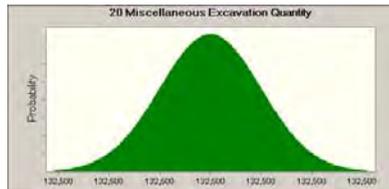


Assumption: 20 Miscellaneous Excavation Quantity

Cell: L33

Normal distribution with parameters:

Mean	132,500	(=L33)
Std. Dev.	0	(=0.000001)



Assumption: 20 Miscellaneous Excavation Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q33)
Likeliest	\$9.00	(=R33)
Maximum	\$12.00	(=S33)

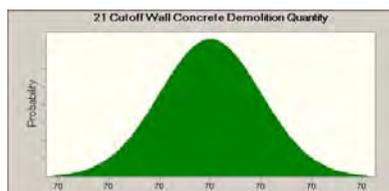


Assumption: 21 Cutoff Wall Concrete Demolition Quantity

Cell: L34

Normal distribution with parameters:

Mean	70	(=L34)
Std. Dev.	0	(=0.000001)



Assumption: 21 Cutoff Wall Concrete Demolition Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q34)
Likeliest	\$260.00	(=R34)
Maximum	\$390.00	(=S34)

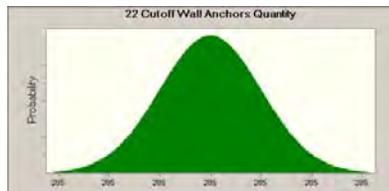


Assumption: 22 Cutoff Wall Anchors Quantity

Cell: L35

Normal distribution with parameters:

Mean	285	(=L35)
Std. Dev.	0	(=0.000001)



Assumption: 22 Cutoff Wall Anchors Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$9.00	(=Q35)
Likeliest	\$10.00	(=R35)
Maximum	\$12.00	(=S35)

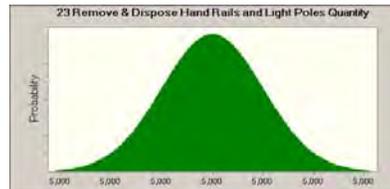


Assumption: 23 Remove & Dispose Hand Rails and Light Poles Quantity

Cell: L36

Normal distribution with parameters:

Mean	5,000	(=L36)
Std. Dev.	0	(=0.000001)



Assumption: 23 Remove & Dispose Hand Rails and Light Poles Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q36)
Likeliest	\$0.65	(=R36)
Maximum	\$0.75	(=S36)

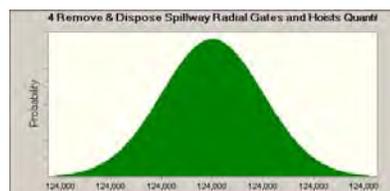


Assumption: 24 Remove & Dispose Spillway Radial Gates and Hoists Quantity

Cell: L37

Normal distribution with parameters:

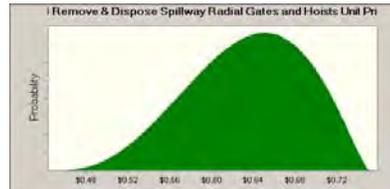
Mean	124,000	(=L37)
Std. Dev.	0	(=0.000001)



Assumption: 24 Remove & Dispose Spillway Radial Gates and Hoists Unit Price Cell: R37

BetaPERT distribution with parameters:

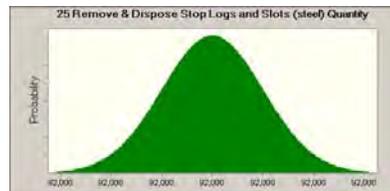
Minimum	\$0.45	(=Q37)
Likeliest	\$0.65	(=R37)
Maximum	\$0.75	(=S37)



Assumption: 25 Remove & Dispose Stop Logs and Slots (steel) Quantity Cell: L38

Normal distribution with parameters:

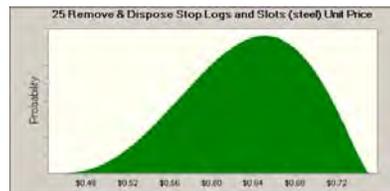
Mean	92,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Remove & Dispose Stop Logs and Slots (steel) Unit Price Cell: R38

BetaPERT distribution with parameters:

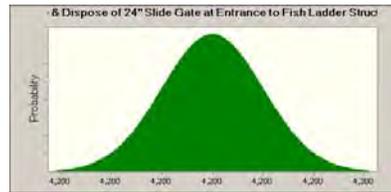
Minimum	\$0.45	(=Q38)
Likeliest	\$0.65	(=R38)
Maximum	\$0.75	(=S38)



Assumption: 26 Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure

Normal distribution with parameters:

Mean	4,200	(=L39)
Std. Dev.	0	(=0.000001)



Assumption: 26 Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure

BetaPERT distribution with parameters:

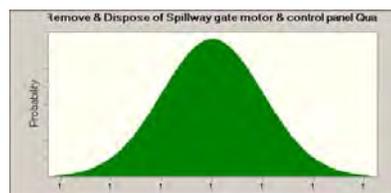
Minimum	\$0.45	(=Q39)
Likeliest	\$0.65	(=R39)
Maximum	\$0.75	(=S39)



Assumption: 27 Remove & Dispose of Spillway gate motor & control panel Quantity Cell: L40

Normal distribution with parameters:

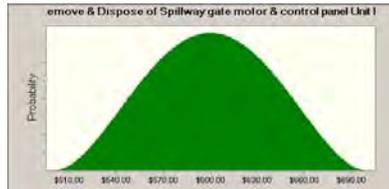
Mean	1	(=L40)
Std. Dev.	0	(=0.000001)



Assumption: 27 Remove & Dispose of Spillway gate motor & control panel Unit PriceCell: R40

BetaPERT distribution with parameters:

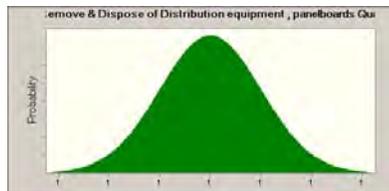
Minimum	\$500.00	(=Q40)
Likeliest	\$600.00	(=R40)
Maximum	\$700.00	(=S40)



Assumption: 28 Remove & Dispose of Distribution equipment , panelboards QuantityCell: L41

Normal distribution with parameters:

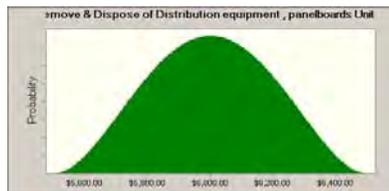
Mean	1	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove & Dispose of Distribution equipment , panelboards Unit PriceCell: R41

BetaPERT distribution with parameters:

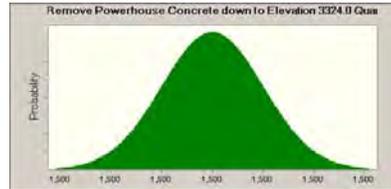
Minimum	\$5,500.00	(=Q41)
Likeliest	\$6,000.00	(=R41)
Maximum	\$6,500.00	(=S41)



Assumption: 29 Remove Powerhouse Concrete down to Elevation 3324.0 Quantity Cell: L42

Normal distribution with parameters:

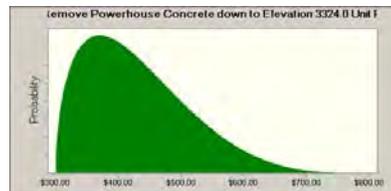
Mean	1,500	(=L42)
Std. Dev.	0	(=0.000001)



Assumption: 29 Remove Powerhouse Concrete down to Elevation 3324.0 Unit Price Cell: R42

BetaPERT distribution with parameters:

Minimum	\$300.00	(=Q42)
Likeliest	\$370.00	(=R42)
Maximum	\$800.00	(=S42)

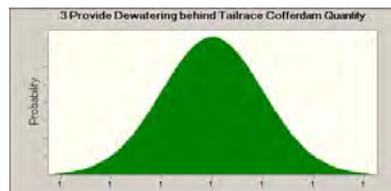


Assumption: 3 Provide Dewatering behind Tailrace Cofferdam Quantity

Cell: L16

Normal distribution with parameters:

Mean	1	(=L16)
Std. Dev.	0	(=0.000001)

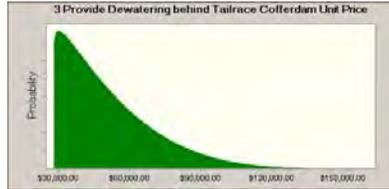


Assumption: 3 Provide Dewatering behind Tailrace Cofferdam Unit Price

Cell: R16

BetaPERT distribution with parameters:

Minimum	\$28,000.00	(=Q16)
Likeliest	\$30,000.00	(=R16)
Maximum	\$160,000.00	(=S16)

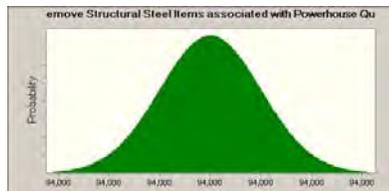


Assumption: 30 Remove Structural Steel Items associated with Powerhouse Quantity

Cell: L43

Normal distribution with parameters:

Mean	94,000	(=L43)
Std. Dev.	0	(=0.000001)



Assumption: 30 Remove Structural Steel Items associated with Powerhouse Unit Price

Cell: R43

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q43)
Likeliest	\$0.65	(=R43)
Maximum	\$0.75	(=S43)

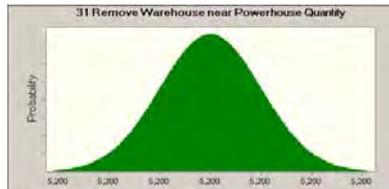


Assumption: 31 Remove Warehouse near Powerhouse Quantity

Cell: L44

Normal distribution with parameters:

Mean	5,200	(=L44)
Std. Dev.	0	(=0.000001)



Assumption: 31 Remove Warehouse near Powerhouse Unit Price

Cell: R44

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q44)
Likeliest	\$40.00	(=R44)
Maximum	\$42.00	(=S44)

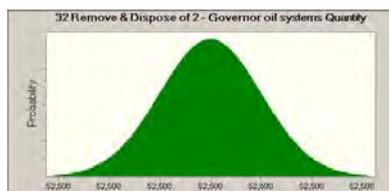


Assumption: 32 Remove & Dispose of 2 - Governor oil systems Quantity

Cell: L45

Normal distribution with parameters:

Mean	52,500	(=L45)
Std. Dev.	0	(=0.000001)

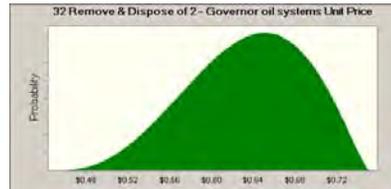


Assumption: 32 Remove & Dispose of 2 - Governor oil systems Unit Price

Cell: R45

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q45)
Likeliest	\$0.65	(=R45)
Maximum	\$0.75	(=S45)

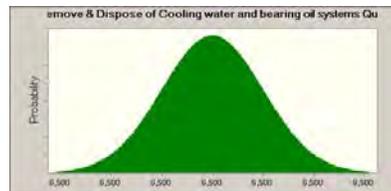


Assumption: 33 Remove & Dispose of Cooling water and bearing oil systems Quantity

Cell: L46

Normal distribution with parameters:

Mean	6,500	(=L46)
Std. Dev.	0	(=0.000001)

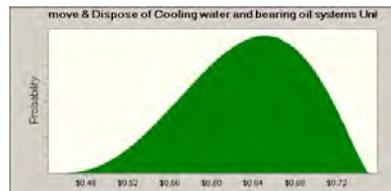


Assumption: 33 Remove & Dispose of Cooling water and bearing oil systems Unit Price

Cell: R46

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q46)
Likeliest	\$0.65	(=R46)
Maximum	\$0.75	(=S46)

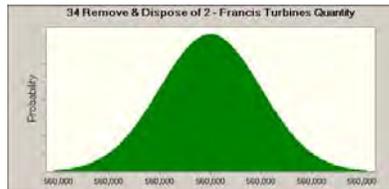


Assumption: 34 Remove & Dispose of 2 - Francis Turbines Quantity

Cell: L47

Normal distribution with parameters:

Mean	560,000	(=L47)
Std. Dev.	0	(=0.000001)

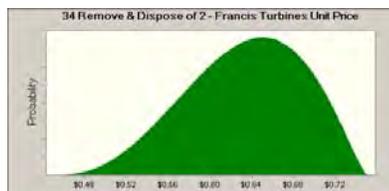


Assumption: 34 Remove & Dispose of 2 - Francis Turbines Unit Price

Cell: R47

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q47)
Likeliest	\$0.65	(=R47)
Maximum	\$0.75	(=S47)

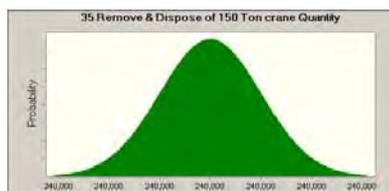


Assumption: 35 Remove & Dispose of 150 Ton crane Quantity

Cell: L48

Normal distribution with parameters:

Mean	240,000	(=L48)
Std. Dev.	0	(=0.000001)

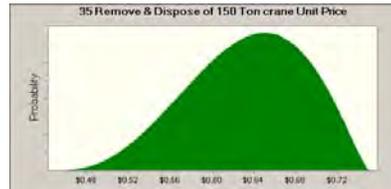


Assumption: 35 Remove & Dispose of 150 Ton crane Unit Price

Cell: R48

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q48)
Likeliest	\$0.65	(=R48)
Maximum	\$0.75	(=S48)

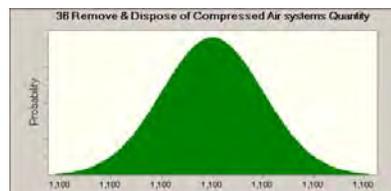


Assumption: 36 Remove & Dispose of Compressed Air systems Quantity

Cell: L49

Normal distribution with parameters:

Mean	1,100	(=L49)
Std. Dev.	0	(=0.000001)



Assumption: 36 Remove & Dispose of Compressed Air systems Unit Price

Cell: R49

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q49)
Likeliest	\$0.65	(=R49)
Maximum	\$0.75	(=S49)

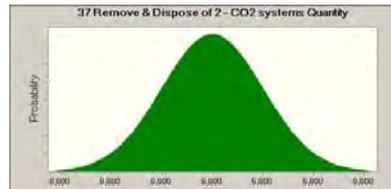


Assumption: 37 Remove & Dispose of 2 - CO2 systems Quantity

Cell: L50

Normal distribution with parameters:

Mean	6,600	(=L50)
Std. Dev.	0	(=0.000001)

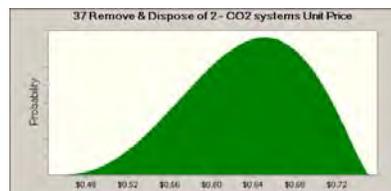


Assumption: 37 Remove & Dispose of 2 - CO2 systems Unit Price

Cell: R50

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q50)
Likeliest	\$0.65	(=R50)
Maximum	\$0.75	(=S50)

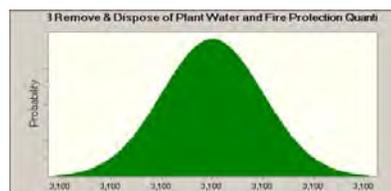


Assumption: 38 Remove & Dispose of Plant Water and Fire Protection Quantity

Cell: L51

Normal distribution with parameters:

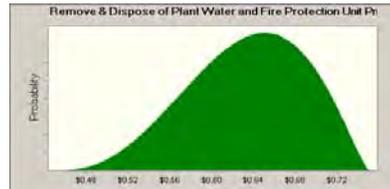
Mean	3,100	(=L51)
Std. Dev.	0	(=0.000001)



Assumption: 38 Remove & Dispose of Plant Water and Fire Protection Unit Price Cell: R51

BetaPERT distribution with parameters:

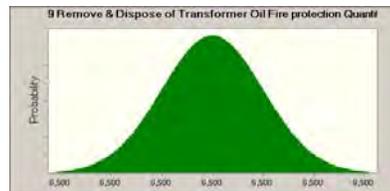
Minimum	\$0.45	(=Q51)
Likeliest	\$0.65	(=R51)
Maximum	\$0.75	(=S51)



Assumption: 39 Remove & Dispose of Transformer Oil Fire protection Quantity Cell: L52

Normal distribution with parameters:

Mean	6,500	(=L52)
Std. Dev.	0	(=0.000001)



Assumption: 39 Remove & Dispose of Transformer Oil Fire protection Unit Price Cell: R52

BetaPERT distribution with parameters:

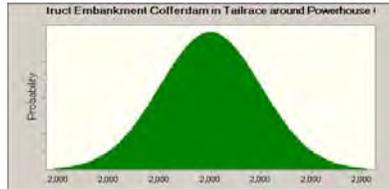
Minimum	\$0.45	(=Q52)
Likeliest	\$0.65	(=R52)
Maximum	\$0.75	(=S52)



Assumption: 4 Construct Embankment Cofferdam in Tailrace around Powerhouse Quantity Cell: L17

Normal distribution with parameters:

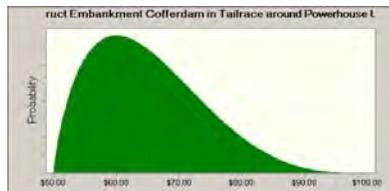
Mean	2,000	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 4 Construct Embankment Cofferdam in Tailrace around Powerhouse Unit Price Cell: R17

BetaPERT distribution with parameters:

Minimum	\$50.00	(=Q17)
Likeliest	\$60.00	(=R17)
Maximum	\$100.00	(=S17)

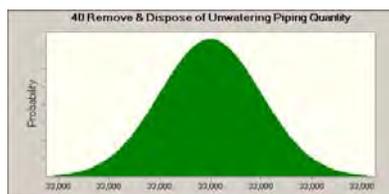


Assumption: 40 Remove & Dispose of Unwatering Piping Quantity

Cell: L53

Normal distribution with parameters:

Mean	33,000	(=L53)
Std. Dev.	0	(=0.000001)



Assumption: 40 Remove & Dispose of Unwatering Piping Unit Price

Cell: R53

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q53)
Likeliest	\$0.65	(=R53)
Maximum	\$0.75	(=S53)

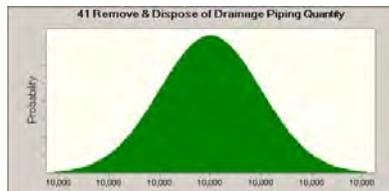


Assumption: 41 Remove & Dispose of Drainage Piping Quantity

Cell: L54

Normal distribution with parameters:

Mean	10,000	(=L54)
Std. Dev.	0	(=0.000001)

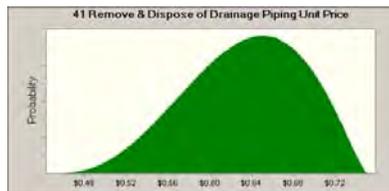


Assumption: 41 Remove & Dispose of Drainage Piping Unit Price

Cell: R54

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q54)
Likeliest	\$0.65	(=R54)
Maximum	\$0.75	(=S54)

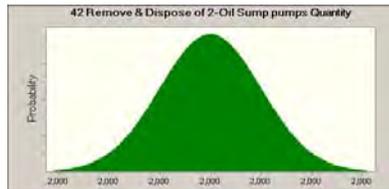


Assumption: 42 Remove & Dispose of 2-Oil Sump pumps Quantity

Cell: L55

Normal distribution with parameters:

Mean	2,000	(=L55)
Std. Dev.	0	(=0.000001)

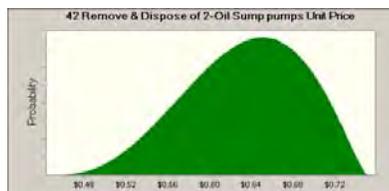


Assumption: 42 Remove & Dispose of 2-Oil Sump pumps Unit Price

Cell: R55

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q55)
Likeliest	\$0.65	(=R55)
Maximum	\$0.75	(=S55)

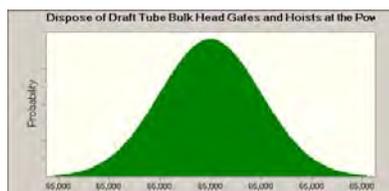


Assumption: 43 Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Pow

Cell: L56

Normal distribution with parameters:

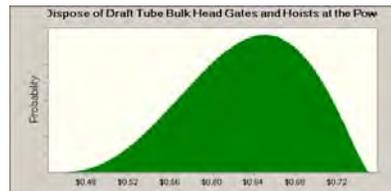
Mean	65,000	(=L56)
Std. Dev.	0	(=0.000001)



Assumption: 43 Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the PWR

BetaPERT distribution with parameters:

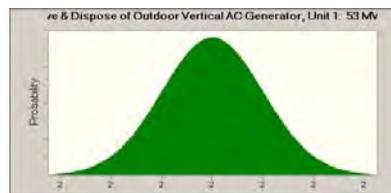
Minimum	\$0.45	(=Q56)
Likeliest	\$0.65	(=R56)
Maximum	\$0.75	(=S56)



Assumption: 44 Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA

Normal distribution with parameters:

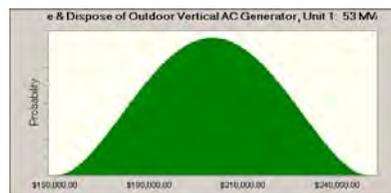
Mean	2	(=L57)
Std. Dev.	0	(=0.000001)



Assumption: 44 Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA

BetaPERT distribution with parameters:

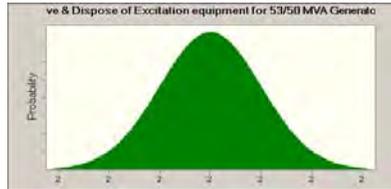
Minimum	\$150,000.00	(=Q57)
Likeliest	\$200,000.00	(=R57)
Maximum	\$250,000.00	(=S57)



Assumption: 45 Remove & Dispose of Excitation equipment for 53/50 MVA Generator

Normal distribution with parameters:

Mean	2	(=L58)
Std. Dev.	0	(=0.000001)



Assumption: 45 Remove & Dispose of Excitation equipment for 53/50 MVA Generator

BetaPERT distribution with parameters:

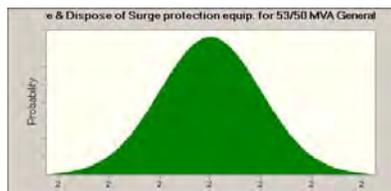
Minimum	\$12,000.00	(=Q58)
Likeliest	\$12,500.00	(=R58)
Maximum	\$13,000.00	(=S58)



Assumption: 46 Remove & Dispose of Surge protection equip. for 53/50 MVA Generator

Normal distribution with parameters:

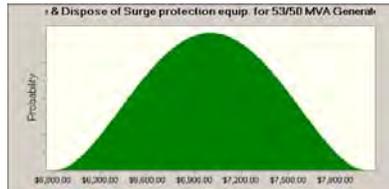
Mean	2	(=L59)
Std. Dev.	0	(=0.000001)



Assumption: 46 Remove & Dispose of Surge protection equip. for 53/50 MVA Generators

BetaPERT distribution with parameters:

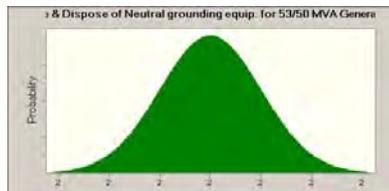
Minimum	\$6,000.00	(=Q59)
Likeliest	\$7,000.00	(=R59)
Maximum	\$8,000.00	(=S59)



Assumption: 47 Remove & Dispose of Neutral grounding equip. for 53/50 MVA Generators

Normal distribution with parameters:

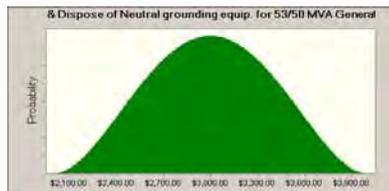
Mean	2	(=L60)
Std. Dev.	0	(=0.000001)



Assumption: 47 Remove & Dispose of Neutral grounding equip. for 53/50 MVA Generators

BetaPERT distribution with parameters:

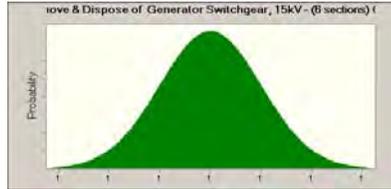
Minimum	\$2,000.00	(=Q60)
Likeliest	\$3,000.00	(=R60)
Maximum	\$4,000.00	(=S60)



Assumption: 48 Remove & Dispose of Generator Switchgear, 15kV - (6 sections) Quantity L61

Normal distribution with parameters:

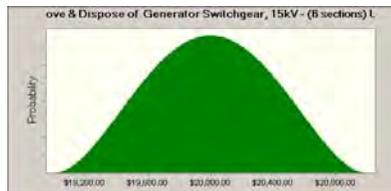
Mean 1 (=L61)
Std. Dev. 0 (=0.000001)



Assumption: 48 Remove & Dispose of Generator Switchgear, 15kV - (6 sections) Unit Price R61

BetaPERT distribution with parameters:

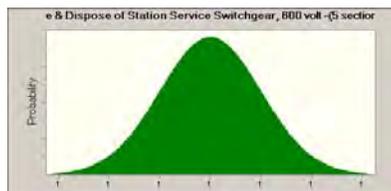
Minimum \$19,000.00 (=Q61)
Likeliest \$20,000.00 (=R61)
Maximum \$21,000.00 (=S61)



Assumption: 49 Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections) Quantity L62

Normal distribution with parameters:

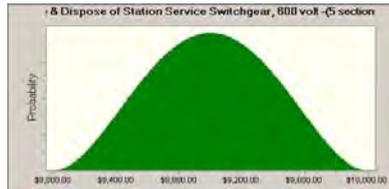
Mean 1 (=L62)
Std. Dev. 0 (=0.000001)



Assumption: 49 Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections) L18

BetaPERT distribution with parameters:

Minimum	\$8,000.00	(=Q62)
Likeliest	\$9,000.00	(=R62)
Maximum	\$10,000.00	(=S62)

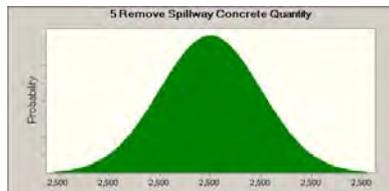


Assumption: 5 Remove Spillway Concrete Quantity

Cell: L18

Normal distribution with parameters:

Mean	2,500	(=L18)
Std. Dev.	0	(=0.000001)



Assumption: 5 Remove Spillway Concrete Unit Price

Cell: R18

BetaPERT distribution with parameters:

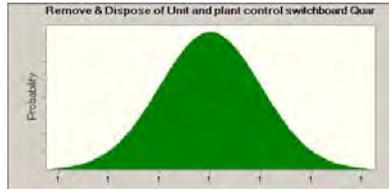
Minimum	\$130.00	(=Q18)
Likeliest	\$260.00	(=R18)
Maximum	\$390.00	(=S18)



Assumption: 50 Remove & Dispose of Unit and plant control switchboard Quantity Cell: L63

Normal distribution with parameters:

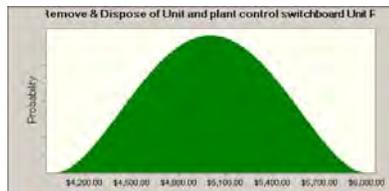
Mean	1	(=L63)
Std. Dev.	0	(=0.000001)



Assumption: 50 Remove & Dispose of Unit and plant control switchboard Unit Price Cell: R63

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q63)
Likeliest	\$5,000.00	(=R63)
Maximum	\$6,000.00	(=S63)

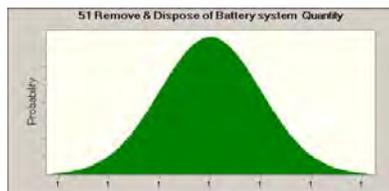


Assumption: 51 Remove & Dispose of Battery system Quantity

Cell: L64

Normal distribution with parameters:

Mean	1	(=L64)
Std. Dev.	0	(=0.000001)



Assumption: 51 Remove & Dispose of Battery system Unit Price

Cell: R64

BetaPERT distribution with parameters:

Minimum	\$7,000.00	(=Q64)
Likeliest	\$8,000.00	(=R64)
Maximum	\$9,000.00	(=S64)

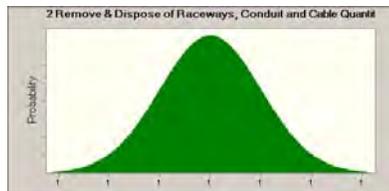


Assumption: 52 Remove & Dispose of Raceways, Conduit and Cable Quantity

Cell: L65

Normal distribution with parameters:

Mean	1	(=L65)
Std. Dev.	0	(=0.000001)



Assumption: 52 Remove & Dispose of Raceways, Conduit and Cable Unit Price

Cell: R65

BetaPERT distribution with parameters:

Minimum	\$10,000.00	(=Q65)
Likeliest	\$11,000.00	(=R65)
Maximum	\$12,000.00	(=S65)

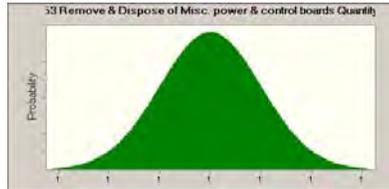


Assumption: 53 Remove & Dispose of Misc. power & control boards Quantity

Cell: L66

Normal distribution with parameters:

Mean	1	(=L66)
Std. Dev.	0	(=0.000001)

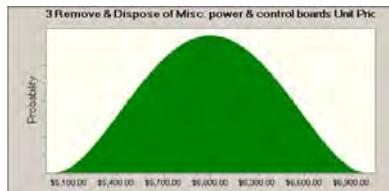


Assumption: 53 Remove & Dispose of Misc. power & control boards Unit Price

Cell: R66

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q66)
Likeliest	\$6,000.00	(=R66)
Maximum	\$7,000.00	(=S66)

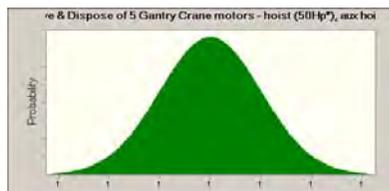


Assumption: 54 Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist

Cell: L67

Normal distribution with parameters:

Mean	1	(=L67)
Std. Dev.	0	(=0.000001)



Assumption: 54 Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist **Cell R67**

BetaPERT distribution with parameters:

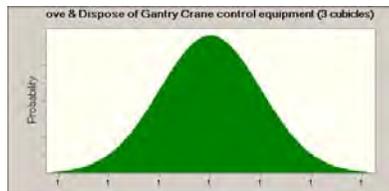
Minimum	\$1,500.00	(=Q67)
Likeliest	\$2,000.00	(=R67)
Maximum	\$3,000.00	(=S67)



Assumption: 55 Remove & Dispose of Gantry Crane control equipment (3 cubicies) **Cell L68**

Normal distribution with parameters:

Mean	1	(=L68)
Std. Dev.	0	(=0.000001)



Assumption: 55 Remove & Dispose of Gantry Crane control equipment (3 cubicies) **Cell P68**

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q68)
Likeliest	\$6,000.00	(=R68)
Maximum	\$7,000.00	(=S68)

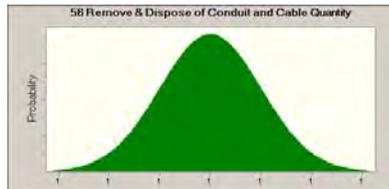


Assumption: 56 Remove & Dispose of Conduit and Cable Quantity

Cell: L69

Normal distribution with parameters:

Mean	1	(=L69)
Std. Dev.	0	(=0.000001)



Assumption: 56 Remove & Dispose of Conduit and Cable Unit Price

Cell: R69

BetaPERT distribution with parameters:

Minimum	\$9,000.00	(=Q69)
Likeliest	\$10,000.00	(=R69)
Maximum	\$11,000.00	(=S69)

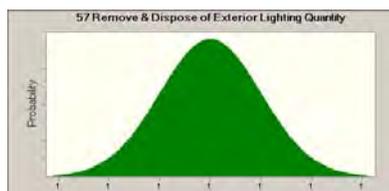


Assumption: 57 Remove & Dispose of Exterior Lighting Quantity

Cell: L70

Normal distribution with parameters:

Mean	1	(=L70)
Std. Dev.	0	(=0.000001)



Assumption: 57 Remove & Dispose of Exterior Lighting Unit Price

Cell: R70

BetaPERT distribution with parameters:

Minimum	\$1,500.00	(=Q70)
Likeliest	\$2,000.00	(=R70)
Maximum	\$3,000.00	(=S70)

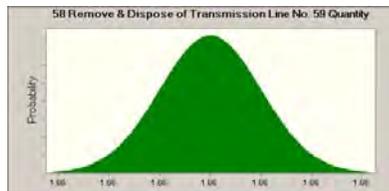


Assumption: 58 Remove & Dispose of Transmission Line No. 59 Quantity

Cell: L71

Normal distribution with parameters:

Mean	1.66	(=L71)
Std. Dev.	0.00	(=0.000001)

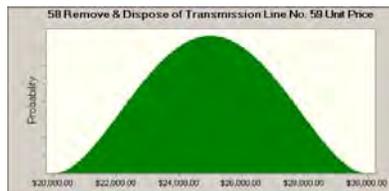


Assumption: 58 Remove & Dispose of Transmission Line No. 59 Unit Price

Cell: R71

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q71)
Likeliest	\$25,000.00	(=R71)
Maximum	\$30,000.00	(=S71)



Assumption: 59 Remove & Dispose of Transmission Line No. 98 Quantity

Cell: L72

Normal distribution with parameters:

Mean	0.24	(=L72)
Std. Dev.	0.00	(=0.000001)

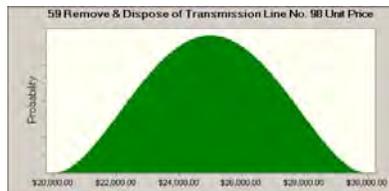


Assumption: 59 Remove & Dispose of Transmission Line No. 98 Unit Price

Cell: R72

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q72)
Likeliest	\$25,000.00	(=R72)
Maximum	\$30,000.00	(=S72)

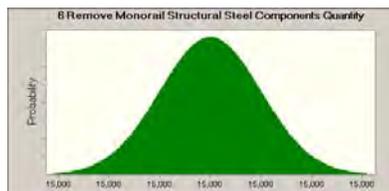


Assumption: 6 Remove Monorail Structural Steel Components Quantity

Cell: L19

Normal distribution with parameters:

Mean	15,000	(=L19)
Std. Dev.	0	(=0.000001)



Assumption: 6 Remove Monorail Structural Steel Components Unit Price

Cell: R19

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q19)
Likeliest	\$0.65	(=R19)
Maximum	\$0.75	(=S19)

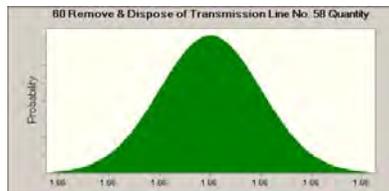


Assumption: 60 Remove & Dispose of Transmission Line No. 58 Quantity

Cell: L73

Normal distribution with parameters:

Mean	1.66	(=L73)
Std. Dev.	0.00	(=0.000001)

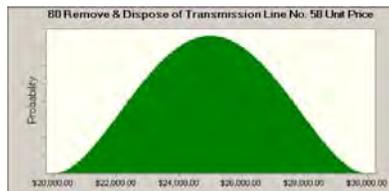


Assumption: 60 Remove & Dispose of Transmission Line No. 58 Unit Price

Cell: R73

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q73)
Likeliest	\$25,000.00	(=R73)
Maximum	\$30,000.00	(=S73)

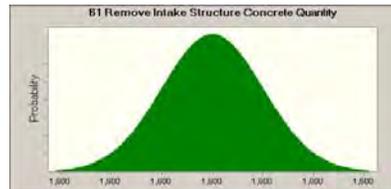


Assumption: 61 Remove Intake Structure Concrete Quantity

Cell: L74

Normal distribution with parameters:

Mean	1,600	(=L74)
Std. Dev.	0	(=0.000001)



Assumption: 61 Remove Intake Structure Concrete Unit Price

Cell: R74

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q74)
Likeliest	\$260.00	(=R74)
Maximum	\$390.00	(=S74)

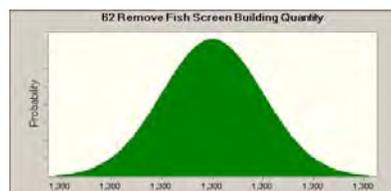


Assumption: 62 Remove Fish Screen Building Quantity

Cell: L75

Normal distribution with parameters:

Mean	1,300	(=L75)
Std. Dev.	0	(=0.000001)



Assumption: 62 Remove Fish Screen Building Unit Price

Cell: R75

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q75)
Likeliest	\$40.00	(=R75)
Maximum	\$42.00	(=S75)



Assumption: 63 Remove 24-inch-dia. Steel Fish Discharge Pipe Quantity

Cell: L76

Normal distribution with parameters:

Mean	22,000	(=L76)
Std. Dev.	0	(=0.000001)

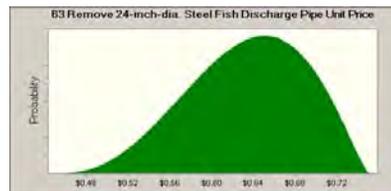


Assumption: 63 Remove 24-inch-dia. Steel Fish Discharge Pipe Unit Price

Cell: R76

BetaPERT distribution with parameters:

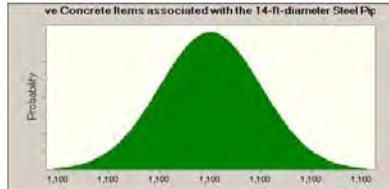
Minimum	\$0.45	(=Q76)
Likeliest	\$0.65	(=R76)
Maximum	\$0.75	(=S76)



Assumption: 64 Remove Concrete Items associated with the 14-ft-diameter Steel Pipe **Cell: L77**

Normal distribution with parameters:

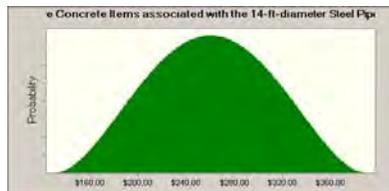
Mean	1,100	(=L77)
Std. Dev.	0	(=0.000001)



Assumption: 64 Remove Concrete Items associated with the 14-ft-diameter Steel Pipe **Cell: L77**

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q77)
Likeliest	\$260.00	(=R77)
Maximum	\$390.00	(=S77)

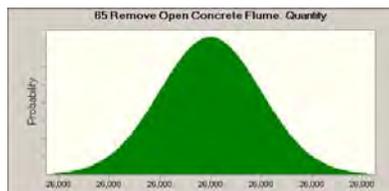


Assumption: 65 Remove Open Concrete Flume. Quantity

Cell: L78

Normal distribution with parameters:

Mean	26,000	(=L78)
Std. Dev.	0	(=0.000001)

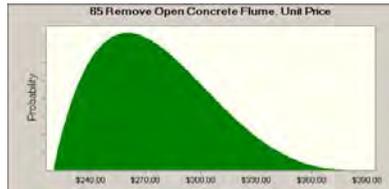


Assumption: 65 Remove Open Concrete Flume. Unit Price

Cell: R78

BetaPERT distribution with parameters:

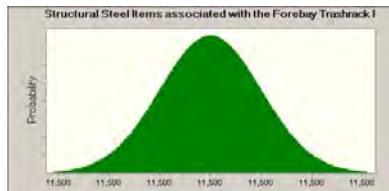
Minimum	\$220.00	(=Q78)
Likeliest	\$260.00	(=R78)
Maximum	\$390.00	(=S78)



Assumption: 66 Remove Structural Steel Items associated with the Forebay Trashrack L

Normal distribution with parameters:

Mean	11,500	(=L79)
Std. Dev.	0	(=0.000001)



Assumption: 66 Remove Structural Steel Items associated with the Forebay Trashrack F

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q79)
Likeliest	\$0.65	(=R79)
Maximum	\$0.75	(=S79)

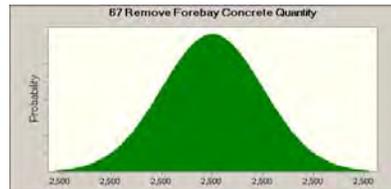


Assumption: 67 Remove Forebay Concrete Quantity

Cell: L80

Normal distribution with parameters:

Mean	2,500	(=L80)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove Forebay Concrete Unit Price

Cell: R80

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q80)
Likeliest	\$260.00	(=R80)
Maximum	\$390.00	(=S80)

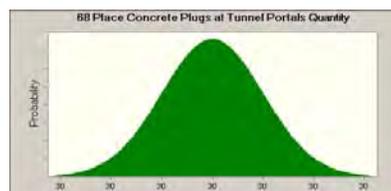


Assumption: 68 Place Concrete Plugs at Tunnel Portals Quantity

Cell: L81

Normal distribution with parameters:

Mean	30	(=L81)
Std. Dev.	0	(=0.000001)

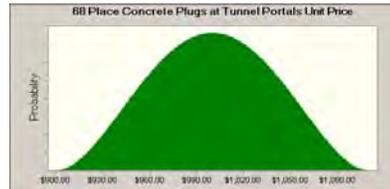


Assumption: 68 Place Concrete Plugs at Tunnel Portals Unit Price

Cell: R81

BetaPERT distribution with parameters:

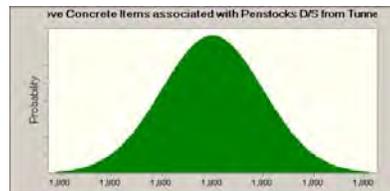
Minimum	\$900.00	(=Q81)
Likeliest	\$1,000.00	(=R81)
Maximum	\$1,100.00	(=S81)



Assumption: 69 Remove Concrete Items associated with Penstocks D/S from Tunnel Unit L82

Normal distribution with parameters:

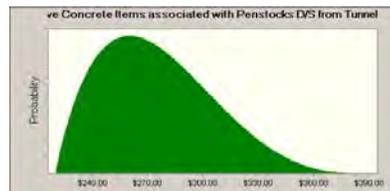
Mean	1,800	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove Concrete Items associated with Penstocks D/S from Tunnel Unit R82

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q82)
Likeliest	\$260.00	(=R82)
Maximum	\$390.00	(=S82)



Assumption: 7 Remove Fish Ladder Concrete Quantity

Cell: L20

Normal distribution with parameters:

Mean	1,600	(=L20)
Std. Dev.	0	(=0.000001)



Assumption: 7 Remove Fish Ladder Concrete Unit Price

Cell: R20

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q20)
Likeliest	\$260.00	(=R20)
Maximum	\$390.00	(=S20)

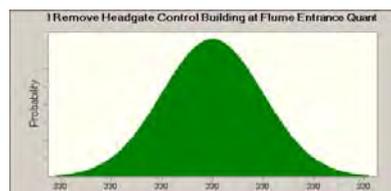


Assumption: 70 Remove Headgate Control Building at Flume Entrance Quantity

Cell: L83

Normal distribution with parameters:

Mean	330	(=L83)
Std. Dev.	0	(=0.000001)



Assumption: 70 Remove Headgate Control Building at Flume Entrance Unit Price Cell: R83

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q83)
Likeliest	\$40.00	(=R83)
Maximum	\$42.00	(=S83)



Assumption: 71 Remove Forebay Spillway Gate House Quantity Cell: L84

Normal distribution with parameters:

Mean	570	(=L84)
Std. Dev.	0	(=0.000001)



Assumption: 71 Remove Forebay Spillway Gate House Unit Price Cell: R84

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q84)
Likeliest	\$40.00	(=R84)
Maximum	\$42.00	(=S84)

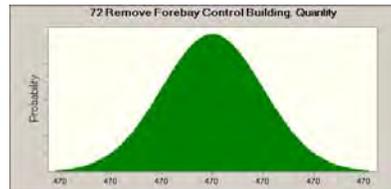


Assumption: 72 Remove Forebay Control Building. Quantity

Cell: L85

Normal distribution with parameters:

Mean	470	(=L85)
Std. Dev.	0	(=0.000001)



Assumption: 72 Remove Forebay Control Building. Unit Price

Cell: R85

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q85)
Likeliest	\$40.00	(=R85)
Maximum	\$42.00	(=S85)

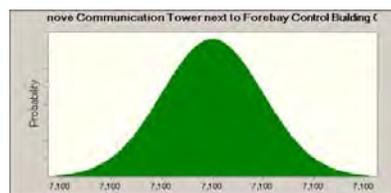


Assumption: 73 Remove Communication Tower next to Forebay Control Building Quantity

Cell: L86

Normal distribution with parameters:

Mean	7,100	(=L86)
Std. Dev.	0	(=0.000001)



Assumption: 73 Remove Communication Tower next to Forebay Control Building Under R86

BetaPERT distribution with parameters:

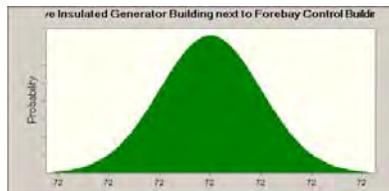
Minimum	\$0.45	(=Q86)
Likeliest	\$0.65	(=R86)
Maximum	\$0.75	(=S86)



Assumption: 74 Remove Insulated Generator Building next to Forebay Control Building Under L87

Normal distribution with parameters:

Mean	72	(=L87)
Std. Dev.	0	(=0.000001)



Assumption: 74 Remove Insulated Generator Building next to Forebay Control Building Under R87

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q87)
Likeliest	\$40.00	(=R87)
Maximum	\$42.00	(=S87)

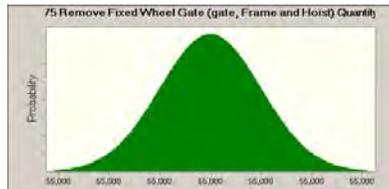


Assumption: 75 Remove Fixed Wheel Gate (gate, Frame and Hoist) Quantity

Cell: L88

Normal distribution with parameters:

Mean	55,000	(=L88)
Std. Dev.	0	(=0.000001)

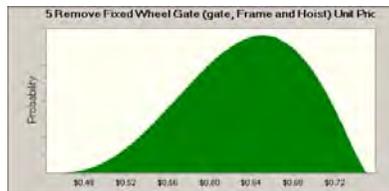


Assumption: 75 Remove Fixed Wheel Gate (gate, Frame and Hoist) Unit Price

Cell: R88

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q88)
Likeliest	\$0.65	(=R88)
Maximum	\$0.75	(=S88)

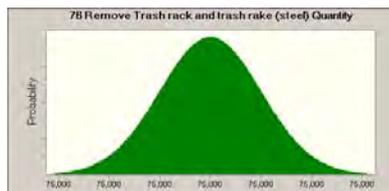


Assumption: 76 Remove Trash rack and trash rake (steel) Quantity

Cell: L89

Normal distribution with parameters:

Mean	75,000	(=L89)
Std. Dev.	0	(=0.000001)



Assumption: 76 Remove Trash rack and trash rake (steel) Unit Price

Cell: R89

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q89)
Likeliest	\$0.50	(=R89)
Maximum	\$0.70	(=S89)

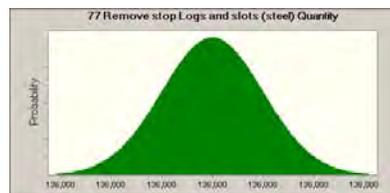


Assumption: 77 Remove stop Logs and slots (steel) Quantity

Cell: L90

Normal distribution with parameters:

Mean	136,000	(=L90)
Std. Dev.	0	(=0.000001)

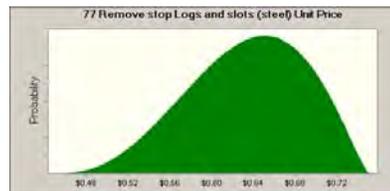


Assumption: 77 Remove stop Logs and slots (steel) Unit Price

Cell: R90

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q90)
Likeliest	\$0.65	(=R90)
Maximum	\$0.75	(=S90)

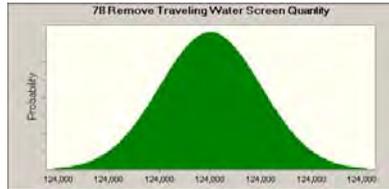


Assumption: 78 Remove Traveling Water Screen Quantity

Cell: L91

Normal distribution with parameters:

Mean	124,000	(=L91)
Std. Dev.	0	(=0.000001)

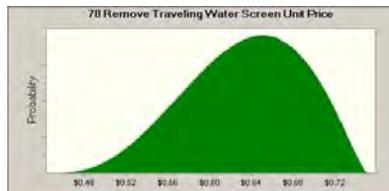


Assumption: 78 Remove Traveling Water Screen Unit Price

Cell: R91

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q91)
Likeliest	\$0.65	(=R91)
Maximum	\$0.75	(=S91)

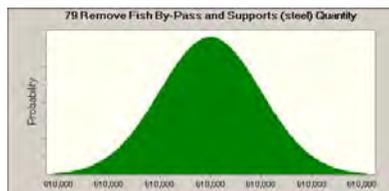


Assumption: 79 Remove Fish By-Pass and Supports (steel) Quantity

Cell: L92

Normal distribution with parameters:

Mean	610,000	(=L92)
Std. Dev.	0	(=0.000001)

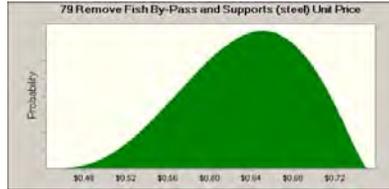


Assumption: 79 Remove Fish By-Pass and Supports (steel) Unit Price

Cell: R92

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q92)
Likeliest	\$0.65	(=R92)
Maximum	\$0.75	(=S92)



Assumption: 8 Remove Gravity Dam Section Concrete Quantity

Cell: L21

Normal distribution with parameters:

Mean	600	(=L21)
Std. Dev.	0	(=0.000001)



Assumption: 8 Remove Gravity Dam Section Concrete Unit Price

Cell: R21

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q21)
Likeliest	\$260.00	(=R21)
Maximum	\$390.00	(=S21)

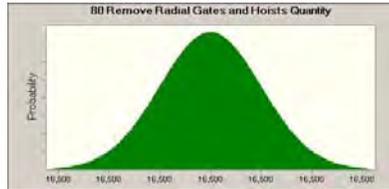


Assumption: 80 Remove Radial Gates and Hoists Quantity

Cell: L93

Normal distribution with parameters:

Mean	16,500	(=L93)
Std. Dev.	0	(=0.000001)

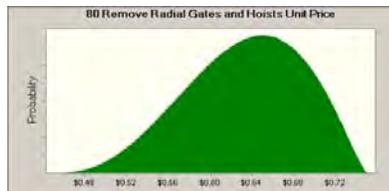


Assumption: 80 Remove Radial Gates and Hoists Unit Price

Cell: R93

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q93)
Likeliest	\$0.65	(=R93)
Maximum	\$0.75	(=S93)

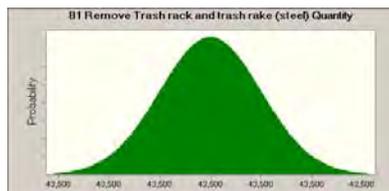


Assumption: 81 Remove Trash rack and trash rake (steel) Quantity

Cell: L94

Normal distribution with parameters:

Mean	43,500	(=L94)
Std. Dev.	0	(=0.000001)

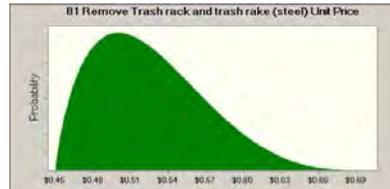


Assumption: 81 Remove Trash rack and trash rake (steel) Unit Price

Cell: R94

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q94)
Likeliest	\$0.50	(=R94)
Maximum	\$0.70	(=S94)

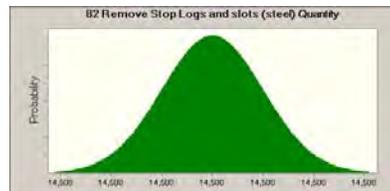


Assumption: 82 Remove Stop Logs and slots (steel) Quantity

Cell: L95

Normal distribution with parameters:

Mean	14,500	(=L95)
Std. Dev.	0	(=0.000001)

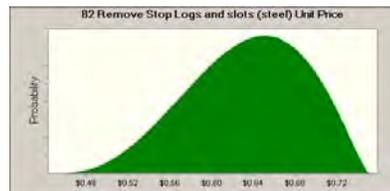


Assumption: 82 Remove Stop Logs and slots (steel) Unit Price

Cell: R95

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q95)
Likeliest	\$0.65	(=R95)
Maximum	\$0.75	(=S95)

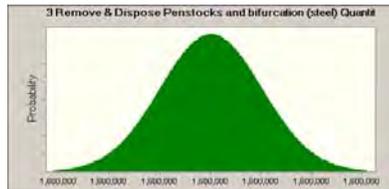


Assumption: 83 Remove & Dispose Penstocks and bifurcation (steel) Quantity

Cell: L96

Normal distribution with parameters:

Mean 1,600,000 (=L96)
Std. Dev. 0 (=0.000001)

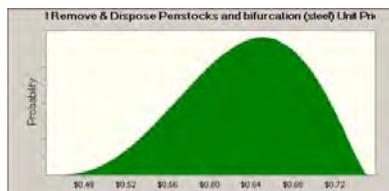


Assumption: 83 Remove & Dispose Penstocks and bifurcation (steel) Unit Price

Cell: R96

BetaPERT distribution with parameters:

Minimum \$0.45 (=Q96)
Likeliest \$0.65 (=R96)
Maximum \$0.75 (=S96)

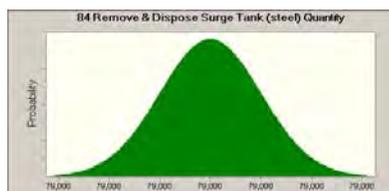


Assumption: 84 Remove & Dispose Surge Tank (steel) Quantity

Cell: L97

Normal distribution with parameters:

Mean 79,000 (=L97)
Std. Dev. 0 (=0.000001)



Assumption: 84 Remove & Dispose Surge Tank (steel) Unit Price

Cell: R97

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q97)
Likeliest	\$0.65	(=R97)
Maximum	\$0.75	(=S97)

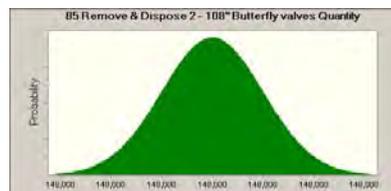


Assumption: 85 Remove & Dispose 2 - 108" Butterfly valves Quantity

Cell: L98

Normal distribution with parameters:

Mean	148,000	(=L98)
Std. Dev.	0	(=0.000001)

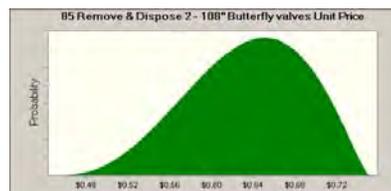


Assumption: 85 Remove & Dispose 2 - 108" Butterfly valves Unit Price

Cell: R98

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q98)
Likeliest	\$0.65	(=R98)
Maximum	\$0.75	(=S98)

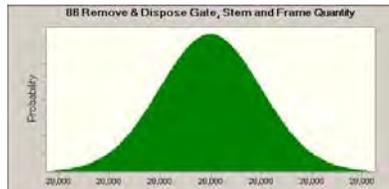


Assumption: 86 Remove & Dispose Gate, Stem and Frame Quantity

Cell: L99

Normal distribution with parameters:

Mean	28,000	(=L99)
Std. Dev.	0	(=0.000001)

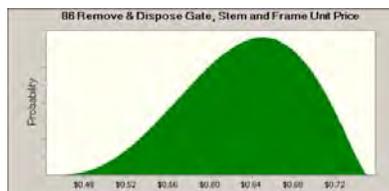


Assumption: 86 Remove & Dispose Gate, Stem and Frame Unit Price

Cell: R99

BetaPERT distribution with parameters:

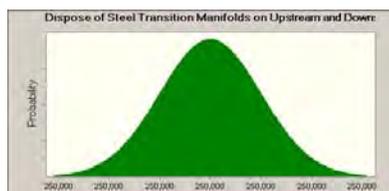
Minimum	\$0.45	(=Q99)
Likeliest	\$0.65	(=R99)
Maximum	\$0.75	(=S99)



Assumption: 87 Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream

Normal distribution with parameters:

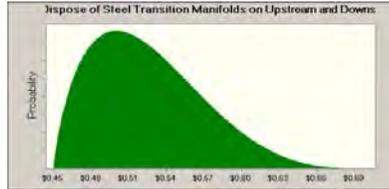
Mean	250,000	(=L100)
Std. Dev.	0	(=0.000001)



Assumption: 87 Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q100)
Likeliest	\$0.50	(=R100)
Maximum	\$0.70	(=S100)



Assumption: 88 Temporary Access Roads Quantity

Cell: L101

Normal distribution with parameters:

Mean	2	(=L101)
Std. Dev.	0	(=0.000001)



Assumption: 88 Temporary Access Roads Unit Price

Cell: R101

BetaPERT distribution with parameters:

Minimum	\$85,000.00	(=Q101)
Likeliest	\$100,000.00	(=S101)
Maximum	\$150,000.00	(=R101)

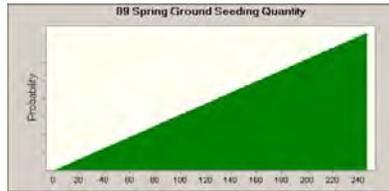


Assumption: 89 Spring Ground Seeding Quantity

Cell: L102

Triangular distribution with parameters:

Minimum	0	(=M102)
Likeliest	247	(=L102)
Maximum	247	(=K102)



Assumption: 89 Spring Ground Seeding Unit Price

Cell: R102

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q102)
Likeliest	\$3,500.00	(=R102)
Maximum	\$4,000.00	(=S102)



Assumption: 9 Remove Timber Equipment Ramp on left side of Dam Quantity

Cell: L22

Normal distribution with parameters:

Mean	10,500	(=L22)
Std. Dev.	0	(=0.000001)



Assumption: 9 Remove Timber Equipment Ramp on left side of Dam Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$0.50	(=Q22)
Likeliest	\$0.55	(=R22)
Maximum	\$0.70	(=S22)

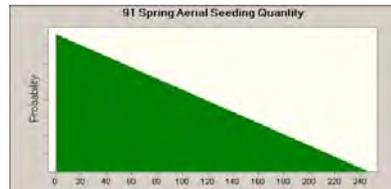


Assumption: 91 Spring Aerial Seeding Quantity

Cell: L104

Triangular distribution with parameters:

Minimum	0	(=K104)
Likeliest	0	(=L104)
Maximum	247	(=M104)



Assumption: 91 Spring Aerial Seeding Unit Price

Cell: R104

BetaPERT distribution with parameters:

Minimum	\$6,500.00	(=Q104)
Likeliest	\$7,500.00	(=R104)
Maximum	\$15,000.00	(=S104)



Assumption: 92 Fall Ground Seeding Quantity

Cell: L105

Triangular distribution with parameters:

Minimum	62	(=K105)
Likeliest	124	(=L105)
Maximum	185	(=M105)



Assumption: 92 Fall Ground Seeding Unit Price

Cell: R105

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q105)
Likeliest	\$3,500.00	(=R105)
Maximum	\$4,000.00	(=S105)

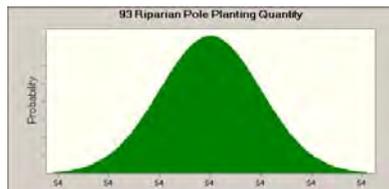


Assumption: 93 Riparian Pole Planting Quantity

Cell: L106

Normal distribution with parameters:

Mean	54	(=L106)
Std. Dev.	0	(=0.000001)

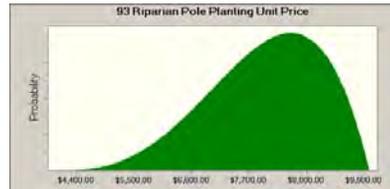


Assumption: 93 Riparian Pole Planting Unit Price

Cell: R106

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q106)
Likeliest	\$8,500.00	(=R106)
Maximum	\$10,000.00	(=S106)

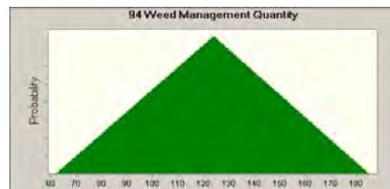


Assumption: 94 Weed Management Quantity

Cell: L107

Triangular distribution with parameters:

Minimum	62	(=K107)
Likeliest	124	(=L107)
Maximum	185	(=M107)



Assumption: 94 Weed Management Unit Price

Cell: R107

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q107)
Likeliest	\$1,500.00	(=R107)
Maximum	\$2,000.00	(=S107)

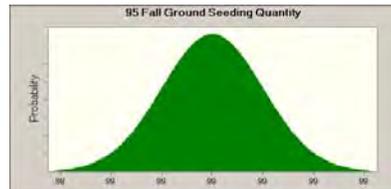


Assumption: 95 Fall Ground Seeding Quantity

Cell: L108

Normal distribution with parameters:

Mean	99	(=L108)
Std. Dev.	0	(=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price

Cell: R108

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q108)
Likeliest	\$3,500.00	(=R108)
Maximum	\$4,000.00	(=S108)

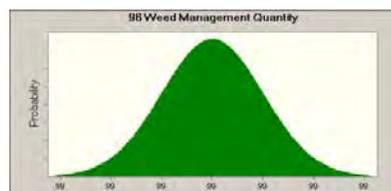


Assumption: 96 Weed Management Quantity

Cell: L109

Normal distribution with parameters:

Mean	99	(=L109)
Std. Dev.	0	(=0.000001)



Assumption: 96 Weed Management Unit Price

Cell: R109

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q109)
Likeliest	\$1,500.00	(=R109)
Maximum	\$2,000.00	(=S109)

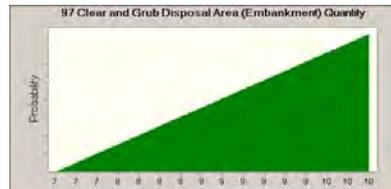


Assumption: 97 Clear and Grub Disposal Area (Embankment) Quantity

Cell: L110

Triangular distribution with parameters:

Minimum	7	(=M110)
Likeliest	10	(=L110)
Maximum	10	(=K110)

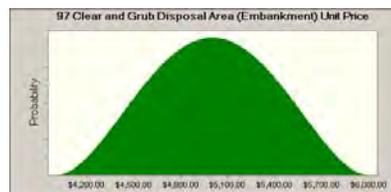


Assumption: 97 Clear and Grub Disposal Area (Embankment) Unit Price

Cell: R110

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q110)
Likeliest	\$5,000.00	(=R110)
Maximum	\$6,000.00	(=S110)

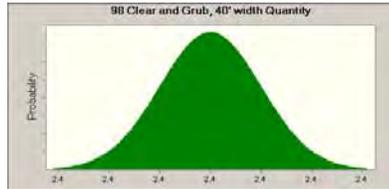


Assumption: 98 Clear and Grub, 40' width Quantity

Cell: L111

Normal distribution with parameters:

Mean	2.4	(=L111)
Std. Dev.	0.0	(=0.000001)

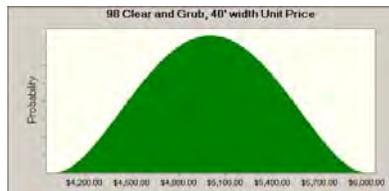


Assumption: 98 Clear and Grub, 40' width Unit Price

Cell: R111

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q111)
Likeliest	\$5,000.00	(=R111)
Maximum	\$6,000.00	(=S111)

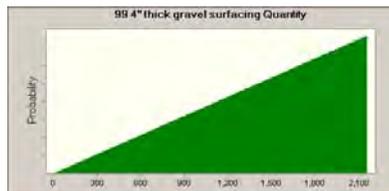


Assumption: 99 4" thick gravel surfacing Quantity

Cell: L112

Triangular distribution with parameters:

Minimum	0	(=K112)
Likeliest	2,150	(=L112)
Maximum	2,150	(=M112)



Assumption: 99 4" thick gravel surfacing Unit Price

Cell: R112

BetaPERT distribution with parameters:

Minimum	\$20.00	(=Q112)
Likeliest	\$30.00	(=R112)
Maximum	\$40.00	(=S112)

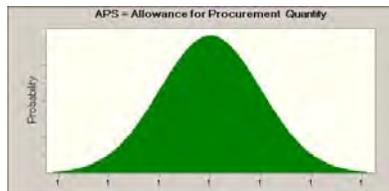


Assumption: APS = Allowance for Procurement Quantity

Cell: L140

Normal distribution with parameters:

Mean	1	(=L140)
Std. Dev.	0	(=0.000001)

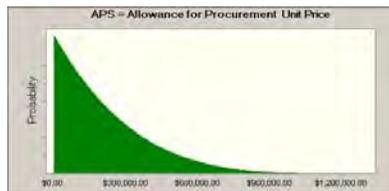


Assumption: APS = Allowance for Procurement Unit Price

Cell: R140

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q140)
Likeliest	\$0.00	(=R140)
Maximum	\$1,304,080.00	(=S140)

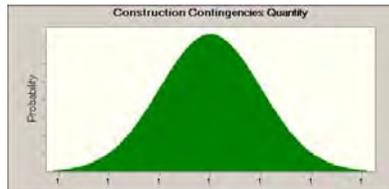


Assumption: Construction Contingencies Quantity

Cell: L143

Normal distribution with parameters:

Mean	1	(=L143)
Std. Dev.	0	(=0.000001)



Assumption: Construction Contingencies Unit Price

Cell: R143

BetaPERT distribution with parameters:

Minimum	\$4,000,000.00	(=Q143)
Likeliest	\$6,000,000.00	(=R143)
Maximum	\$16,000,000.00	(=S143)

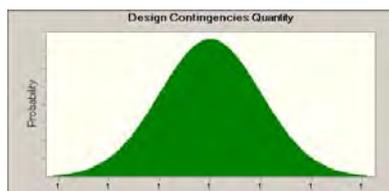


Assumption: Design Contingencies Quantity

Cell: L139

Normal distribution with parameters:

Mean	1	(=L139)
Std. Dev.	0	(=0.000001)

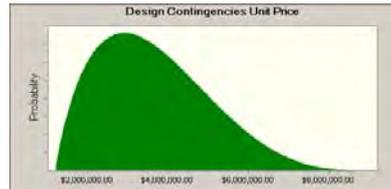


Assumption: Design Contingencies Unit Price

Cell: R139

BetaPERT distribution with parameters:

Minimum	\$1,203,466.00	(=Q139)
Likeliest	\$2,908,175.00	(=R139)
Maximum	\$8,996,798.00	(=S139)

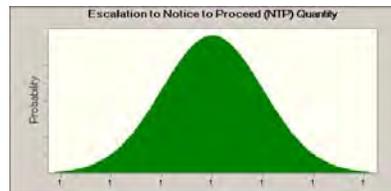


Assumption: Escalation to Notice to Proceed (NTP) Quantity

Cell: L136

Normal distribution with parameters:

Mean	1	(=L136)
Std. Dev.	0	(=0.000001)

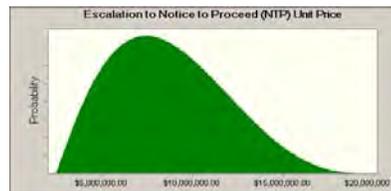


Assumption: Escalation to Notice to Proceed (NTP) Unit Price

Cell: R136

BetaPERT distribution with parameters:

Minimum	\$2,461,844.00	(=Q136)
Likeliest	\$7,444,775.00	(=R136)
Maximum	\$19,749,377.00	(=S136)

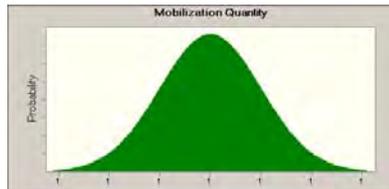


Assumption: Mobilization Quantity

Cell: L134

Normal distribution with parameters:

Mean	1	(=L134)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R134

BetaPERT distribution with parameters:

Minimum	\$730,000.00	(=Q134)
Likeliest	\$1,050,000.00	(=R134)
Maximum	\$1,750,000.00	(=S134)

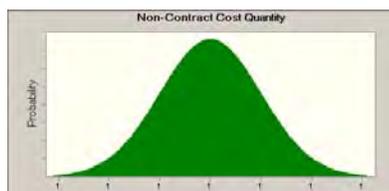


Assumption: Non-Contract Cost Quantity

Cell: L145

Normal distribution with parameters:

Mean	1	(=L145)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R145

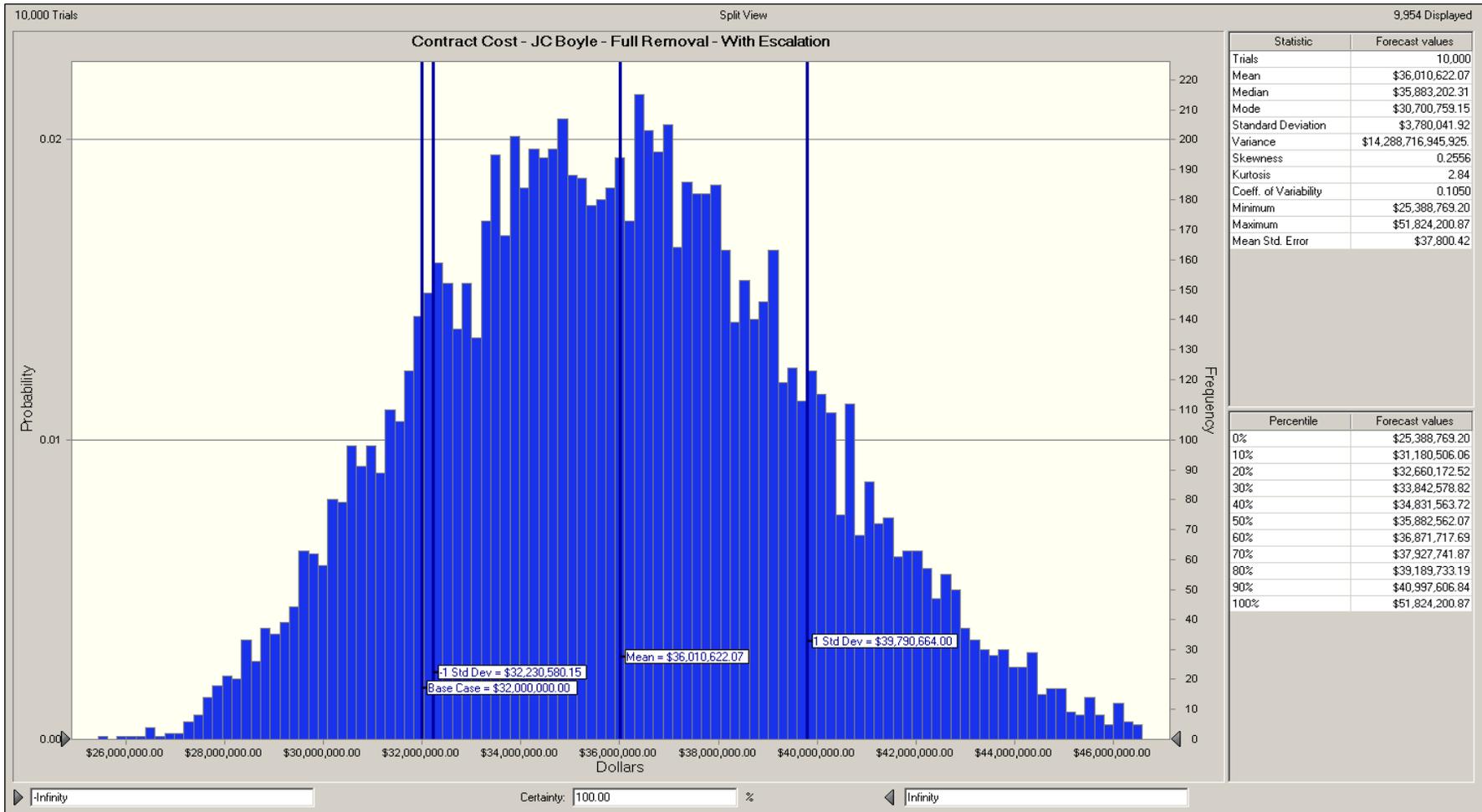
BetaPERT distribution with parameters:

Minimum	\$12,000,000.00	(=Q145)
Likeliest	\$21,000,000.00	(=R145)
Maximum	\$52,000,000.00	(=S145)

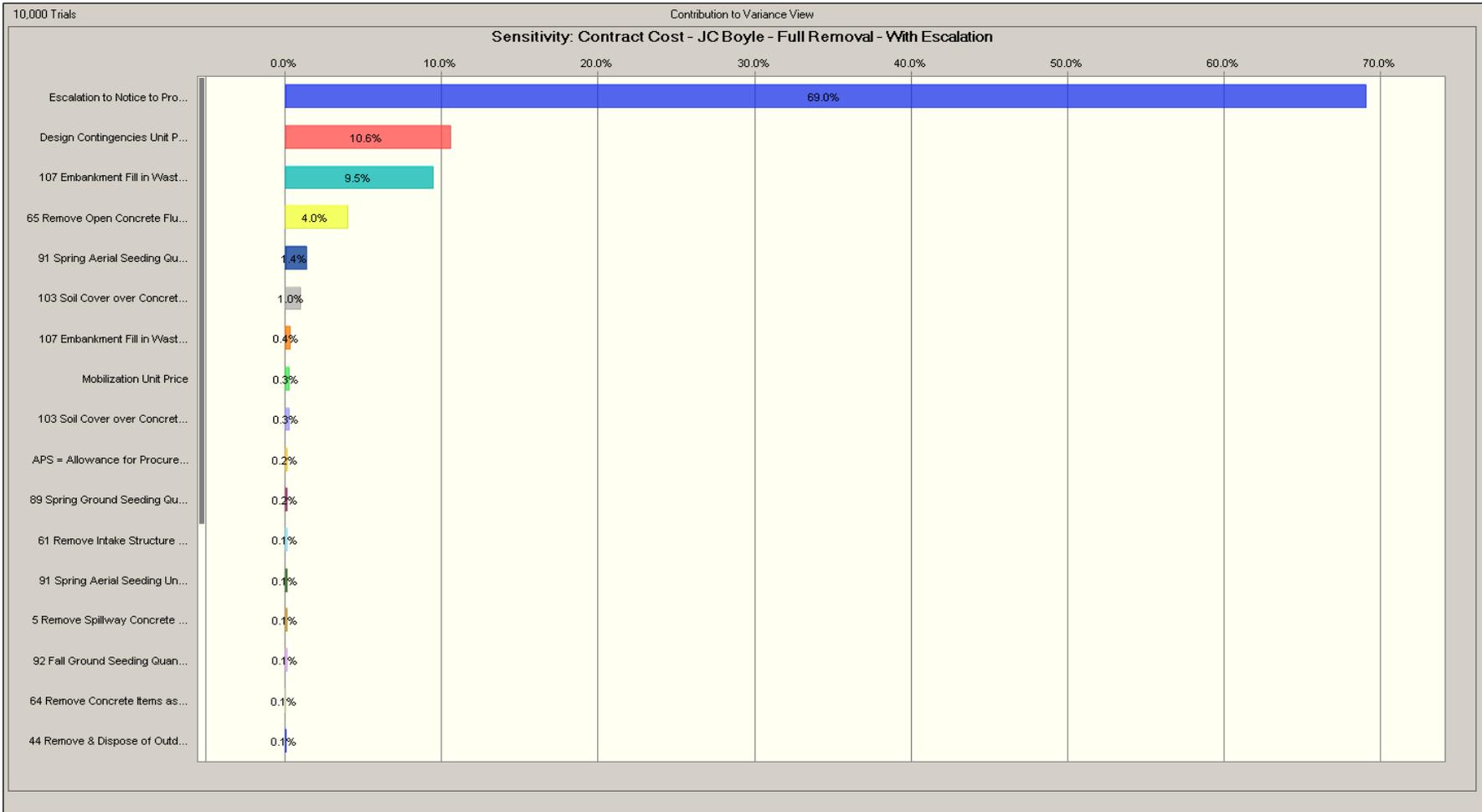


End of Assumptions

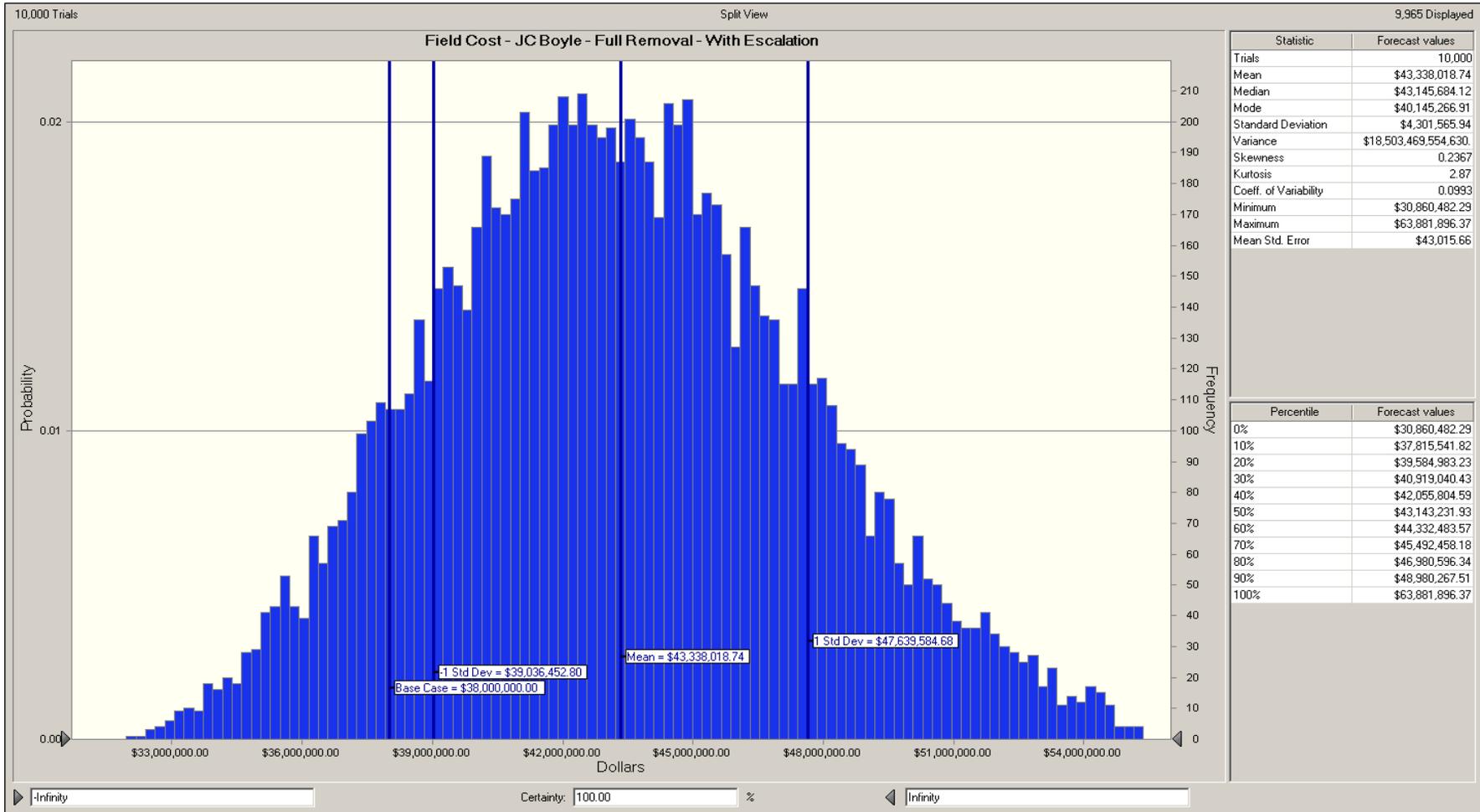
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



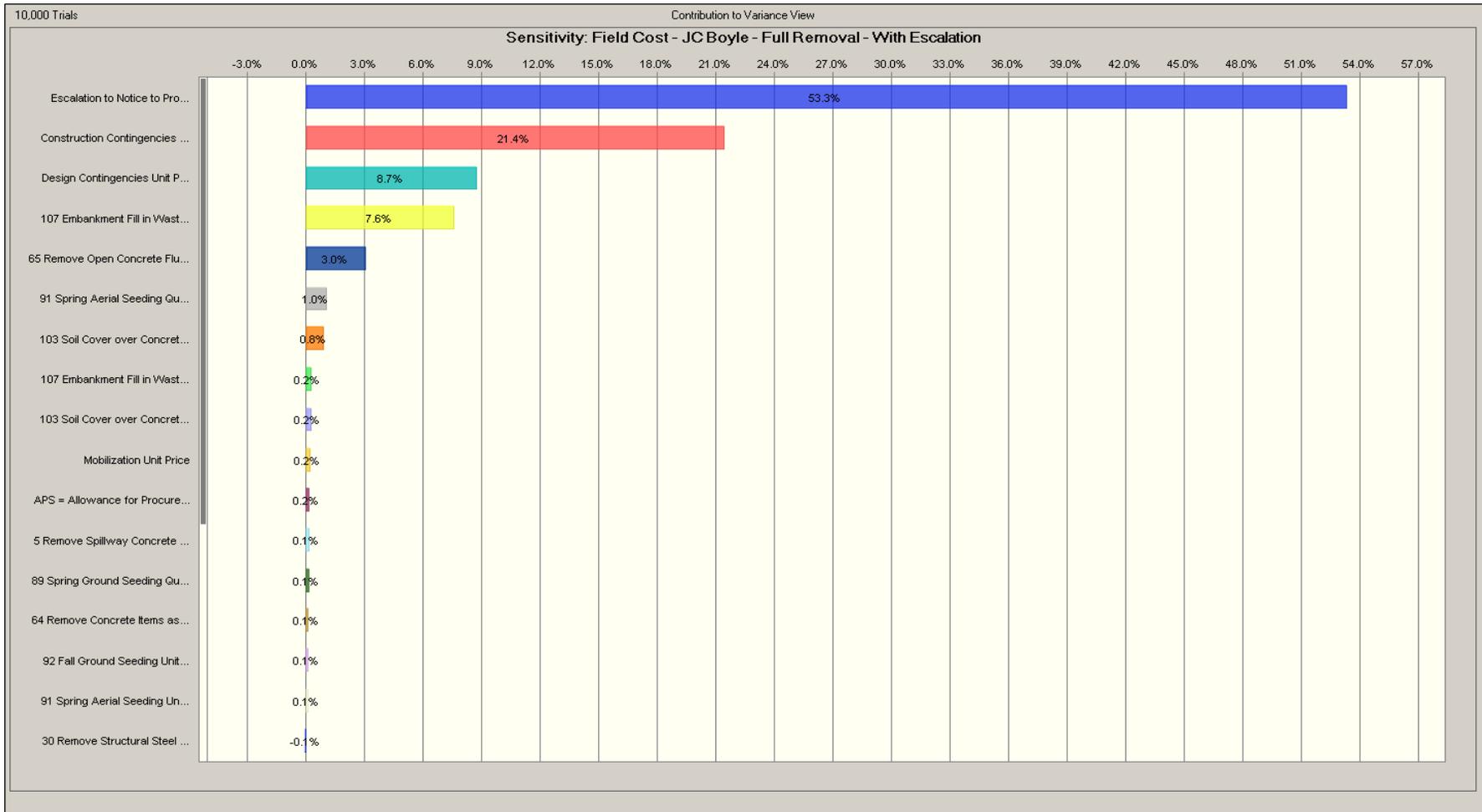
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



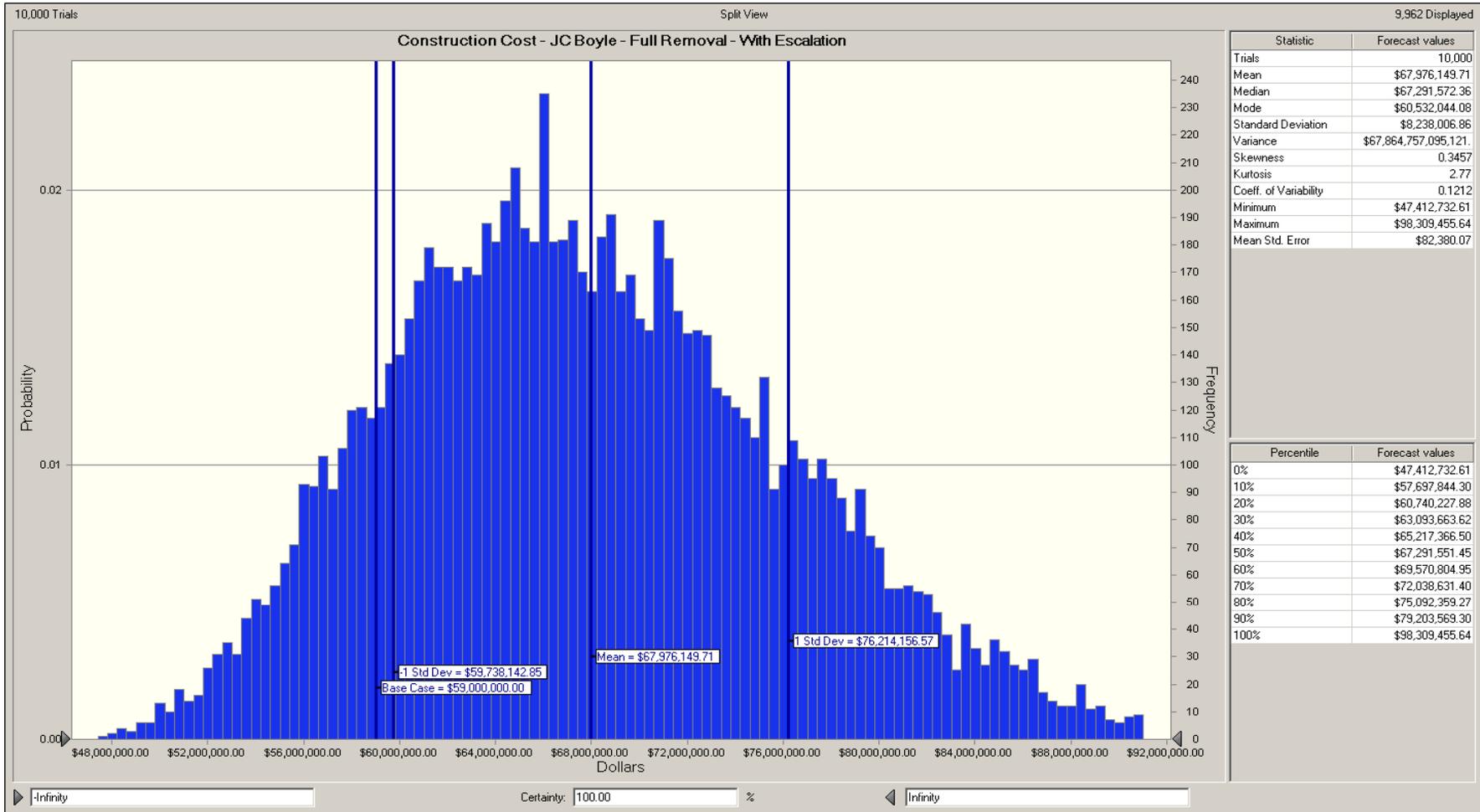
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



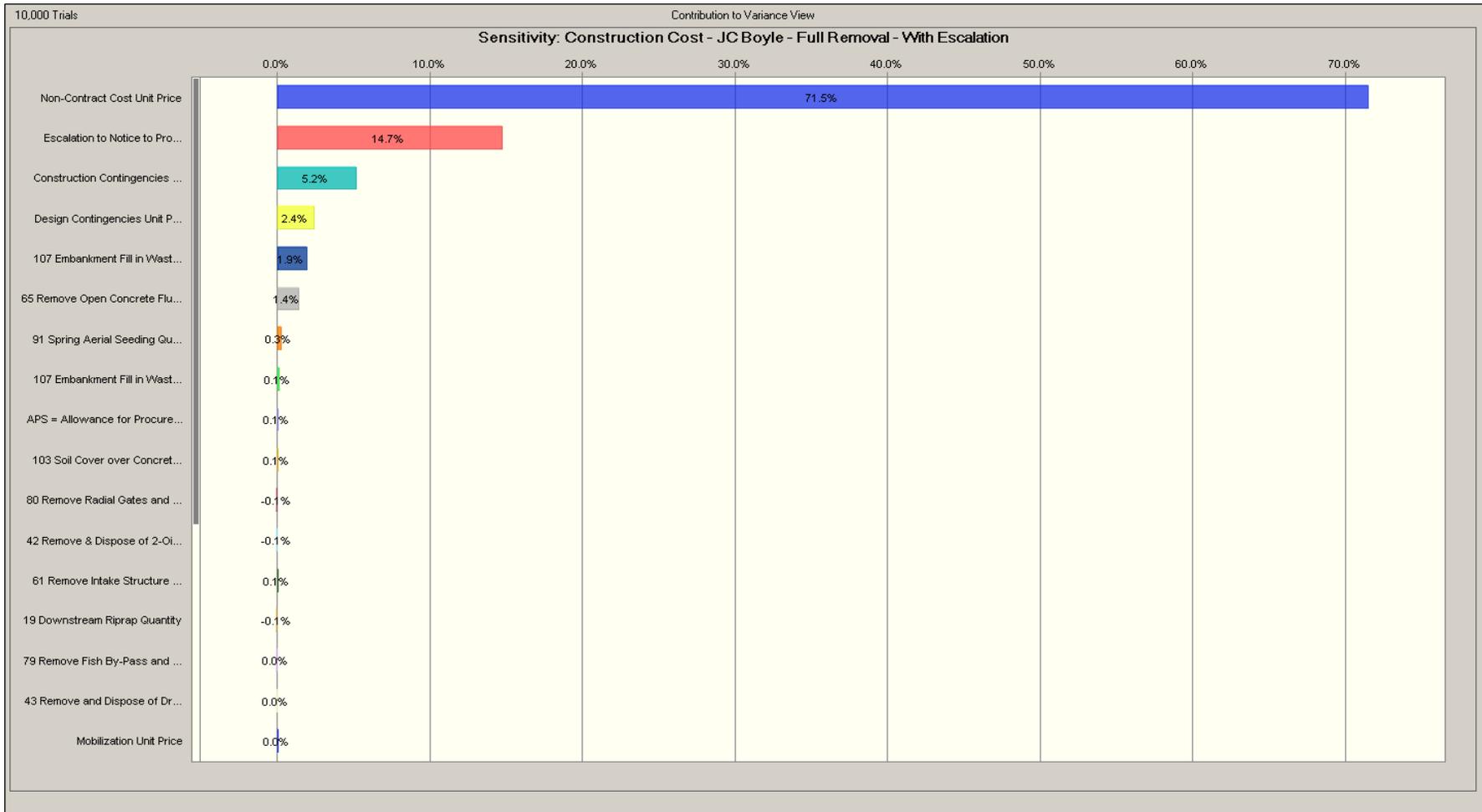
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED
ESTIMATE WORKSHEET

FEATURE:			PROJECT:									
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon									
			WOID: AF652		ESTIMATE LEVEL: Feasibility							
			REGION: MP		PRICE LEVEL: Jul-2010							
			FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\JC Boyle - Full Removal Crystal Ball - without Escalation - 2011-04.xls\Copco 2 - Full - with Esc									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	1	Removal of Diversion Conduit Bulkheads.	8130	14	14	14	CY	\$725.00	\$850.00	\$950.00	\$10,150.00	\$11,900.00	\$13,300.00
	2	Remove Water from behind Tailrace Cofferdam.	8130	500,000	500,000	500,000	GAL	\$0.01	\$0.01	\$0.01	\$5,000.00	\$5,000.00	\$5,000.00
	3	Provide Dewatering behind Tailrace Cofferdam	8130	1	1	1	LS	\$28,000.00	\$30,000.00	\$160,000.00	\$28,000.00	\$30,000.00	\$160,000.00
	4	Construct Embankment Cofferdam in Tailrace around Powerhouse	8130	2,000	2,000	2,000	CY	\$50.00	\$60.00	\$100.00	\$100,000.00	\$120,000.00	\$200,000.00
	5	Remove Spillway Concrete	8130	2,500	2,500	2,500	CY	\$130.00	\$260.00	\$390.00	\$325,000.00	\$650,000.00	\$975,000.00
	6	Remove Monorail Structural Steel Components	8130	15,000	15,000	15,000	LBS	\$0.45	\$0.65	\$0.75	\$6,750.00	\$9,750.00	\$11,250.00
	7	Remove Fish Ladder Concrete	8130	1,600	1,600	1,600	CY	\$130.00	\$260.00	\$390.00	\$208,000.00	\$416,000.00	\$624,000.00
	8	Remove Gravity Dam Section Concrete	8130	600	600	600	CY	\$130.00	\$260.00	\$390.00	\$78,000.00	\$156,000.00	\$234,000.00
	9	Remove Timber Equipment Ramp on left side of Dam	8130	10,500	10,500	10,500	LBS	\$0.50	\$0.55	\$0.70	\$5,250.00	\$5,775.00	\$7,350.00
	10	Remove Pressure-Treated Lumber from Footbridge around Intake Structure	8130	3,600	3,600	3,600	LBS	\$0.50	\$0.55	\$0.70	\$1,800.00	\$1,980.00	\$2,520.00
	11	Remove Storage Shed located on access road	8130	1,728	1,728	1,728	SF	\$38.00	\$40.00	\$42.00	\$65,664.00	\$69,120.00	\$72,576.00
	12	Remove Warehouse located on access road	8130	1,920	1,920	1,920	SF	\$38.00	\$40.00	\$42.00	\$72,960.00	\$76,800.00	\$80,640.00
	13	Remove Fire System Control Bldg. on left abutment.	8130	385	385	385	SF	\$38.00	\$40.00	\$42.00	\$14,630.00	\$15,400.00	\$16,170.00
	14	Remove Dam Communication Bldg. on left abutment.	8130	331	331	331	SF	\$38.00	\$40.00	\$42.00	\$12,578.00	\$13,240.00	\$13,902.00
	15	Remove Concrete Slab on left abutment for former Control House	8130	6	6	6	CY	\$130.00	\$260.00	\$390.00	\$780.00	\$1,560.00	\$2,340.00
	16	Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment.	8130	1	1	1	CY	\$130.00	\$260.00	\$390.00	\$130.00	\$260.00	\$390.00
	17	Remove Reservoir Level Gauge House on Dam Crest	8130	24	24	24	SF	\$38.00	\$40.00	\$42.00	\$912.00	\$960.00	\$1,008.00
	18	Upstream Riprap	8313	2,220	2,220	2,220	CY	\$8.00	\$9.00	\$12.00	\$17,760.00	\$19,980.00	\$26,640.00
	19	Downstream Riprap	8313	1,850	1,850	1,850	CY	\$8.00	\$9.00	\$12.00	\$14,800.00	\$16,650.00	\$22,200.00
	20	Miscellaneous Excavation	8313	132,500	132,500	132,500	CY	\$8.00	\$9.00	\$12.00	\$1,060,000.00	\$1,192,500.00	\$1,590,000.00
	21	Cutoff Wall Concrete Demolition	8313	70	70	70	CY	\$130.00	\$260.00	\$390.00	\$9,100.00	\$18,200.00	\$27,300.00
	22	Cutoff Wall Anchors	8313	285	285	285	EA	\$9.00	\$10.00	\$12.00	\$2,565.00	\$2,850.00	\$3,420.00
	23	Remove & Dispose Hand Rails and Light Poles	8420	5,000	5,000	5,000	LBS	\$0.45	\$0.65	\$0.75	\$2,250.00	\$3,250.00	\$3,750.00
	24	Remove & Dispose Spillway Radial Gates and Hoists	8420	124,000	124,000	124,000	LBS	\$0.45	\$0.65	\$0.75	\$55,800.00	\$80,600.00	\$93,000.00
	25	Remove & Dispose Stop Logs and Slots (steel)	8420	92,000	92,000	92,000	LBS	\$0.45	\$0.65	\$0.75	\$41,400.00	\$59,800.00	\$69,000.00
	26	Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure	8420	4,200	4,200	4,200	LBS	\$0.45	\$0.65	\$0.75	\$1,890.00	\$2,730.00	\$3,150.00
	27	Remove & Dispose of Spillway gate motor & control panel	8430	1	1	1	EA	\$500.00	\$600.00	\$700.00	\$500.00	\$600.00	\$700.00
	28	Remove & Dispose of Distribution equipment , panelboards	8430	1	1	1	EA	\$5,500.00	\$6,000.00	\$6,500.00	\$5,500.00	\$6,000.00	\$6,500.00
	29	Remove Powerhouse Concrete down to Elevation 3324.0	8130	1,500	1,500	1,500	CY	\$300.00	\$370.00	\$800.00	\$450,000.00	\$555,000.00	\$1,200,000.00
	30	Remove Structural Steel Items associated with Powerhouse	8130	94,000	94,000	94,000	LBS	\$0.45	\$0.65	\$0.75	\$42,300.00	\$61,100.00	\$70,500.00
	31	Remove Warehouse near Powerhouse	8130	5,200	5,200	5,200	SF	\$38.00	\$40.00	\$42.00	\$197,600.00	\$208,000.00	\$218,400.00
	32	Remove & Dispose of 2 - Governor oil systems	8420	52,500	52,500	52,500	LBS	\$0.45	\$0.65	\$0.75	\$23,625.00	\$34,125.00	\$39,375.00
	33	Remove & Dispose of Cooling water and bearing oil systems	8420	6,500	6,500	6,500	LBS	\$0.45	\$0.65	\$0.75	\$2,925.00	\$4,225.00	\$4,875.00
	34	Remove & Dispose of 2 - Francis Turbines	8420	560,000	560,000	560,000	LBS	\$0.45	\$0.65	\$0.75	\$252,000.00	\$364,000.00	\$420,000.00
	35	Remove & Dispose of 150 Ton crane	8420	240,000	240,000	240,000	LBS	\$0.45	\$0.65	\$0.75	\$108,000.00	\$156,000.00	\$180,000.00
	36	Remove & Dispose of Compressed Air systems	8420	1,100	1,100	1,100	LBS	\$0.45	\$0.65	\$0.75	\$495.00	\$715.00	\$825.00
	37	Remove & Dispose of 2 - CO2 systems	8420	6,600	6,600	6,600	LBS	\$0.45	\$0.65	\$0.75	\$2,970.00	\$4,290.00	\$4,950.00
	38	Remove & Dispose of Plant Water and Fire Protection	8420	3,100	3,100	3,100	LBS	\$0.45	\$0.65	\$0.75	\$1,395.00	\$2,015.00	\$2,325.00
	39	Remove & Dispose of Transformer Oil Fire protection	8420	6,500	6,500	6,500	LBS	\$0.45	\$0.65	\$0.75	\$2,925.00	\$4,225.00	\$4,875.00
	40	Remove & Dispose of Unwatering Piping	8420	33,000	33,000	33,000	LBS	\$0.45	\$0.65	\$0.75	\$14,850.00	\$21,450.00	\$24,750.00
	41	Remove & Dispose of Drainage Piping	8420	10,000	10,000	10,000	LBS	\$0.45	\$0.65	\$0.75	\$4,500.00	\$6,500.00	\$7,500.00
	42	Remove & Dispose of 2-Oil Sump pumps	8420	2,000	2,000	2,000	LBS	\$0.45	\$0.65	\$0.75	\$900.00	\$1,300.00	\$1,500.00
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	8420	65,000	65,000	65,000	LBS	\$0.45	\$0.65	\$0.75	\$29,250.00	\$42,250.00	\$48,750.00
	44	Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA	8430	2	2	2	EA	\$150,000.00	\$200,000.00	\$250,000.00	\$300,000.00	\$400,000.00	\$500,000.00
	45	Remove & Dispose of Excitation equipment for 53/50 MVA Generator	8430	2	2	2	EA	\$12,000.00	\$12,500.00	\$13,000.00	\$24,000.00	\$25,000.00	\$26,000.00
	46	Remove & Dispose of Surge protection equip. for 53/50 MVA Generator	8430	2	2	2	EA	\$6,000.00	\$7,000.00	\$8,000.00	\$12,000.00	\$14,000.00	\$16,000.00
	47	Remove & Dispose of Neutral grounding equip. for 53/50 MVA Generator	8430	2	2	2	EA	\$2,000.00	\$3,000.00	\$4,000.00	\$4,000.00	\$6,000.00	\$8,000.00

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED
ESTIMATE WORKSHEET

FEATURE:			PROJECT:									
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon									
			WOID:	AF652	ESTIMATE LEVEL: Feasibility							
			REGION:	MP	PRICE LEVEL: Jul-2010							
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\JC Boyle - Full Removal Crystal Ball - without Escalator - 2011-04.xls\Copco 2 - Full - with Esc								

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	48	Remove & Dispose of Generator Switchgear, 15kV - (6 sections)	8430	1	1	1	EA	\$19,000.00	\$20,000.00	\$21,000.00	\$19,000.00	\$20,000.00	\$21,000.00
	49	Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections)	8430	1	1	1	EA	\$8,000.00	\$9,000.00	\$10,000.00	\$8,000.00	\$9,000.00	\$10,000.00
	50	Remove & Dispose of Unit and plant control switchboard	8430	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	51	Remove & Dispose of Battery system	8430	1	1	1	EA	\$7,000.00	\$8,000.00	\$9,000.00	\$7,000.00	\$8,000.00	\$9,000.00
	52	Remove & Dispose of Raceways, Conduit and Cable	8430	1	1	1	EA	\$10,000.00	\$11,000.00	\$12,000.00	\$10,000.00	\$11,000.00	\$12,000.00
	53	Remove & Dispose of Misc. power & control boards	8430	1	1	1	EA	\$5,000.00	\$6,000.00	\$7,000.00	\$5,000.00	\$6,000.00	\$7,000.00
	54	Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	55	Remove & Dispose of Gantry Crane control equipment (3 cubicles)	8430	1	1	1	EA	\$5,000.00	\$6,000.00	\$7,000.00	\$5,000.00	\$6,000.00	\$7,000.00
	56	Remove & Dispose of Conduit and Cable	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$11,000.00	\$9,000.00	\$10,000.00	\$11,000.00
	57	Remove & Dispose of Exterior Lighting	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	58	Remove & Dispose of Transmission Line No. 59	8430	1.66	1.66	1.66	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$33,200.00	\$41,500.00	\$49,800.00
	59	Remove & Dispose of Transmission Line No. 98	8430	0.24	0.24	0.24	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$4,800.00	\$6,000.00	\$7,200.00
	60	Remove & Dispose of Transmission Line No. 58	8430	1.66	1.66	1.66	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$33,200.00	\$41,500.00	\$49,800.00
	61	Remove Intake Structure Concrete	8130	1,600	1,600	1,600	CY	\$130.00	\$260.00	\$390.00	\$208,000.00	\$416,000.00	\$624,000.00
	62	Remove Fish Screen Building	8130	1,300	1,300	1,300	SF	\$38.00	\$40.00	\$42.00	\$49,400.00	\$52,000.00	\$54,600.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe	8130	22,000	22,000	22,000	LBS	\$0.45	\$0.65	\$0.75	\$9,900.00	\$14,300.00	\$16,500.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe	8130	1,100	1,100	1,100	CY	\$130.00	\$260.00	\$390.00	\$143,000.00	\$286,000.00	\$429,000.00
	65	Remove Open Concrete Flume.	8130	26,000	26,000	26,000	CY	\$220.00	\$260.00	\$390.00	\$5,720,000.00	\$6,760,000.00	\$10,140,000.00
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers	8130	11,500	11,500	11,500	LBS	\$0.45	\$0.65	\$0.75	\$5,175.00	\$7,475.00	\$8,625.00
	67	Remove Forebay Concrete	8130	2,500	2,500	2,500	CY	\$220.00	\$260.00	\$390.00	\$550,000.00	\$650,000.00	\$975,000.00
	68	Place Concrete Plugs at Tunnel Portals	8130	30	30	30	CY	\$900.00	\$1,000.00	\$1,100.00	\$27,000.00	\$30,000.00	\$33,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel	8130	1,800	1,800	1,800	CY	\$220.00	\$260.00	\$390.00	\$396,000.00	\$468,000.00	\$702,000.00
	70	Remove Headgate Control Building at Flume Entrance	8130	330	330	330	SF	\$38.00	\$40.00	\$42.00	\$12,540.00	\$13,200.00	\$13,860.00
	71	Remove Forebay Spillway Gate House	8130	570	570	570	SF	\$38.00	\$40.00	\$42.00	\$21,660.00	\$22,800.00	\$23,940.00
	72	Remove Forebay Control Building.	8130	470	470	470	SF	\$38.00	\$40.00	\$42.00	\$17,860.00	\$18,800.00	\$19,740.00
	73	Remove Communication Tower next to Forebay Control Building	8130	7,100	7,100	7,100	LBS	\$0.45	\$0.65	\$0.75	\$3,195.00	\$4,615.00	\$5,325.00
	74	Remove Insulated Generator Building next to Forebay Control Building	8130	72	72	72	SF	\$38.00	\$40.00	\$42.00	\$2,736.00	\$2,880.00	\$3,024.00
	75	Remove Fixed Wheel Gate (gate, Frame and Hoist)	8420	55,000	55,000	55,000	LBS	\$0.45	\$0.65	\$0.75	\$24,750.00	\$35,750.00	\$41,250.00
	76	Remove Trash rack and trash rake (steel)	8420	75,000	75,000	75,000	LBS	\$0.45	\$0.50	\$0.70	\$33,750.00	\$37,500.00	\$52,500.00
	77	Remove stop Logs and slots (steel)	8420	136,000	136,000	136,000	LBS	\$0.45	\$0.65	\$0.75	\$61,200.00	\$88,400.00	\$102,000.00
	78	Remove Traveling Water Screen	8420	124,000	124,000	124,000	LBS	\$0.45	\$0.65	\$0.75	\$55,800.00	\$80,600.00	\$93,000.00
	79	Remove Fish By-Pass and Supports (steel)	8420	610,000	610,000	610,000	LBS	\$0.45	\$0.65	\$0.75	\$274,500.00	\$396,500.00	\$457,500.00
	80	Remove Radial Gates and Hoists	8420	16,500	16,500	16,500	LBS	\$0.45	\$0.65	\$0.75	\$7,425.00	\$10,725.00	\$12,375.00
	81	Remove Trash rack and trash rake (steel)	8420	43,500	43,500	43,500	LBS	\$0.45	\$0.50	\$0.70	\$19,575.00	\$21,750.00	\$30,450.00
	82	Remove Stop Logs and slots (steel)	8420	14,500	14,500	14,500	LBS	\$0.45	\$0.65	\$0.75	\$6,525.00	\$9,425.00	\$10,875.00
	83	Remove & Dispose Penstocks and bifurcation (steel)	8420	1,600,000	1,600,000	1,600,000	LBS	\$0.45	\$0.65	\$0.75	\$720,000.00	\$1,040,000.00	\$1,200,000.00
	84	Remove & Dispose Surge Tank (steel)	8420	79,000	79,000	79,000	LBS	\$0.45	\$0.65	\$0.75	\$35,550.00	\$51,350.00	\$59,250.00
	85	Remove & Dispose 2 - 108" Butterfly valves	8420	148,000	148,000	148,000	LBS	\$0.45	\$0.65	\$0.75	\$66,600.00	\$96,200.00	\$111,000.00
	86	Remove & Dispose Gate, Stem and Frame	8420	28,000	28,000	28,000	LBS	\$0.45	\$0.65	\$0.75	\$12,600.00	\$18,200.00	\$21,000.00
	87	Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream	8420	250,000	250,000	250,000	LBS	\$0.45	\$0.50	\$0.70	\$112,500.00	\$125,000.00	\$175,000.00
	88	Temporary Access Roads	8140	2	2	2	MILE	\$85,000.00	\$150,000.00	\$100,000.00	\$170,000.00	\$300,000.00	\$200,000.00
	89	Spring Ground Seeding	8220	247	247	0	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$741,000.00	\$864,500.00	\$0.00
	90	Spring Barge Seeding	8220	0	0	0	ACRES				\$0.00	\$0.00	\$0.00
	91	Spring Aerial Seeding	8220	0	0	247	ACRES	\$6,500.00	\$7,500.00	\$15,000.00	\$0.00	\$0.00	\$3,705,000.00
	92	Fall Ground Seeding	8220	62	124	185	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$186,000.00	\$434,000.00	\$740,000.00
	93	Riparian Pole Planting	8220	54	54	54	ACRES	\$4,000.00	\$8,500.00	\$10,000.00	\$216,000.00	\$459,000.00	\$540,000.00
	94	Weed Management	8220	62	124	185	ACRES	\$1,000.00	\$1,500.00	\$2,000.00	\$62,000.00	\$186,000.00	\$370,000.00
	95	Fall Ground Seeding	8220	99	99	99	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$297,000.00	\$346,500.00	\$396,000.00

ESTIMATE WORKSHEET

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE	PROJECT: Klamath River, Northern California/Southern Oregon WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP PRICE LEVEL: Jul-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\JC Boyle - Full Removal Crystal Ball - without Escalation - 2011-04.xls\Copco 2 - Full - with Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	96	Weed Management	8220	99	99	99	ACRES	\$1,000.00	\$1,500.00	\$2,000.00	\$99,000.00	\$148,500.00	\$198,000.00
	97	Clear and Grub Disposal Area (Embankment)	8313	10	10	7	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$40,000.00	\$50,000.00	\$42,000.00
	98	Clear and Grub, 40' width	8313	2.4	2.4	2.4	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$9,600.00	\$12,000.00	\$14,400.00
	99	4" thick gravel surfacing	8313	0	2,150	2,150	TON	\$20.00	\$30.00	\$40.00	\$0.00	\$64,500.00	\$86,000.00
	100	Clear and Grub Disposal Area (For Concrete)	8313	4	0	0	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$16,000.00	\$0.00	\$0.00
	101	Clear and grub, 20' width	8313	1	0	0	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$0.00	\$0.00
	102	4" thick gravel surfacing	8313	0	0	0	TON				\$0.00	\$0.00	\$0.00
	103	Soil Cover over Concrete Rubble	8313	13,000	13,000	0	CY	\$25.00	\$140.00	\$150.00	\$325,000.00	\$1,820,000.00	\$0.00
	104	Dispose of Concrete Rubble from Dam	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	105	Dispose of Concrete Rubble from Flume/Forebay	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	106	Dispose of Concrete Rubble from Power House	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	107	Embankment Fill in Wasteway (Forebay) Scour Hole	8313	0	0	41,000	CY	\$25.00	\$140.00	\$150.00	\$0.00	\$0.00	\$6,150,000.00
	108	Topsy Recreation Area - Concrete total	BLM	68	88	68	CY	\$175.00	\$220.00	\$320.00	\$11,900.00	\$14,960.00	\$21,760.00
	109	Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite decking	BLM	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	110	Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform	BLM	200	200	200	SF	\$12.00	\$13.00	\$14.00	\$2,400.00	\$2,600.00	\$2,800.00
	111	Topsy Recreation Area - Regrade to natural contour and reseed	BLM	300	300	300	SF	\$3.00	\$4.00	\$5.00	\$900.00	\$1,200.00	\$1,500.00
	112	Pioneer Park - Picnic tables to be removed and hauled away	BLM	12	12	12	EA	\$55.00	\$60.00	\$65.00	\$660.00	\$720.00	\$780.00
	113	Pioneer Park - 12 Concrete fire rings	BLM	5	5	5	CY	\$175.00	\$220.00	\$320.00	\$875.00	\$1,100.00	\$1,600.00
	114	Pioneer Park - Portable toilets to be removed and hauled away	BLM	2	2	2	EA	\$900.00	\$1,000.00	\$1,200.00	\$1,800.00	\$2,000.00	\$2,400.00
	115	Pioneer Park - Signs to be removed and hauled away	BLM	6	6	6	EA	\$135.00	\$150.00	\$160.00	\$810.00	\$900.00	\$960.00
	116	Pioneer Park - Dumpster to be removed and hauled away	BLM	1	1	1	EA	\$900.00	\$1,000.00	\$1,200.00	\$900.00	\$1,000.00	\$1,200.00
	117	Pioneer Park - Remove paved access road	BLM	200	200	200	LF	\$230.00	\$250.00	\$270.00	\$46,000.00	\$50,000.00	\$54,000.00
	118	Pioneer Park - Regrage to natural contour, rip, plant and seed parking and recreation site	BLM	1	1	1	ACRES	\$19,000.00	\$20,000.00	\$22,000.00	\$9,500.00	\$10,000.00	\$11,000.00
		Subtotal 1									\$14,604,690.00	\$20,597,050.00	\$35,199,745.00
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	\$730,000.00	\$1,050,000.00	\$1,750,000.00	\$730,000.00	\$1,050,000.00	\$1,750,000.00
		Subtotal 1 w/ mobilization											
		Escalation to Notice to Proceed (NTP) NOT INCLUDED											
		Design Contingencies (MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	\$1,165,310.00	\$2,352,950.00	\$5,200,411.00	\$1,165,310.00	\$2,352,950.00	\$5,200,411.00
		APS = Allowance for Procurement Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)		1	1	1	ls	\$0.00	\$0.00	\$849,844.00	\$0.00	\$0.00	\$849,844.00
		CONTRACT COST									\$16,500,000.00	\$24,000,000.00	\$43,000,000.00
		Construction Contingencies (MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	\$3,000,000.00	\$5,000,000.00	\$11,000,000.00	\$3,000,000.00	\$5,000,000.00	\$11,000,000.00
		FIELD COST									\$19,500,000.00	\$29,000,000.00	\$54,000,000.00
		Non-Contract Cost (MPL ~ 52%; MP ~ 55%; MPH ~ 61%)		1	1	1	ls	\$10,500,000.00	\$16,000,000.00	\$33,000,000.00	\$10,500,000.00	\$16,000,000.00	\$33,000,000.00
		CONSTRUCTION COST									\$30,000,000.00	\$45,000,000.00	\$87,000,000.00

Notes: This estimate does not include non-contract costs and should not be used for funding purposes.
Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)

QUANTITIES				PRICES			
BY	See Group Worksheets	CHECKED:	See Group Worksheets	BY	Craig Grush, P.E.	CHECKED	
DATE PREPARED	1/20/2011	PEER REVIEW:	See Group Worksheets	DATE PREPARED	05/25/11	PEER REVIEW	

Crystal Ball Report - Full

Simulation started on 6/8/2011 at 7:35:13
Simulation stopped on 6/8/2011 at 7:36:19

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 65.96
Trials/second (average) 152
Random numbers per sec 35,780

Crystal Ball data:

Assumptions 236
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP
UNIT PRICES BY Craig A. Grush
DATE 6/8/2011

DATE	PEER REVIEWER(S)	CODE
6/8/11	<u>DAN MA...</u> Signature Printed Name	8170
	Signature Printed Name	
Author Initials		PEER REVIEW NOT REQUIRED

Forecasts

Worksheet: [JC Boyle - Full Removal Crystal Ball - without Escalation - 2011-04.xls]JC Boyle -

Forecast: Construction Cost - JC Boyle - Full Removal - Without Escalation

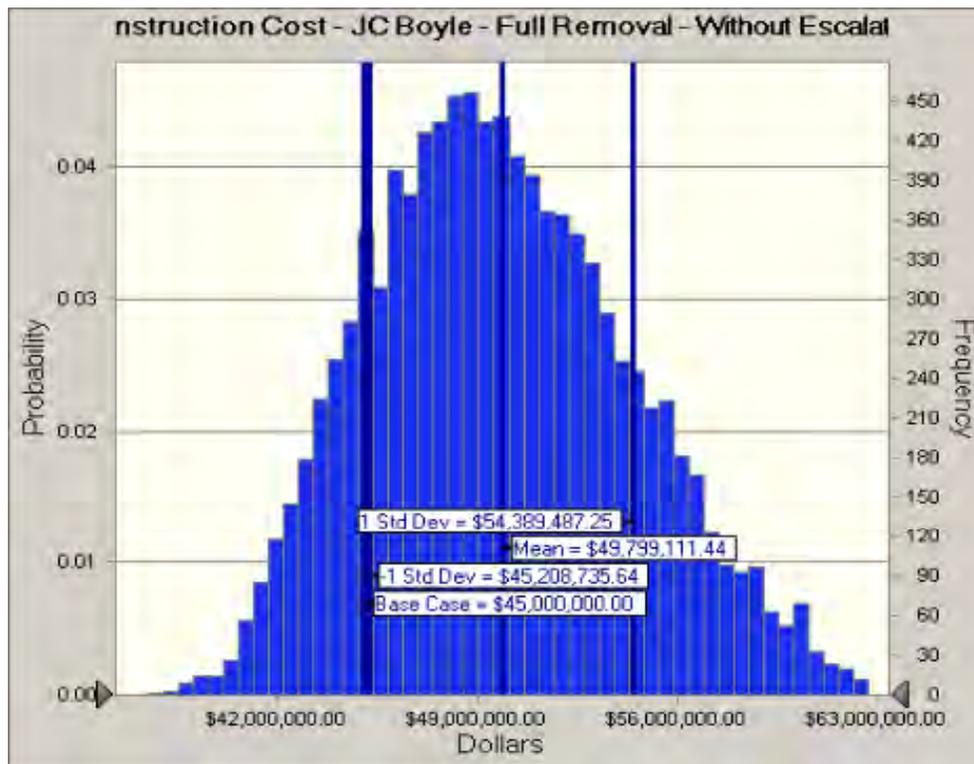
Cell: U146

Summary:

Entire range is from \$36,773,885.99 to \$67,904,113.51

Base case is \$45,000,000.00

After 10,000 trials, the std. error of the mean is \$45,903.76



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Full Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Construction Cost - JC Boyle - Full Removal - Without Escalation (cont'd)Cell: U146

Statistics:	Forecast values
Trials	10,000
Mean	\$49,799,111.44
Median	\$49,462,679.43
Mode	---
Standard Deviation	\$4,590,375.80
Variance	\$21,071,550,026,106.40
Skewness	0.3181
Kurtosis	2.76
Coeff. of Variability	0.0922
Minimum	\$36,773,885.99
Maximum	\$67,904,113.51
Range Width	\$31,130,227.52
Mean Std. Error	\$45,903.76

Percentiles:	Forecast values
0%	\$36,773,885.99
10%	\$44,015,119.87
20%	\$45,772,742.32
30%	\$47,094,931.34
40%	\$48,298,164.97
50%	\$49,462,561.82
60%	\$50,708,328.70
70%	\$52,125,048.95
80%	\$53,736,834.33
90%	\$56,012,672.44
100%	\$67,904,113.51

Forecast: Contract Cost - JC Boyle - Full Removal - Without Escalation

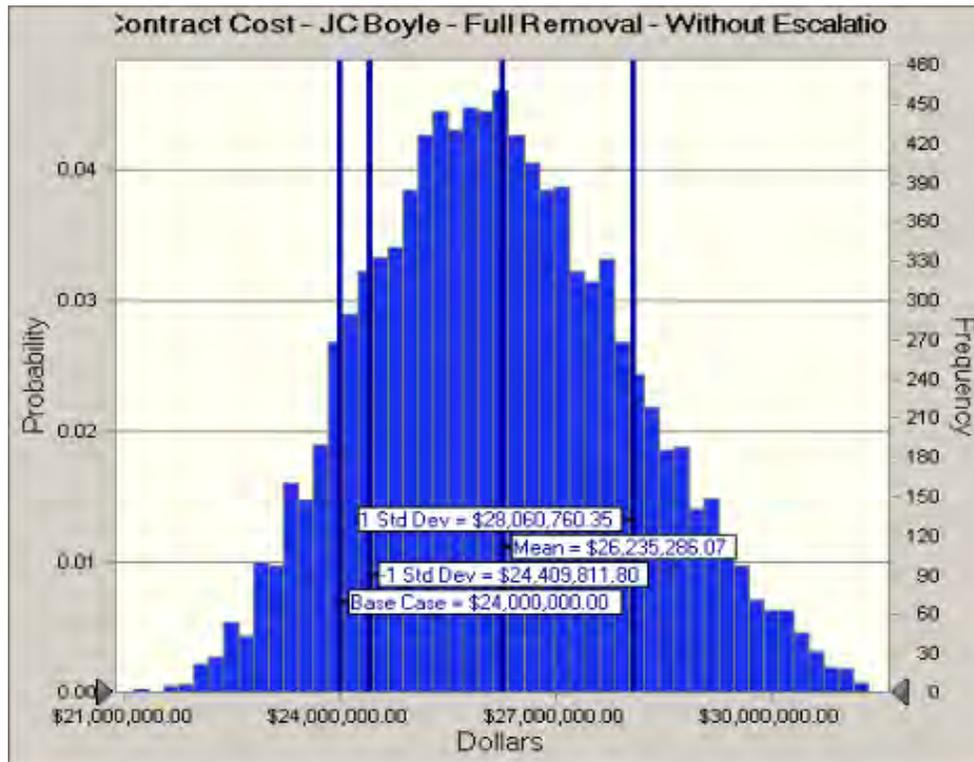
Cell: U142

Summary:

Entire range is from \$20,648,493.64 to \$33,203,008.32

Base case is \$24,000,000.00

After 10,000 trials, the std. error of the mean is \$18,254.74



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Full Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Contract Cost - JC Boyle - Full Removal - Without Escalation (cont'd) Cell: U142

Statistics:	Forecast values
Trials	10,000
Mean	\$26,235,286.07
Median	\$26,133,571.99
Mode	---
Standard Deviation	\$1,825,474.27
Variance	\$3,332,356,320,071.09
Skewness	0.2834
Kurtosis	2.84
Coeff. of Variability	0.0696
Minimum	\$20,648,493.64
Maximum	\$33,203,008.32
Range Width	\$12,554,514.68
Mean Std. Error	\$18,254.74

Percentiles:	Forecast values
0%	\$20,648,493.64
10%	\$23,951,205.47
20%	\$24,618,627.57
30%	\$25,184,864.45
40%	\$25,661,736.87
50%	\$26,133,481.83
60%	\$26,609,727.03
70%	\$27,143,784.84
80%	\$27,780,301.18
90%	\$28,691,888.64
100%	\$33,203,008.32

Forecast: Field Cost - JC Boyle - Full Removal - Without Escalation

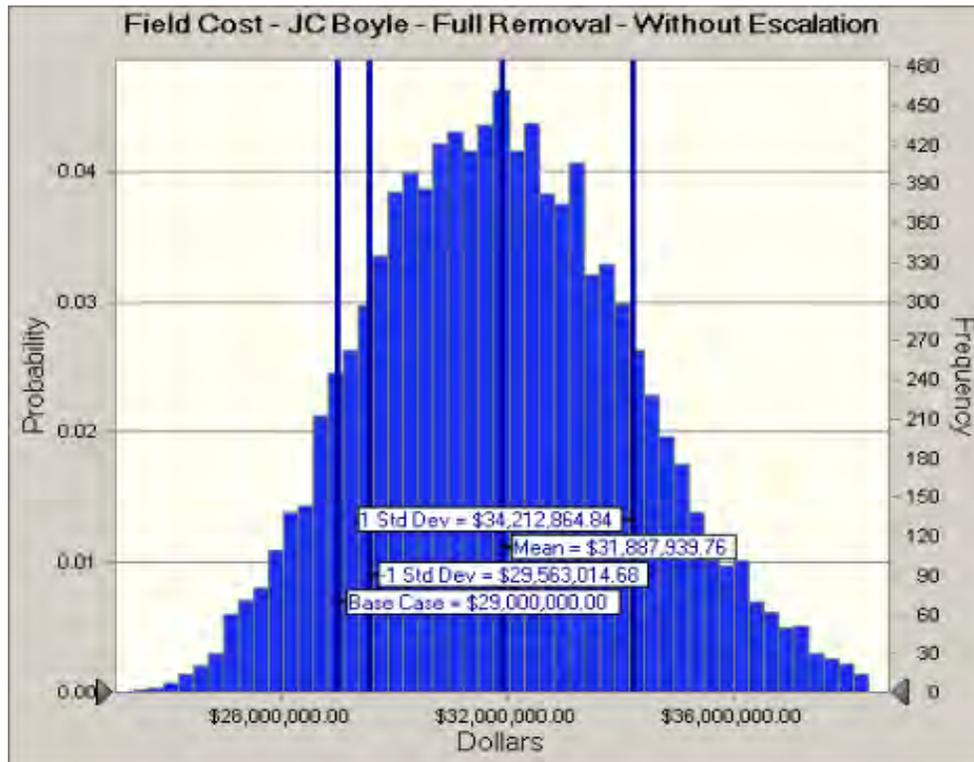
Cell: U144

Summary:

Entire range is from \$24,967,338.59 to \$42,005,454.52

Base case is \$29,000,000.00

After 10,000 trials, the std. error of the mean is \$23,249.25



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Full Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Field Cost - JC Boyle - Full Removal - Without Escalation (cont'd)

Cell: U144

Statistics:	Forecast values
Trials	10,000
Mean	\$31,887,939.76
Median	\$31,808,251.33
Mode	---
Standard Deviation	\$2,324,925.08
Variance	\$5,405,276,629,028.43
Skewness	0.2314
Kurtosis	2.87
Coeff. of Variability	0.0729
Minimum	\$24,967,338.59
Maximum	\$42,005,454.52
Range Width	\$17,038,115.93
Mean Std. Error	\$23,249.25

Percentiles:	Forecast values
0%	\$24,967,338.59
10%	\$28,927,298.76
20%	\$29,860,434.57
30%	\$30,532,615.95
40%	\$31,186,553.32
50%	\$31,808,237.48
60%	\$32,406,566.76
70%	\$33,096,985.95
80%	\$33,853,140.61
90%	\$34,919,619.18
100%	\$42,005,454.52

End of Forecasts

Assumptions

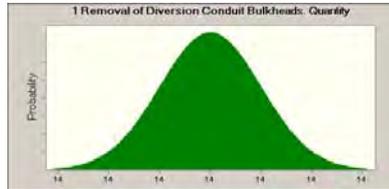
Worksheet: [JC Boyle - Full Removal Crystal Ball - without Escalation - 2011-04.xls]JC Boyle -

Assumption: 1 Removal of Diversion Conduit Bulkheads. Quantity

Cell: L14

Normal distribution with parameters:

Mean	14	(=L14)
Std. Dev.	0	(=0.000001)

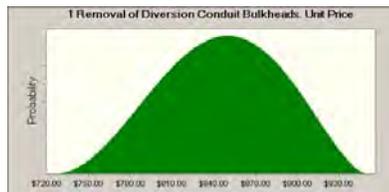


Assumption: 1 Removal of Diversion Conduit Bulkheads. Unit Price

Cell: R14

BetaPERT distribution with parameters:

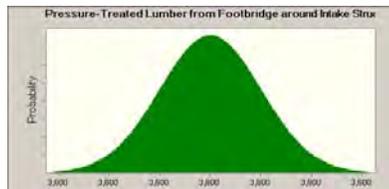
Minimum	\$725.00	(=Q14)
Likeliest	\$850.00	(=R14)
Maximum	\$950.00	(=S14)



Assumption: 10 Remove Pressure-Treated Lumber from Footbridge around Intake Structure

Normal distribution with parameters:

Mean	3,600	(=L23)
Std. Dev.	0	(=0.000001)



Assumption: 10 Remove Pressure-Treated Lumber from Footbridge around Intake Structure

BetaPERT distribution with parameters:

Minimum	\$0.50	(=Q23)
Likeliest	\$0.55	(=R23)
Maximum	\$0.70	(=S23)

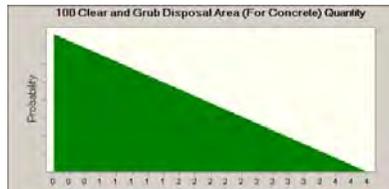


Assumption: 100 Clear and Grub Disposal Area (For Concrete) Quantity

Cell: L113

Triangular distribution with parameters:

Minimum	0	(=M113)
Likeliest	0	(=L113)
Maximum	4	(=K113)



Assumption: 100 Clear and Grub Disposal Area (For Concrete) Unit Price

Cell: R113

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q113)
Likeliest	\$5,000.00	(=R113)
Maximum	\$6,000.00	(=S113)



Assumption: 101 Clear and grub, 20' width Quantity

Cell: L114

Triangular distribution with parameters:

Minimum	0	(=M114)
Likeliest	0	(=L114)
Maximum	1	(=K114)



Assumption: 101 Clear and grub, 20' width Unit Price

Cell: R114

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q114)
Likeliest	\$5,000.00	(=R114)
Maximum	\$6,000.00	(=S114)

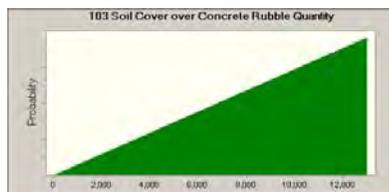


Assumption: 103 Soil Cover over Concrete Rubble Quantity

Cell: L116

Triangular distribution with parameters:

Minimum	0	(=M116)
Likeliest	13,000	(=L116)
Maximum	13,000	(=K116)

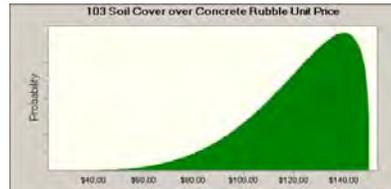


Assumption: 103 Soil Cover over Concrete Rubble Unit Price

Cell: R116

BetaPERT distribution with parameters:

Minimum	\$25.00	(=Q116)
Likeliest	\$140.00	(=R116)
Maximum	\$150.00	(=S116)



Assumption: 107 Embankment Fill in Wasteway (Forebay) Scour Hole Quantity

Cell: L120

Triangular distribution with parameters:

Minimum	0	(=K120)
Likeliest	0	(=L120)
Maximum	41,000	(=M120)



Assumption: 107 Embankment Fill in Wasteway (Forebay) Scour Hole Unit Price

Cell: R120

BetaPERT distribution with parameters:

Minimum	\$25.00	(=Q120)
Likeliest	\$140.00	(=R120)
Maximum	\$150.00	(=S120)

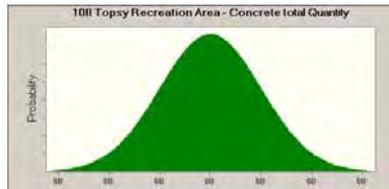


Assumption: 108 Topsy Recreation Area - Concrete total Quantity

Cell: L121

Normal distribution with parameters:

Mean	68	(=L121)
Std. Dev.	0	(=0.000001)

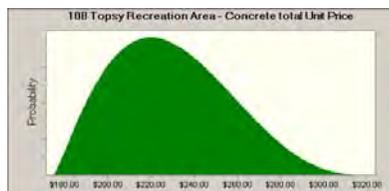


Assumption: 108 Topsy Recreation Area - Concrete total Unit Price

Cell: R121

BetaPERT distribution with parameters:

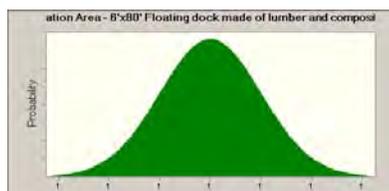
Minimum	\$175.00	(=Q121)
Likeliest	\$220.00	(=R121)
Maximum	\$320.00	(=S121)



Assumption: 109 Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite

Normal distribution with parameters:

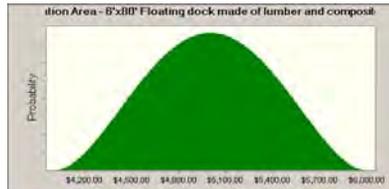
Mean	1	(=L122)
Std. Dev.	0	(=0.000001)



Assumption: 109 Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite **Cell: D122**

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q122)
Likeliest	\$5,000.00	(=R122)
Maximum	\$6,000.00	(=S122)

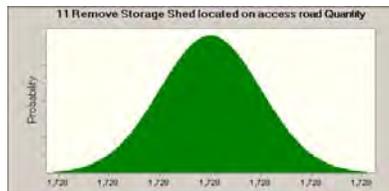


Assumption: 11 Remove Storage Shed located on access road Quantity

Cell: L24

Normal distribution with parameters:

Mean	1,728	(=L24)
Std. Dev.	0	(=0.000001)

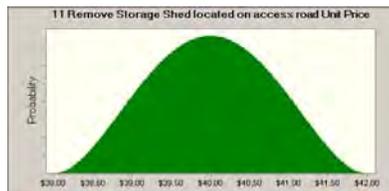


Assumption: 11 Remove Storage Shed located on access road Unit Price

Cell: R24

BetaPERT distribution with parameters:

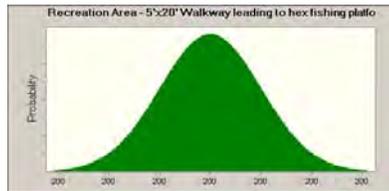
Minimum	\$38.00	(=Q24)
Likeliest	\$40.00	(=R24)
Maximum	\$42.00	(=S24)



Assumption: 110 Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform

Normal distribution with parameters:

Mean 200 (=L123)
Std. Dev. 0 (=0.000001)



Assumption: 110 Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform

BetaPERT distribution with parameters:

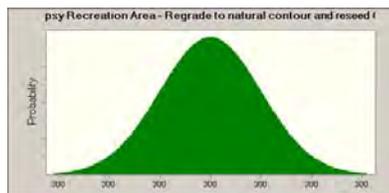
Minimum \$12.00 (=Q123)
Likeliest \$13.00 (=R123)
Maximum \$14.00 (=S123)



Assumption: 111 Topsy Recreation Area - Regrade to natural contour and reseed

Normal distribution with parameters:

Mean 300 (=L124)
Std. Dev. 0 (=0.000001)



Assumption: 111 Topsy Recreation Area - Regrade to natural contour and reseed **Unit Price: L124**

BetaPERT distribution with parameters:

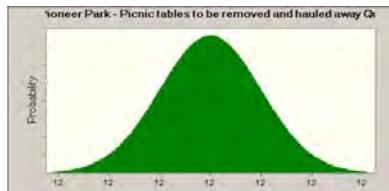
Minimum	\$3.00	(=Q124)
Likeliest	\$4.00	(=R124)
Maximum	\$5.00	(=S124)



Assumption: 112 Pioneer Park - Picnic tables to be removed and hauled away **Quantity: L125**

Normal distribution with parameters:

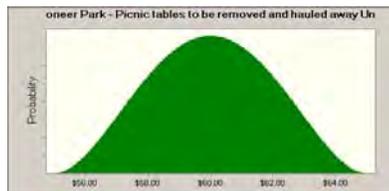
Mean	12	(=L125)
Std. Dev.	0	(=0.000001)



Assumption: 112 Pioneer Park - Picnic tables to be removed and hauled away **Unit Price: L125**

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q125)
Likeliest	\$60.00	(=R125)
Maximum	\$65.00	(=S125)

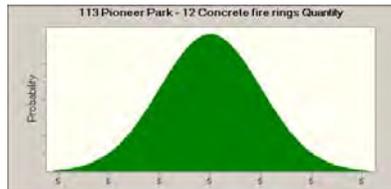


Assumption: 113 Pioneer Park - 12 Concrete fire rings Quantity

Cell: L126

Normal distribution with parameters:

Mean	5	(=L126)
Std. Dev.	0	(=0.000001)

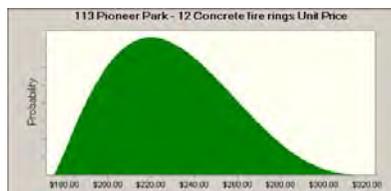


Assumption: 113 Pioneer Park - 12 Concrete fire rings Unit Price

Cell: R126

BetaPERT distribution with parameters:

Minimum	\$175.00	(=Q126)
Likeliest	\$220.00	(=R126)
Maximum	\$320.00	(=S126)

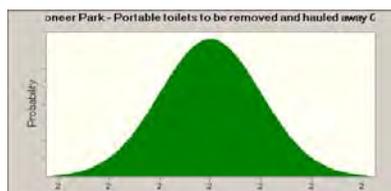


Assumption: 114 Pioneer Park - Portable toilets to be removed and hauled away Quantity

Cell: L127

Normal distribution with parameters:

Mean	2	(=L127)
Std. Dev.	0	(=0.000001)



Assumption: 114 Pioneer Park - Portable toilets to be removed and hauled away Unit Price Cell: D127

BetaPERT distribution with parameters:

Minimum	\$900.00	(=Q127)
Likeliest	\$1,000.00	(=R127)
Maximum	\$1,200.00	(=S127)



Assumption: 115 Pioneer Park - Signs to be removed and hauled away Quantity Cell: L128

Normal distribution with parameters:

Mean	6	(=L128)
Std. Dev.	0	(=0.000001)



Assumption: 115 Pioneer Park - Signs to be removed and hauled away Unit Price Cell: R128

BetaPERT distribution with parameters:

Minimum	\$135.00	(=Q128)
Likeliest	\$150.00	(=R128)
Maximum	\$160.00	(=S128)



Assumption: 116 Pioneer Park - Dumpster to be removed and hauled away Quantity Cell: L129

Normal distribution with parameters:

Mean	1	(=L129)
Std. Dev.	0	(=0.000001)



Assumption: 116 Pioneer Park - Dumpster to be removed and hauled away Unit Price Cell: R129

BetaPERT distribution with parameters:

Minimum	\$900.00	(=Q129)
Likeliest	\$1,000.00	(=R129)
Maximum	\$1,200.00	(=S129)

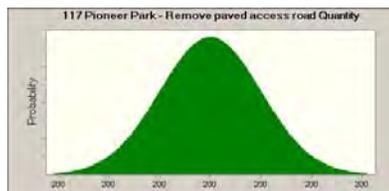


Assumption: 117 Pioneer Park - Remove paved access road Quantity

Cell: L130

Normal distribution with parameters:

Mean	200	(=L130)
Std. Dev.	0	(=0.000001)



Assumption: 117 Pioneer Park - Remove paved access road Unit Price

Cell: R130

BetaPERT distribution with parameters:

Minimum	\$230.00	(=Q130)
Likeliest	\$250.00	(=R130)
Maximum	\$270.00	(=S130)

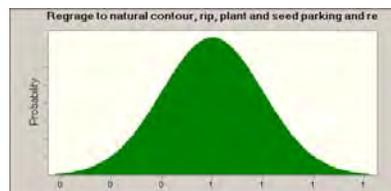


Assumption: 118 Pioneer Park - Regrade to natural contour, rip, plant and seed parking and re

Cell: R131

Normal distribution with parameters:

Mean	1	(=L131)
Std. Dev.	0	(=0.000001)

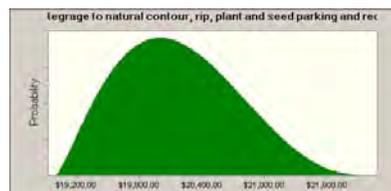


Assumption: 118 Pioneer Park - Regrade to natural contour, rip, plant and seed parking and re

Cell: R131

BetaPERT distribution with parameters:

Minimum	\$19,000.00	(=Q131)
Likeliest	\$20,000.00	(=R131)
Maximum	\$22,000.00	(=S131)



Assumption: 12 Remove Warehouse located on access road Quantity

Cell: L25

Normal distribution with parameters:

Mean	1,920	(=L25)
Std. Dev.	0	(=0.000001)



Assumption: 12 Remove Warehouse located on access road Unit Price

Cell: R25

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q25)
Likeliest	\$40.00	(=R25)
Maximum	\$42.00	(=S25)



Assumption: 13 Remove Fire System Control Bldg. on left abutment. Quantity

Cell: L26

Normal distribution with parameters:

Mean	385	(=L26)
Std. Dev.	0	(=0.000001)



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Full Removal Crystal Ball - without Escalation - 2011-04.xls

Assumption: 13 Remove Fire System Control Bldg. on left abutment. Unit Price **Cell: R26**

BetaPERT distribution with parameters:

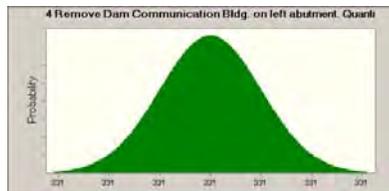
Minimum	\$38.00	(=Q26)
Likeliest	\$40.00	(=R26)
Maximum	\$42.00	(=S26)



Assumption: 14 Remove Dam Communication Bldg. on left abutment. Quantity **Cell: L27**

Normal distribution with parameters:

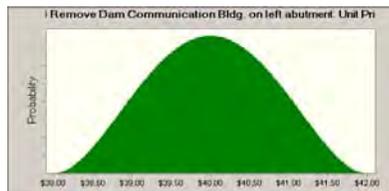
Mean	331	(=L27)
Std. Dev.	0	(=0.000001)



Assumption: 14 Remove Dam Communication Bldg. on left abutment. Unit Price **Cell: R27**

BetaPERT distribution with parameters:

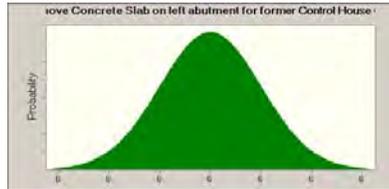
Minimum	\$38.00	(=Q27)
Likeliest	\$40.00	(=R27)
Maximum	\$42.00	(=S27)



Assumption: 15 Remove Concrete Slab on left abutment for former Control House Cell Q28

Normal distribution with parameters:

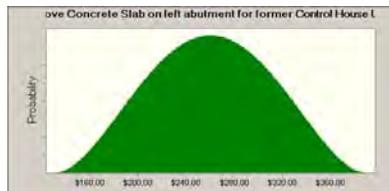
Mean	6	(=L28)
Std. Dev.	0	(=0.000001)



Assumption: 15 Remove Concrete Slab on left abutment for former Control House Cell R28

BetaPERT distribution with parameters:

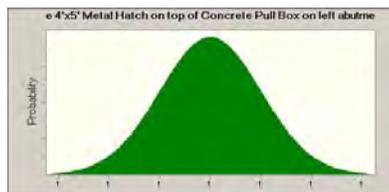
Minimum	\$130.00	(=Q28)
Likeliest	\$260.00	(=R28)
Maximum	\$390.00	(=S28)



Assumption: 16 Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment Cell Q29

Normal distribution with parameters:

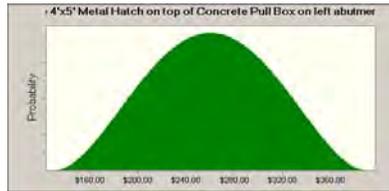
Mean	1	(=L29)
Std. Dev.	0	(=0.000001)



Assumption: 16 Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment **Cell: R29**

BetaPERT distribution with parameters:

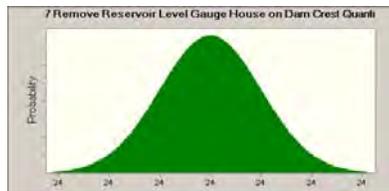
Minimum	\$130.00	(=Q29)
Likeliest	\$260.00	(=R29)
Maximum	\$390.00	(=S29)



Assumption: 17 Remove Reservoir Level Gauge House on Dam Crest Quantity **Cell: L30**

Normal distribution with parameters:

Mean	24	(=L30)
Std. Dev.	0	(=0.000001)



Assumption: 17 Remove Reservoir Level Gauge House on Dam Crest Unit Price **Cell: R30**

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q30)
Likeliest	\$40.00	(=R30)
Maximum	\$42.00	(=S30)

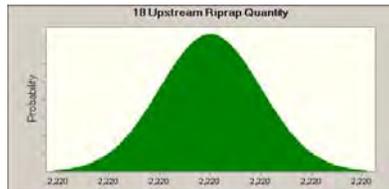


Assumption: 18 Upstream Riprap Quantity

Cell: L31

Normal distribution with parameters:

Mean	2,220	(=L31)
Std. Dev.	0	(=0.000001)



Assumption: 18 Upstream Riprap Unit Price

Cell: R31

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q31)
Likeliest	\$9.00	(=R31)
Maximum	\$12.00	(=S31)

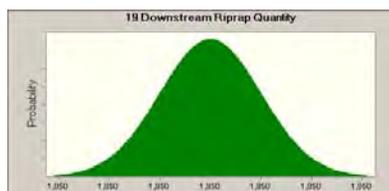


Assumption: 19 Downstream Riprap Quantity

Cell: L32

Normal distribution with parameters:

Mean	1,850	(=L32)
Std. Dev.	0	(=0.000001)

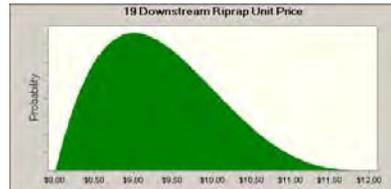


Assumption: 19 Downstream Riprap Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q32)
Likeliest	\$9.00	(=R32)
Maximum	\$12.00	(=S32)

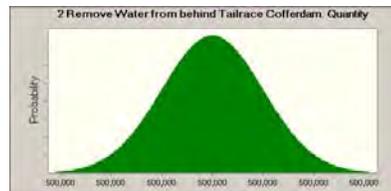


Assumption: 2 Remove Water from behind Tailrace Cofferdam. Quantity

Cell: L15

Normal distribution with parameters:

Mean	500,000	(=L15)
Std. Dev.	0	(=0.000001)



Assumption: 2 Remove Water from behind Tailrace Cofferdam. Unit Price

Cell: R15

Normal distribution with parameters:

Mean	\$0.01	(=R15)
Std. Dev.	\$0.00	(=0.000001)

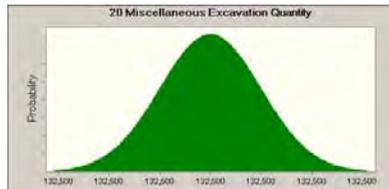


Assumption: 20 Miscellaneous Excavation Quantity

Cell: L33

Normal distribution with parameters:

Mean	132,500	(=L33)
Std. Dev.	0	(=0.000001)



Assumption: 20 Miscellaneous Excavation Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q33)
Likeliest	\$9.00	(=R33)
Maximum	\$12.00	(=S33)

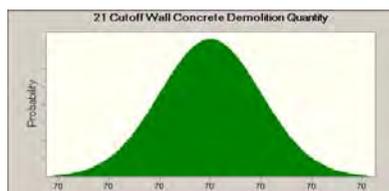


Assumption: 21 Cutoff Wall Concrete Demolition Quantity

Cell: L34

Normal distribution with parameters:

Mean	70	(=L34)
Std. Dev.	0	(=0.000001)



Assumption: 21 Cutoff Wall Concrete Demolition Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q34)
Likeliest	\$260.00	(=R34)
Maximum	\$390.00	(=S34)

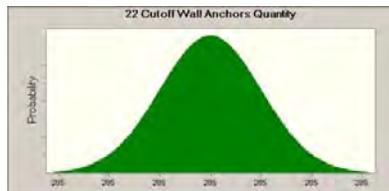


Assumption: 22 Cutoff Wall Anchors Quantity

Cell: L35

Normal distribution with parameters:

Mean	285	(=L35)
Std. Dev.	0	(=0.000001)



Assumption: 22 Cutoff Wall Anchors Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$9.00	(=Q35)
Likeliest	\$10.00	(=R35)
Maximum	\$12.00	(=S35)

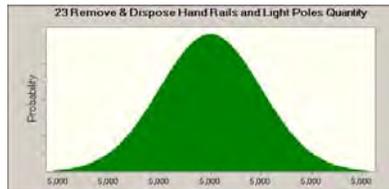


Assumption: 23 Remove & Dispose Hand Rails and Light Poles Quantity

Cell: L36

Normal distribution with parameters:

Mean	5,000	(=L36)
Std. Dev.	0	(=0.000001)



Assumption: 23 Remove & Dispose Hand Rails and Light Poles Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q36)
Likeliest	\$0.65	(=R36)
Maximum	\$0.75	(=S36)

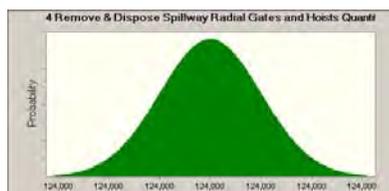


Assumption: 24 Remove & Dispose Spillway Radial Gates and Hoists Quantity

Cell: L37

Normal distribution with parameters:

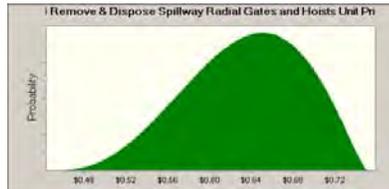
Mean	124,000	(=L37)
Std. Dev.	0	(=0.000001)



Assumption: 24 Remove & Dispose Spillway Radial Gates and Hoists Unit Price Cell: R37

BetaPERT distribution with parameters:

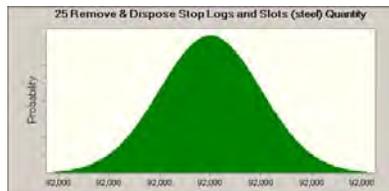
Minimum	\$0.45	(=Q37)
Likeliest	\$0.65	(=R37)
Maximum	\$0.75	(=S37)



Assumption: 25 Remove & Dispose Stop Logs and Slots (steel) Quantity Cell: L38

Normal distribution with parameters:

Mean	92,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Remove & Dispose Stop Logs and Slots (steel) Unit Price Cell: R38

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q38)
Likeliest	\$0.65	(=R38)
Maximum	\$0.75	(=S38)



Assumption: 26 Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure

Normal distribution with parameters:

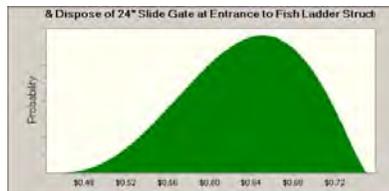
Mean	4,200	(=L39)
Std. Dev.	0	(=0.000001)



Assumption: 26 Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure

BetaPERT distribution with parameters:

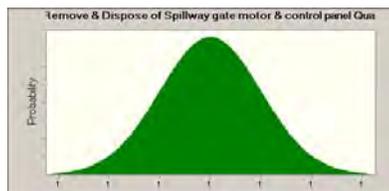
Minimum	\$0.45	(=Q39)
Likeliest	\$0.65	(=R39)
Maximum	\$0.75	(=S39)



Assumption: 27 Remove & Dispose of Spillway gate motor & control panel Quantity Cell: L40

Normal distribution with parameters:

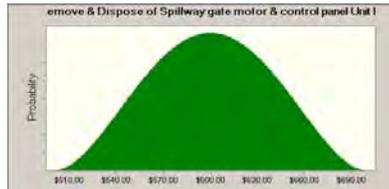
Mean	1	(=L40)
Std. Dev.	0	(=0.000001)



Assumption: 27 Remove & Dispose of Spillway gate motor & control panel Unit PriceCell: R40

BetaPERT distribution with parameters:

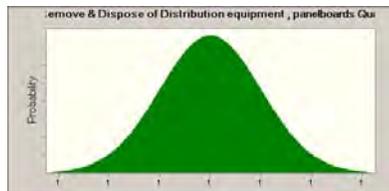
Minimum	\$500.00	(=Q40)
Likeliest	\$600.00	(=R40)
Maximum	\$700.00	(=S40)



Assumption: 28 Remove & Dispose of Distribution equipment , panelboards QuantityCell: L41

Normal distribution with parameters:

Mean	1	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove & Dispose of Distribution equipment , panelboards Unit PriceCell: R41

BetaPERT distribution with parameters:

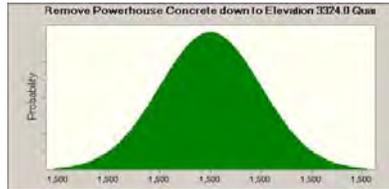
Minimum	\$5,500.00	(=Q41)
Likeliest	\$6,000.00	(=R41)
Maximum	\$6,500.00	(=S41)



Assumption: 29 Remove Powerhouse Concrete down to Elevation 3324.0 Quantity Cell: L42

Normal distribution with parameters:

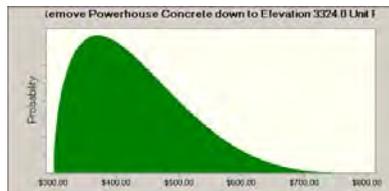
Mean	1,500	(=L42)
Std. Dev.	0	(=0.000001)



Assumption: 29 Remove Powerhouse Concrete down to Elevation 3324.0 Unit Price Cell: R42

BetaPERT distribution with parameters:

Minimum	\$300.00	(=Q42)
Likeliest	\$370.00	(=R42)
Maximum	\$800.00	(=S42)

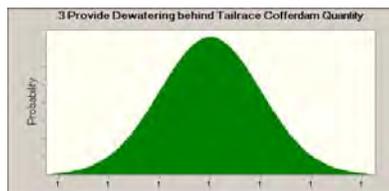


Assumption: 3 Provide Dewatering behind Tailrace Cofferdam Quantity

Cell: L16

Normal distribution with parameters:

Mean	1	(=L16)
Std. Dev.	0	(=0.000001)

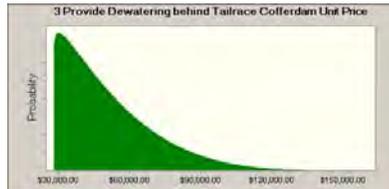


Assumption: 3 Provide Dewatering behind Tailrace Cofferdam Unit Price

Cell: R16

BetaPERT distribution with parameters:

Minimum	\$28,000.00	(=Q16)
Likeliest	\$30,000.00	(=R16)
Maximum	\$160,000.00	(=S16)

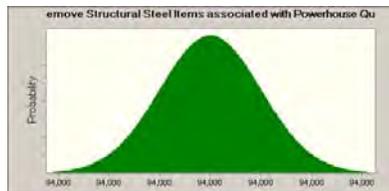


Assumption: 30 Remove Structural Steel Items associated with Powerhouse Quantity

Cell: L43

Normal distribution with parameters:

Mean	94,000	(=L43)
Std. Dev.	0	(=0.000001)



Assumption: 30 Remove Structural Steel Items associated with Powerhouse Unit Price

Cell: R43

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q43)
Likeliest	\$0.65	(=R43)
Maximum	\$0.75	(=S43)

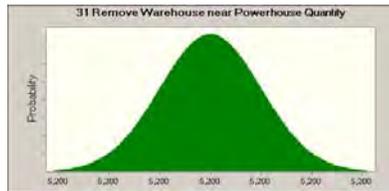


Assumption: 31 Remove Warehouse near Powerhouse Quantity

Cell: L44

Normal distribution with parameters:

Mean	5,200	(=L44)
Std. Dev.	0	(=0.000001)



Assumption: 31 Remove Warehouse near Powerhouse Unit Price

Cell: R44

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q44)
Likeliest	\$40.00	(=R44)
Maximum	\$42.00	(=S44)

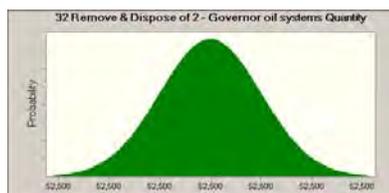


Assumption: 32 Remove & Dispose of 2 - Governor oil systems Quantity

Cell: L45

Normal distribution with parameters:

Mean	52,500	(=L45)
Std. Dev.	0	(=0.000001)

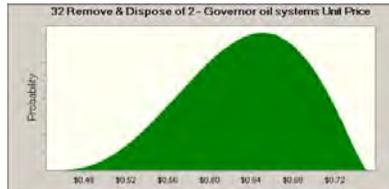


Assumption: 32 Remove & Dispose of 2 - Governor oil systems Unit Price

Cell: R45

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q45)
Likeliest	\$0.65	(=R45)
Maximum	\$0.75	(=S45)

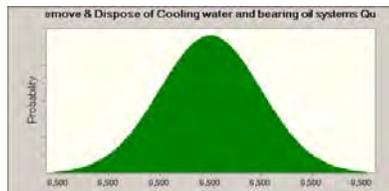


Assumption: 33 Remove & Dispose of Cooling water and bearing oil systems Quantity

Cell: L46

Normal distribution with parameters:

Mean	6,500	(=L46)
Std. Dev.	0	(=0.000001)

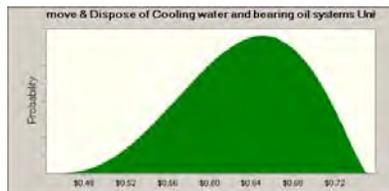


Assumption: 33 Remove & Dispose of Cooling water and bearing oil systems Unit Price

Cell: R46

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q46)
Likeliest	\$0.65	(=R46)
Maximum	\$0.75	(=S46)

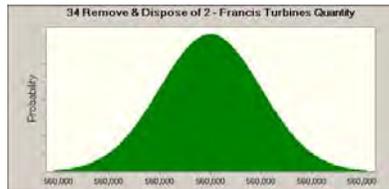


Assumption: 34 Remove & Dispose of 2 - Francis Turbines Quantity

Cell: L47

Normal distribution with parameters:

Mean	560,000	(=L47)
Std. Dev.	0	(=0.000001)

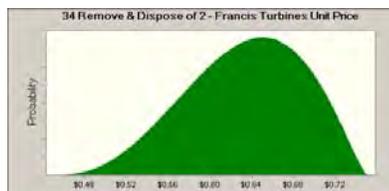


Assumption: 34 Remove & Dispose of 2 - Francis Turbines Unit Price

Cell: R47

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q47)
Likeliest	\$0.65	(=R47)
Maximum	\$0.75	(=S47)

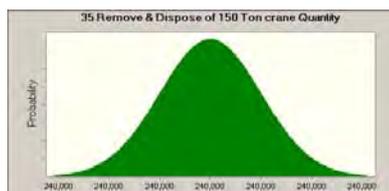


Assumption: 35 Remove & Dispose of 150 Ton crane Quantity

Cell: L48

Normal distribution with parameters:

Mean	240,000	(=L48)
Std. Dev.	0	(=0.000001)

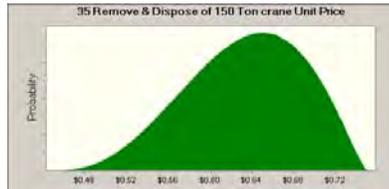


Assumption: 35 Remove & Dispose of 150 Ton crane Unit Price

Cell: R48

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q48)
Likeliest	\$0.65	(=R48)
Maximum	\$0.75	(=S48)

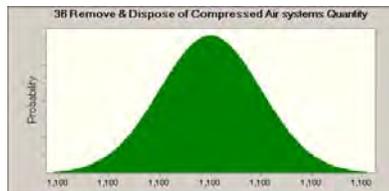


Assumption: 36 Remove & Dispose of Compressed Air systems Quantity

Cell: L49

Normal distribution with parameters:

Mean	1,100	(=L49)
Std. Dev.	0	(=0.000001)

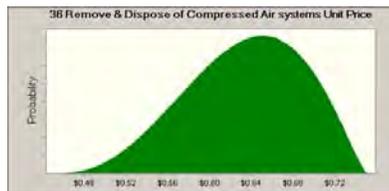


Assumption: 36 Remove & Dispose of Compressed Air systems Unit Price

Cell: R49

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q49)
Likeliest	\$0.65	(=R49)
Maximum	\$0.75	(=S49)

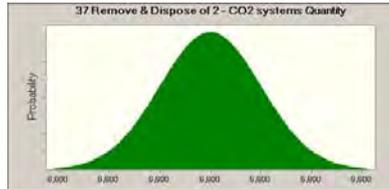


Assumption: 37 Remove & Dispose of 2 - CO2 systems Quantity

Cell: L50

Normal distribution with parameters:

Mean	6,600	(=L50)
Std. Dev.	0	(=0.000001)

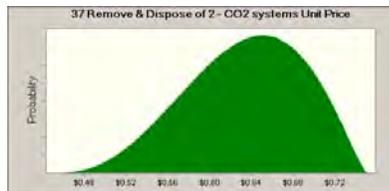


Assumption: 37 Remove & Dispose of 2 - CO2 systems Unit Price

Cell: R50

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q50)
Likeliest	\$0.65	(=R50)
Maximum	\$0.75	(=S50)

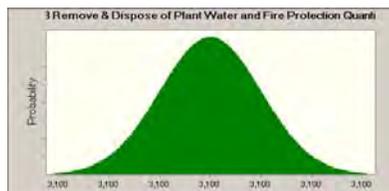


Assumption: 38 Remove & Dispose of Plant Water and Fire Protection Quantity

Cell: L51

Normal distribution with parameters:

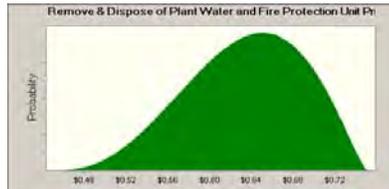
Mean	3,100	(=L51)
Std. Dev.	0	(=0.000001)



Assumption: 38 Remove & Dispose of Plant Water and Fire Protection Unit Price Cell: R51

BetaPERT distribution with parameters:

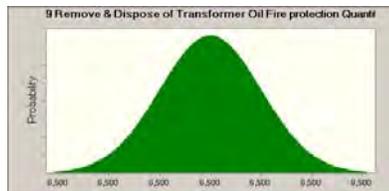
Minimum	\$0.45	(=Q51)
Likeliest	\$0.65	(=R51)
Maximum	\$0.75	(=S51)



Assumption: 39 Remove & Dispose of Transformer Oil Fire protection Quantity Cell: L52

Normal distribution with parameters:

Mean	6,500	(=L52)
Std. Dev.	0	(=0.000001)



Assumption: 39 Remove & Dispose of Transformer Oil Fire protection Unit Price Cell: R52

BetaPERT distribution with parameters:

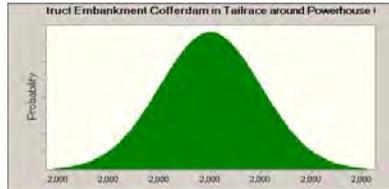
Minimum	\$0.45	(=Q52)
Likeliest	\$0.65	(=R52)
Maximum	\$0.75	(=S52)



Assumption: 4 Construct Embankment Cofferdam in Tailrace around Powerhouse Quantity Cell: L17

Normal distribution with parameters:

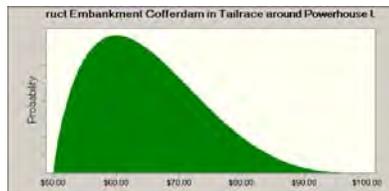
Mean	2,000	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 4 Construct Embankment Cofferdam in Tailrace around Powerhouse Unit Price Cell: R17

BetaPERT distribution with parameters:

Minimum	\$50.00	(=Q17)
Likeliest	\$60.00	(=R17)
Maximum	\$100.00	(=S17)

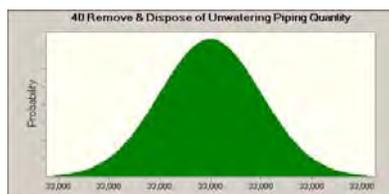


Assumption: 40 Remove & Dispose of Unwatering Piping Quantity

Cell: L53

Normal distribution with parameters:

Mean	33,000	(=L53)
Std. Dev.	0	(=0.000001)

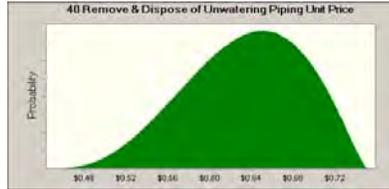


Assumption: 40 Remove & Dispose of Unwatering Piping Unit Price

Cell: R53

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q53)
Likeliest	\$0.65	(=R53)
Maximum	\$0.75	(=S53)

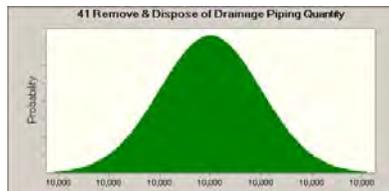


Assumption: 41 Remove & Dispose of Drainage Piping Quantity

Cell: L54

Normal distribution with parameters:

Mean	10,000	(=L54)
Std. Dev.	0	(=0.000001)

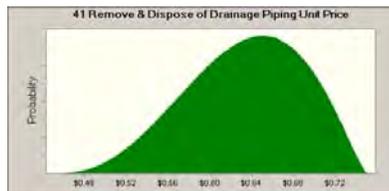


Assumption: 41 Remove & Dispose of Drainage Piping Unit Price

Cell: R54

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q54)
Likeliest	\$0.65	(=R54)
Maximum	\$0.75	(=S54)

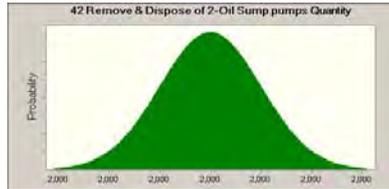


Assumption: 42 Remove & Dispose of 2-Oil Sump pumps Quantity

Cell: L55

Normal distribution with parameters:

Mean	2,000	(=L55)
Std. Dev.	0	(=0.000001)

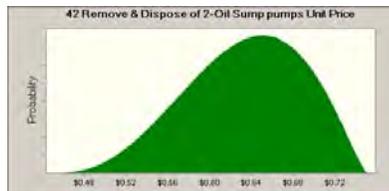


Assumption: 42 Remove & Dispose of 2-Oil Sump pumps Unit Price

Cell: R55

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q55)
Likeliest	\$0.65	(=R55)
Maximum	\$0.75	(=S55)

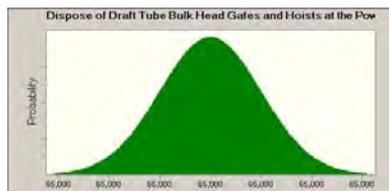


Assumption: 43 Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Pow

Cell: L56

Normal distribution with parameters:

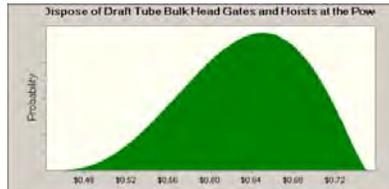
Mean	65,000	(=L56)
Std. Dev.	0	(=0.000001)



Assumption: 43 Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Power

BetaPERT distribution with parameters:

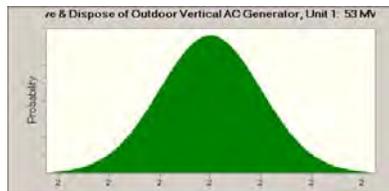
Minimum	\$0.45	(=Q56)
Likeliest	\$0.65	(=R56)
Maximum	\$0.75	(=S56)



Assumption: 44 Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA

Normal distribution with parameters:

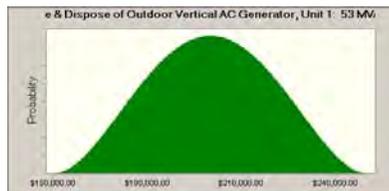
Mean	2	(=L57)
Std. Dev.	0	(=0.000001)



Assumption: 44 Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA

BetaPERT distribution with parameters:

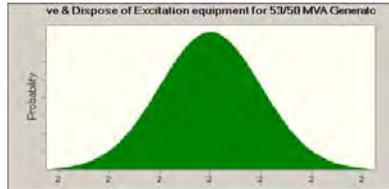
Minimum	\$150,000.00	(=Q57)
Likeliest	\$200,000.00	(=R57)
Maximum	\$250,000.00	(=S57)



Assumption: 45 Remove & Dispose of Excitation equipment for 53/50 MVA Generator

Normal distribution with parameters:

Mean	2	(=L58)
Std. Dev.	0	(=0.000001)



Assumption: 45 Remove & Dispose of Excitation equipment for 53/50 MVA Generator

BetaPERT distribution with parameters:

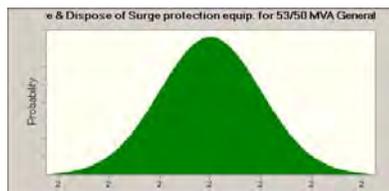
Minimum	\$12,000.00	(=Q58)
Likeliest	\$12,500.00	(=R58)
Maximum	\$13,000.00	(=S58)



Assumption: 46 Remove & Dispose of Surge protection equip. for 53/50 MVA Generator

Normal distribution with parameters:

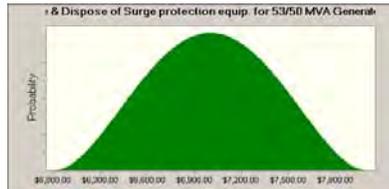
Mean	2	(=L59)
Std. Dev.	0	(=0.000001)



Assumption: 46 Remove & Dispose of Surge protection equip. for 53/50 MVA Generators Cell R59

BetaPERT distribution with parameters:

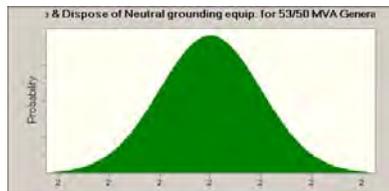
Minimum	\$6,000.00	(=Q59)
Likeliest	\$7,000.00	(=R59)
Maximum	\$8,000.00	(=S59)



Assumption: 47 Remove & Dispose of Neutral grounding equip. for 53/50 MVA Generators Cell L60

Normal distribution with parameters:

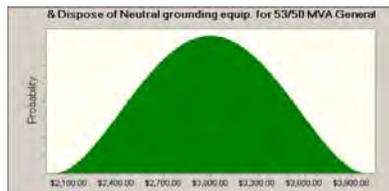
Mean	2	(=L60)
Std. Dev.	0	(=0.000001)



Assumption: 47 Remove & Dispose of Neutral grounding equip. for 53/50 MVA Generators Cell R60

BetaPERT distribution with parameters:

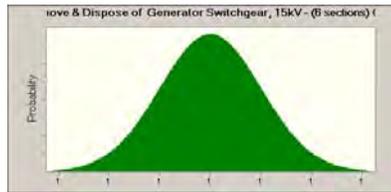
Minimum	\$2,000.00	(=Q60)
Likeliest	\$3,000.00	(=R60)
Maximum	\$4,000.00	(=S60)



Assumption: 48 Remove & Dispose of Generator Switchgear, 15kV - (6 sections) Quantity L61

Normal distribution with parameters:

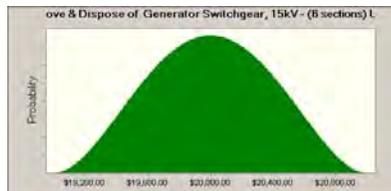
Mean	1	(=L61)
Std. Dev.	0	(=0.000001)



Assumption: 48 Remove & Dispose of Generator Switchgear, 15kV - (6 sections) Unit Price R61

BetaPERT distribution with parameters:

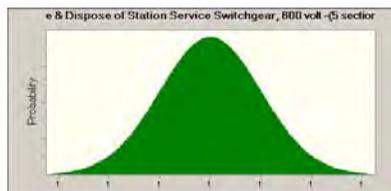
Minimum	\$19,000.00	(=Q61)
Likeliest	\$20,000.00	(=R61)
Maximum	\$21,000.00	(=S61)



Assumption: 49 Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections) Quantity L62

Normal distribution with parameters:

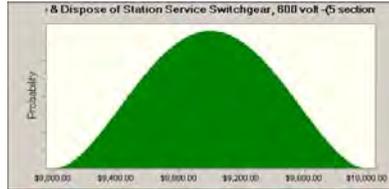
Mean	1	(=L62)
Std. Dev.	0	(=0.000001)



Assumption: 49 Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections) L18

BetaPERT distribution with parameters:

Minimum	\$8,000.00	(=Q62)
Likeliest	\$9,000.00	(=R62)
Maximum	\$10,000.00	(=S62)

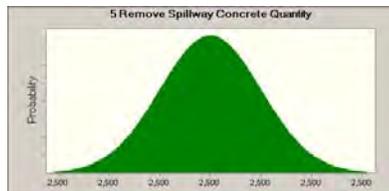


Assumption: 5 Remove Spillway Concrete Quantity

Cell: L18

Normal distribution with parameters:

Mean	2,500	(=L18)
Std. Dev.	0	(=0.000001)



Assumption: 5 Remove Spillway Concrete Unit Price

Cell: R18

BetaPERT distribution with parameters:

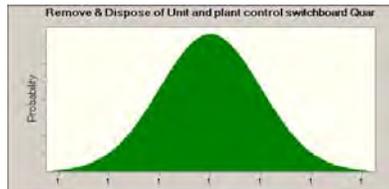
Minimum	\$130.00	(=Q18)
Likeliest	\$260.00	(=R18)
Maximum	\$390.00	(=S18)



Assumption: 50 Remove & Dispose of Unit and plant control switchboard Quantity Cell: L63

Normal distribution with parameters:

Mean	1	(=L63)
Std. Dev.	0	(=0.000001)



Assumption: 50 Remove & Dispose of Unit and plant control switchboard Unit Price Cell: R63

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q63)
Likeliest	\$5,000.00	(=R63)
Maximum	\$6,000.00	(=S63)

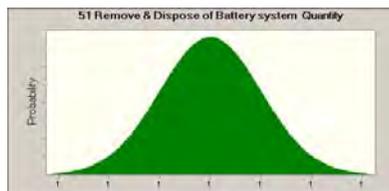


Assumption: 51 Remove & Dispose of Battery system Quantity

Cell: L64

Normal distribution with parameters:

Mean	1	(=L64)
Std. Dev.	0	(=0.000001)

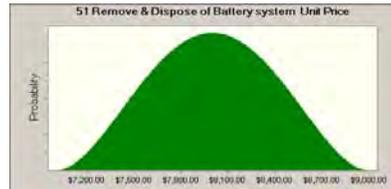


Assumption: 51 Remove & Dispose of Battery system Unit Price

Cell: R64

BetaPERT distribution with parameters:

Minimum	\$7,000.00	(=Q64)
Likeliest	\$8,000.00	(=R64)
Maximum	\$9,000.00	(=S64)

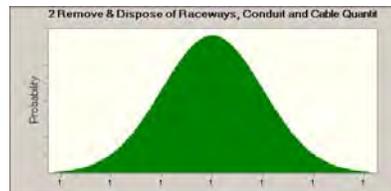


Assumption: 52 Remove & Dispose of Raceways, Conduit and Cable Quantity

Cell: L65

Normal distribution with parameters:

Mean	1	(=L65)
Std. Dev.	0	(=0.000001)



Assumption: 52 Remove & Dispose of Raceways, Conduit and Cable Unit Price

Cell: R65

BetaPERT distribution with parameters:

Minimum	\$10,000.00	(=Q65)
Likeliest	\$11,000.00	(=R65)
Maximum	\$12,000.00	(=S65)

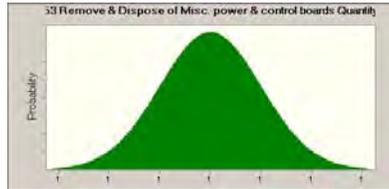


Assumption: 53 Remove & Dispose of Misc. power & control boards Quantity

Cell: L66

Normal distribution with parameters:

Mean	1	(=L66)
Std. Dev.	0	(=0.000001)



Assumption: 53 Remove & Dispose of Misc. power & control boards Unit Price

Cell: R66

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q66)
Likeliest	\$6,000.00	(=R66)
Maximum	\$7,000.00	(=S66)

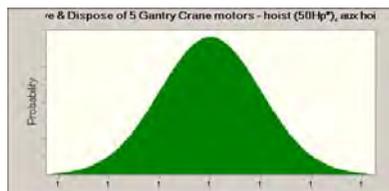


Assumption: 54 Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist

Cell: L67

Normal distribution with parameters:

Mean	1	(=L67)
Std. Dev.	0	(=0.000001)



Assumption: 54 Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist

BetaPERT distribution with parameters:

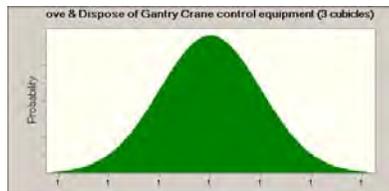
Minimum	\$1,500.00	(=Q67)
Likeliest	\$2,000.00	(=R67)
Maximum	\$3,000.00	(=S67)



Assumption: 55 Remove & Dispose of Gantry Crane control equipment (3 cubicies)

Normal distribution with parameters:

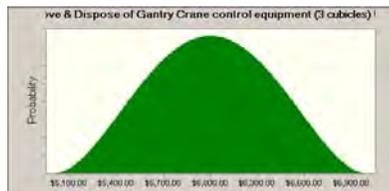
Mean	1	(=L68)
Std. Dev.	0	(=0.000001)



Assumption: 55 Remove & Dispose of Gantry Crane control equipment (3 cubicies)

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q68)
Likeliest	\$6,000.00	(=R68)
Maximum	\$7,000.00	(=S68)

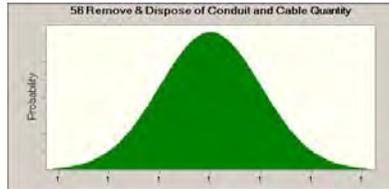


Assumption: 56 Remove & Dispose of Conduit and Cable Quantity

Cell: L69

Normal distribution with parameters:

Mean	1	(=L69)
Std. Dev.	0	(=0.000001)

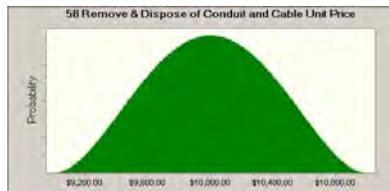


Assumption: 56 Remove & Dispose of Conduit and Cable Unit Price

Cell: R69

BetaPERT distribution with parameters:

Minimum	\$9,000.00	(=Q69)
Likeliest	\$10,000.00	(=R69)
Maximum	\$11,000.00	(=S69)

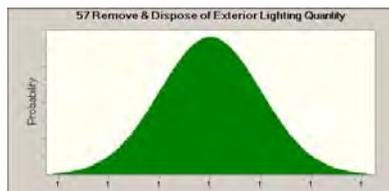


Assumption: 57 Remove & Dispose of Exterior Lighting Quantity

Cell: L70

Normal distribution with parameters:

Mean	1	(=L70)
Std. Dev.	0	(=0.000001)



Assumption: 57 Remove & Dispose of Exterior Lighting Unit Price

Cell: R70

BetaPERT distribution with parameters:

Minimum	\$1,500.00	(=Q70)
Likeliest	\$2,000.00	(=R70)
Maximum	\$3,000.00	(=S70)

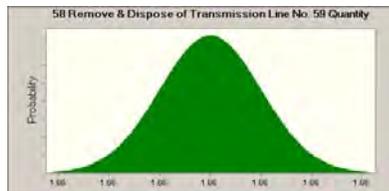


Assumption: 58 Remove & Dispose of Transmission Line No. 59 Quantity

Cell: L71

Normal distribution with parameters:

Mean	1.66	(=L71)
Std. Dev.	0.00	(=0.000001)

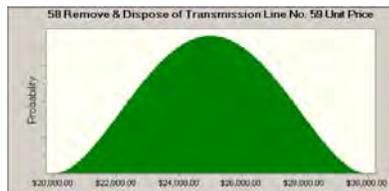


Assumption: 58 Remove & Dispose of Transmission Line No. 59 Unit Price

Cell: R71

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q71)
Likeliest	\$25,000.00	(=R71)
Maximum	\$30,000.00	(=S71)



Assumption: 59 Remove & Dispose of Transmission Line No. 98 Quantity

Cell: L72

Normal distribution with parameters:

Mean	0.24	(=L72)
Std. Dev.	0.00	(=0.000001)



Assumption: 59 Remove & Dispose of Transmission Line No. 98 Unit Price

Cell: R72

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q72)
Likeliest	\$25,000.00	(=R72)
Maximum	\$30,000.00	(=S72)

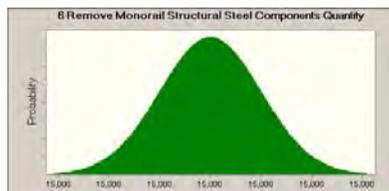


Assumption: 6 Remove Monorail Structural Steel Components Quantity

Cell: L19

Normal distribution with parameters:

Mean	15,000	(=L19)
Std. Dev.	0	(=0.000001)



Assumption: 6 Remove Monorail Structural Steel Components Unit Price

Cell: R19

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q19)
Likeliest	\$0.65	(=R19)
Maximum	\$0.75	(=S19)

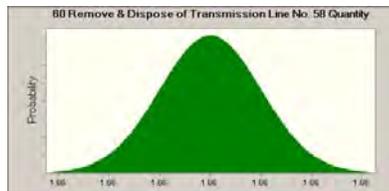


Assumption: 60 Remove & Dispose of Transmission Line No. 58 Quantity

Cell: L73

Normal distribution with parameters:

Mean	1.66	(=L73)
Std. Dev.	0.00	(=0.000001)

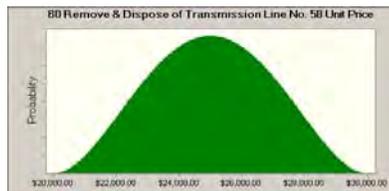


Assumption: 60 Remove & Dispose of Transmission Line No. 58 Unit Price

Cell: R73

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q73)
Likeliest	\$25,000.00	(=R73)
Maximum	\$30,000.00	(=S73)

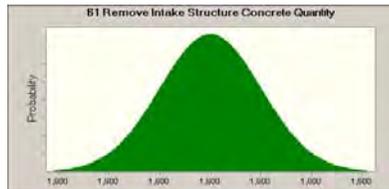


Assumption: 61 Remove Intake Structure Concrete Quantity

Cell: L74

Normal distribution with parameters:

Mean	1,600	(=L74)
Std. Dev.	0	(=0.000001)



Assumption: 61 Remove Intake Structure Concrete Unit Price

Cell: R74

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q74)
Likeliest	\$260.00	(=R74)
Maximum	\$390.00	(=S74)



Assumption: 62 Remove Fish Screen Building Quantity

Cell: L75

Normal distribution with parameters:

Mean	1,300	(=L75)
Std. Dev.	0	(=0.000001)



Assumption: 62 Remove Fish Screen Building Unit Price

Cell: R75

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q75)
Likeliest	\$40.00	(=R75)
Maximum	\$42.00	(=S75)



Assumption: 63 Remove 24-inch-dia. Steel Fish Discharge Pipe Quantity

Cell: L76

Normal distribution with parameters:

Mean	22,000	(=L76)
Std. Dev.	0	(=0.000001)

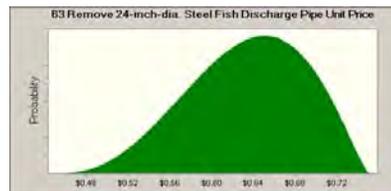


Assumption: 63 Remove 24-inch-dia. Steel Fish Discharge Pipe Unit Price

Cell: R76

BetaPERT distribution with parameters:

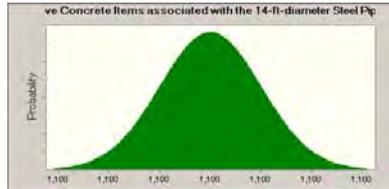
Minimum	\$0.45	(=Q76)
Likeliest	\$0.65	(=R76)
Maximum	\$0.75	(=S76)



Assumption: 64 Remove Concrete Items associated with the 14-ft-diameter Steel Pipe **Cell: L77**

Normal distribution with parameters:

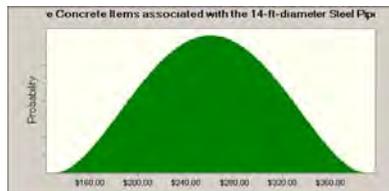
Mean	1,100	(=L77)
Std. Dev.	0	(=0.000001)



Assumption: 64 Remove Concrete Items associated with the 14-ft-diameter Steel Pipe **Cell: L77**

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q77)
Likeliest	\$260.00	(=R77)
Maximum	\$390.00	(=S77)

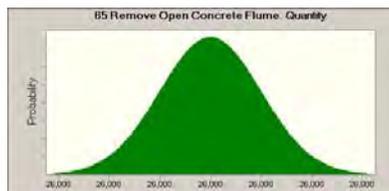


Assumption: 65 Remove Open Concrete Flume. Quantity

Cell: L78

Normal distribution with parameters:

Mean	26,000	(=L78)
Std. Dev.	0	(=0.000001)

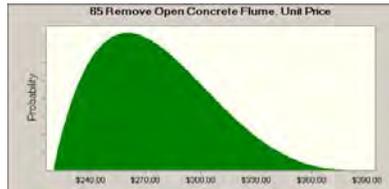


Assumption: 65 Remove Open Concrete Flume. Unit Price

Cell: R78

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q78)
Likeliest	\$260.00	(=R78)
Maximum	\$390.00	(=S78)

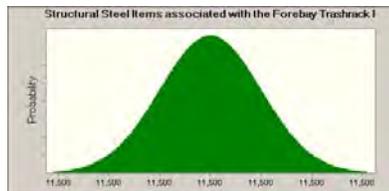


Assumption: 66 Remove Structural Steel Items associated with the Forebay Trashrack L

Cell: L79

Normal distribution with parameters:

Mean	11,500	(=L79)
Std. Dev.	0	(=0.000001)



Assumption: 66 Remove Structural Steel Items associated with the Forebay Trashrack F

Cell: F79

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q79)
Likeliest	\$0.65	(=R79)
Maximum	\$0.75	(=S79)

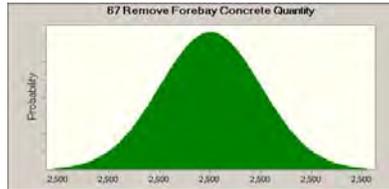


Assumption: 67 Remove Forebay Concrete Quantity

Cell: L80

Normal distribution with parameters:

Mean	2,500	(=L80)
Std. Dev.	0	(=0.000001)

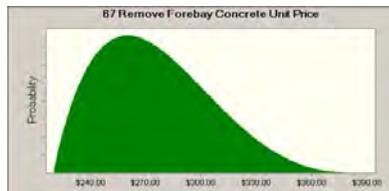


Assumption: 67 Remove Forebay Concrete Unit Price

Cell: R80

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q80)
Likeliest	\$260.00	(=R80)
Maximum	\$390.00	(=S80)

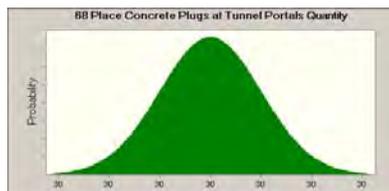


Assumption: 68 Place Concrete Plugs at Tunnel Portals Quantity

Cell: L81

Normal distribution with parameters:

Mean	30	(=L81)
Std. Dev.	0	(=0.000001)



Assumption: 68 Place Concrete Plugs at Tunnel Portals Unit Price

Cell: R81

BetaPERT distribution with parameters:

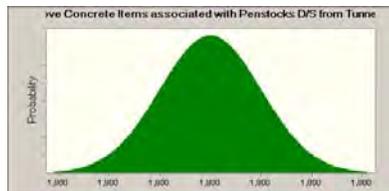
Minimum	\$900.00	(=Q81)
Likeliest	\$1,000.00	(=R81)
Maximum	\$1,100.00	(=S81)



Assumption: 69 Remove Concrete Items associated with Penstocks D/S from Tunnel Unit L82

Normal distribution with parameters:

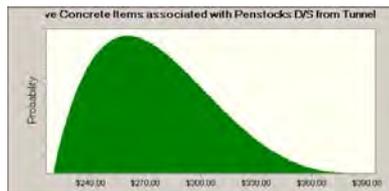
Mean	1,800	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove Concrete Items associated with Penstocks D/S from Tunnel Unit R82

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q82)
Likeliest	\$260.00	(=R82)
Maximum	\$390.00	(=S82)



Assumption: 7 Remove Fish Ladder Concrete Quantity

Cell: L20

Normal distribution with parameters:

Mean 1,600 (=L20)
Std. Dev. 0 (=0.000001)



Assumption: 7 Remove Fish Ladder Concrete Unit Price

Cell: R20

BetaPERT distribution with parameters:

Minimum \$130.00 (=Q20)
Likeliest \$260.00 (=R20)
Maximum \$390.00 (=S20)

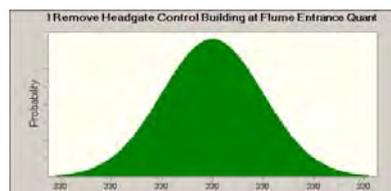


Assumption: 70 Remove Headgate Control Building at Flume Entrance Quantity

Cell: L83

Normal distribution with parameters:

Mean 330 (=L83)
Std. Dev. 0 (=0.000001)



Assumption: 70 Remove Headgate Control Building at Flume Entrance Unit Price Cell: R83

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q83)
Likeliest	\$40.00	(=R83)
Maximum	\$42.00	(=S83)



Assumption: 71 Remove Forebay Spillway Gate House Quantity Cell: L84

Normal distribution with parameters:

Mean	570	(=L84)
Std. Dev.	0	(=0.000001)



Assumption: 71 Remove Forebay Spillway Gate House Unit Price Cell: R84

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q84)
Likeliest	\$40.00	(=R84)
Maximum	\$42.00	(=S84)



Assumption: 72 Remove Forebay Control Building. Quantity

Cell: L85

Normal distribution with parameters:

Mean	470	(=L85)
Std. Dev.	0	(=0.000001)



Assumption: 72 Remove Forebay Control Building. Unit Price

Cell: R85

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q85)
Likeliest	\$40.00	(=R85)
Maximum	\$42.00	(=S85)

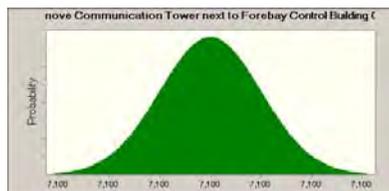


Assumption: 73 Remove Communication Tower next to Forebay Control Building Quantity

Cell: L86

Normal distribution with parameters:

Mean	7,100	(=L86)
Std. Dev.	0	(=0.000001)



Assumption: 73 Remove Communication Tower next to Forebay Control Building Under R86

BetaPERT distribution with parameters:

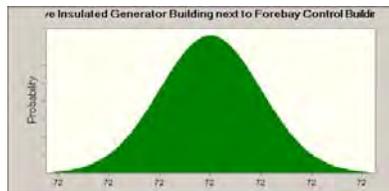
Minimum	\$0.45	(=Q86)
Likeliest	\$0.65	(=R86)
Maximum	\$0.75	(=S86)



Assumption: 74 Remove Insulated Generator Building next to Forebay Control Building Under L87

Normal distribution with parameters:

Mean	72	(=L87)
Std. Dev.	0	(=0.000001)



Assumption: 74 Remove Insulated Generator Building next to Forebay Control Building Under R87

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q87)
Likeliest	\$40.00	(=R87)
Maximum	\$42.00	(=S87)

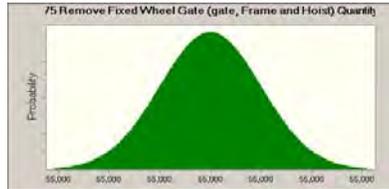


Assumption: 75 Remove Fixed Wheel Gate (gate, Frame and Hoist) Quantity

Cell: L88

Normal distribution with parameters:

Mean	55,000	(=L88)
Std. Dev.	0	(=0.000001)

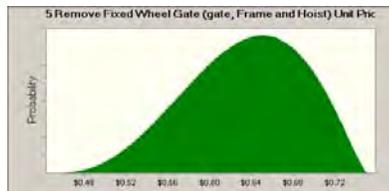


Assumption: 75 Remove Fixed Wheel Gate (gate, Frame and Hoist) Unit Price

Cell: R88

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q88)
Likeliest	\$0.65	(=R88)
Maximum	\$0.75	(=S88)

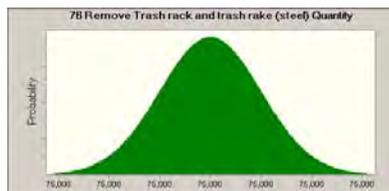


Assumption: 76 Remove Trash rack and trash rake (steel) Quantity

Cell: L89

Normal distribution with parameters:

Mean	75,000	(=L89)
Std. Dev.	0	(=0.000001)

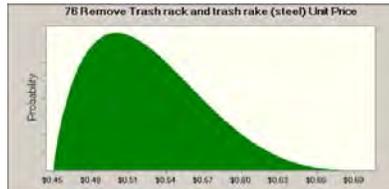


Assumption: 76 Remove Trash rack and trash rake (steel) Unit Price

Cell: R89

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q89)
Likeliest	\$0.50	(=R89)
Maximum	\$0.70	(=S89)

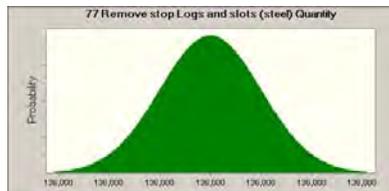


Assumption: 77 Remove stop Logs and slots (steel) Quantity

Cell: L90

Normal distribution with parameters:

Mean	136,000	(=L90)
Std. Dev.	0	(=0.000001)

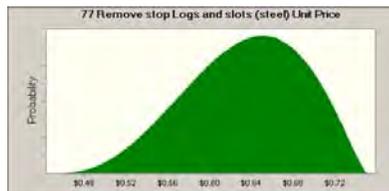


Assumption: 77 Remove stop Logs and slots (steel) Unit Price

Cell: R90

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q90)
Likeliest	\$0.65	(=R90)
Maximum	\$0.75	(=S90)

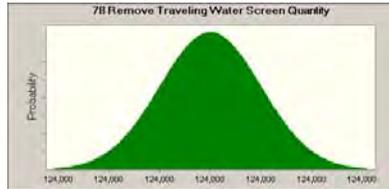


Assumption: 78 Remove Traveling Water Screen Quantity

Cell: L91

Normal distribution with parameters:

Mean	124,000	(=L91)
Std. Dev.	0	(=0.000001)

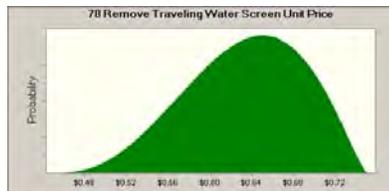


Assumption: 78 Remove Traveling Water Screen Unit Price

Cell: R91

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q91)
Likeliest	\$0.65	(=R91)
Maximum	\$0.75	(=S91)

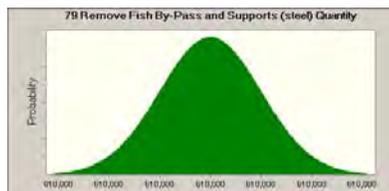


Assumption: 79 Remove Fish By-Pass and Supports (steel) Quantity

Cell: L92

Normal distribution with parameters:

Mean	610,000	(=L92)
Std. Dev.	0	(=0.000001)

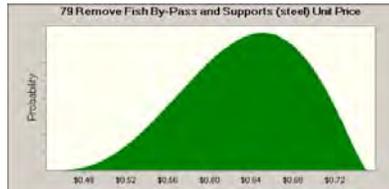


Assumption: 79 Remove Fish By-Pass and Supports (steel) Unit Price

Cell: R92

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q92)
Likeliest	\$0.65	(=R92)
Maximum	\$0.75	(=S92)

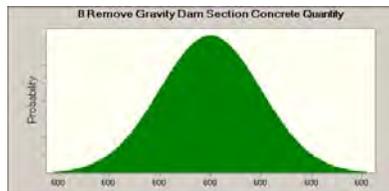


Assumption: 8 Remove Gravity Dam Section Concrete Quantity

Cell: L21

Normal distribution with parameters:

Mean	600	(=L21)
Std. Dev.	0	(=0.000001)

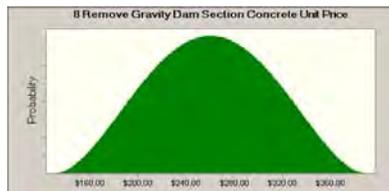


Assumption: 8 Remove Gravity Dam Section Concrete Unit Price

Cell: R21

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q21)
Likeliest	\$260.00	(=R21)
Maximum	\$390.00	(=S21)

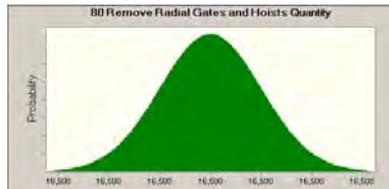


Assumption: 80 Remove Radial Gates and Hoists Quantity

Cell: L93

Normal distribution with parameters:

Mean	16,500	(=L93)
Std. Dev.	0	(=0.000001)

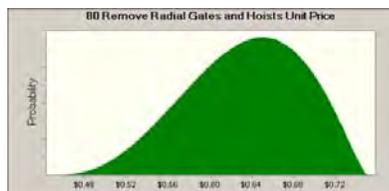


Assumption: 80 Remove Radial Gates and Hoists Unit Price

Cell: R93

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q93)
Likeliest	\$0.65	(=R93)
Maximum	\$0.75	(=S93)

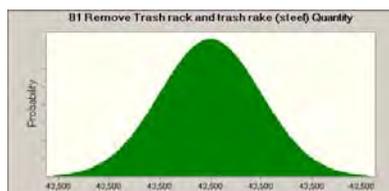


Assumption: 81 Remove Trash rack and trash rake (steel) Quantity

Cell: L94

Normal distribution with parameters:

Mean	43,500	(=L94)
Std. Dev.	0	(=0.000001)

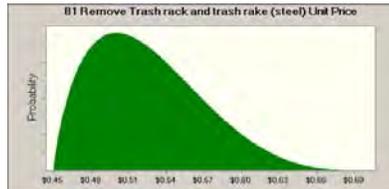


Assumption: 81 Remove Trash rack and trash rake (steel) Unit Price

Cell: R94

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q94)
Likeliest	\$0.50	(=R94)
Maximum	\$0.70	(=S94)

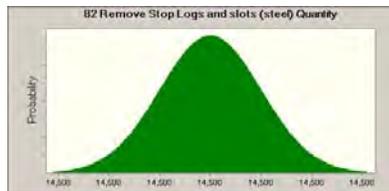


Assumption: 82 Remove Stop Logs and slots (steel) Quantity

Cell: L95

Normal distribution with parameters:

Mean	14,500	(=L95)
Std. Dev.	0	(=0.000001)

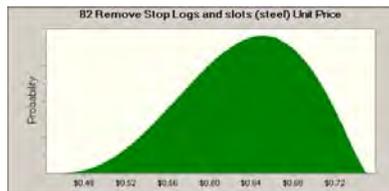


Assumption: 82 Remove Stop Logs and slots (steel) Unit Price

Cell: R95

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q95)
Likeliest	\$0.65	(=R95)
Maximum	\$0.75	(=S95)

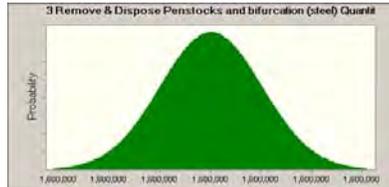


Assumption: 83 Remove & Dispose Penstocks and bifurcation (steel) Quantity

Cell: L96

Normal distribution with parameters:

Mean	1,600,000	(=L96)
Std. Dev.	0	(=0.000001)

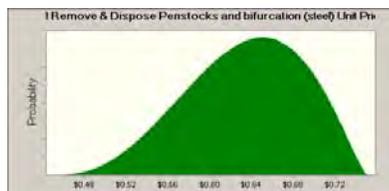


Assumption: 83 Remove & Dispose Penstocks and bifurcation (steel) Unit Price

Cell: R96

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q96)
Likeliest	\$0.65	(=R96)
Maximum	\$0.75	(=S96)

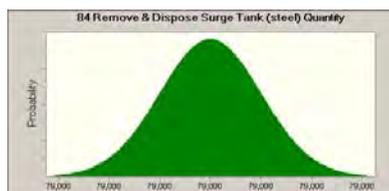


Assumption: 84 Remove & Dispose Surge Tank (steel) Quantity

Cell: L97

Normal distribution with parameters:

Mean	79,000	(=L97)
Std. Dev.	0	(=0.000001)



Assumption: 84 Remove & Dispose Surge Tank (steel) Unit Price

Cell: R97

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q97)
Likeliest	\$0.65	(=R97)
Maximum	\$0.75	(=S97)

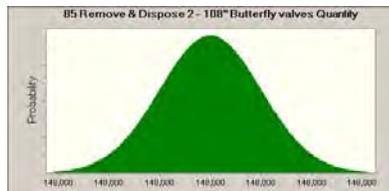


Assumption: 85 Remove & Dispose 2 - 108" Butterfly valves Quantity

Cell: L98

Normal distribution with parameters:

Mean	148,000	(=L98)
Std. Dev.	0	(=0.000001)

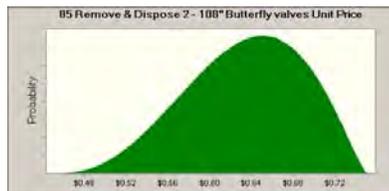


Assumption: 85 Remove & Dispose 2 - 108" Butterfly valves Unit Price

Cell: R98

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q98)
Likeliest	\$0.65	(=R98)
Maximum	\$0.75	(=S98)

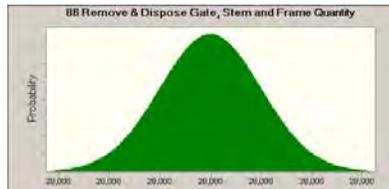


Assumption: 86 Remove & Dispose Gate, Stem and Frame Quantity

Cell: L99

Normal distribution with parameters:

Mean	28,000	(=L99)
Std. Dev.	0	(=0.000001)

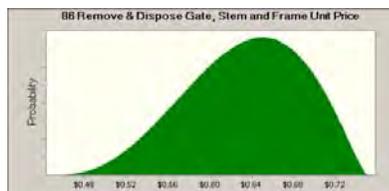


Assumption: 86 Remove & Dispose Gate, Stem and Frame Unit Price

Cell: R99

BetaPERT distribution with parameters:

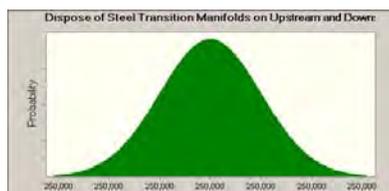
Minimum	\$0.45	(=Q99)
Likeliest	\$0.65	(=R99)
Maximum	\$0.75	(=S99)



Assumption: 87 Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream

Normal distribution with parameters:

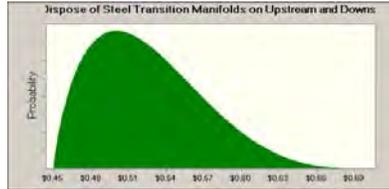
Mean	250,000	(=L100)
Std. Dev.	0	(=0.000001)



Assumption: 87 Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q100)
Likeliest	\$0.50	(=R100)
Maximum	\$0.70	(=S100)



Assumption: 88 Temporary Access Roads Quantity

Cell: L101

Normal distribution with parameters:

Mean	2	(=L101)
Std. Dev.	0	(=0.000001)



Assumption: 88 Temporary Access Roads Unit Price

Cell: R101

BetaPERT distribution with parameters:

Minimum	\$85,000.00	(=Q101)
Likeliest	\$100,000.00	(=S101)
Maximum	\$150,000.00	(=R101)

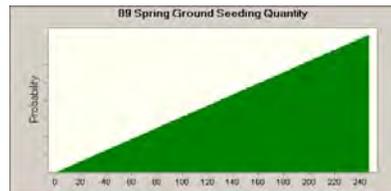


Assumption: 89 Spring Ground Seeding Quantity

Cell: L102

Triangular distribution with parameters:

Minimum	0	(=M102)
Likeliest	247	(=L102)
Maximum	247	(=K102)



Assumption: 89 Spring Ground Seeding Unit Price

Cell: R102

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q102)
Likeliest	\$3,500.00	(=R102)
Maximum	\$4,000.00	(=S102)



Assumption: 9 Remove Timber Equipment Ramp on left side of Dam Quantity

Cell: L22

Normal distribution with parameters:

Mean	10,500	(=L22)
Std. Dev.	0	(=0.000001)



Assumption: 9 Remove Timber Equipment Ramp on left side of Dam Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$0.50	(=Q22)
Likeliest	\$0.55	(=R22)
Maximum	\$0.70	(=S22)

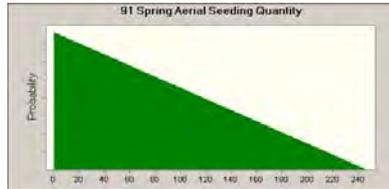


Assumption: 91 Spring Aerial Seeding Quantity

Cell: L104

Triangular distribution with parameters:

Minimum	0	(=K104)
Likeliest	0	(=L104)
Maximum	247	(=M104)



Assumption: 91 Spring Aerial Seeding Unit Price

Cell: R104

BetaPERT distribution with parameters:

Minimum	\$6,500.00	(=Q104)
Likeliest	\$7,500.00	(=R104)
Maximum	\$15,000.00	(=S104)



Assumption: 92 Fall Ground Seeding Quantity

Cell: L105

Triangular distribution with parameters:

Minimum	62	(=K105)
Likeliest	124	(=L105)
Maximum	185	(=M105)



Assumption: 92 Fall Ground Seeding Unit Price

Cell: R105

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q105)
Likeliest	\$3,500.00	(=R105)
Maximum	\$4,000.00	(=S105)

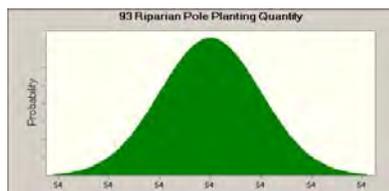


Assumption: 93 Riparian Pole Planting Quantity

Cell: L106

Normal distribution with parameters:

Mean	54	(=L106)
Std. Dev.	0	(=0.000001)

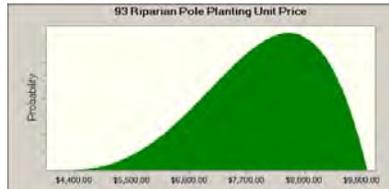


Assumption: 93 Riparian Pole Planting Unit Price

Cell: R106

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q106)
Likeliest	\$8,500.00	(=R106)
Maximum	\$10,000.00	(=S106)



Assumption: 94 Weed Management Quantity

Cell: L107

Triangular distribution with parameters:

Minimum	62	(=K107)
Likeliest	124	(=L107)
Maximum	185	(=M107)



Assumption: 94 Weed Management Unit Price

Cell: R107

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q107)
Likeliest	\$1,500.00	(=R107)
Maximum	\$2,000.00	(=S107)

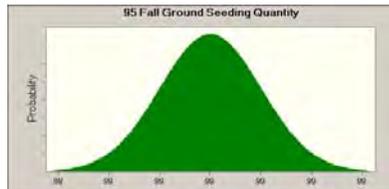


Assumption: 95 Fall Ground Seeding Quantity

Cell: L108

Normal distribution with parameters:

Mean	99	(=L108)
Std. Dev.	0	(=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price

Cell: R108

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q108)
Likeliest	\$3,500.00	(=R108)
Maximum	\$4,000.00	(=S108)

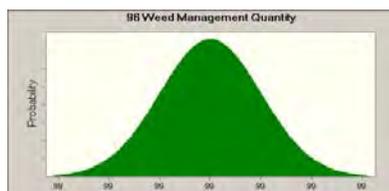


Assumption: 96 Weed Management Quantity

Cell: L109

Normal distribution with parameters:

Mean	99	(=L109)
Std. Dev.	0	(=0.000001)



Assumption: 96 Weed Management Unit Price

Cell: R109

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q109)
Likeliest	\$1,500.00	(=R109)
Maximum	\$2,000.00	(=S109)

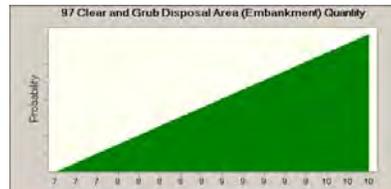


Assumption: 97 Clear and Grub Disposal Area (Embankment) Quantity

Cell: L110

Triangular distribution with parameters:

Minimum	7	(=M110)
Likeliest	10	(=L110)
Maximum	10	(=K110)

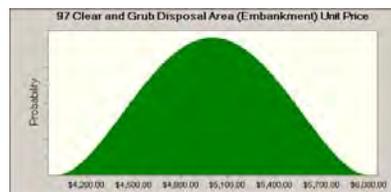


Assumption: 97 Clear and Grub Disposal Area (Embankment) Unit Price

Cell: R110

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q110)
Likeliest	\$5,000.00	(=R110)
Maximum	\$6,000.00	(=S110)

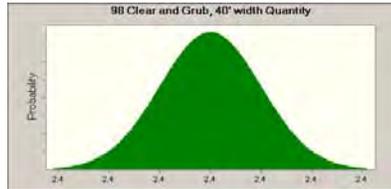


Assumption: 98 Clear and Grub, 40' width Quantity

Cell: L111

Normal distribution with parameters:

Mean	2.4	(=L111)
Std. Dev.	0.0	(=0.000001)

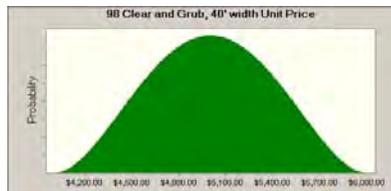


Assumption: 98 Clear and Grub, 40' width Unit Price

Cell: R111

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q111)
Likeliest	\$5,000.00	(=R111)
Maximum	\$6,000.00	(=S111)

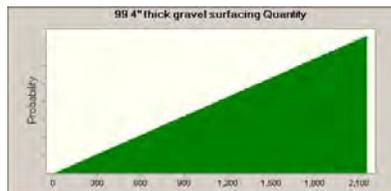


Assumption: 99 4" thick gravel surfacing Quantity

Cell: L112

Triangular distribution with parameters:

Minimum	0	(=K112)
Likeliest	2,150	(=L112)
Maximum	2,150	(=M112)



Assumption: 99 4" thick gravel surfacing Unit Price

Cell: R112

BetaPERT distribution with parameters:

Minimum	\$20.00	(=Q112)
Likeliest	\$30.00	(=R112)
Maximum	\$40.00	(=S112)

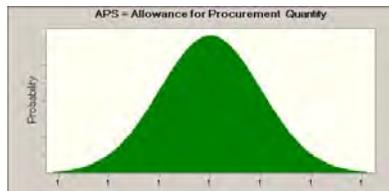


Assumption: APS = Allowance for Procurement Quantity

Cell: L140

Normal distribution with parameters:

Mean	1	(=L140)
Std. Dev.	0	(=0.000001)

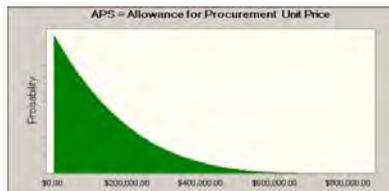


Assumption: APS = Allowance for Procurement Unit Price

Cell: R140

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q140)
Likeliest	\$0.00	(=R140)
Maximum	\$849,844.00	(=S140)

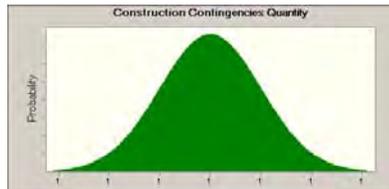


Assumption: Construction Contingencies Quantity

Cell: L143

Normal distribution with parameters:

Mean	1	(=L143)
Std. Dev.	0	(=0.000001)

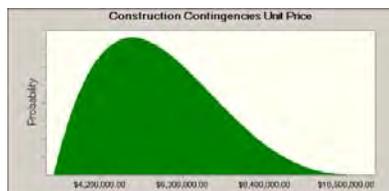


Assumption: Construction Contingencies Unit Price

Cell: R143

BetaPERT distribution with parameters:

Minimum	\$3,000,000.00	(=Q143)
Likeliest	\$5,000,000.00	(=R143)
Maximum	\$11,000,000.00	(=S143)

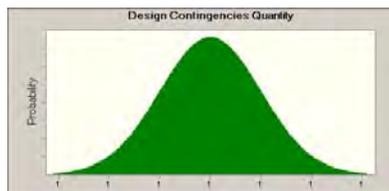


Assumption: Design Contingencies Quantity

Cell: L139

Normal distribution with parameters:

Mean	1	(=L139)
Std. Dev.	0	(=0.000001)



Assumption: Design Contingencies Unit Price

Cell: R139

BetaPERT distribution with parameters:

Minimum	\$1,165,310.00	(=Q139)
Likeliest	\$2,352,950.00	(=R139)
Maximum	\$5,200,411.00	(=S139)

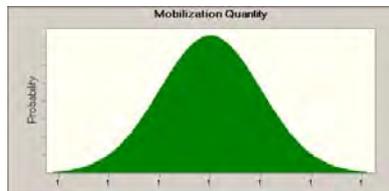


Assumption: Mobilization Quantity

Cell: L134

Normal distribution with parameters:

Mean	1	(=L134)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R134

BetaPERT distribution with parameters:

Minimum	\$730,000.00	(=Q134)
Likeliest	\$1,050,000.00	(=R134)
Maximum	\$1,750,000.00	(=S134)



Assumption: Non-Contract Cost Quantity

Cell: L145

Normal distribution with parameters:

Mean	1	(=L145)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R145

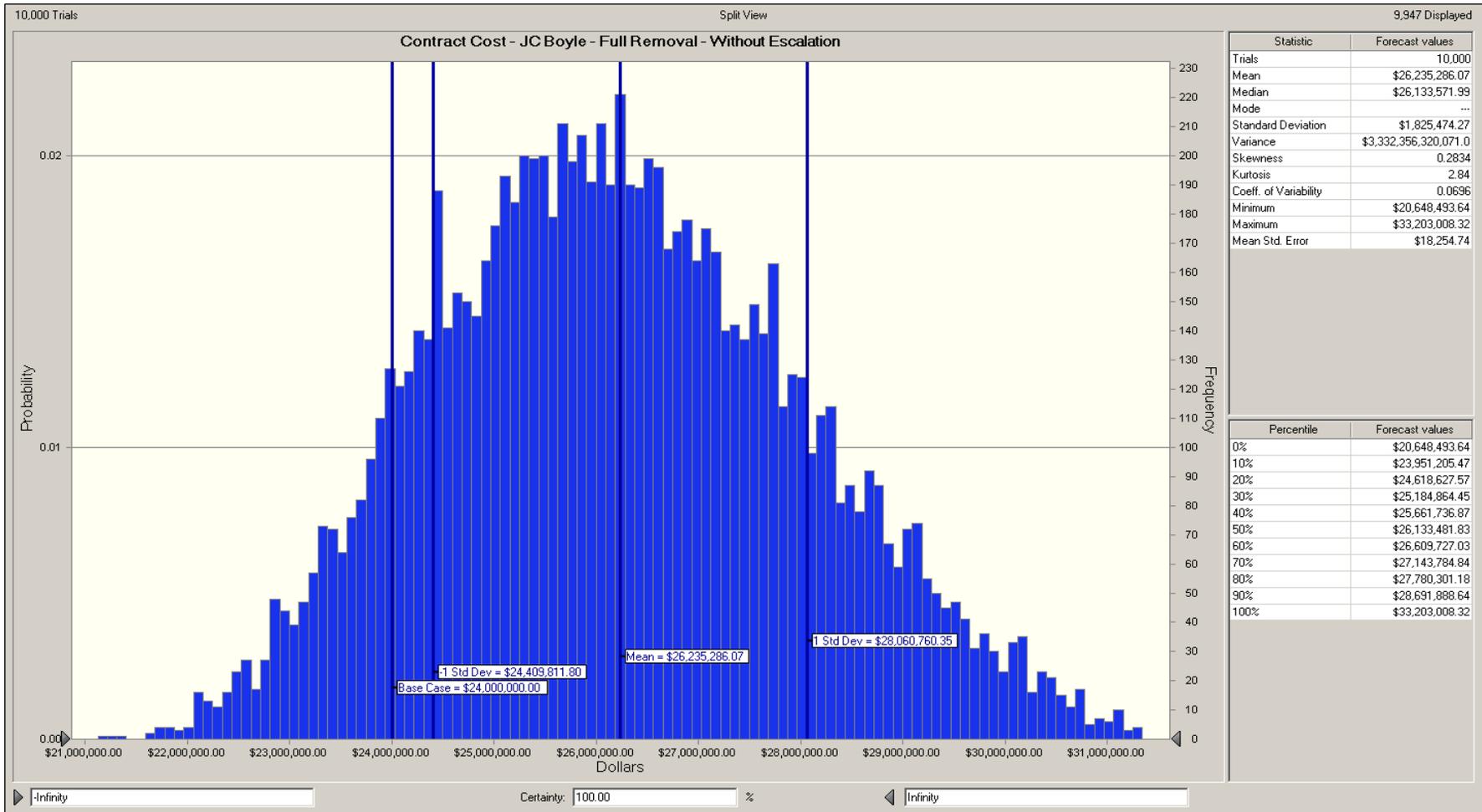
BetaPERT distribution with parameters:

Minimum	\$10,500,000.00	(=Q145)
Likeliest	\$16,000,000.00	(=R145)
Maximum	\$33,000,000.00	(=S145)

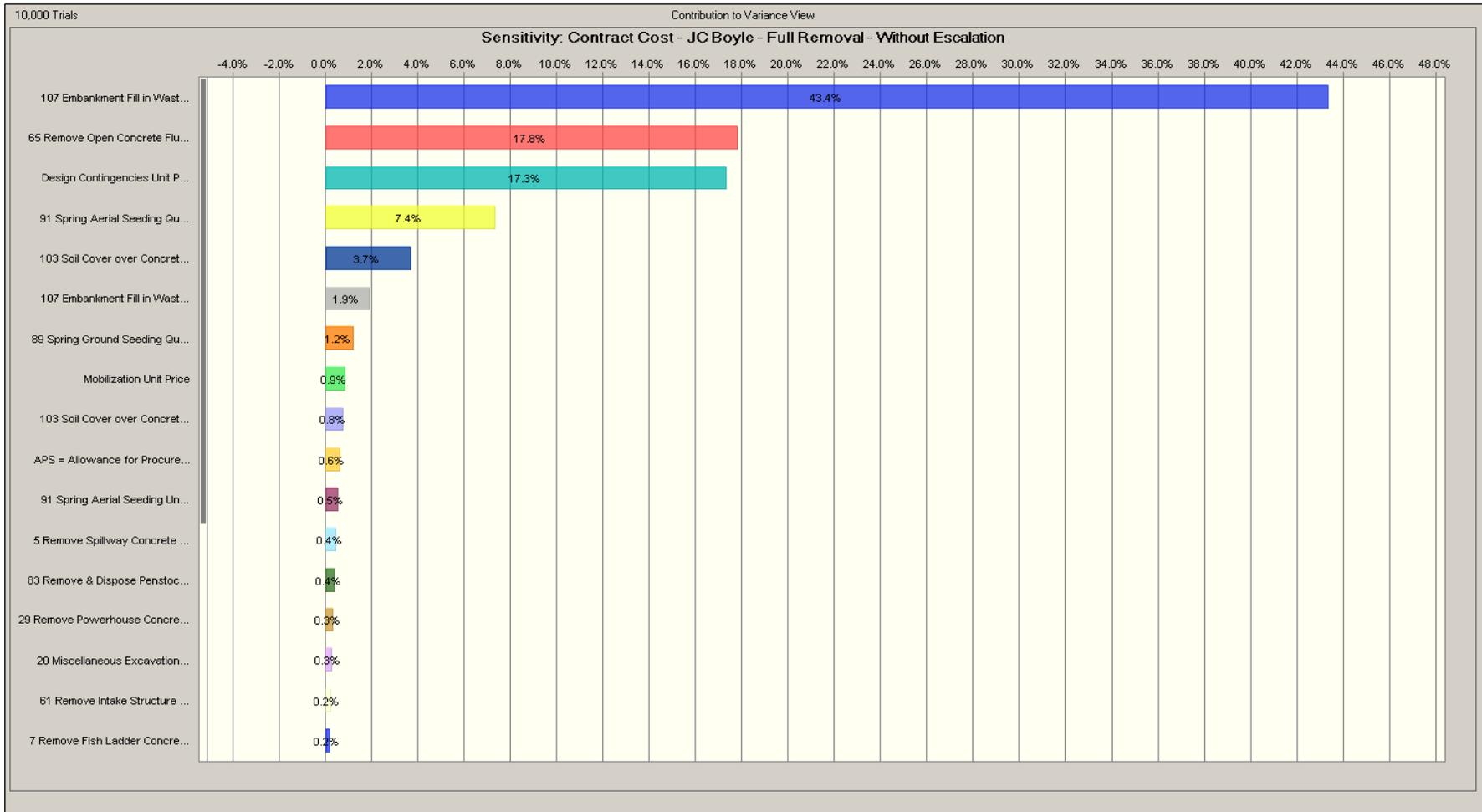


End of Assumptions

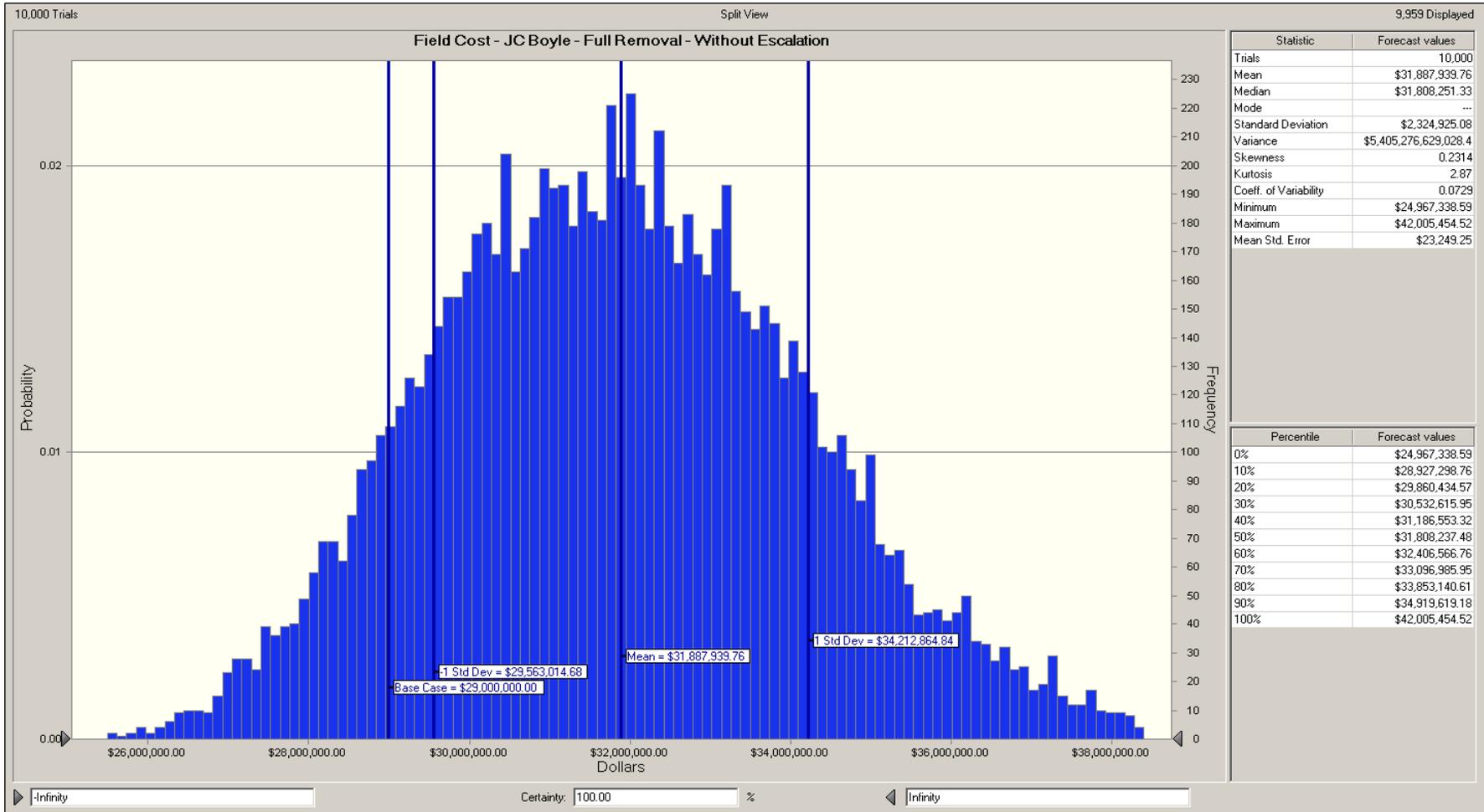
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



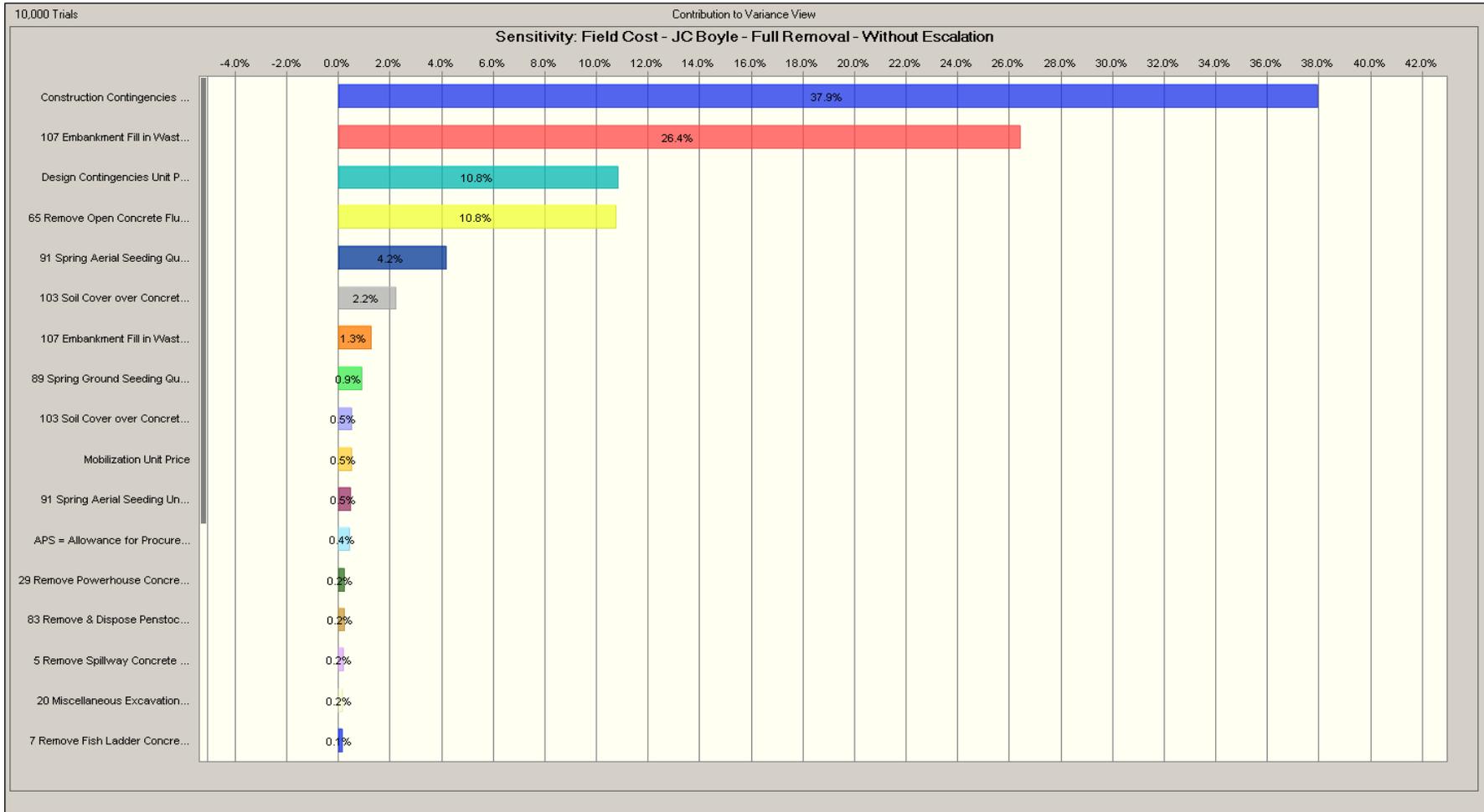
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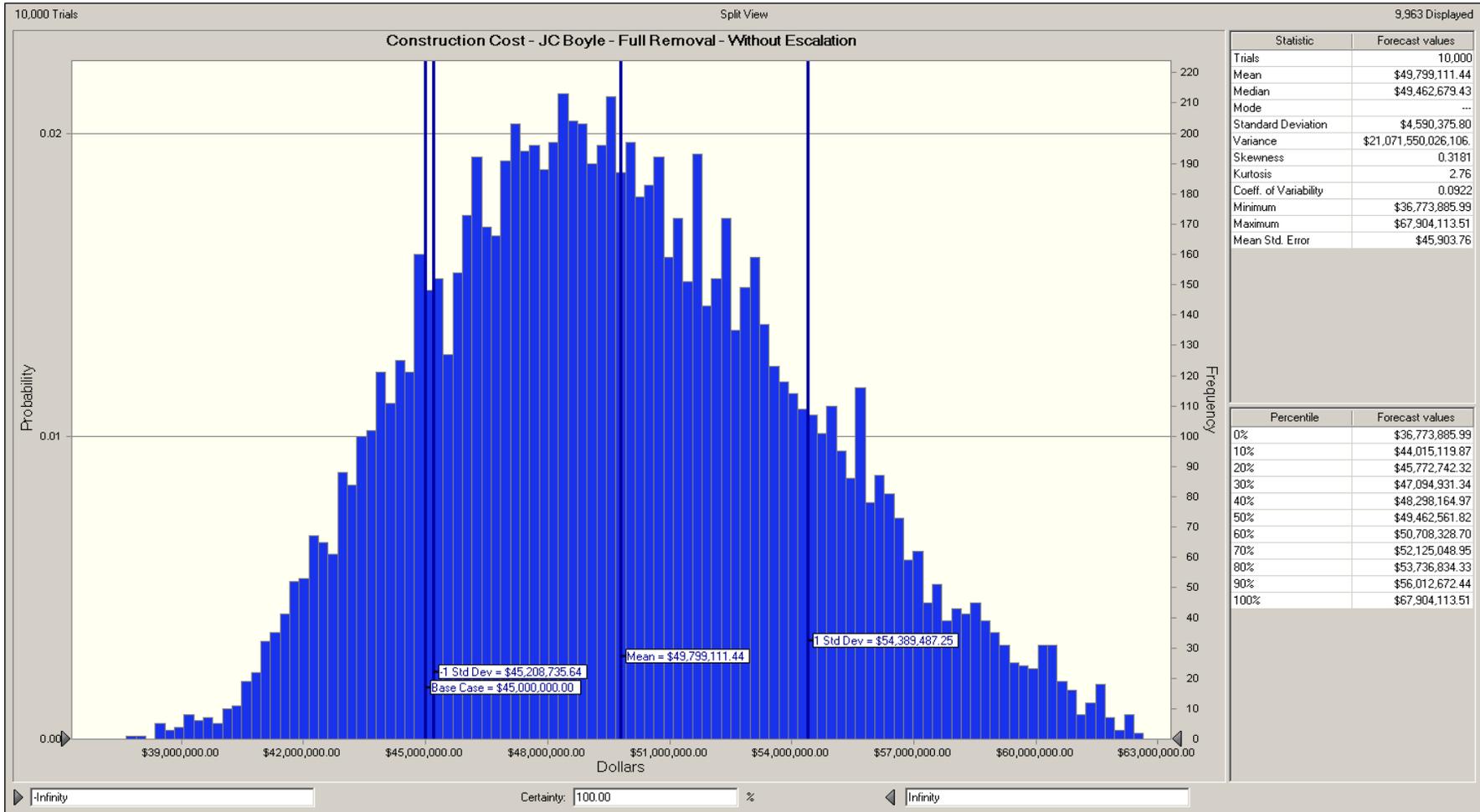
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



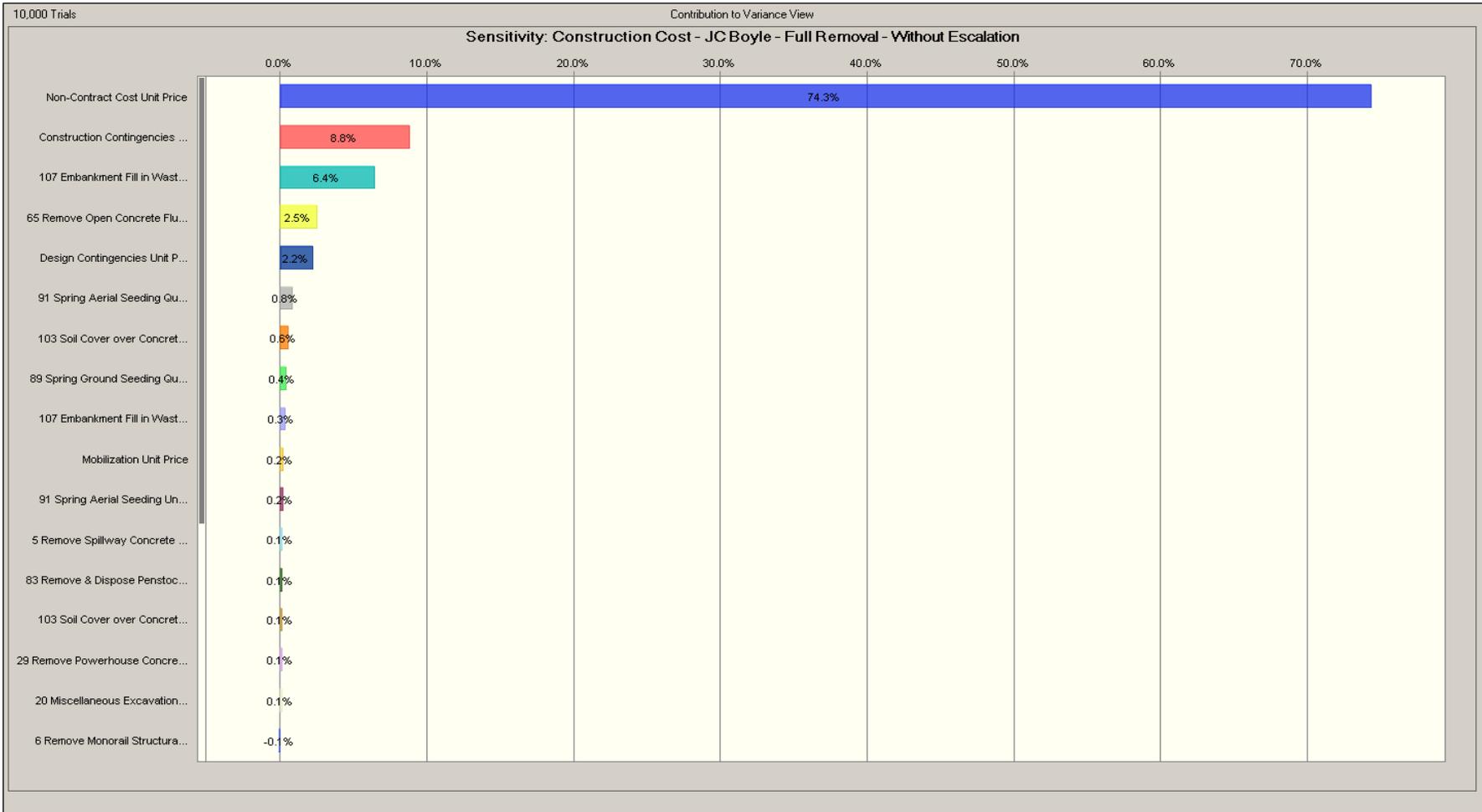
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PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



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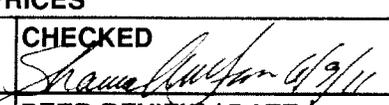
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 1

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable 50 Year Life Cycle Summary	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: Jul-10 FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\MP\JC Boyle
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$348,520.00
		Periodic Costs - Year 8					\$166,451.00
		Periodic Costs - Year 17					\$165,990.00
		Periodic Costs - Year 25					\$83,724.60
		Periodic Costs - Year 33					\$86,935.20
		Periodic Costs - Year 42					\$42,113.00
		Periodic Costs - Year 50					0.00
		Annual Costs - Maintenance					\$1,892,705.00
		(Assumes gov't service / construction contracts)					
		Subtotal 1					\$2,786,438.80
		Mobilization	5%	+/-			\$140,000.00
		Subtotal 1 with Mobilization					\$2,926,438.80
		Escalation to Notice to Proceed (NTP): from Unit Price Level (July, 2010) to NTP (July, 2020)					\$1,006,450.20
		at	3.0%	per year for	120	months.	
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$3,932,889.00
		Design Contingencies	10%	+/-			\$367,111.00
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$4,300,000.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive Request for Proposal					
		Subtotal 4 = Subtotal 3 + APS					\$4,300,000.00
		TERO Fee (__% of Total Contract)		+/-			
		Subtotal 5 = Subtotal 4 + TERO Fee					\$4,300,000.00
		CONTRACT COST					\$4,300,000.00
		Construction Contingencies	20%	+/-			\$900,000.00
		FIELD COST					\$5,200,000.00
		Non-Contract Costs	30%	+/-			\$1,600,000.00
		(Environmental Cultural / Mitigation ~ 7%, Engineering Design ~ 5%, Maintenance Service Contract ~ 5% Procurement ~ 2%, Inspections ~ 10% and Closeout ~ 1%)					
		CONSTRUCTION COST					\$6,800,000.00
		Note: initial estimate completed 4/17/11, revised non-contract costs 5/12/11, design contingency costs 6/9/11					
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED 
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 6/9/11	PEER REVIEW / DATE DCD 6/13/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 3

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Life Cycle	PROJECT: Klamath River Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: Jul-10
	FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MPL MPH\03 - JC Boyle\MPL\JC Boyle	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Remove paint on downstream face of power house (assume paint contains heavy metals)	86-68130	900	ft2	\$30.00	\$27,000.00
	2	Furnish, install, and maintain a 7-foot-high chain line fence around both ends of the 14-foot diameter penstock and the intake structure (assume fence includes two 3-foot-wide access gates) (assume replace two times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,450	lf	\$60.00	\$87,000.00
	3	Repaint 14-foot-diameter penstock pipe between intake structure at dam and headgate structure (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	32,000	ft2	\$4.00	\$128,000.00
	4	Repaint rocker bent penstock pipe supports (assume repaint 5 times)	86-68130	3,000	ft2	\$6.00	\$18,000.00
	5	Repaint penstock intake structure trashracks (four separate 11.5-ft-wide by 40-ft-high openings) (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	4,200	ft2	\$6.00	\$25,200.00
	6	Repaint outside of fish screen building on top of penstock intake structure (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	3,900	ft2	\$6.00	\$23,400.00
	7	Repaint wheel gate in penstock intake structure (assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	510	ft2	\$12.00	\$6,120.00
	8	Repaint wheel gate hoist frame (Assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	2,000	ft2	\$7.00	\$14,000.00
LIFE CYCLE SUBTOTAL: SHEET 1							\$328,720.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Greg Atkins</i> Greg Atkins	CHECKED <i>Shaunna</i> 5/13/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE <i>DCD</i> 5/13/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 2 OF 3

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Life Cycle	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: Jul-10 FILE: U:\2011
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	9	Repaint stop log storage beams & columns on intake structure and walkway (Assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,000	ft2	\$9.00	\$9,000.00	
	10	Repaint stop logs for wheel gate (Assume repaint 5 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,200	ft2	\$9.00	\$10,800.00	
	11	Maintain existing 7-ft-high chain link fence around headgate structure (fence includes 12-foot-wide access gate) (assume replace two times)	86-68130	180	lf	0	0	
		LIFE CYCLE SUBTOTAL: SHEET 2						\$19,800.00
		LIFE CYCLE TOTAL: JC BOYLE						\$348,520.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Greg Akins</i> Greg Akins	CHECKED <i>Se Campbell</i> Se Campbell
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE <i>DCW</i> 5/13/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

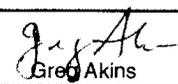
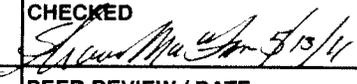
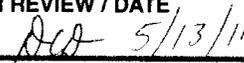
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 3

FEATURE: Klamath River Dams Removal Partial Removal Option Removal Site Maintenance Most Probable Life Cycle - 50 Year Operation and Maintenance - Periodic Costs	PROJECT: Klamath River Oregon	
	WOID: AF484	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: Jul-10
	FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\MP\JC Boyle Probable.xlsx\O&M	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Site Maintenance - Annual: JC Boyle site only*		1	LS	\$90,000.00	\$90,000.00
		Labor needed per year - three sites	86-68130	120	mdy**		
		3-Man maintenance crew					
		6 Months active inspection/maintenance					
		2 Weeks full time (1 month each spring)					
		4 Full days, 2 times each month (5 months)					
		Site maintenance required at JC Boyle, Copco 1 & Copco 2					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Equipment needed per year	86-68130	40	dy***		
		1-Service truck					
		Includes compressor, welder, generator and general tools					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Materials needed per year (percentage of labor & equipment)	86-68130	15%			
		Road maintenance needed per year (percentage of labor & equipment)	86-68130	10%			
		*Total estimated cost for all 3 sites is approximately \$161,000 annually: prorated +55% for the JC Boyle site					
		** Man days per year for 50 years					
		***Days per year for 50 years					
SUBTOTAL THIS SHEET							\$90,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED 
DATE PREPARED 04/18/11	PEER REVIEW / DATE Tom Hepler P.E. 4/18/11	DATE PREPARED 4/25/11	PEER REVIEW / DATE  5/13/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

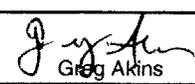
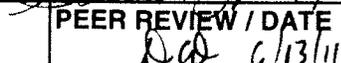
ESTIMATE WORKSHEET

SHEET 1 OF 1

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Life Cycle - 50 Year Summary	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVE Feasibility REGION MP UNIT PRICE LEV Jul-10 <hr/> FILE: U:\2011 Projects\Klamath\007 Crystal Ball\Klamath Summary Cost Sheet_122310.xls\MPL_MP_MPH_Full
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$394,940.00
		Periodic Costs - Year 5					\$219,930.92
		Periodic Costs - Year 10					\$179,684.33
		Periodic Costs - Year 13					\$62,645.06
		Periodic Costs - Year 15					\$146,802.77
		Periodic Costs - Year 20					\$119,937.60
		Periodic Costs - Year 25					\$136,558.46
		Periodic Costs - Year 30					\$80,059.80
		Periodic Costs - Year 35					\$65,407.79
		Periodic Costs - Year 38					\$22,803.62
		Periodic Costs - Year 40					\$53,439.60
		Periodic Costs - Year 45					\$43,659.93
		Periodic Costs - Year 50					0.00
		Annual Costs - Maintenance (Assumes gov't service / construction contracts)					\$5,257,515.00
		Subtotal 1					\$6,783,384.88
		Mobilization	5%	+/-			\$340,000.00
		Subtotal 1 with Mobilization					\$7,123,384.88
		Escalation to Notice to Proceed (NTP): from Unit Price Level (July, 2010) to NTP (July, 2020)					\$3,807,399.12
		at 4.375% per year for 120 months.					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$10,930,784.00
		Design Contingencies	15%	+/-			\$1,817,808.00
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$12,748,592.00
		Allowance for Procurement Strategies (APS)	2.0%	+/-			\$251,408.00
		Type of solicitation assumed is: Selective Request for Proposal					
		Subtotal 4 = Subtotal 3 + APS					\$13,000,000.00
		CONTRACT COST					\$13,000,000.00
		Construction Contingencies	25%	+/-			\$3,000,000.00
		FIELD COST					\$16,000,000.00
		Non-Contract Costs (Environmental Cultural / Mitigation ~ 10%, Engineering Design ~ 7%, Maintenance Service Contract ~ 5% Procurement ~ 2%, Inspections ~ 10% and Closeout ~ 1%)	35%	+/-			\$6,000,000.00
		CONSTRUCTION COST					\$22,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Atkins	CHECKED  6/9/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 6/9/11	PEER REVIEW / DATE  6/13/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

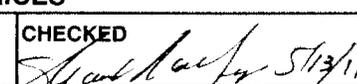
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 2 OF 3

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Life Cycle - 50 Year Operation and Maintenance - Initial Capital Costs	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: Jan-11 FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\MPH\JC Boyle - MPH - Probable.xlsx\Initial Cost 2
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	9	Repaint stop log storage beams & columns on intake structure and walkway (assume repaint 9 times) <i>Estimate assume minor paint repair ~ 4%</i>	86-68130	1,000	ft2	\$9.00	\$9,000.00
	10	Repaint stop logs for wheel gate (assume repaint 9 times) <i>Estimate assume minor paint repair ~ 4%</i>	86-68130	1,200	ft2	\$9.00	\$10,800.00
	11	Maintain existing 7-ft-high chain link fence around headgate structure (fence includes 12-foot-wide access gate) (assume replace 3 times)	86-68130	180	lf	0	0
LIFE CYCLE SUBTOTAL THIS SHEET							\$19,800.00
LIFE CYCLE TOTAL							\$394,940.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED  5/13/11
DATE PREPARED 03/21/11	PEER REVIEW / DATE Tom Hepler P.E. 3/24/11	DATE PREPARED	PEER REVIEW / DATE

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 3

FEATURE: Klamath River Dams Removal Partial Removal Option Removal Site Maintenance Most Probable High Life Cycle - 50 Year Operation and Maintenance - Periodic Costs	PROJECT: Klamath River Oregon WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL Jul-10 FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\MPH\JC Boyle - MPH - Probable.xlsx\O&M
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Site Maintenance - Annual: JC Boyle Site only*		1	LS	\$250,000.00	\$250,000.00
		Labor needed per year - threes sites:	86-68130	150			
		3-Man maintenance crew					
		6 Months active inspection/maintenance					
		2 Weeks full time (1 month each spring)					
		4 Full days, 2 times each month (5 months)					
		Site maintenance required at JC Boyle, Copco 1 & Copco 2					
		<i>Estimate prorated amount of the time at each dam site based on percent of total MP partial removal construction costs</i>					
					dy***		
		Equipment needed per year	86-68130	50			
		1-Service truck			dy**		
		Includes compressor, welder, generator and general tools					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Materials needed per year (percentage of labor & equipment)	86-68130	15%			
		Road maintenance needed per year (percentage of labor & equipment)	86-68130	10%			
		<i>*Total estimated cost for all 3 sites is approximately \$462,000 annually: prorated ±55% for the JC Boyle site only</i>					
		<i>** Man days per year for 50 years</i>					
		<i>***Days per year for 50 years</i>					
		SUBTOTAL THIS SHEET					\$250,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Greg Atkins</i> Greg Atkins	CHECKED <i>Steve Cooper</i> 5/4/11
DATE PREPARED 04/18/11	PEER REVIEW / DATE Tom Hepler P.E. 4/18/11	DATE PREPARED 5/4/11	PEER REVIEW / DATE <i>DCD</i> 5/4/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 1

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Life Cycle - 50 Year Summary	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL Feasibility REGION MP UNIT PRICE LEVE Jul-10 <hr/> FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH03 - JC Boyle\MPL\JC Boyle - MPL - Probable.xls\Life Cycle Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$299,400.00
		Periodic Costs - Year 17					\$100,600.00
		Periodic Costs - Year 25					\$29,667.63
		Periodic Costs - Year 33					\$52,688.00
		Periodic Costs - Year 50					0.00
		(Assumes gov't service / construction contracts)					
		Annual Costs - Maintenance					\$1,114,593.00
		Subtotal 1					\$1,596,948.63
		Mobilization	5%	+/-			\$80,000.00
		Subtotal 1 with Mobilization					\$1,676,948.63
		Escalation to Notice to Proceed (NTP): from Unit Price Level (July, 2010) to NTP (July, 2020)					\$269,218.37
		at	1.5%	per year for	120	months.	
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$1,946,167.00
		Design Contingencies	8%	+/-			\$153,833.00
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$2,100,000.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Full and open sealed bid competition					
		Subtotal 4 = Subtotal 3 + APS					\$2,100,000.00
		CONTRACT COST					\$2,100,000.00
		Construction Contingencies	18%	+/-			\$400,000.00
		FIELD COST					\$2,500,000.00
		Non-Contract Costs	25%	+/-			\$600,000.00
		(Environmental Cultural / Mitigation ~ 5%, Engineering Design ~ 4%, Maintenance Service Contract ~ 4%					
		Procurement ~ 1%, Inspections ~ 10%					
		and Closeout ~ 1%)					
		CONSTRUCTION COST					\$3,100,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Justin</i> Greg Akins	CHECKED <i>Justin</i> 5/18/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED 5/13/11	PEER REVIEW / DATE <i>DD</i> 6/13/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

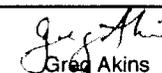
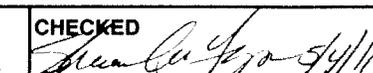
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 3

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Life Cycle - 50 Year Operation and Maintenance - Initial Capital Costs	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: Jan-11 <hr/> FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MPL MPL MPH\03 - JC Boyle\MPL\JC Boyle - MPL - Probable.xlsx\Life Cycle Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Remove paint on downstream face of power house (assume paint contains heavy metals)	86-68130	900	ft2	\$30.00	\$27,000.00
	2	Furnish, install, and maintain a 7-foot-high chain line fence around both ends of the 14-foot diameter penstock and the intake structure (assume fence includes two 3-foot-wide access gates) (assume 1 replacement) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,450	lf	\$50.00	\$72,500.00
	3	Repaint 14-foot-diameter penstock pipe between intake structure at dam and headgate structure (assume repaint 2 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	32,000	ft2	\$3.50	\$112,000.00
	4	Repaint rocker bent penstock pipe supports (assume repaint 2 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	3,000	ft2	\$5.00	\$15,000.00
	5	Repaint penstock intake structure trashracks (four separate 11.5-ft-wide by 40-ft-high openings) (assume repaint 2 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	4,200	ft2	\$5.00	\$21,000.00
	6	Repaint outside of fish screen building on top of penstock intake structure (assume repaint 2 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	3,900	ft2	\$5.00	\$19,500.00
	7	Repaint wheel gate in penstock intake structure (assume repaint 2 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	510	ft2	\$10.00	\$5,100.00
	8	Repaint wheel gate hoist frame (assume repaint 2 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	2,000	ft2	\$6.50	\$13,000.00
LIFE CYCLE SUBTOTAL THIS SHEET							\$285,100.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED 
DATE PREPARED 03/21/11	PEER REVIEW / DATE Tom Hepler P.E. 3/24/11	DATE PREPARED 5/4/11	PEER REVIEW / DATE SCD 5/4/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

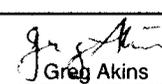
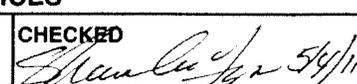
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 2 OF 3

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Life Cycle - 50 Year Operation and Maintenance - Initial Capital Costs	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: Jan-11 <hr/> FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MPL MPL MPH\03 - JC Boyle\MPL\JC Boyle - MPL - Probable.xlsx\Life Cycle Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	9	Repaint stop log storage beams & columns on intake structure and walkway (assume repaint 2 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,000	ft2	\$6.50	\$6,500.00
	10	Repaint stop logs for wheel gate (assume repaint 2 times) <i>Estimate assume minor paint repair ~ 2%</i>	86-68130	1,200	ft2	\$6.50	\$7,800.00
	11	Maintain existing 7-ft-high chain link fence around headgate structure (fence includes 12-foot-wide access gate) (assume replace 1 time)	86-68130	180	lf	0	0
LIFE CYCLE SUBTOTAL THIS SHEET							\$14,300.00
LIFE CYCLE TOTAL							\$299,400.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED  5/4/11
DATE PREPARED 03/21/11	PEER REVIEW / DATE Tom Hepler P.E. 3/24/11	DATE PREPARED 5/4/11	PEER REVIEW / DATE DCB 5/4/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 3

FEATURE: Klamath River Dams Removal Partial Removal Option Removal Site Maintenance Most Probable Low Life Cycle - 50 Year Operation and Maintenance - Periodic Costs	PROJECT: Klamath River Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL Jul-10 <hr/> FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\MPL\JC Boyle - MPL - Probable.xlsx\Life Cycle Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Site Maintenance - Annual		1	LS	\$53,000.00	\$53,000.00
		Labor needed per year	86-68130	90	mdy*		
		3-Man maintenance crew					
		6 Months active inspection/maintenance					
		2 Weeks full time (1 month each spring)					
		4 Full days, 2 times each month (5 months)					
		Site maintenance required at JC Boyle,					
		Copco 1 & Copco 2					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Equipment needed per year	86-68130	30	dy**		
		1-Service truck					
		Includes compressor, welder, generator and general tools					
		<i>Estimate prorated the time at each dam site based on percent of total partial removal construction costs</i>					
		Materials needed per year (percentage of labor & equipment)	86-68130	15%			
		Road maintenance needed per year (percentage of labor & equipment)	86-68130	10%			
		* Man days per year for 50 years					
		**Days per year for 50 years					
SUBTOTAL THIS SHEET							\$53,000.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED  5/4/11
DATE PREPARED 04/18/11	PEER REVIEW / DATE Tom Hepler P.E. 4/18/11	DATE PREPARED 5/11/11	PEER REVIEW / DATE DCD 5/4/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

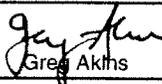
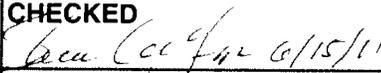
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 1

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable - Escalation NOT Included 50 Year Life Cycle Summary	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: Jul-10 FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\Escalation\JC Boyle
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$348,520.00
		Periodic Costs - Year 8					\$166,451.00
		Periodic Costs - Year 17					\$165,990.00
		Periodic Costs - Year 25					\$83,724.60
		Periodic Costs - Year 33					\$86,935.20
		Periodic Costs - Year 42					\$42,113.00
		Periodic Costs - Year 50					0.00
		Annual Costs - Maintenance (Assumes gov't service / construction contracts)					\$1,892,705.00
		Subtotal 1					\$2,786,438.80
		Mobilization	5%	+/-			\$140,000.00
		Subtotal 1 with Mobilization					\$2,926,438.80
		Escalation to Notice to Proceed (NTP): from Unit Price Level (July, 2010) to NTP (July, 2020)					
		None Include		per year for		months.	
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$2,926,438.80
		Design Contingencies	10%	+/-			\$273,561.20
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$3,200,000.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive Request for Proposal					
		Subtotal 4 = Subtotal 3 + APS					\$3,200,000.00
		TERO Fee (__% of Total Contract)		+/-			
		Subtotal 5 = Subtotal 4 + TERO Fee					\$3,200,000.00
		CONTRACT COST					\$3,200,000.00
		Construction Contingencies	20%	+/-			\$700,000.00
		FIELD COST					\$3,900,000.00
		Non-Contract Costs	30%	+/-			\$1,200,000.00
		(Environmental Cultural / Mitigation ~ 7%, Engineering Design ~ 5%, Maintenance Service Contract ~ 5% Procurement ~ 2%, Inspections ~ 10% and Closeout ~ 1%)					
		CONSTRUCTION COST					\$5,100,000.00
		Note: intial estimate completed 4/17/11, revised non-contract costs 5/12/11, design contingencyt costs 6/9/11					
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akhs	CHECKED  Rick Benik 6/15/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED -	PEER REVIEW / DATE NCO 6/15/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 1

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High - Escalation NOT Included Life Cycle - 50 Year Summary	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVE Feasibility REGION MP UNIT PRICE LEV Jul-10 <hr/> FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\Escalation\JC Boyle - MPH - Probable.xlsx\Life Cycle Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$394,940.00
		Periodic Costs - Year 5					\$219,930.92
		Periodic Costs - Year 10					\$179,684.33
		Periodic Costs - Year 13					\$62,645.06
		Periodic Costs - Year 15					\$146,802.77
		Periodic Costs - Year 20					\$119,937.60
		Periodic Costs - Year 25					\$136,558.46
		Periodic Costs - Year 30					\$80,059.80
		Periodic Costs - Year 35					\$65,407.79
		Periodic Costs - Year 38					\$22,803.62
		Periodic Costs - Year 40					\$53,439.60
		Periodic Costs - Year 45					\$43,659.93
		Periodic Costs - Year 50					0.00
		Annual Costs - Maintenance (Assumes gov't service / construction contracts)					\$5,257,515.00
		Subtotal 1					\$6,783,384.88
		Mobilization	5%	+/-			\$340,000.00
		Subtotal 1 with Mobilization					\$7,123,384.88
		Escalation to Notice to Proceed (NTP): from Unit Price Level (July, 2010) to NTP (July, 2020)					
		None Included:		per year for		months.	
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$7,123,384.88
		Design Contingencies	15%	+/-			\$1,112,777.12
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$8,236,162.00
		Allowance for Procurement Strategies (APS)	2.0%	+/-			\$163,838.00
		Type of solicitation assumed is: Selective Request for Proposal					
		Subtotal 4 = Subtotal 3 + APS					\$8,400,000.00
		CONTRACT COST					\$8,400,000.00
		Construction Contingencies	25%	+/-			\$2,100,000.00
		FIELD COST					\$10,500,000.00
		Non-Contract Costs	35%	+/-			\$3,500,000.00
		(Environmental Cultural / Mitigation ~ 10%, Engineering Design ~ 7%, Maintenance Service Contract ~ 5% Procurement ~ 2%, Inspections ~ 10% and Closeout ~ 1%)					
		CONSTRUCTION COST					\$14,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY <i>Greg Akins</i> Greg Akins	CHECKED <i>Hepler</i> Hepler 6/15/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED	PEER REVIEW / DATE <i>Hepler</i> 6/15/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

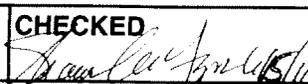
ESTIMATE WORKSHEET

SHEET 1 OF 1

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low - Escalation NOT Included Life Cycle - 50 Year Summary	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL Feasibility REGION MP UNIT PRICE LEVE Jul-10 <hr/> FILE: U:\2011 Projects\Klamath\002 Completed Sheets\MP MPL MPH\03 - JC Boyle\Escalation\JC Boyle - MPL - Probable.xlsx\Life Cycle Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Periodic Costs - Year 1					\$299,400.00
		Periodic Costs - Year 17					\$100,600.00
		Periodic Costs - Year 25					\$29,667.63
		Periodic Costs - Year 33					\$52,688.00
		Periodic Costs - Year 50					0.00
		(Assumes gov't service / construction contracts)					
		Annual Costs - Maintenance					\$1,114,593.00
		Subtotal 1					\$1,596,948.63
		Mobilization	5%	+/-			\$80,000.00
		Subtotal 1 with Mobilization					\$1,676,948.63
		Escalation to Notice to Proceed (NTP): from Unit Price Level (July, 2010) to NTP (July, 2020)					
		None Included		per year for		months.	
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$1,676,948.63
		Design Contingencies	8%	+/-			\$123,051.37
		Subtotal 3 = Subtotal 2 + Design Contingencies					\$1,800,000.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Full and open sealed bid competition					
		Subtotal 4 = Subtotal 3 + APS					\$1,800,000.00
		CONTRACT COST					\$1,800,000.00
		Construction Contingencies	18%	+/-			\$300,000.00
		FIELD COST					\$2,100,000.00
		Non-Contract Costs	25%	+/-			\$500,000.00
		(Environmental Cultural / Mitigation ~ 5%, Engineering Design ~ 4%, Maintenance Service Contract ~ 4% Procurement ~ 1%, Inspections ~ 10% and Closeout ~ 1%)					
		CONSTRUCTION COST					\$2,600,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Stephen Latham	BY  Greg Akins	CHECKED 
DATE PREPARED 03/24/11	PEER REVIEW / DATE Tom Hepler P.E. 3/25/11	DATE PREPARED	PEER REVIEW / DATE  4/15/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED
ESTIMATE WORKSHEET

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE	PROJECT: Klamath River, Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP PRICE LEVEL: Jul-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\JC Boyle - Partial Removal Crystal Ball - with Escalation - 2011-04.xls\JC Boyle - Partial - with Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	1	Removal of Diversion Conduit Bulkheads.	8130	14	14	14	CY	\$725.00	\$850.00	\$950.00	\$10,150.00	\$11,900.00	\$13,300.00
	2	Remove Water from behind Tailrace Cofferdam.	8130	0	0	0	GAL				\$0.00	\$0.00	\$0.00
	3	Provide Dewatering behind Tailrace Cofferdam	8130	0	0	0	LS				\$0.00	\$0.00	\$0.00
	4	Construct Embankment Cofferdam in Tailrace around Powerhouse	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	5	Remove Spillway Concrete	8130	2,500	2,500	2,500	CY	\$130.00	\$260.00	\$390.00	\$325,000.00	\$650,000.00	\$975,000.00
	6	Remove Monorail Structural Steel Components	8130	15,000	15,000	15,000	LBS	\$0.45	\$0.65	\$0.75	\$6,750.00	\$9,750.00	\$11,250.00
	7	Remove Fish Ladder Concrete	8130	1,600	1,600	1,600	CY	\$130.00	\$260.00	\$390.00	\$208,000.00	\$416,000.00	\$624,000.00
	8	Remove Gravity Dam Section Concrete	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	9	Remove Timber Equipment Ramp on left side of Dam	8130	10,500	10,500	10,500	LBS	\$0.50	\$0.55	\$0.70	\$5,250.00	\$5,775.00	\$7,350.00
	10	Remove Pressure-Treated Lumber from Footbridge around Intake Structure	8130	3,600	3,600	3,600	LBS	\$0.50	\$0.55	\$0.70	\$1,800.00	\$1,980.00	\$2,520.00
	11	Remove Storage Shed located on access road	8130	0	0	0	SF				\$0.00	\$0.00	\$0.00
	12	Remove Warehouse located on access road	8130	0	0	0	SF				\$0.00	\$0.00	\$0.00
	13	Remove Fire System Control Bldg. on left abutment.	8130	385	385	385	SF	\$38.00	\$40.00	\$42.00	\$14,630.00	\$15,400.00	\$16,170.00
	14	Remove Dam Communication Bldg. on left abutment.	8130	331	331	331	SF	\$38.00	\$40.00	\$42.00	\$12,578.00	\$13,240.00	\$13,902.00
	15	Remove Concrete Slab on left abutment for former Control House	8130	6	6	6	CY	\$130.00	\$260.00	\$390.00	\$780.00	\$1,560.00	\$2,340.00
	16	Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment.	8130	1	1	1	CY	\$130.00	\$260.00	\$390.00	\$130.00	\$260.00	\$390.00
	17	Remove Reservoir Level Gauge House on Dam Crest	8130	24	24	24	SF	\$38.00	\$40.00	\$42.00	\$912.00	\$960.00	\$1,008.00
	18	Upstream Riprap	8313	2,220	2,220	2,220	CY	\$8.00	\$9.00	\$12.00	\$17,760.00	\$19,980.00	\$26,640.00
	19	Downstream Riprap	8313	1,850	1,850	1,850	CY	\$8.00	\$9.00	\$12.00	\$14,800.00	\$16,650.00	\$22,200.00
	20	Miscellaneous Excavation	8313	132,500	132,500	132,500	CY	\$8.00	\$9.00	\$12.00	\$1,060,000.00	\$1,192,500.00	\$1,590,000.00
	21	Cutoff Wall Concrete Demolition	8313	70	70	70	CY	\$130.00	\$260.00	\$390.00	\$9,100.00	\$18,200.00	\$27,300.00
	22	Cutoff Wall Anchors	8313	285	285	285	EA	\$9.00	\$10.00	\$12.00	\$2,565.00	\$2,850.00	\$3,420.00
	23	Remove & Dispose Hand Rails and Light Poles	8420	5,000	5,000	5,000	LBS	\$0.45	\$0.65	\$0.75	\$2,250.00	\$3,250.00	\$3,750.00
	24	Remove & Dispose Spillway Radial Gates and Hoists	8420	124,000	124,000	124,000	LBS	\$0.45	\$0.65	\$0.75	\$55,800.00	\$80,600.00	\$93,000.00
	25	Remove & Dispose Stop Logs and Slots (steel)	8420	92,000	92,000	92,000	LBS	\$0.45	\$0.65	\$0.75	\$41,400.00	\$59,800.00	\$69,000.00
	26	Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure	8420	4,200	4,200	4,200	LBS	\$0.45	\$0.65	\$0.75	\$1,890.00	\$2,730.00	\$3,150.00
	26A	Remove Petroleum Products from Red Barn Area	8420	1,600	1,600	1,600	GAL	\$8.00	\$10.00	\$12.00	\$12,800.00	\$16,000.00	\$19,200.00
	27	Remove & Dispose of Spillway gate motor & control panel	8430	1	1	1	EA	\$500.00	\$600.00	\$700.00	\$500.00	\$600.00	\$700.00
	28	Remove & Dispose of Distribution equipment , panelboards	8430	1	1	1	EA	\$5,500.00	\$6,000.00	\$6,500.00	\$5,500.00	\$6,000.00	\$6,500.00
	29	Remove Powerhouse Concrete down to Elevation 3324.0	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	30	Remove Structural Steel Items associated with Powerhouse	8130	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	31	Remove Warehouse near Powerhouse	8130	5,200	5,200	5,200	SF	\$38.00	\$40.00	\$42.00	\$197,600.00	\$208,000.00	\$218,400.00
	32	Remove & Dispose of 2 - Governor oil systems	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	33	Remove & Dispose of Cooling water and bearing oil systems	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	34	Remove & Dispose of 2 - Francis Turbines	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	35	Remove & Dispose of 150 Ton crane	8420	240,000	240,000	240,000	LBS	\$0.45	\$0.65	\$0.75	\$108,000.00	\$156,000.00	\$180,000.00
	36	Remove & Dispose of Compressed Air systems	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	37	Remove & Dispose of 2 - CO2 systems	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	38	Remove & Dispose of Plant Water and Fire Protection	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	39	Remove & Dispose of Transformer Oil Fire protection	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	40	Remove & Dispose of Unwatering Piping	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	41	Remove & Dispose of Drainage Piping	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	42	Remove & Dispose of 2-Oil Sump pumps	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	43A	Remove Petroleum Products from Mechanical Equipment	8420	2,700	2,700	2,700	GAL	\$8.00	\$10.00	\$12.00	\$21,600.00	\$27,000.00	\$32,400.00
	44	Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA	8430	2	2	2	EA	\$150,000.00	\$200,000.00	\$250,000.00	\$300,000.00	\$400,000.00	\$500,000.00
	45	Remove & Dispose of Excitation equipment for 53/50 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED
ESTIMATE WORKSHEET

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE	PROJECT: Klamath River, Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP PRICE LEVEL: Jul-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\JC Boyle - Partial Removal Crystal Ball - with Escalation - 2011-04.xls\JC Boyle - Partial - with Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	46	Remove & Dispose of Surge protection equip. for 53/50 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	47	Remove & Dispose of Neutral grounding equip. for 53/50 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	48	Remove & Dispose of Generator Switchgear, 15kV - (6 sections)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	49	Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	50	Remove & Dispose of Unit and plant control switchboard	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	51	Remove & Dispose of Battery system	8430	1	1	1	EA	\$7,000.00	\$8,000.00	\$9,000.00	\$7,000.00	\$8,000.00	\$9,000.00
	52	Remove & Dispose of Raceways, Conduit and Cable	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	53	Remove & Dispose of Misc. power & control boards	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	54	Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	55	Remove & Dispose of Gantry Crane control equipment (3 cubicles)	8430	1	1	1	EA	\$5,000.00	\$6,000.00	\$7,000.00	\$5,000.00	\$6,000.00	\$7,000.00
	56	Remove & Dispose of Conduit and Cable	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$11,000.00	\$9,000.00	\$10,000.00	\$11,000.00
	57	Remove & Dispose of Exterior Lighting	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	58	Remove & Dispose of Transmission Line No. 59	8430	1.66	1.66	1.66	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$33,200.00	\$41,500.00	\$49,800.00
	59	Remove & Dispose of Transmission Line No. 98	8430	0.24	0.24	0.24	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$4,800.00	\$6,000.00	\$7,200.00
	60	Remove & Dispose of Transmission Line No. 58	8430	1.66	1.66	1.66	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$33,200.00	\$41,500.00	\$49,800.00
	61	Remove Intake Structure Concrete	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	62	Remove Fish Screen Building	8130	0	0	0	SF				\$0.00	\$0.00	\$0.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe	8130	22,000	22,000	22,000	LBS	\$0.45	\$0.65	\$0.75	\$9,900.00	\$14,300.00	\$16,500.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	65	Remove Open Concrete Flume.	8130	12,200	12,200	12,200	CY	\$220.00	\$260.00	\$390.00	\$2,684,000.00	\$3,172,000.00	\$4,758,000.00
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers	8130	11,500	11,500	11,500	LBS	\$0.45	\$0.65	\$0.75	\$5,175.00	\$7,475.00	\$8,625.00
	67	Remove Forebay Concrete	8130	1,500	1,500	1,500	CY	\$220.00	\$260.00	\$390.00	\$330,000.00	\$390,000.00	\$585,000.00
	68	Place Concrete Plugs at Tunnel Portals	8130	30	30	30	CY	\$900.00	\$1,000.00	\$1,100.00	\$27,000.00	\$30,000.00	\$33,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel	8130	1,800	1,800	1,800	CY	\$220.00	\$260.00	\$390.00	\$396,000.00	\$468,000.00	\$702,000.00
	70	Remove Headgate Control Building at Flume Entrance	8130	330	330	330	SF	\$38.00	\$40.00	\$42.00	\$12,540.00	\$13,200.00	\$13,860.00
	71	Remove Forebay Spillway Gate House	8130	570	570	570	SF	\$38.00	\$40.00	\$42.00	\$21,660.00	\$22,800.00	\$23,940.00
	72	Remove Forebay Control Building.	8130	470	470	470	SF	\$38.00	\$40.00	\$42.00	\$17,860.00	\$18,800.00	\$19,740.00
	73	Remove Communication Tower next to Forebay Control Building	8130	7,100	7,100	7,100	LBS	\$0.45	\$0.65	\$0.75	\$3,195.00	\$4,615.00	\$5,325.00
	74	Remove Insulated Generator Building next to Forebay Control Building	8130	72	72	72	SF	\$38.00	\$40.00	\$42.00	\$2,736.00	\$2,880.00	\$3,024.00
	75	Remove Fixed Wheel Gate (gate, Frame and Hoist)	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	76	Remove Trash rack and trash rake (steel)	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	77	Remove stop Logs and slots (steel)	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	78	Remove Traveling Water Screen	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	79	Remove Fish By-Pass and Supports (steel)	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	80	Remove Radial Gates and Hoists	8420	16,500	16,500	16,500	LBS	\$0.45	\$0.65	\$0.75	\$7,425.00	\$10,725.00	\$12,375.00
	81	Remove Trash rack and trash rake (steel)	8420	43,500	43,500	43,500	LBS	\$0.45	\$0.50	\$0.70	\$19,575.00	\$21,750.00	\$30,450.00
	82	Remove Stop Logs and slots (steel)	8420	14,500	14,500	14,500	LBS	\$0.45	\$0.65	\$0.75	\$6,525.00	\$9,425.00	\$10,875.00
	83	Remove & Dispose Penstocks and bifurcation (steel)	8420	1,600,000	1,600,000	1,600,000	LBS	\$0.45	\$0.65	\$0.75	\$720,000.00	\$1,040,000.00	\$1,200,000.00
	84	Remove & Dispose Surge Tank (steel)	8420	79,000	79,000	79,000	LBS	\$0.45	\$0.65	\$0.75	\$35,550.00	\$51,350.00	\$59,250.00
	85	Remove & Dispose 2 - 108" Butterfly valves	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	86	Remove & Dispose Gate, Stem and Frame	8420	28,000	28,000	28,000	LBS	\$0.45	\$0.65	\$0.75	\$12,600.00	\$18,200.00	\$21,000.00
	87	Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream	8420	250,000	250,000	250,000	LBS	\$0.45	\$0.50	\$0.70	\$112,500.00	\$125,000.00	\$175,000.00
	87A	Remove Petroleum Products from Mechanical Equipment	8420	380	380	380	GAL	\$8.00	\$10.00	\$12.00	\$3,040.00	\$3,800.00	\$4,560.00
	88	Temporary Access Roads	8140	2	2	2	MILE	\$85,000.00	\$150,000.00	\$100,000.00	\$170,000.00	\$300,000.00	\$200,000.00
	89	Spring Ground Seeding	8220	247	247	0	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$741,000.00	\$864,500.00	\$0.00
	90	Spring Barge Seeding	8220	0	0	0	ACRES				\$0.00	\$0.00	\$0.00
	91	Spring Aerial Seeding	8220	0	0	247	ACRES	\$6,500.00	\$7,500.00	\$15,000.00	\$0.00	\$0.00	\$3,705,000.00
	92	Fall Ground Seeding	8220	62	124	185	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$186,000.00	\$434,000.00	\$740,000.00

FEATURE:			PROJECT:										
Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Escalation Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon										
			WOID: AF652	ESTIMATE LEVEL: Feasibility									
			REGION: MP	PRICE LEVEL: Jul-2010									
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\JC Boyle - Partial Removal Crystal Ball - with Escalation - 2011-04.xls\JC Boyle - Partial - with Esc									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	93	Riparian Pole Planting	8220	54	54	54	ACRES	\$4,000.00	\$8,500.00	\$10,000.00	\$216,000.00	\$459,000.00	\$540,000.00
	94	Weed Management	8220	62	124	185	ACRES	\$1,000.00	\$1,500.00	\$2,000.00	\$62,000.00	\$186,000.00	\$370,000.00
	95	Fall Ground Seeding	8220	99	99	99	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$297,000.00	\$346,500.00	\$396,000.00
	96	Weed Management	8220	99	99	99	ACRES	\$1,000.00	\$1,500.00	\$2,000.00	\$99,000.00	\$148,500.00	\$198,000.00
	97	Clear and Grub Disposal Area (Embankment)	8313	10	10	5	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$40,000.00	\$50,000.00	\$30,000.00
	98	Clear and Grub, 40' width	8313	2.4	2.4	2.4	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$9,600.00	\$12,000.00	\$14,400.00
	99	4" thick gravel surfacing	8313	0	2,150	2,150	TON	\$20.00	\$30.00	\$40.00	\$0.00	\$64,500.00	\$86,000.00
	100	Clear and Grub Disposal Area (For Concrete)	8313	4	0	0	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$16,000.00	\$0.00	\$0.00
	101	Clear and grub, 20' width	8313	1	0	0	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$0.00	\$0.00
	102	4" thick gravel surfacing	8313	0	0	0	TON				\$0.00	\$0.00	\$0.00
	103	Soil Cover over Concrete Rubble	8313	13,000	13,000	0	CY	\$25.00	\$140.00	\$150.00	\$325,000.00	\$1,820,000.00	\$0.00
	104	Dispose of Concrete Rubble from Dam	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	105	Dispose of Concrete Rubble from Flume/Forebay	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	106	Dispose of Concrete Rubble from Power House	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	107	Embankment Fill in Wasteway (Forebay) Scour Hole	8313	0	0	60,000	CY	\$25.00	\$140.00	\$150.00	\$0.00	\$0.00	\$9,000,000.00
	108	Topsy Recreation Area - Concrete total	BLM	68	68	68	CY	\$175.00	\$220.00	\$320.00	\$11,900.00	\$14,960.00	\$21,760.00
	109	Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite decking	BLM	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	110	Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform	BLM	200	200	200	SF	\$12.00	\$13.00	\$14.00	\$2,400.00	\$2,600.00	\$2,800.00
	111	Topsy Recreation Area - Regrade to natural contour and reseed	BLM	300	300	300	SF	\$3.00	\$4.00	\$5.00	\$900.00	\$1,200.00	\$1,500.00
	112	Pioneer Park - Picnic tables to be removed and hauled away	BLM	12	12	12	EA	\$55.00	\$60.00	\$65.00	\$660.00	\$720.00	\$780.00
	113	Pioneer Park - 12 Concrete fire rings	BLM	5	5	5	CY	\$175.00	\$220.00	\$320.00	\$875.00	\$1,100.00	\$1,600.00
	114	Pioneer Park - Portable toilets to be removed and hauled away	BLM	2	2	2	EA	\$900.00	\$1,000.00	\$1,200.00	\$1,800.00	\$2,000.00	\$2,400.00
	115	Pioneer Park - Signs to be removed and hauled away	BLM	6	6	6	EA	\$135.00	\$150.00	\$160.00	\$810.00	\$900.00	\$960.00
	116	Pioneer Park - Dumpster to be removed and hauled away	BLM	1	1	1	EA	\$900.00	\$1,000.00	\$1,200.00	\$900.00	\$1,000.00	\$1,200.00
	117	Pioneer Park - Remove paved access road	BLM	200	200	200	LF	\$230.00	\$250.00	\$270.00	\$46,000.00	\$50,000.00	\$54,000.00
	118	Pioneer Park - Regrage to natural contour, rip, plant and seed parking and recreation site	BLM	1	1	1	ACRES	\$19,000.00	\$20,000.00	\$22,000.00	\$9,500.00	\$10,000.00	\$11,000.00
		Subtotal 1									\$9,205,371.00	\$13,652,785.00	\$27,668,614.00
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	\$460,000.00	\$680,000.00	\$1,400,000.00	\$460,000.00	\$680,000.00	\$1,400,000.00
		Subtotal 1 w/ mobilization									\$1,551,687.00	\$4,929,280.00	\$15,536,968.00
		Escalation to Notice to Proceed (NTP)		1	1	1	ls	\$1,551,687.00	\$4,929,280.00	\$15,536,968.00	\$1,551,687.00	\$4,929,280.00	\$15,536,968.00
		from Unit Price Level (July 2010) to NTP (Jan. 2020)											
		MPL - 1.5% / year for 10 yr.; MP - 3.0% /year for 10 yr.; MPH - 4.375% / year for 10 yr.											
		Design Contingencies (MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	\$782,942.00	\$1,737,935.00	\$6,368,490.00	\$782,942.00	\$1,737,935.00	\$6,368,490.00
		APS = Allowance for Procurement		1	1	1	ls	\$0.00	\$0.00	\$1,025,928.00	\$0.00	\$0.00	\$1,025,928.00
		Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)											
		CONTRACT COST									\$12,000,000.00	\$21,000,000.00	\$52,000,000.00
		Construction Contingencies (MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	\$2,500,000.00	\$4,000,000.00	\$13,000,000.00	\$2,500,000.00	\$4,000,000.00	\$13,000,000.00
		FIELD COST									\$14,500,000.00	\$25,000,000.00	\$65,000,000.00
		Non-Contract Cost (MPL ~ 62%; MP ~ 65%; MPH ~ 71%)		1	1	1	ls	\$8,500,000.00	\$18,000,000.00	\$45,000,000.00	\$8,500,000.00	\$16,000,000.00	\$45,000,000.00
		CONSTRUCTION COST									\$23,000,000.00	\$41,000,000.00	\$110,000,000.00

Notes: This estimate does not include non-contract costs and should not be used for funding purposes.
 Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)

QUANTITIES				PRICES			
BY	See Group Worksheets	CHECKED:	See Group Worksheets	BY	Craig Grush, P.E.	CHECKED	
DATE PREPARED	1/20/2011	PEER REVIEW:	See Group Worksheets	DATE PREPARED	05/25/11	PEER REVIEW	

Crystal Ball Report - Full

Simulation started on 6/8/2011 at 8:22:01
Simulation stopped on 6/8/2011 at 8:22:51

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 49.86
Trials/second (average) 201
Random numbers per sec 34,494

Crystal Ball data:

Assumptions 172
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP
UNIT PRICES BY Craig A. Gensch
[Signature]
DATE 6/8/2011

DATE	PEER REVIEWER(S)	CODE
6/8/11	<u>[Signature]</u> Signature DAN MAAG Printed Name	9170
	Signature	
	Printed Name	

Author initials PEER REVIEW NOT REQUIRED

Forecasts

Worksheet: [JC Boyle - Partial Removal Crystal Ball - with Escalation - 2011-04.xls]JC Boyle - |

Forecast: Construction Cost - JC Boyle - Partial Removal - With Escalation

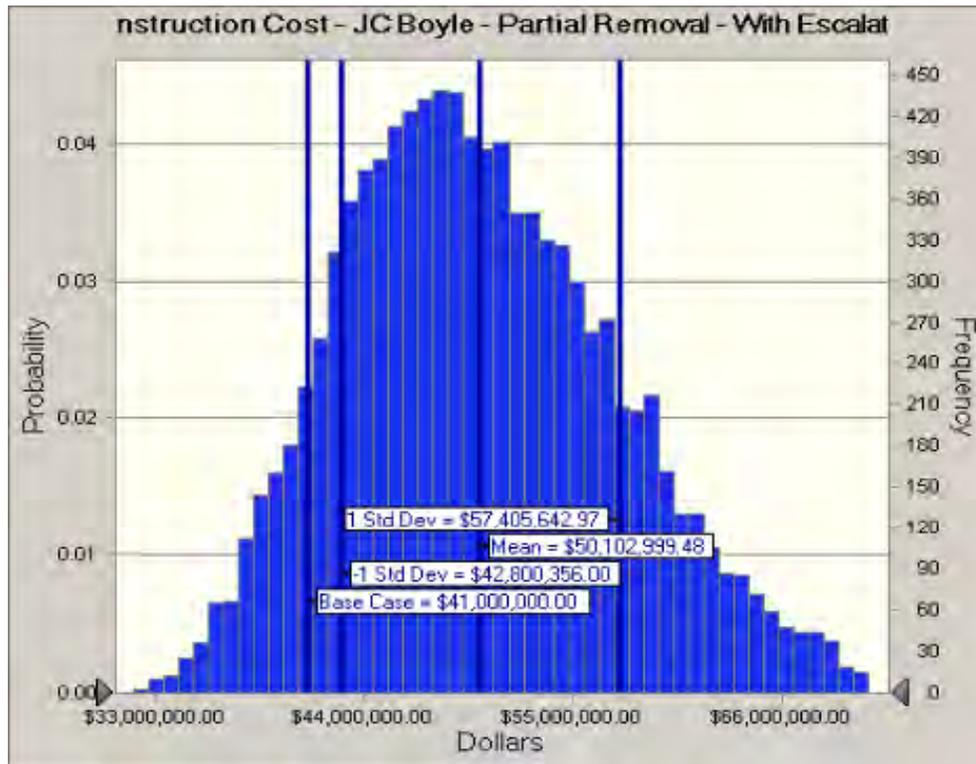
Cell: U149

Summary:

Entire range is from \$31,827,565.40 to \$76,438,651.93

Base case is \$41,000,000.00

After 10,000 trials, the std. error of the mean is \$73,026.43



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Partial Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Construction Cost - JC Boyle - Partial Removal - With Escalation (cont'd) Cell: U149

Statistics:	Forecast values
Trials	10,000
Mean	\$50,102,999.48
Median	\$49,412,294.49
Mode	---
Standard Deviation	\$7,302,643.48
Variance	\$53,328,601,827,000.60
Skewness	0.4073
Kurtosis	2.90
Coeff. of Variability	0.1458
Minimum	\$31,827,565.40
Maximum	\$76,438,651.93
Range Width	\$44,611,086.53
Mean Std. Error	\$73,026.43

Percentiles:	Forecast values
0%	\$31,827,565.40
10%	\$41,189,789.30
20%	\$43,730,783.60
30%	\$45,754,535.69
40%	\$47,604,843.87
50%	\$49,411,137.28
60%	\$51,394,849.25
70%	\$53,622,800.53
80%	\$56,300,726.05
90%	\$59,887,252.19
100%	\$76,438,651.93

Forecast: Contract Cost - JC Boyle - Partial Removal - With Escalation

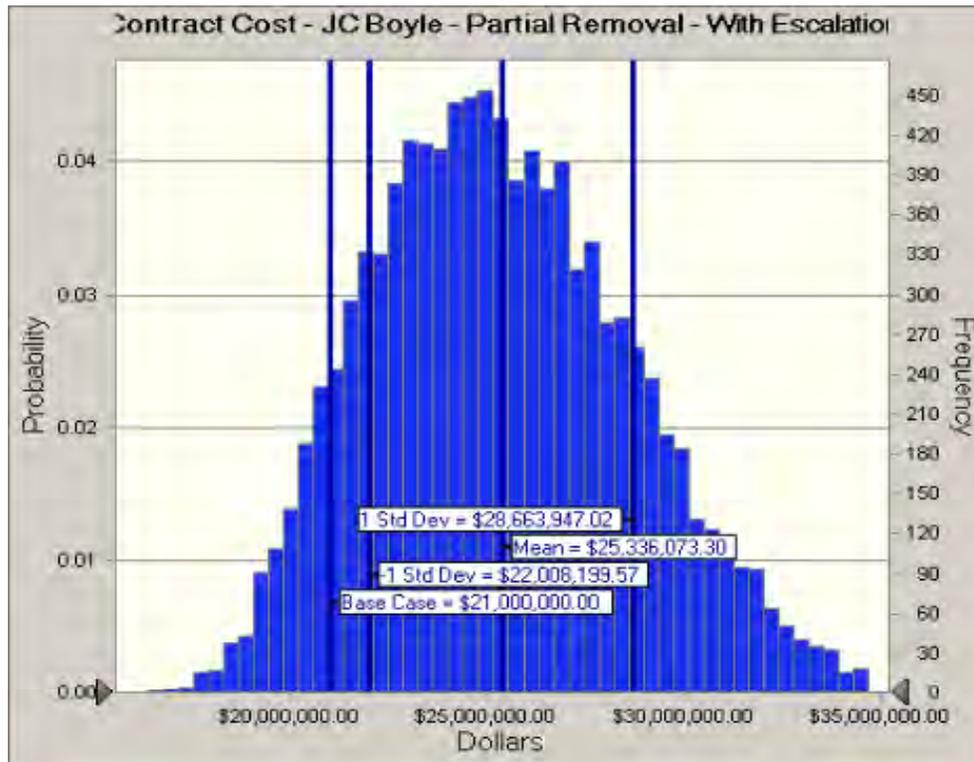
Cell: U145

Summary:

Entire range is from \$15,966,296.72 to \$38,360,525.84

Base case is \$21,000,000.00

After 10,000 trials, the std. error of the mean is \$33,278.74



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Partial Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Contract Cost - JC Boyle - Partial Removal - With Escalation (cont'd) Cell: U145

Statistics:	Forecast values
Trials	10,000
Mean	\$25,336,073.30
Median	\$25,106,435.59
Mode	---
Standard Deviation	\$3,327,873.73
Variance	\$11,074,743,534,877.10
Skewness	0.3521
Kurtosis	2.87
Coeff. of Variability	0.1313
Minimum	\$15,966,296.72
Maximum	\$38,360,525.84
Range Width	\$22,394,229.12
Mean Std. Error	\$33,278.74

Percentiles:	Forecast values
0%	\$15,966,296.72
10%	\$21,162,229.06
20%	\$22,401,882.28
30%	\$23,353,498.19
40%	\$24,253,181.82
50%	\$25,106,431.97
60%	\$26,003,887.66
70%	\$26,991,889.22
80%	\$28,189,977.90
90%	\$29,753,761.24
100%	\$38,360,525.84

Forecast: Field Cost - JC Boyle - Partial Removal - With Escalation

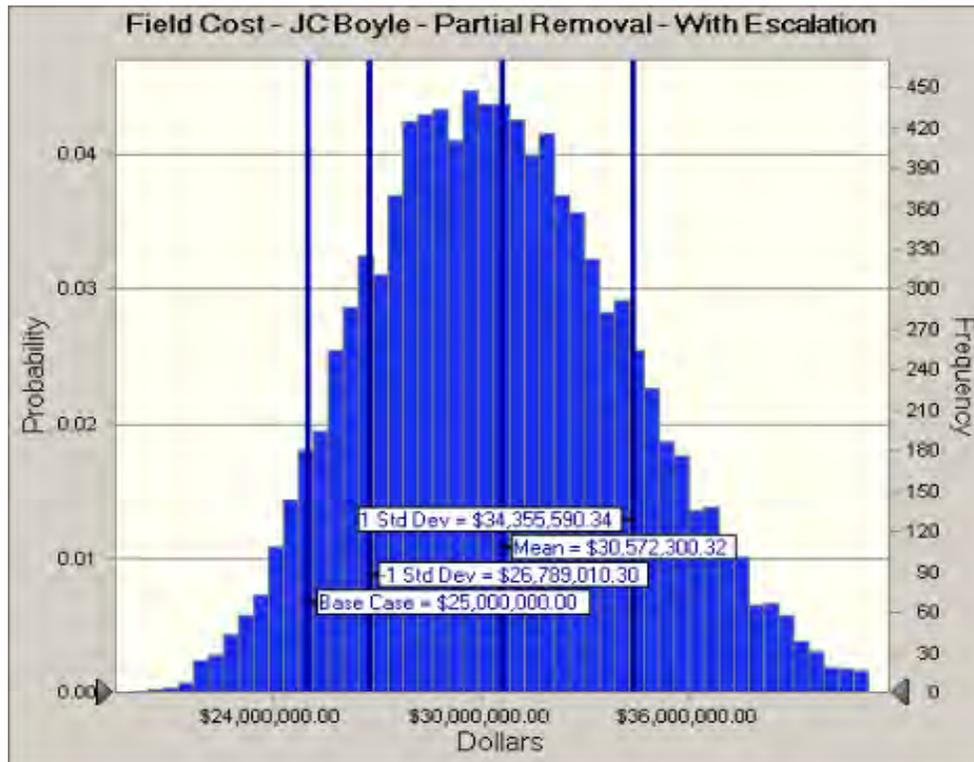
Cell: U147

Summary:

Entire range is from \$19,923,182.20 to \$45,105,480.30

Base case is \$25,000,000.00

After 10,000 trials, the std. error of the mean is \$37,832.90



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Partial Removal Crystal Ball - with Escalation - 2011-04.xls

Forecast: Field Cost - JC Boyle - Partial Removal - With Escalation (cont'd)

Cell: U147

Statistics:	Forecast values
Trials	10,000
Mean	\$30,572,300.32
Median	\$30,359,774.98
Mode	---
Standard Deviation	\$3,783,290.02
Variance	\$14,313,283,385,328.70
Skewness	0.3097
Kurtosis	2.88
Coeff. of Variability	0.1237
Minimum	\$19,923,182.20
Maximum	\$45,105,480.30
Range Width	\$25,182,298.09
Mean Std. Error	\$37,832.90

Percentiles:	Forecast values
0%	\$19,923,182.20
10%	\$25,834,663.55
20%	\$27,269,274.04
30%	\$28,344,703.45
40%	\$29,376,260.21
50%	\$30,359,109.92
60%	\$31,364,896.18
70%	\$32,452,803.19
80%	\$33,808,455.36
90%	\$35,608,405.82
100%	\$45,105,480.30

End of Forecasts

Assumptions

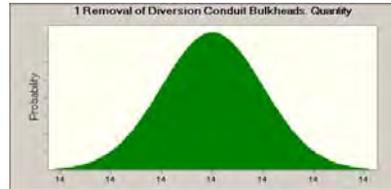
Worksheet: [JC Boyle - Partial Removal Crystal Ball - with Escalation - 2011-04.xls]JC Boyle - |

Assumption: 1 Removal of Diversion Conduit Bulkheads. Quantity

Cell: L14

Normal distribution with parameters:

Mean	14	(=L14)
Std. Dev.	0	(=0.000001)

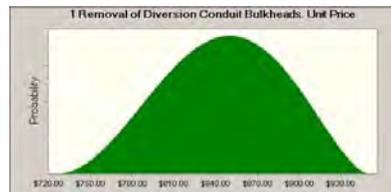


Assumption: 1 Removal of Diversion Conduit Bulkheads. Unit Price

Cell: R14

BetaPERT distribution with parameters:

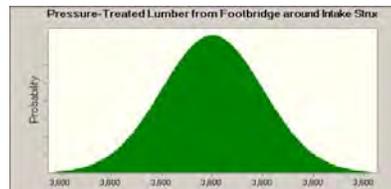
Minimum	\$725.00	(=Q14)
Likeliest	\$850.00	(=R14)
Maximum	\$950.00	(=S14)



Assumption: 10 Remove Pressure-Treated Lumber from Footbridge around Intake Structure

Normal distribution with parameters:

Mean	3,600	(=L23)
Std. Dev.	0	(=0.000001)



Assumption: 10 Remove Pressure-Treated Lumber from Footbridge around Intake Structure

BetaPERT distribution with parameters:

Minimum	\$0.50	(=Q23)
Likeliest	\$0.55	(=R23)
Maximum	\$0.70	(=S23)

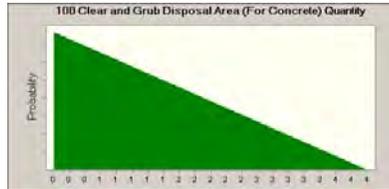


Assumption: 100 Clear and Grub Disposal Area (For Concrete) Quantity

Cell: L116

Triangular distribution with parameters:

Minimum	0	(=M116)
Likeliest	0	(=L116)
Maximum	4	(=K116)



Assumption: 100 Clear and Grub Disposal Area (For Concrete) Unit Price

Cell: R116

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q116)
Likeliest	\$5,000.00	(=R116)
Maximum	\$6,000.00	(=S116)



Assumption: 101 Clear and grub, 20' width Quantity

Cell: L117

Triangular distribution with parameters:

Minimum	0	(=M117)
Likeliest	0	(=L117)
Maximum	1	(=K117)



Assumption: 101 Clear and grub, 20' width Unit Price

Cell: R117

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q117)
Likeliest	\$5,000.00	(=R117)
Maximum	\$6,000.00	(=S117)

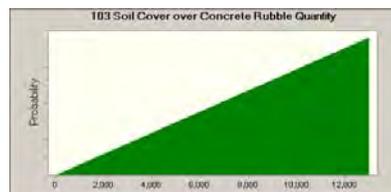


Assumption: 103 Soil Cover over Concrete Rubble Quantity

Cell: L119

Triangular distribution with parameters:

Minimum	0	(=M119)
Likeliest	13,000	(=L119)
Maximum	13,000	(=K119)

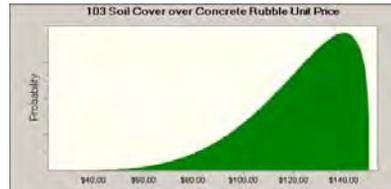


Assumption: 103 Soil Cover over Concrete Rubble Unit Price

Cell: R119

BetaPERT distribution with parameters:

Minimum	\$25.00	(=Q119)
Likeliest	\$140.00	(=R119)
Maximum	\$150.00	(=S119)

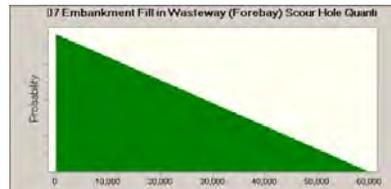


Assumption: 107 Embankment Fill in Wasteway (Forebay) Scour Hole Quantity

Cell: L123

Triangular distribution with parameters:

Minimum	0	(=K123)
Likeliest	0	(=L123)
Maximum	60,000	(=M123)



Assumption: 107 Embankment Fill in Wasteway (Forebay) Scour Hole Unit Price

Cell: R123

BetaPERT distribution with parameters:

Minimum	\$25.00	(=Q123)
Likeliest	\$140.00	(=R123)
Maximum	\$150.00	(=S123)

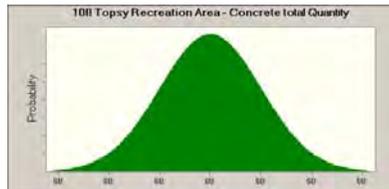


Assumption: 108 Topsy Recreation Area - Concrete total Quantity

Cell: L124

Normal distribution with parameters:

Mean	68	(=L124)
Std. Dev.	0	(=0.000001)

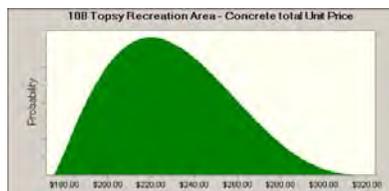


Assumption: 108 Topsy Recreation Area - Concrete total Unit Price

Cell: R124

BetaPERT distribution with parameters:

Minimum	\$175.00	(=Q124)
Likeliest	\$220.00	(=R124)
Maximum	\$320.00	(=S124)

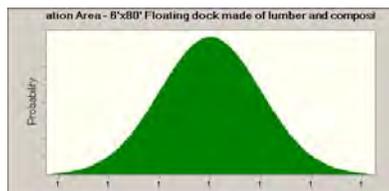


Assumption: 109 Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite

Cell: L125

Normal distribution with parameters:

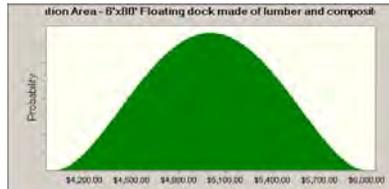
Mean	1	(=L125)
Std. Dev.	0	(=0.000001)



Assumption: 109 Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite

BetaPERT distribution with parameters:

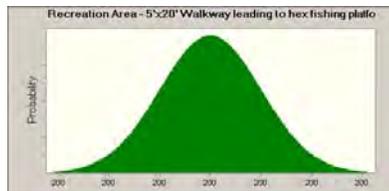
Minimum	\$4,000.00	(=Q125)
Likeliest	\$5,000.00	(=R125)
Maximum	\$6,000.00	(=S125)



Assumption: 110 Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform

Normal distribution with parameters:

Mean	200	(=L126)
Std. Dev.	0	(=0.000001)



Assumption: 110 Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform

BetaPERT distribution with parameters:

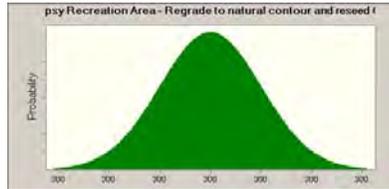
Minimum	\$12.00	(=Q126)
Likeliest	\$13.00	(=R126)
Maximum	\$14.00	(=S126)



Assumption: 111 Topsy Recreation Area - Regrade to natural contour and reseed Quantity: 127

Normal distribution with parameters:

Mean	300	(=L127)
Std. Dev.	0	(=0.000001)



Assumption: 111 Topsy Recreation Area - Regrade to natural contour and reseed Unit Price: 127

BetaPERT distribution with parameters:

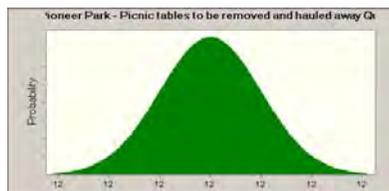
Minimum	\$3.00	(=Q127)
Likeliest	\$4.00	(=R127)
Maximum	\$5.00	(=S127)



Assumption: 112 Pioneer Park - Picnic tables to be removed and hauled away Quantity: 128

Normal distribution with parameters:

Mean	12	(=L128)
Std. Dev.	0	(=0.000001)



Assumption: 112 Pioneer Park - Picnic tables to be removed and hauled away Unit Price R128

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q128)
Likeliest	\$60.00	(=R128)
Maximum	\$65.00	(=S128)

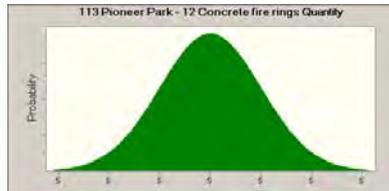


Assumption: 113 Pioneer Park - 12 Concrete fire rings Quantity

Cell: L129

Normal distribution with parameters:

Mean	5	(=L129)
Std. Dev.	0	(=0.000001)

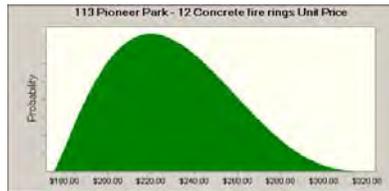


Assumption: 113 Pioneer Park - 12 Concrete fire rings Unit Price

Cell: R129

BetaPERT distribution with parameters:

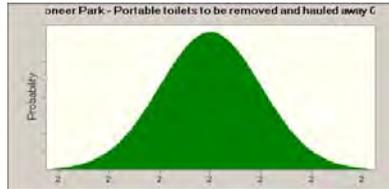
Minimum	\$175.00	(=Q129)
Likeliest	\$220.00	(=R129)
Maximum	\$320.00	(=S129)



Assumption: 114 Pioneer Park - Portable toilets to be removed and hauled away Quantity Cell: L130

Normal distribution with parameters:

Mean	2	(=L130)
Std. Dev.	0	(=0.000001)



Assumption: 114 Pioneer Park - Portable toilets to be removed and hauled away Unit Price Cell: R130

BetaPERT distribution with parameters:

Minimum	\$900.00	(=Q130)
Likeliest	\$1,000.00	(=R130)
Maximum	\$1,200.00	(=S130)



Assumption: 115 Pioneer Park - Signs to be removed and hauled away Quantity Cell: L131

Normal distribution with parameters:

Mean	6	(=L131)
Std. Dev.	0	(=0.000001)



Assumption: 115 Pioneer Park - Signs to be removed and hauled away Unit Price Cell: R131

BetaPERT distribution with parameters:

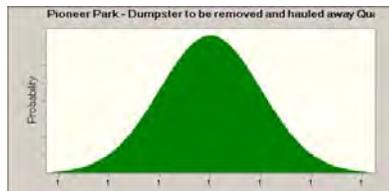
Minimum	\$135.00	(=Q131)
Likeliest	\$150.00	(=R131)
Maximum	\$160.00	(=S131)



Assumption: 116 Pioneer Park - Dumpster to be removed and hauled away Quantity Cell: L132

Normal distribution with parameters:

Mean	1	(=L132)
Std. Dev.	0	(=0.000001)



Assumption: 116 Pioneer Park - Dumpster to be removed and hauled away Unit Price Cell: R132

BetaPERT distribution with parameters:

Minimum	\$900.00	(=Q132)
Likeliest	\$1,000.00	(=R132)
Maximum	\$1,200.00	(=S132)



Assumption: 117 Pioneer Park - Remove paved access road Quantity

Cell: L133

Normal distribution with parameters:

Mean	200	(=L133)
Std. Dev.	0	(=0.000001)

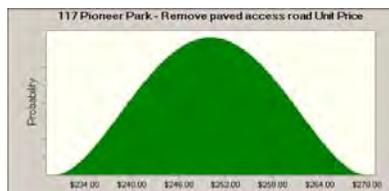


Assumption: 117 Pioneer Park - Remove paved access road Unit Price

Cell: R133

BetaPERT distribution with parameters:

Minimum	\$230.00	(=Q133)
Likeliest	\$250.00	(=R133)
Maximum	\$270.00	(=S133)

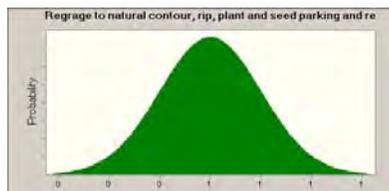


Assumption: 118 Pioneer Park - Regrade to natural contour, rip, plant and seed parking and re

Cell: A134

Normal distribution with parameters:

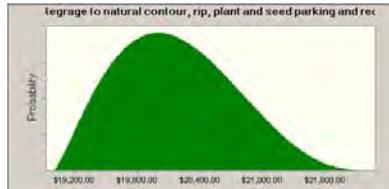
Mean	1	(=L134)
Std. Dev.	0	(=0.000001)



Assumption: 118 Pioneer Park - Regrage to natural contour, rip, plant and seed parking and rec **Cell: R134**

BetaPERT distribution with parameters:

Minimum	\$19,000.00	(=Q134)
Likeliest	\$20,000.00	(=R134)
Maximum	\$22,000.00	(=S134)

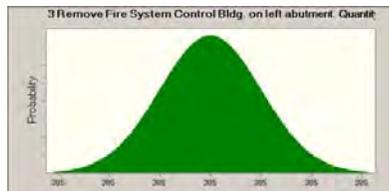


Assumption: 13 Remove Fire System Control Bldg. on left abutment. Quantity

Cell: L26

Normal distribution with parameters:

Mean	385	(=L26)
Std. Dev.	0	(=0.000001)

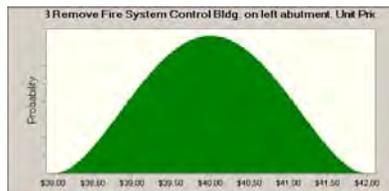


Assumption: 13 Remove Fire System Control Bldg. on left abutment. Unit Price

Cell: R26

BetaPERT distribution with parameters:

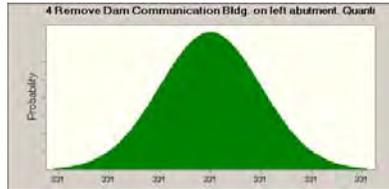
Minimum	\$38.00	(=Q26)
Likeliest	\$40.00	(=R26)
Maximum	\$42.00	(=S26)



Assumption: 14 Remove Dam Communication Bldg. on left abutment. Quantity **Cell: L27**

Normal distribution with parameters:

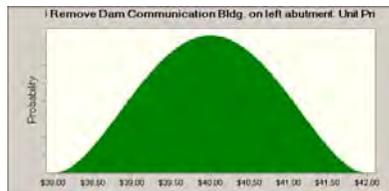
Mean	331	(=L27)
Std. Dev.	0	(=0.000001)



Assumption: 14 Remove Dam Communication Bldg. on left abutment. Unit Price **Cell: R27**

BetaPERT distribution with parameters:

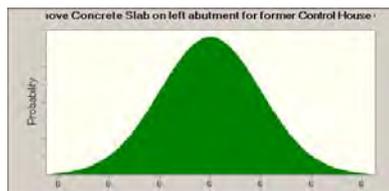
Minimum	\$38.00	(=Q27)
Likeliest	\$40.00	(=R27)
Maximum	\$42.00	(=S27)



Assumption: 15 Remove Concrete Slab on left abutment for former Control House Quantity **Cell: L28**

Normal distribution with parameters:

Mean	6	(=L28)
Std. Dev.	0	(=0.000001)



Assumption: 15 Remove Concrete Slab on left abutment for former Control House UIC:R28

BetaPERT distribution with parameters:

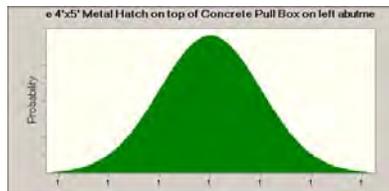
Minimum	\$130.00	(=Q28)
Likeliest	\$260.00	(=R28)
Maximum	\$390.00	(=S28)



Assumption: 16 Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment UIC:R29

Normal distribution with parameters:

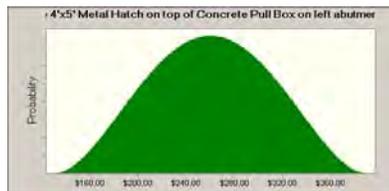
Mean	1	(=L29)
Std. Dev.	0	(=0.000001)



Assumption: 16 Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment UIC:R29

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q29)
Likeliest	\$260.00	(=R29)
Maximum	\$390.00	(=S29)



Assumption: 17 Remove Reservoir Level Gauge House on Dam Crest Quantity

Cell: L30

Normal distribution with parameters:

Mean	24	(=L30)
Std. Dev.	0	(=0.000001)



Assumption: 17 Remove Reservoir Level Gauge House on Dam Crest Unit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q30)
Likeliest	\$40.00	(=R30)
Maximum	\$42.00	(=S30)

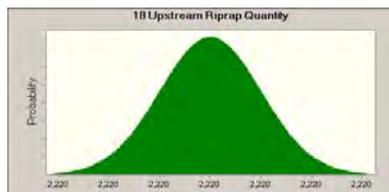


Assumption: 18 Upstream Riprap Quantity

Cell: L31

Normal distribution with parameters:

Mean	2,220	(=L31)
Std. Dev.	0	(=0.000001)

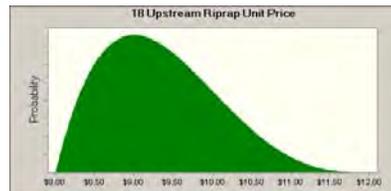


Assumption: 18 Upstream Riprap Unit Price

Cell: R31

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q31)
Likeliest	\$9.00	(=R31)
Maximum	\$12.00	(=S31)



Assumption: 19 Downstream Riprap Quantity

Cell: L32

Normal distribution with parameters:

Mean	1,850	(=L32)
Std. Dev.	0	(=0.000001)



Assumption: 19 Downstream Riprap Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q32)
Likeliest	\$9.00	(=R32)
Maximum	\$12.00	(=S32)

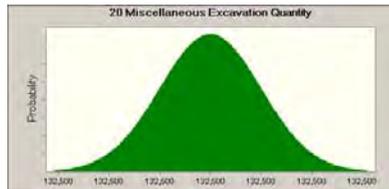


Assumption: 20 Miscellaneous Excavation Quantity

Cell: L33

Normal distribution with parameters:

Mean	132,500	(=L33)
Std. Dev.	0	(=0.000001)



Assumption: 20 Miscellaneous Excavation Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q33)
Likeliest	\$9.00	(=R33)
Maximum	\$12.00	(=S33)

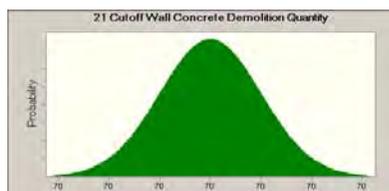


Assumption: 21 Cutoff Wall Concrete Demolition Quantity

Cell: L34

Normal distribution with parameters:

Mean	70	(=L34)
Std. Dev.	0	(=0.000001)



Assumption: 21 Cutoff Wall Concrete Demolition Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q34)
Likeliest	\$260.00	(=R34)
Maximum	\$390.00	(=S34)

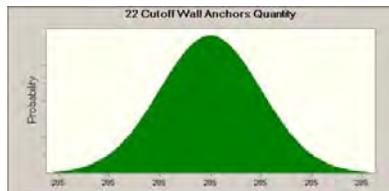


Assumption: 22 Cutoff Wall Anchors Quantity

Cell: L35

Normal distribution with parameters:

Mean	285	(=L35)
Std. Dev.	0	(=0.000001)

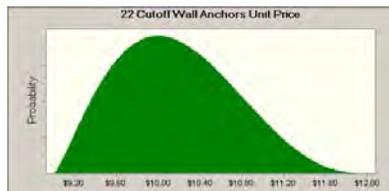


Assumption: 22 Cutoff Wall Anchors Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$9.00	(=Q35)
Likeliest	\$10.00	(=R35)
Maximum	\$12.00	(=S35)

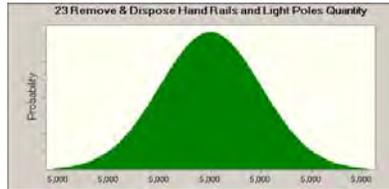


Assumption: 23 Remove & Dispose Hand Rails and Light Poles Quantity

Cell: L36

Normal distribution with parameters:

Mean	5,000	(=L36)
Std. Dev.	0	(=0.000001)



Assumption: 23 Remove & Dispose Hand Rails and Light Poles Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q36)
Likeliest	\$0.65	(=R36)
Maximum	\$0.75	(=S36)

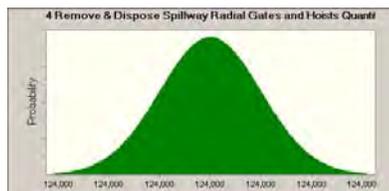


Assumption: 24 Remove & Dispose Spillway Radial Gates and Hoists Quantity

Cell: L37

Normal distribution with parameters:

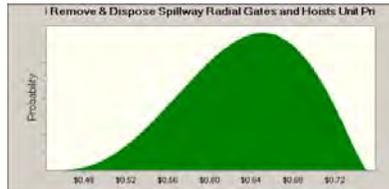
Mean	124,000	(=L37)
Std. Dev.	0	(=0.000001)



Assumption: 24 Remove & Dispose Spillway Radial Gates and Hoists Unit Price Cell: R37

BetaPERT distribution with parameters:

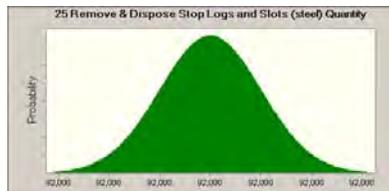
Minimum	\$0.45	(=Q37)
Likeliest	\$0.65	(=R37)
Maximum	\$0.75	(=S37)



Assumption: 25 Remove & Dispose Stop Logs and Slots (steel) Quantity Cell: L38

Normal distribution with parameters:

Mean	92,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Remove & Dispose Stop Logs and Slots (steel) Unit Price Cell: R38

BetaPERT distribution with parameters:

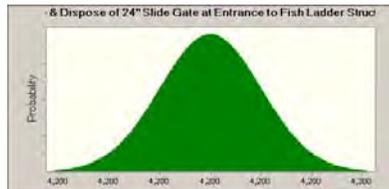
Minimum	\$0.45	(=Q38)
Likeliest	\$0.65	(=R38)
Maximum	\$0.75	(=S38)



Assumption: 26 Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure **Cell: L39**

Normal distribution with parameters:

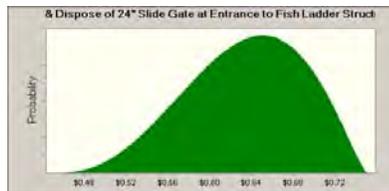
Mean	4,200	(=L39)
Std. Dev.	0	(=0.000001)



Assumption: 26 Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure **Cell: R39**

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q39)
Likeliest	\$0.65	(=R39)
Maximum	\$0.75	(=S39)

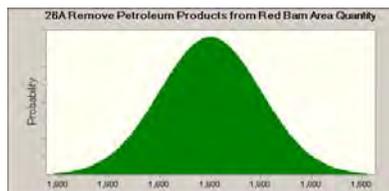


Assumption: 26A Remove Petroleum Products from Red Barn Area Quantity

Cell: L40

Normal distribution with parameters:

Mean	1,600	(=L40)
Std. Dev.	0	(=0.000001)

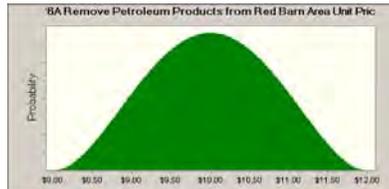


Assumption: 26A Remove Petroleum Products from Red Barn Area Unit Price

Cell: R40

BetaPERT distribution with parameters:

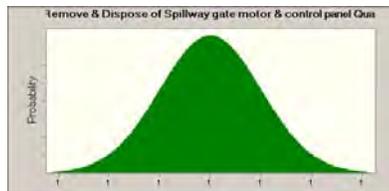
Minimum	\$8.00	(=Q40)
Likeliest	\$10.00	(=R40)
Maximum	\$12.00	(=S40)



Assumption: 27 Remove & Dispose of Spillway gate motor & control panel Quantity Cell: L41

Normal distribution with parameters:

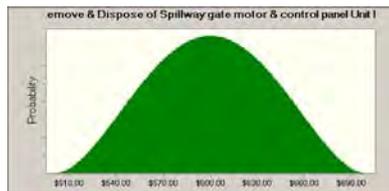
Mean	1	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 27 Remove & Dispose of Spillway gate motor & control panel Unit Price Cell: R41

BetaPERT distribution with parameters:

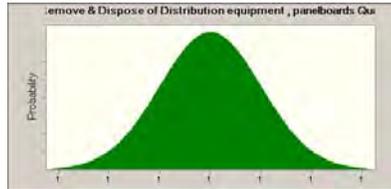
Minimum	\$500.00	(=Q41)
Likeliest	\$600.00	(=R41)
Maximum	\$700.00	(=S41)



Assumption: 28 Remove & Dispose of Distribution equipment , panelboards QuantityCell: L42

Normal distribution with parameters:

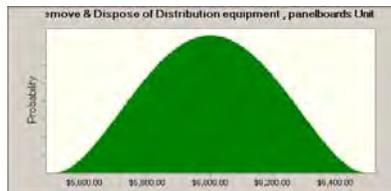
Mean	1	(=L42)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove & Dispose of Distribution equipment , panelboards Unit PriceCell: R42

BetaPERT distribution with parameters:

Minimum	\$5,500.00	(=Q42)
Likeliest	\$6,000.00	(=R42)
Maximum	\$6,500.00	(=S42)

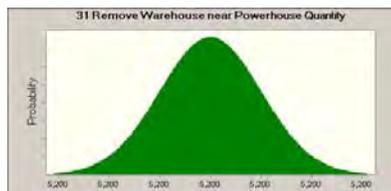


Assumption: 31 Remove Warehouse near Powerhouse Quantity

Cell: L45

Normal distribution with parameters:

Mean	5,200	(=L45)
Std. Dev.	0	(=0.000001)



Assumption: 31 Remove Warehouse near Powerhouse Unit Price

Cell: R45

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q45)
Likeliest	\$40.00	(=R45)
Maximum	\$42.00	(=S45)

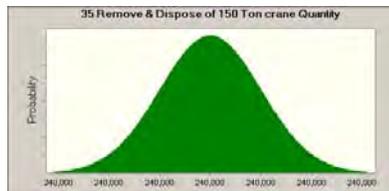


Assumption: 35 Remove & Dispose of 150 Ton crane Quantity

Cell: L49

Normal distribution with parameters:

Mean	240,000	(=L49)
Std. Dev.	0	(=0.000001)

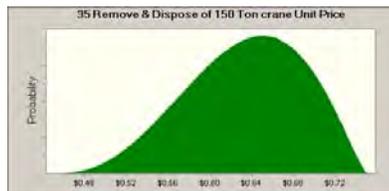


Assumption: 35 Remove & Dispose of 150 Ton crane Unit Price

Cell: R49

BetaPERT distribution with parameters:

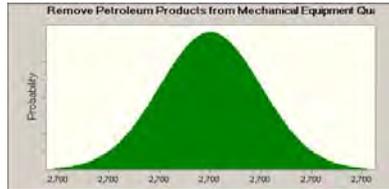
Minimum	\$0.45	(=Q49)
Likeliest	\$0.65	(=R49)
Maximum	\$0.75	(=S49)



Assumption: 43A Remove Petroleum Products from Mechanical Equipment QuantityCell: L58

Normal distribution with parameters:

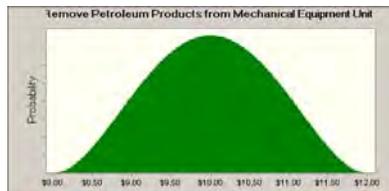
Mean	2,700	(=L58)
Std. Dev.	0	(=0.000001)



Assumption: 43A Remove Petroleum Products from Mechanical Equipment Unit PriceCell: R58

BetaPERT distribution with parameters:

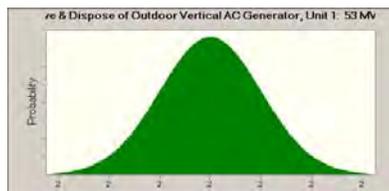
Minimum	\$8.00	(=Q58)
Likeliest	\$10.00	(=R58)
Maximum	\$12.00	(=S58)



Assumption: 44 Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA Cell: L59

Normal distribution with parameters:

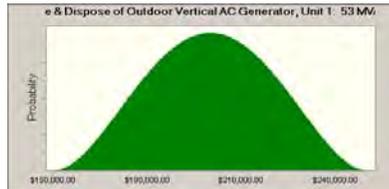
Mean	2	(=L59)
Std. Dev.	0	(=0.000001)



Assumption: 44 Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA Cell: R59

BetaPERT distribution with parameters:

Minimum	\$150,000.00	(=Q59)
Likeliest	\$200,000.00	(=R59)
Maximum	\$250,000.00	(=S59)

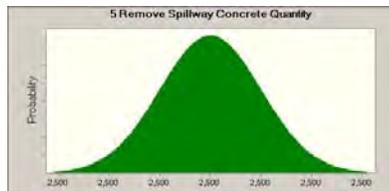


Assumption: 5 Remove Spillway Concrete Quantity

Cell: L18

Normal distribution with parameters:

Mean	2,500	(=L18)
Std. Dev.	0	(=0.000001)



Assumption: 5 Remove Spillway Concrete Unit Price

Cell: R18

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q18)
Likeliest	\$260.00	(=R18)
Maximum	\$390.00	(=S18)

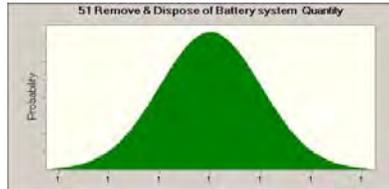


Assumption: 51 Remove & Dispose of Battery system Quantity

Cell: L66

Normal distribution with parameters:

Mean	1	(=L66)
Std. Dev.	0	(=0.000001)

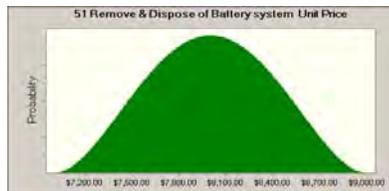


Assumption: 51 Remove & Dispose of Battery system Unit Price

Cell: R66

BetaPERT distribution with parameters:

Minimum	\$7,000.00	(=Q66)
Likeliest	\$8,000.00	(=R66)
Maximum	\$9,000.00	(=S66)

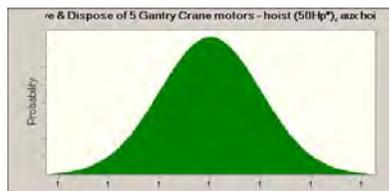


Assumption: 54 Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist

Cell: L69

Normal distribution with parameters:

Mean	1	(=L69)
Std. Dev.	0	(=0.000001)



Assumption: 54 Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist (50Hp*)

BetaPERT distribution with parameters:

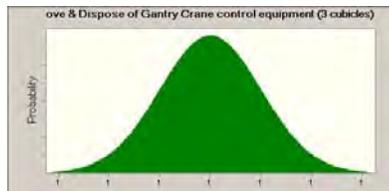
Minimum	\$1,500.00	(=Q69)
Likeliest	\$2,000.00	(=R69)
Maximum	\$3,000.00	(=S69)



Assumption: 55 Remove & Dispose of Gantry Crane control equipment (3 cubicies)

Normal distribution with parameters:

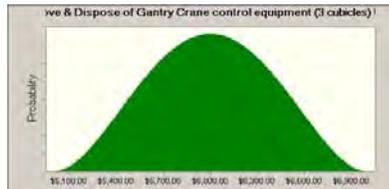
Mean	1	(=L70)
Std. Dev.	0	(=0.000001)



Assumption: 55 Remove & Dispose of Gantry Crane control equipment (3 cubicies)

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q70)
Likeliest	\$6,000.00	(=R70)
Maximum	\$7,000.00	(=S70)

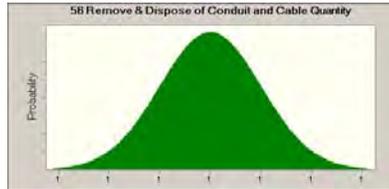


Assumption: 56 Remove & Dispose of Conduit and Cable Quantity

Cell: L71

Normal distribution with parameters:

Mean	1	(=L71)
Std. Dev.	0	(=0.000001)

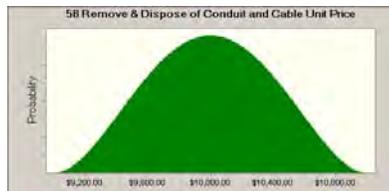


Assumption: 56 Remove & Dispose of Conduit and Cable Unit Price

Cell: R71

BetaPERT distribution with parameters:

Minimum	\$9,000.00	(=Q71)
Likeliest	\$10,000.00	(=R71)
Maximum	\$11,000.00	(=S71)

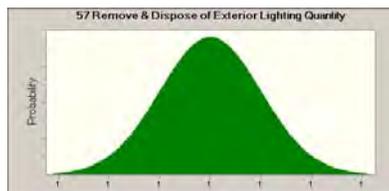


Assumption: 57 Remove & Dispose of Exterior Lighting Quantity

Cell: L72

Normal distribution with parameters:

Mean	1	(=L72)
Std. Dev.	0	(=0.000001)



Assumption: 57 Remove & Dispose of Exterior Lighting Unit Price

Cell: R72

BetaPERT distribution with parameters:

Minimum	\$1,500.00	(=Q72)
Likeliest	\$2,000.00	(=R72)
Maximum	\$3,000.00	(=S72)

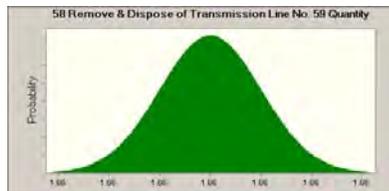


Assumption: 58 Remove & Dispose of Transmission Line No. 59 Quantity

Cell: L73

Normal distribution with parameters:

Mean	1.66	(=L73)
Std. Dev.	0.00	(=0.000001)

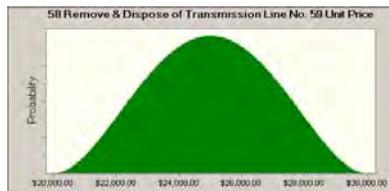


Assumption: 58 Remove & Dispose of Transmission Line No. 59 Unit Price

Cell: R73

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q73)
Likeliest	\$25,000.00	(=R73)
Maximum	\$30,000.00	(=S73)



Assumption: 59 Remove & Dispose of Transmission Line No. 98 Quantity

Cell: L74

Normal distribution with parameters:

Mean	0.24	(=L74)
Std. Dev.	0.00	(=0.000001)



Assumption: 59 Remove & Dispose of Transmission Line No. 98 Unit Price

Cell: R74

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q74)
Likeliest	\$25,000.00	(=R74)
Maximum	\$30,000.00	(=S74)

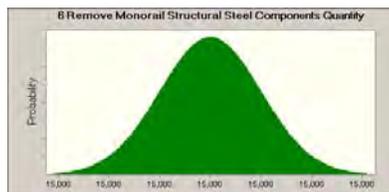


Assumption: 6 Remove Monorail Structural Steel Components Quantity

Cell: L19

Normal distribution with parameters:

Mean	15,000	(=L19)
Std. Dev.	0	(=0.000001)



Assumption: 6 Remove Monorail Structural Steel Components Unit Price

Cell: R19

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q19)
Likeliest	\$0.65	(=R19)
Maximum	\$0.75	(=S19)

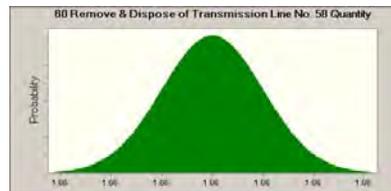


Assumption: 60 Remove & Dispose of Transmission Line No. 58 Quantity

Cell: L75

Normal distribution with parameters:

Mean	1.66	(=L75)
Std. Dev.	0.00	(=0.000001)

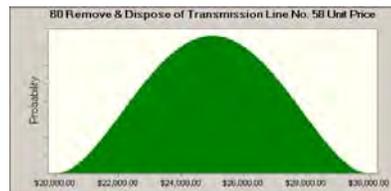


Assumption: 60 Remove & Dispose of Transmission Line No. 58 Unit Price

Cell: R75

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q75)
Likeliest	\$25,000.00	(=R75)
Maximum	\$30,000.00	(=S75)

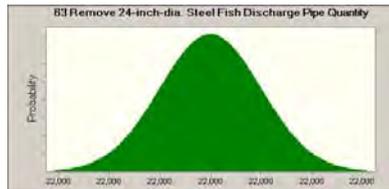


Assumption: 63 Remove 24-inch-dia. Steel Fish Discharge Pipe Quantity

Cell: L78

Normal distribution with parameters:

Mean	22,000	(=L78)
Std. Dev.	0	(=0.000001)

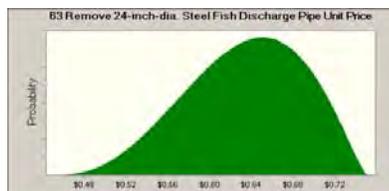


Assumption: 63 Remove 24-inch-dia. Steel Fish Discharge Pipe Unit Price

Cell: R78

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q78)
Likeliest	\$0.65	(=R78)
Maximum	\$0.75	(=S78)

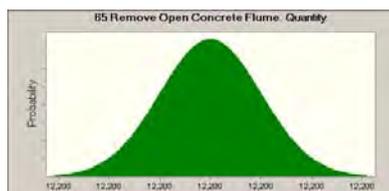


Assumption: 65 Remove Open Concrete Flume. Quantity

Cell: L80

Normal distribution with parameters:

Mean	12,200	(=L80)
Std. Dev.	0	(=0.000001)

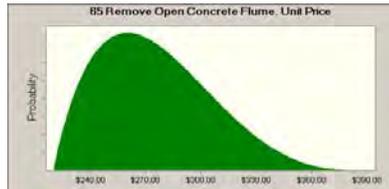


Assumption: 65 Remove Open Concrete Flume. Unit Price

Cell: R80

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q80)
Likeliest	\$260.00	(=R80)
Maximum	\$390.00	(=S80)

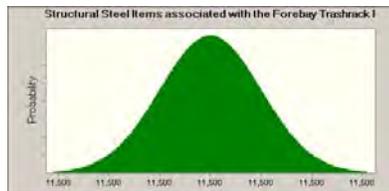


Assumption: 66 Remove Structural Steel Items associated with the Forebay Trashrack L

Cell: L81

Normal distribution with parameters:

Mean	11,500	(=L81)
Std. Dev.	0	(=0.000001)



Assumption: 66 Remove Structural Steel Items associated with the Forebay Trashrack F

Cell: F81

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q81)
Likeliest	\$0.65	(=R81)
Maximum	\$0.75	(=S81)

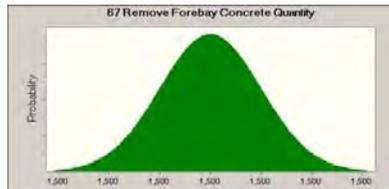


Assumption: 67 Remove Forebay Concrete Quantity

Cell: L82

Normal distribution with parameters:

Mean	1,500	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove Forebay Concrete Unit Price

Cell: R82

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q82)
Likeliest	\$260.00	(=R82)
Maximum	\$390.00	(=S82)

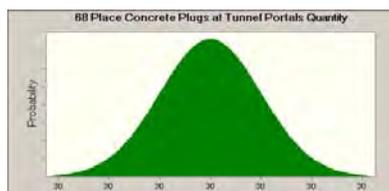


Assumption: 68 Place Concrete Plugs at Tunnel Portals Quantity

Cell: L83

Normal distribution with parameters:

Mean	30	(=L83)
Std. Dev.	0	(=0.000001)



Assumption: 68 Place Concrete Plugs at Tunnel Portals Unit Price

Cell: R83

BetaPERT distribution with parameters:

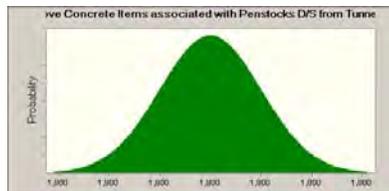
Minimum	\$900.00	(=Q83)
Likeliest	\$1,000.00	(=R83)
Maximum	\$1,100.00	(=S83)



Assumption: 69 Remove Concrete Items associated with Penstocks D/S from Tunnel Unit L84

Normal distribution with parameters:

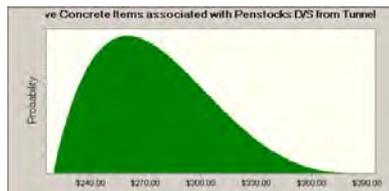
Mean	1,800	(=L84)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove Concrete Items associated with Penstocks D/S from Tunnel Unit R84

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q84)
Likeliest	\$260.00	(=R84)
Maximum	\$390.00	(=S84)



Assumption: 7 Remove Fish Ladder Concrete Quantity

Cell: L20

Normal distribution with parameters:

Mean 1,600 (=L20)
Std. Dev. 0 (=0.000001)



Assumption: 7 Remove Fish Ladder Concrete Unit Price

Cell: R20

BetaPERT distribution with parameters:

Minimum \$130.00 (=Q20)
Likeliest \$260.00 (=R20)
Maximum \$390.00 (=S20)

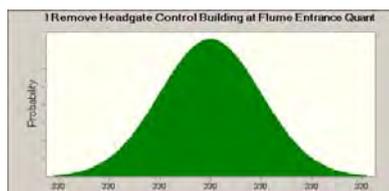


Assumption: 70 Remove Headgate Control Building at Flume Entrance Quantity

Cell: L85

Normal distribution with parameters:

Mean 330 (=L85)
Std. Dev. 0 (=0.000001)



Assumption: 70 Remove Headgate Control Building at Flume Entrance Unit Price Cell: R85

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q85)
Likeliest	\$40.00	(=R85)
Maximum	\$42.00	(=S85)



Assumption: 71 Remove Forebay Spillway Gate House Quantity Cell: L86

Normal distribution with parameters:

Mean	570	(=L86)
Std. Dev.	0	(=0.000001)



Assumption: 71 Remove Forebay Spillway Gate House Unit Price Cell: R86

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q86)
Likeliest	\$40.00	(=R86)
Maximum	\$42.00	(=S86)

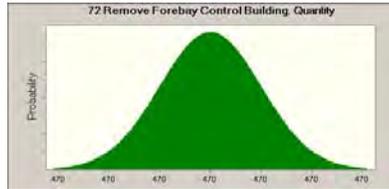


Assumption: 72 Remove Forebay Control Building. Quantity

Cell: L87

Normal distribution with parameters:

Mean	470	(=L87)
Std. Dev.	0	(=0.000001)



Assumption: 72 Remove Forebay Control Building. Unit Price

Cell: R87

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q87)
Likeliest	\$40.00	(=R87)
Maximum	\$42.00	(=S87)

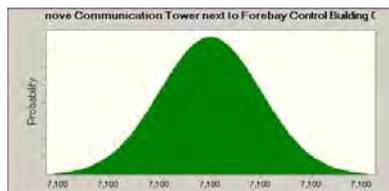


Assumption: 73 Remove Communication Tower next to Forebay Control Building Quantity

Cell: L88

Normal distribution with parameters:

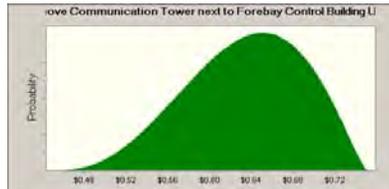
Mean	7,100	(=L88)
Std. Dev.	0	(=0.000001)



Assumption: 73 Remove Communication Tower next to Forebay Control Building Under R88

BetaPERT distribution with parameters:

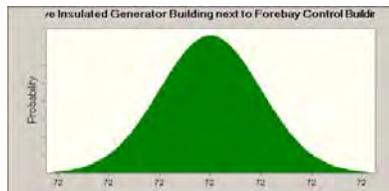
Minimum	\$0.45	(=Q88)
Likeliest	\$0.65	(=R88)
Maximum	\$0.75	(=S88)



Assumption: 74 Remove Insulated Generator Building next to Forebay Control Building Under L89

Normal distribution with parameters:

Mean	72	(=L89)
Std. Dev.	0	(=0.000001)



Assumption: 74 Remove Insulated Generator Building next to Forebay Control Building Under R89

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q89)
Likeliest	\$40.00	(=R89)
Maximum	\$42.00	(=S89)

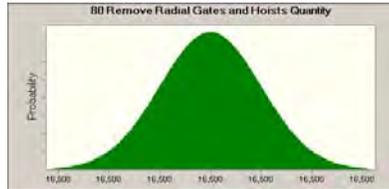


Assumption: 80 Remove Radial Gates and Hoists Quantity

Cell: L95

Normal distribution with parameters:

Mean	16,500	(=L95)
Std. Dev.	0	(=0.000001)

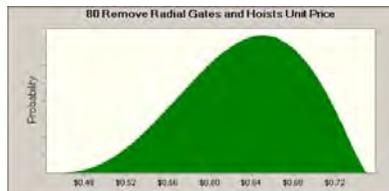


Assumption: 80 Remove Radial Gates and Hoists Unit Price

Cell: R95

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q95)
Likeliest	\$0.65	(=R95)
Maximum	\$0.75	(=S95)

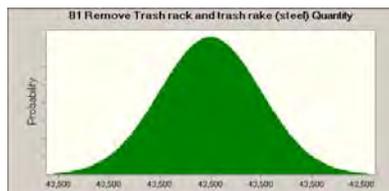


Assumption: 81 Remove Trash rack and trash rake (steel) Quantity

Cell: L96

Normal distribution with parameters:

Mean	43,500	(=L96)
Std. Dev.	0	(=0.000001)

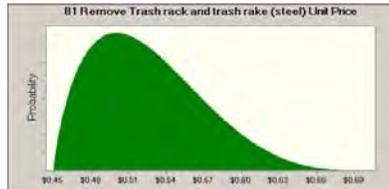


Assumption: 81 Remove Trash rack and trash rake (steel) Unit Price

Cell: R96

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q96)
Likeliest	\$0.50	(=R96)
Maximum	\$0.70	(=S96)

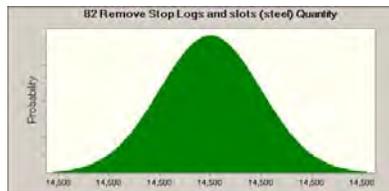


Assumption: 82 Remove Stop Logs and slots (steel) Quantity

Cell: L97

Normal distribution with parameters:

Mean	14,500	(=L97)
Std. Dev.	0	(=0.000001)



Assumption: 82 Remove Stop Logs and slots (steel) Unit Price

Cell: R97

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q97)
Likeliest	\$0.65	(=R97)
Maximum	\$0.75	(=S97)

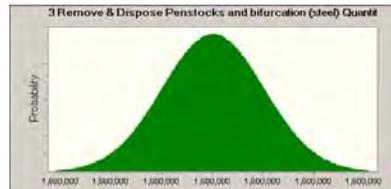


Assumption: 83 Remove & Dispose Penstocks and bifurcation (steel) Quantity

Cell: L98

Normal distribution with parameters:

Mean	1,600,000	(=L98)
Std. Dev.	0	(=0.000001)

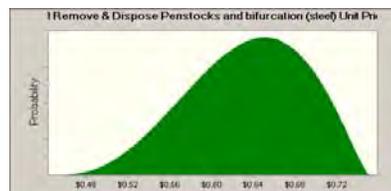


Assumption: 83 Remove & Dispose Penstocks and bifurcation (steel) Unit Price

Cell: R98

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q98)
Likeliest	\$0.65	(=R98)
Maximum	\$0.75	(=S98)

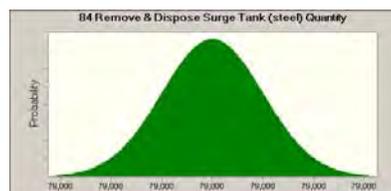


Assumption: 84 Remove & Dispose Surge Tank (steel) Quantity

Cell: L99

Normal distribution with parameters:

Mean	79,000	(=L99)
Std. Dev.	0	(=0.000001)



Assumption: 84 Remove & Dispose Surge Tank (steel) Unit Price

Cell: R99

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q99)
Likeliest	\$0.65	(=R99)
Maximum	\$0.75	(=S99)

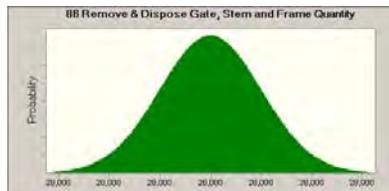


Assumption: 86 Remove & Dispose Gate, Stem and Frame Quantity

Cell: L101

Normal distribution with parameters:

Mean	28,000	(=L101)
Std. Dev.	0	(=0.000001)

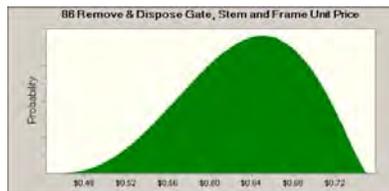


Assumption: 86 Remove & Dispose Gate, Stem and Frame Unit Price

Cell: R101

BetaPERT distribution with parameters:

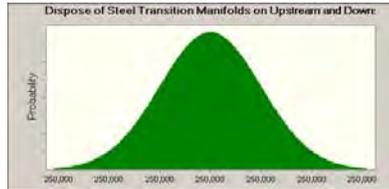
Minimum	\$0.45	(=Q101)
Likeliest	\$0.65	(=R101)
Maximum	\$0.75	(=S101)



Assumption: 87 Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream

Normal distribution with parameters:

Mean	250,000	(=L102)
Std. Dev.	0	(=0.000001)



Assumption: 87 Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream

BetaPERT distribution with parameters:

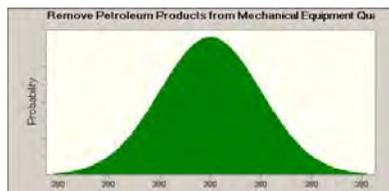
Minimum	\$0.45	(=Q102)
Likeliest	\$0.50	(=R102)
Maximum	\$0.70	(=S102)



Assumption: 87A Remove Petroleum Products from Mechanical Equipment Quantities

Normal distribution with parameters:

Mean	380	(=L103)
Std. Dev.	0	(=0.000001)



Assumption: 87A Remove Petroleum Products from Mechanical Equipment Unit Price Cell: R103

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q103)
Likeliest	\$10.00	(=R103)
Maximum	\$12.00	(=S103)



Assumption: 88 Temporary Access Roads Quantity Cell: L104

Cell: L104

Normal distribution with parameters:

Mean	2	(=L104)
Std. Dev.	0	(=0.000001)



Assumption: 88 Temporary Access Roads Unit Price Cell: R104

Cell: R104

BetaPERT distribution with parameters:

Minimum	\$85,000.00	(=Q104)
Likeliest	\$100,000.00	(=S104)
Maximum	\$150,000.00	(=R104)

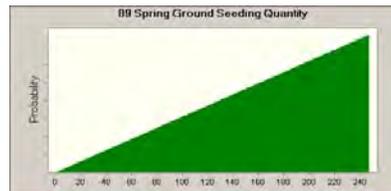


Assumption: 89 Spring Ground Seeding Quantity

Cell: L105

Triangular distribution with parameters:

Minimum	0	(=M105)
Likeliest	247	(=L105)
Maximum	247	(=K105)



Assumption: 89 Spring Ground Seeding Unit Price

Cell: R105

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q105)
Likeliest	\$3,500.00	(=R105)
Maximum	\$4,000.00	(=S105)



Assumption: 9 Remove Timber Equipment Ramp on left side of Dam Quantity

Cell: L22

Normal distribution with parameters:

Mean	10,500	(=L22)
Std. Dev.	0	(=0.000001)



Assumption: 9 Remove Timber Equipment Ramp on left side of Dam Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$0.50	(=Q22)
Likeliest	\$0.55	(=R22)
Maximum	\$0.70	(=S22)

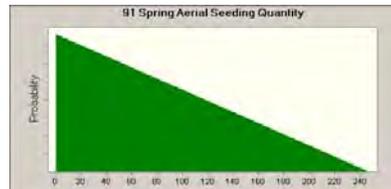


Assumption: 91 Spring Aerial Seeding Quantity

Cell: L107

Triangular distribution with parameters:

Minimum	0	(=K107)
Likeliest	0	(=L107)
Maximum	247	(=M107)



Assumption: 91 Spring Aerial Seeding Unit Price

Cell: R107

BetaPERT distribution with parameters:

Minimum	\$6,500.00	(=Q107)
Likeliest	\$7,500.00	(=R107)
Maximum	\$15,000.00	(=S107)



Assumption: 92 Fall Ground Seeding Quantity

Cell: L108

Triangular distribution with parameters:

Minimum	62	(=K108)
Likeliest	124	(=L108)
Maximum	185	(=M108)



Assumption: 92 Fall Ground Seeding Unit Price

Cell: R108

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q108)
Likeliest	\$3,500.00	(=R108)
Maximum	\$4,000.00	(=S108)

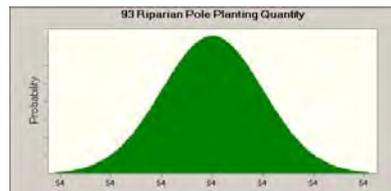


Assumption: 93 Riparian Pole Planting Quantity

Cell: L109

Normal distribution with parameters:

Mean	54	(=L109)
Std. Dev.	0	(=0.000001)

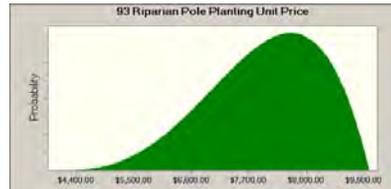


Assumption: 93 Riparian Pole Planting Unit Price

Cell: R109

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q109)
Likeliest	\$8,500.00	(=R109)
Maximum	\$10,000.00	(=S109)



Assumption: 94 Weed Management Quantity

Cell: L110

Triangular distribution with parameters:

Minimum	62	(=K110)
Likeliest	124	(=L110)
Maximum	185	(=M110)



Assumption: 94 Weed Management Unit Price

Cell: R110

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q110)
Likeliest	\$1,500.00	(=R110)
Maximum	\$2,000.00	(=S110)

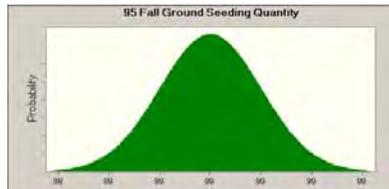


Assumption: 95 Fall Ground Seeding Quantity

Cell: L111

Normal distribution with parameters:

Mean	99	(=L111)
Std. Dev.	0	(=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price

Cell: R111

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q111)
Likeliest	\$3,500.00	(=R111)
Maximum	\$4,000.00	(=S111)



Assumption: 96 Weed Management Quantity

Cell: L112

Normal distribution with parameters:

Mean	99	(=L112)
Std. Dev.	0	(=0.000001)



Assumption: 96 Weed Management Unit Price

Cell: R112

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q112)
Likeliest	\$1,500.00	(=R112)
Maximum	\$2,000.00	(=S112)

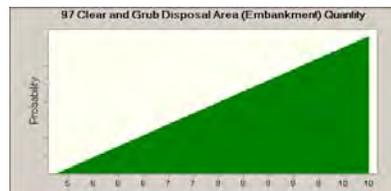


Assumption: 97 Clear and Grub Disposal Area (Embankment) Quantity

Cell: L113

Triangular distribution with parameters:

Minimum	5	(=M113)
Likeliest	10	(=L113)
Maximum	10	(=K113)

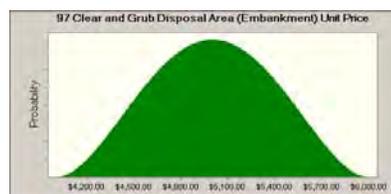


Assumption: 97 Clear and Grub Disposal Area (Embankment) Unit Price

Cell: R113

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q113)
Likeliest	\$5,000.00	(=R113)
Maximum	\$6,000.00	(=S113)



Assumption: 98 Clear and Grub, 40' width Quantity

Cell: L114

Normal distribution with parameters:

Mean	2.4	(=L114)
Std. Dev.	0.0	(=0.000001)



Assumption: 98 Clear and Grub, 40' width Unit Price

Cell: R114

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q114)
Likeliest	\$5,000.00	(=R114)
Maximum	\$6,000.00	(=S114)

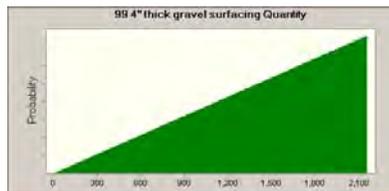


Assumption: 99 4" thick gravel surfacing Quantity

Cell: L115

Triangular distribution with parameters:

Minimum	0	(=K115)
Likeliest	2,150	(=L115)
Maximum	2,150	(=M115)



Assumption: 99 4" thick gravel surfacing Unit Price

Cell: R115

BetaPERT distribution with parameters:

Minimum	\$20.00	(=Q115)
Likeliest	\$30.00	(=R115)
Maximum	\$40.00	(=S115)

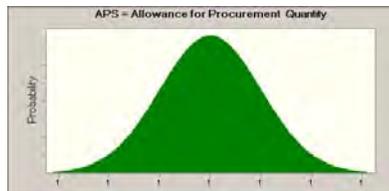


Assumption: APS = Allowance for Procurement Quantity

Cell: L143

Normal distribution with parameters:

Mean	1	(=L143)
Std. Dev.	0	(=0.000001)



Assumption: APS = Allowance for Procurement Unit Price

Cell: R143

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q143)
Likeliest	\$0.00	(=R143)
Maximum	\$1,025,928.00	(=S143)

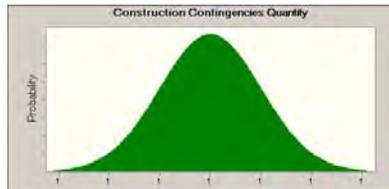


Assumption: Construction Contingencies Quantity

Cell: L146

Normal distribution with parameters:

Mean	1	(=L146)
Std. Dev.	0	(=0.000001)

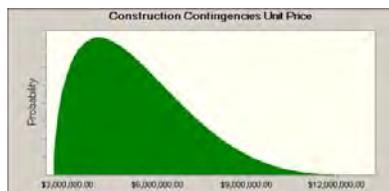


Assumption: Construction Contingencies Unit Price

Cell: R146

BetaPERT distribution with parameters:

Minimum	\$2,500,000.00	(=Q146)
Likeliest	\$4,000,000.00	(=R146)
Maximum	\$13,000,000.00	(=S146)

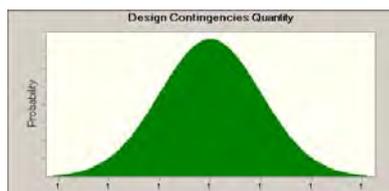


Assumption: Design Contingencies Quantity

Cell: L142

Normal distribution with parameters:

Mean	1	(=L142)
Std. Dev.	0	(=0.000001)

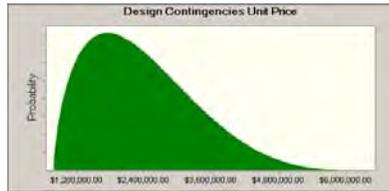


Assumption: Design Contingencies Unit Price

Cell: R142

BetaPERT distribution with parameters:

Minimum	\$782,942.00	(=Q142)
Likeliest	\$1,737,935.00	(=R142)
Maximum	\$6,368,490.00	(=S142)

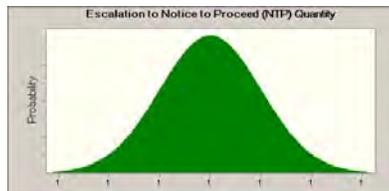


Assumption: Escalation to Notice to Proceed (NTP) Quantity

Cell: L139

Normal distribution with parameters:

Mean	1	(=L139)
Std. Dev.	0	(=0.000001)

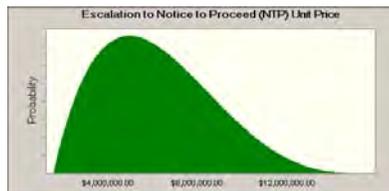


Assumption: Escalation to Notice to Proceed (NTP) Unit Price

Cell: R139

BetaPERT distribution with parameters:

Minimum	\$1,551,687.00	(=Q139)
Likeliest	\$4,929,280.00	(=R139)
Maximum	\$15,536,968.00	(=S139)

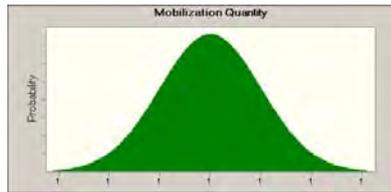


Assumption: Mobilization Quantity

Cell: L137

Normal distribution with parameters:

Mean	1	(=L137)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R137

BetaPERT distribution with parameters:

Minimum	\$460,000.00	(=Q137)
Likeliest	\$680,000.00	(=R137)
Maximum	\$1,400,000.00	(=S137)



Assumption: Non-Contract Cost Quantity

Cell: L148

Normal distribution with parameters:

Mean	1	(=L148)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R148

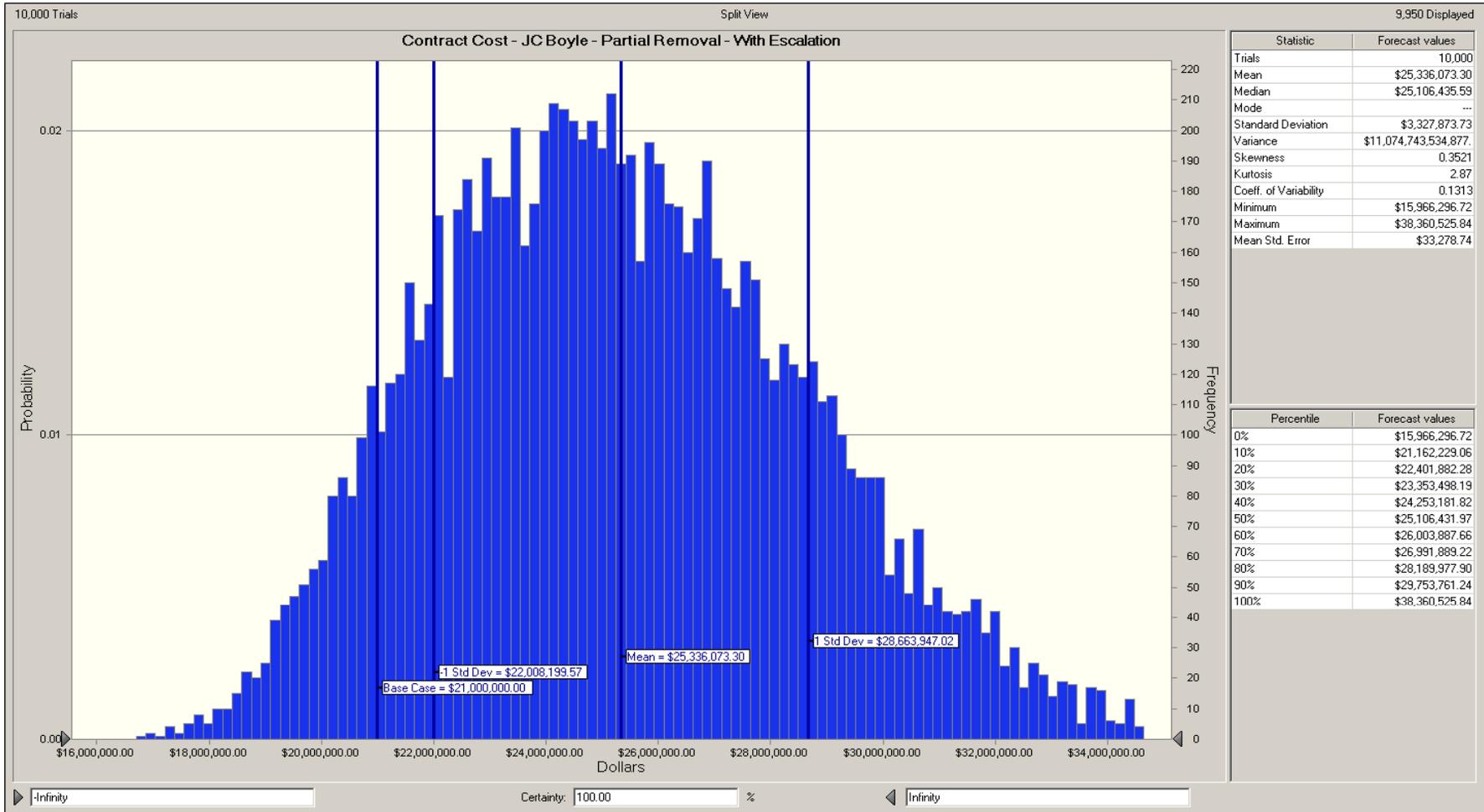
BetaPERT distribution with parameters:

Minimum	\$8,500,000.00	(=Q148)
Likeliest	\$16,000,000.00	(=R148)
Maximum	\$45,000,000.00	(=S148)

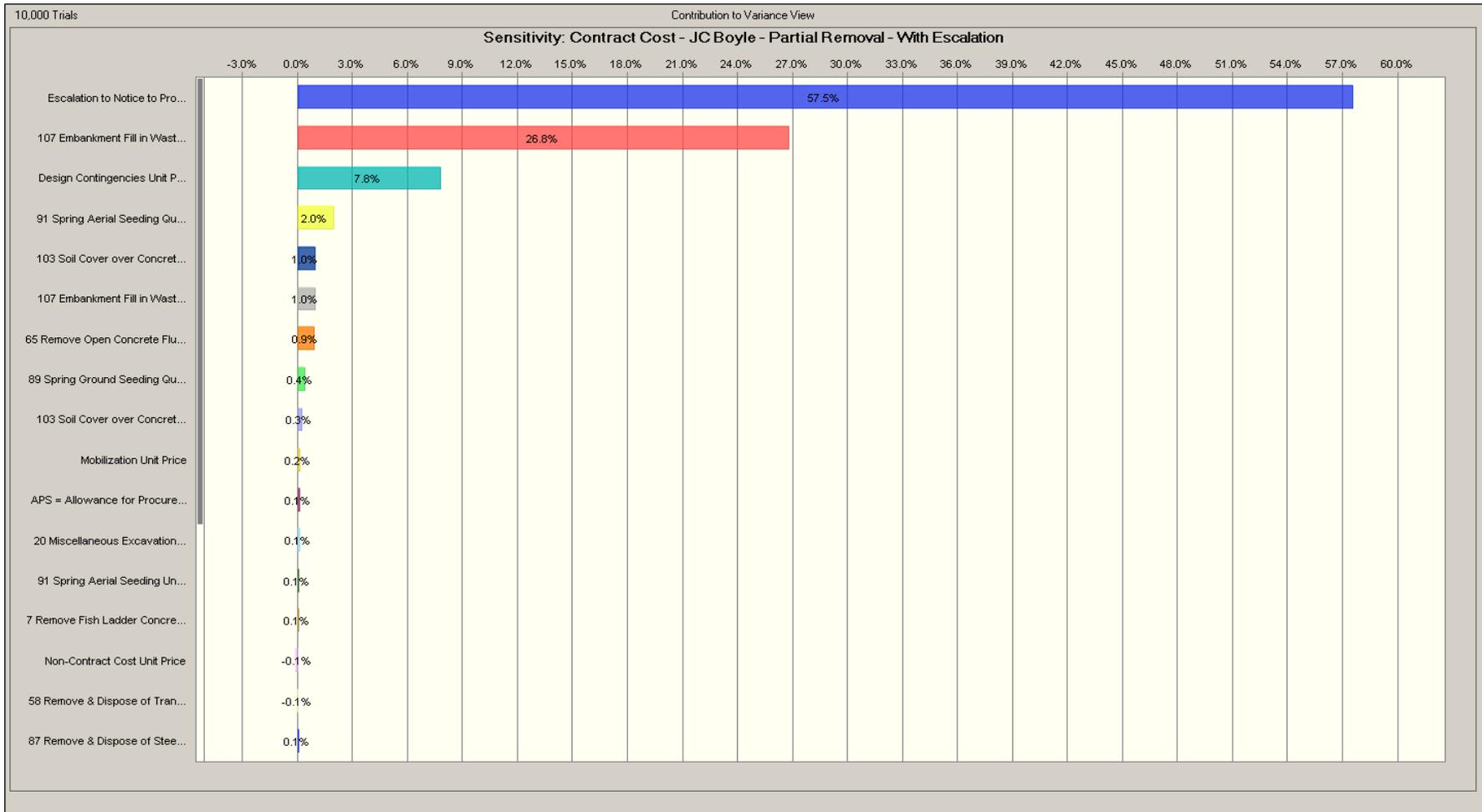


End of Assumptions

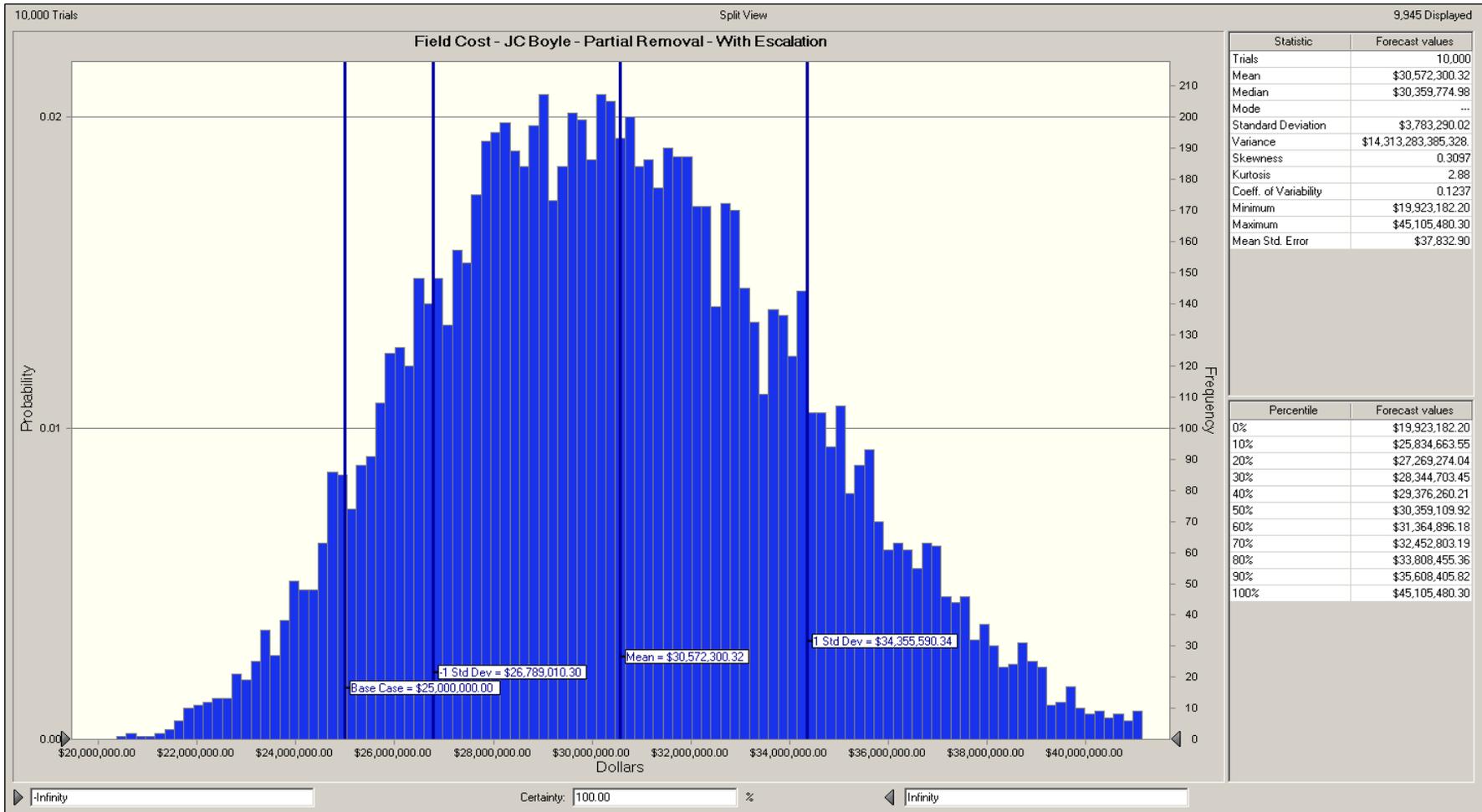
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



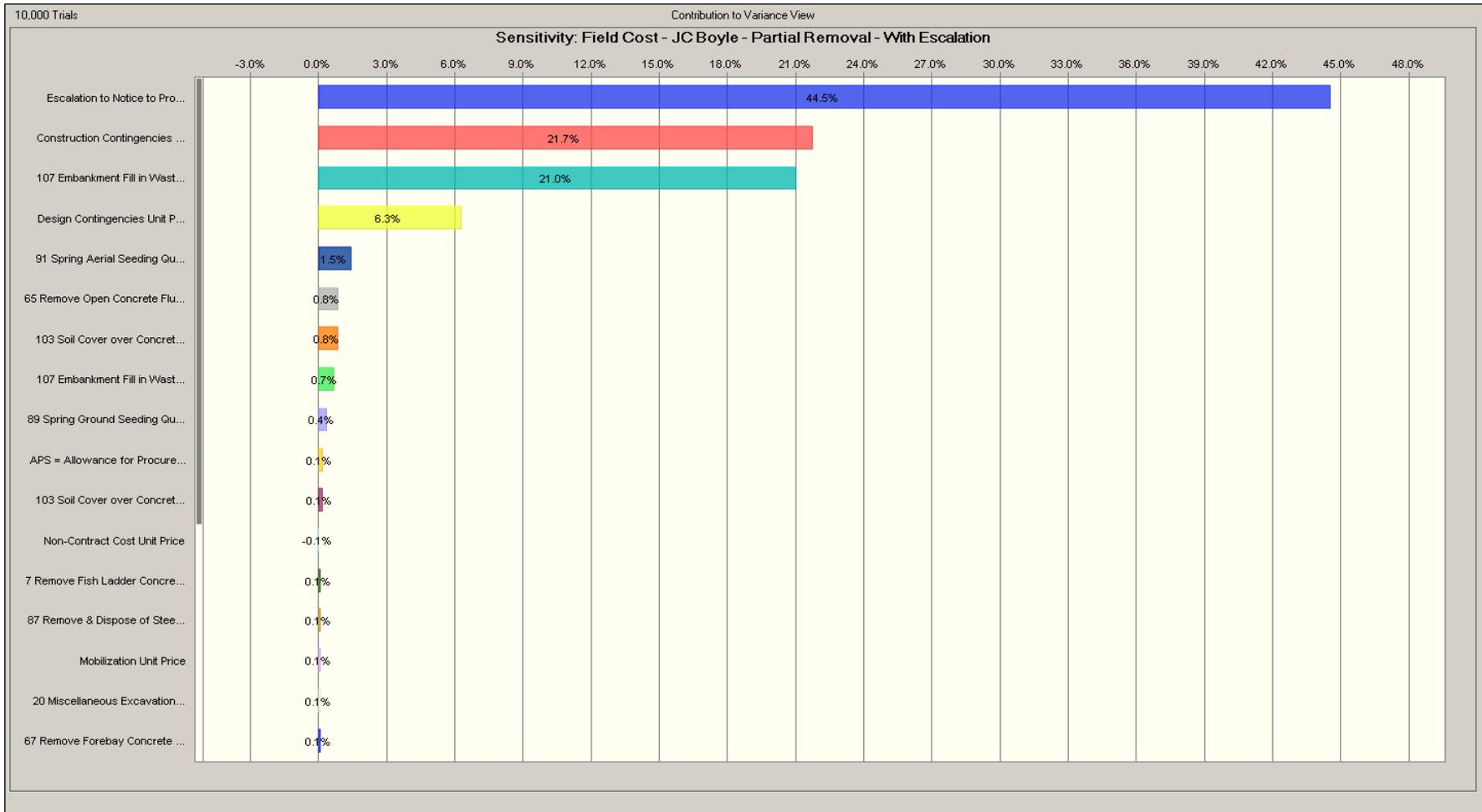
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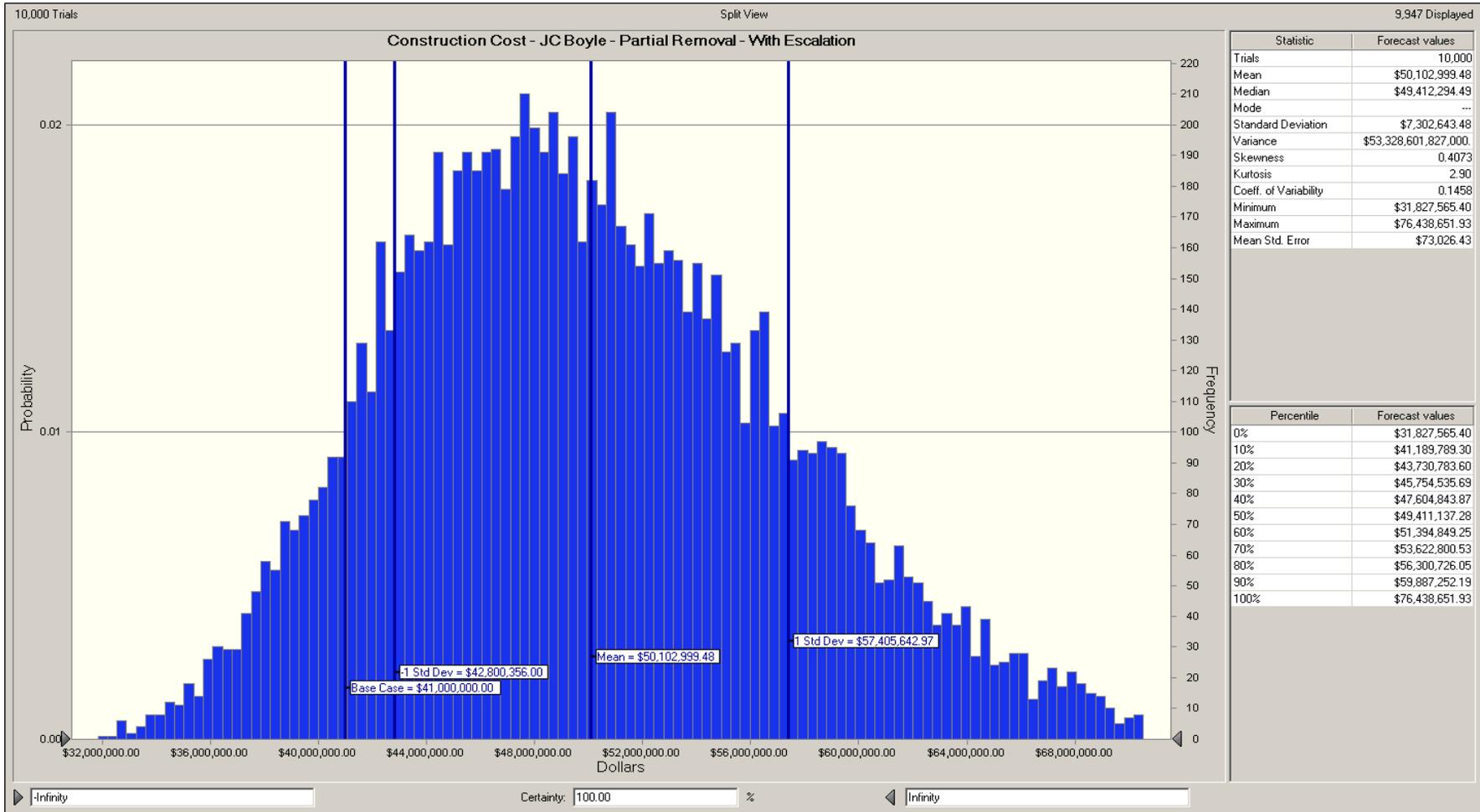
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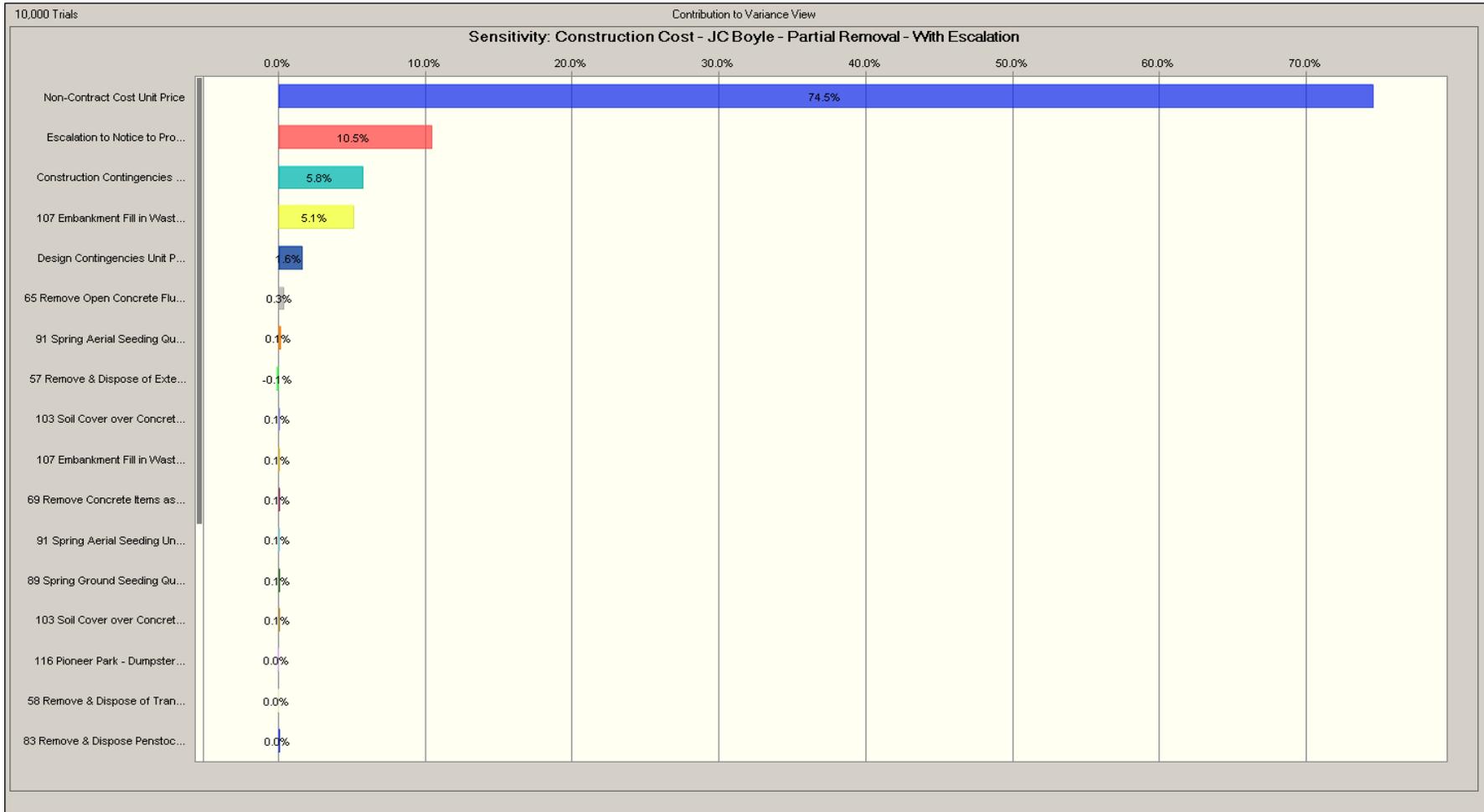
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



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ESTIMATE WORKSHEET

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE	PROJECT: Klamath River, Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP PRICE LEVEL: Jul-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls\JC Boyle - Partial-without Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	1	Removal of Diversion Conduit Bulkheads.	8130	14	14	14	CY	\$725.00	\$850.00	\$950.00	\$10,150.00	\$11,900.00	\$13,300.00
	2	Remove Water from behind Tailrace Cofferdam.	8130	0	0	0	GAL				\$0.00	\$0.00	\$0.00
	3	Provide Dewatering behind Tailrace Cofferdam	8130	0	0	0	LS				\$0.00	\$0.00	\$0.00
	4	Construct Embankment Cofferdam in Tailrace around Powerhouse	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	5	Remove Spillway Concrete	8130	2,500	2,500	2,500	CY	\$130.00	\$260.00	\$390.00	\$325,000.00	\$650,000.00	\$975,000.00
	6	Remove Monorail Structural Steel Components	8130	15,000	15,000	15,000	LBS	\$0.45	\$0.65	\$0.75	\$6,750.00	\$9,750.00	\$11,250.00
	7	Remove Fish Ladder Concrete	8130	1,600	1,600	1,600	CY	\$130.00	\$260.00	\$390.00	\$208,000.00	\$416,000.00	\$624,000.00
	8	Remove Gravity Dam Section Concrete	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	9	Remove Timber Equipment Ramp on left side of Dam	8130	10,500	10,500	10,500	LBS	\$0.50	\$0.55	\$0.70	\$5,250.00	\$5,775.00	\$7,350.00
	10	Remove Pressure-Treated Lumber from Footbridge around Intake Structure	8130	3,600	3,600	3,600	LBS	\$0.50	\$0.55	\$0.70	\$1,800.00	\$1,980.00	\$2,520.00
	11	Remove Storage Shed located on access road	8130	0	0	0	SF				\$0.00	\$0.00	\$0.00
	12	Remove Warehouse located on access road	8130	0	0	0	SF				\$0.00	\$0.00	\$0.00
	13	Remove Fire System Control Bldg. on left abutment.	8130	385	385	385	SF	\$38.00	\$40.00	\$42.00	\$14,630.00	\$15,400.00	\$16,170.00
	14	Remove Dam Communication Bldg. on left abutment.	8130	331	331	331	SF	\$38.00	\$40.00	\$42.00	\$12,578.00	\$13,240.00	\$13,902.00
	15	Remove Concrete Slab on left abutment for former Control House	8130	6	6	6	CY	\$130.00	\$260.00	\$390.00	\$780.00	\$1,560.00	\$2,340.00
	16	Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment.	8130	1	1	1	CY	\$130.00	\$260.00	\$390.00	\$130.00	\$260.00	\$390.00
	17	Remove Reservoir Level Gauge House on Dam Crest	8130	24	24	24	SF	\$38.00	\$40.00	\$42.00	\$912.00	\$960.00	\$1,008.00
	18	Upstream Riprap	8313	2,220	2,220	2,220	CY	\$8.00	\$9.00	\$12.00	\$17,760.00	\$19,980.00	\$26,640.00
	19	Downstream Riprap	8313	1,850	1,850	1,850	CY	\$8.00	\$9.00	\$12.00	\$14,800.00	\$16,650.00	\$22,200.00
	20	Miscellaneous Excavation	8313	132,500	132,500	132,500	CY	\$8.00	\$9.00	\$12.00	\$1,060,000.00	\$1,192,500.00	\$1,590,000.00
	21	Cutoff Wall Concrete Demolition	8313	70	70	70	CY	\$130.00	\$260.00	\$390.00	\$9,100.00	\$18,200.00	\$27,300.00
	22	Cutoff Wall Anchors	8313	285	285	285	EA	\$9.00	\$10.00	\$12.00	\$2,565.00	\$2,850.00	\$3,420.00
	23	Remove & Dispose Hand Rails and Light Poles	8420	5,000	5,000	5,000	LBS	\$0.45	\$0.65	\$0.75	\$2,250.00	\$3,250.00	\$3,750.00
	24	Remove & Dispose Spillway Radial Gates and Hoists	8420	124,000	124,000	124,000	LBS	\$0.45	\$0.65	\$0.75	\$55,800.00	\$80,600.00	\$93,000.00
	25	Remove & Dispose Stop Logs and Slots (steel)	8420	92,000	92,000	92,000	LBS	\$0.45	\$0.65	\$0.75	\$41,400.00	\$59,800.00	\$69,000.00
	26	Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure	8420	4,200	4,200	4,200	LBS	\$0.45	\$0.65	\$0.75	\$1,890.00	\$2,730.00	\$3,150.00
	26A	Remove Petroleum Products from Red Barn Area	8420	1,600	1,600	1,600	GAL	\$8.00	\$10.00	\$12.00	\$12,800.00	\$16,000.00	\$19,200.00
	27	Remove & Dispose of Spillway gate motor & control panel	8430	1	1	1	EA	\$500.00	\$600.00	\$700.00	\$500.00	\$600.00	\$700.00
	28	Remove & Dispose of Distribution equipment , panelboards	8430	1	1	1	EA	\$5,500.00	\$6,000.00	\$6,500.00	\$5,500.00	\$6,000.00	\$6,500.00
	29	Remove Powerhouse Concrete down to Elevation 3324.0	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	30	Remove Structural Steel Items associated with Powerhouse	8130	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	31	Remove Warehouse near Powerhouse	8130	5,200	5,200	5,200	SF	\$38.00	\$40.00	\$42.00	\$197,600.00	\$208,000.00	\$218,400.00
	32	Remove & Dispose of 2 - Governor oil systems	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	33	Remove & Dispose of Cooling water and bearing oil systems	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	34	Remove & Dispose of 2 - Francis Turbines	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	35	Remove & Dispose of 150 Ton crane	8420	240,000	240,000	240,000	LBS	\$0.45	\$0.65	\$0.75	\$108,000.00	\$156,000.00	\$180,000.00
	36	Remove & Dispose of Compressed Air systems	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	37	Remove & Dispose of 2 - CO2 systems	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	38	Remove & Dispose of Plant Water and Fire Protection	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	39	Remove & Dispose of Transformer Oil Fire protection	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	40	Remove & Dispose of Unwatering Piping	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	41	Remove & Dispose of Drainage Piping	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	42	Remove & Dispose of 2-Oil Sump pumps	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	43A	Remove Petroleum Products from Mechanical Equipment	8420	2,700	2,700	2,700	GAL	\$8.00	\$10.00	\$12.00	\$21,600.00	\$27,000.00	\$32,400.00
	44	Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA	8430	2	2	2	EA	\$150,000.00	\$200,000.00	\$250,000.00	\$300,000.00	\$400,000.00	\$500,000.00
	45	Remove & Dispose of Excitation equipment for 53/50 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED
ESTIMATE WORKSHEET

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE	PROJECT: Klamath River, Northern California/Southern Oregon WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP PRICE LEVEL: Jul-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls\JC Boyle - Partial-without Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	46	Remove & Dispose of Surge protection equip. for 53/50 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	47	Remove & Dispose of Neutral grounding equip. for 53/50 MVA Generator	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	48	Remove & Dispose of Generator Switchgear, 15kV - (6 sections)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	49	Remove & Dispose of Station Service Switchgear, 600 volt -(5 sections)	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	50	Remove & Dispose of Unit and plant control switchboard	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	51	Remove & Dispose of Battery system	8430	1	1	1	EA	\$7,000.00	\$8,000.00	\$9,000.00	\$7,000.00	\$8,000.00	\$9,000.00
	52	Remove & Dispose of Raceways, Conduit and Cable	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	53	Remove & Dispose of Misc. power & control boards	8430	0	0	0	EA				\$0.00	\$0.00	\$0.00
	54	Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	55	Remove & Dispose of Gantry Crane control equipment (3 cubicles)	8430	1	1	1	EA	\$5,000.00	\$6,000.00	\$7,000.00	\$5,000.00	\$6,000.00	\$7,000.00
	56	Remove & Dispose of Conduit and Cable	8430	1	1	1	EA	\$9,000.00	\$10,000.00	\$11,000.00	\$9,000.00	\$10,000.00	\$11,000.00
	57	Remove & Dispose of Exterior Lighting	8430	1	1	1	EA	\$1,500.00	\$2,000.00	\$3,000.00	\$1,500.00	\$2,000.00	\$3,000.00
	58	Remove & Dispose of Transmission Line No. 59	8430	1.66	1.66	1.66	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$33,200.00	\$41,500.00	\$49,800.00
	59	Remove & Dispose of Transmission Line No. 98	8430	0.24	0.24	0.24	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$4,800.00	\$6,000.00	\$7,200.00
	60	Remove & Dispose of Transmission Line No. 58	8430	1.66	1.66	1.66	MILE	\$20,000.00	\$25,000.00	\$30,000.00	\$33,200.00	\$41,500.00	\$49,800.00
	61	Remove Intake Structure Concrete	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	62	Remove Fish Screen Building	8130	0	0	0	SF				\$0.00	\$0.00	\$0.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe	8130	22,000	22,000	22,000	LBS	\$0.45	\$0.65	\$0.75	\$9,900.00	\$14,300.00	\$16,500.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe	8130	0	0	0	CY				\$0.00	\$0.00	\$0.00
	65	Remove Open Concrete Flume.	8130	12,200	12,200	12,200	CY	\$220.00	\$260.00	\$390.00	\$2,684,000.00	\$3,172,000.00	\$4,758,000.00
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers	8130	11,500	11,500	11,500	LBS	\$0.45	\$0.65	\$0.75	\$5,175.00	\$7,475.00	\$8,625.00
	67	Remove Forebay Concrete	8130	1,500	1,500	1,500	CY	\$220.00	\$260.00	\$390.00	\$330,000.00	\$390,000.00	\$585,000.00
	68	Place Concrete Plugs at Tunnel Portals	8130	30	30	30	CY	\$900.00	\$1,000.00	\$1,100.00	\$27,000.00	\$30,000.00	\$33,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel	8130	1,800	1,800	1,800	CY	\$220.00	\$260.00	\$390.00	\$396,000.00	\$468,000.00	\$702,000.00
	70	Remove Headgate Control Building at Flume Entrance	8130	330	330	330	SF	\$38.00	\$40.00	\$42.00	\$12,540.00	\$13,200.00	\$13,860.00
	71	Remove Forebay Spillway Gate House	8130	570	570	570	SF	\$38.00	\$40.00	\$42.00	\$21,660.00	\$22,800.00	\$23,940.00
	72	Remove Forebay Control Building.	8130	470	470	470	SF	\$38.00	\$40.00	\$42.00	\$17,860.00	\$18,800.00	\$19,740.00
	73	Remove Communication Tower next to Forebay Control Building	8130	7,100	7,100	7,100	LBS	\$0.45	\$0.65	\$0.75	\$3,195.00	\$4,615.00	\$5,325.00
	74	Remove Insulated Generator Building next to Forebay Control Building	8130	72	72	72	SF	\$38.00	\$40.00	\$42.00	\$2,736.00	\$2,880.00	\$3,024.00
	75	Remove Fixed Wheel Gate (gate, Frame and Hoist)	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	76	Remove Trash rack and trash rake (steel)	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	77	Remove stop Logs and slots (steel)	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	78	Remove Traveling Water Screen	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	79	Remove Fish By-Pass and Supports (steel)	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	80	Remove Radial Gates and Hoists	8420	16,500	16,500	16,500	LBS	\$0.45	\$0.65	\$0.75	\$7,425.00	\$10,725.00	\$12,375.00
	81	Remove Trash rack and trash rake (steel)	8420	43,500	43,500	43,500	LBS	\$0.45	\$0.50	\$0.70	\$19,575.00	\$21,750.00	\$30,450.00
	82	Remove Stop Logs and slots (steel)	8420	14,500	14,500	14,500	LBS	\$0.45	\$0.65	\$0.75	\$6,525.00	\$9,425.00	\$10,875.00
	83	Remove & Dispose Penstocks and bifurcation (steel)	8420	1,600,000	1,600,000	1,600,000	LBS	\$0.45	\$0.65	\$0.75	\$720,000.00	\$1,040,000.00	\$1,200,000.00
	84	Remove & Dispose Surge Tank (steel)	8420	79,000	79,000	79,000	LBS	\$0.45	\$0.65	\$0.75	\$35,550.00	\$51,350.00	\$59,250.00
	85	Remove & Dispose 2 - 108" Butterfly valves	8420	0	0	0	LBS				\$0.00	\$0.00	\$0.00
	86	Remove & Dispose Gate, Stem and Frame	8420	28,000	28,000	28,000	LBS	\$0.45	\$0.65	\$0.75	\$12,600.00	\$18,200.00	\$21,000.00
	87	Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream	8420	250,000	250,000	250,000	LBS	\$0.45	\$0.50	\$0.70	\$112,500.00	\$125,000.00	\$175,000.00
	87A	Remove Petroleum Products from Mechanical Equipment	8420	380	380	380	GAL	\$8.00	\$10.00	\$12.00	\$3,040.00	\$3,800.00	\$4,560.00
	88	Temporary Access Roads	8140	2	2	2	MILE	\$85,000.00	\$150,000.00	\$100,000.00	\$170,000.00	\$300,000.00	\$200,000.00
	89	Spring Ground Seeding	8220	247	247	0	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$741,000.00	\$864,500.00	\$0.00
	90	Spring Barge Seeding	8220	0	0	0	ACRES				\$0.00	\$0.00	\$0.00
	91	Spring Aerial Seeding	8220	0	0	247	ACRES	\$6,500.00	\$7,500.00	\$15,000.00	\$0.00	\$0.00	\$3,705,000.00
	92	Fall Ground Seeding	8220	62	124	185	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$186,000.00	\$434,000.00	\$740,000.00

ESTIMATE WORKSHEET

FEATURE:			PROJECT:									
Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon									
			WOID: AF652	ESTIMATE LEVEL: Feasibility								
			REGION: MP	PRICE LEVEL: Jul-2010								
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls\JC Boyle - Partial-without Esc								

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	93	Riparian Pole Planting	8220	54	54	54	ACRES	\$4,000.00	\$8,500.00	\$10,000.00	\$216,000.00	\$459,000.00	\$540,000.00
	94	Weed Management	8220	62	124	185	ACRES	\$1,000.00	\$1,500.00	\$2,000.00	\$62,000.00	\$186,000.00	\$370,000.00
	95	Fall Ground Seeding	8220	99	99	99	ACRES	\$3,000.00	\$3,500.00	\$4,000.00	\$297,000.00	\$346,500.00	\$396,000.00
	96	Weed Management	8220	99	99	99	ACRES	\$1,000.00	\$1,500.00	\$2,000.00	\$99,000.00	\$148,500.00	\$198,000.00
	97	Clear and Grub Disposal Area (Embankment)	8313	10	10	5	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$40,000.00	\$50,000.00	\$30,000.00
	98	Clear and Grub, 40' width	8313	2.4	2.4	2.4	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$9,600.00	\$12,000.00	\$14,400.00
	99	4" thick gravel surfacing	8313	0	2,150	2,150	TON	\$20.00	\$30.00	\$40.00	\$0.00	\$64,500.00	\$86,000.00
	100	Clear and Grub Disposal Area (For Concrete)	8313	4	0	0	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$16,000.00	\$0.00	\$0.00
	101	Clear and grub, 20' width	8313	1	0	0	ACRES	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$0.00	\$0.00
	102	4" thick gravel surfacing	8313	0	0	0	TON				\$0.00	\$0.00	\$0.00
	103	Soil Cover over Concrete Rubble	8313	13,000	13,000	0	CY	\$25.00	\$140.00	\$150.00	\$325,000.00	\$1,820,000.00	\$0.00
	104	Dispose of Concrete Rubble from Dam	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	105	Dispose of Concrete Rubble from Flume/Forebay	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	106	Dispose of Concrete Rubble from Power House	8313	0	0	0	CY				\$0.00	\$0.00	\$0.00
	107	Embankment Fill in Wasteway (Forebay) Scour Hole	8313	0	0	60,000	CY	\$25.00	\$140.00	\$150.00	\$0.00	\$0.00	\$9,000,000.00
	108	Topsy Recreation Area - Concrete total	BLM	68	68	68	CY	\$175.00	\$220.00	\$320.00	\$11,900.00	\$14,960.00	\$21,760.00
	109	Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite decking	BLM	1	1	1	EA	\$4,000.00	\$5,000.00	\$6,000.00	\$4,000.00	\$5,000.00	\$6,000.00
	110	Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform	BLM	200	200	200	SF	\$12.00	\$13.00	\$14.00	\$2,400.00	\$2,600.00	\$2,800.00
	111	Topsy Recreation Area - Regrade to natural contour and reseed	BLM	300	300	300	SF	\$3.00	\$4.00	\$5.00	\$900.00	\$1,200.00	\$1,500.00
	112	Pioneer Park - Picnic tables to be removed and hauled away	BLM	12	12	12	EA	\$55.00	\$60.00	\$65.00	\$660.00	\$720.00	\$780.00
	113	Pioneer Park - 12 Concrete fire rings	BLM	5	5	5	CY	\$175.00	\$220.00	\$320.00	\$875.00	\$1,100.00	\$1,600.00
	114	Pioneer Park - Portable toilets to be removed and hauled away	BLM	2	2	2	EA	\$900.00	\$1,000.00	\$1,200.00	\$1,800.00	\$2,000.00	\$2,400.00
	115	Pioneer Park - Signs to be removed and hauled away	BLM	6	8	6	EA	\$135.00	\$150.00	\$160.00	\$810.00	\$900.00	\$960.00
	116	Pioneer Park - Dumpster to be removed and hauled away	BLM	1	1	1	EA	\$900.00	\$1,000.00	\$1,200.00	\$900.00	\$1,000.00	\$1,200.00
	117	Pioneer Park - Remove paved access road	BLM	200	200	200	LF	\$230.00	\$250.00	\$270.00	\$46,000.00	\$50,000.00	\$54,000.00
	118	Pioneer Park - Regrage to natural contour, rip, plant and seed parking and recreation site	BLM	1	1	1	ACRES	\$19,000.00	\$20,000.00	\$22,000.00	\$9,500.00	\$10,000.00	\$11,000.00
		Subtotal 1									\$9,205,371.00	\$13,652,785.00	\$27,668,614.00
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	\$460,000.00	\$680,000.00	\$1,400,000.00	\$460,000.00	\$680,000.00	\$1,400,000.00
		Subtotal 1 w/ mobilization											
		Escalation to Notice to Proceed (NTP) NOT INCLUDED											
		Design Contingencies (MPL ~ 8%; MP ~ 10%; MPH ~ 15%)		1	1	1	ls	\$834,629.00	\$1,667,215.00	\$4,274,078.00	\$834,629.00	\$1,667,215.00	\$4,274,078.00
		APS = Allowance for Procurement Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)		1	1	1	ls	\$0.00	\$0.00	\$657,308.00	\$0.00	\$0.00	\$657,308.00
		CONTRACT COST									\$10,500,000.00	\$16,000,000.00	\$34,000,000.00
		Construction Contingencies (MPL ~ 18%; MP ~ 20%; MPH ~ 25%)		1	1	1	ls	\$2,000,000.00	\$3,000,000.00	\$9,000,000.00	\$2,000,000.00	\$3,000,000.00	\$9,000,000.00
		FIELD COST									\$12,500,000.00	\$19,000,000.00	\$43,000,000.00
		Non-Contract Cost (MPL ~ 62%; MP ~ 65%; MPH ~ 71%)		1	1	1	ls	\$7,500,000.00	\$12,000,000.00	\$31,000,000.00	\$7,500,000.00	\$12,000,000.00	\$31,000,000.00
		CONSTRUCTION COST									\$20,000,000.00	\$31,000,000.00	\$74,000,000.00

Notes: This estimate does not include non-contract costs and should not be used for funding purposes. Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)

QUANTITIES				PRICES			
BY: See Group Worksheets	CHECKED: See Group Worksheets	BY: Craig Grush, P.E.	CHECKED:	DATE PREPARED: 1/20/2011	PEER REVIEW: See Group Worksheets	DATE PREPARED: 05/25/11	PEER REVIEW: [Signature]

Crystal Ball Report - Full

Simulation started on 6/9/2011 at 6:57:50

Simulation stopped on 6/9/2011 at 6:58:39

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 49.28
Trials/second (average) 203
Random numbers per sec 34,495

Crystal Ball data:

Assumptions 170
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP

UNIT PRICES BY

DATE 6/9/2011

Craig A. Grush

DATE	PEER REVIEWER(S)	CODE
6/9/11	<i>[Signature]</i>	9174
	DAW <i>[Signature]</i>	
	Signature	
	Printed Name	
Author Initials	PEER REVIEW NOT REQUIRED	

Forecasts

Worksheet: [JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]JC Boyl

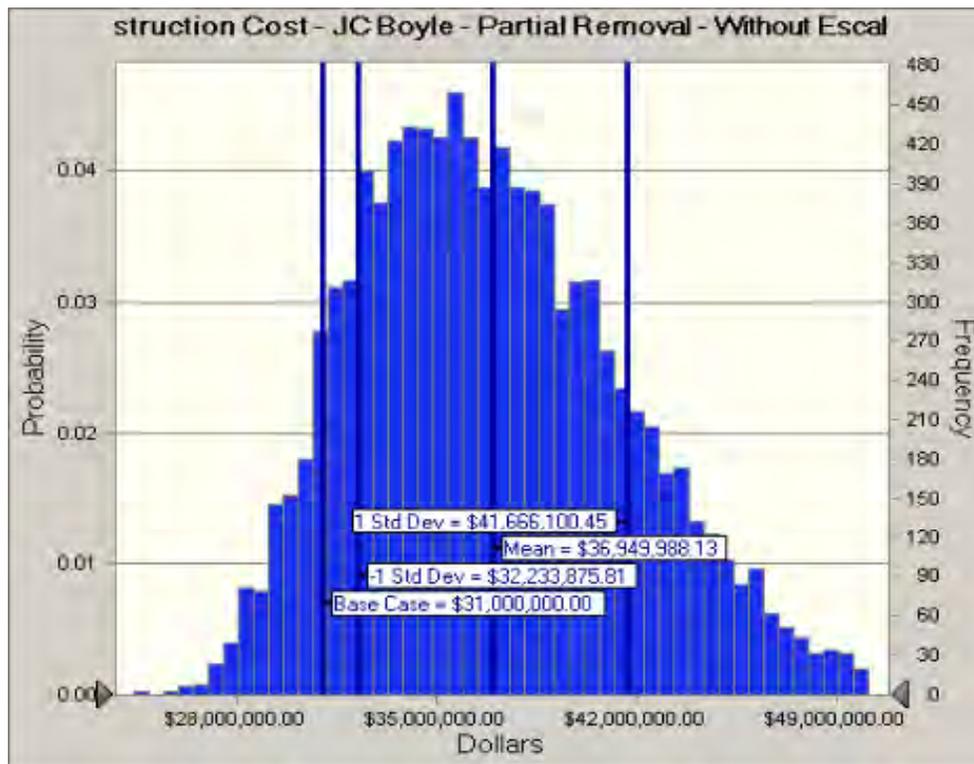
Forecast: Construction Cost - JC Boyle - Partial Removal - Without Escalation Cell: U149

Summary:

Entire range is from \$24,355,066.49 to \$55,361,271.86

Base case is \$31,000,000.00

After 10,000 trials, the std. error of the mean is \$47,161.12



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Construction Cost - JC Boyle - Partial Removal - Without Escalation (cont'd): U149

Statistics:	Forecast values
Trials	10,000
Mean	\$36,949,988.13
Median	\$36,473,018.98
Mode	---
Standard Deviation	\$4,716,112.32
Variance	\$22,241,715,444,585.90
Skewness	0.4596
Kurtosis	2.90
Coeff. of Variability	0.1276
Minimum	\$24,355,066.49
Maximum	\$55,361,271.86
Range Width	\$31,006,205.37
Mean Std. Error	\$47,161.12

Percentiles:	Forecast values
0%	\$24,355,066.49
10%	\$31,207,615.59
20%	\$32,746,006.67
30%	\$34,049,145.62
40%	\$35,283,089.48
50%	\$36,472,704.68
60%	\$37,796,120.24
70%	\$39,203,936.50
80%	\$40,915,806.85
90%	\$43,424,675.89
100%	\$55,361,271.86

Forecast: Contract Cost - JC Boyle - Partial Removal - Without Escalation

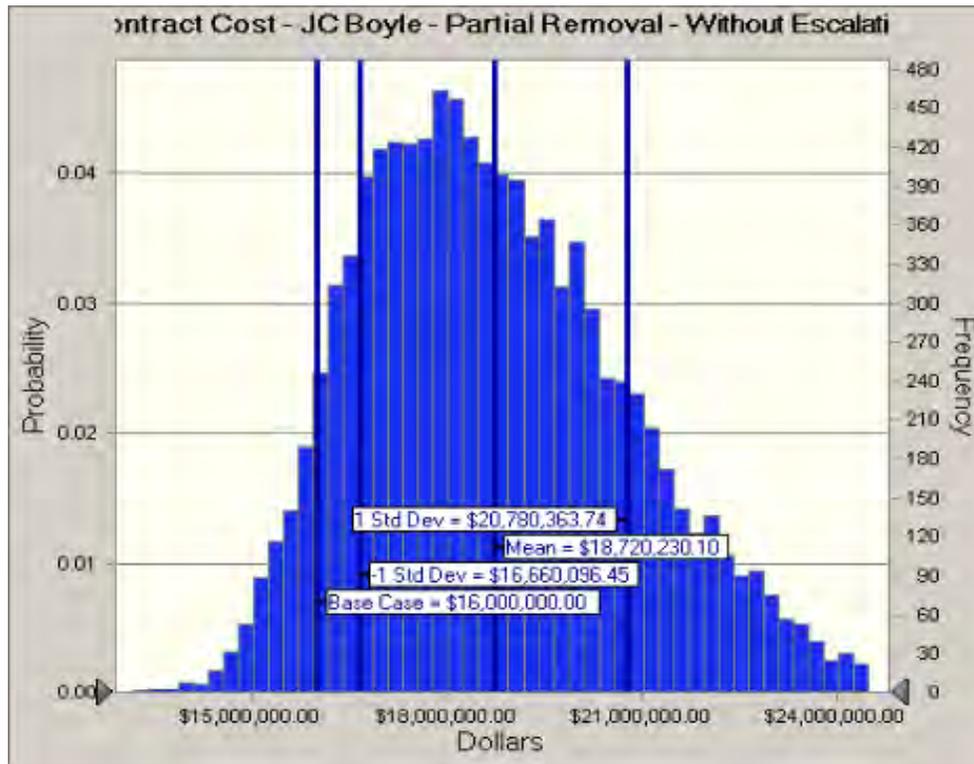
Cell: U145

Summary:

Entire range is from \$13,173,585.07 to \$26,823,131.37

Base case is \$16,000,000.00

After 10,000 trials, the std. error of the mean is \$20,601.34



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Contract Cost - JC Boyle - Partial Removal - Without Escalation (cont'd) Cell: U145

Statistics:	Forecast values
Trials	10,000
Mean	\$18,720,230.10
Median	\$18,490,040.48
Mode	---
Standard Deviation	\$2,060,133.65
Variance	\$4,244,150,651,715.84
Skewness	0.4892
Kurtosis	2.92
Coeff. of Variability	0.1100
Minimum	\$13,173,585.07
Maximum	\$26,823,131.37
Range Width	\$13,649,546.30
Mean Std. Error	\$20,601.34

Percentiles:	Forecast values
0%	\$13,173,585.07
10%	\$16,244,649.75
20%	\$16,893,752.41
30%	\$17,435,491.40
40%	\$17,970,005.58
50%	\$18,490,034.64
60%	\$19,059,777.40
70%	\$19,701,982.30
80%	\$20,464,313.55
90%	\$21,539,140.59
100%	\$26,823,131.37

Forecast: Field Cost - JC Boyle - Partial Removal - Without Escalation

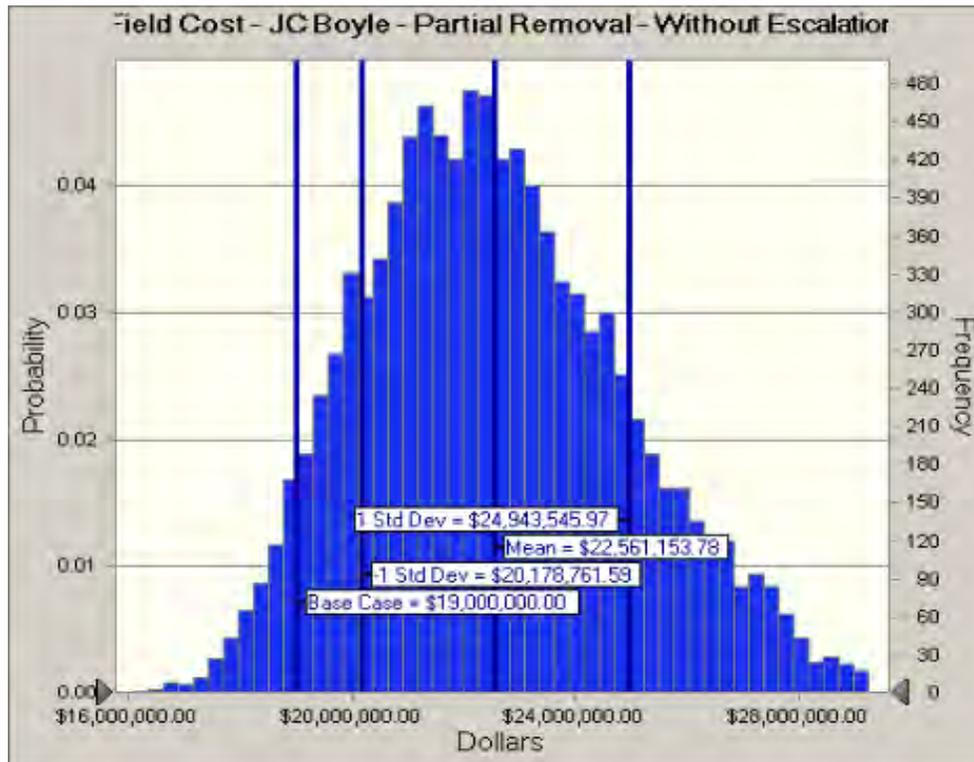
Cell: U147

Summary:

Entire range is from \$16,097,763.98 to \$32,618,398.33

Base case is \$19,000,000.00

After 10,000 trials, the std. error of the mean is \$23,823.92



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JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls

Forecast: Field Cost - JC Boyle - Partial Removal - Without Escalation (cont'd)

Cell: U147

Statistics:	Forecast values
Trials	10,000
Mean	\$22,561,153.78
Median	\$22,356,698.32
Mode	---
Standard Deviation	\$2,382,392.19
Variance	\$5,675,792,540,804.15
Skewness	0.4375
Kurtosis	3.04
Coeff. of Variability	0.1056
Minimum	\$16,097,763.98
Maximum	\$32,618,398.33
Range Width	\$16,520,634.34
Mean Std. Error	\$23,823.92

Percentiles:	Forecast values
0%	\$16,097,763.98
10%	\$19,626,275.05
20%	\$20,498,898.70
30%	\$21,173,690.04
40%	\$21,766,730.97
50%	\$22,356,361.56
60%	\$22,963,125.19
70%	\$23,657,646.94
80%	\$24,531,514.11
90%	\$25,821,030.03
100%	\$32,618,398.33

End of Forecasts

Assumptions

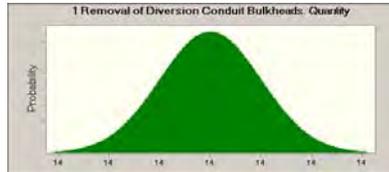
Worksheet: [JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls]JC Boyl

Assumption: 1 Removal of Diversion Conduit Bulkheads. Quantity

Cell: L14

Normal distribution with parameters:

Mean	14	(=L14)
Std. Dev.	0	(=0.000001)

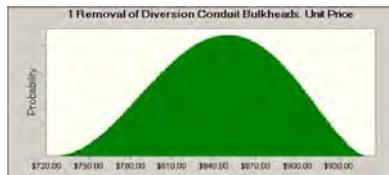


Assumption: 1 Removal of Diversion Conduit Bulkheads. Unit Price

Cell: R14

BetaPERT distribution with parameters:

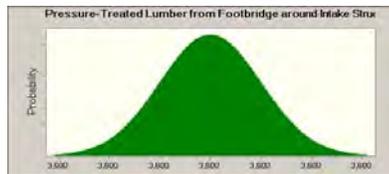
Minimum	\$725.00	(=Q14)
Likeliest	\$850.00	(=R14)
Maximum	\$950.00	(=S14)



Assumption: 10 Remove Pressure-Treated Lumber from Footbridge around Intake Structure

Normal distribution with parameters:

Mean	3,600	(=L23)
Std. Dev.	0	(=0.000001)



Assumption: 10 Remove Pressure-Treated Lumber from Footbridge around Intake Structure

BetaPERT distribution with parameters:

Minimum	\$0.50	(=Q23)
Likeliest	\$0.55	(=R23)
Maximum	\$0.70	(=S23)

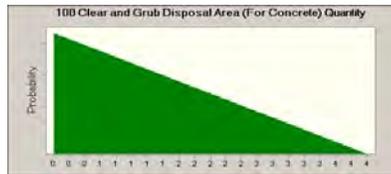


Assumption: 100 Clear and Grub Disposal Area (For Concrete) Quantity

Cell: L116

Triangular distribution with parameters:

Minimum	0	(=M116)
Likeliest	0	(=L116)
Maximum	4	(=K116)



Assumption: 100 Clear and Grub Disposal Area (For Concrete) Unit Price

Cell: R116

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q116)
Likeliest	\$5,000.00	(=R116)
Maximum	\$6,000.00	(=S116)



Assumption: 101 Clear and grub, 20' width Quantity

Cell: L117

Triangular distribution with parameters:

Minimum	0	(=M117)
Likeliest	0	(=L117)
Maximum	1	(=K117)



Assumption: 101 Clear and grub, 20' width Unit Price

Cell: R117

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q117)
Likeliest	\$5,000.00	(=R117)
Maximum	\$6,000.00	(=S117)

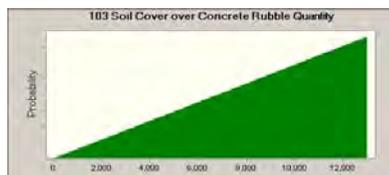


Assumption: 103 Soil Cover over Concrete Rubble Quantity

Cell: L119

Triangular distribution with parameters:

Minimum	0	(=M119)
Likeliest	13,000	(=L119)
Maximum	13,000	(=K119)

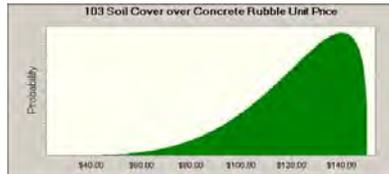


Assumption: 103 Soil Cover over Concrete Rubble Unit Price

Cell: R119

BetaPERT distribution with parameters:

Minimum	\$25.00	(=Q119)
Likeliest	\$140.00	(=R119)
Maximum	\$150.00	(=S119)



Assumption: 107 Embankment Fill in Wasteway (Forebay) Scour Hole Quantity

Cell: L123

Triangular distribution with parameters:

Minimum	0	(=K123)
Likeliest	0	(=L123)
Maximum	60,000	(=M123)

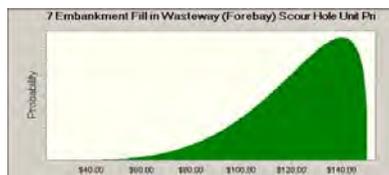


Assumption: 107 Embankment Fill in Wasteway (Forebay) Scour Hole Unit Price

Cell: R123

BetaPERT distribution with parameters:

Minimum	\$25.00	(=Q123)
Likeliest	\$140.00	(=R123)
Maximum	\$150.00	(=S123)

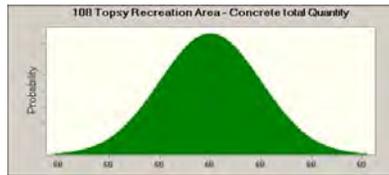


Assumption: 108 Topsy Recreation Area - Concrete total Quantity

Cell: L124

Normal distribution with parameters:

Mean	68	(=L124)
Std. Dev.	0	(=0.000001)



Assumption: 108 Topsy Recreation Area - Concrete total Unit Price

Cell: R124

BetaPERT distribution with parameters:

Minimum	\$175.00	(=Q124)
Likeliest	\$220.00	(=R124)
Maximum	\$320.00	(=S124)

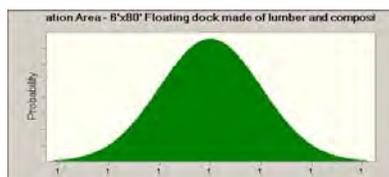


Assumption: 109 Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite

Cell: L125

Normal distribution with parameters:

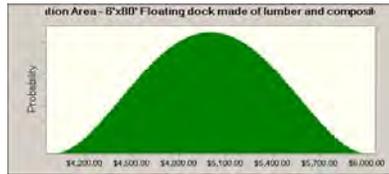
Mean	1	(=L125)
Std. Dev.	0	(=0.000001)



Assumption: 109 Topsy Recreation Area - 6'x80' Floating dock made of lumber and composite

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q125)
Likeliest	\$5,000.00	(=R125)
Maximum	\$6,000.00	(=S125)



Assumption: 110 Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform

Normal distribution with parameters:

Mean	200	(=L126)
Std. Dev.	0	(=0.000001)



Assumption: 110 Topsy Recreation Area - 5'x20' Walkway leading to hex fishing platform

BetaPERT distribution with parameters:

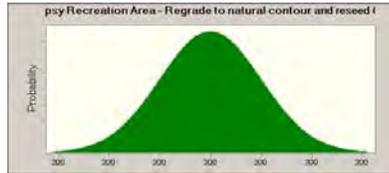
Minimum	\$12.00	(=Q126)
Likeliest	\$13.00	(=R126)
Maximum	\$14.00	(=S126)



Assumption: 111 Topsy Recreation Area - Regrade to natural contour and reseed Quantity: 127

Normal distribution with parameters:

Mean	300	(=L127)
Std. Dev.	0	(=0.000001)



Assumption: 111 Topsy Recreation Area - Regrade to natural contour and reseed Unit Price: 127

BetaPERT distribution with parameters:

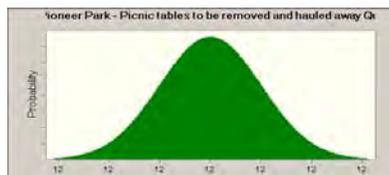
Minimum	\$3.00	(=Q127)
Likeliest	\$4.00	(=R127)
Maximum	\$5.00	(=S127)



Assumption: 112 Pioneer Park - Picnic tables to be removed and hauled away Quantity: 128

Normal distribution with parameters:

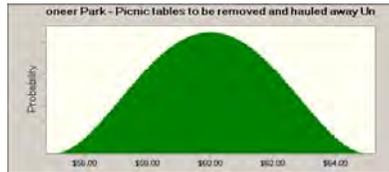
Mean	12	(=L128)
Std. Dev.	0	(=0.000001)



Assumption: 112 Pioneer Park - Picnic tables to be removed and hauled away Unit Price R128

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q128)
Likeliest	\$60.00	(=R128)
Maximum	\$65.00	(=S128)

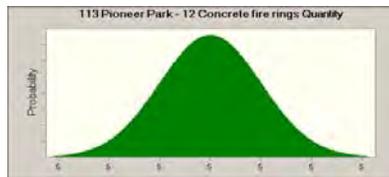


Assumption: 113 Pioneer Park - 12 Concrete fire rings Quantity

Cell: L129

Normal distribution with parameters:

Mean	5	(=L129)
Std. Dev.	0	(=0.000001)



Assumption: 113 Pioneer Park - 12 Concrete fire rings Unit Price

Cell: R129

BetaPERT distribution with parameters:

Minimum	\$175.00	(=Q129)
Likeliest	\$220.00	(=R129)
Maximum	\$320.00	(=S129)



Assumption: 114 Pioneer Park - Portable toilets to be removed and hauled away Quantity Cell: L130

Normal distribution with parameters:

Mean 2 (=L130)
Std. Dev. 0 (=0.000001)



Assumption: 114 Pioneer Park - Portable toilets to be removed and hauled away Unit Price Cell: R130

BetaPERT distribution with parameters:

Minimum \$900.00 (=Q130)
Likeliest \$1,000.00 (=R130)
Maximum \$1,200.00 (=S130)



Assumption: 115 Pioneer Park - Signs to be removed and hauled away Quantity Cell: L131

Normal distribution with parameters:

Mean 6 (=L131)
Std. Dev. 0 (=0.000001)



Assumption: 115 Pioneer Park - Signs to be removed and hauled away Unit Price Cell: R131

BetaPERT distribution with parameters:

Minimum	\$135.00	(=Q131)
Likeliest	\$150.00	(=R131)
Maximum	\$160.00	(=S131)



Assumption: 116 Pioneer Park - Dumpster to be removed and hauled away Quantity Cell: L132

Normal distribution with parameters:

Mean	1	(=L132)
Std. Dev.	0	(=0.000001)



Assumption: 116 Pioneer Park - Dumpster to be removed and hauled away Unit Price Cell: R132

BetaPERT distribution with parameters:

Minimum	\$900.00	(=Q132)
Likeliest	\$1,000.00	(=R132)
Maximum	\$1,200.00	(=S132)

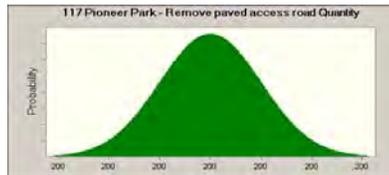


Assumption: 117 Pioneer Park - Remove paved access road Quantity

Cell: L133

Normal distribution with parameters:

Mean	200	(=L133)
Std. Dev.	0	(=0.000001)



Assumption: 117 Pioneer Park - Remove paved access road Unit Price

Cell: R133

BetaPERT distribution with parameters:

Minimum	\$230.00	(=Q133)
Likeliest	\$250.00	(=R133)
Maximum	\$270.00	(=S133)

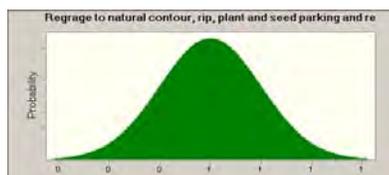


Assumption: 118 Pioneer Park - Regrade to natural contour, rip, plant and seed parking and re

Cell: L134

Normal distribution with parameters:

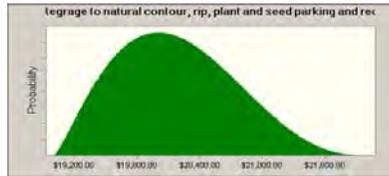
Mean	1	(=L134)
Std. Dev.	0	(=0.000001)



Assumption: 118 Pioneer Park - Regrade to natural contour, rip, plant and seed parking and rec **Cell: R134**

BetaPERT distribution with parameters:

Minimum	\$19,000.00	(=Q134)
Likeliest	\$20,000.00	(=R134)
Maximum	\$22,000.00	(=S134)



Assumption: 13 Remove Fire System Control Bldg. on left abutment. Quantity

Cell: L26

Normal distribution with parameters:

Mean	385	(=L26)
Std. Dev.	0	(=0.000001)



Assumption: 13 Remove Fire System Control Bldg. on left abutment. Unit Price

Cell: R26

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q26)
Likeliest	\$40.00	(=R26)
Maximum	\$42.00	(=S26)



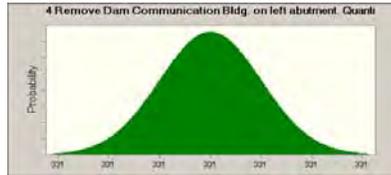
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

JC Boyle - Partial Removal Crystal Ball - without Escalation - 2011-04.xls

Assumption: 14 Remove Dam Communication Bldg. on left abutment. Quantity **Cell: L27**

Normal distribution with parameters:

Mean	331	(=L27)
Std. Dev.	0	(=0.000001)



Assumption: 14 Remove Dam Communication Bldg. on left abutment. Unit Price **Cell: R27**

BetaPERT distribution with parameters:

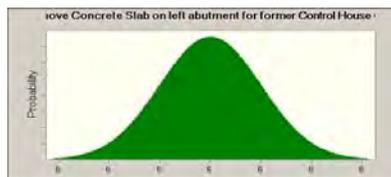
Minimum	\$38.00	(=Q27)
Likeliest	\$40.00	(=R27)
Maximum	\$42.00	(=S27)



Assumption: 15 Remove Concrete Slab on left abutment for former Control House Quantity **Cell: L28**

Normal distribution with parameters:

Mean	6	(=L28)
Std. Dev.	0	(=0.000001)



Assumption: 15 Remove Concrete Slab on left abutment for former Control House UCI:R28

BetaPERT distribution with parameters:

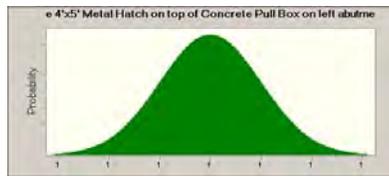
Minimum	\$130.00	(=Q28)
Likeliest	\$260.00	(=R28)
Maximum	\$390.00	(=S28)



Assumption: 16 Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment UCI:R29

Normal distribution with parameters:

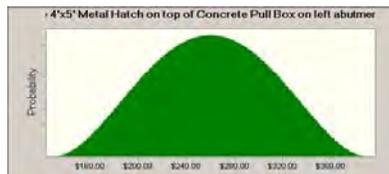
Mean	1	(=L29)
Std. Dev.	0	(=0.000001)



Assumption: 16 Remove 4'x5' Metal Hatch on top of Concrete Pull Box on left abutment UCI:R29

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q29)
Likeliest	\$260.00	(=R29)
Maximum	\$390.00	(=S29)

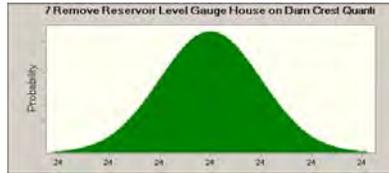


Assumption: 17 Remove Reservoir Level Gauge House on Dam Crest Quantity

Cell: L30

Normal distribution with parameters:

Mean	24	(=L30)
Std. Dev.	0	(=0.000001)



Assumption: 17 Remove Reservoir Level Gauge House on Dam Crest Unit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q30)
Likeliest	\$40.00	(=R30)
Maximum	\$42.00	(=S30)

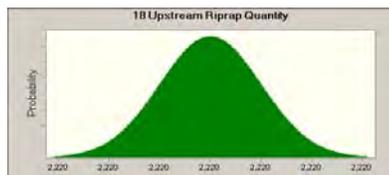


Assumption: 18 Upstream Riprap Quantity

Cell: L31

Normal distribution with parameters:

Mean	2,220	(=L31)
Std. Dev.	0	(=0.000001)

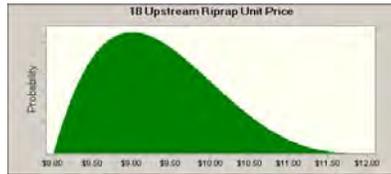


Assumption: 18 Upstream Riprap Unit Price

Cell: R31

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q31)
Likeliest	\$9.00	(=R31)
Maximum	\$12.00	(=S31)



Assumption: 19 Downstream Riprap Quantity

Cell: L32

Normal distribution with parameters:

Mean	1,850	(=L32)
Std. Dev.	0	(=0.000001)



Assumption: 19 Downstream Riprap Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q32)
Likeliest	\$9.00	(=R32)
Maximum	\$12.00	(=S32)

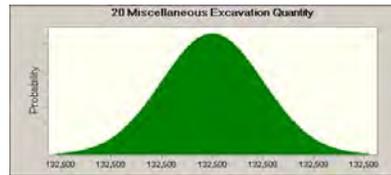


Assumption: 20 Miscellaneous Excavation Quantity

Cell: L33

Normal distribution with parameters:

Mean	132,500	(=L33)
Std. Dev.	0	(=0.000001)



Assumption: 20 Miscellaneous Excavation Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q33)
Likeliest	\$9.00	(=R33)
Maximum	\$12.00	(=S33)

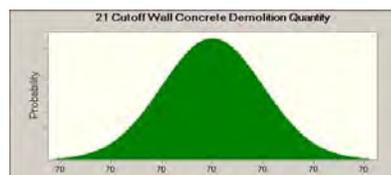


Assumption: 21 Cutoff Wall Concrete Demolition Quantity

Cell: L34

Normal distribution with parameters:

Mean	70	(=L34)
Std. Dev.	0	(=0.000001)



Assumption: 21 Cutoff Wall Concrete Demolition Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q34)
Likeliest	\$260.00	(=R34)
Maximum	\$390.00	(=S34)

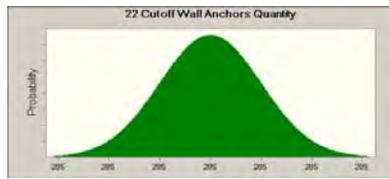


Assumption: 22 Cutoff Wall Anchors Quantity

Cell: L35

Normal distribution with parameters:

Mean	285	(=L35)
Std. Dev.	0	(=0.000001)



Assumption: 22 Cutoff Wall Anchors Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$9.00	(=Q35)
Likeliest	\$10.00	(=R35)
Maximum	\$12.00	(=S35)

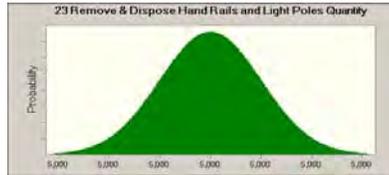


Assumption: 23 Remove & Dispose Hand Rails and Light Poles Quantity

Cell: L36

Normal distribution with parameters:

Mean 5,000 (=L36)
Std. Dev. 0 (=0.000001)



Assumption: 23 Remove & Dispose Hand Rails and Light Poles Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum \$0.45 (=Q36)
Likeliest \$0.65 (=R36)
Maximum \$0.75 (=S36)

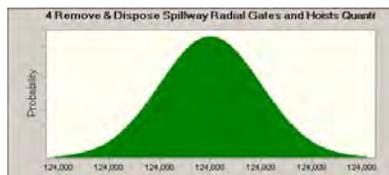


Assumption: 24 Remove & Dispose Spillway Radial Gates and Hoists Quantity

Cell: L37

Normal distribution with parameters:

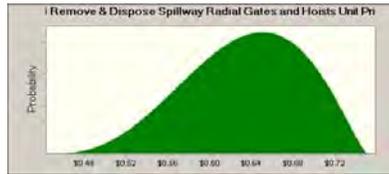
Mean 124,000 (=L37)
Std. Dev. 0 (=0.000001)



Assumption: 24 Remove & Dispose Spillway Radial Gates and Hoists Unit Price **Cell: R37**

BetaPERT distribution with parameters:

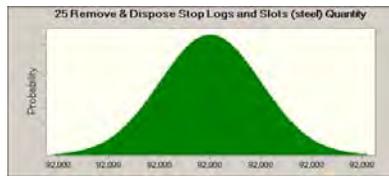
Minimum	\$0.45	(=Q37)
Likeliest	\$0.65	(=R37)
Maximum	\$0.75	(=S37)



Assumption: 25 Remove & Dispose Stop Logs and Slots (steel) Quantity **Cell: L38**

Normal distribution with parameters:

Mean	92,000	(=L38)
Std. Dev.	0	(=0.000001)



Assumption: 25 Remove & Dispose Stop Logs and Slots (steel) Unit Price **Cell: R38**

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q38)
Likeliest	\$0.65	(=R38)
Maximum	\$0.75	(=S38)



Assumption: 26 Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure **Cell: L39**

Normal distribution with parameters:

Mean 4,200 (=L39)
Std. Dev. 0 (=0.000001)



Assumption: 26 Remove & Dispose of 24" Slide Gate at Entrance to Fish Ladder Structure **Cell: R39**

BetaPERT distribution with parameters:

Minimum \$0.45 (=Q39)
Likeliest \$0.65 (=R39)
Maximum \$0.75 (=S39)

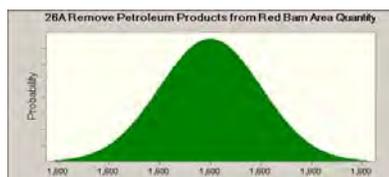


Assumption: 26A Remove Petroleum Products from Red Barn Area Quantity

Cell: L40

Normal distribution with parameters:

Mean 1,600 (=L40)
Std. Dev. 0 (=0.000001)

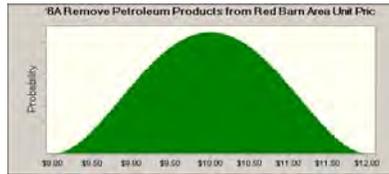


Assumption: 26A Remove Petroleum Products from Red Barn Area Unit Price

Cell: R40

BetaPERT distribution with parameters:

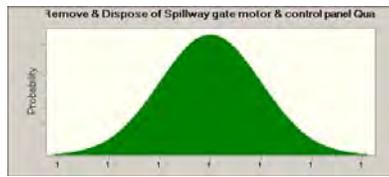
Minimum	\$8.00	(=Q40)
Likeliest	\$10.00	(=R40)
Maximum	\$12.00	(=S40)



Assumption: 27 Remove & Dispose of Spillway gate motor & control panel Quantity Cell: L41

Normal distribution with parameters:

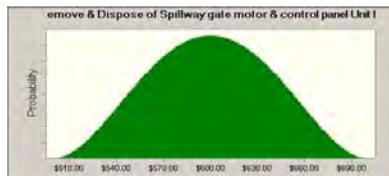
Mean	1	(=L41)
Std. Dev.	0	(=0.000001)



Assumption: 27 Remove & Dispose of Spillway gate motor & control panel Unit Price Cell: R41

BetaPERT distribution with parameters:

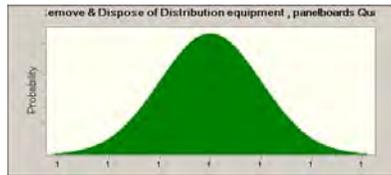
Minimum	\$500.00	(=Q41)
Likeliest	\$600.00	(=R41)
Maximum	\$700.00	(=S41)



Assumption: 28 Remove & Dispose of Distribution equipment , panelboards QuantityCell: L42

Normal distribution with parameters:

Mean	1	(=L42)
Std. Dev.	0	(=0.000001)



Assumption: 28 Remove & Dispose of Distribution equipment , panelboards Unit PriceCell: R42

BetaPERT distribution with parameters:

Minimum	\$5,500.00	(=Q42)
Likeliest	\$6,000.00	(=R42)
Maximum	\$6,500.00	(=S42)

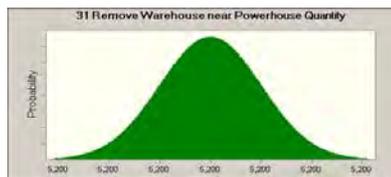


Assumption: 31 Remove Warehouse near Powerhouse Quantity

Cell: L45

Normal distribution with parameters:

Mean	5,200	(=L45)
Std. Dev.	0	(=0.000001)



Assumption: 31 Remove Warehouse near Powerhouse Unit Price

Cell: R45

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q45)
Likeliest	\$40.00	(=R45)
Maximum	\$42.00	(=S45)

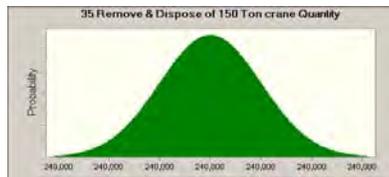


Assumption: 35 Remove & Dispose of 150 Ton crane Quantity

Cell: L49

Normal distribution with parameters:

Mean	240,000	(=L49)
Std. Dev.	0	(=0.000001)



Assumption: 35 Remove & Dispose of 150 Ton crane Unit Price

Cell: R49

BetaPERT distribution with parameters:

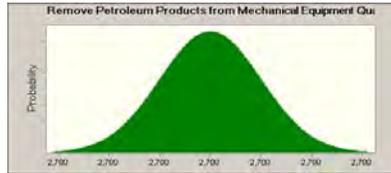
Minimum	\$0.45	(=Q49)
Likeliest	\$0.65	(=R49)
Maximum	\$0.75	(=S49)



Assumption: 43A Remove Petroleum Products from Mechanical Equipment QuantityCell: L58

Normal distribution with parameters:

Mean	2,700	(=L58)
Std. Dev.	0	(=0.000001)



Assumption: 43A Remove Petroleum Products from Mechanical Equipment Unit PriceCell: R58

BetaPERT distribution with parameters:

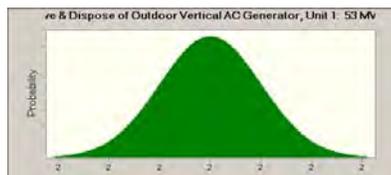
Minimum	\$8.00	(=Q58)
Likeliest	\$10.00	(=R58)
Maximum	\$12.00	(=S58)



Assumption: 44 Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA Cell: L59

Normal distribution with parameters:

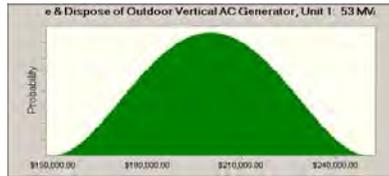
Mean	2	(=L59)
Std. Dev.	0	(=0.000001)



Assumption: 44 Remove & Dispose of Outdoor Vertical AC Generator, Unit 1: 53 MVA Cell: R59

BetaPERT distribution with parameters:

Minimum	\$150,000.00	(=Q59)
Likeliest	\$200,000.00	(=R59)
Maximum	\$250,000.00	(=S59)



Assumption: 5 Remove Spillway Concrete Quantity

Cell: L18

Normal distribution with parameters:

Mean	2,500	(=L18)
Std. Dev.	0	(=0.000001)



Assumption: 5 Remove Spillway Concrete Unit Price

Cell: R18

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q18)
Likeliest	\$260.00	(=R18)
Maximum	\$390.00	(=S18)

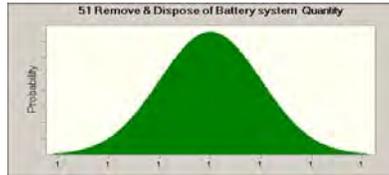


Assumption: 51 Remove & Dispose of Battery system Quantity

Cell: L66

Normal distribution with parameters:

Mean	1	(=L66)
Std. Dev.	0	(=0.000001)



Assumption: 51 Remove & Dispose of Battery system Unit Price

Cell: R66

BetaPERT distribution with parameters:

Minimum	\$7,000.00	(=Q66)
Likeliest	\$8,000.00	(=R66)
Maximum	\$9,000.00	(=S66)

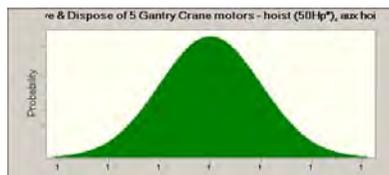


Assumption: 54 Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist

Cell: L69

Normal distribution with parameters:

Mean	1	(=L69)
Std. Dev.	0	(=0.000001)



Assumption: 54 Remove & Dispose of 5 Gantry Crane motors - hoist (50Hp*), aux hoist **Cell R69**

BetaPERT distribution with parameters:

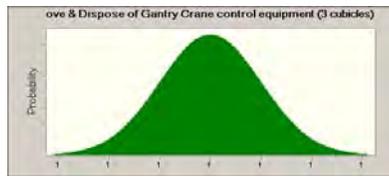
Minimum	\$1,500.00	(=Q69)
Likeliest	\$2,000.00	(=R69)
Maximum	\$3,000.00	(=S69)



Assumption: 55 Remove & Dispose of Gantry Crane control equipment (3 cubicies) **Cell L70**

Normal distribution with parameters:

Mean	1	(=L70)
Std. Dev.	0	(=0.000001)



Assumption: 55 Remove & Dispose of Gantry Crane control equipment (3 cubicies) **Cell P70**

BetaPERT distribution with parameters:

Minimum	\$5,000.00	(=Q70)
Likeliest	\$6,000.00	(=R70)
Maximum	\$7,000.00	(=S70)

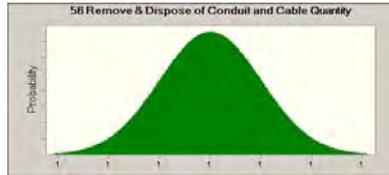


Assumption: 56 Remove & Dispose of Conduit and Cable Quantity

Cell: L71

Normal distribution with parameters:

Mean	1	(=L71)
Std. Dev.	0	(=0.000001)



Assumption: 56 Remove & Dispose of Conduit and Cable Unit Price

Cell: R71

BetaPERT distribution with parameters:

Minimum	\$9,000.00	(=Q71)
Likeliest	\$10,000.00	(=R71)
Maximum	\$11,000.00	(=S71)

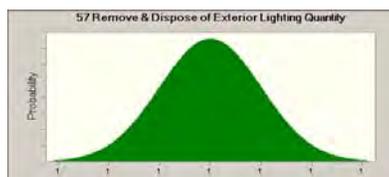


Assumption: 57 Remove & Dispose of Exterior Lighting Quantity

Cell: L72

Normal distribution with parameters:

Mean	1	(=L72)
Std. Dev.	0	(=0.000001)



Assumption: 57 Remove & Dispose of Exterior Lighting Unit Price

Cell: R72

BetaPERT distribution with parameters:

Minimum	\$1,500.00	(=Q72)
Likeliest	\$2,000.00	(=R72)
Maximum	\$3,000.00	(=S72)

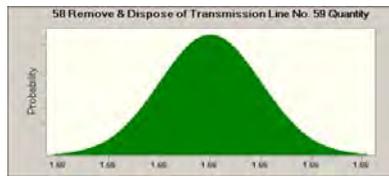


Assumption: 58 Remove & Dispose of Transmission Line No. 59 Quantity

Cell: L73

Normal distribution with parameters:

Mean	1.66	(=L73)
Std. Dev.	0.00	(=0.000001)



Assumption: 58 Remove & Dispose of Transmission Line No. 59 Unit Price

Cell: R73

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q73)
Likeliest	\$25,000.00	(=R73)
Maximum	\$30,000.00	(=S73)

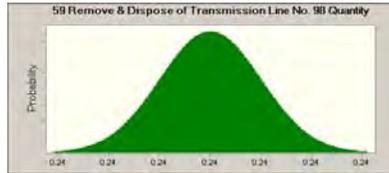


Assumption: 59 Remove & Dispose of Transmission Line No. 98 Quantity

Cell: L74

Normal distribution with parameters:

Mean	0.24	(=L74)
Std. Dev.	0.00	(=0.000001)

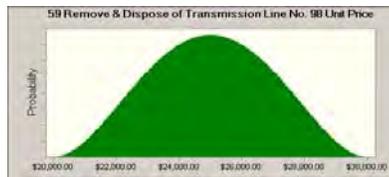


Assumption: 59 Remove & Dispose of Transmission Line No. 98 Unit Price

Cell: R74

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q74)
Likeliest	\$25,000.00	(=R74)
Maximum	\$30,000.00	(=S74)



Assumption: 6 Remove Monorail Structural Steel Components Quantity

Cell: L19

Normal distribution with parameters:

Mean	15,000	(=L19)
Std. Dev.	0	(=0.000001)



Assumption: 6 Remove Monorail Structural Steel Components Unit Price

Cell: R19

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q19)
Likeliest	\$0.65	(=R19)
Maximum	\$0.75	(=S19)



Assumption: 60 Remove & Dispose of Transmission Line No. 58 Quantity

Cell: L75

Normal distribution with parameters:

Mean	1.66	(=L75)
Std. Dev.	0.00	(=0.000001)

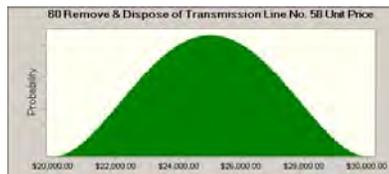


Assumption: 60 Remove & Dispose of Transmission Line No. 58 Unit Price

Cell: R75

BetaPERT distribution with parameters:

Minimum	\$20,000.00	(=Q75)
Likeliest	\$25,000.00	(=R75)
Maximum	\$30,000.00	(=S75)



Assumption: 63 Remove 24-inch-dia. Steel Fish Discharge Pipe Quantity

Cell: L78

Normal distribution with parameters:

Mean 22,000 (=L78)
Std. Dev. 0 (=0.000001)



Assumption: 63 Remove 24-inch-dia. Steel Fish Discharge Pipe Unit Price

Cell: R78

BetaPERT distribution with parameters:

Minimum \$0.45 (=Q78)
Likeliest \$0.65 (=R78)
Maximum \$0.75 (=S78)

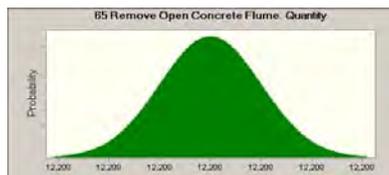


Assumption: 65 Remove Open Concrete Flume. Quantity

Cell: L80

Normal distribution with parameters:

Mean 12,200 (=L80)
Std. Dev. 0 (=0.000001)



Assumption: 65 Remove Open Concrete Flume. Unit Price

Cell: R80

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q80)
Likeliest	\$260.00	(=R80)
Maximum	\$390.00	(=S80)

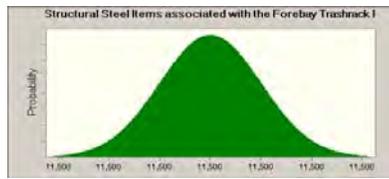


Assumption: 66 Remove Structural Steel Items associated with the Forebay Trashrack

Cell: L81

Normal distribution with parameters:

Mean	11,500	(=L81)
Std. Dev.	0	(=0.000001)

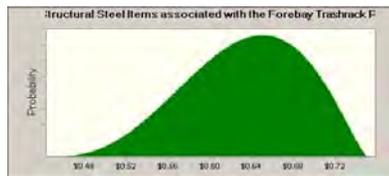


Assumption: 66 Remove Structural Steel Items associated with the Forebay Trashrack

Cell: R81

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q81)
Likeliest	\$0.65	(=R81)
Maximum	\$0.75	(=S81)



Assumption: 67 Remove Forebay Concrete Quantity

Cell: L82

Normal distribution with parameters:

Mean	1,500	(=L82)
Std. Dev.	0	(=0.000001)



Assumption: 67 Remove Forebay Concrete Unit Price

Cell: R82

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q82)
Likeliest	\$260.00	(=R82)
Maximum	\$390.00	(=S82)

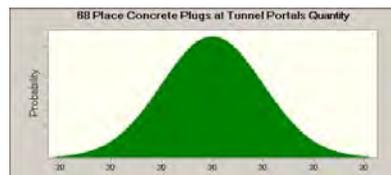


Assumption: 68 Place Concrete Plugs at Tunnel Portals Quantity

Cell: L83

Normal distribution with parameters:

Mean	30	(=L83)
Std. Dev.	0	(=0.000001)



Assumption: 68 Place Concrete Plugs at Tunnel Portals Unit Price

Cell: R83

BetaPERT distribution with parameters:

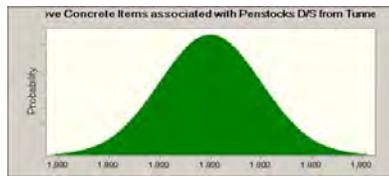
Minimum	\$900.00	(=Q83)
Likeliest	\$1,000.00	(=R83)
Maximum	\$1,100.00	(=S83)



Assumption: 69 Remove Concrete Items associated with Penstocks D/S from Tunnel Unit L84

Normal distribution with parameters:

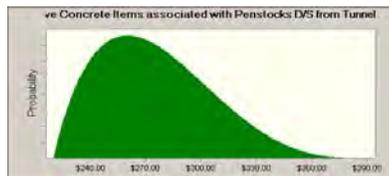
Mean	1,800	(=L84)
Std. Dev.	0	(=0.000001)



Assumption: 69 Remove Concrete Items associated with Penstocks D/S from Tunnel Unit R84

BetaPERT distribution with parameters:

Minimum	\$220.00	(=Q84)
Likeliest	\$260.00	(=R84)
Maximum	\$390.00	(=S84)



Assumption: 7 Remove Fish Ladder Concrete Quantity

Cell: L20

Normal distribution with parameters:

Mean	1,600	(=L20)
Std. Dev.	0	(=0.000001)



Assumption: 7 Remove Fish Ladder Concrete Unit Price

Cell: R20

BetaPERT distribution with parameters:

Minimum	\$130.00	(=Q20)
Likeliest	\$260.00	(=R20)
Maximum	\$390.00	(=S20)



Assumption: 70 Remove Headgate Control Building at Flume Entrance Quantity

Cell: L85

Normal distribution with parameters:

Mean	330	(=L85)
Std. Dev.	0	(=0.000001)



Assumption: 70 Remove Headgate Control Building at Flume Entrance Unit Price Cell: R85

BetaPERT distribution with parameters:

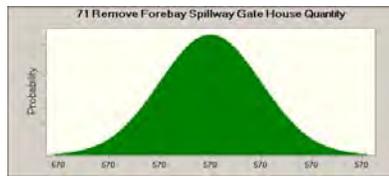
Minimum	\$38.00	(=Q85)
Likeliest	\$40.00	(=R85)
Maximum	\$42.00	(=S85)



Assumption: 71 Remove Forebay Spillway Gate House Quantity Cell: L86

Normal distribution with parameters:

Mean	570	(=L86)
Std. Dev.	0	(=0.000001)



Assumption: 71 Remove Forebay Spillway Gate House Unit Price Cell: R86

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q86)
Likeliest	\$40.00	(=R86)
Maximum	\$42.00	(=S86)



Assumption: 72 Remove Forebay Control Building. Quantity

Cell: L87

Normal distribution with parameters:

Mean	470	(=L87)
Std. Dev.	0	(=0.000001)



Assumption: 72 Remove Forebay Control Building. Unit Price

Cell: R87

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q87)
Likeliest	\$40.00	(=R87)
Maximum	\$42.00	(=S87)



Assumption: 73 Remove Communication Tower next to Forebay Control Building Quantity

Cell: L88

Normal distribution with parameters:

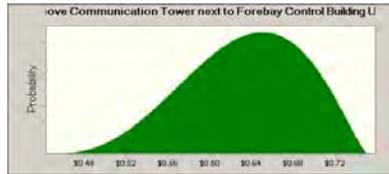
Mean	7,100	(=L88)
Std. Dev.	0	(=0.000001)



Assumption: 73 Remove Communication Tower next to Forebay Control Building Under R88

BetaPERT distribution with parameters:

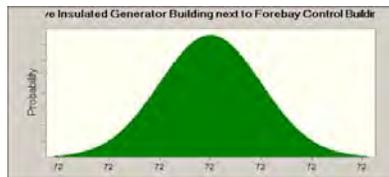
Minimum	\$0.45	(=Q88)
Likeliest	\$0.65	(=R88)
Maximum	\$0.75	(=S88)



Assumption: 74 Remove Insulated Generator Building next to Forebay Control Building Under L89

Normal distribution with parameters:

Mean	72	(=L89)
Std. Dev.	0	(=0.000001)



Assumption: 74 Remove Insulated Generator Building next to Forebay Control Building Under R89

BetaPERT distribution with parameters:

Minimum	\$38.00	(=Q89)
Likeliest	\$40.00	(=R89)
Maximum	\$42.00	(=S89)

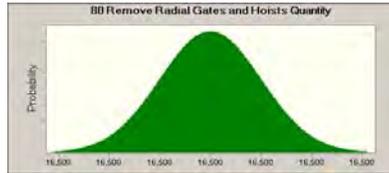


Assumption: 80 Remove Radial Gates and Hoists Quantity

Cell: L95

Normal distribution with parameters:

Mean	16,500	(=L95)
Std. Dev.	0	(=0.000001)

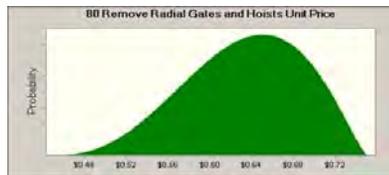


Assumption: 80 Remove Radial Gates and Hoists Unit Price

Cell: R95

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q95)
Likeliest	\$0.65	(=R95)
Maximum	\$0.75	(=S95)



Assumption: 81 Remove Trash rack and trash rake (steel) Quantity

Cell: L96

Normal distribution with parameters:

Mean	43,500	(=L96)
Std. Dev.	0	(=0.000001)

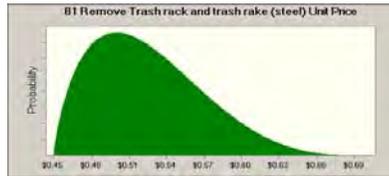


Assumption: 81 Remove Trash rack and trash rake (steel) Unit Price

Cell: R96

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q96)
Likeliest	\$0.50	(=R96)
Maximum	\$0.70	(=S96)

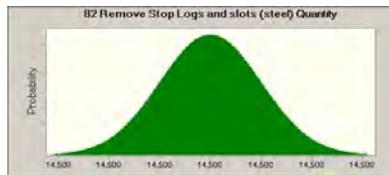


Assumption: 82 Remove Stop Logs and slots (steel) Quantity

Cell: L97

Normal distribution with parameters:

Mean	14,500	(=L97)
Std. Dev.	0	(=0.000001)



Assumption: 82 Remove Stop Logs and slots (steel) Unit Price

Cell: R97

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q97)
Likeliest	\$0.65	(=R97)
Maximum	\$0.75	(=S97)

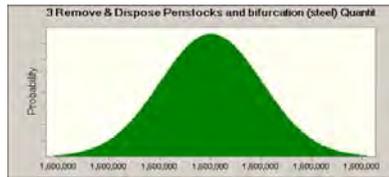


Assumption: 83 Remove & Dispose Penstocks and bifurcation (steel) Quantity

Cell: L98

Normal distribution with parameters:

Mean	1,600,000	(=L98)
Std. Dev.	0	(=0.000001)

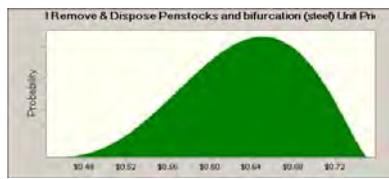


Assumption: 83 Remove & Dispose Penstocks and bifurcation (steel) Unit Price

Cell: R98

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q98)
Likeliest	\$0.65	(=R98)
Maximum	\$0.75	(=S98)

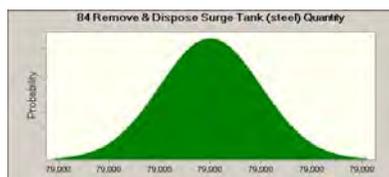


Assumption: 84 Remove & Dispose Surge Tank (steel) Quantity

Cell: L99

Normal distribution with parameters:

Mean	79,000	(=L99)
Std. Dev.	0	(=0.000001)



Assumption: 84 Remove & Dispose Surge Tank (steel) Unit Price

Cell: R99

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q99)
Likeliest	\$0.65	(=R99)
Maximum	\$0.75	(=S99)

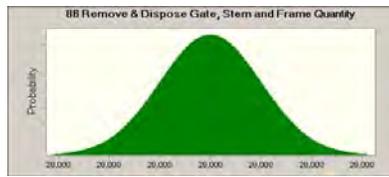


Assumption: 86 Remove & Dispose Gate, Stem and Frame Quantity

Cell: L101

Normal distribution with parameters:

Mean	28,000	(=L101)
Std. Dev.	0	(=0.000001)



Assumption: 86 Remove & Dispose Gate, Stem and Frame Unit Price

Cell: R101

BetaPERT distribution with parameters:

Minimum	\$0.45	(=Q101)
Likeliest	\$0.65	(=R101)
Maximum	\$0.75	(=S101)



Assumption: 87 Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream

Normal distribution with parameters:

Mean 250,000 (=L102)
Std. Dev. 0 (=0.000001)



Assumption: 87 Remove & Dispose of Steel Transition Manifolds on Upstream and Downstream

BetaPERT distribution with parameters:

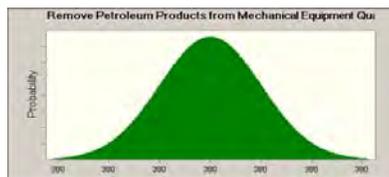
Minimum \$0.45 (=Q102)
Likeliest \$0.50 (=R102)
Maximum \$0.70 (=S102)



Assumption: 87A Remove Petroleum Products from Mechanical Equipment Quantity

Normal distribution with parameters:

Mean 380 (=L103)
Std. Dev. 0 (=0.000001)



Assumption: 87A Remove Petroleum Products from Mechanical Equipment Unit Price Cell: R103

BetaPERT distribution with parameters:

Minimum	\$8.00	(=Q103)
Likeliest	\$10.00	(=R103)
Maximum	\$12.00	(=S103)



Assumption: 88 Temporary Access Roads Quantity Cell: L104

Cell: L104

Normal distribution with parameters:

Mean	2	(=L104)
Std. Dev.	0	(=0.000001)



Assumption: 88 Temporary Access Roads Unit Price Cell: R104

Cell: R104

BetaPERT distribution with parameters:

Minimum	\$85,000.00	(=Q104)
Likeliest	\$100,000.00	(=S104)
Maximum	\$150,000.00	(=R104)

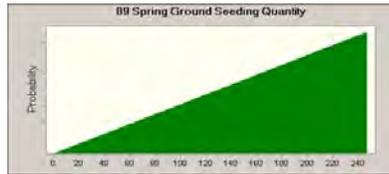


Assumption: 89 Spring Ground Seeding Quantity

Cell: L105

Triangular distribution with parameters:

Minimum	0	(=M105)
Likeliest	247	(=L105)
Maximum	247	(=K105)



Assumption: 89 Spring Ground Seeding Unit Price

Cell: R105

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q105)
Likeliest	\$3,500.00	(=R105)
Maximum	\$4,000.00	(=S105)



Assumption: 9 Remove Timber Equipment Ramp on left side of Dam Quantity

Cell: L22

Normal distribution with parameters:

Mean	10,500	(=L22)
Std. Dev.	0	(=0.000001)



Assumption: 9 Remove Timber Equipment Ramp on left side of Dam Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$0.50	(=Q22)
Likeliest	\$0.55	(=R22)
Maximum	\$0.70	(=S22)

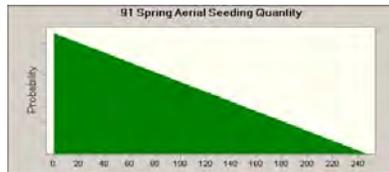


Assumption: 91 Spring Aerial Seeding Quantity

Cell: L107

Triangular distribution with parameters:

Minimum	0	(=K107)
Likeliest	0	(=L107)
Maximum	247	(=M107)

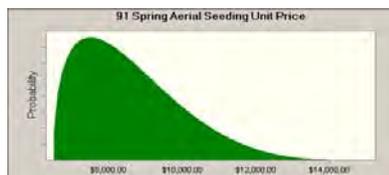


Assumption: 91 Spring Aerial Seeding Unit Price

Cell: R107

BetaPERT distribution with parameters:

Minimum	\$6,500.00	(=Q107)
Likeliest	\$7,500.00	(=R107)
Maximum	\$15,000.00	(=S107)



Assumption: 92 Fall Ground Seeding Quantity

Cell: L108

Triangular distribution with parameters:

Minimum	62	(=K108)
Likeliest	124	(=L108)
Maximum	185	(=M108)



Assumption: 92 Fall Ground Seeding Unit Price

Cell: R108

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q108)
Likeliest	\$3,500.00	(=R108)
Maximum	\$4,000.00	(=S108)

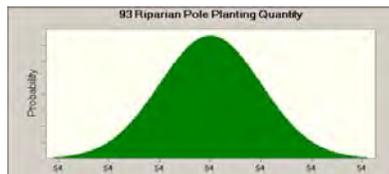


Assumption: 93 Riparian Pole Planting Quantity

Cell: L109

Normal distribution with parameters:

Mean	54	(=L109)
Std. Dev.	0	(=0.000001)

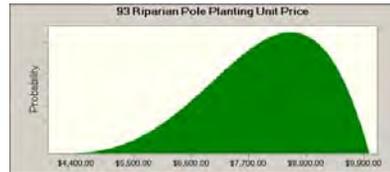


Assumption: 93 Riparian Pole Planting Unit Price

Cell: R109

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q109)
Likeliest	\$8,500.00	(=R109)
Maximum	\$10,000.00	(=S109)



Assumption: 94 Weed Management Quantity

Cell: L110

Triangular distribution with parameters:

Minimum	62	(=K110)
Likeliest	124	(=L110)
Maximum	185	(=M110)



Assumption: 94 Weed Management Unit Price

Cell: R110

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q110)
Likeliest	\$1,500.00	(=R110)
Maximum	\$2,000.00	(=S110)

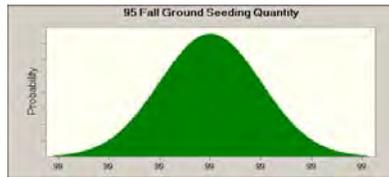


Assumption: 95 Fall Ground Seeding Quantity

Cell: L111

Normal distribution with parameters:

Mean	99	(=L111)
Std. Dev.	0	(=0.000001)



Assumption: 95 Fall Ground Seeding Unit Price

Cell: R111

BetaPERT distribution with parameters:

Minimum	\$3,000.00	(=Q111)
Likeliest	\$3,500.00	(=R111)
Maximum	\$4,000.00	(=S111)

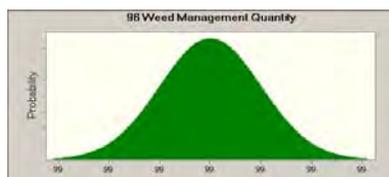


Assumption: 96 Weed Management Quantity

Cell: L112

Normal distribution with parameters:

Mean	99	(=L112)
Std. Dev.	0	(=0.000001)



Assumption: 96 Weed Management Unit Price

Cell: R112

BetaPERT distribution with parameters:

Minimum	\$1,000.00	(=Q112)
Likeliest	\$1,500.00	(=R112)
Maximum	\$2,000.00	(=S112)

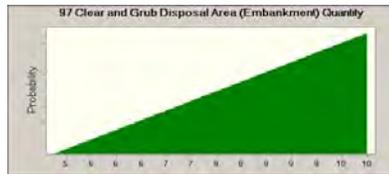


Assumption: 97 Clear and Grub Disposal Area (Embankment) Quantity

Cell: L113

Triangular distribution with parameters:

Minimum	5	(=M113)
Likeliest	10	(=L113)
Maximum	10	(=K113)

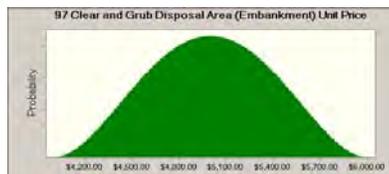


Assumption: 97 Clear and Grub Disposal Area (Embankment) Unit Price

Cell: R113

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q113)
Likeliest	\$5,000.00	(=R113)
Maximum	\$6,000.00	(=S113)

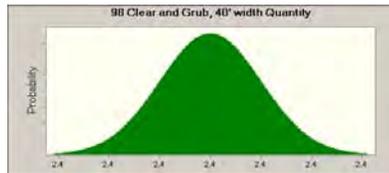


Assumption: 98 Clear and Grub, 40' width Quantity

Cell: L114

Normal distribution with parameters:

Mean	2.4	(=L114)
Std. Dev.	0.0	(=0.000001)



Assumption: 98 Clear and Grub, 40' width Unit Price

Cell: R114

BetaPERT distribution with parameters:

Minimum	\$4,000.00	(=Q114)
Likeliest	\$5,000.00	(=R114)
Maximum	\$6,000.00	(=S114)

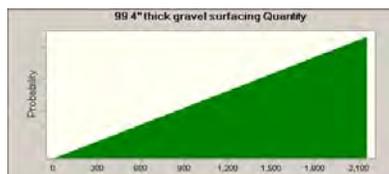


Assumption: 99 4" thick gravel surfacing Quantity

Cell: L115

Triangular distribution with parameters:

Minimum	0	(=K115)
Likeliest	2,150	(=L115)
Maximum	2,150	(=M115)



Assumption: 99 4" thick gravel surfacing Unit Price

Cell: R115

BetaPERT distribution with parameters:

Minimum	\$20.00	(=Q115)
Likeliest	\$30.00	(=R115)
Maximum	\$40.00	(=S115)

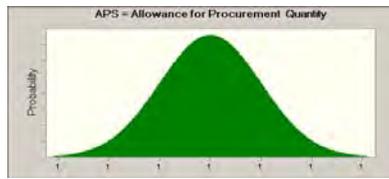


Assumption: APS = Allowance for Procurement Quantity

Cell: L143

Normal distribution with parameters:

Mean	1	(=L143)
Std. Dev.	0	(=0.000001)



Assumption: APS = Allowance for Procurement Unit Price

Cell: R143

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q143)
Likeliest	\$0.00	(=R143)
Maximum	\$657,308.00	(=S143)

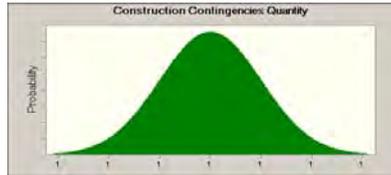


Assumption: Construction Contingencies Quantity

Cell: L146

Normal distribution with parameters:

Mean	1	(=L146)
Std. Dev.	0	(=0.000001)



Assumption: Construction Contingencies Unit Price

Cell: R146

BetaPERT distribution with parameters:

Minimum	\$2,000,000.00	(=Q146)
Likeliest	\$3,000,000.00	(=R146)
Maximum	\$9,000,000.00	(=S146)



Assumption: Design Contingencies Quantity

Cell: L142

Normal distribution with parameters:

Mean	1	(=L142)
Std. Dev.	0	(=0.000001)



Assumption: Design Contingencies Unit Price

Cell: R142

BetaPERT distribution with parameters:

Minimum	\$834,629.00	(=Q142)
Likeliest	\$1,667,215.00	(=R142)
Maximum	\$4,274,078.00	(=S142)

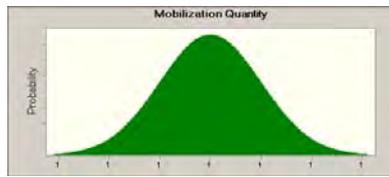


Assumption: Mobilization Quantity

Cell: L137

Normal distribution with parameters:

Mean	1	(=L137)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R137

BetaPERT distribution with parameters:

Minimum	\$460,000.00	(=Q137)
Likeliest	\$680,000.00	(=R137)
Maximum	\$1,400,000.00	(=S137)



Assumption: Non-Contract Cost Quantity

Cell: L148

Normal distribution with parameters:

Mean	1	(=L148)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R148

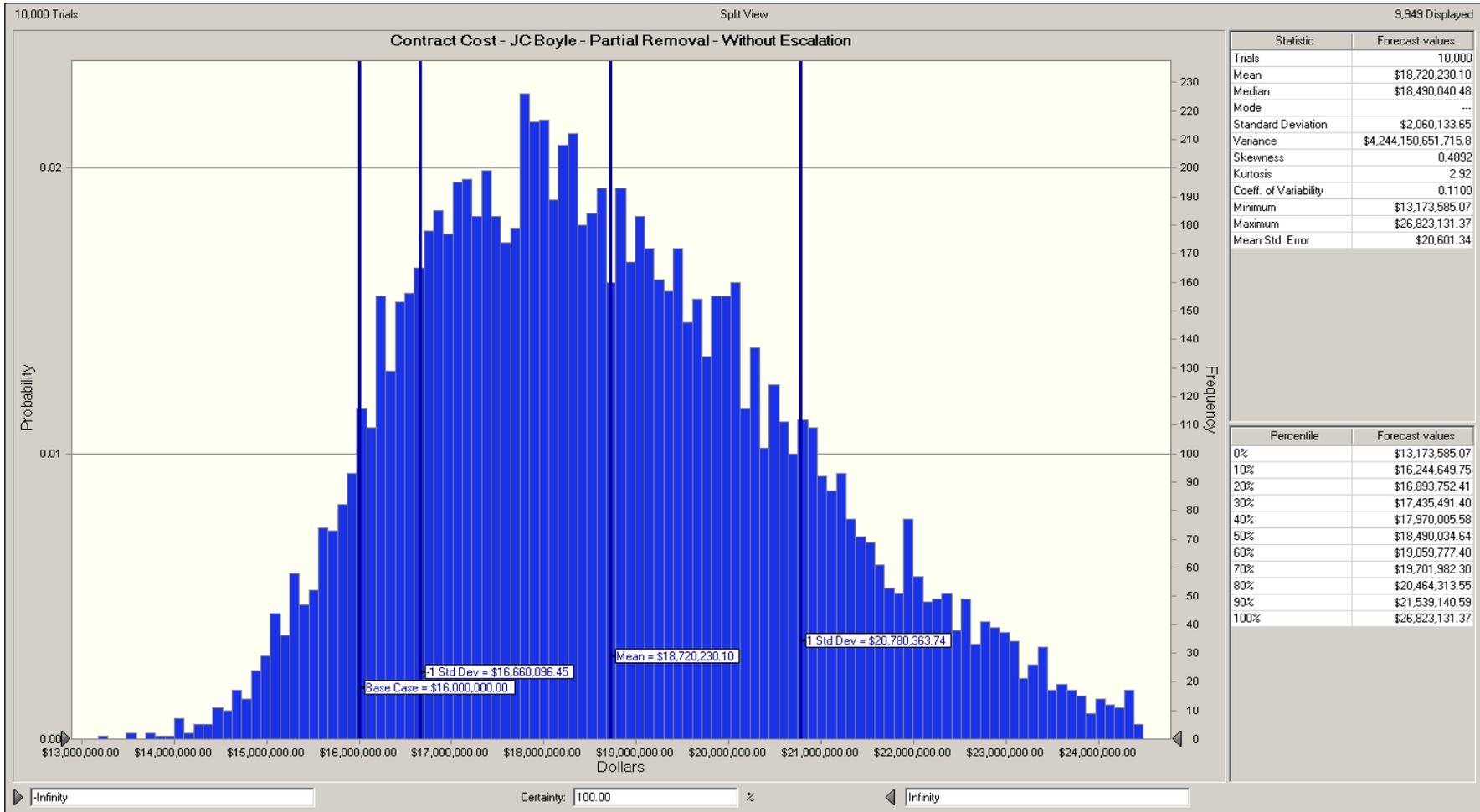
BetaPERT distribution with parameters:

Minimum	\$7,500,000.00	(=Q148)
Likeliest	\$12,000,000.00	(=R148)
Maximum	\$31,000,000.00	(=S148)

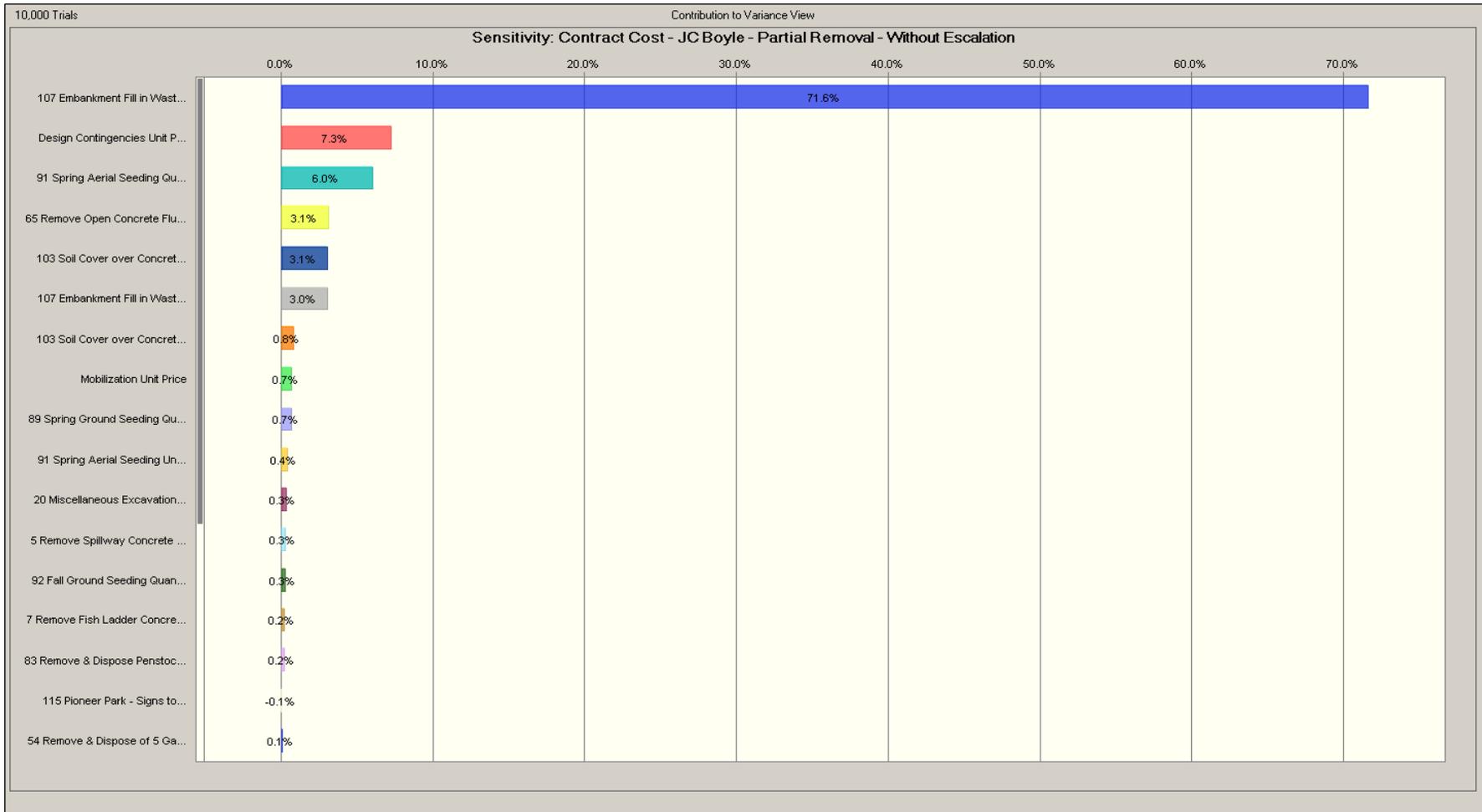


End of Assumptions

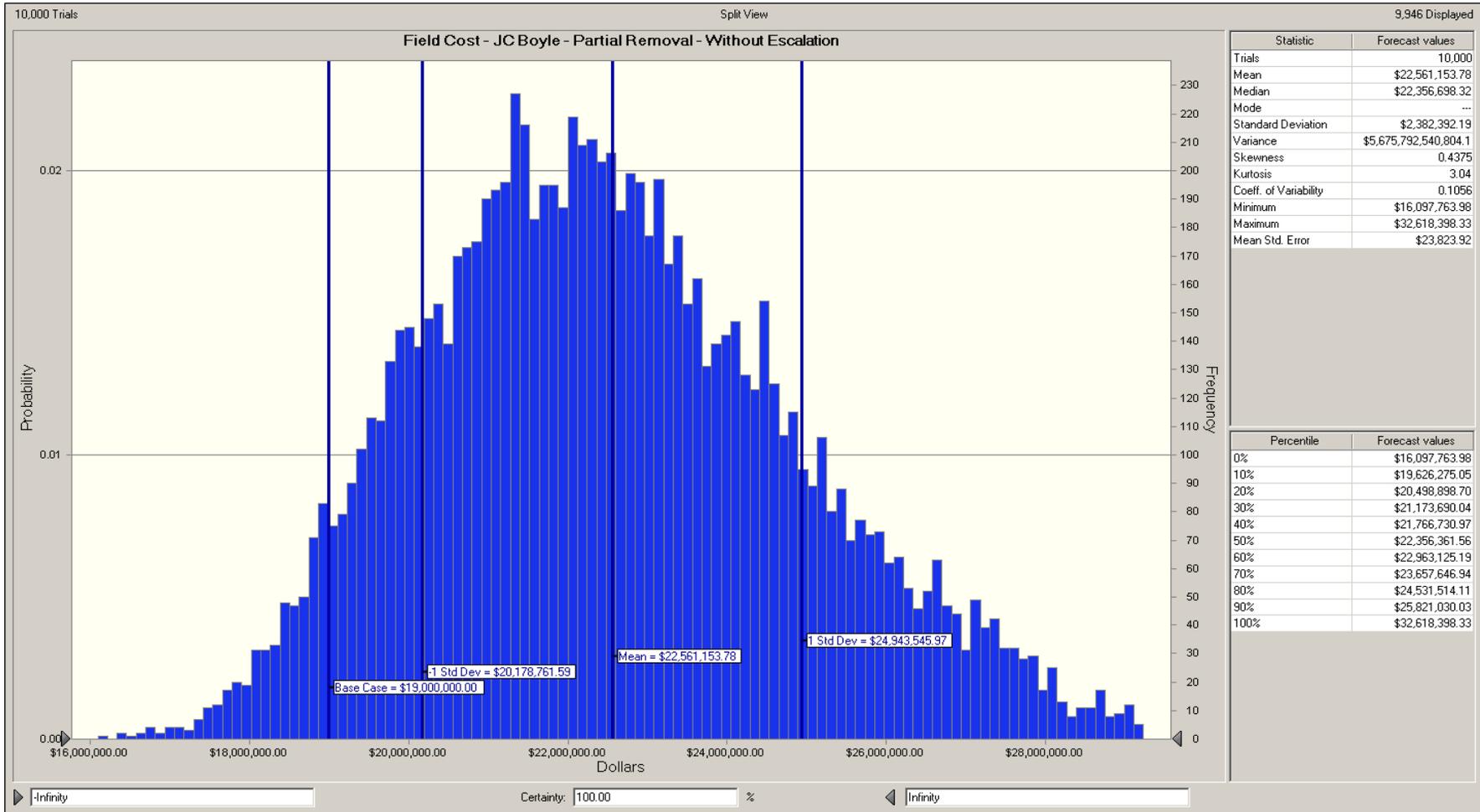
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



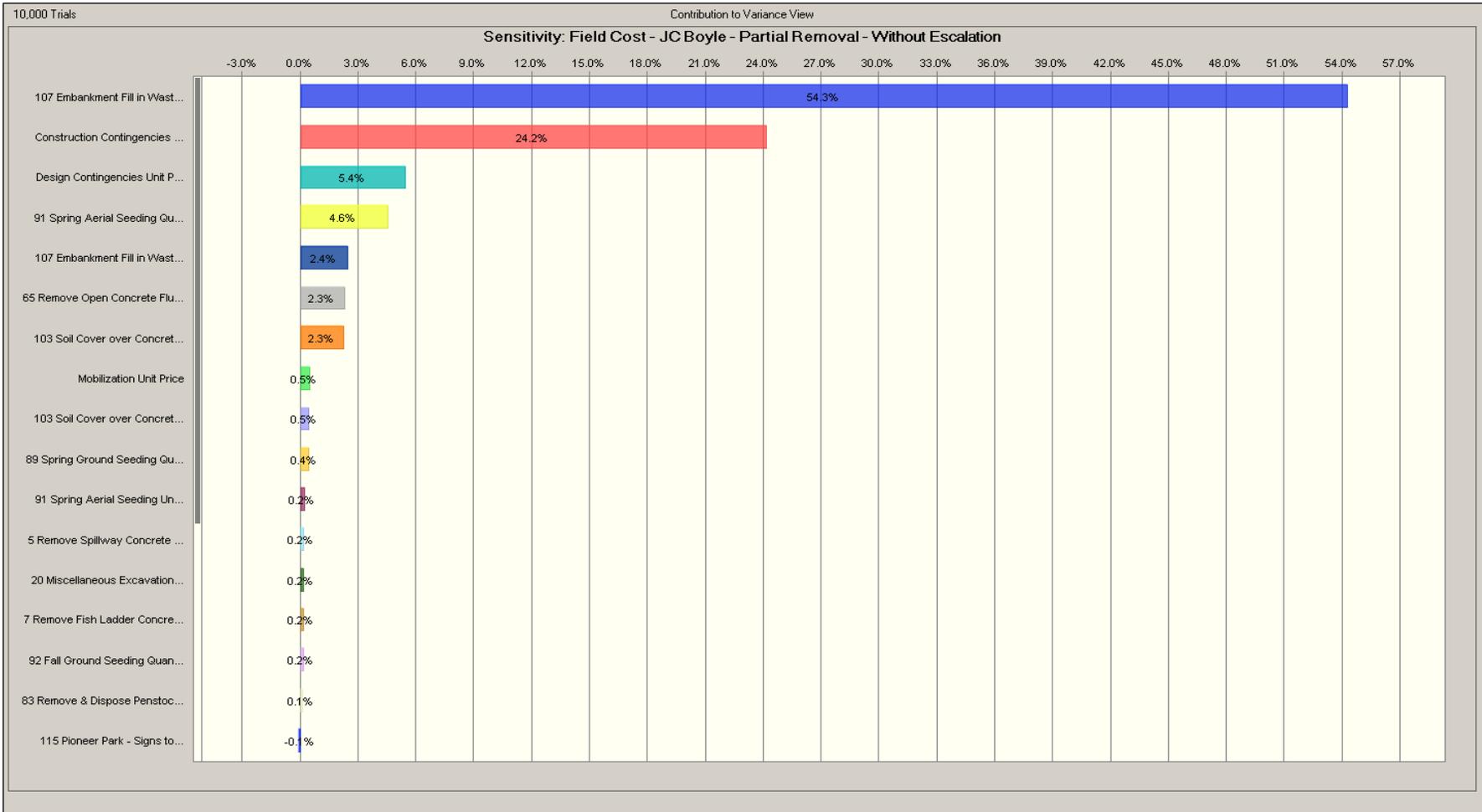
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



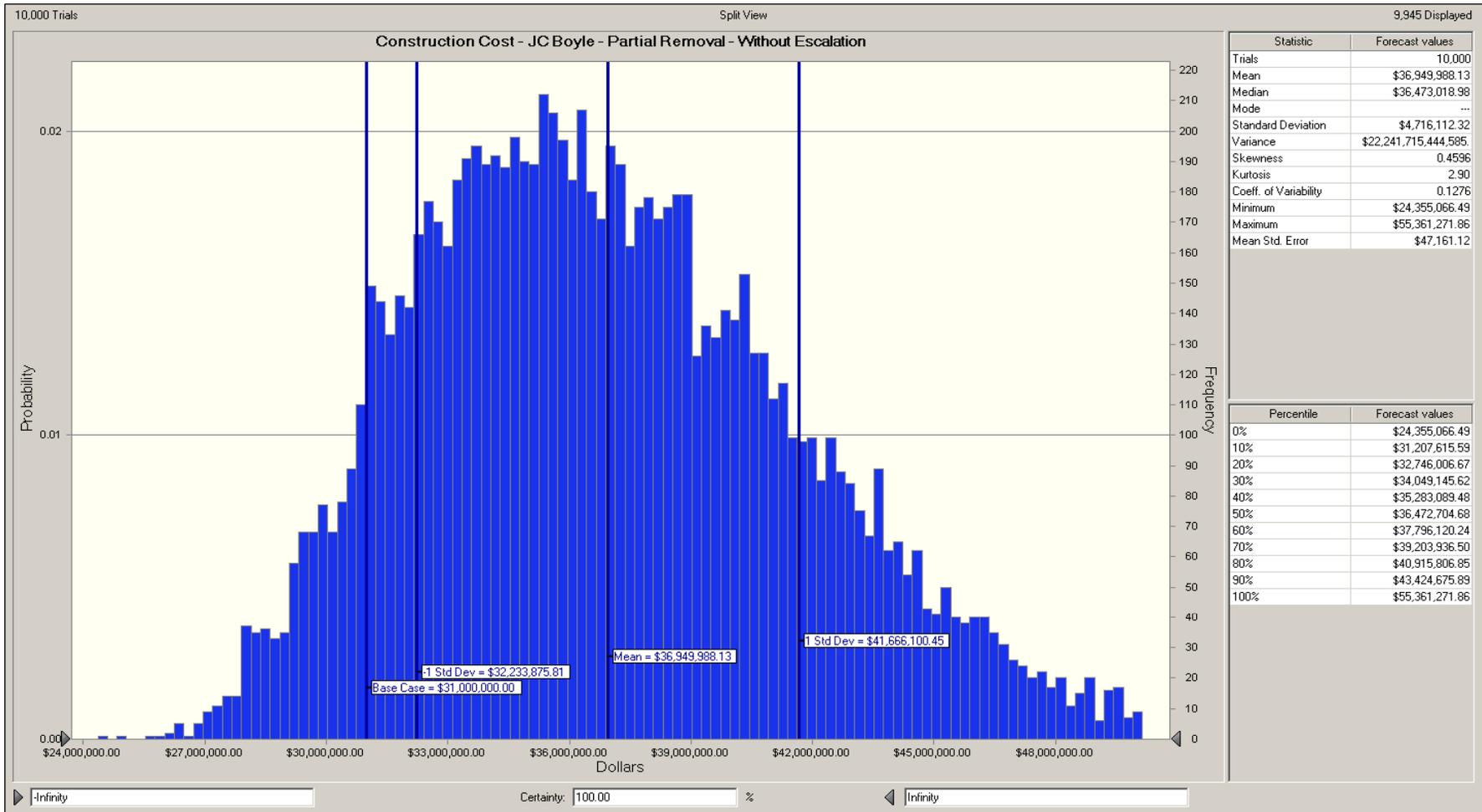
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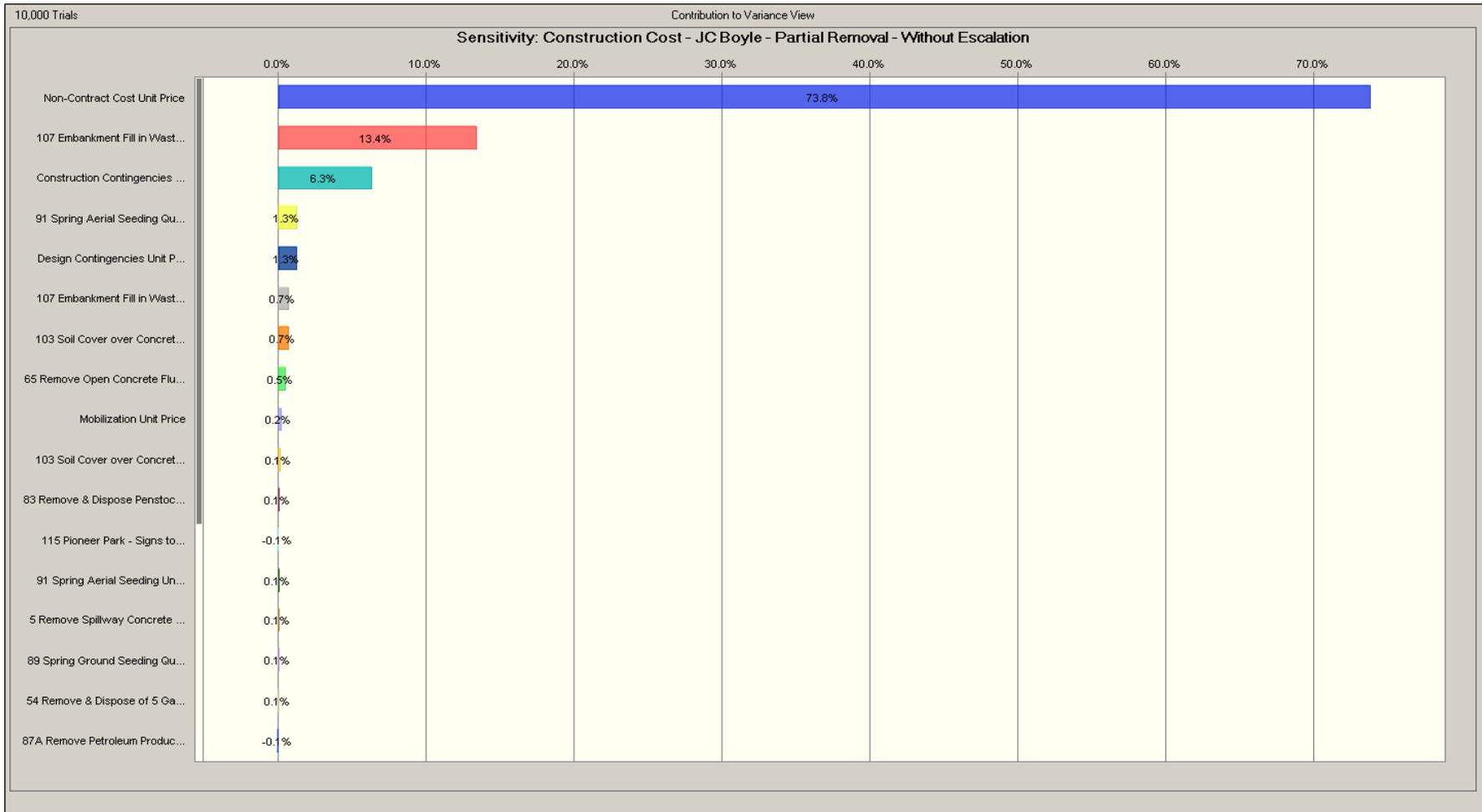
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Escalation Included Life Cycle SUMMARY ESTIMATE	PROJECT: Klamath River Oregon WOID: AF652 ESTIMATE LEVEL: Feasibility REGION MP PRICE LEVEL: Jul-10 FILE: U:\2011 Projects\Klamath\007 Crystal Ball\3with\03 JC Boyle Crystal Ball Spreadsheet with esc A.xlsx\Construction costs sensitivity
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	TOTALS		
											MPL TOTAL	MP TOTAL	MPH TOTAL
	PI 1	Periodic Costs - Year 1	86-68130	1	1	1	LS	\$299,400.00	\$348,520.00	\$394,940.00	\$299,400.00	\$348,520.00	\$394,940.00
	PI 2	Periodic Costs - Year 5	86-68130	0	0	1	LS	\$219,930.92	\$219,930.92	\$219,930.92	\$0.00	\$0.00	\$219,930.92
	PI 3	Periodic Costs - Year 8	86-68130	0	1	0	LS	\$166,451.00	\$166,451.00	\$166,451.00	\$0.00	\$166,451.00	\$0.00
	PI 4	Periodic Costs - Year 10	86-68130	0	0	1	LS	\$179,684.33	\$179,684.33	\$179,684.33	\$0.00	\$0.00	\$179,684.33
	PI 5	Periodic Costs - Year 13	86-68130	0	0	1	LS	\$62,645.06	\$62,645.06	\$62,645.06	\$0.00	\$0.00	\$62,645.06
	PI 6	Periodic Costs - Year 15	86-68130	0	0	1	LS	\$146,802.77	\$146,802.77	\$146,802.77	\$0.00	\$0.00	\$146,802.77
	PI 7	Periodic Costs - Year 17	86-68130	1	1	0	LS	\$100,600.00	\$165,990.00	\$165,990.00	\$100,600.00	\$165,990.00	\$0.00
	PI 8	Periodic Costs - Year 20	86-68130	0	0	1	LS	\$119,937.60	\$119,937.60	\$119,937.60	\$0.00	\$0.00	\$119,937.60
	PI 9	Periodic Costs - Year 25	86-68130	1	1	1	LS	\$29,667.63	\$83,724.60	\$136,558.46	\$29,667.63	\$83,724.60	\$136,558.46
	PI 10	Periodic Costs - Year 30	86-68130	0	0	1	LS	\$80,059.80	\$80,059.80	\$80,059.80	\$0.00	\$0.00	\$80,059.80
	PI 11	Periodic Costs - Year 33	86-68130	1	1	0	LS	\$52,688.00	\$86,935.20	\$86,935.20	\$52,688.00	\$86,935.20	\$0.00
	PI 12	Periodic Costs - Year 35	86-68130	0	0	1	LS	\$65,407.79	\$65,407.79	\$65,407.79	\$0.00	\$0.00	\$65,407.79
	PI 13	Periodic Costs - Year 38	86-68130	0	0	1	LS	\$22,803.62	\$22,803.62	\$22,803.62	\$0.00	\$0.00	\$22,803.62
	PI 14	Periodic Costs - Year 40	86-68130	0	0	1	LS	\$53,439.60	\$53,439.60	\$53,439.60	\$0.00	\$0.00	\$53,439.60
	PI 15	Periodic Costs - Year 42	86-68130	0	1	0	LS	\$42,113.00	\$42,113.00	\$42,113.00	\$0.00	\$42,113.00	\$0.00
	PI 16	Periodic Costs - Year 45	86-68130	0	0	1	LS	\$43,659.93	\$43,659.93	\$43,659.93	\$0.00	\$0.00	\$43,659.93
	PI 17	Annual Costs - Maintenance	86-68130	1	1	1	LS	\$1,114,593.00	\$1,892,705.00	\$5,257,515.00	\$1,114,593.00	\$1,892,705.00	\$5,257,515.00
		Subtotal 1									\$1,596,948.63	\$2,786,438.80	\$6,783,384.88
		Mobilization		1	1	1	LS	\$80,000.00	\$140,000.00	\$340,000.00	\$80,000.00	\$140,000.00	\$340,000.00
		Subtotal 1 w/ mobilization									\$1,676,948.63	\$2,926,438.80	\$7,123,384.88
		Escalation to Notice to Proceed (NTP)		1	1	1	LS	\$269,218.37	\$1,006,450.20	\$3,807,399.12	\$269,218.37	\$1,006,450.20	\$3,807,399.12
		Design Contingencies		1	1	1	LS	\$153,833.00	\$367,111.00	\$1,817,808.00	\$153,833.00	\$367,111.00	\$1,817,808.00
		APS = Allowance for		0	0	1	LS	\$0.00	\$0.00	\$251,408.00	\$0.00	\$0.00	\$251,408.00
		Procurement Strategies (if applicable)											
		CONTRACT COST									\$2,100,000.00	\$4,300,000.00	\$13,000,000.00
		Construction Contingencies		1	1	1	LS	\$400,000.00	\$900,000.00	\$3,000,000.00	\$400,000.00	\$900,000.00	\$3,000,000.00
		FIELD COST									\$2,500,000.00	\$5,200,000.00	\$16,000,000.00
		Non-Contract Costs		1	1	1	LS	\$600,000.00	\$1,600,000.00	\$6,000,000.00	\$600,000.00	\$1,600,000.00	\$6,000,000.00
		CONSTRUCTION COST									\$3,100,000.00	\$6,800,000.00	\$22,000,000.00

Notes:
 Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)

QUANTITIES				PRICES			
BY	Rick Benik	CHECKED:	Stephen Latham	BY	Greg Akins	CHECKED:	Shirley Ann 6/24/11
DATE PREPARED	3/24/2011	PEER REVIEW:	Tom Hepler P.E.	DATE PREPARED	06/15/11	PEER REVIEW	NO 6/15/11

Crystal Ball Report - Full

Simulation started on 6/15/2011 at 11:21:48
 Simulation stopped on 6/15/2011 at 11:22:03

Run preferences:

Number of trials run 10,000
 Monte Carlo
 Seed 999
 Precision control on
 Confidence level 95.00%

Run statistics:

Total running time (sec) 15.04
 Trials/second (average) 665
 Random numbers per sec 30,577

Crystal Ball data:

Assumptions 46
 Correlations 0
 Correlated groups 0
 Decision variables 0
 Forecasts 3

TECHNICAL SERVICE CENTER
 ESTIMATING, SPECIFICATIONS
 AND VALUE PROGRAM GROUP

UNIT PRICES BY *[Signature]*
 DATE *6/15/11*

DATE	PEER REVIEWER(S)	CODE
6/15/2011	<i>[Signature]</i> Signature	86-68170
	Craig A. Brush Printed Name	
	Signature	
	Printed Name	
Author Initials		PEER REVIEW NOT REQUIRED

Forecasts

Worksheet: [03 JC Boyle Crystal Ball Spreadsheet with esc.xlsx]SUMMARY 480 FP

Forecast: Construction Cost - Klamath - JC Boyle 03 - Life Cycle - with Escalation

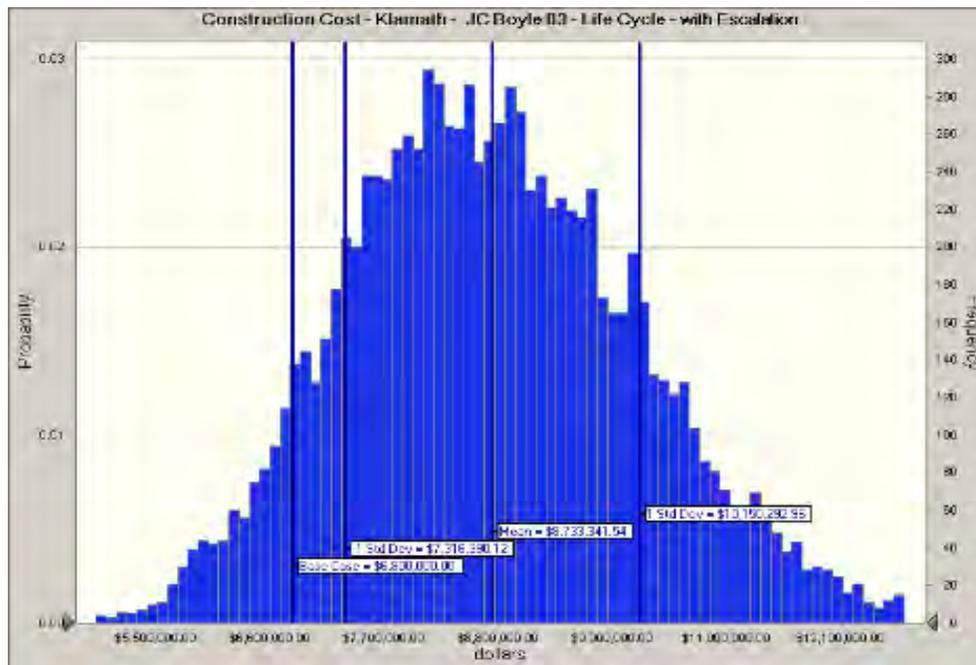
Cell: U40

Summary:

Entire range is from \$4,906,957.06 to \$14,663,440.72

Base case is \$6,800,000.00

After 10,000 trials, the std. error of the mean is \$14,169.51



Forecast: Construction Cost - Klamath - JC Boyle 03 - Life Cycle - with Escalation (cont'd)Cell: U40

Statistics:	Forecast values
Trials	10,000
Mean	\$8,733,341.54
Median	\$8,652,216.29
Mode	---
Standard Deviation	\$1,416,951.42
Variance	#####
Skewness	0.3006
Kurtosis	2.98
Coeff. of Variability	0.1622
Minimum	\$4,906,957.06
Maximum	\$14,663,440.72
Range Width	\$9,756,483.66
Mean Std. Error	\$14,169.51

Percentiles:	Forecast values
0%	\$4,906,957.06
10%	\$6,961,004.48
20%	\$7,517,881.59
30%	\$7,917,026.82
40%	\$8,278,688.10
50%	\$8,652,113.35
60%	\$9,023,408.50
70%	\$9,445,870.27
80%	\$9,937,095.29
90%	\$10,593,746.53
100%	\$14,663,440.72

Forecast: Contract Cost - Klamath - JC Boyle 03- Life Cycle - with Escalation

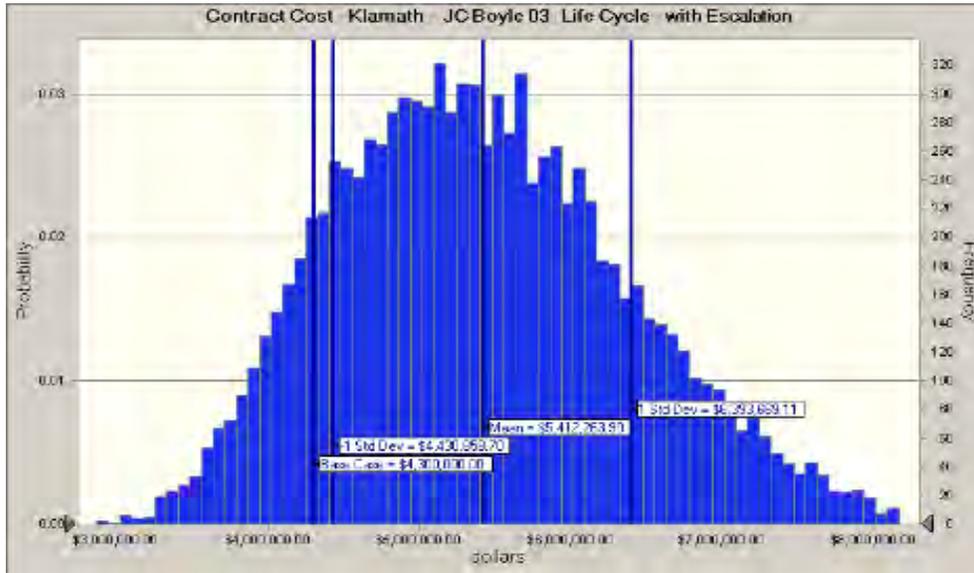
Cell: U36

Summary:

Entire range is from \$2,871,985.48 to \$9,679,699.54

Base case is \$4,300,000.00

After 10,000 trials, the std. error of the mean is \$9,814.05



Statistics:	Forecast values
Trials	10,000
Mean	\$5,412,263.90
Median	\$5,341,294.65
Mode	---
Standard Deviation	\$981,405.20
Variance	#####
Skewness	0.3905
Kurtosis	2.93
Coeff. of Variability	0.1813
Minimum	\$2,871,985.48
Maximum	\$9,679,699.54
Range Width	\$6,807,714.06
Mean Std. Error	\$9,814.05

Forecast: Contract Cost - Klamath - JC Boyle 03- Life Cycle - with Escalation (cont'd) Cell: U36

Percentiles:	Forecast values
0%	\$2,871,985.48
10%	\$4,194,682.01
20%	\$4,533,193.27
30%	\$4,829,175.78
40%	\$5,089,494.47
50%	\$5,341,203.31
60%	\$5,611,633.30
70%	\$5,889,107.56
80%	\$6,227,915.60
90%	\$6,738,499.77
100%	\$9,679,699.54

Forecast: FIELD COST - Klamath - JC Boyle 03- Life Cycle - with Escalation

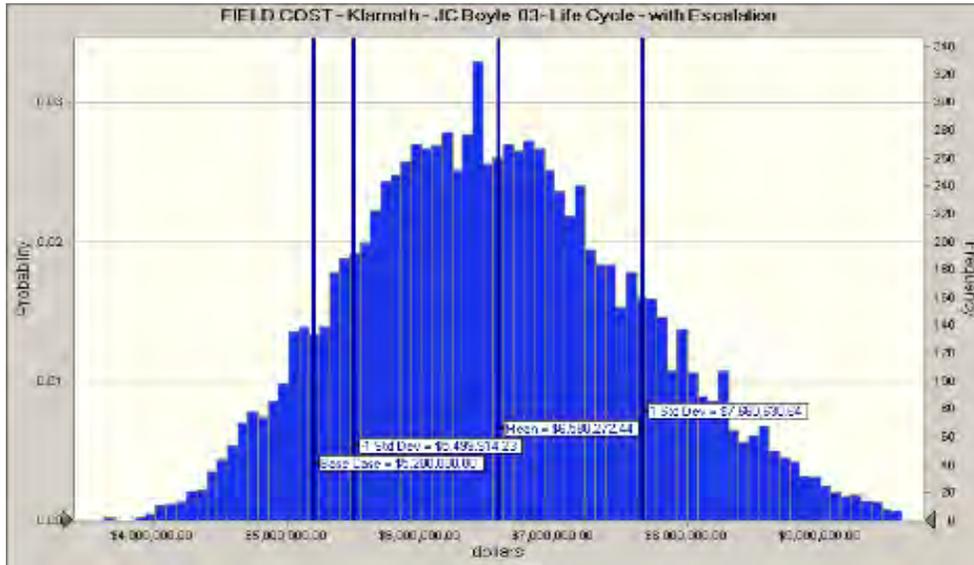
Cell: U38

Summary:

Entire range is from \$3,461,859.43 to \$10,767,729.47

Base case is \$5,200,000.00

After 10,000 trials, the std. error of the mean is \$10,803.58



Statistics:	Forecast values
Trials	10,000
Mean	\$6,580,272.44
Median	\$6,509,731.75
Mode	---
Standard Deviation	\$1,080,358.20
Variance	#####
Skewness	0.3341
Kurtosis	2.97
Coeff. of Variability	0.1642
Minimum	\$3,461,859.43
Maximum	\$10,767,729.47
Range Width	\$7,305,870.04
Mean Std. Error	\$10,803.58

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REPORT with esc

Forecast: FIELD COST - Klamath - JC Boyle 03- Life Cycle - with Escalation (cont'd)

Cell: U38

Percentiles:	Forecast values
0%	\$3,461,859.43
10%	\$5,220,393.08
20%	\$5,649,748.87
30%	\$5,956,161.74
40%	\$6,239,703.84
50%	\$6,509,706.31
60%	\$6,796,987.43
70%	\$7,110,016.31
80%	\$7,487,138.50
90%	\$8,012,557.94
100%	\$10,767,729.47

End of Forecasts

Assumptions

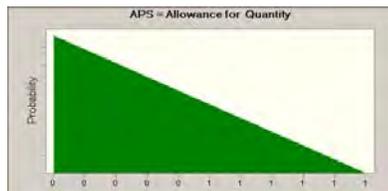
Worksheet: [03 JC Boyle Crystal Ball Spreadsheet with esc.xlsx]SUMMARY 480 FP

Assumption: APS = Allowance for Quantity

Cell: L34

Triangular distribution with parameters:

Minimum	0	(=K34)
Likeliest	0	(=L34)
Maximum	1	(=M34)

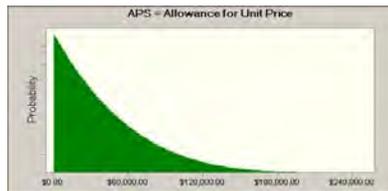


Assumption: APS = Allowance for Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q34)
Likeliest	\$0.00	(=R34)
Maximum	\$251,408.00	(=S34)

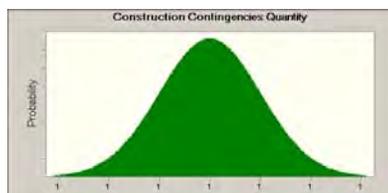


Assumption: Construction Contingencies Quantity

Cell: L37

Normal distribution with parameters:

Mean	1	(=L37)
Std. Dev.	0	



Assumption: Construction Contingencies Unit Price

Cell: R37

BetaPERT distribution with parameters:

Minimum	\$400,000.00	(=Q37)
Likeliest	\$900,000.00	(=R37)
Maximum	\$3,000,000.00	(=S37)

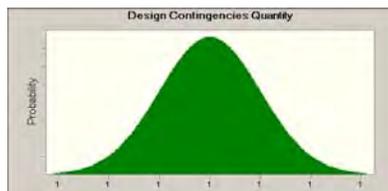


Assumption: Design Contingencies Quantity

Cell: L33

Normal distribution with parameters:

Mean	1	(=L33)
Std. Dev.	0	



Assumption: Design Contingencies Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum	\$153,833.00	(=Q33)
Likeliest	\$367,111.00	(=R33)
Maximum	\$1,817,808.00	(=S33)

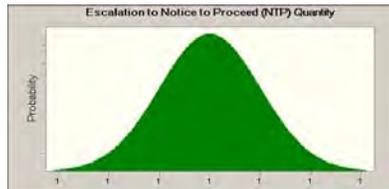


Assumption: Escalation to Notice to Proceed (NTP) Quantity

Cell: L32

Normal distribution with parameters:

Mean 1 (=L32)
Std. Dev. 0

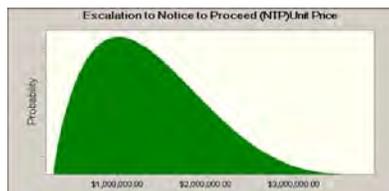


Assumption: Escalation to Notice to Proceed (NTP) Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum \$269,218.37 (=Q32)
Likeliest \$1,006,450.20 (=R32)
Maximum \$3,807,399.12 (=S32)

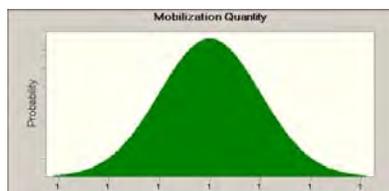


Assumption: Mobilization Quantity

Cell: L30

Normal distribution with parameters:

Mean 1 (=L30)
Std. Dev. 0

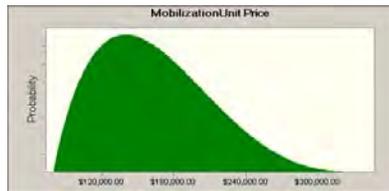


Assumption: MobilizationUnit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$80,000.00	(=Q30)
Likeliest	\$140,000.00	(=R30)
Maximum	\$340,000.00	(=S30)

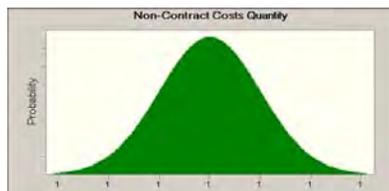


Assumption: Non-Contract Costs Quantity

Cell: L39

Normal distribution with parameters:

Mean	1	(=L39)
Std. Dev.	0	



Assumption: Non-Contract Costs Unit Price

Cell: R39

BetaPERT distribution with parameters:

Minimum	\$600,000.00	(=Q39)
Likeliest	\$1,600,000.00	(=R39)
Maximum	\$6,000,000.00	(=S39)

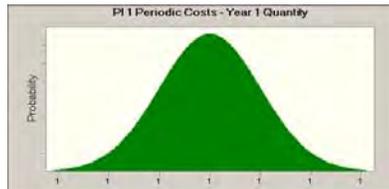


Assumption: PI 1 Periodic Costs - Year 1 Quantity

Cell: L12

Normal distribution with parameters:

Mean	1	(=L12)
Std. Dev.	0	



Assumption: PI 1 Periodic Costs - Year 8Unit Price

Cell: R12

BetaPERT distribution with parameters:

Minimum	\$299,400.00	(=Q12)
Likeliest	\$348,520.00	(=R12)
Maximum	\$394,940.00	(=S12)

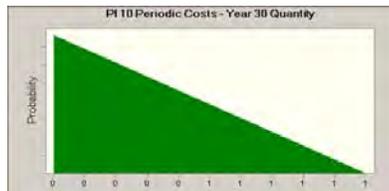


Assumption: PI 10 Periodic Costs - Year 30 Quantity

Cell: L21

Triangular distribution with parameters:

Minimum	0	(=K21)
Likeliest	0	(=L21)
Maximum	1	(=M21)



Assumption: PI 10 Periodic Costs - Year 30 Unit Price

Cell: R21

Normal distribution with parameters:

Mean \$80,059.80 (=R21)
 Std. Dev. \$0.00



Assumption: PI 11 Periodic Costs - Year 33 Quantity

Cell: L22

Triangular distribution with parameters:

Minimum 0 (=M22)
 Likeliest 1 (=K22)
 Maximum 1 (=L22)

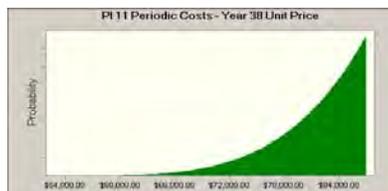


Assumption: PI 11 Periodic Costs - Year 38 Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum \$52,688.00 (=Q22)
 Likeliest \$86,935.20 (=R22)
 Maximum \$86,935.20 (=S22)



Assumption: PI 12 Periodic Costs - Year 35 Quantity

Cell: L23

Triangular distribution with parameters:

Minimum	0	(=K23)
Likeliest	0	(=L23)
Maximum	1	(=M23)

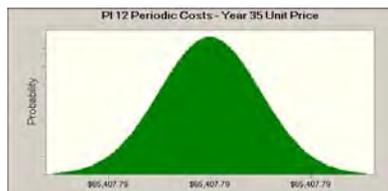


Assumption: PI 12 Periodic Costs - Year 35 Unit Price

Cell: R23

Normal distribution with parameters:

Mean	\$65,407.79	(=R23)
Std. Dev.	\$0.00	

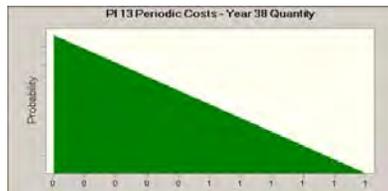


Assumption: PI 13 Periodic Costs - Year 38 Quantity

Cell: L24

Triangular distribution with parameters:

Minimum	0	(=K24)
Likeliest	0	(=L24)
Maximum	1	(=M24)



Assumption: PI 13 Periodic Costs - Year 38 Unit Price

Cell: R24

Normal distribution with parameters:

Mean \$22,803.62 (=R24)
 Std. Dev. \$0.00

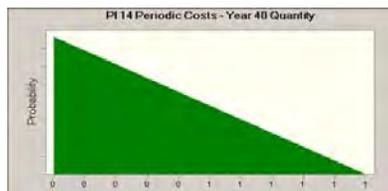


Assumption: PI 14 Periodic Costs - Year 40 Quantity

Cell: L25

Triangular distribution with parameters:

Minimum 0 (=K25)
 Likeliest 0 (=L25)
 Maximum 1 (=M25)



Assumption: PI 14 Periodic Costs - Year 40 Unit Price

Cell: R25

Normal distribution with parameters:

Mean \$53,439.60 (=R25)
 Std. Dev. \$0.00



Assumption: PI 15 Periodic Costs - Year 42 Quantity

Cell: L26

Triangular distribution with parameters:

Minimum	0	(=K26)
Likeliest	0	(=M26)
Maximum	1	(=L26)

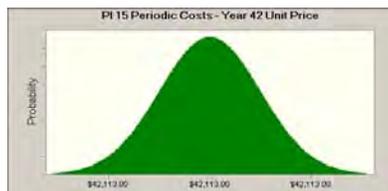


Assumption: PI 15 Periodic Costs - Year 42 Unit Price

Cell: R26

Normal distribution with parameters:

Mean	\$42,113.00	(=R26)
Std. Dev.	\$0.00	

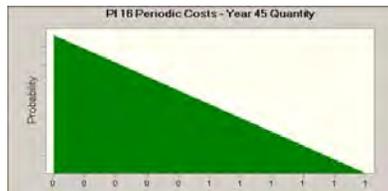


Assumption: PI 16 Periodic Costs - Year 45 Quantity

Cell: L27

Triangular distribution with parameters:

Minimum	0	(=K27)
Likeliest	0	(=L27)
Maximum	1	(=M27)

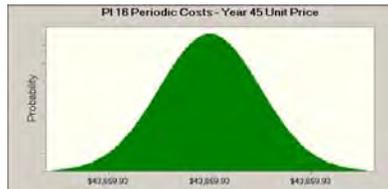


Assumption: PI 16 Periodic Costs - Year 45 Unit Price

Cell: R27

Normal distribution with parameters:

Mean \$43,659.93 (=R27)
 Std. Dev. \$0.00



Assumption: PI 17 Annual Costs - Maintenance Quantity

Cell: L28

Normal distribution with parameters:

Mean 1 (=L28)
 Std. Dev. 0



Assumption: PI 17 Annual Costs - Maintenance Unit Price

Cell: R28

BetaPERT distribution with parameters:

Minimum \$1,114,593.00 (=Q28)
 Likeliest \$1,892,705.00 (=R28)
 Maximum \$5,257,515.00 (=S28)



Assumption: PI 2 Periodic Costs - Year 5 Quantity

Cell: L13

Triangular distribution with parameters:

Minimum	0	(=K13)
Likeliest	0	(=L13)
Maximum	1	(=M13)

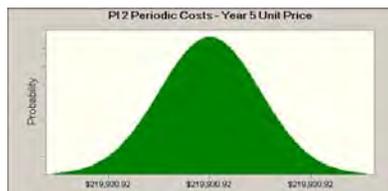


Assumption: PI 2 Periodic Costs - Year 5 Unit Price

Cell: R13

Normal distribution with parameters:

Mean	\$219,930.92	(=R13)
Std. Dev.	\$0.00	



Assumption: PI 3 Periodic Costs - Year 8 Quantity

Cell: L14

Triangular distribution with parameters:

Minimum	0	(=K14)
Likeliest	0	(=M14)
Maximum	1	(=L14)



Assumption: PI 3 Periodic Costs - Year 8 Unit Price

Cell: R14

Normal distribution with parameters:

Mean \$166,451.00 (=R14)
 Std. Dev. \$0.00

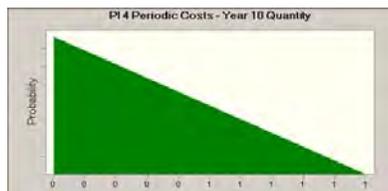


Assumption: PI 4 Periodic Costs - Year 10 Quantity

Cell: L15

Triangular distribution with parameters:

Minimum 0 (=K15)
 Likeliest 0 (=L15)
 Maximum 1 (=M15)

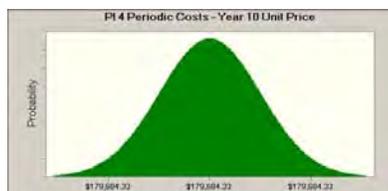


Assumption: PI 4 Periodic Costs - Year 10 Unit Price

Cell: R15

Normal distribution with parameters:

Mean \$179,684.33 (=R15)
 Std. Dev. \$0.00



Assumption: PI 5 Periodic Costs - Year 13 Quantity

Cell: L16

Triangular distribution with parameters:

Minimum	0	(=K16)
Likeliest	0	(=L16)
Maximum	1	(=M16)

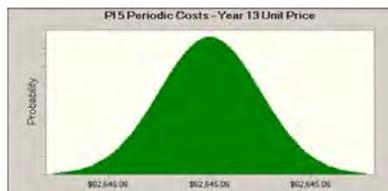


Assumption: PI 5 Periodic Costs - Year 13 Unit Price

Cell: R16

Normal distribution with parameters:

Mean	\$62,645.06	(=R16)
Std. Dev.	\$0.00	

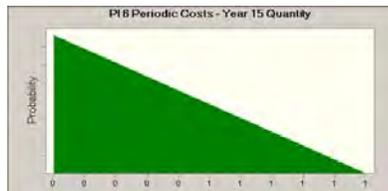


Assumption: PI 6 Periodic Costs - Year 15 Quantity

Cell: L17

Triangular distribution with parameters:

Minimum	0	(=K17)
Likeliest	0	(=L17)
Maximum	1	(=M17)

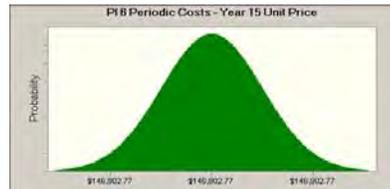


Assumption: PI 6 Periodic Costs - Year 15 Unit Price

Cell: R17

Normal distribution with parameters:

Mean \$146,802.77 (=R17)
 Std. Dev. \$0.00

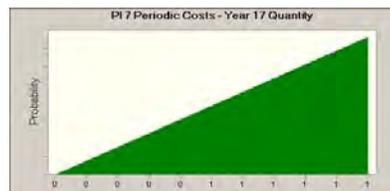


Assumption: PI 7 Periodic Costs - Year 17 Quantity

Cell: L18

Triangular distribution with parameters:

Minimum 0 (=M18)
 Likeliest 1 (=K18)
 Maximum 1 (=L18)

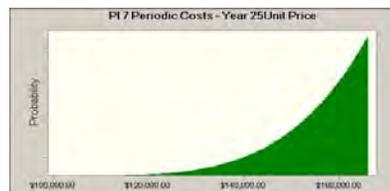


Assumption: PI 7 Periodic Costs - Year 25 Unit Price

Cell: R18

BetaPERT distribution with parameters:

Minimum \$100,600.00 (=Q18)
 Likeliest \$165,990.00 (=R18)
 Maximum \$165,990.00 (=S18)



Assumption: PI 8 Periodic Costs - Year 20 Quantity

Cell: L19

Triangular distribution with parameters:

Minimum	0	(=K19)
Likeliest	0	(=L19)
Maximum	1	(=M19)

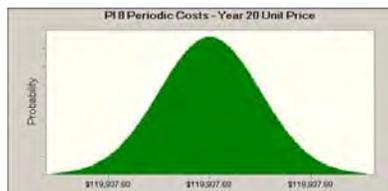


Assumption: PI 8 Periodic Costs - Year 20 Unit Price

Cell: R19

Normal distribution with parameters:

Mean	\$119,937.60	(=R19)
Std. Dev.	\$0.00	

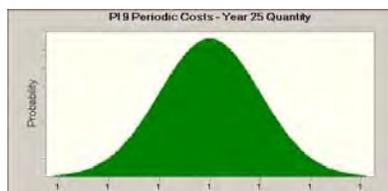


Assumption: PI 9 Periodic Costs - Year 25 Quantity

Cell: L20

Normal distribution with parameters:

Mean	1	(=L20)
Std. Dev.	0	



Assumption: PI 9 Periodic Costs - Year 33 Unit Price

Cell: R20

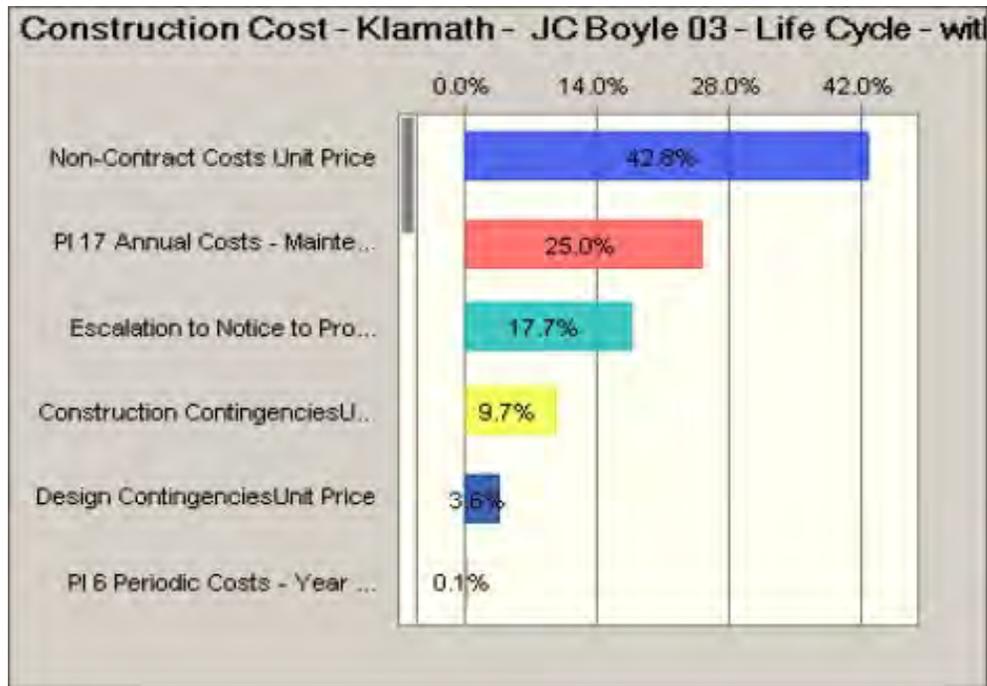
BetaPERT distribution with parameters:

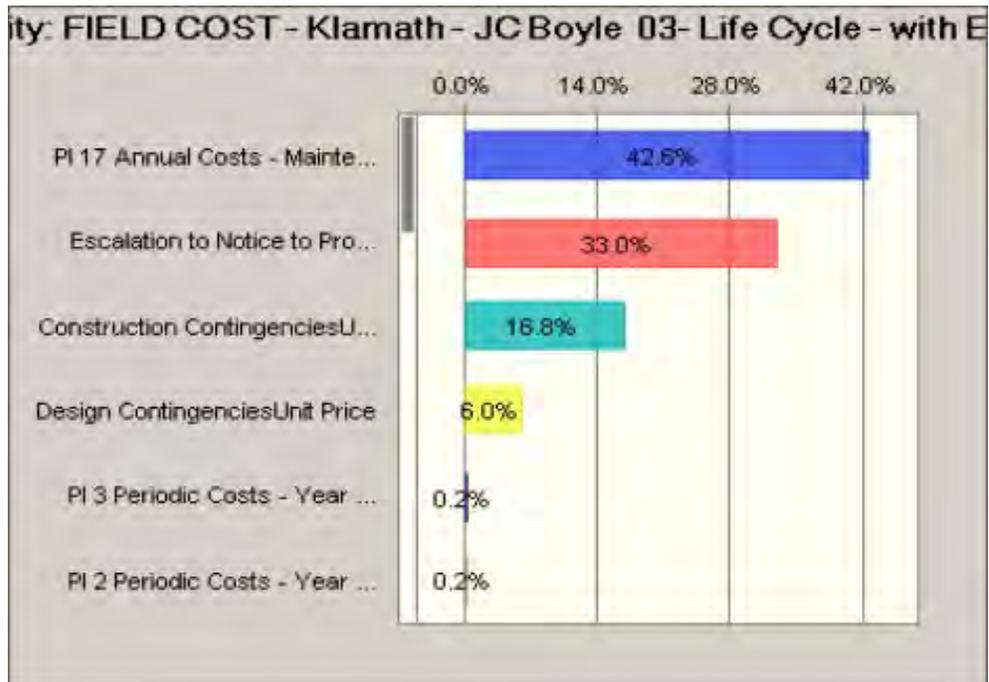
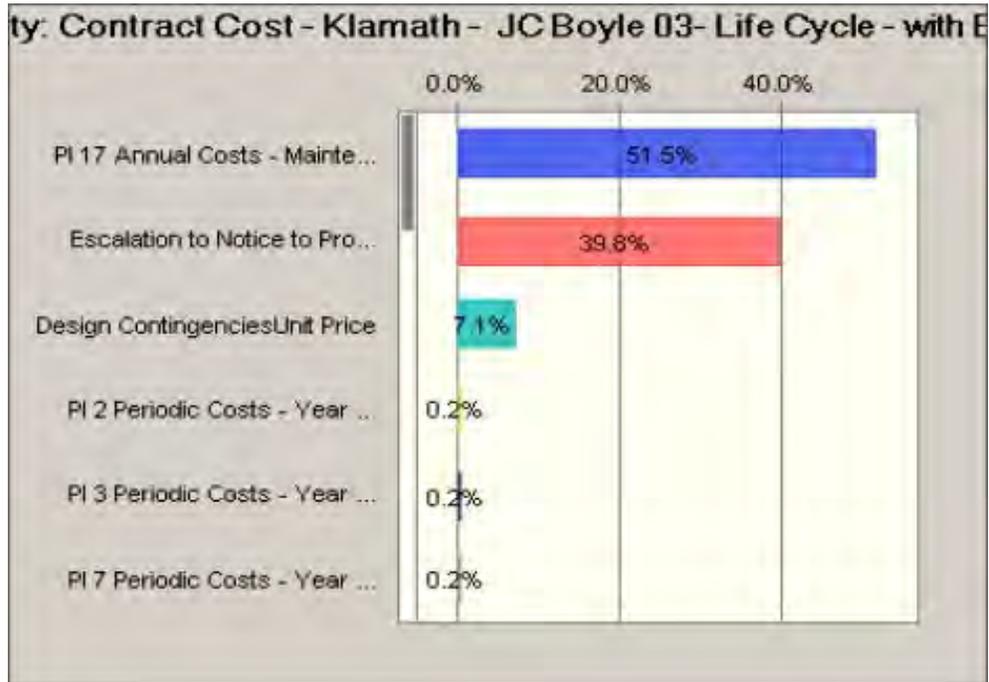
Minimum	\$29,667.63	(=Q20)
Likeliest	\$83,724.60	(=R20)
Maximum	\$136,558.46	(=S20)

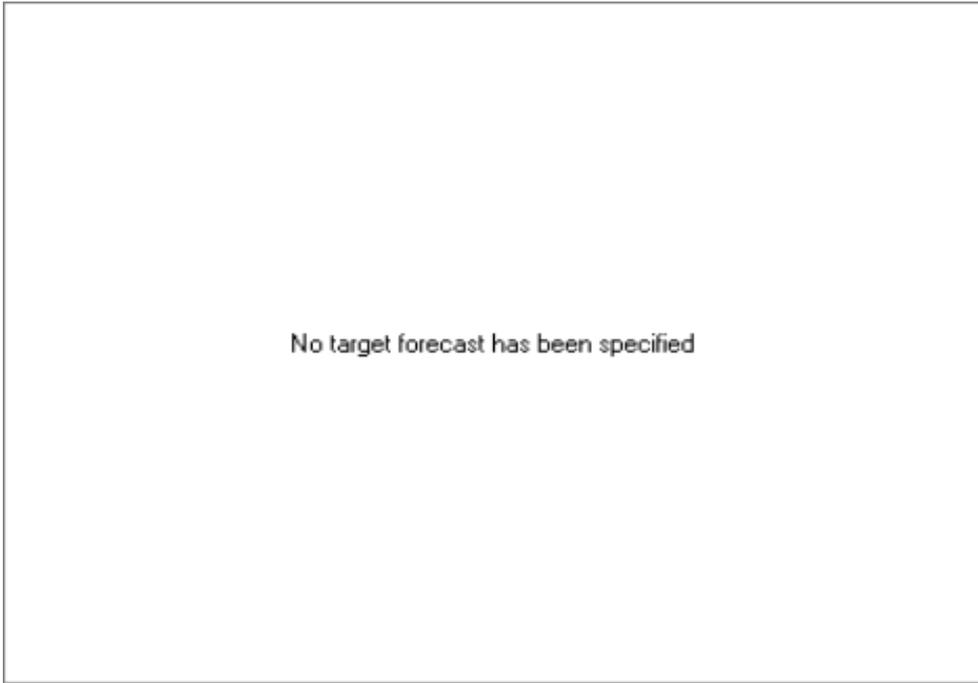
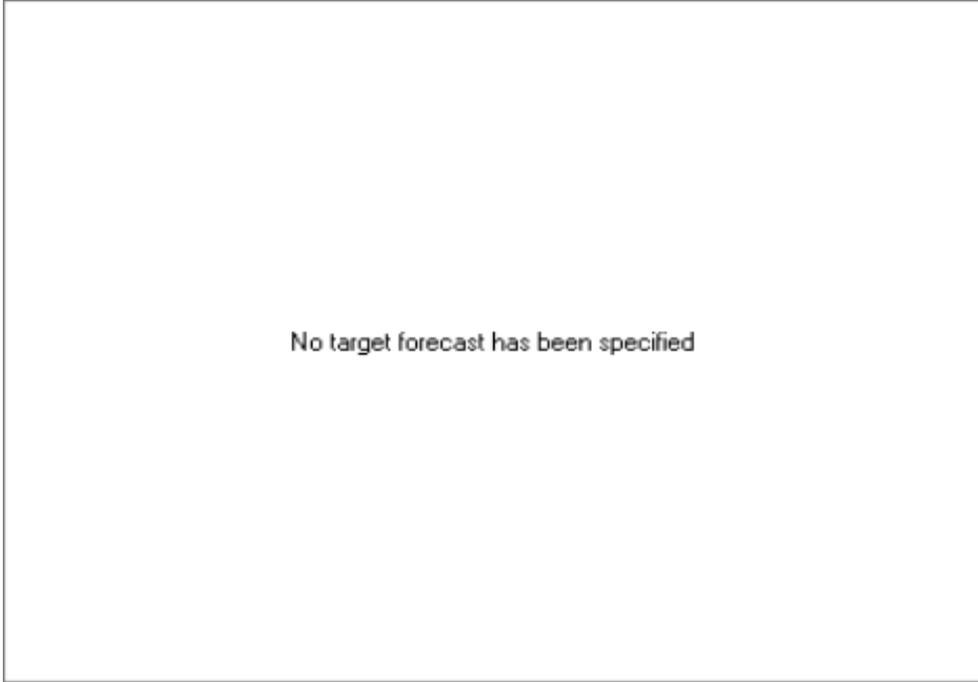


End of Assumptions

Sensitivity Charts

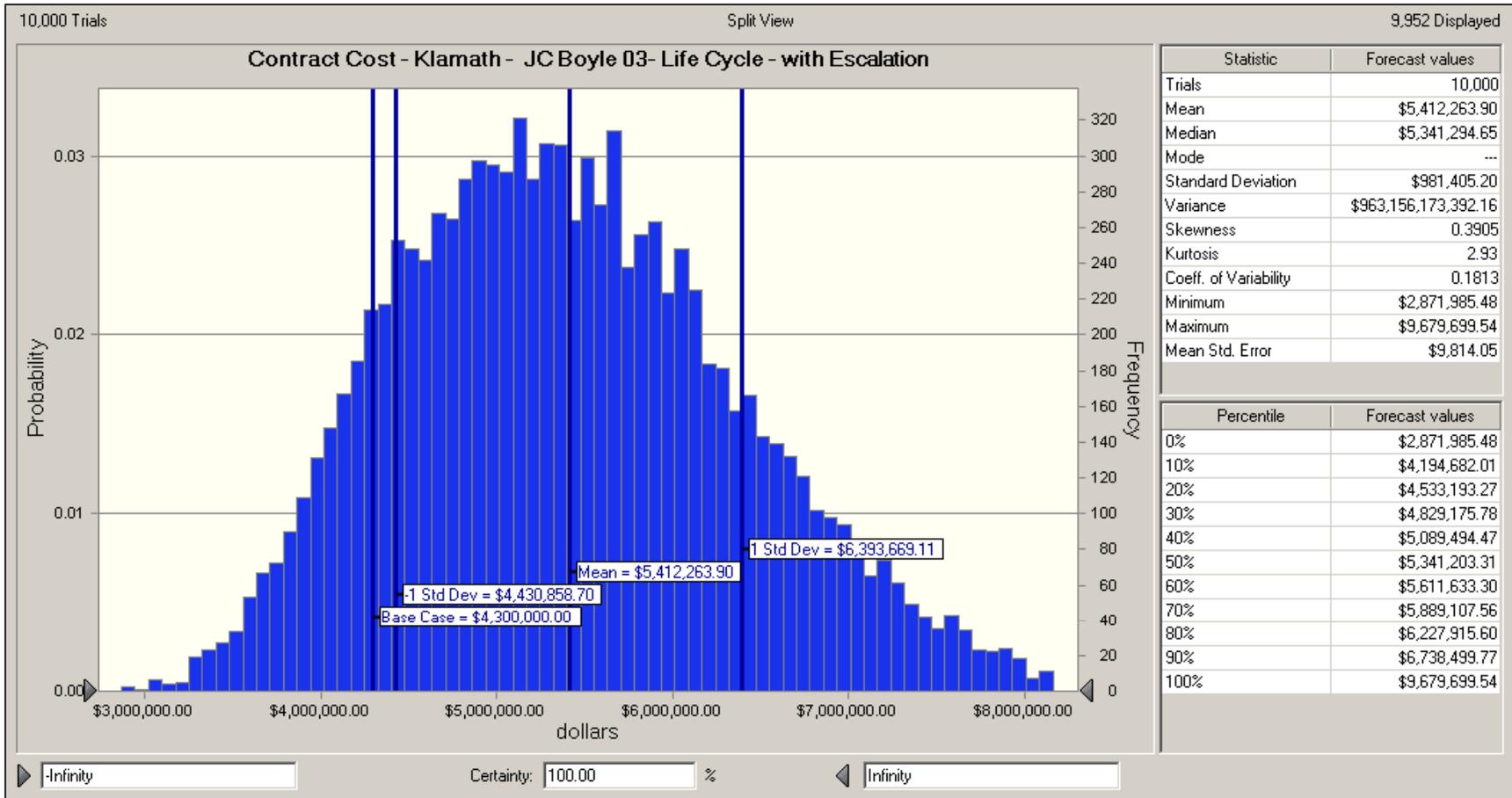




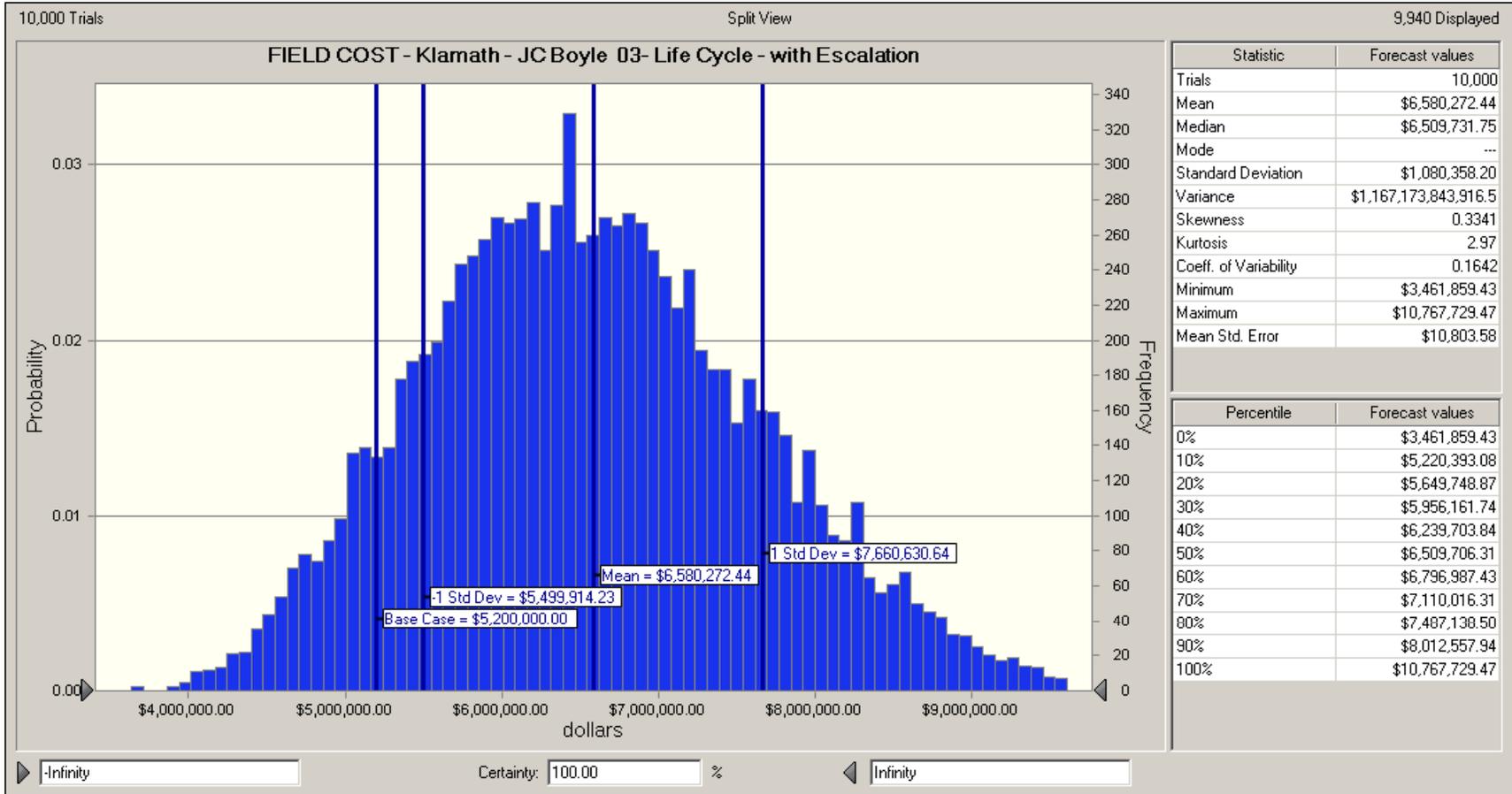


End of Sensitivity Charts

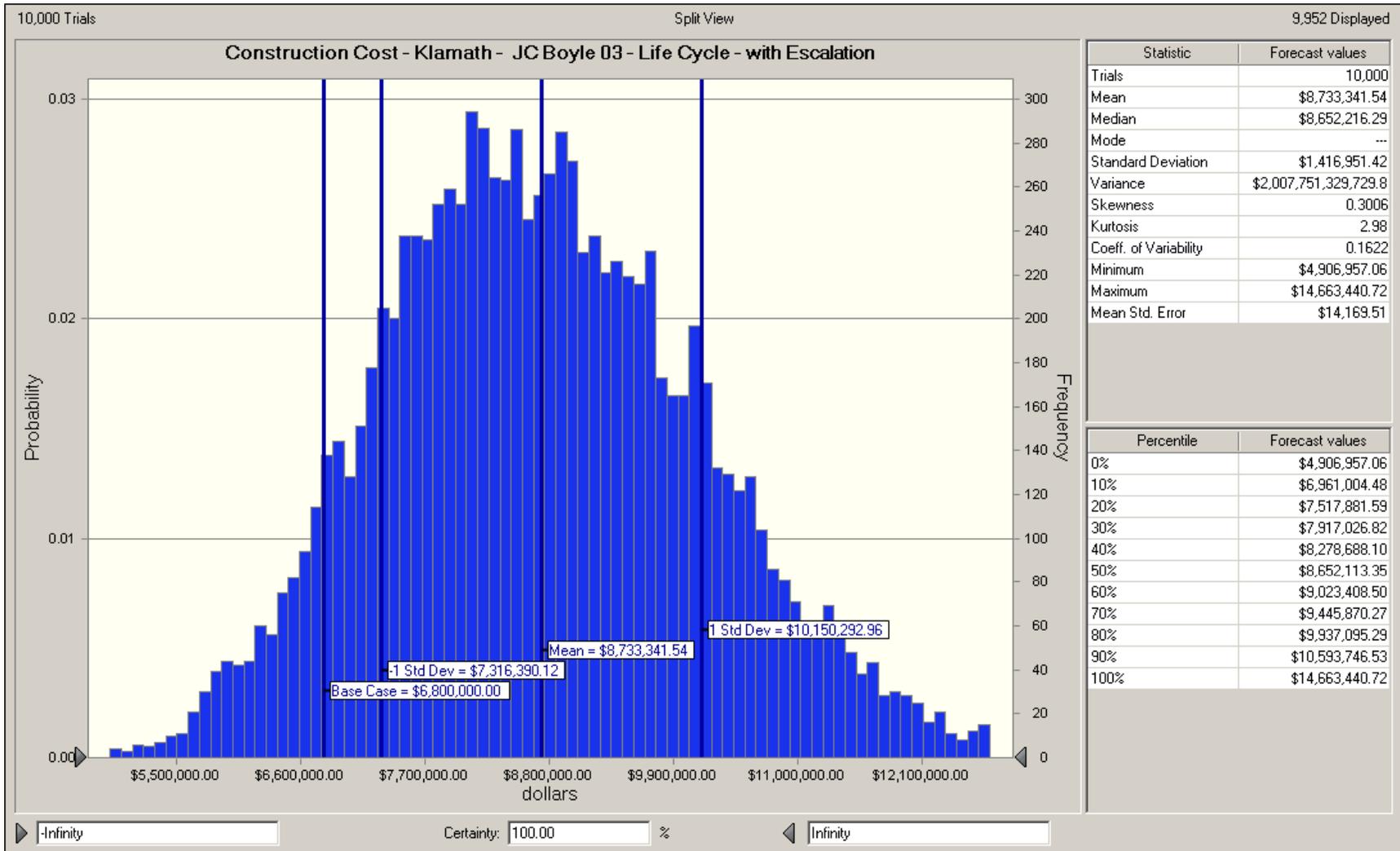
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



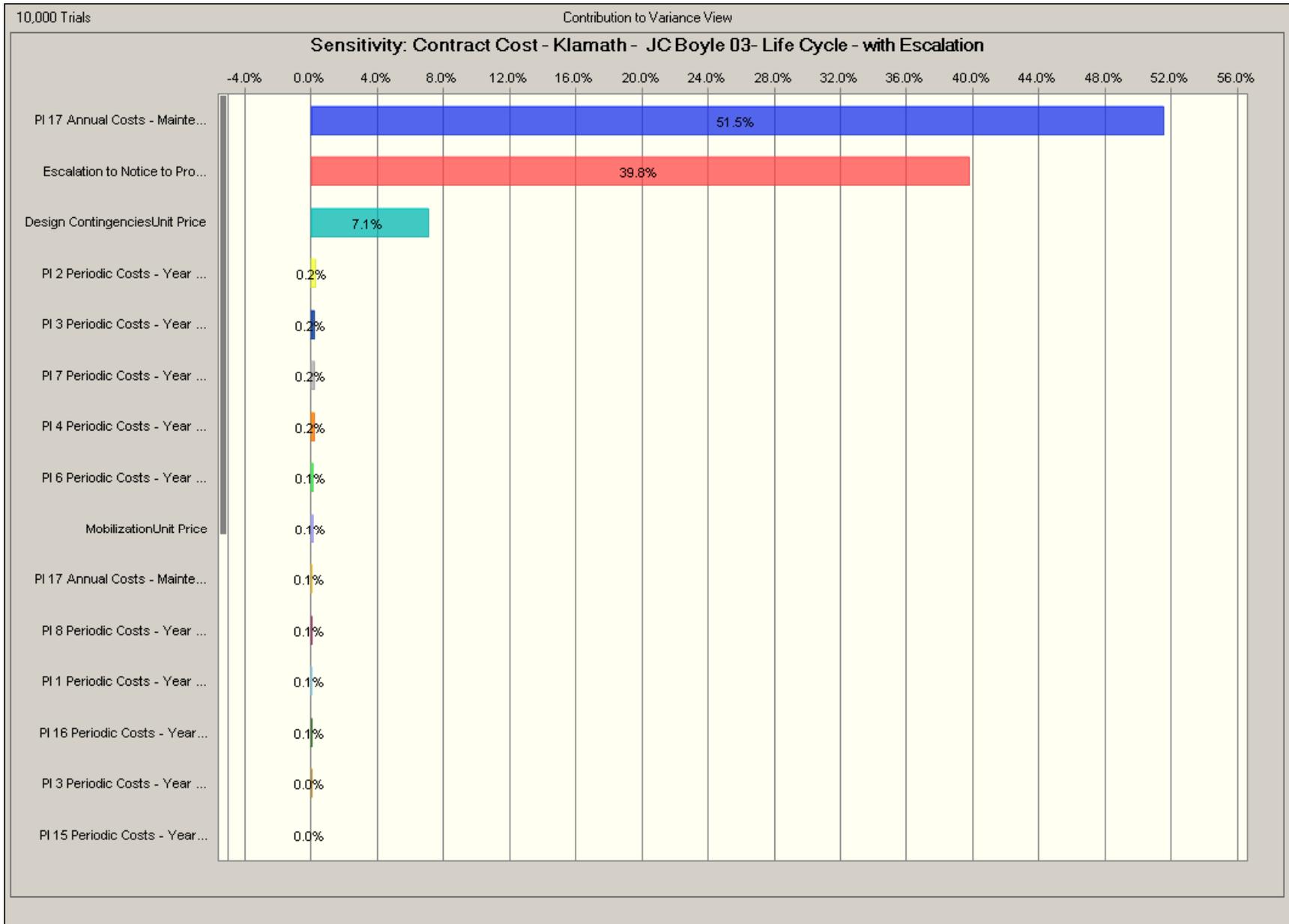
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



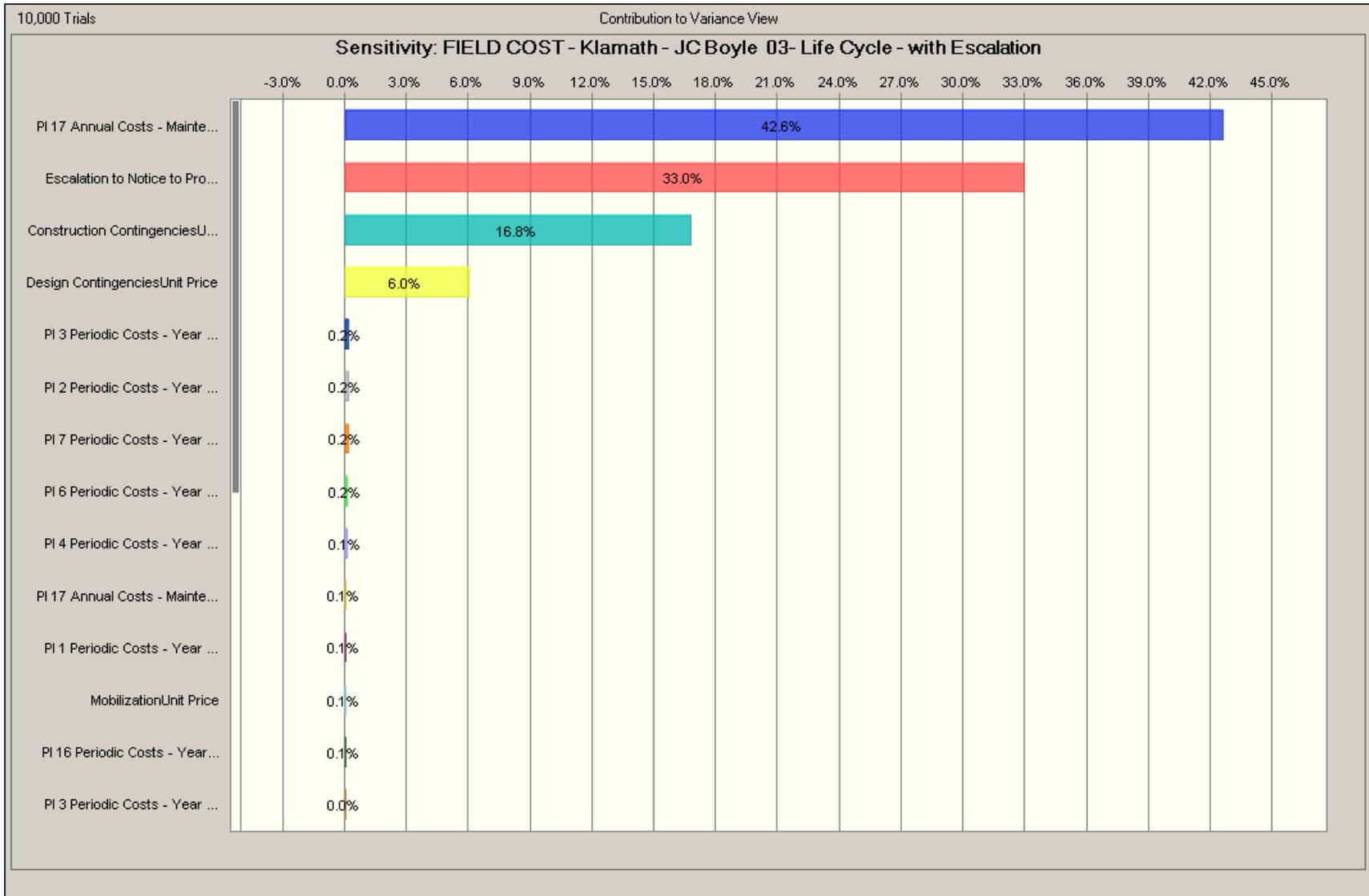
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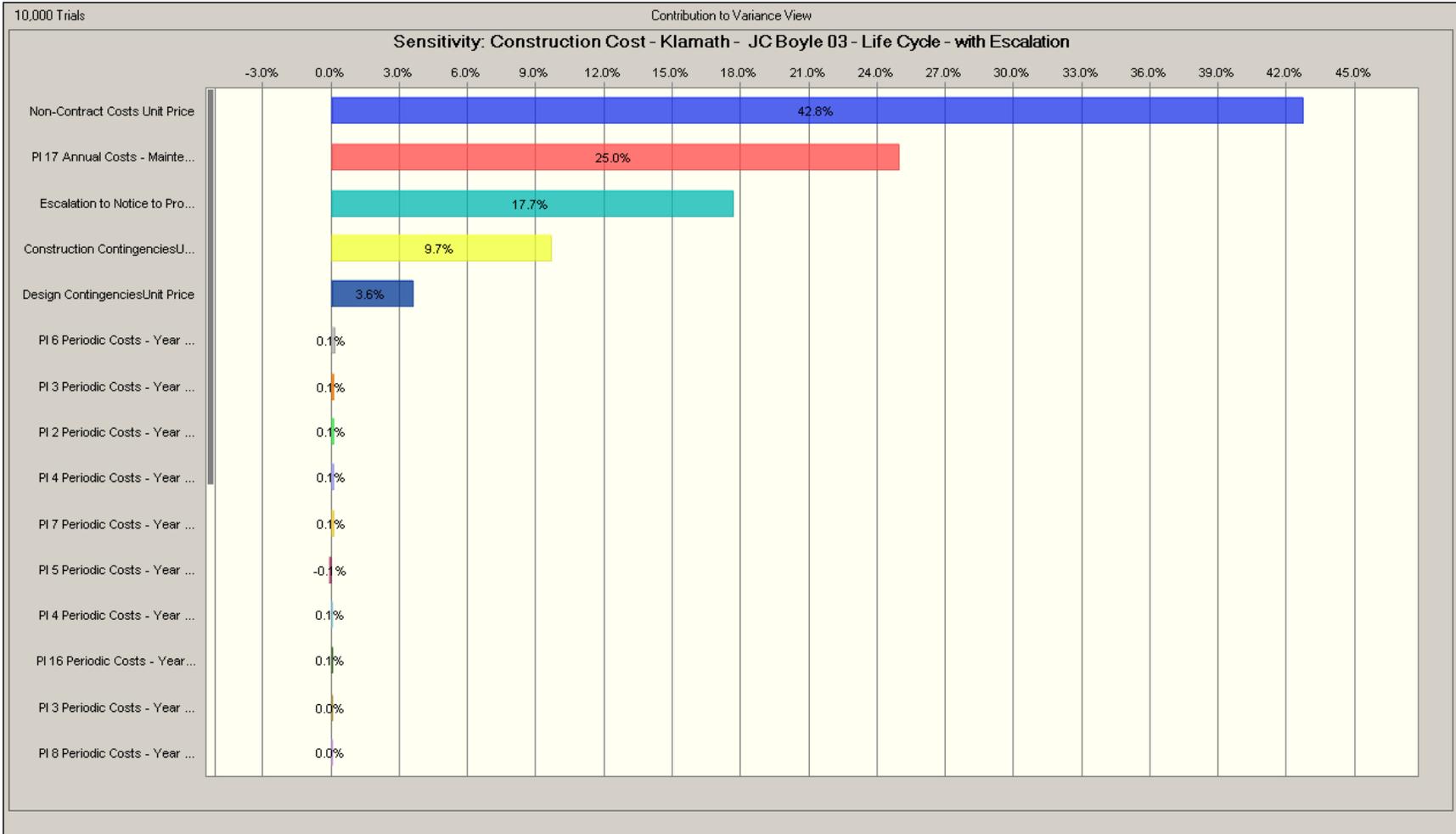
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Escalation Not Included Life Cycle SUMMARY ESTIMATE	PROJECT: Klamath River Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP PRICE LEVEL: Jul-10 <hr/> FILE: U:\2011 Projects\Klamath\007 Crystal Ball\without\03 JC Boyle Crystal Ball Spreadsheet wo esc.xlsx\SUMMARY 480 FP
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
	PI 1	Periodic Costs - Year 1	86-68130	1	1	1	LS	\$299,400.00	\$348,520.00	\$394,940.00	\$299,400.00	\$348,520.00	\$394,940.00
	PI 2	Periodic Costs - Year 5	86-68130	0	0	1	LS	\$219,930.92	\$219,930.92	\$219,930.92	\$0.00	\$0.00	\$219,930.92
	PI 3	Periodic Costs - Year 8	86-68130	0	1	0	LS	\$166,451.00	\$166,451.00	\$166,451.00	\$0.00	\$166,451.00	\$0.00
	PI 4	Periodic Costs - Year 10	86-68130	0	0	1	LS	\$179,684.33	\$179,684.33	\$179,684.33	\$0.00	\$0.00	\$179,684.33
	PI 5	Periodic Costs - Year 13	86-68130	0	0	1	LS	\$62,645.06	\$62,645.06	\$62,645.06	\$0.00	\$0.00	\$62,645.06
	PI 6	Periodic Costs - Year 15	86-68130	0	0	1	LS	\$146,802.77	\$146,802.77	\$146,802.77	\$0.00	\$0.00	\$146,802.77
	PI 7	Periodic Costs - Year 17	86-68130	1	1	0	LS	\$100,800.00	\$165,990.00	\$165,990.00	\$100,800.00	\$165,990.00	\$0.00
	PI 8	Periodic Costs - Year 20	86-68130	0	0	1	LS	\$119,937.60	\$119,937.60	\$119,937.60	\$0.00	\$0.00	\$119,937.60
	PI 9	Periodic Costs - Year 25	86-68130	1	1	1	LS	\$29,667.63	\$83,724.60	\$136,558.46	\$29,667.63	\$83,724.60	\$136,558.46
	PI 10	Periodic Costs - Year 30	86-68130	0	0	1	LS	\$80,059.80	\$80,059.80	\$80,059.80	\$0.00	\$0.00	\$80,059.80
	PI 11	Periodic Costs - Year 33	86-68130	1	1	0	LS	\$52,688.00	\$86,935.20	\$86,935.20	\$52,688.00	\$86,935.20	\$0.00
	PI 12	Periodic Costs - Year 35	86-68130	0	0	1	LS	\$65,407.79	\$65,407.79	\$65,407.79	\$0.00	\$0.00	\$65,407.79
	PI 13	Periodic Costs - Year 38	86-68130	0	0	1	LS	\$22,803.62	\$22,803.62	\$22,803.62	\$0.00	\$0.00	\$22,803.62
	PI 14	Periodic Costs - Year 40	86-68130	0	0	1	LS	\$53,439.60	\$53,439.60	\$53,439.60	\$0.00	\$0.00	\$53,439.60
	PI 15	Periodic Costs - Year 42	86-68130	0	1	0	LS	\$42,113.00	\$42,113.00	\$42,113.00	\$0.00	\$42,113.00	\$0.00
	PI 16	Periodic Costs - Year 45	86-68130	0	0	1	LS	\$43,659.93	\$43,659.93	\$43,659.93	\$0.00	\$0.00	\$43,659.93
	PI 17	Annual Costs - Maintenance	86-68130	1	1	1	LS	\$1,114,593.00	\$1,892,705.00	\$5,257,515.00	\$1,114,593.00	\$1,892,705.00	\$5,257,515.00
		Subtotal 1									\$1,596,948.63	\$2,786,438.80	\$6,783,384.88
		Mobilization		1	1	1	LS	\$80,000.00	\$140,000.00	\$340,000.00	\$80,000.00	\$140,000.00	\$340,000.00
		Subtotal 1 w/ mobilization									\$1,676,948.63	\$2,926,438.80	\$7,123,384.88
		Escalation to Notice to Proceed (NTP) - Not Included									\$0.00	\$0.00	\$0.00
		Design Contingencies		1	1	1	LS	\$123,051.37	\$367,111.00	\$1,112,777.12	\$123,051.37	\$273,561.20	\$1,112,777.12
		APS = Allowance for		0	0	1	LS	\$0.00	\$0.00	\$163,838.00	\$0.00	\$0.00	\$163,838.00
		Procurement Strategies (if applicable)											
		CONTRACT COST									\$1,800,000.00	\$3,200,000.00	\$8,400,000.00
		Construction Contingencies		1	1	1	LS	\$300,000.00	\$900,000.00	\$2,100,000.00	\$300,000.00	\$700,000.00	\$2,100,000.00
		FIELD COST									\$2,100,000.00	\$3,900,000.00	\$10,500,000.00
		Non-Contract Costs		1	1	1	LS	\$500,000.00	\$1,600,000.00	\$3,500,000.00	\$500,000.00	\$1,200,000.00	\$3,500,000.00
		CONSTRUCTION COST									\$2,600,000.00	\$5,100,000.00	\$14,000,000.00

Notes:
 Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)

QUANTITIES				PRICES			
BY	Rick Benik	CHECKED:	Stephen Latham	BY	Greg Akins	CHECKED:	Stephen Latham 6/15/11
DATE PREPARED	3/24/2011	PEER REVIEW:	Tom Hepler P.E.	DATE PREPARED	06/15/11	PEER REVIEW	Greg Akins 6/15/11

Crystal Ball Report - Full
 Simulation started on 6/15/2011 at 11:39:21
 Simulation stopped on 6/15/2011 at 11:39:35

Run preferences:
 Number of trials run 10,000
 Monte Carlo
 Seed 999
 Precision control on
 Confidence level 95.00%

Run statistics:
 Total running time (sec) 14.05
 Trials/second (average) 712
 Random numbers per sec 31,325

Crystal Ball data:
 Assumptions 44
 Correlations 0
 Correlated groups 0
 Decision variables 0
 Forecasts 3

**TECHNICAL SERVICE CENTER
 ESTIMATING, SPECIFICATIONS
 AND VALUE PROGRAM GROUP**

UNIT PRICES BY *[Signature]*
 DATE 6/15/11

DATE	PEER REVIEWER(S)	CODE
6/15/2011	<i>[Signature]</i> Signature	86-68170
	Craig A. Grush Printed Name	
	<i>[Signature]</i> Signature	
	Printed Name	
Author Initials		PEER REVIEW NOT REQUIRED

Forecasts

Worksheet: [03 JC Boyle Crystal Ball Spreadsheet wo esc.xlsx]SUMMARY 480 FP

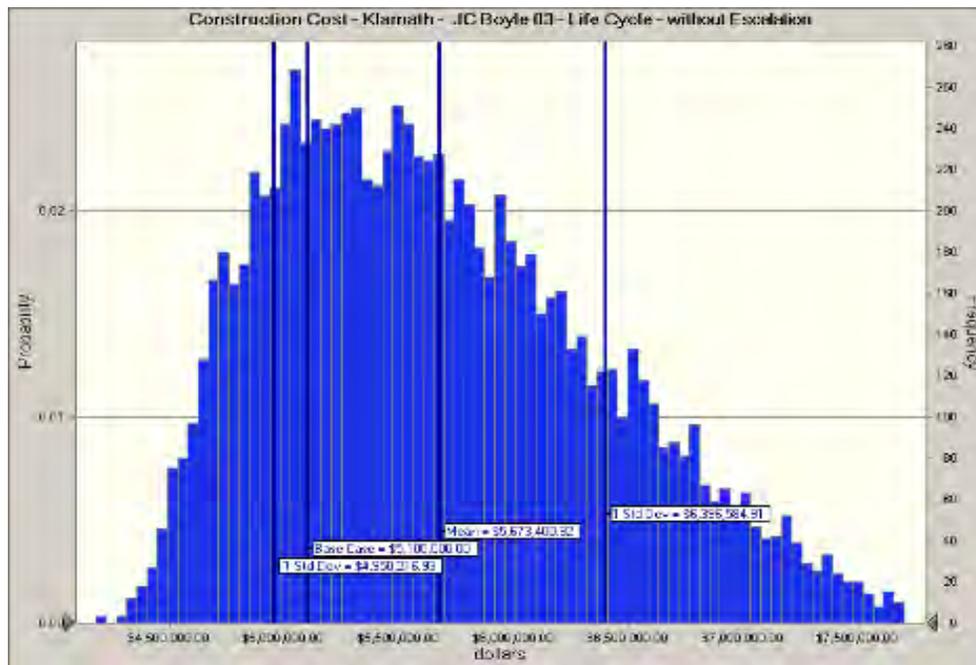
Forecast: Construction Cost - Klamath - JC Boyle 03 - Life Cycle - without Escalation Cell: U40

Summary:

Entire range is from \$4,178,652.35 to \$8,397,437.42

Base case is \$5,100,000.00

After 10,000 trials, the std. error of the mean is \$7,231.84



Forecast: Construction Cost - Klamath - JC Boyle 03 - Life Cycle - without Escalation (cont'd): U40

Statistics:	Forecast values
Trials	10,000
Mean	\$5,673,400.92
Median	\$5,572,728.78
Mode	---
Standard Deviation	\$723,183.99
Variance	#####
Skewness	0.5698
Kurtosis	2.80
Coeff. of Variability	0.1275
Minimum	\$4,178,652.35
Maximum	\$8,397,437.42
Range Width	\$4,218,785.07
Mean Std. Error	\$7,231.84

Percentiles:	Forecast values
0%	\$4,178,652.35
10%	\$4,802,876.93
20%	\$5,014,714.63
30%	\$5,196,407.30
40%	\$5,383,956.43
50%	\$5,572,715.58
60%	\$5,780,241.69
70%	\$6,014,459.15
80%	\$6,300,999.77
90%	\$6,696,838.47
100%	\$8,397,437.42

Forecast: Contract Cost - Klamath - JC Boyle 03- Life Cycle - without Escalation

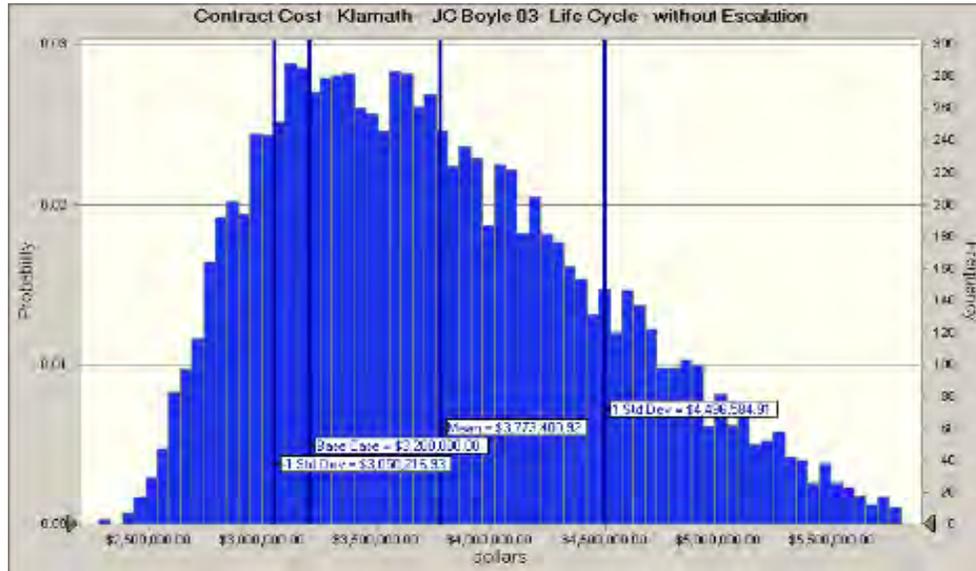
Cell: U36

Summary:

Entire range is from \$2,278,652.35 to \$6,497,437.42

Base case is \$3,200,000.00

After 10,000 trials, the std. error of the mean is \$7,231.84



Statistics:	Forecast values
Trials	10,000
Mean	\$3,773,400.92
Median	\$3,672,728.78
Mode	---
Standard Deviation	\$723,183.99
Variance	#####
Skewness	0.5698
Kurtosis	2.80
Coeff. of Variability	0.1917
Minimum	\$2,278,652.35
Maximum	\$6,497,437.42
Range Width	\$4,218,785.07
Mean Std. Error	\$7,231.84

Forecast: Contract Cost - Klamath - JC Boyle 03- Life Cycle - without Escalation (cont'd) Cell: U36

Percentiles:	Forecast values
0%	\$2,278,652.35
10%	\$2,902,876.93
20%	\$3,114,714.63
30%	\$3,296,407.30
40%	\$3,483,956.43
50%	\$3,672,715.58
60%	\$3,880,241.69
70%	\$4,114,459.15
80%	\$4,400,999.77
90%	\$4,796,838.47
100%	\$6,497,437.42

Forecast: FIELD COST - Klamath - JC Boyle 03- Life Cycle - without Escalation

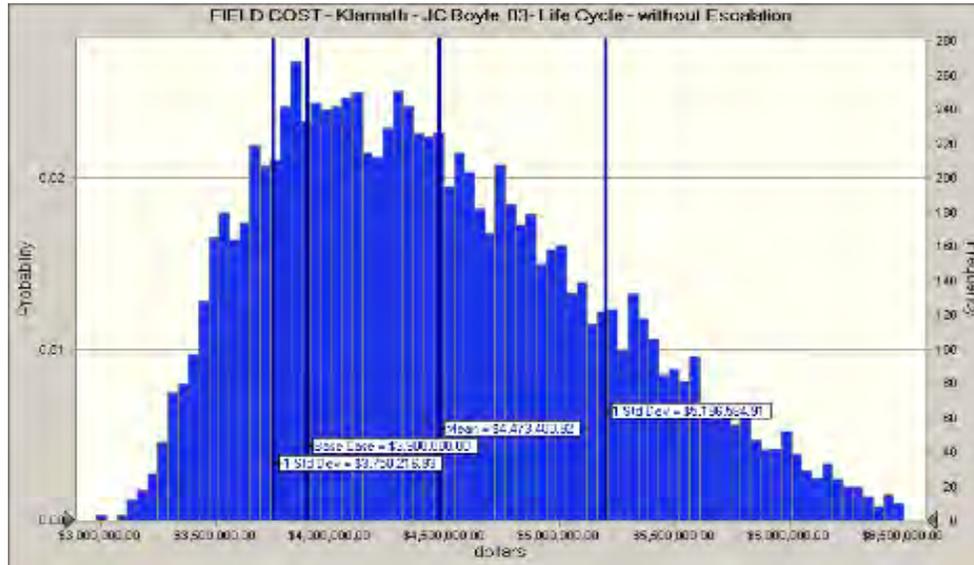
Cell: U38

Summary:

Entire range is from \$2,978,652.35 to \$7,197,437.42

Base case is \$3,900,000.00

After 10,000 trials, the std. error of the mean is \$7,231.84



Statistics:	Forecast values
Trials	10,000
Mean	\$4,473,400.92
Median	\$4,372,728.78
Mode	---
Standard Deviation	\$723,183.99
Variance	#####
Skewness	0.5698
Kurtosis	2.80
Coeff. of Variability	0.1617
Minimum	\$2,978,652.35
Maximum	\$7,197,437.42
Range Width	\$4,218,785.07
Mean Std. Error	\$7,231.84

Forecast: FIELD COST - Klamath - JC Boyle 03- Life Cycle - without Escalation (cont'd) Cell: U38

Percentiles:	Forecast values
0%	\$2,978,652.35
10%	\$3,602,876.93
20%	\$3,814,714.63
30%	\$3,996,407.30
40%	\$4,183,956.43
50%	\$4,372,715.58
60%	\$4,580,241.69
70%	\$4,814,459.15
80%	\$5,100,999.77
90%	\$5,496,838.47
100%	\$7,197,437.42

End of Forecasts

Assumptions

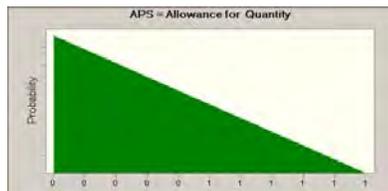
Worksheet: [03 JC Boyle Crystal Ball Spreadsheet wo esc.xlsx]SUMMARY 480 FP

Assumption: APS = Allowance for Quantity

Cell: L34

Triangular distribution with parameters:

Minimum	0	(=K34)
Likeliest	0	(=L34)
Maximum	1	(=M34)

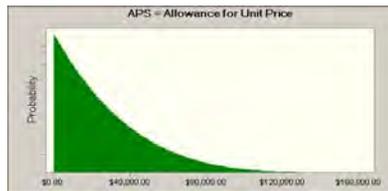


Assumption: APS = Allowance for Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q34)
Likeliest	\$0.00	(=R34)
Maximum	\$163,838.00	(=S34)

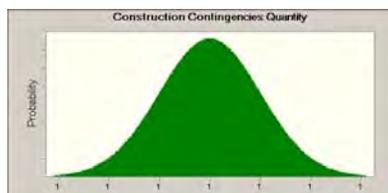


Assumption: Construction Contingencies Quantity

Cell: L37

Normal distribution with parameters:

Mean	1	(=L37)
Std. Dev.	0	



Assumption: Construction Contingencies Unit Price

Cell: R37

BetaPERT distribution with parameters:

Minimum	\$300,000.00	(=Q37)
Likeliest	\$900,000.00	(=R37)
Maximum	\$2,100,000.00	(=S37)

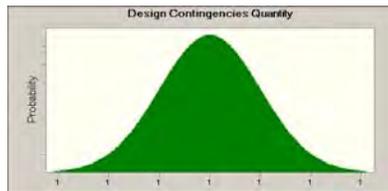


Assumption: Design Contingencies Quantity

Cell: L33

Normal distribution with parameters:

Mean	1	(=L33)
Std. Dev.	0	



Assumption: Design Contingencies Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum	\$123,051.37	(=Q33)
Likeliest	\$367,111.00	(=R33)
Maximum	\$1,112,777.12	(=S33)

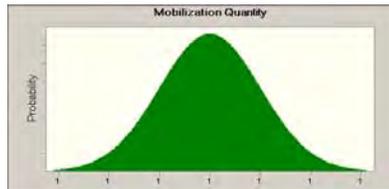


Assumption: Mobilization Quantity

Cell: L30

Normal distribution with parameters:

Mean	1	(=L30)
Std. Dev.	0	



Assumption: MobilizationUnit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$80,000.00	(=Q30)
Likeliest	\$140,000.00	(=R30)
Maximum	\$340,000.00	(=S30)



Assumption: Non-Contract Costs Quantity

Cell: L39

Normal distribution with parameters:

Mean	1	(=L39)
Std. Dev.	0	



Assumption: Non-Contract Costs Unit Price

Cell: R39

BetaPERT distribution with parameters:

Minimum	\$500,000.00	(=Q39)
Likeliest	\$1,600,000.00	(=R39)
Maximum	\$3,500,000.00	(=S39)

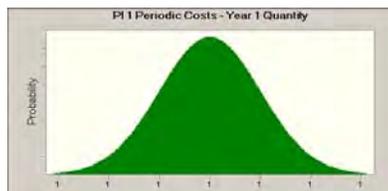


Assumption: PI 1 Periodic Costs - Year 1 Quantity

Cell: L12

Normal distribution with parameters:

Mean	1	(=L12)
Std. Dev.	0	



Assumption: PI 1 Periodic Costs - Year 1 Unit Price

Cell: R12

BetaPERT distribution with parameters:

Minimum	\$299,400.00	(=Q12)
Likeliest	\$348,520.00	(=R12)
Maximum	\$394,940.00	(=S12)



Assumption: PI 10 Periodic Costs - Year 30 Quantity

Cell: L21

Triangular distribution with parameters:

Minimum	0	(=K21)
Likeliest	0	(=L21)
Maximum	1	(=M21)

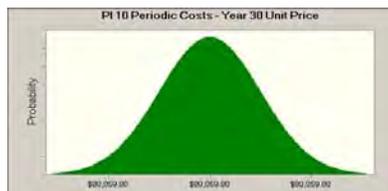


Assumption: PI 10 Periodic Costs - Year 30 Unit Price

Cell: R21

Normal distribution with parameters:

Mean	\$80,059.80	(=R21)
Std. Dev.	\$0.00	



Assumption: PI 11 Periodic Costs - Year 33 Quantity

Cell: L22

Triangular distribution with parameters:

Minimum	0	(=M22)
Likeliest	1	(=K22)
Maximum	1	(=L22)

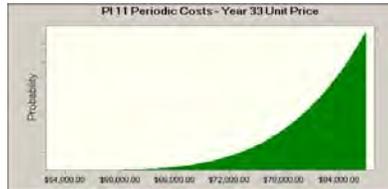


Assumption: PI 11 Periodic Costs - Year 33 Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$52,688.00	(=Q22)
Likeliest	\$86,935.20	(=R22)
Maximum	\$86,935.20	(=S22)

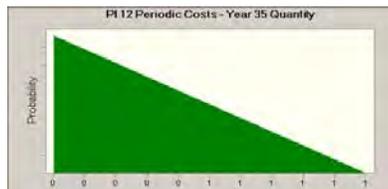


Assumption: PI 12 Periodic Costs - Year 35 Quantity

Cell: L23

Triangular distribution with parameters:

Minimum	0	(=K23)
Likeliest	0	(=L23)
Maximum	1	(=M23)

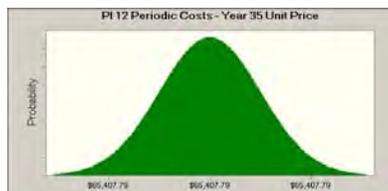


Assumption: PI 12 Periodic Costs - Year 35 Unit Price

Cell: R23

Normal distribution with parameters:

Mean	\$65,407.79	(=R23)
Std. Dev.	\$0.00	



Assumption: PI 13 Periodic Costs - Year 38 Quantity

Cell: L24

Triangular distribution with parameters:

Minimum	0	(=K24)
Likeliest	0	(=L24)
Maximum	1	(=M24)

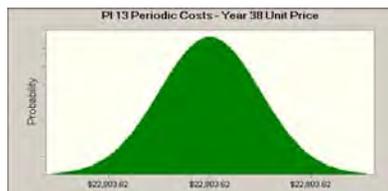


Assumption: PI 13 Periodic Costs - Year 38 Unit Price

Cell: R24

Normal distribution with parameters:

Mean	\$22,803.62	(=R24)
Std. Dev.	\$0.00	



Assumption: PI 14 Periodic Costs - Year 40 Quantity

Cell: L25

Triangular distribution with parameters:

Minimum	0	(=K25)
Likeliest	0	(=L25)
Maximum	1	(=M25)

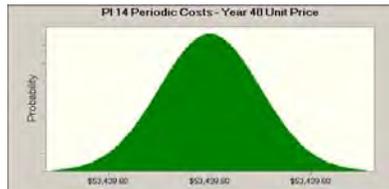


Assumption: PI 14 Periodic Costs - Year 40 Unit Price

Cell: R25

Normal distribution with parameters:

Mean \$53,439.60 (=R25)
 Std. Dev. \$0.00



Assumption: PI 15 Periodic Costs - Year 42 Quantity

Cell: L26

Triangular distribution with parameters:

Minimum 0 (=K26)
 Likeliest 0 (=M26)
 Maximum 1 (=L26)

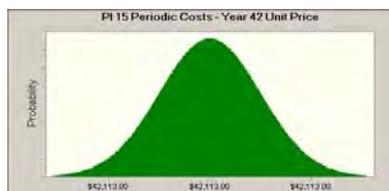


Assumption: PI 15 Periodic Costs - Year 42 Unit Price

Cell: R26

Normal distribution with parameters:

Mean \$42,113.00 (=R26)
 Std. Dev. \$0.00



Assumption: PI 16 Periodic Costs - Year 45 Quantity

Cell: L27

Triangular distribution with parameters:

Minimum	0	(=K27)
Likeliest	0	(=L27)
Maximum	1	(=M27)

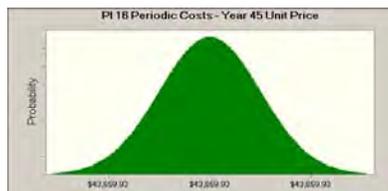


Assumption: PI 16 Periodic Costs - Year 45 Unit Price

Cell: R27

Normal distribution with parameters:

Mean	\$43,659.93	(=R27)
Std. Dev.	\$0.00	



Assumption: PI 17 Annual Costs - Maintenance Quantity

Cell: L28

Normal distribution with parameters:

Mean	1	(=L28)
Std. Dev.	0	



Assumption: PI 17 Annual Costs - Maintenance Unit Price

Cell: R28

BetaPERT distribution with parameters:

Minimum	\$1,114,593.00	(=Q28)
Likeliest	\$1,892,705.00	(=R28)
Maximum	\$5,257,515.00	(=S28)

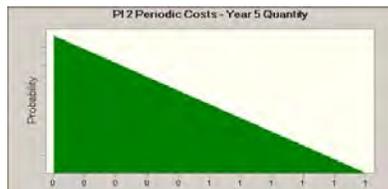


Assumption: PI 2 Periodic Costs - Year 5 Quantity

Cell: L13

Triangular distribution with parameters:

Minimum	0	(=K13)
Likeliest	0	(=L13)
Maximum	1	(=M13)



Assumption: PI 2 Periodic Costs - Year 5 Unit Price

Cell: R13

Normal distribution with parameters:

Mean	\$219,930.92	(=R13)
Std. Dev.	\$0.00	



Assumption: PI 3 Periodic Costs - Year 8 Quantity

Cell: L14

Triangular distribution with parameters:

Minimum	0	(=K14)
Likeliest	0	(=M14)
Maximum	1	(=L14)

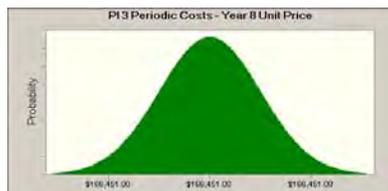


Assumption: PI 3 Periodic Costs - Year 8 Unit Price

Cell: R14

Normal distribution with parameters:

Mean	\$166,451.00	(=R14)
Std. Dev.	\$0.00	

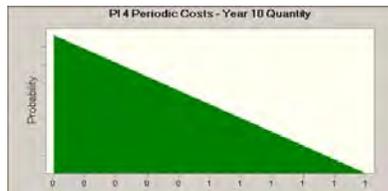


Assumption: PI 4 Periodic Costs - Year 10 Quantity

Cell: L15

Triangular distribution with parameters:

Minimum	0	(=K15)
Likeliest	0	(=L15)
Maximum	1	(=M15)

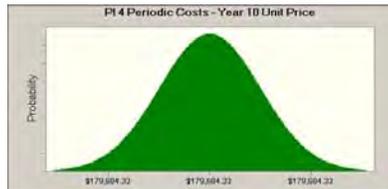


Assumption: PI 4 Periodic Costs - Year 10 Unit Price

Cell: R15

Normal distribution with parameters:

Mean \$179,684.33 (=R15)
 Std. Dev. \$0.00

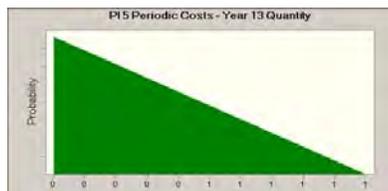


Assumption: PI 5 Periodic Costs - Year 13 Quantity

Cell: L16

Triangular distribution with parameters:

Minimum 0 (=K16)
 Likeliest 0 (=L16)
 Maximum 1 (=M16)

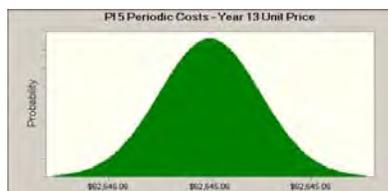


Assumption: PI 5 Periodic Costs - Year 13 Unit Price

Cell: R16

Normal distribution with parameters:

Mean \$62,645.06 (=R16)
 Std. Dev. \$0.00



Assumption: PI 6 Periodic Costs - Year 15 Quantity

Cell: L17

Triangular distribution with parameters:

Minimum	0	(=K17)
Likeliest	0	(=L17)
Maximum	1	(=M17)

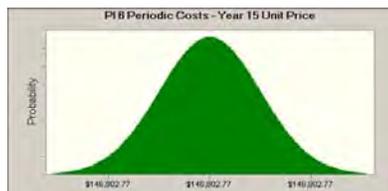


Assumption: PI 6 Periodic Costs - Year 15 Unit Price

Cell: R17

Normal distribution with parameters:

Mean	\$146,802.77	(=R17)
Std. Dev.	\$0.00	



Assumption: PI 7 Periodic Costs - Year 17 Quantity

Cell: L18

Triangular distribution with parameters:

Minimum	0	(=M18)
Likeliest	1	(=K18)
Maximum	1	(=L18)



Assumption: PI 7 Periodic Costs - Year 17 Unit Price

Cell: R18

BetaPERT distribution with parameters:

Minimum	\$100,600.00	(=Q18)
Likeliest	\$165,990.00	(=R18)
Maximum	\$165,990.00	(=S18)

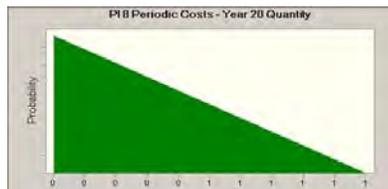


Assumption: PI 8 Periodic Costs - Year 20 Quantity

Cell: L19

Triangular distribution with parameters:

Minimum	0	(=K19)
Likeliest	0	(=L19)
Maximum	1	(=M19)

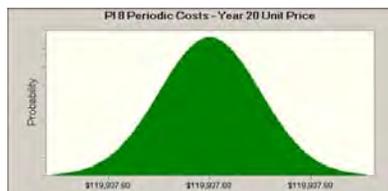


Assumption: PI 8 Periodic Costs - Year 20 Unit Price

Cell: R19

Normal distribution with parameters:

Mean	\$119,937.60	(=R19)
Std. Dev.	\$0.00	

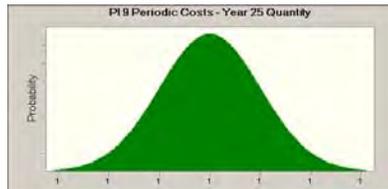


Assumption: PI 9 Periodic Costs - Year 25 Quantity

Cell: L20

Normal distribution with parameters:

Mean	1	(=L20)
Std. Dev.	0	



Assumption: PI 9 Periodic Costs - Year 25 Unit Price

Cell: R20

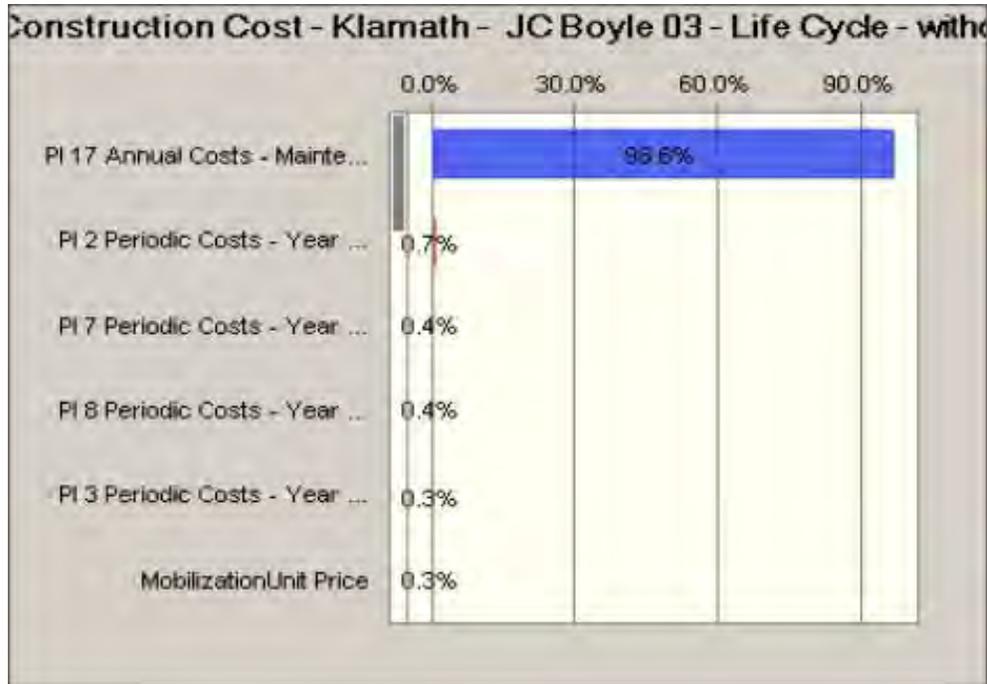
BetaPERT distribution with parameters:

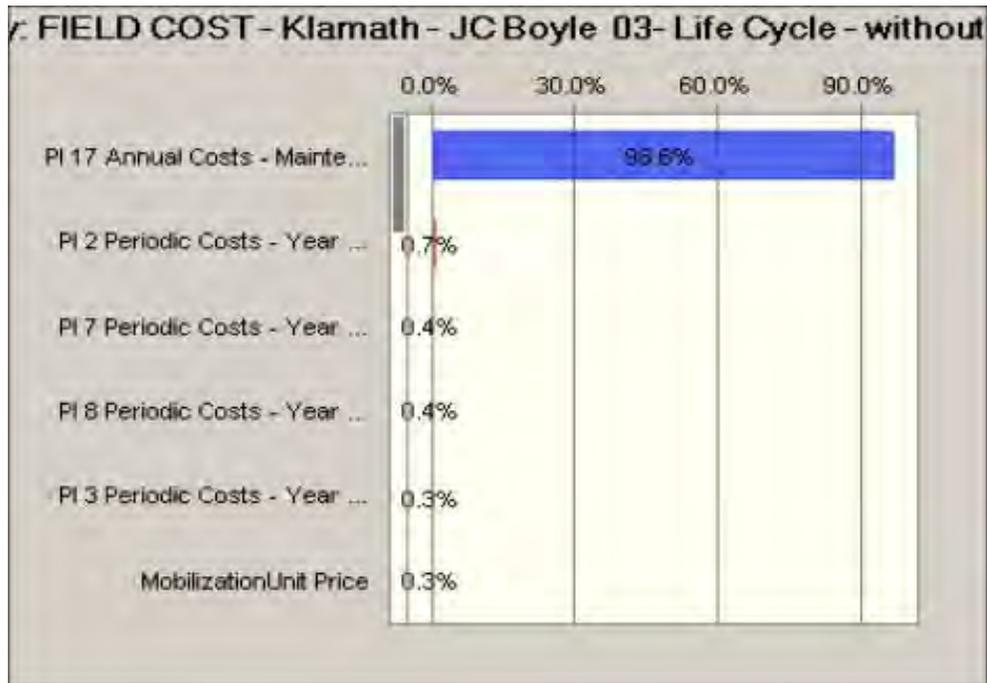
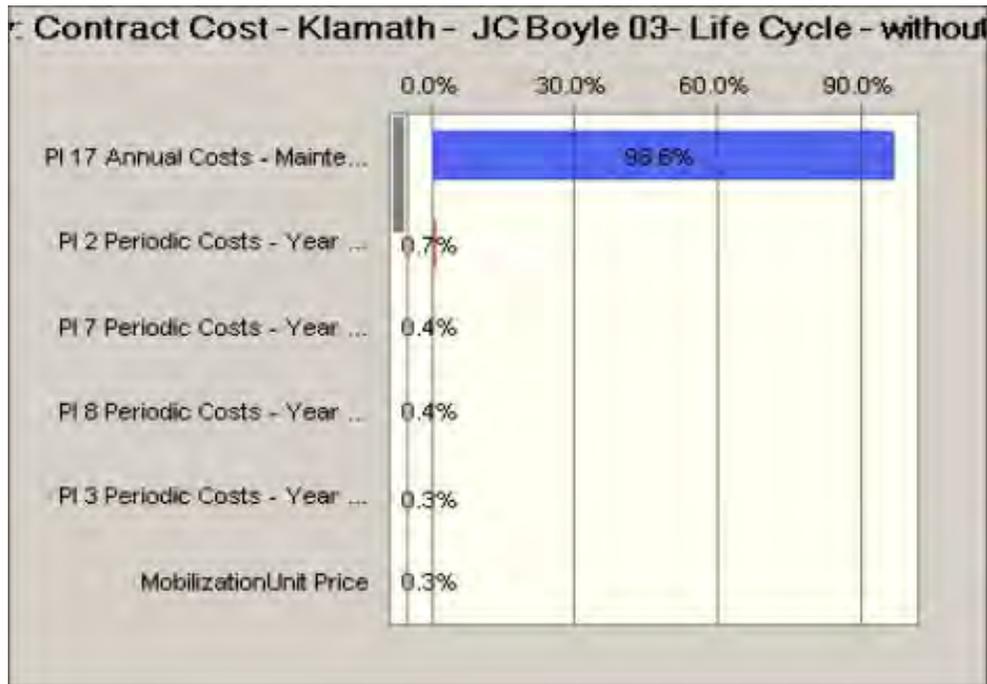
Minimum	\$29,667.63	(=Q20)
Likeliest	\$83,724.60	(=R20)
Maximum	\$136,558.46	(=S20)

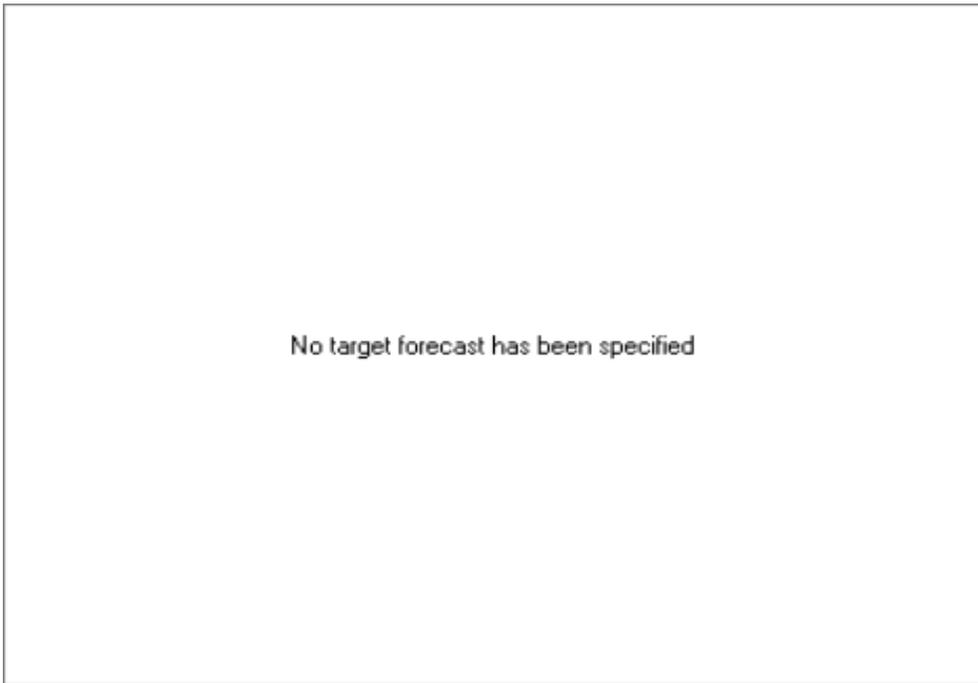
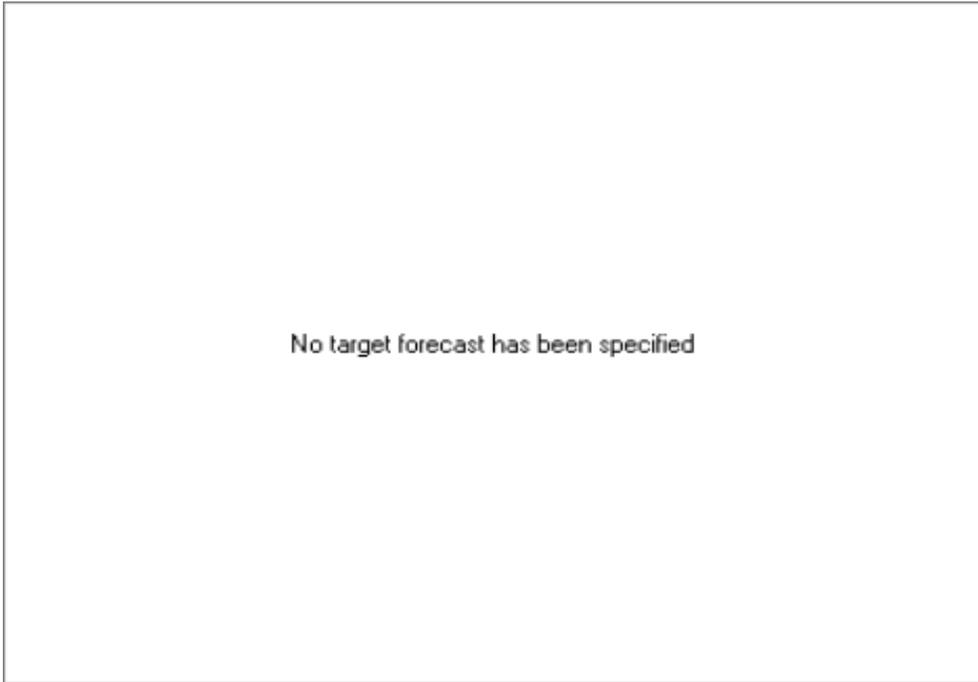


End of Assumptions

Sensitivity Charts

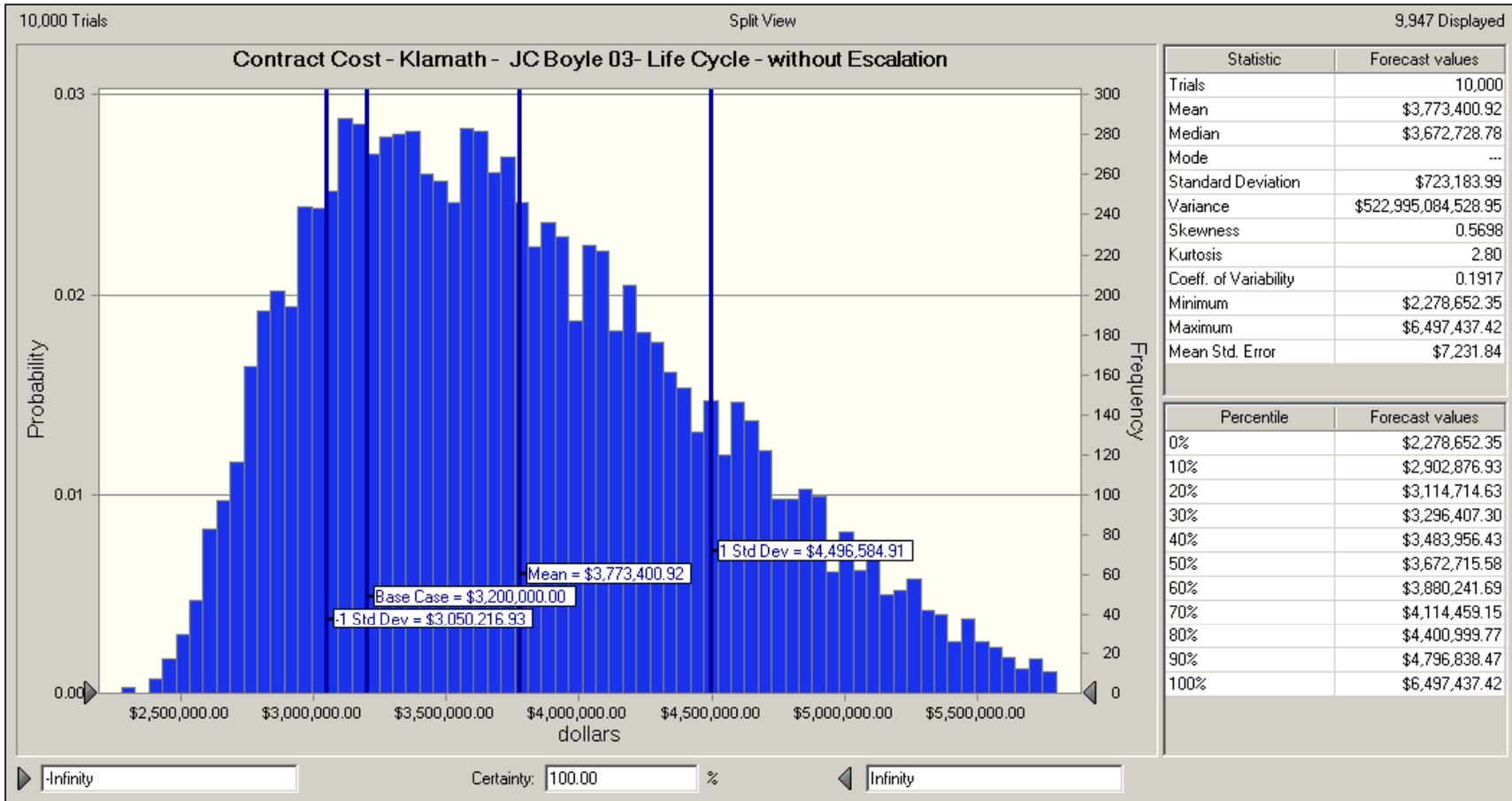




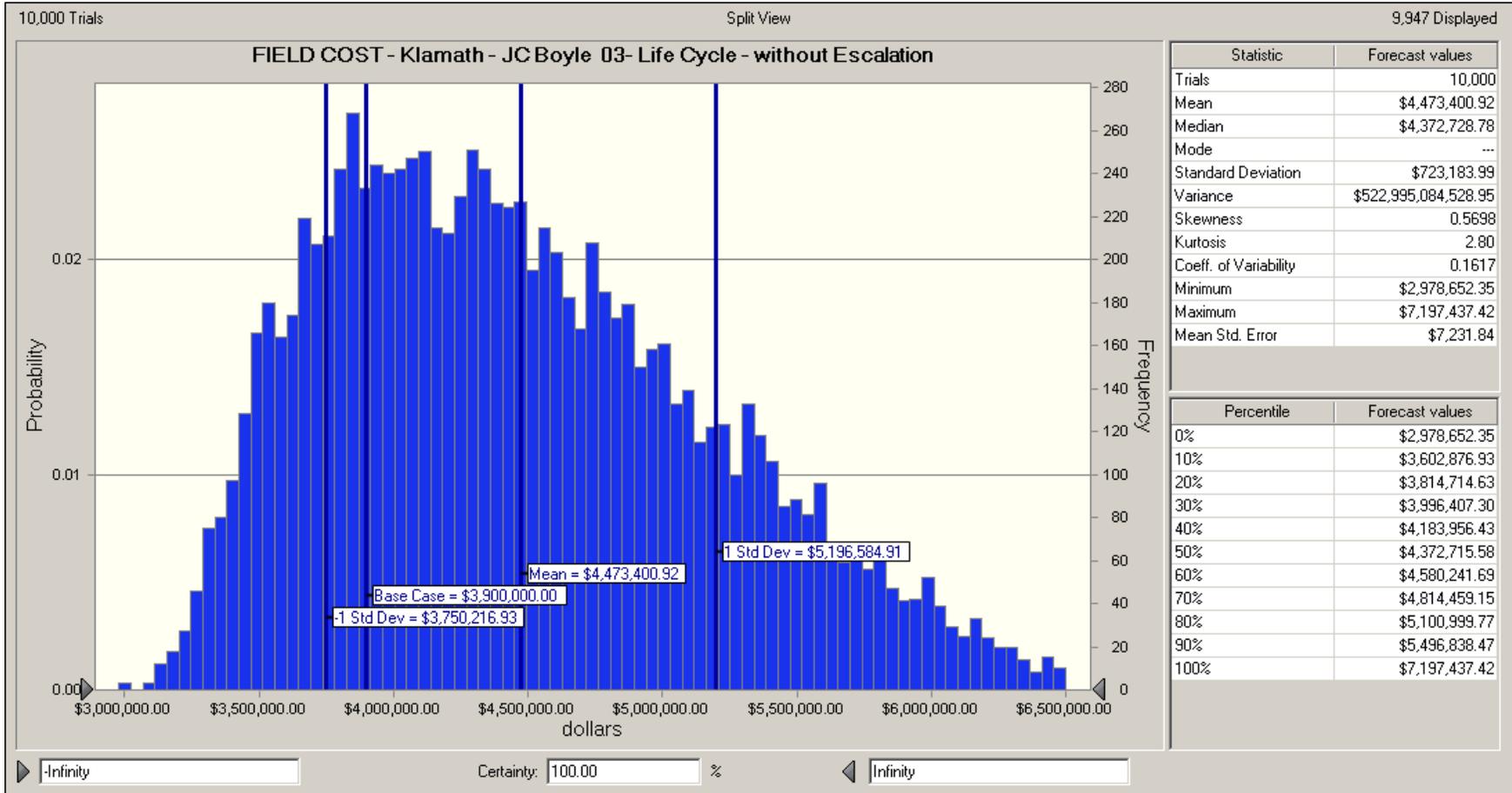


End of Sensitivity Charts

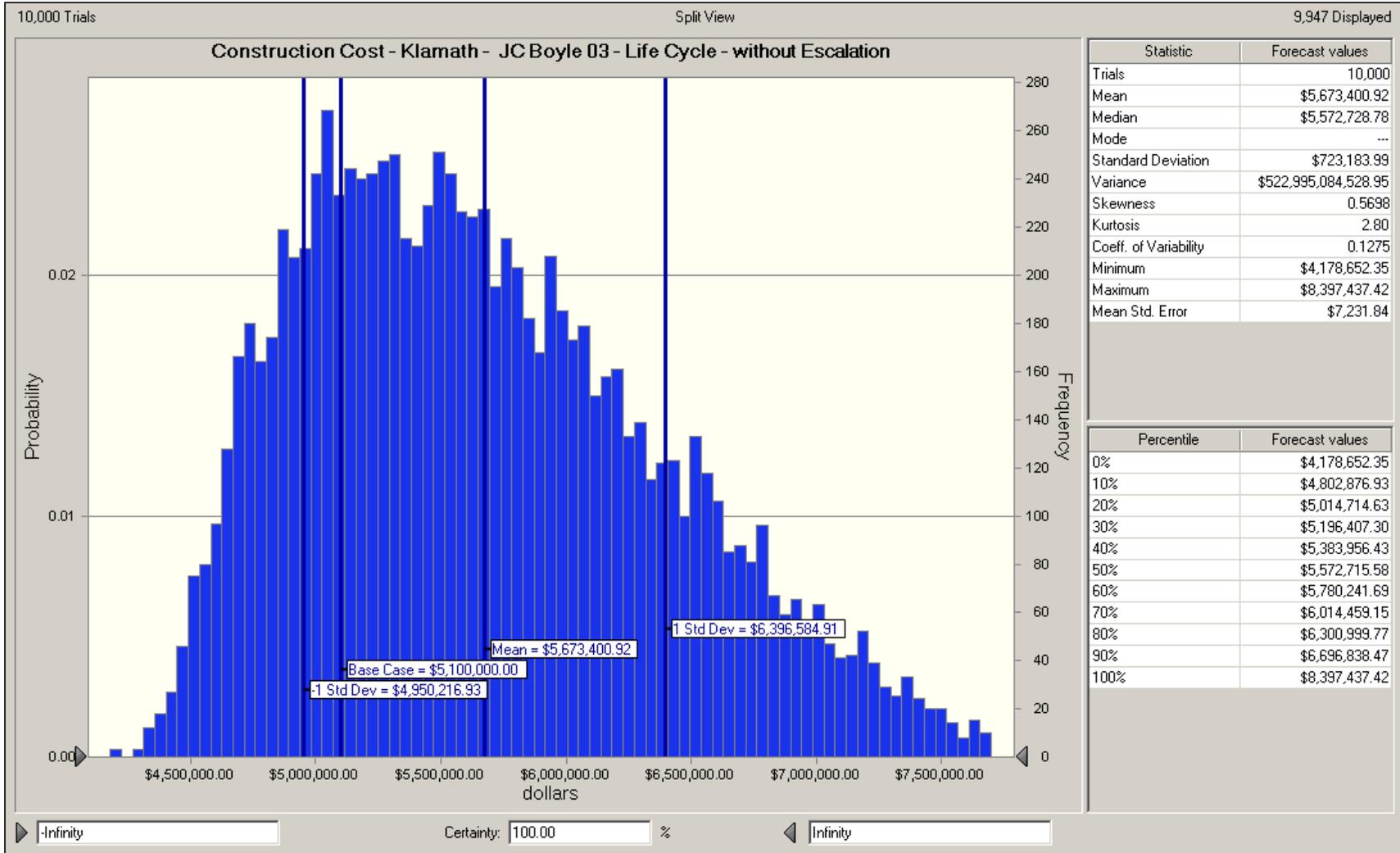
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

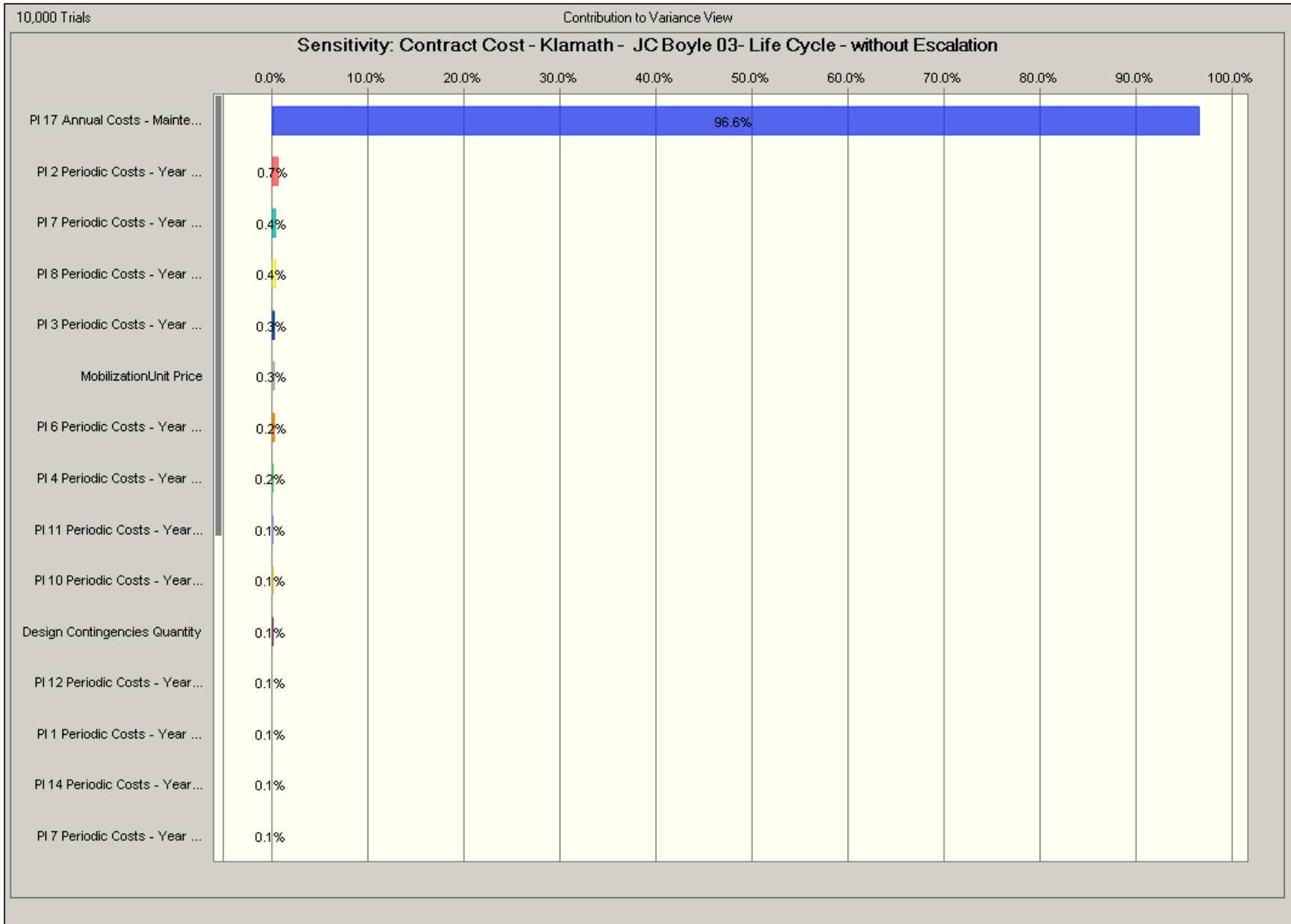


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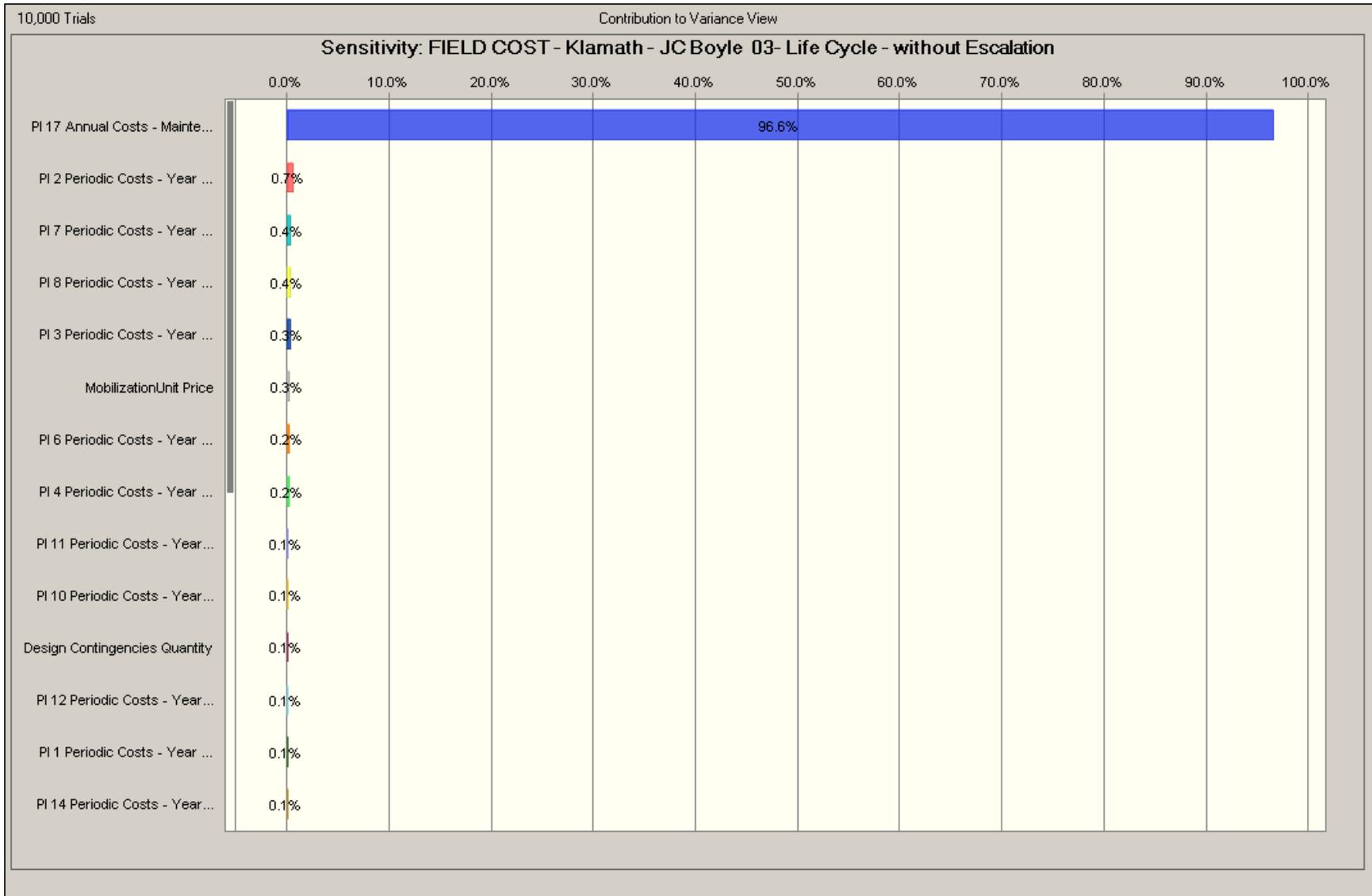


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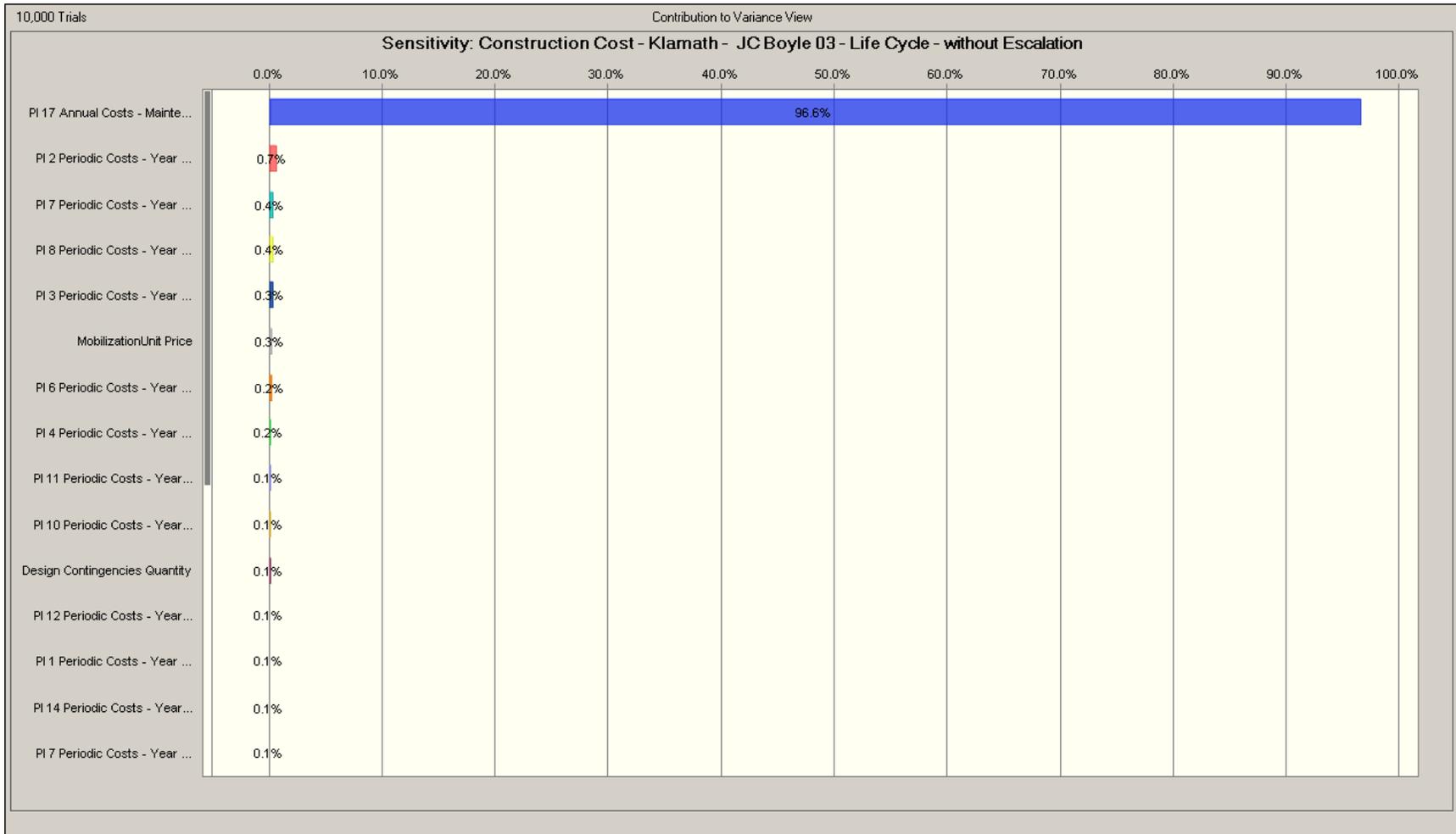




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PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	5	Remove Spillway Concrete 3000 psi, reinforced and mass concrete. Includes removal of two diversion culverts beneath spillway block 1. Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5. Waste in scour hole	86-68130	2,500	yd3	\$390.00	\$975,000.00
	6	Remove Monorail Structural Steel Components This structure used for installing steel stoplogs in spillway radial gate openings. Assume contains paint with heavy metals.	86-68130	15,000	lbs	\$0.75	\$11,250.00
	7	Remove Fish Ladder Concrete 3000 psi, reinforced concrete. Includes fish ladder intake at upstream end, diffusion box at downstream end, and north abutment wall (which supports dam embankment). This quantity is for concrete to the right of dam Sta. 3+36.5. Waste in scour hole	86-68130	1,600	yd3	\$390.00	\$624,000.00
	8	Remove Gravity Dam Section Concrete 3000 psi, mass concrete. Waste in scour hole	86-68130	600	yd3	\$390.00	\$234,000.00
	9	Remove Timber Equipment Ramp on left side of dam. Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3. Volume of timber to be removed is approximately 290 ft3.	86-68130	10,500	lbs	\$0.70	\$7,350.00
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure. 2 in by 8 in Lumber assumed to weigh 30 lb/ft3. Volume of lumber to be removed is approximately 120 ft3.	86-68130	3,600	lbs	\$0.70	\$2,520.00
SUBTOTAL THIS SHEET							\$1,854,120.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 4 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	11	Storage Shed located on access road about 440' from left abutment of dam. 48' x 36' wood frame construction.	86-68130	1,728	ft2	\$42.00	\$72,576.00
	12	Warehouse located on access road about 370' from left abutment of dam (Red Barn). 60' x 32' wood frame construction.	86-68130	1,920	ft2	\$42.00	\$80,640.00
	13	Fire System Control Bldg. on left abutment. 15.25'x25.25' concrete block on concrete slab.	86-68130	385	ft2	\$42.00	\$16,170.00
	14	Dam Communication Bldg. on left abutment. 13.5'x24.5' metal building on concrete slab.	86-68130	331	ft2	\$42.00	\$13,902.00
	15	Concrete Slab on left abutment for former Control House. 13'x13' house has been removed. Waste in scour hole	86-68130	6	cy	\$390.00	\$2,340.00
	16	4'x5' Metal Hatch on top of Concrete Pull Box on left abutment. Metal hatch weighs approximately 400 lbs. Waste in scour hole	86-68130	1	cy	\$390.00	\$390.00
	17	Reservoir Level Gauge House on Dam Crest 4'x6' Metal building.	86-68130	24	ft2	\$42.00	\$1,008.00
SUBTOTAL THIS SHEET							\$187,026.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$12.00	\$26,640.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$12.00	\$22,200.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$12.00	\$1,590,000.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock. Waste in scour hole</i>	86-68313	70	yd3	\$390.00	\$27,300.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock</i> <i>Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$12.00	\$3,420.00
		SUBTOTAL THIS SHEET					\$1,669,560.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE 6/3/11

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ESTIMATE WORKSHEET

SHEET 6 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	23	Hand Rails and Light Poles (Assume contains paint with heavy metals)	86-68420	5,000	lbs	\$0.75	\$3,750.00
	24	Spillway Radial Gates and Hoists 3 radial gates, 3 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	124,000	lbs	\$0.75	\$93,000.00
	25	Stop Logs and Slots (steel) stop logs slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	92,000	lbs	\$0.75	\$69,000.00
		Remove and dispose of the following equipment at the Fish Ladder Structure:					
	26	24" Slide Gate at Entrance to Fish Ladder Structure (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	4,200	lbs	\$0.75	\$3,150.00
		SUBTOTAL THIS SHEET					\$168,900.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 7 _ OF _ 27 _

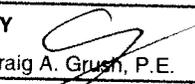
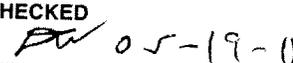
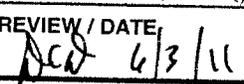
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam		PROJECT: Klamath River Northern California/Southern Oregon	
WOID: AF652	ESTIMATE LEVEL: Feasibility		
REGION: MP	UNIT PRICE LEVEL: July-2010		
FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$700.00	\$700.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,500.00	\$6,500.00
		DAM SUBTOTAL					\$3,886,806.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE:		PROJECT:	
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3	\$800.00	\$1,200,000.00
	30	Remove Structural Steel Items associated with Powerhouse. Includes only WF beam shapes, crane rails, and penstock sections inside powerhouse. Assume contains paint with heavy metals.	86-68130	94,000	lbs	\$0.75	\$70,500.00
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$42.00	\$218,400.00
SUBTOTAL THIS SHEET							\$1,488,900.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

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ESTIMATE WORKSHEET

SHEET 9 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	32	2 - Governor oil systems governor, sump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	52,500	lbs	\$0.75	\$39,375.00
	33	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs	\$0.75	\$4,875.00
	34	2 - Francis Turbines (Includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	560,000	lbs	\$0.75	\$420,000.00
	35	150 Ton crane (Includes crane and embedded steel rail) (Assume contains paint with heavy metals & petroleum products)	86-68420	240,000	lbs	\$0.75	\$180,000.00
	36	Compressed Air systems (Assume contains paint with heavy metals & petroleum products)	86-68420	1,100	lbs	\$0.75	\$825.00
	37	2 - CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,600	lbs	\$0.75	\$4,950.00
	38	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lbs	\$0.75	\$2,325.00
	39	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs	\$0.75	\$4,875.00
		SUBTOTAL THIS SHEET					\$657,225.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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ESTIMATE WORKSHEET

SHEET 11 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$250,000.00	\$500,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets)(400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	2	EA	\$13,000.00	\$26,000.00
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs.	86-68430	2	EA	\$8,000.00	\$16,000.00
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA	\$4,000.00	\$8,000.00
	48	Generator Switchgear, 15kV - (6 sections) (750 lbs each), 3 ft x 6ft x 90 inches high Total weight approximately: 4,500 lbs.	86-68430	1	EA	\$21,000.00	\$21,000.00
	49	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
		SUBTOTAL THIS SHEET					\$581,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grush, P.E.	CHECKED 05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

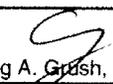
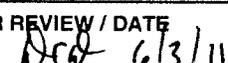
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 12 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	52	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$12,000.00	\$12,000.00
	53	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$7,000.00	\$7,000.00
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$7,000.00	\$7,000.00
		SUBTOTAL THIS SHEET					\$44,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grish, P.E.	CHECKED  05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 13 _ OF _ 27 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	56	Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 100 lin. Ft. power cable from reel, 1000 lin. Ft conduit) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$11,000.00	\$11,000.00
	57	Exterior Lighting 6 poles with lights (250 lbs. each) Total weight approximately: 1,500 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
		Remove and dispose of the following Transmission Lines:					
	58	Transmission Line No. 59 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$30,000.00	\$49,800.00
	59	Transmission Line No. 98 From Boyle Substation to Line Tie on Line 18 #2 AAC, 69-kV	86-68430	0.24	mile	\$30,000.00	\$7,200.00
	60	Transmission Line No. 58 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV Major substation equipment (transformers, circuit breakers, etc.) to be salvaged by PacifiCorp	86-68430	1.66	mile	\$30,000.00	\$49,800.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$2,974,425.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 14 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete 3000 psi, reinforced concrete. Waste in scour hole	86-68130	1,600	yd3	\$390.00	\$624,000.00
	62	Remove Fish Screen Building Building is located on top of intake structure. Wood frame construction, with metal rib roof and metal siding. Some wood is pressure-treated, which may be considered a hazardous material.	86-68130	1,300	ft2	\$42.00	\$54,600.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe Pipe is located alongside the 14-ft-dia. steel pipe. Length is estimated to be approx. 340 feet long from Sta. 0+15.25 to the outlet at the Klamath River. Assume contains paint with heavy metals and/or asbestos	86-68130	22,000	lbs	\$0.75	\$16,500.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe. Includes anchors for horiz. pipe bends, piers, 14-ft dia. concrete conduit section, outlet transition with newer (2002) headgate vault section, siphon spillway structure, and 22-ft-long spillway flume. Waste in scour hole	86-68130	1,100	yd3	\$390.00	\$429,000.00
	65	Remove Open Concrete Flume. 3000 psi, reinforced concrete. Total flume length = 10,761 feet. Includes both 2-wall and 1-wall flume reaches. Includes 2,300 CY of unreinforced porous concrete (gunite or shotcrete) on 1-wall flume reaches. Waste in scour hole	86-68130	26,000	yd3	\$390.00	\$10,140,000.00
		SUBTOTAL THIS SHEET					\$11,264,100.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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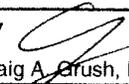
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 15 _ OF _ 27 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers.	86-68130	11,500	lbs	\$0.75	\$8,625.00
		Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks. Assume contains paint with heavy metals.					
	67	Remove Forebay Concrete 3000 psi, reinforced concrete.	86-68130	2,500	yd3	\$390.00	\$975,000.00
		Includes forebay, forebay spillway, forebay sluiceway, and forebay drainage items (man-hole, 12-inch concrete drain pipe). Waste in scour hole					
	68	Place Concrete Plugs at Tunnel Portals 3000 psi, reinforced concrete min., two plugs @ 2-ft thick.	86-68130	30	yd3	\$1,100.00	\$33,000.00
		Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide. Lower portal is a grouted, steel-lined conduit 16 feet in diameter.					
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel.	86-68130	1,800	yd3	\$390.00	\$702,000.00
		Includes surge tank support and anchor block #1, anchor block #2, two anchor blocks at P.I. #3, and all ring girder supports. Waste in scour hole					
	70	Headgate Control Bldg. at Flume Entrance. Concrete block on concrete slab.	86-68130	330	ft2	\$42.00	\$13,860.00
	71	Forebay Spillway Gate House Metal building on wood frame covering forebay spillway radial gates.	86-68130	570	ft2	\$42.00	\$23,940.00
	72	Forebay Control Building. Wood building on metal frame.	86-68130	470	ft2	\$42.00	\$19,740.00
		SUBTOTAL THIS SHEET					\$1,776,165.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 16 OF 27

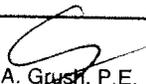
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings. Assume contains paint with heavy metals.	86-68130	7,100	lbs	\$0.75	\$5,325.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$42.00	\$3,024.00
		SUBTOTAL THIS SHEET					\$8,349.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

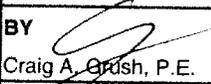
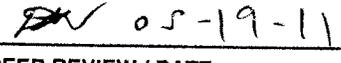
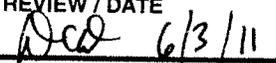
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Fish By-Pass Intake:					
	75	Fixed Wheel Gate Gate, frame and hoist (steel) (Assume contains paint with heavy metals & petroleum products)	86-68420	55,000	lbs	\$0.75	\$41,250.00
	76	Trash rack and trash rake (steel) (Assume contains asbestos)	86-68420	75,000	lbs	\$0.70	\$52,500.00
	77	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	136,000	lbs	\$0.75	\$102,000.00
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps (Assume contains petroleum products and/or asbestos)	86-68420	124,000	lbs	\$0.75	\$93,000.00
	79	Fish By-Pass and Supports (steel), 4-Pronged Inlet to Forebay, Spillway, Deer Escape Flume (Assume contains paint with heavy metals and/or asbestos)	86-68420	610,000	lbs	\$0.75	\$457,500.00
		SUBTOTAL THIS SHEET					\$746,250.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Grush, P.E.	CHECKED <i>PK</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>DCR</i> 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	16,500	lbs	\$0.75	\$12,375.00
	81	Trash rack and trash rake (steel) (Assumes contains asbestos)	86-68420	43,500	lbs	\$0.70	\$30,450.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	14,500	lbs	\$0.75	\$10,875.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings (Assume contains paint with heavy metals and/or asbestos)	86-68420	1,600,000	lbs	\$0.75	\$1,200,000.00
	84	Surge Tank (steel) (Assume contains paint with heavy metals and/or asbestos)	86-68420	79,000	lbs	\$0.75	\$59,250.00
	85	2 - 108" Butterfly valves (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	148,000	lbs	\$0.75	\$111,000.00
		SUBTOTAL THIS SHEET					\$1,423,950.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 19 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Head Gate Structure:					
	86	Gate, Stem and Frame (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	28,000	lbs	\$0.75	\$21,000.00
	87	Steel Transition Manifolds on Upstream and Downstream (Assume contains asbestos)	86-68420	250,000	lbs	\$0.70	\$175,000.00
		PENSTOCK SUBTOTAL					\$15,414,814.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Crush, P.E.	CHECKED  05-19-11
DATE PREPARED October 20, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 21 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING:	86-68220	0	Acres	\$4,000.00	
	90	SPRING BARGE SEEDING:	86-68220		Acres		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY <i>g</i> Craig A. Grush, P.E.	CHECKED <i>SW</i> 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>Dec</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 22 _ OF _ 27 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
WOID:		AF652		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xls\Road Improvements			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	247	Acres	\$15,000.00	\$3,705,000.00
		Idaho fescue (Festuca idahoensis)	988	lbs PLS			
		Blue wildrye (Elymus glaucus)	988	lbs PLS			
		Small fescue (Vulpia microstachys)	988	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1482	lbs PLS			
		Sandberg bluegrass (Poa secunda)	124	lbs PLS			
		Spike bentgrass (Agrostis exarata)	62	lbs PLS			
		Wood mulch	494000	lbs			
		Tackifier	29640	lbs			
	92	FALL GROUND SEEDING:	86-68220	185	Acres	\$4,000.00	\$740,000.00
		Idaho fescue (Festuca idahoensis)	741	lbs PLS			
		Blue wildrye (Elymus glaucus)	741	lbs PLS			
		Small fescue (Vulpia microstachys)	741	lbs PLS			
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1112	lbs PLS			
		Sandberg bluegrass (Poa secunda)	93	lbs PLS			
		Spike bentgrass (Agrostis exarata)	46	lbs PLS			
		Wood mulch	57000	lbs			
		Tackifier	3420	lbs			
SUBTOTAL THIS SHEET							\$4,445,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 23 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING:	86-68220	54	Acres	\$10,000.00	\$540,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	37800	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	5400	cutting			
		Shining willow (<i>Salix lucida</i>)	5400	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	2700	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	2700	transplant			
		Herbivore screen	54000	each			
		Chemical herbivore deterrent	1080	gal			
		Polymer	170	lbs			
	94	WEED MANAGEMENT:	86-68220	185	Acres	\$2,000.00	\$370,000.00
		Herbicide, post-emergent	371	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING:	86-68220	99	Acres	\$4,000.00	\$396,000.00
		Idaho fescue (<i>Festuca idahoensis</i>)	395	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	395	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	395	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	593	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	49	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	25	lbs PLS			
		Wood mulch	197600	lbs			
		Tackifier	11856	lbs			
	96	WEED MANAGEMENT:	86-68220	99	Acres	\$2,000.00	\$198,000.00
		Herbicide, post-emergent	9	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$6,149,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

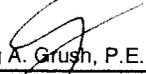
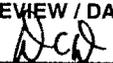
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 24 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	7	acre	\$6,000.00	\$42,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$6,000.00	\$14,400.00
	99	4" thick gravel surfacing	86-68313	2,150	ton	\$40.00	\$86,000.00
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1 way traffic - off road dumps	86-68313	0	acre	\$6,000.00	
	101	Clear and grub, 20' width	86-68313	0	acres	\$6,000.00	
	102	4" thick gravel surfacing	86-68313	650	ton		DELETED
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	0	yd3	\$150.00	
		SUBTOTAL THIS SHEET					\$142,400.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Grush, P.E.	CHECKED  05-25-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE  6/3/11

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ESTIMATE WORKSHEET

SHEET 25 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		GEOTECHNICAL						
		Disposal of Concrete Rubble in Wasteway (Forebay) Scour Hole						
	104	Rubble from Dam Haul distance 2.75 miles (across dam). A 30 percent bulking factor was applied.	86-68313	9,700	yd3		Included in concrete removal items	
	105	Rubble from Flume/Forebay Haul distance 1.0 mile (midpoint of flume). A 30 percent bulking factor was applied.	86-68313	37,000	yd3		Included in concrete removal items	
	106	Rubble from Power House Haul distance 1.75 miles. A 30 percent bulking factor was applied.	86-68313	4,300	yd3		Included in concrete removal items	
	107	Embankment Fill in Wasteway (Forebay) Scour Hole To restore scour hole to original contours.	86-68313	41,000	yd3	\$150.00	\$6,150,000.00	
		ROAD IMPROVEMENTS SUBTOTAL						\$6,292,400.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Bolye Dam & Powerplant Removal Most Probable High SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Bolye\Klamath Dams Removal - JC Bolye - Full Removal Option - REV#1 - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00
		Diversion and Care					\$378,300.00
		Dam Removal					\$3,886,806.00
		Powerhouse/Switchyard/Transmission Line Removal					\$2,974,425.00
		Penstock Removal					\$15,414,814.00
		Reservoir Vegetative Restoration					\$6,149,000.00
		Road Improvements					\$6,292,400.00
		Recreational Facilities to be Removed					\$104,000.00
		Subtotal					\$35,199,745.00
		Mobilization	5%	+/-			\$1,750,000.00
		Subtotal 1 with Mobilization					\$36,949,745.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 4.375%/yr compounding over 10 years)					\$19,749,377.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$56,699,122.00
		Design Contingencies	15%	+/-			\$8,996,798.00
		Allowance for Procurement Strategies (APS)	2%	+/-			\$1,304,080.00
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$67,000,000.00
		Construction Contingencies	25%	+/-			\$16,000,000.00
		FIELD COST					\$83,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 2%, Engineering Design ~ 6%, Permitting ~ 4%, Procurement ~ 2%, Construction Management ~ 11%, and Closeout ~ 1%)	61%	+/-			\$52,000,000.00
		CONSTRUCTION COST					\$135,000,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 1 _ OF _ 27 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon
	WOOD: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Removal of Diversion Conduit Bulkheads. Includes removing two 9.5'x10' concrete bulkheads, one at a time by blasting.	86-68130	14	CY	\$725.00	\$10,150.00
	2	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 2 days.	86-68130	500,000	gals	\$0.01	\$5,000.00
	3	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$28,000.00
SUBTOTAL THIS SHEET							\$43,150.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Tom Hepler P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	5	Remove Spillway Concrete 3000 psi, reinforced and mass concrete. Includes removal of two diversion culverts beneath spillway block 1. Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5.	86-68130	2,500	yd3	\$130.00	\$325,000.00
	6	Remove Monorail Structural Steel Components This structure used for installing steel stoplogs in spillway radial gate openings.	86-68130	15,000	lbs	\$0.45	\$6,750.00
	7	Remove Fish Ladder Concrete 3000 psi, reinforced concrete. Includes fish ladder intake at upstream end, diffusion box at downstream end, and north abutment wall (which supports dam embankment). This quantity is for concrete to the right of dam Sta. 3+36.5.	86-68130	1,600	yd3	\$130.00	\$208,000.00
	8	Remove Gravity Dam Section Concrete 3000 psi, mass concrete.	86-68130	600	yd3	\$130.00	\$78,000.00
	9	Remove Timber Equipment Ramp on left side of dam. Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3. Volume of timber to be removed is approximately 290 ft3.	86-68130	10,500	lbs	\$0.50	\$5,250.00
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure. 2 in by 8 in Lumber assumed to weigh 30 lb/ft3. Volume of lumber to be removed is approximately 120 ft3.	86-68130	3,600	lbs	\$0.50	\$1,800.00
SUBTOTAL THIS SHEET							\$624,800.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 4 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx]Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	11	Storage Shed located on access road about 440' from left abutment of dam. 48' x 36' wood frame construction.	86-68130	1,728	ft2	\$38.00	\$65,664.00
	12	Warehouse located on access road about 370' from left abutment of dam (Red Barn). 60' x 32' wood frame construction.	86-68130	1,920	ft2	\$38.00	\$72,960.00
	13	Fire System Control Bldg. on left abutment. 15.25'x25.25' concrete block on concrete slab.	86-68130	385	ft2	\$38.00	\$14,630.00
	14	Dam Communication Bldg. on left abutment. 13.5'x24.5' metal building on concrete slab.	86-68130	331	ft2	\$38.00	\$12,578.00
	15	Concrete Slab on left abutment for former Control House. 13'x13' house has been removed.	86-68130	6	cy	\$130.00	\$780.00
	16	4'x5' Metal Hatch on top of Concrete Pull Box on left abutment. Metal hatch weighs approximately 400 lbs.	86-68130	1	cy	\$130.00	\$130.00
	17	Reservoir Level Gauge House on Dam Crest 4'x6' Metal building.	86-68130	24	ft2	\$38.00	\$912.00
		SUBTOTAL THIS SHEET					\$167,654.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx]Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$8.00	\$17,760.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$8.00	\$14,800.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$8.00	\$1,060,000.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock.</i>	86-68313	70	yd3	\$130.00	\$9,100.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock</i> <i>Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$9.00	\$2,565.00
		SUBTOTAL THIS SHEET					\$1,104,225.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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ESTIMATE WORKSHEET

SHEET 6 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	23	Hand Rails and Light Poles	86-68420	5,000	lbs	\$0.45	\$2,250.00
	24	Spillway Radial Gates and Hoists 3 radial gates, 3 hoists	86-68420	124,000	lbs	\$0.45	\$55,800.00
	25	Stop Logs and Slots (steel) stop logs slots embedded in concrete	86-68420	92,000	lbs	\$0.45	\$41,400.00
		Remove and dispose of the following equipment at the Fish Ladder Structure:					
	26	24" Slide Gate at Entrance to Fish Ladder Structure	86-68420	4,200	lbs	\$0.45	\$1,890.00
		SUBTOTAL THIS SHEET					\$101,340.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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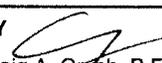
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 7 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$500.00	\$500.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$5,500.00	\$5,500.00
		DAM SUBTOTAL					\$2,004,019.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 8 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3	\$300.00	\$450,000.00
	30	Remove Structural Steel Items associated with Powerhouse. Includes only WF beam shapes, crane rails, and penstock sections inside powerhouse.	86-68130	94,000	lbs	\$0.45	\$42,300.00
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$38.00	\$197,600.00
		SUBTOTAL THIS SHEET					\$689,900.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	32	2 - Governor oil systems governor, sump tanks, accumulator tank, piping	86-68420	52,500	lbs	\$0.45	\$23,625.00
	33	Cooling water and bearing oil systems	86-68420	6,500	lbs	\$0.45	\$2,925.00
	34	2 - Francis Turbines (Includes runner, scroll case, draft tube and shaft)	86-68420	560,000	lbs	\$0.45	\$252,000.00
	35	150 Ton crane (Includes crane and embedded steel rail)	86-68420	240,000	lbs	\$0.45	\$108,000.00
	36	Compressed Air systems	86-68420	1,100	lbs	\$0.45	\$495.00
	37	2 - CO2 systems	86-68420	6,600	lbs	\$0.45	\$2,970.00
	38	Plant Water and Fire Protection	86-68420	3,100	lbs	\$0.45	\$1,395.00
	39	Transformer Oil Fire protection	86-68420	6,500	lbs	\$0.45	\$2,925.00
		SUBTOTAL THIS SHEET					\$394,335.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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ESTIMATE WORKSHEET

SHEET 10 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Unwatering Piping	86-68420	33,000	lbs	\$0.45	\$14,850.00
	41	Drainage Piping	86-68420	10,000	lbs	\$0.45	\$4,500.00
	42	2-Oil Sump pumps	86-68420	2,000	lbs	\$0.45	\$900.00
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	86-68420	65,000	lbs	\$0.45	\$29,250.00
		4-Draft Tube Bulk Head Gates (12,000 lbs ea.)	48,000	lbs			
		4-Guides(2,400 lbs for the pair)	9,600	lbs			
		2-Hoist (3,700 lbs ea.)	7,400	lbs			
		SUBTOTAL THIS SHEET					\$49,500.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

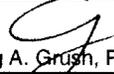
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 11 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$150,000.00	\$300,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets)(400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	2	EA	\$12,000.00	\$24,000.00
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs.	86-68430	2	EA	\$6,000.00	\$12,000.00
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA	\$2,000.00	\$4,000.00
	48	Generator Switchgear, 15kV - (6 sections) (750 lbs each), 3 ft x 6ft x 90 inches high Total weight approximately: 4,500 lbs.	86-68430	1	EA	\$19,000.00	\$19,000.00
	49	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$8,000.00	\$8,000.00
		SUBTOTAL THIS SHEET					\$367,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$4,000.00	\$4,000.00
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$7,000.00	\$7,000.00
	52	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	53	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
		SUBTOTAL THIS SHEET					\$32,500.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>CG</i> Craig A. Grush, P.E.	CHECKED <i>DM</i> 05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>DCD</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 13 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	56	Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 100 lin. Ft. power cable from reel, 1000 lin. Ft conduit) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	57	Exterior Lighting 6 poles with lights (250 lbs. each) Total weight approximately: 1,500 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
		Remove and dispose of the following Transmission Lines:					
	58	Transmission Line No. 59 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$20,000.00	\$33,200.00
	59	Transmission Line No. 98 From Boyle Substation to Line Tie on Line 18 #2 AAC, 69-kV	86-68430	0.24	mile	\$20,000.00	\$4,800.00
	60	Transmission Line No. 58 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV Major substation equipment (transformers, circuit breakers, etc.) to be salvaged by PacifiCorp	86-68430	1.66	mile	\$20,000.00	\$33,200.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$1,614,935.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>CG</i> Craig A. Grush, P.E.	CHECKED <i>DAW</i> 05-19-11
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>DAW</i> 6/3/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 14 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete 3000 psi, reinforced concrete.	86-68130	1,600	yd3	\$130.00	\$208,000.00
	62	Remove Fish Screen Building Building is located on top of intake structure. Wood frame construction, with metal rib roof and metal siding. Some wood is pressure-treated, which may be considered a hazardous material.	86-68130	1,300	ft2	\$38.00	\$49,400.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe Pipe is located alongside the 14-ft-dia. steel pipe. Length is estimated to be approx. 340 feet long from Sta. 0+15.25 to the outlet at the Klamath River.	86-68130	22,000	lbs	\$0.45	\$9,900.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe. Includes anchors for horiz. pipe bends, piers, 14-ft dia. concrete conduit section, outlet transition with newer (2002) headgate vault section, siphon spillway structure, and 22-ft-long spillway flume.	86-68130	1,100	yd3	\$130.00	\$143,000.00
	65	Remove Open Concrete Flume. 3000 psi, reinforced concrete. Total flume length = 10,761 feet. Includes both 2-wall and 1-wall flume reaches. Includes 2,300 CY of unreinforced porous concrete (gunite or shotcrete) on 1-wall flume reaches. Waste in scour hole	86-68130	26,000	yd3	\$220.00	\$5,720,000.00
		SUBTOTAL THIS SHEET					\$6,130,300.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 15 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers.	86-68130	11,500	lbs	\$0.45	\$5,175.00
		Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks.					
	67	Remove Forebay Concrete 3000 psi, reinforced concrete.	86-68130	2,500	yd3	\$220.00	\$550,000.00
		Includes forebay, forebay spillway, forebay sluiceway, and forebay drainage items (man-hole, 12-inch concrete drain pipe). Waste in scour hole					
	68	Place Concrete Plugs at Tunnel Portals 3000 psi, reinforced concrete min., two plugs @ 2-ft thick.	86-68130	30	yd3	\$900.00	\$27,000.00
		Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide. Lower portal is a grouted, steel-lined conduit 16 feet in diameter.					
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel.	86-68130	1,800	yd3	\$220.00	\$396,000.00
		Includes surge tank support and anchor block #1, anchor block #2, two anchor blocks at P.I. #3, and all ring girder supports. Waste in scour hole					
	70	Headgate Control Bldg. at Flume Entrance. Concrete block on concrete slab.	86-68130	330	ft2	\$38.00	\$12,540.00
	71	Forebay Spillway Gate House Metal building on wood frame covering forebay spillway radial gates.	86-68130	570	ft2	\$38.00	\$21,660.00
	72	Forebay Control Building. Wood building on metal frame.	86-68130	470	ft2	\$38.00	\$17,860.00
		SUBTOTAL THIS SHEET					\$1,030,235.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 16 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings.	86-68130	7,100	lbs	\$0.45	\$3,195.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$38.00	\$2,736.00
SUBTOTAL THIS SHEET							\$5,931.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 17 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Fish By-Pass Intake:					
	75	Fixed Wheel Gate Gate, frame and hoist (steel)	86-68420	55,000	lbs	\$0.45	\$24,750.00
	76	Trash rack and trash rake (steel)	86-68420	75,000	lbs	\$0.45	\$33,750.00
	77	Stop Logs and slots (steel) stop log slots embedded in concrete	86-68420	136,000	lbs	\$0.45	\$61,200.00
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps	86-68420	124,000	lbs	\$0.45	\$55,800.00
	79	Fish By-Pass and Supports (steel), 4-Pronged Inlet to Forebay, Spillway, Deer Escape Flume	86-68420	610,000	lbs	\$0.45	\$274,500.00
		SUBTOTAL THIS SHEET					\$450,000.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 18 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists	86-68420	16,500	lbs	\$0.45	\$7,425.00
	81	Trash rack and trash rake (steel)	86-68420	43,500	lbs	\$0.45	\$19,575.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete	86-68420	14,500	lbs	\$0.45	\$6,525.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings	86-68420	1,600,000	lbs	\$0.45	\$720,000.00
	84	Surge Tank (steel)	86-68420	79,000	lbs	\$0.45	\$35,550.00
	85	2 - 108" Butterfly valves	86-68420	148,000	lbs	\$0.45	\$66,600.00
		SUBTOTAL THIS SHEET					\$855,675.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED <i>AW</i> 05-19-11
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>DCD</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 21 _ OF _ 27 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
WOID: AF652		ESTIMATE LEVEL: Feasibility		REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Res Reveg							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING:	86-68220	247	Acres	\$3,000.00	\$741,000.00
		Idaho fescue (Festuca idahoensis)	988	lbs	PLS		
		Blue wildrye (Elymus glaucus)	988	lbs	PLS		
		Small fescue (Vulpia microstachys)	988	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1482	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	124	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	62	lbs	PLS		
		Wood mulch	494000	lbs			
		Tackifier	29640	lbs			
	99	SPRING BARGE SEEDING:	86-68220		Acres		DELETED
SUBTOTAL THIS SHEET							\$741,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY <i>J</i> Craig A. Grush, P.E.	CHECKED <i>SW</i> 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>Neo</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

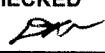
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 22 _ OF _ 27 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Res Reveg
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	0	Acres	\$6,500.00	
	92	FALL GROUND SEEDING:	86-68220	62	Acres	\$3,000.00	\$186,000.00
		Idaho fescue (Festuca idahoensis)	247	lbs	PLS		
		Blue wildrye (Elymus glaucus)	247	lbs	PLS		
		Small fescue (Vulpia microstachys)	247	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	371	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	31	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	15	lbs	PLS		
		Wood mulch	19000	lbs			
		Tackifier	1140	lbs			
		SUBTOTAL THIS SHEET					\$186,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY  Craig A. Grush, P.E.	CHECKED  05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE DGD 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 23 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Res Reveg
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING:	86-68220	54	Acres	\$4,000.00	\$216,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	15120	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	2160	cutting			
		Shining willow (<i>Salix lucida</i>)	2160	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	1080	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	1080	transplant			
		Herbivore screen	21600	each			
		Chemical herbivore deterrent	432	gal			
		Polymer	68	lbs			
	94	WEED MANAGEMENT:	86-68220	62	Acres	\$1,000.00	\$62,000.00
		Herbicide, post-emergent	124	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING:	86-68220	99	Acres	\$3,000.00	\$297,000.00
		Idaho fescue (<i>Festuca idahoensis</i>)	395	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	395	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	395	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	593	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	49	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	25	lbs PLS			
		Wood mulch	197600	lbs			
		Tackifier	11856	lbs			
	96	WEED MANAGEMENT:	86-68220	99	Acres	\$1,000.00	\$99,000.00
		Herbicide, post-emergent	9	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$1,771,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 24 _ OF _ 27 _

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	10	acre	\$4,000.00	\$40,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$4,000.00	\$9,600.00
	99	4" thick gravel surfacing	86-68313	0	ton	\$20.00	
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1 way traffic - off road dumps	86-68313	4	acre	\$4,000.00	\$16,000.00
	101	Clear and grub, 20' width	86-68313	1	acres	\$4,000.00	\$4,000.00
	102	4" thick gravel surfacing	86-68313	660	ton		DELETED
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	13,000	yd3	\$25.00	\$325,000.00
		SUBTOTAL THIS SHEET					\$394,600.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Gush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Disposal of Concrete Rubble in Wasteway (Forebay) Scour Hole					
	104	Rubble from Dam Haul distance 2.75 miles (across dam). A 30 percent bulking factor was applied.	86-68313	9,700	yd3		Included in concrete removal items
	105	Rubble from Flume/Forebay Haul distance 1.0 mile (midpoint of flume). A 30 percent bulking factor was applied.	86-68313	37,000	yd3		Included in concrete removal items
	106	Rubble from Power House Haul distance 1.75 miles. A 30 percent bulking factor was applied.	86-68313	4,300	yd3		Included in concrete removal items
	107	Embankment Fill in Wasteway (Forebay) Scour Hole To restore scour hole to original contours.	86-68313	0	yd3	\$25.00	
		ROAD IMPROVEMENTS SUBTOTAL					\$394,600.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE:
REVISION #1
Klamath River Dams Removal
Full Removal Option
JC Bolye Dam & Powerplant Removal
Most Probable Low
SUMMARY

PROJECT:
Klamath River
Northern California/Southern Oregon

WOID: AF652	ESTIMATE LEVEL: Feasibility
REGION: MP	UNIT PRICE LEVEL: July-2010

FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MPL Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00
		Diversion and Care					\$143,150.00
		Dam Removal					\$2,004,019.00
		Powerhouse/Switchyard/Transmission Line Removal					\$1,614,935.00
		Penstock Removal					\$8,597,241.00
		Reservoir Vegetative Restoration					\$1,771,000.00
		Road Improvements					\$394,600.00
		Recreational Facilities to be Removed					\$79,745.00
		Subtotal					\$14,604,690.00
		Mobilization	5%	+/-			\$730,000.00
		Subtotal 1 with Mobilization					\$15,334,690.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 1.5%/yr compounding over 10 years)					\$2,461,844.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$17,796,534.00
		Design Contingencies	8%	+/-			\$1,203,466.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$19,000,000.00
		Construction Contingencies	18%	+/-			\$4,000,000.00
		FIELD COST					\$23,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 3%, Permitting ~ 2%, Procurement ~ 1%, Construction Management ~ 9%, and Closeout ~ 1%)	52%	+/-			\$12,000,000.00
		CONSTRUCTION COST					\$35,000,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grish, P.E.	CHECKED DW 05-19-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 05/19/11	PEER REVIEW / DATE DCD 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Removal of Diversion Conduit Bulkheads. Includes removing two 9.5'x10' concrete bulkheads, one at a time by blasting. Waste in scour hole	86-68130	14	CY	\$850.00	\$11,900.00
	2	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 2 days.	86-68130	500,000	gals	\$0.01	\$5,000.00
	3	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		\$30,000.00
SUBTOTAL THIS SHEET							\$46,900.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/01/10	PEER REVIEW / DATE Tom Hepler P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF484	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	5	Remove Spillway Concrete 3000 psi, reinforced and mass concrete. Includes removal of two diversion culverts beneath spillway block 1. Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5. Waste in scour hole	86-68130	2,500	yd3	\$260.00	\$650,000.00
	6	Remove Monorail Structural Steel Components This structure used for installing steel stoplogs in spillway radial gate openings. Assume contains paint with heavy metals.	86-68130	15,000	lbs	\$0.65	\$9,750.00
	7	Remove Fish Ladder Concrete 3000 psi, reinforced concrete. Includes fish ladder intake at upstream end, diffusion box at downstream end, and north abutment wall (which supports dam embankment). This quantity is for concrete to the right of dam Sta. 3+36.5. Waste in scour hole	86-68130	1,600	yd3	\$260.00	\$416,000.00
	8	Remove Gravity Dam Section Concrete 3000 psi, mass concrete. Waste in scour hole	86-68130	600	yd3	\$260.00	\$156,000.00
	9	Remove Timber Equipment Ramp on left side of dam. Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3. Volume of timber to be removed is approximately 290 ft3.	86-68130	10,500	lbs	\$0.55	\$5,775.00
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure. 2 in by 8 in Lumber assumed to weigh 30 lb/ft3. Volume of lumber to be removed is approximately 120 ft3.	86-68130	3,600	lbs	\$0.55	\$1,980.00
SUBTOTAL THIS SHEET							\$1,239,505.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE Dec 4/19/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 4 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	11	Storage Shed located on access road about 440' from left abutment of dam. 48' x 36' wood frame construction.	86-68130	1,728	ft2	\$40.00	\$69,120.00
	12	Warehouse located on access road about 370' from left abutment of dam (Red Barn). 60' x 32' wood frame construction.	86-68130	1,920	ft2	\$40.00	\$76,800.00
	13	Fire System Control Bldg. on left abutment. 15.25'x25.25' concrete block on concrete slab.	86-68130	385	ft2	\$40.00	\$15,400.00
	14	Dam Communication Bldg. on left abutment. 13.5'x24.5' metal building on concrete slab.	86-68130	331	ft2	\$40.00	\$13,240.00
	15	Concrete Slab on left abutment for former Control House. 13'x13' house has been removed. Waste in scour hole	86-68130	6	cy	\$260.00	\$1,560.00
	16	4'x5' Metal Hatch on top of Concrete Pull Box on left abutment. Metal hatch weighs approximately 400 lbs. Waste in scour hole	86-68130	1	cy	\$260.00	\$260.00
	17	Reservoir Level Gauge House on Dam Crest 4'x6' Metal building.	86-68130	24	ft2	\$40.00	\$960.00
		SUBTOTAL THIS SHEET					\$177,340.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE DCD 4/19/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$9.00	\$19,980.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$9.00	\$16,650.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$9.00	\$1,192,500.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock. Waste in scour hole</i>	86-68313	70	yd3	\$260.00	\$18,200.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$10.00	\$2,850.00
		SUBTOTAL THIS SHEET					\$1,250,180.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/19/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 6 _ OF _ 27 _

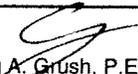
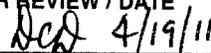
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WOID: AF484	ESTIMATE LEVEL: Feasibility		
REGION: MP	UNIT PRICE LEVEL: July-2010		
FILE:	C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	23	Hand Rails and Light Poles (Assume contains paint with heavy metals)	86-68420	5,000	lbs	\$0.65	\$3,250.00
	24	Spillway Radial Gates and Hoists 3 radial gates, 3 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	124,000	lbs	\$0.65	\$80,600.00
	25	Stop Logs and Slots (steel) stop logs slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	92,000	lbs	\$0.65	\$59,800.00
		Remove and dispose of the following equipment at the Fish Ladder Structure:					
	26	24" Slide Gate at Entrance to Fish Ladder Structure (Assume contains paint with heavy metals & petroleum products)	86-68420	4,200	lbs	\$0.65	\$2,730.00
		SUBTOTAL THIS SHEET					\$146,380.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grash, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/19/11

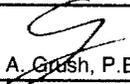
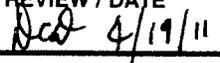
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	WOID: AF484 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$600.00	\$600.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		DAM SUBTOTAL					\$2,820,005.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3	\$370.00	\$555,000.00
	30	Remove Structural Steel Items associated with Powerhouse. Includes only WF beam shapes, crane rails, and penstock sections inside powerhouse. Assume contains paint with heavy metals.	86-68130	94,000	lbs	\$0.65	\$61,100.00
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$40.00	\$208,000.00
		SUBTOTAL THIS SHEET					\$824,100.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	32	2 - Governor oil systems governor, sump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	52,500	lbs	\$0.65	\$34,125.00
	33	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs	\$0.65	\$4,225.00
	34	2 - Francis Turbines (Includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals & petroleum products)	86-68420	560,000	lbs	\$0.65	\$364,000.00
	35	150 Ton crane (Includes crane and embedded steel rail) (Assume contains paint with heavy metals & petroleum products)	86-68420	240,000	lbs	\$0.65	\$156,000.00
	36	Compressed Air systems (Assume contains paint with heavy metals & petroleum products)	86-68420	1,100	lbs	\$0.65	\$715.00
	37	2 - CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,600	lbs	\$0.65	\$4,290.00
	38	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lbs	\$0.65	\$2,015.00
	39	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs	\$0.65	\$4,225.00
		SUBTOTAL THIS SHEET					\$569,595.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Crush, P.E.	CHECKED
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE DCD 4/19/11

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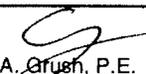
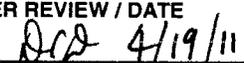
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ESTIMATE WORKSHEET

SHEET 11 OF 27

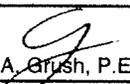
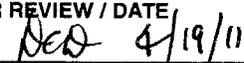
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx)Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$200,000.00	\$400,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets)(400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	2	EA	\$12,500.00	\$25,000.00
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs.	86-68430	2	EA	\$7,000.00	\$14,000.00
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs.	86-68430	2	EA	\$3,000.00	\$6,000.00
	48	Generator Switchgear, 15kV - (6 sections) (750 lbs each), 3 ft x 6ft x 90 inches high Total weight approximately: 4,500 lbs.	86-68430	1	EA	\$20,000.00	\$20,000.00
	49	Station Service Switchgear, 600 volt -(5 sections) (400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
		SUBTOTAL THIS SHEET					\$474,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Orush, P.E.	CHECKED 
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$8,000.00	\$8,000.00
	52	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$11,000.00	\$11,000.00
	53	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		SUBTOTAL THIS SHEET					\$38,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Brush, P.E.	CHECKED 
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	56	Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 100 lin. Ft. power cable from reel, 1000 lin. Ft conduit) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	57	Exterior Lighting 6 poles with lights (250 lbs. each) Total weight approximately: 1,500 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
		Remove and dispose of the following Transmission Lines:					
	58	Transmission Line No. 59 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$25,000.00	\$41,500.00
	59	Transmission Line No. 98 From Boyle Substation to Line Tie on Line 18 #2 AAC, 69-kV	86-68430	0.24	mile	\$25,000.00	\$6,000.00
	60	Transmission Line No. 58 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV Major substation equipment (transformers, circuit breakers, etc.) to be salvaged by Pacficorp	86-68430	1.66	mile	\$25,000.00	\$41,500.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$2,078,195.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grush, P.E.	CHECKED <i>AG</i>
DATE PREPARED November 1, 2010	PEER REVIEW / DATE L. Rossi 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>DCD</i> 4/19/11

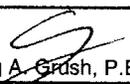
FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete 3000 psi, reinforced concrete. Waste in scour hole	86-68130	1,600	yd3	\$260.00	\$416,000.00
	62	Remove Fish Screen Building Building is located on top of intake structure. Wood frame construction, with metal rib roof and metal siding. Some wood is pressure-treated, which may be considered a hazardous material.	86-68130	1,300	ft2	\$40.00	\$52,000.00
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe Pipe is located alongside the 14-ft-dia. steel pipe. Length is estimated to be approx. 340 feet long from Sta. 0+15.25 to the outlet at the Klamath River. Assume contains paint with heavy metals.	86-68130	22,000	lbs	\$0.65	\$14,300.00
	64	Remove Concrete Items associated with the 14-ft-diameter Steel Pipe. Includes anchors for horiz. pipe bends, piers, 14-ft dia. concrete conduit section, outlet transition with newer (2002) headgate vault section, siphon spillway structure, and 22-ft-long spillway flume. Waste in scour hole	86-68130	1,100	yd3	\$260.00	\$286,000.00
	65	Remove Open Concrete Flume. 3000 psi, reinforced concrete. Total flume length = 10,761 feet. Includes both 2-wall and 1-wall flume reaches. Includes 2,300 CY of unreinforced porous concrete (gunite or shotcrete) on 1-wall flume reaches. Waste in scour hole	86-68130	26,000	yd3	\$260.00	\$6,760,000.00
SUBTOTAL THIS SHEET							\$7,528,300.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Brush, P.E.	CHECKED
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE NCO 4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF484	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers. Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks. Assume contains paint with heavy metals.	86-68130	11,500	lbs	\$0.65	\$7,475.00
	67	Remove Forebay Concrete 3000 psi, reinforced concrete. Includes forebay, forebay spillway, forebay sluiceway, and forebay drainage items (man-hole, 12-inch concrete drain pipe). Waste in scour hole	86-68130	2,500	yd3	\$260.00	\$650,000.00
	68	Place Concrete Plugs at Tunnel Portals 3000 psi, reinforced concrete min., two plugs @ 2-ft thick. Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide. Lower portal is a grouted, steel-lined conduit 16 feet in diameter.	86-68130	30	yd3	\$1,000.00	\$30,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel. Includes surge tank support and anchor block #1, anchor block #2, two anchor blocks at P.I. #3, and all ring girder supports. Waste in scour hole	86-68130	1,800	yd3	\$260.00	\$468,000.00
	70	Headgate Control Bldg. at Flume Entrance. Concrete block on concrete slab.	86-68130	330	ft2	\$40.00	\$13,200.00
	71	Forebay Spillway Gate House Metal building on wood frame covering forebay spillway radial gates.	86-68130	570	ft2	\$40.00	\$22,800.00
	72	Forebay Control Building. Wood building on metal frame.	86-68130	470	ft2	\$40.00	\$18,800.00
		SUBTOTAL THIS SHEET					\$1,210,275.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock				Klamath River Northern California/Southern Oregon			
WOID:		AF484		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings. Assume contains paint with heavy metals.	86-68130	7,100	lbs	\$0.65	\$4,615.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$40.00	\$2,880.00
SUBTOTAL THIS SHEET							\$7,495.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/01/10	PEER REVIEW / DATE Rick Benik P.E. 11/1/10	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/19/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 17 _ OF _ 27 _

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock				Klamath River Northern California/Southern Oregon			
WOID: AF484		ESTIMATE LEVEL: Feasibility		REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Fish By-Pass Intake:					
	75	Fixed Wheel Gate Gate, frame and hoist (steel) (Assume contains paint with heavy metals & petroleum products)	86-68420	55,000	lbs	\$0.65	\$35,750.00
	76	Trash rack and trash rake (steel)	86-68420	75,000	lbs	\$0.50	\$37,500.00
	77	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	136,000	lbs	\$0.65	\$88,400.00
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps (Assume contains petroleum products)	86-68420	124,000	lbs	\$0.65	\$80,600.00
	79	Fish By-Pass and Supports (steel), 4-Pronged Inlet to Forebay, Spillway, Deer Escape Flume (Assume contains paint with heavy metals)	86-68420	610,000	lbs	\$0.65	\$396,500.00
SUBTOTAL THIS SHEET							\$638,750.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF484	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx)Summary		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	16,500	lbs	\$0.65	\$10,725.00
	81	Trash rack and trash rake (steel)	86-68420	43,500	lbs	\$0.50	\$21,750.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	14,500	lbs	\$0.65	\$9,425.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings (Assume contains paint with heavy metals)	86-68420	1,600,000	lbs	\$0.65	\$1,040,000.00
	84	Surge Tank (steel) (Assume contains paint with heavy metals)	86-68420	79,000	lbs	\$0.65	\$51,350.00
	85	2 - 108" Butterfly valves (Assume contains paint with heavy metals & petroleum products)	86-68420	148,000	lbs	\$0.65	\$96,200.00
		SUBTOTAL THIS SHEET					\$1,229,450.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED October 28, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE Dan Drake 4/19/11

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF484 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Head Gate Structure:					
	86	Gate, Stem and Frame (Assume contains paint with heavy metals & petroleum products)	86-68420	28,000	lbs	\$0.65	\$18,200.00
	87	Steel Transition Manifolds on Upstream and Downstream	86-68420	250,000	lbs	\$0.50	\$125,000.00
		PENSTOCK SUBTOTAL					\$10,757,470.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED October 20, 2010	PEER REVIEW / DATE Dan Drake 10/29/2010	DATE PREPARED 04/18/11	PEER REVIEW / DATE Dan 4/19/11

FEATURE:				PROJECT:			
REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration				Klamath River Northern California/Southern Oregon			
WOID:		AF484		ESTIMATE LEVEL:		Feasibility	
REGION:		MP		UNIT PRICE LEVEL:		July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING:	86-68220	247	Acres	\$3,500.00	\$864,500.00
		Idaho fescue (Festuca idahoensis)	988	lbs	PLS		
		Blue wildrye (Elymus glaucus)	988	lbs	PLS		
		Small fescue (Vulpia microstachys)	988	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1482	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	124	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	62	lbs	PLS		
		Wood mulch	494000	lbs			
		Tackifier	29640	lbs			
	90	SPRING BARGE SEEDING:	86-68220		Acres		DELETED
SUBTOTAL THIS SHEET							\$864,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE DCA 4/19/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 22 OF 27

FEATURE: REVISION #2 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#2 - MP Feas Est - 4-2011.xlsx\Res Reveg
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	0	Acres	\$7,500.00	
	92	FALL GROUND SEEDING:	86-68220	124	Acres	\$3,500.00	\$434,000.00
		Idaho fescue (Festuca idahoensis)	494	lbs	PLS		
		Blue wildrye (Elymus glaucus)	494	lbs	PLS		
		Small fescue (Vulpia microstachys)	494	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	741	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	62	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	31	lbs	PLS		
		Wood mulch	38000	lbs			
		Tackifier	2280	lbs			
		SUBTOTAL THIS SHEET					\$434,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 5/25/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

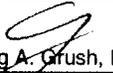
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 23 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING:	86-68220	54	Acres	\$8,500.00	\$459,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	26460	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	3780	cutting			
		Shining willow (<i>Salix lucida</i>)	3780	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	1890	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	1890	transplant			
		Herbivore screen	37800	each			
		Chemical herbivore deterrent	756	gal			
		Polymer	119	lbs			
	94	WEED MANAGEMENT:	86-68220	124	Acres	\$1,500.00	\$186,000.00
		Herbicide, post-emergent	247	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING:	86-68220	99	Acres	\$3,500.00	\$346,500.00
		Idaho fescue (<i>Festuca idahoensis</i>)	395	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	395	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	395	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	593	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	49	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	25	lbs PLS			
		Wood mulch	197600	lbs			
		Tackifier	11856	lbs			
	96	WEED MANAGEMENT:	86-68220	99	Acres	\$1,500.00	\$148,500.00
		Herbicide, post-emergent	9	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$2,738,500.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 04/12/11	PEER REVIEW / DATE 04/12/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE  4/19/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 24 _ OF _ 27 _

FEATURE: REVISION #2 Klamath River Dams Removal Full Removal Option JC Boyle Dam & Powerplant Removal Most Probable Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF484 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#2 - MP Feas Est - 4-2011.xls\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	10	acre	\$5,000.00	\$50,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$5,000.00	\$12,000.00
	99	4" thick gravel surfacing	86-68313	2,150	ton	\$30.00	\$64,500.00
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1 way traffic - off road dumps	86-68313	0	acre	\$5,000.00	
	101	Clear and grub, 20' width	86-68313	0	acres	\$5,000.00	
	102	4" thick gravel surfacing	86-68313	660	ton		DELETED
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	13,000	yd3	\$140.00	\$1,820,000.00
		SUBTOTAL THIS SHEET					\$1,946,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 05-25-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE 5/25/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 27 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Full Removal Option JC Bolye Dam & Powerplant Removal Most Probable SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF484	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal\Feasibility Estimates\MPL, MP, MPH - Revision #1 - 2011-03\JC Boyle\Klamath Dams Removal - JC Boyle - Full Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Summary		

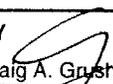
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00
		Diversion and Care					\$166,900.00
		Dam Removal					\$2,820,005.00
		Powerhouse/Switchyard/Transmission Line Removal					\$2,078,195.00
		Penstock Removal					\$10,757,470.00
		Reservoir Vegetative Restoration					\$2,738,500.00
		Road Improvements					\$1,946,500.00
		Recreational Facilities to be Removed					\$89,480.00
		Subtotal					\$20,597,050.00
		Mobilization	5%	+/-			\$1,050,000.00
		Subtotal 1 with Mobilization					\$21,647,050.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 3%/yr compounding over 10 years)					\$7,444,775.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$29,091,825.00
		Design Contingencies	10%	+/-			\$2,908,175.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$32,000,000.00
		Construction Contingencies	20%	+/-			\$6,000,000.00
		FIELD COST					\$38,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	55%	+/-			\$21,000,000.00
		CONSTRUCTION COST					\$59,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/18/11	PEER REVIEW / DATE Dec 4/19/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Removal of Diversion Conduit Bulkheads. Includes removing two 9.5'x10' concrete bulkheads, one at a time by blasting. Waste in scour hole	86-68130	14	CY	\$950.00	\$13,300.00
	2	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 2 days.	86-68130	500,000	gals		DELETED
	3	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		DELETED
SUBTOTAL THIS SHEET							\$13,300.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED 12/20/10	PEER REVIEW / DATE Tom Hepler P.E. 12/20/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Dam
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	5	Remove Spillway Concrete 3000 psi, reinforced and mass concrete. Includes removal of two diversion culverts beneath spillway block 1. Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5. Waste in scour hole	86-68130	2,500	yd3	\$390.00	\$975,000.00
	6	Remove Monorail Structural Steel Components This structure used for installing steel stoplogs in spillway radial gate openings. Assume contains paint with heavy metals.	86-68130	15,000	lbs	\$0.75	\$11,250.00
	7	Remove Fish Ladder Concrete 3000 psi, reinforced concrete. Includes fish ladder intake at upstream end, diffusion box at downstream end, and north abutment wall (which supports dam embankment). This quantity is for concrete to the right of dam Sta. 3+36.5. Waste in scour hole	86-68130	1,600	yd3	\$390.00	\$624,000.00
	8	Remove Gravity Dam Section Concrete 3000 psi, mass concrete. Waste in scour hole	86-68130	600	yd3		DELETED
	9	Remove Timber Equipment Ramp on left side of dam. Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3. Volume of timber to be removed is approximately 290 ft3.	86-68130	10,500	lbs	\$0.70	\$7,350.00
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure. 2 in by 8 in Lumber assumed to weigh 30 lb/ft3. Volume of lumber to be removed is approximately 120 ft3.	86-68130	3,600	lbs	\$0.70	\$2,520.00
SUBTOTAL THIS SHEET							\$1,620,120.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 25-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 4 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	11	Storage Shed located on access road about 440' from left abutment of dam. 48' x 36' wood frame construction.	86-68130	1,728	ft2		DELETED
	12	Warehouse located on access road about 370' from left abutment of dam (Red Barn). 60' x 32' wood frame construction.	86-68130	1,920	ft2		DELETED
	13	Fire System Control Bldg. on left abutment. 15.25'x25.25' concrete block on concrete slab.	86-68130	385	ft2	\$42.00	\$16,170.00
	14	Dam Communication Bldg. on left abutment. 13.5'x24.5' metal building on concrete slab.	86-68130	331	ft2	\$42.00	\$13,902.00
	15	Concrete Slab on left abutment for former Control House. 13'x13' house has been removed. Waste in scour hole	86-68130	6	cy	\$390.00	\$2,340.00
	16	4'x5' Metal Hatch on top of Concrete Pull Box on left abutment. Metal hatch weighs approximately 400 lbs. Waste in scour hole	86-68130	1	cy	\$390.00	\$390.00
	17	Reservoir Level Gauge House on Dam Crest 4'x6' Metal building.	86-68130	24	ft2	\$42.00	\$1,008.00
		SUBTOTAL THIS SHEET					\$33,810.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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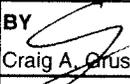
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 5 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$12.00	\$26,640.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$12.00	\$22,200.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$12.00	\$1,590,000.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock. Waste in scour hole</i>	86-68313	70	yd3	\$390.00	\$27,300.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock</i> <i>Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$12.00	\$3,420.00
		SUBTOTAL THIS SHEET					\$1,669,560.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. O'rush, P.E.	CHECKED  05-19-11
DATE PREPARED 11/12/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

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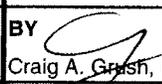
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ESTIMATE WORKSHEET

SHEET 6 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	23	Hand Rails and Light Poles (Assume contains paint with heavy metals)	86-68420	5,000	lbs	\$0.75	\$3,750.00
	24	Spillway Radial Gates and Hoists 3 radial gates, 3 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	124,000	lbs	\$0.75	\$93,000.00
	25	Stop Logs and Slots (steel) stop logs slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	92,000	lbs	\$0.75	\$69,000.00
		Remove and dispose of the following equipment at the Fish Ladder Structure:					
	26	24" Slide Gate at Entrance to Fish Ladder Structure (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	4,200	lbs	\$0.75	\$3,150.00
	26A	Remove Petroleum Products from Red Barn Area Includes quantities for the following: Steel shed oil storage drums. Misc. oil products, approx. 2 drums @ 55 gal. Convault fuel tanks. Diesel fuel tank @ 500 gal., Gasoline tank @ 1,000 gal. Tanks to remain on-site.	86-68420	1,600	gal	\$12.00	\$19,200.00
SUBTOTAL THIS SHEET							\$188,100.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Grash, P.E.	CHECKED  05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 7 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$700.00	\$700.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,500.00	\$6,500.00
		DAM SUBTOTAL					\$3,518,790.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED November 12, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

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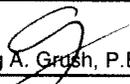
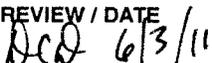
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 8 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3		DELETED
	30	Remove Structural Steel Items associated with Powerhouse. Includes only WF beam chapes, crane rails, and penstock sections inside powerhouse. Assume contains paint with heavy metals.	86-68130	94,000	lbs		DELETED
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$42.00	\$218,400.00
		SUBTOTAL THIS SHEET					\$218,400.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grish, P.E.	CHECKED  05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

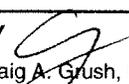
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 9 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	32	2 - Governor oil systems governor, sump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	52,500	lbs		DELETED
	33	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs		DELETED
	34	2 - Francis Turbines (Includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	560,000	lbs		DELETED
	35	150 Ton crane (Includes crane and embedded steel rail) (Assume contains paint with heavy metals & petroleum products)	86-68420	240,000	lbs	\$0.75	\$180,000.00
	36	Compressed Air systems (Assume contains paint with heavy metals & petroleum products)	86-68420	1,100	lbs		DELETED
	37	2 - CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,600	lbs		DELETED
	38	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lbs		DELETED
	39	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs		DELETED
		SUBTOTAL THIS SHEET					\$180,000.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Unwatering Piping (Assume contains paint with heavy metals)	86-68420	33,000	lbe		DELETED
	41	Drainage Piping (Assume contains paint with heavy metals)	86-68420	10,000	lbe		DELETED
	42	2-Oil Sump pumps (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	2,000	lbe		DELETED
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	86-68420	65,000	lbe		DELETED
		4-Draft Tube Bulk Head Gates (12,000 lbs ea.)	48,000	lbe			
		4-Guides(2,400 lbs for the pair)	9,600	lbe			
		2-Hoist (3,700 lbs ea.)	7,400	lbe			
		(Assume contains paint with heavy metals, petroleum products, and/or asbestos)					
	43A	Remove Petroleum Products from Mechanical Equipment.	86-68420	2,700	gal	\$12.00	\$32,400.00
		Includes quantities for the following equipment: From Item 34, Units 1 & 2, bearing oil systems. DTE heavy oil, 400 gal. per unit, 800 gal. total.					
		From Item 32, Units 1 & 2, governor oil sumps and accumulator tanks. Hydraulic oil, 925 gal. per unit, 1,850 gal. total.					
		The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.					
		SUBTOTAL THIS SHEET					\$32,400.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

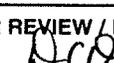
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 11 _ OF _ 27 _

FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line		Klamath River Northern California/Southern Oregon	
		WOID: AF652	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$250,000.00	\$500,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets)(400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.-	86-68430	2	EA		DELETED
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs.-	86-68430	2	EA		DELETED
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs.-	86-68430	2	EA		DELETED
	48	Generator Switchgear, 15kV (6 sections) (750 lbs each), 3 ft x 6ft x 90 inches high Total weight approximately: 4,500 lbs.-	86-68430	1	EA		DELETED
	49	Station Service Switchgear, 600 volt (6 sections) (400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.-	86-68430	1	EA		DELETED
SUBTOTAL THIS SHEET							\$500,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA		DELETED
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	52	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA		DELETED
	53	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$7,000.00	\$7,000.00
		SUBTOTAL THIS SHEET					\$19,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	56	Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 100 lin. Ft. power cable from reel, 1000 lin. Ft conduit) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$11,000.00	\$11,000.00
	57	Exterior Lighting 6 poles with lights (250 lbs. each) Total weight approximately: 1,500 lbs.	86-68430	1	EA	\$3,000.00	\$3,000.00
		Remove and dispose of the following Transmission Lines:					
	58	Transmission Line No. 59 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$30,000.00	\$49,800.00
	59	Transmission Line No. 98 From Boyle Substation to Line Tie on Line 18 #2 AAC, 69-kV	86-68430	0.24	mile	\$30,000.00	\$7,200.00
	60	Transmission Line No. 58 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV Major substation equipment (transformers, circuit breakers, etc.) to be salvaged by Pacficorp	86-68430	1.66	mile	\$30,000.00	\$49,800.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$1,070,600.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grish, P.E.	CHECKED <i>DCD</i> 05-19-11
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>DCD</i> 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\SSummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete 3000 psi, reinforced concrete. Waste in scour hole	86-68130	1,600	yd3		DELETED
	62	Remove Fish Screen Building Building is located on top of intake structure. Wood frame construction, with metal rib roof and metal siding. Some wood is pressure treated, which may be considered a hazardous material.	86-68130	1,300	#2		DELETED
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe Pipe is located alongside the 14-ft-dia. steel pipe. Length is estimated to be approx. 340 feet long from Sta. 0+15.25 to the outlet at the Klamath River. Assume contains paint with heavy metals.	86-68130	22,000	lbs	\$0.75	\$16,500.00
	64	Remove Concrete Items associated with the 14 ft diameter Steel Pipe. Includes anchors for horiz. pipe bends, piers, 14 ft dia. concrete conduit section, outlet transition with newer (2002) headgate vault section, siphon spillway structure, and 22 ft long spillway flume. Waste in scour hole	86-68130	1,100	yd3		DELETED
	65	Remove Open Concrete Flume Walls. 3000 psi, reinforced concrete. Total flume length = 10,761 feet. Includes both 2-wall and 1-wall flume reaches. Includes 2,300 CY of unreinforced porous concrete (gunite or shotcrete) on 1-wall flume reaches. Waste in scour hole	86-68130	12,200	yd3	\$390.00	\$4,758,000.00
SUBTOTAL THIS SHEET							\$4,774,500.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Crush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers.	86-68130	11,500	lbs	\$0.75	\$8,625.00
		Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks.					
		Assume contains paint with heavy metals.					
	67	Remove Forebay Concrete Walls	86-68130	1,500	yd3	\$390.00	\$585,000.00
		3000 psi, reinforced concrete.					
		Includes forebay, forebay spillway, forebay sluiceway, and forebay drainage items (man-hole, 12-inch concrete drain pipe).					
		Waste in scour hole					
	68	Place Concrete Plugs at Tunnel Portals	86-68130	30	yd3	\$1,100.00	\$33,000.00
		3000 psi, reinforced concrete min., two plugs @ 2-ft thick.					
		Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide.					
		Lower portal is a grouted, steel-lined conduit 16 feet in diameter.					
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel.	86-68130	1,800	yd3	\$390.00	\$702,000.00
		Includes surge tank support and anchor block #1, anchor block #2, two anchor blocks at P.I. #3, and all ring girder supports.					
		Waste in scour hole					
	70	Headgate Control Bldg. at Flume Entrance.	86-68130	330	ft2	\$42.00	\$13,860.00
		Concrete block on concrete slab.					
	71	Forebay Spillway Gate House	86-68130	570	ft2	\$42.00	\$23,940.00
		Metal building on wood frame covering forebay spillway radial gates.					
	72	Forebay Control Building.	86-68130	470	ft2	\$42.00	\$19,740.00
		Wood building on metal frame.					
		SUBTOTAL THIS SHEET					\$1,386,165.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Gosh, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings. Assume contains paint with heavy metals.	86-68130	7,100	lbs	\$0.75	\$5,325.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$42.00	\$3,024.00
SUBTOTAL THIS SHEET							\$8,349.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Fish By-Pass Intake:					
	75	Fixed Wheel Gate Gate, frame and hoist (steel) (Assume contains paint with heavy metals & petroleum products)	86-68420	55,000	lbs		DELETED
	76	Trash rack and trash rake (steel) (Assume contains asbestos)	86-68420	75,000	lbs		DELETED
	77	Stop Logs and slots (steel) stop-log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	136,000	lbs		DELETED
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps (Assume contains petroleum products and/or asbestos)	86-68420	124,000	lbs		DELETED
	79	Fish By Pass and Supports (steel), 4-Pronged Inlet to Forebay, Spillway, Deer Escape Flume (Assume contains paint with heavy metals and/or asbestos)	86-68420	610,000	lbs		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED DW 05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE Dcd 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 18 OF 27

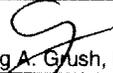
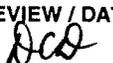
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	16,500	lbs	\$0.75	\$12,375.00
	81	Trash rack and trash rake (steel) (Assume contains asbestos)	86-68420	43,500	lbs	\$0.70	\$30,450.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	14,500	lbs	\$0.75	\$10,875.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings (Assume contains paint with heavy metals and/or asbestos)	86-68420	1,600,000	lbs	\$0.75	\$1,200,000.00
	84	Surge Tank (steel) (Assume contains paint with heavy metals and/or asbestos)	86-68420	79,000	lbs	\$0.75	\$59,250.00
	85	2 - 108" Butterfly valves (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	148,000	lbs		DELETED
		SUBTOTAL THIS SHEET					\$1,312,950.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Penstock	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF652	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Ssummary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Head Gate Structure:					
	86	Gate, Stem and Frame (Assume contains paint with heavy metals, petroleum products, and/or asbestos)	86-68420	28,000	lbs	\$0.75	\$21,000.00
	87	Steel Transition Manifolds on Upstream and Downstream (Assume contains asbestos)	86-68420	250,000	lbs	\$0.70	\$175,000.00
	87A	Remove Petroleum Products from Mechanical Equipment. Includes quantities for the following equipment: From Item 85, Units 1 & 2, butterfly valves and HPUs. Hydraulic oil, 191 gal. per valve, 382 gal. total. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.	86-68420	380	gal	\$12.00	\$4,560.00
PENSTOCK SUBTOTAL							\$7,682,524.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Gush, P.E.	CHECKED  05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Road Improvements

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING:	86-68220	0	Acres	\$4,000.00	
	99	SPRING BARGE SEEDING:	86-68220		Acres		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY Craig A. Grush, P.E.	CHECKED <i>SG</i> 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>ACD</i> 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	247	Acres	\$15,000.00	\$3,705,000.00
		Idaho fescue (Festuca idahoensis)	988	lbs	PLS		
		Blue wildrye (Elymus glaucus)	988	lbs	PLS		
		Small fescue (Vulpia microstachys)	988	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1482	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	124	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	62	lbs	PLS		
		Wood mulch	494000	lbs			
		Tackifier	29640	lbs			
	92	FALL GROUND SEEDING:	86-68220	185	Acres	\$4,000.00	\$740,000.00
		Idaho fescue (Festuca idahoensis)	741	lbs	PLS		
		Blue wildrye (Elymus glaucus)	741	lbs	PLS		
		Small fescue (Vulpia microstachys)	741	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	1112	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	93	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	46	lbs	PLS		
		Wood mulch	57000	lbs			
		Tackifier	3420	lbs			
		SUBTOTAL THIS SHEET					\$4,445,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY Craig A. Grush, P.E.	CHECKED [Signature] 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE [Signature] 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Road Improvements		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	93	RIPARIAN POLE PLANTING:	86-68220	54	Acres	\$10,000.00	\$540,000.00
		Narrowleaf willow (<i>Salix exigua</i>)	37800	cutting			
		Arroyo willow (<i>Salix lasiolepis</i>)	5400	cutting			
		Shining willow (<i>Salix lucida</i>)	5400	cutting			
		Western serviceberry (<i>Amelanchier alnifolia</i>)	2700	cutting			
		Chokecherry (<i>Prunus virginiana</i>)	2700	transplant			
		Herbivore screen	54000	each			
		Chemical herbivore deterrent	1080	gal			
		Polymer	170	lbs			
	94	WEED MANAGEMENT:	86-68220	185	Acres	\$2,000.00	\$370,000.00
		Herbicide, post-emergent	371	lbs AI			
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION					
	95	FALL GROUND SEEDING:	86-68220	99	Acres	\$4,000.00	\$396,000.00
		Idaho fescue (<i>Festuca idahoensis</i>)	395	lbs PLS			
		Blue wildrye (<i>Elymus glaucus</i>)	395	lbs PLS			
		Small fescue (<i>Vulpia microstachys</i>)	395	lbs PLS			
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	593	lbs PLS			
		Sandberg bluegrass (<i>Poa secunda</i>)	49	lbs PLS			
		Spike bentgrass (<i>Agrostis exarata</i>)	25	lbs PLS			
		Wood mulch	197600	lbs			
		Tackifier	11856	lbs			
	96	WEED MANAGEMENT:	86-68220	99	Acres	\$2,000.00	\$198,000.00
		Herbicide, post-emergent	9	lbs AI			
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					
							\$6,149,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED [Signature] 05-25-11
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	DATE PREPARED 05/25/11	PEER REVIEW / DATE [Signature] 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

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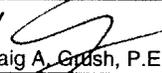
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	5	acre	\$6,000.00	\$30,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$6,000.00	\$14,400.00
	99	4" thick gravel surfacing	86-68313	2,150	ton	\$40.00	\$86,000.00
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1 way traffic - off road dumps	86-68313	0	acre	\$6,000.00	
	101	Clear and grub, 20' width	86-68313	0	acres	\$6,000.00	
	102	4" thick gravel surfacing	86-68313	650	ton		DELETED
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	0	yd3	\$150.00	
		SUBTOTAL THIS SHEET					\$130,400.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED 05-25-11
DATE PREPARED 12/10/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable High Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Disposal of Concrete Rubble in Wasteway (Forebay) Scour Hole					
	104	Rubble from Dam Haul distance 2.75 miles (across dam). A 30 percent bulking factor was applied.	86-68313	5,400	yd3		Included in concrete removal items
	105	Rubble from Flume/Forebay Haul distance 1.0 mile (midpoint of flume). A 30 percent bulking factor was applied.	86-68313	17,800	yd3		Included in concrete removal items
	106	Rubble from Power House Haul distance 1.75 miles. A 30 percent bulking factor was applied.	86-68313	2,300	yd3		Included in concrete removal items
	107	Embankment Fill in Wasteway (Forebay) Scour Hole To restore scour hole to original contours.	86-68313	60,000	yd3	\$150.00	\$9,000,000.00
		ROAD IMPROVEMENTS SUBTOTAL					\$9,130,400.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY  Craig A. Crush, P.E.	CHECKED  05-19-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

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ESTIMATE WORKSHEET

SHEET 27 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Bolye Dam & Powerplant Removal Most Probable High SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPH Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00
		Diversion and Care					\$13,300.00
		Dam Removal					\$3,518,790.00
		Powerhouse/Switchyard/Transmission Line Removal					\$1,070,600.00
		Penstock Removal					\$7,682,524.00
		Reservoir Vegetative Restoration					\$6,149,000.00
		Road Improvements					\$9,130,400.00
		Recreational Facilities to be Removed					\$104,000.00
		Subtotal					\$27,668,614.00
		Mobilization	5%	+/-			\$1,400,000.00
		Subtotal 1 with Mobilization					\$29,068,614.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 4.375%/yr compounding over 10 years)					\$15,536,968.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$44,605,582.00
		Design Contingencies	15%	+/-			\$6,368,490.00
		Allowance for Procurement Strategies (APS)	2%	+/-			\$1,025,928.00
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$52,000,000.00
		Construction Contingencies	25%	+/-			\$13,000,000.00
		FIELD COST					\$65,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 2%, Engineering Design ~ 6%, Permitting ~ 4%, Procurement ~ 2%, Construction Management ~ 11%, and Closeout ~ 1%)	71%	+/-			\$45,000,000.00
		CONSTRUCTION COST					\$110,000,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Brush, P.E.	CHECKED SW 05-19-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 05/19/11	PEER REVIEW / DATE DCB 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

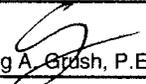
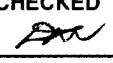
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Diversion and Care	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Removal of Diversion Conduit Bulkheads. Includes removing two 9.5'x10' concrete bulkheads, one at a time by blasting.	86-68130	14	CY	\$725.00	\$10,150.00
	2	Remove Water from behind Tailrace Cofferdam. Unwatering of tailrace for removal of the powerhouse in the dry. Assume 3 inch portable trash pump operating for 2 days.	86-68130	500,000	gale		DELETED
	3	Provide Dewatering behind Tailrace Cofferdam for removal of Powerhouse in the dry. Assume 3 inch portable trash pump operating for approximately 3 months.	86-68130	1	ls		DELETED
SUBTOTAL THIS SHEET							\$10,150.00

QUANTITIES		PRICES	
BY Rick Benik	CHECKED Jonathan East	BY  Craig A. Grish, P.E.	CHECKED  05-19-11
DATE PREPARED 12/20/10	PEER REVIEW / DATE Tom Hepler P.E. 12/20/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 3 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	5	Remove Spillway Concrete 3000 psi, reinforced and mass concrete. Includes removal of two diversion culverts beneath spillway block 1. Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5.	86-68130	2,500	yd3	\$130.00	\$325,000.00
	6	Remove Monorail Structural Steel Components This structure used for installing steel stoplogs in spillway radial gate openings. Assume contains paint with heavy metals.	86-68130	15,000	lbs	\$0.45	\$6,750.00
	7	Remove Fish Ladder Concrete 3000 psi, reinforced concrete. Includes fish ladder intake at upstream end, diffusion box at downstream end, and north abutment wall (which supports dam embankment). This quantity is for concrete to the right of dam Sta. 3+36.5.	86-68130	1,600	yd3	\$130.00	\$208,000.00
	8	Remove Gravity Dam Section Concrete 3000 psi, mass concrete. Waste in scour hole	86-68130	600	yd3		DELETED
	9	Remove Timber Equipment Ramp on left side of dam. Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3. Volume of timber to be removed is approximately 290 ft3.	86-68130	10,500	lbs	\$0.50	\$5,250.00
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure. 2 in by 8 in Lumber assumed to weigh 30 lb/ft3. Volume of lumber to be removed is approximately 120 ft3.	86-68130	3,600	lbs	\$0.50	\$1,800.00
		SUBTOTAL THIS SHEET					\$546,800.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 4 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	11	Storage Shed located on access road about 440' from left abutment of dam. 48' x 36' wood frame construction.	86-68130	1,728	ft2		DELETED
	12	Warehouse located on access road about 370' from left abutment of dam (Red Barn). 60' x 32' wood frame construction.	86-68130	1,920	ft2		DELETED
	13	Fire System Control Bldg. on left abutment. 15.25'x25.25' concrete block on concrete slab.	86-68130	385	ft2	\$38.00	\$14,630.00
	14	Dam Communication Bldg. on left abutment. 13.5'x24.5' metal building on concrete slab.	86-68130	331	ft2	\$38.00	\$12,578.00
	15	Concrete Slab on left abutment for former Control House. 13'x13' house has been removed.	86-68130	6	cy	\$130.00	\$780.00
	16	4'x5' Metal Hatch on top of Concrete Pull Box on left abutment. Metal hatch weighs approximately 400 lbs.	86-68130	1	cy	\$130.00	\$130.00
	17	Reservoir Level Gauge House on Dam Crest 4'x6' Metal building.	86-68130	24	ft2	\$38.00	\$912.00
SUBTOTAL THIS SHEET							\$29,030.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$8.00	\$17,760.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$8.00	\$14,800.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$8.00	\$1,060,000.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock.</i>	86-68313	70	yd3	\$130.00	\$9,100.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock</i> <i>Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$9.00	\$2,565.00
		SUBTOTAL THIS SHEET					\$1,104,225.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/12/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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ESTIMATE WORKSHEET

SHEET 6 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	23	Hand Rails and Light Poles	86-68420	5,000	lbs	\$0.45	\$2,250.00
	24	Spillway Radial Gates and Hoists 3 radial gates, 3 hoists	86-68420	124,000	lbs	\$0.45	\$55,800.00
	25	Stop Logs and Slots (steel) stop logs slots embedded in concrete	86-68420	92,000	lbs	\$0.45	\$41,400.00
		Remove and dispose of the following equipment at the Fish Ladder Structure:					
	26	24" Slide Gate at Entrance to Fish Ladder Structure	86-68420	4,200	lbs	\$0.45	\$1,890.00
	26A	Remove Petroleum Products from Red Barn Area Includes quantities for the following: Steel shed oil storage drums. Misc. oil products, approx. 2 drums @ 55 gal. Convault fuel tanks. Diesel fuel tank @ 500 gal., Gasoline tank @ 1,000 gal. Tanks to remain on-site.	86-68420	1,600	gal	\$8.00	\$12,800.00
		SUBTOTAL THIS SHEET					\$114,140.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 7 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$500.00	\$500.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$5,500.00	\$5,500.00
		DAM SUBTOTAL					\$1,800,195.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grush, P.E.	CHECKED 05-19-11
DATE PREPARED November 12, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 8 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Ssummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3		DELETED
	30	Remove Structural Steel Items associated with Powerhouse. Includes only WF beam shapes, crane rails, and penstock sections inside powerhouse. Assume contains paint with heavy metals.	86-68130	94,000	lbs		DELETED
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$38.00	\$197,600.00
		SUBTOTAL THIS SHEET					\$197,600.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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ESTIMATE WORKSHEET

SHEET 9 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	32	2 - Governor oil systems governor, sump tanks, accumulator tank, piping	86-68420	52,500	lbs		DELETED
	33	Cooling water and bearing oil systems	86-68420	6,500	lbs		DELETED
	34	2 - Francis Turbines (includes runner, scroll case, draft tube and shaft)	86-68420	560,000	lbs		DELETED
	35	150 Ton crane (Includes crane and embedded steel rail)	86-68420	240,000	lbs	\$0.45	\$108,000.00
	36	Compressed Air systems	86-68420	1,100	lbs		DELETED
	37	2 - CO2 systems	86-68420	6,600	lbs		DELETED
	38	Plant Water and Fire Protection	86-68420	3,100	lbs		DELETED
	39	Transformer Oil Fire protection	86-68420	6,500	lbs		DELETED
		SUBTOTAL THIS SHEET					\$108,000.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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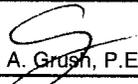
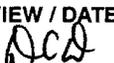
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 10 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Unwatering Piping	86-68420	33,000	lbs		DELETED
	41	Drainage Piping	86-68420	10,000	lbs		DELETED
	42	2 Oil Sump pumps	86-68420	2,000	lbs		DELETED
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	86-68420	66,000	lbs		DELETED
		4-Draft Tube Bulk Head Gates (12,000 lbs ea.)	48,000	lbs			
		4-Guides(2,400 lbs for the pair)	9,600	lbs			
		2-Hoist (3,700 lbs ea.)	7,400	lbs			
	43A	Remove Petroleum Products from Mechanical Equipment.	86-68420	2,700	gal	\$8.00	\$21,600.00
		Includes quantities for the following equipment: From Item 34, Units 1 & 2, bearing oil systems. DTE heavy oil, 400 gal. per unit, 800 gal. total. From Item 32, Units 1 & 2, governor oil sumps and accumulator tanks. Hydraulic oil, 925 gal. per unit, 1,850 gal. total. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.					
SUBTOTAL THIS SHEET							\$21,600.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 11 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$150,000.00	\$300,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets)(400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.-	86-68430	2	EA		DELETED
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs.-	86-68430	2	EA		DELETED
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs.-	86-68430	2	EA		DELETED
	48	Generator Switchgear, 15kV - (6 sections) (750 lbs each), 3 ft x 6ft x 90 inches high Total weight approximately: 4,500 lbs.-	86-68430	4	EA		DELETED
	49	Station Service Switchgear, 600 volt (5 sections) (400 lbs each), 3 ft x 3ft x 90 inches high Total weight approximately: 2,000 lbs.-	86-68430	4	EA		DELETED
		SUBTOTAL THIS SHEET					\$300,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY 	CHECKED  05-19-11
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

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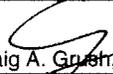
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 12 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA		DELETED
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$7,000.00	\$7,000.00
	52	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA		DELETED
	53	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$5,000.00	\$5,000.00
		SUBTOTAL THIS SHEET					\$13,500.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grish, P.E.	CHECKED  05-19-11
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 13 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	56	Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 100 lin. Ft. power cable from reel, 1000 lin. Ft conduit) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$9,000.00	\$9,000.00
	57	Exterior Lighting 6 poles with lights (250 lbs. each) Total weight approximately: 1,500 lbs.	86-68430	1	EA	\$1,500.00	\$1,500.00
		Remove and dispose of the following Transmission Lines:					
	58	Transmission Line No. 59 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$20,000.00	\$33,200.00
	59	Transmission Line No. 98 From Boyle Substation to Line Tie on Line 18 #2 AAC, 69-kV	86-68430	0.24	mile	\$20,000.00	\$4,800.00
	60	Transmission Line No. 58 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV Major substation equipment (transformers, circuit breakers, etc.) to be salvaged by Pacificorp	86-68430	1.66	mile	\$20,000.00	\$33,200.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$722,400.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY Craig A. Grush, P.E.	CHECKED 05-19-11
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 14 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete 3000 psi, reinforced concrete.	86-68130	1,600	yd3		DELETED
	62	Remove Fish Screen Building Building is located on top of intake structure. Wood frame construction, with metal rib roof and metal siding. Some wood is pressure-treated, which may be considered a hazardous material.	86-68130	1,300	ft2		DELETED
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe Pipe is located alongside the 14-ft-dia. steel pipe. Length is estimated to be approx. 340 feet long from Sta. 0+15.25 to the outlet at the Klamath River. Assume contains paint with heavy metals.	86-68130	22,000	lbs	\$0.45	\$9,900.00
	64	Remove Concrete Items associated with the 14-ft diameter Steel Pipe. Includes anchors for horiz. pipe bends, piers, 14-ft dia. concrete conduit section, outlet transition with newer (2002) headgate vault section, siphon spillway structure, and 22-ft long spillway flume.	86-68130	1,100	yd3		DELETED
	65	Remove Open Concrete Flume Walls. 3000 psi, reinforced concrete. Total flume length = 10,761 feet. Includes both 2-wall and 1-wall flume reaches. Includes 2,300 CY of unreinforced porous concrete (gunite or shotcrete) on 1-wall flume reaches. Waste in scour hole	86-68130	12,200	yd3	\$220.00	\$2,684,000.00
		SUBTOTAL THIS SHEET					\$2,693,900.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED [Signature] 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE [Signature] 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 15 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers. Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks. Assume contains paint with heavy metals.	86-68130	11,500	lbs	\$0.45	\$5,175.00
	67	Remove Forebay Concrete Walls 3000 psi, reinforced concrete. Includes forebay, forebay spillway, forebay sluiceway, and forebay drainage items (man-hole, 12-inch concrete drain pipe). Waste in scour hole	86-68130	1,500	yd3	\$220.00	\$330,000.00
	68	Place Concrete Plugs at Tunnel Portals 3000 psi, reinforced concrete min., two plugs @ 2-ft thick. Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide. Lower portal is a grouted, steel-lined conduit 16 feet in diameter.	86-68130	30	yd3	\$900.00	\$27,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel. Includes surge tank support and anchor block #1, anchor block #2, two anchor blocks at P.I. #3, and all ring girder supports. Waste in scour hole	86-68130	1,800	yd3	\$220.00	\$396,000.00
	70	Headgate Control Bldg. at Flume Entrance. Concrete block on concrete slab.	86-68130	330	ft2	\$38.00	\$12,540.00
	71	Forebay Spillway Gate House Metal building on wood frame covering forebay spillway radial gates.	86-68130	570	ft2	\$38.00	\$21,660.00
	72	Forebay Control Building. Wood building on metal frame.	86-68130	470	ft2	\$38.00	\$17,860.00
SUBTOTAL THIS SHEET							\$810,235.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

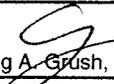
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 16 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings. Assume contains paint with heavy metals.	86-68130	7,100	lbs	\$0.45	\$3,195.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$38.00	\$2,736.00
SUBTOTAL THIS SHEET							\$5,931.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY  Craig A. Grish, P.E.	CHECKED  05-19-11
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 17 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Fish By-Pass Intake:					
	75	Fixed Wheel Gate Gate, frame and hoist (steel)	86-68420	55,000	lbs		DELETED
	76	Trash rack and trash rake (steel)	86-68420	75,000	lbs		DELETED
	77	Stop Logs and slots (steel) stop log slots embedded in concrete	86-68420	136,000	lbs		DELETED
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps	86-68420 120,000 4,000	lbs lbs lbs	lbs		DELETED
	79	Fish By Pass and Supports (steel), 4 Pronged Inlet to Forebay, Spillway, Door Escape Flume	86-68420	610,000	lbs		DELETED
SUBTOTAL THIS SHEET							

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

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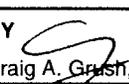
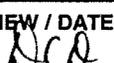
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 18 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists	86-68420	16,500	lbs	\$0.45	\$7,425.00
	81	Trash rack and trash rake (steel)	86-68420	43,500	lbs	\$0.45	\$19,575.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete	86-68420	14,500	lbs	\$0.45	\$6,525.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings	86-68420	1,600,000	lbs	\$0.45	\$720,000.00
	84	Surge Tank (steel)	86-68420	79,000	lbs	\$0.45	\$35,550.00
	85	2 - 108" Butterfly valves (Assume contains paint with heavy metals & petroleum products)	86-68420	148,000	lbe		DELETED
		SUBTOTAL THIS SHEET					\$789,075.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY  Craig A. Grush, P.E.	CHECKED  05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE  6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 19 _ OF _ 27 _

FEATURE:				PROJECT:			
Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Penstock				Klamath River Northern California/Southern Oregon			
WOID: AF652		ESTIMATE LEVEL: Feasibility		REGION: MP		UNIT PRICE LEVEL: July-2010	
FILE:				C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Head Gate Structure:					
	86	Gate, Stem and Frame	86-68420	28,000	lbs	\$0.45	\$12,600.00
	87	Steel Transition Manifolds on Upstream and Downstream	86-68420	250,000	lbs	\$0.45	\$112,500.00
	87A	Remove Petroleum Products from Mechanical Equipment.	86-68420	380	gal	\$8.00	\$3,040.00
		Includes quantities for the following equipment: From Item 85, Units 1 & 2, butterfly valves and HPUs. Hydraulic oil, 191 gal. per valve, 382 gal. total.					
		The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.					
		PENSTOCK SUBTOTAL					\$4,427,281.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xls\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	89	SPRING GROUND SEEDING:	86-68220	247	Acres	\$3,000.00	\$741,000.00
		Idaho fescue (<i>Festuca idahoensis</i>)	988	lbs	PLS		
		Blue wildrye (<i>Elymus glaucus</i>)	988	lbs	PLS		
		Small fescue (<i>Vulpia microstachys</i>)	988	lbs	PLS		
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	1482	lbs	PLS		
		Sandberg bluegrass (<i>Poa secunda</i>)	124	lbs	PLS		
		Spike bentgrass (<i>Agrostis exarata</i>)	62	lbs	PLS		
		Wood mulch	494000	lbs			
		Tackifier	29640	lbs			
	90	SPRING BARGE SEEDING:	86-68220		Acres		DELETED
SUBTOTAL THIS SHEET							\$741,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY <i>CG</i> Craig A. Grush, P.E.	CHECKED <i>SW</i> 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>DCD</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 22 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon		
	WOID: AF652	ESTIMATE LEVEL: Feasibility	
	REGION: MP	UNIT PRICE LEVEL: July-2010	
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Road Improvements		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	0	Acres	\$6,500.00	
	92	FALL GROUND SEEDING:	86-68220	62	Acres	\$3,000.00	\$186,000.00
		Idaho fescue (Festuca idahoensis)	247	lbs	PLS		
		Blue wildrye (Elymus glaucus)	247	lbs	PLS		
		Small fescue (Vulpia microstachys)	247	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	371	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	31	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	15	lbs	PLS		
		Wood mulch	19000	lbs			
		Tackifier	1140	lbs			
SUBTOTAL THIS SHEET							\$186,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY Craig A. Grush, P.E.	CHECKED DW 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE DCA 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 23 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		WATER AND ENVIRONMENTAL						
	93	RIPARIAN POLE PLANTING:	86-68220	54	Acres	\$4,000.00	\$216,000.00	
		Narrowleaf willow (<i>Salix exigua</i>)	15120	cutting				
		Arroyo willow (<i>Salix lasiolepis</i>)	2160	cutting				
		Shining willow (<i>Salix lucida</i>)	2160	cutting				
		Western serviceberry (<i>Amelanchier alnifolia</i>)	1080	cutting				
		Chokecherry (<i>Prunus virginiana</i>)	1080	transplant				
		Herbivore screen	21600	each				
		Chemical herbivore deterrent	432	gal				
		Polymer	68	lbs				
	94	WEED MANAGEMENT:	86-68220	62	Acres	\$1,000.00	\$62,000.00	
		Herbicide, post-emergent	124	lbs AI				
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION						
	95	FALL GROUND SEEDING:	86-68220	99	Acres	\$3,000.00	\$297,000.00	
		Idaho fescue (<i>Festuca idahoensis</i>)	395	lbs PLS				
		Blue wildrye (<i>Elymus glaucus</i>)	395	lbs PLS				
		Small fescue (<i>Vulpia microstachys</i>)	395	lbs PLS				
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	593	lbs PLS				
		Sandberg bluegrass (<i>Poa secunda</i>)	49	lbs PLS				
		Spike bentgrass (<i>Agrostis exarata</i>)	25	lbs PLS				
		Wood mulch	197600	lbs				
		Tackifier	11856	lbs				
	96	WEED MANAGEMENT:	86-68220	99	Acres	\$1,000.00	\$99,000.00	
		Herbicide, post-emergent	9	lbs AI				
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL						\$1,771,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED <i>DCO 05-25-11</i>
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>DCO 6/3/11</i>

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 24 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	10	acre	\$4,000.00	\$40,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$4,000.00	\$9,600.00
	99	4" thick gravel surfacing	86-68313	0	ton	\$20.00	
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1 way traffic - off road dumps	86-68313	4	acre	\$4,000.00	\$16,000.00
	101	Clear and grub, 20' width	86-68313	1	acres	\$4,000.00	\$4,000.00
	102	4" thick gravel surfacing	86-68313	650	ton		DELETED
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	13,000	yd3	\$25.00	\$325,000.00
		SUBTOTAL THIS SHEET					\$394,600.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 12/10/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 25 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Disposal of Concrete Rubble in Wasteway (Forebay) Scour Hole					
	104	Rubble from Dam	86-68313	9,700	yd3		Included in concrete removal items
		Haul distance 2.75 miles (across dam). A 30 percent bulking factor was applied.					
	105	Rubble from Flume/Forebay	86-68313	37,000	yd3		Included in concrete removal items
		Haul distance 1.0 mile (midpoint of flume). A 30 percent bulking factor was applied.					
	106	Rubble from Power House	86-68313	4,300	yd3		Included in concrete removal items
		Haul distance 1.75 miles. A 30 percent bulking factor was applied.					
	107	Embankment Fill in Wasteway (Forebay) Scour Hole	86-68313	0	yd3	\$25.00	
		To restore scour hole to original contours.					
		ROAD IMPROVEMENTS SUBTOTAL					
							\$394,600.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE DCO 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 27 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Low SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MPL Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00
		Diversion and Care					\$10,150.00
		Dam Removal					\$1,800,195.00
		Powerhouse/Switchyard/Transmission Line Removal					\$722,400.00
		Penstock Removal					\$4,427,281.00
		Reservoir Vegetative Restoration					\$1,771,000.00
		Road Improvements					\$394,600.00
		Recreational Facilities to be Removed					\$79,745.00
		Subtotal					\$9,205,371.00
		Mobilization	5%	+/-			\$460,000.00
		Subtotal 1 with Mobilization					\$9,665,371.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 1.5%/yr compounding over 10 years)					\$1,551,687.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$11,217,058.00
		Design Contingencies	8%	+/-			\$782,942.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$12,000,000.00
		Construction Contingencies	18%	+/-			\$2,500,000.00
		FIELD COST					\$14,500,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 1%, Engineering Design ~ 3%, Permitting ~ 2%, Procurement ~ 1%, Construction Management ~ 9%, and Closeout ~ 1%)	62%	+/-			\$8,500,000.00
		CONSTRUCTION COST					\$23,000,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Crush, P.E.	CHECKED <i>[Signature]</i> 05-19-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 05/19/11	PEER REVIEW / DATE <i>[Signature]</i> 6/3/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx]Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	5	Remove Spillway Concrete 3000 psi, reinforced and mass concrete. Includes removal of two diversion culverts beneath spillway block 1. Spillway concrete was estimated between dam Sta. 2+19.5 and Sta. 3+36.5. Waste in scour hole	86-68130	2,500	yd3	\$260.00	\$650,000.00
	6	Remove Monorail Structural Steel Components This structure used for installing steel stoplogs in spillway radial gate openings. Assume contains paint with heavy metals.	86-68130	15,000	lbs	\$0.65	\$9,750.00
	7	Remove Fish Ladder Concrete 3000 psi, reinforced concrete. Includes fish ladder intake at upstream end, diffusion box at downstream end, and north abutment wall (which supports dam embankment). This quantity is for concrete to the right of dam Sta. 3+36.5. Waste in scour hole	86-68130	1,600	yd3	\$260.00	\$416,000.00
	8	Remove Gravity Dam Section Concrete 3000 psi, mass concrete. Waste in scour hole	86-68130	600	yd3		DELETED
	9	Remove Timber Equipment Ramp on left side of dam. Timber is creosote pressure treated Douglas Fir assumed to weigh 36 lbs/ft3. Volume of timber to be removed is approximately 290 ft3.	86-68130	10,500	lbs	\$0.55	\$5,775.00
	10	Remove Pressure-Treated Lumber from Footbridge around intake structure. 2 in by 8 in Lumber assumed to weigh 30 lb/ft3. Volume of lumber to be removed is approximately 120 ft3.	86-68130	3,600	lbs	\$0.55	\$1,980.00
		SUBTOTAL THIS SHEET					\$1,083,505.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 4 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	11	Storage Shed located on access road about 440' from left abutment of dam. 48' x 36' wood frame construction.	86-68130	1,728	ft2		DELETED
	12	Warehouse located on access road about 370' from left abutment of dam (Red Barn). 60' x 32' wood frame construction.	86-68130	1,920	ft2		DELETED
	13	Fire System Control Bldg. on left abutment. 15.25'x25.25' concrete block on concrete slab.	86-68130	385	ft2	\$40.00	\$15,400.00
	14	Dam Communication Bldg. on left abutment. 13.5'x24.5' metal building on concrete slab.	86-68130	331	ft2	\$40.00	\$13,240.00
	15	Concrete Slab on left abutment for former Control House. 13'x13' house has been removed. Waste in scour hole	86-68130	6	cy	\$260.00	\$1,560.00
	16	4'x5' Metal Hatch on top of Concrete Pull Box on left abutment. Metal hatch weighs approximately 400 lbs. Waste in scour hole	86-68130	1	cy	\$260.00	\$260.00
	17	Reservoir Level Gauge House on Dam Crest 4'x6' Metal building.	86-68130	24	ft2	\$40.00	\$960.00
		SUBTOTAL THIS SHEET					\$31,420.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
	18	Upstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	2,220	yd3	\$9.00	\$19,980.00
	19	Downstream Riprap <i>average size 50 lbs (from photograph)</i>	86-68313	1,850	yd3	\$9.00	\$16,650.00
	20	Miscellaneous Excavation <i>Consists of finer earth fill materials such as Zone 1, Zone 2, Filters and a Waste Rock Zone</i>	86-68313	132,500	yd3	\$9.00	\$1,192,500.00
	21	Cutoff Wall Concrete Demolition <i>The concrete cutoff wall is embedded in the Zone 1 core and is anchored into bedrock. Waste in scour hole</i>	86-68313	70	yd3	\$260.00	\$18,200.00
	22	Cutoff Wall Anchors <i>Cut #8 anchors at top of bedrock</i> <i>Assume concrete rubble disposed of on site but anchors hauled off site.</i>	86-68313	285	ea	\$10.00	\$2,850.00
		SUBTOTAL THIS SHEET					\$1,250,180.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY <i>[Signature]</i> Craig A. Grysh, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED 11/12/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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ESTIMATE WORKSHEET

SHEET 6 OF 27

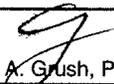
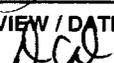
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at Dam:					
	23	Hand Rails and Light Poles (Assume contains paint with heavy metals)	86-68420	5,000	lbs	\$0.65	\$3,250.00
	24	Spillway Radial Gates and Hoists 3 radial gates, 3 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	124,000	lbs	\$0.65	\$80,600.00
	25	Stop Logs and Slots (steel) stop logs slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	92,000	lbs	\$0.65	\$59,800.00
		Remove and dispose of the following equipment at the Fish Ladder Structure:					
	26	24" Slide Gate at Entrance to Fish Ladder Structure (Assume contains paint with heavy metals & petroleum products)	86-68420	4,200	lbs	\$0.65	\$2,730.00
	26A	Remove Petroleum Products from Red Barn Area Includes quantities for the following: Steel shed oil storage drums. Misc. oil products, approx. 2 drums @ 55 gal. Convault fuel tanks. Diesel fuel tank @ 500 gal., Gasoline tank @ 1,000 gal. Tanks to remain on-site.	86-68420	1,600	gal	\$10.00	\$16,000.00
SUBTOTAL THIS SHEET							\$162,380.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

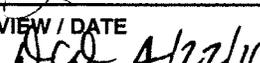
FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Dam	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment at Spillway:					
	27	Spillway gate motor & control panel Total weight approximately: 500 lbs.	86-68430	1	EA	\$600.00	\$600.00
	28	Distribution equipment , panelboards Total weight approximately: 500 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		DAM SUBTOTAL					\$2,534,085.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 12, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SSummary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	29	Remove Powerhouse Concrete down to Elevation 3324.0 (springline of the turbines). Waste in scour hole	86-68130	1,500	yd3		DELETED
	30	Remove Structural Steel Items associated with Powerhouse. includes only WF beam shapes, crane rails, and penstock sections inside powerhouse. Assume contains paint with heavy metals.	86-68130	94,000	lbs		DELETED
	31	Warehouse near Powerhouse. Large metal building on concrete slab.	86-68130	5,200	ft2	\$40.00	\$208,000.00
SUBTOTAL THIS SHEET							\$208,000.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grish, P.E.	CHECKED 
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Power House:					
	32	2- Governor oil systems governor, sump tanks, accumulator tank, piping (Assume contains paint with heavy metals & petroleum products)	86-68420	52,500	lbs		DELETED
	33	Cooling water and bearing oil systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs		DELETED
	34	2- Francis Turbines (Includes runner, scroll case, draft tube and shaft) (Assume contains paint with heavy metals & petroleum products)	86-68420	560,000	lbs		DELETED
	35	150 Ton crane (Includes crane and embedded steel rail) (Assume contains paint with heavy metals & petroleum products)	86-68420	240,000	lbs	\$0.65	\$156,000.00
	36	Compressed Air systems (Assume contains paint with heavy metals & petroleum products)	86-68420	1,100	lbs		DELETED
	37	2- CO2 systems (Assume contains paint with heavy metals & petroleum products)	86-68420	6,600	lbs		DELETED
	38	Plant Water and Fire Protection (Assume contains paint with heavy metals)	86-68420	3,100	lbs		DELETED
	39	Transformer Oil Fire protection (Assume contains paint with heavy metals & petroleum products)	86-68420	6,500	lbs		DELETED
		SUBTOTAL THIS SHEET					\$156,000.00

QUANTITIES		PRICES	
BY T. J. Tumage	CHECKED K. Converse	BY Craig A. Gush, P.E.	CHECKED
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 10 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	40	Unwatering Piping (Assume contains paint with heavy metals)	86-68420	33,000	lbs		DELETED
	41	Drainage Piping (Assume contains paint with heavy metals)	86-68420	10,000	lbs		DELETED
	42	2 Oil Sump pumps (Assume contains paint with heavy metals & petroleum products)	86-68420	2,000	lbs		DELETED
	43	Remove and Dispose of Draft Tube Bulk Head Gates and Hoists at the Powerhouse	86-68420	65,000	lbs		DELETED
		4 Draft Tube Bulk Head Gates (12,000 lbs ea.)	48,000	lbs			
		4 Guides (2,400 lbs for the pair)	9,600	lbs			
		2 Hoist (3,700 lbs ea.)	7,400	lbs			
		(Assume contains paint with heavy metals & petroleum products)					
	43A	Remove Petroleum Products from Mechanical Equipment.	86-68420	2,700	gal	\$10.00	\$27,000.00
		Includes quantities for the following equipment:					
		From Item 34, Units 1 & 2, bearing oil systems.					
		DTE heavy oil, 400 gal. per unit, 800 gal. total.					
		From Item 32, Units 1 & 2, governor oil sumps and accumulator tanks.					
		Hydraulic oil, 925 gal. per unit, 1,850 gal. total.					
		The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.					
		SUBTOTAL THIS SHEET					\$27,000.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 11 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	44	Outdoor Vertical AC Generator, Unit 1: 53 MVA (50 MW); Unit 2: 50 MVA (48 MW); 0.95PF, 11,500 V, 277 RPM, 3 Ph, including rotating exciter Total weight each approximately: 657,000 lbs. Stator: 175,000 lbs., Rotor: 290,000 lbs. Heaviest lift: 300,000 lbs.	86-68430	2	EA	\$200,000.00	\$400,000.00
	45	Excitation equipment for 53/50 MVA Generator (5 cabinets)(400 lbs each), 3 ft x 3ft x 90 inches high. Total weight approximately: 2,000 lbs.-	86-68430	2	EA		DELETED
	46	Surge protection equip. for 53/50 MVA Generator Total weight approximately: 1,500 lbs.-	86-68430	2	EA		DELETED
	47	Neutral grounding equip. for 53/50 MVA Generator includes transformer Total weight approximately: 500 lbs.-	86-68430	2	EA		DELETED
	48	Generator Switchgear, 15kV (6 sections) (750 lbs each), 3 ft x 6ft x 90 inches high. Total weight approximately: 4,500 lbs.-	86-68430	4	EA		DELETED
	49	Station Service Switchgear, 600 volt (5 sections) (400 lbs each), 3 ft x 3ft x 90 inches high. Total weight approximately: 2,000 lbs.-	86-68430	4	EA		DELETED
		SUBTOTAL THIS SHEET					\$400,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

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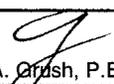
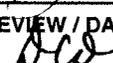
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 12 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following equipment in the Powerplant:					
	50	Unit and plant control switchboard 5 cubicles (200 lbs each), 2ft x 2ft x 90 in. high Total weight approximately: 1,000 lbs.	86-68430	1	EA		DELETED
	51	Battery system - assume 40 batteries, charger, racks and supports. Total weight approximately: 2,500 lbs.	86-68430	1	EA	\$8,000.00	\$8,000.00
	52	Raceways, Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 1000 lin. Ft. conduit, 200 lin. Ft. cabletray) Total weight approximately: 8,000 lbs.	86-68430	1	EA		DELETED
	53	Misc. power & control boards 10 boards (50 lbs each) 3ft x 2 ft x 9 in Total weight approximately: 500 lbs.	86-68430	1	EA		DELETED
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	54	5 Gantry Crane motors - hoist (50Hp*), aux hoist (30Hp*), aux hoist trolley (5Hp*), gantry (2-15Hp*) (Hp* Approx.) Total weight approximately: 750 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
	55	Gantry Crane control equipment (3 cubicles) Total weight approximately: 900 lbs.	86-68430	1	EA	\$6,000.00	\$6,000.00
		SUBTOTAL THIS SHEET					\$16,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grish, P.E.	CHECKED 
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

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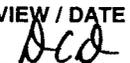
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 13 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Powerhouse, Switchyard, and Transmission Line	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		ELECTRICAL					
		Remove and dispose of the following Gantry Crane equipment at the Powerplant:					
	56	Conduit and Cable (approx. 3000 lin. Ft. power & control cable, 100 lin. Ft. power cable from reel, 1000 lin. Ft conduit) Total weight approximately: 8,000 lbs.	86-68430	1	EA	\$10,000.00	\$10,000.00
	57	Exterior Lighting 6 poles with lights (250 lbs. each) Total weight approximately: 1,500 lbs.	86-68430	1	EA	\$2,000.00	\$2,000.00
		Remove and dispose of the following Transmission Lines:					
	58	Transmission Line No. 59 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV	86-68430	1.66	mile	\$25,000.00	\$41,500.00
	59	Transmission Line No. 98 From Boyle Substation to Line Tie on Line 18 #2 AAC, 69-kV	86-68430	0.24	mile	\$25,000.00	\$6,000.00
	60	Transmission Line No. 58 From Boyle Substation to Line Tie 266.8 ACSR, 69-kV Major substation equipment (transformers, circuit breakers, etc.) to be salvaged by Paciflcorp	86-68430	1.66	mile	\$25,000.00	\$41,500.00
POWERHOUSE, SWITCHYARD, & TRANS LINE SUBTOTAL							\$908,000.00

QUANTITIES		PRICES	
BY D. Berk	CHECKED T. Griess	BY  Craig A. Grush, P.E.	CHECKED 
DATE PREPARED November 17, 2010	PEER REVIEW / DATE L. Rossi 12/15/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

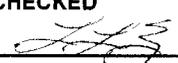
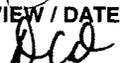
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 14 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon	
	WOID: AF121	ESTIMATE LEVEL: Feasibility
	REGION: MP	UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	61	Remove Intake Structure Concrete 3000 psi, reinforced concrete. Waste in scour hole	86-68130	1,600	yd3		DELETED
	62	Remove Fish Screen Building Building is located on top of intake structure. Wood frame construction, with metal rib roof and metal siding. Some wood is pressure treated, which may be considered a hazardous material.	86-68130	1,300	#2		DELETED
	63	Remove 24-inch-dia. Steel Fish Discharge Pipe Pipe is located alongside the 14-ft-dia. steel pipe. Length is estimated to be approx. 340 feet long from Sta. 0+15.25 to the outlet at the Klamath River. Assume contains paint with heavy metals.	86-68130	22,000	lbs	\$0.65	\$14,300.00
	64	Remove Concrete Items associated with the 14 ft diameter Steel Pipe. Includes anchors for horiz. pipe bende, piers, 14 ft dia. concrete conduit section, outlet transition with newer (2002) headgate vault section, siphon spillway structure, and 22 ft long spillway flume. Waste in scour hole	86-68130	1,100	yd3		DELETED
	65	Remove Open Concrete Flume Walls. 3000 psi, reinforced concrete. Total flume length = 10,761 feet. Includes both 2-wall and 1-wall flume reaches. Includes 2,300 CY of unreinforced porous concrete (gunite or shotcrete) on 1-wall flume reaches. Waste in scour hole	86-68130	12,200	yd3	\$260.00	\$3,172,000.00
		SUBTOTAL THIS SHEET					\$3,186,300.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

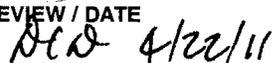
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 15 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SSummary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	66	Remove Structural Steel Items associated with the Forebay Trashrack Piers. Includes three 16 WF beams, each about 61.3 feet long, that support the trashracks. Assume contains paint with heavy metals.	86-68130	11,500	lbs	\$0.65	\$7,475.00
	67	Remove Forebay Concrete Walls 3000 psi, reinforced concrete. Includes forebay, forebay spillway, forebay sluiceway, and forebay drainage items (man-hole, 12-inch concrete drain pipe). Waste in scour hole	86-68130	1,500	yd3	\$260.00	\$390,000.00
	68	Place Concrete Plugs at Tunnel Portals 3000 psi, reinforced concrete min., two plugs @ 2-ft thick. Upper portal is a concrete-lined horseshoe shape, 16.5 ft high by 15.5 ft wide. Lower portal is a grouted, steel-lined conduit 16 feet in diameter.	86-68130	30	yd3	\$1,000.00	\$30,000.00
	69	Remove Concrete Items associated with Penstocks D/S from Tunnel. Includes surge tank support and anchor block #1, anchor block #2, two anchor blocks at P.I. #3, and all ring girder supports. Waste in scour hole	86-68130	1,800	yd3	\$260.00	\$468,000.00
	70	Headgate Control Bldg. at Flume Entrance. Concrete block on concrete slab.	86-68130	330	ft2	\$40.00	\$13,200.00
	71	Forebay Spillway Gate House Metal building on wood frame covering forebay spillway radial gates.	86-68130	570	ft2	\$40.00	\$22,800.00
	72	Forebay Control Building. Wood building on metal frame.	86-68130	470	ft2	\$40.00	\$18,800.00
		SUBTOTAL THIS SHEET					\$950,275.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 16 _ OF _ 27 _

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon
WOID: AF121	ESTIMATE LEVEL: Feasibility
REGION: MP	UNIT PRICE LEVEL: July-2010
FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Concrete and Structural Steel Items:					
	73	Communication Tower next to Forebay Control Building. Tower made of steel angles on top of concrete footings. Assume contains paint with heavy metals.	86-68130	7,100	lbs	\$0.65	\$4,615.00
	74	Insulated Generator Building next to Forebay Control Building. Metal building on top of concrete footings.	86-68130	72	ft2	\$40.00	\$2,880.00
		SUBTOTAL THIS SHEET					\$7,495.00

QUANTITIES		PRICES	
BY Stephen Latham	CHECKED Jonathan East	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED 11/17/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 17 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon				
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WOID: AF121	ESTIMATE LEVEL: Feasibility				
REGION: MP	UNIT PRICE LEVEL: July-2010				
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\SSummary				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Fish By-Pass Intake:					
	76	Fixed Wheel Gate Gate, frame and hoist (steel) (Assume contains paint with heavy metals & petroleum products)	86-68420	55,000	lbs		DELETED
	76	Trash rack and trash rake (steel)	86-68420	75,000	lbs		DELETED
	77	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	136,000	lbs		DELETED
	78	Traveling Water Screen 4 traveling water screens 4 spraywater pumps (Assume contains petroleum products)	86-68420	124,000	lbs		DELETED
	79	Fish By Pass and Supports (steel), 4-Pronged Inlet to Forebay, Spillway, Deer Escape Flume (Assume contains paint with heavy metals)	86-68420	610,000	lbs		DELETED
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 18 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Forebay, Spillway, Deer Escape Flume:					
	80	Radial Gates and Hoists 2 radial gates, 2 hoists (Assume contains paint with heavy metals & petroleum products)	86-68420	16,500	lbs	\$0.65	\$10,725.00
	81	Trash rack and trash rake (steel)	86-68420	43,500	lbs	\$0.50	\$21,750.00
	82	Stop Logs and slots (steel) stop log slots embedded in concrete (Assume contains paint with heavy metals)	86-68420	14,500	lbs	\$0.65	\$9,425.00
		Remove and dispose of the following equipment at the Penstock Intake:					
	83	Penstocks and bifurcation (steel) Some portions embedded in natural rock, includes pipe, expansion joints, and support rings (Assume contains paint with heavy metals)	86-68420	1,600,000	lbs	\$0.65	\$1,040,000.00
	84	Surge Tank (steel) (Assume contains paint with heavy metals)	86-68420	79,000	lbs	\$0.65	\$51,350.00
	85	2 - 108" Butterfly valves (Assume contains paint with heavy metals & petroleum products)	86-68420	148,000	lbs		DELETED
		SUBTOTAL THIS SHEET					\$1,133,250.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i>
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 19 _ OF _ 27 _

FEATURE:		PROJECT:	
Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Penstock		Klamath River Northern California/Southern Oregon	
		WOID: AF121	ESTIMATE LEVEL: Feasibility
		REGION: MP	UNIT PRICE LEVEL: July-2010
		FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
		Remove and dispose of the following equipment at the Head Gate Structure:					
	86	Gate, Stem and Frame (Assume contains paint with heavy metals & petroleum products)	86-68420	28,000	lbs	\$0.65	\$18,200.00
	87	Steel Transition Manifolds on Upstream and Downstream	86-68420	250,000	lbs	\$0.50	\$125,000.00
	87A	Remove Petroleum Products from Mechanical Equipment. Includes quantities for the following equipment: From Item 85, Units 1 & 2, butterfly valves and HPUs. Hydraulic oil, 191 gal. per valve, 382 gal. total. The remaining items contain petroleum products in amounts too small to be considered for this level of estimate.	86-68420	380	gal	\$10.00	\$3,800.00
		PENSTOCK SUBTOTAL					\$5,424,320.00

QUANTITIES		PRICES	
BY T. J. Turnage	CHECKED K. Converse	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED December 9, 2010	PEER REVIEW / DATE Dan Drake 12/16/2010	DATE PREPARED 04/22/11	PEER REVIEW / DATE Dcd 4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 22 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - REV#1 - MP Feas Est - 4-2011.xls\Res Reveg
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		WATER AND ENVIRONMENTAL					
	91	SPRING AERIAL SEEDING:	86-68220	0	Acres	\$7,500.00	
	92	FALL GROUND SEEDING:	86-68220	124	Acres	\$3,500.00	\$434,000.00
		Idaho fescue (Festuca idahoensis)	494	lbs	PLS		
		Blue wildrye (Elymus glaucus)	494	lbs	PLS		
		Small fescue (Vulpia microstachys)	494	lbs	PLS		
		Bluebunch wheatgrass (Pseudoroegneria spicata)	741	lbs	PLS		
		Sandberg bluegrass (Poa secunda)	62	lbs	PLS		
		Spike bentgrass (Agrostis exarata)	31	lbs	PLS		
		Wood mulch	38000	lbs			
		Tackifier	2280	lbs			
		SUBTOTAL THIS SHEET					\$434,000.00

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P 2/28/2011	BY Craig A. Grush P.E.	CHECKED 05-25-11
DATE PREPARED 02/03/11	PEER REVIEW / DATE	DATE PREPARED 05/25/11	PEER REVIEW / DATE 5-25-11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

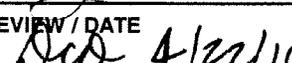
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 23 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Reservoir Vegetative Restoration	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		WATER AND ENVIRONMENTAL						
	93	RIPARIAN POLE PLANTING:	86-68220	54	Acres	\$8,500.00	\$459,000.00	
		Narrowleaf willow (<i>Salix exigua</i>)	26460	cutting				
		Arroyo willow (<i>Salix lasiolepis</i>)	3780	cutting				
		Shining willow (<i>Salix lucida</i>)	3780	cutting				
		Western serviceberry (<i>Amelanchier alnifolia</i>)	1890	cutting				
		Chokecherry (<i>Prunus virginiana</i>)	1890	transplant				
		Herbivore screen	37800	each				
		Chemical herbivore deterrent	756	gal				
		Polymer	119	lbs				
	94	WEED MANAGEMENT:	86-68220	124	Acres	\$1,500.00	\$186,000.00	
		Herbicide, post-emergent	247	lbs AI				
		MAINTENANCE TREATMENTS ON 10% OF THE RESTORATION AREAS PER YEAR OVER 4 YEARS, POST-RESTORATION						
	95	FALL GROUND SEEDING:	86-68220	99	Acres	\$3,500.00	\$346,500.00	
		Idaho fescue (<i>Festuca idahoensis</i>)	395	lbs PLS				
		Blue wildrye (<i>Elymus glaucus</i>)	395	lbs PLS				
		Small fescue (<i>Vulpia microstachys</i>)	395	lbs PLS				
		Bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	593	lbs PLS				
		Sandberg bluegrass (<i>Poa secunda</i>)	49	lbs PLS				
		Spike bentgrass (<i>Agrostis exarata</i>)	25	lbs PLS				
		Wood mulch	197600	lbs				
		Tackifier	11856	lbs				
	96	WEED MANAGEMENT:	86-68220	99	Acres	\$1,500.00	\$148,500.00	
		Herbicide, post-emergent	9	lbs AI				
		RESERVOIR VEGETATIVE RESTORATION SUBTOTAL					\$2,738,500.00	

QUANTITIES		PRICES	
BY O'Meara, Scott A	CHECKED Greimann, Blair P	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 04/12/11	PEER REVIEW / DATE Greimann, Blair P 4/12/2011	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 24 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		These quantities represent the work required to prepare disposal sites and remove the earth fill embankment and concrete cutoff wall of J. C. Boyle Dam to original ground surface.					
		General Sitework					
	97	Clear and Grub Disposal Area (Embankment) Estimated haul distance 1/2 mile. Disposed fill estimated to be 10' deep and traffic compacted (15% bulking factor). Prepare Haul Road (For Embankment) - 0.5 mi 2 way traffic - off road dumps or scrapers	86-68313	10	acre	\$5,000.00	\$50,000.00
	98	Clear and grub, 40' width	86-68313	2.4	acre	\$5,000.00	\$12,000.00
	99	4" thick gravel surfacing	86-68313	2,150	ton	\$30.00	\$64,500.00
	100	Clear and Grub Disposal Area (For Concrete) Estimated haul distance 3/10 mile. Disposed fill estimated to be 10' deep and traffic compacted (50% bulking factor). Prepare Haul Road (For Concrete) - 0.3 mi 1 way traffic - off road dumps	86-68313	0	acre	\$5,000.00	
	101	Clear and grub, 20' width	86-68313	0	acres	\$5,000.00	
	102	4" thick gravel surfacing	86-68313	650	ton		DELETED
	103	Soil Cover over Concrete Rubble Assume 2' thick cover from embankment - 2.75 mile haul.	86-68313	13,000	yd3	\$140.00	\$1,820,000.00
		SUBTOTAL THIS SHEET					\$1,946,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-25-11
DATE PREPARED 12/10/10	PEER REVIEW / DATE Daniel W. Osmun 12/20/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>[Signature]</i> 5-25-11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 25 OF 27

FEATURE: REVISION #1 Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable Road Improvements	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - REV#1 - MP Feas Est - 4-2011.xlsx\Road Improvements
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		GEOTECHNICAL					
		Disposal of Concrete Rubble In Wasteway (Forebay) Scour Hole					
	104	Rubble from Dam	86-68313	5,400	yd3		Included in concrete removal items
		Haul distance 2.75 miles (across dam). A 30 percent bulking factor was applied.					
	105	Rubble from Flume/Forebay	86-68313	17,800	yd3		Included in concrete removal items
		Haul distance 1.0 mile (midpoint of flume). A 30 percent bulking factor was applied.					
	106	Rubble from Power House	86-68313	2,300	yd3		Included in concrete removal items
		Haul distance 1.75 miles. A 30 percent bulking factor was applied.					
	107	Embankment Fill in Wasteway (Forebay) Scour Hole	86-68313	0	yd3	\$140.00	
		To restore scour hole to original contours.					
		ROAD IMPROVEMENTS SUBTOTAL					
							\$1,946,500.00

QUANTITIES		PRICES	
BY Randy Kuzniakowski	CHECKED Tuti Tierney	BY Craig A. Grush, P.E.	CHECKED <i>AW</i> 05-25-11
DATE PREPARED 11/01/10	PEER REVIEW / DATE Daniel W. Osmun 11/1/10	DATE PREPARED 05/25/11	PEER REVIEW / DATE <i>DCD</i> 5-25-11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

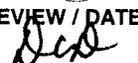
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 26 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Reservoir Most Probable	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF121 ESTIMATE LEVEL: Feasibility
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Topsy Recreation Site					
	108	Concrete total	BLM	68	CY	\$220.00	\$14,960.00
		Boat ramp 20'x100'x8" (55 CY)					
		Concrete abutment 7'x12'x2' (6.3 CY)					
		Fishing deck footer (6 CY)					
	109	6'x80' Floating dock made of lumber and composite decking	BLM	1	EA	\$5,000.00	\$5,000.00
	110	5'x20' Walkway leading to hex fishing platform	BLM	200	FT ²	\$13.00	\$2,600.00
		Consists of lumber frame with composite decking and railing					
	111	Regrade to natural contour and reseed	BLM	300	FT ²	\$4.00	\$1,200.00
		Pioneer Park					
	112	Picnic tables to be removed and hauled away	BLM	12	EA	\$60.00	\$720.00
	113	12 Concrete fire rings	BLM	5	CY	\$220.00	\$1,100.00
	114	Portable toilets to be removed and hauled away	BLM	2	EA	\$1,000.00	\$2,000.00
	115	Signs to be removed and hauled away	BLM	6	EA	\$150.00	\$900.00
	116	Dumpster to be removed and hauled away	BLM	1	EA	\$1,000.00	\$1,000.00
	117	Remove paved access road	BLM	200	LF	\$250.00	\$50,000.00
	118	Regrage to natural contour, rip, plant and seed parking and recreation site	BLM	0.5	ACRE	\$20,000.00	\$10,000.00
RECREATIONAL FACILITIES REMOVAL SUBTOTAL THIS SHEET							\$89,480.00

QUANTITIES		PRICES	
BY Renee Snyder (BLM)	CHECKED Sheena Barnes	BY Craig A. Grush, P.E.	CHECKED 
DATE PREPARED 11/18/10	PEER REVIEW / DATE Rick Benik P.E. 12/11/10	DATE PREPARED 04/22/11	PEER REVIEW / DATE  4/22/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 27 OF 27

FEATURE: Klamath River Dams Removal Partial Removal Option JC Boyle Dam & Powerplant Removal Most Probable SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Feasibility REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Removal - Partial\Feasibility Estimates\JC Boyle\Klamath Dams Removal - JC Boyle - Partial Removal Option - MP Feas Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sediment Removal (assumes by natural erosion)		555,400	CY	\$0.00	\$0.00
		Diversion and Care					\$11,900.00
		Dam Removal					\$2,534,085.00
		Powerhouse/Switchyard/Transmission Line Removal					\$908,000.00
		Penstock Removal					\$5,424,320.00
		Reservoir Vegetative Restoration					\$2,738,500.00
		Road Improvements					\$1,946,500.00
		Recreational Facilities to be Removed					\$89,480.00
		Subtotal					\$13,652,785.00
		Mobilization	5%	+/-			\$680,000.00
		Subtotal 1 with Mobilization					\$14,332,785.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 3%/yr compounding over 10 years)					\$4,929,280.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$19,262,065.00
		Design Contingencies	10%	+/-			\$1,737,935.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$21,000,000.00
		Construction Contingencies	20%	+/-			\$4,000,000.00
		FIELD COST					\$25,000,000.00
		Non-Contract Costs: (Environmental & Cultural Resources Mitigation ~ 45%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)	65%	+/-			\$16,000,000.00
		CONSTRUCTION COST					\$41,000,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY Craig A. Grush, P.E.	CHECKED
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 04/22/11	PEER REVIEW / DATE 4/22/11

Attachment F

Monte Carlo Simulation Reports

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 7

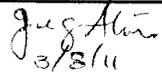
FEATURE: REVISION #1 Klamath River Dams Removal Yreka water supply Dam A modifications Most Probable	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - REV1 - 4-2011.xlsx\Dam A

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Remove & dispose steel frame with slide gates/weirs 14 ft wide x 9 ft tall, weight unknown assume contains heavy metals	86-68140	1	ea	\$6,500.00	\$6,500.00
	2	Remove & dispose by steel bulkhead panel 3'-2" ft wide x 5'-6" tall assume contains heavy metals	86-68140	1	ea	\$1,000.00	\$1,000.00
	3	Remove & dispose fish screen panels 3 ft wide x 5'-6" tall each assume contains heavy metals	86-68140	6	ea	\$1,000.00	\$6,000.00
	4	Cut, remove concrete deck 3 ft x 1'-7" x 6 in	86-68140	2.4	cf	\$150.00	\$360.00
	5	Remove & dipose wood frame building 16 ft x 12 ft with roll up door	86-68140	1	ea	\$25,000.00	\$25,000.00
	6	Furnish, install wood frame building 16 ft x 12 ft with two roll up doors 9 ft x 7 ft door, 12 ft x 7 ft door	86-68140	1	ea	\$50,000.00	\$50,000.00
	7	Furnish & install steel slide gate with pedestal lift 30" wide x 42", 500 lb ea.	86-68140	2	ea	\$4,000.00	\$8,000.00
	7a	Furnish and place concrete walls 3 @ 5-6 h x 5 w x 1 ft thick reinf. - 115 lb ea 27 #5 dowels, drill and grout		0	cy	\$1,300.00	
	7b	Extend 220v power to the site distance is about 350 ft, lots of clearing		0	lf	\$150.00	
	7c	Diversion & care assume 10 cfs for 40 days		0	ls	\$100,000.00	
		Note: All work on this sheet takes place on existing diversion dam with water flowing. Workers will be above flowing water on diversion structure.					
		SUBTOTAL THIS SHEET					\$96,860.00

QUANTITIES		PRICES	
BY Sayer	CHECKED	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 05-23-11
DATE PREPARED 01/15/11	PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 05/23/11	PEER REVIEW / DATE <i>[Signature]</i> 5/24/11

FEATURE: Klamath River Dams Removal Yreka water supply Dam A modifications Most Probable	PROJECT: Klamath River Northern California/Southern Oregon				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">WOID: AF652</td> <td style="width:33%;">ESTIMATE LEVEL: Appraisal</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table>	WOID: AF652	ESTIMATE LEVEL: Appraisal	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF652	ESTIMATE LEVEL: Appraisal				
REGION: MP	UNIT PRICE LEVEL: July-2010				
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xlsx\Summary				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	8	Furnish and install cylindrical tee fish screen (Q= 15 cfs) Assumes approach velocity = 0.33 ft/s Screen diameter = 30 inches Overall unit length = 128" Inclined track length = 10 ft All stainless steel 304 or 316 Assume: ISI screen model T30-42 with internal propellar drives and 12 volt DC winch	86-68410	1	ea	\$100,000.00	\$100,000.00
		Furnish and install three bulkheads, welded structural steel construction, protective coating.	86-68410				
	9a	- 3 Bulkheads, 500 lbs. ea.		1,500	lbs	\$7.50	\$11,250.00
	9b	-30 - 1/2" dia. x 9" epoxy anchors		30	ea	\$25.00	\$750.00
		DAM A MODIFICATIONS SUBTOTAL					\$208,860.00

QUANTITIES		PRICES	
BY R. Stephen	CHECKED R. Christensen	BY  Craig A. Grush, P.E.	CHECKED  J. Alan 3/8/11
DATE PREPARED 01/20/11	PEER REVIEW / DATE T. Hummel P.E. 1/21/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE  3/9/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 7

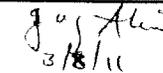
FEATURE: REVISION #1 Klamath River Dams Removal Yreka water supply Dam B modifications Most Probable	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - REV1 - 4-2011.xlsx\Dam B

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	10	Excavation for structure	86-68140	40	cy	\$80.00	\$3,200.00
	11	Compacted backfill for structure	86-68140	30	cy	\$60.00	\$1,800.00
	12	Concrete removal, 2'x2' cut opening	86-68140	4	cf	\$150.00	\$600.00
	13	Furnish & place concrete in structure	86-68140	8	cy	\$1,300.00	\$10,400.00
	14	Remove & dipose existing trashrack 5 ft x 9 ft assume contains heavy metals	86-68140	1	ea	\$2,500.00	\$2,500.00
	15	Furnish & install grating	86-68140	25	sf	\$200.00	\$5,000.00
	15a	Furnish and place concrete wall size, 9.5 ft tall, 5 ft w, 1 ft thick 11 #5 dowels, drill and grout reinf - 200 lb		0	cy	\$2,200.00	
	15b	Extend 220v power to the site distance is about 280 ft, lots of clearing		0	lf	\$150.00	
	16	Diversion & care assume 10 cfs for 10 days	86-68140	1	ls		\$50,000.00
	17	Create access to dam	86-68140	1	ls		\$30,000.00
		SUBTOTAL THIS SHEET					\$103,500.00

QUANTITIES		PRICES	
BY Sayer	CHECKED	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-23-11
DATE PREPARED 01/15/11	PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 05/23/11	PEER REVIEW / DATE <i>[Signature]</i> 5/24/11

FEATURE: Klamath River Dams Removal Yreka water supply Dam B modifications Most Probable	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	18	Furnish and install cylindrical tee fish screen (Q= 15 cfs) Assumes approach velocity = 0.33 ft/s Screen diameter = 30 inches Overall unit length = 128" Vertical track length = 12 ft All stainless steel 304 or 316 Assume: ISI screen model T30-42 with internal propellar drives and 12 volt DC winch	86-68410	1	ea	\$100,000.00	\$100,000.00
		Furnish and install bulkhead to replace trashrack, welded structural steel construction, protective coating.	86-68410				
	19a	- 1 Bulkhead, 1,200 lbs.		1,200	lbs	\$7.50	\$9,000.00
	19b	-18 - 1/2" dia. x 9" epoxy anchors		18	ea	\$25.00	\$450.00
		DAM B MODIFICATIONS SUBTOTAL					\$212,950.00

QUANTITIES		PRICES	
BY R. Stephen	CHECKED R. Christensen	BY  Craig A. Grush, P.E.	CHECKED  3/8/11
DATE PREPARED 01/20/11	PEER REVIEW / DATE T. Hummel P.E. 1/21/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE  3/9/11

FEATURE: Klamath River Dams Removal Yreka water supply Yreka pipe crossing Iron Gate Reservoir Most Probable	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	20	Three span, pre-engineered pipe support access bridge, with 7.5' box truss Span lengths are 100', 200', 100'. Support one 24" Dia. Welded steel pipe. Steel pipe and supports, Wt.=150 lbs/linear ft Water, Wt.=200 lbs/linear ft	86-68140	1	ea	\$700,000.00	\$700,000.00
		Finish & place reinforced concrete caps for abutment 1 and pier 1 (4' diameter column)					
	21	Concrete	86-68140	25	cy	\$2,500.00	\$62,500.00
	22	Reinforcement, epoxy coated	86-68140	10,000	lb	\$2.00	\$20,000.00
		Drilled shafts					
	23	5'-0" Diameter @ pier 1 (Pier drilled shaft requires 12 CY of concrete and 5,000 lbs of reinforcement)	86-68140	16	lf	\$6,000.00	\$96,000.00
	24	3'-0" Diameter @ abutment 1 (Abutment drilled shafts require 14 CY of concrete and 8,000 lbs of reinforcement)	86-68140	52	lf	\$1,500.00	\$78,000.00
SUBTOTAL THIS SHEET							\$956,500.00

QUANTITIES		PRICES	
BY Sayer	CHECKED Clough 1/11/11	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 3/8/11
DATE PREPARED 01/10/11	PEER REVIEW / DATE Jesus Romero, PE 1/12/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE <i>[Signature]</i> 3/9/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 6 OF 7

FEATURE: Klamath River Dams Removal Yreka water supply Yreka pipe crossing Iron Gate Reservoir Most Probable	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xls\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Furnish & place reinforced concrete caps for abutment 2 and pier 2 (4' diameter column)					
	25	Concrete	86-68140	25	cy	\$2,500.00	\$62,500.00
	26	Reinforcement, epoxy coated	86-68140	10,000	lb	\$2.00	\$20,000.00
		Drilled shafts					
	27	5'-0" Diameter @ pier 2 (Pier drilled shaft requires 12 CY of concrete and 5,000 lbs of reinforcement)	86-68140	16	lf	\$6,000.00	\$96,000.00
	28	3'-0" Diameter @ abutment 2 (Abutment drilled shafts require 14 CY of concrete and 8,000 lbs of reinforcement)	86-68140	52	lf	\$1,500.00	\$78,000.00
	29	Remove & dispose existing steel pipe, 1/4 inch wall, 24" dia. assume contains heavy metals	86-68140	20	lf	\$50.00	\$1,000.00
	30	Welded steel pipe, 1/4 inch wall, 24 inch dia. epoxy primer, polyurethane top coat, exterior coal-tar epoxy lined	86-68140	490	lf	\$200.00	\$98,000.00
	31	Install/Remove 2 access ramps for piers, dumped compacted gravel in river	86-68140	270	cy	\$100.00	\$27,000.00
	32	Excavation for pipe trench	86-68140	70	cy	\$15.00	\$1,050.00
	33	CLSM pipe bedding	86-68140	8	cy	\$300.00	\$2,400.00
	34	Backfill in pipe trench	86-68140	55	cy	\$30.00	\$1,650.00
		PIPE CROSSING SUBTOTAL					\$1,344,100.00

QUANTITIES		PRICES	
BY Sayer	CHECKED	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 3/9/11
DATE PREPARED 01/10/11	PEER REVIEW / DATE	DATE PREPARED 03/08/11	PEER REVIEW / DATE <i>[Signature]</i> 3/9/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 7 OF 7

FEATURE: <p align="center">Klamath River Dams Removal Yreka water supply</p> <p align="center">Most Probable SUMMARY</p>	PROJECT: <p align="center">Klamath River Northern California/Southern Oregon</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>WOID: AF484</td> <td>ESTIMATE LEVEL: Appraisal</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table> FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 4-2011.xls\Summary	WOID: AF484	ESTIMATE LEVEL: Appraisal	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF484	ESTIMATE LEVEL: Appraisal				
REGION: MP	UNIT PRICE LEVEL: July-2010				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Dam A Modifications					\$208,860.00
		Dam B Modifications					\$212,950.00
		Pipe Crossing					\$1,344,100.00
		Subtotal					\$1,765,910.00
		Mobilization	5%	+/-			\$88,000.00
		Subtotal 1 with Mobilization					\$1,853,910.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 3%/yr compounding over 10 years)					\$637,590.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$2,491,500.00
		Design Contingencies	15%	+/-			\$408,500.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$2,900,000.00
		Construction Contingencies	25%	+/-			\$700,000.00
		FIELD COST					\$3,600,000.00
		Non-Contract Costs:	55%	+/-			\$2,000,000.00
		(Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 4%, Permitting ~ 3%, Procurement ~ 1%, Construction Management ~ 10%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$5,600,000.00
		Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.					

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Refer to Previous Sheets	Refer to Previous Sheets	Craig A. Grush, P.E.	<i>[Signature]</i> 04-19-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
	Refer to Previous Sheets	04/19/11	<i>[Signature]</i> 4/19/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 7

FEATURE: <p align="center">Klamath River Dams Removal Yreka water supply Dam A modifications</p> <p align="center">Most Probable High</p>	PROJECT: <p align="center">Klamath River Northern California/Southern Oregon</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>WOID: AF652</td> <td>ESTIMATE LEVEL: Appraisal</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table> <p>FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPH - Appraisal Est - 2-2011.xlsx\Summary</p>	WOID: AF652	ESTIMATE LEVEL: Appraisal	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF652	ESTIMATE LEVEL: Appraisal				
REGION: MP	UNIT PRICE LEVEL: July-2010				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	1	Remove & dispose steel frame with slide gates/weirs 14 ft wide x 9 ft tall, weight unknown assume contains heavy metals	86-68140	1	ea	\$7,000.00	\$7,000.00
	2	Remove & dispose by steel bulkhead panel 3'-2" ft wide x 5'-6" tall assume contains heavy metals	86-68140	1	ea	\$1,050.00	\$1,050.00
	3	Remove & dispose fish screen panels 3 ft wide x 5'-6" tall each assume contains heavy metals	86-68140	6	ea	\$1,050.00	\$6,300.00
	4	Cut, remove concrete deck 3 ft x 1'-7" x 6 in	86-68140	2.4	cf	\$160.00	\$384.00
	5	Remove & dipose wood frame building 16 ft x 12 ft with roll up door	86-68140	1	ea	\$26,000.00	\$26,000.00
	6	Furnish, install wood frame building 16 ft x 12 ft with two roll up doors 9 ft x 7 ft door, 12 ft x 7 ft door	86-68140	1	ea	\$52,500.00	\$52,500.00
	7	Furnish & install steel slide gate with pedestal lift 30" wide x 42", 500 lb ea.	86-68140	2	ea	\$4,200.00	\$8,400.00
	7a	Furnish and place concrete walls 3 @ 5-6 h x 5 w x 1 ft thick reinf. - 115 lb ea 27 #5 dowels, drill and grout		3.1	cy	\$1,350.00	\$4,185.00
	7b	Extend 220v power to the site distance is about 350 ft, lots of clearing		350	lf	\$160.00	\$56,000.00
	7c	Diversion & care assume 10 cfs for 40 days		1	ls		\$105,000.00
		SUBTOTAL THIS SHEET					\$266,819.00

QUANTITIES		PRICES	
BY Sayer	CHECKED	BY Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 03-08-11
DATE PREPARED 01/15/11	PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE <i>[Signature]</i> 3/9/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 2 _ OF _ 7 _

FEATURE: Klamath River Dams Removal Yreka water supply Dam A modifications Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPH - Appraisal Est - 4-2011.xlsx\Dam B

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	8	Furnish and install cylindrical tee fish screen (Q= 15 cfs) Assumes approach velocity = 0.33 ft/s Screen diameter = 30 inches Overall unit length = 128" Inclined track length = 10 ft All stainless steel 304 or 316 Assume: ISI screen model T30-42 with electrical drives and 120 volt AC winch	86-68410	1	ea	\$150,000.00	\$150,000.00
		Furnish and install three bulkheads, welded structural steel construction, protective coating.	86-68410				
	9a	- 3 Bulkheads, 500 lbs. ea.		0	lbs	\$8.00	
	9b	-30 - 1/2" dia. x 9" epoxy anchors		0	ea	\$26.00	
		DAM A MODIFICATIONS SUBTOTAL					\$416,819.00

QUANTITIES		PRICES	
BY R. Stephen	CHECKED R. Christensen	BY  Craig A. Grush, P.E.	CHECKED  05-23-11
DATE PREPARED 01/20/11	PEER REVIEW / DATE T. Hummel P.E. 1/21/11	DATE PREPARED 05/23/11	PEER REVIEW / DATE  5/24/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 7

FEATURE: <p align="center">Klamath River Dams Removal Yreka water supply Dam B modifications</p> <p align="center">Most Probable High</p>	PROJECT: <p align="center">Klamath River Northern California/Southern Oregon</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>WOID: AF652</td> <td>ESTIMATE LEVEL: Appraisal</td> </tr> <tr> <td>REGION: MP</td> <td>UNIT PRICE LEVEL: July-2010</td> </tr> </table> <p>FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPH - Appraisal Est - 2-2011.xlsx\Summary</p>	WOID: AF652	ESTIMATE LEVEL: Appraisal	REGION: MP	UNIT PRICE LEVEL: July-2010
WOID: AF652	ESTIMATE LEVEL: Appraisal				
REGION: MP	UNIT PRICE LEVEL: July-2010				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	10	Excavation for structure	86-68140	40	cy	\$120.00	\$4,800.00
	11	Compacted backfill for structure	86-68140	30	cy	\$65.00	\$1,950.00
	12	Concrete removal, 2'x2' cut opening	86-68140	4	cf	\$160.00	\$640.00
	13	Furnish & place concrete in structure	86-68140	8	cy	\$1,350.00	\$10,800.00
	14	Remove & dipose existing trashrack 5 ft x 9 ft assume contains heavy metals	86-68140	1	ea	\$2,600.00	\$2,600.00
	15	Furnish & install grating	86-68140	25	sf	\$210.00	\$5,250.00
	15a	Furnish and place concrete wall size, 9.5 ft tall, 5 ft w, 1 ft thick 11 #5 dowels, drill and grout reinf - 200 lb		1.8	cy	\$2,325.00	\$4,185.00
	15b	Extend 220v power to the site distance is about 280 ft, lots of clearing		280	lf	\$160.00	\$44,800.00
	16	Diversion & care assume 10 cfs for 10 days	86-68140	1	ls		\$75,000.00
	17	Create access to dam	86-68140	1	ls		\$50,000.00
		SUBTOTAL THIS SHEET					\$200,025.00

QUANTITIES		PRICES	
BY Sayer	CHECKED	BY Craig A. Grush, P.E.	CHECKED <i>DA</i> 03-08-11
DATE PREPARED 01/15/11	PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE <i>DA</i> 3/9/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 4 _ OF _ 7 _

FEATURE: Klamath River Dams Removal Yreka water supply Dam B modifications Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPH - Appraisal Est - 4-2011.xlsx\Dam B

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	18	Furnish and install cylindrical tee fish screen (Q= 15 cfs) Assumes approach velocity = 0.33 ft/s Screen diameter = 30 inches Overall unit length = 128" Vertical track length = 12 ft All stainless steel 304 or 316 Assume: ISI screen model T30-42 with electrical drives and 120 volt AC winch	86-68410	1	ea	\$150,000.00	\$150,000.00
		Furnish and install bulkhead to replace trashrack, welded structural steel construction, protective coating.	86-68410				
	19a	- 1 Bulkhead, 1,200 lbs.		0	lbs	\$8.00	
	19b	-18 - 1/2" dia. x 9" epoxy anchors		0	ea	\$26.00	
		DAM B MODIFICATIONS SUBTOTAL					\$350,025.00

QUANTITIES		PRICES	
BY R. Stephen	CHECKED R. Christensen	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-23-11
DATE PREPARED 01/20/11	PEER REVIEW / DATE T. Hummel P.E. 1/21/11	DATE PREPARED 05/23/11	PEER REVIEW / DATE <i>[Signature]</i> 8/9/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 6 OF 7

FEATURE: Klamath River Dams Removal Yreka water supply Yreka pipe crossing Iron Gate Reservoir Most Probable High	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal
	REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPH - Appraisal Est - 2-2011.xlsx\Pipe Crossing

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Furnish & place reinforced concrete caps for abutment 2 and pier 2 (4' diameter column)					
	25	Concrete	86-68140	25	cy	\$2,600.00	\$65,000.00
	26	Reinforcement, epoxy coated	86-68140	10,000	lb	\$2.10	\$21,000.00
		Drilled shafts					
	27	5'-0" Diameter @ pier 2 (Pier drilled shaft requires 12 CY of concrete and 5,000 lbs of reinforcement)	86-68140	16	lf	\$10,000.00	\$160,000.00
	28	3'-0" Diameter @ abutment 2 (Abutment drilled shafts require 14 CY of concrete and 8,000 lbs of reinforcement)	86-68140	52	lf	\$2,500.00	\$130,000.00
	29	Remove & dispose existing steel pipe, 1/4 inch wall, 24" dia. assume contains heavy metals	86-68140	20	lf	\$52.00	\$1,040.00
	30	Welded steel pipe, 1/4 inch wall, 24 inch dia. epoxy primer, polyurethane top coat, exterior coal-tar epoxy lined	86-68140	490	lf	\$210.00	\$102,900.00
	31	Install/Remove 2 access ramps for piers, dumped compacted gravel in river	86-68140	270	cy	\$150.00	\$40,500.00
	32	Excavation for pipe trench	86-68140	70	cy	\$25.00	\$1,750.00
	33	CLSM pipe bedding	86-68140	8	cy	\$315.00	\$2,520.00
	34	Backfill in pipe trench	86-68140	55	cy	\$32.00	\$1,760.00
		PIPE CROSSING SUBTOTAL					\$2,267,470.00

QUANTITIES		PRICES	
BY Sayer	CHECKED Clough 11/05/10	BY <i>[Signature]</i> Craig A. Grish, P.E.	CHECKED <i>[Signature]</i> 03-10-11
DATE PREPARED 11/05/10	PEER REVIEW / DATE	DATE PREPARED 03/08/11	PEER REVIEW / DATE DCO 3/10/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 7 OF 7

FEATURE: Klamath River Dams Removal Yreka water supply Most Probable High SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Appraisal <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPH - Appraisal Est - 4-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Dam A Modifications					\$416,819.00
		Dam B Modifications					\$350,025.00
		Pipe Crossing					\$2,267,470.00
		Subtotal					\$3,034,314.00
		Mobilization	5%	+/-			\$150,000.00
		Subtotal 1 with Mobilization					\$3,184,314.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020					\$1,701,993.00
		(assumes 4.375%/yr compounding over 10 years) - Covered as a separate feature within the Project Summary of Costs					
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$4,886,307.00
		Design Contingencies	20%	+/-			\$996,422.00
		Allowance for Procurement Strategies (APS)	2%	+/-			\$117,271.00
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$6,000,000.00
		Construction Contingencies	30%	+/-			\$1,800,000.00
		FIELD COST					\$7,800,000.00
		Non-Contract Costs:	61%	+/-			\$4,700,000.00
		(Environmental & Cultural Resources					
		Mitigation ~ 35%, Design Data Collection ~ 2%,					
		Engineering Design ~ 6%, Permitting ~ 4%,					
		Procurement ~ 2%, Construction Management					
		~ 11%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$12,500,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY	CHECKED	BY	CHECKED
Refer to Previous Sheets	Refer to Previous Sheets	<i>CG</i> Craig A. Grush, P.E.	<i>SW</i> 05-10-11
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE
	Refer to Previous Sheets	03/08/11	<i>ACD</i> 05-10-11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 1 OF 7

FEATURE: Klamath River Dams Removal Yreka water supply Dam A modifications Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPL - Appraisal Est - 4-2011.xlsx\Pipe Crossing
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		CIVIL						
	1	Remove & dispose steel frame with slide gates/weirs 14 ft wide x 9 ft tall, weight unknown assume contains heavy metals	86-68140	1	ea	\$6,000.00	\$6,000.00	
	2	Remove & dispose by steel bulkhead panel 3'-2" ft wide x 5'-6" tall assume contains heavy metals	86-68140	1	ea	\$950.00	\$950.00	
	3	Remove & dispose fish screen panels 3 ft wide x 5'-6" tall each assume contains heavy metals	86-68140	6	ea	\$950.00	\$5,700.00	
	4	Cut, remove concrete deck 3 ft x 1'-7" x 6 in	86-68140	2.4	cf	\$140.00	\$336.00	
	5	Remove & dipose wood frame building 16 ft x 12 ft with roll up door	86-68140	1	ea	\$24,000.00	\$24,000.00	
	6	Furnish, install wood frame building 16 ft x 12 ft with two roll up doors 9 ft x 7 ft door, 12 ft x 7 ft door	86-68140	1	ea	\$47,500.00	\$47,500.00	
	7	Furnish & install steel slide gate with pedestal lift 30" wide x 42", 500 lb ea.	86-68140	2	ea	\$3,800.00	\$7,600.00	
	7a	Furnish and place concrete walls 3 @ 5-6 h x 5 w x 1 ft thick reinf. - 115 lb ea 27 #5 dowels, drill and grout		0	cy	\$1,250.00		
	7b	Extend 220v power to the site distance is about 350 ft, lots of clearing		0	lf	\$140.00		
	7c	Diversion & care assume 10 cfs for 40 days		0	ls	\$95,000.00		
		Note: All work on this sheet takes place on existing diversion dam with water flowing. Workers will be above flowing water on diversion structure.						
		SUBTOTAL THIS SHEET						\$92,086.00

QUANTITIES		PRICES	
BY Sayer	CHECKED	BY <i>CG</i> Craig A. Grush, P.E.	CHECKED <i>DW</i> 05-23-11
DATE PREPARED 01/15/11	PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 05/23/11	PEER REVIEW / DATE <i>DCD</i> 5/24/11

FEATURE: Klamath River Dams Removal Yreka water supply Dam A modifications Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xlsx\Summary
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	8	Furnish and install cylindrical tee fish screen (Q= 15 cfs) Assumes approach velocity = 0.33 ft/s Screen diameter = 30 inches Overall unit length = 128" Inclined track length = 10 ft All stainless steel 304 or 316 Assume: ISI screen model T30-42 with internal propellar drives and 12 volt DC winch	86-68410	1	ea	\$95,000.00	\$95,000.00
		Furnish and install three bulkheads, welded structural steel construction, protective coating.	86-68410				
	9a	- 3 Bulkheads, 500 lbs. ea.		1,500	lbs	\$7.00	\$10,500.00
	9b	-30 - 1/2" dia. x 9" epoxy anchors		30	ea	\$24.00	\$720.00
		DAM A MODIFICATIONS SUBTOTAL					\$198,306.00

QUANTITIES		PRICES	
BY R. Stephen	CHECKED R. Christensen	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 3/8/11
DATE PREPARED 01/20/11	PEER REVIEW / DATE T. Hummel P.E. 1/21/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE <i>[Signature]</i> 3/9/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 3 OF 7

FEATURE: Klamath River Dams Removal Yreka water supply Dam B modifications Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPL - Appraisal Est - 4-2011.xlsx\Pipe Crossing

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	10	Excavation for structure	86-68140	40	cy	\$75.00	\$3,000.00
	11	Compacted backfill for structure	86-68140	30	cy	\$55.00	\$1,650.00
	12	Concrete removal, 2'x2' cut opening	86-68140	4	cf	\$140.00	\$560.00
	13	Furnish & place concrete in structure	86-68140	8	cy	\$1,250.00	\$10,000.00
	14	Remove & dipose existing trashrack 5 ft x 9 ft assume contains heavy metals	86-68140	1	ea	\$2,400.00	\$2,400.00
	15	Furnish & install grating	86-68140	25	sf	\$190.00	\$4,750.00
	15a	Furnish and place concrete wall size, 9.5 ft tall, 5 ft w, 1 ft thick 11 #5 dowels, drill and grout reinf - 200 lb		0	cy	\$2,100.00	
	15b	Extend 220v power to the site distance is about 280 ft, lots of clearing		0	lf	\$140.00	
	16	Diversion & care assume 10 cfs for 10 days	86-68140	1	ls		\$47,500.00
	17	Create access to dam	86-68140	1	ls		\$28,500.00
		SUBTOTAL THIS SHEET					\$98,360.00

QUANTITIES		PRICES	
BY Sayer	CHECKED	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-23-11
DATE PREPARED 01/15/11	PEER REVIEW / DATE Dave Edwards 1/24/11	DATE PREPARED 05/23/11	PEER REVIEW / DATE <i>[Signature]</i> 5/24/11

FEATURE: Klamath River Dams Removal Yreka water supply Dam B modifications Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon
	WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010
	FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MP - Appraisal Est - 2-2011.xls\Summary

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		MECHANICAL					
	18	Furnish and install cylindrical tee fish screen (Q= 15 cfs) Assumes approach velocity = 0.33 ft/s Screen diameter = 30 inches Overall unit length = 128" Vertical track length = 12 ft All stainless steel 304 or 316 Assume: ISI screen model T30-42 with internal propellar drives and 12 volt DC winch	86-68410	1	ea	\$95,000.00	\$95,000.00
		Furnish and install bulkhead to replace trashrack, welded structural steel construction, protective coating.	86-68410				
	19a	- 1 Bulkhead, 1,200 lbs.		1,200	lbs	\$7.00	\$8,400.00
	19b	-18 - 1/2" dia. x 9" epoxy anchors		18	ea	\$24.00	\$432.00
		DAM B MODIFICATIONS SUBTOTAL					\$202,192.00

QUANTITIES		PRICES	
BY R. Stephen	CHECKED R. Christensen	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 3/8/11
DATE PREPARED 01/20/11	PEER REVIEW / DATE T. Hummel P.E. 1/21/11	DATE PREPARED 03/08/11	PEER REVIEW / DATE <i>[Signature]</i> 3/9/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

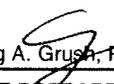
BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET 5 OF 7

FEATURE: Klamath River Dams Removal Yreka water supply Yreka pipe crossing - mount pipe on haul bridge Iron Gate Reservoir Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPL - Appraisal Est - 4-2011.xlsx\Pipe Crossing
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
	20	Three span, pre-engineered pipe support access bridge, with 7.5' box truss Span lengths are 100', 200', 100'. Support one 24" Dia. Welded steel pipe. Steel pipe and supports, Wt.=150 lbs/linear ft Water, Wt.=200 lbs/linear ft	86-68140	0	ea	\$650,000.00	
		Finish & place reinforced concrete caps for abutment 1 and pier 1 (4' diameter column)					
	21	Concrete	86-68140	0	cy	\$2,400.00	
	22	Reinforcement, epoxy coated	86-68140	0	lb	\$1.90	
		Drilled shafts					
	23	5'-0" Diameter @ pier 1 (Pier drilled shaft requires 12 CY of concrete and 5,000 lbs of reinforcement)	86-68140	0	lf	\$5,500.00	
	24	3'-0" Diameter @ abutment 1 (Abutment drilled shafts require 14 CY of concrete and 8,000 lbs of reinforcement)	86-68140	0	lf	\$1,400.00	
		SUBTOTAL THIS SHEET					

QUANTITIES		PRICES	
BY Sayer	CHECKED Clough 1/11/11	BY  Craig A. Grush, P.E.	CHECKED  05-23-11
DATE PREPARED 01/10/11	PEER REVIEW / DATE Jesus Romero, PE 1/12/11	DATE PREPARED 05/23/11	PEER REVIEW / DATE  5/24/11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED

BUREAU OF RECLAMATION

ESTIMATE WORKSHEET

SHEET _ 6 _ OF _ 7 _

FEATURE: Klamath River Dams Removal Yreka water supply Yreka pipe crossing - mount pipe on haul bridge Iron Gate Reservoir Most Probable Low	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Klamath Dams Removal - Yreka Water Supply Line - MPL - Appraisal Est - 4-2011.xlsx\Pipe Crossing
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		CIVIL					
		Furnish & place reinforced concrete caps for abutment 2 and pier 2 (4' diameter column)					
	25	Concrete	86-68140	0	cy	\$2,400.00	
	26	Reinforcement, epoxy coated	86-68140	0	lb	\$1.90	
		Drilled shafts					
	27	5'-0" Diameter @ pier 2 (Pier drilled shaft requires 12 CY of concrete and 5,000 lbs of reinforcement)	86-68140	0	lf	\$5,500.00	
	28	3'-0" Diameter @ abutment 2 (Abutment drilled shafts require 14 CY of concrete and 8,000 lbs of reinforcement)	86-68140	0	lf	\$1,400.00	
	29	Remove & dispose existing steel pipe, 1/4 inch wall, 24" dia. assume contains heavy metals	86-68140	0	lf	\$45.00	
	30	Welded steel pipe, 1/4 inch wall, 24 inch dia. epoxy primer, polyurethane top coat, exterior coal-tar epoxy lined	86-68140	2,100	lf	\$190.00	\$399,000.00
	31	Install/Remove 2 access ramps for piers, dumped compacted gravel in river	86-68140	0	cy	\$95.00	
	32	Excavation for pipe trench	86-68140	1,800	cy	\$14.00	\$25,200.00
	33	CLSM pipe bedding	86-68140	200	cy	\$285.00	\$57,000.00
	34	Backfill in pipe trench	86-68140	1,400	cy	\$28.00	\$39,200.00
		PIPE CROSSING SUBTOTAL					\$520,400.00

QUANTITIES		PRICES	
BY	CHECKED Sayer	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-23-11
DATE PREPARED 01/05/11	PEER REVIEW / DATE Jesus Romero, PE 1/09/11	DATE PREPARED 05/23/11	PEER REVIEW / DATE <i>[Signature]</i> 5/24/11

FEATURE: Klamath River Dams Removal Yreka water supply Most Probable Low SUMMARY	PROJECT: Klamath River Northern California/Southern Oregon <hr/> WOID: AF121 ESTIMATE LEVEL: Appraisal <hr/> REGION: MP UNIT PRICE LEVEL: July-2010 <hr/> FILE: C:\Craig Stuff @ Work\{2011 PP.xlsx\PP1110
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Dam A Modifications					\$198,306.00
		Dam B Modifications					\$202,192.00
		Pipe Crossing					\$520,400.00
		Subtotal					\$920,898.00
		Mobilization	5%	+/-			\$46,000.00
		Subtotal 1 with Mobilization					\$966,898.00
		Escalation to Notice to Proceed (NTP), from July 2010 to July 2020 (assumes 1.5%/yr compounding over 10 years)					\$155,227.00
		Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP					\$1,122,125.00
		Design Contingencies	13%	+/-			\$127,875.00
		Allowance for Procurement Strategies (APS)	0%	+/-			
		Type of solicitation assumed is: Competitive RFP					
		CONTRACT COST					\$1,250,000.00
		Construction Contingencies	23%	+/-			\$300,000.00
		FIELD COST					\$1,550,000.00
		Non-Contract Costs:	52%	+/-			\$850,000.00
		(Environmental & Cultural Resources Mitigation ~ 35%, Design Data Collection ~ 1%, Engineering Design ~ 3%, Permitting ~ 2%, Procurement ~ 1%, Construction Management ~ 9%, and Closeout ~ 1%)					
		CONSTRUCTION COST					\$2,400,000.00

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Refer to Previous Sheets	CHECKED Refer to Previous Sheets	BY <i>[Signature]</i> Craig A. Grush, P.E.	CHECKED <i>[Signature]</i> 05-10-11
DATE PREPARED	PEER REVIEW / DATE Refer to Previous Sheets	DATE PREPARED 05/10/11	PEER REVIEW / DATE <i>[Signature]</i> 05-10-11

PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED
ESTIMATE WORKSHEET

FEATURE: Klamath River Dams Removal Yreka Water Supply Escalation Included SUMMARY ESTIMATE	PROJECT: Klamath River, Northern California/Southern Oregon WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP PRICE LEVEL: Jul-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Yreka Crystal Ball - with Escalation - 2011-04.xls\Yreka Water Supply - with Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
		Dam A Modifications											
	1	Remove & dispose steel frame with slide gates/weirs		1	1	1	ea	\$6,000.00	\$6,500.00	\$7,000.00	\$6,000.00	\$6,500.00	\$7,000.00
	2	Remove & dispose by steel bulkhead panel		1	1	1	ea	\$950.00	\$1,000.00	\$1,050.00	\$950.00	\$1,000.00	\$1,050.00
	3	Remove & dispose fish screen panels		6	6	6	ea	\$950.00	\$1,000.00	\$1,050.00	\$5,700.00	\$6,000.00	\$6,300.00
	4	Cut, remove concrete deck		2.4	2.4	2.4	cf	\$140.00	\$150.00	\$160.00	\$336.00	\$360.00	\$384.00
	5	Remove & dipose wood frame building		1	1	1	ea	\$24,000.00	\$25,000.00	\$26,000.00	\$24,000.00	\$25,000.00	\$26,000.00
	6	Furnish, install wood frame building		1	1	1	ea	\$47,500.00	\$50,000.00	\$52,500.00	\$47,500.00	\$50,000.00	\$52,500.00
	7	Furnish & install steel slide gate with pedestal lift		2	2	2	ea	\$3,800.00	\$4,000.00	\$4,200.00	\$7,600.00	\$8,000.00	\$8,400.00
	7a	Furnish and place concrete walls		0	0	3.1	cy	\$1,250.00	\$1,300.00	\$1,350.00	\$0.00	\$0.00	\$4,185.00
	7b	Extend 220v power to the site		0	0	350	lf	\$140.00	\$150.00	\$160.00	\$0.00	\$0.00	\$56,000.00
	7c	Diversion & care		0	0	1	ls	\$95,000.00	\$100,000.00	\$105,000.00	\$0.00	\$0.00	\$105,000.00
	8	Furnish and install cylindrical tee fish screen		1	1	1	ea	\$95,000.00	\$100,000.00	\$150,000.00	\$95,000.00	\$100,000.00	\$150,000.00
	9a	Furnish and install three bulkheads		1,500	1,500	0	lbs	\$7.00	\$7.50	\$8.00	\$10,500.00	\$11,250.00	\$0.00
	9b	Furnish and install epoxy anchors for bulkheads		30	30	0	ea	\$24.00	\$25.00	\$26.00	\$720.00	\$750.00	\$0.00
		Dam B Modifications											
	10	Excavation for structure		40	40	40	cy	\$75.00	\$80.00	\$120.00	\$3,000.00	\$3,200.00	\$4,800.00
	11	Compacted backfill for structure		30	30	30	cy	\$55.00	\$60.00	\$65.00	\$1,650.00	\$1,800.00	\$1,950.00
	12	Concrete removal, 2'x2' cut opening		4	4	4	cf	\$140.00	\$150.00	\$160.00	\$560.00	\$600.00	\$640.00
	13	Furnish & place concrete in structure		8	8	8	cy	\$1,250.00	\$1,300.00	\$1,350.00	\$10,000.00	\$10,400.00	\$10,800.00
	14	Remove & dipose existing trashrack		1	1	1	ea	\$2,400.00	\$2,500.00	\$2,600.00	\$2,400.00	\$2,500.00	\$2,600.00
	15	Furnish & install grating		25	25	25	sf	\$190.00	\$200.00	\$210.00	\$4,750.00	\$5,000.00	\$5,250.00
	15a	Furnish and place concrete wall		0	0	1.8	cy	\$2,100.00	\$2,200.00	\$2,325.00	\$0.00	\$0.00	\$4,185.00
	15b	Extend 220v power to the site		0	0	280	lf	\$140.00	\$150.00	\$160.00	\$0.00	\$0.00	\$44,800.00
	16	Diversion & care		1	1	1	ls	\$47,500.00	\$50,000.00	\$75,000.00	\$47,500.00	\$50,000.00	\$75,000.00
	17	Create access to dam		1	1	1	ls	\$28,500.00	\$30,000.00	\$50,000.00	\$28,500.00	\$30,000.00	\$50,000.00
	18	Furnish and install cylindrical tee fish screen		1	1	1	ea	\$95,000.00	\$100,000.00	\$150,000.00	\$95,000.00	\$100,000.00	\$150,000.00
	19a	Furnish and install bulkhead to replace trashrack,		1,200	1,200	0	lbs	\$7.00	\$7.50	\$8.00	\$8,400.00	\$9,000.00	\$0.00
	19b	Furnish and install epoxy anchors for bulkheads		18	18	0	ea	\$24.00	\$25.00	\$26.00	\$432.00	\$450.00	\$0.00
		Yreka Pipe Crossing											
	20	F & I 3-span, pre-engineered pipe support bridge		0	1	1	ea	\$650,000.00	\$700,000.00	\$1,365,000.00	\$0.00	\$700,000.00	\$1,365,000.00
	21	Furnish & place abutment 1 concrete cap		0	25	25	cy	\$2,400.00	\$2,500.00	\$2,600.00	\$0.00	\$62,500.00	\$65,000.00
	22	Furnish & place abutment 1 reinforcement, epoxy coated		0	10,000	10,000	lb	\$1.90	\$2.00	\$2.10	\$0.00	\$20,000.00	\$21,000.00
	23	5'- dia reinforced concrete drilled shaft for pier 1		0	16	16	lf	\$5,500.00	\$6,000.00	\$10,000.00	\$0.00	\$96,000.00	\$160,000.00
	24	3'- dia reinforced concrete drilled shaft for pier 1		0	52	52	lf	\$1,400.00	\$1,500.00	\$2,500.00	\$0.00	\$78,000.00	\$130,000.00
	25	Furnish & place abutment 2 concrete cap		0	25	25	cy	\$2,400.00	\$2,500.00	\$2,600.00	\$0.00	\$62,500.00	\$65,000.00
	26	Furnish & place abutment 2 reinforcement, epoxy coated		0	10,000	10,000	lb	\$1.90	\$2.00	\$2.10	\$0.00	\$20,000.00	\$21,000.00
	27	5'- dia reinforced concrete drilled shaft for pier 2		0	16	16	lf	\$5,500.00	\$6,000.00	\$10,000.00	\$0.00	\$96,000.00	\$160,000.00
	28	3'- dia reinforced concrete drilled shaft for pier 2		0	52	52	lf	\$1,400.00	\$1,500.00	\$2,500.00	\$0.00	\$78,000.00	\$130,000.00
	29	Remove & dispose existing steel pipe,		0	20	20	lf	\$45.00	\$50.00	\$52.00	\$0.00	\$1,000.00	\$1,040.00
	30	Welded steel pipe, 1/4 inch wall, 24 inch dia.		2,100	490	490	lf	\$190.00	\$200.00	\$210.00	\$399,000.00	\$98,000.00	\$102,900.00
	31	Install/Remove 2 access ramps for piers,		0	270	270	cy	\$95.00	\$100.00	\$150.00	\$0.00	\$27,000.00	\$40,500.00
	32	Excavation for pipe trench		1,800	70	70	cy	\$14.00	\$15.00	\$25.00	\$25,200.00	\$1,050.00	\$1,750.00
	33	CLSM pipe bedding		200	8	8	cy	\$285.00	\$300.00	\$315.00	\$57,000.00	\$2,400.00	\$2,520.00
	34	Backfill in pipe trench		1,400	55	55	cy	\$28.00	\$30.00	\$32.00	\$39,200.00	\$1,650.00	\$1,760.00
		Subtotal 1									\$920,898.00	\$1,765,910.00	\$3,034,314.00
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	\$46,000.00	\$88,000.00	\$150,000.00	\$46,000.00	\$88,000.00	\$150,000.00

FEATURE: Klamath River Dams Removal Yreka Water Supply Escalation Included SUMMARY ESTIMATE	PROJECT: Klamath River, Northern California/Southern Oregon WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP PRICE LEVEL: Jul-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Yreka Crystal Ball - with Escalation - 2011-04.xls\Yreka Water Supply - with Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
		Subtotal 1 w/ mobilization											
		Escalation to Notice to Proceed (NTP) from Unit Price Level (July 2010) to NTP (Jan. 2020) MPL - 1.5% / year for 10 yr.; MP - 3.0% /year for 10 yr.; MPH - 4.375% / year for 10 yr.		1	1	1	ls	\$155,227.00	\$637,590.00	\$1,701,993.00	\$155,227.00	\$637,590.00	\$1,701,993.00
		Design Contingencies (MPL ~ 13%; MP ~ 15%; MPH ~ 20%)		1	1	1	ls	\$127,875.00	\$408,500.00	\$996,422.00	\$127,875.00	\$408,500.00	\$996,422.00
		APS = Allowance for Procurement Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)		1	1	1	ls	\$0.00	\$0.00	\$117,271.00	\$0.00	\$0.00	\$117,271.00
		CONTRACT COST									\$1,250,000.00	\$2,900,000.00	\$6,000,000.00
		Construction Contingencies (MPL ~ 23%; MP ~ 25%; MPH ~ 30%)		1	1	1	ls	\$300,000.00	\$700,000.00	\$1,800,000.00	\$300,000.00	\$700,000.00	\$1,800,000.00
		FIELD COST									\$1,550,000.00	\$3,600,000.00	\$7,800,000.00
		Non-Contract Cost (MPL ~ 52%; MP ~ 55%; MPH ~ 61%)		1	1	1	ls	\$850,000.00	\$2,000,000.00	\$4,700,000.00	\$850,000.00	\$2,000,000.00	\$4,700,000.00
		CONSTRUCTION COST									\$2,400,000.00	\$5,600,000.00	\$12,500,000.00
Notes: This estimate does not include non-contract costs and should not be used for funding purposes. Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)													

QUANTITIES						PRICES					
BY	See Group Worksheets	CHECKED: See Group Worksheets	BY	Craig Grush, P.E.	CHECKED	<i>[Signature]</i>					
DATE PREPARED	1/20/2011	PEER REVIEW: See Group Worksheets	DATE PREPARED	05/24/11	PEER REVIEW	<i>[Signature]</i> 5/24/11					

Crystal Ball Report - Full

Simulation started on 5/26/2011 at 9:54:13

Simulation stopped on 5/26/2011 at 9:57:42

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 36.68
Trials/second (average) 273
Random numbers per sec 25,629

Crystal Ball data:

Assumptions 94
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP

UNIT PRICES BY Craig A. Grush

DATE 5/26/2011

DATE	PEER REVIEWER(S)	CODE
6/1	<i>[Signature]</i> Signature	9174
11/11	DAV NATA Printed Name	
	Signature	
	Printed Name	
Author Initials		PEER REVIEW NOT REQUIRED

Forecasts

Worksheet: [Yreka Crystal Ball - with Escalation - 2011-04.xls]Yreka Water Supply - with Esc

Forecast: Construction Cost - Yreka Water Supply - With Escalation

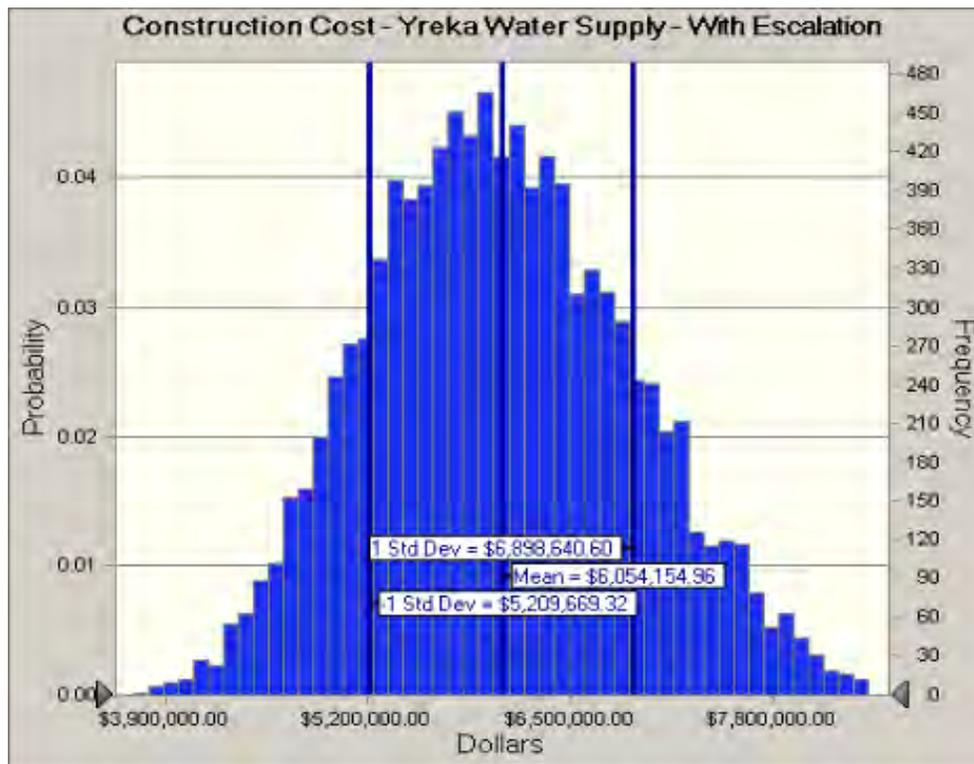
Cell: U72

Summary:

Entire range is from \$3,457,244.18 to \$9,546,517.64

Base case is \$5,600,000.00

After 10,000 trials, the std. error of the mean is \$8,444.86



**Forecast: Construction Cost - Yreka Water Supply - With Escalation
(cont'd)**

Cell: U72

Statistics:	Forecast values
Trials	10,000
Mean	\$6,054,154.96
Median	\$6,012,477.88
Mode	---
Standard Deviation	\$844,485.64
Variance	\$713,155,989,820.45
Skewness	0.2219
Kurtosis	2.81
Coeff. of Variability	0.1395
Minimum	\$3,457,244.18
Maximum	\$9,546,517.64
Range Width	\$6,089,273.47
Mean Std. Error	\$8,444.86

Percentiles:	Forecast values
0%	\$3,457,244.18
10%	\$4,986,215.27
20%	\$5,320,334.79
30%	\$5,571,665.13
40%	\$5,796,248.26
50%	\$6,012,244.06
60%	\$6,238,714.68
70%	\$6,477,250.01
80%	\$6,783,151.73
90%	\$7,176,677.91
100%	\$9,546,517.64

Forecast: Contract Cost - Yreka Water Supply - With Escalation

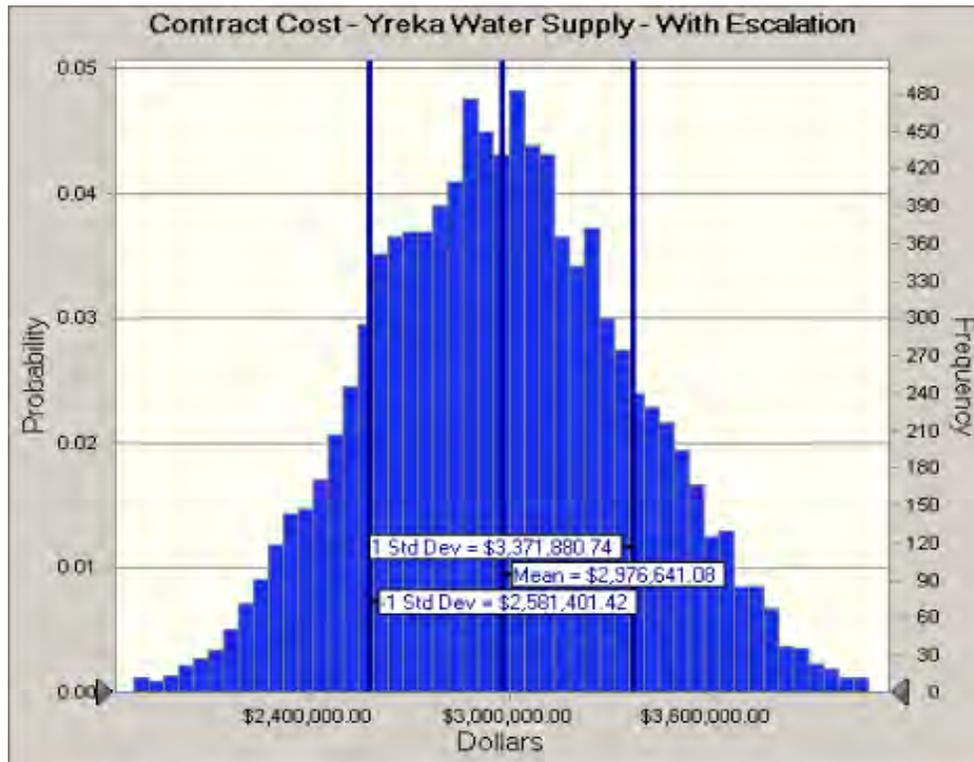
Cell: U68

Summary:

Entire range is from \$1,573,796.32 to \$4,393,918.53

Base case is \$2,900,000.00

After 10,000 trials, the std. error of the mean is \$3,952.40



Forecast: Contract Cost - Yreka Water Supply - With Escalation (cont'd)

Cell: U68

Statistics:	Forecast values
Trials	10,000
Mean	\$2,976,641.08
Median	\$2,968,584.03
Mode	---
Standard Deviation	\$395,239.66
Variance	\$156,214,389,648.94
Skewness	0.1030
Kurtosis	2.84
Coeff. of Variability	0.1328
Minimum	\$1,573,796.32
Maximum	\$4,393,918.53
Range Width	\$2,820,122.21
Mean Std. Error	\$3,952.40

Percentiles:	Forecast values
0%	\$1,573,796.32
10%	\$2,477,563.14
20%	\$2,634,630.72
30%	\$2,755,453.48
40%	\$2,871,227.59
50%	\$2,968,555.21
60%	\$3,066,165.58
70%	\$3,179,809.97
80%	\$3,312,634.50
90%	\$3,501,087.92
100%	\$4,393,918.53

Forecast: Field Cost - Yreka Water Supply - With Escalation

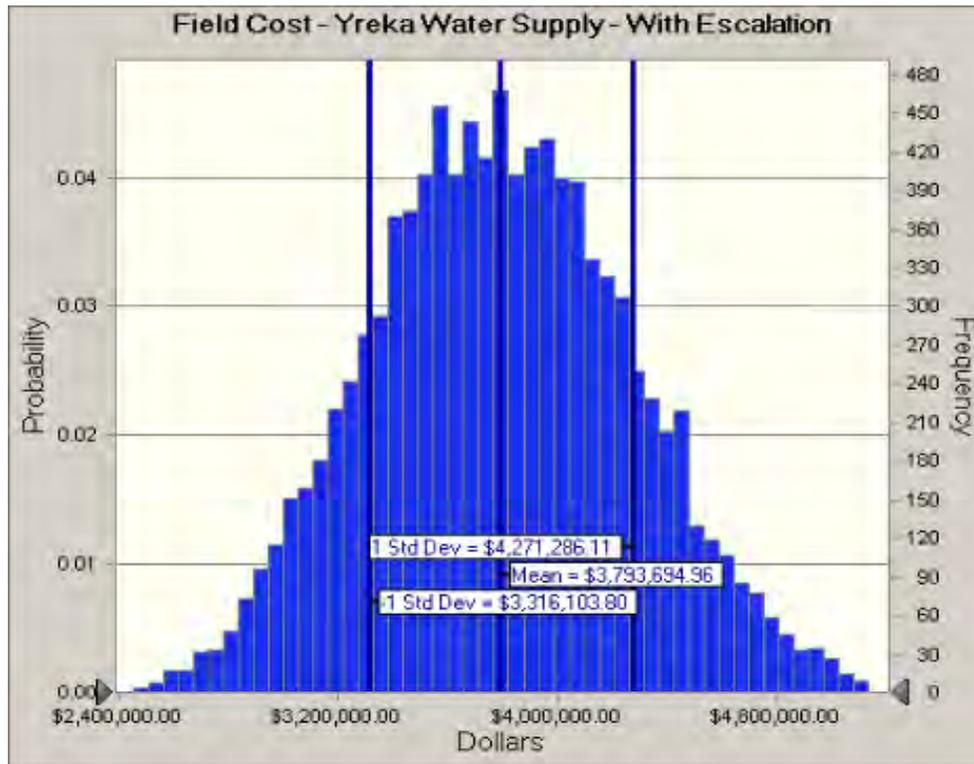
Cell: U70

Summary:

Entire range is from \$2,018,075.68 to \$5,559,615.95

Base case is \$3,600,000.00

After 10,000 trials, the std. error of the mean is \$4,775.91



Forecast: Field Cost - Yreka Water Supply - With Escalation (cont'd)

Cell: U70

Statistics:	Forecast values
Trials	10,000
Mean	\$3,793,694.96
Median	\$3,783,030.36
Mode	---
Standard Deviation	\$477,591.16
Variance	\$228,093,311,559.82
Skewness	0.1139
Kurtosis	2.87
Coeff. of Variability	0.1259
Minimum	\$2,018,075.68
Maximum	\$5,559,615.95
Range Width	\$3,541,540.27
Mean Std. Error	\$4,775.91

Percentiles:	Forecast values
0%	\$2,018,075.68
10%	\$3,178,499.68
20%	\$3,387,801.00
30%	\$3,532,307.50
40%	\$3,659,555.95
50%	\$3,782,906.06
60%	\$3,912,644.15
70%	\$4,043,263.12
80%	\$4,198,255.04
90%	\$4,418,999.64
100%	\$5,559,615.95

End of Forecasts

Assumptions

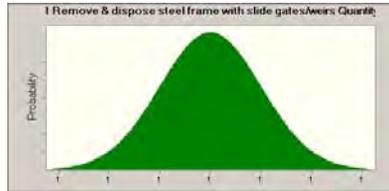
Worksheet: [Yreka Crystal Ball - with Escalation - 2011-04.xls]Yreka Water Supply - with Esc

Assumption: 1 Remove & dispose steel frame with slide gates/weirs Quantity

Cell: L15

Normal distribution with parameters:

Mean	1	(=L15)
Std. Dev.	0	(=0.000001)

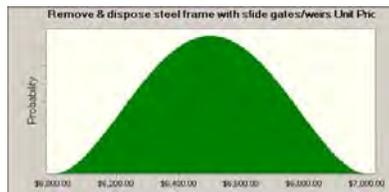


Assumption: 1 Remove & dispose steel frame with slide gates/weirs Unit Price

Cell: R15

BetaPERT distribution with parameters:

Minimum	\$6,000.00	(=Q15)
Likeliest	\$6,500.00	(=R15)
Maximum	\$7,000.00	(=S15)

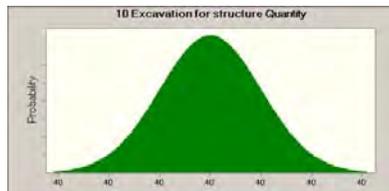


Assumption: 10 Excavation for structure Quantity

Cell: L29

Normal distribution with parameters:

Mean	40	(=L29)
Std. Dev.	0	(=0.000001)

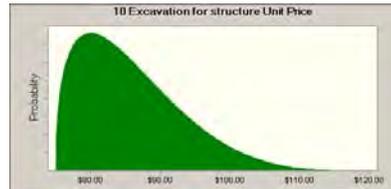


Assumption: 10 Excavation for structure Unit Price

Cell: R29

BetaPERT distribution with parameters:

Minimum	\$75.00	(=Q29)
Likeliest	\$80.00	(=R29)
Maximum	\$120.00	(=S29)

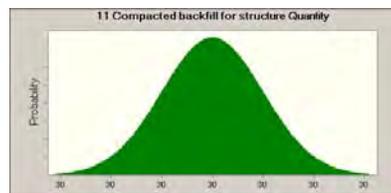


Assumption: 11 Compacted backfill for structure Quantity

Cell: L30

Normal distribution with parameters:

Mean	30	(=L30)
Std. Dev.	0	(=0.000001)

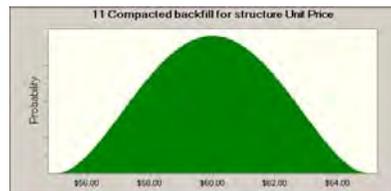


Assumption: 11 Compacted backfill for structure Unit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q30)
Likeliest	\$60.00	(=R30)
Maximum	\$65.00	(=S30)

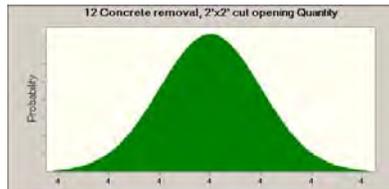


Assumption: 12 Concrete removal, 2'x2' cut opening Quantity

Cell: L31

Normal distribution with parameters:

Mean	4	(=L31)
Std. Dev.	0	(=0.000001)



Assumption: 12 Concrete removal, 2'x2' cut opening Unit Price

Cell: R31

BetaPERT distribution with parameters:

Minimum	\$140.00	(=Q31)
Likeliest	\$150.00	(=R31)
Maximum	\$160.00	(=S31)

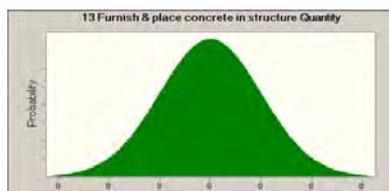


Assumption: 13 Furnish & place concrete in structure Quantity

Cell: L32

Normal distribution with parameters:

Mean	8	(=L32)
Std. Dev.	0	(=0.000001)



Assumption: 13 Furnish & place concrete in structure Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$1,250.00	(=Q32)
Likeliest	\$1,300.00	(=R32)
Maximum	\$1,350.00	(=S32)

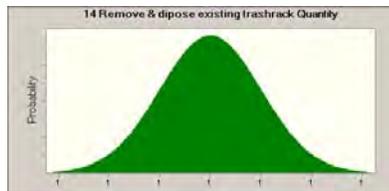


Assumption: 14 Remove & dispose existing trashrack Quantity

Cell: L33

Normal distribution with parameters:

Mean	1	(=L33)
Std. Dev.	0	(=0.000001)

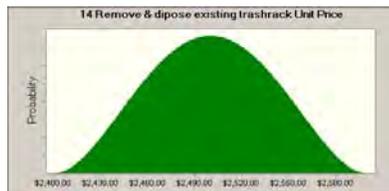


Assumption: 14 Remove & dispose existing trashrack Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum	\$2,400.00	(=Q33)
Likeliest	\$2,500.00	(=R33)
Maximum	\$2,600.00	(=S33)



Assumption: 15 Furnish & install grating Quantity

Cell: L34

Normal distribution with parameters:

Mean	25	(=L34)
Std. Dev.	0	(=0.000001)



Assumption: 15 Furnish & install grating Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$190.00	(=Q34)
Likeliest	\$200.00	(=R34)
Maximum	\$210.00	(=S34)

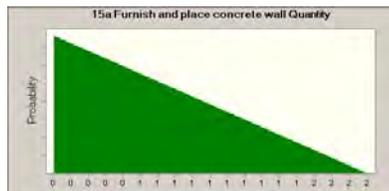


Assumption: 15a Furnish and place concrete wall Quantity

Cell: L35

Triangular distribution with parameters:

Minimum	0	(=K35)
Likeliest	0	(=L35)
Maximum	2	(=M35)



Assumption: 15a Furnish and place concrete wall Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$2,100.00	(=Q35)
Likeliest	\$2,200.00	(=R35)
Maximum	\$2,325.00	(=S35)



Assumption: 15b Extend 220v power to the site Quantity

Cell: L36

Triangular distribution with parameters:

Minimum	0	(=K36)
Likeliest	0	(=L36)
Maximum	280	(=M36)



Assumption: 15b Extend 220v power to the site Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum	\$140.00	(=Q36)
Likeliest	\$150.00	(=R36)
Maximum	\$160.00	(=S36)

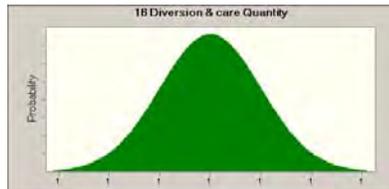


Assumption: 16 Diversion & care Quantity

Cell: L37

Normal distribution with parameters:

Mean	1	(=L37)
Std. Dev.	0	(=0.000001)



Assumption: 16 Diversion & care Unit Price

Cell: R37

BetaPERT distribution with parameters:

Minimum	\$47,500.00	(=Q37)
Likeliest	\$50,000.00	(=R37)
Maximum	\$75,000.00	(=S37)

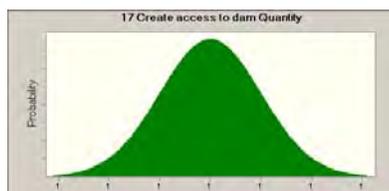


Assumption: 17 Create access to dam Quantity

Cell: L38

Normal distribution with parameters:

Mean	1	(=L38)
Std. Dev.	0	(=0.000001)

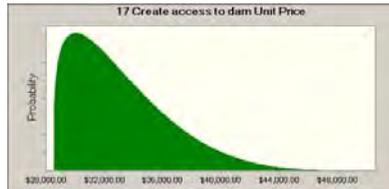


Assumption: 17 Create access to dam Unit Price

Cell: R38

BetaPERT distribution with parameters:

Minimum	\$28,500.00	(=Q38)
Likeliest	\$30,000.00	(=R38)
Maximum	\$50,000.00	(=S38)

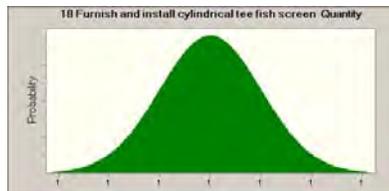


Assumption: 18 Furnish and install cylindrical tee fish screen Quantity

Cell: L39

Normal distribution with parameters:

Mean	1	(=L39)
Std. Dev.	0	(=0.000001)

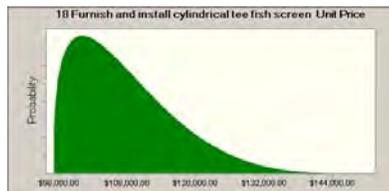


Assumption: 18 Furnish and install cylindrical tee fish screen Unit Price

Cell: R39

BetaPERT distribution with parameters:

Minimum	\$95,000.00	(=Q39)
Likeliest	\$100,000.00	(=R39)
Maximum	\$150,000.00	(=S39)

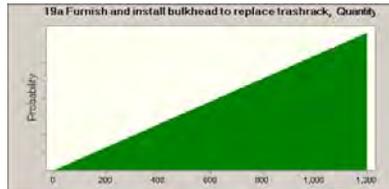


**Assumption: 19a Furnish and install bulkhead to replace trashrack,
Quantity**

Cell: L40

Triangular distribution with parameters:

Minimum	0	(=M40)
Likeliest	1,200	(=L40)
Maximum	1,200	(=K40)



**Assumption: 19a Furnish and install bulkhead to replace trashrack,
Unit Price**

Cell: R40

BetaPERT distribution with parameters:

Minimum	\$7.00	(=Q40)
Likeliest	\$7.50	(=R40)
Maximum	\$8.00	(=S40)

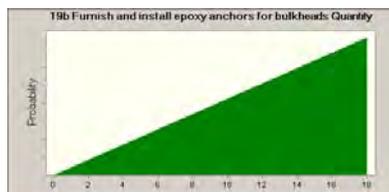


**Assumption: 19b Furnish and install epoxy anchors for bulkheads
Quantity**

Cell: L41

Triangular distribution with parameters:

Minimum	0	(=M41)
Likeliest	18	(=L41)
Maximum	18	(=K41)

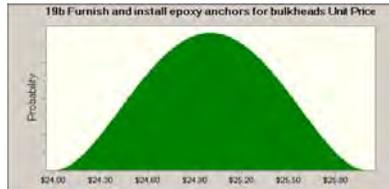


**Assumption: 19b Furnish and install epoxy anchors for bulkheads
Unit Price**

Cell: R41

BetaPERT distribution with parameters:

Minimum	\$24.00	(=Q41)
Likeliest	\$25.00	(=R41)
Maximum	\$26.00	(=S41)

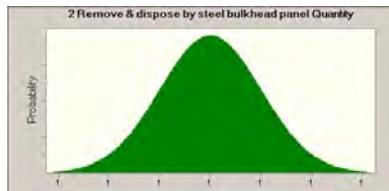


Assumption: 2 Remove & dispose by steel bulkhead panel Quantity

Cell: L16

Normal distribution with parameters:

Mean	1	(=L16)
Std. Dev.	0	(=0.000001)



Assumption: 2 Remove & dispose by steel bulkhead panel Unit Price

Cell: R16

BetaPERT distribution with parameters:

Minimum	\$950.00	(=Q16)
Likeliest	\$1,000.00	(=R16)
Maximum	\$1,050.00	(=S16)

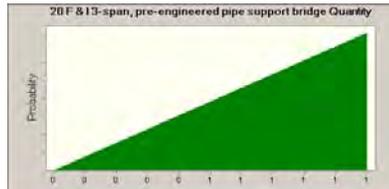


**Assumption: 20 F & I 3-span, pre-engineered pipe support bridge
Quantity**

Cell: L43

Triangular distribution with parameters:

Minimum	0	(=K43)
Likeliest	1	(=L43)
Maximum	1	(=M43)

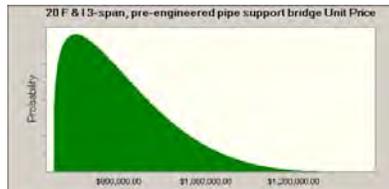


**Assumption: 20 F & I 3-span, pre-engineered pipe support bridge
Unit Price**

Cell: R43

BetaPERT distribution with parameters:

Minimum	\$650,000.00	(=Q43)
Likeliest	\$700,000.00	(=R43)
Maximum	\$1,365,000.00	(=S43)



Assumption: 21 Furnish & place abutment 1 concrete cap Quantity

Cell: L44

Triangular distribution with parameters:

Minimum	0	(=K44)
Likeliest	25	(=L44)
Maximum	25	(=M44)



Assumption: 21 Furnish & place abutment 1 concrete cap Unit Price

Cell: R44

BetaPERT distribution with parameters:

Minimum	\$2,400.00	(=Q44)
Likeliest	\$2,500.00	(=R44)
Maximum	\$2,600.00	(=S44)



Assumption: 22 Furnish & place abutment 1 reinforcement, epoxy coated Quantity

Cell: L45

Triangular distribution with parameters:

Minimum	0	(=K45)
Likeliest	10,000	(=L45)
Maximum	10,000	(=M45)

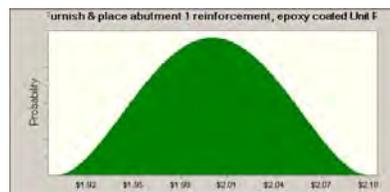


Assumption: 22 Furnish & place abutment 1 reinforcement, epoxy coated Unit Price

Cell: R45

BetaPERT distribution with parameters:

Minimum	\$1.90	(=Q45)
Likeliest	\$2.00	(=R45)
Maximum	\$2.10	(=S45)



**Assumption: 23 5'- dia reinforced concrete drilled shaft for pier 1
Quantity**

Cell: L46

Triangular distribution with parameters:

Minimum	0	(=K46)
Likeliest	16	(=L46)
Maximum	16	(=M46)

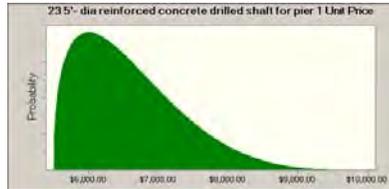


**Assumption: 23 5'- dia reinforced concrete drilled shaft for pier 1
Unit Price**

Cell: R46

BetaPERT distribution with parameters:

Minimum	\$5,500.00	(=Q46)
Likeliest	\$6,000.00	(=R46)
Maximum	\$10,000.00	(=S46)

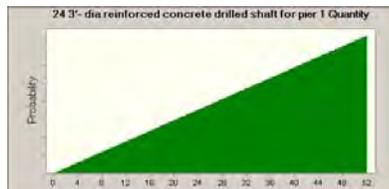


**Assumption: 24 3'- dia reinforced concrete drilled shaft for pier 1
Quantity**

Cell: L47

Triangular distribution with parameters:

Minimum	0	(=K47)
Likeliest	52	(=L47)
Maximum	52	(=M47)

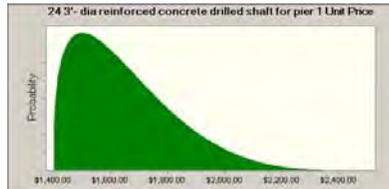


**Assumption: 24 3'- dia reinforced concrete drilled shaft for pier 1
Unit Price**

Cell: R47

BetaPERT distribution with parameters:

Minimum	\$1,400.00	(=Q47)
Likeliest	\$1,500.00	(=R47)
Maximum	\$2,500.00	(=S47)



Assumption: 25 Furnish & place abutment 2 concrete cap Quantity

Cell: L48

Triangular distribution with parameters:

Minimum	0	(=K48)
Likeliest	25	(=L48)
Maximum	25	(=M48)



Assumption: 25 Furnish & place abutment 2 concrete cap Unit Price

Cell: R48

BetaPERT distribution with parameters:

Minimum	\$2,400.00	(=Q48)
Likeliest	\$2,500.00	(=R48)
Maximum	\$2,600.00	(=S48)



**Assumption: 26 Furnish & place abutment 2 reinforcement, epoxy coated
Quantity**

Cell: L49

Triangular distribution with parameters:

Minimum	0	(=K49)
Likeliest	10,000	(=L49)
Maximum	10,000	(=M49)



**Assumption: 26 Furnish & place abutment 2 reinforcement, epoxy coated
Unit Price**

Cell: R49

BetaPERT distribution with parameters:

Minimum	\$1.90	(=Q49)
Likeliest	\$2.00	(=R49)
Maximum	\$2.10	(=S49)



**Assumption: 27 5'- dia reinforced concrete drilled shaft for pier 2
Quantity**

Cell: L50

Triangular distribution with parameters:

Minimum	0	(=K50)
Likeliest	16	(=L50)
Maximum	16	(=M50)



Assumption: 27 5'- dia reinforced concrete drilled shaft for pier 2

Cell: R50

Unit Price

BetaPERT distribution with parameters:

Minimum	\$5,500.00	(=Q50)
Likeliest	\$6,000.00	(=R50)
Maximum	\$10,000.00	(=S50)



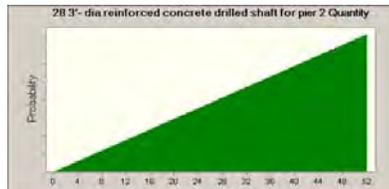
Assumption: 28 3'- dia reinforced concrete drilled shaft for pier 2

Cell: L51

Quantity

Triangular distribution with parameters:

Minimum	0	(=K51)
Likeliest	52	(=L51)
Maximum	52	(=M51)



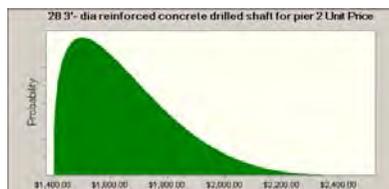
Assumption: 28 3'- dia reinforced concrete drilled shaft for pier 2

Cell: R51

Unit Price

BetaPERT distribution with parameters:

Minimum	\$1,400.00	(=Q51)
Likeliest	\$1,500.00	(=R51)
Maximum	\$2,500.00	(=S51)

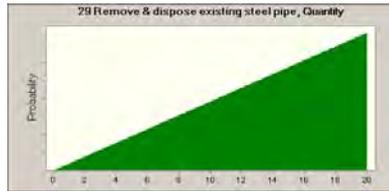


Assumption: 29 Remove & dispose existing steel pipe, Quantity

Cell: L52

Triangular distribution with parameters:

Minimum	0	(=K52)
Likeliest	20	(=L52)
Maximum	20	(=M52)



Assumption: 29 Remove & dispose existing steel pipe, Unit Price

Cell: R52

BetaPERT distribution with parameters:

Minimum	\$45.00	(=Q52)
Likeliest	\$50.00	(=R52)
Maximum	\$52.00	(=S52)

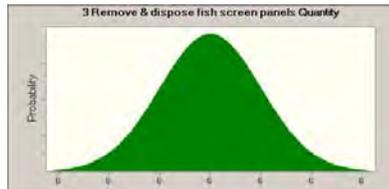


Assumption: 3 Remove & dispose fish screen panels Quantity

Cell: L17

Normal distribution with parameters:

Mean	6	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 3 Remove & dispose fish screen panels Unit Price

Cell: R17

BetaPERT distribution with parameters:

Minimum	\$950.00	(=Q17)
Likeliest	\$1,000.00	(=R17)
Maximum	\$1,050.00	(=S17)

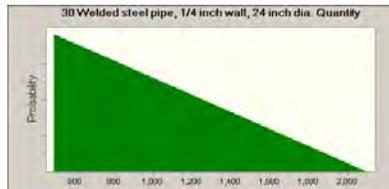


Assumption: 30 Welded steel pipe, 1/4 inch wall, 24 inch dia. Quantity

Cell: L53

Triangular distribution with parameters:

Minimum	490	(=M53)
Likeliest	490	(=L53)
Maximum	2,100	(=K53)



Assumption: 30 Welded steel pipe, 1/4 inch wall, 24 inch dia. Unit Price

Cell: R53

BetaPERT distribution with parameters:

Minimum	\$190.00	(=Q53)
Likeliest	\$200.00	(=R53)
Maximum	\$210.00	(=S53)

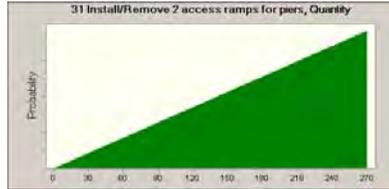


Assumption: 31 Install/Remove 2 access ramps for piers, Quantity

Cell: L54

Triangular distribution with parameters:

Minimum	0	(=K54)
Likeliest	270	(=L54)
Maximum	270	(=M54)



Assumption: 31 Install/Remove 2 access ramps for piers, Unit Price

Cell: R54

BetaPERT distribution with parameters:

Minimum	\$95.00	(=Q54)
Likeliest	\$100.00	(=R54)
Maximum	\$150.00	(=S54)

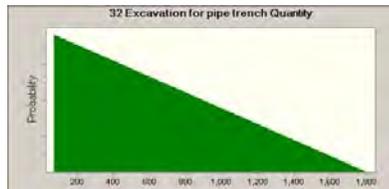


Assumption: 32 Excavation for pipe trench Quantity

Cell: L55

Triangular distribution with parameters:

Minimum	70	(=M55)
Likeliest	70	(=L55)
Maximum	1,800	(=K55)

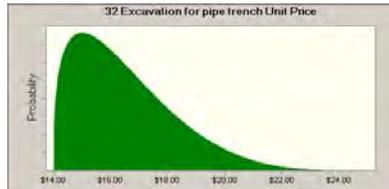


Assumption: 32 Excavation for pipe trench Unit Price

Cell: R55

BetaPERT distribution with parameters:

Minimum	\$14.00	(=Q55)
Likeliest	\$15.00	(=R55)
Maximum	\$25.00	(=S55)

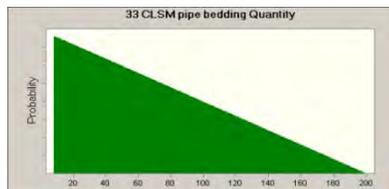


Assumption: 33 CLSM pipe bedding Quantity

Cell: L56

Triangular distribution with parameters:

Minimum	8	(=M56)
Likeliest	8	(=L56)
Maximum	200	(=K56)



Assumption: 33 CLSM pipe bedding Unit Price

Cell: R56

BetaPERT distribution with parameters:

Minimum	\$285.00	(=Q56)
Likeliest	\$300.00	(=R56)
Maximum	\$315.00	(=S56)

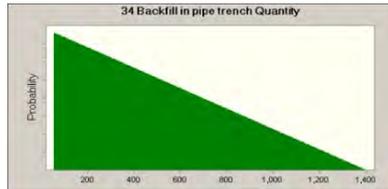


Assumption: 34 Backfill in pipe trench Quantity

Cell: L57

Triangular distribution with parameters:

Minimum	55	(=M57)
Likeliest	55	(=L57)
Maximum	1,400	(=K57)

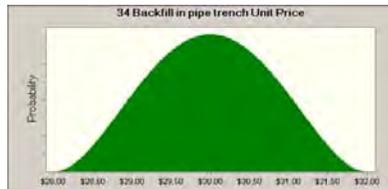


Assumption: 34 Backfill in pipe trench Unit Price

Cell: R57

BetaPERT distribution with parameters:

Minimum	\$28.00	(=Q57)
Likeliest	\$30.00	(=R57)
Maximum	\$32.00	(=S57)

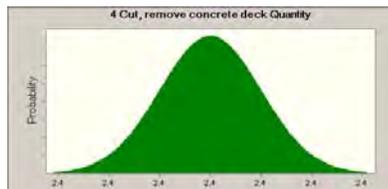


Assumption: 4 Cut, remove concrete deck Quantity

Cell: L18

Normal distribution with parameters:

Mean	2.4	(=L18)
Std. Dev.	0.0	(=0.000001)



Assumption: 4 Cut, remove concrete deck Unit Price

Cell: R18

BetaPERT distribution with parameters:

Minimum	\$140.00	(=Q18)
Likeliest	\$150.00	(=R18)
Maximum	\$160.00	(=S18)

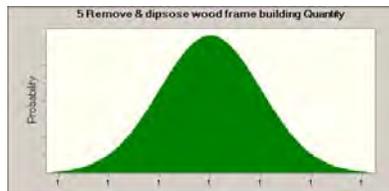


Assumption: 5 Remove & dipsose wood frame building Quantity

Cell: L19

Normal distribution with parameters:

Mean	1	(=L19)
Std. Dev.	0	(=0.000001)



Assumption: 5 Remove & dipsose wood frame building Unit Price

Cell: R19

BetaPERT distribution with parameters:

Minimum	\$24,000.00	(=Q19)
Likeliest	\$25,000.00	(=R19)
Maximum	\$26,000.00	(=S19)

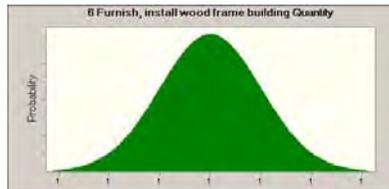


Assumption: 6 Furnish, install wood frame building Quantity

Cell: L20

Normal distribution with parameters:

Mean	1	(=L20)
Std. Dev.	0	(=0.000001)



Assumption: 6 Furnish, install wood frame building Unit Price

Cell: R20

BetaPERT distribution with parameters:

Minimum	\$47,500.00	(=Q20)
Likeliest	\$50,000.00	(=R20)
Maximum	\$52,500.00	(=S20)

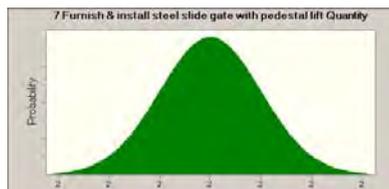


Assumption: 7 Furnish & install steel slide gate with pedestal lift Quantity

Cell: L21

Normal distribution with parameters:

Mean	2	(=L21)
Std. Dev.	0	(=0.000001)



**Assumption: 7 Furnish & install steel slide gate with pedestal lift
Unit Price**

Cell: R21

BetaPERT distribution with parameters:

Minimum	\$3,800.00	(=Q21)
Likeliest	\$4,000.00	(=R21)
Maximum	\$4,200.00	(=S21)



Assumption: 7a Furnish and place concrete walls Quantity

Cell: L22

Triangular distribution with parameters:

Minimum	0	(=K22)
Likeliest	0	(=L22)
Maximum	3	(=M22)



Assumption: 7a Furnish and place concrete walls Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$1,250.00	(=Q22)
Likeliest	\$1,300.00	(=R22)
Maximum	\$1,350.00	(=S22)



Assumption: 7b Extend 220v power to the site Quantity

Cell: L23

Triangular distribution with parameters:

Minimum	0	(=K23)
Likeliest	0	(=L23)
Maximum	350	(=M23)



Assumption: 7b Extend 220v power to the site Unit Price

Cell: R23

BetaPERT distribution with parameters:

Minimum	\$140.00	(=Q23)
Likeliest	\$150.00	(=R23)
Maximum	\$160.00	(=S23)

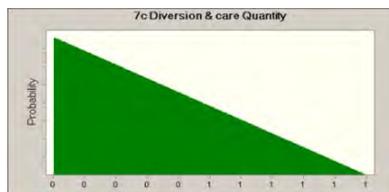


Assumption: 7c Diversion & care Quantity

Cell: L24

Triangular distribution with parameters:

Minimum	0	(=K24)
Likeliest	0	(=L24)
Maximum	1	(=M24)



Assumption: 7c Diversion & care Unit Price

Cell: R24

BetaPERT distribution with parameters:

Minimum	\$95,000.00	(=Q24)
Likeliest	\$100,000.00	(=R24)
Maximum	\$105,000.00	(=S24)

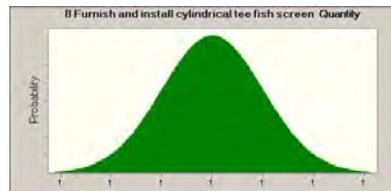


Assumption: 8 Furnish and install cylindrical tee fish screen Quantity

Cell: L25

Normal distribution with parameters:

Mean	1	(=L25)
Std. Dev.	0	(=0.000001)

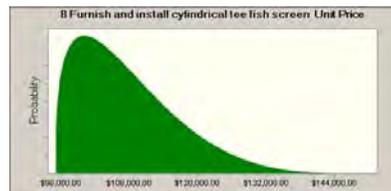


Assumption: 8 Furnish and install cylindrical tee fish screen Unit Price

Cell: R25

BetaPERT distribution with parameters:

Minimum	\$95,000.00	(=Q25)
Likeliest	\$100,000.00	(=R25)
Maximum	\$150,000.00	(=S25)

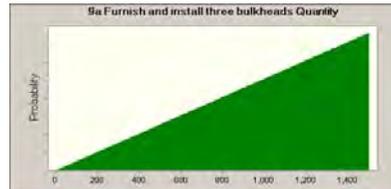


Assumption: 9a Furnish and install three bulkheads Quantity

Cell: L26

Triangular distribution with parameters:

Minimum	0	(=M26)
Likeliest	1,500	(=L26)
Maximum	1,500	(=K26)

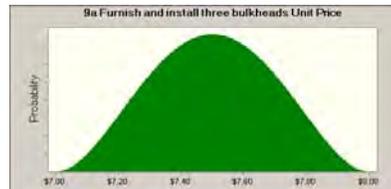


Assumption: 9a Furnish and install three bulkheads Unit Price

Cell: R26

BetaPERT distribution with parameters:

Minimum	\$7.00	(=Q26)
Likeliest	\$7.50	(=R26)
Maximum	\$8.00	(=S26)

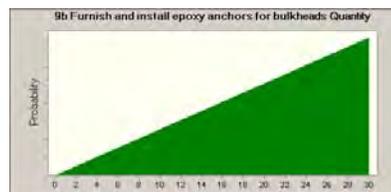


Assumption: 9b Furnish and install epoxy anchors for bulkheads Quantity

Cell: L27

Triangular distribution with parameters:

Minimum	0	(=M27)
Likeliest	30	(=L27)
Maximum	30	(=K27)



**Assumption: 9b Furnish and install epoxy anchors for bulkheads
Unit Price**

Cell: R27

BetaPERT distribution with parameters:

Minimum	\$24.00	(=Q27)
Likeliest	\$25.00	(=R27)
Maximum	\$26.00	(=S27)

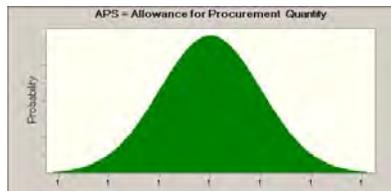


Assumption: APS = Allowance for Procurement Quantity

Cell: L66

Normal distribution with parameters:

Mean	1	(=L66)
Std. Dev.	0	(=0.000001)

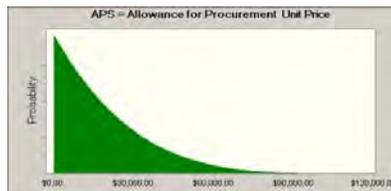


Assumption: APS = Allowance for Procurement Unit Price

Cell: R66

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q66)
Likeliest	\$0.00	(=R66)
Maximum	\$117,271.00	(=S66)

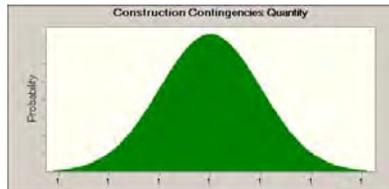


Assumption: Construction Contingencies Quantity

Cell: L69

Normal distribution with parameters:

Mean	1	(=L69)
Std. Dev.	0	(=0.000001)



Assumption: Construction Contingencies Unit Price

Cell: R69

BetaPERT distribution with parameters:

Minimum	\$300,000.00	(=Q69)
Likeliest	\$700,000.00	(=R69)
Maximum	\$1,800,000.00	(=S69)

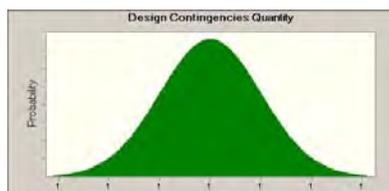


Assumption: Design Contingencies Quantity

Cell: L65

Normal distribution with parameters:

Mean	1	(=L65)
Std. Dev.	0	(=0.000001)

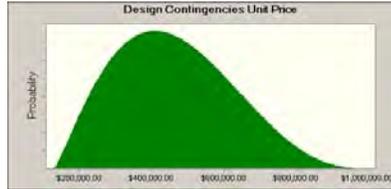


Assumption: Design Contingencies Unit Price

Cell: R65

BetaPERT distribution with parameters:

Minimum	\$127,875.00	(=Q65)
Likeliest	\$408,500.00	(=R65)
Maximum	\$996,422.00	(=S65)

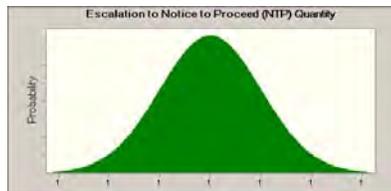


Assumption: Escalation to Notice to Proceed (NTP) Quantity

Cell: L62

Normal distribution with parameters:

Mean	1	(=L62)
Std. Dev.	0	(=0.000001)

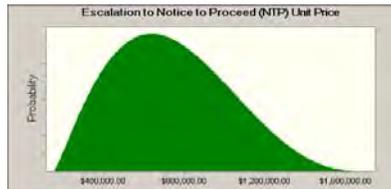


Assumption: Escalation to Notice to Proceed (NTP) Unit Price

Cell: R62

BetaPERT distribution with parameters:

Minimum	\$155,227.00	(=Q62)
Likeliest	\$637,590.00	(=R62)
Maximum	\$1,701,993.00	(=S62)

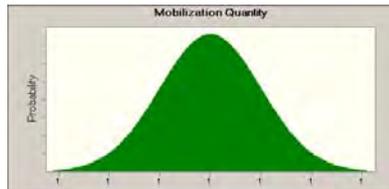


Assumption: Mobilization Quantity

Cell: L60

Normal distribution with parameters:

Mean	1	(=L60)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R60

BetaPERT distribution with parameters:

Minimum	\$46,000.00	(=Q60)
Likeliest	\$88,000.00	(=R60)
Maximum	\$150,000.00	(=S60)



Assumption: Non-Contract Cost Quantity

Cell: L71

Normal distribution with parameters:

Mean	1	(=L71)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R71

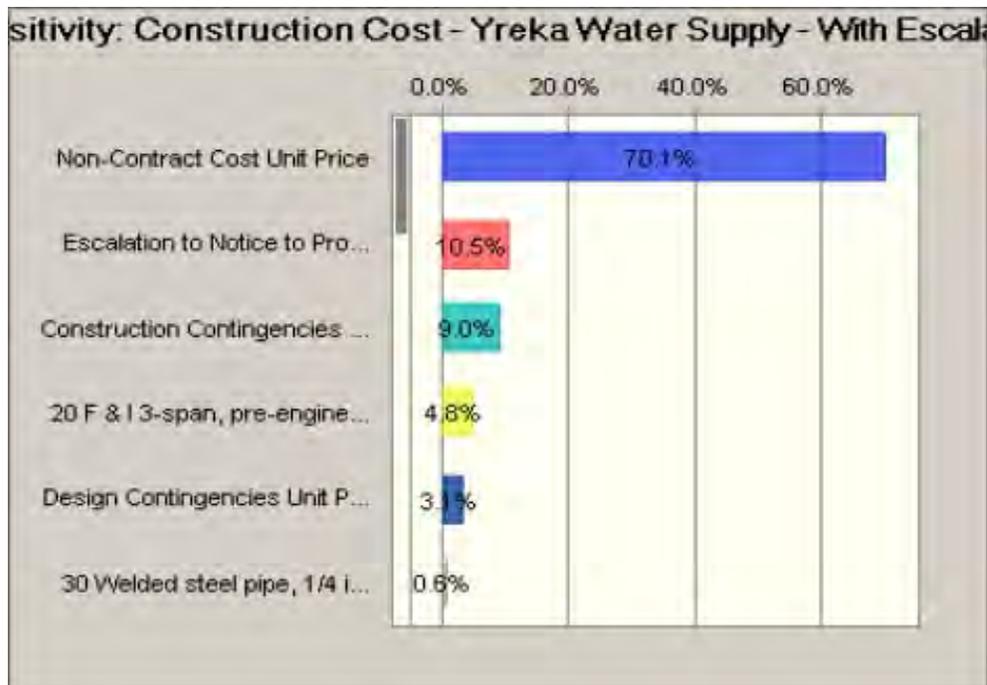
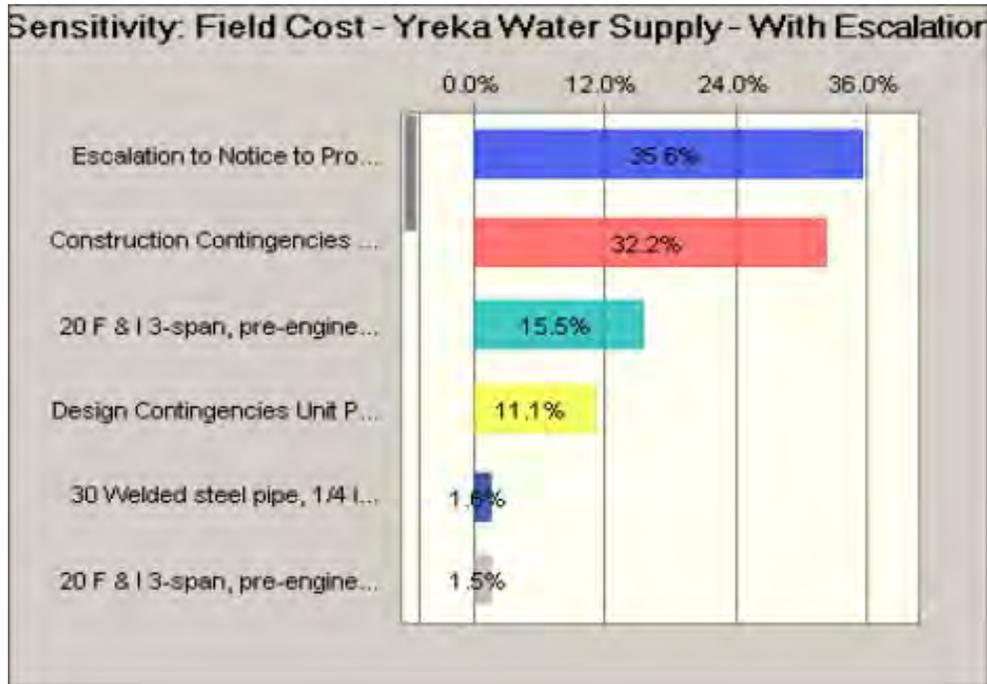
BetaPERT distribution with parameters:

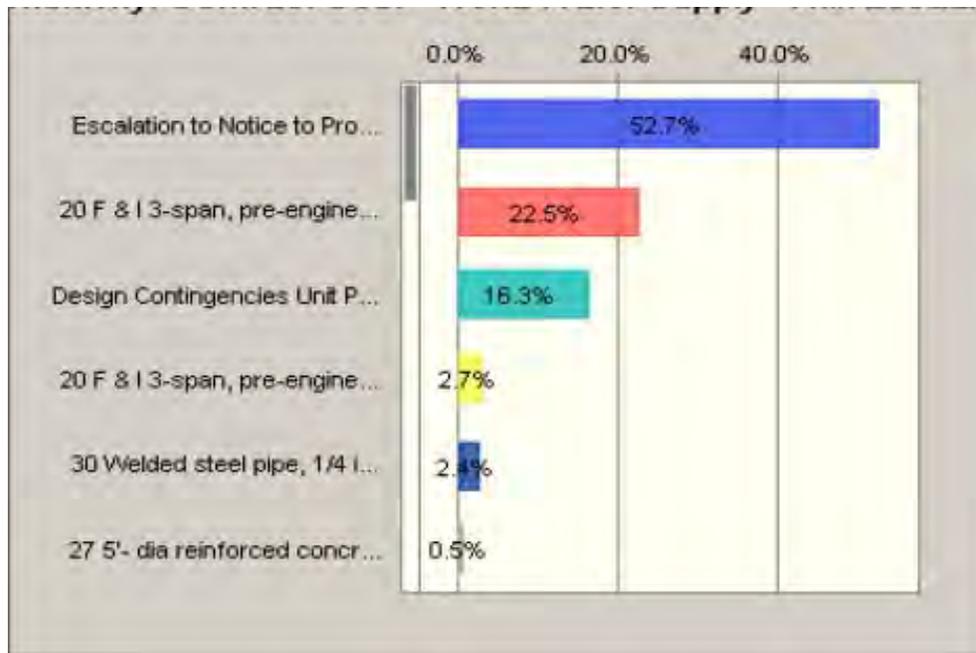
Minimum	\$850,000.00	(=Q71)
Likeliest	\$2,000,000.00	(=R71)
Maximum	\$4,700,000.00	(=S71)



End of Assumptions

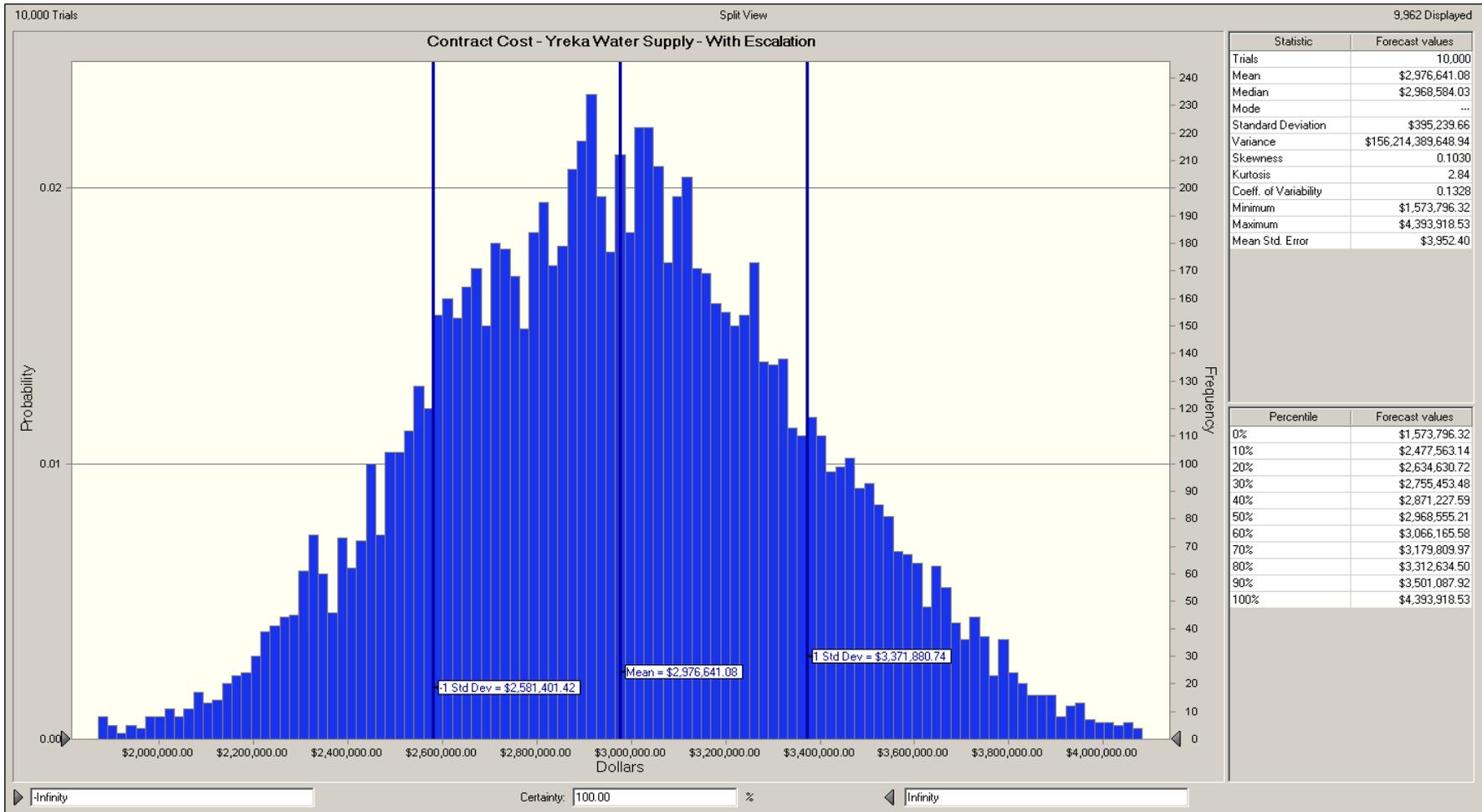
Sensitivity Charts



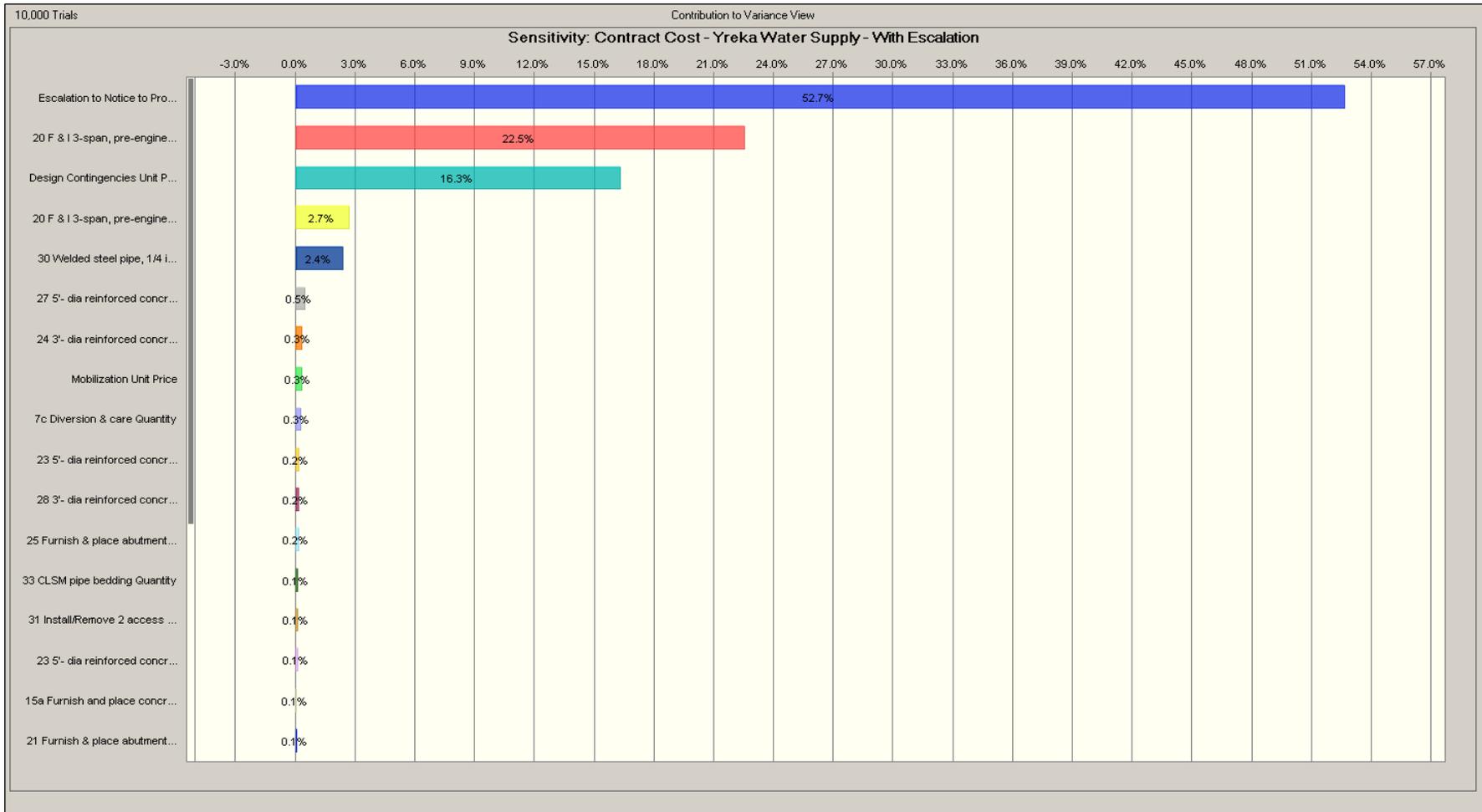


End of Sensitivity Charts

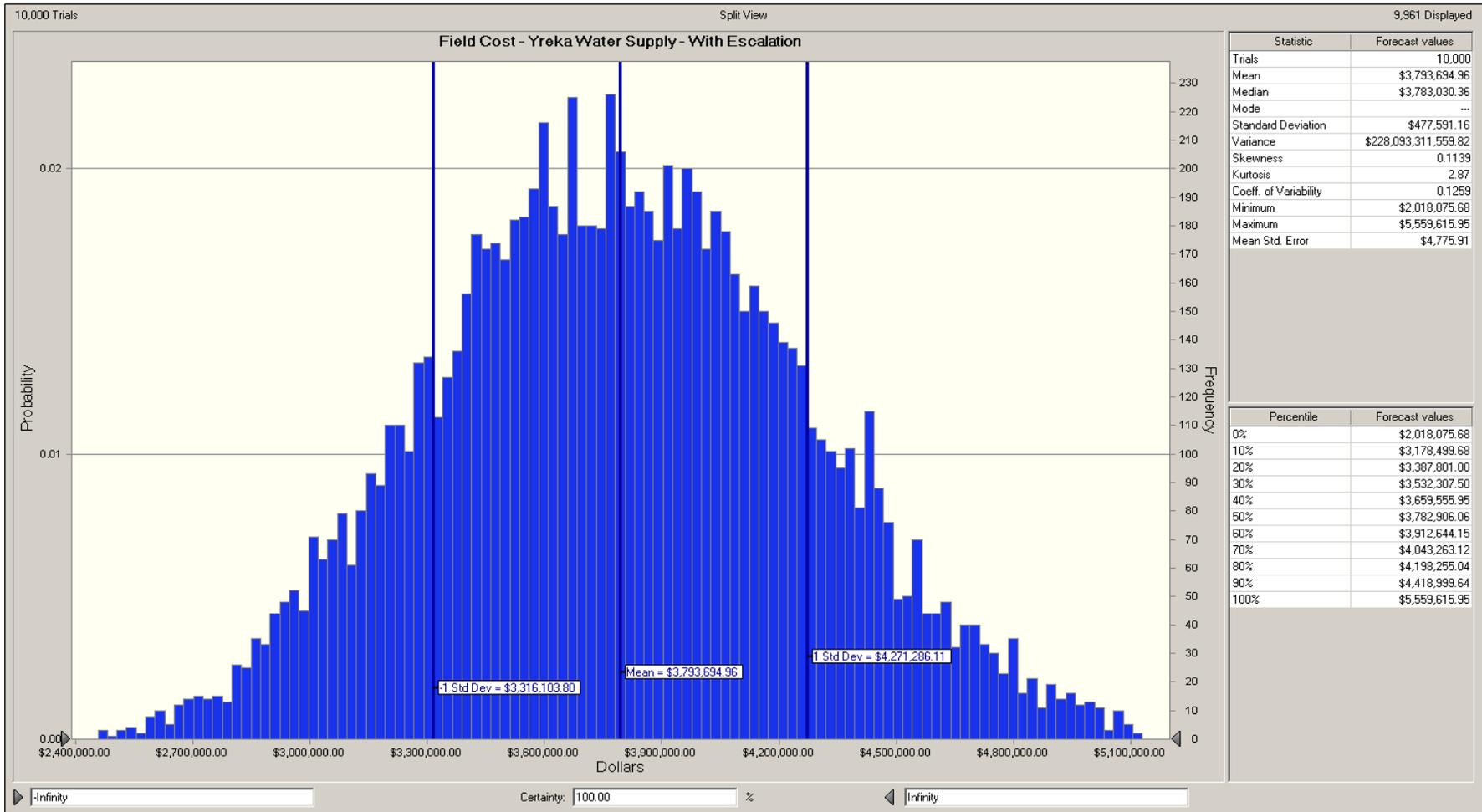
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



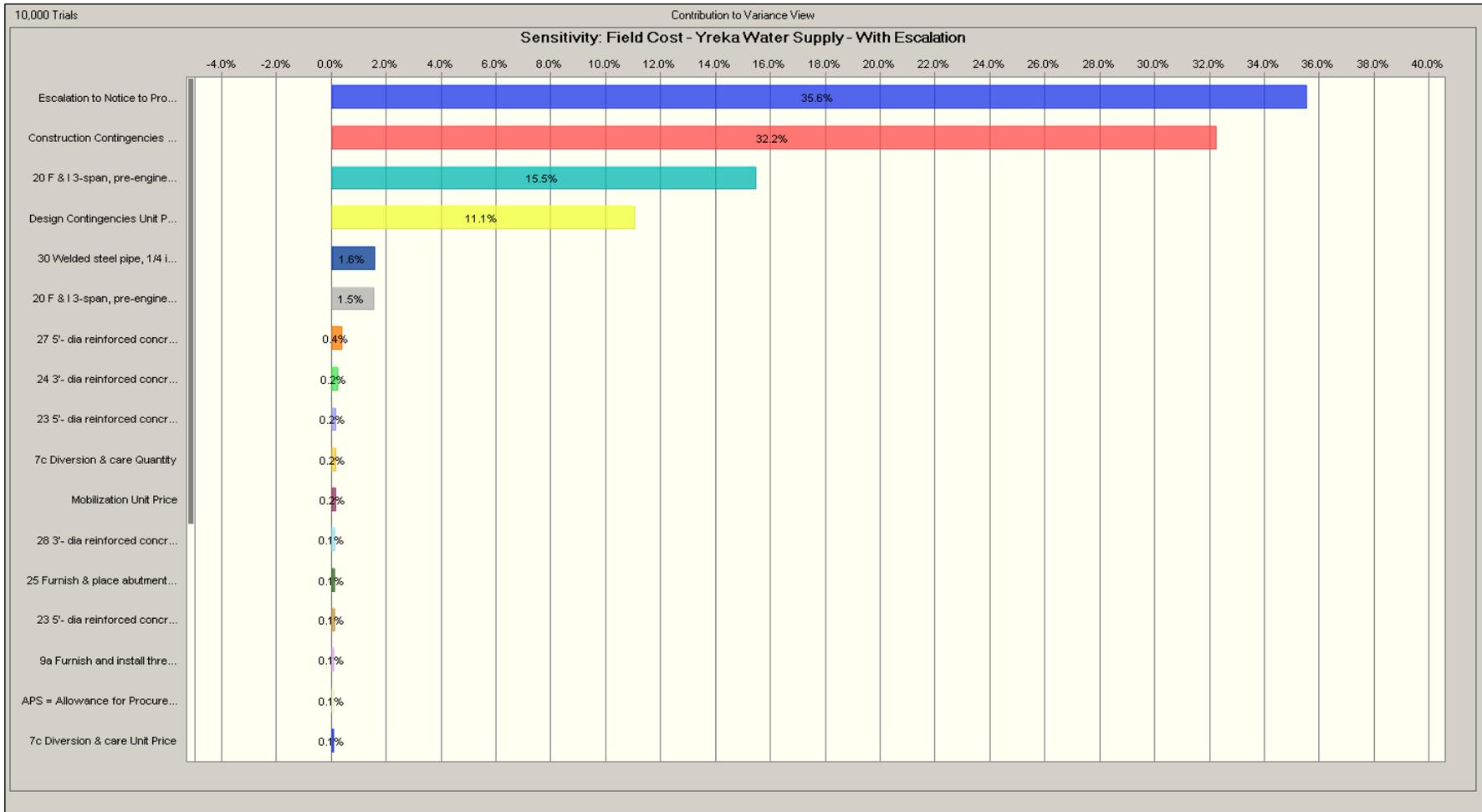
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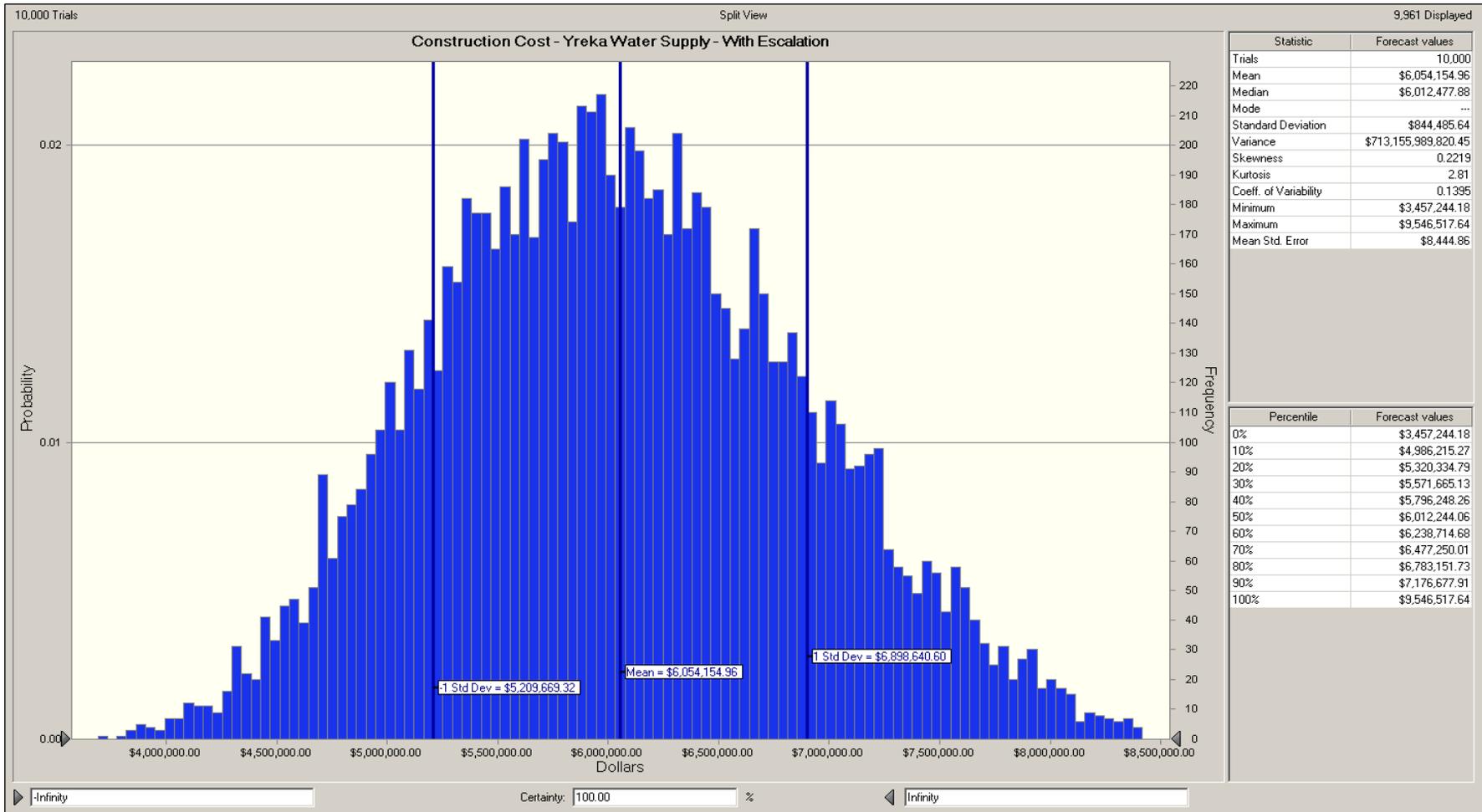
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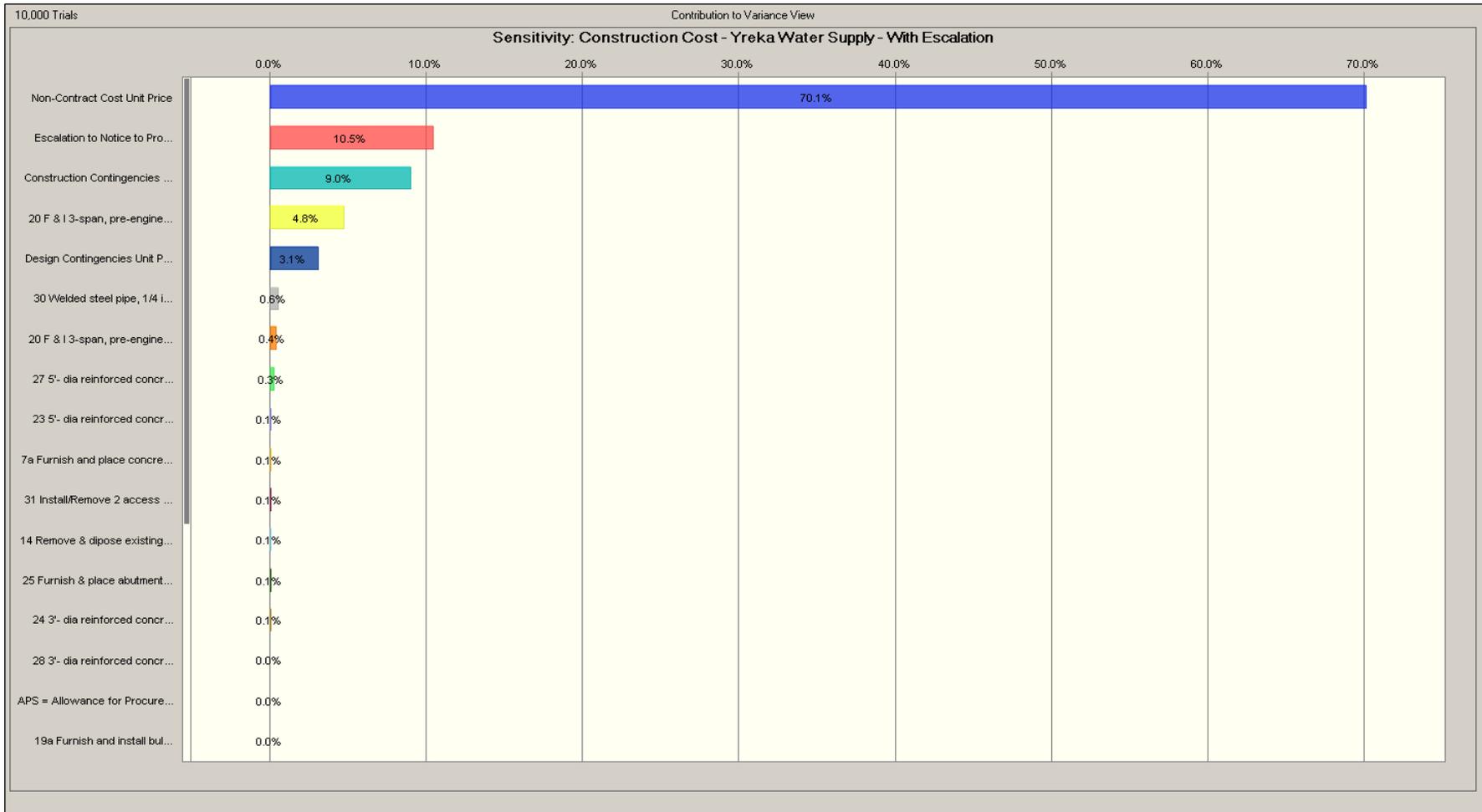
PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



PUBLIC VERSION - CONFIDENTIAL INFORMATION HAS BEEN REMOVED



ESTIMATE WORKSHEET

FEATURE:			PROJECT:										
Klamath River Dams Removal Yreka Water Supply Escalation NOT Included SUMMARY ESTIMATE			Klamath River, Northern California/Southern Oregon										
			WOID: AF652	ESTIMATE LEVEL: Appraisal									
			REGION: MP	PRICE LEVEL: Jul-2010									
			FILE:	C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Yreka Crystal Ball - without Escalation - 2011-04.xls\Yreka Water Supply-without Esc									
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
		Dam A Modifications											
	1	Remove & dispose steel frame with slide gates/weirs		1	1	1	ea	\$6,000.00	\$6,500.00	\$7,000.00	\$6,000.00	\$6,500.00	\$7,000.00
	2	Remove & dispose by steel bulkhead panel		1	1	1	ea	\$950.00	\$1,000.00	\$1,050.00	\$950.00	\$1,000.00	\$1,050.00
	3	Remove & dispose fish screen panels		6	6	6	ea	\$950.00	\$1,000.00	\$1,050.00	\$5,700.00	\$6,000.00	\$6,300.00
	4	Cut, remove concrete deck		2.4	2.4	2.4	cf	\$140.00	\$150.00	\$160.00	\$336.00	\$360.00	\$384.00
	5	Remove & dipose wood frame building		1	1	1	ea	\$24,000.00	\$25,000.00	\$26,000.00	\$24,000.00	\$25,000.00	\$26,000.00
	6	Furnish, install wood frame building		1	1	1	ea	\$47,500.00	\$50,000.00	\$52,500.00	\$47,500.00	\$50,000.00	\$52,500.00
	7	Furnish & install steel slide gate with pedestal lift		2	2	2	ea	\$3,800.00	\$4,000.00	\$4,200.00	\$7,600.00	\$8,000.00	\$8,400.00
	7a	Furnish and place concrete walls		0	0	3.1	cy	\$1,250.00	\$1,300.00	\$1,350.00	\$0.00	\$0.00	\$4,185.00
	7b	Extend 220v power to the site		0	0	350	lf	\$140.00	\$150.00	\$160.00	\$0.00	\$0.00	\$56,000.00
	7c	Diversion & care		0	0	1	ls	\$95,000.00	\$100,000.00	\$105,000.00	\$0.00	\$0.00	\$105,000.00
	8	Furnish and install cylindrical tee fish screen		1	1	1	ea	\$95,000.00	\$100,000.00	\$150,000.00	\$95,000.00	\$100,000.00	\$150,000.00
	9a	Furnish and install three bulkheads		1,500	1,500	0	lbs	\$7.00	\$7.50	\$8.00	\$10,500.00	\$11,250.00	\$0.00
	9b	Furnish and install epoxy anchors for bulkheads		30	30	0	ea	\$24.00	\$25.00	\$26.00	\$720.00	\$750.00	\$0.00
		Dam B Modifications											
	10	Excavation for structure		40	40	40	cy	\$75.00	\$80.00	\$120.00	\$3,000.00	\$3,200.00	\$4,800.00
	11	Compacted backfill for structure		30	30	30	cy	\$55.00	\$60.00	\$65.00	\$1,650.00	\$1,800.00	\$1,950.00
	12	Concrete removal, 2'x2' cut opening		4	4	4	cf	\$140.00	\$150.00	\$160.00	\$560.00	\$600.00	\$640.00
	13	Furnish & place concrete in structure		8	8	8	cy	\$1,250.00	\$1,300.00	\$1,350.00	\$10,000.00	\$10,400.00	\$10,800.00
	14	Remove & dipose existing trashrack		1	1	1	ea	\$2,400.00	\$2,500.00	\$2,600.00	\$2,400.00	\$2,500.00	\$2,600.00
	15	Furnish & install grating		25	25	25	sf	\$190.00	\$200.00	\$210.00	\$4,750.00	\$5,000.00	\$5,250.00
	15a	Furnish and place concrete wall		0	0	1.8	cy	\$2,100.00	\$2,200.00	\$2,325.00	\$0.00	\$0.00	\$4,185.00
	15b	Extend 220v power to the site		0	0	280	lf	\$140.00	\$150.00	\$160.00	\$0.00	\$0.00	\$44,800.00
	16	Diversion & care		1	1	1	ls	\$47,500.00	\$50,000.00	\$75,000.00	\$47,500.00	\$50,000.00	\$75,000.00
	17	Create access to dam		1	1	1	ls	\$28,500.00	\$30,000.00	\$50,000.00	\$28,500.00	\$30,000.00	\$50,000.00
	18	Furnish and install cylindrical tee fish screen		1	1	1	ea	\$95,000.00	\$100,000.00	\$150,000.00	\$95,000.00	\$100,000.00	\$150,000.00
	19a	Furnish and install bulkhead to replace trashrack,		1,200	1,200	0	lbs	\$7.00	\$7.50	\$8.00	\$8,400.00	\$9,000.00	\$0.00
	19b	Furnish and install epoxy anchors for bulkheads		18	18	0	ea	\$24.00	\$25.00	\$26.00	\$432.00	\$450.00	\$0.00
		Yreka Pipe Crossing											
	20	F & I 3-span, pre-engineered pipe support bridge		0	1	1	ea	\$650,000.00	\$700,000.00	\$1,365,000.00	\$0.00	\$700,000.00	\$1,365,000.00
	21	Furnish & place abutment 1 concrete cap		0	25	25	cy	\$2,400.00	\$2,500.00	\$2,600.00	\$0.00	\$62,500.00	\$65,000.00
	22	Furnish & place abutment 1 reinforcement, epoxy coated		0	10,000	10,000	lb	\$1.90	\$2.00	\$2.10	\$0.00	\$20,000.00	\$21,000.00
	23	5'- dia reinforced concrete drilled shaft for pier 1		0	16	16	lf	\$5,500.00	\$6,000.00	\$10,000.00	\$0.00	\$96,000.00	\$160,000.00
	24	3'- dia reinforced concrete drilled shaft for pier 1		0	52	52	lf	\$1,400.00	\$1,500.00	\$2,500.00	\$0.00	\$78,000.00	\$130,000.00
	25	Furnish & place abutment 2 concrete cap		0	25	25	cy	\$2,400.00	\$2,500.00	\$2,600.00	\$0.00	\$62,500.00	\$65,000.00
	26	Furnish & place abutment 2 reinforcement, epoxy coated		0	10,000	10,000	lb	\$1.90	\$2.00	\$2.10	\$0.00	\$20,000.00	\$21,000.00
	27	5'- dia reinforced concrete drilled shaft for pier 2		0	16	16	lf	\$5,500.00	\$6,000.00	\$10,000.00	\$0.00	\$96,000.00	\$160,000.00
	28	3'- dia reinforced concrete drilled shaft for pier 2		0	52	52	lf	\$1,400.00	\$1,500.00	\$2,500.00	\$0.00	\$78,000.00	\$130,000.00
	29	Remove & dispose existing steel pipe,		0	20	20	lf	\$45.00	\$50.00	\$52.00	\$0.00	\$1,000.00	\$1,040.00
	30	Welded steel pipe, 1/4 inch wall, 24 inch dia.		2,100	490	490	lf	\$190.00	\$200.00	\$210.00	\$399,000.00	\$98,000.00	\$102,900.00
	31	Install/Remove 2 access ramps for piers,		0	270	270	cy	\$95.00	\$100.00	\$150.00	\$0.00	\$27,000.00	\$40,500.00
	32	Excavation for pipe trench		1,800	70	70	cy	\$14.00	\$15.00	\$25.00	\$25,200.00	\$1,050.00	\$1,750.00
	33	CLSM pipe bedding		200	8	8	cy	\$285.00	\$300.00	\$315.00	\$57,000.00	\$2,400.00	\$2,520.00
	34	Backfill in pipe trench		1,400	55	55	cy	\$28.00	\$30.00	\$32.00	\$39,200.00	\$1,650.00	\$1,760.00
		Subtotal 1									\$920,898.00	\$1,765,910.00	\$3,034,314.00
		Mobilization (MPL ~ 5%; MP ~ 5%; MPH ~ 5%)		1	1	1	ls	\$46,000.00	\$88,000.00	\$150,000.00	\$46,000.00	\$88,000.00	\$150,000.00

ESTIMATE WORKSHEET

FEATURE: Klamath River Dams Removal Yreka Water Supply Escalation NOT Included SUMMARY ESTIMATE	PROJECT: <p style="text-align: center;">Klamath River, Northern California/Southern Oregon</p> WOID: AF652 ESTIMATE LEVEL: Appraisal REGION: MP PRICE LEVEL: Jul-2010 FILE: C:\Estimating\Klamath\Klamath River Dams\Yreka Supply Line\MPL, MP, MPH\Yreka Crystal Ball - without Escalation - 2011-04.xls\Yreka Water Supply-without Esc
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	MPL QUANTITY	MP QUANTITY	MPH QUANTITY	UNIT	MPL UNIT PRICE	MP UNIT PRICE	MPH UNIT PRICE	MPL TOTAL	MP TOTAL	MPH TOTAL
		Subtotal 1 w/ mobilization											
		Escalation to Notice to Proceed (NTP) NOT INCLUDED											
		Design Contingencies (MPL ~ 13%; MP ~ 15%; MPH ~ 20%)		1	1	1	ls	\$133,102.00	\$246,090.00	\$639,262.00	\$133,102.00	\$246,090.00	\$639,262.00
		APS = Allowance for Procurement Strategies (if applicable) (MPL ~ 0%; MP ~ 0%; MPH ~ 2%)		1	1	1	ls	\$0.00	\$0.00	\$76,424.00	\$0.00	\$0.00	\$76,424.00
		CONTRACT COST									\$1,100,000.00	\$2,100,000.00	\$3,900,000.00
		Construction Contingencies (MPL ~ 23%; MP ~ 25%; MPH ~ 30%)		1	1	1	ls	\$250,000.00	\$600,000.00	\$1,200,000.00	\$250,000.00	\$600,000.00	\$1,200,000.00
		FIELD COST									\$1,350,000.00	\$2,700,000.00	\$5,100,000.00
		Non-Contract Cost (MPL ~ 52%; MP ~ 55%; MPH ~ 61%)		1	1	1	ls	\$750,000.00	\$1,500,000.00	\$3,100,000.00	\$750,000.00	\$1,500,000.00	\$3,100,000.00
		CONSTRUCTION COST									\$2,100,000.00	\$4,200,000.00	\$8,200,000.00
Notes: This estimate does not include non-contract costs and should not be used for funding purposes. Reference documents RM D&S Cost Estimate (FAC 09-01) and RM D&S CCE and PCE (FAC 09-02)													

QUANTITIES						PRICES					
BY	See Group Worksheets	CHECKED:	See Group Worksheets	BY	Craig Grush, P.E.	CHECKED		DATE PREPARED	05/24/11	PEER REVIEW	
DATE PREPARED	1/20/2011	PEER REVIEW:	See Group Worksheets	DATE PREPARED		PEER REVIEW					

Crystal Ball Report - Full

Simulation started on 5/26/2011 at 10:48:30

Simulation stopped on 5/26/2011 at 10:51:56

Run preferences:

Number of trials run 10,000
Monte Carlo
Seed 999
Precision control on
Confidence level 95.00%

Run statistics:

Total running time (sec) 32.57
Trials/second (average) 307
Random numbers per sec 28,250

Crystal Ball data:

Assumptions 92
Correlations 0
Correlated groups 0
Decision variables 0
Forecasts 3

TECHNICAL SERVICE CENTER
ESTIMATING, SPECIFICATIONS
AND VALUE PROGRAM GROUP

UNIT PRICES BY *Chris A. Groush*

DATE 5/26/2011

DATE	PEER REVIEWER(S)	CODE
6/1/11	<i>Don [Signature]</i> Signature	8174
	<i>Don [Signature]</i> Printed Name	
	Signature	
	Printed Name	
Author Initials	PEER REVIEW N	

Forecasts

Worksheet: [Yreka Crystal Ball - without Escalation - 2011-04.xls]Yreka Water Supply-without |

Forecast: Construction Cost - Yreka Water Supply - Without Escalation

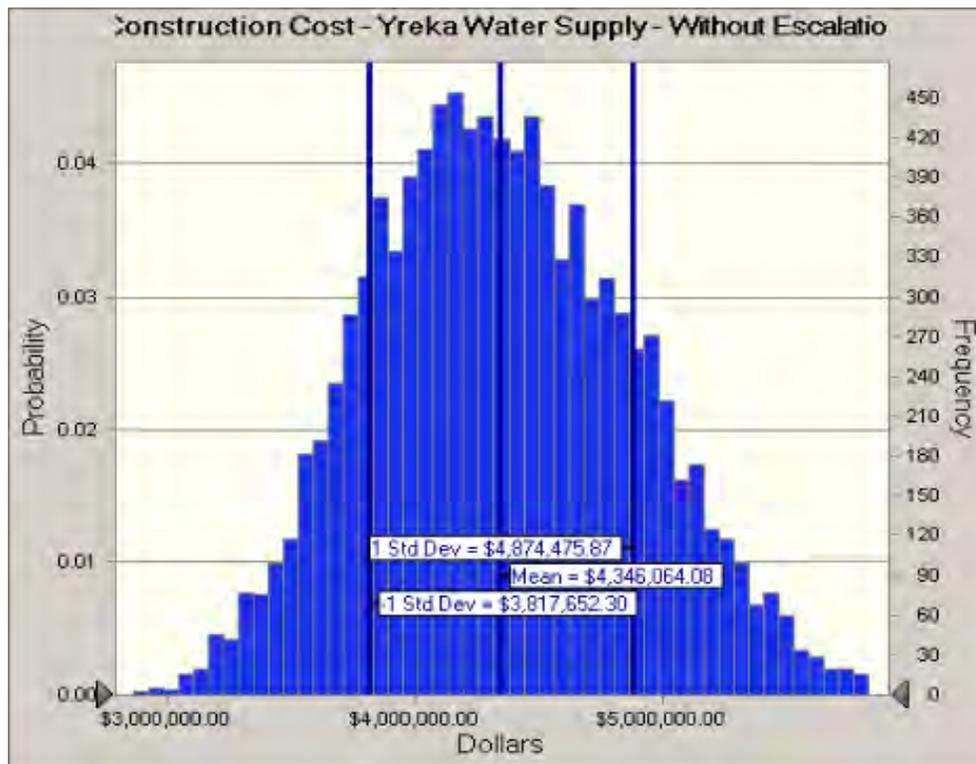
Cell: U72

Summary:

Entire range is from \$2,471,247.40 to \$6,210,942.08

Base case is \$4,200,000.00

After 10,000 trials, the std. error of the mean is \$5,284.12



Forecast: Construction Cost - Yreka Water Supply - Without Escalation (cont'd)

Cell: U72

Statistics:	Forecast values
Trials	10,000
Mean	\$4,346,064.08
Median	\$4,318,221.63
Mode	---
Standard Deviation	\$528,411.78
Variance	\$279,219,013,820.12
Skewness	0.1957
Kurtosis	2.74
Coeff. of Variability	0.1216
Minimum	\$2,471,247.40
Maximum	\$6,210,942.08
Range Width	\$3,739,694.69
Mean Std. Error	\$5,284.12

Percentiles:	Forecast values
0%	\$2,471,247.40
10%	\$3,683,202.98
20%	\$3,881,282.51
30%	\$4,038,153.76
40%	\$4,180,306.35
50%	\$4,318,197.32
60%	\$4,460,654.39
70%	\$4,623,691.00
80%	\$4,813,329.88
90%	\$5,045,677.63
100%	\$6,210,942.08

Forecast: Contract Cost - Yreka Water Supply - Without Escalation

Cell: U68

Summary:

Entire range is from \$1,287,732.53 to \$3,034,560.81

Base case is \$2,100,000.00

After 10,000 trials, the std. error of the mean is \$2,467.68



Forecast: Contract Cost - Yreka Water Supply - Without Escalation (cont'd)

Cell: U68

Statistics:	Forecast values
Trials	10,000
Mean	\$2,073,669.22
Median	\$2,081,824.25
Mode	---
Standard Deviation	\$246,767.56
Variance	\$60,894,226,647.34
Skewness	-0.0575
Kurtosis	2.77
Coeff. of Variability	0.1190
Minimum	\$1,287,732.53
Maximum	\$3,034,560.81
Range Width	\$1,746,828.28
Mean Std. Error	\$2,467.68

Percentiles:	Forecast values
0%	\$1,287,732.53
10%	\$1,740,950.91
20%	\$1,858,472.49
30%	\$1,945,586.80
40%	\$2,019,983.06
50%	\$2,081,822.28
60%	\$2,143,275.76
70%	\$2,208,393.18
80%	\$2,284,801.66
90%	\$2,386,737.29
100%	\$3,034,560.81

Forecast: Field Cost - Yreka Water Supply - Without Escalation

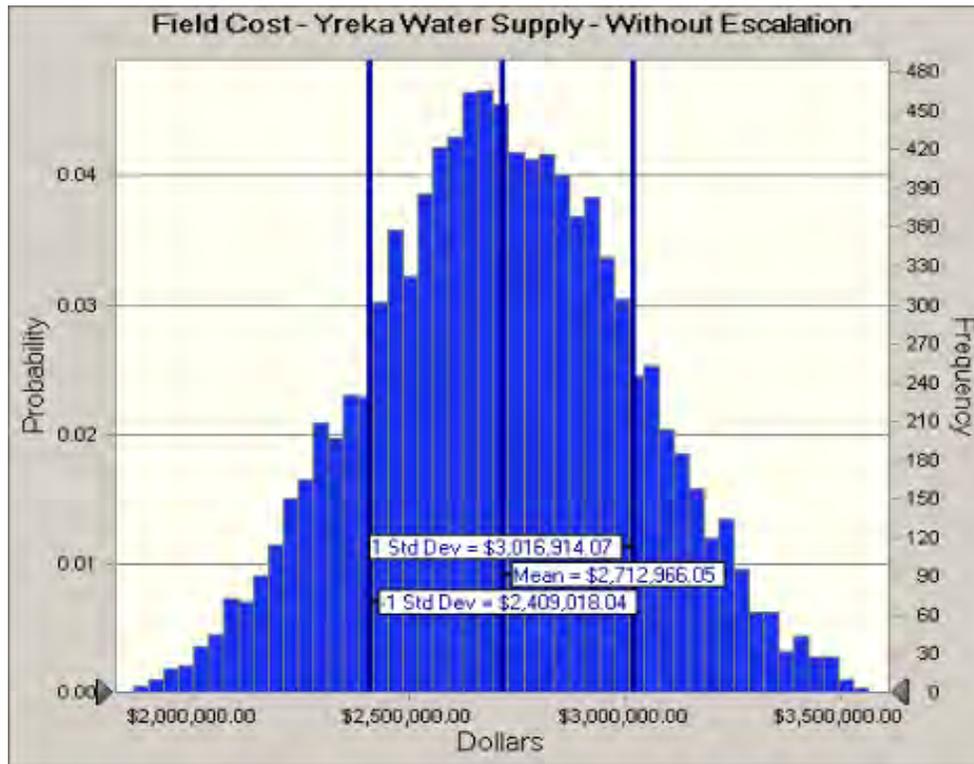
Cell: U70

Summary:

Entire range is from \$1,612,744.35 to \$3,684,509.27

Base case is \$2,700,000.00

After 10,000 trials, the std. error of the mean is \$3,039.48



Forecast: Field Cost - Yreka Water Supply - Without Escalation (cont'd)

Cell: U70

Statistics:	Forecast values
Trials	10,000
Mean	\$2,712,966.05
Median	\$2,710,271.79
Mode	---
Standard Deviation	\$303,948.01
Variance	\$92,384,394,158.67
Skewness	0.0182
Kurtosis	2.77
Coeff. of Variability	0.1120
Minimum	\$1,612,744.35
Maximum	\$3,684,509.27
Range Width	\$2,071,764.91
Mean Std. Error	\$3,039.48

Percentiles:	Forecast values
0%	\$1,612,744.35
10%	\$2,310,150.52
20%	\$2,454,740.63
30%	\$2,552,777.39
40%	\$2,632,723.28
50%	\$2,710,198.53
60%	\$2,789,321.17
70%	\$2,876,643.65
80%	\$2,972,279.49
90%	\$3,107,544.75
100%	\$3,684,509.27

End of Forecasts

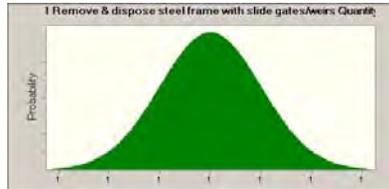
Assumptions

Worksheet: [Yreka Crystal Ball - without Escalation - 2011-04.xls]Yreka Water Supply-without |

Assumption: 1 Remove & dispose steel frame with slide gates/weirs Quantity Cell: L15

Normal distribution with parameters:

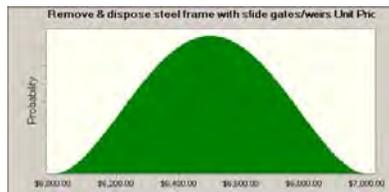
Mean	1	(=L15)
Std. Dev.	0	(=0.000001)



Assumption: 1 Remove & dispose steel frame with slide gates/weirs Unit Price Cell: R15

BetaPERT distribution with parameters:

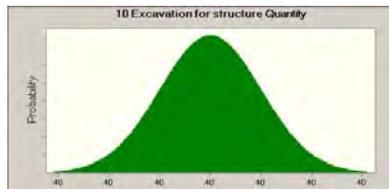
Minimum	\$6,000.00	(=Q15)
Likeliest	\$6,500.00	(=R15)
Maximum	\$7,000.00	(=S15)



Assumption: 10 Excavation for structure Quantity Cell: L29

Normal distribution with parameters:

Mean	40	(=L29)
Std. Dev.	0	(=0.000001)

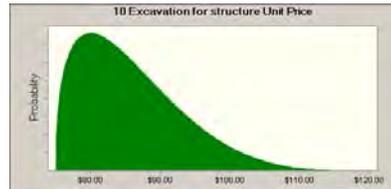


Assumption: 10 Excavation for structure Unit Price

Cell: R29

BetaPERT distribution with parameters:

Minimum	\$75.00	(=Q29)
Likeliest	\$80.00	(=R29)
Maximum	\$120.00	(=S29)

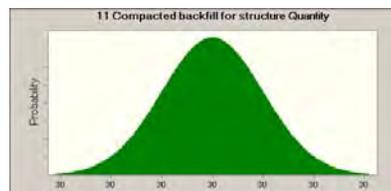


Assumption: 11 Compacted backfill for structure Quantity

Cell: L30

Normal distribution with parameters:

Mean	30	(=L30)
Std. Dev.	0	(=0.000001)

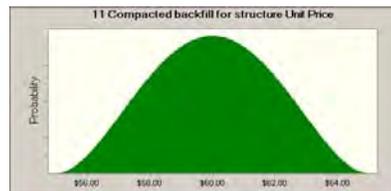


Assumption: 11 Compacted backfill for structure Unit Price

Cell: R30

BetaPERT distribution with parameters:

Minimum	\$55.00	(=Q30)
Likeliest	\$60.00	(=R30)
Maximum	\$65.00	(=S30)

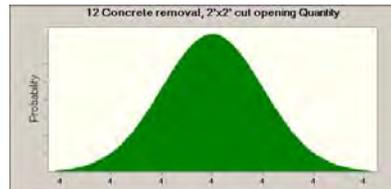


Assumption: 12 Concrete removal, 2'x2' cut opening Quantity

Cell: L31

Normal distribution with parameters:

Mean	4	(=L31)
Std. Dev.	0	(=0.000001)



Assumption: 12 Concrete removal, 2'x2' cut opening Unit Price

Cell: R31

BetaPERT distribution with parameters:

Minimum	\$140.00	(=Q31)
Likeliest	\$150.00	(=R31)
Maximum	\$160.00	(=S31)

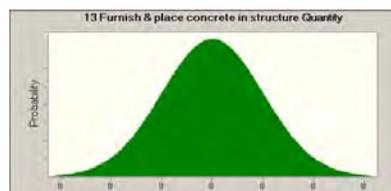


Assumption: 13 Furnish & place concrete in structure Quantity

Cell: L32

Normal distribution with parameters:

Mean	8	(=L32)
Std. Dev.	0	(=0.000001)



Assumption: 13 Furnish & place concrete in structure Unit Price

Cell: R32

BetaPERT distribution with parameters:

Minimum	\$1,250.00	(=Q32)
Likeliest	\$1,300.00	(=R32)
Maximum	\$1,350.00	(=S32)

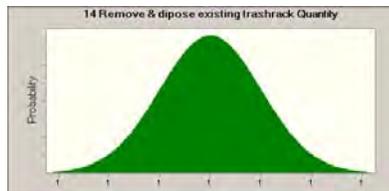


Assumption: 14 Remove & dispose existing trashrack Quantity

Cell: L33

Normal distribution with parameters:

Mean	1	(=L33)
Std. Dev.	0	(=0.000001)

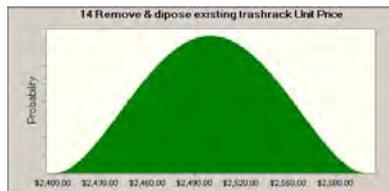


Assumption: 14 Remove & dispose existing trashrack Unit Price

Cell: R33

BetaPERT distribution with parameters:

Minimum	\$2,400.00	(=Q33)
Likeliest	\$2,500.00	(=R33)
Maximum	\$2,600.00	(=S33)



Assumption: 15 Furnish & install grating Quantity

Cell: L34

Normal distribution with parameters:

Mean	25	(=L34)
Std. Dev.	0	(=0.000001)



Assumption: 15 Furnish & install grating Unit Price

Cell: R34

BetaPERT distribution with parameters:

Minimum	\$190.00	(=Q34)
Likeliest	\$200.00	(=R34)
Maximum	\$210.00	(=S34)

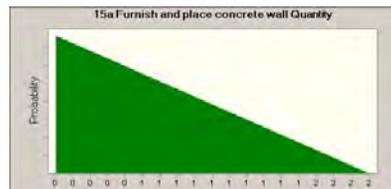


Assumption: 15a Furnish and place concrete wall Quantity

Cell: L35

Triangular distribution with parameters:

Minimum	0	(=K35)
Likeliest	0	(=L35)
Maximum	2	(=M35)



Assumption: 15a Furnish and place concrete wall Unit Price

Cell: R35

BetaPERT distribution with parameters:

Minimum	\$2,100.00	(=Q35)
Likeliest	\$2,200.00	(=R35)
Maximum	\$2,325.00	(=S35)



Assumption: 15b Extend 220v power to the site Quantity

Cell: L36

Triangular distribution with parameters:

Minimum	0	(=K36)
Likeliest	0	(=L36)
Maximum	280	(=M36)



Assumption: 15b Extend 220v power to the site Unit Price

Cell: R36

BetaPERT distribution with parameters:

Minimum	\$140.00	(=Q36)
Likeliest	\$150.00	(=R36)
Maximum	\$160.00	(=S36)

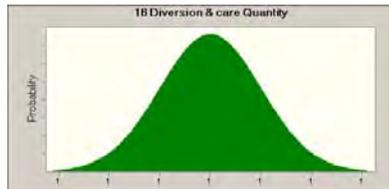


Assumption: 16 Diversion & care Quantity

Cell: L37

Normal distribution with parameters:

Mean	1	(=L37)
Std. Dev.	0	(=0.000001)



Assumption: 16 Diversion & care Unit Price

Cell: R37

BetaPERT distribution with parameters:

Minimum	\$47,500.00	(=Q37)
Likeliest	\$50,000.00	(=R37)
Maximum	\$75,000.00	(=S37)

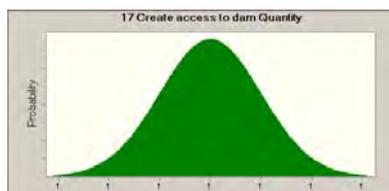


Assumption: 17 Create access to dam Quantity

Cell: L38

Normal distribution with parameters:

Mean	1	(=L38)
Std. Dev.	0	(=0.000001)

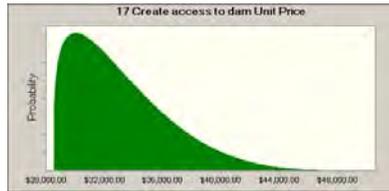


Assumption: 17 Create access to dam Unit Price

Cell: R38

BetaPERT distribution with parameters:

Minimum	\$28,500.00	(=Q38)
Likeliest	\$30,000.00	(=R38)
Maximum	\$50,000.00	(=S38)

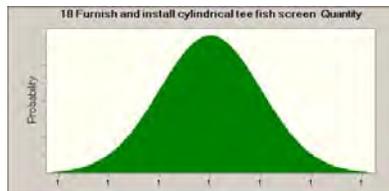


Assumption: 18 Furnish and install cylindrical tee fish screen Quantity

Cell: L39

Normal distribution with parameters:

Mean	1	(=L39)
Std. Dev.	0	(=0.000001)

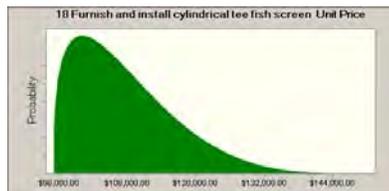


Assumption: 18 Furnish and install cylindrical tee fish screen Unit Price

Cell: R39

BetaPERT distribution with parameters:

Minimum	\$95,000.00	(=Q39)
Likeliest	\$100,000.00	(=R39)
Maximum	\$150,000.00	(=S39)

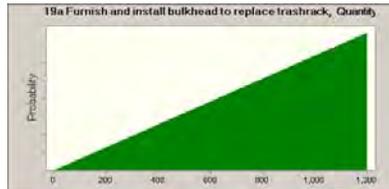


Assumption: 19a Furnish and install bulkhead to replace trashrack, Quantity

Cell: L40

Triangular distribution with parameters:

Minimum	0	(=M40)
Likeliest	1,200	(=L40)
Maximum	1,200	(=K40)



Assumption: 19a Furnish and install bulkhead to replace trashrack, Unit Price

Cell: R40

BetaPERT distribution with parameters:

Minimum	\$7.00	(=Q40)
Likeliest	\$7.50	(=R40)
Maximum	\$8.00	(=S40)

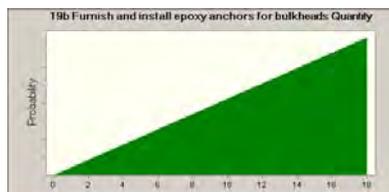


Assumption: 19b Furnish and install epoxy anchors for bulkheads Quantity

Cell: L41

Triangular distribution with parameters:

Minimum	0	(=M41)
Likeliest	18	(=L41)
Maximum	18	(=K41)

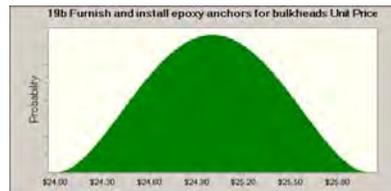


Assumption: 19b Furnish and install epoxy anchors for bulkheads Unit Price

Cell: R41

BetaPERT distribution with parameters:

Minimum	\$24.00	(=Q41)
Likeliest	\$25.00	(=R41)
Maximum	\$26.00	(=S41)

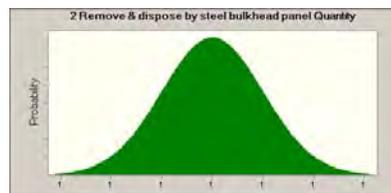


Assumption: 2 Remove & dispose by steel bulkhead panel Quantity

Cell: L16

Normal distribution with parameters:

Mean	1	(=L16)
Std. Dev.	0	(=0.000001)



Assumption: 2 Remove & dispose by steel bulkhead panel Unit Price

Cell: R16

BetaPERT distribution with parameters:

Minimum	\$950.00	(=Q16)
Likeliest	\$1,000.00	(=R16)
Maximum	\$1,050.00	(=S16)

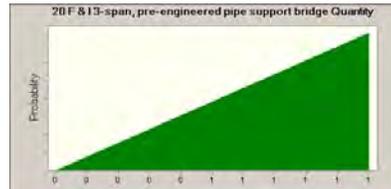


Assumption: 20 F & I 3-span, pre-engineered pipe support bridge Quantity

Cell: L43

Triangular distribution with parameters:

Minimum	0	(=K43)
Likeliest	1	(=L43)
Maximum	1	(=M43)

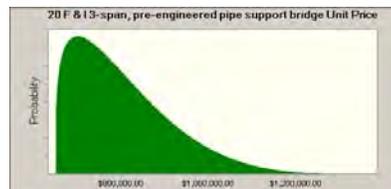


Assumption: 20 F & I 3-span, pre-engineered pipe support bridge Unit Price

Cell: R43

BetaPERT distribution with parameters:

Minimum	\$650,000.00	(=Q43)
Likeliest	\$700,000.00	(=R43)
Maximum	\$1,365,000.00	(=S43)

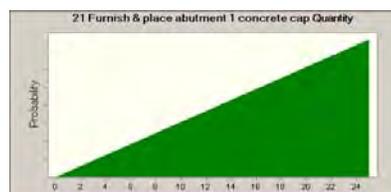


Assumption: 21 Furnish & place abutment 1 concrete cap Quantity

Cell: L44

Triangular distribution with parameters:

Minimum	0	(=K44)
Likeliest	25	(=L44)
Maximum	25	(=M44)



Assumption: 21 Furnish & place abutment 1 concrete cap Unit Price

Cell: R44

BetaPERT distribution with parameters:

Minimum	\$2,400.00	(=Q44)
Likeliest	\$2,500.00	(=R44)
Maximum	\$2,600.00	(=S44)



Assumption: 22 Furnish & place abutment 1 reinforcement, epoxy coated Quantity **Cell: L45**

Triangular distribution with parameters:

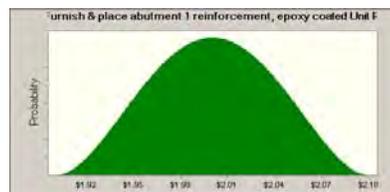
Minimum	0	(=K45)
Likeliest	10,000	(=L45)
Maximum	10,000	(=M45)



Assumption: 22 Furnish & place abutment 1 reinforcement, epoxy coated Unit Price **Cell: R45**

BetaPERT distribution with parameters:

Minimum	\$1.90	(=Q45)
Likeliest	\$2.00	(=R45)
Maximum	\$2.10	(=S45)



Assumption: 23 5'- dia reinforced concrete drilled shaft for pier 1 Quantity

Cell: L46

Triangular distribution with parameters:

Minimum	0	(=K46)
Likeliest	16	(=L46)
Maximum	16	(=M46)



Assumption: 23 5'- dia reinforced concrete drilled shaft for pier 1 Unit Price

Cell: R46

BetaPERT distribution with parameters:

Minimum	\$5,500.00	(=Q46)
Likeliest	\$6,000.00	(=R46)
Maximum	\$10,000.00	(=S46)

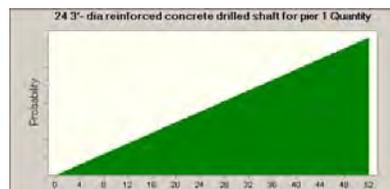


Assumption: 24 3'- dia reinforced concrete drilled shaft for pier 1 Quantity

Cell: L47

Triangular distribution with parameters:

Minimum	0	(=K47)
Likeliest	52	(=L47)
Maximum	52	(=M47)



Assumption: 24 3'- dia reinforced concrete drilled shaft for pier 1 Unit Price

Cell: R47

BetaPERT distribution with parameters:

Minimum	\$1,400.00	(=Q47)
Likeliest	\$1,500.00	(=R47)
Maximum	\$2,500.00	(=S47)



Assumption: 25 Furnish & place abutment 2 concrete cap Quantity

Cell: L48

Triangular distribution with parameters:

Minimum	0	(=K48)
Likeliest	25	(=L48)
Maximum	25	(=M48)



Assumption: 25 Furnish & place abutment 2 concrete cap Unit Price

Cell: R48

BetaPERT distribution with parameters:

Minimum	\$2,400.00	(=Q48)
Likeliest	\$2,500.00	(=R48)
Maximum	\$2,600.00	(=S48)



Assumption: 26 Furnish & place abutment 2 reinforcement, epoxy coated Quantity Cell: L49

Triangular distribution with parameters:

Minimum	0	(=K49)
Likeliest	10,000	(=L49)
Maximum	10,000	(=M49)



Assumption: 26 Furnish & place abutment 2 reinforcement, epoxy coated Unit Price Cell: R49

BetaPERT distribution with parameters:

Minimum	\$1.90	(=Q49)
Likeliest	\$2.00	(=R49)
Maximum	\$2.10	(=S49)



Assumption: 27 5'- dia reinforced concrete drilled shaft for pier 2 Quantity Cell: L50

Cell: L50

Triangular distribution with parameters:

Minimum	0	(=K50)
Likeliest	16	(=L50)
Maximum	16	(=M50)

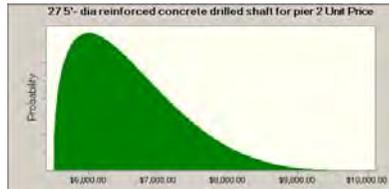


Assumption: 27 5'- dia reinforced concrete drilled shaft for pier 2 Unit Price

Cell: R50

BetaPERT distribution with parameters:

Minimum	\$5,500.00	(=Q50)
Likeliest	\$6,000.00	(=R50)
Maximum	\$10,000.00	(=S50)

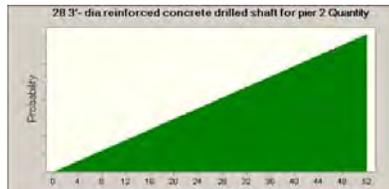


Assumption: 28 3'- dia reinforced concrete drilled shaft for pier 2 Quantity

Cell: L51

Triangular distribution with parameters:

Minimum	0	(=K51)
Likeliest	52	(=L51)
Maximum	52	(=M51)

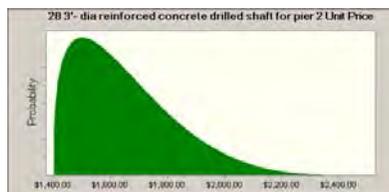


Assumption: 28 3'- dia reinforced concrete drilled shaft for pier 2 Unit Price

Cell: R51

BetaPERT distribution with parameters:

Minimum	\$1,400.00	(=Q51)
Likeliest	\$1,500.00	(=R51)
Maximum	\$2,500.00	(=S51)

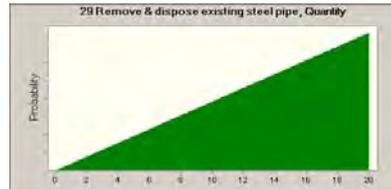


Assumption: 29 Remove & dispose existing steel pipe, Quantity

Cell: L52

Triangular distribution with parameters:

Minimum	0	(=K52)
Likeliest	20	(=L52)
Maximum	20	(=M52)



Assumption: 29 Remove & dispose existing steel pipe, Unit Price

Cell: R52

BetaPERT distribution with parameters:

Minimum	\$45.00	(=Q52)
Likeliest	\$50.00	(=R52)
Maximum	\$52.00	(=S52)

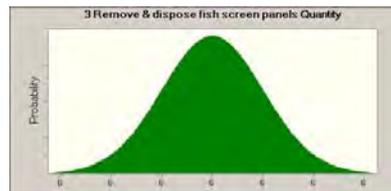


Assumption: 3 Remove & dispose fish screen panels Quantity

Cell: L17

Normal distribution with parameters:

Mean	6	(=L17)
Std. Dev.	0	(=0.000001)



Assumption: 3 Remove & dispose fish screen panels Unit Price

Cell: R17

BetaPERT distribution with parameters:

Minimum	\$950.00	(=Q17)
Likeliest	\$1,000.00	(=R17)
Maximum	\$1,050.00	(=S17)

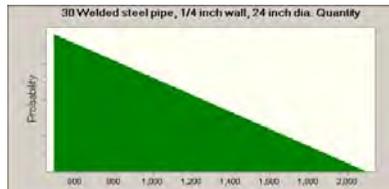


Assumption: 30 Welded steel pipe, 1/4 inch wall, 24 inch dia. Quantity

Cell: L53

Triangular distribution with parameters:

Minimum	490	(=M53)
Likeliest	490	(=L53)
Maximum	2,100	(=K53)

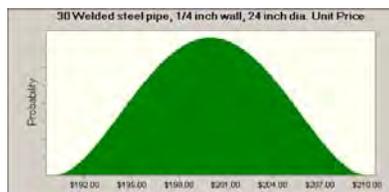


Assumption: 30 Welded steel pipe, 1/4 inch wall, 24 inch dia. Unit Price

Cell: R53

BetaPERT distribution with parameters:

Minimum	\$190.00	(=Q53)
Likeliest	\$200.00	(=R53)
Maximum	\$210.00	(=S53)

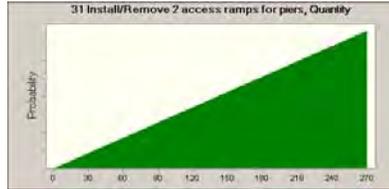


Assumption: 31 Install/Remove 2 access ramps for piers, Quantity

Cell: L54

Triangular distribution with parameters:

Minimum	0	(=K54)
Likeliest	270	(=L54)
Maximum	270	(=M54)

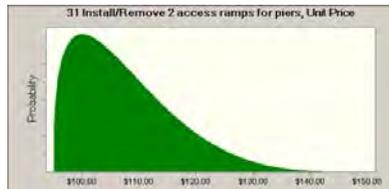


Assumption: 31 Install/Remove 2 access ramps for piers, Unit Price

Cell: R54

BetaPERT distribution with parameters:

Minimum	\$95.00	(=Q54)
Likeliest	\$100.00	(=R54)
Maximum	\$150.00	(=S54)

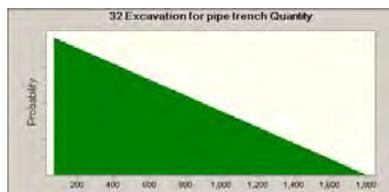


Assumption: 32 Excavation for pipe trench Quantity

Cell: L55

Triangular distribution with parameters:

Minimum	70	(=M55)
Likeliest	70	(=L55)
Maximum	1,800	(=K55)

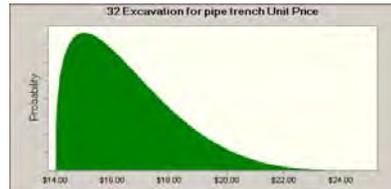


Assumption: 32 Excavation for pipe trench Unit Price

Cell: R55

BetaPERT distribution with parameters:

Minimum	\$14.00	(=Q55)
Likeliest	\$15.00	(=R55)
Maximum	\$25.00	(=S55)

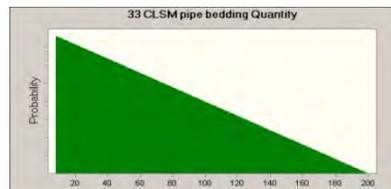


Assumption: 33 CLSM pipe bedding Quantity

Cell: L56

Triangular distribution with parameters:

Minimum	8	(=M56)
Likeliest	8	(=L56)
Maximum	200	(=K56)



Assumption: 33 CLSM pipe bedding Unit Price

Cell: R56

BetaPERT distribution with parameters:

Minimum	\$285.00	(=Q56)
Likeliest	\$300.00	(=R56)
Maximum	\$315.00	(=S56)

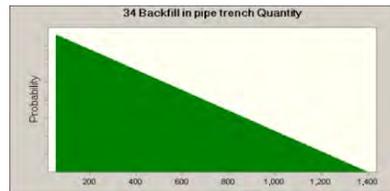


Assumption: 34 Backfill in pipe trench Quantity

Cell: L57

Triangular distribution with parameters:

Minimum	55	(=M57)
Likeliest	55	(=L57)
Maximum	1,400	(=K57)

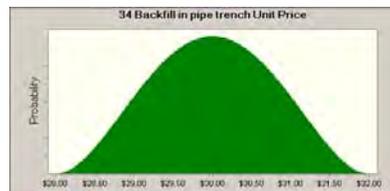


Assumption: 34 Backfill in pipe trench Unit Price

Cell: R57

BetaPERT distribution with parameters:

Minimum	\$28.00	(=Q57)
Likeliest	\$30.00	(=R57)
Maximum	\$32.00	(=S57)

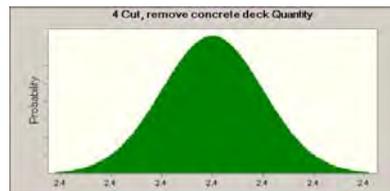


Assumption: 4 Cut, remove concrete deck Quantity

Cell: L18

Normal distribution with parameters:

Mean	2.4	(=L18)
Std. Dev.	0.0	(=0.000001)



Assumption: 4 Cut, remove concrete deck Unit Price

Cell: R18

BetaPERT distribution with parameters:

Minimum	\$140.00	(=Q18)
Likeliest	\$150.00	(=R18)
Maximum	\$160.00	(=S18)

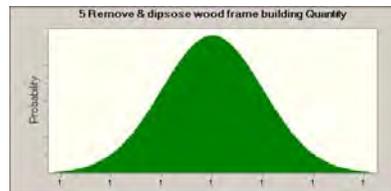


Assumption: 5 Remove & dipsose wood frame building Quantity

Cell: L19

Normal distribution with parameters:

Mean	1	(=L19)
Std. Dev.	0	(=0.000001)



Assumption: 5 Remove & dipsose wood frame building Unit Price

Cell: R19

BetaPERT distribution with parameters:

Minimum	\$24,000.00	(=Q19)
Likeliest	\$25,000.00	(=R19)
Maximum	\$26,000.00	(=S19)

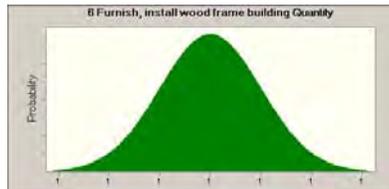


Assumption: 6 Furnish, install wood frame building Quantity

Cell: L20

Normal distribution with parameters:

Mean	1	(=L20)
Std. Dev.	0	(=0.000001)



Assumption: 6 Furnish, install wood frame building Unit Price

Cell: R20

BetaPERT distribution with parameters:

Minimum	\$47,500.00	(=Q20)
Likeliest	\$50,000.00	(=R20)
Maximum	\$52,500.00	(=S20)

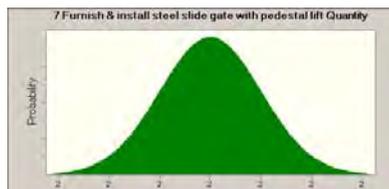


Assumption: 7 Furnish & install steel slide gate with pedestal lift Quantity

Cell: L21

Normal distribution with parameters:

Mean	2	(=L21)
Std. Dev.	0	(=0.000001)



Assumption: 7 Furnish & install steel slide gate with pedestal lift Unit Price

Cell: R21

BetaPERT distribution with parameters:

Minimum	\$3,800.00	(=Q21)
Likeliest	\$4,000.00	(=R21)
Maximum	\$4,200.00	(=S21)



Assumption: 7a Furnish and place concrete walls Quantity

Cell: L22

Triangular distribution with parameters:

Minimum	0	(=K22)
Likeliest	0	(=L22)
Maximum	3	(=M22)



Assumption: 7a Furnish and place concrete walls Unit Price

Cell: R22

BetaPERT distribution with parameters:

Minimum	\$1,250.00	(=Q22)
Likeliest	\$1,300.00	(=R22)
Maximum	\$1,350.00	(=S22)



Assumption: 7b Extend 220v power to the site Quantity

Cell: L23

Triangular distribution with parameters:

Minimum	0	(=K23)
Likeliest	0	(=L23)
Maximum	350	(=M23)



Assumption: 7b Extend 220v power to the site Unit Price

Cell: R23

BetaPERT distribution with parameters:

Minimum	\$140.00	(=Q23)
Likeliest	\$150.00	(=R23)
Maximum	\$160.00	(=S23)

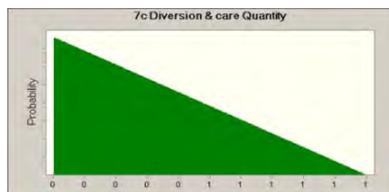


Assumption: 7c Diversion & care Quantity

Cell: L24

Triangular distribution with parameters:

Minimum	0	(=K24)
Likeliest	0	(=L24)
Maximum	1	(=M24)



Assumption: 7c Diversion & care Unit Price

Cell: R24

BetaPERT distribution with parameters:

Minimum	\$95,000.00	(=Q24)
Likeliest	\$100,000.00	(=R24)
Maximum	\$105,000.00	(=S24)

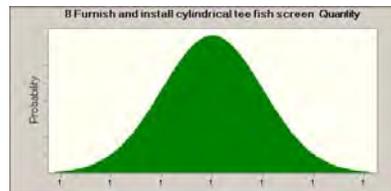


Assumption: 8 Furnish and install cylindrical tee fish screen Quantity

Cell: L25

Normal distribution with parameters:

Mean	1	(=L25)
Std. Dev.	0	(=0.000001)

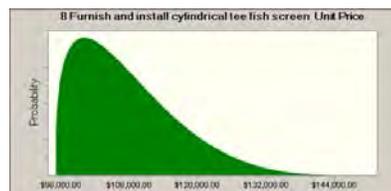


Assumption: 8 Furnish and install cylindrical tee fish screen Unit Price

Cell: R25

BetaPERT distribution with parameters:

Minimum	\$95,000.00	(=Q25)
Likeliest	\$100,000.00	(=R25)
Maximum	\$150,000.00	(=S25)

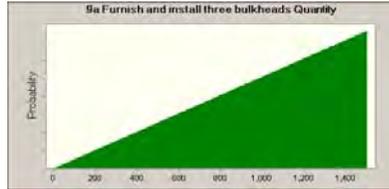


Assumption: 9a Furnish and install three bulkheads Quantity

Cell: L26

Triangular distribution with parameters:

Minimum	0	(=M26)
Likeliest	1,500	(=L26)
Maximum	1,500	(=K26)



Assumption: 9a Furnish and install three bulkheads Unit Price

Cell: R26

BetaPERT distribution with parameters:

Minimum	\$7.00	(=Q26)
Likeliest	\$7.50	(=R26)
Maximum	\$8.00	(=S26)

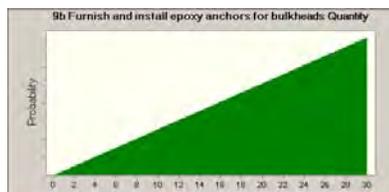


Assumption: 9b Furnish and install epoxy anchors for bulkheads Quantity

Cell: L27

Triangular distribution with parameters:

Minimum	0	(=M27)
Likeliest	30	(=L27)
Maximum	30	(=K27)



Assumption: 9b Furnish and install epoxy anchors for bulkheads Unit Price

Cell: R27

BetaPERT distribution with parameters:

Minimum	\$24.00	(=Q27)
Likeliest	\$25.00	(=R27)
Maximum	\$26.00	(=S27)

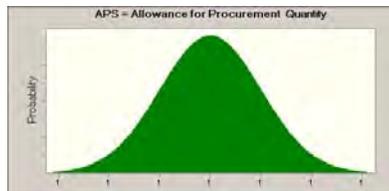


Assumption: APS = Allowance for Procurement Quantity

Cell: L66

Normal distribution with parameters:

Mean	1	(=L66)
Std. Dev.	0	(=0.000001)



Assumption: APS = Allowance for Procurement Unit Price

Cell: R66

BetaPERT distribution with parameters:

Minimum	\$0.00	(=Q66)
Likeliest	\$0.00	(=R66)
Maximum	\$76,424.00	(=S66)

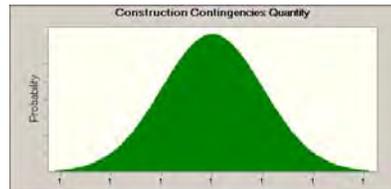


Assumption: Construction Contingencies Quantity

Cell: L69

Normal distribution with parameters:

Mean	1	(=L69)
Std. Dev.	0	(=0.000001)

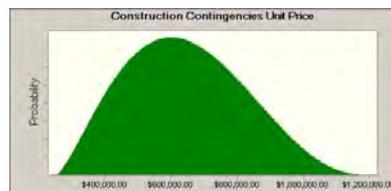


Assumption: Construction Contingencies Unit Price

Cell: R69

BetaPERT distribution with parameters:

Minimum	\$250,000.00	(=Q69)
Likeliest	\$600,000.00	(=R69)
Maximum	\$1,200,000.00	(=S69)

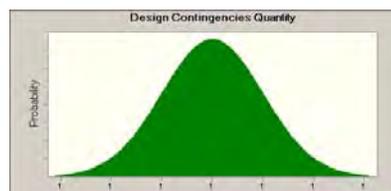


Assumption: Design Contingencies Quantity

Cell: L65

Normal distribution with parameters:

Mean	1	(=L65)
Std. Dev.	0	(=0.000001)

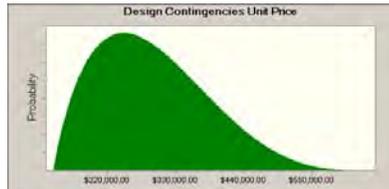


Assumption: Design Contingencies Unit Price

Cell: R65

BetaPERT distribution with parameters:

Minimum	\$133,102.00	(=Q65)
Likeliest	\$246,090.00	(=R65)
Maximum	\$639,262.00	(=S65)

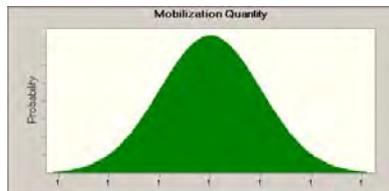


Assumption: Mobilization Quantity

Cell: L60

Normal distribution with parameters:

Mean	1	(=L60)
Std. Dev.	0	(=0.000001)



Assumption: Mobilization Unit Price

Cell: R60

BetaPERT distribution with parameters:

Minimum	\$46,000.00	(=Q60)
Likeliest	\$88,000.00	(=R60)
Maximum	\$150,000.00	(=S60)



Assumption: Non-Contract Cost Quantity

Cell: L71

Normal distribution with parameters:

Mean	1	(=L71)
Std. Dev.	0	(=0.000001)



Assumption: Non-Contract Cost Unit Price

Cell: R71

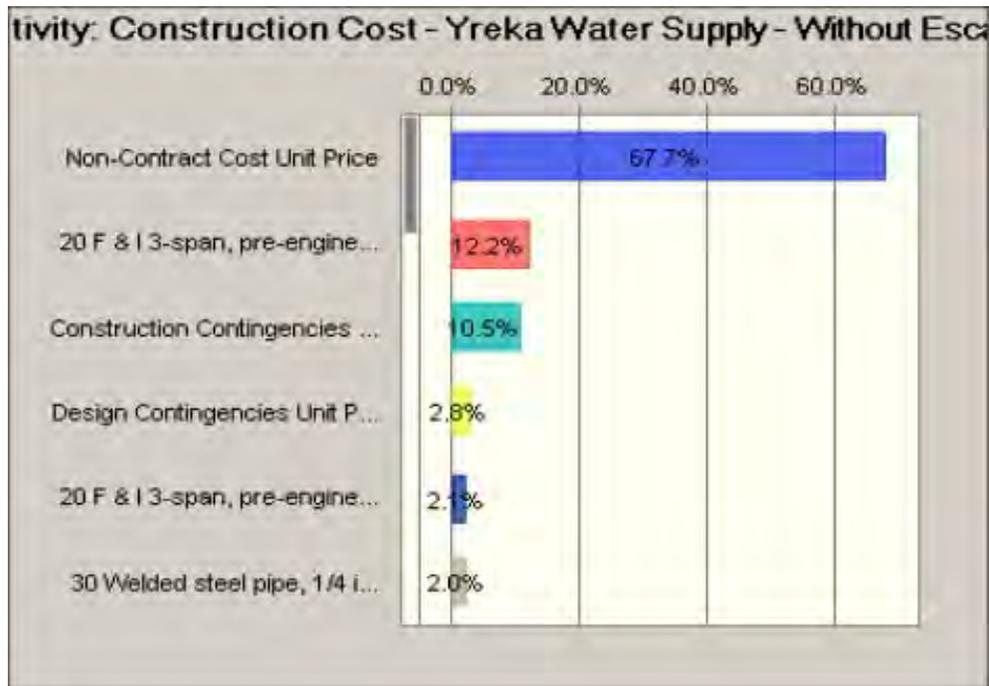
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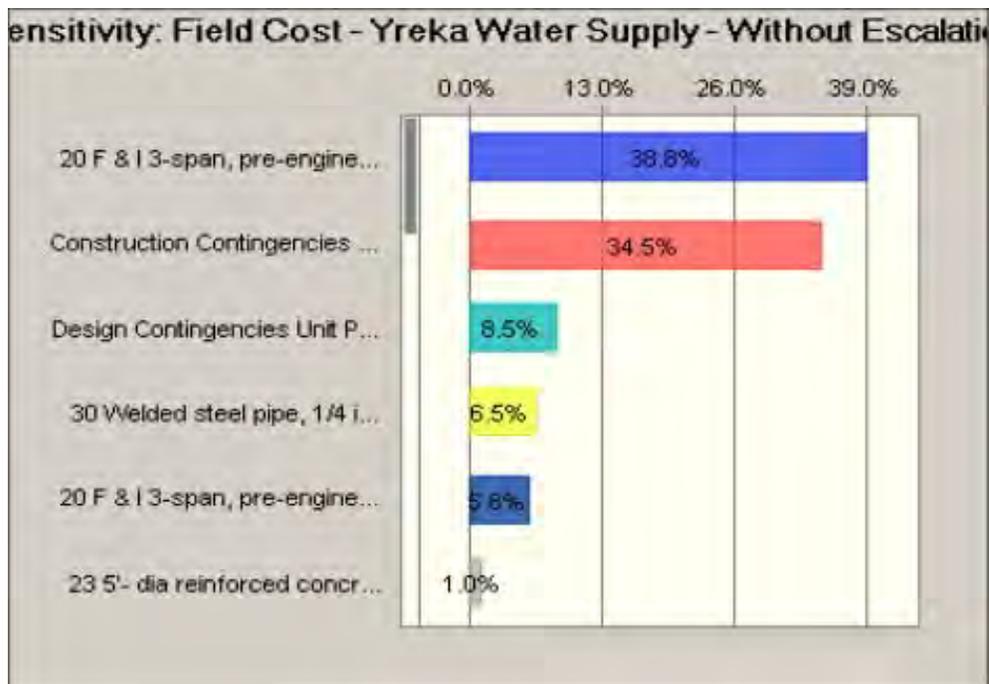
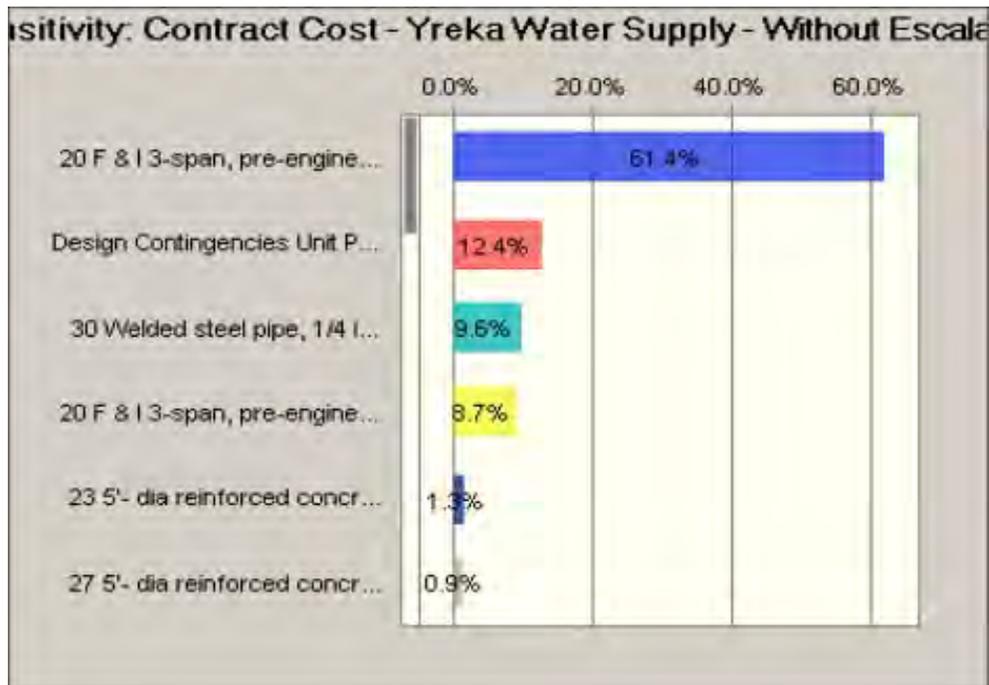
Minimum	\$750,000.00	(=Q71)
Likeliest	\$1,500,000.00	(=R71)
Maximum	\$3,100,000.00	(=S71)



End of Assumptions

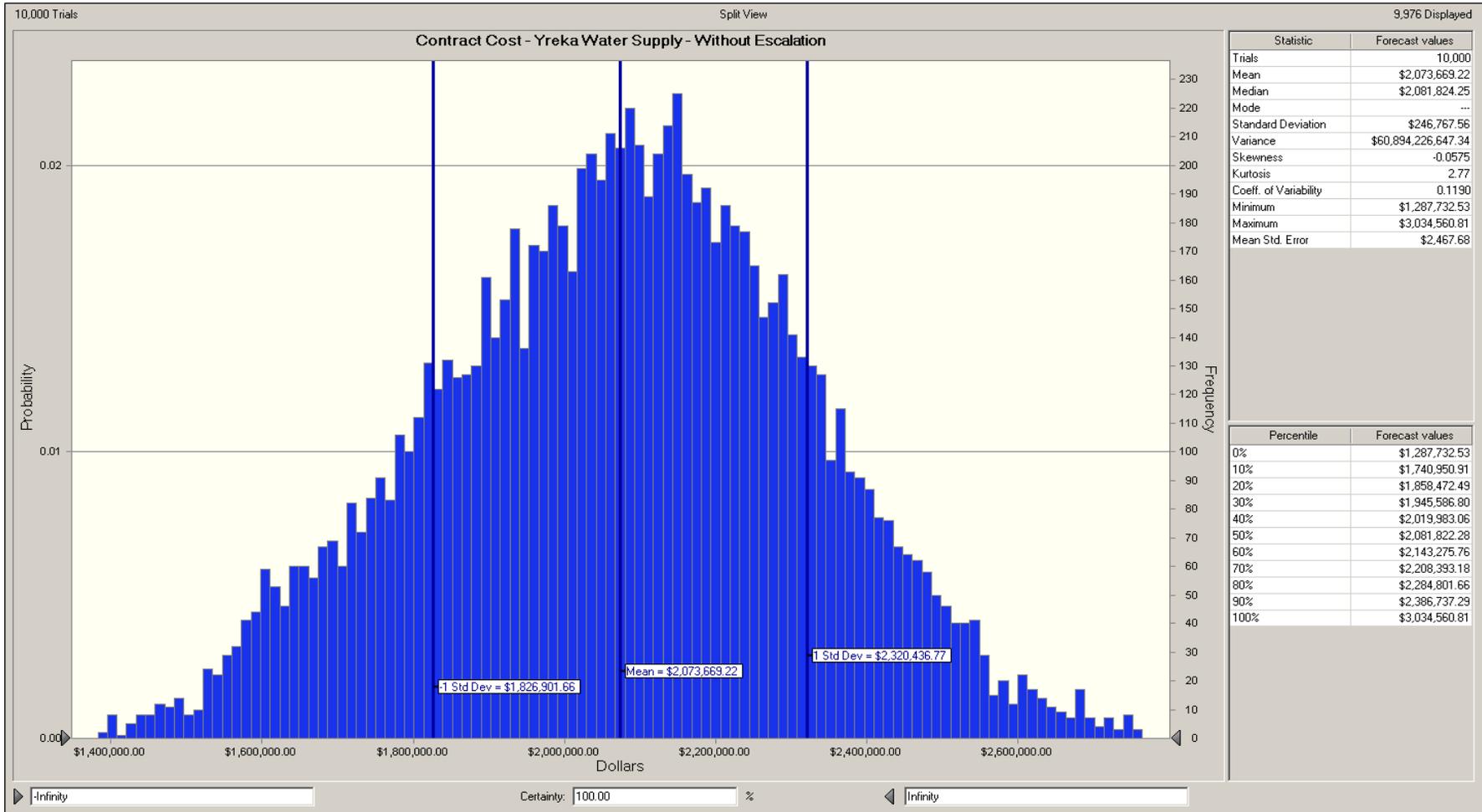
Sensitivity Charts



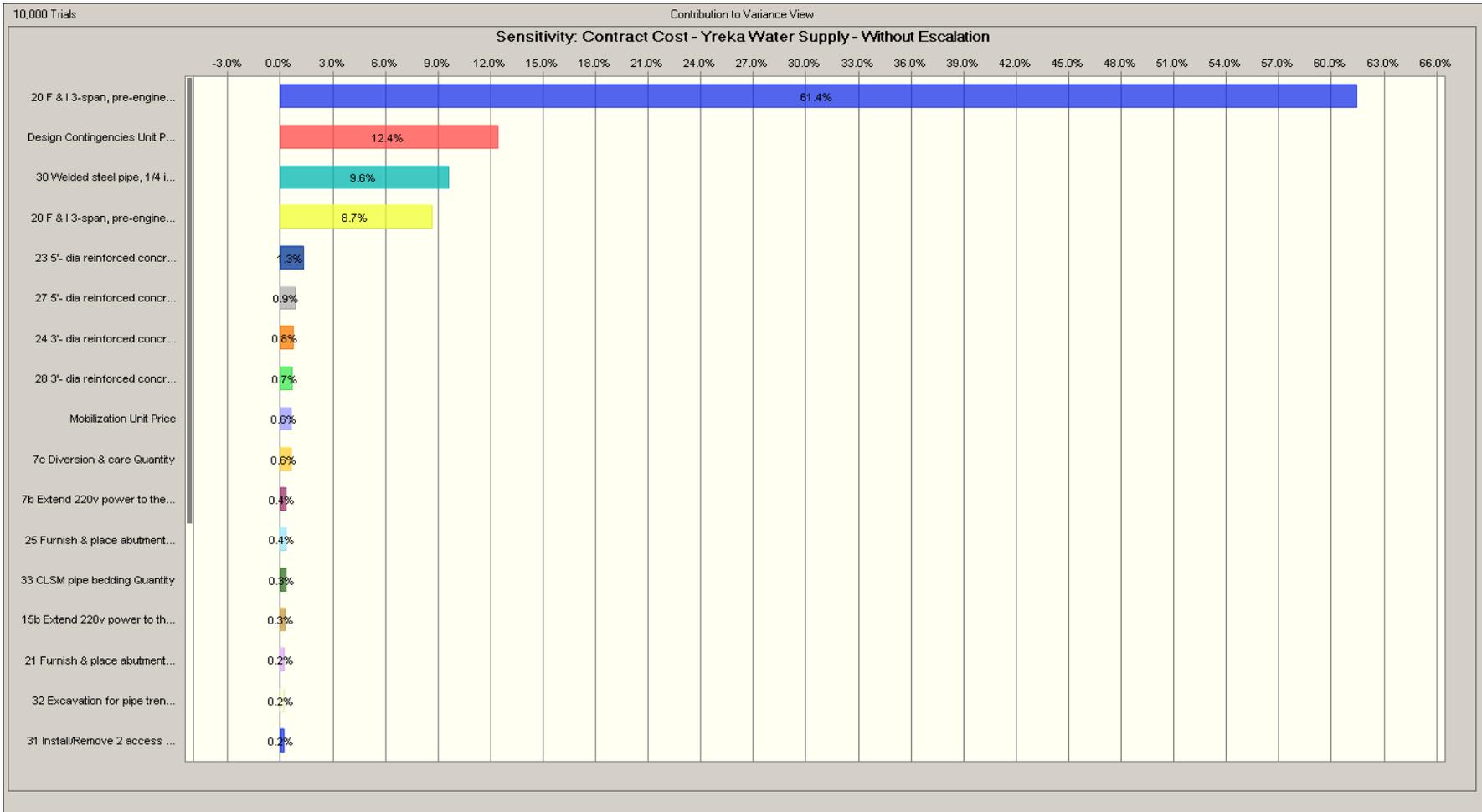


End of Sensitivity Charts

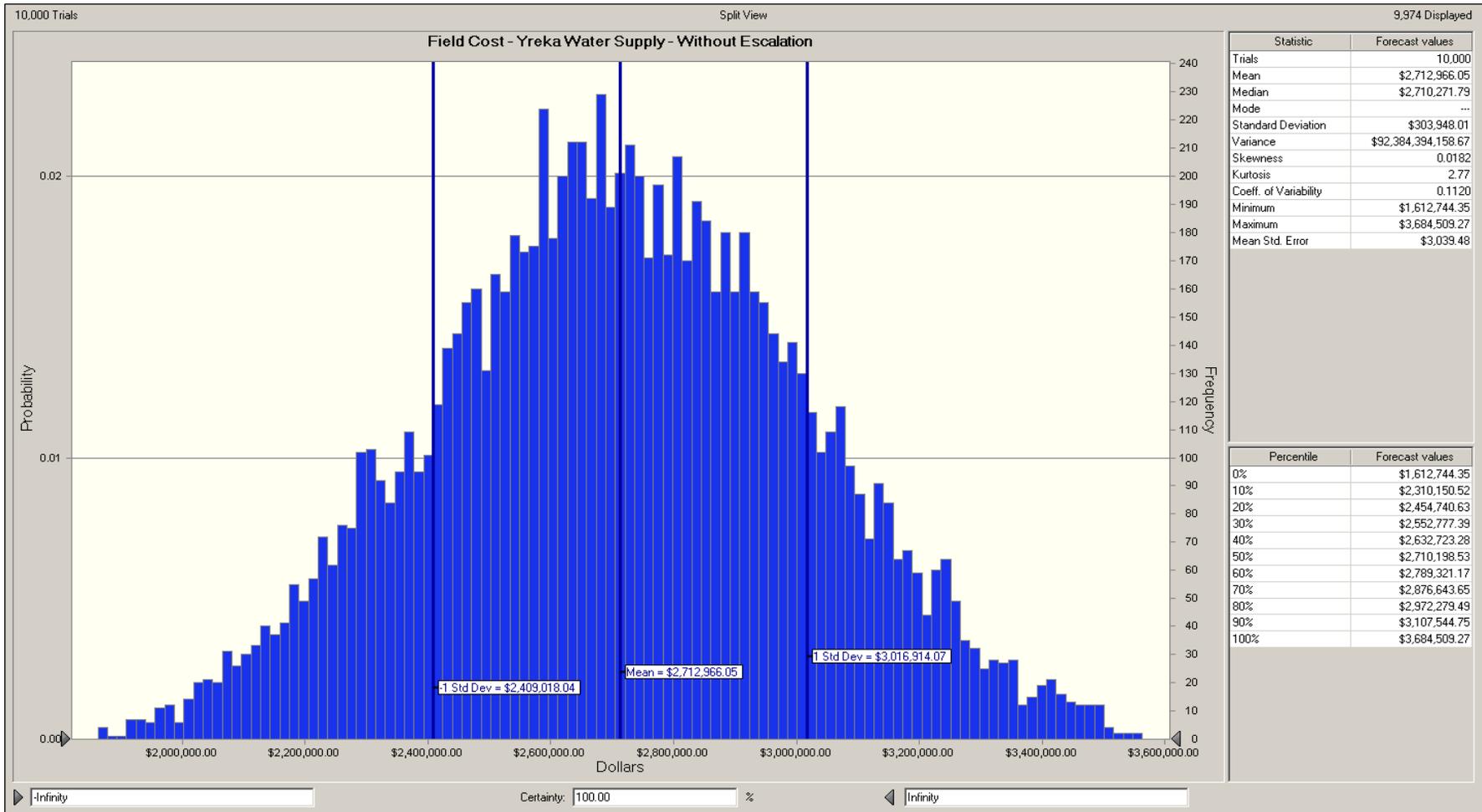
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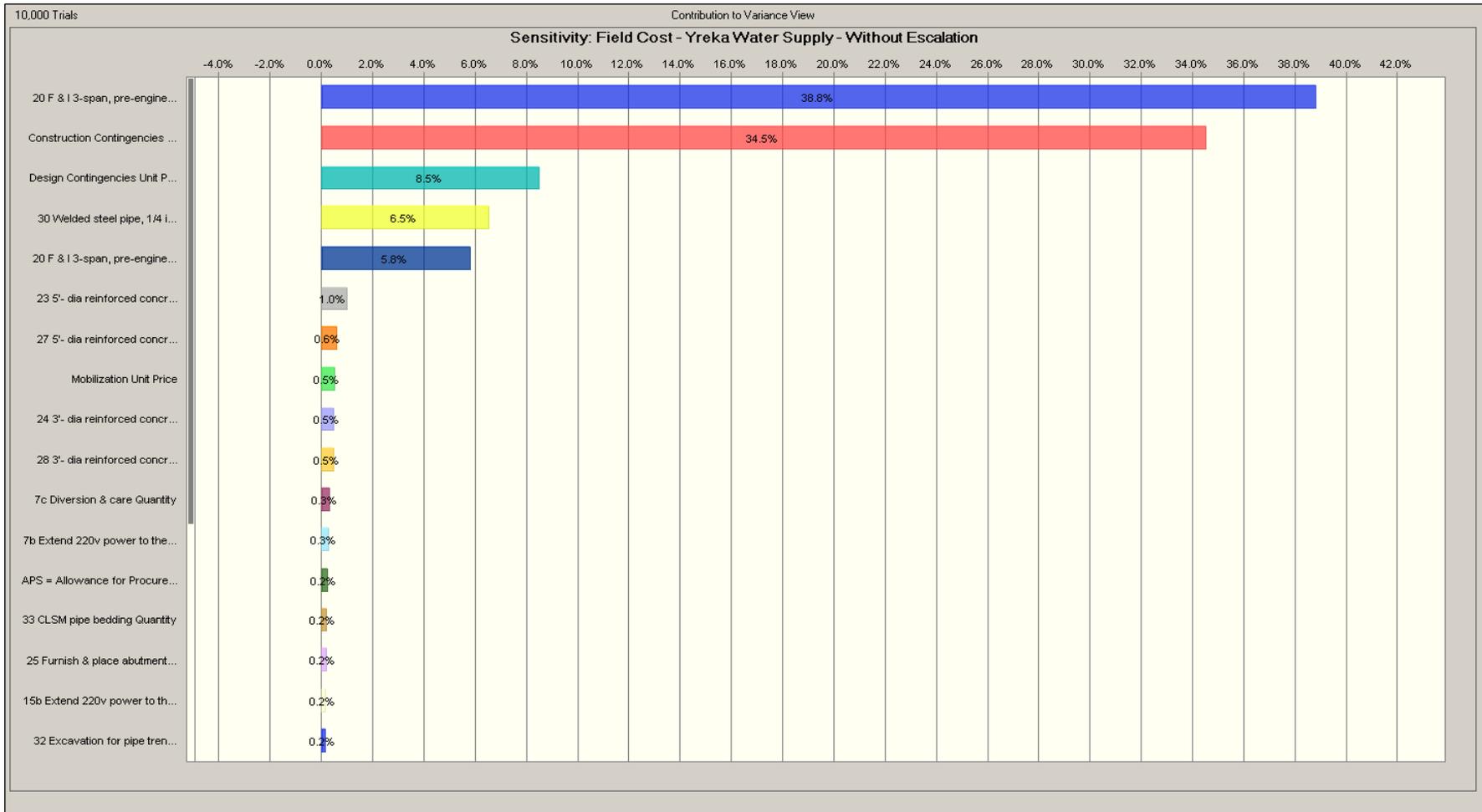
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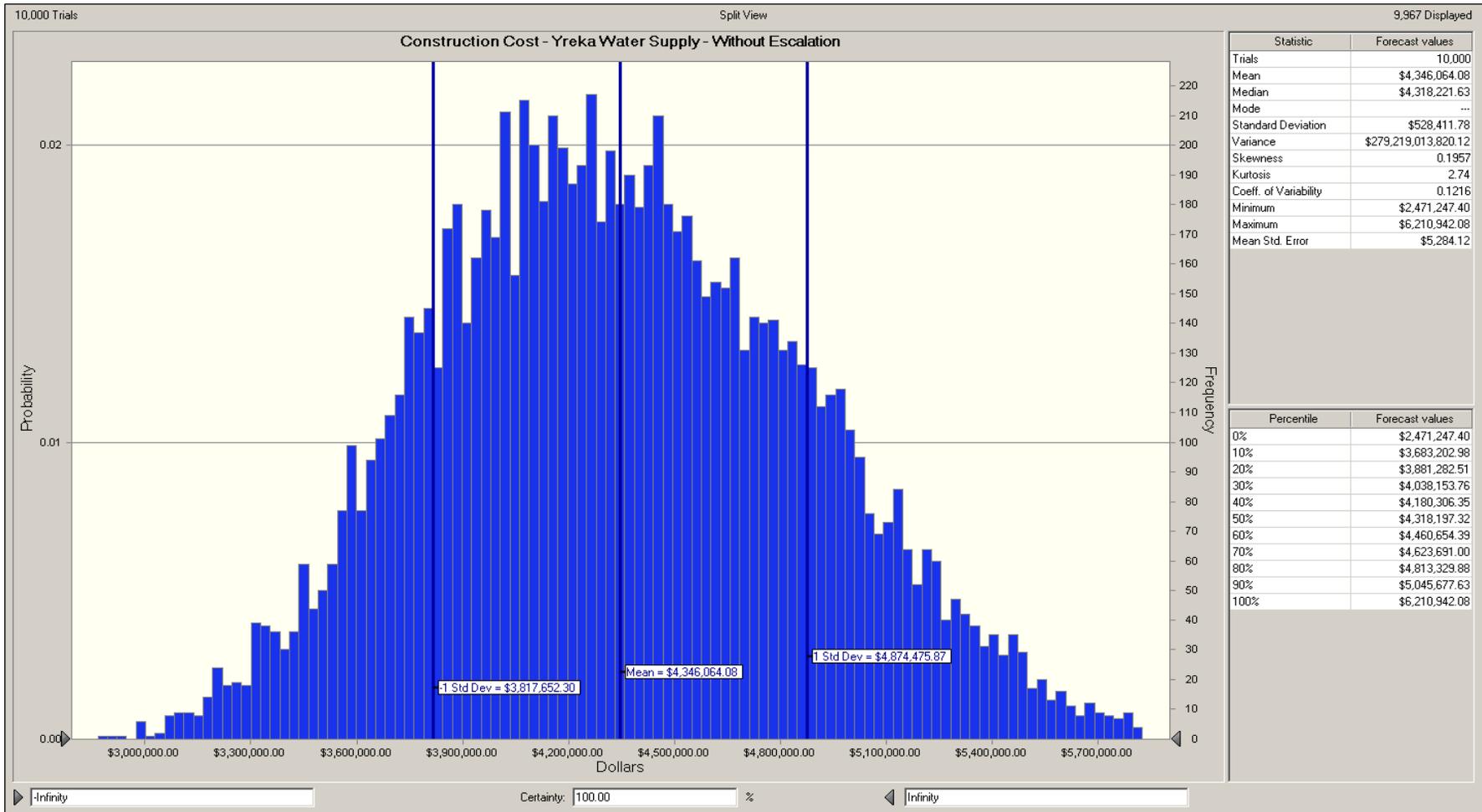
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