UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Klamath River Renewal Corporation	**Project Nos. 14803-001;**
PacifiCorp	**2082-063**

AMENDED APPLICATION FOR SURRENDER OF LICENSE FOR MAJOR PROJECT AND REMOVAL OF PROJECT WORKS

EXHIBIT N (2 of 2)
Waste Disposal and Hazardous Materials Management Plan

Appendix D

Iron Gate Development - Hazardous Materials Survey Report

ENTEK
CONSULTING GROUP, INC.
4200 Rocklin Road, Suite 7, Rocklin, CA 95677 Phone (916) 632-6800 Fax (916) 632-6812 www.entekgroup.com

HAZARDOUS MATERIALS SURVEY
FINAL REPORT

CLIENT

NV5
48 Bellarmine Court, Ste. 40
Chico, CA 95928

CONTACT

Heidi Cummings, PG, QSD
Senior Geologist

SURVEY ADDRESS

Iron Gate Development

BUILDINGS SURVEYED

Multiple Structures at Iron Gate Development
Klamath River Renewal Project

PREPARED BY

Andy Roed
CAC #16-5695 & CDPH I/A 2989
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Entek Project #20-5562

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ENTEK

TABLE OF CONTENTS

Appendices

Executive Summary

Entek Consulting Group, Inc. (Entek) was contracted to conduct a supplementary investigation for hazardous materials specific to areas at the Iron Gate Development as designated by NV5 and Kiewit Infrastructure West Co. (Kiewit) as part of the Klamath River Renewal Project. Based on documentation provided to Entek, AECOM Technical Services, Inc. (AECOM) conducted a hazardous materials survey in September of 2018. Entek utilized AECOM's survey and the sample results to minimize the number of samples and time required to complete the survey. This report combines AECOM's final report as well as Entek's supplemental sampling into one report. AECOM's report is also attached to this report for your records. The investigation included an assessment of the following:

- Asbestos Materials
- Lead in Paint, Coatings, Ceramic Products and other Construction Components
- Fluorescent Light Tubes
- Light Ballasts
- Polychlorinated Biphenyls (PCB)
- Mercury Containing Thermostats and Switches
- Smoke Detectors with Radioactive Americium 241
- Exit Signs with Radioactive Gas Tritium
- Freon

Entek did not specifically inspect for mercury containing fluorescent light tubes or light ballast which may contain polychlorinated biphenyls (PCBs), thermostats which may contain mercury switches, equipment or systems which may contain Freon or other fluorocarbons, or smoke detectors which may contain a radioactive element. However, information pertaining to these materials is included in this report for your use and reference, since these light systems are present on the project.

The purpose of the inspection was to comply with the US EPA NESHAP requirements and the California Air Resource Board which has jurisdiction for this project site to determine if asbestos containing materials are present which may be impacted during an upcoming demolition project.

The United States Environmental Protection Agency, National Emission Standards for Hazardous Air Pollutants (US EPA NESHAP), 40 CFR Part 61 - Nov. 20, 1990, requires an owner or operator of a demolition or renovation project to thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos-containing materials (ACM) prior to the commencement of that project.

This inspection was requested by Ms. Heidi Cummings, Senior Geologist with NV5. The attached drawings show approximate sample locations. Materials are classified in the tables of this report as Regulated Asbestos Containing Material (RACM), Category I (CAT-I) or Category II (CAT-II) ACM, or Asbestos Containing Construction Material (ACCM). The report must be read in its entirety prior to making any interpretations, or conclusions pertaining to the information. Any conclusions made by the reader about the information provided in the body of this report which are contradictory or not included in

this report are the responsibility of the reader.

Introduction

This report presents results of a supplemental asbestos and lead survey performed by Entek which included the interior and exterior of select structures as outlined in the building descriptions below. These buildings are located at the Iron Gate Development. Fluorescent lights were observed at this project site; therefore, this report also includes references to regulations pertaining to handling practices and waste disposal of PCB light ballasts and mercury containing light tubes and thermostats which may be impacted during this project.

The inspection was conducted by Mr. Andy Roed and Mr. Richard Perrelli on September 14 and 15, 2020. Mr. Roed and Mr. Perrelli are Cal/OSHA Certified Asbestos Consultants (CAC) and State of California Department of Public Health (CDPH) certified Lead Inspector/Assessors.

This report was prepared for Ms. Heidi Cummings, Senior Geologist with NV5.

Building Description

The following structures were not accessible by Entek and/or AECOM during either survey. The company in parenthesis was unable to access the structure due to safety or instructed to not enter structure by the building owner.

- Residence 1 (Entek / AECOM)
- Residence 2 (Entek / AECOM)
- Maintenance Shed (Entek)
- Switchyard (Entek)

Aerator (IGDAE)
The Aerator piping is approximately 4’ to 6’ in diameter and provides aeration for the Iron Gate Development Fish Hatchery water supply. The Aerator structure is located south of the Iron Gate Development Powerhouse. The piping extends approximately 50 feet up a hillside. A metal caged ladder follows the piping up the hill. The piping is wrapped with deteriorating asphaltic pipe wrap.

Communications Building (IGDCB)
The Communications Building is adjacent and to the north of the Powerhouse, is approximately 800 square feet, and is a single story slab on grade prefabricated building. The exterior siding and roof consists of prefabricated steel. The interior of the building consists of a front office, an electrical room, and a break room. Walls and ceilings consist of gypsum wallboard or are unfinished steel. Flooring consists of vinyl floor sheeting or unfinished concrete.

Diversion Tunnel Intake Structure (IGDDTI)
The Diversion Tunnel Intake Structure is located on pilings that extend into the Iron Gate Reservoir. The building is located on the northeast end of the reservoir and is approximately 390 square feet. The exterior siding and roofing consist of steel with a

rubber membrane cover throughout. The interior consists of unfinished steel walls and ceiling and the floor consists of metal grating.

Emergency Spill Equipment Shed (IGDES)
The Emergency Spill Equipment Shed is approximately 100 square feet, and is a single story slab on grade shed, with engineered wood siding and asphaltic shingle roofing. The interior of the shed is unfinished wood. The structure is currently being used as storage for emergency spill purposes. Entek was not able to access the interior of the structure; however, based on conversation with our site escort, the interior is limited to unfished wood framing and plywood flooring.

Fish Holding Facilities and Ponds (IGDFHF)
The Fish Holding Facilities and Ponds main building is approximately 1,250 square feet and is a prefabricated concrete floor building located between the Powerhouse and the dam. The main building is in the center of six concrete lined fish holding ponds. The exterior siding and roofing of the building consists of prefabricated steel. The interior consists of a ground floor, and a second floor that wraps around the perimeter of the interior. Interior finishes are painted or unfinished steel and concrete.

Fish Ladder (IGDFL)
The Fish Ladder is located east of the Powerhouse. It consists of concrete steps that extend to the Fish Holding Facilities and Ponds from the river.

Iron Gate Dam (IGD)
The Iron Gate Dam is a zoned earth fill embankment with a height of 189 feet from the rock foundation to the dam crest. The dam crest is 20 feet wide and approximately 740 feet long. The embankment includes a central impervious clay core, with filter zones and a downstream drain.

Maintenance Shed (IGDMS)
The Maintenance Shed is approximately 2,000 square feet, wood framed, and is constructed on a slab-on-grade concrete foundation. It is located on the north side of the Klamath River approximately 1,000 feet south of the dam. It is an open sided structure and is used for the storage of boats, recreational trailer and other items from the nearby residences. Entek was not able to access this structure.

Penstock Intake Structure (IGDPIS)
The Penstock Intake Structure is located on pilings that extend into the Iron Gate Reservoir. The building is located on the southeast end of the reservoir and is approximately 120 square feet. The exterior siding and roofing consist of prefabricated steel throughout. The interior consists of unfinished steel walls and ceiling and the floor consists of metal grating.

Penstock and Hatchery Water Supply (IGDPS)
The Penstocks and Hatchery Water Supply are connected with the Aerator piping. The Penstocks are north of the Powerhouse and extend up the Iron Gate Development. The hatchery water supply extends past the Powerhouse and turns towards the Fish Holding Facilities.

Powerhouse (IGDPH)
The Powerhouse is approximately 3,000 square feet. The facility is located at the downstream toe of the dam on the east bank of the river. The powerhouse has three levels; above ground, first lower level, and second lower level. The above ground level contains the upper portions of a single vertical-shaft, Francis-type turbine contained in its own concrete vault. The first lower level contains the middle portion of the turbine housed in a concrete vault, electrical panels, a 500 gallon oil governor accumulation tank, air compressors, oil, water and air piping, labeled hazardous materials and other miscellaneous storage cabinets. The second lower level contains the lowest portion of the turbine housed in steel vault, piping, and sump pumps.

Residence 1 (IGDR1)
Residence 1 is approximately 2,000 square feet. The exterior of the building consists of engineered wood siding and corrugated metal roofing. No suspect asbestos-containing materials were observed on the exterior of the building. The building was occupied during the survey and the interior was not accessed.

Residence 2 (IGDR2)
Residence 2 is approximately 2,000 square feet. The exterior of the building consists of engineered wood siding and corrugated metal roofing. No suspect asbestos-containing materials were observed on the exterior of the building. The building was occupied during the survey and the interior was not accessed.

Restrooms (IGDRR)
The Restrooms building is approximately 400 square feet. The exterior siding and roof of the building consist of prefabricated steel. The interior of the building has two restrooms, a storage room, and consists of unfinished steel and concrete.

Switchyard
The Switchyard is approximately 5,000 square feet and is located adjacent to the powerhouse. The switchyard contains an electrical transformer, substations, transmission poles and lines within a fenced gravel area. The majority of the transmission pole footings, substations and the transformer were on top of cement pads or gravel filled cement catch basins The “yellow glass portion” of the high voltage transformer bushings may contain PCBs in the oil. The small pole mounted transformers were noted to contain no-PCB labels. No observable impacts, odors or distressed vegetation were noted. Entek did not enter the switchyard area due to safety concerns.

Asbestos Inspection and Sample Collection Protocols

Entek included all specific designated interior and exterior areas of the buildings included in this report. Entek did not use any demolition methods to look within enclosed wall or ceiling cavities during this investigation. Entek did include all suspect materials observed in, on, or associated with the areas included in this report.

Entek reviewed the report prepared by AECOM prior to and during the site inspection. Materials sampled by AECOM were not resampled as part of this assessment. Only new material or materials which were assumed to contain asbestos by AECOM were sampled where possible.

Bulk samples were collected of various materials suspected to contain asbestos by utilizing a power drill and coring tube, cutting the materials with a razor knife, or use of other appropriate hand tools.

Surfacing materials were collected in a statistically random manner representative of the associated homogenous area as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987 and the California Air Resource Board (CARB).

Miscellaneous materials were collected from each homogenous area in a manner sufficient to determine whether the material is or is not ACM as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987.

Approximate locations of all samples collected during this inspection are indicated on the "Bulk Asbestos Material Analysis Request Form for Entek", which served as the chain of custody for the samples, and on the building diagram(s) attached to this report.

Asbestos Bulk Sample Results

There were several materials observed which are considered "suspect" under US EPA guidelines. Under current US EPA guidelines for conducting building inspections for ACM, all "suspect" materials must be assumed to contain asbestos until otherwise determined by laboratory testing.

The samples of materials suspected of containing asbestos were submitted to Asbestech, a laboratory located in Carmichael, California. These samples were subsequently analyzed by polarized light microscopy (PLM) with dispersion staining.

The US EPA NESHAP uses the terms Regulated Asbestos Containing Material (RACM), Category I, and Category II when identifying materials which contain asbestos in amounts greater than 1%. Cal/OSHA uses the term ACCM which indicates a manufactured construction material contains greater than 0.1% asbestos by weight by the PLM method. This definition can be found in Title 8, 1529.

Copies of Asbestech's laboratory reports and accreditations are attached.

Bulk samples were collected of all the materials considered to be "suspect", which had not been previously sampled, and were observed during this investigation. Some of those samples contained multiple layers which were individually analyzed to determine their asbestos content. Analysis of all samples collected was by PLM with dispersion staining. Results of the analysis for materials found to contain asbestos by both AECOM and Entek compiled in the table on the following pages

For all materials tested and found not to contain asbestos by Entek, refer to all laboratory results that are attached. In addition, the report by AECOM provides a list of materials with laboratory results of materials they collected, which include materials found to be positive and negative for asbestos.

Suspect Materials Found or Assumed TO Contain >1% Asbestos					
Sample ID#'s	**Suspect Material**	**Location**	**NESHAP Category**	**Asbestos Content/Type (%) by PLM**	**Total Estimated Quantity**
Aerator (IGDAE)					
N/A	Red Gaskets	Aerator Piping, Hatchery Water Supply	Cat. I	Assumed To Contain Asbestos	2 Each
Diversion Tunnel Intake Structure (IGDDTI)					
IGDDTI-1	Gray Window Putty	Interior Window Panes	Cat. II	5-6% Chrysotile	2 Each (4'x5')
Fish Holding Facility (IGDFHF)					
IGDFHF-01	Gray Brittle Window Putty	Patch Sealant On One Window Only	Cat. II	4-6% Chrysotile	4 linear feet
IGDFHF-03A-B	Silver Paint over Black Asphaltic Coating	Coating on Metal Gutter Along Fish Ladder near Gantry Gate	Cat. II Cat. I	1-5% Chrysotile (Silver Paint) 20-30% Chrysotile (Asphaltic Coating)	60 Square Feet
Maintenance Shed (IGDMS)					
N/A	Silver Woven Electrical Wire Insulation	Throughout Maintenance Shed	Cat. II	Assumed To Contain Asbestos	Unable to quantify
N/A	Electrical Panel Backing of older Electrical Panels	Interior Maintenance Shed	Cat. II	Assumed To Contain Asbestos	4 Each

Suspect Materials Found or Assumed TO Contain >1% Asbestos					
Sample ID#'s	**Suspect Material**	**Location**	**NESHAP Category**	**Asbestos Content/Type (%) by PLM**	**Total Estimated Quantity**
Maintenance Shed (IGDMS) (continued)					
N/A	Roof Felt Paper	Thought roof of Maintenance Shed (AECOM – Too High to Access) (Entek – No access to Structure Allowed)	Cat. I	Assumed To Contain Asbestos	2,100 Square Feet
Penstock (IGDPS)					
N/A	Red Gaskets	Hatchery Water Supply Piping (AECOM/Entek – Unable to sample due to active system)	Cat. I	Assumed To Contain Asbestos	Unable to Quantify
N/A	Black Gaskets	Hatchery Water Supply Piping (AECOM/Entek – Unable to sample due to active system)	Cat. I	Assumed To Contain Asbestos	Unable to Quantify
Penstock Intake Structure (IGDPIS)					
IGDPIS-01	White Brittle Window Putty	Interior Window Panes	Cat. II	4-5% Chrysotile	2 Each (4'x5')
Powerhouse (IGDPH)					
IGDPH-01	Gray Brittle Window Putty	Interior and Exterior Window Frames	Cat. II	4-5% Chrysotile	4 Each (4'x4')
N/A	Wicket Gates Seal	Associated with Turbines of Main Level of Powerhouse (No Access without Turbine Removal)	Cat. II	Assumed To Contain Asbestos	3 Each
N/A	Metal Clad Fire Door Insulation	Powerhouse Main Level Doors	RACM	Assumed To Contain Asbestos	2 Each

Suspect Materials Found or Assumed TO Contain >1% Asbestos					
Sample ID#'s	**Suspect Material**	**Location**	**NESHAP Category**	**Asbestos Content/Type (%) by PLM**	**Total Estimated Quantity**
Throughout Iron Gate Development					
N/A	Transite Piping	Assumed to be present underground throughout the Iron Gate Development	Cat. II	Assumed To Contain Asbestos	Unable to Quantify
Residence 1 *(AECOM and ENTEK did not Assess this Structure – Materials and Quantities Estimated for Bidding Purposes at Client's Request)* *(These materials and additional materials may or may not be present. An asbestos survey is necessary prior to the demolition of this structure)*					
N/A	Roofing Felt Paper	Under Metal Roof Throughout	Cat. I	Assumed To Contain Asbestos	2,000 Square Feet
N/A	Siding Felt Paper	Under Composite Siding	Cat. II	Assumed To Contain Asbestos	2,500 Square Feet
N/A	Drywall and Joint Compound	Throughout Interior of the Structure	Cat. II	Assumed To Contain Asbestos	6,000 Square Feet
N/A	Drywall Texture	Throughout Interior of the Structure	RACM	Assumed To Contain Asbestos	6,000 Square Feet
N/A	Vinyl Sheet Flooring and Mastic	Throughout Interior of the Structure	Cat. I/II	Assumed To Contain Asbestos	2,000 Square Feet
Residence 2 *(AECOM and ENTEK did not Assess this Structure – Materials and Quantities Estimated for Bidding Purposes at Client's Request)* *(These materials and additional materials may or may not be present. An asbestos survey is necessary prior to the demolition of this structure)*					
N/A	Roofing Felt Paper	Under Metal Roof Throughout	Cat. I	Assumed To Contain Asbestos	2,000 Square Feet
N/A	Siding Felt Paper	Under Composite Siding	Cat. II	Assumed To Contain Asbestos	2,500 Square Feet

Suspect Materials Found or Assumed TO Contain >1% Asbestos					
Sample ID#'s	**Suspect Material**	**Location**	**NESHAP Category**	**Asbestos Content/Type (%) by PLM**	**Total Estimated Quantity**
Residence 2 (continued)					
N/A	Drywall and Joint Compound	Throughout Interior of the Structure	Cat. II	Assumed To Contain Asbestos	6,000 Square Feet
N/A	Drywall Texture	Throughout Interior of the Structure	RACM	Assumed To Contain Asbestos	6,000 Square Feet
N/A	Vinyl Sheet Flooring and Mastic	Throughout Interior of the Structure	Cat. I/II	Assumed To Contain Asbestos	2,000 Square Feet

NOTE: Any CAT-I or CAT-II materials identified in the previous tables which will be subjected to mechanical removal, must be considered RACM for the purposes of notification to US EPA Region IX, CARB, or Local AQMD and classification of waste. Removal of any CAT-I or CAT-II materials prior to demolition of a building is dependent upon how the materials will be impacted and if the impact will cause the materials to become friable. If any remaining CAT-I or CAT-II materials will become friable they must be removed prior to the initiation of demolition.

NOTE: Cal/OSHA regulates all materials containing greater than 0.1% asbestos. As a result, impact to materials identified as ACCM and ACM must be performed by properly asbestos trained personnel utilizing appropriate personal protection, work practices, as well as, properly constructed and demarcated work areas or containments, in accordance with Cal/OSHA asbestos regulations.

The tables above provide an estimate of the amount of materials in square feet or linear feet. Contractors are responsible for quantifying the exact quantity of materials impacted by the renovation or demolition and shall not rely on the quantities in the above tables.

US EPA AHERA uses three terms when determining the classification of a material for the purpose of sampling. These terms include miscellaneous, surfacing, and thermal system insulation (TSI).

Miscellaneous materials are building materials on structural components, structural members or fixtures, such as floor and ceiling tiles, and do not include surfacing material or TSI.

Surfacing materials are materials that are sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceiling and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

TSI is material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain, water condensation, or for other purposes.

The information provided in the tables of this report are for use by the Owner in determining where asbestos containing materials are located, and whether or not any future work may impact those materials. The information is also provided for use by any contractor who may perform work in areas impacting the materials listed in this report, and for use as appropriate by asbestos abatement contractors to provide costs related to work impacting ACM.

Any building materials which are considered “suspect” for containing asbestos which have not been identified in this report must be assumed to contain asbestos in amounts >1% until properly investigated and/or tested.

Materials commonly excluded from being suspected for containing asbestos include, but are not limited to: unwrapped pink and yellow fiberglass insulating materials or products, foam insulation, wood, metal, plastic, or glass. All other types of building materials or coatings on the materials listed above are commonly listed as “suspect” and must be tested prior to impact by a Contractor. Work impacting these untested or newly discovered materials must cease until an investigation can be completed.

Asbestos Regulatory Requirements

US EPA

The property included in this survey report is located in Siskiyou County. The California Air Resource Board (CARB) has been given authority for enforcement of the NESHAP regulations.

A demolition is the wrecking, taking out, or burning of any load supporting structural member. A renovation is everything else. 10 day written notification to the US EPA Region IX, CARB or local AQMD is required prior to the performance of any demolition project regardless of asbestos being present or not. This notification would also apply to any renovation project which involves the wrecking, taking out, or burning of any load bearing

structural member during a renovation as well.

There is a sufficient amount of ACM present to require a 10 day notification to the US EPA Region IX, CARB or local AQMD be submitted prior to starting work which will impact materials identified as RACM or CAT-I and CAT-II materials if they are made friable. If more than 160 square feet, 260 linear feet or 35 cubic feet of RACM is planned for removal on the project, formal written notification to US EPA Region IX, CARB or local AQMD is required.

Cal/OSHA

Disturbance of any ACM or ACCM could generate airborne asbestos fibers and would be regulated by Cal/OSHA. Cal/OSHA worker health and safety regulations apply during any disturbance of ACM or ACCM by a person while in the employ of another. This is true regardless of friability or quantity disturbed. Since it has been estimated more than 100 square feet of ACCM does exist and will be impacted during the upcoming project, a licensed asbestos contractor, certified by the State of California, and registered with Cal/OSHA is required to perform the asbestos related removal work. Entek recommends a licensed asbestos contractor be used to remove ACCM even if less than 100 square feet of ACCM are being disturbed.

For compliance with Title 8, Section 341.9, the asbestos contractor must send written notice at least one day (24 hours) prior to start of any work which will impact any amount of asbestos to the local office for the State of California, Department of Occupational Safety and Health, and perform all work in accordance with Cal/OSHA requirements.

Lead Inspection and Sampling

An X-ray fluorescence (XRF) Spectrum Analyzer was used during the lead inspection portion of this survey as a screening tool in determining if lead is present in quantities which would require existing paints and/or coatings to be classified as Lead-Based Paint (LBP).

In XRF spectroscopy, the process begins by exposing the sample in question to a source of x-rays or gamma rays. As these high energy photons strike the sample, they tend to knock electrons out of their orbits around the nuclei of the atoms that make up the sample. When this occurs, an electron from an outer orbit, or “shell”, of the atom will fall into the shell of the missing electron. Since outer shell electrons are more energetic than inner shell electrons, the relocated electron has an excess of energy that is expended as an XRF photon. This fluorescence is unique to the composition of the sample. The detector collects this spectrum and converts them to electrical impulses that are proportional to the energies of the various x-rays in the sample’s spectrum. Since each element has a different and identifiable x-ray signature, we can look at specific parts of the emitted spectrum, and by counting the pulses in the sector, determine the presence and concentration of the element(s) in question within the sample. Entek used a Niton XRF spectrum analyzer which is specific to measuring only lead in the building substrate.

Lead Sampling Results

XRF Spectrum Analyzer testing indicated lead was present in concentrations >1.0 mg/cm^2

on various building components. XRF direct reading technology is not capable of determining lead concentrations below 1.0 mg/cm^2. The limit of detection for this device with a 95% confidence level is 1.0 mg/cm^2. As a result, any reading provided by the XRF technology does not provide adequate information to determine the actual content of lead in the paint/coating being tested. Any XRF reading less than 1.0 mg/cm^2 (including readings of 0.00) only indicate lead is not present at levels high enough to classify the paint/coating as LBP. Some coatings or materials which resulted in a lead concentration of below 1.0 mg/cm^2 were then sampled and analyzed by atomic absorption spectrometry (AAS) for lead content. Results of the XRF analysis and laboratory analysis are included in the tables below.

Paints/Coatings/ Materials Determined to Contain Lead			
Paint/Coating Color or Material	**Lead Content**	**Component/Location**	**LBP/ LCP**
Aerator			
Yellow Paint	2.7 mg/cm^2	Metal Ladder	LBP
Red over Gray Paint	4.4 mg/cm^2	Aerator Piping	LBP
Diversion Tunnel Intake Structure			
Tan Paint	470 ppm	Exterior Metal Window Frames	LCP
Gray/Silver Paint	1,500 ppm	Interior Metal Walls	LCP
Orange Paint	210,000 ppm	Interior Metal Ladder	LBP
Communications Building			
Yellow Paint	180 ppm	Exterior Metal Bollards	LCP
Fish Holding Facility			
Gray/Silver Paint	500 ppm	Metal Handrail and Equipment throughout Interior	LCP
Silver paint	110,000 ppm	Metal Mechanical unit in center of fish holding ponds	LBP
Silver Paint	92,000 ppm	Exterior Equipment Structures	LBP
Penstock			
Pink Paint	65,000 ppm	6’ Diameter Penstock Piping	LBP
Red Paint	60 ppm	6’ Diameter Penstock Piping	LCP
Penstock Intake Structure			
Tan Paint	140 ppm	Exterior Metal Siding and Equipment	LCP
Red Paint	170,000 ppm	Metal Walkway	LBP
Tan Paint	2.2 mg/cm^2	Metal Structural Components	LBP
Silver Paint	2.6 mg/cm^2	Handrails	LBP
Powerhouse			
Orange Paint	83,000 ppm	Interior Metal Handrails and Guardrails throughout	LBP
Gray Paint	980 ppm	Interior Floor and Equipment Blocks	LCP

Paints/Coatings/ Materials Determined to Contain Lead			
Paint/Coating Color or Material	**Lead Content**	**Component/Location**	**LBP/ LCP**
Powerhouse (continued)			
Tan Paint	7,200 ppm	Walls in Turbine Room	LBP
Off-White/Silver Paint	860 ppm	Exterior stop Log Gates	LCP
Orange Paint	150,000 ppm	Exterior Stop Log Supports	LBP
Silver Paint	14.2 mg/cm^2	Metal Crane Rails on top of Powerhouse	LBP
Yellow Paint	2.8 mg/cm^2	Interior Metal Ladders	LBP
Gray Paint	1.9 mg/cm^2	Metal Equipment on top of Powerhouse	LBP

LBP - Materials/coatings/paints meeting the definition of lead-based paint as defined by the CDPH and the US EPA, currently defined as containing lead in concentrations equal to or greater than 1.0 mg/cm^2, 5,000 ppm, or 0.5% by weight.

LCP - Materials/coatings/paints which contain measurable amounts of lead. The disturbance of these materials/coatings/paints is regulated by Cal/OSHA.

Lead Regulatory Compliance

Any upcoming project which may result in the disturbance of lead containing products or surfaces, but is not intended to remediate a lead hazard or specifically designed to remove LBP to reduce or eliminate a known hazard, would be considered “lead related construction work”.

Lead related construction work does not fit the classification of a “lead abatement project” under CDPH Title 17 regulations. “*Abatement*” is defined in Title 17, Division 1, Chapter 8, Article 1 as “any set of measures designed to reduce or eliminate lead hazards or LBP for public and residential buildings, but does not include containment or cleaning.” A *lead hazard* is defined in Title 17, Division 1, Chapter 8, Article 1 as “deteriorated LBP, lead contaminated dust, lead contaminated soil, disturbing LBP or presumed LBP without containment, or any other nuisance which may result in persistent and quantifiable lead exposure.”

Lead related construction work means any “construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead-containing material or soil, may result in significant exposure of adults or children to lead”. (Title 17, California Code of Regulations, Division 1, Chapter 8, Article 1).

Currently, Cal/OSHA has not established a definition for LBP, nor have they established minimum concentrations where their regulations do not apply. Cal/OSHA regulates all construction activities involving materials containing lead, including LBP. These regulations are found in CCR, Title 8 Section 1532.1 (§1532.1) Lead in Construction.

Cal/OSHA has not established a concentration of lead in a product where their regulations

do not apply, therefore, any disturbance to products containing lead come under the jurisdiction of Cal/OSHA and their regulations. Disturbance of paints/coatings or materials determined to be LBP may trigger a pre-work notification to Cal/OSHA if "trigger tasks" disturb 100 square feet or more of those paints/coatings or materials. Trigger tasks are described in Title 8 CCR 1532.1.

Fluorescent Light Tubes and Polychlorinated Biphenyls (PCBs)

Fluorescent light tubes which contain mercury are considered a universal waste and must be packaged and recycled appropriately if they are removed from a building and not used again. The regulation, called the Universal Waste Rule, are in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 23.

Fluorescent light tubes are the bulb or tube portion of an electric lighting device and are commonly referred to as "lamps". Examples of other common electric lamps considered to be universal wastes include, but are not limited to, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Any lamp which is not spent and has been designated to be reused is not classified as a waste and does not meet the requirements of a hazardous waste or a universal waste.

Spent lamps typically contain concentrations of mercury exceeding the established Total Threshold Limit Concentration (TTLC) and/or the Soluble Threshold Limit Concentration (STLC) values. Therefore, these lamps must be sent to an authorized recycle facility or to a universal waste consolidator for shipment to an authorized recycling facility.

At a minimum, if removed lamps will not be reused they must be packaged in boxes/ packages/containers which are structurally sound, adequate to prevent breakage, and compatible with the content of the lamps. These packages must remain closed and be free of damage which could cause leakage under reasonably foreseeable conditions. Each container must be labeled or marked clearly with one of the following phrases: "Universal Waste Lamp(s)," or "Waste Lamp(s)," or "Used Lamp(s)." Entek recommends shipping any lamp not designated for reuse to a universal waste recycling facility once they have been packaged.

PCB containing light ballasts are considered a hazardous waste, and must be properly manifested for transport to a hazardous waste facility. Any contractor who may perform PCB related work (inspection, removal, clean-up) must be trained and qualified to do so. All workers must also follow current OSHA regulations including 29 CFR 1910.120 and 8 CCR 5192, as well as, other applicable federal, state, and local laws, and regulations. While light ballasts marked "No PCB" are not considered a hazardous waste, they are considered a universal waste. As a result, removal, packaging, and disposal/recycling of these types of ballasts must be conducted in accordance with current regulations of Title 22.

Entek and AECOM made an effort to assist in quantifying select materials throughout the structure. The below quantities are estimates based on observations during the assessment. It shall be the contractor responsibility to verify the total quantities present.

Universal Waste Inventory	
Other Regulated Building Material Description	**Approximate Quantity**
Mercury-Containing fluorescent light tubes (4' length)	20
Mercury-Containing fluorescent light tubes (8' length)	10
Magnetic light ballasts	10
HID Lamps	6
Mercury-containing switches, controls, and recorders	None Observed
PCB-Containing Transformer Oil	Assumed Present in Switchyard

PCB Caulking Results		
Material Description	**Material Location**	**Sample Results (ppm)**
Flexible Gray Expansion Joint Sealant	Top of Powerhouse at expansion joints	None Detected

Thermostats with Mercury Switches

It is possible existing thermostats may utilize switches containing mercury. The mercury in these switches would be considered a hazardous waste if removed and disposed. Any work requiring removal of thermostats containing mercury switches, must include having the switches inspected for the presence of mercury, and subsequently following all requirements for packaging and disposal of any switch found to contain mercury.

Freon and Fluorocarbons

Freon and other fluorocarbon products associated with HVAC systems, refrigerators, etc. may be present in or on the exterior of the buildings included in this investigation. Prior to demolition of a structure or removal of existing HVAC systems, refrigerators, or any other type of equipment which typically uses these types of coolant products shall have the coolant materials investigated prior to their demolition and removed from the mechanical systems and recycled in accordance with Cal/EPA requirements.

Smoke Detectors Which May Contain a Radioactive Element

It is possible existing smoke detectors may contain a radioactive element. These types of detectors are easily identified by reviewing the label which is usually found on the back of the detector. Older units may display the international radiation symbol (three bladed propeller) and the radioactive content. Newer units state the radioactive content and their Nuclear Regulatory Agency (NRC) license number.

Any work requiring the removal of smoke detectors with a radioactive element must include contacting the manufacturer of the smoke detector to determine their return policies. The California Department of Toxic Substance Control (DTSC) has stated that it is a condition of the manufacturers NRC license they must accept returned units for disposal.

Limitations

Entek inspected only the specific designated areas identified by the Owner to be included in the upcoming project. Select structures as outlined in the building description portion of this report were not assessed due to either safety concerns or at the request of the building owner. As a result the information provided in this inspection report may not be used to extend the inspection results to areas not included in this report without additional review and sampling as necessary.

Entek did not perform any destructive sampling to look into ceiling and wall cavities. As a result, it may be possible for materials to be hidden in these areas which are not included in this report. Entek also did not employ any destructive measures on floors of interior spaces or exterior areas covered with asphalt, concrete, or dirt.

If any new materials not listed as having been sampled, or listed as assumed for containing asbestos in this report are discovered, the new material must be assumed to contain asbestos until properly inspected and tested for asbestos content.

Entek's policy is to retain a full copy of these written documents for three (3) years once the file is closed. At the end of the 3 year period the written files will be destroyed without further notice. It is suggested copies of the file(s) are maintained as per your policy.

Entek will be providing only this electronic copy of the report and its attachments for your use. However, if you would like a hard copy of this report please do not hesitate to ask. Entek will be happy to mail the report upon receipt of your request.

Thank you for choosing Entek for your environmental needs. Please call me at (916) 632-6800 if you have any questions regarding this report.

Prepared by: Andy Roed

Andy Roed, CIH, CSP, CAC
President
Cal/OSHA CAC #16-5695
CDPH I/S/M Certification #2989

Appendices

A. Asbestos Related Documents
B. Lead Related Documents
C. Backup Documentation

APPENDIX A

ASBESTOS RELATED DOCUMENTS

- Bulk Asbestos Analysis Report From Asbestech
- Bulk Asbestos Material Analysis Request Form for Entek

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67928
Date/Time Collected: 9/14/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDAE-01A	Silver paint, aerator piping near ground level	NONE DETECTED	Opaques
	Black asphaltic wrap	NONE DETECTED	Tar Binder Fibrous Glass
02A	Gray concrete , foundation of ladder	NONE DETECTED	Granular Mins.

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67946
Date/Time Collected: 10/7/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDCB-			
01A	Black asphalt exterior of Communications building	NONE DETECTED	Tar Binder Granular Mins.
01B	Black asphalt exterior of Communications building	NONE DETECTED	Tar Binder Granular Mins.
02A	Black asphalt joint sealant exterior of Communications building	NONE DETECTED	Tar Binder Granular Mins.
02B	Black asphalt joint sealant exterior of Communications building	NONE DETECTED	Synthetics Granular Mins.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: TOM CONLON

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67925
Date/Time Collected: 9/14/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDES-01A	Black asphaltic roofing shingles (no felt paper), roof on shed	NONE DETECTED	Tar Binder Fibrous Glass
01B	Black asphaltic roofing shingles (no felt paper), roof on shed	NONE DETECTED	Tar Binder Fibrous Glass

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

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6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67938
Date/Time Collected: 10/7/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDFHF-			
01A	Gray concrete at foundation of fish holding facility building	NONE DETECTED	Granular Mins.
02A	Gray concrete of fish holding ponds	NONE DETECTED	Granular Mins.
03A	Silver paint of black asphaltic material (inseparable from asphaltic material) gutter along fish ladder near gantry gate	1-5 CHRYSOTILE	Opaques
	Black asphaltic material	20-30 CHRYSOTILE	Tar Binder
03B	NOT ANALYZED		

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: TOM CONLON

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67935
Date/Time Collected: 10/7/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDFHS-01A	Black felt paper under metal roofing	NONE DETECTED	Tar Binder Cellulose
01B	Black felt paper under metal roofing	NONE DETECTED	Tar Binder Cellulose

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

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ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67927
Date/Time Collected: 9/14/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDFPS-			
01A	Gray concrete on supports for fish hatchery water supply	NONE DETECTED	Granular Mins.
	Gray grout	NONE DETECTED	Granular Mins.
02A	Brown fibrous material at saddles for fish hatchery water supply	NONE DETECTED	Synthetics Cellulose
03A	Silver paint on fish hatchery water supply	NONE DETECTED	Opaques
	Black asphaltic material	NONE DETECTED	Tar Binder Cellulose

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

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ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67929
Date/Time Collected: 9/14/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDPH-01A	Gray CMU, power house interior wall	NONE DETECTED	Granular Mins.
	Gray grout	NONE DETECTED	Granular Mins.
02A	Gray concrete , power house floor	NONE DETECTED	Granular Mins.

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67932
Date/Time Collected: 9/14/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDPIS-01A	Gray concrete, intake house foundation	NONE DETECTED	Granular Mins.

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
Iron Gate Dam

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67926
Date/Time Collected: 9/14/20
Date Received: 10/7/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/8/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-IGDRR-01A	Gray concrete foundation of bldg.	NONE DETECTED	Granular Mins.
02A	Gray CMU, storage area interior wall	NONE DETECTED	Granular Mins.
	Gray grout	NONE DETECTED	Granular Mins.

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ENTEK

67928

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDAE-01A	Silver Paint over Black Asphaltic Wrap / Aerator Piping, Near ground level
ECG-20-5562-IGDAE-02A	Concrete / Foundation of ladder

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDAE\Bulk Request 9-15-2020.wpd

Delivered by: [signature] **Date:** 10 / 7 / 20 **Time:** 1040 AM/PM

Received by: [signature] **Date:** 10 / 7 / 20 **Time:** 1042 AM/PM

ENTEK

67946

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDCB-01A	Black Asphalt / Exterior of Communications Building
ECG-20-5562-IGDCB-01B	Black Asphalt / Exterior of Communications Building
ECG-20-5562-IGDCB-02A	Black Asphalt Joint Sealant / Exterior of Communications Building
ECG-20-5562-IGDCB-02B	Black Asphalt Joint Sealant / Exterior of Communications Building

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDCB\Bulk Request 9-15-2020.wpd

Delivered by: _____ **Date:** 10/7/20 **Time:** 1040 AM/PM

Received by: _____ **Date:** 10/7/20 **Time:** 1090 AM/PM

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67925

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDES-01A	Asphaltic Roofing Shingles (No Felt Paper) / Roof of Shed
ECG-20-5562-IGDES-01A	Asphaltic Roofing Shingles (No Felt Paper) / Roof of Shed

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Delivered by: _____ **Date:** 10/7/20 **Time:** 1040 AM/PM

Received by: _____ **Date:** 10/7/20 **Time:** 1045 AM/PM

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BULK ASBESTOS MATERIAL *Analysis Request*

67938

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDFHF-01A	Concrete at Coundation of Fish Holding Facility Building
ECG-20-5562-IGDFHF-02A	Concrete of Fish Holding Ponds
ECG-20-5562-IGDFHF-03A	Silver Paint of Black Asphaltic Material / Gutter Along Fish Ladder Near Gantry Gate
ECG-20-5562-IGDFHF-03B	Silver Paint of Black Asphaltic Material / Gutter Along Fish Ladder Near Gantry Gate

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Delivered by: _____ **Date:** 10/7/20 **Time:** 1020 AM/PM

Received by: _____ **Date:** 10/7/20 **Time:** 1045 AM/PM

ENTEK

67935

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDFHS-01A	Black Felt Paper under Metal Roofing
ECG-20-5562-IGDFHS-01B	Black Felt Paper under Metal Roofing

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDFHS\Bulk Request 9-15-2020.wpd

Delivered by: _____ **Date:** 10 / 7 20 **Time:** 1080 AM/PM

Received by: _____ **Date:** 10 / 7 / 20 **Time:** 10 45 AM/PM

ENTEK

67927

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDFPS-01A	Concrete on Supports for Fish Hatchery Water Supply
ECG-20-5562-IGDFPS-02A	Brown Fibrous Material at Saddles for Fish Hatchery Water Supply
ECG-20-5562-IGDFPS-03A	Silver Paint over Black Asphaltic Material on Fish Hatchery Water Supply

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDFPS\Bulk Request 9-15-2020.wpd

Delivered by: _____ **Date:** 10 7 20 **Time:** 1040 AM/PM

Received by: _____ **Date:** 10 / 7 / 20 **Time:** 1640 AM/PM

ENTEK

67929

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDPH-01A	CMU and Grout / Power House, Interior Wall
ECG-20-5562-IGDPH-02A	Concrete / Powerhouse Floor

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDPH\Bulk Request 9-15-2020.wpd

Delivered by: _____ **Date:** 10/7/20 **Time:** 10:00 **AM/PM**

Received by: _____ **Date:** 10/7/20 **Time:** 10:[illegible] **AM/PM**

ENTEK

67932

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDPIS-01A	Concrete / Intake House Foundation

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDPIS\Bulk Request 9-15-2020.wpd

Delivered by: _____ **Date:** 10 / 7 / 20 **Time:** 1040 AM/PM

Received by: _____ **Date:** 10 / 7 / 20 **Time:** 1040 AM/PM

ENTEK

67926

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 13 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDRR-01A	Concrete / Foundation of Building
ECG-20-5562-IGDRR-02A	CMU and Grout / Storage Area, Interior Wall

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDRR\Bulk Request 9-15-2020.wpd

Delivered by: _____ **Date:** 10 / 7 / 20 **Time:** 1040 **AM/PM**

Received by: _____ **Date:** 10 / 7 / 20 **Time:** 1040 **AM/PM**

APPENDIX B

LEAD RELATED DOCUMENTS

- Lead in Paint Samples Analysis Report From EMLAB
- Bulk Lead Material Analysis Request Form for Entek

eurofins | EMLab P&K

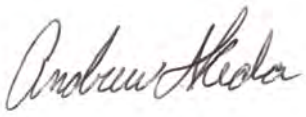
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562; NV5; Iron Gate Dam
EML ID: 2498697

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-13-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562; NV5; Iron Gate Dam

Date of Sampling: 09-14-2020
Date of Receipt: 10-08-2020
Date of Report: 10-15-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-IGDCB-01Pb: White paint on interior walls and door frames	ECG-20-IGDCB-02Pb: Yellow paint on exterior bollards
Comments (see below)	A	A
Lab ID-Version‡:	11905547-1	11905548-1
Analysis Date:	10/13/2020	10/13/2020
Sample type	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	130 ppm	55 ppm
Sample size	0.0780 grams	0.1818 grams
§Total Lead Result	< 130 ppm	180 ppm

Comments: A) The relative percent difference of the matrix duplicate pair was above control limits. The laboratory control sample and matrix blank were both within control limits and validated the batch.

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

eurofins | EMLab P&K

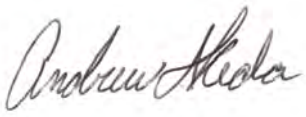
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562; NV5; Iron Gate Dam
EML ID: 2498724

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-12-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562; NV5; Iron Gate Dam

Date of Sampling: 09-14-2020
Date of Receipt: 10-08-2020
Date of Report: 10-14-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-IGDDTI-01Pb: Orange paint on interior metal ladder
Comments (see below)	None
Lab ID-Version‡:	11905853-1
Analysis Date:	10/12/2020
Sample type	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	83 ppm
Sample size	0.1212 grams
§Total Lead Result	210000 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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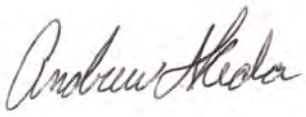
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562; NV5; Iron Gate Dam
EML ID: 2498714

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-13-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562; NV5; Iron Gate Dam

Date of Sampling: 09-14-2020
Date of Receipt: 10-08-2020
Date of Report: 10-15-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-IGDES-01Pb: Gray Paint on Exterior Wood Siding
Comments (see below)	A
Lab ID-Version‡:	11905926-1
Analysis Date:	10/13/2020
Sample type	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	73 ppm
Sample size	0.1378 grams
§Total Lead Result	< 73 ppm

Comments: A) The relative percent difference of the matrix duplicate pair was above control limits. The laboratory control sample and matrix blank were both within control limits and validated the batch.

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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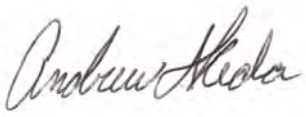
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562; NV5; Iron Gate Dam
EML ID: 2498705

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-13-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562; NV5; Iron Gate Dam

Date of Sampling: 09-14-2020
Date of Receipt: 10-08-2020
Date of Report: 10-15-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-IGDFHF-01Pb: Red/Orange Paint on Handrails	ECG-20-5562-IGDFHF-02Pb: Silver Paint on Exterior Equipment Structures	ECG-20-5562-IGDFHF-03Pb: Green Paint on Gantry Gate
Comments (see below)	A	A	A
Lab ID-Version‡:	11905893-1	11905894-1	11905895-1
Analysis Date:	10/13/2020	10/13/2020	10/13/2020
Sample type	Paint Chip sample	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	380 ppm	220 ppm	360 ppm
Sample size	0.0265 grams	0.0460 grams	0.0276 grams
§Total Lead Result	< 380 ppm	92000 ppm	< 360 ppm

Comments: A) The relative percent difference of the matrix duplicate pair was above control limits. The laboratory control sample and matrix blank were both within control limits and validated the batch.

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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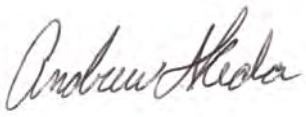
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562; NV5; Iron Gate Dam
EML ID: 2498702

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-13-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562; NV5; Iron Gate Dam

Date of Sampling: 09-14-2020
Date of Receipt: 10-08-2020
Date of Report: 10-15-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-IGDFHS-01Pb: Gray Paint On Wood Siding
Comments (see below)	None
Lab ID-Version‡:	11905609-1
Analysis Date:	10/13/2020
Sample type	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	39 ppm
Sample size	0.2576 grams
§Total Lead Result	< 39 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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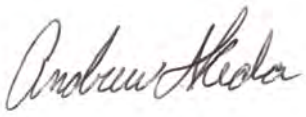
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562; NV5; Iron Gate Dam
EML ID: 2498716

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-12-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received. Sample size, as it relates to Wipe samples only, is supplied by the client.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EMLab P&K's LabServe® reporting system includes automated fail-safes to ensure that all AIHA-LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562; NV5; Iron Gate Dam

Date of Sampling: 09-14-2020
Date of Receipt: 10-08-2020
Date of Report: 10-14-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-IGDPIS-01Pb: Red paint on metal walkway
Comments (see below)	None
Lab ID-Version‡:	11905885-1
Analysis Date:	10/12/2020
Sample type	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	83 ppm
Sample size	0.1209 grams
§Total Lead Result	170000 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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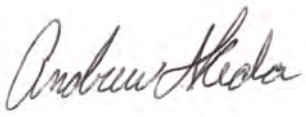
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562; NV5; Iron Gate Dam
EML ID: 2498720

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-12-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562; NV5; Iron Gate Dam

Date of Sampling: 09-14-2020
Date of Receipt: 10-08-2020
Date of Report: 10-14-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-IGDRR-01Pb: Silver paint on metal door	ECG-20-5562-IGDRR-02Pb: Gray paint on floor of restroom
Comments (see below)	None	None
Lab ID-Version‡:	11905856-1	11905857-1
Analysis Date:	10/12/2020	10/12/2020
Sample type	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	75 ppm	40 ppm
Sample size	0.1329 grams	0.2500 grams
§Total Lead Result	< 75 ppm	< 40 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

ENTEK

BULK LEAD MATERIAL *Analysis Request*

002498697

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-14-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: Iron Gate Dam

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDCB-01Pb	White Paint on Interior walls and door frames
ECG-20-5562-IGDCB-02Pb	Yellow Paint on Exterior Bollards

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDCB\Bulk Request Pb 09-15-2020.wpd

Delivered by: via fedex **Date:** 10/17/20 **Time:** 8 AM/PM

Received by: [signature] **Date:** 10/8/20 **Time:** 945 AM/PM

ENTEK

002498724

BULK LEAD MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-14-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: Iron Gate Dam

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDDTI-01Pb	Orange Paint on Interior Metal Ladder

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDDTI\Bulk Request Pb 09-15-2020.wpd

Delivered by: via fedex **Date:** 10/7/20 **Time:** 9 AM/PM

Received by: **Date:** 10/8/20 **Time:** 945 AM/PM

ENTEK

002498714

BULK LEAD MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-14-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: Iron Gate Dam

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDES-01Pb	Gray Paint on Exterior Wood Siding

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\Iron Gate\COCs\IGDES\Bulk Request Pb 09-15-2020.wpd

Delivered by: via fedex **Date:** 10/7/20 **Time:** 9 AM/PM

Received by: [signature] **Date:** 10/8/20 **Time:** 945 AM/PM

ENTEK

BULK LEAD MATERIAL *Analysis Request*

002498705

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-14-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: Iron Gate Dam

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDFHF-01Pb	Red/Orange Paint on Handrails
ECG-20-5562-IGDFHF-02Pb	Silver Paint on Exterior Equipment Structures
ECG-20-5562-IGDFHF-03Pb	Green Paint on Gantry Gate

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Delivered by: via fedex **Date:** 10/7/20 **Time:** 9 AM/PM

Received by: [signature] **Date:** 10/8/20 **Time:** 945 AM/PM

ENTEK

BULK LEAD MATERIAL *Analysis Request*

002498702

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-14-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: Iron Gate Dam

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDFHS-01Pb	Gray Paint on Wood Siding

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Delivered by: via fedex **Date:** 10/7/20 **Time:** 9 AM/PM

Received by: [signature] **Date:** 10/8/20 **Time:** 845 AM/PM

ENTEK

BULK LEAD MATERIAL *Analysis Request*

002498716

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-14-2020

Job Number: 20-5562

Client Name: NV5

Site Address: Iron Gate Dam

Lab: Emlab P & K - Irvine

Collected by: Roed

Turnaround Time: Standard

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDPIS-01Pb	Red Paint on Metal Walkway

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Delivered by: V.a Fedex **Date:** 10/7/20 **Time:** 9 AM/PM

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ENTEK

BULK LEAD MATERIAL *Analysis Request*

002498720

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-14-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: Iron Gate Dam

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-IGDRR-01Pb	Silver Paint on Metal Door
ECG-20-5562-IGDRR-02Pb	Gray Paint on Floor of Restroom

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Lead Testing Data Sheet (OSHA)
Iron Gate Development

Entek Project # 20-5562 | Niton: XLp-300A Lead Analyzer | Date: 9-14 and 9-15, 2020

Address: Iron Gate Development | XRF Serial No.: 24015 | Source No.: TR3580

Room Equivalent: | Inspector(s): Andy Roed

Component	Substrate	Color	Test Locations	XRF Reading (mg/cm^2)
Ladder	Metal	Yellow	Aerator Structure	2.7
Pipe	Metal	Red	Aerator Piping	4.4
Siding	Wood	Gray	Wood Siding on emergency spill shed	0.0
Structural Component	Metal	Tan	Penstock Intake Structure	2.2
Handrail	Metal	Silver	Penstock Intake Structure	2.6
Handrails	Metal	Orange	Handrails of Fish holding Facility	0.2
Gantry Gate	Metal	Green	Paint on fish ladder gantry gate	0.1
Crane Rails	Metal	Silver	Rails for Crane on top of Powerhouse	14.2
Ladder	Metal	Yellow	Ladder on interior of powerhouse	2.8
Equipment	Metal	Gray	Turbine enclosure on top of powerhouse	1.9
Walls	Metal	White	Communications Building	0.1
Bollard	Metal	Yellow	Bollards outside communication bulling	0.0
Siding	Wood	Gray	Fish holding shed siding	0.0

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All XRF Readings $\geq$1.0 mg/cm^2 = Lead Based Paint (LBP)

All XRF Readings <1.0 mg/cm^2 = Lead Containing Coating (LCC)

Calibration Check Test Results

Klamath River Dams

Site Name:	Copco 1 Development	Date:	9-17-2020
City:	Hornbrook, CA		
Device:	Niton Xlp 300	Source Assay Date:	12-1-19
XRF Serial No.	24015	Source Number:	TR3580
Contractor:	Entek Consulting Group, Inc.		
Inspector Name:	Andy Roed		
Inspector Signature:	_____		

Calibration Check Tolerance Used 1.04 ±0.06

First Calibration Check 0900 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
1.0	1.0	0.9	

Second Calibration Check 1600 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
1.0	1.1	1.0	

Third Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

Fourth Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

* If the Calibration Check from the red SRM film value is greater or less than the specified Calibration Check Tolerance for this device, consult the manufacturer's recommendations to bring the instrument back into control. Retest all testing combinations tested since the last successful Calibration Check test.

Calibration Check Test Results

Klamath River Dams

Site Name:	Iron Gate / Copco 2 Development	Date:	9-16-2020
City:	Hornbrook, CA		
Device:	Niton Xlp 300	Source Assay Date:	12-1-19
XRF Serial No.	24015	Source Number:	TR3580
Contractor:	Entek Consulting Group, Inc.		
Inspector Name:	Andy Roed		
Inspector Signature:			

Calibration Check Tolerance Used 1.04 ±0.06

First Calibration Check 0700 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
0.9	1.0	0.9	

Second Calibration Check 1500 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
1.0	0.9	1.0	

Third Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

Fourth Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

* If the Calibration Check from the red SRM film value is greater or less than the specified Calibration Check Tolerance for this device, consult the manufacturer's recommendations to bring the instrument back into control. Retest all testing combinations tested since the last successful Calibration Check test.

Calibration Check Test Results

Klamath River Dams

Site Name:	Iron Gate / Copco 2 Development	Date:	9-15-2020
City:	Hornbrook, CA		
Device:	Niton Xlp 300	Source Assay Date:	12-1-19
XRF Serial No.	24015	Source Number:	TR3580
Contractor:	Entek Consulting Group, Inc.		
Inspector Name:	Andy Roed		
Inspector Signature:	_____		

Calibration Check Tolerance Used 1.04 ±0.06

First Calibration Check 0800 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
0.9	1.0	1.0	

Second Calibration Check 1700 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
1.0	1.0	1.0	

Third Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

Fourth Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

* If the Calibration Check from the red SRM film value is greater or less than the specified Calibration Check Tolerance for this device, consult the manufacturer's recommendations to bring the instrument back into control. Retest all testing combinations tested since the last successful Calibration Check test.

Calibration Check Test Results

Klamath River Dams

Site Name:	Iron Gate / Copco 2 Development	Date:	9-14-2020
City:	Hornbrook, CA		
Device:	Niton Xlp 300	Source Assay Date:	12-1-19
XRF Serial No.	24015	Source Number:	TR3580
Contractor:	Entek Consulting Group, Inc.		
Inspector Name:	Andy Roed		
Inspector Signature:	_____		

Calibration Check Tolerance Used 1.04 ±0.06

First Calibration Check 0700 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
0.9	0.9	1.0	

Second Calibration Check 1730 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
1.0	1.0	1.1	

Third Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

Fourth Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

* If the Calibration Check from the red SRM film value is greater or less than the specified Calibration Check Tolerance for this device, consult the manufacturer's recommendations to bring the instrument back into control. Retest all testing combinations tested since the last successful Calibration Check test.

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*
Tested Model: *XLp 300*
Source: ^{109}Cd
Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.
XLp 300A, XLp 301A, XLp 302A and XLp 303A.
XLi 700A, XLi 701A, XLi 702A and XLi 703A.
XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)						
	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

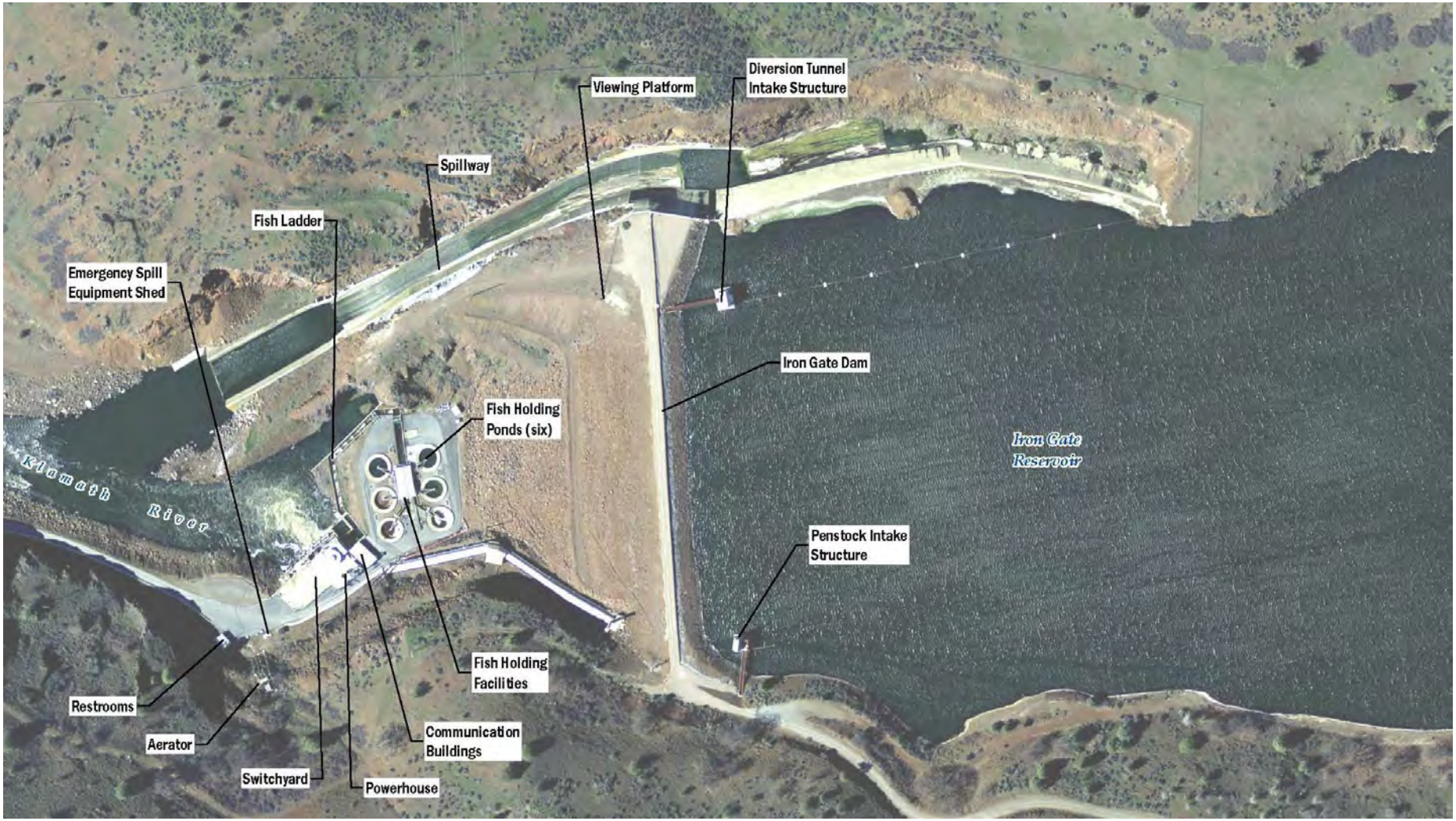
A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.*

APPENDIX C

Sample Location Maps

- Asbestos and Lead Sample Location Diagrams



NV5
Klamath Dams
Iron Gate Dam
Hornsbrook, CA

Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677
Map Not to Scale

Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate

Site Diagram
On September 14, 2020
Project Number 20-5562

NV5
Klamath Dams
Iron Gate Dam
Hornsbrook, CA

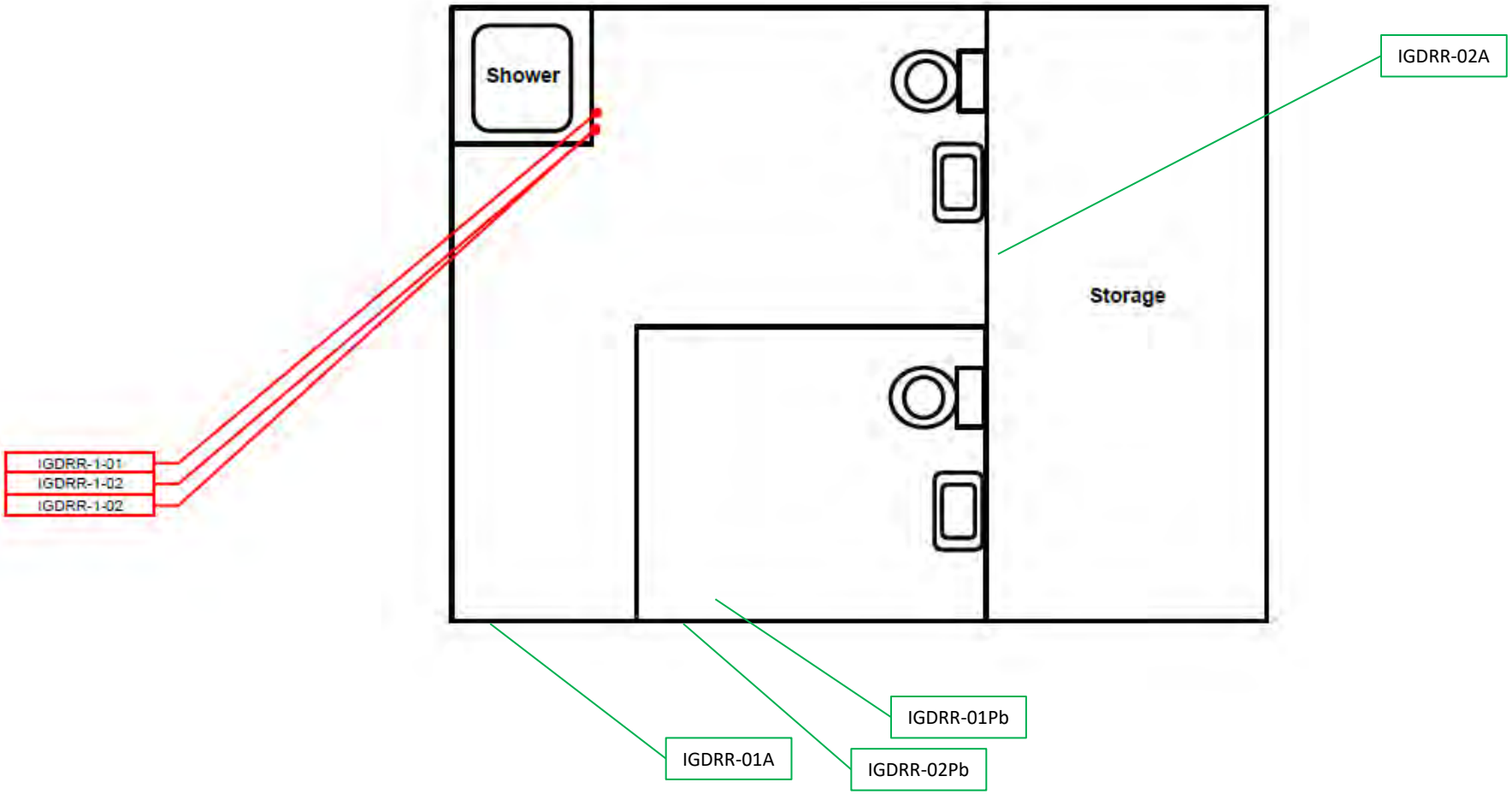
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677
Map Not to Scale

Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate

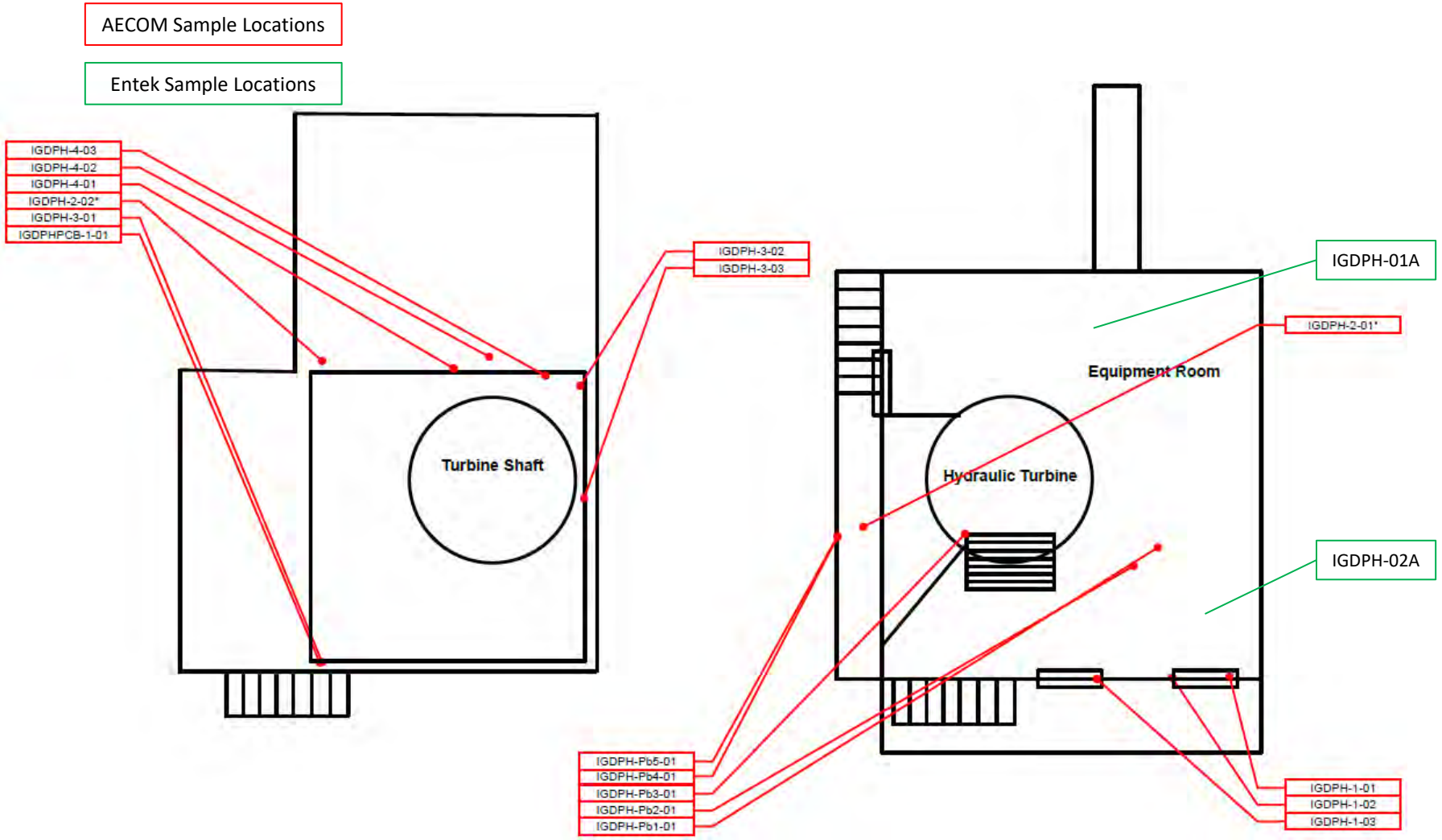
Asbestos and Lead Bulk Sample Locations
Collected by Andy Roed
On September 14, 2020
Project Number 20-5562

AECOM Sample Locations

Entek Sample Locations



NV5 Klamath Dams Iron Gate Dam Hornsbrook, CA	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate	Asbestos and Lead Bulk Sample Locations Collected by Andy Roed On September 14, 2020 Project Number 20-5562



NV5
Klamath Dams
Iron Gate Dam
Hornsbrook, CA

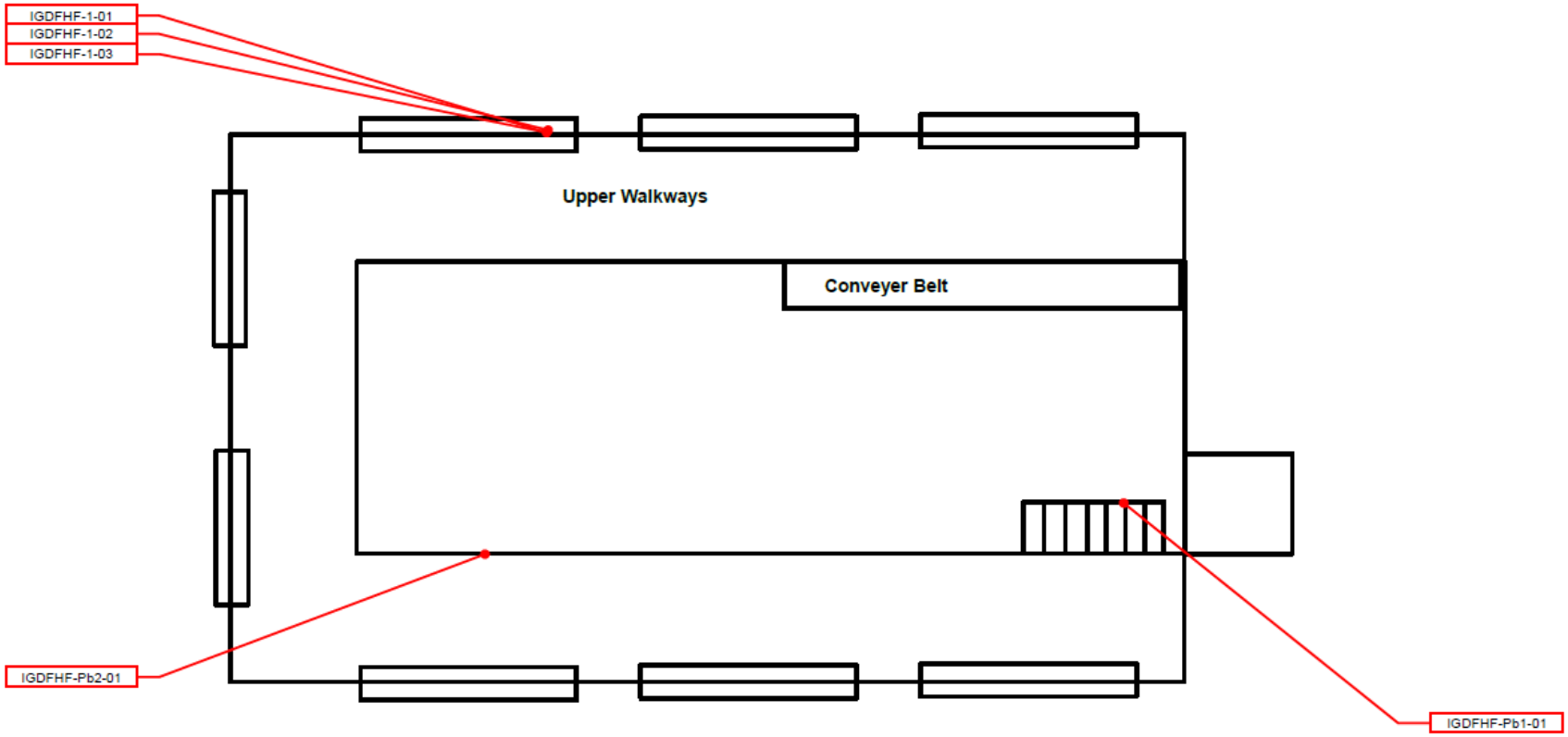
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677
Map Not to Scale

Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate

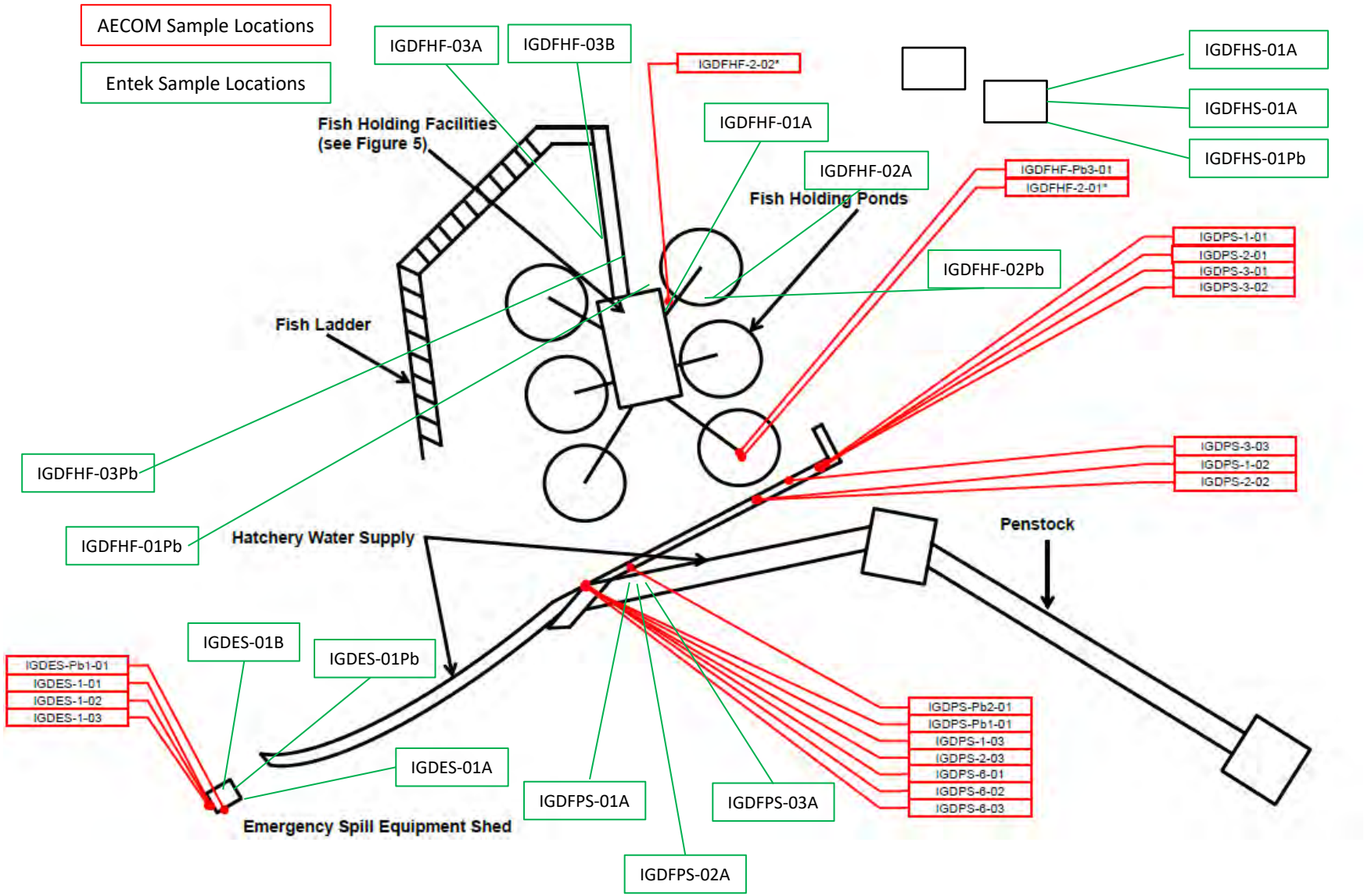
Asbestos and Lead Bulk Sample Locations
Collected by Andy Roed
On September 14, 2020
Project Number 20-5562

AECOM Sample Locations

Entek Sample Locations



NV5 Klamath Dams Iron Gate Dam Hornsbrook, CA	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate	Asbestos and Lead Bulk Sample Locations Collected by Andy Roed On September 14, 2020 Project Number 20-5562

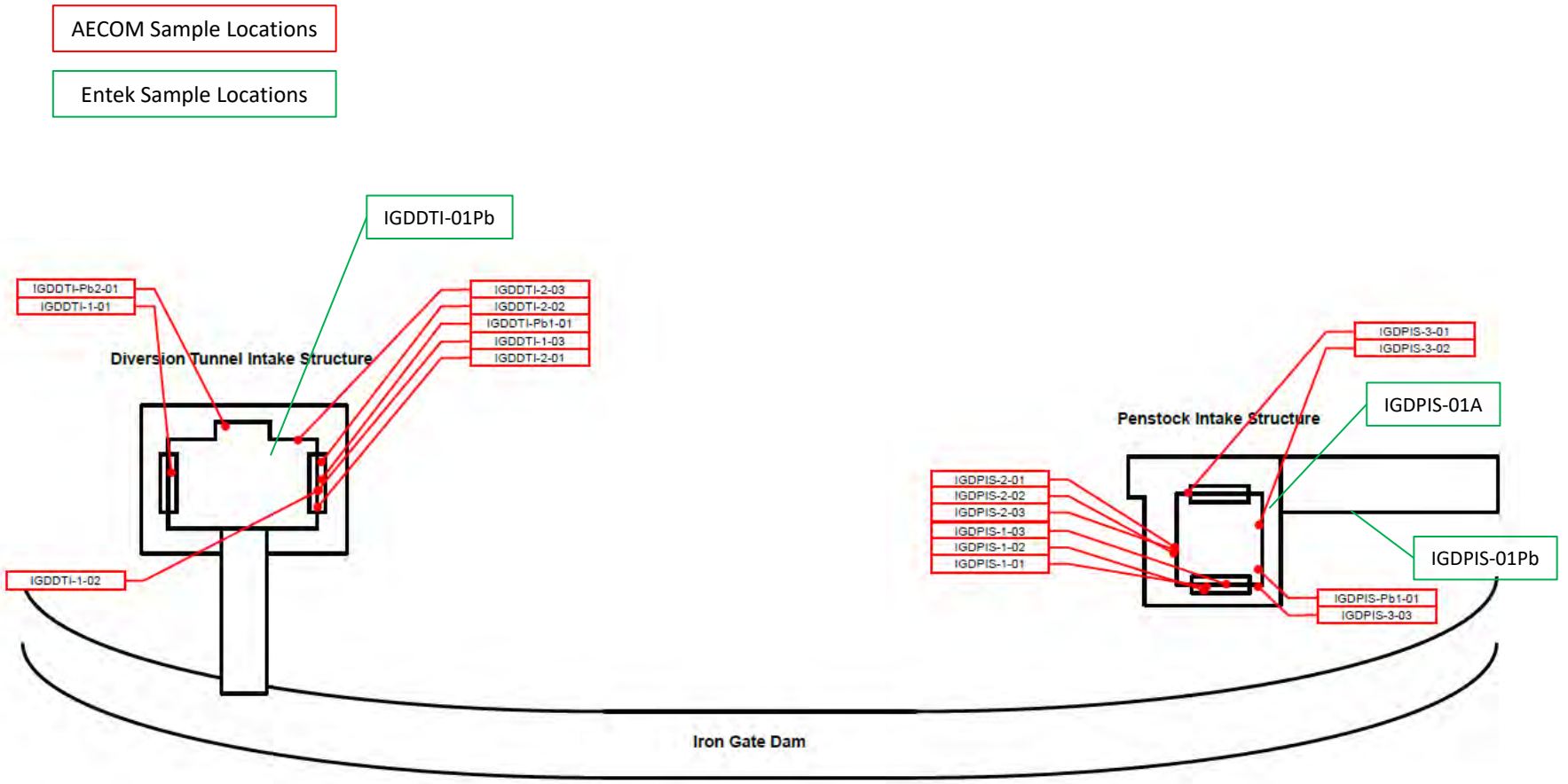


NV5
Klamath Dams
Iron Gate Dam
Hornsbrook, CA

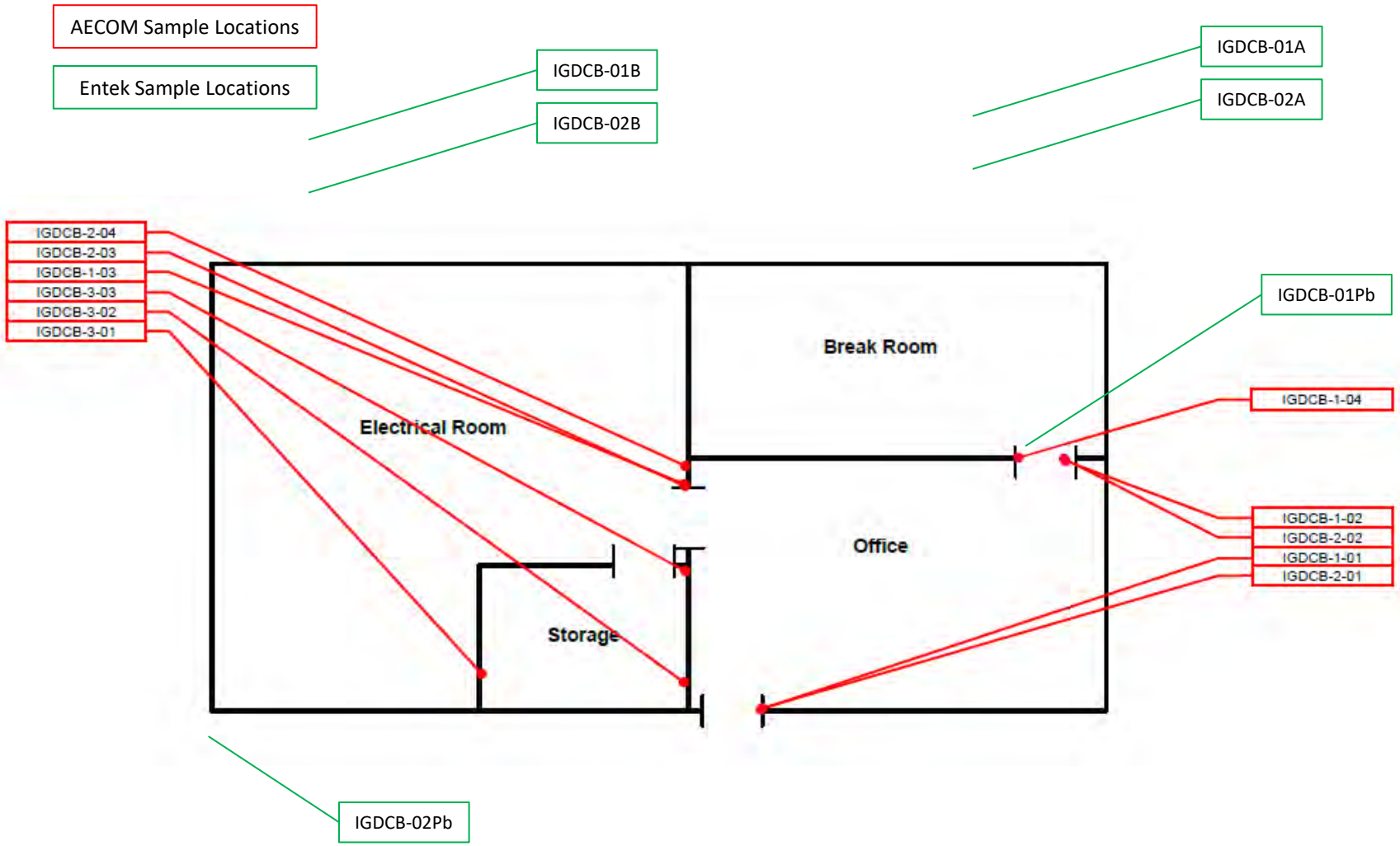
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677
Map Not to Scale

Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate

Asbestos and Lead Bulk Sample Locations
Collected by Andy Roed
On September 14, 2020
Project Number 20-5562



NV5 Klamath Dams Iron Gate Dam Hornsbrook, CA	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate	Asbestos and Lead Bulk Sample Locations Collected by Andy Roed On September 14, 2020 Project Number 20-5562



NV5
Klamath Dams
Iron Gate Dam
Hornsbrook, CA

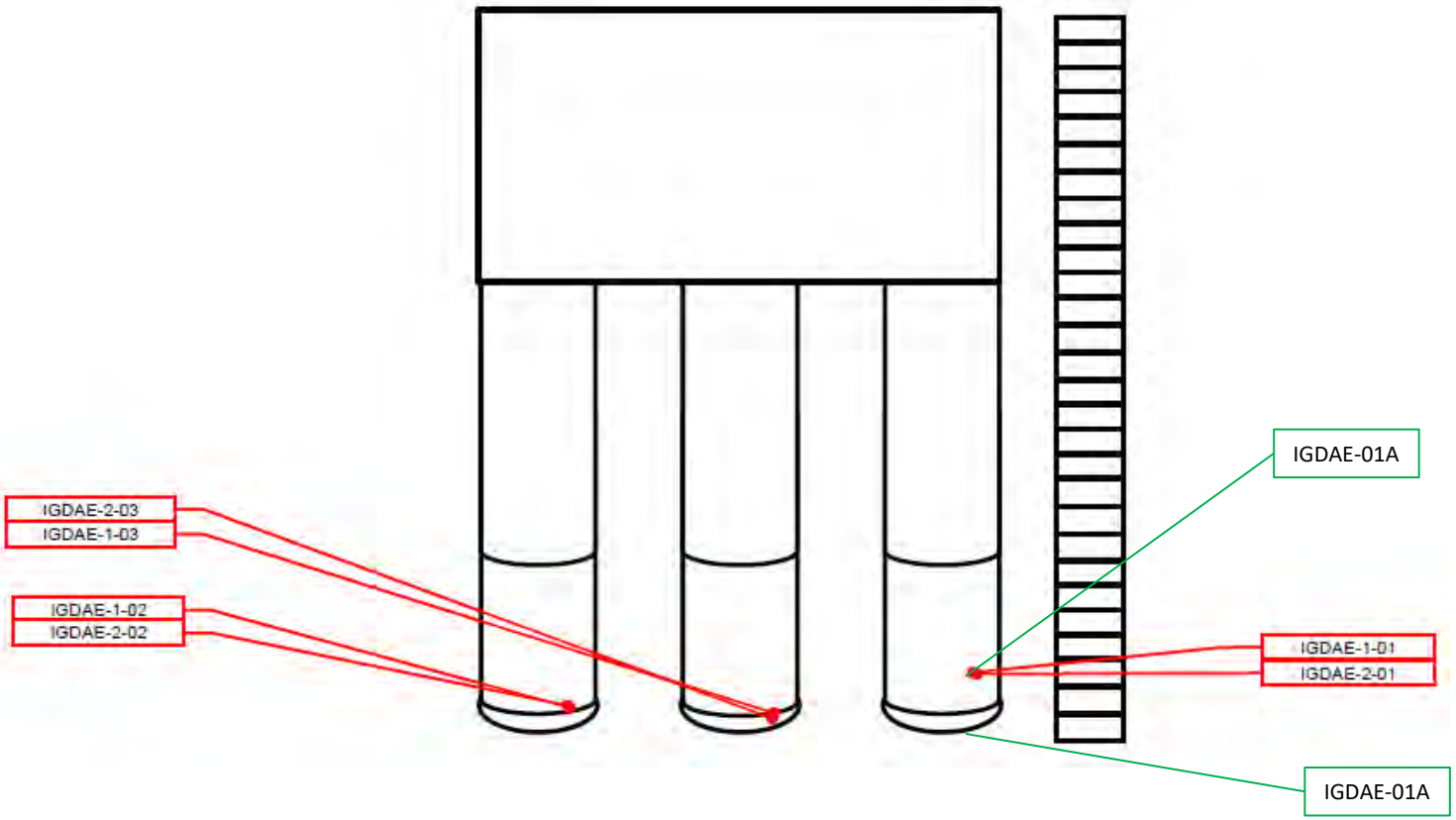
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677
Map Not to Scale

Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate

Asbestos and Lead Bulk Sample Locations
Collected by Andy Roed
On September 14, 2020
Project Number 20-5562

AECOM Sample Locations

Entek Sample Locations



NV5
Klamath Dams
Iron Gate Dam
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Entek Consulting Group, Inc.
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Map Not to Scale

Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\Iron Gate

Asbestos and Lead Bulk Sample Locations
Collected by Andy Roed
On September 14, 2020
Project Number 20-5562

ENTEK

APPENDIX D

BACK UP DOCUMENTATION

- Inspector Accreditations and Certifications
- Laboratory Accreditations for Asbestos and Lead Analysis

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Andrew R Roed
Name

Certification No. **16-5695**

Expires on **08/17/21**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Andrew Roed	Lead Inspector/Assessor	LRC-00002989	9/11/2021

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101442-0

ASBESTECH

Carmichael, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2020-07-01 through 2021-06-30

Effective Dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, CA 95608
Mr. Tommy Conlon
Phone: 916-481-8902 Fax: 916-481-3975
Email: asbestech@sbcglobal.net
http://www.asbestechlab.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101442-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Asbestech

6825 Fair Oaks Boulevard

Carmichael, CA 95608

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1153**

Expiration Date: **3/31/2022**

Effective Date: **4/1/2020**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Asbestech

6825 Fair Oaks Boulevard
Carmichael, CA 95608
Phone: 9164818902

Certificate No. 1153
Expiration Date 3/31/2022

Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste

121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 4/1/2020 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Eurofins EMLab P&K

17461 Derian Ave. Suite 100, Irvine, CA 92614

Laboratory ID: 178697

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2017 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: September 01, 2021
✓	**ENVIRONMENTAL LEAD**	Accreditation Expires: September 01, 2021
✓	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: September 01, 2021
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Beth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 08/21/2019

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

Eurofins EMLab P&K
17461 Derian Ave. Suite 100, Irvine, CA 92614

Laboratory ID: **178697**
Issue Date: 08/21/2019

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 06/01/2011

IHLAP Scope Category	**Field of Testing (FoT)** (FoTs cover all relevant IH matrices)	**Technology sub-type/ Detector**	**Published Reference Method/Title of In-house Method**	**Method Description or Analyte** (*for internal methods only*)
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)		NIOSH 7400	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

Eurofins EMLab P&K
17461 Derian Ave. Suite 100, Irvine, CA 92614

Laboratory ID: **178697**
Issue Date: 08/21/2019

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 07/01/2005

EMLAP Category	Field of Testing (FoT)	Method	Method Description (*for internal methods only*)
Fungal	Air - Direct Examination	EM-MY-S-1038	Preparation and Analysis of Spore Trap (Air) Samples for Fungal Spores, Other Biological and Non-Biological Particles
	Bulk - Direct Examination	EM-MY-S-1039	Preparation and Analysis of Tape, Swab, Wipe, Bulk and Dust - Soil Samples for Qualitative Direct Microscopic Examination
	Surface - Direct Examination	EM-MY-S-1041	Preparation and Analysis of Tape, Swab, Wipe, Bulk, and Dust - Soil Samples for Quantitative Direct Microscopic Examination
Bacterial	Legionella	EM-BT-S-1045	Enumeration of Legionella. International Standard ISO 11731:2017
		EM-BT-S-1687	CDC Laboratory protocol 2016

A complete listing of currently accredited Environmental Microbiology laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

Eurofins EMLab P&K
17461 Derian Ave. Suite 100, Irvine, CA 92614

Laboratory ID: **178697**
Issue Date: 08/21/2019

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 03/01/2017

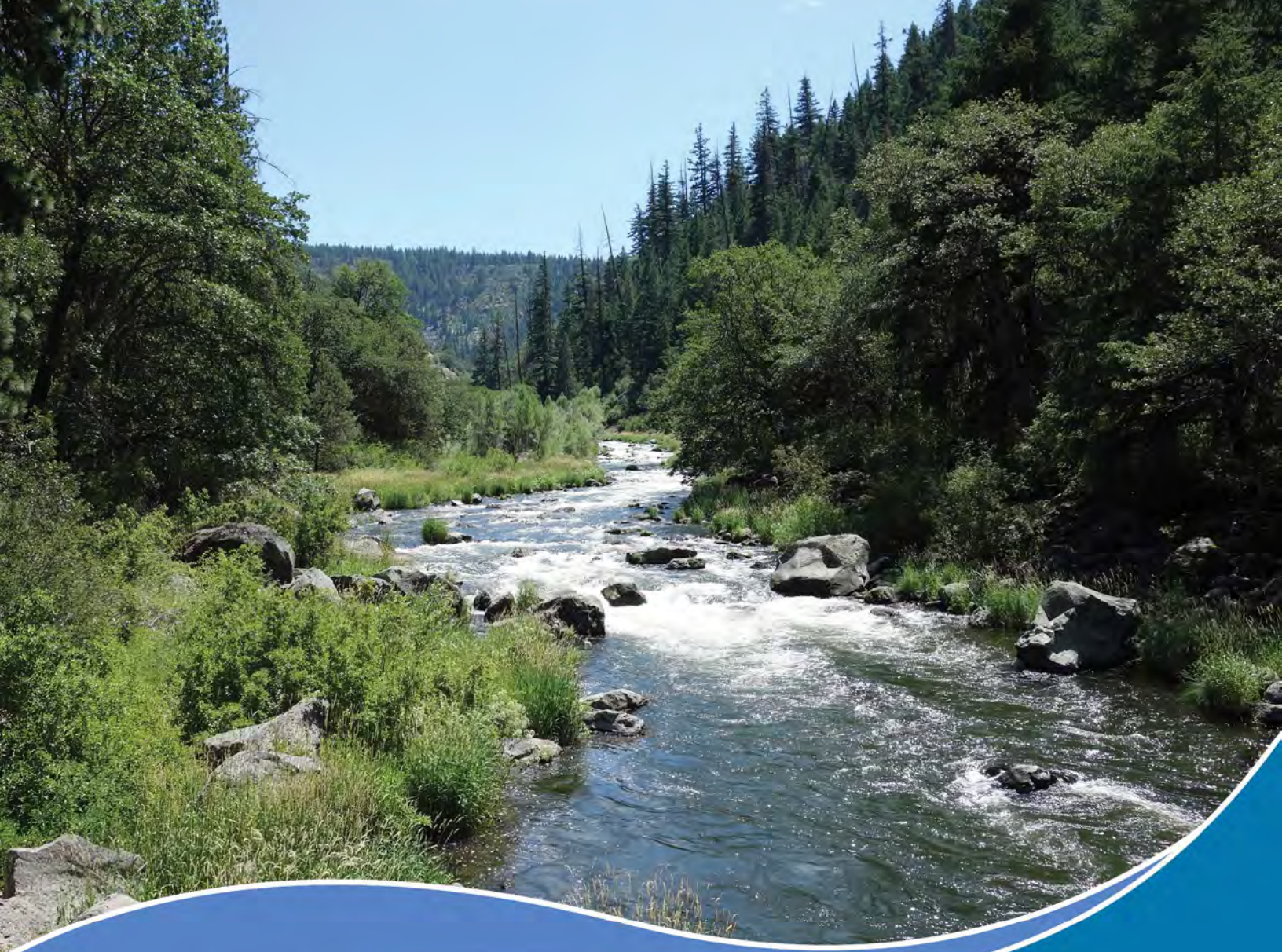
Field of Testing (FoT)	Technology sub-type/ Detector	Method	Method Description (*for internal methods only*)
Paint		EPA SW-846 7000B Modified	
		NIOSH 7082	
Settled Dust by Wipe		EPA SW-846 7000B Modified	
		NIOSH 7082	

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

APPENDIX E

HISTORICAL SURVEY DOCUMENTATION

- AECOM Technical Services, Inc. Report Dated April 2019



Klamath River Renewal Project

Iron Gate Development
Hazardous Building Materials Survey

KLAMATH
RIVER RENEWAL
CORPORATION

April 2019

Prepared for:

Klamath River Renewal Corporation

Assessment Conducted by:

AECOM Technical Services, Inc.

300 Lakeside Drive, Suite 400
Oakland, California 94612

Assessment Personnel

Mr. David Simon
State of California Certified Asbestos Consultant (CAC)
Number: 92-005 (exp. 6/24/2019)

Ms. Shannon MacKay (assisted with documentation)
AHERA-Certified Building Inspector
Number: CA-015-16 (exp. 1/15/2020)

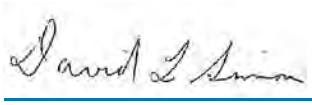
Assessment Dates

September 14, 2018 and December 19, 2018

Report Prepared by:

Shannon MacKay
Environmental Consultant

Report Reviewed by:



David Simon
State of California Certified Asbestos Consultant (CAC)

Nicole Gladu
EHS Compliance Manager

Table of Contents

List of Figures (Appendix A)

List of Appendices

Acronyms and Abbreviations

ACM Asbestos-Containing Material
ACCM Asbestos-Containing Construction Material; Material which contains more than 0.1% asbestos
AECOM AECOM Technical Services, Inc.
AHERA Asbestos Hazard Emergency Response Act
AST Aboveground Storage Tank
CAC California Certified Asbestos Consultant
CAB Cement Asbestos Board
CAL/OSHA California Occupational Safety and Health Administration

CC1	Copco 1 Development
CC2	Copco 2 Development
CCR	California Code of Regulations
CDPH	State of California Department of Public Health
CSST	California Certified Site Surveillance Technician
CFR	Code of Federal Regulations
DTSC	Department of Toxic Substances Control
ELAP	Environmental Laboratory Accreditation Program
HEPA	High Efficiency Particulate Air
HSA	Homogenous Sampling Area
IGD	Iron Gate Development
IGH	Iron Gate Hatchery
JCB/JC	J.C. Boyle Development
KHSA	Klamath Hydroelectric Settlement Agreement
KRRC	Klamath River Renewal Corporation
LCP	Lead-Containing Paint
mg/kg	milligrams per kilogram
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOA	Naturally Occurring Asbestos
NVLAP	National Voluntary Laboratory Accreditation Program
O&M	Operations & Maintenance
PACM	Presumed Asbestos-Containing Material
PCB	Polychlorinated Biphenyl
RCRA	Resource Conservation and Recovery Act
RM	river miles
SCAPCD	Siskiyou County Air Pollution Control District
SCDPH	Siskiyou County Department of Public Health
T8	Title 8
USEPA	United States Environmental Protection Agency

Executive Summary

EXECUTIVE SUMMARY

Project Background:

AECOM Technical Services (AECOM) was retained by Klamath River Renewal Corporation (KRRC) to conduct a Hazardous Building Materials Survey (HBMS) of the Iron Gate Development. This report includes the findings of the HBMS conducted at the Iron Gate Development and associated support buildings and structures on September 14, 2018 and December 19, 2018. The Iron Gate Development is located near Hornbrook, California, and is a remote secured industrial facility owned and operated by PacifiCorp.

Iron Gate Development and original supporting structures were completed in 1962 and are located between RM 199.7 and RM 192.9, in Siskiyou County, California. The Iron Gate Development address is 8630 Copco Road, Hornbrook, California, 96044. The Iron Gate Development impounds a reservoir of 942 acres (aka Iron Gate Reservoir). Main features at the Iron Gate Development include a reservoir, embankment dam, ungated side-channel spillway, diversion tunnel, intake structures, fish holding facilities, communication building, and a powerhouse.

Four dams and associated structures including the J. C. Boyle Development, Copco No. 1 Development, Copco No. 2 Development, Iron Gate Development and the Iron Gate Fish and Fall Creek Hatcheries (the Sites) have been identified for decommissioning and removal under the 2016 Amended Klamath Hydroelectric Settlement Agreement (KHSA, 2016) following the U.S. Department of the Interior Bureau of Reclamation's Detailed Plan for Dam Removal – Klamath River Dams, Klamath Hydroelectric Project FERC License No. 2082 Oregon – California (Detailed Plan) (USBR 2012). The Iron Gate Fish Hatchery, Fall Creek Fish Hatchery, and the City of Yreka Diversion Dam have been identified for improvements under the KHSA. All four developments will be transferred to their respective states after dam decommissioning and removal.

The Sites are located on land currently owned by PacifiCorp. An HBMS was conducted at each of the seven Sites, and an HBMS report issued for the Sites as follows:

1. J.C. Boyle Development
2. Copco No. 1 Development
3. Copco No. 2 Development
4. Iron Gate Development
5. Iron Gate and Fall Creek Hatcheries
6. City of Yreka Diversion

Hazardous Building Materials Survey:

AECOM assessed Iron Gate Development and support facilities for the following hazardous building materials:

- Asbestos-containing materials (ACMs);
- Asbestos-containing construction materials (ACCMs);
- Assumed asbestos-containing materials;
- Lead-containing coatings (paints);
- Mercury-containing light tubes, switches, and thermostats;
- Polychlorinated Biphenyl (PCB)-containing caulking, putties, gaskets, and membranes;
- Suspected high-intensity discharge (HID) lamps; and
- Suspected PCB-containing fluorescent light ballasts and transformers.

Objective:

The objective of the HBMS was to provide information regarding the presence of lead-containing coatings, PCB-containing light ballasts, PCB-containing caulking, and mercury-containing sources, and the presence, location, and quantity of ACMs, ACCMs, and assumed ACMs, and for the purposes of decommissioning planning.

Summarized HBMS Results:

Sixty-two bulk samples of suspect asbestos-containing materials were collected and analyzed using Polarized Light Microscopy (PLM) during this assessment. Four materials (HSAs) were found to contain detectable asbestos above 0.1%, nine materials were assumed to contain asbestos, and no materials were visually assessed and determined to be non-suspect. Per the EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) requirements and the analytical results, no sample layers were further analyzed using PLM Point Count Method.

In addition, five concrete bulk samples were collected and analyzed using PLM California Air Resources Board (CARB) 435 method to determine the content of Naturally Occurring Asbestos (NOA). No concrete samples were found to contain detectable NOA above the PLM point count threshold of 0.25%.

Fifteen paint chip samples were collected and analyzed for total lead content using Atomic Absorption Spectrophotometry; twelve of the samples were found to contain reportable levels of lead.

Mercury-containing fluorescent light tubes, HID lamps, and magnetic light ballasts labeled “No-PCBs” were observed during the assessment. In the switchyard, the yellow glass portion of the high voltage transformer bushings may contain PCBs in the oil. No suspect PCB-containing caulking was observed during the inspection.

See Section 4.5: Tables for tabulated HBMS Results.

Chapter 1: Introduction

1. INTRODUCTION

1.1 Project Description

AECOM Technical Services (AECOM) was retained by KRRC to conduct an HBMS of the Iron Gate Development and support facilities. This report includes the findings of the HBMS conducted at the Iron Gate Development and associated support buildings and structures on September 14, 2018 and December 19, 2018. The Iron Gate Development is located near Hornbrook, California, and is a remote secured industrial facility owned and operated by PacifiCorp.

1.2 Survey Limitations

The conclusions of this report are AECOM's professional opinions, based solely upon visual site observations and interpretations of laboratory analyses, as described in this report. The opinions presented herein apply to the site conditions existing at the time of AECOM's assessment and interpretation of current regulations pertaining to asbestos, lead-containing paint, PCB-containing ballasts and building materials, and mercury-containing components. Therefore, AECOM's opinions and recommendations may not apply to future conditions that may exist at the site which we have not had the opportunity to evaluate. All applicable state, federal, and local regulations should always be verified prior to any work that will disturb materials containing asbestos and other hazardous building materials.

AECOM has performed the services set forth in the Scope of Work in accordance with generally accepted industrial hygiene practices in the same or similar localities, related to the nature of the work accomplished, at the time the services were performed.

Additional sampling needs to be conducted of structures not assessed and inaccessible areas prior to demolition. Suspect regulated building materials throughout the Iron Gate Development and support facilities that are not included in this regulated building materials assessment are assumed to be asbestos-containing unless they are sampled by a Certified Asbestos Consultant (CAC) or a Certified Site Surveillance Technician (CSST) and analyzed by a State of California Environmental Laboratory Accreditation (ELAP)-licensed laboratory that is also a National Voluntary Laboratory Accreditation Program (NVLAP)-accredited laboratory to confirm the presence of asbestos prior to the disturbing such materials.

The regulated building materials and conditions presented in this report represent those observed on the dates we conducted the sampling. This sampling is intended for the exclusive use of KRRC for specific application to the proposed decommissioning. This assessment is not intended to replace construction or demolition plans, specifications, or bidding documents. This report is not meant to represent a legal opinion.

This report was prepared pursuant to an agreement between KRRC and AECOM and is for the exclusive use of KRRP. No other party is entitled to rely on the conclusions, observations, specifications, or data contained

herein without first obtaining AECOM's written consent and provided any such party signs an AECOM-generated Reliance Letter. A third party's signing of the AECOM Reliance Letter and AECOM's written consent are conditions precedent to any additional use or reliance on this report.

The passage of time may result in changes in technology, economic conditions, site variations, or regulatory provisions, which would render the report inaccurate. Reliance on this report after the date of issuance as an accurate representation of current site conditions shall be at the user's sole risk.

Chapter 2: Scope of Services

2. SCOPE OF SERVICES

2.1 Asbestos Assessment

Mr. David Simon, a California Certified Asbestos Consultant (CAC), (Certification 92-005, expiration date: 6/24/2019) performed the sampling at the Iron Gate Development and support buildings on September 14, 2018 and on December 19, 2018. Ms. Shannon MacKay, an Asbestos Hazard Emergency Response Act (AHERA)-accredited building inspector (Certification CA-015-16, expiration date: 1/15/2020), assisted in documenting the inspection, but did not perform sampling. Copies of their certifications are included in Appendix D.

The following materials/areas were inaccessible during the site work and should be assumed to contain asbestos until such time as the area becomes accessible and is sampled by a CAC or CSST and analyzed by a State of California ELAP-licensed NVLAP-accredited laboratory:

- Residence 1
- Residence 2

2.1.1 Methodology

This assessment was conducted using a modified protocol adapted from AHERA. The protocol is as follows:

- Identify suspect asbestos-containing materials.
- Group materials into homogeneous sampling areas/materials.
- Quantify each homogeneous material and collect representative samples. The number of samples collected of miscellaneous materials was determined by the inspector.
- Samples of each material were taken to the substrate, ensuring that all components and layers of the material were included.
- Sample locations are referenced on the field data forms according to sample number.
- Sampling was performed by a CAC or CSST, and the use of proper protective equipment and procedures was followed.

2.1.2 Naturally Occurring Asbestos

For informational purposes, AECOM collected samples of concrete and submitted them to EMSL Laboratories to analyze for NOA. The sampling was conducted as a preliminary screen for NOA. Sampling was conducted discretely in areas where damage to concrete was already present. Future sampling for NOA may be necessary to fulfill California State regulatory requirements for NOA, and should be conducted when more destructive sampling of the concrete is possible.

2.2 Sampling Procedures

This sampling was conducted using the following procedures:

1. Spread the plastic drop cloth (if needed) and set up other equipment, e.g., ladder.
2. Don protective equipment (respirator and protective clothing if needed).
3. Label sample container with its identification number and record number. Record sample location and type of material sampled on a sampling data form.
4. Moisten area where sample is to be extracted (spray the immediate area with water).
5. Extract sample using a clean knife, drill capsule, or cork boring tool to cut out or scrape off approximately one tablespoon of the material. Penetrate all layers of material.
6. Place sample in a container and tightly seal it.
7. Wipe the exterior of the container with a wet wipe to remove any material that may have adhered to it during sampling.
8. Clean tools with wet wipes and wet mop; or vacuum area with HEPA vacuum to clean all debris.
9. Discard protective clothing, wet wipes and rags, cartridge filters, and drop cloth in a labeled plastic waste bag.

AECOM inspected the buildings and structures for suspect ACM including thermal systems insulation, surfacing materials, and miscellaneous materials (e.g., floor tiles, ceiling tiles). When materials suspected of containing asbestos were identified, AECOM's inspectors collected representative bulk samples from each Homogeneous Sampling Area using the protocol presented in the Table 2-1:

Table 2-1 Suspect ACM Sampling Protocol

Suspect ACM Sampling Protocol		
Homogeneous Sampling Area (HSA) Category	**HSA Size**	**Minimum Number of Samples**
Surfacing Materials	1,000 SF or Less	3
	1,001-5,000 SF	5
	>5,000 SF	7 or more
Thermal System Insulation (TSI)	No Stipulation	3 of each type of TSI. (Must also sample all repair patches)
Miscellaneous Materials	No Stipulation	3 samples of each miscellaneous material

A Homogeneous Sampling Area is defined to include surfacing materials, thermal systems insulations, and miscellaneous materials, which are uniform in color, texture, construction and application date, and general appearance.

Additional suspect ACMs may be present in inaccessible or concealed spaces. These spaces include, but are not limited to, areas not assessed, areas not accessible at the time of the assessment, fire doors, electrical systems, pipe chases, spaces between wall/ceiling/door/floor cavities, interior of mechanical components, beneath foundation pads, etc. If future maintenance, renovation, and/or demolition activities make these areas accessible, AECOM recommends that a thorough assessment of these spaces be conducted at that time to identify and confirm the presence or absence of additional suspect ACMs. Until then, all such unidentified materials must be treated as assumed ACMs in accordance with applicable federal, state, and local regulations.

AECOM did not sample suspect ACM in the following circumstances:

- The AECOM inspector could not safely access the material for sampling;
- The residence was still occupied;
- The AECOM inspector concluded that the materials were inaccessible for sampling; or
- The AECOM inspector determined that destructive sampling would compromise the integrity of the material and/or the structure.

2.3 Sampling and Analysis

EPA NESHAP (40 CFR 61, Subparts A and M) also has requirements related to the assessment of suspect ACM in buildings. NESHAP defines a “friable” material to be a material that when dry, can be crumbled, pulverized, or reduced to powder with hand pressure or by the forces expected to act on the material in the course of demolition or renovation activities. AECOM applied this NESHAP definition of friable for the

purposes of determining which analytical method to use to quantify the asbestos content of a specific material.

The collected samples of suspect ACM were analyzed by NVL Laboratories, Inc. for asbestos content using the PLM visual estimation method and the PLM Point Counting Method. NVL Laboratories, Inc. is accredited for these asbestos analytical methods by the State of California ELAP and the NVLAP. Appendix D contains NVL Laboratories, Inc.'s certificate of laboratory accreditation and licensure. The collected samples of suspect NOA in concrete were analyzed by EMSL Analytical, Inc. for asbestos content using PLM CARB Method 435. EMSL Analytical, Inc. is accredited for these asbestos analytical methods by the State of California ELAP. Appendix D contains EMSL Analytical, Inc.'s certificate of laboratory accreditation and licensure.

Polarized Light Microscopy (PLM)

The PLM method is a visual estimation of the asbestos content of a sample. The PLM analysis was performed by NVL Laboratories, Inc. following the United States Environmental Protection Agency's (USEPA) PLM method EPA-600R/M4-82-020 for determining asbestos content in bulk building materials.

Polarized Light Microscopy Point Count (PLM Point Count)

According to the NESHAP, when the asbestos content of a friable material is visually estimated by the PLM visual technique to be detectable but less than 10%, the inspector may either (1) assume that the amount is greater than 0.1% and treat the material as ACCM or (2) conduct a second analysis, the PLM Point Count Method EPA/600-R93/116, to verify the percentage of asbestos in the material.

Per NESHAP, AECOM used the results of the PLM visual method analyses for friable materials to determine whether additional laboratory analysis was warranted (i.e., PLM Point Count), or whether the material would be treated as ACCM. Based on PLM analytical results, no samples were further analyzed by PLM Point Count analysis (See Appendix C).

If the results obtained by PLM Point Count Method and the PLM visual estimation method are different, the PLM Point Count result is used. When no asbestos is detected by the first PLM visual method, the additional technique using PLM Point Count Method is not required. The analytical results are reported in percent asbestos as derived from a 1000 point counting technique, which yields a detection limit of 0.1%.

Naturally Occurring Asbestos (NOA)

Asbestos fibers may be released from serpentine rock formations. The CARB 435 method is used to determine the asbestos content of serpentine aggregate, or NOA, in concrete, storage piles, on conveyor belts, and on surfaces such as road beds, road shoulders, and parking lots. Samples are crushed using a mill to produce a material of which the majority is less than 200 Tyler mesh (0.75 microns). CARB defines NOA as having >0.25% asbestos by PLM point counting. The analytical results are reported in percent asbestos as derived from a 400 PLM point counting technique, which yields a detection limit of 0.25%.

2.4 Lead Assessment

2.4.1 Sampling Methodology

Homogeneous painted surfaces were defined by substrate, application, and color. The paint chip samples were collected to the substrate to ensure that all layers present on the substrate were included in the laboratory analysis. The samples were collected and stored in a heavy-duty, self-sealing plastic bag and delivered to NVL Laboratories in Seattle, Washington. The samples were analyzed via Atomic Absorption Spectrophotometry in accordance with Method EPA 7000B. NVL Laboratories in Seattle, Washington is accredited by American Industrial Hygiene Association (AIHA) for lead analysis and by the California Environmental Laboratory Accreditation Program (ELAP).

Lead paint chip samples were collected from industrial and operational buildings or from former residences that will no longer be occupied; all structures assessed are planned for decommissioning.

2.5 Other Regulated Building Materials

2.5.1 Universal Waste Inventory Methodology

An inventory of fluorescent light tubes, HID lamps, mercury-containing sources, and potential PCB-containing ballasts was conducted in accessible Project Areas.

Where fluorescent light fixtures were accessible, the ballast covers were removed, and the ballast labels were visually examined. Where fluorescent light fixtures could not be visually examined, the number of potential PCB-containing ballasts in each fixture was estimated based on the following assumptions:

- Each single light tube fluorescent fixture contains one ballast;
- Each HID lamp contains one ballast and one mercury bulb;
- Each multiple light tube fluorescent fixture contains one ballast for every pair of light tubes; and
- All light ballasts are assumed to contain PCBs unless the ballasts are labeled as not containing PCBs or are determined to be electronic.

Fluorescent light tubes, HID lamps, fluorescent light fixtures and PCB-containing transformers were identified in the buildings in the quantities listed in Table 4-4.

2.5.2 PCB-Containing Caulking

No suspect PCB-caulking was observed during the inspection.

Chapter 3: Site Description

3. SITE DESCRIPTION

3.1 Iron Gate Development

AECOM Technical Services (AECOM) was retained by Klamath River Renewal Corporation (KRRC) to conduct a Hazardous Building Materials Survey (HBMS) of the Iron Gate Development. This report includes the findings of the HBMS conducted at the Iron Gate Development and associated support buildings and structures on September 14, 2018 and December 19, 2018. The Iron Gate Development is located near Hornbrook, California, and is a remote secured industrial facility owned and operated by PacifiCorp.

Iron Gate Development and original supporting structures were completed in 1962 and are located between RM 199.7 and RM 192.9, in Siskiyou County, California. The Iron Gate Development address is 8630 Copco Road, Hornbrook, California 96044. The Iron Gate Development impounds a reservoir of 942 acres (aka Iron Gate Reservoir). Main features at the Iron Gate Development include a reservoir, embankment dam, ungated side-channel spillway, diversion tunnel, intake structures, fish holding facilities, communication building, and a powerhouse.

3.1.1 Description of Iron Gate Development Structures

The following Iron Gate Development support structures were assessed during the HBMS:

Aerator (IGDAE)

The Aerator piping is approximately 4’ to 6’ in diameter and provides aeration for the Iron Gate Development Fish Hatchery water supply. The Aerator structure is located south of the Iron Gate Development Powerhouse. The piping extends approximately 50 feet up a hillside. A metal caged ladder follows the piping up the hill. The piping is wrapped with deteriorating asphaltic pipe wrapping.

Communications Building (IGDCB)

The Communications Building is adjacent and to the north of the Powerhouse, is approximately 800 square feet, and is a single story slab on grade pre-fabricated building. The exterior siding and roof consists of pre-fabricated steel. The interior of the building consists of a front office, an electrical room, and a break room. Walls and ceilings consist of gypsum wallboard or are unfinished steel. Flooring consists of vinyl floor sheeting or unfinished concrete.

Diversion Tunnel Intake Structure (IGDDTI)

The Diversion Tunnel Intake Structure is located on pilings that extend into the Iron Gate Reservoir. The building is located on the northeast end of the reservoir and is approximately 390 square feet. The exterior

siding and roofing consist of steel with a rubber membrane cover throughout. The interior consists of unfinished steel walls and ceiling and the floor consists of metal grating.

Emergency Spill Equipment Shed (IGDES)

The Emergency Spill Equipment Shed is approximately 100 square feet, and is a single story slab on grade shed, with engineered wood siding and asphaltic shingle roofing. The interior of the shed is unfinished wood. The structure is currently being used as storage for emergency spill purposes.

Fish Holding Facilities and Ponds (IGDFHF)

The Fish Holding Facilities and Ponds main building is approximately 1,250 square feet and is a pre-fabricated concrete floor building located between the Powerhouse and the dam. The main building is in the center of six concrete lined fish holding ponds. The exterior siding and roofing of the building consists of pre-fabricated steel. The interior consists of a ground floor, and a second floor that wraps around the perimeter of the interior. Interior finishes are painted or unfinished steel and concrete.

Fish Ladder (IGDFL)

The Fish Ladder is located east of the Powerhouse. It consists of concrete steps that extend to the Fish Holding Facilities and Ponds from the river.

Iron Gate Dam (IGD)

The Iron Gate Dam is a zoned earth fill embankment with a height of 189 feet from the rock foundation to the dam crest. The dam crest is 20 feet wide and approximately 740 feet long. The embankment includes a central impervious clay core, with filter zones and a downstream drain.

Maintenance Shed (IGDMS)

The Maintenance Shed is approximately 2,000 square feet, wooden framed, and is constructed on a slab-on-grade concrete foundation. It is located on the north side of the Klamath River approximately 1,000 feet south the dam. It is an open sided structure and is used for the storage of boats, recreational trailer and other items from the nearby residences.

Penstock Intake Structure (IGDPIS)

The Penstock Intake Structure is located on pilings that extend into the Iron Gate Reservoir. The building is located on the southeast end of the reservoir and is approximately 120 square feet. The exterior siding and roofing consist of pre-fabricated steel throughout. The interior consists of unfinished steel walls and ceiling and the floor consists of metal grating.

Penstocks and Hatchery Water Supply (IGDPS)

The Penstocks and Hatchery Water Supply are connected with the Aerator piping. The Penstocks are north of the Powerhouse and extend up the Iron Gate Development. The hatchery water supply extends past the Powerhouse and turns towards the Fish Holding Facilities.

Powerhouse (IGDPH)

The Powerhouse is approximately 3,000 square feet. The facility is located at the downstream toe of the dam on the east bank of the river. The powerhouse has three levels; above ground, first lower level, and second lower level.

The above ground level contains the upper portions of a single vertical-shaft, Francis-type turbine contained in its own concrete vault.

The first lower level contains the middle portion of the turbine housed in concrete vault, electrical panels, a 500 gallon oil governor accumulation tank, air compressors, oil, water and air piping, labeled hazardous materials and other miscellaneous storage cabinets.

The second lower level contains the lowest portion of the turbine housed in steel vault, piping, and sump pumps.

Residence 1 (IGDR1)

Residence 1 is approximately 2,000 square feet. The exterior of the building consists of engineered wood siding and corrugated metal roofing. No suspect asbestos-containing materials were observed on the exterior of the building. The building was occupied during the HBMS and the interior was not accessed.

Residence 2 (IGDR2)

Residence 2 is approximately 2,000 square feet. The exterior of the building consists of engineered wood siding and corrugated metal roofing. No suspect asbestos-containing materials were observed on the exterior of the building. The building was occupied during the HBMS and the interior was not accessed.

Restrooms (IGDRR)

The Restrooms building is approximately 400 square feet. The exterior siding and roof of the building consist of pre-fabricated steel. The interior of the building has two restrooms, a storage room, and consists of unfinished steel and concrete.

Switchyard (IGDSW)

The Switchyard is approximately 5,000 square feet and is located adjacent to the powerhouse. The switchyard contains an electrical transformer, substations, transmission poles and lines within a fenced

gravel area. The majority of the transmission pole footings, substations and the transformer were on top of cement pads or gravel filled cement catch basins The “yellow glass portion” of the high voltage transformer bushings may contain PCBs in the oil. The small pole mounted transformers were noted to contain no-PCB labels. No observable impacts, odors or distressed vegetation were noted.

Viewing Platform (IGDVP)

The Viewing Platform is located on the top of the Iron Gate Dam, and overlooks the powerhouse and fish holding facilities.

Chapter 4: Conclusion and Recommendations

4. CONCLUSIONS AND RECOMMENDATIONS

On September 14, 2018 and December 19, 2018, AECOM conducted a Hazardous Building Materials Survey of the Iron Gate Development located in Hornbrook, California. AECOM assessed the site buildings for a variety of regulated building materials that would require removal or special handling during decommissioning and demolition. Section 4.5: Tables includes the tabulated results of the survey. The following are AECOM's general recommendations related to the HBMS findings:

- Plans and specifications should be developed by an appropriately qualified professional (e.g., CAC) to outline the planned scope of work, phasing, training and certification requirements, policies and procedures for the proper handling, removal packaging, disposal/recycling, and transportation of the materials.

- The findings of this report should be communicated to contractors planning to work on or bid on work at the site,

- Additional material-specific recommendations as listed below.

4.1 Asbestos

Sixty-two bulk samples of suspect asbestos-containing materials were collected and analyzed using PLM during this assessment. Four materials (HSAs) were found to contain detectable asbestos above 0.1%, nine materials were assumed to contain asbestos, and no materials were visually assessed and determined to be non-suspect. Per the EPA NESHAP requirements and the analytical results, no sample layers were further analyzed using PLM Point Count Method.

In addition, five concrete bulk samples were collected and analyzed using PLM CARB 435 method to determine the content of NOA. No concrete samples were found to contain detectable NOA above the PLM point count threshold of 0.25%.

The results of the analyses are presented in Section 4.5, Tables 4-1 and 4-2. Appendix C contains the laboratory reports of analytical results for each discrete sample.

Additional suspect ACMs may be present in inaccessible or concealed spaces. These spaces include, but are not limited to; below grade exterior materials, electrical systems, pipe chases, spaces between wall/ceiling/door/floor cavities, interior of mechanical components, beneath foundation pads, etc. If future demolition activities make these areas accessible, AECOM recommends that a thorough assessment of these spaces be conducted at that time to identify and confirm the presence or absence of additional ACMs

and ACCMs. Until then, all such unidentified materials must be treated as assumed ACMs in accordance with applicable federal, state, and local regulations.

If the analytical results indicate that all the samples collected per HSA do not contain asbestos, then the HSA (material) is considered a non-ACM. If the analytical results of one or more of the samples collected per HSA indicate that asbestos is present in quantities of greater than 0.1% asbestos as defined by Cal/OSHA, all of the HSA (material) is considered to be an ACM or ACCM regardless of any other analytical results.

Any material that contains greater than 0.1% asbestos is considered an ACCM and must be handled according to Cal/OSHA regulations. Any material greater than one percent asbestos is considered an ACM and must be handled according to EPA regulations, and applicable state and local regulations. The EPA NESHAP regulations (40 CFR 61, Subparts A and M) have a requirement related to assessment of suspect ACM in buildings. When the asbestos content of a friable material is visually estimated by PLM to be detectable but less than ten percent, your firm may elect to (1) assume the amount is greater than one percent and treat the material as asbestos-containing or (2) require verification of the amount by the PLM point counting technique. If the results obtained by point counting and visual estimation are different, the point count result must be used. When no asbestos is detected by PLM, point counting is not required.

4.1.1 Asbestos Regulations

Asbestos-related work must be performed in compliance with local, federal, and state regulations including Cal/OSHA, the Siskiyou County Air Pollution Control District, EPA NESHAP, and relevant federal, state and local regulations pertaining to handling of asbestos.

The EPA NESHAP regulations (Renovation and Demolition NESHAP 40 CFR 61, Subparts A and M) for asbestos apply to certain demolition and renovation projects in facilities containing ACM and/or assumed ACM. The NESHAP rule usually requires that all friable ACM and some categories of non-friable ACM be removed before a building is demolished, and may require localized removal prior to demolition. The following NESHAP definitions of ACM are very important in interpreting which NESHAP requirements may apply to your building:

- Friable asbestos-containing material: any material containing more than 1 percent asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
- Category I non-friable asbestos-containing material: asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Category II non-friable asbestos-containing material: any material excluding Category I non-friable ACM, containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Regulated asbestos-containing material (RACM): (1) friable ACM, (2) Category I non-friable ACM that has become friable (3) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (4) Category II non-friable ACM that has a high probability of

becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the materials in the course of demolition or renovation operations regulated by NESHAP.

NESHAP also requires that the local air district be notified before certain renovations or demolition impacting RACM begin. When ACCM is removed or disturbed during demolition or renovation, the Cal/OSHA regulations also apply. The NESHAP regulations should be studied in detail for a thorough delineation of these and other requirements.

Cal/OSHA regulates employee exposure to asbestos (T8, CCR 1529). The Cal/OSHA asbestos standards mandate a permissible exposure limit (PEL) of 0.1 fibers (equal to or longer than 5 micrometers) per cubic centimeter of air (fibers/cc) determined as an 8-hour, time-weighted average (TWA) and an excursion limit of 1 fiber/cc as a 30-minute TWA.

Also, for asbestos removal or renovation involving ACM, the Cal/OSHA Asbestos Construction Standard (T8, CCR 1529) requires that specific procedures be followed, including enclosure of the work area to control asbestos exposure of building occupants, as well as, employees involved in abatement or renovation activities.

The following are selected Cal/OSHA definitions regarding asbestos work:

- **Class I asbestos work** means activities involving the removal of TSI and surfacing ACM and PACM.
- **Class II asbestos work** means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
- **Class III asbestos work** means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.
- **Class IV asbestos work** means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.
- **Intact** means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that asbestos is no longer likely to be bound with its matrix.

AECOM identified materials that were assumed to contain asbestos, but were not assessed because the inspector determined them to be ACM, for the safety of the inspector and to preserve building system integrity.

During demolition activities, inaccessible materials may be uncovered which were not identified or sampled during this assessment. Personnel in charge of demolition should be alerted to note materials uncovered during these activities which were not identified in this report. The following are AECOM's recommendations:

- If the buildings are scheduled for abatement and demolition (AECOM's recommendation), an abatement project design manual should be prepared with technical specifications and abatement plans. The design must be prepared by a CAC.

- The results of this sampling should be communicated to any Contractors working in the Project Areas and a copy of the assessment report must be on-site during demolition activities.
- Abatement work must be performed by CA-licensed asbestos abatement contractor with trained asbestos workers and supervisors.
- Any concealed building materials discovered during demolition activities, which are suspected to contain asbestos, should be sampled by a CSST or CAC and analyzed by a NVLAP- and CA ELAP-accredited laboratory to confirm the presence of asbestos prior to disturbing such materials or be assumed to be ACM.
- If the facilities assessed during the HBMS are not scheduled for demolition, AECOM recommends the development of an O&M Plan by a CAC.

4.2 Lead

Fifteen paint chip samples were collected and analyzed for total lead content; twelve of the paint chip samples were found to contain detectable levels of lead. The results of the analyses are presented in Section 4.5 Table 4-3. Appendix C contains the laboratory reports of analytical results for each discrete sample.

Cal/OSHA requires worker training, worker protection, and exposure assessments be conducted during operations that may disturb the lead-containing paint in such a way that the airborne exposure may reach or exceed the Action Level of 30 micrograms per cubic meter (µg/m^3) or the Permissible Exposure Limit of 50 µg/cm^3. The worker protection requirements of Cal/OSHA 1532.1 “Lead” apply.

4.3 Other Regulated Building Materials

Mercury-containing fluorescent light tubes and HID lamps were observed during the assessment. In the switchyard, the yellow glass portion of the high voltage transformer bushings may contain PCBs in the oil. No suspect PCB-containing caulking was observed during the inspection.

Fluorescent light tubes, switches, and thermostats may contain mercury. Fluorescent light ballasts, transformer oil, and HID lamp ballasts may contain PCBs. PCB wastes are regulated by Department of Toxic Substance Control Act (DTSC) Title 22 CCR 66261.24, Resource Conservation Recovery Act (RCRA) Title 40 CFR 761, and Toxic Substance Control Act (TSCA) 15 USC 2695. DTSC has classified PCBs as a hazardous waste when the concentrations are equal to or greater than 5 mg/l in liquids or when the total concentrations are equal to or greater than 50 mg/kg in non-liquids (Title 22, CCR, 66261.24). If the PCB waste is greater than 50 mg/l, then it is also to be managed under the RCRA and TSCA requirements. Employers must inform their employees of mercury and PCB hazards in accordance with Cal/OSHA.

Light ballasts in representative locations were visually assessed where possible. All light ballasts observed during the course of the HBMS were electronic ballasts or magnetic ballasts labeled “No PCBs”. In the switchyard, the yellow glass portion of the high voltage transformer bushings may contain PCBs in the oil.

During the course of decommissioning or demolition activities, magnetic light ballasts may be discovered that are not labeled “No PCBs” and should be disposed of per DTSC requirements.

Fluorescent light tubes must be removed and recycled or disposed of as hazardous waste or universal waste prior to demolition as per 22 CFR 66261.50 and 66273.8.

The results of the Universal Waste Inventory are presented in Section 4.5 Table 4-5.

4.4 Treated Wood

Wood treated with creosote was observed in the following locations:

- Power poles throughout Iron Gate Development

4.5 Tables

Table 4-1: Confirmed ACMs, ACCMs, and Assumed ACMs lists the HSAs (materials) that were tested and confirmed to contain greater than 0.1 percent asbestos as well as the HSAs that could not be tested and are assumed to contain asbestos. NESHAP categories and approximate quantities of each material are identified, when possible.

Table 4-2: Asbestos Sample Results by Layer lists the tabulated analytical results for each discrete asbestos sample, listed by building then by HSA. Confirmed ACMs, ACCMs and Non-ACMs are included.

Table 4-3: Lead Paint Sample Results lists the tabulated analytical results for each discrete lead paint sample.

Table 4-4: Universal Waste Inventory presents the tabulated approximate quantities of fluorescent light tubes, suspect PCB containing light ballasts, non-PCB containing magnetic light ballasts, HID Lamps, and PCB-containing transformers.

Table 4-5: PCB-Caulking Sample Results lists the tabulated analytical results for each PCB caulking sample.

Appendix A contains figures of structures, sampling locations, and asbestos-containing material locations.

Appendix B contains HSA Photologs, by building, then by HSA.

Appendix C contains the laboratory reports of analytical results for each discrete sample.

Appendix D contains personnel and laboratory certifications.

Table 4-1 Confirmed ACMs, ACCMs, and Assumed ACMs

Table 1: Confirmed ACMs, ACCMs, and Assumed ACMs								
Building	**HSA#**	**HSA Description**	**Material Location**	**AHERA Class**	**Friability**	**NESHAP Category**	**Summarized Results**	**Quantity**
Aerator	IGDAE-03	Assumed asbestos-containing red gaskets	Aerator piping, hatchery water supply	Misc.	_	_	Assumed	2 EA
Diversion Tunnel Intake Structure	IGDDTI-01	Gray window putty	Interior window panes	Misc.	NF	Cat II	Positive	2 EA (4'x5')
Fish Holding Facilities	IGDFHF-01	Gray brittle window putty	Patch sealant on one window only	Misc.	NF	Cat II	Positive	4 LF
Maintenance Shed	IGDMS-01	Assumed asbestos-containing silver woven electrical wire insulation	Throughout Maintenance Shed	Misc.	NF	Cat II	Assumed	Not quantified
Maintenance Shed	IGDMS-02	Assumed asbestos-containing electrical panel backing in older electrical panels	Interior of Maintenance Shed	Misc.	NF	Cat II	Assumed	~4 EA
Maintenance Shed	IGDMS-03	Assumed asbestos-containing roofing paper	Throughout Maintenance Shed roof, underneath corrugated metal roofing	Misc.	NF	Cat II	Assumed	~2,100 SF
Penstock	IGDPS-04	Assumed asbestos-containing red gaskets	Hatchery water supply piping	Misc.	NF	Cat II	Assumed	Not quantified**
Penstock	IGDPS-05	Assumed asbestos-containing black gaskets	Hatchery water supply piping	Misc.	NF	Cat II	Assumed	Not quantified**
Penstock Intake Structure	IGDPIS-01	White brittle window putty	Interior window panes	Misc.	NF	Cat II	Positive	2 EA (4'x5')
Powerhouse	IGDPH-01	Gray brittle window putty	Interior/exterior windows	Misc.	NF	Cat II	Positive	4 EA (4'x4')
Powerhouse	IGDPH-05	Assumed asbestos-containing wicket gate	Associated with turbines on main level of Powerhouse, inaccessible unless turbines are removed	Misc.	_	_	Assumed	3 EA
Powerhouse	IGDPH-06	Assumed asbestos-containing metal-clad fire door insulation	Powerhouse main level	Misc.	NF	Cat II	Assumed	2 EA

NF: Non-Friable; HSA: material that is uniform in color, texture, general appearance, and construction and application date, Misc.: Miscellaneous material per AHERA, SF: Square Feet, EA: Each; LF: Linear Feet; Cat II: Category II per NESHAPS; Materials that were unable to be sampled (typically because of inaccessibility or sampling would be too destructive while facilities were still operational) are assumed to be asbestos-containing. *Not quantified because of unknown extent of material not accessible at time of inspection; as-built drawings needed for approximate quantification.

Table 1: Confirmed ACMs, ACCMs, and Assumed ACMs								
Building	**HSA#**	**HSA Description**	**Material Location**	**AHERA Class**	**Friability**	**NESHAP Category**	**Summarized Results**	**Quantity**
Throughout Iron Gate Development	-	Assumed asbestos-containing buried Transite piping	A small portion of unburied Transite piping was observed at the Copco 2 development. Due to the proximity of Iron Gate to Copco 2, it is reasonable to assume that buried Transite piping also exists throughout the Iron Gate Development	Misc.	NF	Cat II	Assumed	Not quantified*

NF: Non-Friable; HSA: material that is uniform in color, texture, general appearance, and construction and application date, Misc.: Miscellaneous material per AHERA, SF: Square Feet, EA: Each; LF: Linear Feet; Cat II: Category II per NESHAPS; Materials that were unable to be sampled (typically because of inaccessibility or sampling would be too destructive while facilities were still operational) are assumed to be asbestos-containing. *Not quantified because of unknown extent of material not accessible at time of inspection; as-built drawings needed for approximate quantification.

Table 4-2 Asbestos Sample Results by Layer

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Aerator	IGDAE-1-01	1	Black asphaltic pipe wrap	Aerator piping, hatchery water supply	Misc.		None Detected
Aerator	IGDAE-1-02	1	Black asphaltic pipe wrap	Aerator piping, hatchery water supply	Misc.		None Detected
Aerator	IGDAE-1-03	1	Black asphaltic pipe wrap	Aerator piping, hatchery water supply	Misc.		None Detected
Aerator	IGDAE-2-01	1	Thick silver coating	Aerator piping, hatchery water supply	Misc.		None Detected
Aerator		2	Black asphaltic pipe wrap (HSA IGDAI-01)	Aerator piping, hatchery water supply	Misc.		None Detected
Aerator	IGDAE-2-02	1	Thick silver coating	Aerator piping, hatchery water supply	Misc.		None Detected
Aerator		2	Black asphaltic pipe wrap (HSA IGDAI-01)	Aerator piping, hatchery water supply	Misc.		None Detected
Aerator	IGDAE-2-03	1	Thick silver coating	Aerator piping, hatchery water supply	Misc.		None Detected
Aerator		2	Black asphaltic pipe wrap (HSA IGDAI-01)	Aerator piping, hatchery water supply	Misc.		None Detected
Communications Building	IGDCB-1-01	1	Gray vinyl floor sheeting with terrazzo pattern	Flooring in office area	Misc.		None Detected
Communications Building		2	Gray paper backing with mastic	Flooring in office area	Misc.		None Detected
Communications Building		3	Tan mastic	Flooring in office area	Misc.		None Detected
Communications Building	IGDCB-1-02	1	Gray vinyl floor sheeting with terrazzo pattern	Flooring in office area	Misc.		None Detected
Communications Building		2	Gray paper backing with mastic	Flooring in office area	Misc.		None Detected
Communications Building		3	Tan mastic	Flooring in office area	Misc.		None Detected
Communications Building	IGDCB-1-03	1	Gray vinyl floor sheeting with terrazzo pattern	Flooring in office area	Misc.		None Detected

HSA: Material that is uniform in color, texture, general appearance, and construction and application date, Surf.: Surfacing material per AHERA, TSI: Thermal system insulation per AHERA, Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Communications Building		2	Gray paper backing with mastic	Flooring in office area	Misc.		None Detected
Communications Building	IGDCB-1-04	1	Gray vinyl floor sheeting with terrazzo pattern	Flooring in office area	Misc.		None Detected
Communications Building		2	Gray paper backing with mastic	Flooring in office area	Misc.		None Detected
Communications Building	IGDCB-2-01	1	4" gray rubber cove base	Walls in office area	Misc.		None Detected
Communications Building	IGDCB-2-02	1	4" gray rubber cove base	Walls in office area	Misc.		None Detected
Communications Building		2	White mastic	Walls in office area	Misc.		None Detected
Communications Building	IGDCB-2-03	1	4" gray rubber cove base	Walls in office area	Misc.		None Detected
Communications Building		2	White mastic	Walls in office area	Misc.		None Detected
Communications Building	IGDCB-2-04	1	4" gray rubber cove base	Walls in office area	Misc.		None Detected
Communications Building		2	White mastic	Walls in office area	Misc.		None Detected
Communications Building	IGDCB-3-01	1	White joint compound	Walls in storage room only	Misc.		None Detected
Communications Building		2	White joint compound with paper	Walls in storage room only	Misc.		None Detected
Communications Building		3	Peach gypsum wallboard with paper	Walls in storage room only	Misc.		None Detected
Communications Building	IGDCB-3-02	1	White joint compound	Walls in storage room only	Misc.		None Detected
Communications Building		2	White joint compound with paper	Walls in storage room only	Misc.		None Detected
Communications Building		3	Peach gypsum wallboard with paper	Walls in storage room only	Misc.		None Detected

HSA: Material that is uniform in color, texture, general appearance, and construction and application date, Surf.: Surfacing material per AHERA, TSI: Thermal system insulation per AHERA, Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Communications Building	IGDCB-3-03	1	White joint compound with paper	Walls in storage room only	Misc.		None Detected
Communications Building		2	White gypsum wallboard with paper	Walls in storage room only	Misc.		None Detected
Communications Building		3	White joint compound with paper	Walls in storage room only	Misc.		None Detected
Communications Building		4	Peach gypsum wallboard with paper	Walls in storage room only	Misc.		None Detected
Diversion Tunnel Intake Structure	**IGDDTI-1-01**	**1**	**Gray window putty**	**Interior window panes**	**Misc.**	**5%**	**Chrysotile**
Diversion Tunnel Intake Structure	**IGDDTI-1-02**	**1**	**Gray window putty**	**Interior window panes**	**Misc.**	**6%**	**Chrysotile**
Diversion Tunnel Intake Structure	IGDDTI-1-03	1	Silver paint	Interior window panes	Misc.		None Detected
Diversion Tunnel Intake Structure		**2**	**Gray window putty**	**Interior window panes**	**Misc.**	**6%**	**Chrysotile**
Diversion Tunnel Intake Structure	IGDDTI-2-01	1	Beige exterior window caulking	Exterior window frames	Misc.		None Detected
Diversion Tunnel Intake Structure	IGDDTI-2-02	1	Beige exterior window caulking	Exterior window frames	Misc.		None Detected
Diversion Tunnel Intake Structure	IGDDTI-2-03	1	Beige exterior window caulking	Exterior window frames	Misc.		None Detected
Diversion Tunnel Intake Structure	IGDES-1-01	1	Asphaltic roofing shingles with granules	Roofing throughout shed	Misc.		None Detected
Diversion Tunnel Intake Structure	IGDES-1-02	1	Asphaltic roofing shingles with granules	Roofing throughout shed	Misc.		None Detected
Diversion Tunnel Intake Structure	IGDES-1-03	1	Asphaltic roofing shingles with granules	Roofing throughout shed	Misc.		None Detected
Fish Holding Facilities	**IGDFHF-1-01**	**1**	**Gray brittle window putty**	**Patch sealant on one window only**	**Misc.**	**4%**	**Chrysotile**
Fish Holding Facilities	**IGDFHF-1-02**	**1**	**Gray brittle window putty**	**Patch sealant on one window only**	**Misc.**	**6%**	**Chrysotile**

HSA: Material that is uniform in color, texture, general appearance, and construction and application date, Surf.: Surfacing material per AHERA, TSI: Thermal system insulation per AHERA, Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Fish Holding Facilities	**IGDFHF-1-03**	**1**	**Gray brittle window putty**	**Patch sealant on one window only**	**Misc.**	**4%**	**Chrysotile**
Penstock	IGDPS-1-01	1	Black asphaltic pipe wrap	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-1-02	1	Black asphaltic pipe wrap	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-1-03	1	Black asphaltic pipe wrap	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-2-01	1	Thick silver coating	Hatchery water supply piping	Misc.		None Detected
Penstock		2	Black asphaltic pipe wrap (HSA 01)	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-2-02	1	Thick silver coating	Hatchery water supply piping	Misc.		None Detected
Penstock		2	Black asphaltic pipe wrap (HSA 01)	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-2-03	1	Thick silver coating	Hatchery water supply piping	Misc.		None Detected
Penstock		2	Black asphaltic pipe wrap (HSA 01)	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-3-01	1	Brown fibrous gasket at pipe line saddles	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-3-02	1	Brown fibrous gasket at pipe line saddles	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-3-03	1	Brown fibrous gasket at pipe line saddles	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-6-01	1	Tar coating on fish hatchery water supply	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-6-02	1	Tar coating on fish hatchery water supply	Hatchery water supply piping	Misc.		None Detected
Penstock	IGDPS-6-03	1	Tar coating on fish hatchery water supply	Hatchery water supply piping	Misc.		None Detected
Penstock Intake Structure	**IGDPIS-1-01**	**1**	**White brittle window putty**	**Interior window panes**	**Misc.**	**5%**	**Chrysotile**

HSA: Material that is uniform in color, texture, general appearance, and construction and application date, Surf.: Surfacing material per AHERA, TSI: Thermal system insulation per AHERA, Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Penstock Intake Structure	**IGDPIS-1-02**	**1**	**White brittle window putty**	**Interior window panes**	**Misc.**	**4%**	**Chrysotile**
Penstock Intake Structure	**IGDPIS-1-03**	**1**	**White brittle window putty**	**Interior window panes**	**Misc.**	**4%**	**Chrysotile**
Penstock Intake Structure	IGDPIS-2-01	1	White caulking at base of doorway	Doorway to interior	Misc.		None Detected
Penstock Intake Structure		2	Gray brittle material	Doorway to interior	Misc.		None Detected
Penstock Intake Structure	IGDPIS-2-02	1	White caulking at base of doorway	Doorway to interior	Misc.		None Detected
Penstock Intake Structure	IGDPIS-2-03	1	White caulking at base of doorway	Doorway to interior	Misc.		None Detected
Penstock Intake Structure	IGDPIS-3-01	1	White caulking	Exterior metal siding seams	Misc.		None Detected
Penstock Intake Structure	IGDPIS-3-02	1	Beige soft material with paint	Exterior metal siding seams	Misc.		None Detected
Penstock Intake Structure		2	White caulking	Exterior metal siding seams	Misc.		None Detected
Penstock Intake Structure	IGDPIS-3-03	1	Beige soft material with paint	Exterior metal siding seams	Misc.		None Detected
Powerhouse	**IGDPH-1-01**	**1**	**Gray brittle window putty**	**Interior/exterior windows**	**Misc.**	**4%**	**Chrysotile**
Powerhouse	**IGDPH-1-02**	**1**	**Gray brittle window putty**	**Interior/exterior windows**	**Misc.**	**5%**	**Chrysotile**
Powerhouse	**IGDPH-1-03**	**1**	**Gray brittle window putty**	**Interior/exterior windows**	**Misc.**	**4%**	**Chrysotile**
Powerhouse	IGDPH-3-01	1	Gray expansion joint caulking	Exterior seams, roof of Powerhouse (concrete pad)	Misc.		None Detected
Powerhouse	IGDPH-3-02	1	Gray expansion joint caulking	Exterior seams, roof of Powerhouse (concrete pad)	Misc.		None Detected
Powerhouse	IGDPH-3-03	1	Gray expansion joint caulking	Exterior seams, roof of Powerhouse (concrete pad)	Misc.		None Detected
Powerhouse	IGDPH-4-01	1	Brown epoxy coating	Roof of Powerhouse (concrete pad)	Misc.		None Detected

HSA: Material that is uniform in color, texture, general appearance, and construction and application date, Surf.: Surfacing material per AHERA, TSI: Thermal system insulation per AHERA, Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Powerhouse	IGDPH-4-02	1	Brown epoxy coating	Roof of Powerhouse (concrete pad)	Misc.		None Detected
Powerhouse	IGDPH-4-03	1	Brown epoxy coating	Roof of Powerhouse (concrete pad)	Misc.		None Detected
Restroom	IGDRR-1-01	1	White brittle terrazzo	Shower base interior of restroom	Misc.		None Detected
Restroom	IGDRR-1-02	1	White brittle terrazzo	Shower base interior of restroom	Misc.		None Detected
Restroom	IGDRR-1-03	1	White brittle terrazzo	Shower base interior of restroom	Misc.		None Detected

HSA: Material that is uniform in color, texture, general appearance, and construction and application date, Surf.: Surfacing material per AHERA, TSI: Thermal system insulation per AHERA, Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 4-3 Lead Paint Sample Results

Table 4: Lead Paint Sample Results					
Building	**Sample ID**	**Description**	**Substrate**	**Location**	**Results in (mg/kg)**
Diversion Tunnel Intake	**IGDDTI-Pb1-01**	**Tan paint**	**Metal**	**Exterior metal window frames**	**470**
Diversion Tunnel Intake	**IGDDTI-Pb2-01**	**Grayish/silver paint**	**Metal**	**Interior metal walls**	**1,500**
Emergency Spill Equipment Shed	IGDES-Pb1-01	Light gray paint	Wood	Throughout exterior metal siding on walls	<140
Fish Hold Facilities	**IDGFHF-Pb1-01**	**Grayish/silver paint**	**Metal**	**On metal handrails and equipment throughout interior**	**500**
Fish Hold Facilities	IDGFHF-Pb2-01	White paint	Concrete	Throughout concrete walls on lower level of interior	<50
Fish Hold Facilities	**IDGFHF-Pb3-01**	**Silver paint**	**Metal**	**Center mechanical unit in center of fish holding ponds**	**110,000**
Penstock	**IGDPS-Pb1-01**	**Pink paint**	**Metal**	**6' penstock piping**	**65,000**
Penstock	**IGDPS-Pb2-01**	**Red paint**	**Metal**	**6' penstock piping**	**60**
Penstock Intake Structure	**IGDPIS-Pb1-01**	**Tan paint**	**Metal**	**Exterior metal siding and equipment**	**140**
Powerhouse	**IGDPH-Pb1-01**	**Orange paint**	**Metal**	**Interior metal handrails and guardrails throughout**	**83,000**
Powerhouse	**IGDPH-Pb2-01**	**Gray paint**	**Concrete**	**Interior floor and equipment blocks**	**980**
Powerhouse	**IGDPH-Pb3-01**	**Tan paint**	**Concrete**	**Walls in turbine room**	**7,200**
Powerhouse	**IGDPH-Pb4-01**	**Off-white/silver paint**	**Steel**	**Exterior stop log gates**	**860**
Powerhouse	**IGDPH-Pb5-01**	**Orange paint**	**Steel**	**Exterior stop log supports**	**150,000**
Spillway	IGDSW-Pb1-01	Tan paint	Metal	Spillway leaf gates and handrails	<110

<: Below the reporting limit

Table 4-4 Universal Waste Inventory

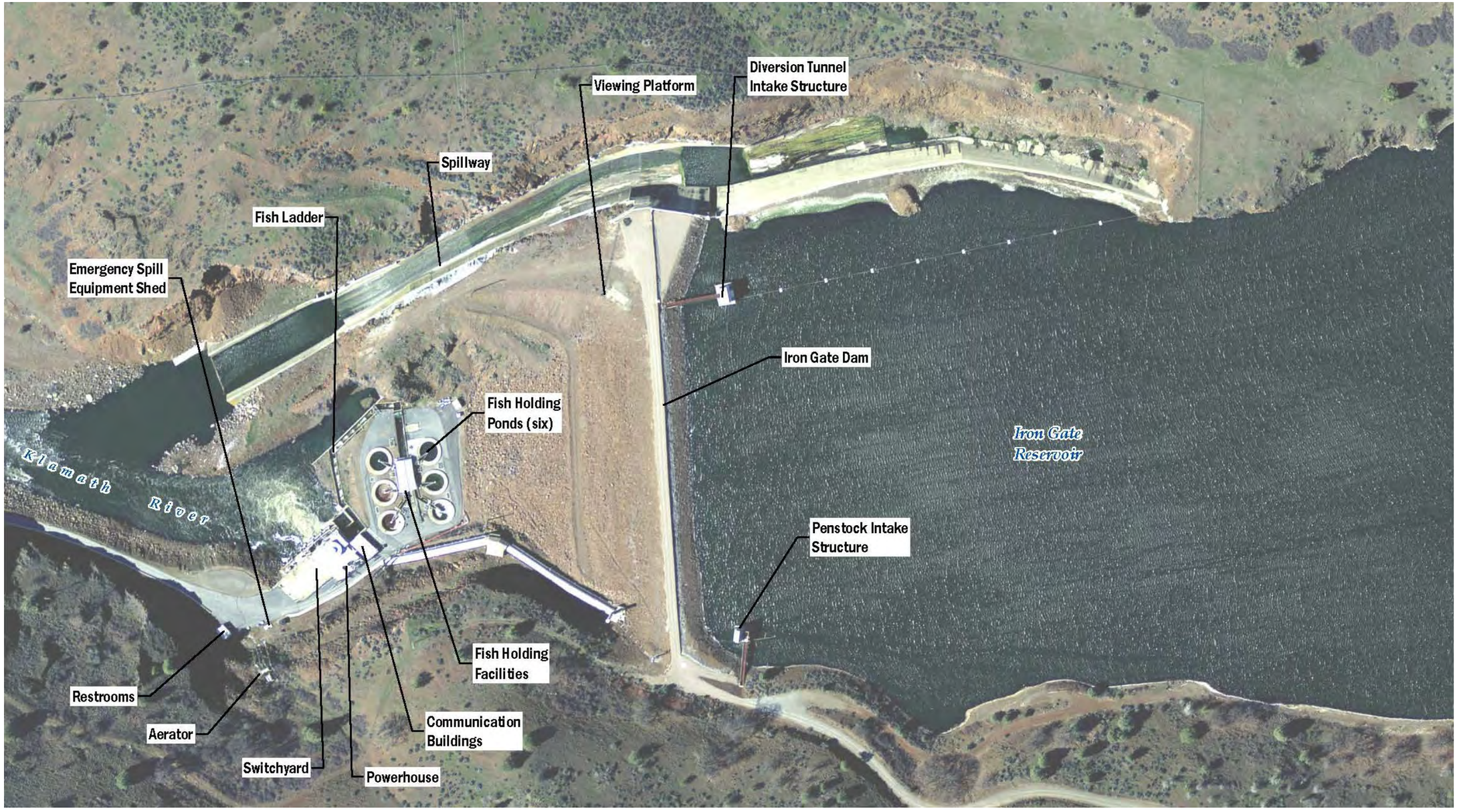
Table 5: Universal Waste Inventory	
Other Regulated Building Materials Description	**Approximate Quantity**
Mercury-containing fluorescent light tubes (4’ length)	20
Mercury-containing fluorescent light tubes (8’ length)	10
Magnetic light ballasts	10
HID lamps	6
Mercury-containing switches, controls, and recorders	None observed
PCB-Containing Transformer Oil	Associated with yellow glass portion of the transformer bushings in the switchyard

Table 4-5 PCB-Caulking Sample Results

Table 6: PCB Caulking Results		
Sample Number and Description	**Material Location**	**Samples Results in Parts Per Million (ppm)**
Flexible gray expansion joint sealant	Top of Powerhouse – at expansion joints	ND

ND: None Detected

APPENDIX A FIGURES

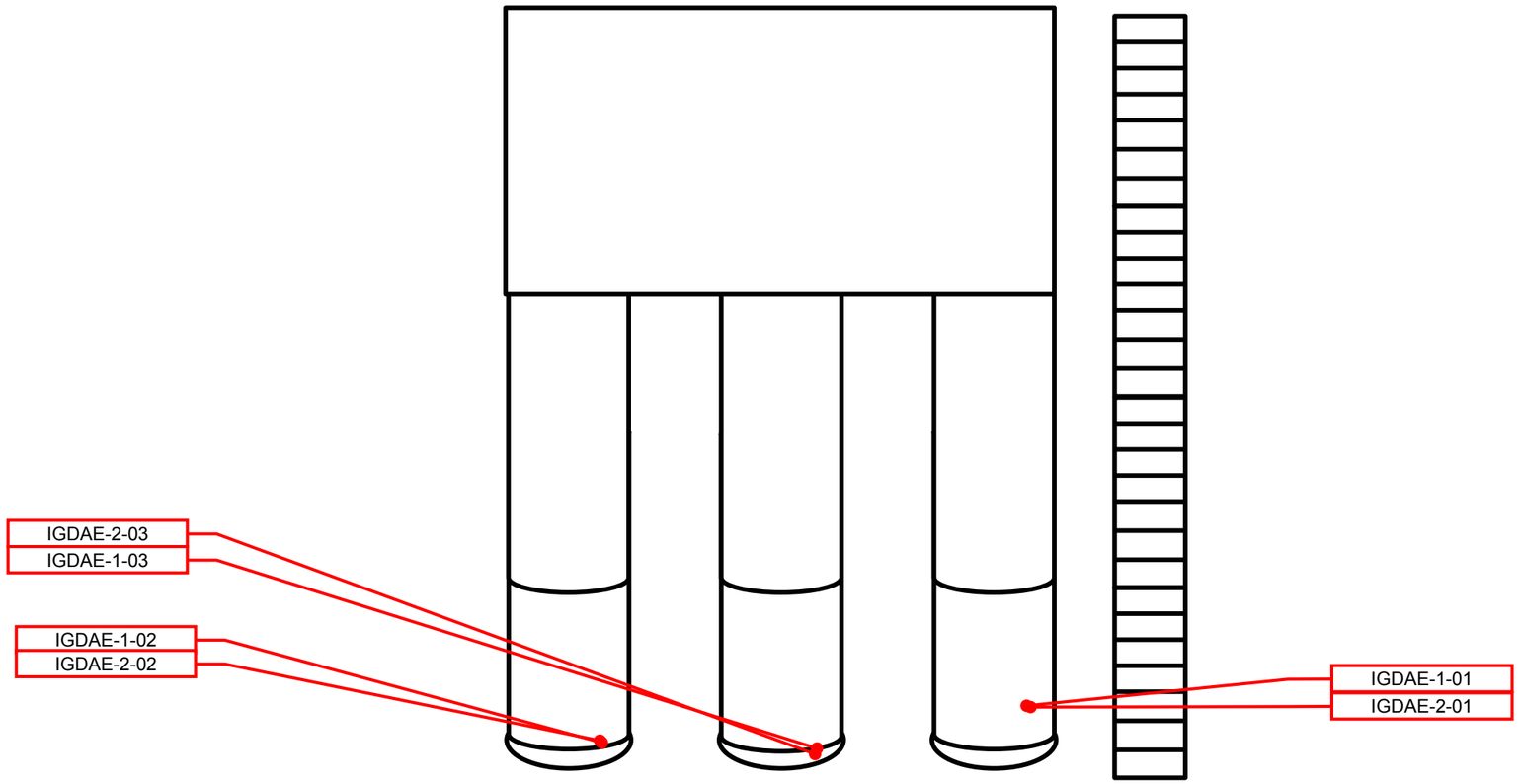


Job No. 60537920

AECOM

Figure 1
Aerial Site Photo
Iron Gate Dam

Copco No. 1 Dam
Hornsbrook, CA



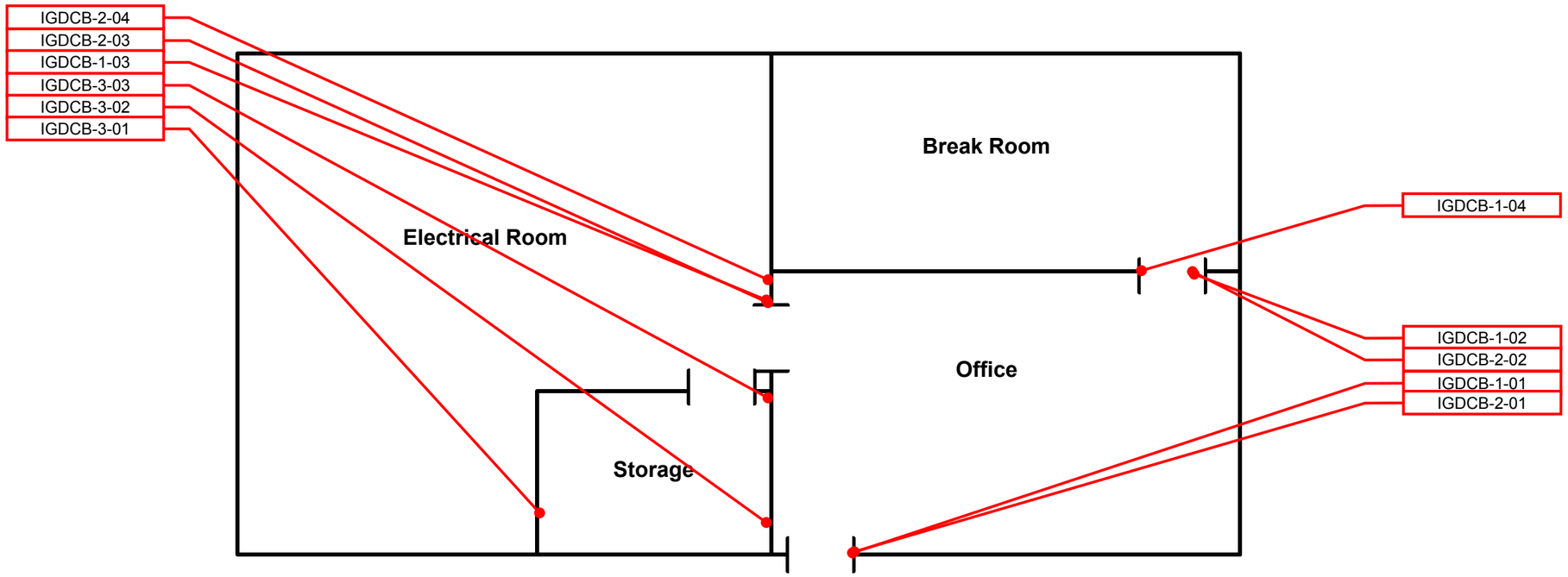
Legend
IGDAE – HSA# – ## = Asbestos sample location
IGDAE – Pb# – ## = Lead paint sample location

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 2
Asbestos and Lead Sample Locations
Aerator

AECOM

Iron Gate Dam
Hornsbrook, CA



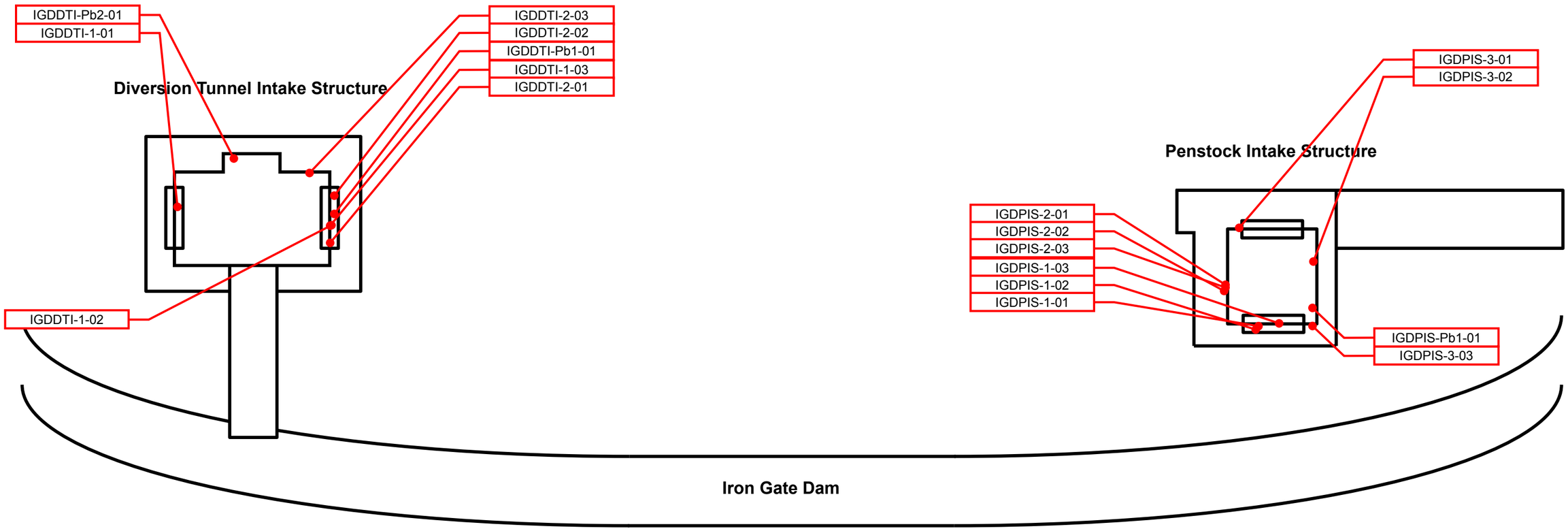
Legend
IGDCB – HSA# – ## = Asbestos sample location
IGDCB – Pb# – ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 3
Asbestos and Lead Sample Locations
Communications Building

AECOM

Iron Gate Dam
Hornsbrook, CA



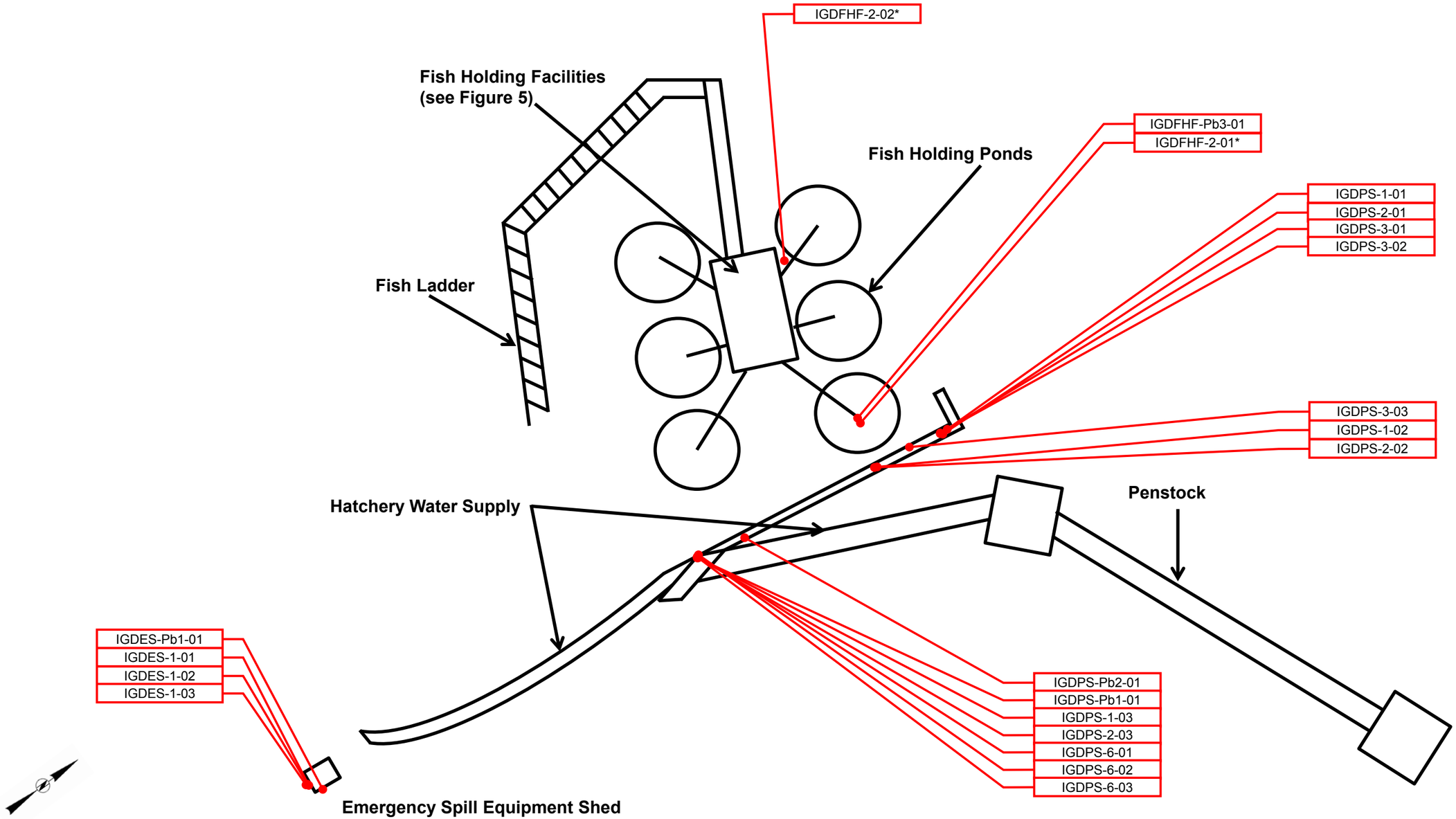
Legend
IGDCB – HSA# – ## = Asbestos sample location
IGDCB – Pb# – ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 4
Asbestos and Lead Sample Locations
Diversion Tunnel Intake Structure and Penstock Intake Structure

AECOM

Iron Gate Dam
Hornsbrook, CA



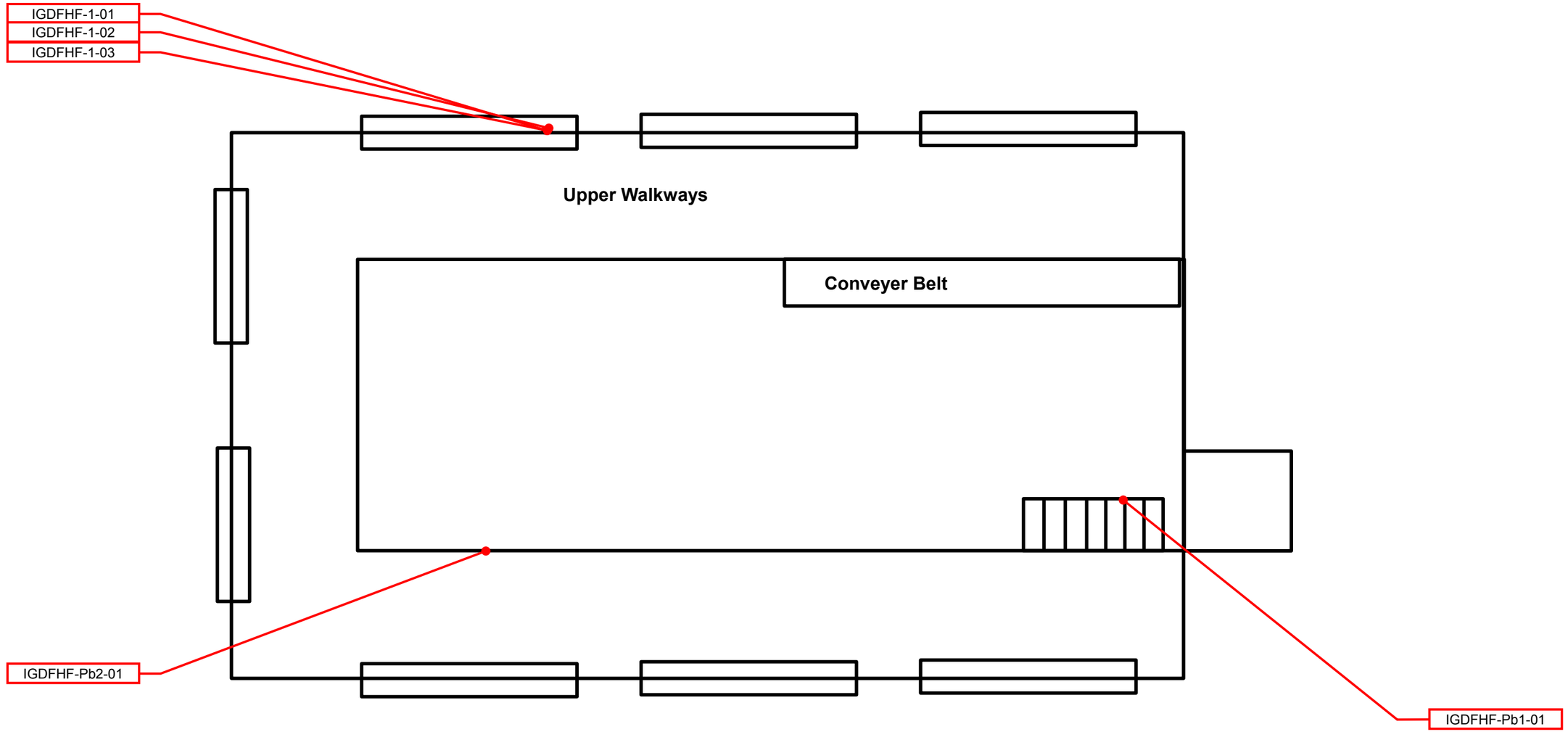
Legend
IGDCB – HSA# – ## = Asbestos sample location
IGDCB – Pb# – ## = Lead paint sample location
*Concrete sample analyzed via PLM CARB (Detection limit of .25%)

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 5
Asbestos and Lead Sample Locations
Penstock, Hatchery Water Supply, Emergency Spill Equipment Shed, and Fish Holding Ponds

AECOM

Iron Gate Dam
Hornsbrook, CA



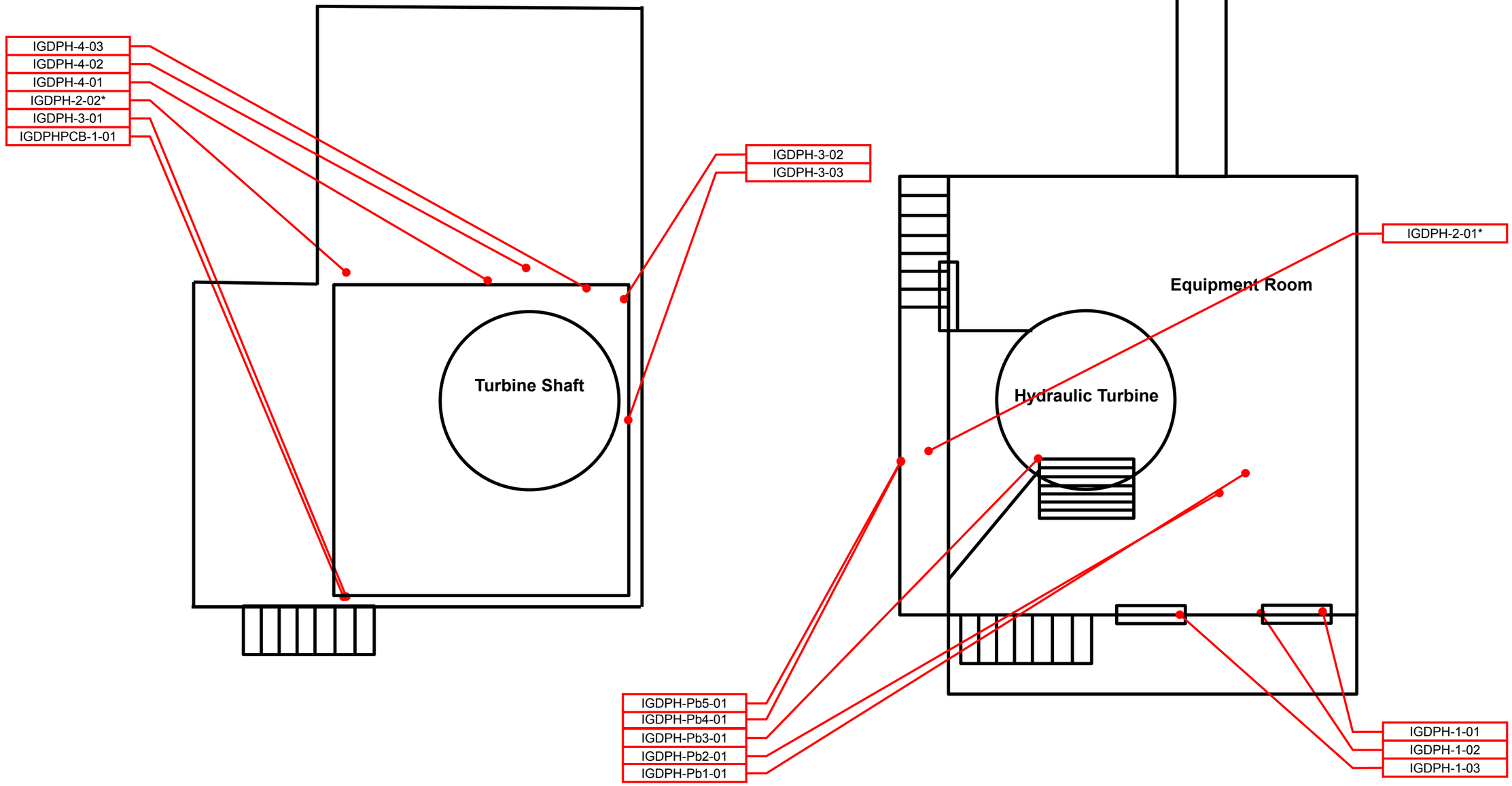
Legend
IGDFHF – HSA# – ## = Asbestos sample location
IGDFHF – Pb# – ## = Lead paint sample location

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 6
Asbestos and Lead Sample Locations
Fish Holding Facilities

AECOM

Iron Gate Dam
Hornsbrook, CA



Emergency Spill Equipment Shed

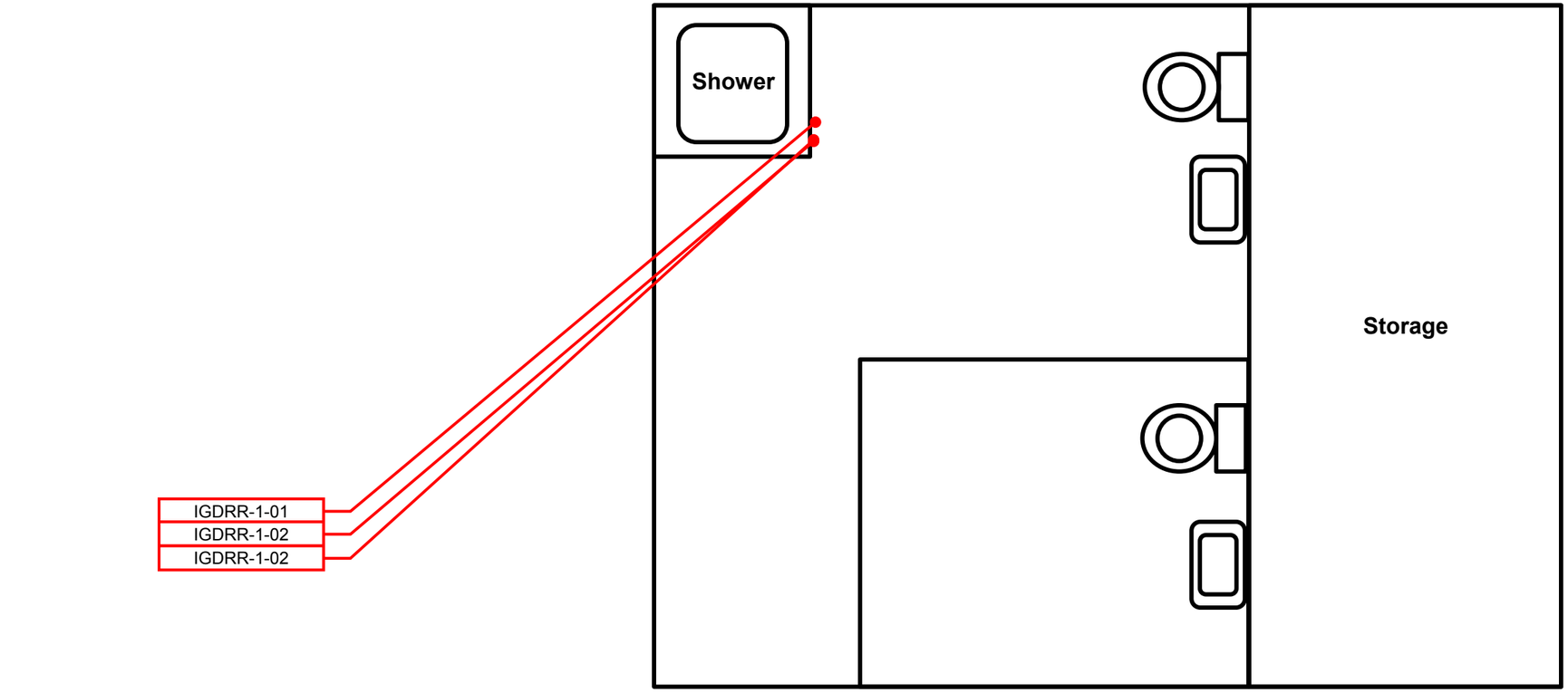
Legend
IGDFHF – HSA# – ## = Asbestos sample location
IGDFHF – Pb# – ## = Lead paint sample location
***Concrete sample analyzed via PLM CARB (Detection limit of .25%)**

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 7
Asbestos and Lead Sample Locations
Powerhouse

AECOM

Iron Gate Dam
Hornsbrook, CA



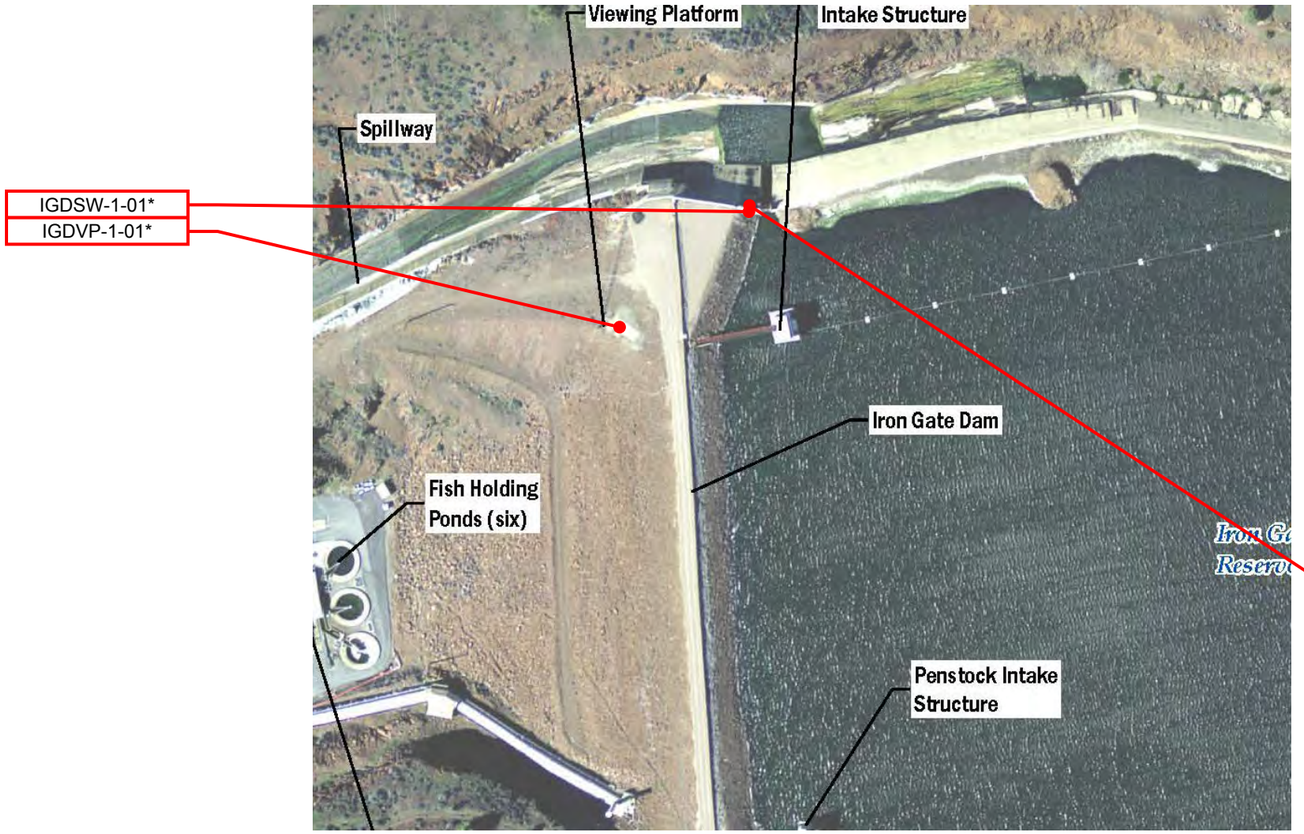
Legend
IGDFHF – HSA# – ## = Asbestos sample location
IGDFHF – Pb# – ## = Lead paint sample location

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 8
Asbestos and Lead Sample Locations
Restroom

AECOM

Iron Gate Dam
Hornsbrook, CA



Legend

IGDSW – Pb# – ## = Lead paint sample location
*Concrete sample analyzed via PLM CARB (Detection limit of .25%)

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 9
Asbestos and Lead Sample Locations
Spillway

AECOM

Iron Gate Dam
Hornsbrook, CA

Legend

IGDAE-03: Assumed asbestos-containing gaskets (M)

IGDPIS-01: Asbestos-containing white brittle window putty (M)

IGDFHF-01: Gray brittle patch window putty (M)

IGDMS-01, IGDMS-02, and IGDMB-03: Assumed asbestos-containing silver woven electrical wire insulation, assumed asbestos-containing electrical panel backing, and assumed asbestos-containing roofing paper (M)

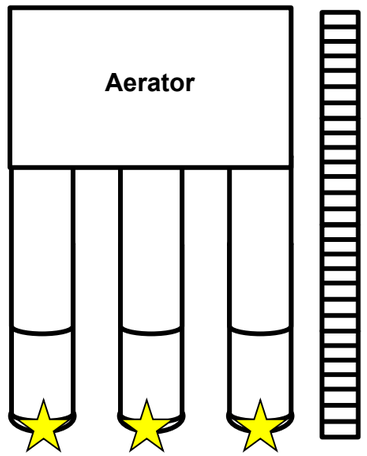
IGDDIS-01: Asbestos-containing gray window putty (M)

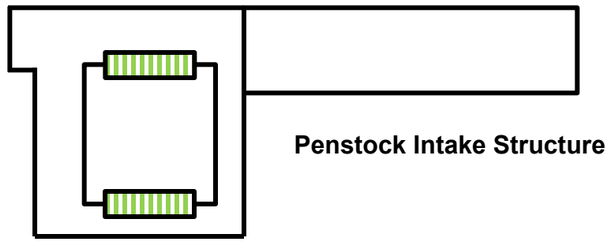
IDGPH-01: Asbestos-containing gray brittle window putty (M)

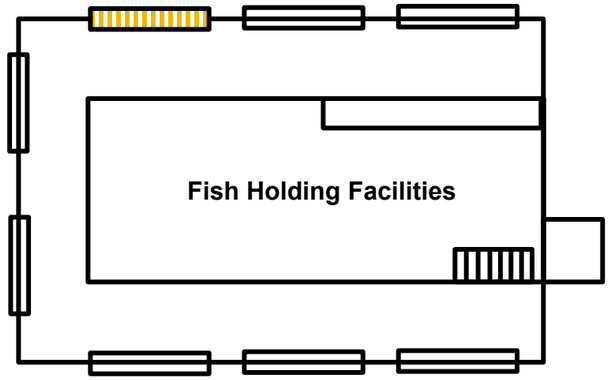
IGDPH-05: Assumed asbestos-containing wicket gate (M)

IGDPH-06: Assumed asbestos-containing metal-clad fire door insulation (M)

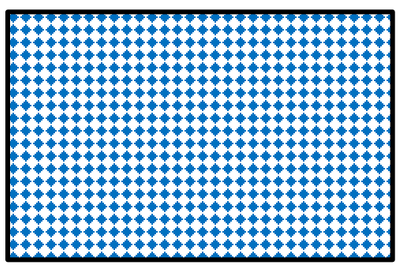
Drawing should be printed in color



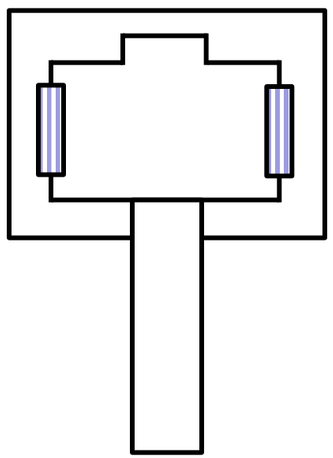


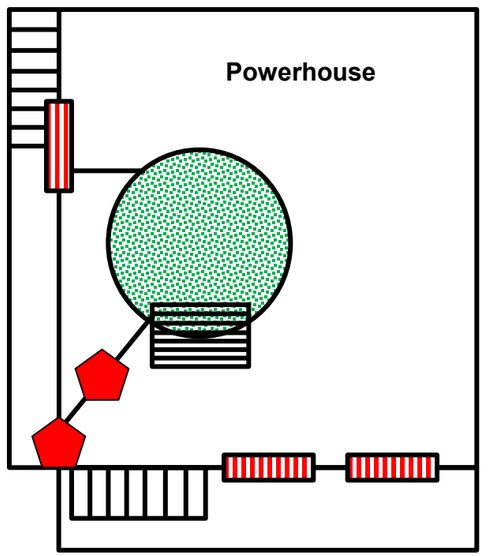


Maintenance Shed



Diversion Tunnel Intake Structure





Assumed asbestos-containing buried Transite piping is assumed to be throughout the Iron Gate Development. Not shown on figures.

Figure 9
Approximate ACM Locations
Aerator, Penstock Intake Structure,
Fish Holding Facilities, Maintenance Shed,
Diversion Tunnel Intake Structure,
and Powerhouse

Job No. 60537920

Drawing Not to Scale – Schematic Only

AECOM

Iron Gate Dam
Hornsbrook, CA

APPENDIX B HSA PHOTOLOGS

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Aerator	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/12/2018

Structure:

Iron Gate Dam Aerator

Photo No./ Material ID:	**Date:**
IGDAE - 01	9/12/2018

Structure/Material Location:

Iron Gate Dam Aerator/ Aerator piping, hatchery water supply

***Description (by layer):**

1: Black asphaltic pipe wrap (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Aerator	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IGDAE - 02	9/12/2018

Structure/Material Location:

Iron Gate Dam Aerator/
Ceiling throughout all rooms

***Description (by layer):**

1: Silver paint (M)
2: Black asphaltic pipe wrap (M)

Photo No./ Material ID:	**Date:**
IGDAE - 03	9/12/2018

Structure/Material Location:

Iron Gate Dam Aerator/
Ceiling throughout all rooms

***Description (by layer):**

1: Red gasket (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Communication Building	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/12/2018

Structure:

Iron Gate Dam Aerator

Photo No./ Material ID:	**Date:**
IGDAE - 01	9/12/2018

Structure/Material Location:

Iron Gate Dam Aerator/ Flooring in office area

***Description (by layer):**

1: Gray vinyl floor sheeting with terrazzo pattern (M)
2: Gray paper backing with mastic (M)
3: Tan mastic (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Communication Building	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IGDAE - 02	9/12/2018

Structure/Material Location:

Iron Gate Dam Aerator/
Walls in office area

***Description (by layer):**

1: 4" gray rubber cove base (M)
2: White mastic (M)

Photo No./ Material ID:	**Date:**
IGDAE - 03	9/12/2018

Structure/Material Location:

Iron Gate Dam Aerator/
Ceiling throughout all rooms

***Description (by layer):**

1: White joint compound with paper (M)
2: White gypsum wallboard with paper (M)
3: White joint compound with paper (M)
4: Peach gypsum wallboard with paper (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Diversion Tunnel Intake Structure	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/17/2018

Structure:

Iron Gate Dam Diversion Tunnel Intake Structure

Photo No./ Material ID:	**Date:**
IDGDTI - 01	9/14/2018

Structure/Material Location:

Iron Gate Dam Diversion Tunnel Intake Structure/ Flooring in office area

***Description (by layer):**

1: Silver paint (M)
2: Gray window putty (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Diversion Tunnel Intake Structure	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IDGDTI - 02	9/14/2018

Structure/Material Location:

Iron Gate Dam Diversion Tunnel Intake Structure/ Exterior window frames

***Description (by layer):**

1: Beige exterior window caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Emergency Spill Equipment Shed	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/14/2018

Structure:

Iron Gate Dam Emergency Spill Equipment Shed

Photo No./ Material ID:	**Date:**
IGDES - 01	9/14/2018

Structure/Material Location:

Iron Gate Dam Emergency Spill Equipment Shed/ Roofing throughout shed

***Description (by layer):**

1: Asphaltic roofing shingle with granules (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Fish Holding Facility	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/14/2018

Structure:

Iron Gate Dam Fish Holding Facility

Photo No./ Material ID:	**Date:**
IGDFHF - 01	9/14/2018

Structure/Material Location:

Iron Gate Dam Fish Holding Facility/ Patch sealant on one window only

***Description (by layer):**

1: Gray brittle window putty (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Maintenance Shed	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/14/2018

Structure:

Iron Gate Dam Maintenance Shed

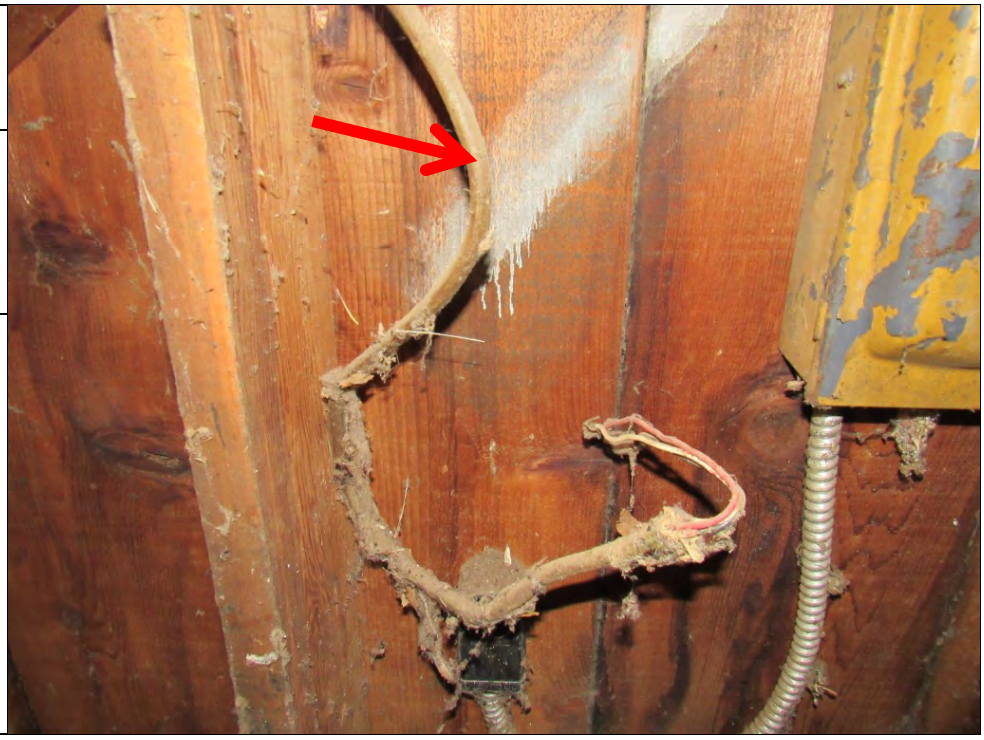
Photo No./ Material ID:	**Date:**
IGDMS - 01	9/14/2018

Structure/Material Location:

Iron Gate Dam Maintenance Shed/ Throughout Maintenance Shed

***Description (by layer):**

Assumed asbestos-containing silver woven electrical wire insulation



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Maintenance Shed	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IGDMS - 02	9/14/2018

Structure/Material Location:

Iron Gate Dam Maintenance Shed/ Throughout Maintenance Shed

***Description (by layer):**

Assumed asbestos-containing electrical panel backing in older electrical panels

Photo No./ Material ID:	**Date:**
IGDMS - 03	9/14/2018

Structure/Material Location:

Iron Gate Dam Maintenance Shed/ Throughout Maintenance Shed roof, underneath corrugated metal roofing

***Description (by layer):**

Assumed asbestos-containing roofing paper

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Dam, Penstock Intake Structure	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/14/2018

Structure:

Iron Gate Dam Penstock Intake Structure

Photo No./ Material ID:	**Date:**
IGDPIS - 01	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock Intake Structure/ Interior window panes

***Description (by layer):**

1: Gray putty material (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name:	Site Location:	Project No.
Klamath River Renewal Corporation	Iron Gate Dam, Penstock Intake Structure	60567920

Photo No./ Material ID:	Date:
IGDPIS - 02	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock Intake Structure/ Doorway to interior

***Description (by layer):**

1: White caulking at base of doorway (M)
2: Gray brittle material (M)

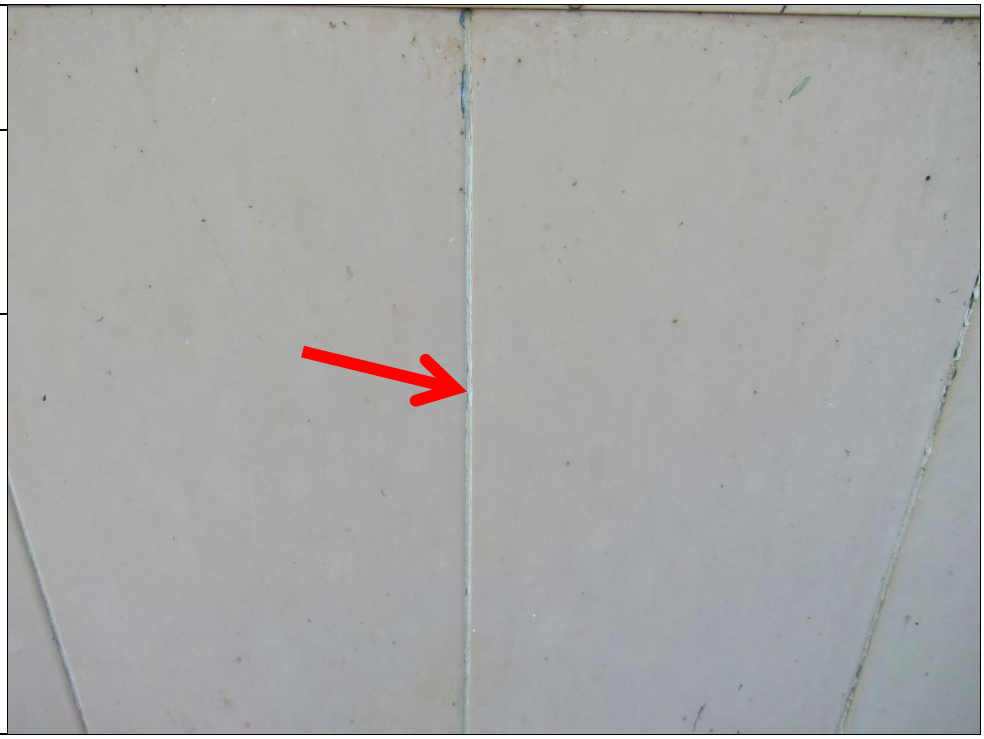
Photo No./ Material ID:	Date:
IGDPIS - 03	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock Intake Structure/ Exterior metal siding seams

***Description (by layer):**

1: White caulking (M)
2: Beige soft material with paint (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Development, Penstock	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/14/2018

Structure:

Iron Gate Dam Penstock

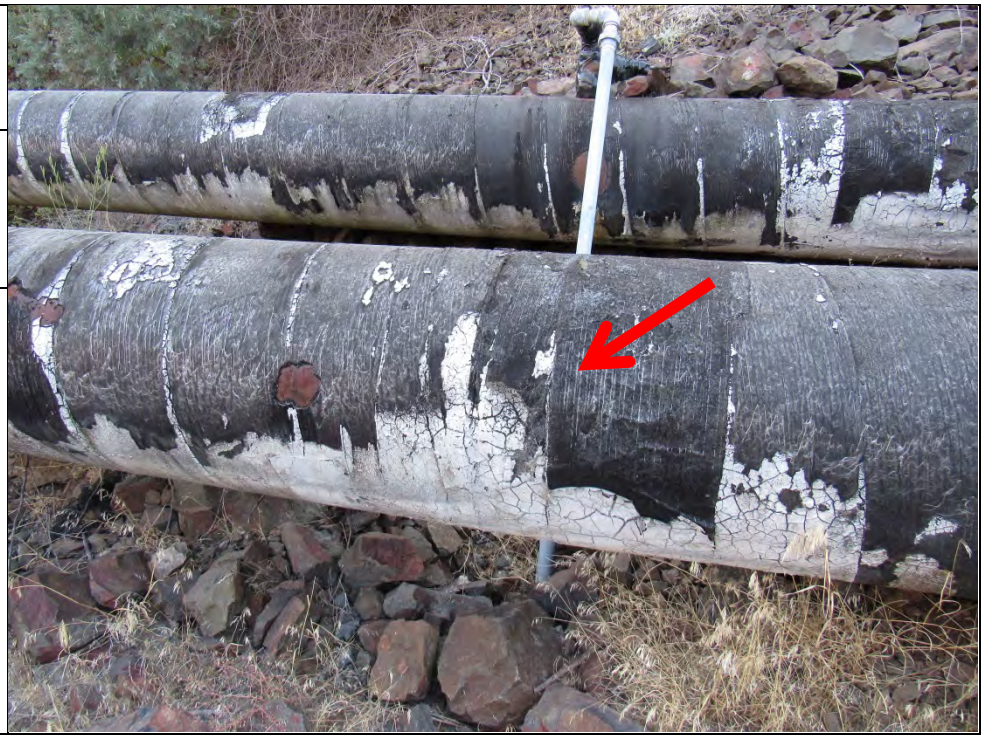
Photo No./ Material ID:	**Date:**
IGDPS - 01	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock/
Hatchery water supply piping (M)

***Description (by layer):**

1:Black asphaltic pipe wrap (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Development, Penstock	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IGDPS - 02	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock/ Hatchery water supply piping

***Description (by layer):**

1: Thick silver paint (M)
2: Black asphaltic pipe wrap (M)

Photo No./ Material ID:	**Date:**
IGDPS - 03	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock/ Hatchery water supply piping

***Description (by layer):**

1: Brown fibrous gasket at pipe line saddles (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Development, Penstock	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IGDPS - 04	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock/ Hatchery water supply piping

***Description (by layer):**

1: Red gasket (M)

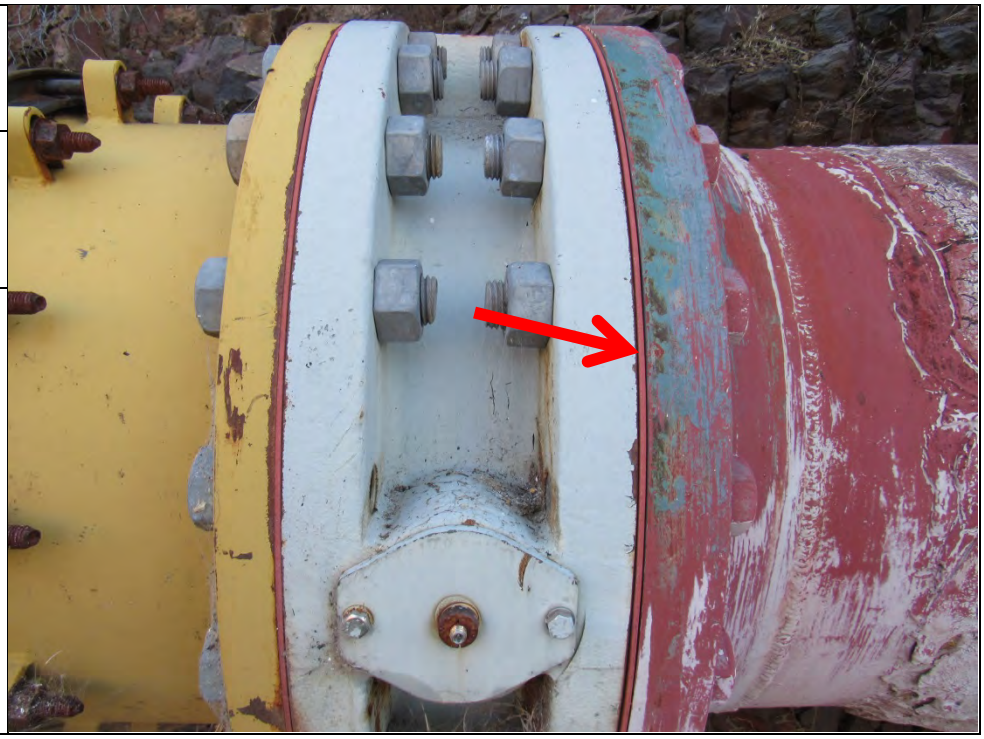


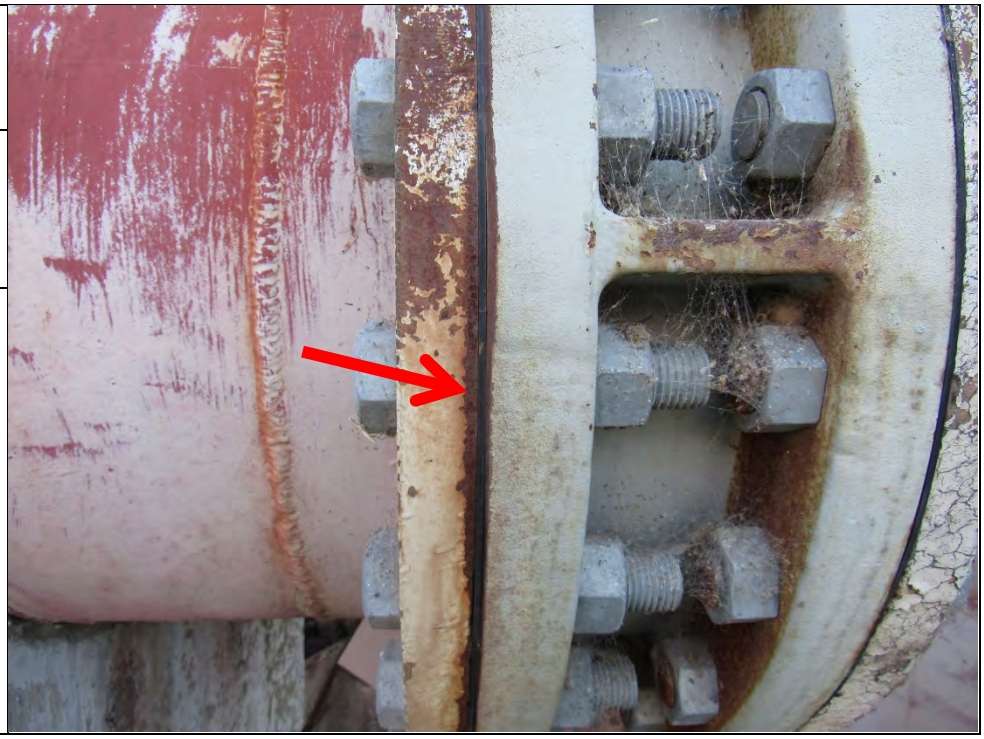
Photo No./ Material ID:	**Date:**
IGDPS - 05	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock/ Hatchery water supply piping

***Description (by layer):**

1: Black gasket (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Development, Penstock	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IGDPS - 06	9/14/2018

Structure/Material Location:

Iron Gate Dam Penstock/ Hatchery water supply piping

***Description (by layer):**

1: Tar coating on fish hatchery water supply (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Development, Powerhouse	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/14/2018

Structure:

Iron Gate Dam Powerhouse

Photo No./ Material ID:	**Date:**
IGDPH - 01	9/14/2018

Structure/Material Location:

Iron Gate Dam Powerhouse/ Interior/exterior windows

***Description (by layer):**

1: Gray brittle window putty (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Development, Powerhouse	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IGDPH - 02	---

Structure/Material Location:

Not used

***Description (by layer):**

Photo No./ Material ID:	**Date:**
IGDPH - 03	9/14/2018

Structure/Material Location:

Iron Gate Dam Powerhouse/ Exterior seams, roof of Powerhouse (concrete pad)

***Description (by layer):**

1: Gray expansion joint caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Development, Powerhouse	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
IGDPH - 04	9/14/2018

Structure/Material Location:

Iron Gate Dam Powerhouse/ Roof of Powerhouse (concrete pad)

***Description (by layer):**

1: Brown epoxy coating (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
Iron Gate Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** Iron Gate Development, Restrooms	**Project No.** 60567920

Photo No./ Material ID:	**Date:**
---	9/14/2018

Structure:

Iron Gate Dam Restrooms

Photo No./ Material ID:	**Date:**
IGDRR - 01	9/14/2018

Structure/Material Location:

Iron Gate Dam Restrooms/
Shower base interior of restroom

***Description (by layer):**

1: White brittle terrazzo (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

APPENDIX C LABORATORY ANALYTICAL RESULTS

October 8, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819445.00

Client Project: 60537920 Task 2.4
Location: IGD Aerator

Dear Ms. Gladu,

Enclosed please find test results for the 6 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Aerator

Batch #: 1819445.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 6
Samples Analyzed: 6
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099616 **Client Sample #: IGDAE-1-01**
Location: IGD Aerator
Layer 1 of 1 **Description:** Black asphaltic fibrous built-up material

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Asphalt/Binder, Fine particles, Debris	Cellulose	3%	**None Detected ND**
Insect parts	Glass fibers	17%	
	Spider silk	2%	

Lab ID: 18099617 **Client Sample #: IGDAE-1-02**
Location: IGD Aerator
Layer 1 of 1 **Description:** Black asphaltic fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Asphalt/Binder, Fine particles	Cellulose	3%	**None Detected ND**
	Glass fibers	26%	

Lab ID: 18099618 **Client Sample #: IGDAE-1-03**
Location: IGD Aerator
Layer 1 of 1 **Description:** Black asphaltic fibrous material with granules

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Asphalt/Binder, Fine particles, Granules	Cellulose	3%	**None Detected ND**
	Glass fibers	36%	

Lab ID: 18100184 **Client Sample #: IGDAE-2-01**
Location: IGD Aerator
Layer 1 of 2 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
Metallic paint, Fine particles	Cellulose	3%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 10/08/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Aerator

Batch #: 1819445.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 6
Samples Analyzed: 6
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2	**Description:** Black asphaltic fibrous felt		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Organic debris, Fine particles	Cellulose 62%	**None Detected ND**

Lab ID: 18100185 **Client Sample #: IGDAE-2-02**
Location: IGD Aerator

Layer 1 of 2	**Description:** Silver paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Metallic paint, Fine particles	Cellulose 2%	**None Detected ND**
Layer 2 of 2	**Description:** Black asphaltic fibrous felt		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Organic debris, Fine particles	Cellulose 67%	**None Detected ND**

Lab ID: 18100186 **Client Sample #: IGDAE-2-03**
Location: IGD Aerator

Layer 1 of 2	**Description:** Silver paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Metallic paint, Fine particles	Cellulose 2%	**None Detected ND**
Layer 2 of 2	**Description:** Black asphaltic fibrous felt		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Organic debris, Fine particles	Cellulose 64%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 10/08/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819445.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Aerator

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 6 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099616	IGDAE-1-01		A
2	18099617	IGDAE-1-02		A
3	18099618	IGDAE-1-03		A
4	18100184	IGDAE-2-01		A
5	18100185	IGDAE-2-02		A
6	18100186	IGDAE-2-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Matthew McCallum		NVL	10/8/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 9:40 AM
Entered By: Emily Schubert

1819445

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM Corporation
Address: 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: (206) 240 - 0644
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920 Task 2.4
Project Location: IGD AERATOR

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: email Nicole Gladu.
☐ Call ( ) - ☐ Fax ( ) - ☑ Email: shannon.mackay@aecom.com

Total Number of Samples 3

	Sample ID	Description	A/R
1	IGDAE-1-01		
2	" -1-02		
3	" -1-03		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC		AECOM	9/14/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/2/18	5pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

1819445

Emily Schubert

From: MacKay, Shannon <shannon.mackay@aecom.com>
Sent: Wednesday, October 03, 2018 4:05 PM
To: Client Services
Subject: RE: Extra Samples

Please add the three samples to the COC, exactly as labeled below.
Thanks!

Shannon MacKay
Sr. Environmental Scientist, Environmental Compliance
D 206-438-2232 C 206-999-2112
shannon.mackay@aecom.com

AECOM
1111 3rd Avenue, Suite 1600 Seattle, WA 98101
206-438-2700 Fax 866-438-2166
www.aecom.com

From: Client Services [mailto:ClientServices@nvllabs.com]
Sent: Wednesday, October 03, 2018 4:03 PM
To: MacKay, Shannon
Cc: Client Services
Subject: Extra Samples

Good afternoon,

In reference to the attached COC we received 3 extra samples in this batch that are not listed on the COC.

Please confirm if you would like to add these sample to the existing COC or we can dispose of them for you.

1. IGDAE-2-01
2. IGDAE-2-02
3. IGDAE-2-03

Your samples will be placed on hold until we receive confirmation for these samples. Please let us know if you have any other questions or concerns.

Thanks & Regards,

Client Services

NVL
INDUSTRIAL HYGIENE SERVICES
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ph: 206.547.0100 | fax: 206.634.1936

December 28, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1825181.01

Client Project: 60537920 Task 2.4
Location: N-A

Dear Ms. Gladu,

Enclosed please find test results for the 2 sample(s) submitted to our laboratory for analysis on 12/21/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Lab Code: 102063-0

Enc.: Sample Results

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: N-A

Batch #: 1825181.01
Client Project #: 60537920 Task 2.4
Date Received: 12/21/2018
Samples Received: 2
Samples Analyzed: 2
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18129768 **Client Sample #: IGDCB-1-04**
Location: N-A

Layer 1 of 2	**Description:** Gray sheet vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Vinyl/Binder, Fine particles, Synthetic foam	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Gray fibrous material with yellow soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Fine particles	Cellulose	40%	**None Detected ND**
		Glass fibers	20%	
		Synthetic fibers	<1%	

Lab ID: 18129769 **Client Sample #: IGDCB-2-04**
Location: N-A

Layer 1 of 2	**Description:** Gray rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Vinyl/Binder, Fine particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** White soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Fine particles, Wood flakes	Cellulose	2%	**None Detected ND**
	Insect parts			

Sampled by: Client
Analyzed by: Tiffany Cummings **Date:** 12/26/2018
Reviewed by: Matt Macfarlane **Date:** 12/28/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

ASBESTOS LABORATORY SERVICES

Company	AECOM-Seattle	**NVL Batch Number**	**1825181.00**
Address	1111 3rd Avenue Ste. 1600 Seattle, WA 98101	**TAT** 1 Day **AH** No **Rush TAT**	
Project Manager	Ms. Nicole Gladu	**Due Date** 12/26/2018 **Time** 4:55 PM	
Phone	(206) 438-2700	**Email**	nicole.gladu@aecom.com
Cell	(206) 240-0644	**Fax**	(866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** N-A

Subcategory PLM Bulk

Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 2 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18129768	IGDCB-1-04		A
2	18129769	IGDCB-2-04		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	12/21/18	1655
Analyzed by	Tiffany Cummings		NVL	12/26/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 12/26/2018
Time: 10:52 AM
Entered By: Shaina Mitchell

1825181

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ASBESTOS CHAIN OF CUSTODY

Turn Around Tim.
- ☐ 1 Hour
- ☒ 24 Hours
- ☐ 4 Days
- ☐ 2 Hours
- ☐ 2 Days
- ☐ 5 Days
- ☐ 4 Hours
- ☐ 3 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company AECOM Corporation
Address 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone 206.438.2700

Project Manager Nicole Gladu
Cell (206) 240 - 0644
Email nicole.gladu@aecom.com
Fax (866) 495 - 5288

Project Name/Number 60537920 Task 2.4
Project Location

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions email Nicole Gladu
☐ Call ( ) - ☐ Fax ( ) - ☑ Email shannon.mackay@aecom.com

Total Number of Samples 2

	Sample ID	Description	A/R
1	IGDCB-1-04		
2	IGDCB-2-04		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC	David Simon	AECOM	12/19/18	2pm
Relinquish by	Shannon MacKay	Shannon MacKay	AECOM	12/21/18	6pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	12/21/18	1655
Analyzed by					
Called by					
Faxed/Email by					

October 8, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819479.00

Client Project: 60537920 Task 2.4
Location: IGD Communications Bldg

Dear Ms. Gladu,

Enclosed please find test results for the 9 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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www.nvllabs.com

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Communications Bldg

Batch #: 1819479.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099801 **Client Sample #: IGDCB-1-01**

Location: IGD Communications Bldg

Layer 1 of 3 **Description:** Gray vinyl

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Vinyl/Binder, Calcareous particles	None Detected ND	**None Detected ND**

Layer 2 of 3 **Description:** Gray fibrous backing

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles	Cellulose 34%	**None Detected ND**
	Glass fibers 25%	

Layer 3 of 3 **Description:** Tan firm mastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Mastic/Binder, Insect parts, Fine particles	Cellulose 3%	**None Detected ND**
Calcareous particles, Wood flakes, Fine grains	Synthetic fibers <1%	
	Glass fibers <1%	

Lab ID: 18099802 **Client Sample #: IGDCB-1-02**

Location: IGD Communications Bldg

Layer 1 of 3 **Description:** Gray vinyl

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Vinyl/Binder, Calcareous particles	None Detected ND	**None Detected ND**

Layer 2 of 3 **Description:** Gray fibrous backing

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles, Calcareous particles	Cellulose 35%	**None Detected ND**
	Glass fibers 26%	

Sampled by: Client
Analyzed by: William Minor **Date:** 10/08/2018
Reviewed by: Nick Ly **Date:** 10/08/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Communications Bldg

Batch #: 1819479.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 3 of 3 **Description:** Tan brittle mastic

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Mastic/Binder, Fine particles, Insect parts	Cellulose	3%	**None Detected ND**
Wood flakes, Fine grains, Calcareous particles	Glass fibers	2%	
	Synthetic fibers	<1%	

Lab ID: 18099803 **Client Sample #: IGDCB-1-03**
Location: IGD Communications Bldg

Layer 1 of 2 **Description:** Gray vinyl

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Vinyl/Binder, Calcareous particles	None Detected	ND	**None Detected ND**

Layer 2 of 2 **Description:** Gray fibrous backing with tan mastic

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Mastic/Binder, Fine grains, Fine particles	Cellulose	36%	**None Detected ND**
Fine grains, Calcareous particles	Glass fibers	26%	

Lab ID: 18099804 **Client Sample #: IGDCB-2-01**
Location: IGD Communications Bldg

Layer 1 of 1 **Description:** Gray rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Vinyl/Binder	None Detected	ND	**None Detected ND**

Lab ID: 18099805 **Client Sample #: IGDCB-2-02**
Location: IGD Communications Bldg

Layer 1 of 2 **Description:** Gray rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Vinyl/Binder	None Detected	ND	**None Detected ND**

Sampled by: Client
Analyzed by: William Minor **Date:** 10/08/2018
Reviewed by: Nick Ly **Date:** 10/08/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Communications Bldg

Batch #: 1819479.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** White firm mastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Mastic/Binder, Calcareous particles, Fine particles	Cellulose 2%	**None Detected ND**
	Synthetic fibers <1%	
	Spider silk <1%	

Lab ID: 18099806 **Client Sample #: IGDCB-2-03**

Location: IGD Communications Bldg

Layer 1 of 2 **Description:** Gray rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Vinyl/Binder	None Detected ND	**None Detected ND**

Layer 2 of 2 **Description:** White firm mastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Mastic/Binder, Calcareous particles, Fine particles	Cellulose 2%	**None Detected ND**

Lab ID: 18099807 **Client Sample #: IGDCB-3-01**

Location: IGD Communications Bldg

Layer 1 of 3 **Description:** White compacted powdery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous binder, Calcareous particles	Cellulose <1%	**None Detected ND**

Layer 2 of 3 **Description:** White compacted powdery material with paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous binder, Calcareous particles	Cellulose 2%	**None Detected ND**

Layer 3 of 3 **Description:** Peach chalky material with paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Gypsum/Binder, Fine particles, Metal	Cellulose 22%	**None Detected ND**

Sampled by: Client
Analyzed by: William Minor **Date:** 10/08/2018
Reviewed by: Nick Ly **Date:** 10/08/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Communications Bldg

Batch #: 1819479.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

			Glass fibers	2%

Lab ID: 18099808 **Client Sample #: IGDCB-3-02**
Location: IGD Communications Bldg

Layer 1 of 3	**Description:** White compacted powdery material				
	Non-Fibrous Materials:	Other Fibrous Materials:%			**Asbestos Type: %**
	Calcareous binder, Calcareous particles	Cellulose	2%		**None Detected ND**
Layer 2 of 3	**Description:** White compacted powdery material with paper				
	Non-Fibrous Materials:	Other Fibrous Materials:%			**Asbestos Type: %**
	Calcareous binder, Calcareous particles	Cellulose	2%		**None Detected ND**
Layer 3 of 3	**Description:** Peach chalky material with paper & paint				
	Non-Fibrous Materials:	Other Fibrous Materials:%			**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose	24%		**None Detected ND**
		Glass fibers	3%		

Lab ID: 18099809 **Client Sample #: IGDCB-3-03**
Location: IGD Communications Bldg
Comments: Unsure of correct layer sequence.

Layer 1 of 4	**Description:** White compacted powdery material				
	Non-Fibrous Materials:	Other Fibrous Materials:%			**Asbestos Type: %**
	Calcareous binder, Calcareous particles	Cellulose	2%		**None Detected ND**
Layer 2 of 4	**Description:** White chalky material with paper				
	Non-Fibrous Materials:	Other Fibrous Materials:%			**Asbestos Type: %**
	Gypsum/Binder	Cellulose	18%		**None Detected ND**
		Glass fibers	3%		

Sampled by: Client
Analyzed by: William Minor **Date:** 10/08/2018
Reviewed by: Nick Ly **Date:** 10/08/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Communications Bldg

Batch #: 1819479.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 3 of 4	**Description:** White compacted powdery material		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Calcareous binder, Calcareous particles	Cellulose <1%	**None Detected ND**
Layer 4 of 4	**Description:** Peach chalky material with paper		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose 22%	**None Detected ND**
		Glass fibers 3%	

Sampled by: Client
Analyzed by: William Minor **Date:** 10/08/2018
Reviewed by: Nick Ly **Date:** 10/08/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819479.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Communications Bldg

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 9 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099801	IGDCB-1-01		A
2	18099802	IGDCB-1-02		A
3	18099803	IGDCB-1-03		A
4	18099804	IGDCB-2-01		A
5	18099805	IGDCB-2-02		A
6	18099806	IGDCB-2-03		A
7	18099807	IGDCB-3-01		A
8	18099808	IGDCB-3-02		A
9	18099809	IGDCB-3-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	William Minor		NVL	10/8/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 11:11 AM
Entered By: Emily Schubert

1819479

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM Corporation
Address: 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: (206) 240 - 0644
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920 Task 2.4
Project Location: IGD COMMUNICATIONS BLDG.

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: email Nicole Gladu. EMAIL EDD ALONG WITH RESULTS
☐ Call ( ) - ☐ Fax ( ) - ☑ Email shannon.mackay@aecom.com

Total Number of Samples 9

	Sample ID	Description	A/R
1	IGDCB-1-01		
2	" -1-02		
3	" -1-03		
4	" -2-01		
5	" -2-02		
6	" -2-03		
7	" -3-01		
8	" -3-02		
9	" -3-03		
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC		AECOM	9/14/18	8am - 4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Smithell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 8, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819458.00

Client Project: 60537920 Task 2.4
Location: IGD Diversion Tunnel Intake

Dear Ms. Gladu,

Enclosed please find test results for the 6 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Diversion Tunnel Intake

Batch #: 1819458.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 6
Samples Analyzed: 6
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099686 **Client Sample #: IGDDTI-1-01**
Location: IGD Diversion Tunnel Intake

Layer 1 of 1 **Description:** Off-white crumbly material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Fine grains	Cellulose 3%	**Chrysotile 5%**

Lab ID: 18099687 **Client Sample #: IGDDTI-1-02**
Location: IGD Diversion Tunnel Intake

Layer 1 of 1 **Description:** Gray crumbly material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Fine grains	Cellulose 2%	**Chrysotile 6%**
	Spider silk 2%	

Lab ID: 18099688 **Client Sample #: IGDDTI-1-03**
Location: IGD Diversion Tunnel Intake

Layer 1 of 2 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Paint	Cellulose 1%	**None Detected ND**

Layer 2 of 2 **Description:** Gray crumbly material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Fine grains	Cellulose 2%	**Chrysotile 6%**

Lab ID: 18099689 **Client Sample #: IGDDTI-2-01**
Location: IGD Diversion Tunnel Intake

Layer 1 of 1 **Description:** Beige rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Rubber/Binder, Fine particles	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Akane Yoshikawa **Date:** 10/08/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Diversion Tunnel Intake

Batch #: 1819458.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 6
Samples Analyzed: 6
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099690 **Client Sample #: IGDDTI-2-02**
Location: IGD Diversion Tunnel Intake
Layer 1 of 1 **Description:** Beige rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Rubber/Binder, Fine particles, Insect parts	Spider silk 2%	**None Detected ND**

Lab ID: 18099691 **Client Sample #: IGDDTI-2-03**
Location: IGD Diversion Tunnel Intake
Layer 1 of 1 **Description:** Beige rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Rubber/Binder, Fine particles	Synthetic fibers 3%	**None Detected ND**

Sampled by: Client
Analyzed by: Akane Yoshikawa **Date:** 10/08/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector.

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819458.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Diversion Tunnel Intake

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 6 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099686	IGDDTI-1-01		A
2	18099687	IGDDTI-1-02		A
3	18099688	IGDDTI-1-03		A
4	18099689	IGDDTI-2-01		A
5	18099690	IGDDTI-2-02		A
6	18099691	IGDDTI-2-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Akane Yoshikawa		NVL	10/8/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 10:10 AM
Entered By: Shaina Mitchell

1819458

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM Corporation
Address: 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: (206) 240 - 0644
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920 Task 2.4
Project Location: IGD DIVERSION TUNNEL INTAKE

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: email Nicole Gladu ~~EMAIL EDD ALONG WITH RESULTS~~
☐ Call ( ) ☐ Fax ( ) ☑ Email: shannon.mackay@aecom.com

Total Number of Samples 6

	Sample ID	Description	A/R
1	IGDDTI-1-01		
2	" - 1-02		
3	" - 1-03		
4	" - 2-01		
5	" - 2-02		
6	" - 2-03		
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC		AECOM	9/17-9/18/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 8, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819469.00

Client Project: 60537920 Task 2.4
Location: IGP Emergency Spill Equipment Shed

Dear Ms. Gladu,

Enclosed please find test results for the 3 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGP Emergency Spill Equipment Shed

Batch #: 1819469.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 3
Samples Analyzed: 3
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099731 **Client Sample #: IGDES-1-01**
Location: IGP Emergency Spill Equipment Shed

Layer 1 of 1	**Description:** Black asphaltic fibrous material with granules		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Granules, Fine grains	Glass fibers 60%	**None Detected ND**

Lab ID: 18099732 **Client Sample #: IGDES-1-02**
Location: IGP Emergency Spill Equipment Shed

Layer 1 of 1	**Description:** Black asphaltic fibrous material with granules		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Granules, Fine particles	Glass fibers 63%	**None Detected ND**

Lab ID: 18099733 **Client Sample #: IGDES-1-03**
Location: IGP Emergency Spill Equipment Shed

Layer 1 of 1	**Description:** Black asphaltic fibrous material with granules		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Granules, Fine particles	Glass fibers 62%	**None Detected ND**

Sampled by: Client
Analyzed by: Michael Jenkins **Date:** 10/08/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819469.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGP Emergency Spill Equipment Shed

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099731	IGDES-1-01		A
2	18099732	IGDES-1-02		A
3	18099733	IGDES-1-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Michael Jenkins		NVL	10/8/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 10:45 AM
Entered By: Shaina Mitchell

1819469

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Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM Corporation	Project Manager	Nicole Gladu
Address	1111 3rd Avenue, Suite 1600 Seattle, WA 98101	Cell	(206) 240 - 0644
		Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number: 60537920 Task 2.4 | Project Location: IGP EMERGENCY SPILL EQUIPMENT SHED

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: email Nicole Gladu
☐ Call ( ) - ☐ Fax ( ) - ☑ Email: shannon.mackay@aecom.com

Total Number of Samples 3

	Sample ID	Description	A/R
1	IGDES-1-01		
2	" -1-02		
3	" -1-03		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC		AECOM	9/14/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by				10/10/18	1200
Called by					
Faxed/Email by					

October 8, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819460.00

Client Project: 60537920 Task 2.4
Location: IGD Fish Holding Facilities

Dear Ms. Gladu,

Enclosed please find test results for the 3 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Fish Holding Facilities

Batch #: 1819460.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 3
Samples Analyzed: 3
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099704 **Client Sample #: IGDFHF-1-01**
Location: IGD Fish Holding Facilities
Layer 1 of 1 **Description:** Gray soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Fine particles	Cellulose 1%	**Chrysotile 4%**

Lab ID: 18099705 **Client Sample #: IGDFHF-1-02**
Location: IGD Fish Holding Facilities
Layer 1 of 1 **Description:** Gray soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Fine particles	Cellulose <1%	**Chrysotile 6%**

Lab ID: 18099706 **Client Sample #: IGDFHF-1-03**
Location: IGD Fish Holding Facilities
Layer 1 of 1 **Description:** Gray soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Fine particles	Cellulose <1%	**Chrysotile 4%**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 10/08/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector.

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819460.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Fish Holding Facilities

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099704	IGDFHF-1-01		A
2	18099705	IGDFHF-1-02		A
3	18099706	IGDFHF-1-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Matthew McCallum		NVL	10/8/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 10:12 AM
Entered By: Shaina Mitchell

1819460

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company AECOM Corporation
Address 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone 206.438.2700

Project Manager Nicole Gladu
Cell (206) 240 - 0644
Email nicole.gladu@aecom.com
Fax (866) 495 - 5288

Project Name/Number 60537920 Task 2.4
Project Location IDG FISH HOLDING FACILITIES

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions email Nicole Gladu. ~~EMAIL EDD ALONG WITH RESULTS~~
☐ Call ( ) ☐ Fax ( ) ☑ Email shannon.mackay@aecom.com

Total Number of Samples 3

	Sample ID	Description	A/R
1	~~IGD~~ IGD FHF-1-01		
2	" -1-02		
3	" -1-03		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC		AECOM	9/17-9/18/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 5, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819456.00

Client Project: 60537920 Task 2.4
Location: IGD Penstock Intake Structure

Dear Ms. Gladu,

Enclosed please find test results for the 9 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Penstock Intake Structure

Batch #: 1819456.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099657 **Client Sample #: IGDPIS-1-01**
Location: IGD Penstock Intake Structure

Layer 1 of 1	**Description:** Gray putty material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Putty Compound, Calcareous particles	None Detected	ND	**Chrysotile 5%**

Lab ID: 18099658 **Client Sample #: IGDPIS-1-02**
Location: IGD Penstock Intake Structure

Layer 1 of 1	**Description:** Gray putty material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Putty Compound, Calcareous particles	None Detected	ND	**Chrysotile 4%**

Lab ID: 18099659 **Client Sample #: IGDPIS-1-03**
Location: IGD Penstock Intake Structure

Layer 1 of 1	**Description:** Gray putty material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Putty Compound, Calcareous particles	Cellulose	<1%	**Chrysotile 4%**

Lab ID: 18099660 **Client Sample #: IGDPIS-2-01**
Location: IGD Penstock Intake Structure

Layer 1 of 2	**Description:** Tan soft elastic material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Caulking compound, Paint	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Gray brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Mineral grains, Fine particles	None Detected	ND	**None Detected ND**

Lab ID: 18099661 **Client Sample #: IGDPIS-2-02**
Location: IGD Penstock Intake Structure

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 10/05/2018
Reviewed by: Matt Macfarlane **Date:** 10/05/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Penstock Intake Structure

Batch #: 1819456.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Tan soft elastic material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Caulking compound, Paint, Rust	None Detected	ND	**None Detected ND**

Lab ID: 18099662 **Client Sample #: IGDPIS-2-03**
Location: IGD Penstock Intake Structure

Layer 1 of 1 **Description:** Tan soft elastic material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Caulking compound, Paint, Rust	None Detected	ND	**None Detected ND**

Lab ID: 18099663 **Client Sample #: IGDPIS-3-01**
Location: IGD Penstock Intake Structure

Layer 1 of 1 **Description:** Off-white soft elastic material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Caulking compound, Calcareous particles, Paint	None Detected	ND	**None Detected ND**

Lab ID: 18099664 **Client Sample #: IGDPIS-3-02**
Location: IGD Penstock Intake Structure

Layer 1 of 2 **Description:** Beige soft material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Caulking compound, Paint, Calcareous particles	Cellulose	<1%	**None Detected ND**

Layer 2 of 2 **Description:** White compacted powdery material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Calcareous binder, Paint	None Detected	ND	**None Detected ND**

Lab ID: 18099665 **Client Sample #: IGDPIS-3-03**
Location: IGD Penstock Intake Structure

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 10/05/2018
Reviewed by: Matt Macfarlane **Date:** 10/05/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Penstock Intake Structure

Batch #: 1819456.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Off-white soft elastic material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Caulking compound, Calcareous particles, Paint	Cellulose <1%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 10/05/2018
Reviewed by: Matt Macfarlane **Date:** 10/05/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819456.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Penstock Intake Structure

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 9 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099657	IGDPIS-1-01		A
2	18099658	IGDPIS-1-02		A
3	18099659	IGDPIS-1-03		A
4	18099660	IGDPIS-2-01		A
5	18099661	IGDPIS-2-02		A
6	18099662	IGDPIS-2-03		A
7	18099663	IGDPIS-3-01		A
8	18099664	IGDPIS-3-02		A
9	18099665	IGDPIS-3-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Welly Hsieh		NVL	10/5/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 10:05 AM
Entered By: Shaina Mitchell

1819456

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM Corporation
Address: 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: (206) 240 - 0644
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920 Task 2.4
Project Location: IGD PENSTOCK INTAKE STRUCTURE

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: email Nicole Gladu EMAIL EDD ALONG WITH RESULTS
☐ Call ( ) - ☐ Fax ( ) - ☑ Email: shannon.mackay@aecom.com

Total Number of Samples 9

	Sample ID	Description	A/R
1	IGDPIS-1-01		
2	" - 1-02		
3	" - 1-03		
4	" - 2-01		
5	" - 2-02		
6	" - 2-03		
7	" - 3-01		
8	" - 3-02		
9	" - 3-03		
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC	David Simon	AECOM	9/17/18-9/18/18	8am-4pm
Relinquish by	Shannon MacKay	SMK	AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

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October 8, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819446.00

Client Project: 60537920 Task 2.4
Location: IGD Penstock

Dear Ms. Gladu,

Enclosed please find test results for the 12 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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1.888.(685.5227)
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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Penstock

Batch #: 1819446.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099619 **Client Sample #: IGDPS-1-01**
Location: IGD Penstock

Layer 1 of 1	**Description:** Black asphaltic mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Glass fibers	4%	**None Detected ND**

Lab ID: 18099620 **Client Sample #: IGDPS-1-02**
Location: IGD Penstock

Layer 1 of 1	**Description:** Black asphaltic mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Glass fibers	5%	**None Detected ND**

Lab ID: 18099621 **Client Sample #: IGDPS-1-03**
Location: IGD Penstock

Layer 1 of 1	**Description:** Black asphaltic mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Glass fibers	4%	**None Detected ND**

Lab ID: 18099622 **Client Sample #: IGDPS-2-01**
Location: IGD Penstock

Layer 1 of 2	**Description:** Silver-colored reflective coating with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Metal, Paint	Cellulose	1%	**None Detected ND**
Layer 2 of 2	**Description:** Black asphaltic mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Cellulose	6%	**None Detected ND**

Lab ID: 18099623 **Client Sample #: IGDPS-2-02**
Location: IGD Penstock

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 10/06/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector.

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Penstock

Batch #: 1819446.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Silver-colored reflective coating with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Metal, Paint	Cellulose	2%	**None Detected ND**
Layer 2 of 2	**Description:** Black asphaltic mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Cellulose	4%	**None Detected ND**

Lab ID: 18099624 **Client Sample #: IGDPS-2-03**
Location: IGD Penstock

Layer 1 of 2	**Description:** Silver-colored reflective coating with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Metal, Paint	Cellulose	1%	**None Detected ND**
Layer 2 of 2	**Description:** Black asphaltic mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Cellulose	5%	**None Detected ND**

Lab ID: 18099625 **Client Sample #: IGDPS-3-01**
Location: IGD Penstock

Layer 1 of 1	**Description:** Brown fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Organic debris	Synthetic fibers	75%	**None Detected ND**
		Cellulose	12%	

Lab ID: 18099626 **Client Sample #: IGDPS-3-02**
Location: IGD Penstock

Layer 1 of 1	**Description:** Brown fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Organic debris	Synthetic fibers	78%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 10/06/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Penstock

Batch #: 1819446.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

		Cellulose 11%	

Lab ID: 18099627 **Client Sample #: IGDPS-3-03**
Location: IGD Penstock

Layer 1 of 1 **Description:** Brown fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Organic debris	Synthetic fibers 74%	**None Detected ND**
	Cellulose 14%	

Lab ID: 18099628 **Client Sample #: IGDPS-6-01**
Location: IGD Penstock

Layer 1 of 1 **Description:** Black asphaltic mastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Miscellaneous particles	Glass fibers 1%	**None Detected ND**

Lab ID: 18099629 **Client Sample #: IGDPS-6-02**
Location: IGD Penstock

Layer 1 of 1 **Description:** Black asphaltic mastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Miscellaneous particles	None Detected ND	**None Detected ND**

Lab ID: 18099630 **Client Sample #: IGDPS-6-03**
Location: IGD Penstock

Layer 1 of 1 **Description:** Black asphaltic mastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Miscellaneous particles	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 10/06/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819446.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Penstock

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 12 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099619	IGDPS-1-01		A
2	18099620	IGDPS-1-02		A
3	18099621	IGDPS-1-03		A
4	18099622	IGDPS-2-01		A
5	18099623	IGDPS-2-02		A
6	18099624	IGDPS-2-03		A
7	18099625	IGDPS-3-01		A
8	18099626	IGDPS-3-02		A
9	18099627	IGDPS-3-03		A
10	18099628	IGDPS-6-01		A
11	18099629	IGDPS-6-02		A
12	18099630	IGDPS-6-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Daniel		NVL	10/6/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 9:42 AM
Entered By: Emily Schubert

1819446

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company AECOM Corporation
Address 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone 206.438.2700

Project Manager Nicole Gladu
Cell (206) 240 - 0644
Email nicole.gladu@aecom.com
Fax (866) 495 - 5288

Project Name/Number 60537920 Task 2.4
Project Location SMA IGD PENSTOCK

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions email Nicole Gladu. EMAIL EDD ALONG WITH RESULTS
☐ Call ( ) - ☐ Fax ( ) - ☑ Email shannon.mackay@aecom.com

Total Number of Samples 12

	Sample ID	Description	A/R
1	IGDPS-1-01		
2	" -1-02		
3	" -1-03		
4	" -2-01		
5	" -2-02		
6	" -2-03		
7	" -3-01		
8	" -3-02		
9	" -3-03		
10	" -6-01		
11	" -6-02		
12	" -6-03		
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC		AECOM	9/14/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/2/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 5, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819495.00

Client Project: 60537920 Task 2.4
Location: IGD Powerhouse

Dear Ms. Gladu,

Enclosed please find test results for the 9 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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www.nvllabs.com

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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Powerhouse

Batch #: 1819495.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099908 **Client Sample #: IGDPH-1-01**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Gray putty material with silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Calcareous particles, Metallic paint	None Detected ND	**Chrysotile 4%**

Lab ID: 18099909 **Client Sample #: IGDPH-1-02**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Gray putty material with silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Calcareous particles, Metallic paint	None Detected ND	**Chrysotile 5%**

Lab ID: 18099910 **Client Sample #: IGDPH-1-03**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Gray putty material with silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Calcareous particles, Metallic paint	None Detected ND	**Chrysotile 4%**

Lab ID: 18099911 **Client Sample #: IGDPH-3-01**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Gray soft elastic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Caulking compound	None Detected ND	**None Detected ND**

Lab ID: 18099912 **Client Sample #: IGDPH-3-02**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Gray soft elastic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Caulking compound, Fine particles	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 10/05/2018
Reviewed by: Matt Macfarlane **Date:** 10/05/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector.

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Powerhouse

Batch #: 1819495.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 9
Samples Analyzed: 9
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099913 **Client Sample #: IGDPH-3-03**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Gray soft elastic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Caulking compound, Synthetic foam	None Detected ND	**None Detected ND**

Lab ID: 18099914 **Client Sample #: IGDPH-4-01**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Brown/clear brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	None Detected ND	**None Detected ND**

Lab ID: 18099915 **Client Sample #: IGDPH-4-02**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Brown/clear brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mineral grains	None Detected ND	**None Detected ND**

Lab ID: 18099916 **Client Sample #: IGDPH-4-03**
Location: IGD Powerhouse
Layer 1 of 1 **Description:** Brown/clear brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mineral grains	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 10/05/2018
Reviewed by: Matt Macfarlane **Date:** 10/05/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector.

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819495.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Powerhouse

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 9 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099908	IGDPH-1-01		A
2	18099909	IGDPH-1-02		A
3	18099910	IGDPH-1-03		A
4	18099911	IGDPH-3-01		A
5	18099912	IGDPH-3-02		A
6	18099913	IGDPH-3-03		A
7	18099914	IGDPH-4-01		A
8	18099915	IGDPH-4-02		A
9	18099916	IGDPH-4-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Welly Hsieh		NVL	10/5/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 11:50 AM
Entered By: Emily Schubert

1819495

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM Corporation
Address: 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: (206) 240 - 0644
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920 Task 2.4
Project Location: IGD POWERHOUSE

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: email Nicole Gladu - EMAIL EDD ALONG WITH RESULTS
☐ Call ( ) ☐ Fax ( ) ☑ Email shannon.mackay@aecom.com

Total Number of Samples 9

	Sample ID	Description	A/R
1	IGDPH-1-01		
2	" - 1-02		
3	" - 1-03		
4	" - 3-01		
5	" - 3-02		
6	" - 3-03		
7	" - 4-01		
8	" - 4-02		
9	" - 4-03		
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC	David Simon	AECOM	9/17 - 9/18/18	8am-4pm
Relinquish by	Shannon MacKay	SMM	AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 8, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1819509.00

Client Project: 60537920 Task 2.4
Location: IGD Restroom

Dear Ms. Gladu,

Enclosed please find test results for the 3 sample(s) submitted to our laboratory for analysis on 10/2/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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1.888.(685.5227)
www.nvllabs.com

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Restroom

Batch #: 1819509.00
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 3
Samples Analyzed: 3
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18099987 **Client Sample #: IGDRR-1-01**
Location: IGD Restroom
Layer 1 of 1 **Description:** White brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Mineral grains	Spider silk 4%	**None Detected ND**

Lab ID: 18099988 **Client Sample #: IGDRR-1-02**
Location: IGD Restroom
Layer 1 of 1 **Description:** White brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Mineral grains	Spider silk 2%	**None Detected ND**

Lab ID: 18099989 **Client Sample #: IGDRR-1-03**
Location: IGD Restroom
Layer 1 of 1 **Description:** White brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Mineral grains	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Michael Jenkins **Date:** 10/08/2018
Reviewed by: Matt Macfarlane **Date:** 10/08/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector.

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819509.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Restroom

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099987	IGDRR-1-01		A
2	18099988	IGDRR-1-02		A
3	18099989	IGDRR-1-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Michael Jenkins		NVL	10/8/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 12:11 PM
Entered By: Emily Schubert

1819509

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 4 Days
- ☐ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM Corporation
Address: 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: (206) 240 - 0644
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920 Task 2.4
Project Location: IGD RESTROOM

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Other
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: email Nicole Gladu.
☐ Call ( ) - ☐ Fax ( ) - ☑ Email: shannon.mackay@aecom.com

Total Number of Samples _____

	Sample ID	Description	A/R
1	IGDRR-1-01		
2	" -1-02		
3	" -1-03		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	David Simon, CAC		AECOM	9/14/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 5, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
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RE: Metals Analysis; NVL Batch # 1819531.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

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AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
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Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Diversion Tunnel Intake

Batch #: 1819531.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 2
Samples Analyzed: 2

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18100026	IGDDTI-Pb1-01	0.2157	46	470	0.047
18100027	IGDDTI-Pb2-01	0.1976	51	1500	0.15

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 10/05/2018
Date Issued: 10/05/2018

Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-1004-13

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LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819531.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Diversion Tunnel Intake

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 2 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18100026	IGDDTI-Pb1-01		A
2	18100027	IGDDTI-Pb2-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Yasuyuki Hida		NVL	10/5/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 1:07 PM
Entered By: Emily Schubert

1819531

NVL
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METALS CHAIN OF CUSTODY

Turn Around Time
- ❑ 2 Hour ❑ 4 Hours ❑ 24 Hours
- ❑ 2 Days 3 Days ☑ 4 Days
- ❑ 5 Days ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 3rd Avenue, Suite 1600	Cell	(206) 240 - 0644
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206-438-2700	Fax	(206) 495 - 5288

Project Name/Number 60537920 Task 2.4 | Project Location IGD DIVERSION TUNNEL INTAKE

☒ Total Metals	☒ FAA (ppm	❑ Air Filter	☒ Paint Chips (%)	❑ Soil	RCRA 8	RCRA 11
❑ TCLP	❑ ICP (PPM	❑ Paint Chips (cm)	Dust Wipes		❑ Barium ❑ Chromium ❑ Silver	❑ Copper
	❑ GFAA (ppb)	❑ Drinking Water	❑ Waste Water		❑ Arsenic ❑ Mercury ☒ Lead	❑ Zinc
	❑ CVAA (ppb)	❑ Other			❑ Selenium ❑ Cadmium	❑ Other

Reporting Instructions ~~EMAIL EDD ALONG WITH RESULTS~~

❑ Call ( ) ❑ Fax ( ) ☒ Email shannon.mackay@aecom.com

Total Number of Samples

	Sample ID	Description	A/R
1	IGD DTI - Pb1 - 01		
2	" - Pb2 - 01		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Shannon MacKay/David Simon		AECOM	9/17/18-9/18/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1819511.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

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ISO/IEC 17025:2005
LAB # 101861

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p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: **Ms. Nicole Gladu**
Project Location: IGD Emergency Spill Equipment Shed

Batch #: 1819511.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18099992	IGDES-Pb1-01	0.0697	140	< 140	<0.014

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 10/04/2018
Date Issued: 10/04/2018

Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-1004-8

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819511.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Emergency Spill Equipment Shed

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099992	IGDES-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Yasuyuki Hida		NVL	10/4/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 12:13 PM
Entered By: Emily Schubert

1819511

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

METALS CHAIN OF CUSTODY

Turn Around Tin
- ❑ 2 Hour ❑ 4 Hours ❑ 24 Hours
- ❑ 2 Days 3 Days ☑ 4 Days
- ❑ 5 Days ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company AECOM
Address 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone 206-438-2700

Project Manager Nicole Gladu
Cell (206) 240 - 0644
Email nicole.gladu@aecom.com
Fax (206) 495 - 5288

Project Name/Number 60537920 Task 2.4
Project Location IGD EMERGENCY SPILL EQUIPMENT SHED

- ☒ Total Metals ❑ TCLP
- ☒ FAA (ppm ❑ ICP (PPM ❑ GFAA (ppb) ❑ CVAA (ppb)
- ❑ Air Filter ❑ Paint Chips (cm) ❑ Drinking Water ❑ Other
- ☒ Paint Chips (%) Dust Wipes ❑ Waste Water ❑ Soil

RCRA 8
- ❑ Barium ❑ Chromium ❑ Silver
- ❑ Arsenic ❑ Mercury ☒ Lead
- ❑ Selenium ❑ Cadmium

RCRA 11
- ❑ Copper
- ❑ Zinc
- ❑ Other

Reporting Instructions EMAIL TEDL ALONG WITH RESULTS
❑ Call ( ) ❑ Fax ( ) ☒ Email shannon.mackay@aecom.com

Total Number of Samples 1

	Sample ID	Description	A/R
1	IGDES-Pb1-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Shannon MacKay/David Simon		AECOM	9/14/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1400
Analyzed by					
Called by					
Faxed/Email by					

October 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1819426.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IDG Fish Holding Facilities and Ponds

Batch #: 1819426.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 3
Samples Analyzed: 3

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18099568	IDGFHF-Pb1-01	0.1950	51	500	0.050
18099569	IDGFHF-Pb2-01	0.2016	50	< 50	<0.0050
18099570	IDGFHF-Pb3-01	0.1990	50	110000	11

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel
Date Analyzed: 10/04/2018
Date Issued: 10/04/2018

Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-1004-3

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819426.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IDG Fish Holding Facilities and Ponds

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099568	IDGFHF-Pb1-01		A
2	18099569	IDGFHF-Pb2-01		A
3	18099570	IDGFHF-Pb3-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Yasuyuki Hida		NVL	10/4/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 7:54 AM
Entered By: Emily Schubert

1819426

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ❑ 2 Hour ❑ 4 Hours ❑ 24 Hours
- ❑ 2 Days 3 Days ☑ 4 Days
- ❑ 5 Days ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone: 206-438-2700

Project Manager: Nicole Gladu
Cell: (206) 240-0644
Email: nicole.gladu@aecom.com
Fax: (206) 495-5288

Project Name/Number: 60537920 Task 2.4
Project Location: IDG FISH HOLDING FACILITIES AND PONDS

- ☒ Total Metals ❑ TCLP
- ☒ FAA (ppm ❑ ICP (PPM ❑ GFAA (ppb) ❑ CVAA (ppb)
- ❑ Air Filter ❑ Paint Chips (cm) ❑ Drinking Water ❑ Other
- ☒ Paint Chips (%) Dust Wipes ❑ Waste Water ❑ Soil
- RCRA 8: ❑ Barium ❑ Chromium ❑ Silver ❑ Arsenic ❑ Mercury ☒ Lead ❑ Selenium ❑ Cadmium
- RCRA 11: ❑ Copper ❑ Zinc ❑ Other

Reporting Instructions: EMAIL EDD ALONG WITH RESULTS
❑ Call ( ) ❑ Fax ( ) ☒ Email: shannon.mackay@aecom.com

Total Number of Samples 3

	Sample ID	Description	A/R
1	IDGFHF-Pb1-01		
2	" -Pb2-01		
3	" -Pb3-01	Pond	
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Shannon MacKay/David Simon		AECOM	9/17/18-9/18/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1819503.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

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This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Penstock Intake Structure

Batch #: 1819503.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18099951	IGDPIS-Pb1-01	0.1977	51	140	0.014

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 10/04/2018
Date Issued: 10/04/2018

Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-1004-8

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819503.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Penstock Intake Structure

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099951	IGDPIS-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Yasuyuki Hida		NVL	10/4/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 12:03 PM
Entered By: Shaina Mitchell

1819503

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ❑ 2 Hour
- ❑ 4 Hours
- ❑ 24 Hours
- ❑ 2 Days
- 3 Days
- ☒ 4 Days
- ❑ 5 Days
- ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 3rd Avenue, Suite 1600	Cell	(206) 240 - 0644
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206-438-2700	Fax	(206) 495 - 5288

Project Name/Number 60537920 Task 2.4 | Project Location IGD PENSTOCK INTAKE STRUCTURE

☒ Total Metals	☒ FAA (ppm	❑ Air Filter	☒ Paint Chips (%)	❑ Soil	RCRA 8			RCRA 11
❑ TCLP	❑ ICP (PPM	❑ Paint Chips (cm)	Dust Wipes		❑ Barium	❑ Chromium	❑ Silver	❑ Copper
	❑ GFAA (ppb)	❑ Drinking Water	❑ Waste Water		❑ Arsenic	❑ Mercury	☒ Lead	❑ Zinc
	❑ CVAA (ppb)	❑ Other			❑ Selenium	❑ Cadmium		❑ Other

Reporting Instructions EMAIL EDD ALONG WITH RESULTS

❑ Call ( ) | ❑ Fax ( ) | ☒ Email shannon.mackay@aecom.com

Total Number of Samples 1

	Sample ID	Description	A/R
1	IGDPIS-Pb1-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Shannon MacKay/David Simon		AECOM	9/17/18-9/18/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1819536.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

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Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Penstock

Batch #: 1819536.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 2
Samples Analyzed: 2

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18100035	IGDPS-Pb1-01	0.1355	74	65000	6.5
18100036	IGDPS-Pb2-01	0.2030	49	60	0.0060

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 10/04/2018
Date Issued: 10/04/2018

Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-1004-3

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819536.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Penstock

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 2 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18100035	IGDPS-Pb1-01		A
2	18100036	IGDPS-Pb2-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Yasuyuki Hida		NVL	10/4/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 1:13 PM
Entered By: Emily Schubert

1819536

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ❑ 2 Hour ❑ 4 Hours ❑ 24 Hours
- ❑ 2 Days 3 Days ☑ 4 Days
- ❑ 5 Days ❑ 6-10 Days
- Please call for TAT less than 24 Hours

Company AECOM
Address 1111 3rd Avenue, Suite 1600
Seattle, WA 98101
Phone 206-438-2700

Project Manager Nicole Gladu
Cell (206) 240-0644
Email nicole.gladu@aecom.com
Fax (206) 495-5288

Project Name/Number 60537920 Task 2.4
Project Location IGD PENSTOCK

☒ Total Metals	☒ FAA (ppm	❑ Air Filter	☒ Paint Chips (%)	❑ Soil	RCRA 8	RCRA 11
❑ TCLP	❑ ICP (PPM	❑ Paint Chips (cm)	Dust Wipes		❑ Barium ❑ Chromium ❑ Silver	❑ Copper
	❑ GFAA (ppb)	❑ Drinking Water	❑ Waste Water		❑ Arsenic ❑ Mercury ☒ Lead	❑ Zinc
	❑ CVAA (ppb)	❑ Other			❑ Selenium ❑ Cadmium	❑ Other

Reporting Instructions EMAIL EDD ALONG WITH RESULTS
❑ Call ( ) ❑ Fax ( ) ☒ Email shannon.mackay@aecom.com

Total Number of Samples 2

	Sample ID	Description	A/R
1	IGDPS-Pb1-01		
2	IGDPS-Pb2-01		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Shannon MacKay/David Simon		AECOM	9/14/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	SMITHELL		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 5, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1819427.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

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Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

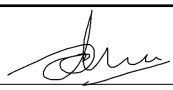
Attention: **Ms. Nicole Gladu**
Project Location: IGD Powerhouse

Batch #: 1819427.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 5
Samples Analyzed: 5

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18099571	IGDPH-Pb1-01	0.1436	70	83000	8.3
18099572	IGDPH-Pb2-01	0.1590	63	980	0.098
18099573	IGDPH-Pb3-01	0.1602	62	7200	0.72
18099574	IGDPH-Pb4-01	0.1754	57	860	0.086
18099575	IGDPH-Pb5-01	0.0095	530	150000	15

Comments: Small sample size (<0.05g) for IGDPH-Pb5-01.

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel
Date Analyzed: 10/05/2018
Date Issued: 10/05/2018



Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-1005-3

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819427.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Powerhouse

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 5 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099571	IGDPH-Pb1-01		A
2	18099572	IGDPH-Pb2-01		A
3	18099573	IGDPH-Pb3-01		A
4	18099574	IGDPH-Pb4-01		A
5	18099575	IGDPH-Pb5-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Yasuyuki Hida		NVL	10/5/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 7:56 AM
Entered By: Emily Schubert

1819427

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ❑ 2 Hour ❑ 4 Hours ❑ 24 Hours
- ❑ 2 Days 3 Days ☒ 4 Days
- ❑ 5 Days ❑ 6-10 Days
- Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 3rd Avenue, Suite 1600	Cell	(206) 240 - 0644
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206-438-2700	Fax	(206) 495 - 5288

Project Name/Number 60537920 Task 2.4 | Project Location IGD POWERHOUSE

☒ Total Metals	☒ FAA (ppm	❑ Air Filter	☒ Paint Chips (%)	❑ Soil	RCRA 8	RCRA 11
❑ TCLP	❑ ICP (PPM	❑ Paint Chips (cm)	Dust Wipes		❑ Barium ❑ Chromium ❑ Silver	❑ Copper
	❑ GFAA (ppb)	❑ Drinking Water	❑ Waste Water		❑ Arsenic ❑ Mercury ☒ Lead	❑ Zinc
	❑ CVAA (ppb)	❑ Other			❑ Selenium ❑ Cadmium	❑ Other

Reporting Instructions EMAIL EDD ALONG WITH RESULTS

❑ Call ( ) ❑ Fax ( ) ☒ Email shannon.mackay@aecom.com

Total Number of Samples 5

	Sample ID	Description	A/R
1	IGDPH-Pb1-01		
2	" - Pb2-01		
3	" - Pb3-01		
4	" - Pb4-01		
5	" - Pb5-01		
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Shannon MacKay/David Simon	SM DS	AECOM	9/17/18 - 9/18/18	8am - 4pm
Relinquish by	Shannon MacKay	SM	AECOM	10/02/18	5pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

October 5, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1819508.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: IGD Spillway

Batch #: 1819508.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920 Task 2.4
Date Received: 10/2/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18099986	IGDSW-Pb1-01	0.0880	110	< 110	<0.011

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 10/05/2018
Date Issued: 10/05/2018

Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-1004-13

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1819508.00**
TAT 4 Days **AH** No
Rush TAT
Due Date 10/8/2018 **Time** 5:00 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920 Task 2.4 **Project Location:** IGD Spillway

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18099986	IGDSW-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Shaina Mitchell		NVL	10/2/18	1700
Analyzed by	Yasuyuki Hida		NVL	10/5/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 10/3/2018
Time: 12:11 PM
Entered By: Shaina Mitchell

1819508

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

Turn Around Tin
- ❑ 2 Hour ❑ 4 Hours ❑ 24 Hours
- ❑ 2 Days 3 Days ☒ 4 Days
- ❑ 5 Days ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 3rd Avenue, Suite 1600	Cell	(206) 240-0644
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206-438-2700	Fax	(206) 495 - 5288

Project Name/Number 60537920 Task 2.4 | Project Location IGD SPILLWAY

☒ Total Metals	☒ FAA (ppm	❑ Air Filter	☒ Paint Chips (%)	❑ Soil	RCRA 8	RCRA 11
❑ TCLP	❑ ICP (PPM	❑ Paint Chips (cm)	Dust Wipes		❑ Barium ❑ Chromium ❑ Silver	❑ Copper
	❑ GFAA (ppb)	❑ Drinking Water	❑ Waste Water		❑ Arsenic ❑ Mercury ☒ Lead	❑ Zinc
	❑ CVAA (ppb)	❑ Other			❑ Selenium ❑ Cadmium	❑ Other

Reporting Instructions EMAIL EDD ALONG WITH RESULTS

❑ Call ( ) - ❑ Fax ( ) - ☒ Email shannon.mackay@aecom.com

Total Number of Samples 1

	Sample ID	Description	A/R
1	IGDSW-Pb1-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Shannon MacKay/David Simon		AECOM	9/17-9/18/18	8am-4pm
Relinquish by	Shannon MacKay		AECOM	10/02/18	5:00pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	S. Mitchell		NVL	10/2/18	1700
Analyzed by					
Called by					
Faxed/Email by					

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

AECOM
Nicole Gladu
1111 3rd Avenue Suite 1600
Seattle, WA 98101

RE: Iron Gate Dam
Work Order Number: 1810400

October 31, 2018

Attention Nicole Gladu:

Fremont Analytical, Inc. received 1 sample(s) on 10/24/2018 for the analyses presented in the following report.

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Shannon Mackay

Date: *10/31/2018*

CLIENT: AECOM
Project: Iron Gate Dam
Work Order: 1810400

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1810400-001	IGDPH-PCB1-01	09/17/2018 11:00 AM	10/24/2018 4:40 PM

Case Narrative

WO#: **1810400**
Date: **10/31/2018**

CLIENT: AECOM
Project: Iron Gate Dam

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1810400**
Date Reported: **10/31/2018**

Client: AECOM
Collection Date: 9/17/2018 11:00:00 AM
Project: Iron Gate Dam
Lab ID: 1810400-001
Matrix: Product
Client Sample ID: **IGDPH-PCB1-01**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)				Batch ID: 22421		Analyst: IH
Aroclor 1016	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Aroclor 1221	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Aroclor 1232	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Aroclor 1242	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Aroclor 1248	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Aroclor 1254	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Aroclor 1260	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Aroclor 1262	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Aroclor 1268	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Total PCBs	ND	1.02		mg/Kg	1	10/31/2018 1:02:25 PM
Surr: Decachlorobiphenyl	194	20 - 191	S	%Rec	1	10/31/2018 1:02:25 PM
Surr: Tetrachloro-m-xylene	103	20 - 173		%Rec	1	10/31/2018 1:02:25 PM

NOTES:
S - Outlying spike recovery observed (high bias). Samples are non-detect for this analyte; no further action required.

Work Order: 1810400
CLIENT: AECOM
Project: Iron Gate Dam

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

Sample ID **MB-22421**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **10/26/2018**	RunNo: **47290**
Client ID: **MBLKS**	Batch ID: **22421**		Analysis Date: **10/31/2018**	SeqNo: **920924**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.100									
Aroclor 1221	ND	0.100									
Aroclor 1232	ND	0.100									
Aroclor 1242	ND	0.100									
Aroclor 1248	ND	0.100									
Aroclor 1254	ND	0.100									
Aroclor 1260	ND	0.100									
Aroclor 1262	ND	0.100									
Aroclor 1268	ND	0.100									
Surr: Decachlorobiphenyl	0.0488		0.05000		97.7	20	191				
Surr: Tetrachloro-m-xylene	0.0562		0.05000		112	20	173				

Sample ID **LCS1-22421**	SampType: **LCS**	Units: **mg/Kg**	Prep Date: **10/26/2018**	RunNo: **47290**
Client ID: **LCSS**	Batch ID: **22421**		Analysis Date: **10/31/2018**	SeqNo: **920925**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	0.954	0.100	1.000	0	95.4	38.4	155				
Aroclor 1260	1.05	0.100	1.000	0	105	42.8	168				
Surr: Decachlorobiphenyl	0.0540		0.05000		108	20	191				
Surr: Tetrachloro-m-xylene	0.0510		0.05000		102	20	173				

Sample ID **LCS1D-22421**	SampType: **LCSD**	Units: **mg/Kg**	Prep Date: **10/26/2018**	RunNo: **47290**
Client ID: **LCSS02**	Batch ID: **22421**		Analysis Date: **10/31/2018**	SeqNo: **920926**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	1.20	0.100	1.000	0	120	38.4	155	0.9542	22.8	30	
Aroclor 1260	1.27	0.100	1.000	0	127	42.8	168	1.047	19.0	30	
Surr: Decachlorobiphenyl	0.0511		0.05000		102	20	191		0		
Surr: Tetrachloro-m-xylene	0.0565		0.05000		113	20	173		0		

Work Order: 1810400
CLIENT: AECOM
Project: Iron Gate Dam

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

Sample ID **LCS2-22421**	SampType: **LCS**		Units: **mg/Kg**	Prep Date: **10/26/2018**		RunNo: **47290**	
Client ID: **LCSS**	Batch ID: **22421**			Analysis Date: **10/31/2018**		SeqNo: **920962**	

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	1.14	0.100	1.000	0	114	40.9	164				
Surr: Decachlorobiphenyl	0.0509		0.05000		102	20	191				
Surr: Tetrachloro-m-xylene	0.0459		0.05000		91.8	20	173				

Sample Log-In Check List

Client Name:	**URS**	Work Order Number:	**1810400**
Logged by:	**Clare Griggs**	Date Received:	**10/24/2018 4:40:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐
		Product Sample		
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☐	No ☐	NA ☑
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	22.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 10/24/2018 Page: 1 of: 1

Laboratory Project No (internal): 1810400

Special Remarks:

Project Name: IRON GATE DAM

Project No: 60537920 Task 2.4

Collected by: David Simon/Shannon Mackay

Location: Iron Gate Dam

Report To (PM): Nicole Gladu

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

PM Email: shannon.mackay@aecom.com

Client: AECOM

Address: 1111 3rd Avenue Ste 1600

City, State, Zip: Seattle, WA 98101

Telephone: 206-999-2112

Fax:

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	PCB 8270				Comments
1	IGDPH-PCB1-01	9/17/18	11am	P														X				
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished x [signature] Date/Time 10/24/2018 16:40

Relinquished x Date/Time

Received x [signature] Date/Time 10/24/18 ## 1640

Received x Date/Time

Turn-around Time:

- ☒ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day _____ (specify)

APPENDIX D PERSONNEL AND LABORATORY CERTIFICATIONS

State of California Department of Public Health

Lead-Related Construction Certificate

Certificate Type: Project Monitor

Expiration Date: 01/06/2019

David L. Simon

ID #: 24204

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Name: David Leo Simon

Certification No.: 92-0005

Expires on: 06/24/19

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Shannon MacKay

ABIR0115190004N18965

David Wallach
Principal Instructor

Michael W. Horner
Michael W. Horner
Training Director

1/15/2019	1/15/2019	1/15/2019	1/15/2020
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Anaheim, CA • Oakland, CA • Fresno, CA • Sacramento, CA
Asbestos • Lead • Mold • HAZWOPER
P.O. Box 25205 Anaheim, CA 92825-5205
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification
This Card Acknowledges That
Shannon MacKay
Holds Training Certification For
Asbestos Building Inspector Refresher Course
Expiration: 01/15/2020
Training Date 1/15/2019
Certificate No. ABIR0115190004N18965
Michael W. Horner
Training Director

Certificate of Completion

This is to certify that

Shannon R. MacKay

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

167196
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

May 2, 2018 — Expires in 1 year.
Date(s) of Training

Exam Score:
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

NVL Laboratory

4708 Aurora Avenue North

Seattle, WA 98103

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2757**

Expiration Date: **9/30/2019**

Effective Date: **10/1/2018**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

NVL Laboratories, Inc.
PLM Dept.
4708 Aurora Avenue North
Seattle, WA 98103
Phone: (206) 547-0100

Certificate No. 2757
Expiration Date 9/30/2019

Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste

121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 9/28/2018 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 102063-0

NVL Laboratories, Inc.

Seattle, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2018-10-01 through 2019-09-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

NVL Laboratories, Inc.

4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: 101861

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: June 01, 2019
✓	**ENVIRONMENTAL LEAD**	Accreditation Expires: June 01, 2019
✓	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: June 01, 2019
☐	**FOOD**	Accreditation Expires:
✓	**UNIQUE SCOPES**	Accreditation Expires: June 01, 2019

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

William Walsh, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 15: 03/30/2016

Date Issued: 05/31/2017

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

NVL Laboratories, Inc.
4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: **101861**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 04/01/1997

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (*for internal methods only*)
Spectrometry Core	Inductively-Coupled Plasma	ICP/AES	EPA 3051	
			NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500	
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)		NIOSH 7400	
Miscellaneous Core	Gravimetric		NIOSH 0500 Modified	
			NIOSH 0600 Modified	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

NVL Laboratories, Inc.
4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: **101861**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 02/07/1997

Field of Testing (FoT)	Technology sub-type/ Detector	Method	Method Description (*for internal methods only*)
Paint		EPA SW-846 3051	
		EPA SW-846 7000B	
Soil		EPA SW-846 3051	
		EPA SW-846 7000B	
Settled Dust by Wipe		EPA SW-846 3051	
		EPA SW-846 7000B	
Airborne Dust		EPA SW-846 3051	
		NIOSH 7082	

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

NVL Laboratories, Inc.
4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: **101861**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 02/01/1997

EMLAP Category	Field of Testing (FoT)	Method	Method Description (*for internal methods only*)
Fungal	Air - Direct Examination	SOP 12.133	In-House: Analysis of Spore Trap
	Bulk - Direct Examination	SOP 12.133	In-House: Bulk Analysis
	Surface - Direct Examination	SOP 12.133	In-House: Surface Analysis

A complete listing of currently accredited Environmental Microbiology laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

NVL Laboratories, Inc.
4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: **101861**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Unique Scopes Laboratory Accreditation Program (Unique Scopes)

Initial Accreditation Date: 04/01/2013

Unique Scope Category	Field of Testing (FoT)	Method	Method Description (*for internal methods only*)
Consumer Product Testing	Lead in Paint and Other Similar Surface Coatings	CPSC-CH-E1003-09.1	
	Total Lead in Metal Children's Products	CPSC-CH-E1001-08.2	
	Total Lead in Non-Metal Children's Products	CPSC-CH-E1002-08.1	

A complete listing of currently accredited Unique Scope laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL LABORATORY ACCREDITATION

Is hereby granted to

EMSL Analytical Inc.

200 Route 130 North

Cinnaminson, NJ 08077

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1877**

Expiration Date: **3/31/2017**

Effective Date: **4/1/2015**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

EMSL Analytical Inc.

200 Route 130 North
Cinnaminson, NJ 08077
Phone: (800) 220-3675

Certificate No. 1877
Expiration Date 3/31/2017

Field of Testing: 102 - Inorganic Chemistry of Drinking Water

102.030	001	Bromide	EPA 300.0
102.030	003	Chloride	EPA 300.0
102.030	005	Fluoride	EPA 300.0
102.030	006	Nitrate	EPA 300.0
102.030	007	Nitrite	EPA 300.0
102.030	008	Phosphate, Ortho	EPA 300.0
102.030	009	Sulfate	EPA 300.0
102.100	001	Alkalinity	SM2320B
102.130	001	Conductivity	SM2510B
102.140	001	Total Dissolved Solids	SM2540C
102.175	001	Chlorine, Free and Total	SM4500-Cl G
102.190	001	Cyanide, Total	SM4500-CN E
102.192	001	Cyanide, amenable	SM4500-CN G
102.262	001	Total Organic Carbon TOC	SM5310C
102.270	001	Surfactants	SM5540C
102.520	001	Calcium	EPA 200.7
102.520	002	Magnesium	EPA 200.7
102.520	003	Potassium	EPA 200.7
102.520	004	Silica	EPA 200.7
102.520	005	Sodium	EPA 200.7
102.520	006	Hardness (calculation)	EPA 200.7

Field of Testing: 103 - Toxic Chemical Elements of Drinking Water

103.030	001	Mercury	SM3112B
103.060	001	Aluminum	SM3120B
103.060	003	Barium	SM3120B
103.060	007	Chromium	SM3120B
103.060	009	Iron	SM3120B
103.060	011	Manganese	SM3120B
103.060	015	Silver	SM3120B
103.060	017	Zinc	SM3120B
103.130	007	Chromium	EPA 200.7
103.130	008	Copper	EPA 200.7
103.130	009	Iron	EPA 200.7
103.130	011	Manganese	EPA 200.7
103.130	015	Silver	EPA 200.7
103.130	017	Zinc	EPA 200.7
103.140	001	Aluminum	EPA 200.8
103.140	002	Antimony	EPA 200.8

As of 9/16/2015 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

103.140	003	Arsenic	EPA 200.8
103.140	004	Barium	EPA 200.8
103.140	005	Beryllium	EPA 200.8
103.140	006	Cadmium	EPA 200.8
103.140	007	Chromium	EPA 200.8
103.140	008	Copper	EPA 200.8
103.140	009	Lead	EPA 200.8
103.140	010	Manganese	EPA 200.8
103.140	012	Nickel	EPA 200.8
103.140	013	Selenium	EPA 200.8
103.140	014	Silver	EPA 200.8
103.140	015	Thallium	EPA 200.8
103.140	016	Zinc	EPA 200.8
103.150	009	Lead	EPA 200.9
103.160	001	Mercury	EPA 245.1
103.300	001	Asbestos	EPA 100.1
103.301	001	Asbestos	EPA 100.2

Field of Testing: 104 - Volatile Organic Chemistry of Drinking Water

104.040	000	Volatile Organic Compounds	EPA 524.2
104.040	001	Benzene	EPA 524.2
104.040	007	n-Butylbenzene	EPA 524.2
104.040	008	sec-Butylbenzene	EPA 524.2
104.040	009	tert-Butylbenzene	EPA 524.2
104.040	010	Carbon Tetrachloride	EPA 524.2
104.040	011	Chlorobenzene	EPA 524.2
104.040	015	2-Chlorotoluene	EPA 524.2
104.040	016	4-Chlorotoluene	EPA 524.2
104.040	019	1,3-Dichlorobenzene	EPA 524.2
104.040	020	1,2-Dichlorobenzene	EPA 524.2
104.040	021	1,4-Dichlorobenzene	EPA 524.2
104.040	022	Dichlorodifluoromethane	EPA 524.2
104.040	023	1,1-Dichloroethane	EPA 524.2
104.040	024	1,2-Dichloroethane	EPA 524.2
104.040	025	1,1-Dichloroethene	EPA 524.2
104.040	026	cis-1,2-Dichloroethene	EPA 524.2
104.040	027	trans-1,2-Dichloroethene	EPA 524.2
104.040	028	Dichloromethane	EPA 524.2
104.040	029	1,2-Dichloropropane	EPA 524.2
104.040	033	cis-1,3-Dichloropropene	EPA 524.2
104.040	034	trans-1,3-Dichloropropene	EPA 524.2
104.040	035	Ethylbenzene	EPA 524.2
104.040	037	Isopropylbenzene	EPA 524.2
104.040	039	Naphthalene	EPA 524.2
104.040	041	N-propylbenzene	EPA 524.2
104.040	042	Styrene	EPA 524.2
104.040	044	1,1,2,2-Tetrachloroethane	EPA 524.2
104.040	045	Tetrachloroethene	EPA 524.2

104.040	046	Toluene	EPA 524.2
104.040	048	1,2,4-Trichlorobenzene	EPA 524.2
104.040	049	1,1,1-Trichloroethane	EPA 524.2
104.040	050	1,1,2-Trichloroethane	EPA 524.2
104.040	051	Trichloroethene	EPA 524.2
104.040	052	Trichlorofluoromethane	EPA 524.2
104.040	054	1,2,4-Trimethylbenzene	EPA 524.2
104.040	055	1,3,5-Trimethylbenzene	EPA 524.2
104.040	056	Vinyl Chloride	EPA 524.2
104.040	057	Xylenes, Total	EPA 524.2
104.045	001	Bromodichloromethane	EPA 524.2
104.045	002	Bromoform	EPA 524.2
104.045	003	Chloroform	EPA 524.2
104.045	004	Dibromochloromethane	EPA 524.2
104.050	002	Methyl tert-butyl Ether (MTBE)	EPA 524.2
104.050	006	tert-Butyl Alcohol (TBA)	EPA 524.2
104.050	008	Carbon Disulfide	EPA 524.2
104.050	009	Methyl Isobutyl Ketone	EPA 524.2

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	003	Arsenic	EPA 200.7
109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	024	Tin	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.020	001	Aluminum	EPA 200.8
109.020	002	Antimony	EPA 200.8
109.020	003	Arsenic	EPA 200.8
109.020	004	Barium	EPA 200.8
109.020	005	Beryllium	EPA 200.8
109.020	006	Cadmium	EPA 200.8
109.020	007	Chromium	EPA 200.8
109.020	008	Cobalt	EPA 200.8

109.020	009	Copper	EPA 200.8
109.020	010	Lead	EPA 200.8
109.020	011	Manganese	EPA 200.8
109.020	012	Molybdenum	EPA 200.8
109.020	013	Nickel	EPA 200.8
109.020	014	Selenium	EPA 200.8
109.020	015	Silver	EPA 200.8
109.020	016	Thallium	EPA 200.8
109.020	017	Vanadium	EPA 200.8
109.020	018	Zinc	EPA 200.8
109.020	021	Iron	EPA 200.8
109.020	022	Tin	EPA 200.8
109.020	023	Titanium	EPA 200.8
109.025	010	Lead	EPA 200.9
109.190	001	Mercury	EPA 245.1
109.370	007	Gold	SM3111B
109.370	010	Lead	SM3111B
109.370	014	Palladium	SM3111B
109.370	015	Platinum	SM3111B
109.400	001	Mercury	SM3112B
109.430	001	Aluminum	SM3120B
109.430	002	Antimony	SM3120B
109.430	005	Beryllium	SM3120B
109.430	007	Cadmium	SM3120B
109.430	009	Chromium	SM3120B
109.430	010	Cobalt	SM3120B
109.430	011	Copper	SM3120B
109.430	012	Iron	SM3120B
109.430	013	Lead	SM3120B
109.430	015	Manganese	SM3120B
109.430	016	Molybdenum	SM3120B
109.430	017	Nickel	SM3120B
109.430	019	Selenium	SM3120B
109.430	021	Silver	SM3120B
109.430	024	Vanadium	SM3120B
109.430	025	Zinc	SM3120B
109.811	001	Chromium (VI)	SM3500-Cr D (18th/19th)

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010B
114.010	002	Arsenic	EPA 6010B
114.010	003	Barium	EPA 6010B
114.010	004	Beryllium	EPA 6010B
114.010	005	Cadmium	EPA 6010B
114.010	006	Chromium	EPA 6010B
114.010	007	Cobalt	EPA 6010B
114.010	008	Copper	EPA 6010B
114.010	009	Lead	EPA 6010B

114.010	010	Molybdenum	EPA 6010B
114.010	011	Nickel	EPA 6010B
114.010	012	Selenium	EPA 6010B
114.010	013	Silver	EPA 6010B
114.010	014	Thallium	EPA 6010B
114.010	015	Vanadium	EPA 6010B
114.010	016	Zinc	EPA 6010B
114.020	001	Antimony	EPA 6020
114.020	002	Arsenic	EPA 6020
114.020	003	Barium	EPA 6020
114.020	004	Beryllium	EPA 6020
114.020	005	Cadmium	EPA 6020
114.020	006	Chromium	EPA 6020
114.020	007	Cobalt	EPA 6020
114.020	008	Copper	EPA 6020
114.020	009	Lead	EPA 6020
114.020	010	Molybdenum	EPA 6020
114.020	011	Nickel	EPA 6020
114.020	012	Selenium	EPA 6020
114.020	013	Silver	EPA 6020
114.020	014	Thallium	EPA 6020
114.020	015	Vanadium	EPA 6020
114.020	016	Zinc	EPA 6020
114.103	001	Chromium (VI)	EPA 7196A
114.130	001	Lead	EPA 7420
114.131	001	Lead	EPA 7421
114.140	001	Mercury	EPA 7470A
114.141	001	Mercury	EPA 7471A
Field of Testing: 115 - Extraction Test of Hazardous Waste			
115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste			
116.010	000	EDB and DBCP	EPA 8011
116.020	030	Nonhalogenated Volatiles	EPA 8015B
116.020	031	Ethanol and Methanol	EPA 8015B
116.030	001	Gasoline-range Organics	EPA 8015B
116.080	000	Volatile Organic Compounds	EPA 8260B
116.080	120	Oxygenates	EPA 8260B
Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste			
117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015B
117.110	000	Extractable Organics	EPA 8270C
117.210	000	Pesticides & PCBs	EPA 8081A
117.220	000	PCBs	EPA 8082
117.250	000	Chlorinated Herbicides	EPA 8151A
Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste			
121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 9/16/2015 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

Field of Testing: 129 - Cryptosporidium & Giardia			
129.020	001	Cryptosporidium and Giardia	EPA 1623
129.030	001	Cryptosporidium and Giardia	EPA 1623.1

Solids	EPA 8270D	5562	Azobenzene
		5595	Benzidine
		5575	Benzo(a)anthracene
		5580	Benzo(a)pyrene
		5590	Benzo(g,h,i)perylene
		9309	Benzo(j)fluoranthene
		5600	Benzo(k)fluoranthene
		5585	Benzo[b]fluoranthene
		5610	Benzoic acid
		5630	Benzyl alcohol
		5760	bis(2-Chloroethoxy)methane
		5765	bis(2-Chloroethyl) ether
		5780	bis(2-Chloroisopropyl) ether
		6062	bis(2-Ethylhexyl)adipate
		5670	Butyl benzyl phthalate
		5680	Carbazole
		5855	Chrysene
		6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)
		9354	Dibenz(a, h) acridine
		5900	Dibenz(a, j) acridine
		5895	Dibenz(a,h) anthracene
		9348	Dibenzo(a, h) pyrene
		5890	Dibenzo(a,e) pyrene
		5905	Dibenzofuran
		6070	Diethyl phthalate
		6135	Dimethyl phthalate
		5925	Di-n-butyl phthalate
		6200	Di-n-octyl phthalate
		6205	Diphenylamine
		6265	Fluoranthene
		6270	Fluorene
		6275	Hexachlorobenzene
		4835	Hexachlorobutadiene
		6285	Hexachlorocyclopentadiene
		4840	Hexachloroethane
		6315	Indeno(1,2,3-cd) pyrene
		6320	Isophorone
		5005	Naphthalene
		5015	Nitrobenzene
		6525	n-Nitrosodiethylamine
		6530	n-Nitrosodimethylamine
		6545	n-Nitrosodi-n-propylamine
		6535	n-Nitrosodiphenylamine

Solids

EPA 8270D	6605	Pentachlorophenol		
	6608	Perylene		
	6615	Phenanthrene		
	6625	Phenol		
	6665	Pyrene		
	5095	Pyridine		
EPA 8270D SIM			10242509	Semivolatile Organic compounds by GC/MS Selective Ion Monitoring
	6380	1-Methylnaphthalene		
	6385	2-Methylnaphthalene		
	5500	Acenaphthene		
	5505	Acenaphthylene		
	5555	Anthracene		
	5575	Benzo(a)anthracene		
	5580	Benzo(a)pyrene		
	5590	Benzo(g,h,i)perylene		
	5600	Benzo(k)fluoranthene		
	5585	Benzo[b]fluoranthene		
	5670	Butyl benzyl phthalate		
	5855	Chrysene		
	6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)		
	5895	Dibenz(a,h) anthracene		
	5905	Dibenzofuran		
	6070	Diethyl phthalate		
	6135	Dimethyl phthalate		
	5925	Di-n-butyl phthalate		
	6200	Di-n-octyl phthalate		
	6265	Fluoranthene		
	6270	Fluorene		
	6315	Indeno(1,2,3-cd) pyrene		
	5005	Naphthalene		
	6605	Pentachlorophenol		
	6615	Phenanthrene		
	6665	Pyrene		
EPA 8270E			988	Semivolatile Organic compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
	5155	1,2,4-Trichlorobenzene		
EPA 8270E			10242543	Semivolatile Organic compounds by GC/MS
	5155	1,2,4-Trichlorobenzene		
	4610	1,2-Dichlorobenzene		
	6155	1,2-Dinitrobenzene		
	4615	1,3-Dichlorobenzene		

Solids	EPA 8270E	6160	1,3-Dinitrobenzene (1,3-DNB)
		4620	1,4-Dichlorobenzene
		6165	1,4-Dinitrobenzene
		6380	1-Methylnaphthalene
		4659	2,2-Oxybis(1-chloropropane)
		6735	2,3,4,6-Tetrachlorophenol
		6740	2,3,5,6-Tetrachlorophenol
		6835	2,4,5-Trichlorophenol
		6840	2,4,6-Trichlorophenol
		6000	2,4-Dichlorophenol
		6130	2,4-Dimethylphenol
		6175	2,4-Dinitrophenol
		6185	2,4-Dinitrotoluene (2,4-DNT)
		6190	2,6-Dinitrotoluene (2,6-DNT)
		5795	2-Chloronaphthalene
		5800	2-Chlorophenol
		6360	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)
		5145	2-Methylaniline (o-Toluidine)
		6385	2-Methylnaphthalene
		6400	2-Methylphenol (o-Cresol)
		6460	2-Nitroaniline
		6490	2-Nitrophenol
		6412	3 & 4 Methylphenol
		5945	3,3'-Dichlorobenzidine
		6355	3-Methylcholanthrene
		6465	3-Nitroaniline
		5660	4-Bromophenyl phenyl ether (BDE-3)
		5700	4-Chloro-3-methylphenol
		5745	4-Chloroaniline
		5825	4-Chlorophenyl phenylether
		6470	4-Nitroaniline
		6500	4-Nitrophenol
		5500	Acenaphthene
		5505	Acenaphthylene
		5510	Acetophenone
		5545	Aniline
		5555	Anthracene
		5562	Azobenzene
		5570	Benzaldehyde
		5595	Benzidine
		5575	Benzo(a)anthracene
		5580	Benzo(a)pyrene
		5590	Benzo(g,h,i)perylene

Solids	EPA 8270E	9309	Benzo(j)fluoranthene
		5600	Benzo(k)fluoranthene
		5585	Benzo[b]fluoranthene
		5610	Benzoic acid
		5630	Benzyl alcohol
		5635	Benzyl chloride
		5760	bis(2-Chloroethoxy)methane
		5765	bis(2-Chloroethyl) ether
		5780	bis(2-Chloroisopropyl) ether
		6062	bis(2-Ethylhexyl)adipate
		5670	Butyl benzyl phthalate
		5680	Carbazole
		5855	Chrysene
		6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)
		9354	Dibenz(a, h) acridine
		5900	Dibenz(a, j) acridine
		5895	Dibenz(a,h) anthracene
		9348	Dibenzo(a, h) pyrene
		9351	Dibenzo(a, i) pyrene
		5890	Dibenzo(a,e) pyrene
		5905	Dibenzofuran
		6070	Diethyl phthalate
		6135	Dimethyl phthalate
		5925	Di-n-butyl phthalate
		6200	Di-n-octyl phthalate
		6205	Diphenylamine
		6265	Fluoranthene
		6270	Fluorene
		6275	Hexachlorobenzene
		4835	Hexachlorobutadiene
		6285	Hexachlorocyclopentadiene
		4840	Hexachloroethane
		6315	Indeno(1,2,3-cd) pyrene
		5005	Naphthalene
		5015	Nitrobenzene
		6530	n-Nitrosodimethylamine
		6545	n-Nitrosodi-n-propylamine
		6535	n-Nitrosodiphenylamine
		6605	Pentachlorophenol
		6608	Perylene
		6615	Phenanthrene
		6625	Phenol
		7985	Phorate

Solids

EPA 8270E	6665	Pyrene		
	5095	Pyridine		
EPA 8270E SIM			989	Semivolatile Organic compounds by Gas Chromatography/Mass Spectrometry (GC/MS) SIM Mode
	6380	1-Methylnaphthalene		
	5795	2-Chloronaphthalene		
	6385	2-Methylnaphthalene		
	5500	Acenaphthene		
	5505	Acenaphthylene		
	5555	Anthracene		
	5575	Benzo(a)anthracene		
	5580	Benzo(a)pyrene		
	5590	Benzo(g,h,i)perylene		
	5600	Benzo(k)fluoranthene		
	5585	Benzo[b]fluoranthene		
	5670	Butyl benzyl phthalate		
	5680	Carbazole		
	5855	Chrysene		
	6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)		
	5895	Dibenz(a,h) anthracene		
	5905	Dibenzofuran		
	6070	Diethyl phthalate		
	6135	Dimethyl phthalate		
	5925	Di-n-butyl phthalate		
	6200	Di-n-octyl phthalate		
	6265	Fluoranthene		
	6270	Fluorene		
	6315	Indeno(1,2,3-cd) pyrene		
	5005	Naphthalene		
	6605	Pentachlorophenol		
	6615	Phenanthrene		
	6665	Pyrene		
NWTPH-Dx			90018409	Oregon DEQ TPH Diesel Range
	9369	Diesel range organics (DRO)		
	9499	Motor Oil		
	2050	Total Petroleum Hydrocarbons (TPH)		
NWTPH-Gx			90018603	Oregon DEQ TPH Gasoline Range Organics by GC/FID-PID Purge & Trap
	9408	Gasoline range organics (GRO)		

Appendix B

California Waste Disposal Management Plan

KLAMATH RIVER RENEWAL CORPORATION

Lower Klamath Project
FERC Project No. 14803

California Waste Disposal Plan

Klamath River Renewal Corporation
2001 Addison Street, Suite 317
Berkeley, CA 94704

Prepared by:
Camas LLC
680 G Street, Suite C
Jacksonville, OR 97530

February 2021

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Table of Contents

List of Tables

Appendices

1.0 Introduction

The California Waste Disposal Plan described herein is a sub-plan of the Waste Disposal and Hazardous Materials Management Plan to be implemented as part of the Proposed Action for the Lower Klamath Project (Project).

1.1 Purpose of Waste Disposal Plan

The California Waste Disposal Plan describes the measures the Renewal Corporation (directly or through its contractor) will implement to manage non-hazardous waste resulting from the Proposed Action for portions of the Project located in California.

Non-hazardous waste will be stored, managed, and disposed of in accordance with all local, state, and federal applicable laws.

1.2 Relationship to Other Management Plans

The California Waste Disposal Plan is supported by elements of the following management plans for effective implementation: Remaining Facilities Plan, Reservoir Area Management Plan, Erosion Sediment and Control Plan, and Waste Disposal and Hazardous Materials Management Plan. So as to not duplicate information, elements from these other management plans are not repeated herein but are, where appropriate, referred to in this California Waste Disposal Plan.

2.0 Quantity and Type of Anticipated Non-Hazardous Waste

The precise quantities and types of non-hazardous wastes generated by the Proposed Action will be determined in connection with waste characterization activities at the time of generation. Generally accepted waste characterization procedures, which are described in the California Hazardous Materials Management Plan, will also be observed by the Renewal Corporation (directly or through its contractor) with respect to non-hazardous wastes.

Anticipated non-hazardous waste to be generated during the decommissioning of Copco No. 1, Copco No. 2, and Iron Gate Developments is presented in Table 2-1 and Table 2-2. Specifically, the approximate bulk quantity, type of anticipated non-hazardous waste, and the proposed disposal locations (on-site and off-site) are presented below and are based on the Knight Piesold and Kiewit 100% Design Report (KP/Kiewit 2020). A description of these materials is presented in Section 2.1 (Knight Piesold 2013).

Table 2-1. Copco No. 1 and Copco No. 2 Developments Non-Hazardous Waste Disposal

TYPE	QUANTITY	ANTICIPATED DISPOSAL LOCATION
Earthen Material (Inert waste[1])	2,100 CY	Disposed of on-site: • Copco No. 1 Disposal Site • Copco No. 1 Powerhouse and Tailrace Disposal Site • Copco No. 2 Powerhouse and Tailrace Disposal Site
Concrete Rubble[2]	120,600 CY	Disposed of on-site: • Copco No. 1 Disposal Site • Copco No. 2 Powerhouse and Tailrace Disposal Site
Building Waste[3]	2,600 CY	Disposed of off-site: • City of Yreka Landfill
Rebar	1,400 tons	Disposed of off-site: • Schnitzer (recycled)
Mechanical and Electrical Materials	3,300 tons	Disposed of off-site: • Permitted landfill, pending selected contractor
Transmission Lines	9.5 miles	Disposed off-site: • Permitted landfill, pending selected contractor

Notes:

1. Subject to confirmation by waste characterization at the time of generation, it is anticipated that earthen materials removed during decommissioning will constitute Inert waste.
2. If access to rebar is safe, rebar protruding out of concrete will be cut flush and recycled off-site. Rebar and steel embedded in concrete will remain in its encased condition and buried.
3. Building waste, which is anticipated to be non-hazardous solid waste subject to confirmation by waste characterization, includes but is not limited to steel penstocks, generator equipment, gates, valves, lighting, HVAC etc.

Table 2-2. Iron Gate Development Non-Hazardous Waste Disposal

TYPE	QUANTITY	ANTICIPATED DISPOSAL LOCATION
Earthen Material (Inert waste[1])	1,257,000 CY	Disposed of on-site: • Iron Gate Spillway Disposal Site • Iron Gate Powerhouse and Tailrace Disposal Site • Iron Gate Upland Disposal Site
Concrete Rubble[2]	20,700 CY	Disposed of on-site: • Iron Gate Upland Disposal Site • Iron Gate Powerhouse and Tailrace Disposal Site
Building Waste[3]	600 CY	Disposed of off-site: • City of Yreka Landfill
Rebar	700 tons	Disposed of off-site: • Schnitzer (recycled)
Mechanical and Electrical Materials	1,200 tons	Disposed of off-site: • Permitted landfill, pending selected contractor
Transmission Lines	0.5 miles	Disposed off-site: • Permitted landfill, pending selected contractor

Notes:

1. Subject to confirmation by waste characterization at the time of generation, it is anticipated that earthen materials removed during decommissioning will constitute Inert waste.
2. If access to rebar is safe, rebar protruding out of concrete will be cut flush and recycled off-site. Rebar and steel embedded in concrete will remain in its encased condition and buried.
3. Building waste, which is anticipated to be non-hazardous solid waste subject to confirmation by waste characterization, includes but is not limited to steel penstocks, generator equipment, gates, valves, lighting, HVAC etc.

2.1 Material Descriptions

Table 2-3 includes materials that will either be placed within on-site disposal sites, used as a capping material, or for erosion and sediment control purposes. In addition, the source of the material is included in the table.

Table 2-3 Material Descriptions

TYPE	DESCRIPTION	DEFINITION
E4	Select Fill	Cobbles, Gravel, and Sand, particles ranging from 4 in. to the #200 Sieve (0.0030 in.), low to no fines content, sourced from offsite.
E6	Bedding	Cobbles and Gravel, particles ranging from 3 in. to 3/8 in., low to no fines content, sourced from offsite.
E7	Erosion Protection	Boulders and Cobbles, particles ranging from +50 in. to 3 in., material subdivided into three classifications E7a/b/c, each with minimum D85, D50 and D15 values, sourced from existing erosion protection at the dam sites, or talus material sourced from nearby borrow areas within limits of work.
E7a	Erosion Protection	Boulders and Cobbles with a nominal diameter size of 9 inches and varies from 5.5 inches to 11.5 inches
E7b	Erosion Protection	Boulders and Cobbles with a nominal diameter size of 21 inches and varies from 21 inches to 27.5 inches
E7c	Erosion Protection	Boulders and Cobbles with a nominal diameter size of 36 inches and varies from 22 inches to 47 inches
E8	Bedding Material	Cobbles and Gravel, particles ranging from 12 in. to 1 in., low to no fines content, sourced from offsite.
E9	General Fill (Earthen Material)	Boulders, Cobbles, Gravel, Sand and Fines, particles ranging from 20 in. to silt and clay, up to 30% fines content, sourced from project excavations or nearby borrow areas within limits of work.
E9a	General Fill (Earthen Material)	Boulders, Cobbles, Gravel, Sand and Fines, particles ranging from 20 in. to silt and clay, up to 40% fines content, sourced from project excavations or nearby borrow areas within limits of work.

TYPE	DESCRIPTION	DEFINITION
E9b	General Fill (Earthen Material)	Boulders, Cobbles, Gravel and Sand, particles ranging from 20 in. to the #200 sieve (0.0030 in), low to no fines content, sourced from project excavations or nearby borrows area within limits of work.
E10	Random Fill (Earthen Material)	Overburden, Rocks or Organics, no gradation requirements, sourced from project excavations.
CR1	Concrete Rubble[1,2]	Particles ranging from 36 in. to the #200 Sieve (0.0030 in.), with up to 30% fines content, steel reinforcement to remain concrete, sourced from demolition of onsite concrete structures.
CR2	Concrete Rubble[1,2]	Particles ranging from 24 in. to the #200 Sieve (0.0030 in.), with up to 30% fines content, steel reinforcement to remain concrete, sourced from demolition of onsite concrete structures.

Notes:

1. Hazardous materials and substances will be removed prior to burying concrete rubble in a disposal site.
2. If access to rebar is safe, rebar protruding out of concrete will be cut flush and recycled off-site. Rebar and steel embedded in concrete will remain in its encased condition and buried.

3.0 Upland Disposal Sites

General Fill (Earthen Material) and Concrete Rubble will be disposed of at two on-site upland disposal sites (Upland Disposal Sites). Details pertaining to the location, construction, size, disposal materials, and associated figures for each disposal site are presented in Table 3-1 and in Appendix A, Figures. Disposal site locations were selected where drainage patterns can be preserved, such that onsite disposal would not create a threat to water quality. Appendix A, Figures includes two figures: general site location and a plan and profile of the disposal site.

Table 3-1. Upland Disposal Sites

LOCATION	CONSTRUCTION	SIZE/INFILL CAPACITY	DISPOSAL MATERIALS	FIGURES
COPCO NO. 1 DISPOSAL SITE				
• Located within an existing depression between Copco No. 1 and Copco No. 2 dams, to the north. The location is approximately at 2675 (MSL), which is 175 feet above the current Klamath River active stream channel (2500 MSL).	• Located above anticipated post-drawdown OHWM. • Demolish existing structures. • Relocate existing powerlines. • Clear vegetation. • Place disposal materials on existing ground surface. • 3H:1V slope range (maximum). • Cap with a minimum of 2-foot cover of General Fill (E9/E9b). • Grade and slope for drainage to surrounding topography. • Final erosion and sediment control stabilization (see Section 3.0)	• Disposal area is approx. 6 acres • Infill capacity is approx. 180,000 CY	• General Fill (E9) • Concrete Rubble (CR1)	Appendix A: Figure A-1. Copco No. 1 Disposal Site Appendix A: Figure A-2. Copco No. 1 Disposal Site – Plan and Profile
IRON GATE UPLAND DISPOSAL SITE				
• Located in the original borrow site for the Iron Gate dam construction on the south side of the reservoir. The location is approximately 20 to 25 feet above the anticipated Klamath River active stream channel.	• Located above anticipated post-drawdown OHWM. • Clear vegetation. • Place disposal materials on existing ground surface. • 5H:1V slope range (maximum). • Cap with a minimum of 2-foot cover of General Fill (E9/E9b). • Grade and slope for drainage to surrounding topography. • Final erosion and sediment control stabilization (see Section 3.0)	• Disposal area is approx. 9.6 acres • Infill capacity is approx. – 1,000,000 CY	• General Fill (E9) • Random Fill (E10) •	Appendix A: Figure A-3. Iron Gate Disposal Site Locations Appendix A: Figure A-4. Iron Gate Upland Disposal– Plan and Profile

3.1 Erosion and Sediment Control

Erosion and sediment control temporary best management practices (BMPs) installed during the construction of the disposal sites are presented in the site-specific Stormwater Pollution Prevention Plan required as part of the National Pollutant Discharge Elimination System California State Water Board Construction General Permit (CGP). If disposal areas are utilized during the raining season, the disposal sites shall be protected with appropriate BMPs to prevent erosion.

Following the final placement of material within the disposal sites, permanent BMPs will be installed for final stabilization. Final stabilization will be completed in accordance with the Stormwater Pollution Prevention Plan and the design package and consists of placing native rock and soil as a final cover material. Monitoring and reporting required as part of the Stormwater Pollution Prevention Plan will be conducted to achieve final stabilization.

4.0 Powerhouse, Tailrace, and Spillway Disposal Sites

General Fill and Concrete Rubble will also be disposed of in existing structures (i.e. powerhouse, tailrace, and spillway). Details pertaining to the location, construction, size, disposal materials, location in relation to the anticipated post-drawdown Ordinary High-Water Mark (OHWM) and associated figures for each on-site disposal site are presented in Table 4-1. Each disposal site includes two figures; one figure depicts general site location, and the second figure presents a plan and profile of the disposal site. Figures are presented in Appendix A.

4.1 Erosion and Sediment Control

If disposal areas are utilized during the raining season, the disposal sites shall be protected with appropriate BMPs to prevent erosion.

Following the final placement of material within the disposal sites, permanent BMPs will be installed for final stabilization. Final stabilization will be completed in accordance with the Stormwater Pollution Prevention Plan and design package and consists of capping (i.e. cover material) the disposal sites with material ranging from one to four feet depending on the disposal sites. Details of the capping material and thicknesses are presented in Table 4-1 and are presented on the applicable figures.

4.2 Monitoring

Following final stabilization, the disposal sites will be monitored visually on an annual basis to determine if the permanent BMPs are stable and are protective of water quality. Annual reports will be submitted to the California State Water Resources Control Board for up to three years post drawdown. These reports will include an assessment of the annual monitoring efforts and a description of corrective actions (if necessary). Corrective actions will be based on the visual monitoring results.

Table 4-1. Powerhouse, Tailrace, and Spillway Disposal Sites

LOCATION	CONSTRUCTION	SIZE/INFILL CAPACITY	DISPOSAL MATERIALS	FIGURES
COPCO NO. 1 POWERHOUSE AND TAILRACE DISPOSAL SITE				
• Located within a portion of existing Copco No.1 powerhouse and tailrace.	• Partially located below anticipated post-drawdown OHWM. • Remove interior electrical, mechanical, and miscellaneous fixtures not imbedded in concrete from powerhouse prior to backfill. • Place disposal materials within powerhouse and portion of tailrace. • 1.5 H:1V slope range for powerhouse. • 2 H:1V slope range for transition of powerhouse to tailrace. • Cap with 4-foot cover of Select Fill (E4) on slope of former powerhouse. • Cap with 1-foot cover of Bedding (E6) and 4-foot cover of Erosion Protection (E7c) on transition of powerhouse to tailrace.	• Disposal area is approx. 0.5 acres • Infill capacity is approx. -3,950 CY	• General Fill (E9/E9a) • Concrete Rubble (CR2) • •	Appendix A: Figure A-5. Copco No. 1 Powerhouse and Tailrace Disposal Site Appendix A: Figure A-6. Copco No. 1 Powerhouse and Tailrace Disposal Site – Plan
COPCO NO. 2 POWERHOUSE AND TAILRACE DISPOSAL SITE				
• Located within a portion of existing Copco No. 2 powerhouse and tailrace.	• Partially located below anticipated post-drawdown OHWM. • Remove interior electrical, mechanical, and miscellaneous fixtures not imbedded in concrete from powerhouse prior to backfill. • Place disposal materials within former tailrace and portion of powerhouse. • 2.5 H:1V slope range with benching. • Cap with 2-foot cover of Bedding Material (E8) on slope (former tailrace) and General Fill (E9) on horizontal portion (former powerhouse).	• Disposal area is approx. 0.4 acres • Infill capacity is approx. 5,150 CY	• General Fill (E9a) • Concrete Rubble (CR2)	Appendix A: Figure A-7. Copco No. 2 Powerhouse and Tailrace Disposal Site Appendix A: Figure A-8. Powerhouse and Tailrace Disposal Site – Plan and Profile

LOCATION	CONSTRUCTION	SIZE/INFILL CAPACITY	DISPOSAL MATERIALS	FIGURES
IRON GATE POWERHOUSE AND TAILRACE DISPOSAL SITE				
• Powerhouse tailrace located south of dam.	• Located partially below anticipated post-drawdown OHWM. • Remove interior electrical, mechanical, and miscellaneous fixtures not imbedded in concrete from powerhouse prior to backfill. • Place disposal materials within former tailrace and portion of powerhouse. • 2.5H:1V slope range • Cap former powerhouse portion with 3-foot cover of General Fill (E9) and the former tailrace portion (E7b) with 3-foot cover of Erosion Protection (E7b).	• Disposal area is approx. 0.17 acres • Infill capacity is approx. – 22,615 CY	• General Fill (E9) • Concrete Rubble (CR1 and CR2)	Appendix A: Figure A-3. Iron Gate Disposal Site Locations Appendix A: Figure A-9a. Iron Gate Powerhouse Disposal Site – Plan Appendix A: Figure A-9b. Iron Gate Powerhouse Disposal Site - Profile
IRON GATE SPILLWAY DISPOSAL SITE				
• Spillway located west of dam on river right.	• Located above anticipated post-drawdown OHWM. • Place disposal materials in existing concrete spillway. • Cap horizontal portion with 2-foot General Fill (E9) • Place Erosion Protection (E7a) on downstream toe of spillway or riprap removed from downstream face of dam for lower spillway lifts to establish riprapped toe.	• Disposal area is approx. 5.7 acres • Infill capacity is approx. – 249,200 CY	• General Fill (E9/E9a/E9b) • Random Fill (E10) •	Appendix A: Figure A-3. Iron Gate Disposal Site Locations Figure A-10. Iron Gate Spillway Disposal Site – Plan and Profile

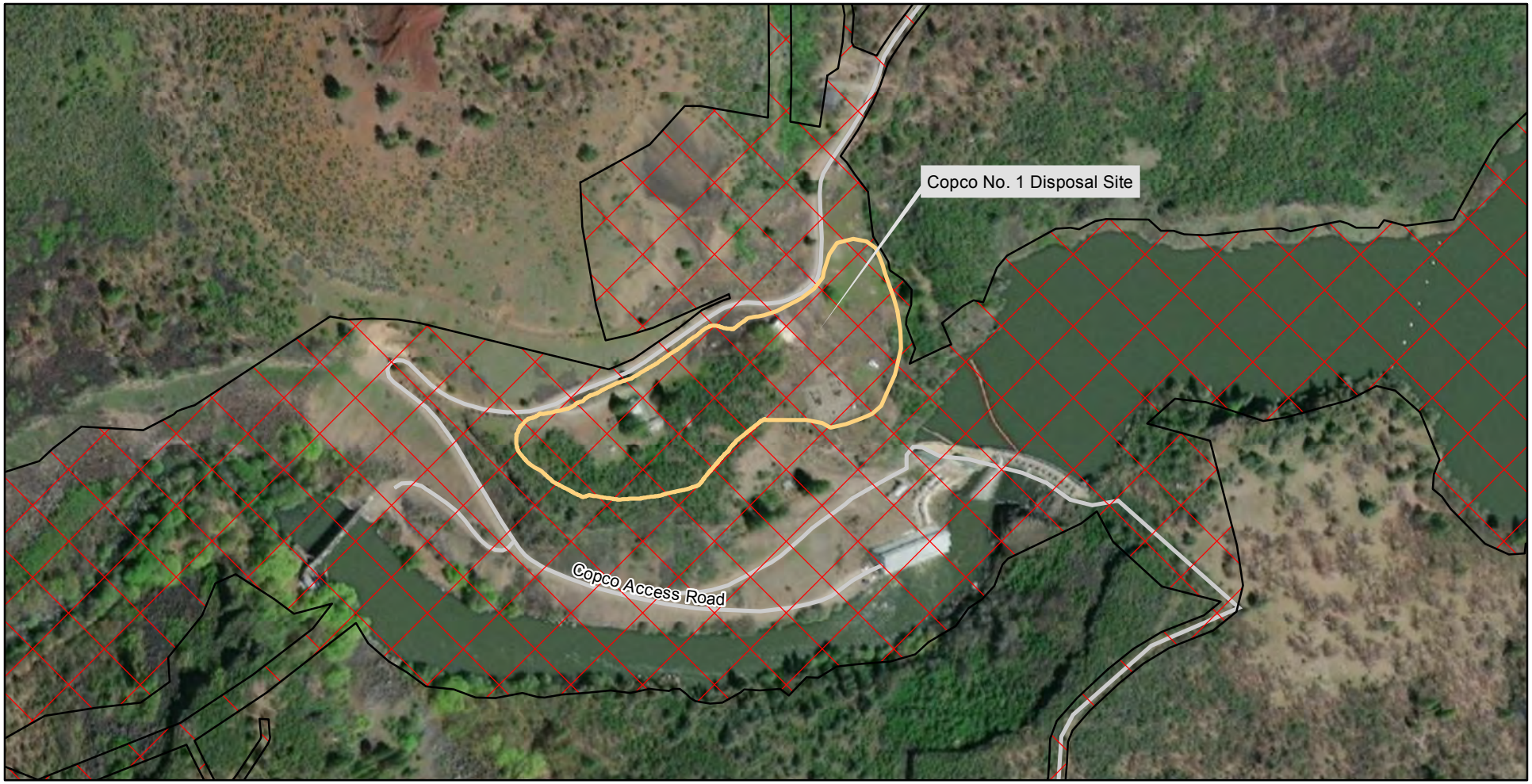
5.0 References

Knight Piésold and Kiewit. 2020. Klamath River Renewal Project Kiewit Contract #104168 100% Design Report. November 13, 2020.

Knight Piesold (2013) Technical Specification ’31 05 00 – Materials for EarthWork. Revision H.

Appendix A

Figures



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1:4,090

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites, Limits of Work and Access Routes: Knight Piesold 100 design

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- Disposal Sites
- Limits of Work
- Roads

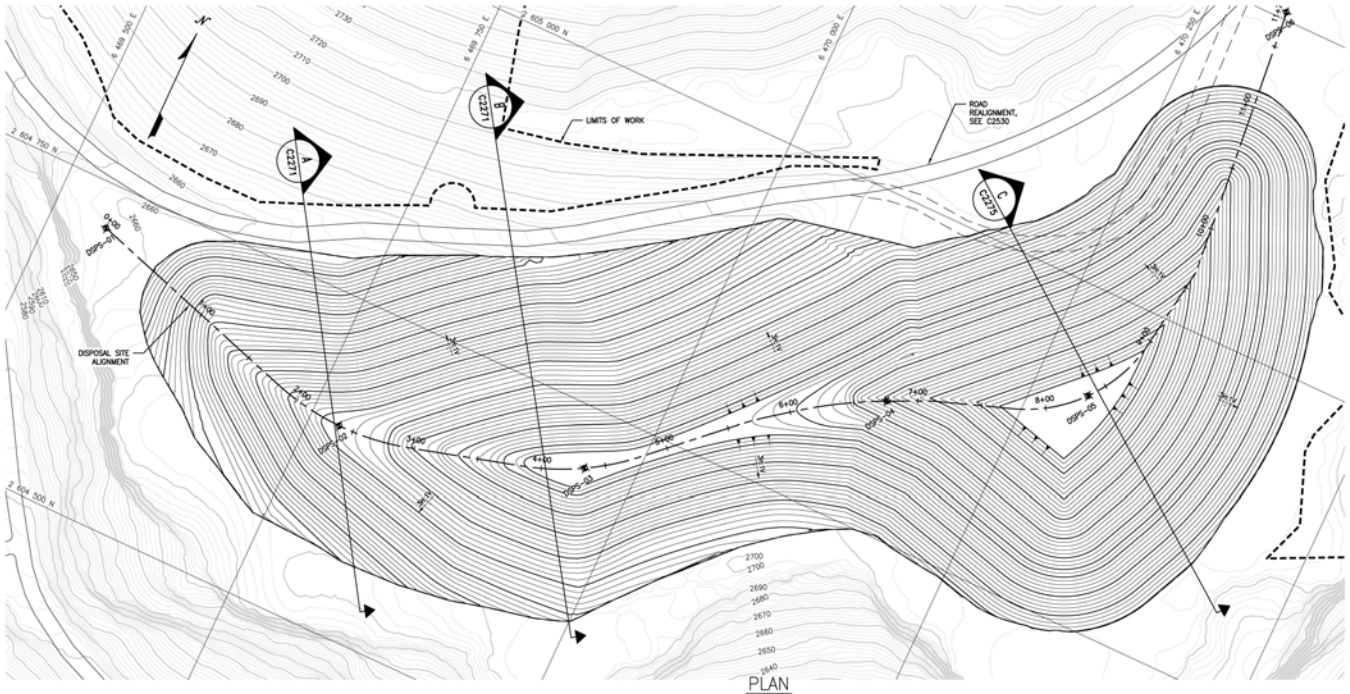
Lower Klamath Project

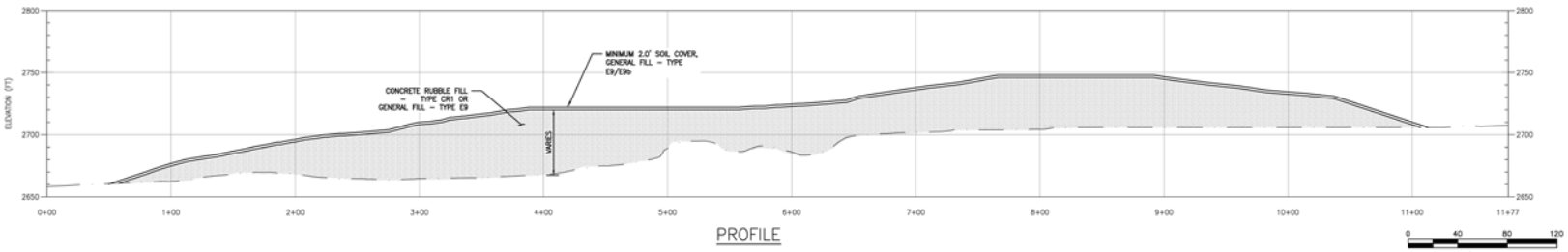
Figure A-1: Copco No. 1 Disposal Site

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)





NOTES:

1. REFER TO GENERAL NOTES ON DRAWING G0006 FOR INFORMATION REGARDING TOPOGRAPHIC AND BATHYMETRIC DATA SOURCES.
2. DISPOSAL SITE DESIGNED FOR 180,000 cu yd.
3. CONSTRUCTION WASTE MATERIALS INCLUDING WOOD DEBRIS, STEEL AND OTHER ITEMS NOT REQUIRING SPECIAL DISPOSAL PROCEDURES MAY BE DISPOSED WITHIN THE DISPOSAL SITE.
4. RECLAMATION DETAILS ARE SHOWN ON DRAWING C2600.
5. CONTRACTOR TO SCHEDULE OVERHEAD POWER DISTRIBUTION LINE REMOVAL WITH FILLING OF DISPOSAL SITE.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

CONCRETE RUBBLE FILL (CR1) OR GENERAL FILL (E9)

LIMITS OF WORK

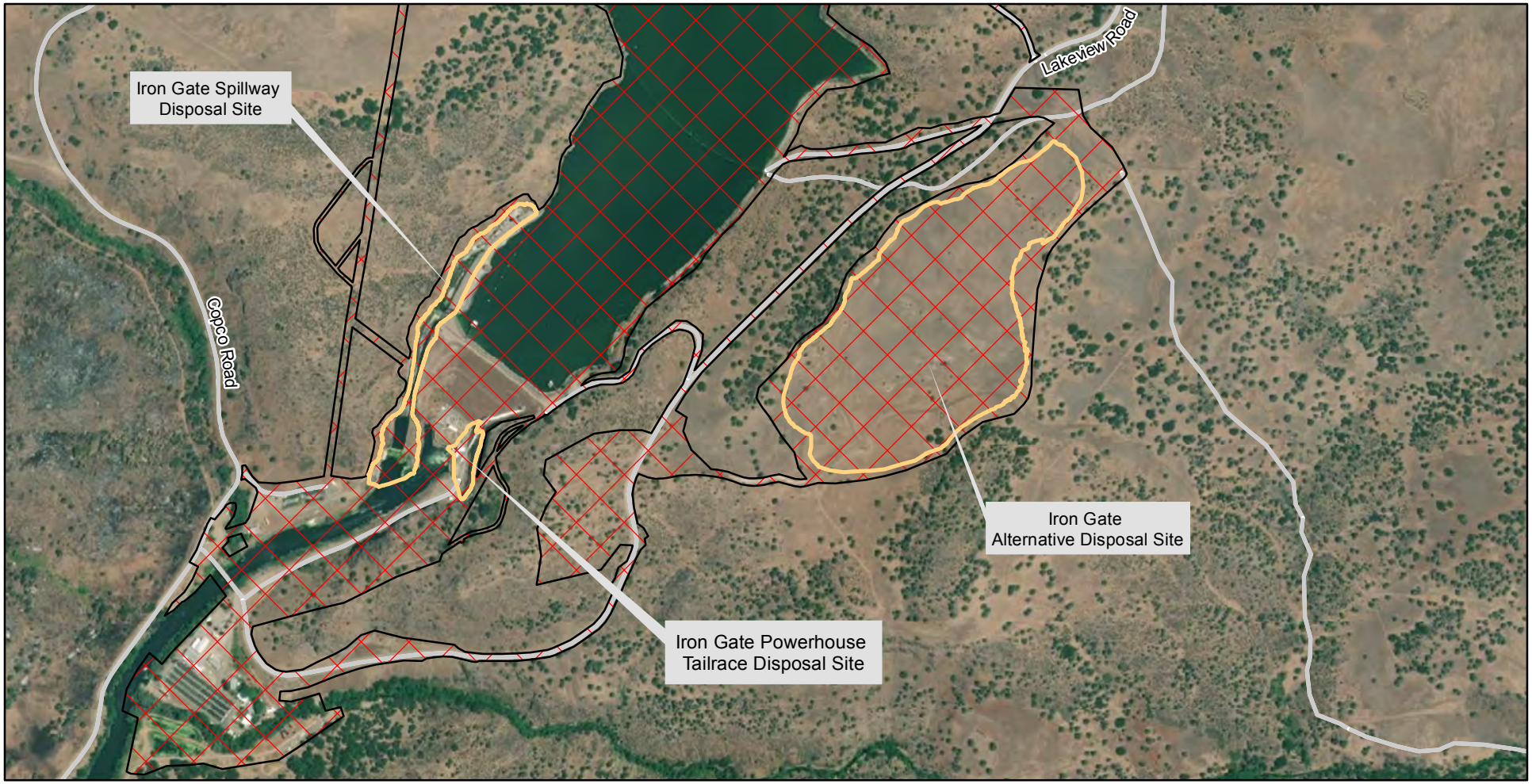
Lower Klamath Project

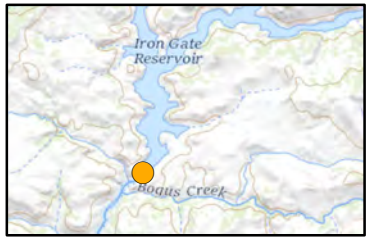
Figure A-2: Copco No. 1 Disposal Site - Plan and Profile

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)





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Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites, Limits of Work and Access Routes: Knight Piesold 100 design

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- Disposal Sites
- Limits of Work
- Roads

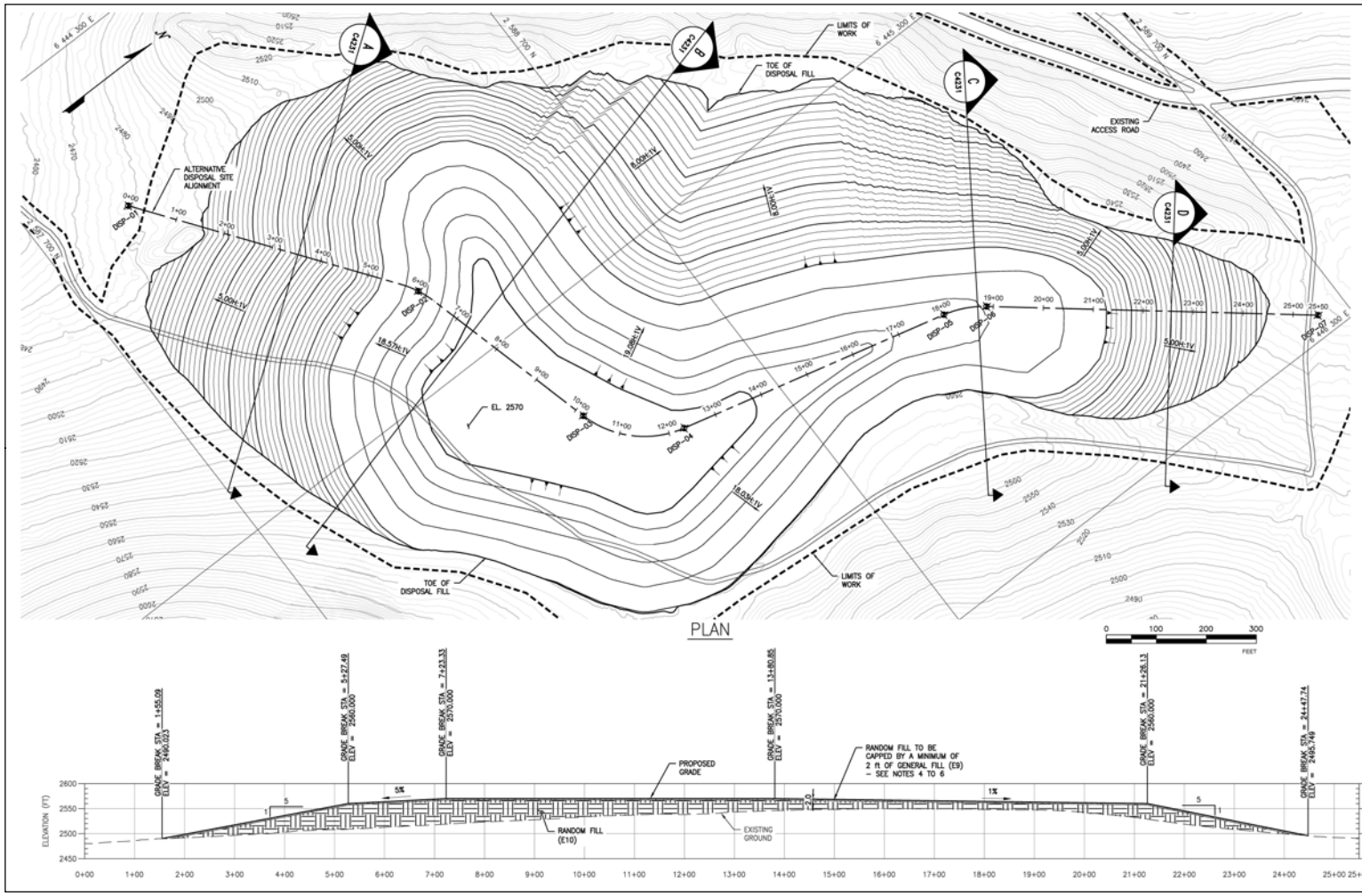
Lower Klamath Project

Figure A-3: Iron Gate Disposal Site Locations

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



PLAN

ES:

EFER TO GENERAL NOTES ON G0006 FOR INFORMATION EGARDING TOPOGRAPHIC AND BATHYMETRIC DATA SOURCES.

ONTOUR INTERVALS ARE 2 ft.

XACT FOOTPRINT OF DISPOSAL AREA TO BE ADJUSTED AS ECESSARY BY THE CONTRACTOR, BUT SHALL REMAIN INSIDE HE LIMITS OF WORK.

EE C4600 DRAWING SERIES FOR FINAL GRADE AND EROSION ONTROL REQUIREMENTS.

ANDOM FILL SHALL BE CAPPED BY A MINIMUM OF 2 ft OF ENERAL FILL.

PTION TO UTILIZE GENERAL FILL (E9) OR (E9b) AS COVER ATERIAL. FINAL STABILIZATION TREATMENTS DIFFER AS PER ECHNICAL SPECIFICATION 31 25 00.

OR CROSS SECTIONS, SEE C4231.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2.Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

GENERAL FILL (E9/E9b)

RANDOM FILL (E10)

Lower Klamath Project

Figure A-4: Iron Gate Upland Disposal Site Plan and Profile

KLAMATH RIVER RENEWAL CORPORATION

January, 2021

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)

N

0 55 110 220 Feet

(At original document size of 8.5 x 11)
1:1,600

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites, Limits of Work and Access Routes: Knight Piesold 100 design

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- Disposal Sites
- Limits of Work
- Roads

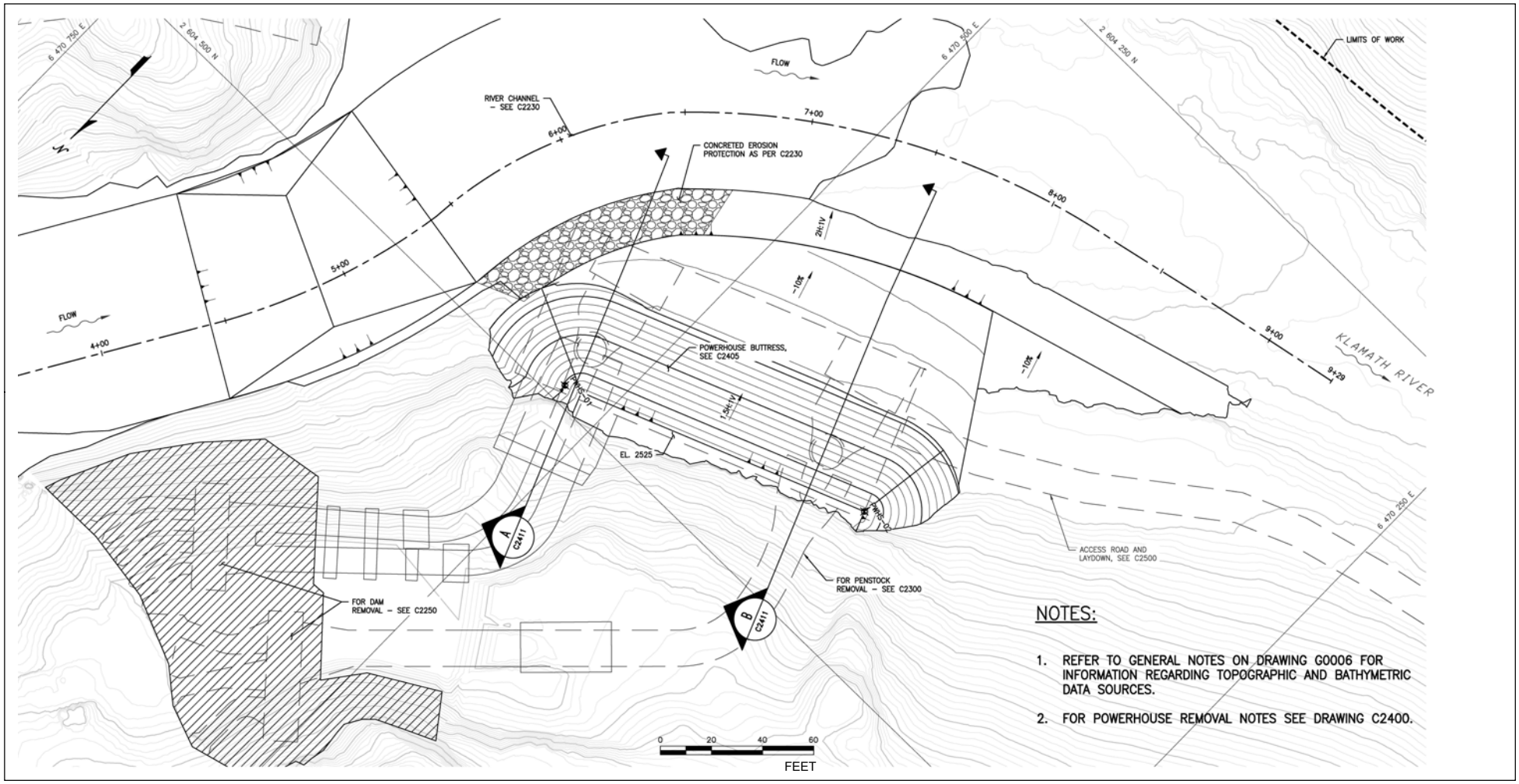
Lower Klamath Project

Figure A-5: Copco No. 1 Powerhouse and Tailrace Disposal Site

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

- LIMITS OF WORK
- DEMOLITION / REMOVAL
- EROSION PROTECTION MATERIAL (E7b)

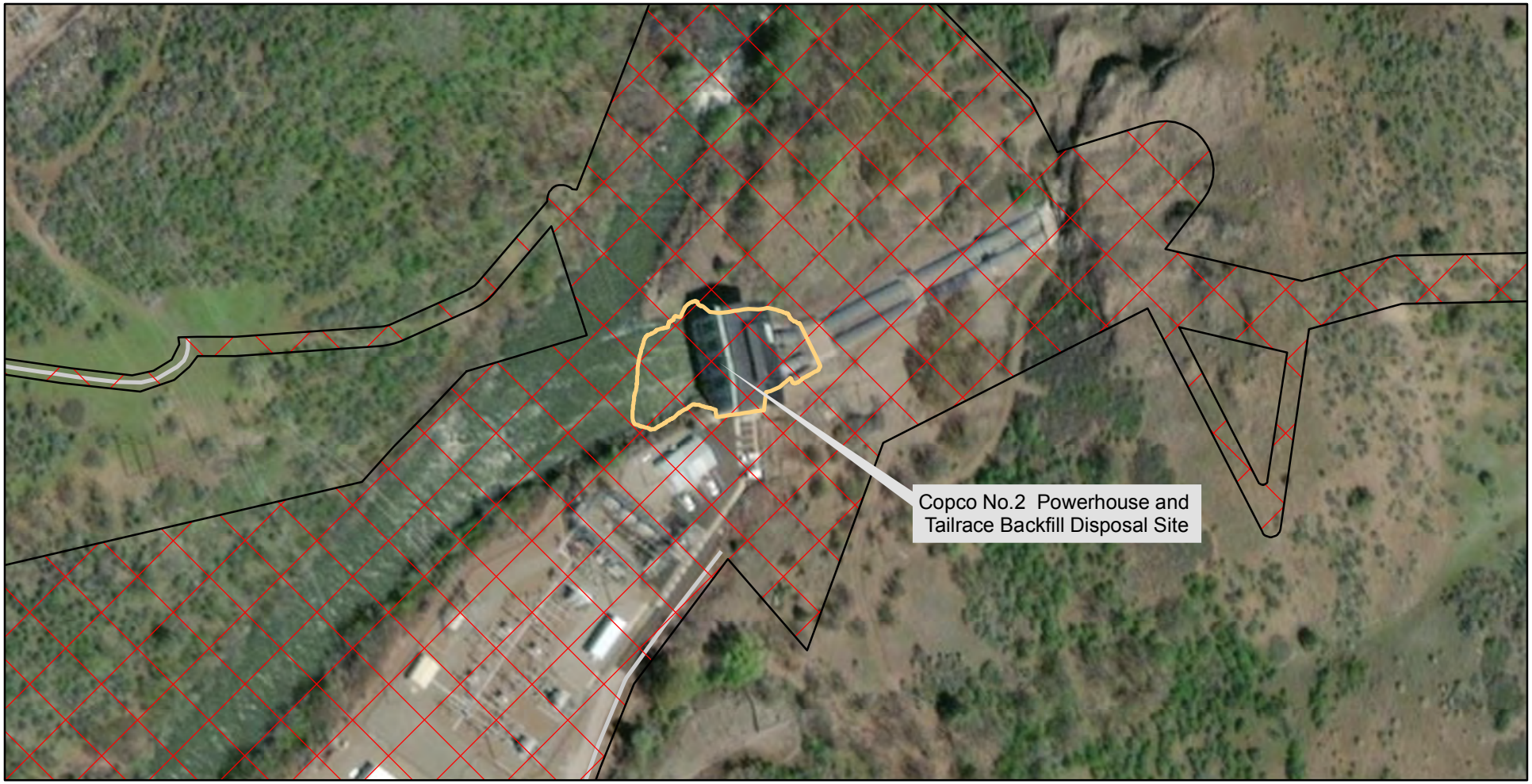
Lower Klamath Project

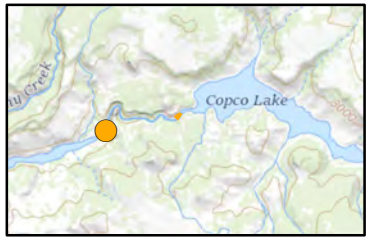
Figure A-6: Copco No. 1 Powerhouse and Tailrace Disposal Site Plan

KLAMATH RIVER RENEWAL CORPORATION

January, 2021

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)





N

0 65 130 260
Feet

(At original document size of 8.5 x 11)
1:1,880

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites, Limits of Work and Access Routes: Knight Piesold 100 design

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- Disposal Sites
- Limits of Work
- Roads

Lower Klamath Project

Figure A-7: Copco No. 2 Powerhouse and Tailrace Disposal Site

January, 2021

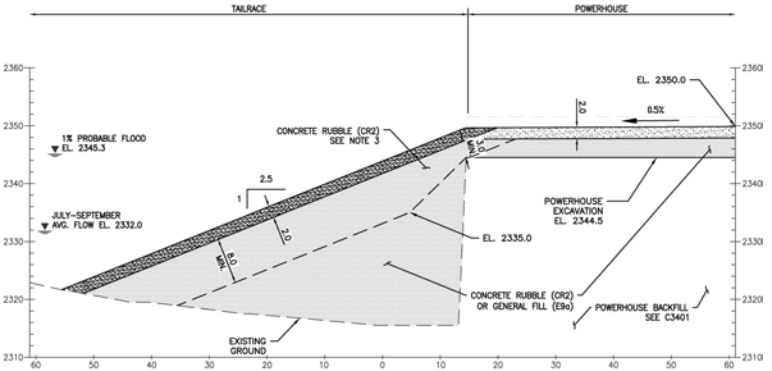
KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)

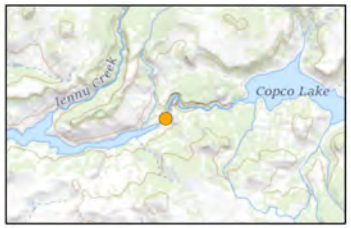
PLAN

NOTES:

1. REFER TO GENERAL NOTES ON DRAWING G0006 FOR INFORMATION REGARDING TOPOGRAPHIC AND BATHYMETRIC DATA SOURCES.
2. ALL DISPOSED CONCRETE SHALL BE COVERED WITH A MINIMUM FILL THICKNESS OF 2.0 ft.
3. MATERIAL MUST COMPRISE CONCRETE RUBBLE (CR2). NO GENERAL FILL (E9a) MATERIAL ALLOWED WITHIN THE DELINATED ZONE.
4. EXCAVATION EXTENTS OF THE COPCO NO. 2 POWERHOUSE BORROW SITE AS SHOWN REPRESENTS THE MAXIMUM ALLOWABLE EXCAVATION. CONTRACTOR SHALL EXCAVATE MATERIAL AS REQUIRED.
5. EXCAVATION SLOPES TO BE VERIFIED BY THE ENGINEER. EXCAVATION IN AREAS WITH SATURATED SOILS OR WITH SIGNIFICANT SEEPAGE MAY REQUIRE REDUCED SLOPE ANGLES AND/OR DEWATERING.
6. BOAT RAMP TO BE CONSTRUCTED OVER TAILRACE BACKFILL. SEE DRAWING C7620 AND C7621 FOR DETAILS.



A POWERHOUSE AND TAILRACE BACKFILL



Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet
2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.
3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

CONCRETE RUBBLE FILL (CR1) OR GENERAL FILL (E9)

LIMITS OF WORK

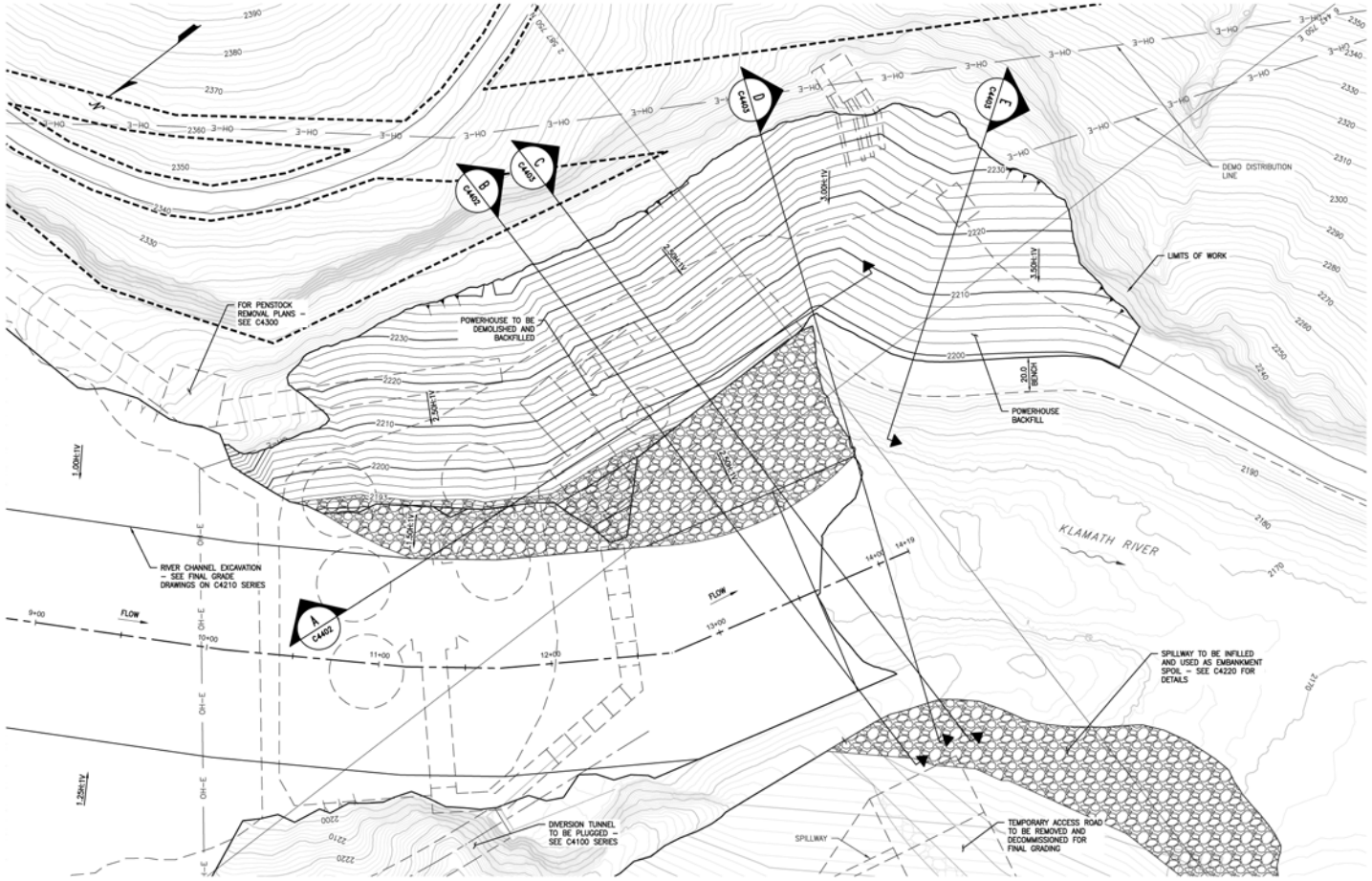
Lower Klamath Project

Figure A-8: Copco No. 2 Powerhouse and Tailrace Disposal Site Plan and Profile

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



POWERHOUSE SITE PLAN – FINAL GRADE

NOTES:

1. REMOVE ALL MECHANICAL AND ELECTRICAL EQUIPMENT PRIOR TO BACKFILL OF POWERHOUSE AND TAILRACE, WITH THE EXCEPTION OF EMBEDDED STEEL WHICH MAY BE BURIED IN PLACE.
2. ALL OIL AND WATER SUPPLY LINES TO BE FLUSHED PRIOR TO BACKFILL.
3. POWERHOUSE SITE INFILL AND SPOIL SHALL BE COMPRISED OF REMOVED EMBANKMENT MATERIALS (E9) OR CONCRETE RUBBLE (CR1).
4. ALL FILL SHALL BE CAPPED WITH A MINIMUM OF 3 ft OF COVER MATERIAL CONSISTENT WITH C4600 DRAWING SERIES.
5. POWERHOUSE BACKFILL SHALL PROVIDE EROSION PROTECTION (E7b) UPTO A MINIMUM ELEVATION OF 2193 ft.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

EROSION PROTECTION (E7b)

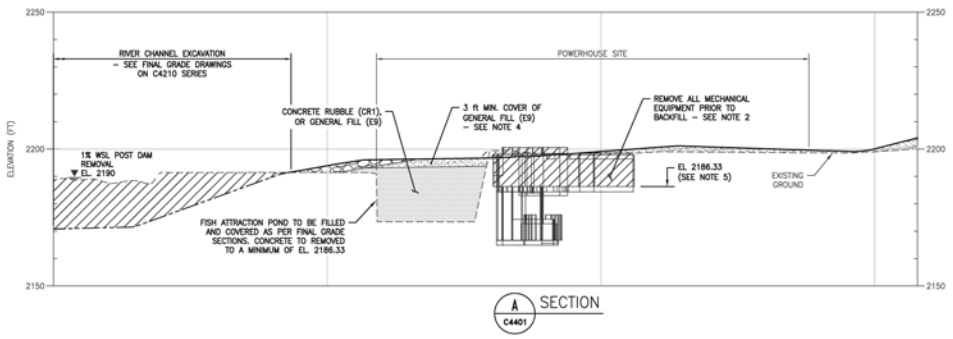
Lower Klamath Project

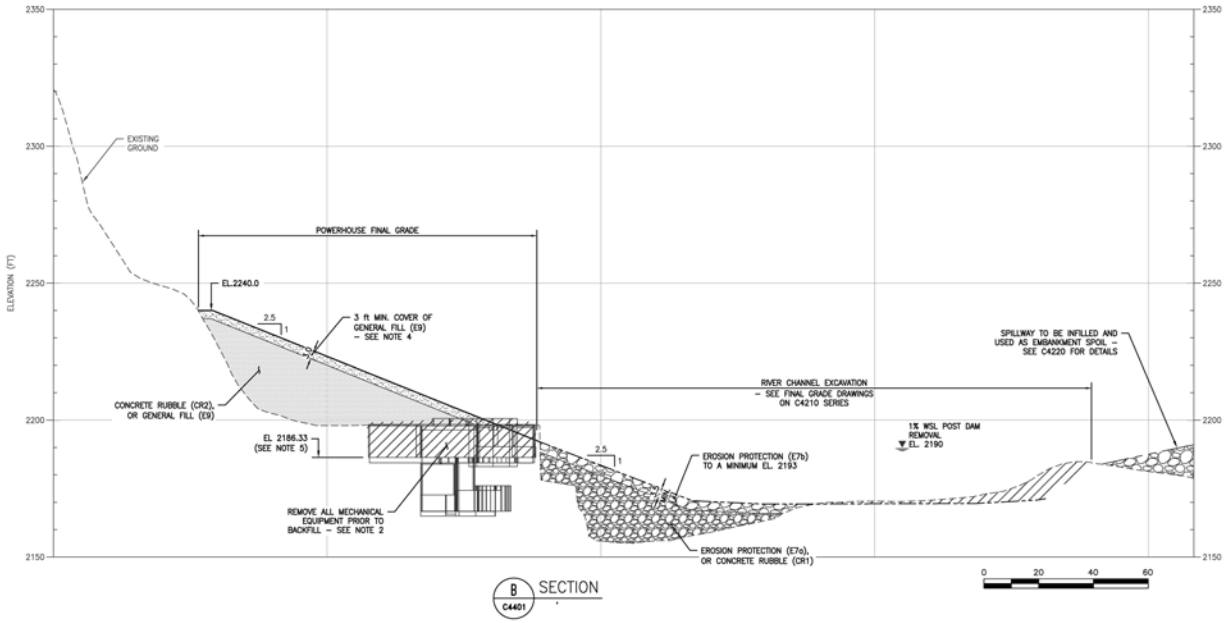
Figure A-9a: Iron Gate Powerhouse and Tailrace Disposal Site - Plan

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)





NOTES:

1. REMOVE ALL MECHANICAL AND ELECTRICAL EQUIPMENT PRIOR TO BACKFILL OF POWERHOUSE AND TAILRACE.
2. ALL OIL AND WATER SUPPLY LINES TO BE FLUSHED PRIOR TO BACKFILL.
3. POWERHOUSE SITE INFILL AND SPOIL SHALL BE COMPRISED OF REMOVED EMBANKMENT MATERIALS (E9) OR CONCRETE RUBBLE (CR1).
4. WHERE CONCRETE RUBBLE IS SPOILED, IT MUST BE CAPPED BY A MINIMUM LAYER OF 3 ft OF COVER MATERIAL.
5. RECOMMENDED MINIMUM CONCRETE REMOVAL IS 2186.33 ft.
6. POWERHOUSE FILL AND SPILLWAY FILL TOES SHALL BE CONSTRUCTED OF STOCKPILED RIPRAP FROM THE DOWNSTREAM FACE OF THE DAM UP TO ELEVATION 2193 ft OR PROTECTED WITH EROSION PROTECTION, FILL TYPE E7b AND BEDDING TYPE E8.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

- DEMOLITION / REMOVAL
- GENERAL FILL (E9)
- CONCRETE RUBBLE (CR1/CR2)
- EROSION PROTECTION (E7a/E7b)

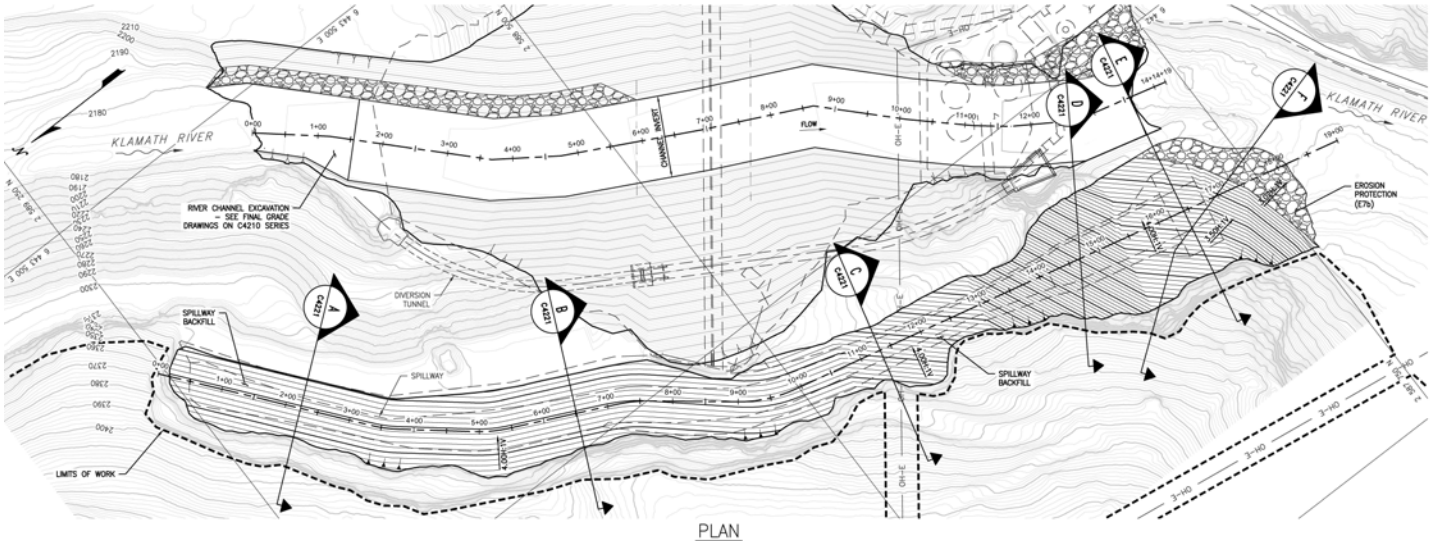
Lower Klamath Project

Figure A-9b: Iron Gate Powerhouse and Tailrace Disposal Site - Profile

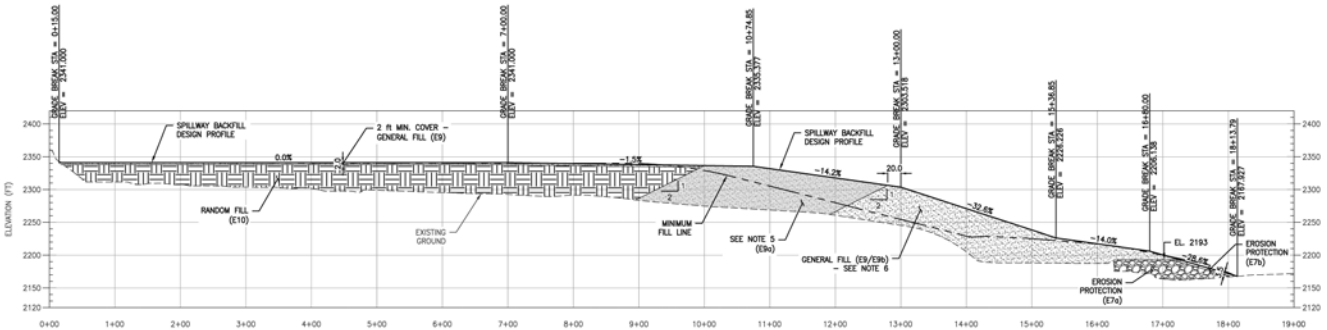
January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



PLAN



PROFILE

NOTES:

1. SPILLWAY INFILL MATERIALS SHALL BE COMPRISED OF REMOVED EMBANKMENT MATERIALS.
2. SPILLWAY INFILL SHALL BE INITIAL EMBANKMENT MATERIAL SPOIL AREA FOR THE UPPER PORTIONS OF THE EMBANKMENT REMOVAL.
3. PLACE EROSION PROTECTION ON DOWNSTREAM TOE OF SPILLWAY FILL ONCE COMPLETE, UPON FINAL GRADING, OR USE RIPRAP REMOVED FROM DOWNSTREAM FACE OF DAM DURING STAGE 1 FOR THE LOWER SPILLWAY LIFTS TO ESTABLISH RIPRAPPED TOE.
4. FOR EROSION AND SEDIMENT CONTROL DETAILS SEE DRAWING SERIES C4215 TO C4219.
5. WHERE E9a IS PLACED IN THE SPILLWAY DISPOSAL SITE, IT SHALL BE PLACED IN ACCORDANCE WITH THE LIFT THICKNESS AND COMPACTION REQUIREMENTS OF E9.
6. OPTION TO UTILIZE GENERAL FILL (E9) OR (E9b) AS COVER MATERIAL. FINAL STABILIZATION TREATMENTS DIFFER AS PER TECHNICAL SPECIFICATION 31 25 00.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet
2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.
3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

- DEMOLITION / REMOVAL
- GENERAL FILL (E9)
- CONCRETE RUBBLE (CR1/CR2)
- EROSION PROTECTION (E7a/E7b)

Lower Klamath Project

Figure A-10: Iron Gate Spillway Disposal Site Plan and Profile

KLAMATH RIVER RENEWAL CORPORATION

January, 2021

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)

Appendix C

Oregon Waste Disposal and Hazardous Materials Management Plan

KLAMATH RIVER RENEWAL CORPORATION

Lower Klamath Project
FERC Project No. 14803

Oregon Waste Disposal and Hazardous Materials Management Plan

Klamath River Renewal Corporation
2001 Addison Street, Suite 317
Berkeley, CA 94704

Prepared by:
Camas LLC
680 G Street, Suite C
Jacksonville, OR 97530

February 2021

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Table of Contents

List of Tables

Appendices

1.0 Introduction

The Oregon Waste Disposal and Hazardous Materials Management Plan described herein is a sub-plan of the Waste Disposal and Hazardous Materials Management Plan to be implemented as part of the Proposed Action for the Lower Klamath Project (Project).

1.1 Purpose of Waste Disposal and Management Plan

The Oregon Waste Disposal and Hazardous Materials Management Plan describes the measures the Renewal Corporation (directly or through its contractor) will implement to manage hazardous and non-hazardous waste and materials resulting from the Proposed Action for portions of the Project located in Oregon. The Renewal Corporation proposes to handle, store, transport, treat and dispose of hazardous waste and hazardous material in accordance with applicable federal, state and local law.

In addition, the Oregon Waste Disposal and Hazardous Materials Management Plan states the measures the Renewal Corporation will implement to decommission existing septic tanks in accordance with the Oregon Administrative Rule (OAR) 340-71.

1.2 Relationship to Other Management Plans

The Oregon Waste Disposal and Hazardous Materials Management Plan is supported by elements of the following management plans for effective implementation: Remaining Facilities Plan, Reservoir Area Management Plan, Construction Management Plan, Erosion Sediment, Control Plan, Health and Safety Plan, Waste Disposal and Hazardous Materials Management Plan (sub-plans). So as to not duplicate information, elements from these other management plans are not repeated herein but are, where appropriate, referred to in this Oregon Waste Disposal and Hazardous Materials Management Plan.

2.0 Non-Hazardous Waste

2.1 Quantity and Type of Anticipated Non-Hazardous Waste

The precise quantities and types of non-hazardous wastes generated by the Proposed Action will be determined in connection with waste characterization activities at the time of generation. Generally accepted waste characterization procedures will also be observed by the Renewal Corporation (directly or through its contractor) with respect to non-hazardous wastes.

Non-hazardous waste will be stored, managed, and disposed of in accordance with all local, state, and federal applicable laws.

Anticipated non-hazardous waste to be generated during the decommissioning of the J.C. Boyle Development is presented in Table 2-1. Specifically, the approximate bulk quantity, type of non-hazardous waste, and the proposed disposal locations (on-site and off-site) are presented below

and based on the Knight Piesold and Kiewit 100% Design Report (KP/Kiewit 2020). A description of these materials is presented in Section 2.2 (Knight Piesold 2013).

Table 2-1. Non-Hazardous Waste Disposal

TYPE	QUANTITY	ANTICIPATED DISPOSAL LOCATION
Earthen Material	130,800 CY	Disposed of on-site: • Barrow Site Disposal Site • Right Bank Disposal Site • Left Bank Disposal Site • Scour Hole Disposal Site • Powerhouse and Tailrace Disposal Site
Concrete Rubble[1]	51,900 CY	Disposed of on-site: • Scour Hole Disposal Site • Powerhouse and Tailrace Disposal Site
Building Waste[2]	2,700 CY	Disposed of off-site: • Recycler or Permitted Landfill, pending selected contractor
Rebar	4,100 tons	Disposed of off-site: • Recycler
Mechanical and Electrical Materials	2,500 tons	Disposed of off-site: • Permitted Landfill, pending selected contractor
Transmission Lines	2.8 miles	Disposed of off-site: • Permitted Landfill, pending selected contractor

Notes:

1. Subject to confirmation by waste characterization at the time of generation, it is anticipated that earthen materials removed during decommissioning will constitute Inert waste.
2. If access to rebar is safe, rebar protruding out of concrete will be cut flush and recycled off-site. Rebar and steel embedded in concrete will remain in its encased condition and buried.
3. Building waste, which is anticipated to be non-hazardous solid waste subject to confirmation by waste characterization, includes but is not limited to steel penstocks, generator equipment, gates, valves, lighting, HVAC etc.

2.2 Material Descriptions

Table 2-2 includes materials that will either be placed within on-site disposal sites, used as a capping material, or for erosion and sediment control purposes. In addition, the source of the materials is included in the table.

Table 2-2. Material Descriptions

TYPE	DESCRIPTION	DEFINITION
E	Earthfill (Earthen Material)	Natural earth materials excavated from the surrounding area.

TYPE	DESCRIPTION	DEFINITION
E4	Select Fill	Cobbles, Gravel, and Sand, particles ranging from 4 in. to the #200 Sieve (0.0030 in.), low to no fines content, sourced offsite.
E9	General Fill (Earthen Material)	Boulders, Cobbles, Gravel, Sand and Fines, particles ranging from 20 in. to silt and clay, up to 30% fines content, sourced from project excavations or nearby borrow areas within limits of work.
E9a	General Fill (Earthen Material)	Boulders, Cobbles, Gravel, Sand and Fines, particles ranging from 20 in. to silt and clay, up to 40% fines content, sourced from project excavations or nearby borrow areas within limits of work.
E9b	General Fill (Earthen Material)	Boulders, Cobbles, Gravel and Sand, particles ranging from 20 in. to the #200 sieve (0.0030 in), low to no fines content, sourced from project excavations or nearby borrows area within limits of work.
E10	Random Fill (Earthen Material)	Overburden, Rocks or Organics, no gradation requirements, sourced from project excavations.
CR1	Concrete Rubble[1,2]	Particles ranging from 36 in. to the #200 Sieve (0.0030 in.), with up to 30% fines content, steel reinforcement to remain concrete, sourced from demolition of onsite concrete structures[2].
CR2	Concrete Rubble[1,2]	Particles ranging from 24 in. to the #200 Sieve (0.0030 in.), with up to 30% fines content, steel reinforcement to remain concrete, sourced from demolition of onsite concrete structures.

Notes:

1. Hazardous materials and substances will be removed, as required per the Hazardous Materials Disposal Plan, prior to burying concrete rubble in a disposal site.
2. If access to rebar is safe, rebar protruding out of concrete will be cut flush and recycled off-site. Rebar and steel embedded in concrete will remain in its encased condition and buried.

3.0 Upland Disposal Sites

General Fill (Earthen Material) and Concrete Rubble will be disposed of at four on-site upland disposal sites (Upland Disposal Sites). Details pertaining to the location, construction, size, disposal materials, and associated figures for each disposal site are presented in Table 3-1. The Renewal Corporation will divert non-earthen material from being placed into the disposal sites. Disposal site locations were selected where drainage patterns can be preserved, such that onsite disposal would not create a threat to water quality. The disposal site is detailed in two figures; one figure depicts general site location, and the second figure presents a plan and profile of the disposal site. Figures are presented in Appendix A.

3.1 Erosion and Sediment Control

Erosion and sediment control temporary best management practices (BMPs) for the on-site disposal sites are presented in the Erosion and Sediment Control Plan (ESCP) required as part of the National Pollutant Discharge Elimination System (NPDES) 1200C Construction Stormwater General Permit.

Following the final placement of material within the disposal sites, permanent BMPs will be installed for final stabilization. Final stabilization will be completed in accordance with the ESCP and design package and consists of placing native rock and soil as a final cover material. Monitoring and reporting required as part of the ESCP will be conducted as part of achieving final stabilization.

3.2 Monitoring

The disposal sites will be inspected annually following installation of permanent BMPs. Inspection records documenting the cover placement, evidence of erosive conditions or sediment run-off, and corrective actions performed or proposed for long-term stability will be included in an Annual Compliance Report submitted by April 1 for the preceding year in which activities are performed.

Table 3-1 Upland Disposal Sites

LOCATION	CONSTRUCTION	SIZE/INFILL CAPACITY	DISPOSAL MATERIALS	FIGURES
BARROW PIT DISPOSAL SITE (ALTERNATE)				
• Located approximately 1,000 feet northwest of J.C. Boyle dam, below existing transmission lines. The location is approximately 3,850 MSL, which is approximately 44 feet above the anticipated Klamath River active stream channel.	• Located above anticipated post-drawdown OHWM. • Clear vegetation. • Place disposal materials on existing ground surface.[1] • 3.6H:1V to 7H:1V slope range (varying slopes are to provide final natural looking contours).	• Disposal area is approx. 6 acres • Infill capacity is approx. 130,800 CY	• General Fill (E9) • Random Fill (E10)	Appendix A: Figure A-1 – J.C. Boyle Disposal Site – Barrow Site Appendix A: Figure A-2a – J.C. Boyle Disposal Site– Barrow Site Plan Appendix A: Figure A-2b – J.C. Boyle Disposal Site– Barrow Site Profile
SCOUR HOLE DISPOSAL SITE				
• Located between J.C. Boyle canal spillway and the Klamath River. • The location is approximately between 3,579 and 3,771 MSL, which is approximately 30 feet	• Located above anticipated post-drawdown OHWM. • Rock material eroded from scour hole to be left in place. • Place disposal materials within scour hole. • 1.7H:1V slope range.	• Disposal area is approx. 1.8 acres • Infill capacity is approx. 45,000 CY •	• Concrete Rubble (CR1/CR2) • General Fill (E9/E9a/E9b)	Appendix A Figure A-3– J.C. Boyle Disposal Site – Scour Hole Appendix A: Figure A-4a: J.C.

LOCATION	CONSTRUCTION	SIZE/INFILL CAPACITY	DISPOSAL MATERIALS	FIGURES
above the anticipated Klamath River active stream channel.	• Cap with minimum 6-foot cover of General Fill (E9 or E9b). • Grade and slope for drainage to surrounding topography. • Final erosion and sediment control stabilization (see Section 3.1).			Boyle Disposal Site – Scour Hole Plan Appendix A: Figure A-4b: J.C. Boyle Disposal Site – Scour Hole Profile
LEFT BANK DISPOSAL SITE				
• Located on the left bank upstream of the dam. The location is approximately between 3,768 and 3,798 MSL, which is approximately 60 feet above the anticipated Klamath River active stream channel.	• Located above anticipated post-drawdown OHWM. • Remove residual reservoir sediment from bank. • Place disposal materials on slope. • Slope varies. • Cap with minimum 6-foot cover of General Fill (E9/E9b). • Grade and slope for drainage to surrounding topography. • Final erosion and sediment control stabilization (see Section 3.1).	• Disposal area is approx. 10.8 acres • Infill capacity is approx. 122,000 CY	• Random Fill (E10) • General Fill(E9/E9b) •	Appendix A Figure A-5– J.C. Boyle Disposal Site – Right and Left Bank Appendix A: Figure A-6a: J.C. Boyle Disposal Site - Right and Left Bank Disposal Plan Appendix A: Figure A-6b: J.C. Boyle Disposal

LOCATION	CONSTRUCTION	SIZE/INFILL CAPACITY	DISPOSAL MATERIALS	FIGURES
				Site – Right and Left Bank Profile
RIGHT BANK DISPOSAL SITE				
• Located on the right bank upstream of the dam The location is approximately between 3,778 and 3,798 MSL, which is approximately 60 feet above the anticipated Klamath River active stream channel.	• Located above anticipated post-drawdown OHWM. • Remove residual reservoir sediment from bank. • Place disposal materials on slope. • Slope varies • Cap with minimum 2-foot cover of General Fill (E9/E9b). • Grade and slope for drainage to surrounding topography. • Final erosion and sediment control stabilization (see Section 3.1).	• Disposal area is approx. 2.3 acres • Infill capacity is approx. 14,300 CY	• Random Fill (E10) • General Fill (E9/E9b)	Appendix A Figure A-5– J.C. Boyle Disposal Site – Right and Left Bank Appendix A: Figure A-6a: J.C. Boyle Disposal Site - Right and Left Bank Disposal Plan Appendix A: Figure A-6b: J.C. Boyle Disposal Site – Right and Left Bank Profile

Notes:

1. The Barrow Pit disposal site design is currently progressing and details pertaining to the construction will be provided at a later date.

4.0 Powerhouse and Tailrace Disposal Site

General Fill and Concrete Rubble will be disposed of in existing structures (i.e., powerhouse and tailrace). Details pertaining to the location, construction, size, disposal materials, location in relation to the anticipated post-drawdown Ordinary High-Water Mark (OHWM) and associated figures for the disposal site is presented in Table 4-1. The disposal site is detailed in two figures; one figure depicts general site location, and the second figure presents a plan and profile of the disposal site. Figures are presented in Appendix A.

4.1 Erosion and Sediment Control

Following the final placement of material within the disposal site, permanent BMPs will be installed for final stabilization. Permanent BMPs consist of capping (i.e. cover material) the disposal site with two feet of material, minimum. Details of the capping material and thickness is presented in Table 4-1 and are presented on the applicable figures.

Following final stabilization, the disposal site will be monitored visually on an annual basis to determine if the permanent BMPs are stable and are protective of water quality. Final stabilization will be completed in accordance with the ESCP and design package and consists of placing native rock and soil as a final cover material. Monitoring and reporting required as part of the ESCP will be conducted as part of achieving final stabilization.

Table 4-1. Powerhouse and Tailrace Disposal Site

LOCATION	CONSTRUCTION	SIZE/INFILL CAPACITY	DISPOSAL MATERIALS	FIGURES
POWERHOUSE AND TAILRACE DISPOSAL SITE				
• Located adjacent to the J.C. Boyle Powerhouse Road and the Klamath River.	• Located partially below anticipated post-drawdown OHWM. • Remove interior electrical, mechanical, and miscellaneous fixtures not imbedded in concrete from powerhouse prior to backfill. • Place disposal materials within former tailrace and portion of powerhouse. • Cap with a minimum of 2-foot cover of General Fill (E9/E9b). • Cap with a minimum of 2-foot cover of Select Fill (E4) on the downward slope of the toe for erosion protection.	• Disposal area is approx. 0.3 acres • Infill capacity is approx. 6,000 CY	• Concrete Rubble (CR2) • General Fill (E9/E9b)	Appendix A: Figure A-7– J.C. Boyle Disposal Site – Powerhouse and Tailrace Appendix A: Figure A-8a– J.C. Boyle Disposal Site – Powerhouse and Tailrace Plan Appendix A: Figure A-8b– J.C. Boyle Disposal Site – Powerhouse and Tailrace Profile

5.0 Hazardous Waste Types

Specific procedures are required to handle, store, transport, treat, and dispose of hazardous waste to maintain compliance with federal, state, and local regulations. The following section categorizes various waste types consistent with applicable laws and specifies what constitutes a waste of that type.

5.1 RCRA Hazardous Waste

Hazardous waste is federally regulated by environmental agencies including the Environmental Protection Agency (EPA). A waste is considered Resource Conservation and Recovery Act (RCRA) hazardous waste if:

1. It is not excluded or exempt from classification as a waste or a hazardous waste; and
2. It meets hazardous waste classification criteria including:
    a. It exhibits any hazardous characteristic under applicable laws (ignitability, corrosivity, reactivity, or toxicity);
    b. It is a “listed waste” appearing on one of four lists prepared and maintained by environmental agencies including EPA (the F, K, P and U lists); or
    c. It is a mixture of a waste and one or more hazardous wastes. However, mixtures of wastes and hazardous wastes are not hazardous wastes, if the generator can demonstrate that the mixture consists of wastewater, the discharge of which is authorized under either section 402 or section 307(b) of the Clean Water Act.

5.2 RCRA Characteristic Hazardous Wastes

A RCRA Characteristic hazardous waste is a solid waste that exhibits at least one of the four characteristics presented below:

Flammability/Ignitability

A solid waste is ignitable if it has any of the following properties: (1) it is a liquid and has a flash point below 140 ºF, (2) it is not a liquid and can cause fire through friction, absorption of moisture or spontaneous chemical changes and when ignited it burns so vigorously that it creates a hazard, (3) it is an ignitable compressed gas, and (4) it is an oxidizer.

Corrosivity

A solid waste is corrosive if it has any of the following properties it is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5 or is a liquid and corrodes steel at a rate greater than 0.25 inches a year.

Reactivity

A solid waste is reactive if it has any of the following properties: (1) it is normally unstable and readily undergoes violent change without detonating, (2) it reacts violently with water, (3) it forms explosive mixtures with water, (4) when mixed with water it generates toxic gases, vapors,

or fumes, (5) it is a cyanide or sulfide bearing waste, which when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes, (6) capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement, and (7) it is readily capable of detonation or explosive reaction at standard temperature.

Toxicity

A solid waste exhibits the characteristic of toxicity if it is equal to or exceeds the Toxicity Characteristic Leaching Procedure (TCLP) limit listed in 40 CFR 261.24 Table I – Maximum Concentration of Contaminants for the Toxicity Characteristic.

5.3 RCRA Listed Hazardous Wastes

A RCRA Listed hazardous waste is a solid waste the EPA has determined to be hazardous waste. There are three categories of listed wastes:

1. Chemical products which are regulated as hazardous wastes when they are discarded commercial chemical products, off-specification species, container residues, and spill residues thereof (P and U waste codes listed materials).
2. Specific wastes from specific types of industrial processes (K waste code).
3. Wastes from non-specific types of industrial processes (F waste code).

5.4 Non-RCRA Hazardous Waste

5.4.1 Asbestos

Disturbance of any asbestos containing material (ACM) or asbestos containing waste material could generate airborne asbestos fibers and would be regulated by the Oregon Department of Environmental Quality (DEQ). DEQ worker health and safety regulations apply during any disturbance of ACM or asbestos containing waste material by a person while in the employ of another.

5.4.2 Lead

Disturbance of lead containing products or surfaces (which does not include remediating a lead hazard or specifically designed to remove LBP to reduce or eliminate a known hazard), would be considered lead related construction work.

5.5 Universal Waste

Universal wastes are hazardous wastes that are common to the workplace and pose a lower risk to people and the environment than other hazardous wastes. Types of waste streams regulated as universal wastes include the following:

- Batteries
- Pesticides
- Mercury-containing equipment

- Mercury-containing lamps (fluorescent light tubes and high-intensity discharge or HID lamps)

5.6 Used Oil

The DEQ defines used oil as any oil that has been refined from crude or synthetic oil and used as one of the following: lubricant, electrical insulation oil, hydraulic fluid, heat transfer oil, brake fluid, refrigeration oil, grease, and machine cutting oil. Used oil can be recycled to make new lubricants or used as an industrial fuel under established safeguards. When properly recycled, it is excluded from hazardous waste regulation.

Used oil does not include the following: used oil mixed with hazardous waste, petroleum and synthetic-based products used as solvent, antifreeze, wastewaters, from which the oil has been removed, and oil-contaminated media or debris. Other materials that contain or are contaminated with used oil may also be subject to regulation as “used oil”.

5.7 Oregon State Only Hazardous Waste

The DEQ recognizes RCRA listed wastes as hazardous, with a few exceptions that fall into the acutely hazardous category. Oregon adds to the federally listed hazardous wastes:

- Any residue, including manufacturing process wastes and unused chemicals, that has either: a 3 percent or greater concentration of any substance or mixture of substances listed in 40 CFR 261.33(e), or a 10 percent or greater concentration of any substance or mixture of substances listed in 40 CFR 261.33(f).
- Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill into or on any land or water, of either: a residue identified in OAR 340-101-0033(2)(a)(A) or a residue identified in subsection OAR 340-101-0033 (2)(a)(B).
- X001 for Waste Pesticide residue, except for those that are managed as universal wastes; or whose constituents are listed in 40 CFR 261.24 (a) but are below the prescribed regulatory levels.

5.8 Waste Characterization

To determine the manner in which waste is required to be handled, stored, treated, transported or disposed, the waste generator must perform waste characterization in accordance with applicable laws. Generally accepted methods of waste characterization in Oregon include the following:

1. Testing or sampling the waste according to approved methods (Sampling & Analysis); or
2. Applying knowledge of the hazardous properties of the waste considering the materials or the processes used and the characteristics (Process Knowledge).

6.0 Previous Environmental Evaluations

6.1 Phase I Environmental Site Assessments

Phase I Environmental Site Assessments (ESA) have been conducted for the Proposed Action to identify the presence, nature, and quantities of hazardous waste prior to commencement of dam removal. These ESAs are summarized below.

Phase I Environmental Site Assessment
J.C. Boyle Dam, Copco No. 1 Dam, Copco No. 2 Dam, Iron Gate Dam, Iron Gate Fish Hatchery
Prepared by AECOM, for the Renewal Corporation
November 2018

The 2018 ESA included an assessment of the J.C. Boyle, Copco No. 1, Copco No. 2, Iron Gate, and Iron Gate Fish Hatchery Developments. The summary provided below includes information pertaining to the J.C. Boyle Development and does not include the undeveloped lands surrounding the J.C. Boyle Development. The objectives of this report were to identify Recognized Environmental Conditions (RECs) that may exist at the J.C. Boyle Development. The 2018 ESA did not identify the presence of RECs associated with the J.C. Boyle Development. Although RECs were not identified as part of the ESA, Additional findings include the following:

- An environmental regulatory database report identified an underground storage tank (UST) at the “J C BOYLE POWER PLANT”. The report noted that this listing was an unmappable location due to poor or inadequate address information. No further information was available with regards to the specific location of the UST or whether it has been removed.
- One 500-gallon diesel and one-1,000-gallon gasoline above-ground storage tank (AST) and associated dispenser pumps are located adjacent to the Hazardous Material Storage Shed. Both ASTs are double walled, are properly labeled and are underneath a permanent “cover”, on top of concrete pads and appear to be in good condition with no observable signs of leakage. A metal grate was noted within the concrete fueling pad in front of the ASTs that drains to an oil-water separator. Although scattered snow and ice cover the areas surrounding the ASTs, no observable signs of staining, petroleum odors or distressed vegetation were noted.

According to PacifiCorp’s 2019 SPCC Plan, there are no USTs located at the J.C. Boyle Development. Any gasoline in the AST will be excluded from the manifest, the generator category, and management as hazardous waste when managed under 40 CFR 261.2(c)(2)(ii).

Draft Phase I Environmental Site Assessment
Parcel B Lands
Prepared by AECOM, for the Renewal Corporation
January 2020

The subject of the 2020 ESA includes an assessment of the undeveloped land, known as Parcel B lands surrounding the J.C. Boyle Development. The objectives of this report were to identify RECs that may exist on the Parcel B lands surrounding the J.C. Boyle Development. Two RECS were identified as part of the Phase I ESA and are included below.

Dispersed Recreation Area – 2

A burn pit and stressed vegetation were identified on the north banks of the northeast side of the J.C. Boyle Reservoir, approximately 2,200 feet east of Spencer Creek. The burn pit is approximately 10 feet by 10 feet and contains ash, charred wood, broken glass, and other debris. The burning of these materials may generate contaminants that can leach into the soil and groundwater beneath the pit. A Phase II ESA soil and groundwater assessment is proposed to assess potential impacts.

Debris Piles

Three debris piles containing chopped wood, trees, household materials and appliances, potentially treated wood beams and metal scraps were observed approximately 600 feet west of Topsy Grade Road and 1,000 feet south of the J.C. Boyle Reservoir. Since the nature of this debris is unknown, a Phase II soil and groundwater assessment is proposed to assess potential impacts.

A Phase II ESA to address the aforementioned RECs will be conducted as part of the land transfer.

6.2 Hazardous Waste Surveys and Inventory

6.2.1 Surveys

The Renewal Corporation conducted surveys to identify and quantify hazardous waste with potential to be generated from demolition of dams and associated structures that will be managed and disposed of as part of the Proposed Action.

Hazardous Building Material Surveys (HBMSs)
J.C. Boyle Development
Prepared by AECOM, for the Renewal Corporation
April 2019

A HBMS was conducted in April 2019 at the J.C. Boyle Developments. The purpose of the HBMS survey was to provide information regarding the presence of lead-based paint (LBP) containing coatings, polychlorinated biphenyls (PCB)-containing light ballasts, PCB-containing caulking, and mercury-containing sources, and the presence, location, and quantity of asbestos containing materials (ACMs), for the purposes of decommissioning planning. Hazardous

materials identified as part of this survey are presented as part of the October 2020 surveys presented below.

Hazardous Materials Survey Report (HMS)
J.C. Boyle Development
Prepared by Entek Consulting Group, Inc. for NV5
October 2020

A HMS was conducted in October 2020 at the J.C. Boyle Development. The purpose of this survey was to conduct a supplementary investigation to the April 2019 HBMS for hazardous materials. The October 2020 survey results include the April 2019 survey results. Since the HMS report is a compilation of the surveys conducted in 2019 and 2020, this report is included as Appendix B.

6.2.2 Hazardous Materials Inventory

The hazardous wastes identfied as part of the surveys are presented in the following tables within Appendix C.

- Table C-1.: Universal Waste Inventoary
- Table C-2.: Non-RCRA Hazardous Waste Inventory
- Table C-3.: Characteristic Hazardous Waste Inventory

7.0 Hazardous Waste and Material Management

7.1 Hazardous Waste Generator

As a likely generator or co-generator of hazardous waste, the Renewal Corporation will conduct waste characterization for solid waste streams associated with the Proposed Action at the time of generation in compliance with generally accepted waste characterization procedures under applicable laws. The Renewal Corporation (directly or through its contractor) will manage all wastes characterized as hazardous waste produced as part of the Proposed Action in accordance with applicable federal and state law.

7.2 Training Requirements

Personnel will be trained to handle hazardous waste and materials in compliance with applicable federal and state laws. The Health and Safety Plan states additional personnel training requirements relevant to the handling of hazardous waste and hazardous materials.

7.3 Personnel Safety

Please reference the Health and Safety Plan for guidelines on personnel health and safety when handling hazardous waste and materials. The Renewal Corporation has also developed an Emergency Response Plan if accidents involving personnel.

7.4 Storage

Hazardous waste and materials will be stored in compliance with applicable laws and managed to prevent spills or releases of hazardous substances and to prevent the mixing of incompatible waste streams until they can be properly disposed of in accordance with local, state, and federal regulations. Storage locations will be selected prior to implementing the Proposed Action.

7.4.1 Hazardous Waste Storage

Hazardous waste will be stored prior to offsite transport and disposal in compliance with applicable laws and regulations, including rules governing waste generator pre-transport requirements and hazardous waste accumulation timelines.

7.4.2 Universal Waste Storage

The Renewal Corporation will store batteries, pesticides, mercury-containing equipment, and mercury-containing lamps (fluorescent light tubes and high-intensity discharge or HID lamps) in accordance with applicable universal waste storage regulations.

7.4.3 Used Oil

Used oil will be stored in accordance with applicable standards for management of used oil.

7.5 Transportation

Hazardous waste and materials will be transported in accordance with all local, state, and federal regulations

7.5.1 Hazardous Waste and Materials

Hazardous waste and materials will be transported by a licensed hazardous waste transporter in accordance with applicable laws. Before being transported, waste and materials will be packaged, labeled, and marked in accordance with application requirements of governmental agencies. Hazardous waste transporters will obtain a completed and signed Uniform Hazardous Waste Manifest. Hazardous waste and materials will be contained in an appropriate container when transported.

7.5.2 Universal Hazardous Waste and Materials

Universal waste and materials will be transported to an offsite authorized universal waste off-site collection site or to a universal waste destination facility, which will be determined at the time of disposal. An off-site collection site is a location where the waste may be shipped for consolidation before shipment to a universal waste destination facility.

Universal waste shall be transferred to a destination facility that treats, recycles, or disposes of universal will meet applicable state and federal transportation requirements for packaging, labeling, placarding, and shipping papers.

7.5.3 Used Oil

Used oil generators shipping more than 55 gallons of used oil at a time will use a DEQ registered used oil transporter. The transporter will deliver used oil collected from the generator to:

- Another used oil transporter who also has obtained a DEQ or EPA identification number
- A used oil processing/re-refining facility that has obtained a DEQ/EPA identification number •
- An off-specification used oil burning facility that has obtained a DEQ/EPA identification number
- An on-specification used oil burning facility

7.6 Containment

Containment of hazardous wastes will be managed in accordance with applicable local, state, and federal regulations.

7.6.1 Hazardous Waste and Material Containment

As discussed above, hazardous waste and materials will be stored in compliance with applicable laws and regulations, including rules governing waste generator pre-transport requirements and hazardous waste accumulation timelines.

Storage locations for hazardous waste and materials to be used in connection with the Proposed Action will include secondary containment units so that if a leak occurs, it will be contained and not allowed to enter the surrounding environment. If there is a fuel storage on-site, the containment will have a minimum volume of 120 percent of the volume of the largest container stored in that area. Secondary containment will be maintained, clean, and free of standing water.

Hazardous waste and materials will be stored and protected from rain and runoff to avoid contamination of soil or transfer to a water source. Along with utilizing the correct storage container, the Renewal Corporation will label, tag, or mark each substance with overall signage including the name of the substance, the hazard warning (e.g., corrosive, poison, etc.), and the manufacturer's contact information. Hazardous waste and materials will be contained in an appropriate container when transported.

8.0 Spill Clean Up, Notification and Reporting Procedures

As discussed herein, the Project will take customary steps to avoid unauthorized spills, releases, or discharges of hazardous substances. In the event of a spill or release of hazardous waste materials into the environment, the Renewal Corporation may initiate testing to determine the level of response and abatement required. Monitoring of the spill site will continue until full abatement has been reached and if necessary, the details of the spill event and actions taken in response to the spill will be reported to the appropriate agencies and/or authorities. For

additional measures relevant to spill events, reporting procedures, and notification process please refer to the Oregon Spill Prevention, Control and Countermeasure Plan.

9.0 Deleterious Waste

The Renewal Corporation will not place biologically harmful material including but not limited to petroleum products, chemicals, cement cured less than 24 hours, welding slag and grindings, concrete saw cutting by-products, sandblasted materials, chipped paint, tires, wire, steel posts, and asphalt where such materials could enter waters of the state, including wetlands. To ensure these protections occur the Renewal Corporation will do the following:

- Cure concrete, cement, or grout for at least 24 hours prior to any contact with flowing waters.
- Use only clean fill, free of waste and polluted substances.
- Employ all practicable controls to prevent discharges of spills of deleterious materials to surface or ground water.
- Maintain at the project construction site, and deploy as necessary, an adequate supply of materials needed to contain deleterious materials during a weather event.
- Remove foreign materials, refuse, and waste from the project area;
- Always employ general good housekeeping practices.

10.0 References

Electronic Code of Federal Regulations (eCFR) Title 29, Part 1910. Hazardous Waste Operations and Emergency Response. *Accessed October 10, 2020.*

Electronic Code of Federal Regulations (eCFR) Title 40, Part 260. Hazardous Waste Management System: General. *Accessed October 10, 2020.*

Electronic Code of Federal Regulations (eCFR) Title 40, Part 261. Identification and Listing of Hazardous Waste. *Accessed October 10, 2020.*

Electronic Code of Federal Regulations (eCFR) Title 40, Part 262. Standards Applicable to Generators of Hazardous Waste. *Accessed October 10, 2020.*

Electronic Code of Federal Regulations (eCFR) Title 40, Part 264. Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities. *Accessed October 10, 2020.*

Electronic Code of Federal Regulations (eCFR) Title 40, Part 273. Standards for Universal Waste Management. *Accessed October 10, 2020.*

Electronic Code of Federal Regulations (eCFR) Title 40, Part 279. Standards for the Management of Used Oil. *Accessed October 10, 2020.*

Electronic Code of Federal Regulations (eCFR) Title 40, Part 302. Designation, Reportable Quantities, and Notification. *Accessed October 10, 2020.*

Electronic Code of Federal Regulations (eCFR) Title 49, Part 172. Hazardous materials table, special provisions, hazardous materials communications, emergency response information, training requirements, and security plans. *Accessed October 10, 2020.*

Electronic United States Code (eUSC) Title 42, Chapter 103, Subchapter 1, Section 9601. Comprehensive Environmental Response, Compensation, and Liability Act.

Klamath River Restoration Corporation (KRRC). 2020. Klamath River Renewal Project 100% Design Report.

Klamath River Renewal Corporation (KRRC). 2018. Definite Plan for the Lower Klamath Project. June.

Knight Piésold and Kiewit. 2020. Klamath River Renewal Project Kiewit Contract #104168 100% Design Report. November 13, 2020.

Knight Piesold (2013) Technical Specification ’31 05 00 – Materials for EarthWork. Revision H.

Oregon Administrative Rules (eOAR) Chapter 340, Division 113: Universal Waste Management. *Accessed online December 10, 2020.*

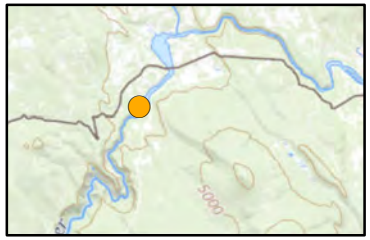
Oregon Administrative Rules (eOAR) Chapter 340, Division 111: Used Oil Management. *Accessed online December 10, 2020.*

Oregon Administrative Rules (eOAR) Chapter 340, Division 101: Identification and Listing of Hazardous Waste. *Accessed online December 10, 2020.*

Oregon Department of Environmental Quality (ODEQ). 2018. Clean Water Act Section 401 Certification for the Klamath River Renewal Corporation License Surrender and Removal of the Lower Klamath Project (FERC No. 14803) Klamath County, Oregon. September.

Appendix A

Figures



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Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal Sites, Limits of Work and Access Routes; Knight Piesold 100 design

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- Disposal Sites
- Limits of Work 100
- Roads

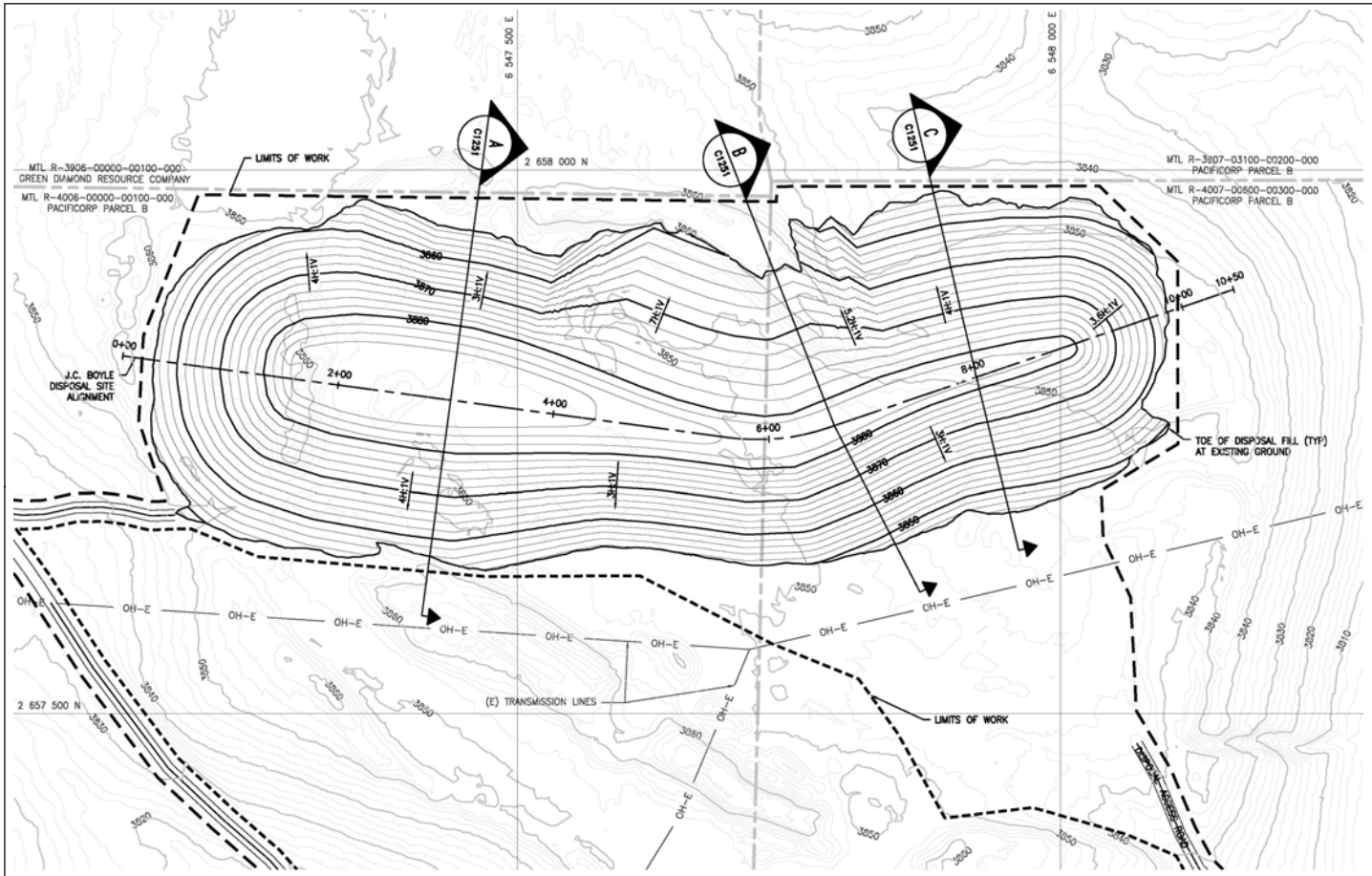
Lower Klamath Project

Figure A-1: J.C. Boyle Disposal Site Barrow Site

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



PLAN

NOTES:

1. REFER TO GENERAL NOTES ON SHEET G0006 FOR INFORMATION REGARDING TOPOGRAPHIC AND BATHYMETRIC DATA SOURCES.
2. ALL DEMOLISHED CONCRETE RUBBLE FROM THE J.C. BOYLE PROJECT AREA SHALL BE DISPOSED OF IN THE J.C. BOYLE POWER CANAL SPILLWAY SCOUR HOLE. SEE SHEETS C1340, AND C1341.
3. PLACEMENT OF MATERIALS IN THE DISPOSAL SITE IS LIMITED TO EARTH AND ROCK MATERIAL FROM J.C. BOYLE PROJECT DEMOLITION/REMOVAL WORK.
4. THE INTENT OF THE VARYING SLOPES SHOWN FOR THE DISPOSAL SITE CONFIGURATION IS TO PROVIDE FINAL NATURAL LOOKING CONTOURS WHILE PROVIDING ADEQUATE VOLUME FOR ESTIMATED NEEDED DISPOSAL QUANTITY.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet
2. Data Sources: Disposal sites: and access routes: Knight Piesold 30 design;
3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

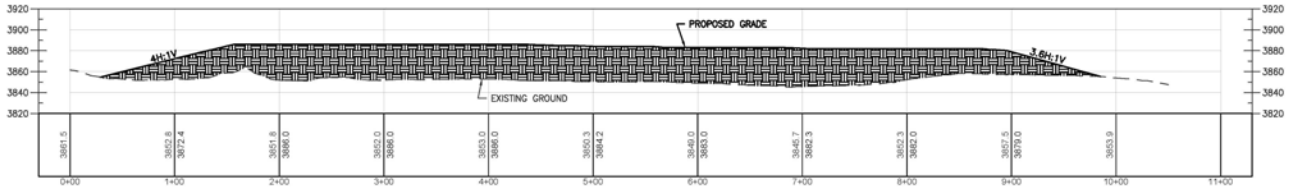
Lower Klamath Project

Figure A-2a: J.C. Boyle Disposal Site Barrow Site - Plan

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN
(NOT FOR CONSTRUCTION)



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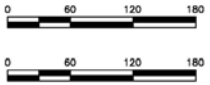

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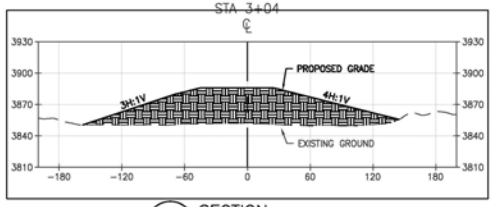
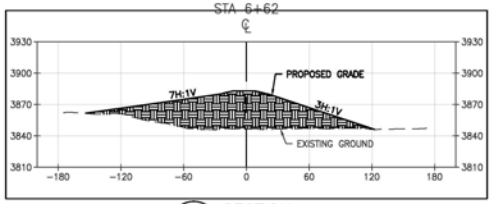
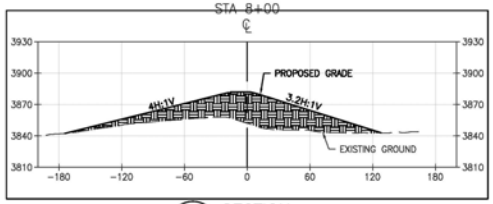




B C1240 SECTION



C C1240 SECTION

NOTE:

1. ALL DEMOLISHED CONCRETE RUBBLE FROM THE J.C. BOYLE PROJECT AREA SHALL BE DISPOSED OF IN THE J.C. BOYLE POWER CANAL SPILLWAY SCOUR HOLE. SEE SHEETS C1340, AND C1341.
2. PLACEMENT OF MATERIALS IN THE DISPOSAL SITE IS LIMITED TO EARTH AND ROCK MATERIAL FROM J.C. BOYLE PROJECT DEMOLITION/REMOVAL WORK.
3. THE INTENT OF THE VARYING SLOPES SHOWN FOR THE DISPOSAL SITE CONFIGURATION IS TO PROVIDE FINAL NATURAL LOOKING CONTOURS WHILE PROVIDING ADEQUATE VOLUME FOR ESTIMATED NEEDED DISPOSAL QUANTITY.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet
2. Disposal sites: and access routes: Knight Piesold 30 design;
3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

EARTH FILL (PROPOSED)

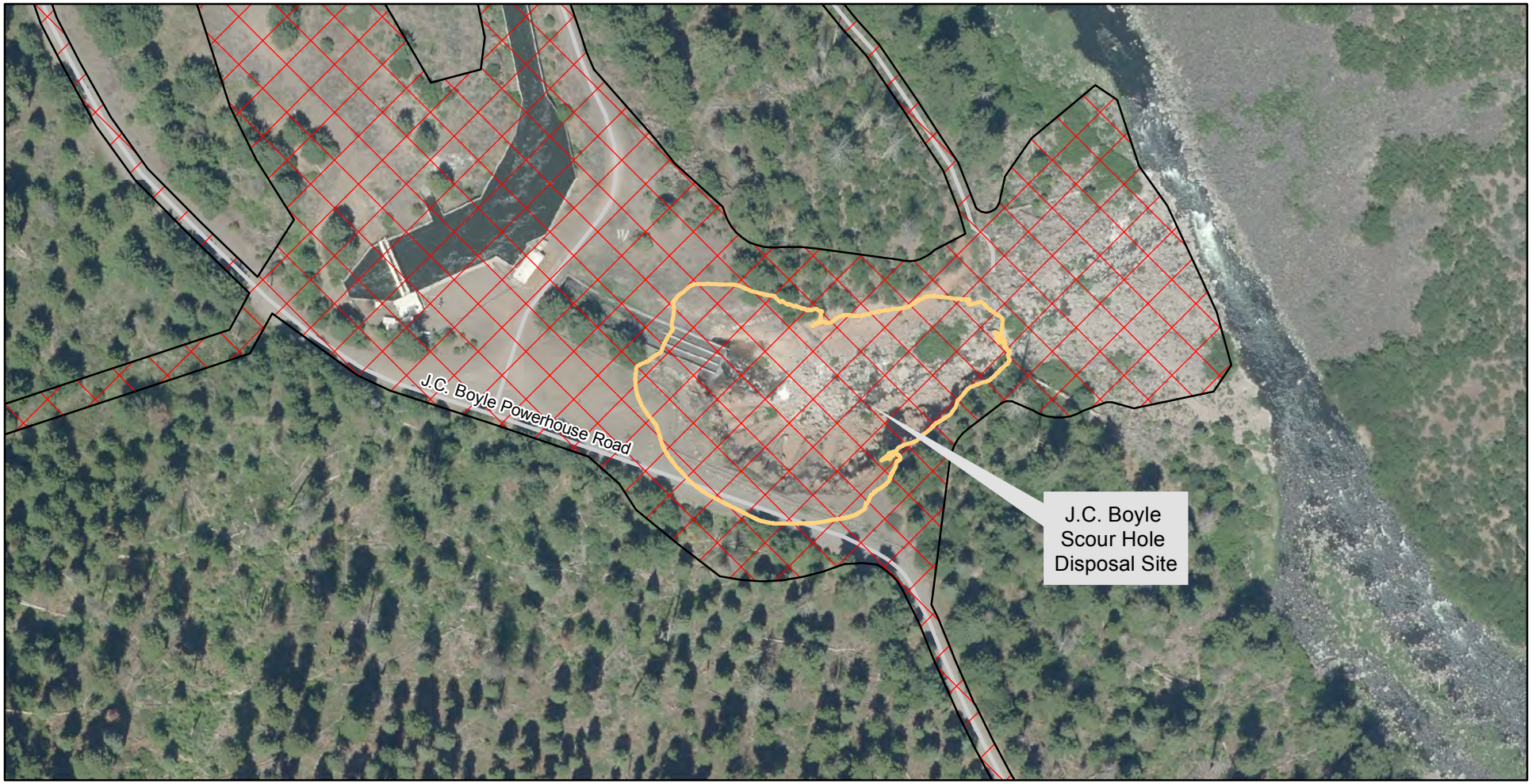
Lower Klamath Project

Figure 2b: J.C. Boyle Disposal Site Barrow Site - Profile

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



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Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites, Limits of Work and Access Roads: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- Disposal Sites
- Limits of Work
- Roads

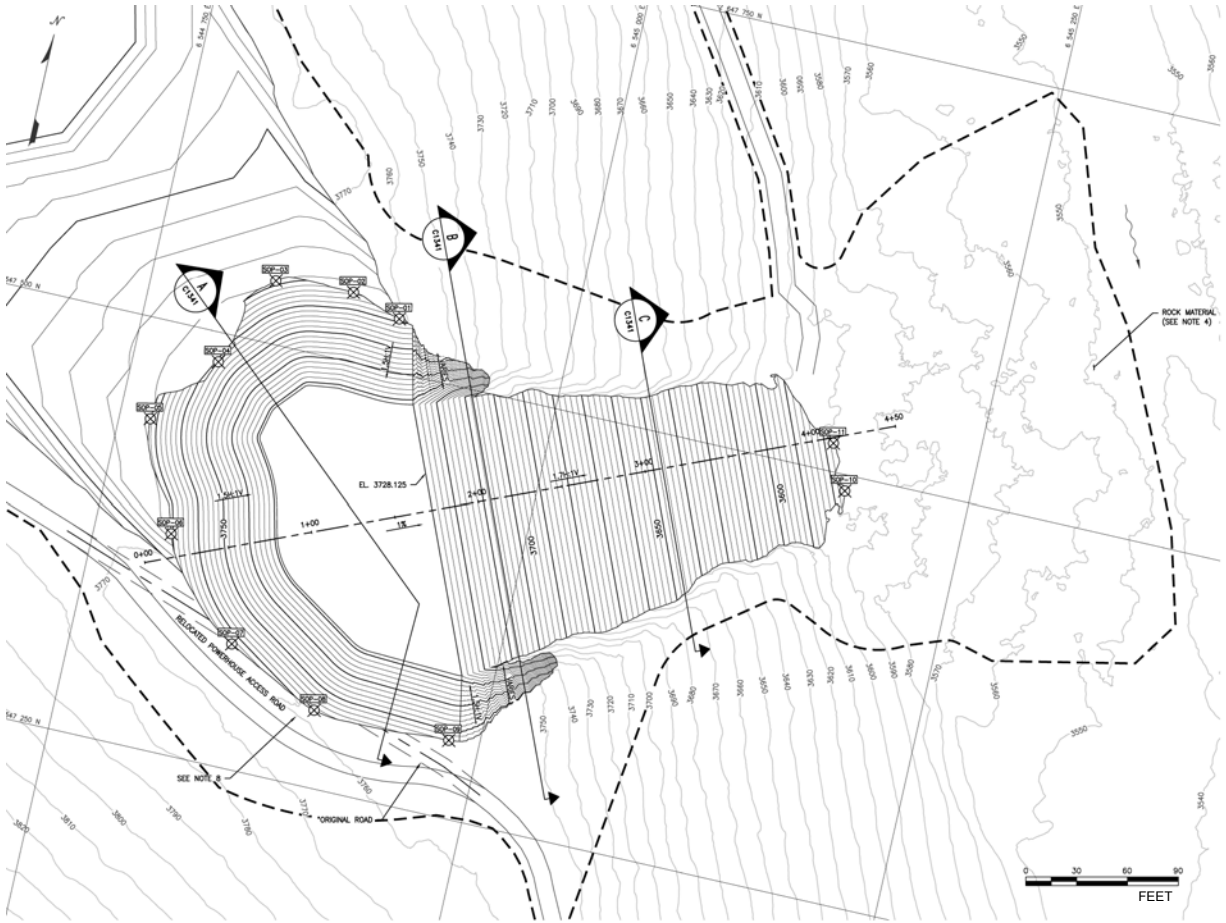
Lower Klamath Project

Figure A-3: J.C. Boyle Disposal Site Scour Hole

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



PLAN

NOTES:

1. REFER TO GENERAL NOTES ON DRAWING G0006 FOR INFORMATION REGARDING TOPOGRAPHIC AND BATHYMETRIC DATA SOURCES.
2. CONTRACTOR TO ADJUST SITE SLOPES AND GRADES FOR SAFETY AS NECESSARY.
3. EXCAVATED MATERIAL FROM FOREBAY GRADING TO BE USED AS COVER MATERIAL FOR SCOUR HOLE FILL.
4. ROCK MATERIAL ERODED FROM SCOUR HOLE TO BE LEFT IN PLACE.
5. SCOUR HOLE FILL LIMITED TO CONCRETE RUBBLE (CR1/CR2) AND GENERAL FILL (E9/E9a/E9b) MATERIALS. MATERIAL THAT DOES NOT MEET THESE REQUIREMENTS TO BE PLACED AT THE LEFT BANK DISPOSAL SITE.
6. ALL CONCRETE TO BE BURIED WITH A MINIMUM 6 ft OF COVER MATERIALS.
7. MAXIMUM POTENTIAL FILL SHOWN ON DRAWING TO BE GRADED TO DRAIN.
8. BOULDERS TO BE PLACED BETWEEN POWERHOUSE ROAD REALIGNMENT AND SCOUR HOLE FILL. DETAILS SHOWN ON DRAWING C1511.
9. ELEVATION CONTOURS OF SCOUR HOLE FILL DENOTE FINAL GRADE.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

LIMITS OF WORK

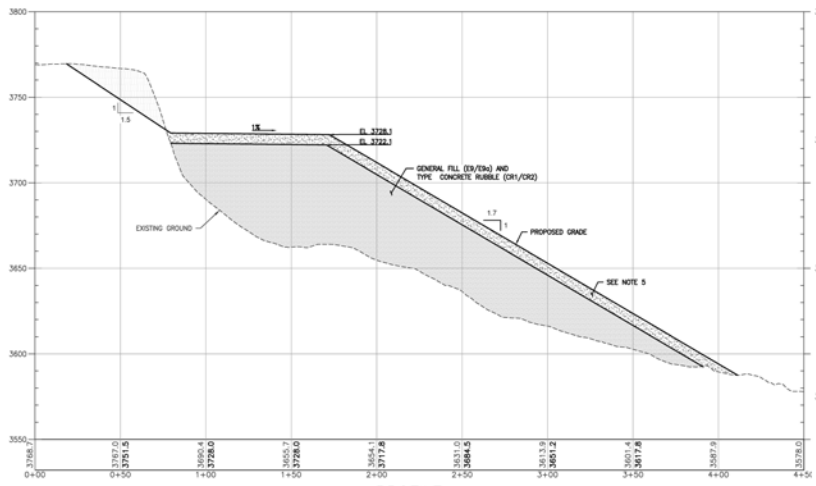
Lower Klamath Project

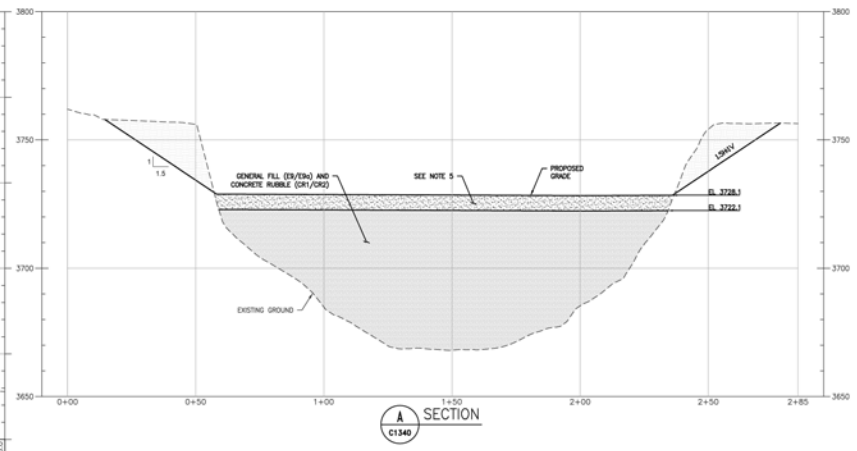
Figure A-4a: J.C. Boyle Disposal Site Scour Hole - Plan

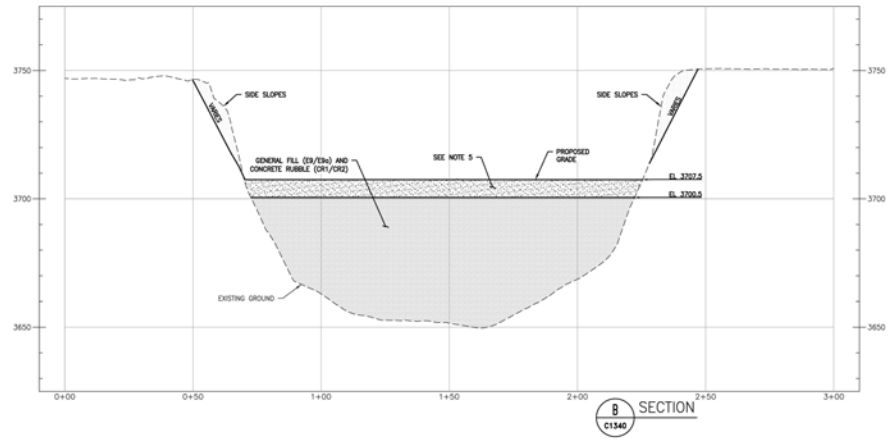
January, 2021

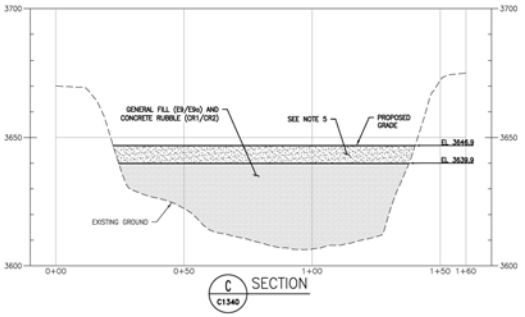
KLAMATH RIVER RENEWAL CORPORATION

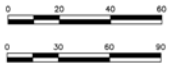
PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)











NOTES:

1. SLOPES SHOWN ON CROSS-SECTIONS ARE REPRESENTATIVE AND WILL VARY IN CERTAIN AREAS.
2. CONTRACTOR TO ADJUST SIDE SLOPES AND GRADES FOR SAFETY AS NECESSARY.
3. MAXIMUM POTENTIAL FILL SHOWN ON DRAWING TO BE GRADED TO DRAIN.
4. PLACEMENT METHODOLOGY DESCRIBED IN EXCAVATION ANC FILL PLACEMENT TECHNICAL SPECIFICATION.
5. MINIMUM 6 ft COVER MATERIAL GENERAL FILL (E9/E9b). OPTION TO UTILIZE GENERAL FILL (E9) OR (E9b) AS COVER MATERIAL. FINAL STABILIZATION TREATMENTS DIFFEF AS PER TECHNICAL SPECIFICATION 31 25 00.
6. SCOUR HOLE FILL LIMITED TO CONCRETE RUBBLE (CR1/CR2) AND GENERAL FILL (E9/E9a/E9b) MATERIALS. MATERIAL THAT DOES NOT MEET THESE REQUIREMENTS TO BE PLACED AT THE LEFT BANK DISPOSAL SITE.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet
2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.
3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

- (E) EARTHFILL
- CONCRETE RUBBLE (CR1/CR2)
- GENERAL FILL (E9/E9a/E9b)

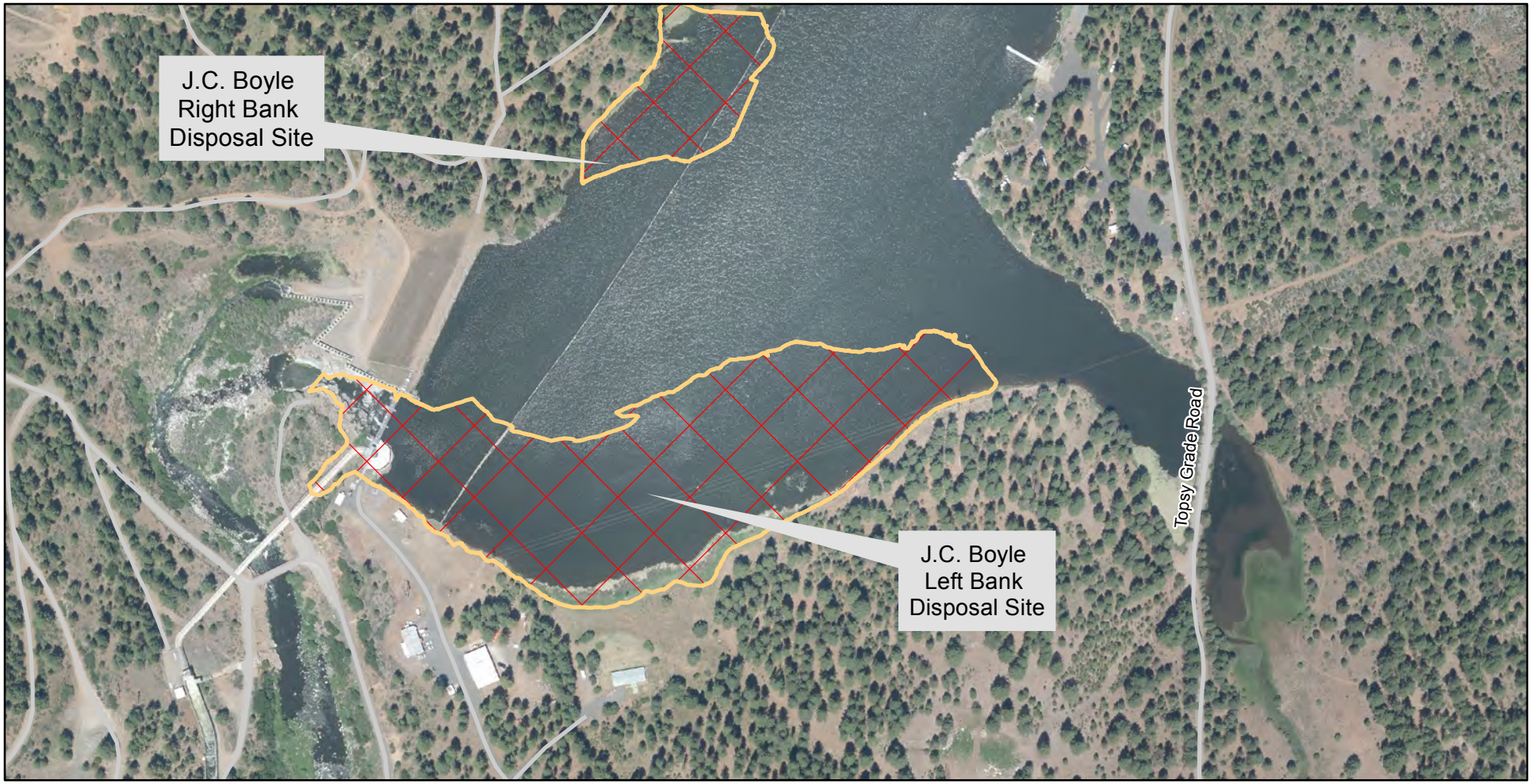
Lower Klamath Project

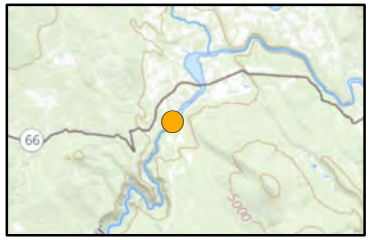
Figure A-4b: J.C. Boyle Disposal Site Scour Hole Profile

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)





N

0 145 290 580 Feet

(At original document size of 8.5 x 11)
1:4,100

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal Sites, Limits of Work and Access Routes: Knight Piesold 100 design

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- Disposal Sites
- Limits of Work
- Roads

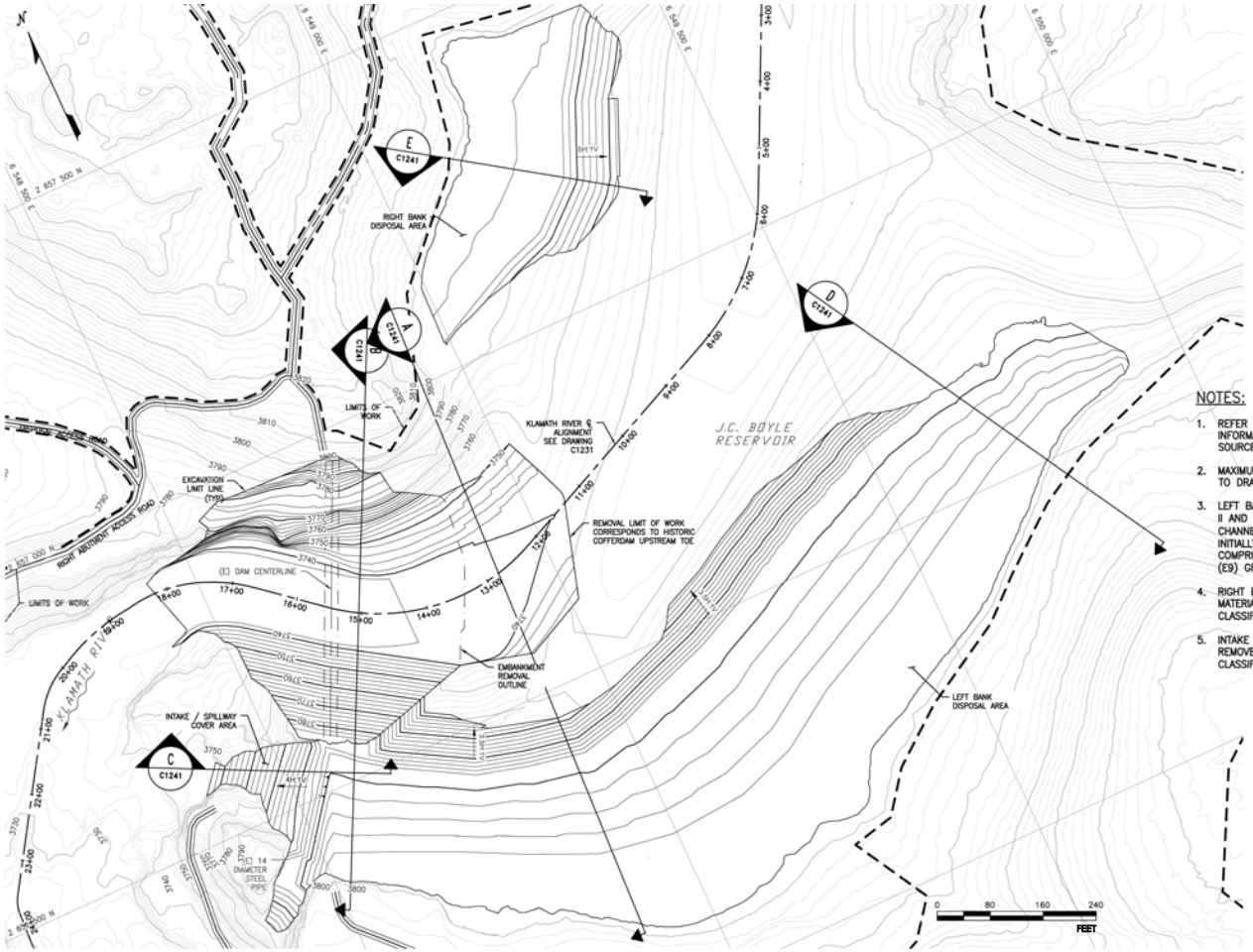
Lower Klamath Project

Figure A-5: J.C. Boyle Left and Right Bank Disposal Sites

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



NOTES:

1. REFER TO GENERAL NOTES ON DRAWING G0006 FOR INFORMATION REGARDING TOPOGRAPHIC AND BATHYMETRIC D SOURCES.
2. MAXIMUM POTENTIAL FILL SHOWN ON DRAWING TO BE GRAD- TO DRAIN.
3. LEFT BANK DISPOSAL AREA FILL COMPRISED OF ZONE I, ZO II AND SEDIMENT/DEBRIS REMOVED FROM THE FINAL RIVER CHANNEL EXCAVATION, CLASSIFIED AS RANDOM FILL (E10). INITIALLY PLACED MATERIAL AT LOWEST ELEVATION TO BE COMPRISED OF ZONE II MATERIAL AND MEET THE GENERAL (E9) GRADATION.
4. RIGHT BANK DISPOSAL AREA FILL COMPRISED OF EXCAVATE MATERIALS FROM THE HISTORIC COFFERDAM BREACH, CLASSIFIED AS GENERAL FILL (E9).
5. INTAKE COVER FILL COMPRISED OF EXCAVATED ZONE II REMOVED FROM THE FINAL RIVER CHANNEL EXCAVATION, CLASSIFIED AS GENERAL FILL (E9).

PLAN

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

LIMITS OF WORK

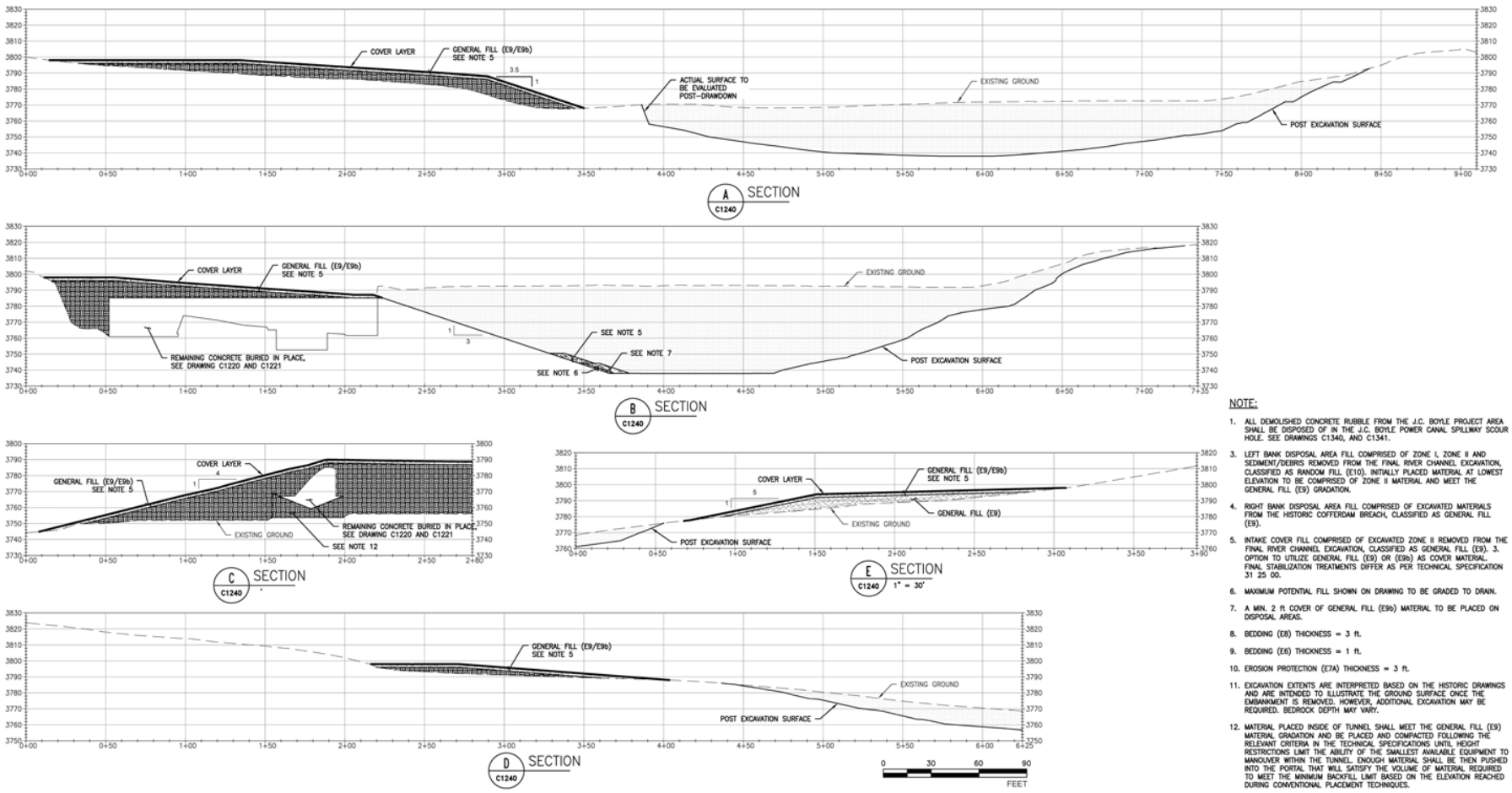
Lower Klamath Project

Figure A-6a: J.C. Boyle Right and Left Bank Disposal Sites - Plan

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



NOTE:

1. ALL DEMOLISHED CONCRETE RUBBLE FROM THE J.C. BOYLE PROJECT AREA SHALL BE DISPOSED OF IN THE J.C. BOYLE POWER CANAL SPILLWAY SCOUR HOLE. SEE DRAWINGS C1340, AND C1341.
3. LEFT BANK DISPOSAL AREA FILL COMPRISED OF ZONE I, ZONE II AND SEDIMENT/DEBRIS REMOVED FROM THE FINAL RIVER CHANNEL EXCAVATION, CLASSIFIED AS RANDOM FILL (E10). INITIALLY PLACED MATERIAL AT LOWEST ELEVATION TO BE COMPRISED OF ZONE II MATERIAL AND MEET THE GENERAL FILL (E9) GRADATION.
4. RIGHT BANK DISPOSAL AREA FILL COMPRISED OF EXCAVATED MATERIALS FROM THE HISTORIC COFFERDAM BREACH, CLASSIFIED AS GENERAL FILL (E9).
5. INTAKE COVER FILL COMPRISED OF EXCAVATED ZONE II REMOVED FROM THE FINAL RIVER CHANNEL EXCAVATION, CLASSIFIED AS GENERAL FILL (E9). 3. OPTION TO UTILIZE GENERAL FILL (E9) OR (E9b) AS COVER MATERIAL. FINAL STABILIZATION TREATMENTS DIFFER AS PER TECHNICAL SPECIFICATION 31 25 00.
6. MAXIMUM POTENTIAL FILL SHOWN ON DRAWING TO BE GRADED TO DRAIN.
7. A MIN. 2 ft COVER OF GENERAL FILL (E9b) MATERIAL TO BE PLACED ON DISPOSAL AREAS.
8. BEDDING (E8) THICKNESS = 3 ft.
9. BEDDING (E6) THICKNESS = 1 ft.
10. EROSION PROTECTION (E7A) THICKNESS = 3 ft.
11. EXCAVATION EXTENTS ARE INTERPRETED BASED ON THE HISTORIC DRAWINGS AND ARE INTENDED TO ILLUSTRATE THE GROUND SURFACE ONCE THE EMBANKMENT IS REMOVED. HOWEVER, ADDITIONAL EXCAVATION MAY BE REQUIRED. BEDROCK DEPTH MAY VARY.
12. MATERIAL PLACED INSIDE OF TUNNEL SHALL MEET THE GENERAL FILL (E9) MATERIAL GRADATION AND BE PLACED AND COMPACTED FOLLOWING THE RELEVANT CRITERIA IN THE TECHNICAL SPECIFICATIONS UNTIL HEIGHT RESTRICTIONS LIMIT THE ABILITY OF THE SMALLEST AVAILABLE EQUIPMENT TO MANOUVER WITHIN THE TUNNEL. ENOUGH MATERIAL SHALL BE THEN PUSHED INTO THE PORTAL THAT WILL SATISFY THE VOLUME OF MATERIAL REQUIRED TO MEET THE MINIMUM BACKFILL LIMIT BASED ON THE ELEVATION REACHED DURING CONVENTIONAL PLACEMENT TECHNIQUES.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

- (E) EARTHFILL
- BEDDING (E6/E8)
- EROSION PROTECTION (E7a)
- GENERAL FILL (E9/E9b)
- RANDOM FILL (E10)

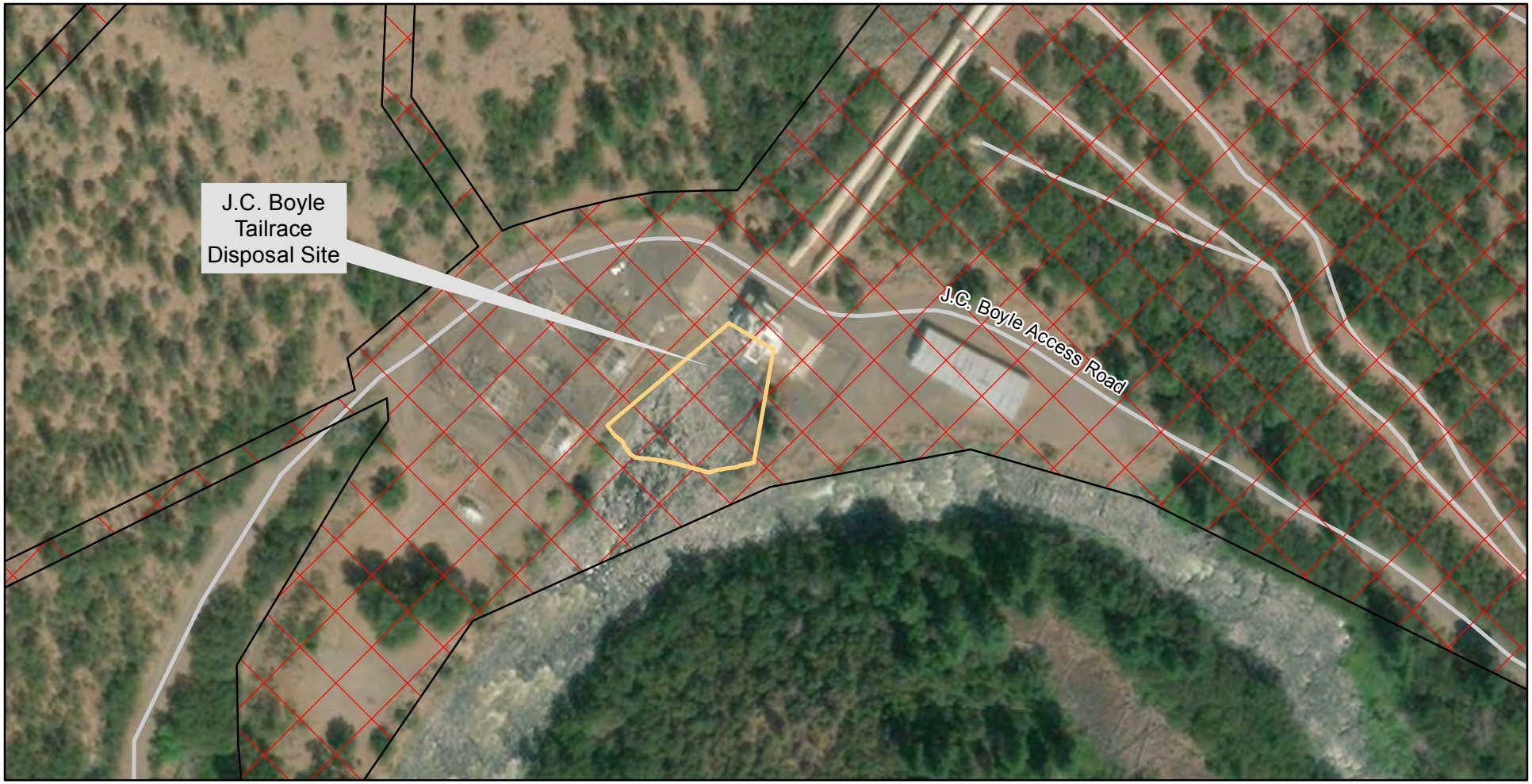
Lower Klamath Project

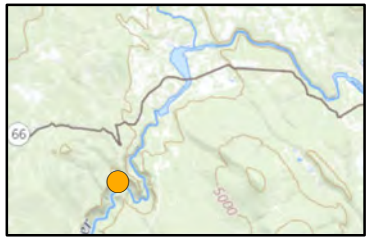
Figure A-6b: J.C. Boyle Right and Left Bank Disposal Sites - Profile

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)





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0 65 130 260 Feet

(At original document size of 8.5 x 11)
1:1,890

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal Sites, Limits of Work, Access Roads: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Legend

- Disposal Sites
- Limits of Work
- Roads

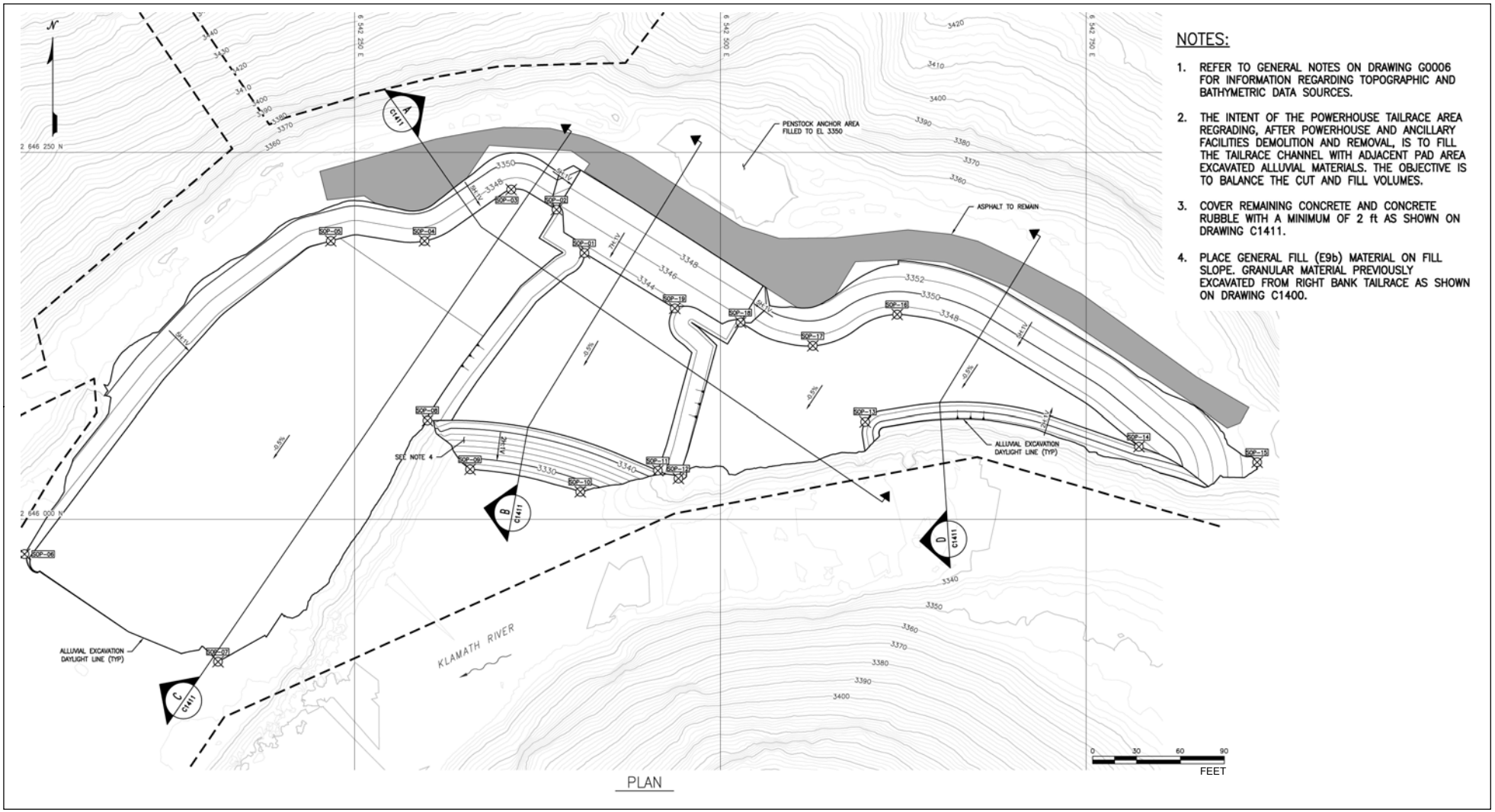
Lower Klamath Project

Figure A-7:J.C. Boyle Disposal Site Powerhouse and Tailrace

January, 2021

KLAMATH RIVER RENEWAL CORPORATION

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



PLAN

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

LIMITS OF WORK

ASPHALT

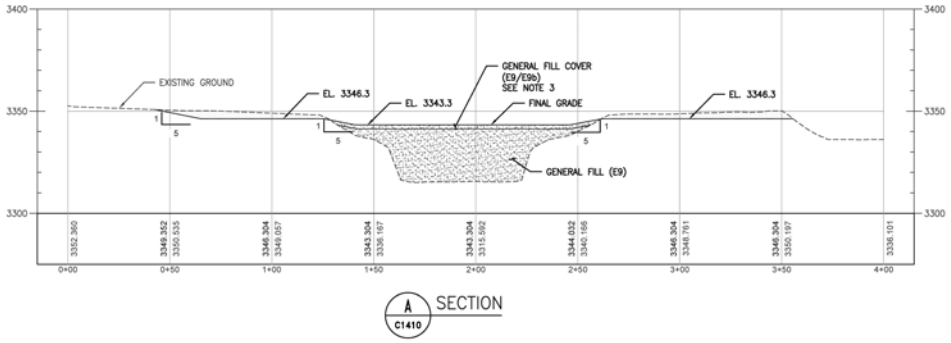
Lower Klamath Project

Figure A-8a: J.C. Boyle Disposal Site Powerhouse and Tailrace Plan

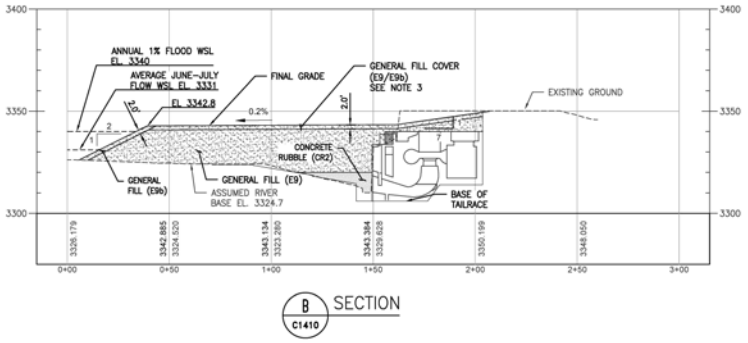
January, 2021

KLAMATH RIVER RENEWAL CORPORATION

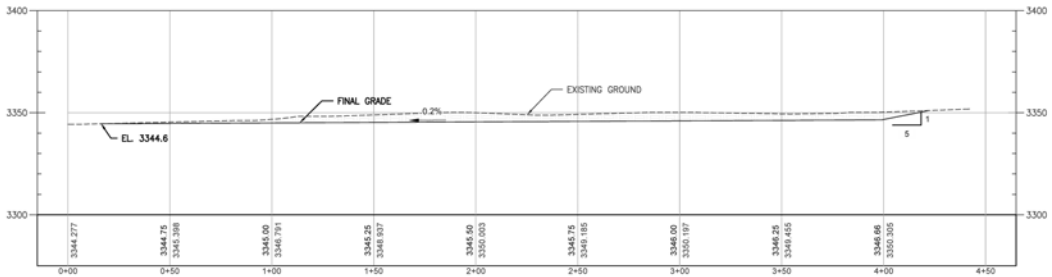
PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)



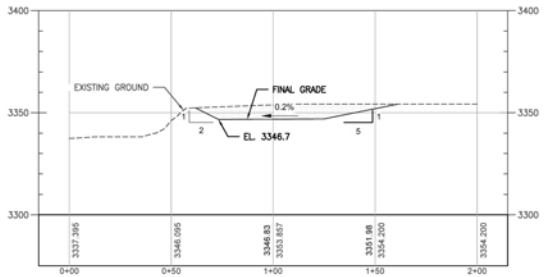
A C1410 SECTION



B C1410 SECTION



C C1410 SECTION



D C1410 SECTION

0 30 60 90 FEET

NOTES:

1. THE INTENT OF THE POWERHOUSE TAILRACE AREA REGRADING, AFTER POWERHOUSE AND ANCILLARY FACILITIES DEMOLITION AND REMOVAL, IS TO FILL THE TAILRACE CHANNEL WITH ADJACENT PAD AREA EXCAVATE ALLUVIAL MATERIALS. THE OBJECTIVE IS TO BALANCE THE CUT AND FILL VOLUMES.
2. DRAINAGE DETAILS INCLUDED ON DRAWING C1624.
3. OPTION TO UTILIZE GENERAL FILL (E9) OR (E9b) AS COVER MATERIAL. FINAL STABILIZATION TREATMENTS DIFFER AS PER TECHNICAL SPECIFICATION 31 25 00.

Notes

1. Coordinate System: NAD83 HARN StatePlane California I FIPS 0401 Feet

2. Data Sources: Disposal sites: Knight Piesold 100 design; Access routes: Knight Piesold 100 design.

3. Background: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

LEGEND:

- (E) EARTHFILL
- GENERAL FILL (E9/E9b)
- CONCRETE RUBBLE (CR2)

Lower Klamath Project

Figure A-8b: J.C. Boyle Disposal Site Powerhouse and Tailrace Profile

KLAMATH RIVER RENEWAL CORPORATION

January, 2021

PRELIMINARY DESIGN (NOT FOR CONSTRUCTION)

Appendix B

J.C. Boyle Hazardous Waste Survey Report

ENTEK
CONSULTING GROUP, INC.
4200 Rocklin Road, Suite 7, Rocklin, CA 95677 Phone (916) 632-6800 Fax (916) 632-6812 www.entekgroup.com

HAZARDOUS MATERIALS SURVEY
FINAL REPORT

CLIENT

NV5
48 Bellarmine Court, Ste. 40
Chico, CA 95928

CONTACT

Heidi Cummings, PG, QSD
Senior Geologist

SURVEY ADDRESS

JC Boyle Development

BUILDINGS SURVEYED

Multiple Structures at JC Boyle Development
Klamath River Renewal Project

PREPARED BY

Andy Roed
CAC #16-5695 & CDPH I/A 29001
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Entek Project #20-5562

November 4, 2020

ENTEK

TABLE OF CONTENTS

Appendices

Executive Summary

Entek Consulting Group, Inc. (Entek) was contracted to conduct a supplementary investigation for hazardous materials specific to areas at the JC Boyle Development as designated by NV5 and Kiewit Infrastructure West Co. (Kiewit) as part of the Klamath River Renewal Project. Based on documentation provided to Entek, AECOM Technical Services, Inc. (AECOM) conducted a hazardous materials survey in April of 2019. Entek utilized AECOM's survey and the sample results to minimize the number of samples and time required to complete the survey. This report combines AECOM's final report as well as Entek's supplemental sampling into one report. AECOM's report is also attached to this report for your records. The investigation included an assessment of the following:

- Asbestos Materials
- Lead in Paint, Coatings, Ceramic Products and other Construction Components
- Fluorescent Light Tubes
- Light Ballasts
- Polychlorinated Biphenyls (PCB)
- Mercury Containing Thermostats and Switches
- Smoke Detectors with Radioactive Americium 241
- Exit Signs with Radioactive Gas Tritium
- Freon

Entek did not specifically inspect for mercury containing fluorescent light tubes or light ballast which may contain polychlorinated biphenyls (PCBs), thermostats which may contain mercury switches, equipment or systems which may contain Freon or other fluorocarbons, or smoke detectors which may contain a radioactive element. However, information pertaining to these materials is included in this report for your use and reference, since these light systems are present on the project.

The purpose of the inspection was to comply with the US EPA NESHAP requirements and the California Air Resource Board which has jurisdiction for this project site to determine if asbestos containing materials are present which may be impacted during an upcoming demolition project.

The United States Environmental Protection Agency, National Emission Standards for Hazardous Air Pollutants (US EPA NESHAP), 40 CFR Part 61 - Nov. 20, 1990, requires an owner or operator of a demolition or renovation project to thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos-containing materials (ACM) prior to the commencement of that project.

This inspection was requested by Ms. Heidi Cummings, Senior Geologist with NV5. The attached drawings show approximate sample locations. Materials are classified in the tables of this report as Regulated Asbestos Containing Material (RACM), Category I (CAT-I) or Category II (CAT-II) ACM, or Asbestos Containing Construction Material (ACCM). The report must be read in its entirety prior to making any interpretations, or conclusions pertaining to the information. Any conclusions made by the reader about the information provided in the body of this report which are contradictory or not included in

this report are the responsibility of the reader.

Introduction

This report presents results of a supplemental asbestos and lead survey performed by Entek which included the interior and exterior of select structures as outlined in the building descriptions below. These buildings are located at the JC Boyle Development. Fluorescent lights were observed at this project site; therefore, this report also includes references to regulations pertaining to handling practices and waste disposal of PCB light ballasts and mercury containing light tubes and thermostats which may be impacted during this project.

The inspection was conducted by Mr. Andy Roed and Mr. Richard Perrelli on September 17, 2020. Mr. Roed and Mr. Perrelli are Cal/OSHA Certified Asbestos Consultants (CAC) and State of California Department of Public Health (CDPH) certified Lead Inspector/Assessors.

This report was prepared for Ms. Heidi Cummings, Senior Geologist with NV5.

Building Description

The following structures were not accessible by Entek and/or AECOM during either survey. The company in parenthesis was unable to access the structure due to safety or instructed to not enter structure by the building owner.

- Residence 1(Entek)
- Residence 2 (Entek/AECOM)
- Structure above Stop log gates on metal support beams (Entek/AECOM)

Canal Headgate (JCCH)
The Canal Headgate is connected to the Intake Structure by a 14’ steel pipeline.

Communication Building (JCCB)
The Communication Building is located south of the dam. It is an approximately 360 square feet paneled building with a slab-on-grade concrete foundation. The exterior siding and roofing consists of pre-fabricated steel. The interior consists of pre-fabricated metal wall siding and unfinished concrete flooring. The building contains a work station, electrical panels and two 32 units battery bank in secondary containment systems.

Emergency Spill Equipment Shed (JCES)
The Emergency Spill Equipment Shed is adjacent to the Powerhouse, is approximately 100 square feet, and is a single-story concrete slab on grade shed with engineered wood siding and asphaltic shingle roofing. The interior of the shed is unfinished wood. The structure is currently being used as storage for emergency spill purposes.

Fire Protection Building (JCFP)
The Fire Protection Building is located east of the diversion dam along the west bank of the reservoir. It is an approximately 600 square feet cinder block building with a slab-on-grade concrete floor and wooden ceiling. The structure houses water piping, compressed air tanks and electrical cabinets. The interior finishes consist of concrete flooring, CMU siding, and exposed metal ceiling.

Fish Ladder (JCFL)
The Fish Ladder is north of the Intake Structure. It is constructed of concrete.

Gate Control Center Building (JCGC)
The Fire Protection Building is located east of the diversion dam along the west bank of the reservoir. It is an approximately 600 square feet cinder block building with a slab-on-grade concrete floor and wooden ceiling. The structure houses water piping, compressed air tanks and electrical cabinets. The interior finishes consist of concrete flooring, CMU siding, and exposed metal ceiling.

Groundwater Pumphouse (JCGWPH)
The Groundwater Pumphouse is a prefabricated shed located southeast of the outdoor storage area. It is approximately 100 square feet. The exterior consists of metal siding and roofing. The interior of the building consists of unfinished wood throughout.

HazMat Shed and Above Ground Storage Tanks (JCHM)
The HazMat Shed and Above Ground Storage Tanks are located about 50 feet east of the Office and Warehouse building. The HazMat Shed is approximately 240 square feet. The HazMat Shed exterior consists of pre-fabricated metal siding with a slab-on-grade concrete foundation. The interior of the storage shed consists of unfinished metal siding and ceiling and unfinished concrete flooring. One each 500 gallon diesel and 1,000 gallon gasoline above ground storage tanks are located adjacent to the Hazardous Material Storage Shed. Both are double walled ASTs and are underneath a permanent “cover” and on top of concrete pads.

Intake Structure (JCIS)
The Intake Structure is located on the western side of the JC Boyle Reservoir. The south end of the structure includes a Fish Screen Building accessed by a wooden bridge. The perimeter of the Fish Screen Building is encircled by a wooden walkway above the reservoir to access metal fish screens. The exterior of the Fish Screen Building consists of corrugated metal siding and roofing. The interior of the Fish Screen Building consists of concrete flooring, walls, and ceiling. The JC Boyle Dam extends north of the Fish Screen Building, including stop log gates, metal grating walkways, electrical panels, and mules. The Fish Ladder extends west on the north end of the dam.

Office and Warehouse (JCOW)
The Office and Warehouse Building is approximately 1,800 square feet with a slab-on-grade concrete foundation. It resembles a “Red Barn” and is located approximately 300 feet west of the dam. The office portion contains a small kitchen with a sink and a restroom with water discharged to a septic tank. The maintenance warehouse portion is a large open area for typical repair and maintenance activities, the storage

maintenance equipment, tools and miscellaneous supplies, and has a side fenced storage area.

Outdoor Storage Area (JCBY)
The Outdoor Storage Area (also referred to as the boneyard) is located south of the Vehicle Storage Shed. Various items are scattered throughout the Outdoor Storage Area, including scrap metal and a decommissioned storage tank.

Penstocks (JCPS)
The Penstocks extend downhill from the surge tank, on the north side of the Powerhouse, and feed the turbines inside the Powerhouse.

Powerhouse (JCPH)
The Powerhouse is approximately 7,000 square feet and is a reinforced concrete structure and contains three levels; above ground, first lower level, and second lower level. The above ground level contains the upper portions of two vertical-shafts and Francis-type turbines contained in their own concrete vaults. A single 150-ton gantry crane was observed over the two turbines. The first lower level contained the lower portions of the turbines that were housed in concrete vaults, electrical panels, tanks, air compressors, oil, water and air piping, a small open office, and a restroom connected to an outdoor septic tank. The second lower level contained the piping, penstock intakes, and sump pumps. Exterior and interior wall, floor, and ceiling finishes consist of concrete and CMU that are primarily painted throughout.

Residence 1 (JCR1)
Residence 1 is approximately 2,000 square feet and is located east of the Vehicle Storage Shed. The building exterior consists of wood siding and asphaltic shingle roofing. The interior of the building contains bedrooms, bathrooms, a kitchen, a living room, and closets. The interior finishes include gypsum walls and ceilings, vinyl floor sheeting, and carpeting.

Residence 2 (JCR2)
Residence 2 is approximately 2,000 square feet and is located east of the Vehicle Storage Shed. The interior of the building was inaccessible during the inspection. The building exterior consists of wood siding and asphaltic shingle roofing.

Spillway Control Center Building (JCSW)
The Spillway Control Center Building is approximately 420 square feet and is located adjacent to the Spillway. The exterior consists of metal siding and roofing. The interior of the building was not accessed during the inspection due to the observable presence of bats.

Substation (JCST)
The Substation is located inside the Switchyard and was not accessed during the inspection due to safety considerations.

Switchyard (JCSW)
The Switchyard is approximately 23,000 square feet, is located west of the Powerhouse, and was not accessed during the inspection due to safety considerations. The Switchyard

contains electrical transformers, substations, transmission poles and lines within a fenced gravel area.

Timber Bridge (JCWB)
The Timber Bridge is approximately 1,600 square feet, and is located near the 14' diversion pipe, at the base of the Headgate.

Vehicle Storage Shed (JCVS)
The Vehicle Storage Shed is located east of the Office/Warehouse building and is approximately 4,400 square feet. The exterior of the building consists of metal siding and corrugated metal roofing. The interior finishes consist of unfinished metal framed walls and ceiling with batt insulation and unfinished concrete flooring.

Warehouse (JCWH)
The Warehouse is approximately 4,800 square feet. The exterior of the building consists of metal siding and corrugated metal roofing. The interior of the building consists of unfinished metal framed walls and ceiling with batt insulation and unfinished concrete flooring.

Asbestos Inspection and Sample Collection Protocols

Entek included all specific designated interior and exterior areas of the buildings included in this report. Entek did not use any demolition methods to look within enclosed wall or ceiling cavities during this investigation. Entek did include all suspect materials observed in, on, or associated with the areas included in this report.

Entek reviewed the report prepared by AECOM prior to and during the site inspection. Materials sampled by AECOM were not resampled as part of this assessment. Only new material or materials which were assumed to contain asbestos by AECOM were sampled where possible.

Bulk samples were collected of various materials suspected to contain asbestos by utilizing a power drill and coring tube, cutting the materials with a razor knife, or use of other appropriate hand tools.

Surfacing materials were collected in a statistically random manner representative of the associated homogenous area as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987.

Miscellaneous materials were collected from each homogenous area in a manner sufficient to determine whether the material is or is not ACM as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987.

Approximate locations of all samples collected during this inspection are indicated on the "Bulk Asbestos Material Analysis Request Form for Entek", which served as the chain of custody for the samples, and on the building diagram(s) attached to this report.

Asbestos Bulk Sample Results

There were several materials observed which are considered “suspect” under US EPA guidelines. Under current US EPA guidelines for conducting building inspections for ACM, all "suspect" materials must be assumed to contain asbestos until otherwise determined by laboratory testing.

The samples of materials suspected of containing asbestos were submitted to Asbestech, a laboratory located in Carmichael, California. These samples were subsequently analyzed by polarized light microscopy (PLM) with dispersion staining.

The US EPA NESHAP uses the terms Regulated Asbestos Containing Material (RACM), Category I, and Category II when identifying materials which contain asbestos in amounts greater than 1%. Cal/OSHA uses the term ACCM which indicates a manufactured construction material contains greater than 0.1% asbestos by weight by the PLM method. This definition can be found in Title 8, 1529.

Copies of Asbestech’s laboratory reports and accreditations are attached.

Bulk samples were collected of all the materials considered to be "suspect", which had not been previously sampled, and were observed during this investigation. Some of those samples contained multiple layers which were individually analyzed to determine their asbestos content. Analysis of all samples collected was by PLM with dispersion staining. Results of the analysis for materials found to contain asbestos by both AECOM and Entek compiled in the table on the following pages

For all materials tested and found not to contain asbestos by Entek, refer to all laboratory results that are attached. In addition, the report by AECOM provides a list of materials with laboratory results of materials they collected, which include materials found to be positive and negative for asbestos.

Suspect Materials Found or Assumed TO Contain >1% Asbestos					
Sample ID#'s	**Suspect Material**	**Location**	**NESHAP Category**	**Asbestos Content/Type (%) by PLM**	**Total Estimated Quantity**
Communications Building (JCCB)					
JCCB-04	Tan Caulking	Base of Interior Wall/Concrete Interface	Cat. II	2% Chrysotile	78 Linear Feet
HazMat Shed and Fuel Shed (JCHM)					
JCHM-01	Asphaltic Concrete Crack Sealant	Asphalt Pad Associated with HazMat Shed and Above Ground Storage Tank	Cat. II	2% Chrysotile	20 Linear Feet
JCHM-03	Off-White Caulking	On Above Ground Storage Tank Casing Pipe Threads and Penetrations	Cat. II	<1% Chrysotile (Confirmed by 1,000 Point Count)	4 Each (Penetrations)
JCHM-06	Off-White Sealant	Ceiling/Roof Seams of HazMat Shed	Cat. II	45% Chrysotile	100 Linear Feet
Office Warehouse (JCOW)					
N/A	Silver Woven Electrical Wire Insulation	Throughout Office and Warehouse	Cat. II	Assumed to Contain Asbestos	Not Quantified
Powerhouse (JCPH)					
N/A	Gaskets	Piping and Mechanical Equipment Throughout Powerhouse	Cat. II	Assumed to Contain Asbestos	Not Quantified
JCPH-08	Gray Door Sealant	Entry into upper level of Powerhouse (Interior and Exterior of Door)	Cat. II	3-6% Chrysotile	32 Linear Feet
N/A	Metal Clad Fire Doors	Doors Throughout Powerhouse	Cat. II	Assumed to Contain Asbestos	5 Each

Suspect Materials Found or Assumed TO Contain >1% Asbestos					
Sample ID#'s	**Suspect Material**	**Location**	**NESHAP Category**	**Asbestos Content/Type (%) by PLM**	**Total Estimated Quantity**
N/A	Wicket Gates	Associated with Turbines	Cat. II	Assumed to Contain Asbestos	2 Each
Warehouse (JCWH)					
JCWH-01	Black Asphaltic Slip Sheet with Cementitious Material	Exterior Interface between metal Siding and Concrete Foundation	Cat. II	10-14% Chrysotile	200 Linear Feet
JCWH-05	Tan Brittle Caulking	Metal Seems around roll-up door	Cat. II	4% Chrysotile	330 Square Feet
Residence 1 (JCR2)					
N/A	Ceiling Texture	Ceiling Throughout	N/A	<1% Chrysotile (Confirmed by 1,000 Point Count)	2,000 Square Feet
Residence 2 (JCR2) ***This Structure was not accessible by Entek or AECOM. The materials listed below are provided as an estimate of what materials may be present as requested by the client. It is recommended that a survey of the structure be completed prior to asbestos abatement activities. More of less materials may be actually present.***					
N/A	Asphaltic Roofing and Associated Felt Paper	Roof Throughout	Cat. II	Assumed to Contain Asbestos	2,000 Square Feet
N/A	Felt Paper Behind Wood Siding	Siding Throughout	Cat. II	Assumed to Contain Asbestos	1,500 Square Feet
N/A	Drywall And Joint Compound	Interior Walls and Ceiling Throughout	Cat. II	Assumed to Contain Asbestos	4,500 Square Feet
N/A	Wall and Ceiling Texture	Interior Walls and Ceiling Throughout	RACM	Assumed to Contain Asbestos	4,500 Square Feet

Suspect Materials Found or Assumed TO Contain >1% Asbestos					
Sample ID#'s	**Suspect Material**	**Location**	**NESHAP Category**	**Asbestos Content/Type (%) by PLM**	**Total Estimated Quantity**
N/A	Vinyl Sheet Flooring and Mastic	Throughout Floor of Structure	Cat. II	Assumed to Contain Asbestos	2,000 Square Feet
Throughout JC Boyle Development					
N/A	Transite Piping	Assumed to be present underground throughout the JC Boyle Development	Cat. II	Assumed To Contain Asbestos	Unable to Quantify

NOTE: Any CAT-I or CAT-II materials identified in the previous tables which will be subjected to mechanical removal, must be considered RACM for the purposes of notification to US EPA Region IX, CARB, or Local AQMD and classification of waste. Removal of any CAT-I or CAT-II materials prior to demolition of a building is dependent upon how the materials will be impacted and if the impact will cause the materials to become friable. If any remaining CAT-I or CAT-II materials will become friable they must be removed prior to the initiation of demolition.

NOTE: Cal/OSHA regulates all materials containing greater than 0.1% asbestos. As a result, impact to materials identified as ACCM and ACM must be performed by properly asbestos trained personnel utilizing appropriate personal protection, work practices, as well as, properly constructed and demarcated work areas or containments, in accordance with Cal/OSHA asbestos regulations.

The tables above provide an estimate of the amount of materials in square feet or linear feet. Contractors are responsible for quantifying the exact quantity of materials impacted by the renovation or demolition and shall not rely on the quantities in the above tables.

US EPA AHERA uses three terms when determining the classification of a material for the purpose of sampling. These terms include miscellaneous, surfacing, and thermal system insulation (TSI).

Miscellaneous materials are building materials on structural components, structural members or fixtures, such as floor and ceiling tiles, and do not include surfacing material or TSI.

Surfacing materials are materials that are sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceiling and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

TSI is material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain, water condensation, or for other purposes.

The information provided in the tables of this report are for use by the Owner in determining where asbestos containing materials are located, and whether or not any future work may impact those materials. The information is also provided for use by any contractor who may perform work in areas impacting the materials listed in this report, and for use as appropriate by asbestos abatement contractors to provide costs related to work impacting ACM.

Any building materials which are considered “suspect” for containing asbestos which have not been identified in this report must be assumed to contain asbestos in amounts >1% until properly investigated and/or tested.

Materials commonly excluded from being suspected for containing asbestos include, but are not limited to: unwrapped pink and yellow fiberglass insulating materials or products, foam insulation, wood, metal, plastic, or glass. All other types of building materials or coatings on the materials listed above are commonly listed as “suspect” and must be tested prior to impact by a Contractor. Work impacting these untested or newly discovered materials must cease until an investigation can be completed.

Asbestos Regulatory Requirements

US EPA

A demolition is the wrecking, taking out, or burning of any load supporting structural member. A renovation is everything else. 10 day written notification to the US EPA Region IX, CARB or local AQMD is required prior to the performance of any demolition project regardless of asbestos being present or not. This notification would also apply to any renovation project which involves the wrecking, taking out, or burning of any load bearing structural member during a renovation as well.

There is a sufficient amount of ACM present to require a 10 day notification to the US EPA Region IX, CARB or local AQMD be submitted prior to starting work which will impact

materials identified as RACM or CAT-I and CAT-II materials if they are made friable. If more than 160 square feet, 260 linear feet or 35 cubic feet of RACM is planned for removal on the project, formal written notification to US EPA Region IX, CARB or local AQMD is required.

Oregon OSHA

Disturbance of any ACM or ACCM could generate airborne asbestos fibers and would be regulated by Oregon OSHA. Oregon OSHA worker health and safety regulations apply during any disturbance of ACM or ACCM by a person while in the employ of another. This is true regardless of friability or quantity disturbed. The contractor shall comply with all Oregon OSHA regulations and notification requirements prior to the disturbance of the material.

Lead Inspection and Sampling

An X-ray fluorescence (XRF) Spectrum Analyzer was used during the lead inspection portion of this survey as a screening tool in determining if lead is present in quantities which would require existing paints and/or coatings to be classified as Lead-Based Paint (LBP).

In XRF spectroscopy, the process begins by exposing the sample in question to a source of x-rays or gamma rays. As these high energy photons strike the sample, they tend to knock electrons out of their orbits around the nuclei of the atoms that make up the sample. When this occurs, an electron from an outer orbit, or “shell”, of the atom will fall into the shell of the missing electron. Since outer shell electrons are more energetic than inner shell electrons, the relocated electron has an excess of energy that is expended as an XRF photon. This fluorescence is unique to the composition of the sample. The detector collects this spectrum and converts them to electrical impulses that are proportional to the energies of the various x-rays in the sample’s spectrum. Since each element has a different and identifiable x-ray signature, we can look at specific parts of the emitted spectrum, and by counting the pulses in the sector, determine the presence and concentration of the element(s) in question within the sample. Entek used a Niton XRF spectrum analyzer which is specific to measuring only lead in the building substrate.

Lead Sampling Results

XRF Spectrum Analyzer testing indicated lead was present in concentrations >1.0 mg/cm^2 on various building components. XRF direct reading technology is not capable of determining lead concentrations below 1.0 mg/cm^2. The limit of detection for this device with a 95% confidence level is 1.0 mg/cm^2. As a result, any reading provided by the XRF technology does not provide adequate information to determine the actual content of lead in the paint/coating being tested. Any XRF reading less than 1.0 mg/cm^2 (including readings of 0.00) only indicate lead is not present at levels high enough to classify the paint/coating as LBP. Coatings or materials which resulted in a lead concentration of below 1.0 mg/cm^2 were then sampled and analyzed by atomic absorption spectrometry (AAS) for lead content. Results of the XRF analysis and laboratory analysis are included in the tables below. Coating which reported concentrations below the laboratories detection limit are included in the laboratory results attached to this report.

Paints/Coatings/ Materials Determined to Contain Lead			
Paint/Coating Color or Material	**Lead Content**	**Component/Location**	**LBP/ LCP**
Canal Headgate (JCCH)			
Tan/Silver/orange Paint	350,000 ppm	Diversion Piping	LBP
Communications Building (JCCB)			
Tan Paint	140 ppm	Exterior Metal Trim	LCP
Fire Protection Building (JCFP)			
Red Paint	56 ppm	Metal Piping Throughout Structure	LCP
HazMat Shed (JCHM)			
Tan Paint	290,000 ppm	Throughout Exterior Siding of Small Shed Next To HazMat Storage Shed	LBP
Silver/Orange Paint	220,000 ppm	Roof of Small Shed Next To HazMat Storage Shed	LBP
Red Paint	560 ppm	Interior Structural Steel of HazMat Shed	LCP
Intake Structure (JCIS)			
Gray Paint on Brown Paint	19,000 ppm	Metal Handrails on Fish Ladder bridge	LBP
Tan Paint	490 ppm	Throughout exterior metal siding of reservoir level gauge house	LCP
Gray Paint	740 ppm	Exterior Underhang of Fish Screen House	LCP
White Paint	120 ppm	Concrete Interior Walls of Fish Screen Building	LCP
Green/Silver Paint	12,000 ppm	Interior Piping of Fish Screen Building	LBP
Gray Paint	68 ppm	Metal Interior Mechanical Fish Screen Building on Traveling Water Screens	LCP
Silver/Orange Paint	57,000 ppm	Metal Intake Structure Supports	LBP
Silver Paint	74,000 ppm	Metal Screen on Exterior of Fish Screen Building	LBP
Outdoor Storage Area (JCBY)			
Silver Paint	15,000 ppm	Out of Commission tank in Outdoor Storage Area	LBP
Penstock (JCPS)			
Tan on Orange Paint	97,000 ppm	Metal Penstock Piping	LBP
Powerhouse (JCPH)			
White Paint	680 ppm	CMU Walls Throughout	LCP
Gray Paint	180 ppm	Concrete Floor of Powerhouse	LCP
White Paint	360 ppm	Concrete Walls of Powerhouse	LCP
Orange Paint	100,000 ppm	Handrails throughout Powerhouse	LBP
Silver Paint	21,000 ppm	Exterior Track on top of powerhouse	LBP
Silver Paint	3.6 mg/cm^2	Metal Crane Structure	LBP

Paints/Coatings/ Materials Determined to Contain Lead			
Paint/Coating Color or Material	**Lead Content**	**Component/Location**	**LBP/ LCP**
Spillway (JCSW)			
Beige Paint	2,200	Concrete Spillway Canal Walls	LCP
Vehicle Storage Shed (JCVS)			
Yellow Paint	150 ppm	Concrete Bollards	LCP
Warehouse (JCWH)			
Red Paint	15,000 ppm	Metal Interior Structural Support Beams	LBP

LBP - Materials/coatings/paints meeting the definition of lead-based paint as defined by the CDPH and the US EPA, currently defined as containing lead in concentrations equal to or greater than 1.0 mg/cm^2, 5,000 ppm, or 0.5% by weight.

LCP - Materials/coatings/paints which contain measurable amounts of lead. The disturbance of these materials/coatings/paints is regulated by Cal/OSHA.

Lead Regulatory Compliance

Any upcoming project which may result in the disturbance of lead containing products or surfaces, but is not intended to remediate a lead hazard or specifically designed to remove LBP to reduce or eliminate a known hazard, would be considered “lead related construction work”.

Lead related construction work means any “construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup that, by using or disturbing lead-containing material or soil, may result in significant exposure of adults or children to lead”.

Currently, Oregon OSHA has not established a definition for LBP, nor have they established minimum concentrations where their regulations do not apply. Oregon OSHA regulates all construction activities involving materials containing lead, including LBP.

Oregon OSHA has not established a concentration of lead in a product where their regulations do not apply, therefore, any disturbance to products containing lead come under the jurisdiction of Oregon OSHA and their regulations. Disturbance of paints/coatings or materials determined to be LBP may trigger a pre-work notification to Oregon OSHA if “trigger tasks” disturb 100 square feet or more of those paints/coatings or materials.

Fluorescent Light Tubes and Polychlorinated Biphenyls (PCBs)

Fluorescent light tubes which contain mercury are considered a universal waste and must be packaged and recycled appropriately if they are removed from a building and not used again. The regulation, called the Universal Waste Rule, is in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 23.

Fluorescent light tubes are the bulb or tube portion of an electric lighting device and are

commonly referred to as “lamps”. Examples of other common electric lamps considered to be universal wastes include, but are not limited to, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Any lamp which is not spent and has been designated to be reused is not classified as a waste and does not meet the requirements of a hazardous waste or a universal waste.

Spent lamps typically contain concentrations of mercury exceeding the established Total Threshold Limit Concentration (TTLC) and/or the Soluble Threshold Limit Concentration (STLC) values. Therefore, these lamps must be sent to an authorized recycle facility or to a universal waste consolidator for shipment to an authorized recycling facility.

At a minimum, if removed lamps will not be reused they must be packaged in boxes/ packages/containers which are structurally sound, adequate to prevent breakage, and compatible with the content of the lamps. These packages must remain closed and be free of damage which could cause leakage under reasonably foreseeable conditions. Each container must be labeled or marked clearly with one of the following phrases: “Universal Waste Lamp(s),” or “Waste Lamp(s),” or “Used Lamp(s).” Entek recommends shipping any lamp not designated for reuse to a universal waste recycling facility once they have been packaged.

PCB containing light ballasts are considered a hazardous waste, and must be properly manifested for transport to a hazardous waste facility. Any contractor who may perform PCB related work (inspection, removal, clean-up) must be trained and qualified to do so. All workers must also follow current OSHA regulations including 29 CFR 1910.120 and 8 CCR 5192, as well as, other applicable federal, state, and local laws, and regulations. While light ballasts marked “No PCB” are not considered a hazardous waste, they are considered a universal waste. As a result, removal, packaging, and disposal/recycling of these types of ballasts must be conducted in accordance with current regulations of Title 22.

Entek and AECOM made an effort to assist in quantifying select materials throughout the structure. The below quantities are estimates based on observations during the assessment. It shall be the contractor responsibility to verify the total quantities present.

Universal Waste Inventory	
Other Regulated Building Material Description	**Approximate Quantity**
Mercury-Containing fluorescent light tubes (4’ length)	68
Mercury-Containing fluorescent light tubes (6’ length)	10
Mercury-Containing fluorescent light tubes (8’ length)	8
Magnetic light ballasts	50
HID Lamps	39
Mercury-containing switches, controls, and recorders	None Observed

PCB Caulking Results		
Material Description	**Material Location**	**Sample Results (mg/kg)**
Flexible Gray Expansion Joint Sealant	Powerhouse Roof at Expansion Joints	<0.82

Thermostats with Mercury Switches

It is possible existing thermostats may utilize switches containing mercury. The mercury in these switches would be considered a hazardous waste if removed and disposed. Any work requiring removal of thermostats containing mercury switches, must include having the switches inspected for the presence of mercury, and subsequently following all requirements for packaging and disposal of any switch found to contain mercury.

Freon and Fluorocarbons

Freon and other fluorocarbon products associated with HVAC systems, refrigerators, etc. may be present in or on the exterior of the buildings included in this investigation. Prior to demolition of a structure or removal of existing HVAC systems, refrigerators, or any other type of equipment which typically uses these types of coolant products shall have the coolant materials investigated prior to their demolition and removed from the mechanical systems and recycled in accordance with EPA requirements.

Smoke Detectors Which May Contain a Radioactive Element

It is possible existing smoke detectors may contain a radioactive element. These types of detectors are easily identified by reviewing the label which is usually found on the back of the detector. Older units may display the international radiation symbol (three bladed propeller) and the radioactive content. Newer units state the radioactive content and their Nuclear Regulatory Agency (NRC) license number.

Any work requiring the removal of smoke detectors with a radioactive element must include contacting the manufacturer of the smoke detector to determine their return policies.

Limitations

Entek inspected only the specific designated areas identified by the Owner to be included in the upcoming project. Select structures as outlined in the building description portion of this report were not assessed due to either safety concerns or at the request of the building owner. As a result the information provided in this inspection report may not be used to extend the inspection results to areas not included in this report without additional review and sampling as necessary.

Entek did not perform any destructive sampling to look into ceiling and wall cavities. As a result, it may be possible for materials to be hidden in these areas which are not included in this report. Entek also did not employ any destructive measures on floors of interior spaces or exterior areas covered with asphalt, concrete, or dirt.

If any new materials not listed as having been sampled, or listed as assumed for containing asbestos in this report are discovered, the new material must be assumed to contain asbestos until properly inspected and tested for asbestos content.

Entek's policy is to retain a full copy of these written documents for three (3) years once the file is closed. At the end of the 3 year period the written files will be destroyed without further notice. It is suggested copies of the file(s) are maintained as per your policy.

Entek will be providing only this electronic copy of the report and its attachments for your use. However, if you would like a hard copy of this report please do not hesitate to ask. Entek will be happy to mail the report upon receipt of your request.

Thank you for choosing Entek for your environmental needs. Please call me at (916) 632-6800 if you have any questions regarding this report.

Prepared by: Andy Roed

Andy Roed, CIH, CSP, CAC
President
Cal/OSHA CAC #16-5695
CDPH I/A Certification #29001

Appendices

A. Asbestos Related Documents
B. Lead Related Documents
C. Sample Location Maps
D. Backup Documentation
E. Historical Documents

APPENDIX A

ASBESTOS RELATED DOCUMENTS

- Bulk Asbestos Analysis Report From Asbestech
- Bulk Asbestos Material Analysis Request Form for Entek

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67972
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCWH-01A	Gray concrete stem wall near door	NONE DETECTED	Granular Mins.
02A	Gray concrete foundation of bldg.	NONE DETECTED	Granular Mins.

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67978
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCVS-01A	Black asphalt sealant, perimeter of vehicle shed	NONE DETECTED	Tar Binder Calcite
02A	Gray concrete , foundation of bldg.	NONE DETECTED	Granular Mins.
03A	White caulking, base of roll-up doors	NONE DETECTED	Synthetics

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67977
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCPS-01A	Gray concrete on overflow spillway	NONE DETECTED	Granular Mins.
02A	Black rubber gasket on concrete overflow spillway near canal headgate	NONE DETECTED	Rubber
03A	Black rubber gasket at penstock piping	NONE DETECTED	Calcite Opaques
04A	Gray concrete at base of metal supports for penstock	NONE DETECTED	Granular Mins.
05A	Gray concrete on support structure of penstock	NONE DETECTED	Granular Mins.

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67976
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCPH-			
01A	Black asphaltic roofing, emergency spill shed	NONE DETECTED	Tar Binder Fibrous Glass
02A	Gray concrete, foundation of emergency spill shed	NONE DETECTED	Granular Mins.
03A	Black vibration cloth on crane tracks	NONE DETECTED	Opaques
04A	Black asphaltic roofing, pump house roof near powerhouse	NONE DETECTED	Tar Binder Fibrous Glass
	Black felt paper	NONE DETECTED	Tar Binder Cellulose

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67973
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCOW-			
01A	Gray concrete foundation	NONE DETECTED	Granular Mins.
	Black asphaltic sealant	NONE DETECTED	Tar Binder
02A	Gray brittle caulking at base of metal siding	NONE DETECTED	Granular Mins.
03A	Black asphalt, parking area	NONE DETECTED	Granular Mins. Tar Binder

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67974
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCIS-01A	Red gasket on piping of intake structure	NONE DETECTED	Calcite Cellulose
02A	Green gasket on piping of intake structure	NONE DETECTED	Granular Mins. Cellulose

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67980
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCHM-01A	Gray concrete , foundation of fuel tank	NONE DETECTED	Granular Mins.
02A	Gray concrete , foundation of hazmat storage shed	NONE DETECTED	Granular Mins.
03A	Black asphalt road near hazmat shed	NONE DETECTED	Granular Mins. Tar Binder

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

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ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67971
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCHG-			
01A	Gray CMU, canal headgate exterior	NONE DETECTED	Granular Mins.
	Gray grout	NONE DETECTED	Granular Mins.
02A	Gray CMU, canal headgate exterior	NONE DETECTED	Granular Mins.
	Gray grout	NONE DETECTED	Granular Mins.
03A	Gray CMU, canal headgate exterior	NONE DETECTED	Granular Mins.
	Gray grout	NONE DETECTED	Granular Mins.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67989
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCGWPH-01A	Gray concrete foundation of groundwater pump house	NONE DETECTED	Granular Mins.

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

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ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67981
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCFP-			
01A	Gray CMU, exterior of structure	NONE DETECTED	Granular Mins.
	Gray grout	NONE DETECTED	Granular Mins.
02A	Gray concrete , foundation of structure	NONE DETECTED	Granular Mins.
03A	Gray concrete patch , pipe penetration	NONE DETECTED	Granular Mins.
04A	Gray concrete block for anchoring near water	NONE DETECTED	Granular Mins.
05A	Green foam insulation , pipe penetration	NONE DETECTED	Synthetics
06A	Red gaskets , pipe connections in bldg.	NONE DETECTED	Calcite Opaques
07A	Black gaskets , pipe connections in bldg.	NONE DETECTED	Rubber Synthetics

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES 

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67979
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCFL-01A	Gray concrete , fish ladder wall	NONE DETECTED	Granular Mins.
02A	Gray concrete , fish ladder	NONE DETECTED	Granular Mins.
	Brown felt	NONE DETECTED	Cellulose

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, California 95608
Tel.(916) 481-8902 asbestech@sbcglobal.net

Client:
Entek Consulting Group, Inc.
4200 Rocklin Rd., Suite 7
Rocklin, CA 95677

Job:
20-5562 NV5
JC Boyle

BULK ASBESTOS ANALYSIS REPORT

LAB JOB # 67975
Date/Time Collected: 9/22/20
Date Received: 10/16/20

NVLAP Lab Code 101442-0
CDPH # 1153
Date Analyzed: 10/17/20

Sample No.	*Color/Description*	*% Type Asbestos*	*Other Materials*
ECG-20-5562-JCCB-01A	Gray concrete, foundation of bldg.	NONE DETECTED	Granular Mins.
02A	Gray paper fibrous material at seams of metal siding	NONE DETECTED	Calcite Opaques
03A	Clear sealant, bolt hole penetrations	NONE DETECTED	Synthetics

THE ANALYSIS USES POLARIZED LIGHT MICROSCOPY AND DISPERSION STAINING FOLLOWING E.P.A. METHOD 600/R-93/116. NON-FRIABLE MATERIALS WERE ANALYZED APPLYING THE SAME METHOD. THE LOWER DETECTION LIMIT IS <1 % WITH THE PROVISO THAT PLM MAY NOT DETECT FIBERS <0.25 MICRONS IN DIAMETER THAT MAY BE PRESENT IN SAMPLES SUCH AS FLOOR TILES. IN ACCORDANCE WITH TITLE 22, CCR, SECTION 66261.24(a)(2)(A),THE MCL IS 1 %. SAMPLES WERE NOT COLLECTED BY ASBESTECH. THIS REPORT MUST NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE APPROVAL OF ASBESTECH. THIS REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY N.V.L.A.P. OR ANY AGENCY OF THE U.S. GOVERNMENT. ASBESTECH ACCEPTS TECHNICAL RESPONSIBILITY FOR THIS REPORT AND DATE OF ISSUE.

NVLAP LAB CODE 101442-0 LAB DIRECTOR: TOM CONLON ANALYST: JIM JUNGLES Jim Jungles

ENTEK

67972

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCWH-01A	Concrete / Stem Wall Near Door
ECG-20-5562-JCWH-02A	Concrete / Foundation of Building

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ENTEK

67978

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCVS-01A	Black Asphalt Sealant / Perimeter of Vehicle Shed
ECG-20-5562-JCVS-02A	Concrete / Foundation of Building
ECG-20-5562-JCVS-03A	White Caulking / Base of Roll-up Doors

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Received by: _____ **Date:** 10/16/20 **Time:** 9 **AM/PM**

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67977

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCPS-01A	Concrete on Overflow Spillway
ECG-20-5562-JCPS-02A	Black Runbber Gasket on Concrete Overflow Spillway near canal headgate
ECG-20-5562-JCPS-03A	Red Rubber gasket at Penstock piping
ECG-20-5562-JCPS-04A	Concrete at Base of metal Supports for Penstock
ECG-20-5562-JCPS-05A	Concrete on Support Structure of Penstock

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BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCPH-01A	Asphaltic Roofing / Emergency Spill Shed
ECG-20-5562-JCPH-02A	Concrete / Foundation of Emergency Spill Shed
ECG-20-5562-JCPH-03A	Black Vibration Cloth on Crane Tracks
ECG-20-5562-JCPH-04A	Black Asphaltic Roofing with Felt Paper / Pump House Roof Near Powerhouse

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67973

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCOW-01A	Concrete Foundation with Asphaltic Sealant
ECG-20-5562-JCOW-02A	Gray Brittle Caulking at Base of Metal Siding
ECG-20-5562-JCOW-03A	Asphalt / Parking Area

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BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCIS-01A	Red Gasket on Piping of Intake Structure
ECG-20-5562-JCIS-02A	Green Gasket on Piping of Intake Structure

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BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCHM-01A	Concrete / Foundation of Fuel Tank
ECG-20-5562-JCHM-02A	Concrete / Foundation of Hazmat Storage Shed
ECG-20-5562-JCHM-03A	Asphalt / Road Base Near Hazmat Shed

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Received by: _____ **Date:** 10 / 16 / 20 **Time:** 9 **AM/PM**

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BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCHG-01A	CMU and Grout / Canal Headgate Exterior
ECG-20-5562-JCHG-02A	CMU and Grout / Canal Headgate Exterior
ECG-20-5562-JCHG-03A	CMU and Grout / Canal Headgate Exterior

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Delivered by: _____ **Date:** 10 / 14 / 20 **Time:** 4 **AM/PM**

Received by: _____ **Date:** 10 / 16 / 20 **Time:** 9 **AM/PM**

ENTEK

67990

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCGWPH-01A	Concrete Foundation of Groundwater Pump House

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Delivered by: _____ **Date:** 10/14/20 **Time:** 4 AM/PM

Received by: _____ **Date:** 10/16/20 **Time:** 9 AM/PM

ENTEK

67981

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCFP-01A	CMU and Grout / Exterior of Structure
ECG-20-5562-JCFP-02A	Concrete / Foundation of Structure
ECG-20-5562-JCFP-03A	Concrete Patch / Pipe Penetration
ECG-20-5562-JCFP-04A	Concrete / Block for Anchoring Near Water
ECG-20-5562-JCFP-05A	Green Foam Insulation / Pipe Penetration
ECG-20-5562-JCFP-06A	Red Gaskets / Pipe Connections in Building
ECG-20-5562-JCFP-07A	Black Gaskets / Pipe Connections in Building

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Received by: _____ **Date:** 10/16/20 **Time:** 9 **AM/PM**

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67979

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCFL-01A	Concrete / Fish Ladder Wall
ECG-20-5562-JCFL-02A	Concrete / Fish Ladder

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Received by: _____ **Date:** 10/16/20 **Time:** 9 AM/PM

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67975

BULK ASBESTOS MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 09-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Asbestech

Collected by: Andy Roed

Turnaround Time: Day: Tuesday
Date: 10 / 20 /20 Time: 5 pm

ANALYSIS REQUESTED: Asbestos by PLM with Dispersion Staining

Special Instruction: *Stop Analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCCB-01A	Concrete / Foundation Of Building
ECG-20-5562-JCCB-02A	Gray Paper/Fibrous Material / At Seams of Metal Siding
ECG-20-5562-JCCB-03A	Sealant / Bolt Hole Penetrations

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Delivered by: _____ **Date:** 10/14/20 **Time:** 4 AM/PM

Received by: _____ **Date:** 10/16/20 **Time:** 9 AM/PM

APPENDIX B

LEAD RELATED DOCUMENTS

- Lead in Paint Samples Analysis Report From EMLAB
- Bulk Lead Material Analysis Request Form for Entek
- XRF Data

eurofins | EMLab P&K

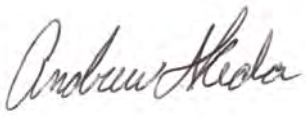
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562, NV5; JC Boyle
EML ID: 2505172

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-20-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562, NV5; JC Boyle

Date of Sampling: 09-22-2020
Date of Receipt: 10-19-2020
Date of Report: 10-26-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-JCPH-01Pb: Gray Paint on Exterior Wooding Siding of Spill Shed	ECG-20-5562-JCPH-02Pb: Brown Paint on Exterior Wooding Siding of Pump House
Comments (see below)	None	None
Lab ID-Version‡:	11935353-1	11935354-1
Analysis Date:	10/20/2020	10/20/2020
Sample type	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	65 ppm	96 ppm
Sample size	0.1531 grams	0.1045 grams
§Total Lead Result	< 65 ppm	< 96 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

eurofins | EMLab P&K

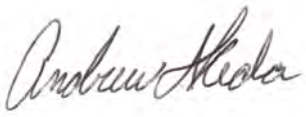
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562, NV5; JC Boyle
EML ID: 2502976

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-15-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562, NV5; JC Boyle

Date of Sampling: 09-22-2020
Date of Receipt: 10-15-2020
Date of Report: 10-22-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-JCHM-01Pb: Red Paint on Bollard
Comments (see below)	None
Lab ID-Version‡:	11924887-1
Analysis Date:	10/15/2020
Sample type	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	120 ppm
Sample size	0.0844 grams
§Total Lead Result	370 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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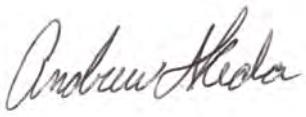
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562, NV5; JC Boyle
EML ID: 2502978

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-16-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562, NV5; JC Boyle

Date of Sampling: 09-22-2020
Date of Receipt: 10-15-2020
Date of Report: 10-22-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-JCHG-01Pb: Gray Paint on Concrete Flooring of Canal Head Gate Building	ECG-20-5562-JCHG-02Pb: White Paint on Wood Walls of Canal Head Gate Building
Comments (see below)	None	None
Lab ID-Version‡:	11924898-1	11924899-1
Analysis Date:	10/16/2020	10/16/2020
Sample type	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	300 ppm	71 ppm
Sample size	0.0330 grams	0.1407 grams
§Total Lead Result	< 300 ppm	< 71 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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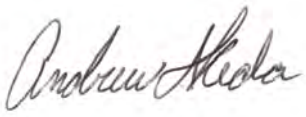
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562, NV5; JC Boyle
EML ID: 2502974

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-15-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562, NV5; JC Boyle

Date of Sampling: 09-22-2020
Date of Receipt: 10-15-2020
Date of Report: 10-22-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5562-JCGWPH-01Pb: Red Paint on Wood Door
Comments (see below)	None
Lab ID-Version‡:	11924869-1
Analysis Date:	10/15/2020
Sample type	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	92 ppm
Sample size	0.1090 grams
§Total Lead Result	< 92 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

eurofins | EMLab P&K

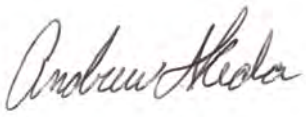
ENTEK CONSULTING GROUP, INC.

Report for:

Andy Roed
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding: Project: 20-5562; JC Boyle
EML ID: 2502977

Approved by:



Technical Manager
Andrew Ikeda

Dates of Analysis:
Lead - Flame AA: 10-16-2020

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA-LAP, LLC accredited service, Lab ID #178697

Eurofins EMLab P&K
17461 Derian Ave, Suite 100, Irvine, CA 92614
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Client: Entek Consulting Group
C/O: Andy Roed
Re: 20-5562; JC Boyle

Date of Sampling: 09-22-2020
Date of Receipt: 10-15-2020
Date of Report: 10-22-2020

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-20-5662-JCCB-01Pb: Black on Metal Chase for Cables
Comments (see below)	A
Lab ID-Version‡:	11924888-1
Analysis Date:	10/16/2020
Sample type	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	1400 ppm
Sample size	0.0074 grams
§Total Lead Result	< 1400 ppm

Comments: A) Sample weight is below method requirements and was analyzed at client request.

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA-LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

ENTEK

002505172

BULK LEAD MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Emlab P & K - Irvine

Collected by: Andy Roed

Turnaround Time: Standard

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight.* *Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCPH-01Pb	Gray Paint on Exterior Wooding Siding of Spill Shed
ECG-20-5562-JCPH-02Pb	Brown Paint on Exterior Wooding Siding of Pump House

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[signature] 10-16-20 11:36 am

Received by: [signature] Date: 10/19/2020 Time: 9:36 AM/PM (AM circled)

ENTEK

002502976

BULK LEAD MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-22-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Andy Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: JC Boyle

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCHM-01Pb	Red Paint on Bollard

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ENTEK

002502978

BULK LEAD MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-22-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Andy Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: JC Boyle

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCHG-01Pb	Gray Paint on Concrete Flooring of Canal Head Gate Building
ECG-20-5562-JCHG-02Pb	White Paint on Wood Walls of Canal Head Gate Building

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Delivered by: _____ **Date:** 10/14/20 **Time:** 4 AM/PM

Received by: _____ **Date:** 10/15/2020 **Time:** 9:54 AM/PM

ENTEK

002502974

BULK LEAD MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-22-2020

Job Number: 20-5562

Client Name: NV5

Site Address: JC Boyle

Lab: Emlab P & K - Irvine

Collected by: Andy Roed

Turnaround Time: Standard

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCGWPH-01Pb	Red Paint on Wood Door

C:\Users\selbert\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Field Documents\JCB\COCs\JCGWPH\Bulk Request Pb 10-14-2020.wpd

Delivered by: _____ **Date:** 10/14/20 **Time:** 4 AM/PM

Received by: _____ **Date:** 10/15/2020 **Time:** 9:54 AM/PM

ENTEK

002502977

BULK LEAD MATERIAL *Analysis Request*

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 9-22-2020

Lab: Emlab P & K - Irvine

Job Number: 20-5562

Collected by: Andy Roed

Client Name: NV5

Turnaround Time: Standard

Site Address: JC Boyle

ANALYSIS REQUESTED: Lead by Flame Atomic Absorption Spectroscopy

Special Instruction: *Please report result in PPM and % by weight. Please email results as soon as possible.*

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-20-5562-JCCB-01Pb	Black on Metal Chase for Cables

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Delivered by: _____ **Date:** 10/14/20 **Time:** 4 AM/PM

Received by: _____ **Date:** 10/15/2020 **Time:** 9:54 AM/PM

Lead Testing Data Sheet (OSHA)
Iron Gate Development

Entek Project # 20-5562 | Niton: XLp-300A Lead Analyzer | Date: 9-22, 2020

Address: JC Boyle Development | XRF Serial No.: 24015 | Source No.: TR3580

Room Equivalent: JC Boyle Development | Inspector(s): Andy Roed

Component	Substrate	Color	Test Locations	XRF Reading (mg/cm^2)
Cable Chase	Metal	Black	Communications Building - Metal Chase for Cabels	0.0
Door	Wood	Red	Ground Water Pump House	0.1
Floor	Concrete	Gray	Canal Head Gate Building	0.0
Wall	Wood	White	Canal Head Gate Building Interior	0.0
Siding	Wood	Gray	Spill Shed - Wood Siding	0.0
Siding	Wood	Brown	Pump House Exterior Siding	0.0

C:\Users\andy\Entek Consulting Group, Inc\Entekgroup - Documents\Clients\NV5\20-5562 Klammath Dams\Reports\JC Boyle\Lead Test Data SheetOSHA.wpd

All XRF Readings $\geq$1.0 mg/cm^2 = Lead Based Paint (LBP)

All XRF Readings <1.0 mg/cm^2 = Lead Containing Coating (LCC)

Calibration Check Test Results

Klamath River Dams

Site Name:	JC Boyle Development	Date:	9-22-2020
City:	Hornbrook, CA		
Device:	Niton Xlp 300	Source Assay Date:	12-1-19
XRF Serial No.	24015	Source Number:	TR3580
Contractor:	Entek Consulting Group, Inc.		
Inspector Name:	Andy Roed		
Inspector Signature:	_____		

Calibration Check Tolerance Used 1.04 ±0.06

First Calibration Check 0800 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
1.0	1.0	0.9	

Second Calibration Check 1700 hours

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	Yes
1.0	1.1	1.0	

Third Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

Fourth Calibration Check N/A

Red SRM (2573) 0.8 to 1.2 mg/cm^2			Do All Three Checks Meet the Standard?
First Reading	Second Reading	Third Reading	N/A
N/A	N/A	N/A	

* If the Calibration Check from the red SRM film value is greater or less than the specified Calibration Check Tolerance for this device, consult the manufacturer's recommendations to bring the instrument back into control. Retest all testing combinations tested since the last successful Calibration Check test.

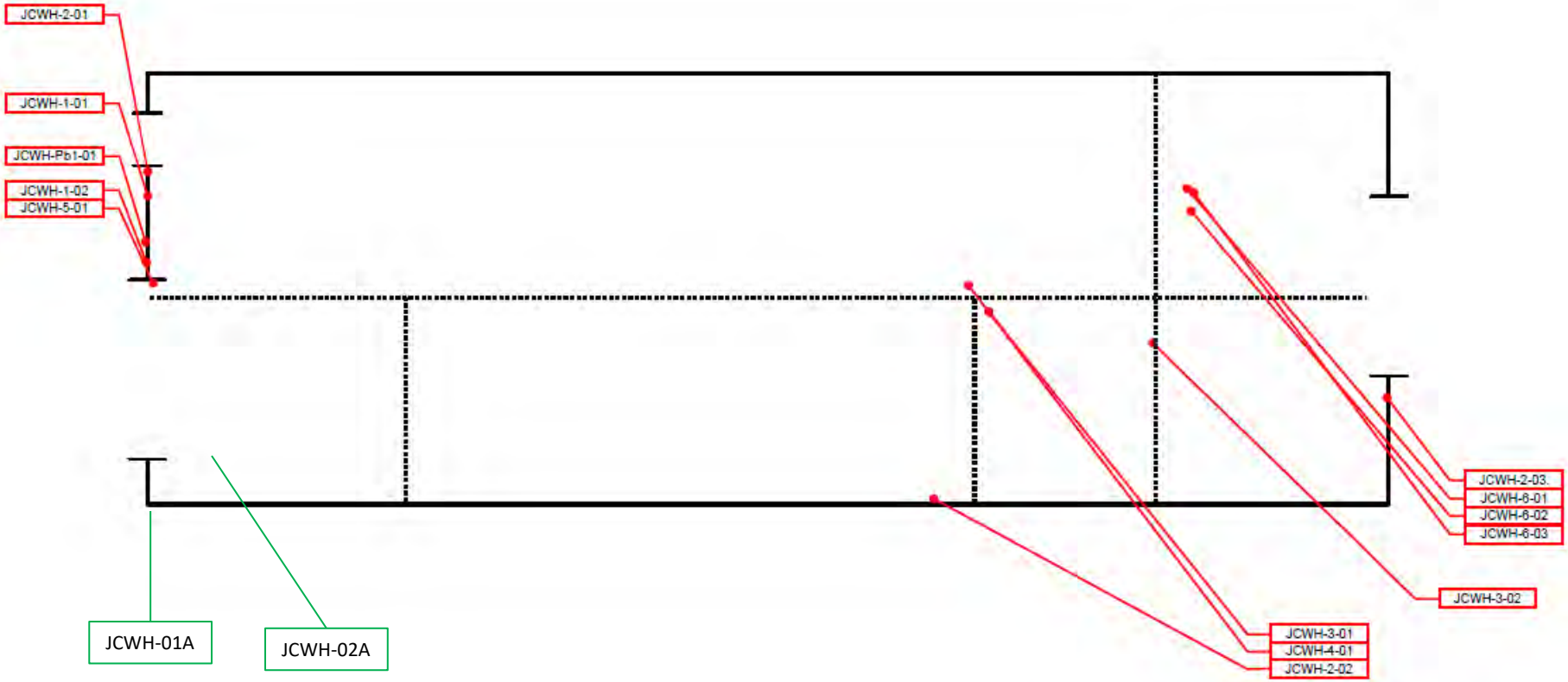
APPENDIX C

Sample Location Maps

- Asbestos and Lead Sample Location Diagrams

AECOM Sample Locations

Entek Sample Locations



NV5
Klamath Dams
J.C. Boyle Dam
Keno, OR

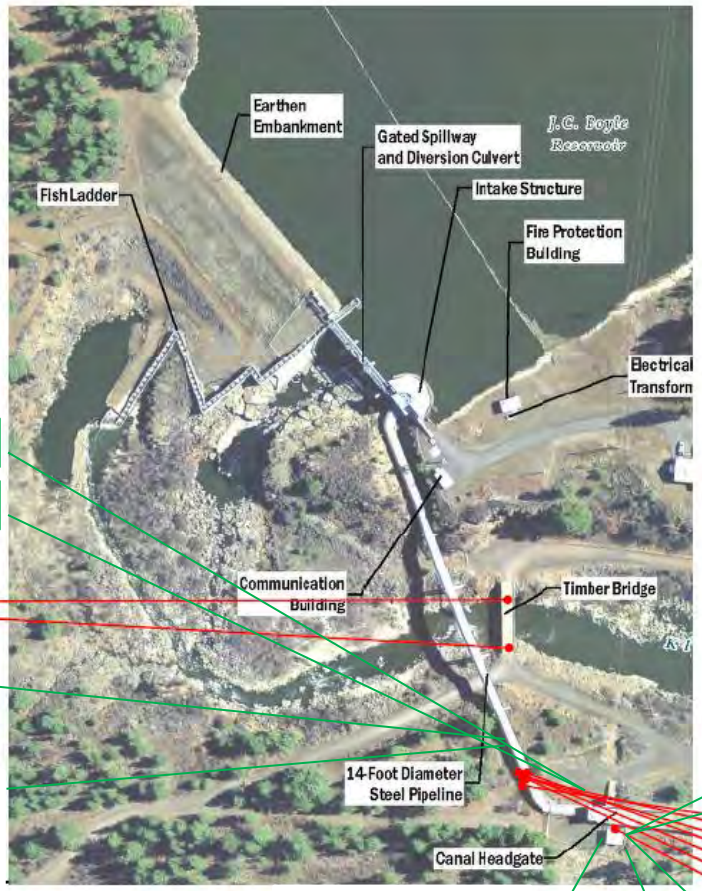
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677
Map Not to Scale

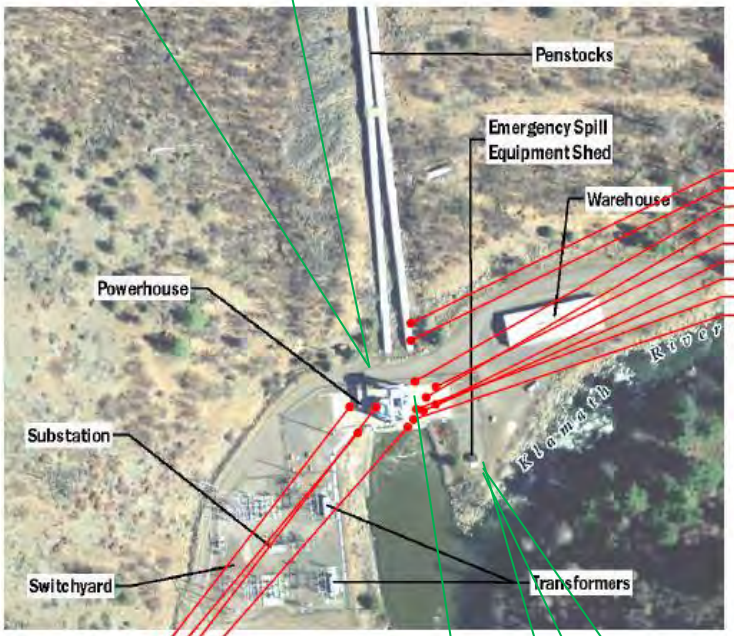
Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\JC Boyle

Asbestos and Lead Bulk Sample Locations
Collected by Andy Roed
On September 22, 2020
Project Number 20-5562

AECOM Sample Locations

Entek Sample Locations





JCPH-02Pb

JCPH-04A

JCPS-Pb1-01
JCPS-1-01*
JCPH-13-03
JCPH-13-02
JCPH-Pb7-01
JCPH-12-03
JCPH-12-02
JCPH-12-01
JCPH-13-01

JCPS-02A

JCPS-01A

JCWB-1-02
JCWB-1-01

JCPS-04A

JCPS-05A

JCPH-10-01
JCPH-9-01
JCPH-11-01
JCPH-9-02*

JCHG-01Pb

JCHG-03A

JCPH-03A

JCPH-02A

JCPH-01A

JCPH-01Pb

JCCH-1-01
JCCH-2-01
JCCH-3-01
JCCH-3-02
JCCH-3-03
JCCH-Pb1-01
JCHG-1-01*

JCHG-01A

JCHG-02A

JCHG-01Pb

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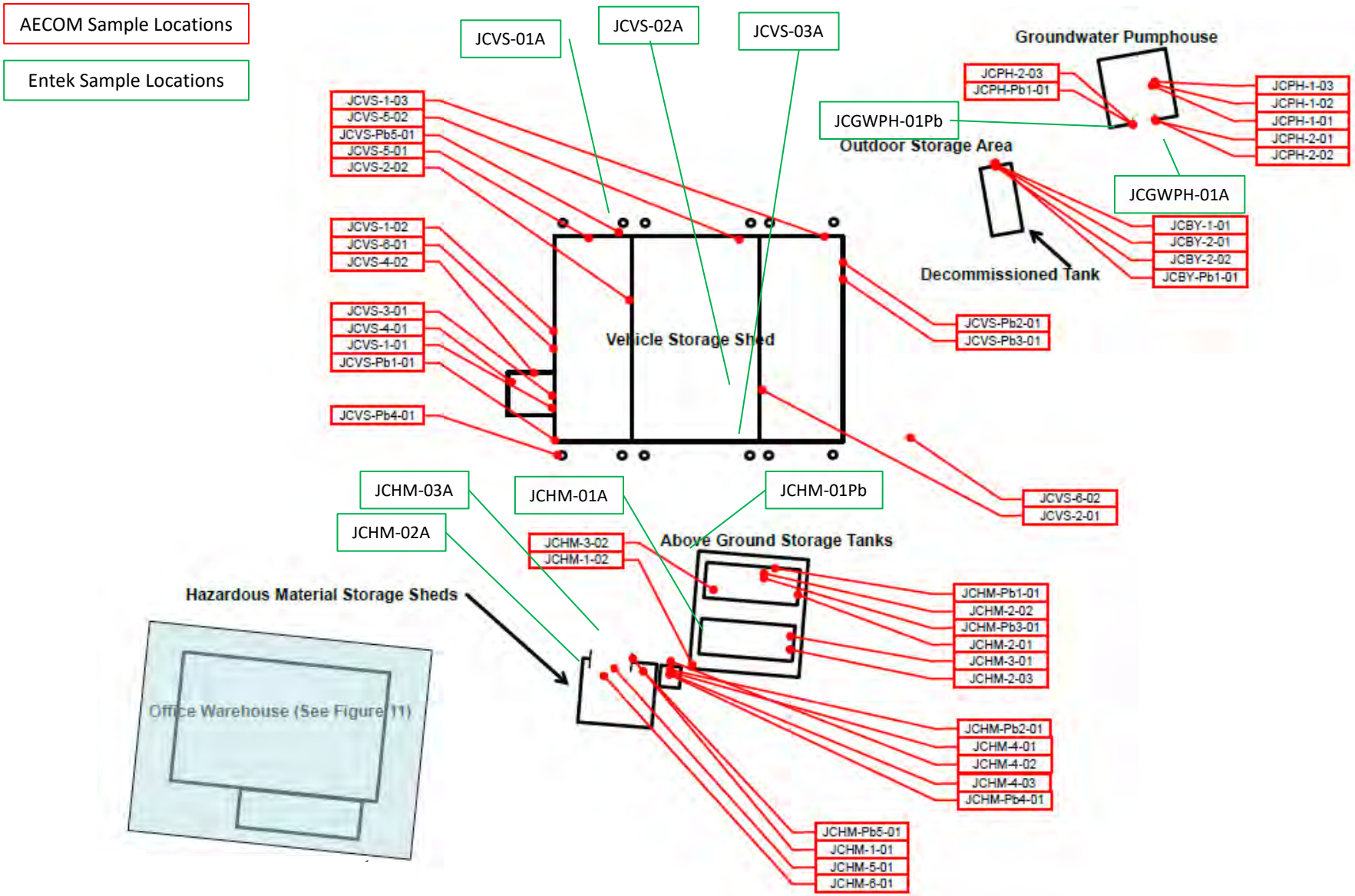

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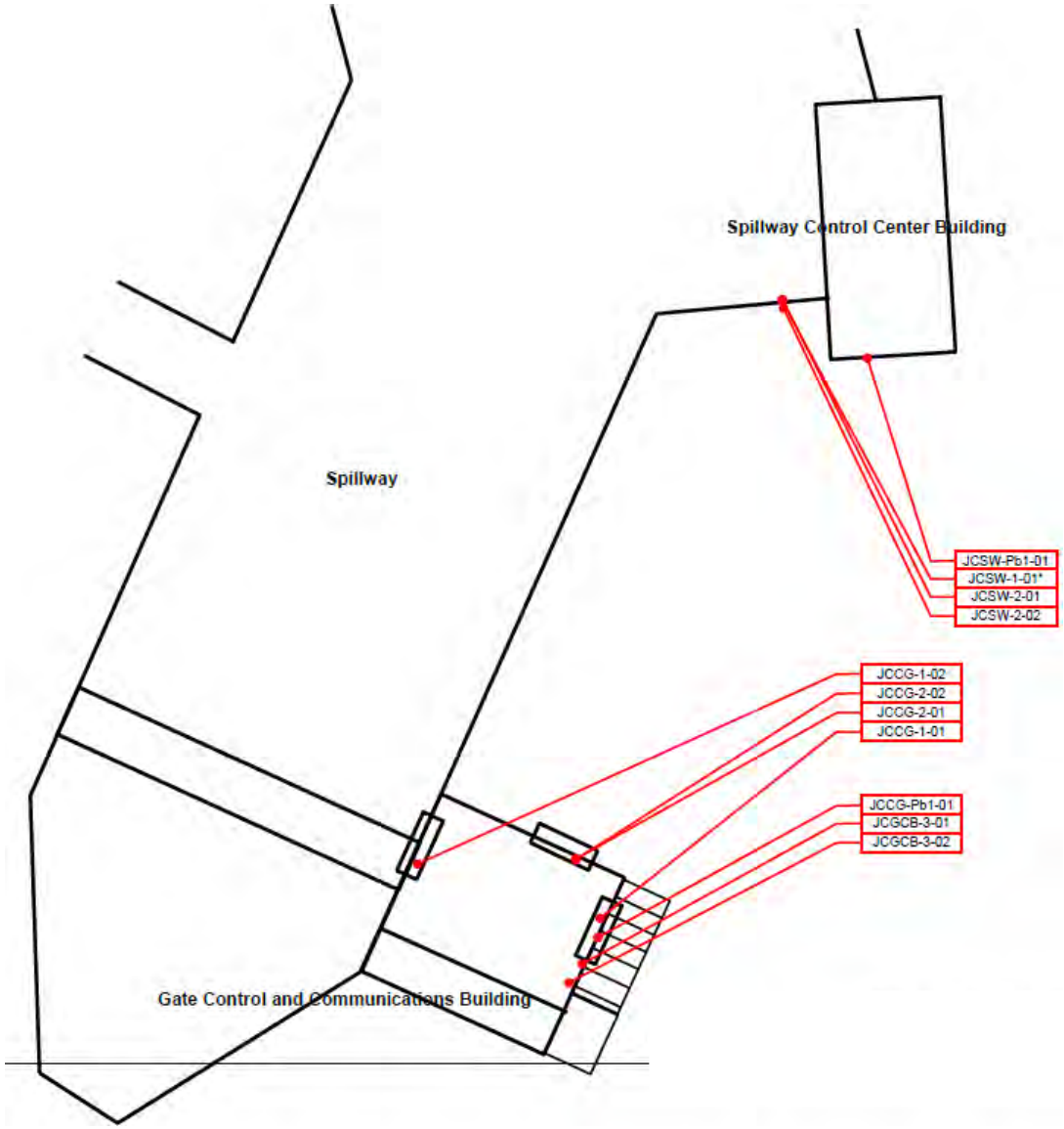

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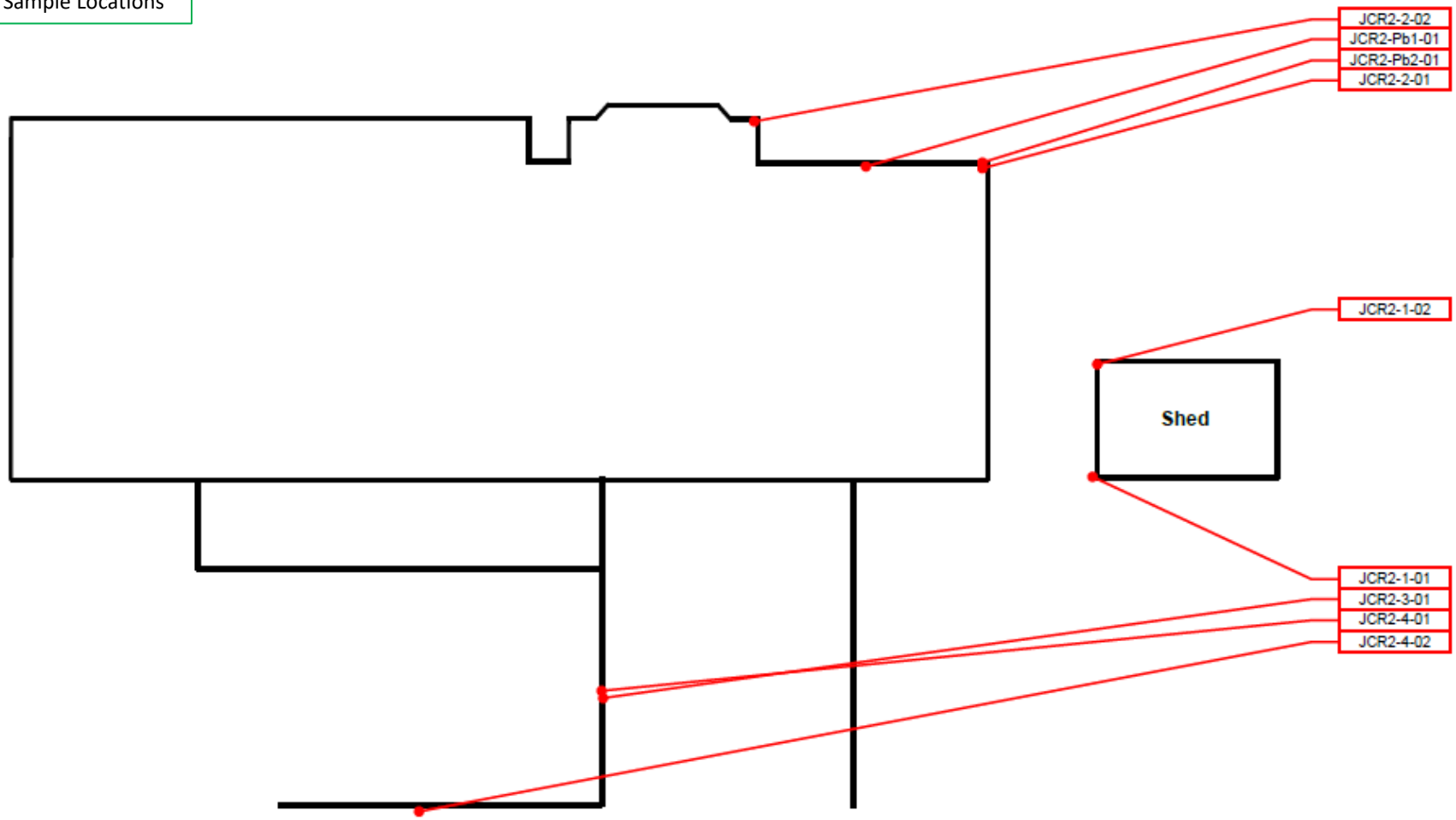

NV5 Klamath Dams J.C. Boyle Dam Keno, OR	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale Cloud\Clients\NV5\20-5562 Klammath Dams\Drawings\JC Boyle	Asbestos and Lead Bulk Sample Locations Collected by Andy Roed On September 22, 2020 Project Number 20-5562

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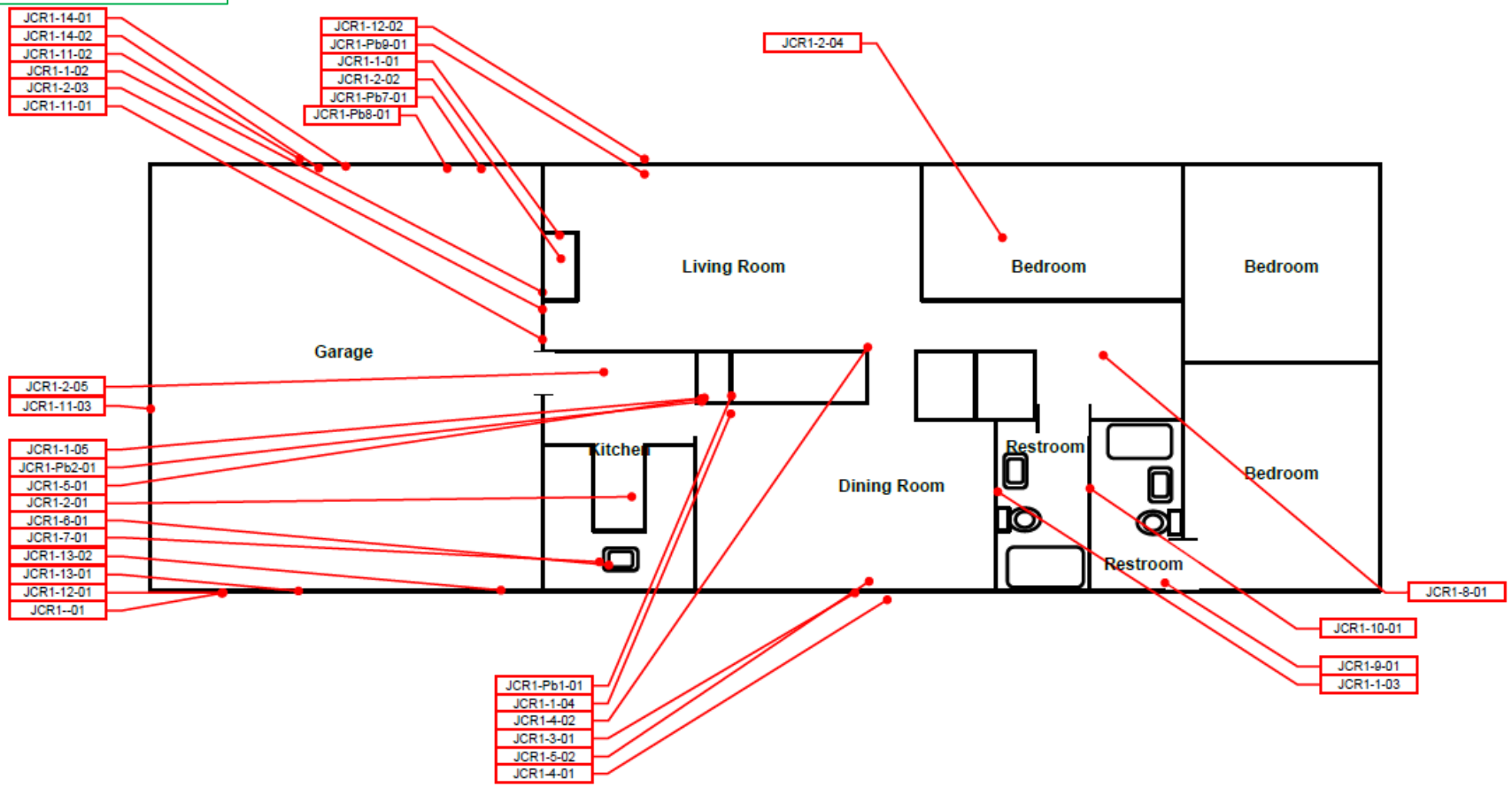
Entek Sample Locations



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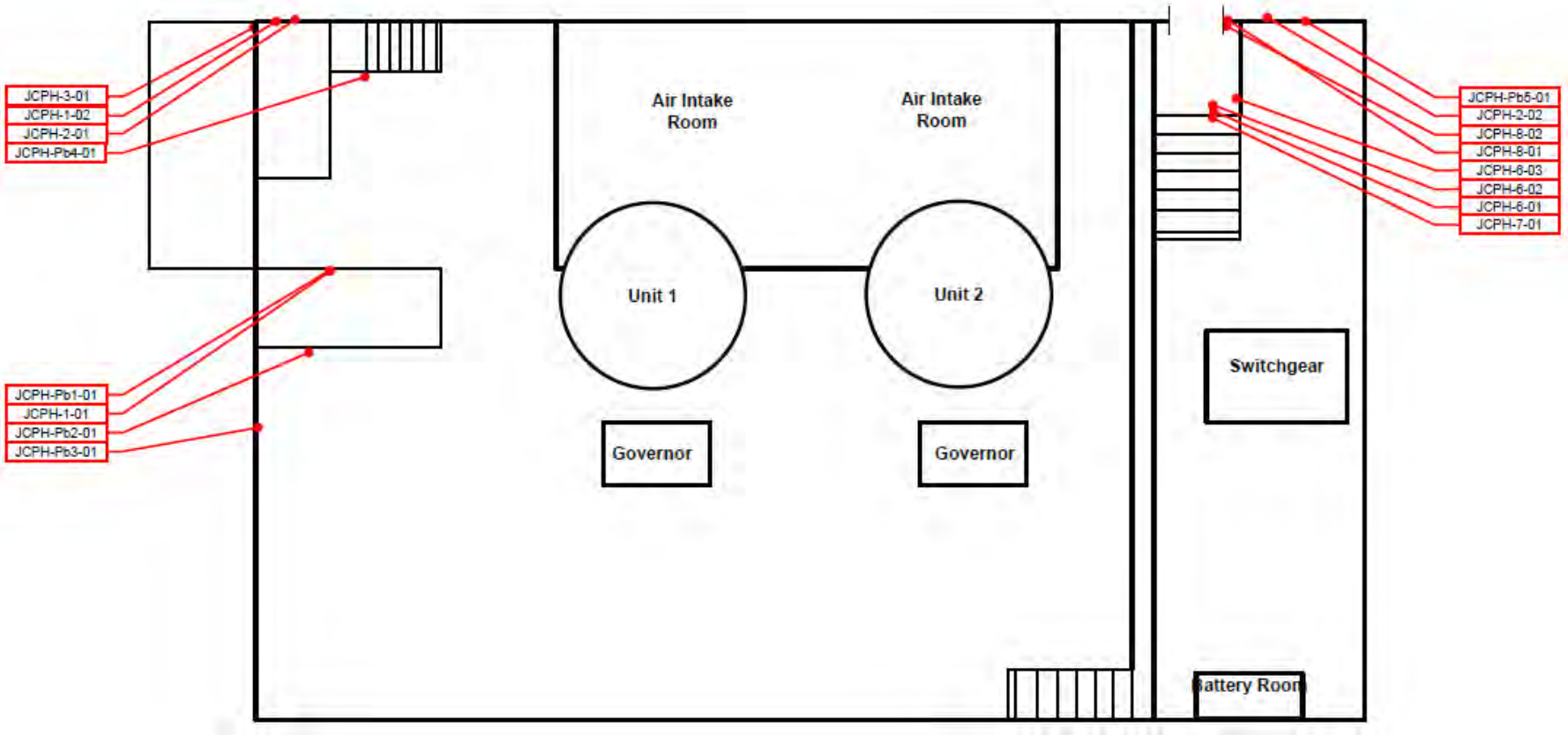

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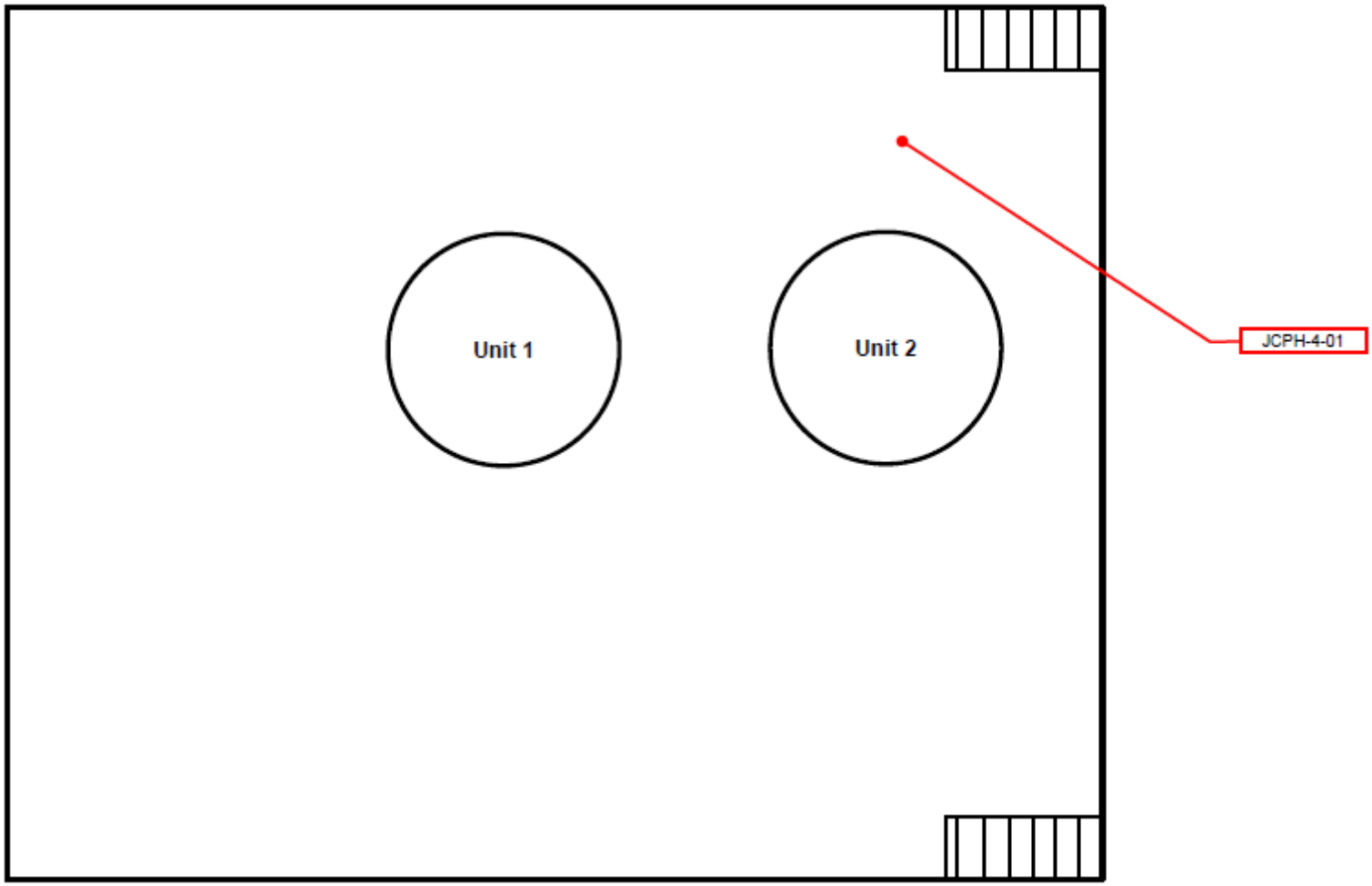

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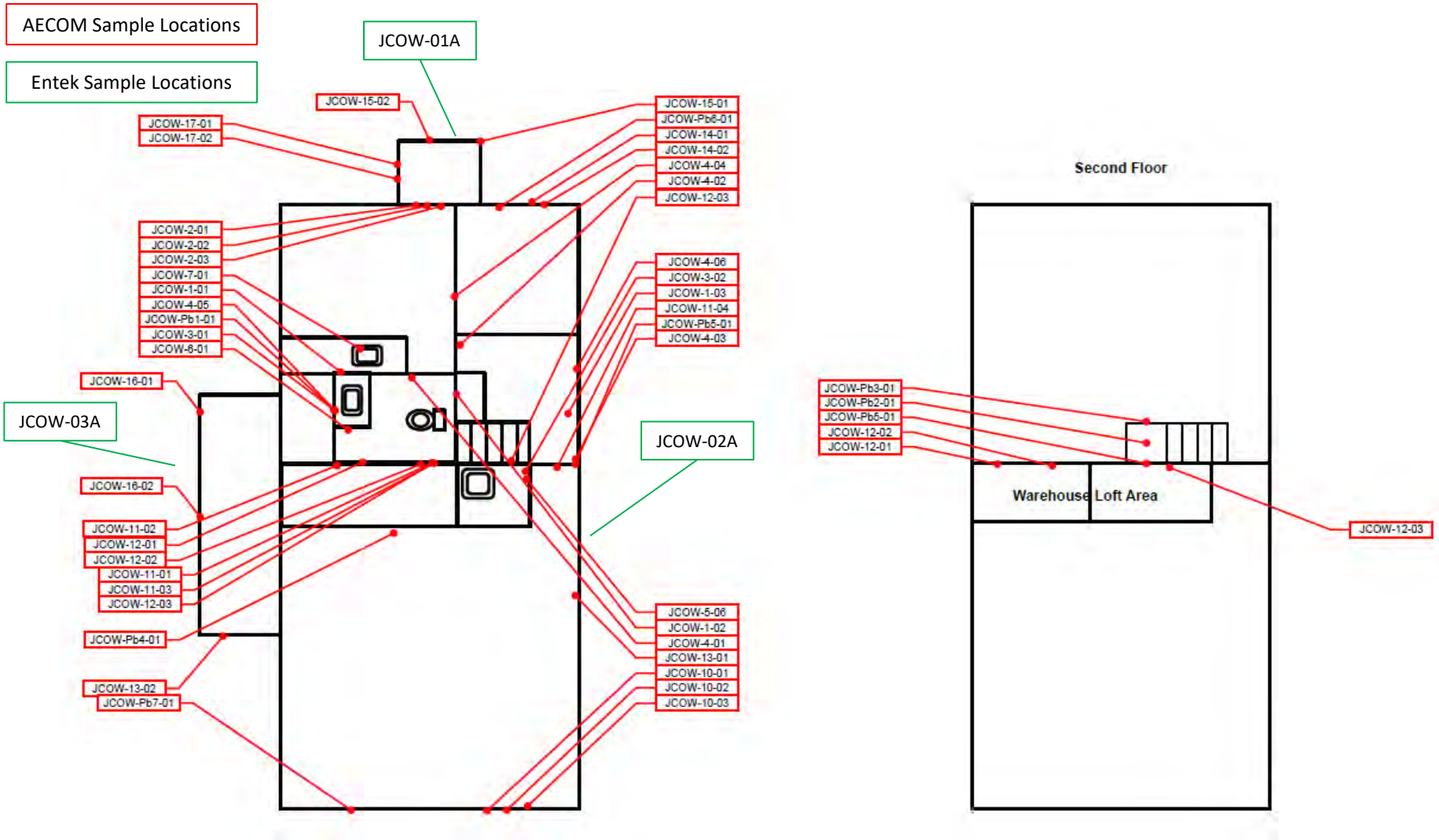

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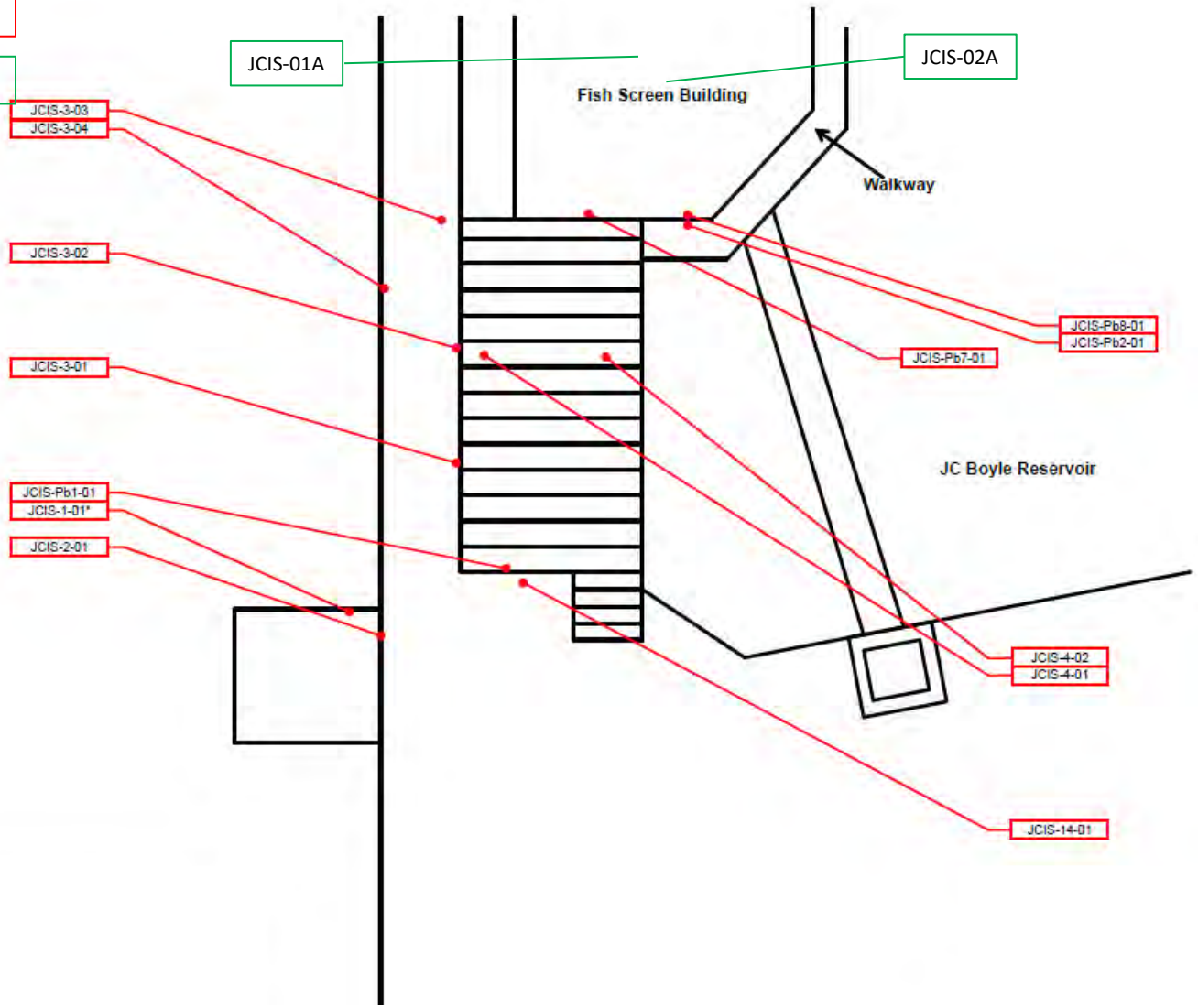

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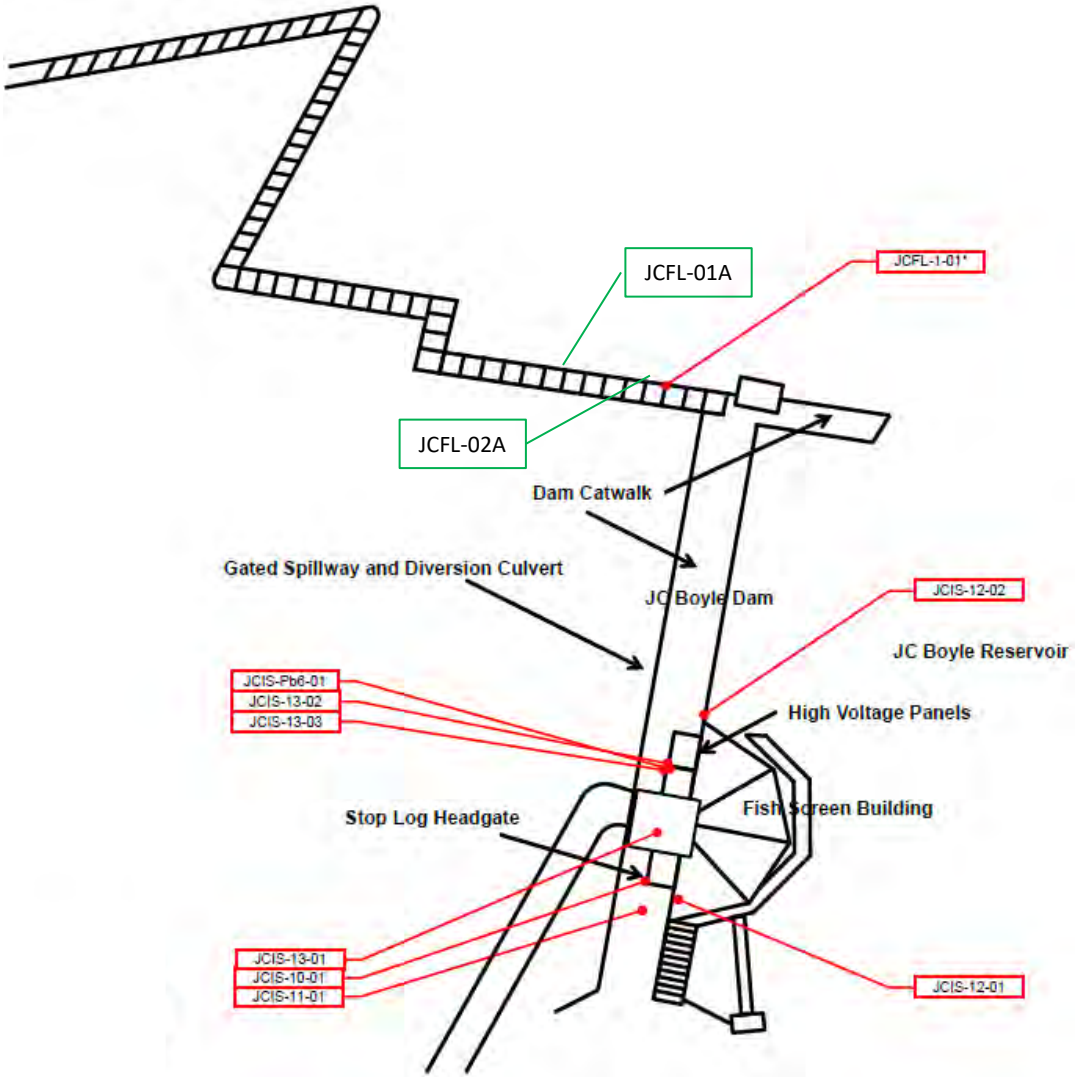

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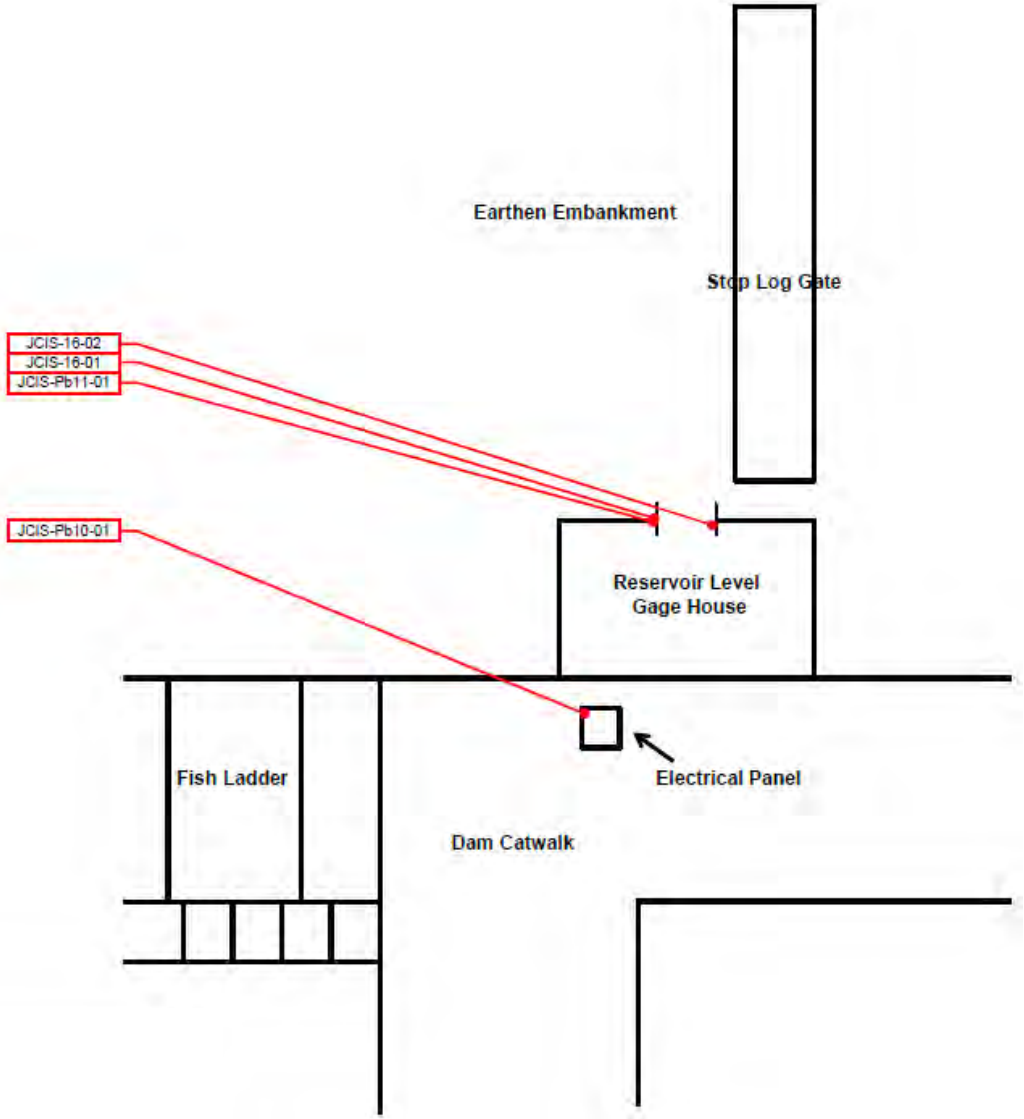

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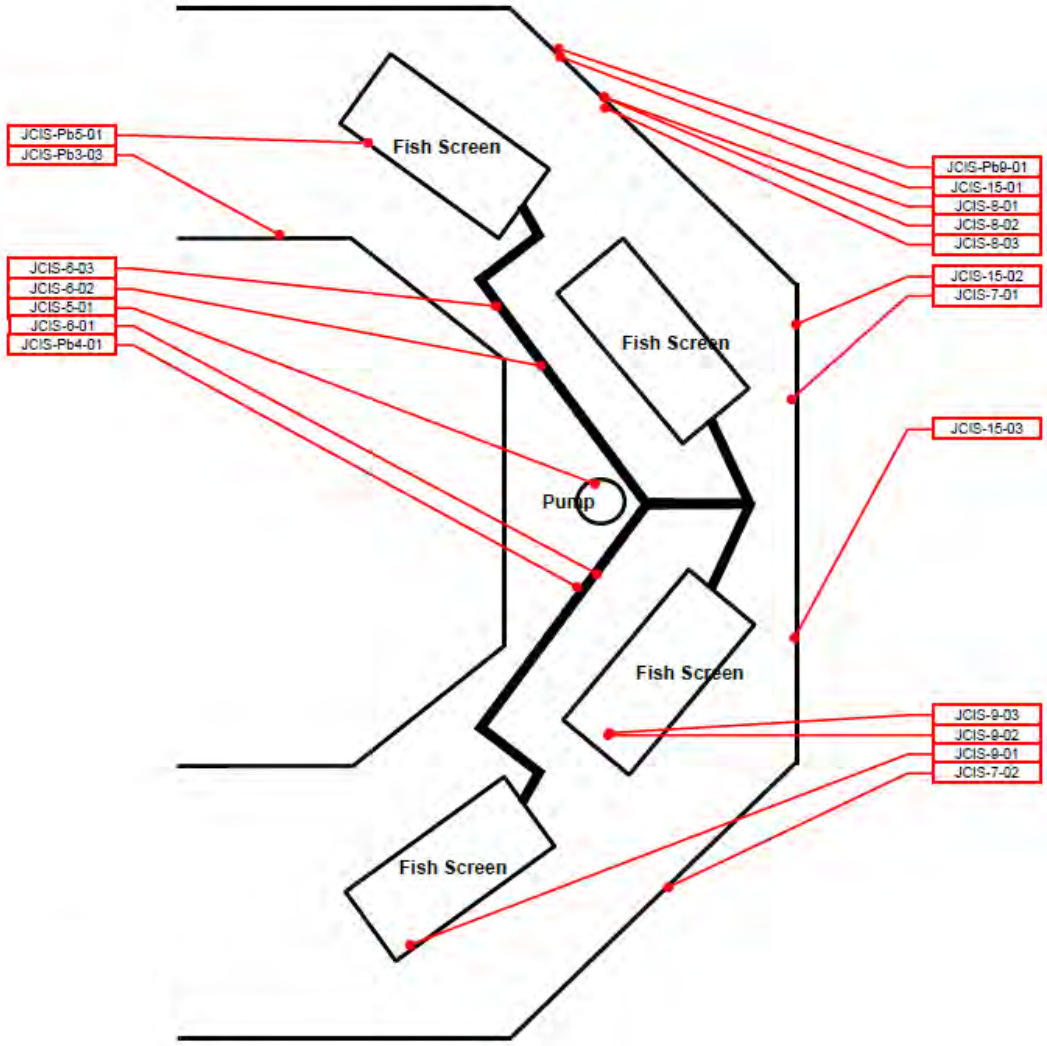

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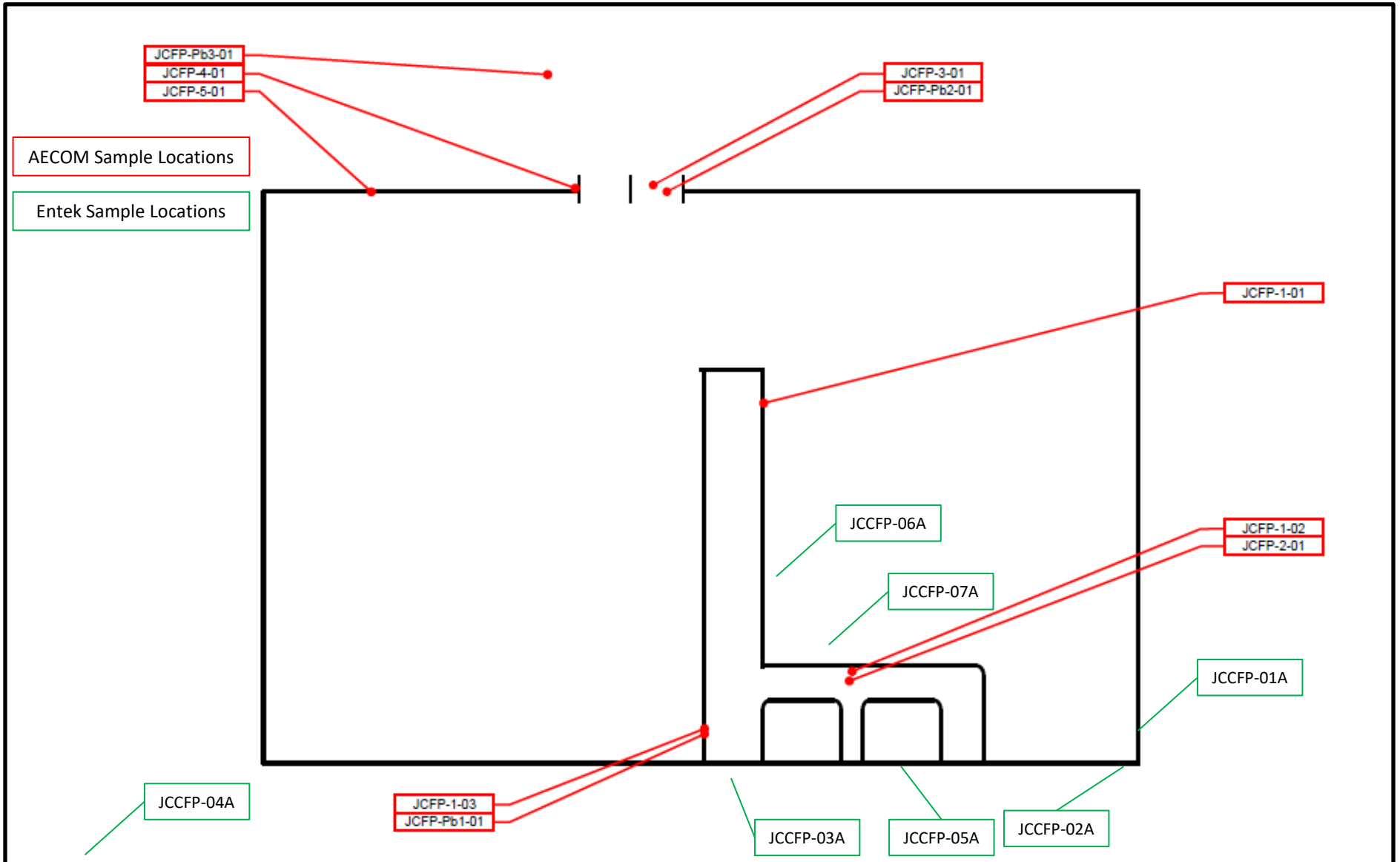

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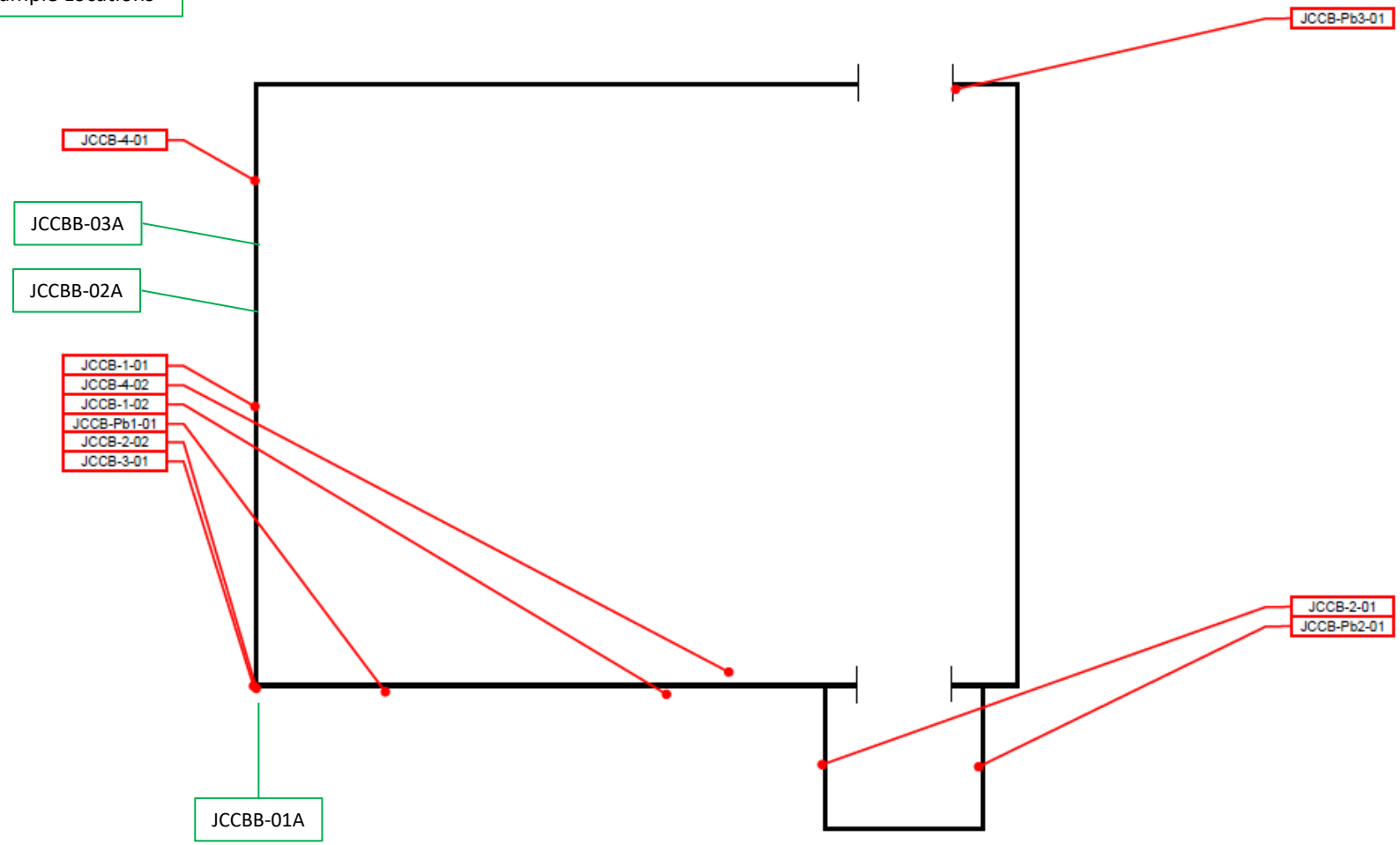

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ENTEK

APPENDIX D

BACK UP DOCUMENTATION

- Inspector Accreditations and Certifications
- Laboratory Accreditations for Asbestos and Lead Analysis

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Andrew R Roed
Name

Certification No. **16-5695**

Expires on **08/17/21**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 Andrew Roed	Lead Inspector/Assessor	LRC-00002989	9/11/2021

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD.

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101442-0

ASBESTECH

Carmichael, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2020-07-01 through 2021-06-30

Effective Dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ASBESTECH
6825 Fair Oaks Blvd., Suite 103
Carmichael, CA 95608
Mr. Tommy Conlon
Phone: 916-481-8902 Fax: 916-481-3975
Email: asbestech@sbcglobal.net
http://www.asbestechlab.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101442-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

Asbestech

6825 Fair Oaks Boulevard

Carmichael, CA 95608

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1153**

Expiration Date: **3/31/2022**

Effective Date: **4/1/2020**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

Asbestech

6825 Fair Oaks Boulevard
Carmichael, CA 95608
Phone: 9164818902

Certificate No. 1153
Expiration Date 3/31/2022

Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste

121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 4/1/2020 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Eurofins EMLab P&K

17461 Derian Ave. Suite 100, Irvine, CA 92614

Laboratory ID: 178697

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2017 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: September 01, 2021
✓	**ENVIRONMENTAL LEAD**	Accreditation Expires: September 01, 2021
✓	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: September 01, 2021
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Beth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 08/21/2019

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

Eurofins EMLab P&K
17461 Derian Ave. Suite 100, Irvine, CA 92614

Laboratory ID: **178697**
Issue Date: 08/21/2019

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 06/01/2011

IHLAP Scope Category	**Field of Testing (FoT)** (FoTs cover all relevant IH matrices)	**Technology sub-type/ Detector**	**Published Reference Method/Title of In-house Method**	**Method Description or Analyte** (*for internal methods only*)
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)		NIOSH 7400	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

Eurofins EMLab P&K
17461 Derian Ave. Suite 100, Irvine, CA 92614

Laboratory ID: **178697**
Issue Date: 08/21/2019

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 07/01/2005

EMLAP Category	Field of Testing (FoT)	Method	Method Description (*for internal methods only*)
Fungal	Air - Direct Examination	EM-MY-S-1038	Preparation and Analysis of Spore Trap (Air) Samples for Fungal Spores, Other Biological and Non-Biological Particles
	Bulk - Direct Examination	EM-MY-S-1039	Preparation and Analysis of Tape, Swab, Wipe, Bulk and Dust - Soil Samples for Qualitative Direct Microscopic Examination
	Surface - Direct Examination	EM-MY-S-1041	Preparation and Analysis of Tape, Swab, Wipe, Bulk, and Dust - Soil Samples for Quantitative Direct Microscopic Examination
Bacterial	Legionella	EM-BT-S-1045	Enumeration of Legionella. International Standard ISO 11731:2017
		EM-BT-S-1687	CDC Laboratory protocol 2016

A complete listing of currently accredited Environmental Microbiology laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

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Laboratory ID: **178697**
Issue Date: 08/21/2019

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 03/01/2017

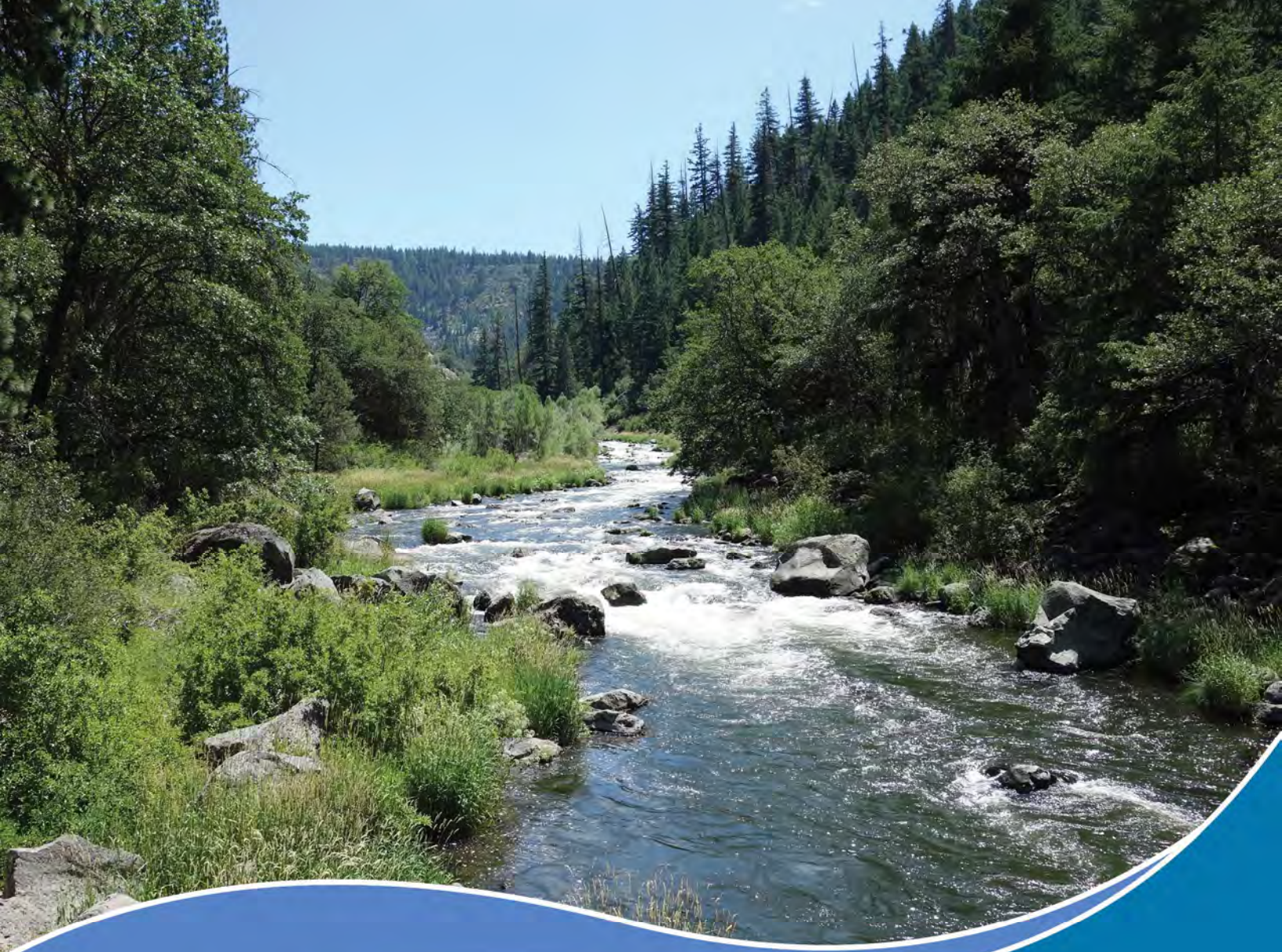
Field of Testing (FoT)	Technology sub-type/ Detector	Method	Method Description (*for internal methods only*)
Paint		EPA SW-846 7000B Modified	
		NIOSH 7082	
Settled Dust by Wipe		EPA SW-846 7000B Modified	
		NIOSH 7082	

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

APPENDIX E

HISTORICAL SURVEY DOCUMENTATION

- AECOM Technical Services, Inc. Report Dated April 2019



Klamath River Renewal Project

J.C. Boyle Development
Hazardous Building Materials Survey

KLAMATH
RIVER RENEWAL
CORPORATION

April 2019

Prepared for:

Klamath River Renewal Corporation

Assessment Conducted by:

AECOM Technical Services, Inc.

300 Lakeside Drive, Suite 400
Oakland, California 94612

Assessment Personnel

Ms. Shannon MacKay
AHERA-Certified Building Inspector
Number: CA-015-06 (exp. 5/2/2019)

Ms. Kim Riche
AHERA-Certified Building Inspector
Number: 168531 (exp. 7/11/2019)

Assessment Dates

August 20 to 23 and December 6, 2018

Report Prepared by:

Shannon MacKay
Environmental Consultant

Report Reviewed by:

David Simon
CDPH-Certified Asbestos Consultant (CAC)

Nicole Gladu
EHS Compliance Manager

Table of Contents

List of Figures (Appendix A)

List of Appendices

Acronyms and Abbreviations

ACM	Asbestos-Containing Material
AECOM	AECOM Technical Services, Inc.
AHERA	Asbestos Hazard Emergency Response Act
AST	Aboveground Storage Tank
CC1	Copco 1 Dam
CC2	Copco 2 Dam
CFR	Code of Federal Regulations
DEQ	Oregon Department of Environmental Quality
HEPA	High Efficiency Particulate Air
HSA	Homogenous Sampling Area
IGD	Iron Gate Dam
IGH	Iron Gate Hatchery
JCB/JC	JC Boyle Dam
KHSA	Klamath Hydroelectric Settlement Agreement
KRRC	Klamath River Renewal Corporation
LCP	Lead-Containing Paint
mg/kg	milligrams per kilogram
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOA	Naturally Occurring Asbestos
NVLAP	National Voluntary Laboratory Accreditation Program
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
OR-OSHA	Oregon Occupational Safety and Health Administration
O&M	Operations & Maintenance
PACM	Presumed Asbestos-Containing Material
PCB	Polychlorinated Biphenyl

RCRA	Resource Conservation and Recovery Act
RM	river miles
USEPA	United States Environmental Protection Agency

Executive Summary

EXECUTIVE SUMMARY

Project Background:

AECOM Technical Services (AECOM) was retained by Klamath River Renewal Corporation (KRRC) to conduct a Hazardous Building Materials Survey (HBMS) of the J.C. Boyle Development. This report includes the findings of the HBMS conducted at the J.C. Boyle Development and associated support buildings and structures on August 20 to 23 and December 6, 2018. The J.C. Boyle Development is located near Keno, Oregon, and is a remote secured industrial facility owned and operated by PacifiCorp Energy.

The J.C. Boyle Development and original supporting structures were completed in 1958 and are located between RM 233 and 224.9 in Klamath County, Oregon. The J.C. Boyle address is 26020 Highway 66, Keno, Oregon 97627. The J.C Boyle Dam impounds a narrow reservoir of 350 acres (aka J.C. Boyle Reservoir, aka Topsy Reservoir). Main features at J.C. Boyle include the reservoir, a combination embankment and concrete dam, gated spillway, diversion culvert, water conveyance system, forebay and powerhouse.

Other supporting structures include a fish ladder, 14 foot diameter pipeline, canal headgate and associated structure, timber bridge, a combined office/warehouse building, a vehicle storage shed, a fire protection building, a communications building, a hazardous materials shed, two residences, a vehicle storage shed, a spillway control building and gate control communications building near the forebay, and a warehouse and switchyard near the powerhouse.

Four dams and associated structures including the J. C. Boyle Development, Copco No. 1 Development, Copco No. 2 Development, Iron Gate Development and the Iron Gate Fish and Fall Creek Hatcheries (the Sites) have been identified for decommissioning and removal under the 2016 Amended Klamath Hydroelectric Settlement Agreement (KHSA, 2016) following the U.S. Department of the Interior Bureau of Reclamation's Detailed Plan for Dam Removal – Klamath River Dams, Klamath Hydroelectric Project FERC License No. 2082 Oregon – California (Detailed Plan) (USBR 2012). The Iron Gate Fish Hatchery, Fall Creek Fish Hatchery, and the City of Yreka Diversion Dam have been identified for improvements under the KHSA. All four developments will be transferred to their respective states after dam decommissioning and removal.

The Sites are located on land currently owned by PacifiCorp. An HBMS was conducted at each of the seven Sites, and an HBMS report issued for the Sites as follows:

1. J.C. Boyle Development
2. Copco No. 1 Development
3. Copco No. 2 Development
4. Iron Gate Development

5. Iron Gate and Fall Creek Hatcheries
6. City of Yreka Diversion

Hazardous Building Materials Survey:

AECOM assessed J.C. Boyle Development and support facilities for the following hazardous building materials:

- Asbestos-containing materials (ACMs);
- Asbestos-containing construction materials (ACCMs);
- Assumed asbestos-containing materials;
- Lead-containing coatings (paints);
- Mercury-containing light tubes, switches, and thermostats;
- Polychlorinated Biphenyl (PCB)-containing caulking, putties, gaskets, and membranes;
- Suspected high-intensity discharge (HID) lamps; and
- Suspected PCB-containing fluorescent light ballasts and transformers.

Objective:

The objective of the HBMS was to provide information regarding the presence of lead-containing coatings, PCB-containing light ballasts, PCB-containing caulking, and mercury-containing sources, and the presence, location, and quantity of ACMs, ACCMs, and assumed ACMs, and for the purposes of decommissioning planning.

Summarized HBMS Results:

Two-hundred and three bulk samples of suspect asbestos-containing materials were collected and analyzed using Polarized Light Microscopy (PLM) during this assessment. Seven materials (HSAs) were found to contain detectable asbestos above 0.1%, five materials were assumed to contain asbestos, and three materials were visually assessed and determined to be non-suspect. Per the EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) requirements and the analytical results, four sample layers were further analyzed using PLM Point Count Method.

In addition, six concrete bulk samples were collected and analyzed using PLM California Air Resources Board (CARB) 435 method to determine the content of Naturally Occurring Asbestos (NOA). No concrete samples were found to contain detectable NOA above the PLM point count threshold of 0.25%.

Sixteen paint chip samples were collected and analyzed for total lead content using Atomic Absorption Spectrophotometry; fifteen of the samples were found to contain reportable levels of lead.

Mercury-containing fluorescent light tubes, HID lamps, and magnetic light ballasts labeled “No-PCBs” were observed during the assessment. In the switchyard, the yellow glass portion of the high voltage transformer bushings may contain PCBs in the oil. One caulking sample was collected and analyzed for PCBs using EPA method 8270 by gas chromatography/mass spectrometry (GCMS). No PCBs were detected in the caulking sample.

See Section 4.5: Tables for tabulated HBMS Results.

Chapter 1: Introduction

1. INTRODUCTION

1.1 Project Description

AECOM Technical Services (AECOM) was retained by KRRC to conduct an HBMS of the J.C. Boyle Development and support facilities. This report includes the findings of the HBMS conducted at the J.C. Boyle Development and associated support buildings and structures on August 20 to 23 and December 6, 2018. The J.C. Boyle Development is located near Keno, Oregon, and is a remote secured industrial facility owned and operated by PacifiCorp.

1.2 Survey Limitations

The conclusions of this report are AECOM's professional opinions, based solely upon visual site observations and interpretations of laboratory analyses, as described in this report. The opinions presented herein apply to the site conditions existing at the time of AECOM's assessment and interpretation of current regulations pertaining to asbestos, lead-containing paint, PCB-containing ballasts and building materials, and mercury-containing components. Therefore, AECOM's opinions and recommendations may not apply to future conditions that may exist at the site which we have not had the opportunity to evaluate. All applicable state, federal, and local regulations should always be verified prior to any work that will disturb materials containing asbestos and other hazardous building materials.

AECOM has performed the services set forth in the Scope of Work in accordance with generally accepted industrial hygiene practices in the same or similar localities, related to the nature of the work accomplished, at the time the services were performed.

Additional sampling needs to be conducted of structures not assessed and inaccessible areas prior to demolition. Suspect regulated building materials throughout the J.C. Boyle Development and support facilities that are not included in this regulated building materials assessment are assumed to be asbestos-containing unless they are sampled by an AHERA-accredited Building Inspector and analyzed by a National Voluntary Laboratory Accreditation Program (NVLAP)-accredited laboratory to confirm the presence of asbestos prior to the disturbing such materials.

The regulated building materials and conditions presented in this report represent those observed on the dates we conducted the sampling. This sampling is intended for the exclusive use of KRRC for specific application to the proposed decommissioning. This assessment is not intended to replace construction or demolition plans, specifications, or bidding documents. This report is not meant to represent a legal opinion.

This report was prepared pursuant to an agreement between KRRC and AECOM and is for the exclusive use of KRRP. No other party is entitled to rely on the conclusions, observations, specifications, or data contained herein without first obtaining AECOM's written consent and provided any such party signs an AECOM-

generated Reliance Letter. A third party's signing of the AECOM Reliance Letter and AECOM's written consent are conditions precedent to any additional use or reliance on this report.

The passage of time may result in changes in technology, economic conditions, site variations, or regulatory provisions, which would render the report inaccurate. Reliance on this report after the date of issuance as an accurate representation of current site conditions shall be at the user's sole risk.

Chapter 2: Scope of Services

2. SCOPE OF SERVICES

2.1 Asbestos Assessment

Ms. Shannon MacKay and Ms. Kim Riche, both AHERA-accredited building inspectors, (Certification 167196, expiration date: 5/2/2019; and, Certification 168531, expiration date: 7/11/2019, respectively), performed the sampling at the J.C. Boyle Development and support buildings from August 20 to 23 and on December 6, 2018. Copies of their certifications are included in Appendix C.

The following materials/areas were inaccessible during the site work and should be assumed to contain asbestos until such time as the area becomes accessible and is sampled by an AHERA-accredited building inspector and analyzed by a NVLAP-accredited laboratory:

- Residence 2
- Structure above stop log gates on metal support beams, associated with the Intake Structure

2.1.1 Methodology

This assessment was conducted using a modified protocol adapted from AHERA. The protocol is as follows:

- Identify suspect asbestos-containing materials.
- Group materials into homogeneous sampling areas/materials.
- Quantify each homogeneous material and collect representative samples. The number of samples collected of miscellaneous materials was determined by the inspector.
- Samples of each material were taken to the substrate, ensuring that all components and layers of the material were included.
- Sample locations are referenced on the field data forms according to sample number.
- Sampling was performed by a CAC or CSST, and the use of proper protective equipment and procedures was followed.

2.1.2 Naturally Occurring Asbestos

For informational purposes, AECOM collected samples of concrete and submitted them to EMSL Laboratories to analyze for NOA. The sampling was conducted as a preliminary screen for NOA. Sampling was conducted discretely in areas where damage to concrete was already present.

2.2 Sampling Procedures

This sampling was conducted using the following procedures:

1. Spread the plastic drop cloth (if needed) and set up other equipment, e.g., ladder.
2. Don protective equipment (respirator and protective clothing if needed).
3. Label sample container with its identification number and record number. Record sample location and type of material sampled on a sampling data form.
4. Moisten area where sample is to be extracted (spray the immediate area with water).
5. Extract sample using a clean knife, drill capsule, or cork boring tool to cut out or scrape off approximately one tablespoon of the material. Penetrate all layers of material.
6. Place sample in a container and tightly seal it.
7. Wipe the exterior of the container with a wet wipe to remove any material that may have adhered to it during sampling.
8. Clean tools with wet wipes and wet mop; or vacuum area with HEPA vacuum to clean all debris.
9. Discard protective clothing, wet wipes and rags, cartridge filters, and drop cloth in a labeled plastic waste bag.

AECOM inspected the buildings and structures for suspect ACM including thermal systems insulation, surfacing materials, and miscellaneous materials (e.g., floor tiles, ceiling tiles). When materials suspected of containing asbestos were identified, AECOM's inspectors collected representative bulk samples from each Homogeneous Sampling Area using the protocol presented in the Table 2-1:

Table 2-1 Suspect ACM Sampling Protocol

Suspect ACM Sampling Protocol		
Homogeneous Sampling Area (HSA) Category	**HSA Size**	**Minimum Number of Samples**
Surfacing Materials	1,000 SF or Less	3
	1,001-5,000 SF	5
	>5,000 SF	7 or more
Thermal System Insulation (TSI)	No Stipulation	3 of each type of TSI. (Must also sample all repair patches)
Miscellaneous Materials	No Stipulation	1 or more samples of each miscellaneous material

A Homogeneous Sampling Area is defined to include surfacing materials, thermal systems insulations, and miscellaneous materials, which are uniform in color, texture, construction and application date, and general appearance.

Additional suspect ACMs may be present in inaccessible or concealed spaces. These spaces include, but are not limited to, areas not assessed, areas not accessible at the time of the assessment, fire doors, electrical systems, pipe chases, spaces between wall/ceiling/door/floor cavities, interior of mechanical components, beneath foundation pads, etc. If future maintenance, renovation, and/or demolition activities make these areas accessible, AECOM recommends that a thorough assessment of these spaces be conducted at that time to identify and confirm the presence or absence of additional suspect ACMs. Until then, all such unidentified materials must be treated as assumed ACMs in accordance with applicable federal, state, and local regulations.

AECOM did not sample suspect ACM in the following circumstances:

- The AECOM inspector could not safely access the material for sampling;
- The residence was still occupied;
- The AECOM inspector concluded that the materials were inaccessible for sampling; or
- The AECOM inspector determined that destructive sampling would compromise the integrity of the material and/or the structure.

2.3 Sampling and Analysis

The EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) (40 CFR 61, Subparts A and M) also has requirements related to the assessment of suspect ACM in buildings. NESHAP defines a “friable” material to be a material that when dry, can be crumbled, pulverized, or reduced to powder with hand pressure or by the forces expected to act on the material in the course of demolition or renovation activities.

AECOM applied this NESHAP definition of friable for the purposes of determining which analytical method to be used to quantify the asbestos content of a specific material.

The collected samples of suspect ACM were analyzed by NVL Laboratories, Inc. for asbestos content using the PLM visual estimation method and the PLM Point Counting Method. NVL Laboratories, Inc. is accredited for these asbestos analytical methods by the NVLAP Accreditation Program. Appendix C contains NVL Laboratories, Inc.'s certificate of laboratory accreditation and licensure. The collected samples of suspect NOA in concrete were analyzed by EMSL Analytical, Inc. for asbestos content using PLM CARB Method 435. EMSL Analytical, Inc. is accredited for these asbestos analytical methods by the NLAP Accreditation Program. Appendix C contains EMSL Analytical, Inc.'s certificate of laboratory accreditation and licensure.

Polarized Light Microscopy (PLM)

The PLM method is a visual estimation of the asbestos content of a sample. The PLM analysis was performed by NVL Laboratories, Inc. following the United States Environmental Protection Agency's (USEPA) PLM method EPA-600R/M4-82-020 for determining asbestos content in bulk building materials.

Polarized Light Microscopy Point Count (PLM Point Count)

According to the NESHAP, when the asbestos content of a friable material is visually estimated by the PLM visual technique to be detectable but less than 10%, the inspector may either (1) assume that the amount is greater than 0.1% and treat the material as ACCM or (2) conduct a second analysis, the PLM Point Count Method EPA/600-R93/116, to verify the percentage of asbestos in the material.

Per NESHAP, AECOM used the results of the PLM visual method analyses for friable materials to determine whether additional laboratory analysis was warranted (i.e., PLM Point Count), or whether the material would be treated as ACCM. Based on PLM analytical results, four samples were further analyzed by PLM Point Count analysis (See Appendix C).

If the results obtained by PLM Point Count Method and the PLM visual estimation method are different, the PLM Point Count result is used. When no asbestos is detected by the first PLM visual method, the additional technique using PLM Point Count Method is not required. The analytical results are reported in percent asbestos as derived from a 1000 point counting technique, which yields a detection limit of 0.1%.

Naturally Occurring Asbestos (NOA)

Asbestos fibers may be released from serpentine rock formations. The CARB 435 method is used to determine the asbestos content of serpentine aggregate, or NOA, in concrete, storage piles, on conveyor belts, and on surfaces such as road beds, road shoulders, and parking lots. Samples are crushed using a mill to produce a material of which the majority is less than 200 Tyler mesh (0.75 microns). CARB defines NOA as having >0.25% asbestos by PLM point counting. The analytical results are reported in percent asbestos as derived from a 400 PLM point counting technique, which yields a detection limit of 0.25%.

2.4 Lead Assessment

2.4.1 Sampling Methodology

Homogeneous painted surfaces were defined by substrate, application, and color. The paint chip samples were collected to the substrate to ensure that all layers present on the substrate were included in the laboratory analysis. The samples were collected and stored in a heavy-duty, self-sealing plastic bag and delivered to NVL Laboratories in Seattle, Washington. The samples were analyzed via Atomic Absorption Spectrophotometry in accordance with Method EPA 7000B. NVL Laboratories in Seattle, Washington is accredited by American Industrial Hygiene Association (AIHA) for lead analysis.

2.5 Other Regulated Building Materials

2.5.1 Universal Waste Inventory Methodology

An inventory of fluorescent light tubes, HID lamps, mercury-containing sources, and potential PCB-containing ballasts was conducted in accessible Project Areas.

Where fluorescent light fixtures were accessible, the ballast covers were removed, and the ballast labels were visually examined. Where fluorescent light fixtures could not be visually examined, the number of potential PCB-containing ballasts in each fixture was estimated based on the following assumptions:

- Each single light tube fluorescent fixture contains one ballast;
- Each HID lamp contains one ballast and one mercury bulb;
- Each multiple light tube fluorescent fixture contains one ballast for every pair of light tubes; and
- All light ballasts are assumed to contain PCBs unless the ballasts are labeled as not containing PCBs or are determined to be electronic.

Fluorescent light tubes, HID lamps, fluorescent light fixtures and PCB-containing transformers were identified in the buildings in the quantities listed in Table 4-4.

2.5.2 PCB-Containing Caulking

Suspected PCB-containing caulking samples were collected in the same manner as suspected asbestos-containing bulk samples. Each sample was collected and stored in a glass jar and delivered to Fremont Analytical, Inc. in Seattle, Washington. Samples were analyzed via Gas Chromatography in accordance with EPA Method 8270, “Polychlorinated Biphenyls (PCBs) by Gas Chromatography/Mass Spectrometry”. Fremont Analytical, Inc. in Seattle, Washington is accredited by the National Environmental Lab Accreditation

program as administered by the National Laboratory Accreditation Committee for analysis of PCBs by EPA Method 8270 (reporting in parts per million). Analytical results are presented in Table 4-5.

Chapter 3: Site Description

3. SITE DESCRIPTION

3.1 J.C. Boyle Development

AECOM Technical Services (AECOM) was retained by Klamath River Renewal Corporation (KRRC) to conduct a Hazardous Building Materials Survey (HBMS) of the J.C. Boyle Development. This report includes the findings of the HBMS conducted at the J.C. Boyle Development and associated support buildings and structures on August 20 to 23 and December 6, 2018. The J.C. Boyle Development is located near Keno, Oregon, and is a remote secured industrial facility owned and operated by PacifiCorp.

The J.C. Boyle Development and original supporting structures were completed in 1958 and are located between RM 233 and 224.9 in Klamath County, Oregon. The J.C. Boyle address is 26020 Highway 66, Keno, Oregon 97627. The J.C Boyle Dam impounds a narrow reservoir of 350 acres (aka J.C. Boyle Reservoir, aka Topsy Reservoir). Main features at J.C. Boyle include the reservoir, a combination embankment and concrete dam, gated spillway, diversion culvert, water conveyance system, forebay and powerhouse.

Other supporting structures include a fish ladder, 14 foot diameter pipeline, canal headgate and associated structure, timber bridge, a combined office/warehouse building, a vehicle storage shed, a fire protection building, a communications building, a hazardous materials shed, two residences, a vehicle storage shed, a spillway control building and gate control communications building near the forebay, and a warehouse and switchyard near the powerhouse.

3.1.1 Description of J.C. Boyle Development Structures

The following J.C. Boyle Development support structures were assessed during the HBMS:

Canal Headgate (JCCH)

The Canal Headgate is connected to the Intake Structure by a 14’ steel pipeline.

Communication Building (JCCB)

The Communication Building is located south of the dam. It is an approximately 360 square feet paneled building with a slab-on-grade concrete foundation. The exterior siding and roofing consists of pre-fabricated steel. The interior consists of pre-fabricated metal wall siding and unfinished concrete flooring. The building contains a work station, electrical panels and two 32 units battery bank in secondary containment systems.

Emergency Spill Equipment Shed (JCES)

The Emergency Spill Equipment Shed is adjacent to the Powerhouse, is approximately 100 square feet, and is a single-story concrete slab on grade shed with engineered wood siding and asphaltic shingle roofing. The

interior of the shed is unfinished wood. The structure is currently being used as storage for emergency spill purposes. The structure was inaccessible during the HBMS due to the presence of wasps.

Fire Protection Building (JCFP)

The Fire Protection Building is located east of the diversion dam along the west bank of the reservoir. It is an approximately 600 square feet cinder block building with a slab-on-grade concrete floor and wooden ceiling. The structure houses water piping, compressed air tanks and electrical cabinets. The interior finishes consist of concrete flooring, CMU siding, and exposed metal ceiling.

Fish Ladder (JCFL)

The Fish Ladder is north of the Intake Structure. It is constructed of concrete.

Gate Control Center Building (JCGC)

The Fire Protection Building is located east of the diversion dam along the west bank of the reservoir. It is an approximately 600 square feet cinder block building with a slab-on-grade concrete floor and wooden ceiling. The structure houses water piping, compressed air tanks and electrical cabinets. The interior finishes consist of concrete flooring, CMU siding, and exposed metal ceiling.

Groundwater Pumphouse (JCGWPH)

The Groundwater Pumphouse is a prefabricated shed located southeast of the outdoor storage area. It is approximately 100 square feet. The exterior consists of metal siding and roofing. The interior of the building consists of unfinished wood throughout.

HazMat Shed and Above Ground Storage Tanks (JCHM)

The HazMat Shed and Above Ground Storage Tanks are located about 50 feet east of the Office and Warehouse building. The HazMat Shed is approximately 240 square feet. The HazMat Shed exterior consists of pre-fabricated metal siding with a slab-on-grade concrete foundation. The interior of the storage shed consists of unfinished metal siding and ceiling and unfinished concrete flooring. One each 500 gallon diesel and 1,000 gallon gasoline above ground storage tanks are located adjacent to the Hazardous Material Storage Shed. Both are double walled ASTs and are underneath a permanent “cover” and on top of concrete pads.

Intake Structure (JCIS)

The Intake Structure is located on the western side of the JC Boyle Reservoir. The south end of the structure includes a Fish Screen Building accessed by a wooden bridge. The perimeter of the Fish Screen Building is encircled by a wooden walkway above the reservoir to access metal fish screens. The exterior of the Fish Screen Building consists of corrugated metal siding and roofing. The interior of the Fish Screen Building consists of concrete flooring, walls, and ceiling. The JC Boyle Dam extends north of the Fish Screen Building,

including stop log gates, metal grating walkways, electrical panels, and mules. The Fish Ladder extends west on the north end of the dam.

Office and Warehouse (JCOW)

The Office and Warehouse Building is approximately 1,800 square feet with a slab-on-grade concrete foundation. It resembles a "Red Barn" and is located approximately 300 feet west of the dam. The office portion contains a small kitchen with a sink and a restroom with water discharged to a septic tank. The maintenance warehouse portion is a large open area for typical repair and maintenance activities, the storage maintenance equipment, tools and miscellaneous supplies, and has a side fenced storage area.

Outdoor Storage Area (JCBY)

The Outdoor Storage Area (also referred to as the boneyard) is located south of the Vehicle Storage Shed. Various items are scattered throughout the Outdoor Storage Area, including scrap metal and a decommissioned storage tank.

Penstocks (JCPS)

The Penstocks extend downhill from the surge tank, on the north side of the Powerhouse, and feed the turbines inside the Powerhouse.

Powerhouse (JCPH)

The Powerhouse is approximately 7,000 square feet and is a reinforced concrete structure and contains three levels; above ground, first lower level, and second lower level.

The above ground level contains the upper portions of two vertical-shafts and Francis-type turbines contained in their own concrete vaults. A single 150-ton gantry crane was observed over the two turbines. The first lower level contained the lower portions of the turbines that were housed in concrete vaults, electrical panels, tanks, air compressors, oil, water and air piping, a small open office, and a restroom connected to an outdoor septic tank. The second lower level contained the piping, penstock intakes, and sump pumps.

Exterior and interior wall, floor, and ceiling finishes consist of concrete and CMU that are primarily painted throughout.

Residence 1 (JCR1)

Residence 1 is approximately 2020 square feet and is located east of the Vehicle Storage Shed. The building exterior consists of wood siding and asphaltic shingle roofing. The interior of the building contains bedrooms, bathrooms, a kitchen, a living room, and closets. The interior finishes include gypsum walls and ceilings, vinyl floor sheeting, and carpeting.

Residence 2 (JCR2)

Residence 2 is approximately 2020 square feet and is located east of the Vehicle Storage Shed. The interior of the building was inaccessible during the inspection. The building exterior consists of wood siding and asphaltic shingle roofing.

Spillway Control Center Building (JCSW)

The Spillway Control Center Building is approximately 420 square feet and is located adjacent to the Spillway. The exterior consists of metal siding and roofing. The interior of the building was not accessed during the inspection due to the observable presence of bats.

Substation (JCST)

The Substation is located inside the Switchyard and was not accessed during the inspection due to safety considerations.

Switchyard (JCSW)

The Switchyard is approximately 23,000 square feet, is located west of the Powerhouse, and was not accessed during the inspection due to safety considerations. The Switchyard contains electrical transformers, substations, transmission poles and lines within a fenced gravel area..

Timber Bridge (JCWB)

The Timber Bridge is approximately 1,600 square feet, and is located near the 14’ diversion pipe, at the base of the Headgate.

Vehicle Storage Shed (JCVS)

The Vehicle Storage Shed is located east of the Office/Warehouse building and is approximately 4,400 square feet. The exterior of the building consists of metal siding and corrugated metal roofing. The interior finishes consist of unfinished metal framed walls and ceiling with batt insulation and unfinished concrete flooring.

Warehouse (JCWH)

The Warehouse is approximately 4,800 square feet. The exterior of the building consists of metal siding and corrugated metal roofing. The interior of the building consists of unfinished metal framed walls and ceiling with batt insulation and unfinished concrete flooring.

Chapter 4: Conclusions and Recommendations

4. CONCLUSIONS AND RECOMMENDATIONS

On August 20 to 23 and December 6, 2018, AECOM conducted a Hazardous Building Materials Survey of the J.C. Boyle Development located in Keno, Oregon. AECOM assessed the site buildings for a variety of regulated building materials that would require removal or special handling during decommissioning and demolition. Section 4.5: Tables includes the tabulated results of the survey. The following are AECOM's general recommendations related to the HBMS findings:

- Plans and specifications should be developed by an appropriately qualified professional (e.g., CAC) to outline the planned scope of work, phasing, training and certification requirements, policies and procedures for the proper handling, removal packaging, disposal/recycling, and transportation of the materials.

- The findings of this report should be communicated to contractors planning to work on or bid on work at the site,

- Additional material-specific recommendations as listed below.

4.1 Asbestos

Two-hundred and three bulk samples of suspect asbestos-containing materials were collected and analyzed using Polarized Light Microscopy (PLM) during this assessment. Seven materials (HSAs) were found to contain detectable asbestos above 0.1%, five materials were assumed to contain asbestos, and three materials were visually assessed and determined to be non-suspect. Per the EPA NESHAP requirements and the analytical results, four sample layers were further analyzed using PLM Point Count Method.

In addition, six concrete bulk samples were collected and analyzed using PLM CARB 435 method to determine the content of NOA. No concrete samples were found to contain detectable NOA above the PLM point count threshold of 0.25%.

The results of the analyses are presented in Section 4.5, Tables 4-1, 4-2, and 4-3. Appendix C contains the laboratory reports of analytical results for each discrete sample.

Additional suspect ACMs may be present in inaccessible or concealed spaces. These spaces include, but are not limited to; below grade exterior materials, electrical systems, pipe chases, spaces between wall/ceiling/door/floor cavities, interior of mechanical components, beneath foundation pads, etc. If future demolition activities make these areas accessible, AECOM recommends that a thorough assessment of these spaces be conducted at that time to identify and confirm the presence or absence of additional ACMs

and ACCMs. Until then, all such unidentified materials must be treated as assumed ACMs in accordance with applicable federal, state, and local regulations.

If the analytical results indicate that all the samples collected per HSA do not contain asbestos, then the HSA (material) is considered a non-ACM. If the analytical results of one or more of the samples collected per HSA indicate that asbestos is present in quantities of greater than 0.1% asbestos as defined by Cal/OSHA, all of the HSA (material) is considered to be an ACM or ACCM regardless of any other analytical results.

Any material that contains greater than 0.1% asbestos is considered an ACCM and must be handled according to Cal/OSHA regulations. Any material greater than one percent asbestos is considered an ACM and must be handled according to EPA regulations, and applicable state and local regulations. The EPA NESHAP regulations (40 CFR 61, Subparts A and M) have a requirement related to assessment of suspect ACM in buildings. When the asbestos content of a friable material is visually estimated by PLM to be detectable but less than ten percent, your firm may elect to (1) assume the amount is greater than one percent and treat the material as asbestos-containing or (2) require verification of the amount by the PLM point counting technique. If the results obtained by point counting and visual estimation are different, the point count result must be used. When no asbestos is detected by PLM, point counting is not required.

4.1.1 Asbestos Regulations

Asbestos-related work must be performed in compliance with local, federal, and state regulations including Cal/OSHA, the Siskiyou County Air Pollution Control District, EPA NESHAP, and relevant federal, state and local regulations pertaining to handling of asbestos.

The EPA NESHAP regulations (Renovation and Demolition NESHAP 40 CFR 61, Subparts A and M) for asbestos apply to certain demolition and renovation projects in facilities containing ACM and/or assumed ACM. The NESHAP rule usually requires that all friable ACM and some categories of non-friable ACM be removed before a building is demolished, and may require localized removal prior to demolition. The following NESHAP definitions of ACM are very important in interpreting which NESHAP requirements may apply to your building:

- Friable asbestos-containing material: any material containing more than 1 percent asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
- Category I non-friable asbestos-containing material: asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Category II non-friable asbestos-containing material: any material excluding Category I non-friable ACM, containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Regulated asbestos-containing material (RACM): (1) friable ACM, (2) Category I non-friable ACM that has become friable (3) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (4) Category II non-friable ACM that has a high probability of

becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the materials in the course of demolition or renovation operations regulated by NESHAP.

NESHAP also requires that the local air district be notified before certain renovations or demolition impacting RACM begin. When ACCM is removed or disturbed during demolition or renovation, the Cal/OSHA regulations also apply. The NESHAP regulations should be studied in detail for a thorough delineation of these and other requirements.

Cal/OSHA regulates employee exposure to asbestos (T8, CCR 1529). The Cal/OSHA asbestos standards mandate a permissible exposure limit (PEL) of 0.1 fibers (equal to or longer than 5 micrometers) per cubic centimeter of air (fibers/cc) determined as an 8-hour, time-weighted average (TWA) and an excursion limit of 1 fiber/cc as a 30-minute TWA.

Also, for asbestos removal or renovation involving ACM, the Cal/OSHA Asbestos Construction Standard (T8, CCR 1529) requires that specific procedures be followed, including enclosure of the work area to control asbestos exposure of building occupants, as well as, employees involved in abatement or renovation activities.

The following are selected Cal/OSHA definitions regarding asbestos work:

- **Class I asbestos work** means activities involving the removal of TSI and surfacing ACM and PACM.
- **Class II asbestos work** means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.
- **Class III asbestos work** means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.
- **Class IV asbestos work** means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.
- **Intact** means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that asbestos is no longer likely to be bound with its matrix.

AECOM identified materials that were assumed to contain asbestos, but were not assessed because the inspector determined them to be ACM, for the safety of the inspector and to preserve building system integrity.

During demolition activities, inaccessible materials may be uncovered which were not identified or sampled during this assessment. Personnel in charge of demolition should be alerted to note materials uncovered during these activities which were not identified in this report. The following are AECOM's recommendations:

- If the buildings are scheduled for abatement and demolition (AECOM's recommendation), an abatement project design manual should be prepared with technical specifications and abatement plans. The design must be prepared by a CAC.

- The results of this sampling should be communicated to any Contractors working in the Project Areas and a copy of the assessment report must be on-site during demolition activities.
- Abatement work must be performed by CA-licensed asbestos abatement contractor with trained asbestos workers and supervisors.
- Any concealed building materials discovered during demolition activities, which are suspected to contain asbestos, should be sampled by a CSST or CAC and analyzed by a NVLAP- and CA ELAP-accredited laboratory to confirm the presence of asbestos prior to disturbing such materials or be assumed to be ACM.
- If the facilities assessed during the HBMS are not scheduled for demolition, AECOM recommends the development of an O&M Plan by a CAC.

4.2 Lead

Sixteen paint chip samples were collected and analyzed for total lead content; fifteen of the paint chip samples were found to contain detectable levels of lead. The results of the analyses are presented in Section 4.5 Table 4-3. Appendix C contains the laboratory reports of analytical results for each discrete sample.

Cal/OSHA requires worker training, worker protection, and exposure assessments be conducted during operations that may disturb the lead-containing paint in such a way that the airborne exposure may reach or exceed the Action Level of 30 micrograms per cubic meter (µg/m^3) or the Permissible Exposure Limit of 50 µg/cm^3. The worker protection requirements of Cal/OSHA 1532.1 “Lead” apply.

4.3 Other Regulated Building Materials

Mercury-containing fluorescent light tubes and HID lamps were observed during the assessment. In the switchyard, the yellow glass portion of the high voltage transformer bushings may contain PCBs in the oil. One caulking sample was collected and analyzed for PCBs using EPA method 8270 by gas chromatography/mass spectrometry (GCMS). No PCBs were detected in the caulking sample.

Fluorescent light tubes, switches, and thermostats may contain mercury. Fluorescent light ballasts, transformer oil, and HID lamp ballasts may contain PCBs. PCB wastes are regulated by Department of Toxic Substance Control Act (DTSC) Title 22 CCR 66261.24, Resource Conservation Recovery Act (RCRA) Title 40 CFR 761, and Toxic Substance Control Act (TSCA) 15 USC 2695. DTSC has classified PCBs as a hazardous waste when the concentrations are equal to or greater than 5 mg/l in liquids or when the total concentrations are equal to or greater than 50 mg/kg in non-liquids (Title 22, CCR, 66261.24). If the PCB waste is greater than 50 mg/l, then it is also to be managed under the RCRA and TSCA requirements. Employers must inform their employees of mercury and PCB hazards in accordance with Cal/OSHA.

Light ballasts in representative locations were visually assessed where possible. All light ballasts observed during the course of the HBMS were electronic ballasts or magnetic ballasts labeled “No PCBs”. During the

course of decommissioning or demolition activities, magnetic light ballasts may be discovered that are not labeled “No PCBs” and should be disposed of per DTSC requirements.

Fluorescent light tubes must be removed and recycled or disposed of as hazardous waste or universal waste prior to demolition as per 22 CFR 66261.50 and 66273.8.

The results of the Universal Waste Inventory are presented in Section 4.5 Table 4-5.

4.4 Treated Wood

Wood treated with creosote was observed in the following locations:

- Power poles throughout J.C. Boyle Development, including within the Switchyard
- Wooden bridge associated with the Intake Structure
- Timber Bridge

4.5 Tables

Table 4-1: Confirmed ACMs, ACCMs, and Assumed ACMs lists the HSAs (materials) that were tested and confirmed to contain greater than 0.1 percent asbestos as well as the HSAs that could not be tested and are assumed to contain asbestos. NESHAP categories and approximate quantities of each material are identified, when possible.

Table 4-2: Asbestos Sample Results by Layer lists the tabulated analytical results for each discrete asbestos sample, listed by building then by HSA. Confirmed ACMs, ACCMs and Non-ACMs are included.

Table 4-3: Visually Negative Materials lists the materials that were visually assessed and determined to be non-suspect.

Table 4-4: Lead Paint Sample Results lists the tabulated analytical results for each discrete lead paint sample.

Table 4-5: Universal Waste Inventory presents the tabulated approximate quantities of fluorescent light tubes, suspect PCB containing light ballasts, non-PCB containing magnetic light ballasts, HID Lamps, and PCB-containing transformers.

Table 4-6: PCB-Caulking Sample Results lists the tabulated analytical results for each PCB caulking sample.

Appendix A contains figures of structures, sampling locations, and asbestos-containing material locations.

Appendix B contains HSA Photologs, by building, then by HSA.

Appendix C contains the laboratory reports of analytical results for each discrete sample.

Appendix D contains personnel and laboratory certifications.

Table 4-1 Confirmed ACMs, ACCMs, and Assumed ACMs

Table 1: Confirmed ACMs and Assumed ACMs								
Building	**HSA#**	**HSA Description**	**Material Location**	**AHERA Class**	**Friability**	**NESHAP Category**	**Summarized Results**	**Quantity**
Communication Building	JCCB-04	Asbestos-containing tan caulking	At base of interior wall/concrete interface	Misc.	NF	Cat II	Positive	78 LF
HazMat Shed and Fuel Shed	JCHM-01	Asbestos-containing asphaltic concrete crack sealant	Asphalt pad associated with HazMat Shed and Above Ground Storage Tanks	Misc.	NF	Cat II	Positive	20 LF
HazMat Shed and Fuel Shed	JCHM-03	Asbestos-containing off-white caulking	On above ground storage tank concrete casing in Fuel Shed	Misc.	NF	Cat II	Positive	4 EA (penetrations)
HazMat Shed and Fuel Shed	JCHM-06	Asbestos-containing off-white sealant	Ceiling/roof seams of HazMat Shed	Misc.	NF	Cat II	Positive	~100 LF
Office Warehouse	JCOW-08	Assumed asbestos-containing silver woven electrical wire insulation	Throughout Office and Warehouse	Misc.	NF	Cat II	Assumed	Not quantified
Powerhouse	JCPH-05	Assumed asbestos-containing gaskets	Piping and mechanical equipment throughout Powerhouse	Misc.	_	_	Assumed	Not quantified*
Powerhouse	JCPH-08	Asbestos-containing gray door sealant	Entry into upper level of Powerhouse (interior and exterior of door)	Misc.	NF	Cat II	Positive	32 LF
Powerhouse	JCPH-14	Assumed asbestos-containing metal clad fire doors	Throughout Powerhouse	Misc.	NF	Cat II	Assumed	5 EA
Powerhouse	JCPH-15	Assumed asbestos-containing wicket gates	Associated with turbines	Misc.	NF	Cat II	Assumed	2 EA
Warehouse	JCWH-01	Asbestos-containing black asphaltic slip sheet with cementitious material	Exterior interface between metal siding and concrete foundation	Misc.	NF	Cat II	Positive	192 LF
Warehouse	JCWH-05	Asbestos-containing tan brittle caulking	At metal seems around interior roll -up door	Misc.	NF	Cat II	Positive	330 SF

NF: Non-Friable; HSA: material that is uniform in color, texture, general appearance, and construction and application date, Surf.: Surfacing material per AHERA, Misc.: Miscellaneous material per AHERA, SF: Square Feet, EA: Each; LF: Linear Feet; Cat II: Category II per NESHAPS; Materials that were unable to be sampled (typically because of inaccessibility or sampling would be too destructive while facilities were still operational) are assumed to be asbestos-containing.
*Not quantified because of unknown extent of material not accessible at time of inspection; as-built drawings needed for approximate quantification.

Table 1: Confirmed ACMs and Assumed ACMs								
Building	**HSA#**	**HSA Description**	**Material Location**	**AHERA Class**	**Friability**	**NESHAP Category**	**Summarized Results**	**Quantity**
Throughout JC Boyle Development	-	Assumed asbestos-containing buried Transite piping	Based on piping found at Copco 2, it is reasonable to assume that buried Transite piping also exists throughout the JC Boyle Development	Misc.	NF	Cat II	Assumed	Not quantified*

NF: Non-Friable; HSA: material that is uniform in color, texture, general appearance, and construction and application date, Surf.: Surfacing material per AHERA, Misc.: Miscellaneous material per AHERA, SF: Square Feet, EA: Each; LF: Linear Feet; Cat II: Category II per NESHAPS; Materials that were unable to be sampled (typically because of inaccessibility or sampling would be too destructive while facilities were still operational) are assumed to be asbestos-containing.
*Not quantified because of unknown extent of material not accessible at time of inspection; as-built drawings needed for approximate quantification.

Table 4-2 Asbestos Sample Results by Layer

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Canal Headgate and 14' Pipeline	JCCH-1-01	1	Black soft material with paint chips	Around 14' diversion pipeline	Misc.		None Detected
Canal Headgate and 14' Pipeline	JCCH-2-01	1	Silver paint	Around 14' diversion pipe down spout	Misc.		None Detected
Canal Headgate and 14' Pipeline		2	Red rubbery material	Around 14' diversion pipe down spout	Misc.		None Detected
Canal Headgate and 14' Pipeline	JCCH-3-01	1	Silver paint	14' diversion pipe	Misc.		None Detected
Canal Headgate and 14' Pipeline	JCCH-3-02	1	Silver paint	14' diversion pipe	Misc.		None Detected
Canal Headgate and 14' Pipeline	JCCH-3-03	1	Silver paint	14' diversion pipe	Misc.		None Detected
Communication Building	JCCB-1-01	1	Light gray soft foamy material with paint	Exterior metal siding seams	Misc.		None Detected
Communication Building	JCCB-1-02	1	Light gray soft foamy material with debris	Exterior metal siding seams	Misc.		None Detected
Communication Building	JCCB-2-01	1	Black asphaltic material	Exterior asphalt crack repairs	Misc.		None Detected
Communication Building	JCCB-2-02	1	Black soft asphaltic material	Exterior asphalt crack repairs	Misc.		None Detected
Communication Building	JCCB-3-01	1	Black asphaltic material	Exterior asphalt	Misc.		None Detected
Communication Building	**JCCB-4-01**	**1**	**Light gray soft material**	**At base of interior wall/concrete interface**	**Misc.**	**2%**	**Chrysotile**
Communication Building	**JCCB-4-02**	**1**	**Light gray soft material**	**At base of interior wall/concrete interface**	**Misc.**	**2%**	**Chrysotile**
Fire Protection Building	JCFP-1-01	1	Red brittle material with paint	Piping throughout Fire Protection Building	Misc.		None Detected
Fire Protection Building	JCFP-1-02	1	Red brittle material with paint	Piping throughout Fire Protection Building	Misc.		None Detected
Fire Protection Building	JCFP-1-03	1	Red soft material with paint	Piping throughout Fire Protection Building	Misc.		None Detected

*Confirmed by layer via PLM Point Count at 1000 points; HSA: Material that is uniform in color, texture, general appearance, and construction and application date; Surf.: Surfacing material per AHERA; TSI: Thermal system insulation per AHERA; Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Fire Protection Building	JCFP-2-01	1	Black rubbery soft material with red paint and inter fill-loose fibrous	Piping throughout Fire Protection Building	Misc.		None Detected
Fire Protection Building	JCFP-3-01	1	Brown fibrous material with rush	Interior of metal double doors (deterioration exposed insulation)	Misc.		None Detected
Fire Protection Building	JCFP-4-01	1	Light gray sandy/brittle material	Exterior walls	Misc.		None Detected
Fire Protection Building	JCFP-5-01	1	Off-white brittle/soft mastic	Around exterior vents	Misc.		None Detected
Gate Control and Communication Building	JCGCB-1-01	1	Gray brittle window putty	Interior window frames	Misc.		None Detected
Gate Control and Communication Building	JCGCB-1-02	1	Gray brittle window putty	Interior window frames	Misc.		None Detected
Gate Control and Communication Building	JCGCB-2-01	1	Red fire stop	Interior wall, at electrical conduit penetrations	Misc.		None Detected
Gate Control and Communication Building	JCGCB-2-02	1	Red fire stop	Interior wall, at electrical conduit penetrations	Misc.		None Detected
Gate Control and Communication Building	JCGCB-3-01	1	Gray sealant	Exterior metal siding seams	Misc.		None Detected
Gate Control and Communication Building	JCGCB-3-02	1	Gray sealant	Exterior metal siding seams	Misc.		None Detected
Groundwater Pumphouse	JCPH-1-01	1	Tan paper with asphalt	Batt insulation above wood ceiling	Misc.		None Detected
Groundwater Pumphouse		2	Pink fibrous material	Batt insulation above wood ceiling	TSI		None Detected
Groundwater Pumphouse	JCPH-1-02	1	Tan paper with asphalt	Batt insulation above wood ceiling	Misc.		None Detected
Groundwater Pumphouse		2	Pink fibrous material	Batt insulation above wood ceiling	TSI		None Detected

*Confirmed by layer via PLM Point Count at 1000 points; HSA: Material that is uniform in color, texture, general appearance, and construction and application date; Surf.: Surfacing material per AHERA; TSI: Thermal system insulation per AHERA; Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Groundwater Pumphouse	JCPH-1-03	1	Tan paper with asphalt	Batt insulation above wood ceiling	Misc.		None Detected
Groundwater Pumphouse		2	Pink fibrous material	Batt insulation above wood ceiling	TSI		None Detected
Groundwater Pumphouse	JCPH-2-01	1	Black asphaltic fibrous material	Underneath corrugated metal siding, throughout exterior	Misc.		None Detected
Groundwater Pumphouse	JCPH-2-02	1	Black asphaltic fibrous material	Underneath corrugated metal siding, throughout exterior	Misc.		None Detected
Groundwater Pumphouse	JCPH-2-03	1	Black asphaltic fibrous material with brown paint	Underneath corrugated metal siding, throughout exterior	Misc.		None Detected
HazMat Shed and Fuel Shed	JCHM-1-01	1	Black soft asphaltic material	Asphalt pad associated with HazMat Shed and Above Ground Storage Tanks	Misc.		None Detected
HazMat Shed and Fuel Shed	JCHM-1-02	1	Black soft asphaltic material	Asphalt pad associated with HazMat Shed and Above Ground Storage Tanks	Misc.		None Detected
HazMat Shed and Fuel Shed		**2**	**Black asphaltic material**	**Asphalt pad associated with HazMat Shed and Above Ground Storage Tanks**	**Misc.**	**2%**	**Chrysotile**
HazMat Shed and Fuel Shed	JCHM-2-01	1	Beige brittle/sandy material with off-white paint	On above ground storage tank concrete casing in Fuel Shed	Misc.		None Detected
HazMat Shed and Fuel Shed	JCHM-2-02	1	Beige brittle/sandy material with off-white paint	On above ground storage tank concrete casing in Fuel Shed	Misc.		None Detected
HazMat Shed and Fuel Shed	JCHM-2-03	1	Light graybrittle/sandy material with off-white paint	On above ground storage tank concrete casing in Fuel Shed	Misc.		None Detected
HazMat Shed and Fuel Shed	JCHM-3-01	1	White soft material	On above ground storage tank concrete casing in Fuel Shed piping	Misc.		None Detected
HazMat Shed and Fuel Shed	JCHM-3-02	1	Beige soft/brittle material with gray paint	On above ground storage tank concrete casing in Fuel Shed	Misc.	<0.1%*	Chrysotile
HazMat Shed and Fuel Shed	JCHM-4-01	1	Gray/silver paint	Roof of small storage shed adjacent to HazMat Shed	Misc.		None Detected
HazMat Shed and Fuel Shed	JCHM-4-02	1	Orange/silver paint	Roof of small storage shed adjacent to HazMat Shed	Misc.		None Detected

*Confirmed by layer via PLM Point Count at 1000 points; HSA: Material that is uniform in color, texture, general appearance, and construction and application date; Surf.: Surfacing material per AHERA; TSI: Thermal system insulation per AHERA; Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
HazMat Shed and Fuel Shed	JCHM-4-03	1	Orange/silver paint	Roof of small storage shed adjacent to HazMat Shed	Misc.		None Detected
HazMat Shed and Fuel Shed	JCHM-5-01	1	White soft material	On roll-up door to HazMat Shed	Misc.		None Detected
HazMat Shed and Fuel Shed	**JCHM-6-01**	**1**	**Light gray compressed fibrous material**	**Ceiling/roof seams of HazMat Shed**	**Misc.**	**45%**	**Chrysotile**
Intake Structure	JCIS-10-01	1	Gray brittle material	Structure around stop logs	Misc.		None Detected
Intake Structure	JCIS-1-01	1	Gray brittle material with debris	Driveway area of intake structure	Misc.		None Detected
Intake Structure	JCIS-11-01	1	Gray rubbery material with sand	At walkway expansion joints	Misc.		None Detected
Intake Structure	JCIS-12-01	1	Off-whtie brittle material	Fish screen flooring area around fish screen building	Misc.		None Detected
Intake Structure	JCIS-12-02	1	Gray brittle material with paint	Fish screen flooring area around fish screen building	Misc.		None Detected
Intake Structure		2	Off-white brittle material	Fish screen flooring area around fish screen building	Misc.		None Detected
Intake Structure	JCIS-13-01	1	Silver paint	Stop log structural cage frame	Misc.		None Detected
Intake Structure		2	Metal oxide with paint	Stop log structural cage frame	Misc.		None Detected
Intake Structure	JCIS-13-02	1	Silver paint	Stop log structural cage frame	Misc.		None Detected
Intake Structure		2	Metal oxide	Stop log structural cage frame	Misc.		None Detected
Intake Structure	JCIS-13-03	1	Silver paint	Stop log structural cage frame	Misc.		None Detected
Intake Structure	JCIS-14-01	1	Gray brittle material	At beginning of wood bridge	Misc.		None Detected
Intake Structure	JCIS-15-01	1	Silver paint	Exterior of intake structure, below fish screen house lower section	Misc.		None Detected

*Confirmed by layer via PLM Point Count at 1000 points; HSA: Material that is uniform in color, texture, general appearance, and construction and application date; Surf.: Surfacing material per AHERA; TSI: Thermal system insulation per AHERA; Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Intake Structure		2	Metal oxide with paint	Exterior of intake structure, below fish screen house lower section	Misc.		None Detected
Intake Structure	JCIS-15-02	1	Silver paint	Exterior of intake structure, below fish screen house lower section	Misc.		None Detected
Intake Structure		2	Metal oxide with paint	Exterior of intake structure, below fish screen house lower section	Misc.		None Detected
Intake Structure	JCIS-15-03	1	Soft flaky material with metallic paint	Exterior of intake structure, below fish screen house lower section	Misc.		None Detected
Intake Structure	JCIS-16-01	1	Black asphaltic fibrous material with paint	Underneath wood walls of Intake Structure Reservoir Level Building	Misc.		None Detected
Intake Structure	JCIS-16-02	1	Black asphaltic fibrous material with paint	Underneath wood walls of Intake Structure Reservoir Level Building	Misc.		None Detected
Intake Structure	JCIS-2-01	1	Black sticky material with mineral grains	Driveway area of intake structure	Misc.		None Detected
Intake Structure	JCIS-3-01	1	Gray sandy rubbery material	Intake structure walkway	Surf.		None Detected
Intake Structure		2	Gray brittle material	Intake structure walkway	Misc.		None Detected
Intake Structure	JCIS-3-02	1	Gray sandy rubbery material	Intake structure walkway	Misc.		None Detected
Intake Structure		2	Gray brittle material	Intake structure walkway	Misc.		None Detected
Intake Structure	JCIS-3-03	1	Gray sandy rubbery material	Intake structure walkway	Misc.		None Detected
Intake Structure	JCIS-3-04	1	Gray brittle material	Intake structure walkway	Misc.		None Detected
Intake Structure	JCIS-4-01	1	Black asphaltic mastic	On wood bridge to intake structure	Misc.		None Detected
Intake Structure	JCIS-4-02	1	Black asphaltic mastic	On wood bridge to intake structure	Misc.		None Detected
Intake Structure	JCIS-5-01	1	Silver paint	Flex pipe connection associated with pump inside Fish Screen Building	Misc.		None Detected

*Confirmed by layer via PLM Point Count at 1000 points; HSA: Material that is uniform in color, texture, general appearance, and construction and application date; Surf.: Surfacing material per AHERA; TSI: Thermal system insulation per AHERA; Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Intake Structure		2	Brown woven fibrous material with brittle brown mastic	Flex pipe connection associated with pump inside Fish Screen Building	Misc.		None Detected
Intake Structure	JCIS-6-01	1	Silver paint	Piping connecting traveling water screens inside Fish Screen Building	Misc.		None Detected
Intake Structure		2	Green and brown paint	Piping connecting traveling water screens inside Fish Screen Building	Misc.		None Detected
Intake Structure	JCIS-6-02	1	Silver paint	Piping connecting traveling water screens inside Fish Screen Building	Misc.		None Detected
Intake Structure		2	Green orange and brown paint	Piping connecting traveling water screens inside Fish Screen Building	Misc.		None Detected
Intake Structure	JCIS-6-03	1	Silver paint	Piping connecting traveling water screens inside Fish Screen Building	Misc.		None Detected
Intake Structure		2	Green orange and brown paint	Piping connecting traveling water screens inside Fish Screen Building	Misc.		None Detected
Intake Structure	JCIS-7-01	1	White rubbery material with paint	At concrete wall/wood ceiling interface inside Fish Screen Building	Misc.		None Detected
Intake Structure		2	Brown rubbery material with paint and wood flakes	At concrete wall/wood ceiling interface inside Fish Screen Building	Misc.		None Detected
Intake Structure	JCIS-7-02	1	White rubbery material with paint	At concrete wall/wood ceiling interface inside Fish Screen Building	Misc.		None Detected
Intake Structure		2	Brown rubbery material with paint and wood flakes	At concrete wall/wood ceiling interface inside Fish Screen Building	Misc.		None Detected
Intake Structure	JCIS-8-01	1	Brown paper with black asphaltic mastic	Above ceiling in Fish Screen Building	Misc.		None Detected
Intake Structure		2	Pink fibrous material	Above ceiling in Fish Screen Building	TSI		None Detected
Intake Structure	JCIS-8-02	1	Brown paper with black asphaltic mastic	Above ceiling in Fish Screen Building	Misc.		None Detected
Intake Structure		2	Pink fibrous material	Above ceiling in Fish Screen Building	TSI		None Detected
Intake Structure		3	Off-white paint	Above ceiling in Fish Screen Building	Misc.		None Detected

*Confirmed by layer via PLM Point Count at 1000 points; HSA: Material that is uniform in color, texture, general appearance, and construction and application date; Surf.: Surfacing material per AHERA; TSI: Thermal system insulation per AHERA; Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Intake Structure	JCIS-8-03	1	Brown paper with black asphaltic mastic	Above ceiling in Fish Screen Building	TSI		None Detected
Intake Structure		2	Pink fibrous material	Above ceiling in Fish Screen Building	Misc.		None Detected
Intake Structure	JCIS-9-01	1	Silver paint	On traveling water screen machinery	Misc.		None Detected
Intake Structure		2	Gray and brown paint	On traveling water screen machinery	Misc.		None Detected
Intake Structure	JCIS-9-02	1	Silver paint	On traveling water screen machinery	Misc.		None Detected
Intake Structure		2	Gray and brown paint	On traveling water screen machinery	Misc.		None Detected
Intake Structure	JCIS-9-03	1	Silver paint	On traveling water screen machinery	Misc.		None Detected
Intake Structure		2	Gray and brown paint	On traveling water screen machinery	Misc.		None Detected
Office Warehouse	JCOW-10-01	1	Tan fibrous material with mastic and metal foil	Insulation inside two roll-up doors in Warehouse	Misc.		None Detected
Office Warehouse		2	Off-white foamy material	Insulation inside two roll-up doors in Warehouse	Misc.		None Detected
Office Warehouse	JCOW-10-02	1	Tan fibrous material with mastic and metal foil	Insulation inside two roll-up doors in Warehouse	Misc.		None Detected
Office Warehouse		2	Off-white foamy material	Insulation inside two roll-up doors in Warehouse	Misc.		None Detected
Office Warehouse	JCOW-10-03	1	Tan fibrous material with mastic and metal foil	Insulation inside two roll-up doors in Warehouse	Misc.		None Detected
Office Warehouse		2	Off-white foamy material	Insulation inside two roll-up doors in Warehouse	Misc.		None Detected
Office Warehouse	JCOW-1-01	1	Gray sheet vinyl	Flooring in break room, shower room, office, hallway, and restroom	Misc.		None Detected
Office Warehouse		2	Gray fibrous backing with mastic (on wood)	Flooring in break room, shower room, office, hallway, and restroom	Misc.		None Detected

*Confirmed by layer via PLM Point Count at 1000 points; HSA: Material that is uniform in color, texture, general appearance, and construction and application date; Surf.: Surfacing material per AHERA; TSI: Thermal system insulation per AHERA; Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Office Warehouse	JCOW-1-02	1	Gray sheet vinyl	Flooring in break room, shower room, office, hallway, and restroom	Misc.		None Detected
Office Warehouse		2	Tan fibrous backing with mastic (on wood)	Flooring in break room, shower room, office, hallway, and restroom	Misc.		None Detected
Office Warehouse		3	Black asphaltic fibrous material	Flooring in break room, shower room, office, hallway, and restroom	Misc.		None Detected
Office Warehouse	JCOW-1-03	1	Gray sheet vinyl	Flooring in break room, shower room, office, hallway, and restroom	Misc.		None Detected
Office Warehouse		2	Gray fibrous backing with mastic (on wood)	Flooring in break room, shower room, office, hallway, and restroom	Misc.		None Detected
Office Warehouse	JCOW-11-01	1	Black asphaltic mastic with paper	Above ceiling in attic of Warehouse	Misc.		None Detected
Office Warehouse		2	Pink fibrous material	Above ceiling in attic of Warehouse	TSI		None Detected
Office Warehouse	JCOW-11-02	1	Black asphaltic mastic with paper	Above ceiling in attic of Warehouse	Misc.		None Detected
Office Warehouse		2	Pink fibrous material	Above ceiling in attic of Warehouse	TSI		None Detected
Office Warehouse	JCOW-11-03	1	Black asphaltic mastic with paper	Above ceiling in attic of Warehouse	Misc.		None Detected
Office Warehouse		2	Pink fibrous material	Above ceiling in attic of Warehouse	TSI		None Detected
Office Warehouse	JCOW-11-04	1	Black asphaltic mastic with paper and paint	Above ceiling in attic of Warehouse	Misc.		None Detected
Office Warehouse		2	Pink fibrous material	Above ceiling in attic of Warehouse	TSI		None Detected
Office Warehouse	JCOW-12-01	1	Black asphaltic mastic with paper and paint	Behind wood wall, loft area of Warehouse	Misc.		None Detected
Office Warehouse		2	Yellow fibrous material	Behind wood wall, loft area of Warehouse	TSI		None Detected
Office Warehouse	JCOW-12-02	1	Black asphaltic mastic with paper and paint	Behind wood wall, loft area of Warehouse	Misc.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Office Warehouse		2	Yellow fibrous material	Behind wood wall, loft area of Warehouse	TSI		None Detected
Office Warehouse	JCOW-12-03	1	Black asphaltic mastic with paper and paint	Behind wood wall, loft area of Warehouse	Misc.		None Detected
Office Warehouse		2	Yellow fibrous material	Behind wood wall, loft area of Warehouse	TSI		None Detected
Office Warehouse	JCOW-13-01	1	Black asphaltic soft material	At base of exterior metal walls, at wall/concrete interface	Misc.		None Detected
Office Warehouse	JCOW-13-02	1	Black asphaltic soft material	At base of exterior metal walls, at wall/concrete interface	Misc.		None Detected
Office Warehouse	JCOW-14-01	1	Off-white putty material with paint	Exterior window panes	Misc.		None Detected
Office Warehouse	JCOW-14-02	1	Off-white putty material with paint	Exterior window panes	Misc.		None Detected
Office Warehouse	JCOW-15-01	1	Black asphaltic fibrous felt	Underneath corrugated metal roof, throughout	Misc.		None Detected
Office Warehouse	JCOW-15-02	1	Black asphaltic fibrous felt with paint	Underneath corrugated metal roof, throughout	Misc.		None Detected
Office Warehouse	JCOW-16-01	1	Black asphaltic fibrous felt	Underneath corrugated metal siding of Office Warehouse shed	Misc.		None Detected
Office Warehouse	JCOW-16-02	1	Black asphaltic fibrous felt	Underneath corrugated metal siding of Office Warehouse shed	Misc.		None Detected
Office Warehouse	JCOW-17-01	1	Black asphaltic fibrous material	Underneath corrugated metal siding throughout Office Warehouse	Misc.		None Detected
Office Warehouse	JCOW-17-02	1	Black asphaltic fibrous material	Underneath corrugated metal siding throughout Office Warehouse	Misc.		None Detected
Office Warehouse	JCOW-2-01	1	Gray fibrous material with paint	Ceiling in entry way	Misc.		None Detected
Office Warehouse	JCOW-2-02	1	Gray fibrous material with paint	Ceiling in entry way	Misc.		None Detected
Office Warehouse	JCOW-2-03	1	Gray fibrous material with paint	Ceiling in entry way	Misc.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Office Warehouse	JCOW-3-01	1	Gray rubbery material	Walls throughout office main floor	Misc.		None Detected
Office Warehouse		2	White soft mastic	Walls throughout office main floor	Misc.		None Detected
Office Warehouse		3	White compacted powdery material with paint	Walls throughout office main floor	Misc.		None Detected
Office Warehouse	JCOW-3-02	1	Gray rubbery material	Walls throughout office main floor	Misc.		None Detected
Office Warehouse		2	White soft mastic	Walls throughout office main floor	Misc.		None Detected
Office Warehouse		3	White compacted powdery material with paint	Walls throughout office main floor	Misc.		None Detected
Office Warehouse	JCOW-4-01	1	White compacted powdery material with paint	Walls throughout office main floor	Surf.		None Detected
Office Warehouse		2	White chalky material with paper	Walls throughout office main floor	Misc.		None Detected
Office Warehouse	JCOW-4-02	1	White textured powdery material with paint	Walls throughout office main floor	Surf.		None Detected
Office Warehouse		2	White chalky material with paper	Walls throughout office main floor	Misc.		None Detected
Office Warehouse	JCOW-4-03	1	White compacted powdery material with paint	Walls throughout office main floor	Surf.		None Detected
Office Warehouse		2	White chalky material with paper	Walls throughout office main floor	Misc.		None Detected
Office Warehouse	JCOW-4-04	1	White compacted powdery material with paint	Walls throughout office main floor	Surf.		None Detected
Office Warehouse		2	White chalky material with paper	Walls throughout office main floor	Misc.		None Detected
Office Warehouse	JCOW-4-05	1	White compacted powdery material with paint	Walls throughout office main floor	Surf.		None Detected
Office Warehouse		2	White chalky material with paper	Walls throughout office main floor	Misc.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Office Warehouse	JCOW-4-06	1	White compacted powdery material with paint	Walls throughout office main floor	Surf.		None Detected
Office Warehouse		2	White chalky material with paper	Walls throughout office main floor	Misc.		None Detected
Office Warehouse	JCOW-6-01	1	White soft elastic material	Restroom counter	Misc.		None Detected
Office Warehouse		2	White compacted powdery material with paint and paper	Restroom counter	Misc.		None Detected
Office Warehouse	JCOW-7-01	1	Black plastic	Underneath restroom counter	Misc.		None Detected
Office Warehouse		2	Yellow soft adhesive	Underneath restroom counter	Misc.		None Detected
Outdoor Storage Area	JCBY-1-01	1	Red soft rubbery material	Out of service storage tank in Outdoor Storage Area	Misc.		None Detected
Outdoor Storage Area		2	Yellow soft mastic	Out of service storage tank in Outdoor Storage Area	Misc.		None Detected
Outdoor Storage Area	JCBY-2-01	1	Black brittle asphaltic material with granules	Out of service storage tank in Outdoor Storage Area	Misc.		None Detected
Outdoor Storage Area	JCBY-2-02	1	Black brittle asphaltic material with granules	Out of service storage tank in Outdoor Storage Area	Misc.		None Detected
Outdoor Storage Area	JCBY-3-01	1	Silver paint	Out of service storage tank in Outdoor Storage Area	Misc.		None Detected
Outdoor Storage Area		2	Yellow brittle material	Out of service storage tank in Outdoor Storage Area	Misc.		None Detected
Penstock	JCPS-01-01	1	Gray brittle cementitious material	Penstock piping support blocks	Misc.		None Detected
Powerhouse	JCPH-10-01	1	Gray sticky material	Walls throughout Powerhouse	Misc.		None Detected
Powerhouse	JCPH-1-01	1	Gray brittle material	Walls throughout Powerhouse	Misc.		None Detected
Powerhouse	JCPH-1-02	1	Gray brittle material with paint	Walls throughout Powerhouse	Misc.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Powerhouse	JCPH-11-01	1	Gray rubbery material	Concrete pad/roof top side of Powerhouse	Misc.		None Detected
Powerhouse	JCPH-12-01	1	Gray brittle material	Concrete pad/roof top side of Powerhouse	Misc.		None Detected
Powerhouse		2	Tan brittle material	Concrete pad/roof top side of Powerhouse	Misc.		None Detected
Powerhouse	JCPH-12-02	1	Gray brittle material	Concrete pad/roof top side of Powerhouse	Misc.		None Detected
Powerhouse	JCPH-12-03	1	Gray brittle material	Concrete pad/roof top side of Powerhouse	Misc.		None Detected
Powerhouse		2	Tan brittle material	Concrete pad/roof top side of Powerhouse	Misc.		None Detected
Powerhouse	JCPH-13-01	1	Silver paint	Crane train tracks top side of Powerhouse	Misc.		None Detected
Powerhouse	JCPH-13-02	1	Silver paint	Crane train tracks top side of Powerhouse	Misc.		None Detected
Powerhouse	JCPH-13-03	1	Silver paint	Crane train tracks top side of Powerhouse	Misc.		None Detected
Powerhouse	JCPH-2-01	1	Off-white crumbly material with debris	Interior window panes	Misc.		None Detected
Powerhouse	JCPH-2-02	1	Tan crumbly material with paint	Interior window panes	Misc.		None Detected
Powerhouse	JCPH-3-01	1	Black rubbery material	Restroom walls	Misc.		None Detected
Powerhouse		2	Yellow soft mastic	Walls in upper level restroom	Misc.		None Detected
Powerhouse	JCPH-4-01	1	Red rubbery material with paint	Associated with generator piping, pumphouse lower level	Misc.		None Detected
Powerhouse		2	Black sticky mastic	Associated with generator piping, pumphouse lower level	Misc.		None Detected
Powerhouse	JCPH-6-01	1	White compacted powdery material with paint	Walls in upper level entry way	Surf.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Powerhouse		2	White chalky material with paper	Walls in upper level entry way	Misc.		None Detected
Powerhouse	JCPH-6-02	1	White compacted powdery material with paint	Walls in upper level entry way	Surf.		None Detected
Powerhouse		2	White chalky material with paper	Walls in upper level entry way	Misc.		None Detected
Powerhouse	JCPH-6-03	1	White compacted powdery material with paint	Walls in upper level entry way	Surf.		None Detected
Powerhouse		2	White chalky material with paper	Walls in upper level entry way	Misc.		None Detected
Powerhouse	JCPH-7-01	1	Off-white rubbery material with paint	Entry into switchgear room, associated with HVAC system	Misc.		None Detected
Powerhouse	**JCPH-8-01**	**1**	**Brown sticky material with paint**	**Entry into upper level of Powerhouse (interior and exterior of door)**	**Misc.**	**3%**	**Chrysotile**
Powerhouse	**JCPH-8-02**	**1**	**White crumbly material with paint**	**Entry into upper level of Powerhouse (interior and exterior of door)**	**Misc.**	**6%**	**Chrysotile**
Powerhouse		**2**	**Brown sticky material**	**Entry into upper level of Powerhouse (interior and exterior of door)**	**Misc.**	**3%**	**Chrysotile**
Powerhouse	JCPH-9-01	1	Off-white brittle material	Concrete pad/roof top side of Powerhouse	Misc.		None Detected
Residence 1	JCR1-10-01	1	Gray crumbly material	Around vent in bathroom	Misc.		None Detected
Residence 1	JCR1-1-01	1	White compacted powdery material with paint	Walls throughout	Surf.		None Detected
Residence 1		2	White chalky material with paper	Walls throughout	Misc.		None Detected
Residence 1	JCR1-1-02	1	White compacted powdery material with paint	Walls throughout	Surf.		None Detected
Residence 1		2	White chalky material with paper	Walls throughout	Misc.		None Detected
Residence 1	JCR1-1-03	1	White compacted powdery material with paint	Walls throughout	Surf.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Residence 1		2	White chalky material with paper	Walls throughout	Misc.		None Detected
Residence 1	JCR1-1-04	1	White compacted powdery material with paint	Walls throughout	Surf.		None Detected
Residence 1		2	White chalky material with paper	Walls throughout	Misc.		None Detected
Residence 1	JCR1-1-05	1	White compacted powdery material with paint	Walls throughout	Surf.		None Detected
Residence 1		2	White chalky material with paper	Walls throughout	Misc.		None Detected
Residence 1	JCR1-11-01	1	White compacted powdery material with paint	Walls throughout	Surf.		None Detected
Residence 1		2	White chalky material with paper	Walls throughout	Misc.		None Detected
Residence 1	JCR1-11-02	1	White compacted powdery material with paint	Walls throughout	Surf.		None Detected
Residence 1		2	White chalky material with paper	Walls throughout	Misc.		None Detected
Residence 1	JCR1-11-03	1	White compacted powdery material with paint	Walls throughout	Surf.		None Detected
Residence 1		2	White compacted powdery material with paper	Walls throughout	Misc.		None Detected
Residence 1		3	White chalky material with paper	Walls throughout	Misc.		None Detected
Residence 1	JCR1-12-01	1	Black fibrous material	Underneath corrugated metal roof throughout	Misc.		None Detected
Residence 1	JCR1-12-02	1	Black fibrous material	Underneath corrugated metal roof throughout	Misc.		None Detected
Residence 1	JCR1-13-01	1	Black sticky material	Base of wood siding throughout exterior	Misc.		None Detected
Residence 1		2	Gray brittle material with paint	Base of wood siding throughout exterior	Misc.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Residence 1	JCR1-13-02	1	Black sticky material	Base of wood siding throughout exterior	Misc.		None Detected
Residence 1	JCR1-14-01	1	Off-white sandy brittle material	At interface between garage and driveway	Misc.		None Detected
Residence 1	JCR1-14-02	1	Off-white sandy brittle material	At interface between garage and driveway	Misc.		None Detected
Residence 1	JCR1-2-01	1	White compacted powdery material with paint	Ceilings throughout	Surf.		None Detected
Residence 1	JCR1-2-02	1	White compacted powdery material with paint	Ceilings throughout	Surf.		None Detected
Residence 1	JCR1-2-03	1	White compacted powdery material with paint	Ceilings throughout	Surf.	0.2%*	Chrysotile
Residence 1	JCR1-2-04	1	White compacted powdery material with paint	Ceilings throughout	Surf.	<0.1%*	Chrysotile
Residence 1	JCR1-2-05	1	White compacted powdery material with paint	Ceilings throughout	Surf.	0.3%*	Chrysotile
Residence 1	JCR1-3-01	1	White rubbery material with debris	At base of french doors in dining room	Misc.		None Detected
Residence 1		2	Off-white sheet vinyl	At base of french doors in dining room	Misc.		None Detected
Residence 1	JCR1-4-01	1	Black rubbery material	Walls in dining room and kitchen	Misc.		None Detected
Residence 1		2	Yellow firm mastic	Walls in dining room and kitchen	Misc.		None Detected
Residence 1		3	White compacted powdery material with paint	Walls throughout (HSA JCR1-2)	Misc.		None Detected
Residence 1	JCR1-4-02	1	Black rubbery material	Walls in dining room and kitchen	Misc.		None Detected
Residence 1		2	Yellow firm mastic with paint	Walls in dining room and kitchen	Misc.		None Detected
Residence 1	JCR1-5-01	1	Tan sheet vinyl	Flooring in dining room and kitchen	Misc.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Residence 1		2	Yellow sticky mastic	Flooring in dining room and kitchen	Misc.		None Detected
Residence 1	JCR1-5-02	1	Tan sheet vinyl	Flooring in dining room and kitchen	Misc.		None Detected
Residence 1		2	Yellow sticky mastic	Flooring in dining room and kitchen	Misc.		None Detected
Residence 1	JCR1-6-01	1	Gray crumbly material	Kitchen sink	Misc.		None Detected
Residence 1	JCR1-7-01	1	Off-white crumbly material	Kitchen sink	Misc.		None Detected
Residence 1		2	Black sticky material	Kitchen sink	Misc.		None Detected
Residence 1	JCR1-8-01	1	Black fibrous material	Above rafters in attic, throughout	Misc.		None Detected
Residence 1	JCR1-9-01	1	Tan sheet vinyl	Flooring in bathroom off of bedroom	Misc.		None Detected
Residence 1		2	Clear sticky adhesive	Flooring in bathroom off of bedroom	Misc.		None Detected
Residence 1		3	Gray crumbly material	Flooring in bathroom off of bedroom	Misc.		None Detected
Residence 1		4	Off-white sheet vinyl	Flooring in bathroom off of bedroom	Misc.		None Detected
Residence 1		5	Gray fibrous material with hard yellow mastic	Flooring in bathroom off of bedroom	Misc.		None Detected
Residence 2	JCR2-1-01	1	Black asphaltic fibrous material with granules	Shed roofing, throughout	Misc.		None Detected
Residence 2		2	Black asphaltic fibrous felt	Shed roofing, throughout	Misc.		None Detected
Residence 2	JCR2-1-02	1	Black asphaltic fibrous material with granules	Shed roofing, throughout	Misc.		None Detected
Residence 2		2	Black asphaltic fibrous felt	Shed roofing, throughout	Misc.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Residence 2	JCR2-2-01	1	White fibrous material	Underneath exterior wood siding, throughout	Misc.		None Detected
Residence 2	JCR2-2-02	1	White fibrous material	Underneath exterior wood siding, throughout	Misc.		None Detected
Residence 2	JCR2-3-01	1	Black brittle asphaltic material	Driveway	Misc.		None Detected
Residence 2	JCR2-4-01	1	Black soft asphaltic material	Driveway	Misc.		None Detected
Residence 2	JCR2-4-02	1	Black soft asphaltic material	Driveway	Misc.		None Detected
Spillway Control Center Building	JCSW-1-01	1	Gray brittle cementitious material	Support concrete associated with Spillway Control Center Building	Misc.		None Detected
Spillway Control Center Building	JCSW-2-01	1	Black brittle asphaltic material	Associated with wood shoring on hill in front of Spillway Control Center Building	Misc.		None Detected
Spillway Control Center Building	JCSW-2-02	1	Black brittle asphaltic material	Associated with wood shoring on hill in front of Spillway Control Center Building	Misc.		None Detected
Timber Bridge	JCWB-1-01	1	Brittle orange material	Throughout Timber Bridge	Misc.		None Detected
Timber Bridge	JCWB-1-02	1	Brittle orange material	Throughout Timber Bridge	Misc.		None Detected
Timber Bridge		2	Brown woody material	Throughout Timber Bridge	Misc.		None Detected
Vehicle Storage Shed	JCVS-1-01	1	Yellow fibrous material with mastic and vinyl surface	Insulation throughout	TSI		None Detected
Vehicle Storage Shed	JCVS-1-02	1	Yellow fibrous material with mastic and vinyl surface	Insulation throughout	TSI		None Detected
Vehicle Storage Shed	JCVS-1-03	1	Yellow fibrous material with mastic and vinyl surface	Insulation throughout	TSI		None Detected
Vehicle Storage Shed	JCVS-2-01	1	Gray crumbly material	Expansion joints throughout interior flooring	Misc.		None Detected
Vehicle Storage Shed		2	Gray soft elastic material	Expansion joints throughout interior flooring	Misc.		None Detected

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Table 2: Asbestos Sample Results by Layer							
Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Vehicle Storage Shed		3	Dark gray brittle material	Expansion joints throughout interior flooring	Misc.		None Detected
Vehicle Storage Shed	JCVS-2-02	1	Gray soft elastic material	Expansion joints throughout interior flooring	Misc.		None Detected
Vehicle Storage Shed		2	Gray brittle material	Expansion joints throughout interior flooring	Misc.		None Detected
Vehicle Storage Shed		3	Brown brittle material	Expansion joints throughout interior flooring	Misc.		None Detected
Vehicle Storage Shed	JCVS-3-01	1	White soft material	Exterior siding	Misc.		None Detected
Vehicle Storage Shed	JCVS-4-01	1	Black asphaltic fibrous felt	Roof of entry way, under corrugated roof	Misc.		None Detected
Vehicle Storage Shed	JCVS-4-02	1	Black asphaltic fibrous felt	Roof of entry way, under corrugated roof	Misc.		None Detected
Vehicle Storage Shed	JCVS-5-01	1	Black asphaltic material	Seams around exterior perimeter - at roll-up doors	Misc.		None Detected
Vehicle Storage Shed	JCVS-5-02	1	Black asphaltic material	Seams around exterior perimeter - at roll-up doors	Misc.		None Detected
Vehicle Storage Shed	JCVS-6-01	1	Black asphaltic soft material	Penetrations around exterior perimeter	Misc.		None Detected
Vehicle Storage Shed	JCVS-6-02	1	Black asphaltic soft material	Penetrations around exterior perimeter	Misc.		None Detected
Warehouse	**JCWH-1-01**	**1**	**Black asphaltic material with gray surface**	**Exterior interface between metal siding and concrete foundation**	**Misc.**	**10%**	**Chrysotile**
Warehouse	**JCWH-1-02**	**1**	**Black asphaltic material with gray surface**	**Exterior interface between metal siding and concrete foundation**	**Misc.**	**14%**	**Chrysotile**
Warehouse	JCWH-2-01	1	Black asphaltic mastic with mesh and paper	Old insulation throughout interior	Misc.		None Detected
Warehouse		2	Yellow fibrous material	Old insulation throughout interior	TSI		None Detected
Warehouse	JCWH-2-02	1	Black asphaltic mastic with mesh and paper	Old insulation throughout interior	Misc.		None Detected

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Building	**Sample ID**	**Layer**	**Sample Description**	**Material Location**	**AHERA Classification**	**Percent (%) Asbestos**	**Asbestos Type**
Warehouse		2	Yellow fibrous material	Old insulation throughout interior	Misc.		None Detected
Warehouse	JCWH-2-03	1	Black asphaltic mastic with mesh and paper	Old insulation throughout interior	Misc.		None Detected
Warehouse		2	Yellow fibrous material	Old insulation throughout interior	Misc.		None Detected
Warehouse	JCWH-3-01	1	Black asphaltic material	At uneven expansion joints, concrete floor throughout interior	Misc.		None Detected
Warehouse	JCWH-3-02	1	Black asphaltic material	At uneven expansion joints, concrete floor throughout interior	Misc.		None Detected
Warehouse	JCWH-4-01	1	Gray brittle material	At uneven expansion joints, concrete floor throughout interior	Misc.		None Detected
Warehouse	**JCWH-5-01**	**1**	**Off-white putty material**	**At metal seems around interior roll - up door (potentially at all seams, but more was not visible during inspection)**	**Misc.**	**4%**	**Chrysotile**
Warehouse	JCWH-6-01	1	Tan fibrous material with paper	Debris on ground - appeared to be deteriorated from ceiling above	Misc.		None Detected
Warehouse	JCWH-6-02	1	Tan fibrous material with paper	Debris on ground - appeared to be deteriorated from ceiling above	Misc.		None Detected
Warehouse	JCWH-6-03	1	White fibrous material	Debris on ground - appeared to be deteriorated from ceiling above	Misc.		None Detected
Warehouse		2	Tan fibrous material	Debris on ground - appeared to be deteriorated from ceiling above	Misc.		None Detected
Warehouse		3	Black asphaltic material	Debris on ground - appeared to be deteriorated from ceiling above	Misc.		None Detected

*Confirmed by layer via PLM Point Count at 1000 points; HSA: Material that is uniform in color, texture, general appearance, and construction and application date; Surf.: Surfacing material per AHERA; TSI: Thermal system insulation per AHERA; Misc.: Miscellaneous material per AHERA; Layers in bolded text are asbestos-containing

Table 4-3 Lead Paint Sample Results

Table 4: Tabulated Analytical Results for Each Lead Paint Sample					
Building	**Sample ID**	**Description**	**Substrate**	**Location**	**Results in (mg/kg)**
Canal Headgate	**JCCH-Pb1-01**	**Tan/silver/orange paint**	**Metal**	**Diversion piping**	**350,000**
Communication Building	JCCB-Pb1-01	Yellow paint	Metal	Exterior metal tread walkway at entrance	<44
Communication Building	**JCCB-Pb2-01**	**Tan paint**	**Metal**	**Exterior metal trim**	**140**
Communication Building	JCCB-Pb3-01	White paint	Metal	Throughout interior metal siding	<200
Fire Protection Building	**JCFP-Pb1-01**	**Red paint**	**Metal**	**Pump piping throughout interior**	**56**
Fire Protection Building	JCFP-Pb2-01	Gray paint	Metal	Double doors at entrance	<49
Fire Protection Building	JCFP-Pb3-01	Red paint	Concrete	Exterior bollards	<63
HazMat Shed	**JCHM-Pb1-01**	**Tan paint**	**Metal**	**Throughout exterior siding**	**65**
Gate Control Communication Building	**JCCG-Pb1-01**	**Tan paint**	**Metal**	**Exterior siding and equipment throughout**	**3,300**
HazMat Shed	**JCHM-Pb2-01**	**Tan paint**	**Metal**	**Throughout exterior siding of small shed next to HazMat Storage Shed**	**290,000**
HazMat Shed	JCHM-Pb3-01	White paint	Concrete	Above ground concrete casings	<59
HazMat Shed	**JCHM-Pb4-01**	**Silver/orange paint**	**Metal**	**Roof of small shed next to HazMat Storage Shed**	**220,000**
HazMat Shed	**JCHM-Pb5-01**	**Red paint**	**Metal**	**Throughout interior structural steel of HazMat Shed**	**560**
Intake Structure	**JCIS-Pb10-01**	**Gray paint on brown paint**	**Metal**	**Metal handrails on fish ladder bridge**	**19,000**
Intake Structure	JCIS-Pb1-01	Yellow paint	Metal	Driveway block	<89
Intake Structure	**JCIS-Pb11-01**	**Tan paint**	**Metal**	**Throughout exterior metal siding on reservoir level gage house**	**490**
Intake Structure	**JCIS-Pb2-01**	**Gray paint**	**Wood**	**Exterior underhang of Fish Screen House**	**740**
Intake Structure	**JCIS-Pb3-01**	**White paint**	**Concrete**	**Throughout interior walls of Fish Screen Building**	**120**
Intake Structure	**JCIS-Pb4-01**	**Green/silver paint**	**Metal**	**Throughout interior piping of Fish Screen Building**	**12,000**

Table 4: Tabulated Analytical Results for Each Lead Paint Sample					
Building	**Sample ID**	**Description**	**Substrate**	**Location**	**Results in (mg/kg)**
Intake Structure	**JCIS-Pb5-01**	**Gray paint**	**Metal**	**Interior mechanical of Fish Screen Building, on traveling water screens**	**68**
Intake Structure	**JCIS-Pb6-01**	**Silver/orange paint**	**Metal**	**Intake structural support**	**57,000**
Intake Structure	JCIS-Pb7-01	Tan paint	Metal	Exterior siding of Fish Screen Building	<180
Intake Structure	JCIS-Pb8-01	Brown paint	Wood	Exterior walkway decking around Fish Screen Building, lower section directly above water	<51
Intake Structure	**JCIS-Pb9-01**	**Silver paint**	**Metal**	**Metal screens on exterior of Fish Screen Building**	**74,000**
Office Warehouse	JCOW-Pb1-01	White paint	Gypsum wallboard	Throughout interior walls of office spaces	<46
Office Warehouse	JCOW-Pb2-01	Gray paint	Wood	Wood floor throughout second floor	<59
Office Warehouse	JCOW-Pb3-01	White paint	Wood	Wood walls throughout second floor	<59
Office Warehouse	JCOW-Pb4-01	Yellow paint	Concrete	Associated with trip hazards in warehouse	<55
Office Warehouse	JCOW-Pb5-01	White paint	Wood	Walls in first floor warehouse	<56
Office Warehouse	JCOW-Pb6-01	White paint	Wood	Frames on first and second floor exterior windows	<52
Office Warehouse	JCOW-Pb7-01	Red paint	Metal	Exterior corrugated metal siding	<96
Outdoor Storage Area	**JCBY-Pb1-01**	**Silver paint**	**Metal**	**Out of commission tank in outdoor storage area**	**15,000**
Penstock	**JCPS-Pb1-01**	**Tan paint on orange paint**	**Metal**	**Penstock piping**	**97,000**
Powerhouse	**JCPH-Pb1-01**	**White paint**	**CMU**	**CMU walls throughout**	**680**
Powerhouse	**JCPH-Pb2-01**	**Gray paint**	**Concrete**	**Floors throughout Powerhouse**	**180**
Powerhouse	**JCPH-Pb3-01**	**White paint**	**Concrete**	**Walls throughout Powerhouse**	**360**
Powerhouse	**JCPH-Pb4-01**	**Orange paint**	**Metal**	**Handrails throughout Powerhouse**	**100,000**
Powerhouse	JCPH-Pb5-01	White paint	Concrete	Exterior walls throughout Powerhouse	<68
Powerhouse	JCPH-Pb6-01	Orange paint	Metal	Exterior handrails throughout	<140
Powerhouse	**JCPH-Pb7-01**	**Silver paint**	**Metal**	**Exterior tracks top side of Powerhouse (roof)**	**21,000**

Table 4: Tabulated Analytical Results for Each Lead Paint Sample					
Building	**Sample ID**	**Description**	**Substrate**	**Location**	**Results in (mg/kg)**
Pumphouse	JCPH-Pb1-01	Brown paint	Wood	Wood door to pumphouse	<60
Residence 1	JCRI-Pb1-01	Light beige paint	Gypsum wallboard	Interior walls throughout	<75
Residence 1	JCRI-Pb2-01	Light beige paint	Wood	Interior trim throughout	<60
Residence 1	JCRI-Pb7-01	Green paint	Wood	Exterior siding throughout	<53
Residence 1	JCRI-Pb8-01	Off-white paint	Wood	Exterior trim throughout	<46
Residence 1	JCRI-Pb9-01	Green paint	Concrete	Exterior concrete foundation	<52
Residence 2	JCR2-Pb1-01	Green paint	Wood	Exterior siding throughout	<58
Residence 2	JCR2-Pb2-01	White paint	Wood	Exterior trim throughout	<98
Spillway	**JCSW-Pb1-01**	**Beige paint on concrete**	**Concrete**	**Spillway canal walls**	**2,200**
Vehicle Storage Shed	JCVS-Pb1-01	Red paint	Metal	Structural steel throughout interior	<120
Vehicle Storage Shed	JCVS-Pb2-01	Tan paint	Metal	Door frames throughout Vehicle Storage	<51
Vehicle Storage Shed	JCVS-Pb3-01	White paint	Wood	Interior walls throughout	<58
Vehicle Storage Shed	**JCVS-Pb4-01**	**Yellow paint**	**Concrete**	**Exterior bollards**	**150**
Vehicle Storage Shed	JCVS-Pb5-01	Tan paint	Metal	Exterior corrugated metal siding	<57
Warehouse	**JCWH-Pb1-01**	**Red paint**	**Metal**	**Interior structural support beams**	**15,000**

<: Below the reporting limit

Table 4-4 Universal Waste Inventory

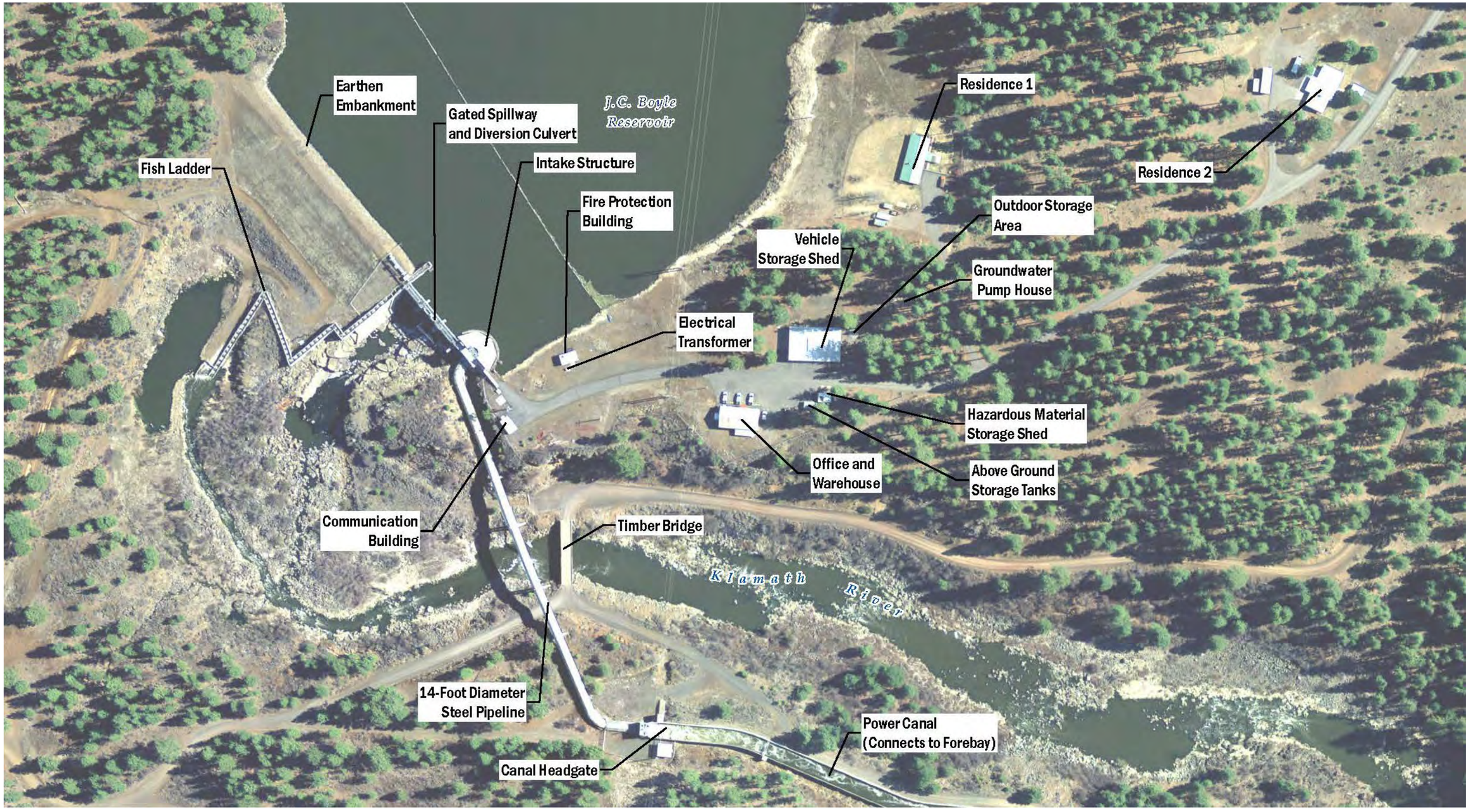
Table 4: Universal Waste Inventory	
Other Regulated Building Materials Description	**Approximate Quantity**
Mercury-containing fluorescent light tubes (4’ length)	68
Mercury-containing fluorescent light tubes (6’ length)	10
Mercury-containing fluorescent light tubes (8’ length)	8
Magnetic light ballasts	50
HID lamps	39
Mercury-containing switches, controls, and recorders	None observed

Table 4-5 PCB-Caulking Sample Results

Table 5: PCB Caulking Results		
Sample Number and Description	**Material Location**	**Samples Results in Parts Per Million (ppm)**
Flexible gray expansion joint sealant	Powerhouse roof – at expansion joints	ND

ND: None Detected

APPENDIX A FIGURES



Job No. 60537920

Figure 1
JC Boyle Dam
Aerial Site Photo

AECOM

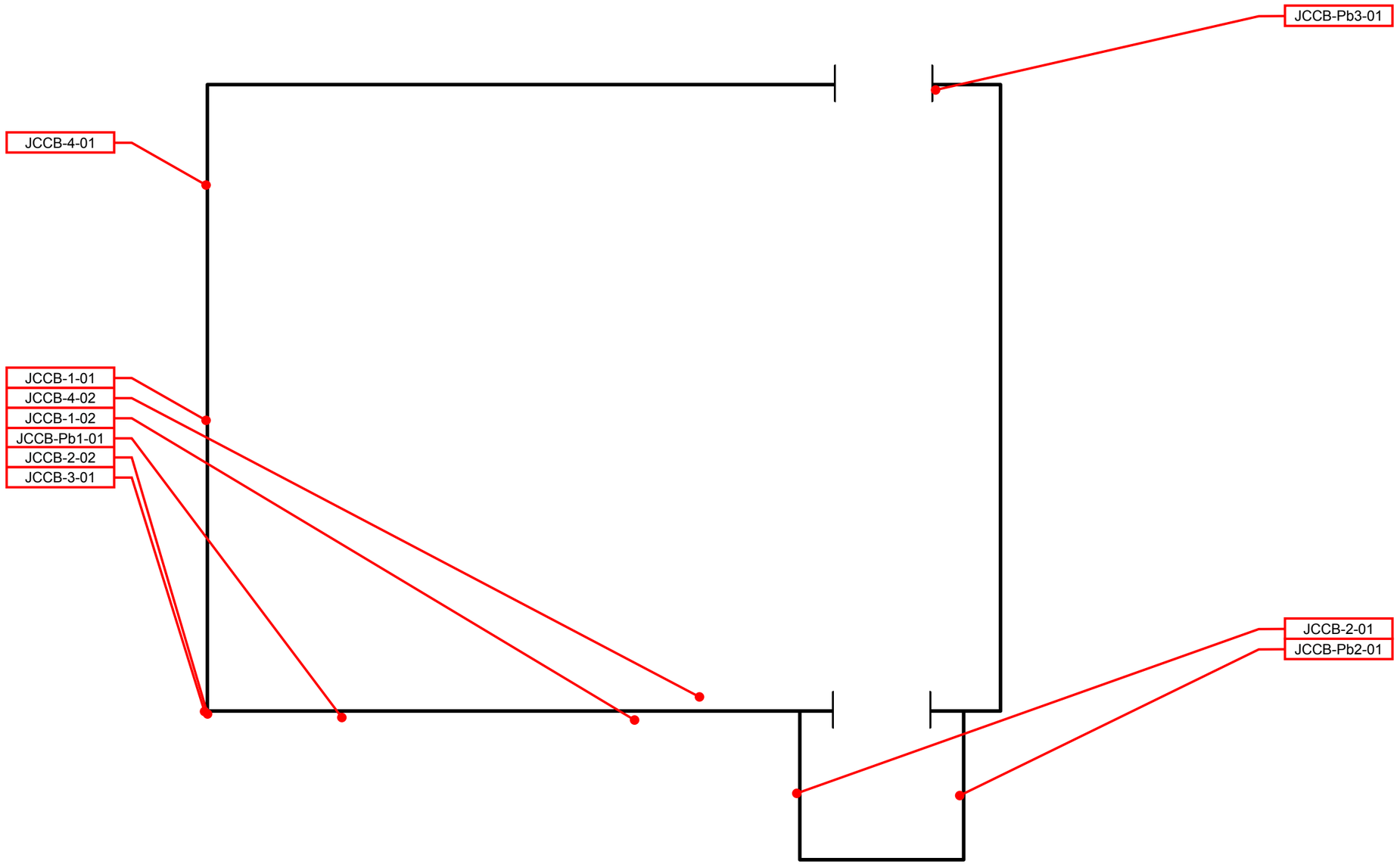
JC Boyle Dam
Keno, OR

Job No. 60537920

Figure 2
JC Boyle Dam
Aerial Site Photo

AECOM

JC Boyle Dam
Keno, OR



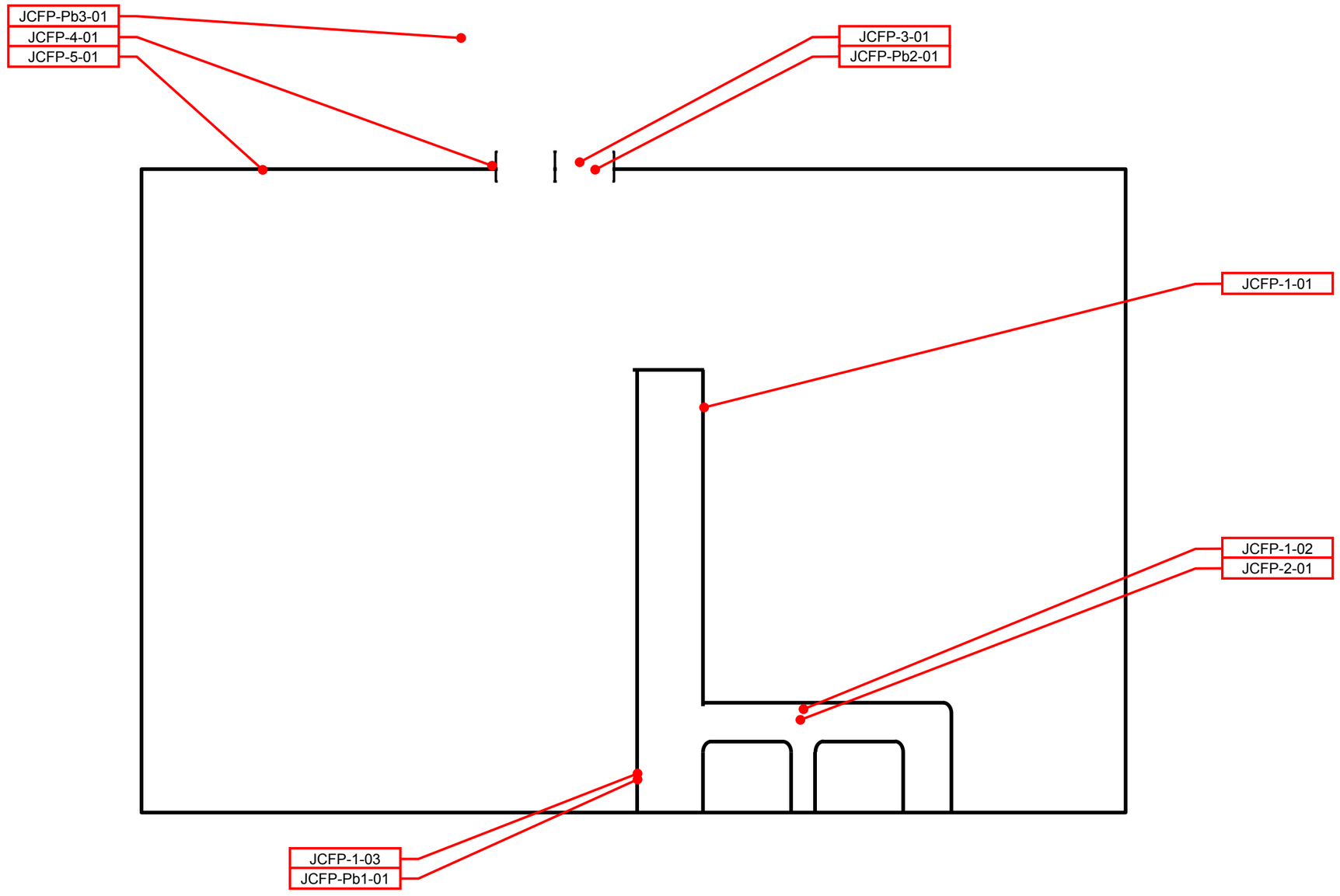
Legend
JCCB – HSA# – ## = Asbestos sample location
JCCB – Pb# – ## = Lead paint sample location

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 3
Asbestos and Lead Sample Locations
Communications Building

AECOM

JC Boyle Dam
Keno, OR



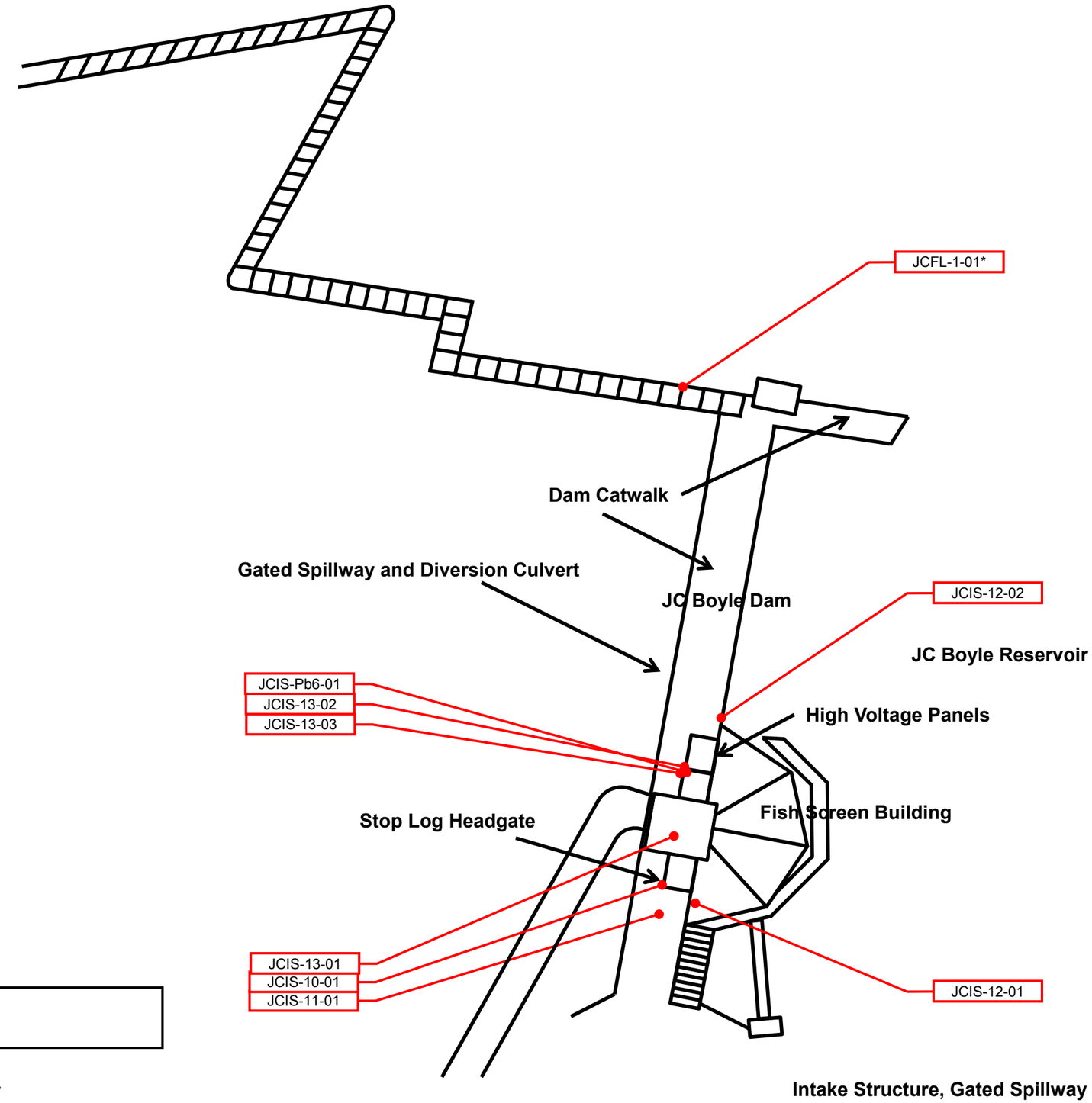
Legend
JCFP – HSA# – ## = Asbestos sample location
JCFP – Pb# – ## = Lead paint sample location

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 4
Asbestos and Lead Sample Locations
Fire Protection Building

AECOM

JC Boyle Dam
Keno, OR



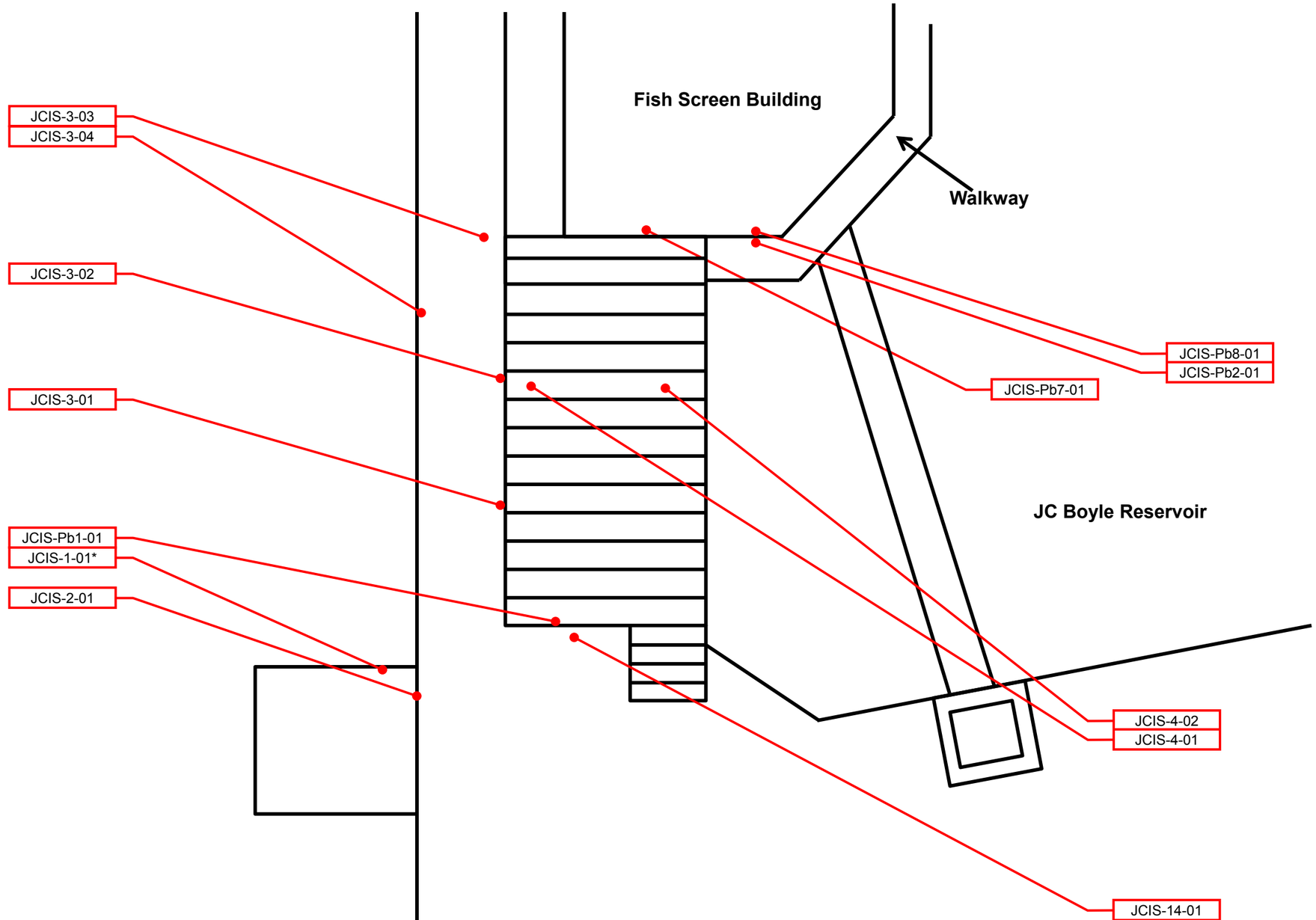
Legend
JCIS – HSA# – ## = Asbestos sample location
JCIS – Pb# – ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 5
Asbestos and Lead Sample Locations
Intake Structure, Gated Spillway and Diversion Culvert, and Fish Ladder

AECOM

JC Boyle Dam
Keno, OR



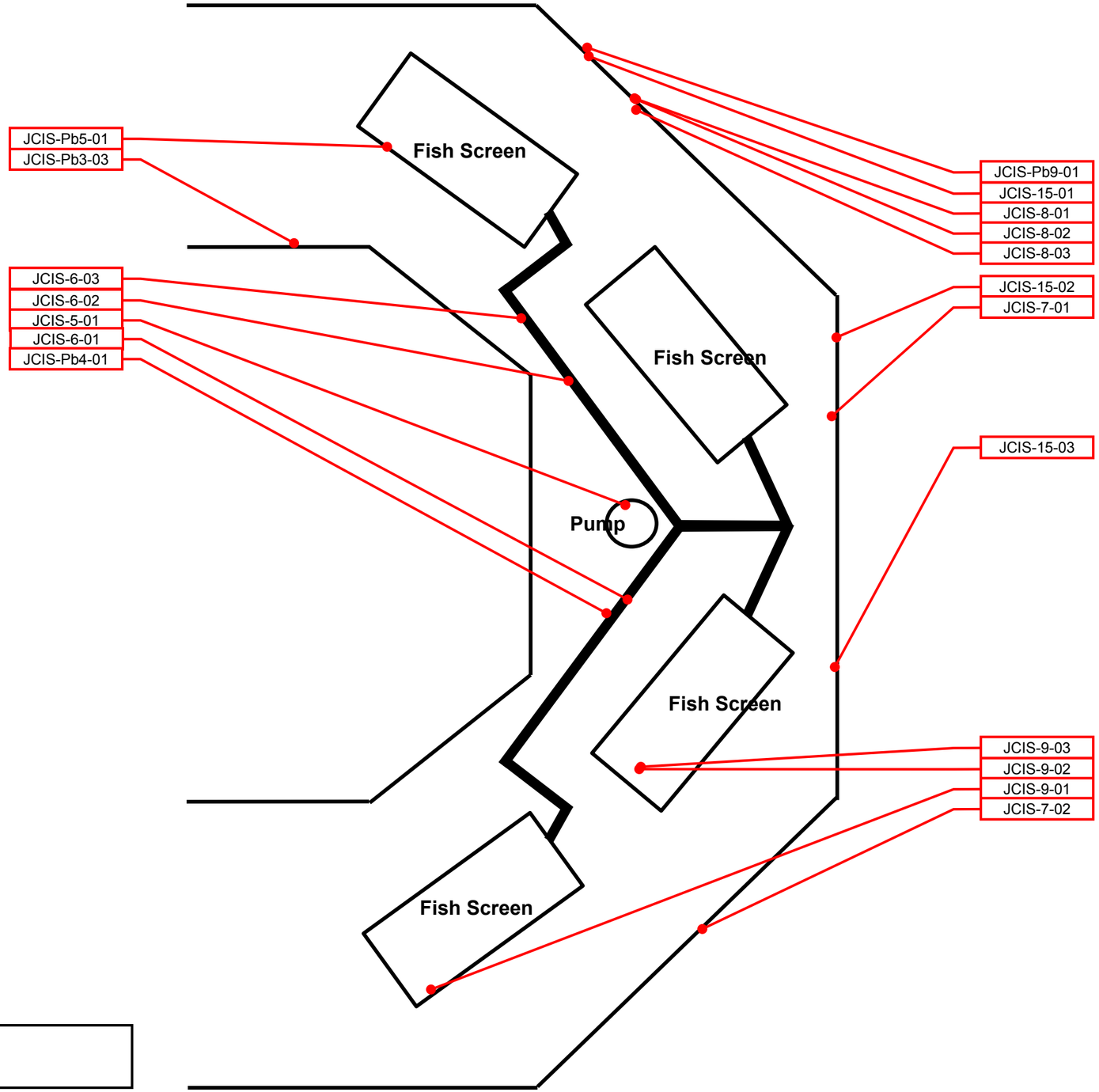
Legend
JCIS – HSA# – ## = Asbestos sample location
JCIS – Pb# – ## = Lead paint sample location
*Concrete sample analyzed via PLM CARB (Detection limit of .25%)

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 6
Asbestos and Lead Sample Locations
Intake Structure/JC Boyle Dam – South Section

AECOM

JC Boyle Dam
Keno, OR



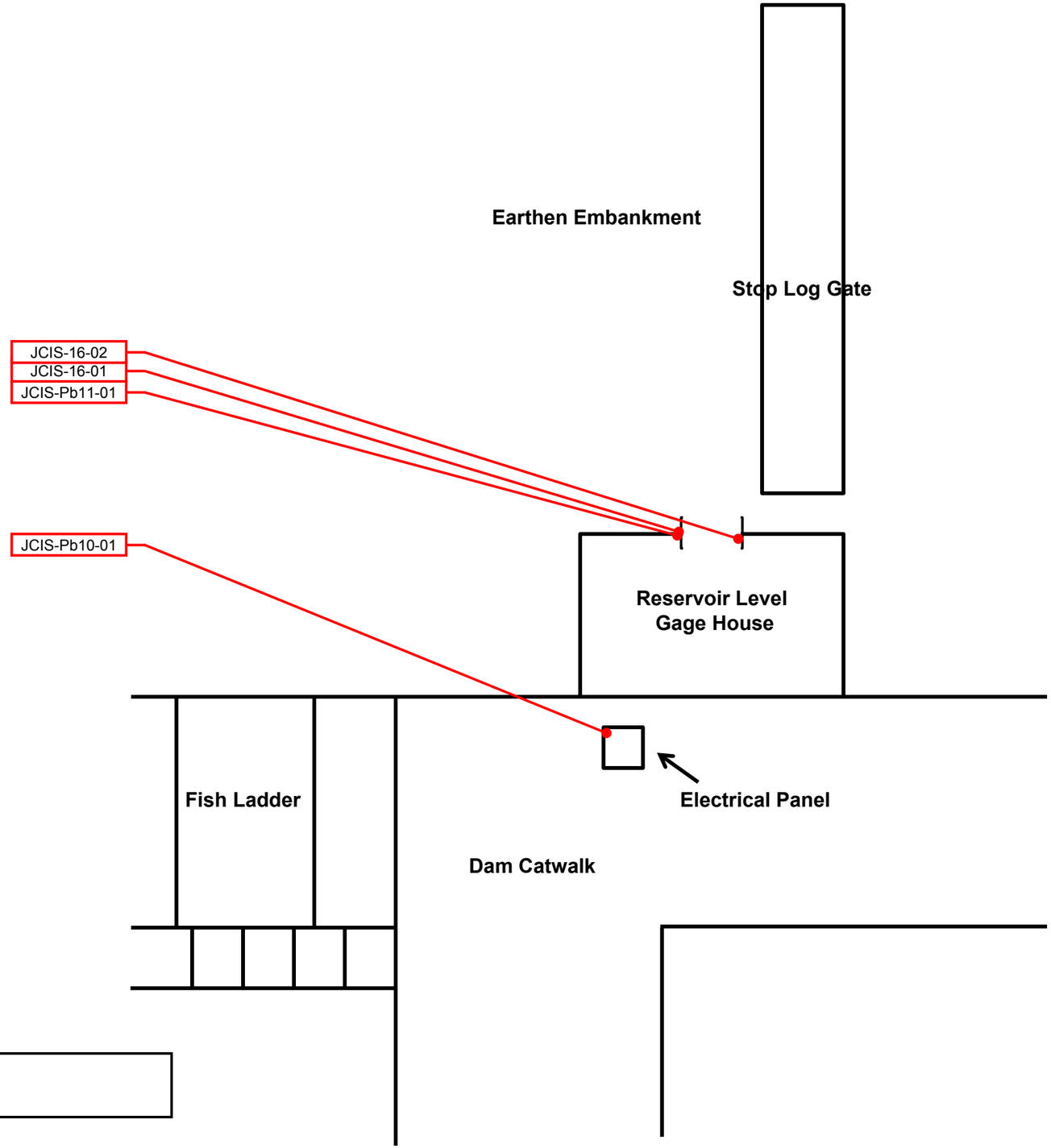
Legend
JCIS – HSA# – ## = Asbestos sample location
JCIS – Pb# – ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 7
Asbestos and Lead Sample Locations
Intake Structure Fish Screen Building

AECOM

JC Boyle Dam
Keno, OR



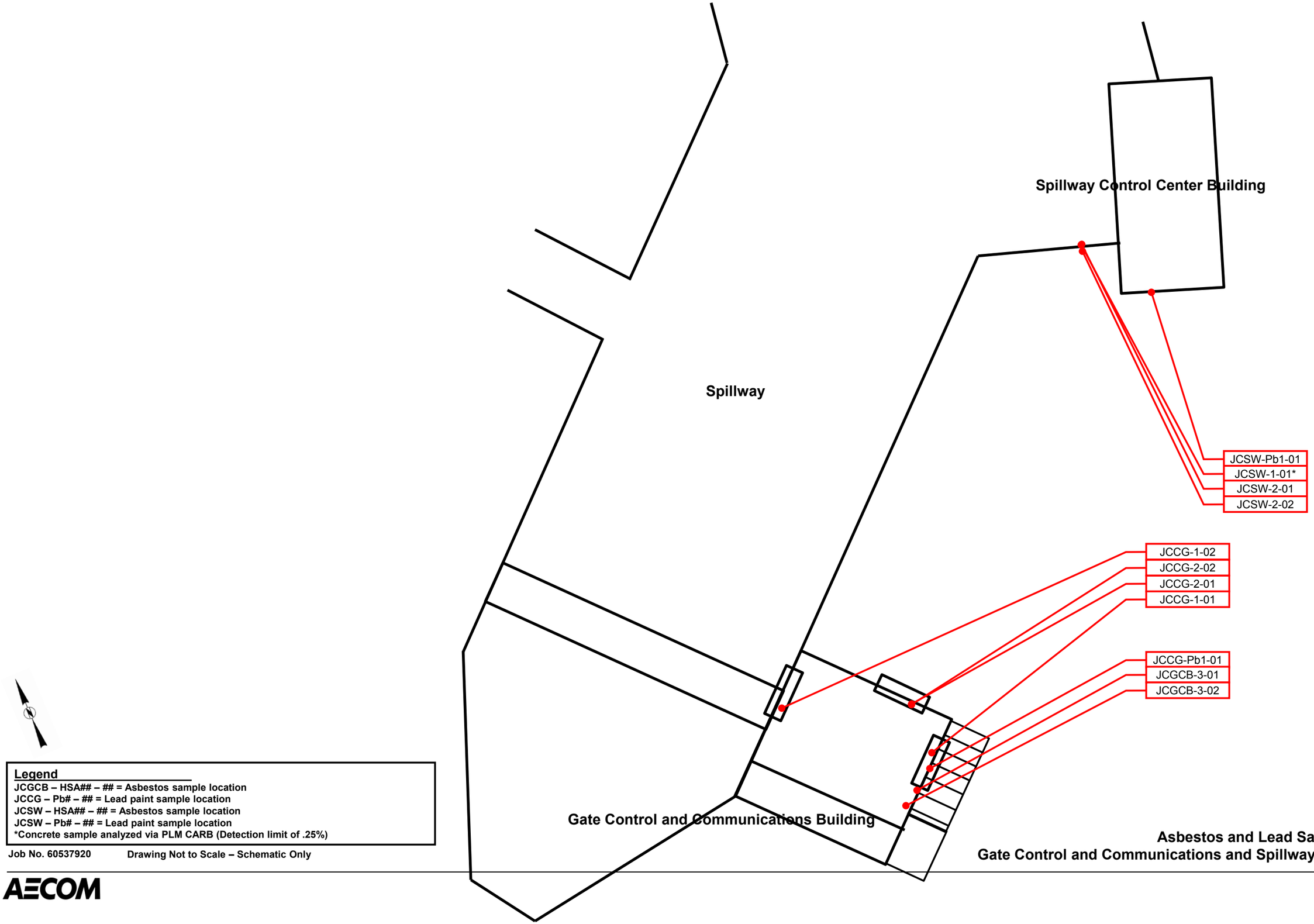
Legend
JCIS – HSA# – ## = Asbestos sample location
JCIS – Pb# – ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 8
Asbestos and Lead Sample Locations
Intake Structure/JC Boyle Dam – North Section

AECOM

JC Boyle Dam
Keno, OR



Legend

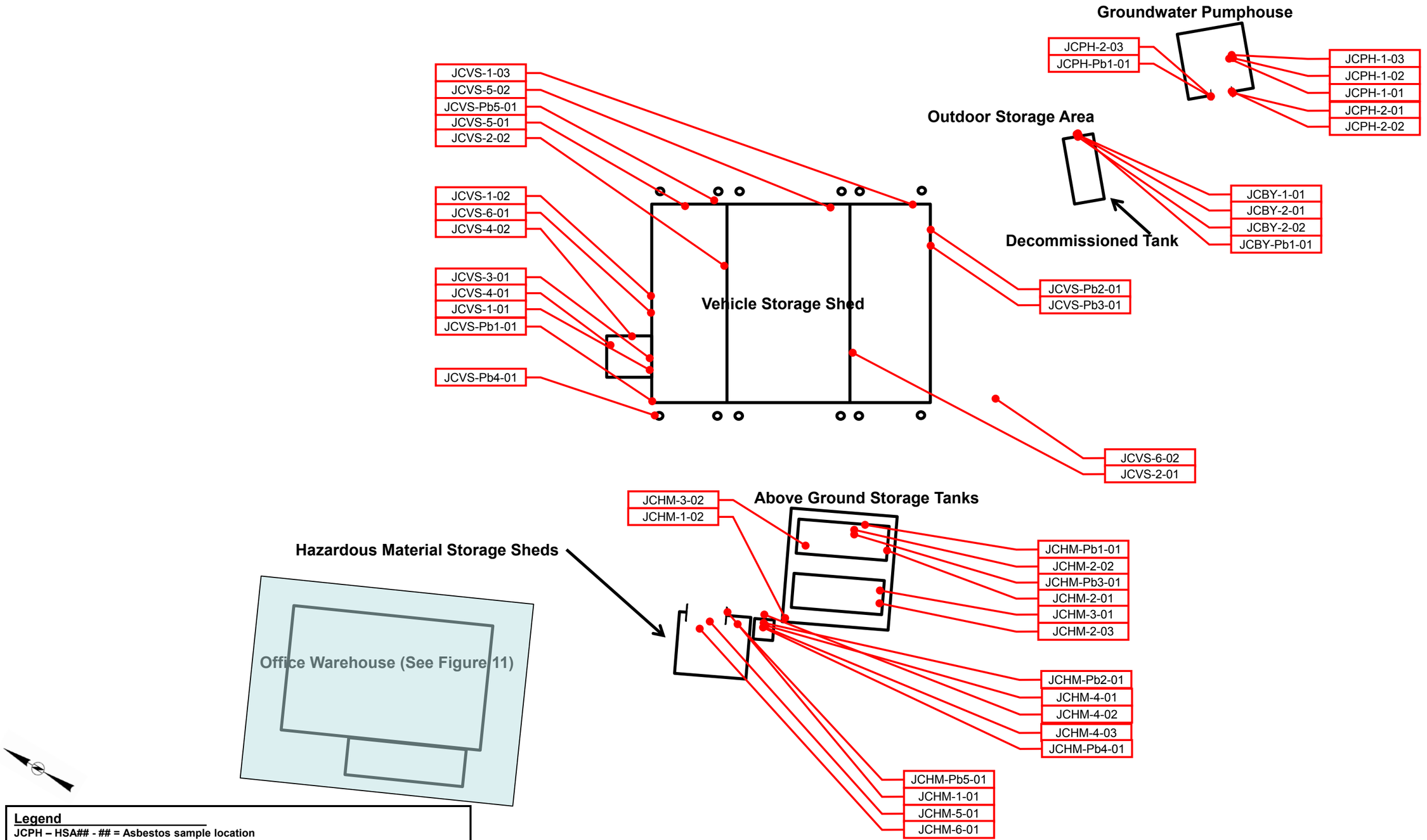
JCGCB – HSA## – ## = Asbestos sample location
JCCG – Pb# – ## = Lead paint sample location
JCSW – HSA## – ## = Asbestos sample location
JCSW – Pb# – ## = Lead paint sample location
*Concrete sample analyzed via PLM CARB (Detection limit of .25%)

Job No. 60537920 Drawing Not to Scale – Schematic Only

AECOM

Figure 9
Asbestos and Lead Sample Locations
Gate Control and Communications and Spillway Control Center

JC Boyle Dam
Keno, OR



Legend

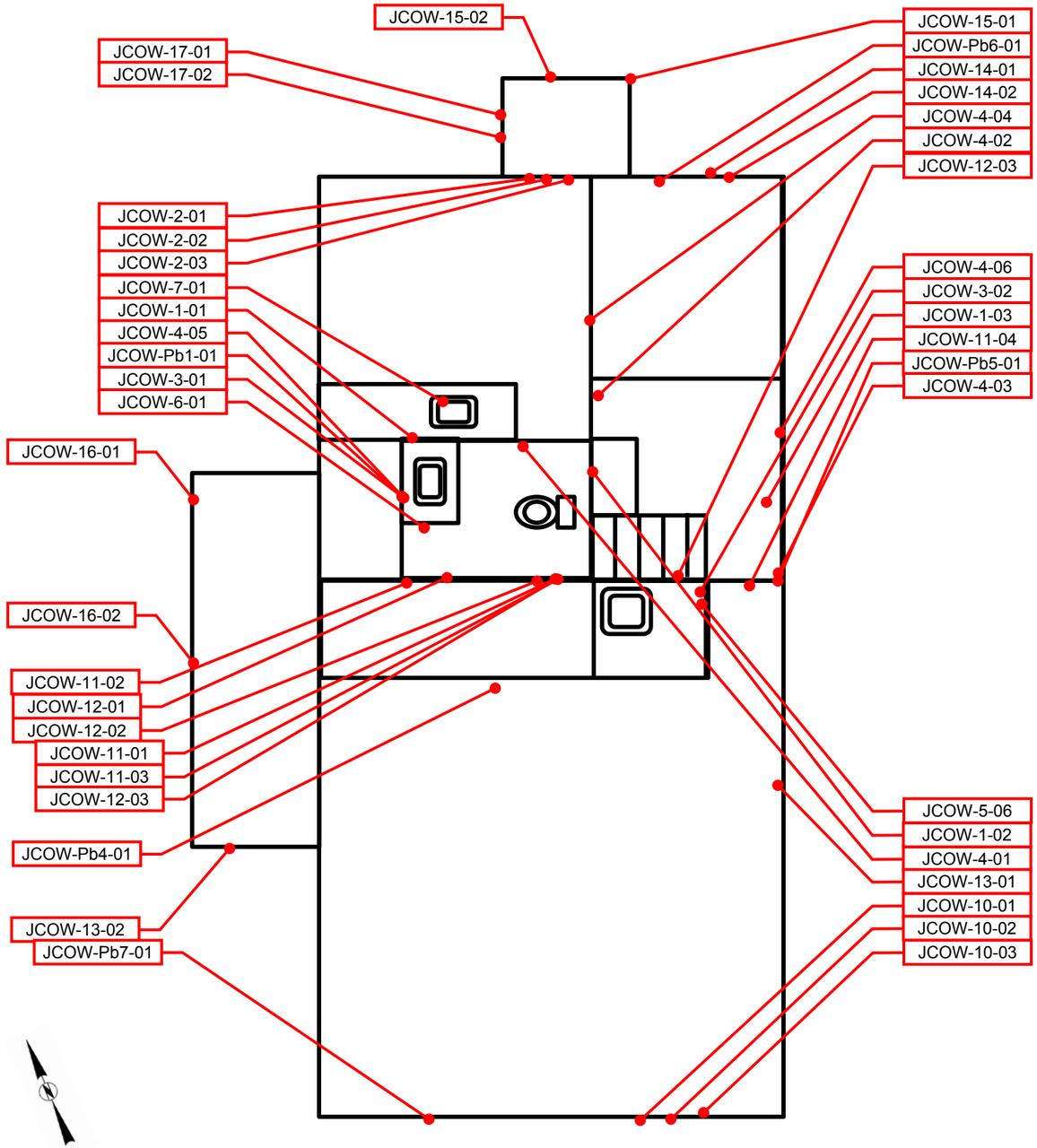
JCPH – HSA## - ## = Asbestos sample location
JCPH – Pb# - ## = Lead paint sample location
JCVS – HSA## - ## = Asbestos sample location
JCVS – Pb# - ## = Lead paint sample location
JCHM – HSA## - ## = Asbestos sample location
JCHM – Pb# - ## = Lead paint sample location

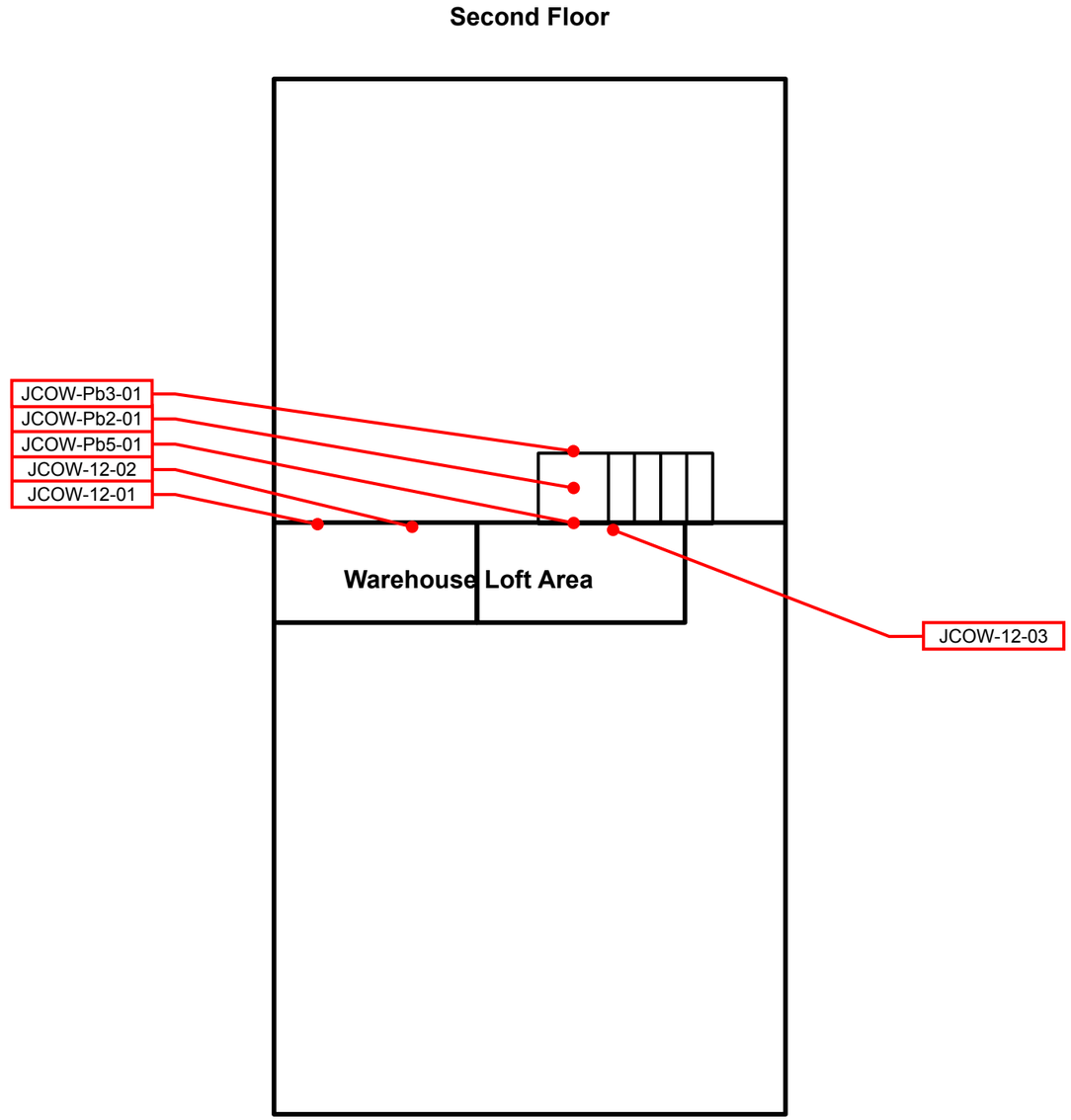
Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 10
Asbestos and Lead Sample Locations
Groundwater Pumphouse, Outdoor Storage Area, Vehicle Storage Shed
Hazardous Materials Storage Sheds and Above Ground Storage Tanks

AECOM

JC Boyle Dam
Keno, OR





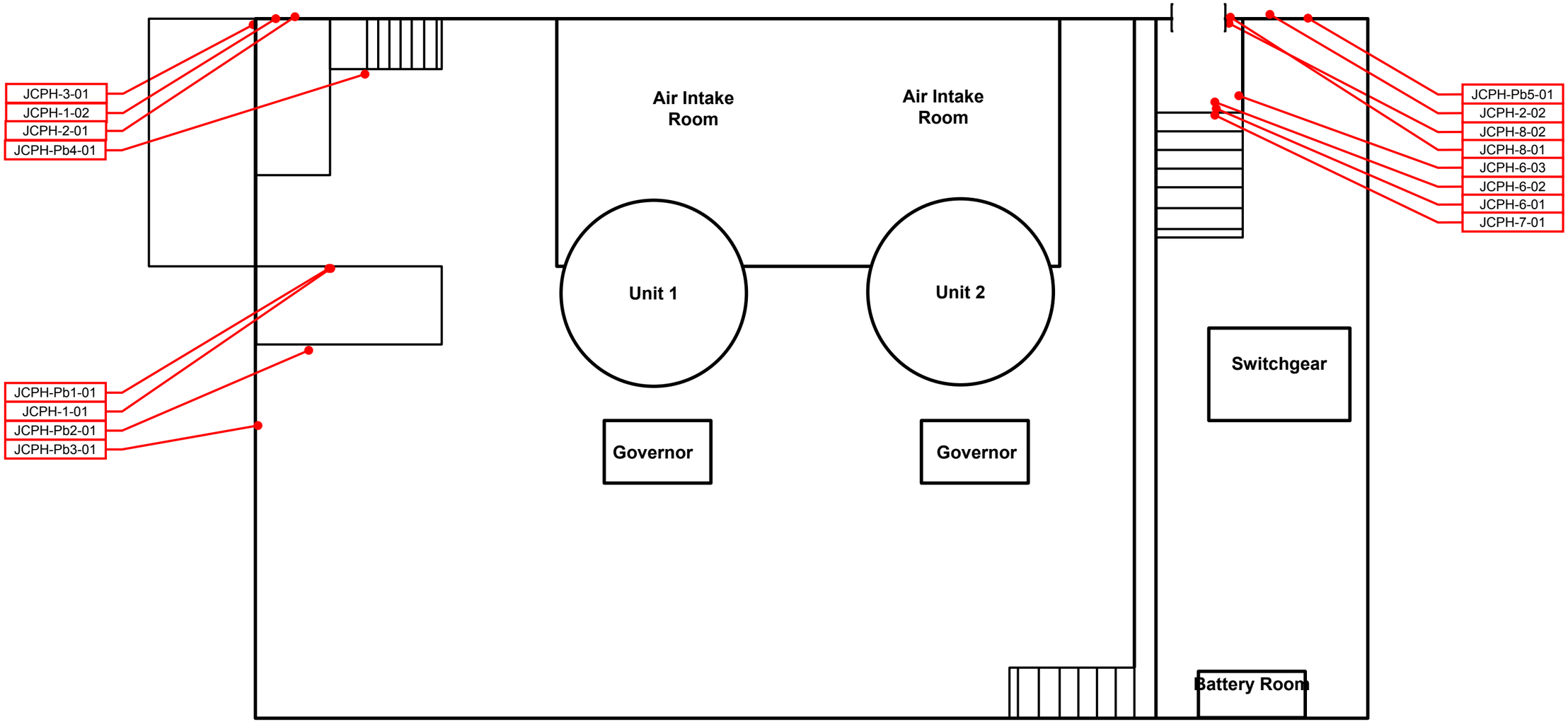
Legend
JCOW – HSA## – ## = Asbestos sample location
JCOW – Pb# – ## = Lead paint sample location

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 11
Asbestos and Lead Sample Locations
Office Warehouse

AECOM

JC Boyle Dam
Keno, OR



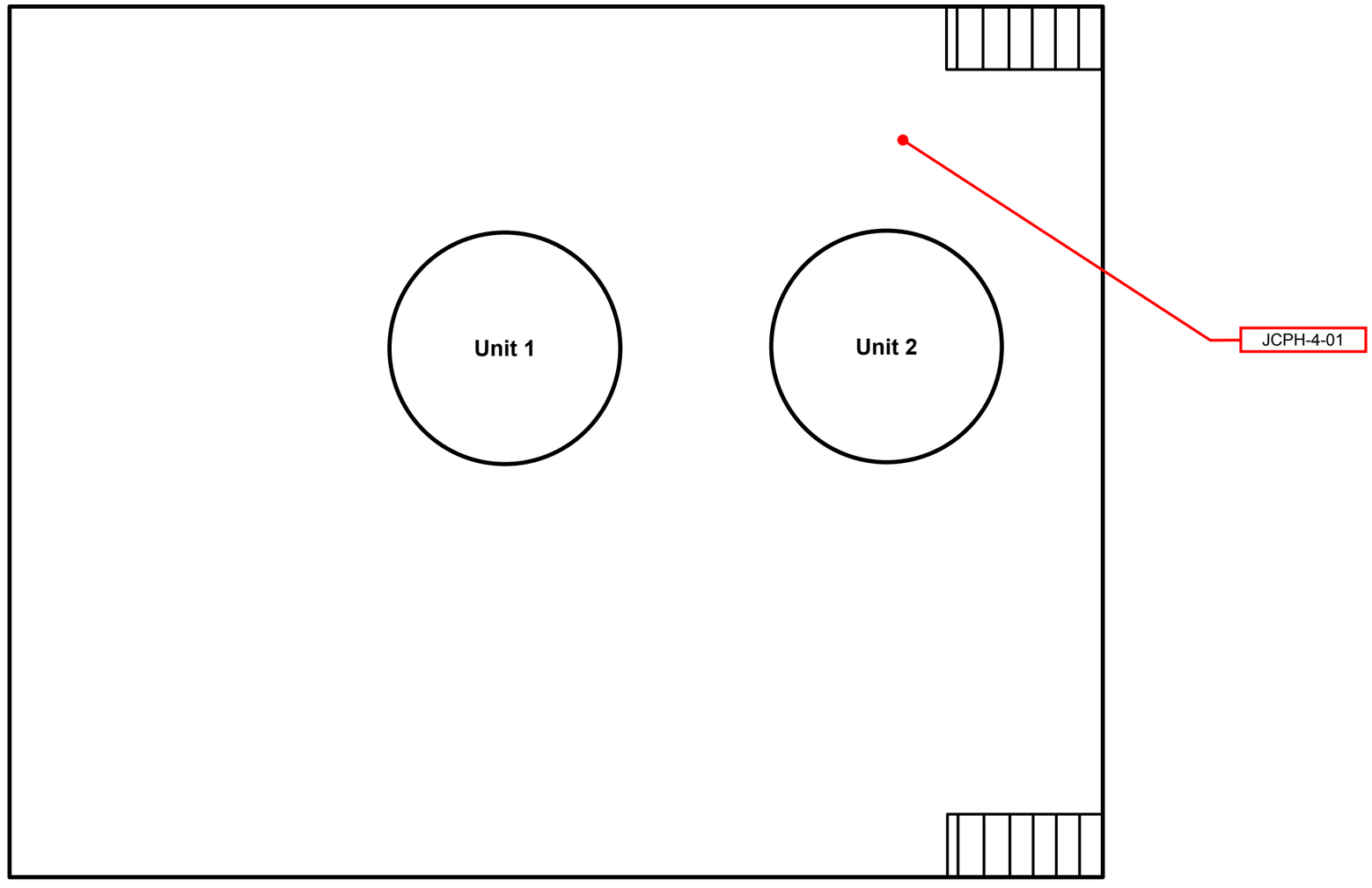
Legend
JCPH – HSA## - ## = Asbestos sample location
JCPH – Pb# - ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 12
Asbestos and Lead Sample Locations
Powerhouse Main Level

AECOM

JC Boyle Dam
Keno, OR



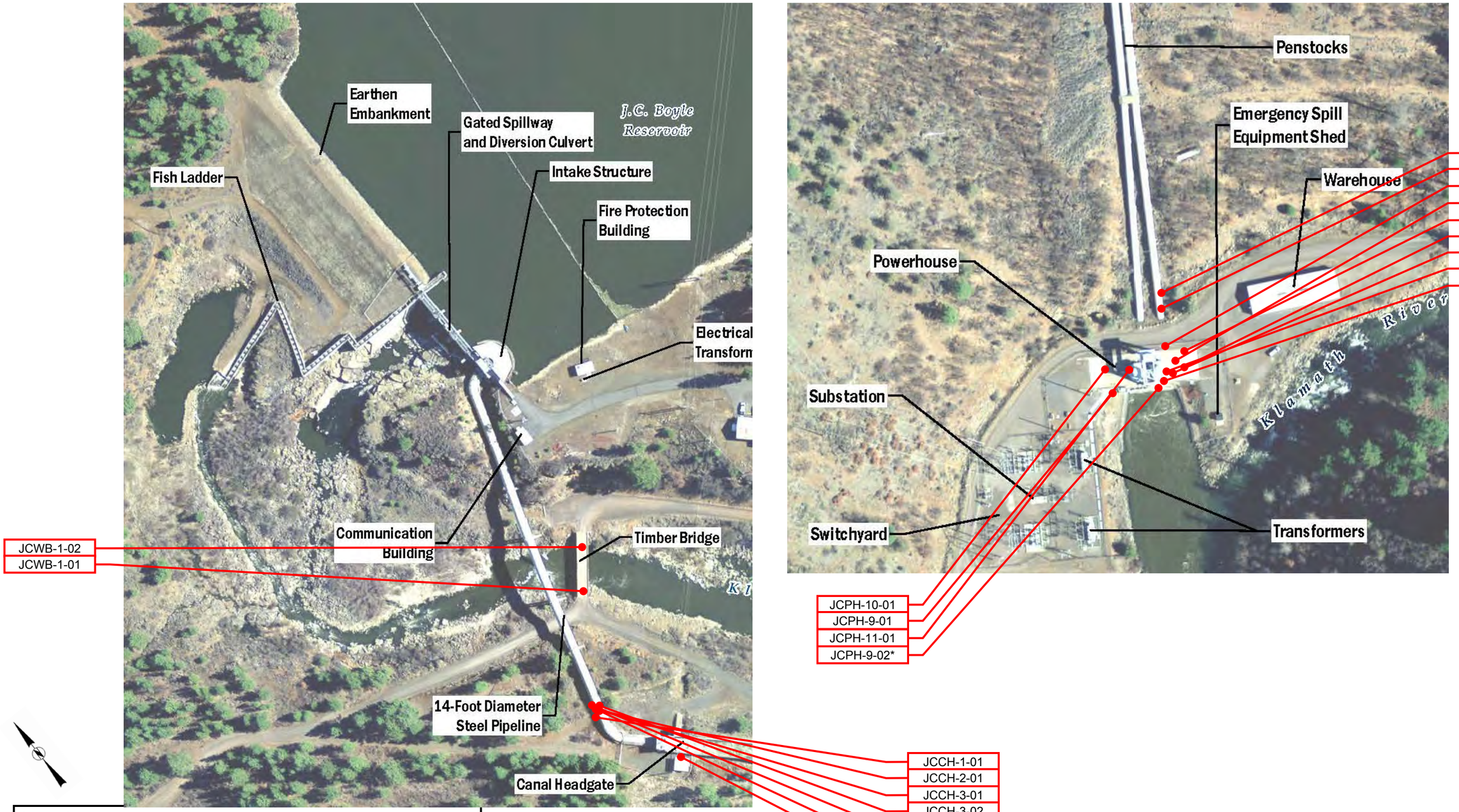
Legend
JCPH – HSA## - ## = Asbestos sample location
JCPH – Pb# - ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 13
Asbestos and Lead Sample Locations
Powerhouse Basement Level

AECOM

JC Boyle Dam
Keno, OR



Legend

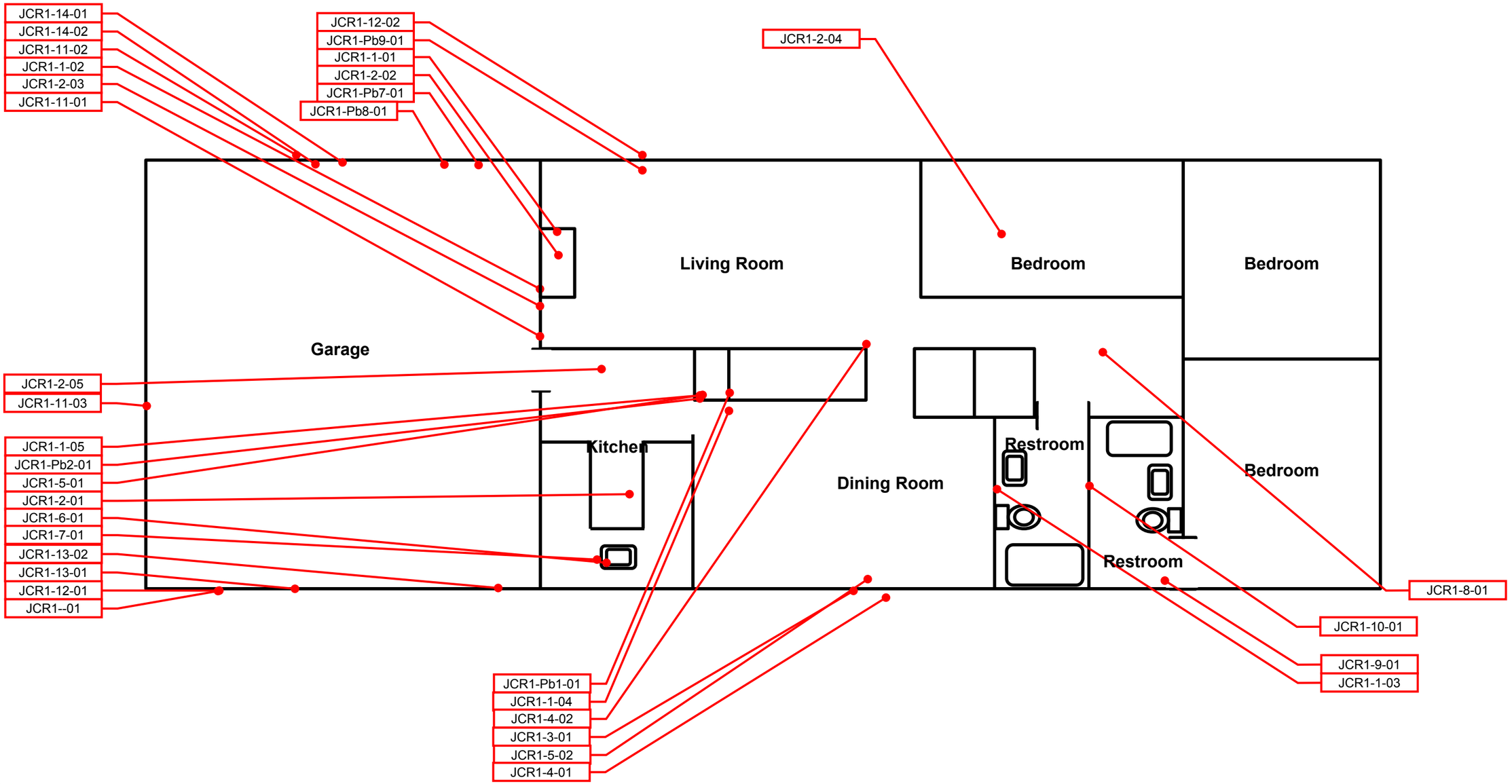
JCWB – HSA## – ## = Asbestos sample location
JCWB – Pb# – ## = Lead paint sample location
JCPH – HSA## – ## = Asbestos sample location
JCPH – Pb# – ## = Lead paint sample location
*Concrete sample analyzed via PLM CARB (Detection limit of .25%)

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 14
Asbestos and Lead Sample Locations
Timber Bridge, Powerhouse Roof, and Penstock

AECOM

JC Boyle Dam
Keno, OR



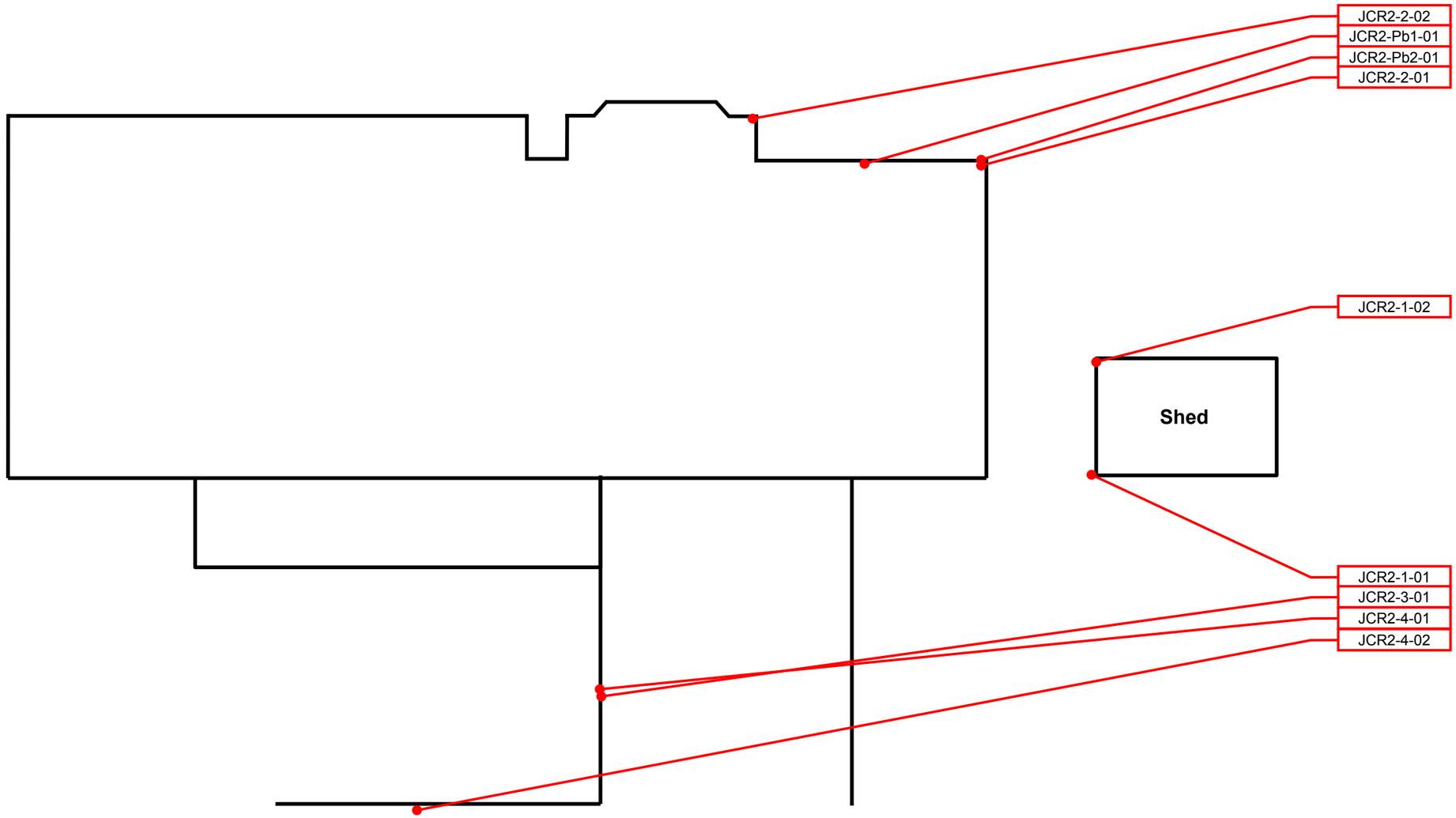
Legend
JCR1 – HSA## - ## = Asbestos sample location
JCR1 – Pb# - ## = Lead paint sample location

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 15
Asbestos and Lead Sample Locations
Residence 1

AECOM

JC Boyle Dam
Keno, OR



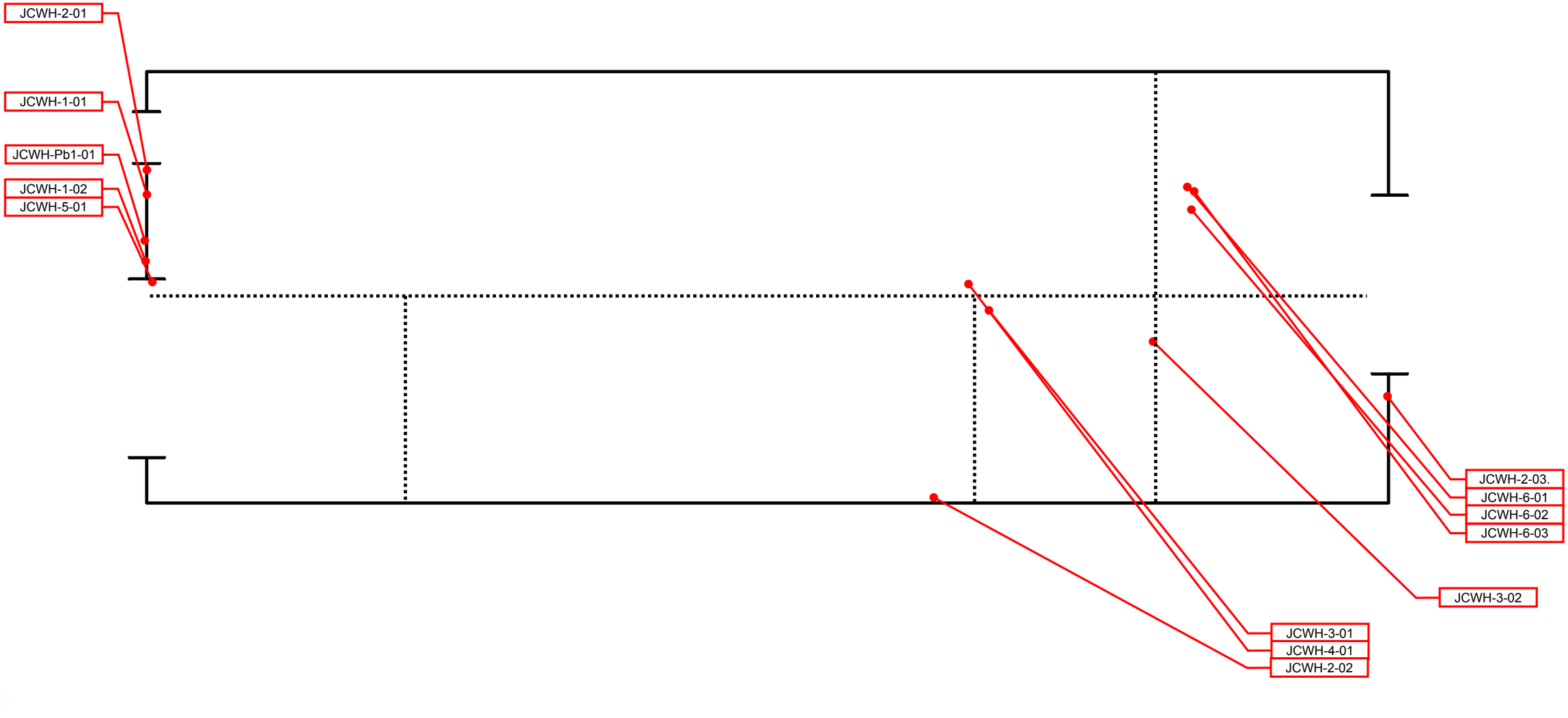
Legend
JCCG – HSA## - ## = Asbestos sample location
JCCG – Pb# - ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 16
Asbestos and Lead Sample Locations
Residence 2

AECOM

JC Boyle Dam
Keno, OR



Legend
JCWH – HSA## - ## = Asbestos sample location
JCWH – Pb# - ## = Lead paint sample location

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 17
Asbestos and Lead Sample Locations
Warehouse

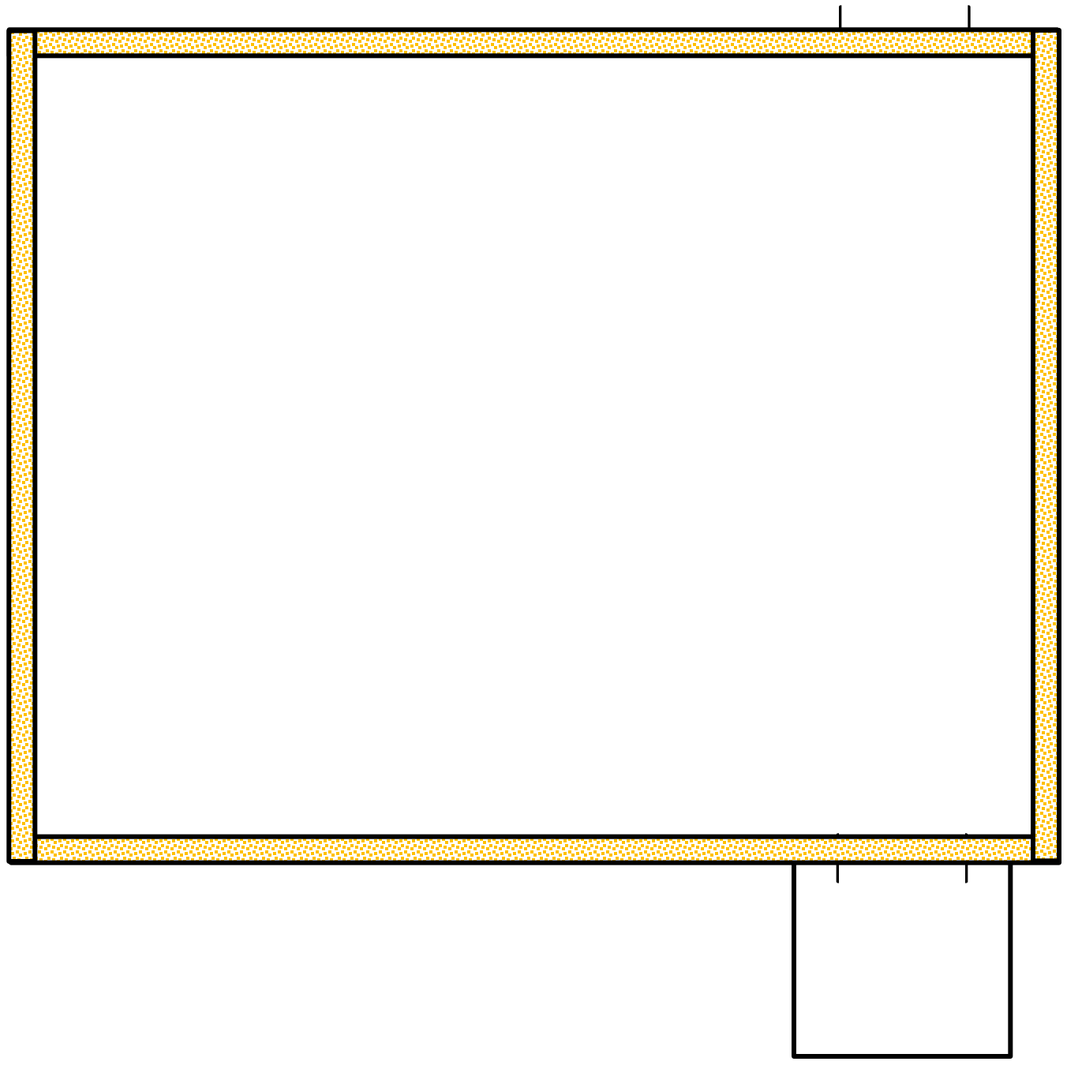
AECOM

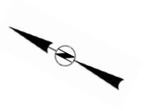
JC Boyle Dam
Keno, OR

Legend

JCCB-04: Asbestos-containing tan caulking (M)

Drawing should be printed in color





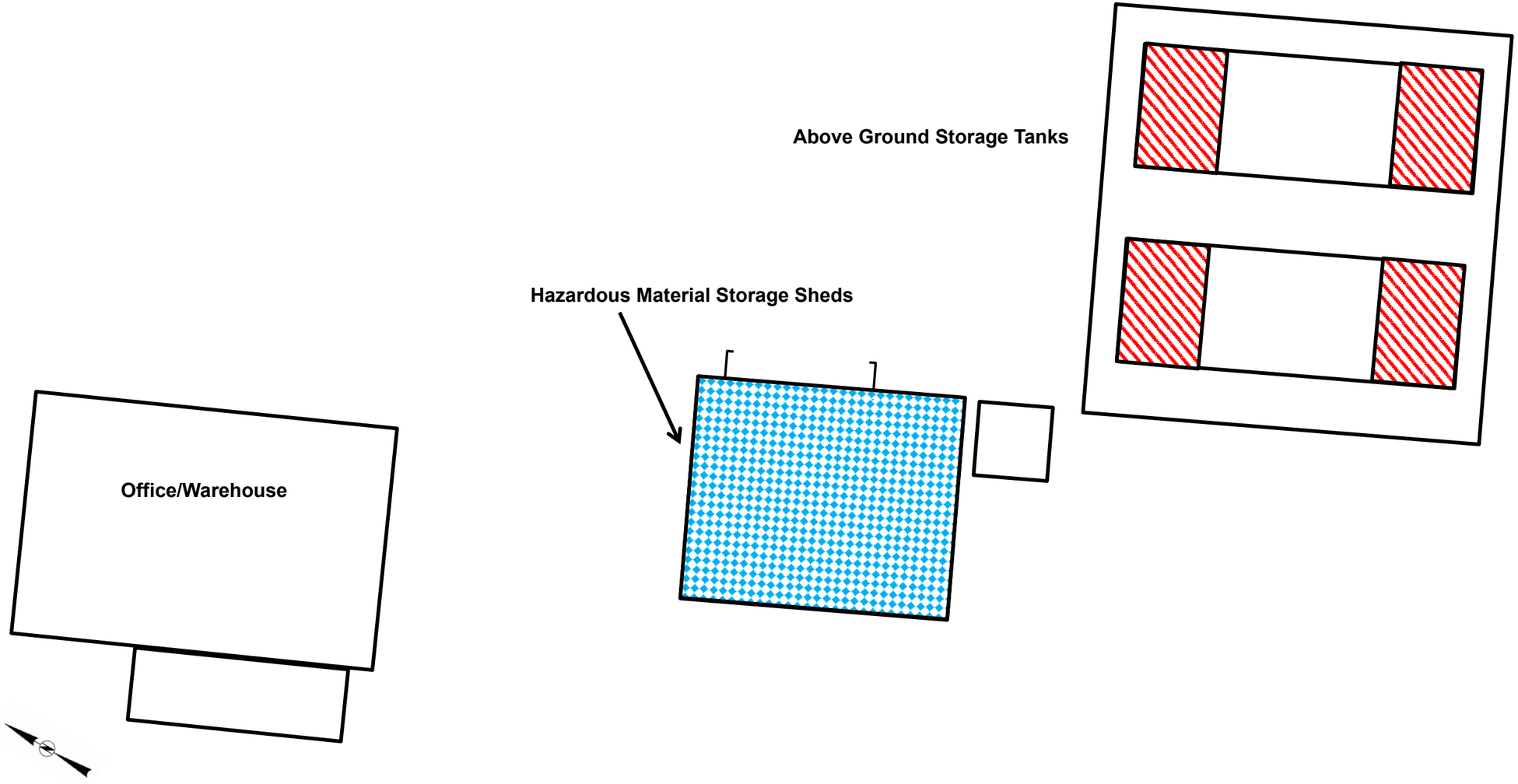
Job No. 60537920

Drawing Not to Scale – Schematic Only

Figure 18
Approximate ACM Locations
Communications Building

AECOM

JC Boyle Dam
Keno, OR



Legend

HSA JCHM-06: Asbestos-containing off-white sealant (M)

HSA JCHM-03:Asbestos-containing off-white caulking (M)

HSA JCHM-01: Asbestos-containing concrete crack sealant (M) Not Shown. Located throughout asphalt pad associated with the HazMat Shed and Above Ground Storage Tanks.

HSA JCOW-08: Assumed asbestos-containing silver woven electrical wire insulation (M) Not Shown. Throughout Office/Warehouse building

Assumed asbestos-containing buried Transite piping is assumed to be throughout the JC Boyle Development. Not shown on figures.

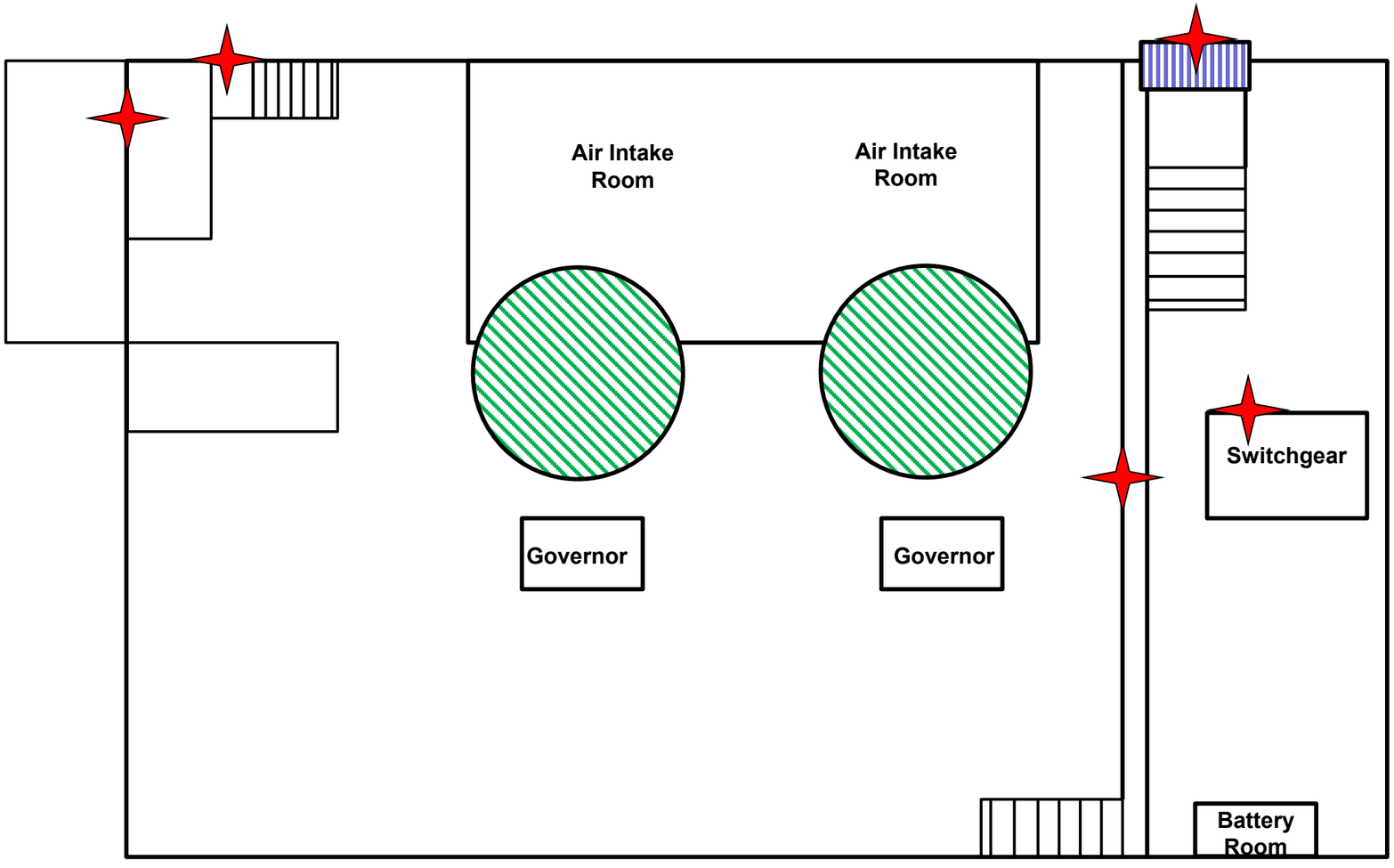
Drawing should be printed in color

Job No. 60537920 **Drawing Not to Scale – Schematic Only**

Figure 19
Approximate ACM Locations
Hazardous Materials Storage Sheds and Above Ground Storage Tanks and Office/Warehouse

AECOM

JC Boyle Dam
Keno, OR



Legend

HSA JCPH-08: Asbestos-containing gray door sealant (M)

HSA JCPH-14: Assumed asbestos-containing metal-clad fire door insulation (M)

HSA JCPH-15: Assumed asbestos-containing wicket gates associated with the turbines (M)

HSA JCPH-05: Assumed asbestos-containing gaskets (M) Not shown. Located throughout both levels of the Powerhouse associated with mechanical equipment.

Drawing should be printed in color

Legend
JCPH – HSA## - ## = Asbestos sample location
JCPH – Pb# - ## = Lead paint sample location

Job No. 60537920 Drawing Not to Scale – Schematic Only

Figure 20
Asbestos and Lead Sample Locations
Powerhouse Main Level

AECOM

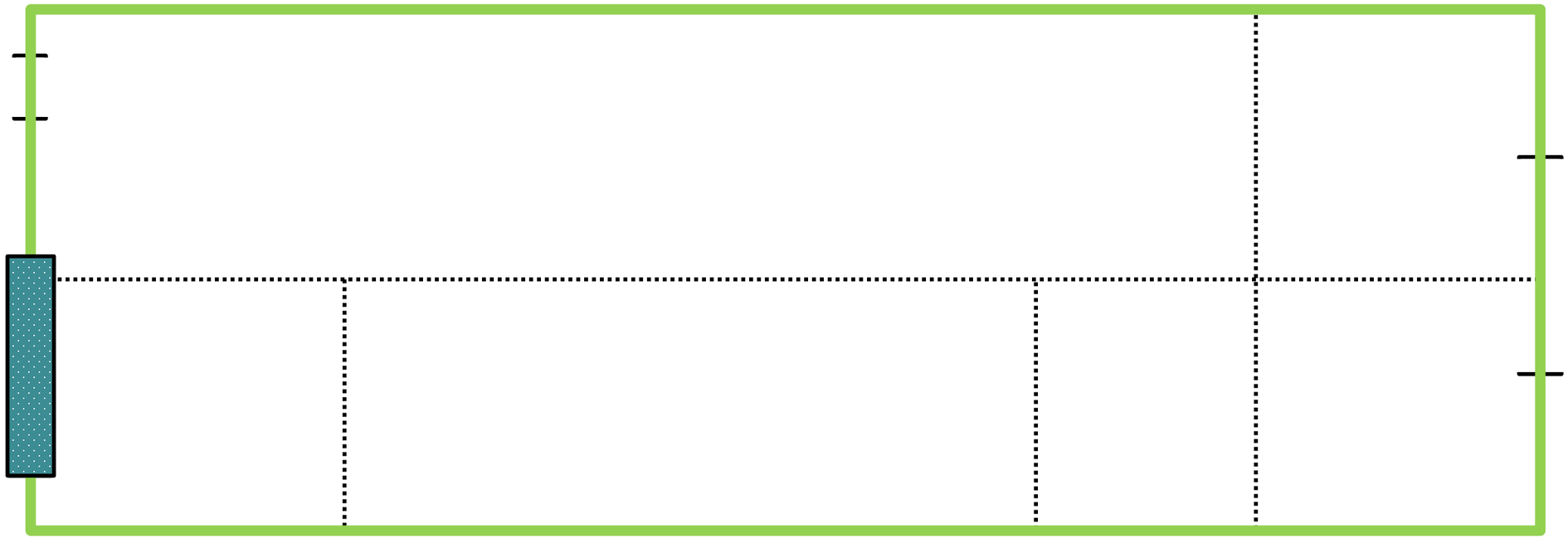
JC Boyle Dam
Keno, OR

Legend

HSA JCWH-01: Asbestos-containing black asphaltic slip sheet with cementitious material (M)

HSA JCWH-05:Asbestos-containing tan brittle caulking (M)

Drawing should be printed in color



Job No. 60537920

Drawing Not to Scale – Schematic Only

Figure 21
Approximate ACM Locations
Warehouse

AECOM

JC Boyle Dam
Keno, OR

APPENDIX B HSA PHOTOLOGS

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Canal Headgate and 14' Pipeline	**Project No.** 60537920

Photo No./ Material ID: ---	**Date:** 8/20/2018 to 8/23/2018
Structure: JC Boyle Dam Canal Headgate and 14' Pipeline	

Photo No./ Material ID: JCCH - 01	**Date:** 8/20/2018 to 8/23/2018
Structure/Material Location: JC Boyle Dam Canal Headgate and 14' Pipeline/ Around 14' diversion pipeline	
***Description (by layer):** 1: Black asphaltic sealant (M)	

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name:	**Site Location:**	**Project No.**
Klamath River Renewal Corporation	J.C. Boyle Development, Canal Headgate and 14' Pipeline	60537920

Photo No./ Material ID:	**Date:**
JCCH - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Canal Headgate and 14' Pipeline/ Around 14' diversion pipe down spout

***Description (by layer):**

1: Red gasket (M)

Photo No./ Material ID:	**Date:**
JCCH - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Canal Headgate and 14' Pipeline/ 14' diversion pipeline

***Description (by layer):**

1: Silver paint (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Gate Control and Communications Building	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	12/06/2018

Structure:

JC Boyle Dam Gate Control and Communications Building

Photo No./ Material ID:	**Date:**
JCGCB - 01	12/06/2018

Structure/Material Location:

JC Boyle Dam Gate Control and Communications Building/ Interior window frames

***Description (by layer):**

1: Gray brittle window putty (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Gate Control and Communications Building	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCGCB - 02	12/06/2018

Structure/Material Location:

JC Boyle Dam Gate Control and Communications Building / Interior wall at electrical conduit penetrations

***Description (by layer):**

1: Red fire stop sealant (M)

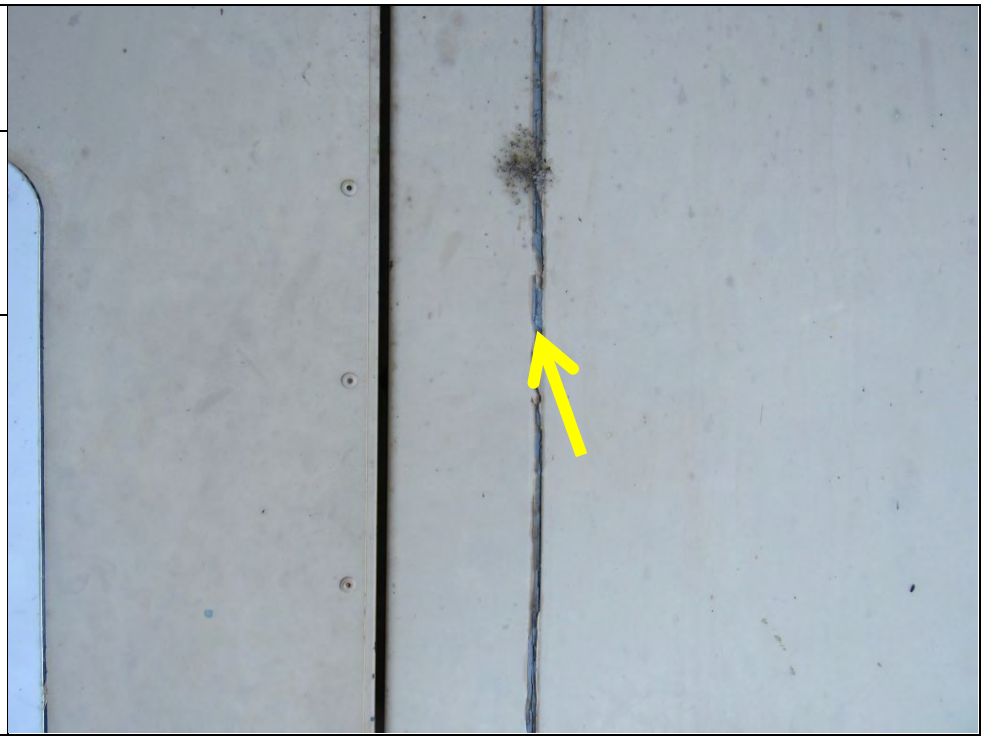
Photo No./ Material ID:	**Date:**
JCGCB - 03	12/06/2018

Structure/Material Location:

JC Boyle Dam Gate Control and Communications Building / Exterior siding seams

***Description (by layer):**

1: Gray sealant (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Emergency Spill Equipment Shed	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Emergency Spill Equipment Shed

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Fire Protection Building	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Fire Protection Building

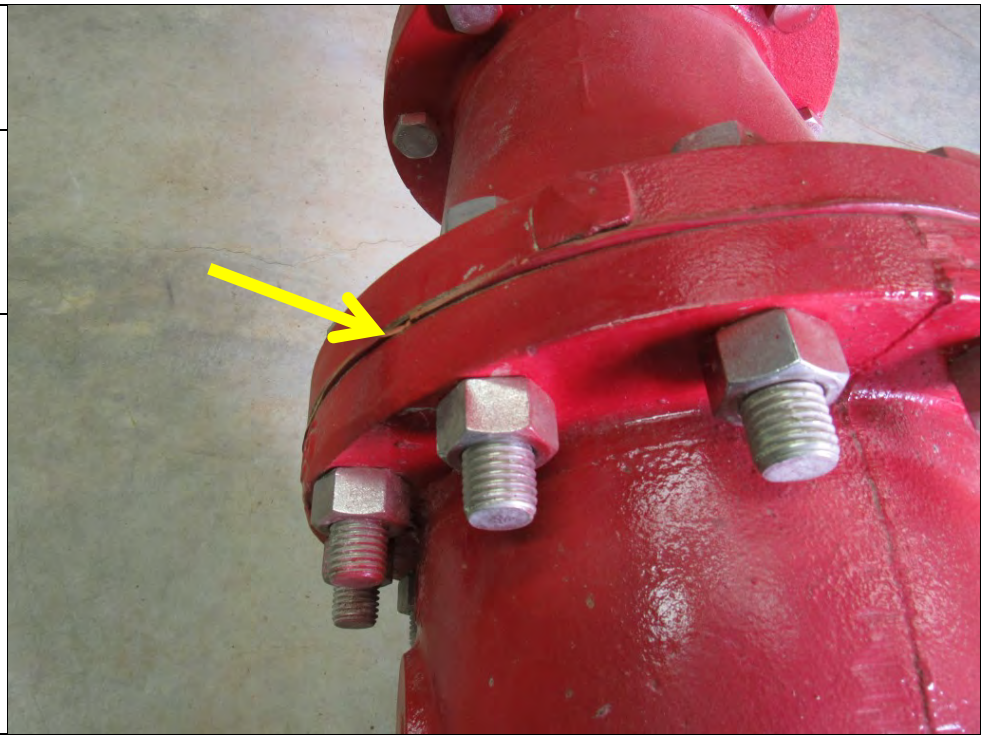
Photo No./ Material ID:	**Date:**
JCFP - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Fire Protection Building/ Piping throughout Fire Protection Building

***Description (by layer):**

1: Red gasket (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Fire Protection Building	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCFP - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Fire Protection Building/ Exterior asphalt crack repairs

***Description (by layer):**

1: Black rubber gasket (M)

Photo No./ Material ID:	**Date:**
JCFP - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Fire Protection Building/ Interior of metal double doors (deterioration exposed insulation)

***Description (by layer):**

1: Fire door insulation (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Fire Protection Building	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCFP - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Fire Protection Building/ Exterior walls

***Description (by layer):**

1: Gray CMU and grout (M)

Photo No./ Material ID:	**Date:**
JCFP - 05	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Fire Protection Building/ Around exterior vents

***Description (by layer):**

1: Off-white sealant (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Groundwater Pumphouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Groundwater Pumphouse

Photo No./ Material ID:	**Date:**
JCPH - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Groundwater Pumphouse/ Out of service storage tank in Groundwater Pumphouse

***Description (by layer):**

1: Tan paper backing with black mastic (M)
2: Pink fiberglass batt insulation (T)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Groundwater Pumphouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCPH - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Groundwater Pumphouse/ Underneath corrugated metal siding, throughout exterior

***Description (by layer):**

1: Black asphaltic vapor barrier paper (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name:	**Site Location:**	**Project No.**
Klamath River Renewal Corporation	J.C. Boyle Development, HazMat Shed and Above Ground Storage Tanks	60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam HazMat Shed and Above Ground Storage Tanks

Photo No./ Material ID:	**Date:**
JCHM - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam HazMat Shed and Above Ground Storage Tanks/

***Description (by layer):**

1: Asphalt (M)
2: Asphaltic concrete crack sealant (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name:	**Site Location:**	**Project No.**
Klamath River Renewal Corporation	J.C. Boyle Development, HazMat Shed and Above Ground Storage Tanks	60537920

Photo No./ Material ID:	**Date:**
JCHM - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam HazMat Shed and Above Ground Storage Tanks/ On above ground storage tank concrete casing in Fuel Shed

***Description (by layer):**

1: Textured coating (M)

Photo No./ Material ID:	**Date:**
JCHM - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam HazMat Shed and Above Ground Storage Tanks/ On above ground storage tank concrete casing in Fuel Shed piping

***Description (by layer):**

1: Off-white caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name:	**Site Location:**	**Project No.**
Klamath River Renewal Corporation	J.C. Boyle Development, HazMat Shed and Above Ground Storage Tanks	60537920

Photo No./ Material ID:	**Date:**
JCHM - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam HazMat Shed and Above Ground Storage Tanks/ Roof of small storage shed adjacent to HazMat Shed

***Description (by layer):**

1: Thick silver paint (M)

Photo No./ Material ID:	**Date:**
JCHM - 05	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam HazMat Shed and Above Ground Storage Tanks/ On roll-up door to HazMat Shed

***Description (by layer):**

1: White caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, HazMat Shed and Above Ground Storage Tanks	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCHM - 06	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam HazMat Shed and Above Ground Storage Tanks/ Around exterior vents

***Description (by layer):**

1: Off-white sealant (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Intake Structure

Photo No./ Material ID:	**Date:**
JCIS - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Driveway area of intake structure

***Description (by layer):**

1: Concrete pad (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCIS - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Driveway area of intake structure

***Description (by layer):**

1: Asphaltic concrete crack sealant (M)

Photo No./ Material ID:	**Date:**
JCIS - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Intake structure walkway

***Description (by layer):**

1: Textured cementitious coating on walkway (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCIS - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ On wood bridge to intake structure

***Description (by layer):**

1: Asphaltic creosote (M)

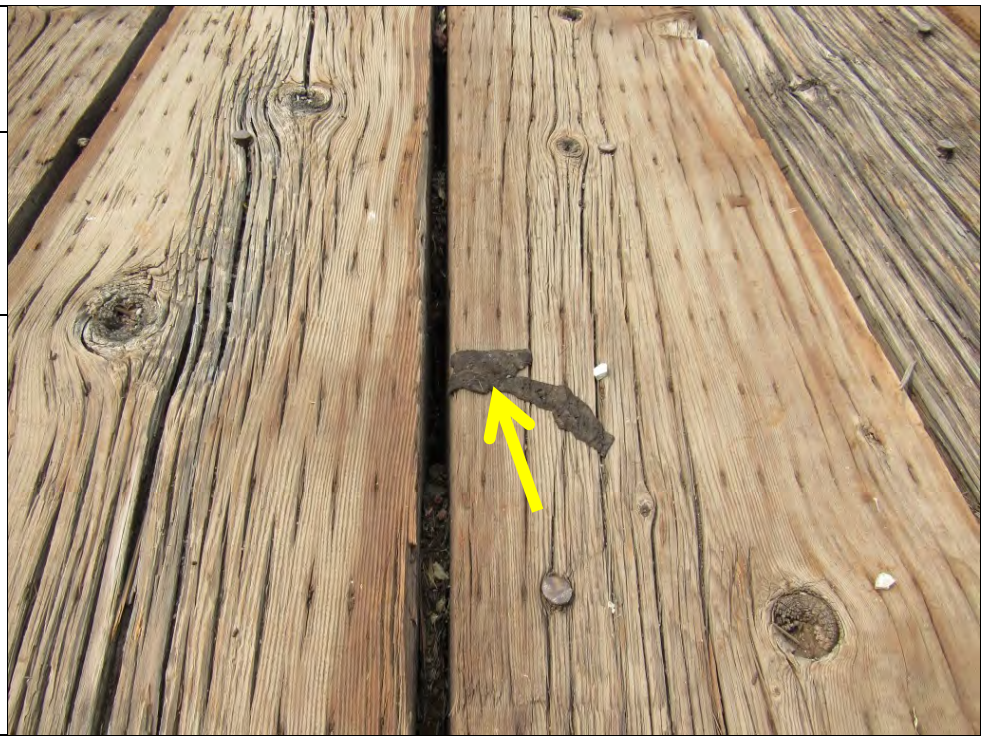

Photo No./ Material ID:	**Date:**
JCIS - 05	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Flex pipe connection associated with pump inside Fish Screen Building

***Description (by layer):**

1: Brown woven gasket (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCIS - 06	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Piping connecting traveling water screens inside Fish Screen Building

***Description (by layer):**

1: Thick silver paint (M)
2: Paint on piping (M)

Photo No./ Material ID:	**Date:**
JCIS - 07	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ At concrete wall/wood ceiling interface inside Fish Screen Building

***Description (by layer):**

1: White caulking (M)
2: Brown caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCIS - 08	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Around exterior vents

***Description (by layer):**

1: Black asphaltic mastic and paper (M)
2: Fiberglass batt insulation (T)
3: Off-white paint (M)

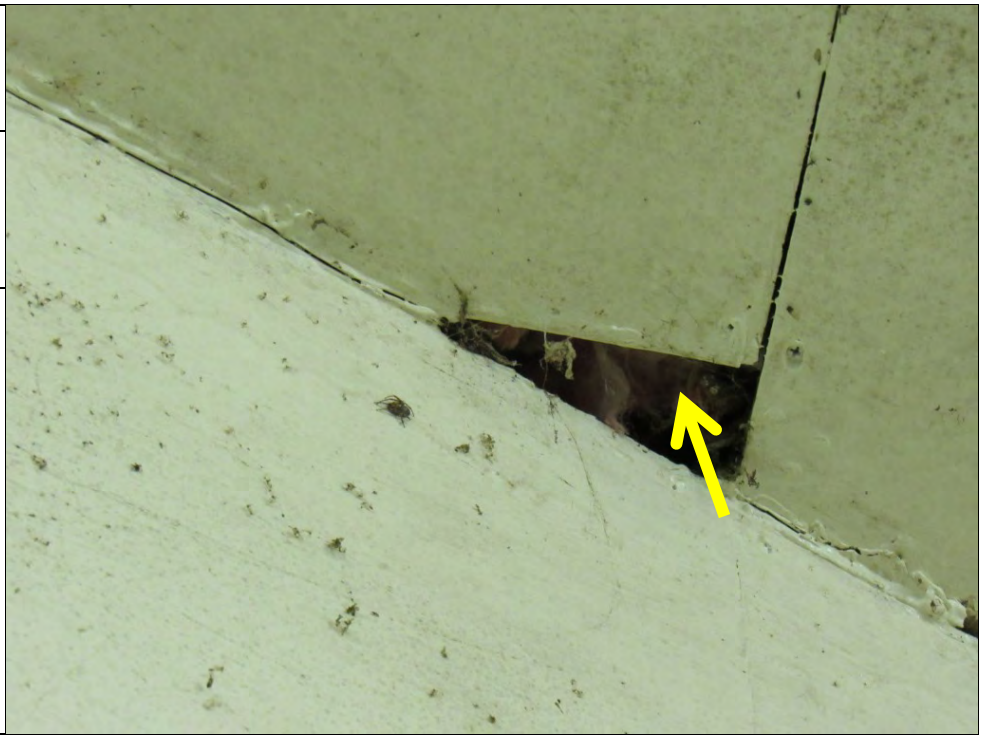


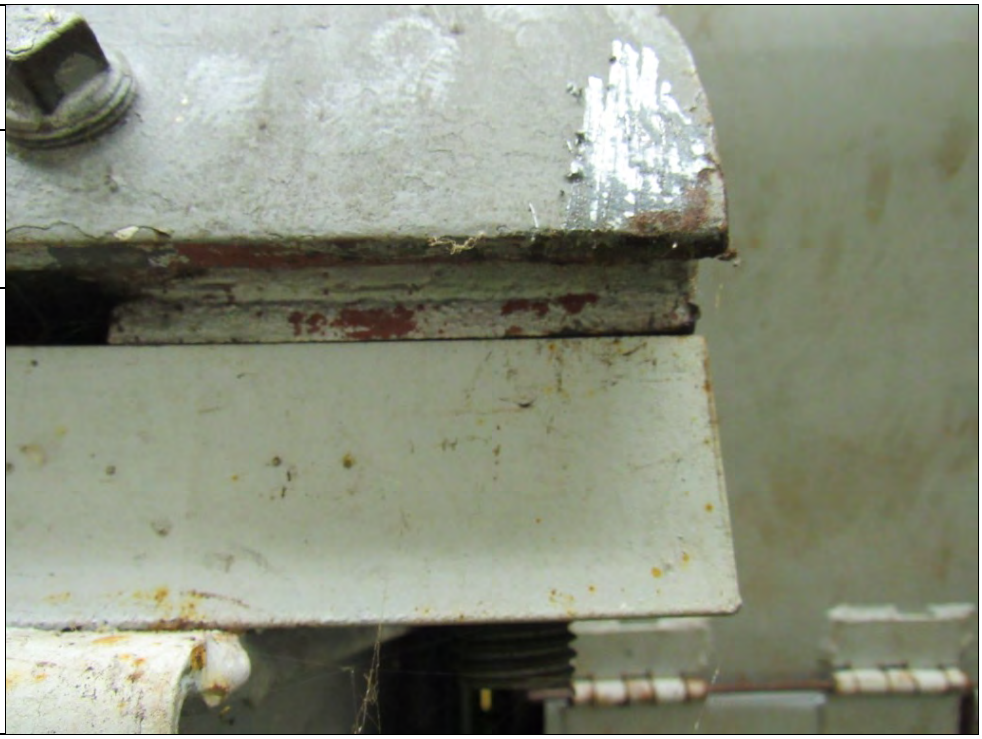
Photo No./ Material ID:	**Date:**
JCIS - 09	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Around exterior vents

***Description (by layer):**

1: Thick silver paint (M)
2: Paint on piping (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCIS - 10	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Structure around stop logs

***Description (by layer):**

1: Concrete stop log gate structural bed (M)

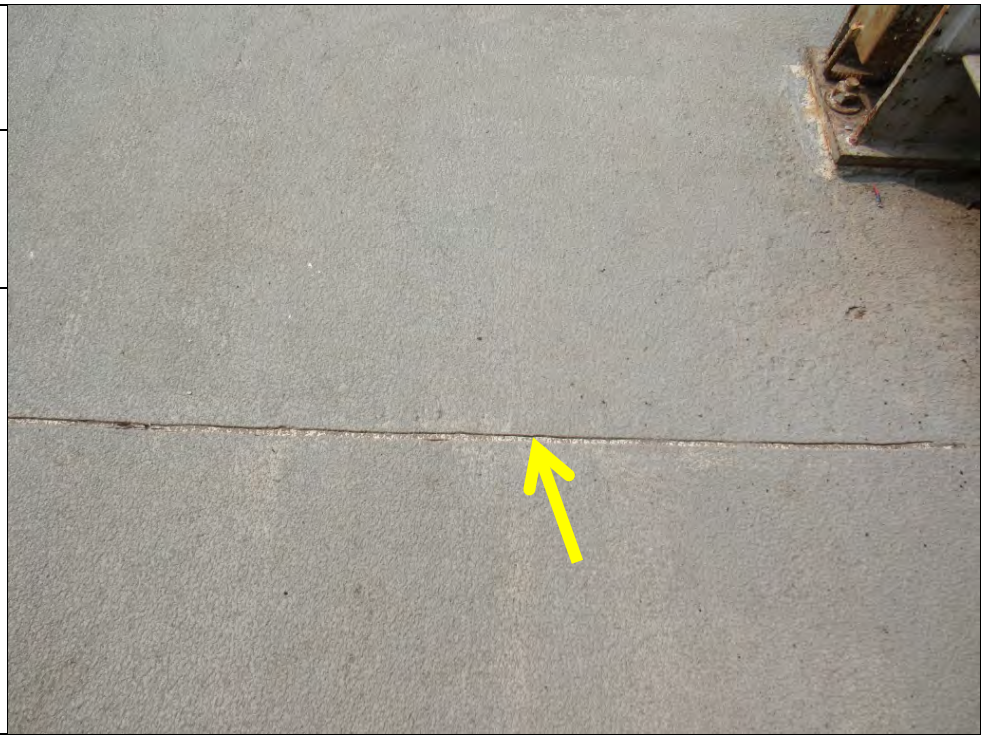
Photo No./ Material ID:	**Date:**
JCIS - 11	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ At walkway expansion joints

***Description (by layer):**

1: White sealant (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCIS - 12	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Around exterior vents

***Description (by layer):**

1: Light weight concrete coating (M)
2: Light weight concrete coating (M)

Photo No./ Material ID:	**Date:**
JCIS - 13	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Stop log structural cage frame

***Description (by layer):**

1: Thick silver paint (M)
2: Residual corroded metal (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCIS - 14	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ At beginning of wood bridge

***Description (by layer):**

1: Concrete patch (M)

No Photo

Photo No./ Material ID:	**Date:**
JCIS - 15	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Exterior of intake structure, below fish screen house lower section

***Description (by layer):**

1: Thick silver paint (M)
2: Residual corroded metal (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Intake Structure	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCIS - 16	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Intake Structure/ Underneath wood walls of Intake Structure Reservoir Level Building

***Description (by layer):**

1: Black asphaltic vapor barrier paper (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Office and Warehouse

Photo No./ Material ID:	**Date:**
JCOW - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Flooring in break room, shower room, office, hallway, and restroom

***Description (by layer):**

1: Gray vinyl floor sheeting with light gray pebble pattern (M)
2: Gray paper backing with mastic (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCOW - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Ceiling in entry way

***Description (by layer):**

1: 12"x12" white tongue and groove nailed-on ceiling tiles with fissure pattern (M)

Photo No./ Material ID:	**Date:**
JCOW - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Walls throughout office main floor

***Description (by layer):**

1: 4" tan rubber cove base (M)
2: White mastic (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCOW - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Associated with generator piping, pumphouse lower level

***Description (by layer):**

1: White spray-applied wall texture (S)
2: White gypsum wallboard with paper (M)

Photo No./ Material ID:	**Date:**
JCOW - 05	---

Structure/Material Location:

Not used

***Description (by layer):**

Not Used

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCOW - 06	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Restroom counter

***Description (by layer):**

1: White sink caulking (M)

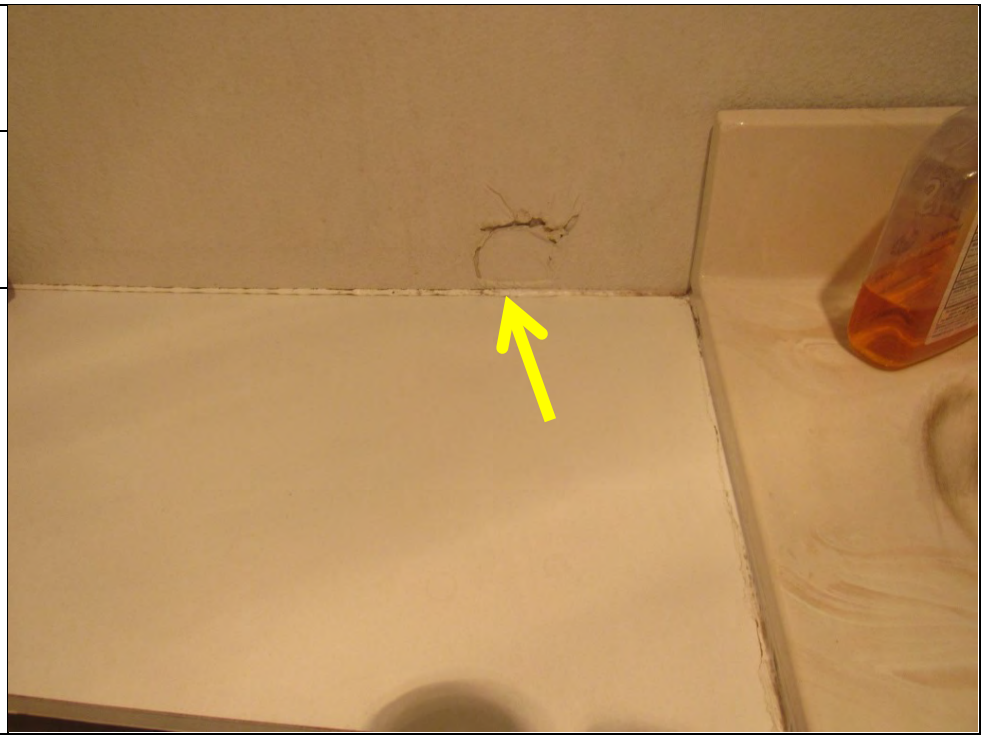


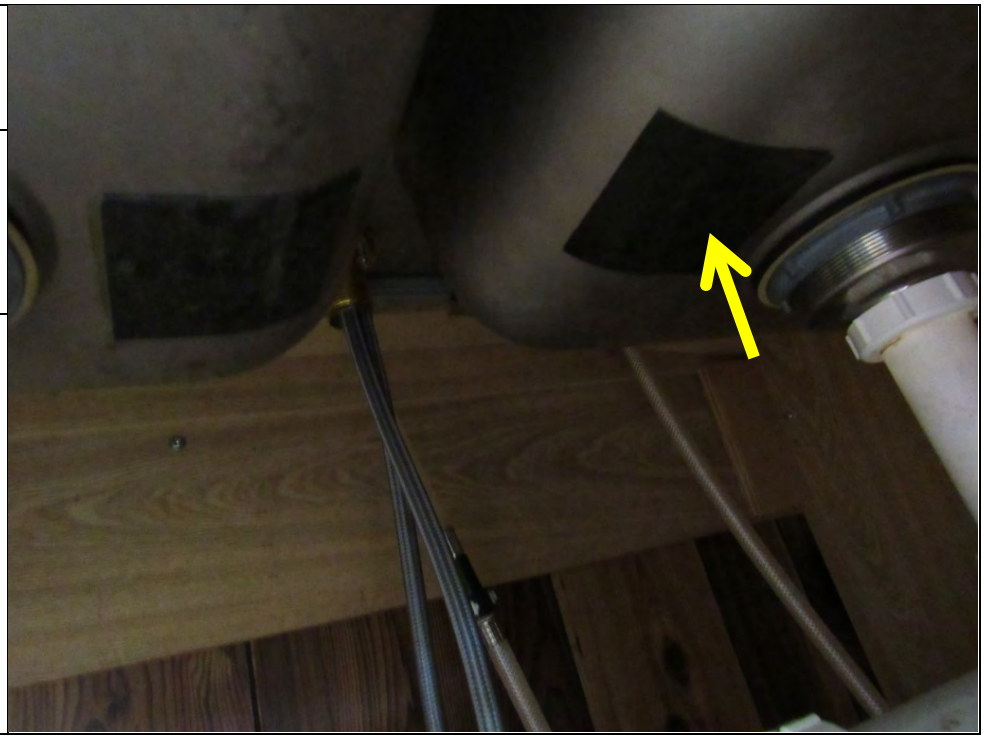
Photo No./ Material ID:	**Date:**
JCOW - 07	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Underneath restroom counter

***Description (by layer):**

1: Black plastic sink patch (M)
2: Yellow mastic (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCOW - 08	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Throughout Office and Warehouse

***Description (by layer):**

Assumed asbestos-containing silver woven electrical wire insulation (M)

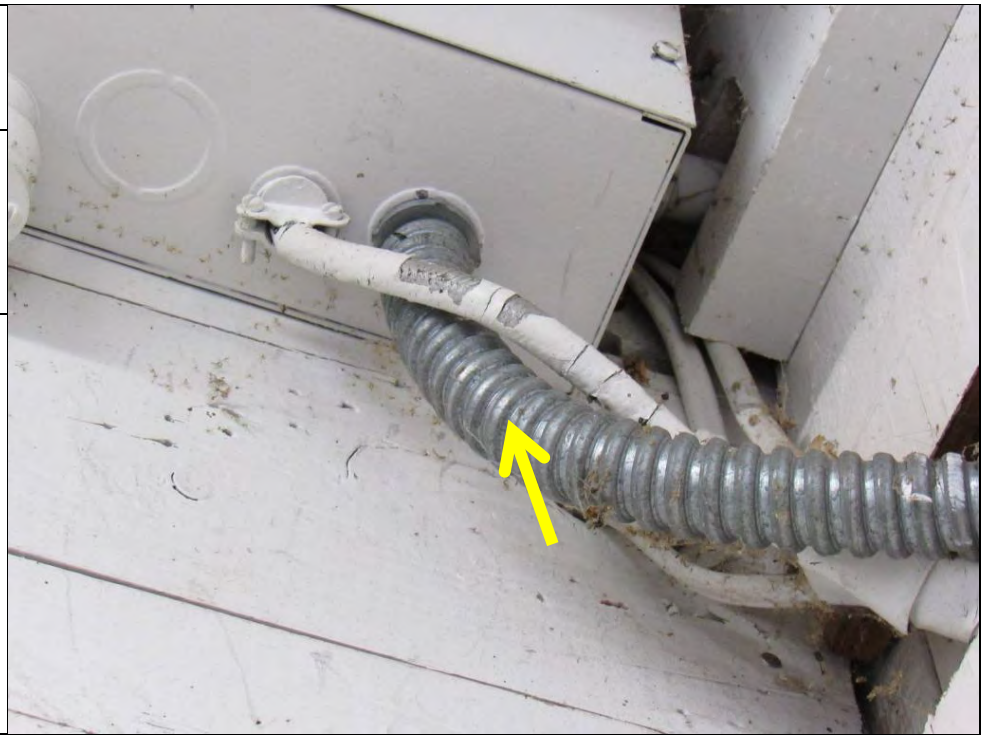
Photo No./ Material ID:	**Date:**
JCOW - 09	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Throughout Office and Warehouse

***Description (by layer):**

Assumed electrical wire insulation inside conduit (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCOW - 10	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Insulation inside two roll-up doors in Warehouse

***Description (by layer):**

1: Yellow mastic with foam and foil backing (M)
2: Off-white foam material (M)

Photo No./ Material ID:	**Date:**
JCOW - 11	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Above ceiling in attic of Warehouse

***Description (by layer):**

1: Black asphaltic mastic with paper (M)
2: Pink fiberglass batt insulation (T)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID: JCOW - 12	**Date:** 8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Behind wood wall, loft area of Warehouse

***Description (by layer):**

1: Black asphaltic mastic with paper (M)
2: Yellow fiberglass batt insulation (T)

Photo No./ Material ID: JCOW - 13	**Date:** 8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ At base of exterior metal walls, at wall/concrete interface

***Description (by layer):**

1: Black caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCOW - 14	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Exterior window panes

***Description (by layer):**

1: White brittle window putty (M)

Photo No./ Material ID:	**Date:**
JCOW - 15	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Underneath corrugated metal roof, throughout

***Description (by layer):**

1: Black asphaltic roofing paper (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Office and Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCOW - 16	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Underneath corrugated metal siding of Office Warehouse shed

***Description (by layer):**

1: Brown asphaltic vapor barrier paper (M)

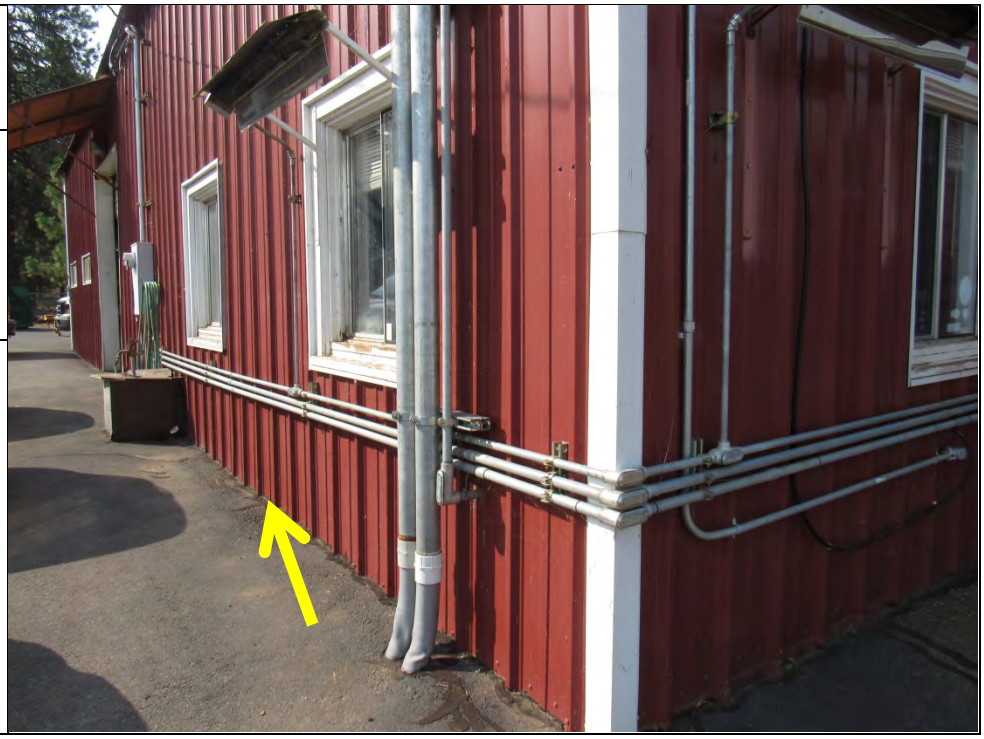
Photo No./ Material ID:	**Date:**
JCOW - 17	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Office and Warehouse/ Underneath corrugated metal siding throughout Office Warehouse

***Description (by layer):**

1: Brown asphaltic vapor barrier paper (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Outdoor Storage Area	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	9/17/2018

Structure:

JC Boyle Dam Outdoor Storage Area

Photo No./ Material ID:	**Date:**
JCBY - 01	9/17/2018

Structure/Material Location:

JC Boyle Dam Outdoor Storage Area/ Out of service storage tank in Outdoor Storage Area

***Description (by layer):**

1: Red gasket (M)
2: Yellow mastic (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Outdoor Storage Area	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCBY - 02	9/17/2018

Structure/Material Location:

JC Boyle Dam Outdoor Storage Area/ Out of service storage tank in Outdoor Storage Area

***Description (by layer):**

1: Residual black asphaltic material with granules (M)

Photo No./ Material ID:	**Date:**
JCBY - 03	9/17/2018

Structure/Material Location:

JC Boyle Dam Outdoor Storage Area/ Walls throughout office main floor

***Description (by layer):**

1: Silver paint (M)
2: Yellow brittle material (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Powerhouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Powerhouse

Photo No./ Material ID:	**Date:**
JCPH - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Walls throughout Powerhouse

***Description (by layer):**

1: Grout associated with CMU (M)
2: Grout associated with CMU (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Powerhouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCPH - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Interior window panes

***Description (by layer):**

1: Gray window putty (M)

Photo No./ Material ID:	**Date:**
JCPH - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Restroom walls

***Description (by layer):**

1: 2" black rubber cove base (M)
2: Yellow mastic (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Powerhouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCPH - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Associated with generator piping, pumphouse lower level

***Description (by layer):**

1: Red gasket (M)
2: Black mastic (M)

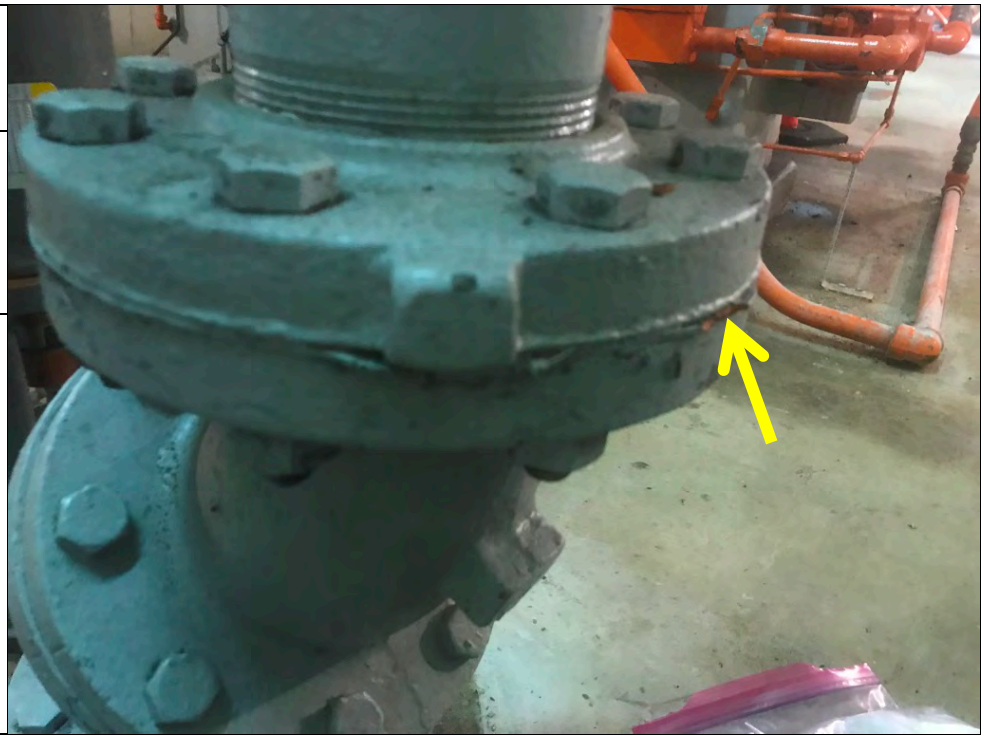

Photo No./ Material ID:	**Date:**
JCPH - 05	08/20/18 to 08/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Piping and mechanical equipment throughout Pumphouse

***Description (by layer):**

Assumed asbestos-containing gaskets

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Powerhouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCPH - 06	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Entry into switchgear room, associated with HVAC system

***Description (by layer):**

1: White spray-applied texture wall coating (S)
2: White gypsum wallboard with paper (M)

Photo No./ Material ID:	**Date:**
JCPH - 07	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Entry into switchgear room, associated with HVAC system

***Description (by layer):**

1: White sealant (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Powerhouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCPH - 08	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Throughout Powerhouse

***Description (by layer):**

1: White door sealant (M)
2: Gray door sealant (M)

Photo No./ Material ID:	**Date:**
JCPH - 09	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Concrete pad/roof top side of Powerhouse

***Description (by layer):**

1: Concrete (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Powerhouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCPH - 10	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Insulation inside two roll-up doors in Warehouse

***Description (by layer):**

1: Yellow mastic with foam and foil backing (M)
2: Off-white foam material (M)

Photo No./ Material ID:	**Date:**
JCPH - 11	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Above ceiling in attic of Warehouse

***Description (by layer):**

1: Black asphaltic mastic with paper (M)
2: Pink fiberglass batt insulation (T)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Powerhouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCPH - 12	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ Behind wood wall, loft area of Warehouse

***Description (by layer):**

1: Black asphaltic mastic with paper (M)
2: Yellow fiberglass batt insulation (T)

Photo No./ Material ID:	**Date:**
JCPH - 13	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Powerhouse/ At base of exterior metal walls, at wall/concrete interface

***Description (by layer):**

1: Black caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 1	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Residence 1

Photo No./ Material ID:	**Date:**
JCR1 - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Walls throughout Residence 1

***Description (by layer):**

1: White spray-applied texture wall coating (S)
2: White gypsum wallboard with paper (M

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 1	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR1 - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Ceilings throughout

***Description (by layer):**

1: White troweled-on surface ceiling coat (S)

Photo No./ Material ID:	**Date:**
JCR1 - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ At base of french doors in dining room

***Description (by layer):**

1: White caulking (M)
2: Gray vinyl floor sheeting with marble and cobblestone pattern (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 1	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR1 - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Associated with generator piping, pumphouse lower level

***Description (by layer):**

1: 4" black rubber cove base (M)
2: Yellow mastic (M)
3: White spray-applied texture wall coating (S)

Photo No./ Material ID:	**Date:**
JCR1 - 05	08/20/18 to 08/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Flooring in dining room and kitchen

***Description (by layer):**

1: Gray vinyl floor sheeting with marble and cobblestone pattern (M)
2: Yellow mastic (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 1	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR1 - 06	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Kitchen sink

***Description (by layer):**

1: White sink undercoating (M)

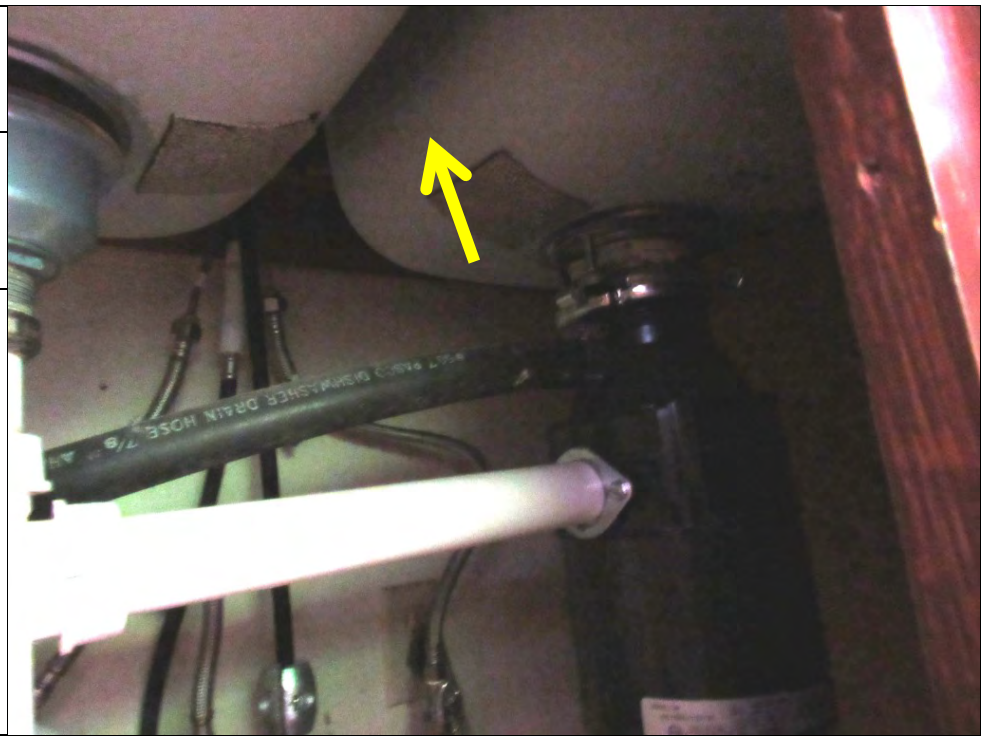


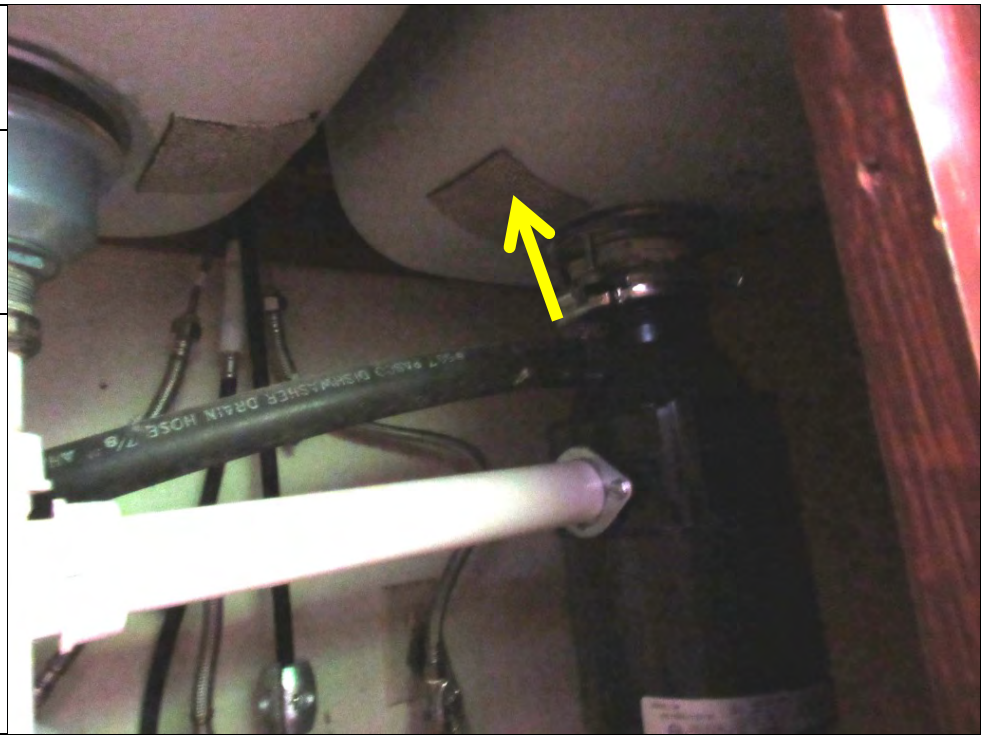
Photo No./ Material ID:	**Date:**
JCR1 - 07	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Entry into switchgear room, associated with HVAC system

***Description (by layer):**

1: White sink undercoating (M)
2: Black sink patch (M)



*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 1	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR1 - 08	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Above rafters in attic, throughout

***Description (by layer):**

1: Black asphaltic paper (M)

Photo No./ Material ID:	**Date:**
JCR1 - 09	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Concrete pad/roof top side of Residence 1

***Description (by layer):**

1: Gray vinyl flor sheeting (M)
2: Clear adhesive (M)
3: Gray leveling compound (M)
4: Off-white vinyl floor sheeting (M)
5: Gray paper backing with yellow mastic (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 1	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR1 - 10	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Around vent in bathroom

***Description (by layer):**

1: Gray leveling compound (M)

Photo No./ Material ID:	**Date:**
JCR1 - 11	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Walls throughout

***Description (by layer):**

1: White spray-applied texture wall coating (S)
2: White joint compund with paper (M)
3: White gypsm wallboard with paper (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 1	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR1 - 12	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Underneath corrugated metal roof throughout

***Description (by layer):**

1: Black roofing paper (M)

Photo No./ Material ID:	**Date:**
JCR1 - 13	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ Base of wood siding throughout exterior

***Description (by layer):**

1: Black sealant (M)
2: Gray concrete with paint (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 1	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR1 - 14	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 1/ At interface between garage and driveway

***Description (by layer):**

1: Gray grout (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 2	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Residence 2

Photo No./ Material ID:	**Date:**
JCR2 - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 2/ Shed roofing, throughout

***Description (by layer):**

1: Black asphaltic roofing shingles with granules (M)
2: Black asphaltic fibrous felt (S)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 2	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR2 - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 2/ Underneath exterior wood siding, throughout

***Description (by layer):**

1: White vapor barrier paper (M)

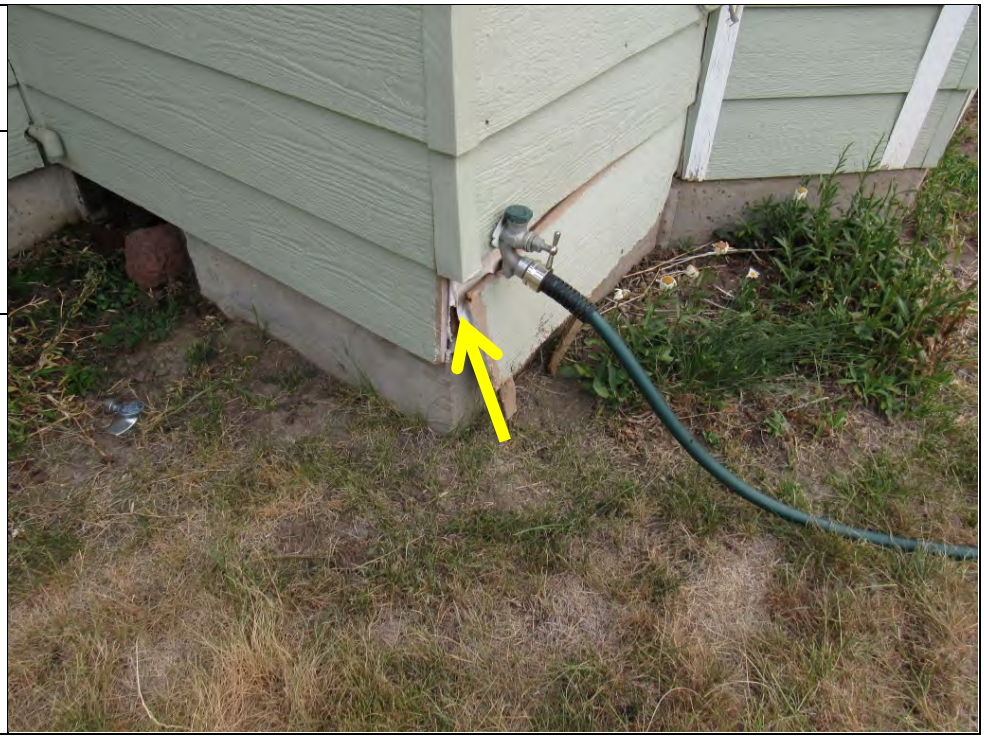

Photo No./ Material ID:	**Date:**
JCR2 - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 2/ Driveway

***Description (by layer):**

1: Black asphaltic material (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Residence 2	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCR2 - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Residence 2/ Driveway

***Description (by layer):**

1: Black asphaltic seam sealant (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Spillway Control Center Building	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Spillway Control Center Building

Photo No./ Material ID:	**Date:**
JCSW - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Spillway Control Center Building/ Support concrete associated with Spillway Control Center Builing

***Description (by layer):**

1: Concrete (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Spillway Control Center Building	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCSW - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Spillway Control Center Building/ Associated with wood shoring on hill in front of Spillway Control Center Building

***Description (by layer):**

1: Black creosote (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Timber Bridge	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Timber Bridge

Photo No./ Material ID:	**Date:**
JCWB - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Timber Bridge/ Throughout Timber Bridge

***Description (by layer):**

1: Creosote (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

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SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Vehicle Storage Shed	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
---	8/20/2018 to 8/23/2018

Structure:

JC Boyle Dam Vehicle Storage Shed

Photo No./ Material ID:	**Date:**
JCVS - 01	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Vehicle Storage Shed/ Insulation throughout

***Description (by layer):**

1: Yellow fiberglass batt insulation with mastic (T)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Vehicle Storage Shed	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCVS - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Vehicle Storage Shed/ Expansion joints throughout interior flooring

***Description (by layer):**

1: Gray residual concrete (M)
2: Gray caulking (M)

Photo No./ Material ID:	**Date:**
JCVS - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Vehicle Storage Shed/ Exterior siding

***Description (by layer):**

1: White caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Vehicle Storage Shed	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCVS - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Vehicle Storage Shed/ Roof of entry way

***Description (by layer):**

1: Black asphaltic paper under corrugated metal roof (M)

Photo No./ Material ID:	**Date:**
JCVS - 05	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Vehicle Storage Shed/ Seams around exterior perimeter - at roll-up doors

***Description (by layer):**

1: Black brittle sealant (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Vehicle Storage Shed	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCVS - 06	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Vehicle Storage Shed/ Penetrations around exterior perimeter

***Description (by layer):**

1: Black sealant (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Warehouse	**Project No.** 60537920

Photo No./ Material ID: ---	**Date:** 8/20/2018 to 8/23/2018
Structure: JC Boyle Dam Warehouse	

Photo No./ Material ID: JCWH - 01	**Date:** 8/20/2018 to 8/23/2018
Structure/Material Location: JC Boyle Dam Warehouse/ Exterior interface between metal siding and concrete foundation	
***Description (by layer):** **1: Black asphaltic slip sheet with cementitious material (M)**	

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCWH - 02	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Warehouse/ Old insulation throughout interior

***Description (by layer):**

1: Paper backing with asphaltic mastic (M)
2: Yellow fiberglass batt insulation (T)

Photo No./ Material ID:	**Date:**
JCWH - 03	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Warehouse/ At uneven expansion joints, concrete floor throughout interior

***Description (by layer):**

1: Black asphaltic leveling compound (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCWH - 04	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Warehouse/ At uneven expansion joints, concrete floor throughout interior

***Description (by layer):**

1: Gray leveling compound (M)

Photo No./ Material ID:	**Date:**
JCWH - 05	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Warehouse/ At metal seems around interior roll - up door (potentially at all seams, but more was not visible during inspection)

***Description (by layer):**

1: Tan brittle caulking (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

AECOM Imagine it. Delivered.

SITE PHOTOGRAPH LOG
JC Boyle Dam

Client Name: Klamath River Renewal Corporation	**Site Location:** J.C. Boyle Development, Warehouse	**Project No.** 60537920

Photo No./ Material ID:	**Date:**
JCWH - 06	8/20/2018 to 8/23/2018

Structure/Material Location:

JC Boyle Dam Warehouse/ Penetrations around exterior perimeter

***Description (by layer):**

1: White fiberglass insulation with paper (T)
2: Tan fiberglass insulation with paper (M)
3: Black asphaltic mastic (M)

*Layers in bold text are asbestos-containing or are assumed to be asbestos-containing
Categories per AHERA and Cal-OSHA: (S): Surfacing material; (M): Miscellaneous material; (TSI): Thermal System Insulation

APPENDIX C LABORATORY ANALYTICAL RESULTS

August 31, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816754.00

Client Project: 60537920.2.4a
Location: JC Boyle Canal Head Gate

Dear Ms. Gladu,

Enclosed please find test results for the 5 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

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4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Canal Head Gate

Batch #: 1816754.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 5
Samples Analyzed: 5
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086264 **Client Sample #: JCCH-1-01**
Location: JC Boyle Canal Head Gate

Layer 1 of 1 **Description:** Black soft material with paint chips

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Paint, Fine particles	Cellulose 2%	**None Detected ND**

Lab ID: 18086265 **Client Sample #: JCCH-2-01**
Location: JC Boyle Canal Head Gate

Layer 1 of 2 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metallic paint, Fine particles	None Detected ND	**None Detected ND**

Layer 2 of 2 **Description:** Red rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Rubber/Binder, Fine particles	Cellulose 2%	**None Detected ND**

Lab ID: 18086266 **Client Sample #: JCCH-3-01**
Location: JC Boyle Canal Head Gate

Layer 1 of 1 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metallic paint, Fine particles	Cellulose 1%	**None Detected ND**

Lab ID: 18086267 **Client Sample #: JCCH-3-02**
Location: JC Boyle Canal Head Gate

Layer 1 of 1 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metallic paint, Fine particles	Cellulose 2%	**None Detected ND**

Lab ID: 18086268 **Client Sample #: JCCH-3-03**
Location: JC Boyle Canal Head Gate

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector.

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Canal Head Gate

Batch #: 1816754.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 5
Samples Analyzed: 5
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metallic paint, Fine particles	Cellulose 1%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816754.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Canal Head Gate

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 5 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086264	JCCH-1-01		A
2	18086265	JCCH-2-01		A
3	18086266	JCCH-3-01		A
4	18086267	JCCH-3-02		A
5	18086268	JCCH-3-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Matthew McCallum		NVL	8/31/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:29 PM
Entered By: Emily Schubert

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ASBESTOS CHAIN OF CUSTODY

1816754

Turn Around
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle Canal Head gate

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 5

	Sample ID	Description	A/R
1	JCCH-1-01		
2	2-01		
3	3-01		
4	3-02		
5	3-03		
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]		NVLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

September 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816744.00

Client Project: 60537920.2.4a
Location: JC Boyle Communications Building

Dear Ms. Gladu,

Enclosed please find test results for the 7 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Communications Building

Batch #: 1816744.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 7
Samples Analyzed: 7
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086177 **Client Sample #: JCCB-1-01**
Location: JC Boyle Communications Building
Layer 1 of 1 **Description:** Light gray soft foamy material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Synthetic foam	None Detected	ND	**None Detected ND**
Paint			

Lab ID: 18086178 **Client Sample #: JCCB-1-02**
Location: JC Boyle Communications Building
Layer 1 of 1 **Description:** Light gray soft foamy material with debris

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Debris	None Detected	ND	**None Detected ND**
Insect parts, Synthetic foam			

Lab ID: 18086179 **Client Sample #: JCCB-2-01**
Location: JC Boyle Communications Building
Layer 1 of 1 **Description:** Black asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Asphalt/Binder	Cellulose	3%	**None Detected ND**

Lab ID: 18086180 **Client Sample #: JCCB-2-02**
Location: JC Boyle Communications Building
Layer 1 of 1 **Description:** Black soft asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Asphalt/Binder	Cellulose	2%	**None Detected ND**

Lab ID: 18086181 **Client Sample #: JCCB-3-01**
Location: JC Boyle Communications Building

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Communications Building

Batch #: 1816744.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 7
Samples Analyzed: 7
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Black asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials: %	**Asbestos Type: %**
Asphalt/Binder	Cellulose 3%	**None Detected ND**

Lab ID: 18086182 **Client Sample #: JCCB-4-01**
Location: JC Boyle Communications Building

Layer 1 of 1 **Description:** Light gray soft material

Non-Fibrous Materials:	Other Fibrous Materials: %	**Asbestos Type: %**
Binder/Filler, Insect parts	Polyethylene fibers 4%	**Chrysotile 2%**

Lab ID: 18086183 **Client Sample #: JCCB-4-02**
Location: JC Boyle Communications Building

Layer 1 of 1 **Description:** Light gray soft material

Non-Fibrous Materials:	Other Fibrous Materials: %	**Asbestos Type: %**
Binder/Filler, Insect parts	Polyethylene fibers 5%	**Chrysotile 2%**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816744.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Communications Building

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 7 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086177	JCCB-1-01		A
2	18086178	JCCB-1-02		A
3	18086179	JCCB-2-01		A
4	18086180	JCCB-2-02		A
5	18086181	JCCB-3-01		A
6	18086182	JCCB-4-01		A
7	18086183	JCCB-4-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Alla Prysyazhnyuk		NVL	9/4/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:16 PM
Entered By: Emily Schubert

ASBESTOS LABORATORY SERVICES

NVL LABS

Company	AECOM-Seattle	**NVL Batch Number**	**1816744.00**
Address	1111 3rd Avenue Ste. 1600 Seattle, WA 98101	**TAT**	5 Days **AH** No
		Rush TAT	
Project Manager	Ms. Nicole Gladu	**Due Date**	9/4/2018 **Time** 1:40 PM
Phone	(206) 438-2700	**Email**	nicole.gladu@aecom.com
Cell	(206) 240-0644	**Fax**	(866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Communications Building

Subcategory PLM Bulk

Item Code ASB-02 **Method** EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 7 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086177	JCCB-1-01		A
2	18086178	JCCB-1-02		A
3	18086179	JCCB-2-01		A
4	18086180	JCCB-2-02		A
5	18086181	JCCB-3-01		A
6	18086182	JCCB-4-01		A
7	18086183	JCCB-4-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Alla Borshchevskaya		NVL	9/04/2018	10:49 am
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Entered By: Emily Schubert Date: 8/27/2018 Time: 4:16 PM 1 of 1

1816744

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ASBESTOS CHAIN OF CUSTODY

Turn A
- ☐ 1 Hour
- ☐ 24 Hours
- ☐ 1 Days
- ☐ 2 Hours
- ☐ 2 Days
- ☑ 5 Days
- ☐ 4 Hours
- ☐ 3 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle Communications Building

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) ☐ Email

Total Number of Samples 7

	Sample ID	Description	A/R
1	JCCB-1-01		
2	1-02		
3	2-01		
4	2-02		
5	3-01		
6	4-01		
7	4-02		
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NVL Labs	8/27/18	1:40pm
Analyzed by	AHA		NVL Labs	9/04/2018	10:49am
Called by					
Faxed/Email by					

September 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816752.00

Client Project: 60537920.2.4a
Location: JC Boyle Fire Protection & Electrical Transform

Dear Ms. Gladu,

Enclosed please find test results for the 7 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

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4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Fire Protection & Electrical Transform

Batch #: 1816752.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 7
Samples Analyzed: 7
Method: EPA/600/R-93/116 & EPA/600/M4-82-020

Lab ID: 18086253 **Client Sample #: JCFP-1-01**
Location: JC Boyle Fire Protection & Electrical Transform
Layer 1 of 1 **Description:** Red brittle material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Paint	None Detected ND	**None Detected ND**

Lab ID: 18086254 **Client Sample #: JCFP-1-02**
Location: JC Boyle Fire Protection & Electrical Transform
Layer 1 of 1 **Description:** Red brittle material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Paint	None Detected ND	**None Detected ND**

Lab ID: 18086255 **Client Sample #: JCFP-1-03**
Location: JC Boyle Fire Protection & Electrical Transform
Layer 1 of 1 **Description:** Red soft material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Paint	None Detected ND	**None Detected ND**

Lab ID: 18086256 **Client Sample #: JCFP-2-01**
Location: JC Boyle Fire Protection & Electrical Transform
Layer 1 of 1 **Description:** Black rubbery soft material with red paint and inter fill-loose fibrous

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Resin/Binder, Paint	Synthetic fibers 10%	**None Detected ND**

Lab ID: 18086257 **Client Sample #: JCFP-3-01**
Location: JC Boyle Fire Protection & Electrical Transform
Layer 1 of 1 **Description:** Brown fibrous material with rush

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Rust	Cellulose 65%	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Fire Protection & Electrical Transform

Batch #: 1816752.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 7
Samples Analyzed: 7
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086258 **Client Sample #: JCFP-4-01**
Location: JC Boyle Fire Protection & Electrical Transform
Layer 1 of 1 **Description:** Light gray sandy/brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Granules, Mica	Spider silk <1%	**None Detected ND**
Insect parts, Sand		

Lab ID: 18086259 **Client Sample #: JCFP-5-01**
Location: JC Boyle Fire Protection & Electrical Transform
Layer 1 of 1 **Description:** Off-white brittle/soft mastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Mastic/Binder, Insect parts	Spider silk <1%	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816752.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Fire Protection & Electrical Transform

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 7 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086253	JCFP-1-01		A
2	18086254	JCFP-1-02		A
3	18086255	JCFP-1-03		A
4	18086256	JCFP-2-01		A
5	18086257	JCFP-3-01		A
6	18086258	JCFP-4-01		A
7	18086259	JCFP-5-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Alla Prysyazhnyuk		NVL	9/4/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:25 PM
Entered By: Fatima Khan

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ASBESTOS CHAIN OF CUSTODY

1816752

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle Fire Protection is Electrical Transform

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 7

	Sample ID	Description	A/R
1	JCFP-1-01		
2	1-02		
3	1-03		
4	2-01		
5	3-01		
6	4-01		
7	5-01		
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NVL Labs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

January 2, 2019

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1900107.00

Client Project: 60537920 2.4
Location: JC Gate Control

Dear Ms. Gladu,

Enclosed please find test results for the 6 sample(s) submitted to our laboratory for analysis on 1/2/2019.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Munaf Khan, Laboratory Director

Lab Code: 102063-0

Enc.: Sample Results

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Gate Control

Batch #: 1900107.00
Client Project #: 60537920 2.4
Date Received: 1/2/2019
Samples Received: 6
Samples Analyzed: 6
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 19000015 **Client Sample #: JCGCB-1-01**
Location: JC Gate Control
Layer 1 of 1 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles, Calcareous particles	Cellulose <1%	**None Detected ND**

Lab ID: 19000016 **Client Sample #: JCGCB-1-02**
Location: JC Gate Control
Layer 1 of 1 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles, Fine particles	Synthetic fibers <1%	**None Detected ND**

Lab ID: 19000017 **Client Sample #: JCGCB-2-01**
Location: JC Gate Control
Layer 1 of 1 **Description:** Red soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mica, Fine particles	Cellulose 3%	**None Detected ND**
Calcareous particles		

Lab ID: 19000018 **Client Sample #: JCGCB-2-02**
Location: JC Gate Control
Layer 1 of 1 **Description:** Red soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles, Mica	Cellulose 2%	**None Detected ND**

Lab ID: 19000019 **Client Sample #: JCGCB-3-01**
Location: JC Gate Control

Sampled by: Client
Analyzed by: Tiffany Cummings **Date:** 01/02/2019
Reviewed by: Munaf Khan **Date:** 01/02/2019

Munaf Khan, Laboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Gate Control

Batch #: 1900107.00
Client Project #: 60537920 2.4
Date Received: 1/2/2019
Samples Received: 6
Samples Analyzed: 6
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Gray soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles, Paint flakes	Cellulose <1%	**None Detected ND**
	Synthetic fibers <1%	

Lab ID: 19000020 **Client Sample #: JCGCB-3-02**

Location: JC Gate Control

Layer 1 of 1 **Description:** Gray soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles, Paint flakes	Cellulose <1%	**None Detected ND**

Sampled by: Client
Analyzed by: Tiffany Cummings **Date:** 01/02/2019
Reviewed by: Munaf Khan **Date:** 01/02/2019

Munaf Khan, Laboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

ASBESTOS LABORATORY SERVICES

Company	AECOM-Seattle	**NVL Batch Number**	**1900107.00**
Address	1111 3rd Avenue Ste. 1600 Seattle, WA 98101	**TAT** 4 Hrs **AH** No **Rush TAT**	
Project Manager	Ms. Nicole Gladu	**Due Date** 1/2/2019 **Time** 12:50 PM	
Phone	(206) 438-2700	**Email**	nicole.gladu@aecom.com
Cell	(206) 240-0644	**Fax**	(866) 495-5288

Project Name/Number: 60537920 2.4 **Project Location:** JC Gate Control

Subcategory PLM Bulk

Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 6 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	19000015	JCGCB-1-01		A
2	19000016	JCGCB-1-02		A
3	19000017	JCGCB-2-01		A
4	19000018	JCGCB-2-02		A
5	19000019	JCGCB-3-01		A
6	19000020	JCGCB-3-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Emily Schubert		NVL	1/2/19	850
Analyzed by	Tiffany Cummings		NVL	1/2/19	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions: verbal confirmation on the correct sample ID.

Date: 1/2/2019
Time: 8:47 AM
Entered By: Emily Schubert

CHAIN of CUSTODY SAMPLE LOG

1900107

Client AECOM-Seattle
Street 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Project Manager Ms. Nicole Gladu
Project Location JC GATE CONTROL

Phone: (206) 438-2700 **Fax:** (866) 495-5288

NVL Batch Number
Client Job Number 60537920 2.4
Total Samples 6
Turn Around Time ☐ 1 Hr ☐ 6 Hrs ☐ 3 Days ☐ 10 Days ☐ 2 Hrs ☐ 1 Day ☐ 4 Days ☒ 4 Hrs ☐ 2 Days ☐ 5 Days
Please call for TAT less than 24 Hrs

Email address nicole.gladu@aecom.com
Cell (206) 240-0644

☐ **Asbestos Air**	☐ PCM (NIOSH 7400)	☐ TEM (NIOSH 7402)	☐ TEM (AHERA)	☐ TEM (EPA Level II)	☐ Other
☒ **Asbestos Bulk**	☒ PLM (EPA/600/R-93/116)	☐ PLM (EPA Point Count)	☐ PLM (EPA Gravimetry)	☐ TEM BULK	
☐ **Mold/Fungus**	☐ Mold Air	☐ Mold Bulk	☐ **Rotometer Calibration**		

METALS	**Det. Limit**	**Matrix**		**RCRA Metals**		**Other Metals**
☐ Total Metals	☐ FAA (ppm)	☐ Air Filter	☐ Paint Chips in %	☐ Arsenic (As)	☐ All 8	☐ **All 3**
☐ TCLP	☐ ICP (ppm)	☐ Drinking water	☐ Paint Chips in cm	☐ Barium (Ba)	☐ Lead (Pb)	☐ Copper (Cu)
☐ Cr 6	☐ GFAA (ppl	☐ Dust/wipe (Area)	☐ Waste Water	☐ Cadmium (Cd)	☐ Mercury (Hg)	☐ Nickel (Ni)
		☐ Soil	☐ Other	☐ Chromium (Cr)	☐ Selenium (Se)	☐ Zinc (Zn)
					☐ Silver (Ag)	

☐ **Other Types of Analysis** ☐ Fiberglass ☐ Nuisance Dust ☐ Other (Specify) _____
☐ Silica ☐ Respirable Dust

Condition of Package: ☐ Good ☐ Damaged (no spillage) ☐ Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments (e.g Sample are, Sample Volume, etc)	A/R
1		JCGCB-1-01	Window	
2		1-01		
3		2-01	FS	
4		2-02		
5		3-01	Ex Caulk	
6		3-02		
7				
8				
9				
10				
11				
12				
13				
14				
15				

	Print Below	Sign Below	Company	Date	Time
Sampled by	S. MacKay		AECOM	12/06/18	1 pm
Relinquished by	S. MacKay		AECOM	12/07/19	8:47am
Received by	Emily S		NVL	1/2/19	850
Analyzed by					
Results Called by					
Results Faxed by					

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.

September 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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INDUSTRIAL HYGIENE SERVICES
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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816759.00

Client Project: 60537920.2.4a
Location: JC Boyle Hazmat Shed

Dear Ms. Gladu,

Enclosed please find test results for the 12 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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1.888.(685.5227)
www.nvllabs.com

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p 206.547.0100 | f 206.634.1936

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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Hazmat Shed

Batch #: 1816759.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086285 **Client Sample #: JCHM-1-01**
Location: JC Boyle Hazmat Shed

Layer 1 of 1	**Description:** Black soft asphaltic material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Granules, Wood flakes	Cellulose	2%	**None Detected ND**

Lab ID: 18086286 **Client Sample #: JCHM-1-02**
Location: JC Boyle Hazmat Shed

Layer 1 of 2	**Description:** Black soft asphaltic material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder	Cellulose	2%	**None Detected ND**
Layer 2 of 2	**Description:** Black asphaltic material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder	Cellulose	2%	**Chrysotile 2%**

Lab ID: 18086287 **Client Sample #: JCHM-2-01**
Location: JC Boyle Hazmat Shed

Layer 1 of 1	**Description:** Beige brittle/sandy material with off-white paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Granules, Mica Paint, Sand	Synthetic fibers	2%	**None Detected ND**

Lab ID: 18086288 **Client Sample #: JCHM-2-02**
Location: JC Boyle Hazmat Shed

Layer 1 of 1	**Description:** Beige brittle/sandy material with off-white paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Granules, Mica	Synthetic fibers	2%	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Hazmat Shed

Batch #: 1816759.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

	Insect parts, Paint, Sand	Spider silk <1%	

Lab ID: 18086289 **Client Sample #: JCHM-2-03**
Location: JC Boyle Hazmat Shed
Layer 1 of 1 **Description:** Light graybrittle/sandy material with off-white paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Granules, Mica	Synthetic fibers 2%	**None Detected ND**
Paint, Sand		

Lab ID: 18086290 **Client Sample #: JCHM-3-01**
Location: JC Boyle Hazmat Shed
Layer 1 of 1 **Description:** White soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Calcareous particles	Cellulose <1%	**None Detected ND**

Lab ID: 18086291 **Client Sample #: JCHM-3-02**
Location: JC Boyle Hazmat Shed
Layer 1 of 1 **Description:** Beige soft/brittle material with gray paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mineral grains, Fine particles	Wollastonite 2%	**Chrysotile <1%**
Insect parts, Paint	Cellulose 2%	

Lab ID: 18086292 **Client Sample #: JCHM-4-01**
Location: JC Boyle Hazmat Shed
Layer 1 of 1 **Description:** Gray/silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Paint, Fine particles, Metallic paint	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
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Attention: Ms. Nicole Gladu
Project Location: JC Boyle Hazmat Shed

Batch #: 1816759.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086293 **Client Sample #: JCHM-4-02**
Location: JC Boyle Hazmat Shed
Layer 1 of 1 **Description:** Orange/silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Paint, Fine particles, Metallic paint	None Detected ND	**None Detected ND**

Lab ID: 18086294 **Client Sample #: JCHM-4-03**
Location: JC Boyle Hazmat Shed
Layer 1 of 1 **Description:** Orange/silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Paint, Fine particles, Metallic paint	None Detected ND	**None Detected ND**

Lab ID: 18086295 **Client Sample #: JCHM-5-01**
Location: JC Boyle Hazmat Shed
Layer 1 of 1 **Description:** White soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles	None Detected ND	**None Detected ND**

Lab ID: 18086296 **Client Sample #: JCHM-6-01**
Location: JC Boyle Hazmat Shed
Layer 1 of 1 **Description:** Light gray compressed fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles	None Detected ND	**Chrysotile 45%**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816759.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Hazmat Shed

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 12 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086285	JCHM-1-01		A
2	18086286	JCHM-1-02		A
3	18086287	JCHM-2-01		A
4	18086288	JCHM-2-02		A
5	18086289	JCHM-2-03		A
6	18086290	JCHM-3-01		A
7	18086291	JCHM-3-02		A
8	18086292	JCHM-4-01		A
9	18086293	JCHM-4-02		A
10	18086294	JCHM-4-03		A
11	18086295	JCHM-5-01		A
12	18086296	JCHM-6-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Alla Prysyazhnyuk		NVL	9/4/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:41 PM
Entered By: Emily Schubert

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ASBESTOS CHAIN OF CUSTODY

1816759

Turn Around
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle Hazmat Shed

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 12

	Sample ID	Description	A/R
1	JCHM-1-01		
2	1-02		
3	2-01		
4	2-02		
5	2-03		
6	3-01		
7	3-02		
8	4-01		
9	4-02		
10	4-03		
11	5-01		
12	6-01		
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by					
Analyzed by					
Called by					
Faxed/Email by					

September 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816741.00

Client Project: 60537920.2.4a
Location: JC Boyle Intake Structure/ Fish Ladder

Dear Ms. Gladu,

Enclosed please find test results for the 30 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086125 **Client Sample #: JCIS-1-01**

Layer 1 of 1 **Description:** Gray brittle material with debris

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Mineral grains, Debris	Cellulose 3%	**None Detected ND**

Lab ID: 18086126 **Client Sample #: JCIS-2-01**

Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 1 **Description:** Black sticky material with mineral grains

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine grains, Mineral grains	Cellulose 2%	**None Detected ND**

Lab ID: 18086127 **Client Sample #: JCIS-3-01**

Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2 **Description:** Gray sandy rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Sand	Cellulose <1%	**None Detected ND**

Layer 2 of 2 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Mineral grains	Cellulose 1%	**None Detected ND**

Lab ID: 18086129 **Client Sample #: JCIS-3-02**

Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2 **Description:** Gray sandy rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Sand	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Cement/Binder, Mineral grains, Insect parts	Cellulose	3%	**None Detected ND**
	Spider silk	2%	

Lab ID: 18086130 **Client Sample #: JCIS-3-03**
Location: JC Boyle Intake Structure/ Fish Ladder
Layer 1 of 1 **Description:** Gray sandy rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Sand	Cellulose	1%	**None Detected ND**

Lab ID: 18086131 **Client Sample #: JCIS-3-04**
Location: JC Boyle Intake Structure/ Fish Ladder
Layer 1 of 1 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Mineral grains, Organic debris	None Detected	ND	**None Detected ND**

Lab ID: 18086132 **Client Sample #: JCIS-4-01**
Location: JC Boyle Intake Structure/ Fish Ladder
Layer 1 of 1 **Description:** Black asphaltic mastic

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Asphalt/Binder, Miscellaneous particles	Cellulose	2%	**None Detected ND**

Lab ID: 18086133 **Client Sample #: JCIS-4-02**
Location: JC Boyle Intake Structure/ Fish Ladder
Layer 1 of 1 **Description:** Black asphaltic mastic

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Asphalt/Binder, Miscellaneous particles	Cellulose	1%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Bulk Asbestos Fibers Analysis

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Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086134 **Client Sample #: JCIS-5-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Silver paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Brown woven fibrous material with brittle brown mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Mastic/Binder, Fine particles	Cellulose	76%	**None Detected ND**

Lab ID: 18086135 **Client Sample #: JCIS-6-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Silver paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Green and brown paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Paint, Miscellaneous particles	None Detected	ND	**None Detected ND**

Lab ID: 18086136 **Client Sample #: JCIS-6-02**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Silver paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Green, orange and brown paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Paint, Miscellaneous particles	Cellulose	<1%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086137 **Client Sample #: JCIS-6-03**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Silver paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Green, orange and brown paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Paint, Miscellaneous particles	None Detected	ND	**None Detected ND**

Lab ID: 18086138 **Client Sample #: JCIS-7-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** White rubbery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound, Fine particles, Paint	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Brown rubbery material with paint and wood flakes			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound, Fine particles, Paint	Cellulose	6%	**None Detected ND**

Lab ID: 18086139 **Client Sample #: JCIS-7-02**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** White rubbery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound, Fine particles, Paint	Cellulose	1%	**None Detected ND**
Layer 2 of 2	**Description:** Brown rubbery material with paint and wood flakes			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound, Fine particles, Paint	Cellulose	9%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086140 **Client Sample #: JCIS-8-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Brown paper with black asphaltic mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Cellulose	86%	**None Detected ND**
		Glass fibers	3%	
		Spider silk	2%	
Layer 2 of 2	**Description:** Pink fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Miscellaneous particles	Glass fibers	95%	**None Detected ND**

Lab ID: 18086141 **Client Sample #: JCIS-8-02**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 3	**Description:** Brown paper with black asphaltic mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Cellulose	81%	**None Detected ND**
		Glass fibers	5%	
Layer 2 of 3	**Description:** Pink fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Miscellaneous particles	Glass fibers	97%	**None Detected ND**
Layer 3 of 3	**Description:** Off-white paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Paint, Miscellaneous particles	Glass fibers	2%	**None Detected ND**

Lab ID: 18086142 **Client Sample #: JCIS-8-03**
Location: JC Boyle Intake Structure/ Fish Ladder

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Brown paper with black asphaltic mastic		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Cellulose 82%	**None Detected ND**
		Glass fibers 6%	
Layer 2 of 2	**Description:** Pink fibrous material		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Miscellaneous particles, Insect parts	Glass fibers 94%	**None Detected ND**

Lab ID: 18086143 **Client Sample #: JCIS-9-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Silver paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	Cellulose <1%	**None Detected ND**
Layer 2 of 2	**Description:** Gray and brown paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Paint, Miscellaneous particles	None Detected ND	**None Detected ND**

Lab ID: 18086144 **Client Sample #: JCIS-9-02**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Silver paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	None Detected ND	**None Detected ND**
Layer 2 of 2	**Description:** Gray and brown paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Paint, Miscellaneous particles	Cellulose 4%	**None Detected ND**

Lab ID: 18086145 **Client Sample #: JCIS-9-03**
Location: JC Boyle Intake Structure/ Fish Ladder

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Silver paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Gray and brown paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Paint, Miscellaneous particles	Cellulose	3%	**None Detected ND**

Lab ID: 18086146 **Client Sample #: JCIS-10-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 1	**Description:** Gray brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Fine particles, Mineral grains	Cellulose	2%	**None Detected ND**

Lab ID: 18086147 **Client Sample #: JCIS-11-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 1	**Description:** Gray rubbery material with sand			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound, Fine particles, Sand	Cellulose	3%	**None Detected ND**

Lab ID: 18086148 **Client Sample #: JCIS-12-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 1	**Description:** Off-whtie brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Cement/Binder, Mineral grains, Organic debris	Cellulose	4%	**None Detected ND**

Lab ID: 18086150 **Client Sample #: JCIS-12-02**
Location: JC Boyle Intake Structure/ Fish Ladder

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Gray brittle material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Mineral grains, Paint	Cellulose	2%	**None Detected ND**
Layer 2 of 2	**Description:** Off-white brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Cement/Binder, Mineral grains	None Detected	ND	**None Detected ND**

Lab ID: 18086151 **Client Sample #: JCIS-13-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Silver paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Metal oxide with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Metal oxide, Paint	None Detected	ND	**None Detected ND**

Lab ID: 18086152 **Client Sample #: JCIS-13-02**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2	**Description:** Silver paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Metallic paint, Miscellaneous particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Metal oxide			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Metal oxide, Miscellaneous particles	None Detected	ND	**None Detected ND**

Lab ID: 18086153 **Client Sample #: JCIS-13-03**
Location: JC Boyle Intake Structure/ Fish Ladder
Comments: Insufficient silver paint for thorough analysis.

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816741.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 30
Samples Analyzed: 30
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metallic paint, Miscellaneous particles	None Detected ND	**None Detected ND**

Lab ID: 18086154 **Client Sample #: JCIS-14-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 1 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Ceramic/Binder, Fine grains	None Detected ND	**None Detected ND**

Lab ID: 18086155 **Client Sample #: JCIS-15-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metallic paint, Miscellaneous particles	Spider silk 1%	**None Detected ND**

Layer 2 of 2 **Description:** Metal oxide with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metal oxide, Miscellaneous particles, Paint	None Detected ND	**None Detected ND**

Lab ID: 18086156 **Client Sample #: JCIS-15-02**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 2 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metallic paint, Miscellaneous particles	None Detected ND	**None Detected ND**

Layer 2 of 2 **Description:** Metal oxide with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metal oxide, Miscellaneous particles, Paint	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816741.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Intake Structure/ Fish Ladder

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 30 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086125	JCIS-1-01		A
2	18086126	JCIS-2-01		A
3	18086127	JCIS-3-01		A
4	18086129	JCIS-3-02		A
5	18086130	JCIS-3-03		A
6	18086131	JCIS-3-04		A
7	18086132	JCIS-4-01		A
8	18086133	JCIS-4-02		A
9	18086134	JCIS-5-01		A
10	18086135	JCIS-6-01		A
11	18086136	JCIS-6-02		A
12	18086137	JCIS-6-03		A
13	18086138	JCIS-7-01		A
14	18086139	JCIS-7-02		A
15	18086140	JCIS-8-01		A
16	18086141	JCIS-8-02		A
17	18086142	JCIS-8-03		A
18	18086143	JCIS-9-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Daniel		NVL	9/1/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:09 PM
Entered By: Emily Schubert

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816741.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Intake Structure/ Fish Ladder

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 30 Rush Samples

	Lab ID	Sample ID	Description	A/R
19	18086144	JCIS-9-02		A
20	18086145	JCIS-9-03		A
21	18086146	JCIS-10-01		A
22	18086147	JCIS-11-01		A
23	18086148	JCIS-12-01		A
24	18086150	JCIS-12-02		A
25	18086151	JCIS-13-01		A
26	18086152	JCIS-13-02		A
27	18086153	JCIS-13-03		A
28	18086154	JCIS-14-01		A
29	18086155	JCIS-15-01		A
30	18086156	JCIS-15-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Daniel		NVL	9/1/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:09 PM
Entered By: Emily Schubert

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ASBESTOS CHAIN OF CUSTODY

1816741

☐ 4 Hours ☐ 2 Days ☐ 3 Days ☐ 10 Days
☐ 2 Hours ☐ 1 Days ☑ 5 Days
Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle Intake Structure / Fish ladder

☐ PCM Air (NIOSH 7400) ☐ TEM (NIOSH 7402) ☐ TEM (AHERA) ☐ TEM (EPA Level II Modified)
☑ PLM (EPA 600/R-93-116) ☐ EPA 400 Points (600/R-93-116) ☐ EPA 1000Points (600/R-93-116)
☐ PLM Gravimetry (600/R-93-116) ☐ Asbestos in Vermiculite (EPA 600/R-04/004) ☐ Asbestos in Sediment (EPA 1900 Points)
☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116) ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 38

	Sample ID	Description	A/R
1	JCIS-1-01		
2	2-01		
3	3-01		
4	3-02		
5	3-03		
6	3-04		
7	4-01		
8	4-02		
9	5-01		
10	6-01		
11	6-02		
12	6-03		
13	7-01		
14	7-02		
15	8-01		

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]		NVLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

1816741

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell:
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle Intake Structure | Fish ladder

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ☐ Fax ☐ Email

Total Number of Samples 36

	Sample ID	Description	A/R
1	JCIS-8-02		
2	JCIS-8-03		
3	9-01		
4	9-02		
5	9-03		
6	10-01		
7	11-01		
8	12-01		
9	12-02		
10	13-01		
11	13-02		
12	13-03		
13	14-01		
14	15-01		
15	15-02		

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]		NVLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 31, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816740.00

Client Project: 60537920.2.4a
Location: JC Boyle Intake Structure/ Fish Ladder

Dear Ms. Gladu,

Enclosed please find test results for the 3 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish Ladder

Batch #: 1816740.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 3
Samples Analyzed: 3
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086118 **Client Sample #: JCIS-15-03**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 1 **Description:** Soft flaky material with metallic paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Metallic paint, Caulking compound, Fine particles	Cellulose 1%	**None Detected ND**

Lab ID: 18086119 **Client Sample #: JCIS-16-01**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 1 **Description:** Black asphaltic fibrous material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles, Paint	Cellulose 12%	**None Detected ND**

Lab ID: 18086120 **Client Sample #: JCIS-16-02**
Location: JC Boyle Intake Structure/ Fish Ladder

Layer 1 of 1 **Description:** Black asphaltic fibrous material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles, Paint	Cellulose 13%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816740.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Intake Structure/ Fish Ladder

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086118	JCIS-15-03		A
2	18086119	JCIS-16-01		A
3	18086120	JCIS-16-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Matthew McCallum		NVL	8/31/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:06 PM
Entered By: Emily Schubert

1816740

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 24 Hours
- ☐ 1 Days
- ☐ 2 Hours
- ☐ 2 Days
- ☑ 5 Days
- ☐ 4 Hours
- ☐ 3 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle Intake Structure | Fish ladder

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 33

	Sample ID	Description	A/R
1	JCIS-15-03		
2	16-01		
3	16-02		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Matthew		NVLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 31, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816738.00

Client Project: 60537920.2.4a
Location: JC Boyle Office Warehouse

Dear Ms. Gladu,

Enclosed please find test results for the 36 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086081 **Client Sample #: JCOW-1-01**
Location: JC Boyle Office Warehouse

Layer 1 of 2	**Description:** Gray sheet vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Vinyl/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Gray fibrous backing with mastic (on wood)			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Mastic/Binder	Cellulose	47%	**None Detected ND**
		Glass fibers	21%	

Lab ID: 18086082 **Client Sample #: JCOW-1-02**
Location: JC Boyle Office Warehouse

Layer 1 of 3	**Description:** Gray sheet vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Vinyl/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 3	**Description:** Tan fibrous backing with mastic (on wood)			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler	Cellulose	40%	**None Detected ND**
		Glass fibers	21%	
Layer 3 of 3	**Description:** Black asphaltic fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Binder/Filler	Cellulose	74%	**None Detected ND**

Lab ID: 18086083 **Client Sample #: JCOW-1-03**
Location: JC Boyle Office Warehouse

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Gray sheet vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Vinyl/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Gray fibrous backing with mastic (on wood)			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Mastic/Binder, Binder/Filler	Cellulose	48%	**None Detected ND**
		Glass fibers	16%	

Lab ID: 18086084 **Client Sample #: JCOW-2-01**
Location: JC Boyle Office Warehouse

Layer 1 of 1	**Description:** Gray fibrous material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Fine particles, Perlite	Cellulose	68%	**None Detected ND**
	Paint	Glass fibers	4%	

Lab ID: 18086085 **Client Sample #: JCOW-2-02**
Location: JC Boyle Office Warehouse

Layer 1 of 1	**Description:** Gray fibrous material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Fine particles, Perlite	Cellulose	65%	**None Detected ND**
	Paint, Wood flakes	Glass fibers	3%	

Lab ID: 18086086 **Client Sample #: JCOW-2-03**
Location: JC Boyle Office Warehouse

Layer 1 of 1	**Description:** Gray fibrous material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Fine particles, Perlite	Cellulose	67%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

	Paint	Glass fibers	6%	

Lab ID: 18086087 **Client Sample #: JCOW-3-01**
Location: JC Boyle Office Warehouse

Layer 1 of 3	**Description:** Gray rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Rubber/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 3	**Description:** White soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder	None Detected	ND	**None Detected ND**
Layer 3 of 3	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Paint	None Detected	ND	**None Detected ND**

Lab ID: 18086088 **Client Sample #: JCOW-3-02**
Location: JC Boyle Office Warehouse

Layer 1 of 3	**Description:** Gray rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Rubber/Binder	None Detected	ND	**None Detected ND**
Layer 2 of 3	**Description:** White soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Insect parts	Cellulose	<1%	**None Detected ND**
		Spider silk	2%	
Layer 3 of 3	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Paint	None Detected	ND	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086089 **Client Sample #: JCOW-4-01**
Location: JC Boyle Office Warehouse

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Paint	Cellulose	<1%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Gypsum/Binder, Binder/Filler	Cellulose	21%	**None Detected ND**
		Glass fibers	4%	

Lab ID: 18086090 **Client Sample #: JCOW-4-02**
Location: JC Boyle Office Warehouse

Layer 1 of 2	**Description:** White textured powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Paint	Cellulose	2%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Gypsum/Binder, Binder/Filler	Cellulose	26%	**None Detected ND**

Lab ID: 18086091 **Client Sample #: JCOW-4-03**
Location: JC Boyle Office Warehouse

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Paint	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Gypsum/Binder, Binder/Filler	Cellulose	23%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

			Glass fibers	5%

Lab ID: 18086092 **Client Sample #: JCOW-4-04**
Location: JC Boyle Office Warehouse

Layer 1 of 2	**Description:** White compacted powdery material with paint				
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Paint	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Gypsum/Binder, Binder/Filler	Cellulose	21%	**None Detected ND**
		Glass fibers	3%	

Lab ID: 18086093 **Client Sample #: JCOW-4-05**
Location: JC Boyle Office Warehouse

Layer 1 of 2	**Description:** White compacted powdery material with paint				
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Paint	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Gypsum/Binder, Binder/Filler	Cellulose	25%	**None Detected ND**
		Glass fibers	2%	

Lab ID: 18086094 **Client Sample #: JCOW-4-06**
Location: JC Boyle Office Warehouse

Layer 1 of 2	**Description:** White compacted powdery material with paint				
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Paint	Cellulose	<1%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** White chalky material with paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Gypsum/Binder, Binder/Filler	Cellulose 22%	**None Detected ND**
	Glass fibers 5%	

Lab ID: 18086095 **Client Sample #: JCOW-6-01**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** White soft elastic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Caulking compound	None Detected ND	**None Detected ND**

Layer 2 of 2 **Description:** White compacted powdery material with paint and paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous binder, Binder/Filler, Paint	Cellulose 30%	**None Detected ND**

Lab ID: 18086096 **Client Sample #: JCOW-7-01**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Black plastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Plastic	None Detected ND	**None Detected ND**

Layer 2 of 2 **Description:** Yellow soft adhesive

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Adhesive/Binder	None Detected ND	**None Detected ND**

Lab ID: 18086097 **Client Sample #: JCOW-10-01**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Tan fibrous material with mastic and metal foil

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Metal foil, Mastic/Binder	Cellulose 52%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Off-white foamy material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Styrofoam	None Detected ND	**None Detected ND**

Lab ID: 18086098 **Client Sample #: JCOW-10-02**

Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Tan fibrous material with mastic and metal foil

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mastic/Binder, Metal foil	Cellulose 54%	**None Detected ND**

Layer 2 of 2 **Description:** Off-white foamy material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Styrofoam	None Detected ND	**None Detected ND**

Lab ID: 18086099 **Client Sample #: JCOW-10-03**

Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Tan fibrous material with mastic and metal foil

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mastic/Binder, Metal foil	Cellulose 51%	**None Detected ND**

Layer 2 of 2 **Description:** Off-white foamy material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Styrofoam	None Detected ND	**None Detected ND**

Lab ID: 18086100 **Client Sample #: JCOW-11-01**

Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Mastic/Binder, Binder/Filler	Cellulose 36%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Pink fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Glass fibers 90%	**None Detected ND**

Lab ID: 18086101 **Client Sample #: JCOW-11-02**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler	Cellulose 31%	**None Detected ND**

Layer 2 of 2 **Description:** Pink fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Glass fibers 92%	**None Detected ND**

Lab ID: 18086102 **Client Sample #: JCOW-11-03**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler	Cellulose 32%	**None Detected ND**

Layer 2 of 2 **Description:** Pink fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Glass fibers 94%	**None Detected ND**

Lab ID: 18086103 **Client Sample #: JCOW-11-04**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with paper and paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler, Paint	Cellulose 30%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Pink fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Glass fibers 90%	**None Detected ND**

Lab ID: 18086104 **Client Sample #: JCOW-12-01**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with paper and paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler, Paint	Cellulose 35%	**None Detected ND**

Layer 2 of 2 **Description:** Yellow fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Glass fibers 92%	**None Detected ND**

Lab ID: 18086105 **Client Sample #: JCOW-12-02**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with paper and paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler, Paint	Cellulose 34%	**None Detected ND**

Layer 2 of 2 **Description:** Yellow fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Glass fibers 87%	**None Detected ND**

Lab ID: 18086106 **Client Sample #: JCOW-12-03**
Location: JC Boyle Office Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with paper and paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler, Paint	Cellulose 36%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Yellow fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Glass fibers 93%	**None Detected ND**

Lab ID: 18086107 **Client Sample #: JCOW-13-01**
Location: JC Boyle Office Warehouse

Layer 1 of 1 **Description:** Black asphaltic soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles	Cellulose <1%	**None Detected ND**

Lab ID: 18086108 **Client Sample #: JCOW-13-02**
Location: JC Boyle Office Warehouse

Layer 1 of 1 **Description:** Black asphaltic soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles	Cellulose 2%	**None Detected ND**

Lab ID: 18086109 **Client Sample #: JCOW-14-01**
Location: JC Boyle Office Warehouse

Layer 1 of 1 **Description:** Off-white putty material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Calcareous particles, Paint	Cellulose <1%	**None Detected ND**

Lab ID: 18086110 **Client Sample #: JCOW-14-02**
Location: JC Boyle Office Warehouse

Layer 1 of 1 **Description:** Off-white putty material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Calcareous particles, Paint	None Detected ND	**None Detected ND**

Lab ID: 18086111 **Client Sample #: JCOW-15-01**
Location: JC Boyle Office Warehouse

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Black asphaltic fibrous felt

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler, Insect parts	Cellulose 63%	**None Detected ND**

Lab ID: 18086112 **Client Sample #: JCOW-15-02**
Location: JC Boyle Office Warehouse

Layer 1 of 1 **Description:** Black asphaltic fibrous felt with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler, Paint	Cellulose 68%	**None Detected ND**

Lab ID: 18086113 **Client Sample #: JCOW-16-01**
Location: JC Boyle Office Warehouse

Layer 1 of 1 **Description:** Black asphaltic fibrous felt

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler	Cellulose 62%	**None Detected ND**

Lab ID: 18086114 **Client Sample #: JCOW-16-02**
Location: JC Boyle Office Warehouse

Layer 1 of 1 **Description:** Black asphaltic fibrous felt

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler	Cellulose 65%	**None Detected ND**

Lab ID: 18086115 **Client Sample #: JCOW-17-01**
Location: JC Boyle Office Warehouse

Layer 1 of 1 **Description:** Black asphaltic fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler	Cellulose 74%	**None Detected ND**

Lab ID: 18086116 **Client Sample #: JCOW-17-02**
Location: JC Boyle Office Warehouse

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816738.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 36
Samples Analyzed: 36
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Black asphaltic fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler	Cellulose 78%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816738.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Office Warehouse

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 36 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086081	JCOW-1-01		A
2	18086082	JCOW-1-02		A
3	18086083	JCOW-1-03		A
4	18086084	JCOW-2-01		A
5	18086085	JCOW-2-02		A
6	18086086	JCOW-2-03		A
7	18086087	JCOW-3-01		A
8	18086088	JCOW-3-02		A
9	18086089	JCOW-4-01		A
10	18086090	JCOW-4-02		A
11	18086091	JCOW-4-03		A
12	18086092	JCOW-4-04		A
13	18086093	JCOW-4-05		A
14	18086094	JCOW-4-06		A
15	18086095	JCOW-6-01		A
16	18086096	JCOW-7-01		A
17	18086097	JCOW-10-01		A
18	18086098	JCOW-10-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Welly Hsieh		NVL	8/31/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 3:56 PM
Entered By: Emily Schubert

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816738.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Office Warehouse

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 36 Rush Samples

	Lab ID	Sample ID	Description	A/R
19	18086099	JCOW-10-03		A
20	18086100	JCOW-11-01		A
21	18086101	JCOW-11-02		A
22	18086102	JCOW-11-03		A
23	18086103	JCOW-11-04		A
24	18086104	JCOW-12-01		A
25	18086105	JCOW-12-02		A
26	18086106	JCOW-12-03		A
27	18086107	JCOW-13-01		A
28	18086108	JCOW-13-02		A
29	18086109	JCOW-14-01		A
30	18086110	JCOW-14-02		A
31	18086111	JCOW-15-01		A
32	18086112	JCOW-15-02		A
33	18086113	JCOW-16-01		A
34	18086114	JCOW-16-02		A
35	18086115	JCOW-17-01		A
36	18086116	JCOW-17-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Welly Hsieh		NVL	8/31/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 3:56 PM
Entered By: Emily Schubert

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ASBESTOS CHAIN OF CUSTODY

1816738

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle OFFICE WAREHOUSE

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 36

	Sample ID	Description	A/R
1	JCOW-1-01		
2	1-02		
3	1-03		
4	2-01		
5	2-02		
6	2-03		
7	3-01		
8	3-02		
9	4-01		
10	4-02		
11	4-03		
12	4-04		
13	4-05		
14	4-06		
15	6-01		

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	12pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]		Nvllabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

1816738

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 24 Hours
- ☐ 4 Days
- ☐ 2 Hours
- ☐ 2 Days
- ☑ 5 Days
- ☐ 4 Hours
- ☐ 3 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle OFFICE WAREHOUSE

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 36

	Sample ID	Description	A/R
1	JCOW-7-01		
2	10-01		
3	10-02		
4	10-03		
5	11-01		
6	11-02		
7	11-03		
8	11-04		
9	12-01		
10	12-02		
11	12-03		
12	13-01		
13	13-02		
14	14-01		
15	14-02		

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Nathan		NVL Labs	8/27/18	1:30pm
Analyzed by					
Called by					
Faxed/Email by					

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ASBESTOS CHAIN OF CUSTODY

1816738

Turn Around T
- ☐ 1 Hour
- ☐ 24 Hours
- ☐ 4 Days
- ☐ 2 Hours
- ☐ 2 Days
- ☑ 5 Days
- ☐ 4 Hours
- ☐ 3 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number	Project Location
60537920.2.4a	JC Boyle OFFICE WAREHOUSE

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 36

	Sample ID	Description	A/R
1	JCOW-15-01		
2	15-02		
3	16-01		
4	16-02		
5	17-01		
6	17-02		
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Kathmathon		NVLLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 30, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816753.00

Client Project: 60537920.2.4a
Location: JC Boyle Boneyard

Dear Ms. Gladu,

Enclosed please find test results for the 4 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Boneyard

Batch #: 1816753.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 4
Samples Analyzed: 4
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086260 **Client Sample #: JCBY-1-01**
Location: JC Boyle Boneyard

Layer 1 of 2	**Description:** Red soft rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Rubber/Binder, Fine particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Yellow soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Fine particles	Cellulose	1%	**None Detected ND**

Lab ID: 18086261 **Client Sample #: JCBY-2-01**
Location: JC Boyle Boneyard

Layer 1 of 1	**Description:** Black brittle asphaltic material with granules			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Asphalt/Binder, Fine particles, Granules	Cellulose	3%	**None Detected ND**

Lab ID: 18086262 **Client Sample #: JCBY-2-02**
Location: JC Boyle Boneyard

Layer 1 of 1	**Description:** Black brittle asphaltic material with granules			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Asphalt/Binder, Fine particles, Granules	Cellulose	4%	**None Detected ND**

Lab ID: 18086263 **Client Sample #: JCBY-3-01**
Location: JC Boyle Boneyard

Layer 1 of 2	**Description:** Silver paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Metallic paint, Fine particles	Cellulose	1%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 08/30/2018
Reviewed by: Nick Ly **Date:** 08/30/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Boneyard

Batch #: 1816753.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 4
Samples Analyzed: 4
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Yellow brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles	Cellulose 2%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 08/30/2018
Reviewed by: Nick Ly **Date:** 08/30/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816753.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Boneyard

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 4 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086260	JCBY-1-01		A
2	18086261	JCBY-2-01		A
3	18086262	JCBY-2-02		A
4	18086263	JCBY-3-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Matthew McCallum		NVL	8/30/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:27 PM
Entered By: Emily Schubert

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ASBESTOS CHAIN OF CUSTODY

1816753

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600 Seattle, WA 98101	Cell	( ) -
		Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number: 60537920.2.4a | Project Location: JC Boyle Boneyard

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 4

	Sample ID	Description	A/R
1	JCBY-1-01		
2	2-01		
3	2-02		
4	3-01		
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by				8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 30, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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INDUSTRIAL HYGIENE SERVICES
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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816739.00

Client Project: 60537920.2.4a
Location: JC Boyle Penstock

Dear Ms. Gladu,

Enclosed please find test results for the 1 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Penstock

Batch #: 1816739.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 1
Samples Analyzed: 1
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086117 **Client Sample #: JCPS-01-01**

Location: JC Boyle Penstock

Layer 1 of 1 **Description:** Gray brittle cementitious material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Fine particles, Mineral grains	Cellulose 1%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 08/30/2018
Reviewed by: Nick Ly **Date:** 08/30/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816739.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Penstock

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086117	JCPS-01-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Matthew McCallum		NVL	8/30/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:04 PM
Entered By: Emily Schubert

1816739

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ASBESTOS CHAIN OF CUSTODY

Turn Arc
- ❑ 1 Hour
- ❑ 2 Hours
- ❑ 4 Hours
- ❑ 24 Hours
- ❑ 2 Days
- ❑ 3 Days
- ❑ 4 Days
- ☑ 5 Days
- ❑ 10 Days

Please call for TAT less than 24 Hours

Company AECOM
Address 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone 206.438.2700

Project Manager Nicole Gladu
Cell ( ) -
Email nicole.gladu@aecom.com
Fax (866) 495 - 5288

Project Name/Number 60537920.2.4a
Project Location JC Boyle Penstock

- ❑ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ❑ PLM Gravimetry (600/R-93-116)
- ❑ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ❑ TEM (NIOSH 7402)
- ❑ EPA 400 Points (600/R-93-116)
- ❑ Asbestos in Vermiculite (EPA 600/R-04/004)
- ❑ TEM (AHERA)
- ❑ Other
- ❑ TEM (EPA Level II Modified)
- ❑ EPA 1000Points (600/R-93-116)
- ❑ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
❑ Call ( ) - ❑ Fax ( ) - ❑ Email

Total Number of Samples 1

	Sample ID	Description	A/R
1	JCPS-101		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30 pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Information		NVLabs	8/27/18	1:50pm
Analyzed by					
Called by					
Faxed/Email by					

August 31, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816746.00

Client Project: 60537920.2.4a
Location: JC Boyle Powerhouse

Dear Ms. Gladu,

Enclosed please find test results for the 21 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Powerhouse

Batch #: 1816746.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 21
Samples Analyzed: 21
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086184 **Client Sample #: JCPH-1-01**

Layer 1 of 1 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Cement/Binder, Mineral grains, Foamed glass	None Detected	ND	**None Detected ND**

Lab ID: 18086185 **Client Sample #: JCPH-1-02**

Location: JC Boyle Powerhouse

Layer 1 of 1 **Description:** Gray brittle material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Fine grains, Insect parts	Cellulose	3%	**None Detected ND**

Lab ID: 18086186 **Client Sample #: JCPH-2-01**

Location: JC Boyle Powerhouse

Layer 1 of 1 **Description:** Off-white crumbly material with debris

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Fine particles, Debris	Cellulose	3%	**None Detected ND**
Insect parts	Spider silk	1%	

Lab ID: 18086187 **Client Sample #: JCPH-2-02**

Location: JC Boyle Powerhouse

Layer 1 of 1 **Description:** Tan crumbly material with paint

Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
Binder/Filler, Fine particles, Paint	Cellulose	2%	**None Detected ND**

Lab ID: 18086188 **Client Sample #: JCPH-3-01**

Location: JC Boyle Powerhouse

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 08/30/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Powerhouse

Batch #: 1816746.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 21
Samples Analyzed: 21
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Black rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Vinyl/Binder, Fine particles	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Yellow soft mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Fine particles	Cellulose	2%	**None Detected ND**
		Spider silk	2%	

Lab ID: 18086189 **Client Sample #: JCPH-4-01**
Location: JC Boyle Powerhouse

Layer 1 of 2	**Description:** Red rubbery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound, Fine particles, Paint	Cellulose	1%	**None Detected ND**
Layer 2 of 2	**Description:** Black sticky mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Miscellaneous particles	Cellulose	4%	**None Detected ND**

Lab ID: 18086190 **Client Sample #: JCPH-6-01**
Location: JC Boyle Powerhouse

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose	16%	**None Detected ND**
		Glass fibers	3%	

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 08/30/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Powerhouse

Batch #: 1816746.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 21
Samples Analyzed: 21
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086191 **Client Sample #: JCPH-6-02**
Location: JC Boyle Powerhouse

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose	<1%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose	17%	**None Detected ND**
		Glass fibers	4%	

Lab ID: 18086192 **Client Sample #: JCPH-6-03**
Location: JC Boyle Powerhouse

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose	2%	**None Detected ND**
		Spider silk	1%	
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose	15%	**None Detected ND**
		Glass fibers	4%	

Lab ID: 18086193 **Client Sample #: JCPH-7-01**
Location: JC Boyle Powerhouse

Layer 1 of 1	**Description:** Off white rubbery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Caulking compound, Fine particles, Paint	None Detected	ND	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 08/30/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Powerhouse

Batch #: 1816746.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 21
Samples Analyzed: 21
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086194 **Client Sample #: JCPH-8-01**
Location: JC Boyle Powerhouse

Layer 1 of 1 **Description:** Brown sticky material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Fine grains, Paint	Cellulose 3%	**Chrysotile 3%**

Lab ID: 18086195 **Client Sample #: JCPH-8-02**
Location: JC Boyle Powerhouse

Layer 1 of 2 **Description:** White crumbly material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles, Paint	Cellulose 4%	**Chrysotile 6%**

Layer 2 of 2 **Description:** Brown sticky material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Fine grains	Cellulose 4%	**Chrysotile 3%**

Lab ID: 18086196 **Client Sample #: JCPH-9-01**
Location: JC Boyle Powerhouse

Layer 1 of 1 **Description:** Off-white brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Mineral grains	Cellulose 2%	**None Detected ND**

Lab ID: 18086197 **Client Sample #: JCPH-10-01**
Location: JC Boyle Powerhouse

Layer 1 of 1 **Description:** Gray sticky material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Fine particles, Debris	Cellulose 3%	**None Detected ND**

Lab ID: 18086198 **Client Sample #: JCPH-11-01**
Location: JC Boyle Powerhouse

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 08/30/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Powerhouse

Batch #: 1816746.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 21
Samples Analyzed: 21
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Gray rubbery material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous binder, Fine particles	Cellulose 2%	**None Detected ND**

Lab ID: 18086199 **Client Sample #: JCPH-12-01**
Location: JC Boyle Powerhouse

Layer 1 of 2 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Mineral grains	None Detected ND	**None Detected ND**

Layer 2 of 2 **Description:** Tan brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Mineral grains	Cellulose 1%	**None Detected ND**

Lab ID: 18086200 **Client Sample #: JCPH-12-02**
Location: JC Boyle Powerhouse

Layer 1 of 1 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Mineral grains	None Detected ND	**None Detected ND**

Lab ID: 18086201 **Client Sample #: JCPH-12-03**
Location: JC Boyle Powerhouse

Layer 1 of 2 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Mineral grains	None Detected ND	**None Detected ND**

Layer 2 of 2 **Description:** Tan brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Mineral grains, Organic debris	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 08/30/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Powerhouse

Batch #: 1816746.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 21
Samples Analyzed: 21
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086202 **Client Sample #: JCPH-13-01**
Location: JC Boyle Powerhouse
Layer 1 of 1 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Paint/Binder, Metal, Miscellaneous particles	Cellulose 1%	**None Detected ND**

Lab ID: 18086203 **Client Sample #: JCPH-13-02**
Location: JC Boyle Powerhouse
Layer 1 of 1 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Paint/Binder, Metal, Miscellaneous particles	Cellulose <1%	**None Detected ND**

Lab ID: 18086204 **Client Sample #: JCPH-13-03**
Location: JC Boyle Powerhouse
Layer 1 of 1 **Description:** Silver paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Paint/Binder, Metal, Miscellaneous particles	Cellulose 2%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 08/30/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector.

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816746.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Powerhouse

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 21 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086184	JCPH-1-01		A
2	18086185	JCPH-1-02		A
3	18086186	JCPH-2-01		A
4	18086187	JCPH-2-02		A
5	18086188	JCPH-3-01		A
6	18086189	JCPH-4-01		A
7	18086190	JCPH-6-01		A
8	18086191	JCPH-6-02		A
9	18086192	JCPH-6-03		A
10	18086193	JCPH-7-01		A
11	18086194	JCPH-8-01		A
12	18086195	JCPH-8-02		A
13	18086196	JCPH-9-01		A
14	18086197	JCPH-10-01		A
15	18086198	JCPH-11-01		A
16	18086199	JCPH-12-01		A
17	18086200	JCPH-12-02		A
18	18086201	JCPH-12-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Daniel		NVL	8/30/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:19 PM
Entered By: Emily Schubert

NVL Laboratories, Inc.
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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816746.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Powerhouse

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 21 Rush Samples

	Lab ID	Sample ID	Description	A/R
19	18086202	JCPH-13-01		A
20	18086203	JCPH-13-02		A
21	18086204	JCPH-13-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Daniel		NVL	8/30/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:19 PM
Entered By: Emily Schubert

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ASBESTOS CHAIN OF CUSTODY

1816746

Turn Around
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number: 60537920.2.4a | Project Location: JC Boyle Powerhouse

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 21

	Sample ID	Description	A/R
1	JCPH-12-01		
2	12-02		
3	12-03		
4	13-01		
5	13-02		
6	13-03		
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]	[illegible]	NVLabs	8/27/18	1:50pm
Analyzed by					
Called by					
Faxed/Email by					

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ASBESTOS CHAIN OF CUSTODY

1816746

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600 Seattle, WA 98101	Cell	( ) -
Phone	206.438.2700	Email	nicole.gladu@aecom.com
		Fax	(866) 495 - 5288

Project Name/Number	Project Location
60537920.2.4a	JC Boyle

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 21

	Sample ID	Description	A/R
1	JCPH-1-01		
2	1-02		
3	2-01		
4	2-02		
5	3-01		
6	4-01		
7	6-01		
8	6-02		
9	6-03		
10	7-01		
11	8-01		
12	8-02		
13	9-01		
14	10-01		
15	11-01		

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NVL Labs	8/27/18	1:40pm.
Analyzed by					
Called by					
Faxed/Email by					

September 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816751.00

Client Project: 60537920.2.4a
Location: JC Boyle Pumphouse

Dear Ms. Gladu,

Enclosed please find test results for the 6 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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1.888.(685.5227)
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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Pumphouse

Batch #: 1816751.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 6
Samples Analyzed: 6
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086247 **Client Sample #: JCPH-1-01**
Location: JC Boyle Pumphouse

Layer 1 of 2	**Description:** Tan paper with asphalt		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Binder/Filler	Cellulose 50%	**None Detected ND**
Layer 2 of 2	**Description:** Pink fibrous material		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Adhesive/Binder, Binder/Filler, Fine particles	Glass fibers 69%	**None Detected ND**

Lab ID: 18086248 **Client Sample #: JCPH-1-02**
Location: JC Boyle Pumphouse

Layer 1 of 2	**Description:** Tan paper with asphalt		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Binder/Filler, Paint	Cellulose 53%	**None Detected ND**
Layer 2 of 2	**Description:** Pink fibrous material		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Adhesive/Binder, Binder/Filler	Glass fibers 70%	**None Detected ND**

Lab ID: 18086249 **Client Sample #: JCPH-1-03**
Location: JC Boyle Pumphouse

Layer 1 of 2	**Description:** Tan paper with asphalt		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Asphalt/Binder, Binder/Filler, Paint	Cellulose 49%	**None Detected ND**
Layer 2 of 2	**Description:** Pink fibrous material		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Adhesive/Binder, Binder/Filler	Glass fibers 68%	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Pumphouse

Batch #: 1816751.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 6
Samples Analyzed: 6
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086250 **Client Sample #: JCPH-2-01**
Location: JC Boyle Pumphouse
Layer 1 of 1 **Description:** Black asphaltic fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder	Cellulose 80%	**None Detected ND**

Lab ID: 18086251 **Client Sample #: JCPH-2-02**
Location: JC Boyle Pumphouse
Layer 1 of 1 **Description:** Black asphaltic fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder	Cellulose 78%	**None Detected ND**

Lab ID: 18086252 **Client Sample #: JCPH-2-03**
Location: JC Boyle Pumphouse
Layer 1 of 1 **Description:** Black asphaltic fibrous material with brown paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Paint	Cellulose 77%	**None Detected ND**

Sampled by: Client
Analyzed by: Alla Prysyazhnyuk **Date:** 09/04/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816751.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Pumphouse

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 6 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086247	JCPH-1-01		A
2	18086248	JCPH-1-02		A
3	18086249	JCPH-1-03		A
4	18086250	JCPH-2-01		A
5	18086251	JCPH-2-02		A
6	18086252	JCPH-2-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Alla Prysyazhnyuk		NVL	9/4/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:24 PM
Entered By: Emily Schubert

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ASBESTOS CHAIN OF CUSTODY

1816751

Turn Around
- ☐ 1 Hour
- ☐ 24 Hours
- ☐ 4 Days
- ☐ 2 Hours
- ☐ 2 Days
- ☑ 5 Days
- ☐ 4 Hours
- ☐ 3 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number	Project Location
60537920.2.4a	JC Boyle Pumphouse

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 6

	Sample ID	Description	A/R
1	JCPH-1-01		
2	1-02		
3	1-03		
4	2-01		
5	2-02		
6	2-03		
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]		Nvllabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

September 4, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
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RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816750.00

Client Project: 60537920.2.4a
Location: JC Boyle Residence 1

Dear Ms. Gladu,

Enclosed please find test results for the 29 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Residence 1

Batch #: 1816750.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 29
Samples Analyzed: 29
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086215 **Client Sample #: JCR1-1-01**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose	2%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose	18%	**None Detected ND**

Lab ID: 18086216 **Client Sample #: JCR1-1-02**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose	1%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose	16%	**None Detected ND**

Lab ID: 18086217 **Client Sample #: JCR1-1-03**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose	3%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose	17%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Project Location: JC Boyle Residence 1

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Client Project #: 60537920.2.4a
Date Received: 8/27/2018
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Samples Analyzed: 29
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086218 **Client Sample #: JCR1-1-04**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** White compacted powdery material with paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose 1%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose 15%	**None Detected ND**

Lab ID: 18086219 **Client Sample #: JCR1-1-05**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** White compacted powdery material with paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose 3%	**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose 17%	**None Detected ND**

Lab ID: 18086220 **Client Sample #: JCR1-2-01**
Location: JC Boyle Residence 1

Layer 1 of 1	**Description:** White compacted powdery material with paint		
	Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose 2%	**None Detected ND**

Lab ID: 18086221 **Client Sample #: JCR1-2-02**
Location: JC Boyle Residence 1

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 29
Samples Analyzed: 29
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** White compacted powdery material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous binder, Fine particles, Paint	Cellulose 1%	**None Detected ND**

Lab ID: 18086222 **Client Sample #: JCR1-2-03**
Location: JC Boyle Residence 1

Layer 1 of 1 **Description:** White compacted powdery material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous binder, Fine particles, Paint	Cellulose 1%	**Chrysotile 2%**

Lab ID: 18086223 **Client Sample #: JCR1-2-04**
Location: JC Boyle Residence 1

Layer 1 of 1 **Description:** White compacted powdery material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous binder, Fine particles, Paint	Cellulose 1%	**Chrysotile 3%**

Lab ID: 18086224 **Client Sample #: JCR1-2-05**
Location: JC Boyle Residence 1

Layer 1 of 1 **Description:** White compacted powdery material with paint

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Calcareous binder, Fine particles, Paint	Cellulose 2%	**Chrysotile 2%**

Lab ID: 18086225 **Client Sample #: JCR1-3-01**
Location: JC Boyle Residence 1

Layer 1 of 2 **Description:** White rubbery material with debris

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Caulking compound, Miscellaneous particles, Debris	Cellulose 3%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Samples Analyzed: 29
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2	**Description:** Off-white sheet vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Vinyl/Binder, Synthetic foam	None Detected	ND	**None Detected ND**

Lab ID: 18086226 **Client Sample #: JCR1-4-01**
Location: JC Boyle Residence 1

Layer 1 of 3	**Description:** Black rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Vinyl/Binder, Fine grains	None Detected	ND	**None Detected ND**
Layer 2 of 3	**Description:** Yellow firm mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Fine particles	Cellulose	3%	**None Detected ND**
Layer 3 of 3	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose	1%	**None Detected ND**

Lab ID: 18086227 **Client Sample #: JCR1-4-02**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** Black rubbery material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Vinyl/Binder, Fine grains	None Detected	ND	**None Detected ND**
Layer 2 of 2	**Description:** Yellow firm mastic with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Fine particles	Cellulose	2%	**None Detected ND**

Lab ID: 18086228 **Client Sample #: JCR1-5-01**
Location: JC Boyle Residence 1

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Attention: Ms. Nicole Gladu
Project Location: JC Boyle Residence 1

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Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 29
Samples Analyzed: 29
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Tan sheet vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Vinyl/Binder, Synthetic foam	Glass fibers	8%	**None Detected ND**
Layer 2 of 2	**Description:** Yellow sticky mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Miscellaneous particles	Cellulose	3%	**None Detected ND**
		Hair	1%	

Lab ID: 18086229 **Client Sample #: JCR1-5-02**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** Tan sheet vinyl			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Vinyl/Binder, Synthetic foam	Glass fibers	8%	**None Detected ND**
Layer 2 of 2	**Description:** Yellow sticky mastic			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mastic/Binder, Miscellaneous particles	Cellulose	5%	**None Detected ND**

Lab ID: 18086230 **Client Sample #: JCR1-6-01**
Location: JC Boyle Residence 1

Layer 1 of 1	**Description:** Gray crumbly material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Fine grains	Cellulose	2%	**None Detected ND**

Lab ID: 18086231 **Client Sample #: JCR1-7-01**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** Off-white crumbly material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Binder/Filler, Fine grains	Cellulose	1%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Bulk Asbestos Fibers Analysis

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Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 29
Samples Analyzed: 29
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 2 **Description:** Black sticky material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine grains	Cellulose 2%	**None Detected ND**

Lab ID: 18086232 **Client Sample #: JCR1-8-01**
Location: JC Boyle Residence 1

Layer 1 of 1 **Description:** Black fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Miscellaneous particles	Cellulose 94%	**None Detected ND**

Lab ID: 18086233 **Client Sample #: JCR1-9-01**
Location: JC Boyle Residence 1

Layer 1 of 5 **Description:** Tan sheet vinyl

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Vinyl/Binder, Synthetic foam	Glass fibers 7%	**None Detected ND**

Layer 2 of 5 **Description:** Clear sticky adhesive

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Adhesive/Binder, Miscellaneous particles	Cellulose 4%	**None Detected ND**

Layer 3 of 5 **Description:** Gray crumbly material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine grains	Cellulose 3%	**None Detected ND**

Layer 4 of 5 **Description:** Off-white sheet vinyl

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Vinyl/Binder, Synthetic foam	None Detected ND	**None Detected ND**

Layer 5 of 5 **Description:** Gray fibrous material with hard yellow mastic

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Mastic/Binder, Fine particles	Cellulose 63%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Method: EPA/600/R-93/116
& EPA/600/M4-82-020

			Glass fibers 9%	

Lab ID: 18086234 **Client Sample #: JCR1-10-01**
Location: JC Boyle Residence 1

Layer 1 of 1	**Description:** Gray crumbly material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Fine grains	Cellulose 5%		**None Detected ND**

Lab ID: 18086235 **Client Sample #: JCR1-11-01**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose 2%		**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose 17%		**None Detected ND**
		Glass fibers 4%		

Lab ID: 18086236 **Client Sample #: JCR1-11-02**
Location: JC Boyle Residence 1

Layer 1 of 2	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose 1%		**None Detected ND**
Layer 2 of 2	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose 16%		**None Detected ND**
		Glass fibers 4%		

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086237 **Client Sample #: JCR1-11-03**
Location: JC Boyle Residence 1

Layer 1 of 3	**Description:** White compacted powdery material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Fine particles, Paint	Cellulose	2%	**None Detected ND**
Layer 2 of 3	**Description:** White compacted powdery material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Calcareous binder, Fine particles	Cellulose	27%	**None Detected ND**
Layer 3 of 3	**Description:** White chalky material with paper			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Gypsum/Binder, Fine particles	Cellulose	18%	**None Detected ND**
		Glass fibers	3%	

Lab ID: 18086238 **Client Sample #: JCR1-12-01**
Location: JC Boyle Residence 1

Layer 1 of 1	**Description:** Black fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Cellulose	95%	**None Detected ND**

Lab ID: 18086239 **Client Sample #: JCR1-12-02**
Location: JC Boyle Residence 1

Layer 1 of 1	**Description:** Black fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Miscellaneous particles	Cellulose	93%	**None Detected ND**

Lab ID: 18086240 **Client Sample #: JCR1-13-01**
Location: JC Boyle Residence 1

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 29
Samples Analyzed: 29
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 2	**Description:** Black sticky material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Asphalt/Binder, Fine grains	Cellulose	6%	**None Detected ND**
Layer 2 of 2	**Description:** Gray brittle material with paint			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Cement/Binder, Mineral grains, Paint	None Detected	ND	**None Detected ND**

Lab ID: 18086241 **Client Sample #: JCR1-13-02**
Location: JC Boyle Residence 1

Layer 1 of 1	**Description:** Black sticky material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Asphalt/Binder, Fine grains	Cellulose	2%	**None Detected ND**

Lab ID: 18086242 **Client Sample #: JCR1-14-01**
Location: JC Boyle Residence 1

Layer 1 of 1	**Description:** Off-white sandy brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Sand	Cellulose	2%	**None Detected ND**

Lab ID: 18086243 **Client Sample #: JCR1-14-02**
Location: JC Boyle Residence 1

Layer 1 of 1	**Description:** Off-white sandy brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Calcareous binder, Fine particles, Sand	Cellulose	1%	**None Detected ND**

Sampled by: Client
Analyzed by: Daniel Charbonneaux **Date:** 09/01/2018
Reviewed by: Matt Macfarlane **Date:** 09/04/2018

Matt Macfarlane, Asbestos Lab Supervisor

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816750.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Residence 1

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 29 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086215	JCR1-1-01		A
2	18086216	JCR1-1-02		A
3	18086217	JCR1-1-03		A
4	18086218	JCR1-1-04		A
5	18086219	JCR1-1-05		A
6	18086220	JCR1-2-01		A
7	18086221	JCR1-2-02		A
8	18086222	JCR1-2-03		A
9	18086223	JCR1-2-04		A
10	18086224	JCR1-2-05		A
11	18086225	JCR1-3-01		A
12	18086226	JCR1-4-01		A
13	18086227	JCR1-4-02		A
14	18086228	JCR1-5-01		A
15	18086229	JCR1-5-02		A
16	18086230	JCR1-6-01		A
17	18086231	JCR1-7-01		A
18	18086232	JCR1-8-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Daniel		NVL	9/1/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:22 PM
Entered By: Fatima Khan

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816750.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Residence 1

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 29 Rush Samples

	Lab ID	Sample ID	Description	A/R
19	18086233	JCR1-9-01		A
20	18086234	JCR1-10-01		A
21	18086235	JCR1-11-01		A
22	18086236	JCR1-11-02		A
23	18086237	JCR1-11-03		A
24	18086238	JCR1-12-01		A
25	18086239	JCR1-12-02		A
26	18086240	JCR1-13-01		A
27	18086241	JCR1-13-02		A
28	18086242	JCR1-14-01		A
29	18086243	JCR1-14-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Daniel		NVL	9/1/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:22 PM
Entered By: Fatima Khan

NVL LABS
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ASBESTOS CHAIN OF CUSTODY

1816750

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number: 60537920.2.4a | Project Location: JC Boyle Residence 1

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 29

	Sample ID	Description	A/R
1	JCR1-1-01		
2	1-02		
3	1-03		
4	1-04		
5	1-05		
6	2-01		
7	2-02		
8	2-03		
9	2-04		
10	2-05		
11	3-01		
12	4-01		
13	4-02		
14	5-01		
15	5-02		

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1 30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]		NVLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

NVL LABS
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ASBESTOS CHAIN OF CUSTODY

1816750

Turn Around
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600 Seattle, WA 98101	Cell	( ) -
		Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number	Project Location
60537920.2.4a	JC Boyle Residence 1

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 29

	Sample ID	Description	A/R
1	JCR1-6-01		
2	7-01		
3	8-01		
4	9-01		
5	10-01		
6	11-01		
7	11-02		
8	11-03		
9	12-01		
10	12-02		
11	13-01		
12	13-02		
13	14-01		
14	14-02		
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by				8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 31, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816743.00

Client Project: 60537920.2.4a
Location: JC Boyle Residence 2

Dear Ms. Gladu,

Enclosed please find test results for the 7 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

Lab Code: 102063-0

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www.nvllabs.com

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Residence 2

Batch #: 1816743.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 7
Samples Analyzed: 7
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086158 **Client Sample #: JCR2-1-01**
Location: JC Boyle Residence 2

Layer 1 of 2	**Description:** Black asphaltic fibrous material with granules			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Granules	Glass fibers	31%	**None Detected ND**
Layer 2 of 2	**Description:** Black asphaltic fibrous felt			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder	Cellulose	67%	**None Detected ND**

Lab ID: 18086159 **Client Sample #: JCR2-1-02**
Location: JC Boyle Residence 2

Layer 1 of 2	**Description:** Black asphaltic fibrous material with granules			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder, Granules	Glass fibers	29%	**None Detected ND**
Layer 2 of 2	**Description:** Black asphaltic fibrous felt			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder	Cellulose	64%	**None Detected ND**

Lab ID: 18086160 **Client Sample #: JCR2-2-01**
Location: JC Boyle Residence 2

Layer 1 of 1	**Description:** White fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler	Polyethylene fibers	85%	**None Detected ND**

Lab ID: 18086161 **Client Sample #: JCR2-2-02**
Location: JC Boyle Residence 2

Sampled by: Client
Analyzed by: Lauren Wetzel **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Residence 2

Batch #: 1816743.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 7
Samples Analyzed: 7
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** White fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Polyethylene fibers 88%	**None Detected ND**

Lab ID: 18086162 **Client Sample #: JCR2-3-01**
Location: JC Boyle Residence 2

Layer 1 of 1 **Description:** Black brittle asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder	None Detected ND	**None Detected ND**

Lab ID: 18086163 **Client Sample #: JCR2-4-01**
Location: JC Boyle Residence 2

Layer 1 of 1 **Description:** Black soft asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder	None Detected ND	**None Detected ND**

Lab ID: 18086164 **Client Sample #: JCR2-4-02**
Location: JC Boyle Residence 2

Layer 1 of 1 **Description:** Black soft asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Lauren Wetzel **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816743.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Residence 2

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 7 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086158	JCR2-1-01		A
2	18086159	JCR2-1-02		A
3	18086160	JCR2-2-01		A
4	18086161	JCR2-2-02		A
5	18086162	JCR2-3-01		A
6	18086163	JCR2-4-01		A
7	18086164	JCR2-4-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Lauren Wetzel		NVL	8/31/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:14 PM
Entered By: Fatima Khan

1816743

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number	Project Location
60537920.2.4a	JC Boyle Residence 2

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 7

	Sample ID	Description	A/R
1	JCR2-1-01		
2	1-02		
3	2-01		
4	2-02		
5	3-01		
6	4-01		
7	4-02		
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NVL Labs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 30, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816748.00

Client Project: 60537920.2.4a
Location: JC Boyle Spillway House

Dear Ms. Gladu,

Enclosed please find test results for the 3 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

Enc.: Sample Results

Lab Code: 102063-0

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www.nvllabs.com

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4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

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4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Spillway House

Batch #: 1816748.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 3
Samples Analyzed: 3
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086244 **Client Sample #: JCSW-1-01**

Layer 1 of 1 **Description:** Gray brittle cementitious material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Cement/Binder, Fine particles, Mineral grains	Cellulose 1%	**None Detected ND**

Lab ID: 18086245 **Client Sample #: JCSW-2-01**

Location: JC Boyle Spillway House

Layer 1 of 1 **Description:** Black brittle asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles	Cellulose 2%	**None Detected ND**

Lab ID: 18086246 **Client Sample #: JCSW-2-02**

Location: JC Boyle Spillway House

Layer 1 of 1 **Description:** Black brittle asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles	Cellulose 1%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 08/30/2018
Reviewed by: Nick Ly **Date:** 08/30/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816748.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Spillway House

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086244	JCSW-1-01		A
2	18086245	JCSW-2-01		A
3	18086246	JCSW-2-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Matthew McCallum		NVL	8/30/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:21 PM
Entered By: Emily Schubert

1816748

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ASBESTOS CHAIN OF CUSTODY

Turn Around
- ☐ 1 Hour
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☐ 1 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: (866) 495 - 5288

Project Name/Number: 60537920.2.4a
Project Location: JC Boyle Spillway House

- ☐ PCM Air (NIOSH 7400)
- ☑ PLM (EPA 600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ TEM (NIOSH 7402)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ TEM (AHERA)
- ☐ Other
- ☐ TEM (EPA Level II Modified)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ Asbestos in Sediment (EPA 1900 Points)

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 3

	Sample ID	Description	A/R
1	JCSW-1-01		
2	1 2-01		
3	1 2-02		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by				8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 30, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816757.00

Client Project: 60537920.2.4a
Location: JC Boyle Woodbridge

Dear Ms. Gladu,

Enclosed please find test results for the 2 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Nick Ly, Technical Director

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Woodbridge

Batch #: 1816757.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 2
Samples Analyzed: 2
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086271 **Client Sample #: JCWB-1-01**
Location: JC Boyle Woodbridge

Layer 1 of 1	**Description:** Brittle orange material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Fine particles	Cellulose	2%	**None Detected ND**

Lab ID: 18086272 **Client Sample #: JCWB-1-02**
Location: JC Boyle Woodbridge

Layer 1 of 2	**Description:** Brittle orange material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler, Fine particles	Cellulose	1%	**None Detected ND**
Layer 2 of 2	**Description:** Brown woody material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Organic debris, Wood flakes	Wood fibers	87%	**None Detected ND**

Sampled by: Client
Analyzed by: Matthew McCallum **Date:** 08/30/2018
Reviewed by: Nick Ly **Date:** 08/30/2018

Nick Ly, Technical Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816757.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Woodbridge

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 2 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086271	JCWB-1-01		A
2	18086272	JCWB-1-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Matthew McCallum		NVL	8/30/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:37 PM
Entered By: Fatima Khan

1816757

NVL LABS
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ASBESTOS CHAIN OF CUSTODY

Turn Around Time: ☐ 1 Hour ☐ 2 Hours ☐ 4 Hours ☐ 1 Day ☐ 2 Days ☐ 3 Days ☑ 5 Days ☐ 10 Days
Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell:
Email: nicole.gladu@aecom.com
Fax: 866 495 5288

Project Name/Number: 60537920.2.4a Project Location: JC Boyle Woodbridge

☐ PCM Air (NIOSH 7400) ☐ TEM (NIOSH 7402) ☐ TEM (AHERA) ☐ TEM (EPA Level II Modified)
☑ PLM (EPA 600/R-93-116) ☐ EPA 400 Points (600/R-93-116) ☐ EPA 1000 Points (600/R-93-116)
☐ PLM Gravimetry (600/R-93-116) ☐ Asbestos in Vermiculite (EPA 600/R-04/004) ☐ Asbestos in Sediment (EPA 1900 Points)
☐ Asbestos Friable/Non-Friable EPA 600/R-93-116 ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ☐ Fax ☐ Email

Total Number of Samples 2

	Sample ID	Description	A/R
1	JCWB-1-01		
2	JCWB-1-02		
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche	[signature]	AECOM	8/20/18-8/23/18	11:00am
Relinquished by	Kim Riche	[signature]	AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[signature]	[signature]	NVL Labs	8/27/18	1:40pm
Analyzed by	Matt McCollum	[signature]	NVL	8/30/18	12:30
Called by					
Faxed/Email by					

August 31, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816745.00

Client Project: 60537920.2.4a
Location: JC Boyle Vehicle Storage

Dear Ms. Gladu,

Enclosed please find test results for the 12 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

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The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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www.nvllabs.com

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Vehicle Storage

Batch #: 1816745.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086165 **Client Sample #: JCVS-1-01**
Location: JC Boyle Vehicle Storage

Layer 1 of 1 **Description:** Yellow fibrous material with mastic and vinyl surface

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Vinyl/Binder, Mastic/Binder	Glass fibers 72%	**None Detected ND**
Insect parts	Cellulose 3%	

Lab ID: 18086166 **Client Sample #: JCVS-1-02**
Location: JC Boyle Vehicle Storage

Layer 1 of 1 **Description:** Yellow fibrous material with mastic and vinyl surface

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mastic/Binder, Vinyl/Binder	Glass fibers 78%	**None Detected ND**

Lab ID: 18086167 **Client Sample #: JCVS-1-03**
Location: JC Boyle Vehicle Storage

Layer 1 of 1 **Description:** Yellow fibrous material with mastic and vinyl surface

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Mastic/Binder, Vinyl/Binder	Glass fibers 65%	**None Detected ND**
Insect parts		

Lab ID: 18086168 **Client Sample #: JCVS-2-01**
Location: JC Boyle Vehicle Storage

Layer 1 of 3 **Description:** Gray crumbly material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Fine particles	None Detected ND	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Vehicle Storage

Batch #: 1816745.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 2 of 3	**Description:** Gray soft elastic material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound	None Detected	ND	**None Detected ND**
Layer 3 of 3	**Description:** Dark gray brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mineral grains, Fine particles	None Detected	ND	**None Detected ND**

Lab ID: 18086169 **Client Sample #: JCVS-2-02**
Location: JC Boyle Vehicle Storage

Layer 1 of 3	**Description:** Gray soft elastic material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound	None Detected	ND	**None Detected ND**
Layer 2 of 3	**Description:** Gray brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mineral grains, Fine particles	None Detected	ND	**None Detected ND**
Layer 3 of 3	**Description:** Brown brittle material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Mineral/Binder	None Detected	ND	**None Detected ND**

Lab ID: 18086170 **Client Sample #: JCVS-3-01**
Location: JC Boyle Vehicle Storage

Layer 1 of 1	**Description:** White soft material			
	Non-Fibrous Materials:	Other Fibrous Materials:	%	**Asbestos Type: %**
	Caulking compound, Fine particles, Insect parts	Spider silk	2%	**None Detected ND**

Lab ID: 18086171 **Client Sample #: JCVS-4-01**
Location: JC Boyle Vehicle Storage

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Vehicle Storage

Batch #: 1816745.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Black asphaltic fibrous felt

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler	Cellulose 64%	**None Detected ND**

Lab ID: 18086172 **Client Sample #: JCVS-4-02**
Location: JC Boyle Vehicle Storage

Layer 1 of 1 **Description:** Black asphaltic fibrous felt

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler	Cellulose 67%	**None Detected ND**

Lab ID: 18086173 **Client Sample #: JCVS-5-01**
Location: JC Boyle Vehicle Storage

Layer 1 of 1 **Description:** Black asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles	Cellulose <1%	**None Detected ND**

Lab ID: 18086174 **Client Sample #: JCVS-5-02**
Location: JC Boyle Vehicle Storage

Layer 1 of 1 **Description:** Black asphaltic material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles	None Detected ND	**None Detected ND**

Lab ID: 18086175 **Client Sample #: JCVS-6-01**
Location: JC Boyle Vehicle Storage

Layer 1 of 1 **Description:** Black asphaltic soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Mineral grains	None Detected ND	**None Detected ND**

Lab ID: 18086176 **Client Sample #: JCVS-6-02**
Location: JC Boyle Vehicle Storage

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Vehicle Storage

Batch #: 1816745.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Layer 1 of 1 **Description:** Black asphaltic soft material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles, Wood flakes	Cellulose <1%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816745.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Vehicle Storage

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 12 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086165	JCVS-1-01		A
2	18086166	JCVS-1-02		A
3	18086167	JCVS-1-03		A
4	18086168	JCVS-2-01		A
5	18086169	JCVS-2-02		A
6	18086170	JCVS-3-01		A
7	18086171	JCVS-4-01		A
8	18086172	JCVS-4-02		A
9	18086173	JCVS-5-01		A
10	18086174	JCVS-5-02		A
11	18086175	JCVS-6-01		A
12	18086176	JCVS-6-02		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Welly Hsieh		NVL	8/31/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:17 PM
Entered By: Fatima Khan

NVL LABS
INDUSTRIAL HYGIENE SERVICES
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ASBESTOS CHAIN OF CUSTODY

1816745

Turn A
- ☐ 1
- ☐ 2 Hours
- ☐ 4 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☑ 5 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600 Seattle, WA 98101	Cell	( ) -
		Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number: 60537920.2.4a | Project Location: JC Boyle Vehicle Storage

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 12

	Sample ID	Description	A/R
1	JCVS-1-01		
2	1-02		
3	1-03		
4	2-01		
5	2-02		
6	3-01		
7	4-01		
8	4-02		
9	5-01		
10	5-02		
11	6-01		
12	6-02		
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Jonathan		NVLabs	8/27/18	1:40pm.
Analyzed by					
Called by					
Faxed/Email by					

August 31, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Bulk Asbestos Fiber Analysis; NVL Batch # 1816758.00

Client Project: 60537920.2.4a
Location: JC Boyle Warehouse

Dear Ms. Gladu,

Enclosed please find test results for the 12 sample(s) submitted to our laboratory for analysis on 8/27/2018.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with both **EPA 600/M4-82-020**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116** Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

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The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Matt Macfarlane, Asbestos Lab Supervisor

Enc.: Sample Results

NVLAP
Lab Code: 102063-0

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Warehouse

Batch #: 1816758.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086273 **Client Sample #: JCWH-1-01**
Location: JC Boyle Warehouse

Layer 1 of 1 **Description:** Black asphaltic material with gray surface

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles	Spider silk 2%	**Chrysotile 10%**

Lab ID: 18086274 **Client Sample #: JCWH-1-02**
Location: JC Boyle Warehouse

Layer 1 of 1 **Description:** Black asphaltic material with gray surface

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Fine particles	None Detected ND	**Chrysotile 14%**

Lab ID: 18086275 **Client Sample #: JCWH-2-01**
Location: JC Boyle Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with mesh and paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler, Mastic/Binder	Glass fibers 10%	**None Detected ND**
	Cellulose 36%	

Layer 2 of 2 **Description:** Yellow fibrous material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler	Glass fibers 91%	**None Detected ND**

Lab ID: 18086276 **Client Sample #: JCWH-2-02**
Location: JC Boyle Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with mesh and paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Asphalt/Binder, Binder/Filler, Mastic/Binder	Glass fibers 12%	**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Warehouse

Batch #: 1816758.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Cellulose 30%

Layer 2 of 2 **Description:** Yellow fibrous material

Non-Fibrous Materials: Other Fibrous Materials:% **Asbestos Type: %**
Binder/Filler Glass fibers 95% **None Detected ND**

Lab ID: 18086277 **Client Sample #: JCWH-2-03**

Location: JC Boyle Warehouse

Layer 1 of 2 **Description:** Black asphaltic mastic with mesh and paper

Non-Fibrous Materials: Other Fibrous Materials:% **Asbestos Type: %**
Asphalt/Binder, Mastic/Binder, Binder/Filler Glass fibers 15% **None Detected ND**
Cellulose 32%

Layer 2 of 2 **Description:** Yellow fibrous material

Non-Fibrous Materials: Other Fibrous Materials:% **Asbestos Type: %**
Binder/Filler Glass fibers 90% **None Detected ND**

Lab ID: 18086278 **Client Sample #: JCWH-3-01**

Location: JC Boyle Warehouse

Layer 1 of 1 **Description:** Black asphaltic material

Non-Fibrous Materials: Other Fibrous Materials:% **Asbestos Type: %**
Asphalt/Binder, Fine particles, Mineral grains Cellulose 5% **None Detected ND**
Wood flakes

Lab ID: 18086279 **Client Sample #: JCWH-3-02**

Location: JC Boyle Warehouse

Layer 1 of 1 **Description:** Black asphaltic material

Non-Fibrous Materials: Other Fibrous Materials:% **Asbestos Type: %**
Asphalt/Binder, Fine particles, Insect parts Cellulose 7% **None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Warehouse

Batch #: 1816758.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

		Spider silk 2%	

Lab ID: 18086280 **Client Sample #: JCWH-4-01**
Location: JC Boyle Warehouse
Layer 1 of 1 **Description:** Gray brittle material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Mineral grains	None Detected ND	**None Detected ND**

Lab ID: 18086281 **Client Sample #: JCWH-5-01**
Location: JC Boyle Warehouse
Layer 1 of 1 **Description:** Off-white putty material

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Putty Compound, Calcareous particles	None Detected ND	**Chrysotile 4%**

Lab ID: 18086282 **Client Sample #: JCWH-6-01**
Location: JC Boyle Warehouse
Layer 1 of 1 **Description:** Tan fibrous material with paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles	Glass fibers 56%	**None Detected ND**
	Cellulose 30%	

Lab ID: 18086283 **Client Sample #: JCWH-6-02**
Location: JC Boyle Warehouse
Layer 1 of 1 **Description:** Tan fibrous material with paper

Non-Fibrous Materials:	Other Fibrous Materials:%	**Asbestos Type: %**
Binder/Filler, Fine particles, Insect parts	Glass fibers 60%	**None Detected ND**
	Cellulose 28%	

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Warehouse

Batch #: 1816758.00
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 12
Samples Analyzed: 12
Method: EPA/600/R-93/116
& EPA/600/M4-82-020

Lab ID: 18086284 **Client Sample #: JCWH-6-03**

Location: JC Boyle Warehouse

Layer 1 of 3	**Description:** White fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler	Cellulose 42%		**None Detected ND**
		Synthetic fibers 30%		
Layer 2 of 3	**Description:** Tan fibrous material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Binder/Filler	Cellulose 89%		**None Detected ND**
Layer 3 of 3	**Description:** Black asphaltic material			
	Non-Fibrous Materials:	Other Fibrous Materials:%		**Asbestos Type: %**
	Asphalt/Binder	Cellulose 5%		**None Detected ND**

Sampled by: Client
Analyzed by: Welly Hsieh **Date:** 08/31/2018
Reviewed by: Matt Macfarlane **Date:** 08/31/2018

Matt Macfarlane, Asbestos Lab Supervisor

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and 600/M4-82-020 Methods with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

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ASBESTOS LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816758.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Warehouse

Subcategory PLM Bulk
Item Code ASB-02 EPA 600/R-93-116 Asbestos by PLM <bulk>

Total Number of Samples 12 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086273	JCWH-1-01		A
2	18086274	JCWH-1-02		A
3	18086275	JCWH-2-01		A
4	18086276	JCWH-2-02		A
5	18086277	JCWH-2-03		A
6	18086278	JCWH-3-01		A
7	18086279	JCWH-3-02		A
8	18086280	JCWH-4-01		A
9	18086281	JCWH-5-01		A
10	18086282	JCWH-6-01		A
11	18086283	JCWH-6-02		A
12	18086284	JCWH-6-03		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Welly Hsieh		NVL	8/31/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:39 PM
Entered By: Fatima Khan

1816758

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ASBESTOS CHAIN OF CUSTODY

Turn Around Time
- ☐ 1 Hour
- ☐ 24 Hours
- ☐ 4 Days
- ☐ 2 Hours
- ☐ 2 Days
- ☑ 5 Days
- ☐ 4 Hours
- ☐ 3 Days
- ☐ 10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	(866) 495 - 5288

Project Name/Number: 60537920.2.4a | Project Location: JC Boyle Warehouse

- ☐ PCM Air (NIOSH 7400)
- ☐ TEM (NIOSH 7402)
- ☐ TEM (AHERA)
- ☐ TEM (EPA Level II Modified)
- ☑ PLM (EPA 600/R-93-116)
- ☐ EPA 400 Points (600/R-93-116)
- ☐ EPA 1000Points (600/R-93-116)
- ☐ PLM Gravimetry (600/R-93-116)
- ☐ Asbestos in Vermiculite (EPA 600/R-04/004)
- ☐ Asbestos in Sediment (EPA 1900 Points)
- ☐ Asbestos Friable/Non-Friable (EPA 600/R-93/116)
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 12

	Sample ID	Description	A/R
1	JC WH - 1-01		
2	1-02		
3	2-01		
4	2-02		
5	2-03		
6	3-01		
7	3-02		
8	4-01		
9	5-01		
10	6-01		
11	6-02		
12	6-03		
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by					
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Metals Analysis; NVL Batch # 1816778.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

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ISO/IEC 17025:2005
LAB # 101861

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Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Canal Headgate

Batch #: 1816778.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086364	JCCH-Pb1-01	0.2090	48	350000	35

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0829-1

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LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816778.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Canal Headgate

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086364	JCCH-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 5:32 PM
Entered By: Soumeya Benzina

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METALS CHAIN OF CUSTODY

1816778

Turn Around Time
- ☐ 2 Hour
- ☐ 4
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☒ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Canal Headgate

- ☐ Total Metals
- ☐ TCLP
- ☒ AA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (%)
- ☐ Paint Chips (cm²)
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Other
- ☐ Soil

RCRA 8
- ☐ Barium
- ☐ Chromium
- ☐ Silver
- ☐ Arsenic
- ☐ Mercury
- ☒ Lead
- ☐ Selenium
- ☐ Cadmium

RCRA 11
- ☐ Copper
- ☐ Zinc
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 1

	Sample ID	Description	A/R
1	JCCH-Pb1-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Jonathan		NVL Labs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

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RE: Metals Analysis; NVL Batch # 1816774.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

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ISO/IEC 17025:2005
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Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Communications Building

Batch #: 1816774.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 3
Samples Analyzed: 3

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086354	JCCB-Pb1-01	0.2264	44	< 44	< 0.0044
18086355	JCCB-Pb2-01	0.1424	70	140	0.014
18086356	JCCB-Pb3-01	0.0510	200	< 200	< 0.020

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-0828-18

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LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816774.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Communications Building

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086354	JCCB-Pb1-01		A
2	18086355	JCCB-Pb2-01		A
3	18086356	JCCB-Pb3-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 5:22 PM
Entered By: Soumeya Benzina

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METALS CHAIN OF CUSTODY

1816774

Turn Around Time
- ❑ 2 Hour
- ❑ 2 Days
- ❑ 3 Days
- ❑ 4 Days
- ✗ 5 Days
- ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( )
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( )

Project Name/Number 60537920.2.4a | Project Location JC Boyle Communications Bit Building

- ❑ Total Metals
- ❑ TCLP
- ✗ FAA (ppm)
- ❑ ICP (PPM)
- ❑ GFAA (ppb)
- ❑ CVAA (ppb)
- ❑ Air Filter
- ❑ Paint Chips (%)
- ❑ Soil
- ❑ Paint Chips (cm²)
- ❑ Dust Wipes
- ❑ Drinking Water
- ❑ Waste Water
- ❑ Other

RCRA 8
- ❑ Barium
- ❑ Chromium
- ❑ Silver
- ❑ Arsenic
- ❑ Mercury
- ✗ Lead
- ❑ Selenium
- ❑ Cadmium

RCRA 11
- ❑ Copper
- ❑ Zinc
- ❑ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

❑ Call ( ) ❑ Fax ( ) ❑ Email

Total Number of Samples 3

	Sample ID	Description	A/R
1	JCLB-PB1-01		
2	1 PB2-01		
3	PB3-01		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by				8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816773.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: **Ms. Nicole Gladu**
Project Location: JC Boyle Fire Protection & Electrical Transform

Batch #: 1816773.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 3
Samples Analyzed: 3

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086351	JCFP-Pb1-01	0.2067	48	56	0.0056
18086352	JCFP-Pb2-01	0.2034	49	< 49	< 0.0049
18086353	JCFP-Pb3-01	0.1591	63	< 63	< 0.0063

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-0828-18

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816773.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Fire Protection & Electrical Transform

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 3 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086351	JCFP-Pb1-01		A
2	18086352	JCFP-Pb2-01		A
3	18086353	JCFP-Pb3-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 5:18 PM
Entered By: Soumeya Benzina

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

METALS CHAIN OF CUSTODY

1816773

Turn Around Time
- ☐ 2 Hour
- ☐ 4
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☒ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Fire Protection & Electrical

- ☐ Total Metals
- ☐ TCLP
- ☒ GFAA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (%)
- ☐ Soil
- ☐ Paint Chips (cm²)
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Other

RCRA 8
- ☐ Barium
- ☐ Chromium
- ☐ Silver
- ☐ Arsenic
- ☐ Mercury
- ☒ Lead
- ☐ Selenium
- ☐ Cadmium

RCRA 11 Transform
- ☐ Copper
- ☐ Zinc
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 3

	Sample ID	Description	A/R
1	JCFP-Pb1-01		
2	JCFP-Pb2-01		
3	JCFP-Pb3-01		
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NVL Labs	8/27/18	1:46pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816787.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: **Ms. Nicole Gladu**
Project Location: JC Boyle Gated Control Center

Batch #: 1816787.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086405	JCCG-Pb1-01	0.1883	53	3300	0.33

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-0828-18

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816787.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Gated Control Center

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086405	JCCG-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Emily Schubert		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions: RCVD amanded COC via email 8/28 at 8:00

Date: 8/28/2018
Time: 9:12 AM
Entered By: Emily Schubert

1816787

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ❑ 2 Hour
- ❑ 4 Hours
- ❑ 24 Hours
- ❑ 2 Days
- ❑ 3 Days
- ❑ 4 Days
- ☒ 5 Days
- ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Gated Control Center

❑ Total Metals	☒ FAA (ppm	❑ Air Filter	❑ Paint Chips (%)	❑ Soil	RCRA 8			RCRA 11
❑ TCLP	❑ ICP (PPM	❑ Paint Chips (cm)	❑ Dust Wipes		❑ Barium	❑ Chromium	❑ Silver	❑ Copper
	❑ GFAA (ppb)	❑ Drinking Water	❑ Waste Water		❑ Arsenic	❑ Mercury	☒ Lead	❑ Zinc
	❑ CVAA (ppb)	❑ Other			❑ Selenium	❑ Cadmium		❑ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

❑ Call ( ) - ❑ Fax ( ) - ❑ Email

Total Number of Samples 1

	Sample ID	Description	A/R
1	JCCG - PB1-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Emilee S		NVL	8/27/18	1340
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816776.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Hazmat Shed

Batch #: 1816776.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 5
Samples Analyzed: 5

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086358	JCHM-Pb1-01	0.1766	57	65	0.0065
18086359	JCHM-Pb2-01	0.1911	52	290000	29
18086360	JCHM-Pb3-01	0.1702	59	< 59	< 0.0059
18086361	JCHM-Pb4-01	0.1476	68	220000	22
18086362	JCHM-Pb5-01	0.2090	48	560	0.056

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0829-1

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816776.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Hazmat Shed

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 5 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086358	JCHM-Pb1-01		A
2	18086359	JCHM-Pb2-01		A
3	18086360	JCHM-Pb3-01		A
4	18086361	JCHM-Pb4-01		A
5	18086362	JCHM-Pb5-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 5:28 PM
Entered By: Soumeya Benzina

1816776

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ☐ 2 Hour
- ☐ 4
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☒ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Hazmat Shed

- ☐ Total Metals
- ☐ TCLP
- ☒ FAA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppm)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (%)
- ☐ Soil
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Other
- RCRA 8:
  - ☐ Barium
  - ☐ Chromium
  - ☐ Silver
  - ☐ Arsenic
  - ☐ Mercury
  - ☒ Lead
  - ☐ Selenium
  - ☐ Cadmium
- RCRA 11:
  - ☐ Copper
  - ☐ Zinc
  - ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 5

	Sample ID	Description	A/R
1	JCHM-PB1-01		
2	PB2-01		
3	PB3-01		
4	PB4-01		
5	PB5-01		
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30p.m

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NVLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816766.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

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Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Intake Structure/ Fish ladder

Batch #: 1816766.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 11
Samples Analyzed: 11

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086314	JCIS-Pb1-01	0.1125	89	< 89	<0.0089
18086315	JCIS-Pb2-01	0.2085	48	740	0.074
18086316	JCIS-Pb3-01	0.0811	120	< 120	<0.012
18086317	JCIS-Pb4-01	0.1945	51	12000	1.2
18086318	JCIS-Pb5-01	0.2015	50	68	0.0068
18086319	JCIS-Pb6-01	0.2023	49	57000	5.7
18086320	JCIS-Pb7-01	0.0556	180	< 180	<0.018
18086321	JCIS-Pb8-01	0.1945	51	< 51	<0.0051
18086322	JCIS-Pb9-01	0.1238	81	74000	7.4
18086323	JCIS-Pb10-01	0.2052	49	19000	1.9
18086324	JCIS-Pb11-01	0.0708	140	490	0.049

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-0829-7

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816766.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Intake Structure/ Fish ladder

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 11 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086314	JCIS-Pb1-01		A
2	18086315	JCIS-Pb2-01		A
3	18086316	JCIS-Pb3-01		A
4	18086317	JCIS-Pb4-01		A
5	18086318	JCIS-Pb5-01		A
6	18086319	JCIS-Pb6-01		A
7	18086320	JCIS-Pb7-01		A
8	18086321	JCIS-Pb8-01		A
9	18086322	JCIS-Pb9-01		A
10	18086323	JCIS-Pb10-01		A
11	18086324	JCIS-Pb11-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:54 PM
Entered By: Emily Schubert

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

1816766

Turn Around Time
- ☐ 2 Hour
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☒ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Intake Structure | Fish Ladder

- ☐ Total Metals
- ☐ TCLP
- ☒ FAA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (%)
- ☐ Soil
- ☐ Paint Chips (cm²)
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Other
- RCRA 8: ☐ Barium ☐ Chromium ☐ Silver ☐ Arsenic ☐ Mercury ☒ Lead ☐ Selenium ☐ Cadmium
- RCRA 11: ☐ Copper ☐ Zinc ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 11

	Sample ID	Description	A/R
1	JCIS-Pb1-01		
2	Pb2-01		
3	Pb3-01		
4	Pb4-01		
5	Pb5-01		
6	Pb6-01		
7	Pb7-01		
8	Pb8-01		
9	Pb9-01		
10	Pb10-01		
11	Pb11-01		
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Kimmathom		NVLabs	8/27/18	1:40pm.
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816761.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Office Warehouse

Batch #: 1816761.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 7
Samples Analyzed: 7

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086301	JCOW-Pb1-01	0.2176	46	< 46	<0.0046
18086302	JCOW-Pb2-01	0.1685	59	< 59	<0.0059
18086303	JCOW-Pb3-01	0.1682	59	< 59	<0.0059
18086304	JCOW-Pb4-01	0.1825	55	< 55	<0.0055
18086305	JCOW-Pb5-01	0.1777	56	< 56	<0.0056
18086306	JCOW-Pb6-01	0.1930	52	< 52	<0.0052
18086307	JCOW-Pb7-01	0.1045	96	< 96	<0.0096

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0828-18

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816761.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Office Warehouse

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 7 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086301	JCOW-Pb1-01		A
2	18086302	JCOW-Pb2-01		A
3	18086303	JCOW-Pb3-01		A
4	18086304	JCOW-Pb4-01		A
5	18086305	JCOW-Pb5-01		A
6	18086306	JCOW-Pb6-01		A
7	18086307	JCOW-Pb7-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:43 PM
Entered By: Fatima Khan

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ☐ 2 Hour
- ☐ 2 Days
- ☒ 5 Days
Please call for

1816761

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( )
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( )

Project Name/Number 60537920.2.4a | Project Location JC Boyle OFFICE WAREHOUSE

- ☐ Total Metals
- ☐ TCLP
- ☒ AA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (cm²)
- ☐ Paint Chips Fu
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Soil
- ☐ Other

RCRA 8
- ☐ Barium
- ☐ Chromium
- ☐ Silver
- ☐ Arsenic
- ☐ Mercury
- ☒ Lead
- ☐ Selenium
- ☐ Cadmium

RCRA 11
- ☐ Copper
- ☐ Zinc
- ☐ Other

Reporting Instructions Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) ☐ Fax ( ) ☐ Email

Total Number of Samples 7

	Sample ID	Description	A/R
1	JCOW-Pb1-01		
2	Pb2-01		
3	Pb3-01		
4	Pb4-01		
5	Pb5-01		
6	Pb6-01		
7	Pb7-01		
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Kathmathan		Nwlabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816775.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

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AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Boneyard

Batch #: 1816775.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086357	JCBY-Pb1-01	0.1430	70	15000	1.5

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-0829-1

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816775.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Boneyard

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086357	JCBY-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 5:26 PM
Entered By: Soumeya Benzina

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

METALS CHAIN OF CUSTODY

1816775

Turn Around Time
- ☐ 2 Hour
- ☐ 4
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☒ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Boneyard

- ☐ Total Metals
- ☐ TCLP
- ☒ AA (ppm)
- ☐ ICP (ppm)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (%)
- ☐ Soil
- ☐ Paint Chips (cm²)
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Other

RCRA 8
- ☐ Barium
- ☐ Chromium
- ☐ Silver
- ☐ Arsenic
- ☐ Mercury
- ☒ Lead
- ☐ Selenium
- ☐ Cadmium

RCRA 11
- ☐ Copper
- ☐ Zinc
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 1

	Sample ID	Description	A/R
1	JCBY-Pb1-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			Nwlabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816763.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Pen Stock

Batch #: 1816763.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086310	JCPS-Pb1-01	0.1390	72	97000	9.7

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0828-18

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816763.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Pen Stock

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086310	JCPS-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:49 PM
Entered By: Emily Schubert

1816763

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

❑ 24 Hours ❑ 2 Days ❑ 3 Days ❑ 4 Days
☒ 5 Days ❑ 6-10 Days
Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Penstock

❑ Total Metals ❑ TCLP
☒ AAA (ppm) ❑ ICP (PPM) ❑ GFAA (ppb) ❑ CVAA (ppb)
❑ Air Filter ❑ Paint Chips (ea) ❑ Soil ❑ Paint Chips (cm²) ❑ Dust Wipes ❑ Drinking Water ❑ Waste Water ❑ Other
RCRA 8: ❑ Barium ❑ Chromium ❑ Silver ❑ Arsenic ❑ Mercury ☒ Lead ❑ Selenium ❑ Cadmium
RCRA 11: ❑ Copper ❑ Zinc ❑ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
❑ Call ( ) - ❑ Fax ( ) - ❑ Email

Total Number of Samples 1

	Sample ID	Description	A/R
1	JCPS-PB1-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Kathmathum		NVLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816767.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

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Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Powerhouse

Batch #: 1816767.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 7
Samples Analyzed: 7

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086325	JCPH-Pb1-01	0.1983	50	680	0.068
18086326	JCPH-Pb2-01	0.1803	55	180	0.018
18086327	JCPH-Pb3-01	0.1446	69	360	0.036
18086328	JCPH-Pb4-01	0.1550	65	100000	10
18086329	JCPH-Pb5-01	0.1472	68	< 68	<0.0068
18086330	JCPH-Pb6-01	0.0704	140	< 140	<0.014
18086331	JCPH-Pb7-01	0.2099	48	21000	2.1

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0829-7

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816767.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Powerhouse

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 7 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086325	JCPH-Pb1-01		A
2	18086326	JCPH-Pb2-01		A
3	18086327	JCPH-Pb3-01		A
4	18086328	JCPH-Pb4-01		A
5	18086329	JCPH-Pb5-01		A
6	18086330	JCPH-Pb6-01		A
7	18086331	JCPH-Pb7-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:56 PM
Entered By: Emily Schubert

1816767

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

Turn Around
- ☐ 2 Hours ☐ 4 Hours ☐ 24 Hours
- ☐ 2 Days ☐ 3 Days ☐ 4 Days
- ☑ 5 Days ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Power house

- ☐ Total Metals ☐ TCLP
- ☒ FAA (ppm) ☐ ICP (PPM) ☐ GFAA (ppb) ☐ CVAA (ppm)
- ☐ Air Filter ☐ Paint Chips (cm²) ☐ Paint Chips (lbs) ☐ Soil ☐ Dust Wipes ☐ Drinking Water ☐ Waste Water ☐ Other
- RCRA 8: ☐ Barium ☐ Chromium ☐ Silver ☐ Arsenic ☐ Mercury ☒ Lead ☐ Selenium ☐ Cadmium
- RCRA 11: ☐ Copper ☐ Zinc ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 7

	Sample ID	Description	A/R
1	JCPH-Pb1-01		
2	Pb2-01		
3	Pb3-01		
4	Pb4-01		
5	Pb5-01		
6	Pb6-01		
7	Pb7-01		
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	12pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]	[illegible]	NVL Labs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816772.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Pumphouse

Batch #: 1816772.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086350	JCPH-Pb1-01	0.1656	60	< 60	< 0.0060

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0829-1

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816772.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Pumphouse

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086350	JCPH-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 5:10 PM
Entered By: Soumeya Benzina

1816772

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

Turn Around Time
- ☐ 2 Hour
- ☐ 4 Hours
- ☐ 24 Hours
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☒ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Pumphouse

- ☐ Total Metals
- ☐ TCLP
- ☒ AAA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (%)
- ☐ Soil
- ☐ Paint Chips (cm²)
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Other

RCRA 8
- ☐ Barium
- ☐ Chromium
- ☐ Silver
- ☐ Arsenic
- ☐ Mercury
- ☒ Lead
- ☐ Selenium
- ☐ Cadmium

RCRA 11
- ☐ Copper
- ☐ Zinc
- ☐ Other

Reporting Instructions Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 1

	Sample ID	Description	A/R
1	JCPH-Pb1-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by					
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816771.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Residence 1

Batch #: 1816771.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 5
Samples Analyzed: 5

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086345	JCRI-Pb1-01	0.1328	75	< 75	<0.0075
18086346	JCRI-Pb2-01	0.1677	60	< 60	<0.0060
18086347	JCRI-Pb7-01	0.1887	53	< 53	<0.0053
18086348	JCRI-Pb8-01	0.2166	46	< 46	<0.0046
18086349	JCRI-Pb9-01	0.1934	52	< 52	<0.0052

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0828-17

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816771.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Residence 1

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 5 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086345	JCRI-Pb1-01		A
2	18086346	JCRI-Pb2-01		A
3	18086347	JCRI-Pb7-01		A
4	18086348	JCRI-Pb8-01		A
5	18086349	JCRI-Pb9-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 5:07 PM
Entered By: Soumeya Benzina

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

1816771

Turn Around Time
- ❑ 2 Hour
- ❑ 4
- ❑ 2 Days
- ❑ 3 Days
- ❑ 4 Days
- ❑ 5 Days
- ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600 Seattle, WA 98101	Cell	( )
Email	nicole.gladu@aecom.com		
Phone	206.438.2700	Fax	( )

Project Name/Number 60537920.2.4a | Project Location JC Boyle Residence 1

- ❑ Total Metals
- ❑ TCLP
- ☒ FAA (ppm)
- ❑ ICP (PPM)
- ❑ GFAA (ppb)
- ❑ CVAA (ppb)
- ❑ Air Filter
- ❑ Paint Chips (Pb)
- ❑ Soil
- ❑ Paint Chip Term
- ❑ Dust Wipes
- ❑ Drinking Water
- ❑ Waste Water
- ❑ Other

RCRA 8
- ❑ Barium
- ❑ Chromium
- ❑ Silver
- ❑ Arsenic
- ❑ Mercury
- ☒ Lead
- ❑ Selenium
- ❑ Cadmium

RCRA 11
- ❑ Copper
- ❑ Zinc
- ❑ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

❑ Call ( ) ❑ Fax ( ) ❑ Email

Total Number of Samples 5

	Sample ID	Description	A/R
1	JCR1-Pb1-01		
2	Pb2-01		
3	Pb7-01		
4	Pb8-01		
5	Pb9-01		
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NVLlabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816765.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

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Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

1.888.NVL.LABS
1.888.(685.5227)
www.nvllabs.com

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Residence 2

Batch #: 1816765.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 2
Samples Analyzed: 2

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086311	JCR2-Pb1-01	0.1712	58	< 58	<0.0058
18086312	JCR2-Pb2-01	0.1016	98	< 98	<0.0098

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0829-7

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816765.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Residence 2

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 2 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086311	JCR2-Pb1-01		A
2	18086312	JCR2-Pb2-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:52 PM
Entered By: Emily Schubert

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

1816765

Turn Aro
- ☐ 2 H
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☐ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company AECOM
Address 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone 206.438.2700

Project Manager Nicole Gladu
Cell ( ) -
Email nicole.gladu@aecom.com
Fax ( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Residence 2

- ☐ Total Metals
- ☐ TCLP
- ☑ FAA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (cm)
- ☐ Paint Chips (%)
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Soil
- ☐ Other

RCRA 8
- ☐ Barium
- ☐ Chromium
- ☐ Silver
- ☐ Arsenic
- ☐ Mercury
- ☑ Lead
- ☐ Selenium
- ☐ Cadmium

RCRA 11
- ☐ Copper
- ☐ Zinc
- ☐ Other

Reporting Instructions Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 2

	Sample ID	Description	A/R
1	JCR2 -PB1-01		
2	PB2-01		
3			
4			
5			
6			
7			
8			
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10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1305

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	Kim Riche		NVLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 31, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816769.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Lab Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Spillway House

Batch #: 1816769.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086337	JCSW-Pb1-01	0.2039	49	2200	0.22

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/31/2018
Date Issued: 08/31/2018

Shalini Patel, Lab Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0831-1

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816769.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Spillway House

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086337	JCSW-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/31/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:58 PM
Entered By: Emily Schubert

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

1816769

Turn Around Time
- ☐ 2 Hour
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☒ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600	Cell	( ) -
	Seattle, WA 98101	Email	nicole.gladu@aecom.com
Phone	206.438.2700	Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Spillway House

- ☐ Total Metals
- ☐ TCLP
- ☒ AA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (%)
- ☐ Soil
- ☐ Paint Chips (cm²)
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Other

RCRA 8
- ☐ Barium
- ☐ Chromium
- ☐ Silver
- ☐ Arsenic
- ☐ Mercury
- ☒ Lead
- ☐ Selenium
- ☐ Cadmium

RCRA 11
- ☐ Copper
- ☐ Zinc
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 1

	Sample ID	Description	A/R
1	JCSW-PBL-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NWL labs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816768.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Vehicle Storage

Batch #: 1816768.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 5
Samples Analyzed: 5

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086332	JCVS-Pb1-01	0.0850	120	< 120	<0.012
18086333	JCVS-Pb2-01	0.1956	51	< 51	<0.0051
18086334	JCVS-Pb3-01	0.1739	58	< 58	<0.0058
18086335	JCVS-Pb4-01	0.2095	48	150	0.015
18086336	JCVS-Pb5-01	0.1765	57	< 57	<0.0057

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2018-0829-1

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816768.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Vehicle Storage

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 5 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086332	JCVS-Pb1-01		A
2	18086333	JCVS-Pb2-01		A
3	18086334	JCVS-Pb3-01		A
4	18086335	JCVS-Pb4-01		A
5	18086336	JCVS-Pb5-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 4:56 PM
Entered By: Soumeya Benzina

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

1816768

Turn Around Time
- ☐ 2 Hour
- ☐ 4 Hour
- ☐ 2 Days
- ☐ 3 Days
- ☐ 4 Days
- ☒ 5 Days
- ☐ 6-10 Days

Please call for TAT less than 24 Hours

Company	AECOM	Project Manager	Nicole Gladu
Address	1111 Third Avenue Suite 1600 Seattle, WA 98101	Cell	( ) -
Phone	206.438.2700	Email	nicole.gladu@aecom.com
		Fax	( ) -

Project Name/Number 60537920.2.4a | Project Location JC Boyle Vehicle Storage

- ☐ Total Metals
- ☐ TCLP
- ☒ FAA (ppm)
- ☐ ICP (PPM)
- ☐ GFAA (ppb)
- ☐ CVAA (ppb)
- ☐ Air Filter
- ☐ Paint Chips (cm²)
- ☐ Paint Chips (Pb)
- ☐ Soil
- ☐ Dust Wipes
- ☐ Drinking Water
- ☐ Waste Water
- ☐ Other

RCRA 8
- ☐ Barium
- ☐ Chromium
- ☐ Silver
- ☐ Arsenic
- ☐ Mercury
- ☒ Lead
- ☐ Selenium
- ☐ Cadmium

RCRA 11
- ☐ Copper
- ☐ Zinc
- ☐ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

☐ Call ( ) - ☐ Fax ( ) - ☐ Email

Total Number of Samples 5

	Sample ID	Description	A/R
1	JCVS-Pb1-01		
2	Pb2-01		
3	Pb3-01		
4	Pb4-01		
5	Pb5-01		
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	1:30pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by	[illegible]		NVL Labs	8/27/18	1:40pm.
Analyzed by					
Called by					
Faxed/Email by					

August 29, 2018

Nicole Gladu
AECOM-Seattle
1111 3rd Avenue Ste. 1600
Seattle, WA 98101

NVL LABS
INDUSTRIAL HYGIENE SERVICES
Laboratory | Management | Training

RE: Metals Analysis; NVL Batch # 1816777.00

Dear Ms. Gladu,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

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Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Shalini Patel, Metals/Organics Labs Supervisor

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 101861

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

Analysis Report

Total Lead (Pb)

Client: AECOM-Seattle
Address: 1111 3rd Avenue Ste. 1600
Seattle, WA 98101

Attention: Ms. Nicole Gladu
Project Location: JC Boyle Warehouse

Batch #: 1816777.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 60537920.2.4a
Date Received: 8/27/2018
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
18086363	JCWH-Pb1-01	0.1450	69	15000	1.5

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel

Date Analyzed: 08/29/2018
Date Issued: 08/29/2018

Shalini Patel, Metals/Organics Labs Supervisor

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2018-0828-18

NVL Laboratories, Inc.
4708 Aurora Ave N, Seattle, WA 98103
p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

LEAD LABORATORY SERVICES

Company AECOM-Seattle
Address 1111 3rd Avenue Ste. 1600
Seattle, WA 98101
Project Manager Ms. Nicole Gladu
Phone (206) 438-2700
Cell (206) 240-0644

NVL Batch Number **1816777.00**
TAT 5 Days **AH** No
Rush TAT
Due Date 9/4/2018 **Time** 1:40 PM
Email nicole.gladu@aecom.com
Fax (866) 495-5288

Project Name/Number: 60537920.2.4a **Project Location:** JC Boyle Warehouse

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	18086363	JCWH-Pb1-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Fatima Khan		NVL	8/27/18	1340
Analyzed by	Yasuyuki Hida		NVL	8/29/18	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 8/27/2018
Time: 5:30 PM
Entered By: Soumeya Benzina

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

METALS CHAIN OF CUSTODY

1816777

Turn Around Time
- ❑ 2 Hour
- ❑ 4 H
- ❑ 2 Days
- ❑ 3 Days
- ❑ 4 Days
- ❑ 5 Days
- ❑ 6-10 Days

Please call for TAT less than 24 Hours

Company: AECOM
Address: 1111 Third Avenue Suite 1600
Seattle, WA 98101
Phone: 206.438.2700

Project Manager: Nicole Gladu
Cell: ( ) -
Email: nicole.gladu@aecom.com
Fax: ( ) -

Project Name/Number: 60537920.2.4a | Project Location: JC Boyle Warehouse

- ❑ Total Metals
- ❑ TCLP
- ☒ FAA (ppm)
- ❑ ICP (PPM)
- ❑ GFAA (ppb)
- ❑ CVAA (ppb)
- ❑ Air Filter
- ❑ Paint Chips (%)
- ❑ Soil
- ❑ Paint Chips (cm²)
- ❑ Dust Wipes
- ❑ Drinking Water
- ❑ Waste Water
- ❑ Other

RCRA 8
- ❑ Barium
- ❑ Chromium
- ❑ Silver
- ❑ Arsenic
- ❑ Mercury
- ☒ Lead
- ❑ Selenium
- ❑ Cadmium

RCRA 11
- ❑ Copper
- ❑ Zinc
- ❑ Other

Reporting Instructions: Please email: kimberly.riche@aecom.com & shannon.mackay@aecom.com
❑ Call ( ) - ❑ Fax ( ) - ❑ Email

Total Number of Samples 1

	Sample ID	Description	A/R
1	JCWH-PBL-01		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	Print Name	Signature	Company	Date	Time
Sampled by	Kim Riche		AECOM	8/20/18-8/23/18	11:00am
Relinquish by	Kim Riche		AECOM	8/27/18	130pm

Office Use Only

	Print Name	Signature	Company	Date	Time
Received by			NVLLabs	8/27/18	1:40pm
Analyzed by					
Called by					
Faxed/Email by					

4708 Aurora Ave N, Seattle, WA 98103 | p 206.547.0100 | f 206.634.1936 | www.nvllabs.com

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

AECOM
Nicole Gladu
1111 3rd Avenue Suite 1600
Seattle, WA 98101

RE: JC Boyle
Work Order Number: 1808336

September 04, 2018

Attention Nicole Gladu:

Fremont Analytical, Inc. received 1 sample(s) on 8/27/2018 for the analyses presented in the following report.

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

CC:
Kimberly Riche
Shannon Mackay

Date: *09/04/2018*

CLIENT: AECOM
Project: JC Boyle
Work Order: 1808336

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1808336-001	JCPH-PCB-01	08/23/2018 8:08 AM	08/27/2018 2:33 PM

Case Narrative

WO#: **1808336**
Date: **9/4/2018**

CLIENT: AECOM
Project: JC Boyle

WorkOrder Narrative:
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1808336**
Date Reported: **9/4/2018**

Client: AECOM
Collection Date: 8/23/2018 8:08:00 AM
Project: JC Boyle
Lab ID: 1808336-001
Matrix: Solid
Client Sample ID: **JCPH-PCB-01**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)				Batch ID: 21764		Analyst: IH
Aroclor 1016	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Aroclor 1221	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Aroclor 1232	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Aroclor 1242	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Aroclor 1248	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Aroclor 1254	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Aroclor 1260	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Aroclor 1262	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Aroclor 1268	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Total PCBs	ND	0.820		mg/Kg	1	8/29/2018 6:12:43 PM
Surr: Decachlorobiphenyl	87.2	20 - 191		%Rec	1	8/29/2018 6:12:43 PM
Surr: Tetrachloro-m-xylene	95.1	20 - 173		%Rec	1	8/29/2018 6:12:43 PM

Work Order: 1808336
CLIENT: AECOM
Project: JC Boyle

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

Sample ID **MB-21764** SampType: **MBLK** Units: **mg/Kg** Prep Date: **8/29/2018** RunNo: **45884**
Client ID: **MBLKS** Batch ID: **21764** Analysis Date: **8/29/2018** SeqNo: **888325**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.100									
Aroclor 1221	ND	0.100									
Aroclor 1232	ND	0.100									
Aroclor 1242	ND	0.100									
Aroclor 1248	ND	0.100									
Aroclor 1254	ND	0.100									
Aroclor 1260	ND	0.100									
Aroclor 1262	ND	0.100									
Aroclor 1268	ND	0.100									
Total PCBs	ND	0.100									
Surr: Decachlorobiphenyl	0.0469		0.05000		93.8	20	191				
Surr: Tetrachloro-m-xylene	0.0507		0.05000		101	20	173				

Sample ID **LCS1-21764** SampType: **LCS** Units: **mg/Kg** Prep Date: **8/29/2018** RunNo: **45884**
Client ID: **LCSS** Batch ID: **21764** Analysis Date: **8/29/2018** SeqNo: **888326**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	0.930	0.100	1.000	0	93.0	38.4	155				
Aroclor 1260	0.760	0.100	1.000	0	76.0	42.8	168				
Surr: Decachlorobiphenyl	0.0501		0.05000		100	20	191				
Surr: Tetrachloro-m-xylene	0.0543		0.05000		109	20	173				

Sample ID **LCS1D-21764** SampType: **LCSD** Units: **mg/Kg** Prep Date: **8/29/2018** RunNo: **45884**
Client ID: **LCSS02** Batch ID: **21764** Analysis Date: **8/29/2018** SeqNo: **888327**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	0.909	0.100	1.000	0	90.9	38.4	155	0.9302	2.32	30	
Aroclor 1260	0.733	0.100	1.000	0	73.3	42.8	168	0.7600	3.61	30	
Surr: Decachlorobiphenyl	0.0469		0.05000		93.7	20	191		0		
Surr: Tetrachloro-m-xylene	0.0512		0.05000		102	20	173		0		

Work Order: 1808336
CLIENT: AECOM
Project: JC Boyle

QC SUMMARY REPORT

Polychlorinated Biphenyls (PCB) by EPA 8270 (GCMS)

Sample ID	**LCS1D-21764**	SampType: **LCSD**			Units: **mg/Kg**		Prep Date: **8/29/2018**		RunNo: **45884**	
Client ID:	**LCSS02**	Batch ID: **21764**					Analysis Date: **8/29/2018**		SeqNo: **888327**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**LCS2-21764**	SampType: **LCS**			Units: **mg/Kg**		Prep Date: **8/29/2018**		RunNo: **45884**	
Client ID:	**LCSS**	Batch ID: **21764**					Analysis Date: **8/29/2018**		SeqNo: **888331**	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1254	0.816	0.100	1.000	0	81.6	40.9	164				
Surr: Decachlorobiphenyl	0.0490		0.05000		97.9	20	191				
Surr: Tetrachloro-m-xylene	0.0489		0.05000		97.7	20	173				

Sample Log-In Check List

Client Name:	**URS**	Work Order Number:	**1808336**
Logged by:	**Clare Griggs**	Date Received:	**8/27/2018 2:33:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐	
2.	How was the sample delivered?	Courier			

Log In

3.	Coolers are present?	Yes ☐	No ☑	NA ☐	
		No cooler present.			
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑	
6.	Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐	
		Unknown prior to receipt.			
7.	Were all items received at a temperature of >0°C to 10.0°C *	Yes ☐	No ☑	NA ☐	
		Refer to item information.			
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐		
10.	Are samples properly preserved?	Yes ☑	No ☐		
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐	
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑	
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐		
14.	Does paperwork match bottle labels?	Yes ☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes ☐	No ☑		
16.	Is it clear what analyses were requested?	Yes ☑	No ☐		
17.	Were all holding times able to be met?	Yes ☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑	

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	23.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 8/27/18 Page: 1 of: 1

Laboratory Project No (internal): 1800338

Special Remarks:

Project Name: JC Boyle

Project No: 60537920.2.4a

Client: AECOM

Address: 1111 Third Avenue

City, State, Zip: Seattle, Wa 98101

Telephone: 253-720-3980

Fax:

Collected by: Kim Riche

Location:

Report To (PM): Nicole Gladu

PM Email: kimberly.riche@aecom.com & shannon.mackay@aecom.com

Sample Disposal: ☐ Return to client ☒ Disposal by lab (after 30 days)

	Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)	PCB 8270				Comments
1	JCPH-PCB-01	08/23/18	08:08														✓					Powerhouse HSA 10
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): Individual:

***Anions (Circle): ☐ Nitrate ☐ Nitrite ☐ Chloride ☐ Sulfate ☐ Bromide ☐ O-Phosphate ☐ Fluoride ☐ Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x	8/27/18 12:15pm	x	8/27/2018 1433
Relinquished	Date/Time	Received	Date/Time
x		x	

Turn-around Time:

- ■ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day ☐ (specify)

APPENDIX D PERSONNEL AND LABORATORY CERTIFICATIONS

Certificate of Completion

This is to certify that

Kimberly D. Riche

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

168531
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Jul 11, 2018 — Expires in 1 year.
Date(s) of Training

Exam Score: N/A
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Shannon MacKay

ABIR0115190004N18965

David Wallach
Principal Instructor

Michael W. Horner
Michael W. Horner
Training Director

1/15/2019	1/15/2019	1/15/2019	1/15/2020
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Anaheim, CA • Oakland, CA • Fresno, CA • Sacramento, CA
Asbestos • Lead • Mold • HAZWOPER
P.O. Box 25205 Anaheim, CA 92825-5205
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification
This Card Acknowledges That
Shannon MacKay
Holds Training Certification For
Asbestos Building Inspector Refresher Course
Expiration: 01/15/2020
Training Date 1/15/2019
Certificate No. ABIR0115190004N18965
Michael W. Horner
Training Director

Certificate of Completion

This is to certify that

Shannon R. MacKay

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

167196
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

May 2, 2018 — Expires in 1 year.
Date(s) of Training

Exam Score:
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL ACCREDITATION

Is hereby granted to

NVL Laboratory

4708 Aurora Avenue North

Seattle, WA 98103

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2757**

Expiration Date: **9/30/2019**

Effective Date: **10/1/2018**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

NVL Laboratories, Inc.
PLM Dept.
4708 Aurora Avenue North
Seattle, WA 98103
Phone: (206) 547-0100

Certificate No. 2757
Expiration Date 9/30/2019

Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste

121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 9/28/2018 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 102063-0

NVL Laboratories, Inc.

Seattle, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2018-10-01 through 2019-09-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

NVL Laboratories, Inc.

4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: 101861

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: June 01, 2019
✓	**ENVIRONMENTAL LEAD**	Accreditation Expires: June 01, 2019
✓	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: June 01, 2019
☐	**FOOD**	Accreditation Expires:
✓	**UNIQUE SCOPES**	Accreditation Expires: June 01, 2019

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

William Walsh, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 15: 03/30/2016

Date Issued: 05/31/2017

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

NVL Laboratories, Inc.
4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: **101861**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 04/01/1997

IHLAP Scope Category	Field of Testing (FoT) (FoTs cover all relevant IH matrices)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte (*for internal methods only*)
Spectrometry Core	Inductively-Coupled Plasma	ICP/AES	EPA 3051	
			NIOSH 7300 Modified	
	X-ray Diffraction (XRD)		NIOSH 7500	
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)		NIOSH 7400	
Miscellaneous Core	Gravimetric		NIOSH 0500 Modified	
			NIOSH 0600 Modified	

A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

NVL Laboratories, Inc.
4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: **101861**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 02/07/1997

Field of Testing (FoT)	Technology sub-type/ Detector	Method	Method Description (*for internal methods only*)
Paint		EPA SW-846 3051	
		EPA SW-846 7000B	
Soil		EPA SW-846 3051	
		EPA SW-846 7000B	
Settled Dust by Wipe		EPA SW-846 3051	
		EPA SW-846 7000B	
Airborne Dust		EPA SW-846 3051	
		NIOSH 7082	

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

NVL Laboratories, Inc.
4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: **101861**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 02/01/1997

EMLAP Category	Field of Testing (FoT)	Method	Method Description (*for internal methods only*)
Fungal	Air - Direct Examination	SOP 12.133	In-House: Analysis of Spore Trap
	Bulk - Direct Examination	SOP 12.133	In-House: Bulk Analysis
	Surface - Direct Examination	SOP 12.133	In-House: Surface Analysis

A complete listing of currently accredited Environmental Microbiology laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

NVL Laboratories, Inc.
4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: **101861**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Unique Scopes Laboratory Accreditation Program (Unique Scopes)

Initial Accreditation Date: 04/01/2013

Unique Scope Category	Field of Testing (FoT)	Method	Method Description (*for internal methods only*)
Consumer Product Testing	Lead in Paint and Other Similar Surface Coatings	CPSC-CH-E1003-09.1	
	Total Lead in Metal Children's Products	CPSC-CH-E1001-08.2	
	Total Lead in Non-Metal Children's Products	CPSC-CH-E1002-08.1	

A complete listing of currently accredited Unique Scope laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL LABORATORY ACCREDITATION

Is hereby granted to

EMSL Analytical Inc.

200 Route 130 North

Cinnaminson, NJ 08077

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site inspection, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1877**

Expiration Date: **3/31/2017**

Effective Date: **4/1/2015**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Accredited Fields of Testing

EMSL Analytical Inc.

200 Route 130 North
Cinnaminson, NJ 08077
Phone: (800) 220-3675

Certificate No. 1877
Expiration Date 3/31/2017

Field of Testing: 102 - Inorganic Chemistry of Drinking Water

102.030	001	Bromide	EPA 300.0
102.030	003	Chloride	EPA 300.0
102.030	005	Fluoride	EPA 300.0
102.030	006	Nitrate	EPA 300.0
102.030	007	Nitrite	EPA 300.0
102.030	008	Phosphate, Ortho	EPA 300.0
102.030	009	Sulfate	EPA 300.0
102.100	001	Alkalinity	SM2320B
102.130	001	Conductivity	SM2510B
102.140	001	Total Dissolved Solids	SM2540C
102.175	001	Chlorine, Free and Total	SM4500-Cl G
102.190	001	Cyanide, Total	SM4500-CN E
102.192	001	Cyanide, amenable	SM4500-CN G
102.262	001	Total Organic Carbon TOC	SM5310C
102.270	001	Surfactants	SM5540C
102.520	001	Calcium	EPA 200.7
102.520	002	Magnesium	EPA 200.7
102.520	003	Potassium	EPA 200.7
102.520	004	Silica	EPA 200.7
102.520	005	Sodium	EPA 200.7
102.520	006	Hardness (calculation)	EPA 200.7

Field of Testing: 103 - Toxic Chemical Elements of Drinking Water

103.030	001	Mercury	SM3112B
103.060	001	Aluminum	SM3120B
103.060	003	Barium	SM3120B
103.060	007	Chromium	SM3120B
103.060	009	Iron	SM3120B
103.060	011	Manganese	SM3120B
103.060	015	Silver	SM3120B
103.060	017	Zinc	SM3120B
103.130	007	Chromium	EPA 200.7
103.130	008	Copper	EPA 200.7
103.130	009	Iron	EPA 200.7
103.130	011	Manganese	EPA 200.7
103.130	015	Silver	EPA 200.7
103.130	017	Zinc	EPA 200.7
103.140	001	Aluminum	EPA 200.8
103.140	002	Antimony	EPA 200.8

As of 9/16/2015 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

103.140	003	Arsenic	EPA 200.8
103.140	004	Barium	EPA 200.8
103.140	005	Beryllium	EPA 200.8
103.140	006	Cadmium	EPA 200.8
103.140	007	Chromium	EPA 200.8
103.140	008	Copper	EPA 200.8
103.140	009	Lead	EPA 200.8
103.140	010	Manganese	EPA 200.8
103.140	012	Nickel	EPA 200.8
103.140	013	Selenium	EPA 200.8
103.140	014	Silver	EPA 200.8
103.140	015	Thallium	EPA 200.8
103.140	016	Zinc	EPA 200.8
103.150	009	Lead	EPA 200.9
103.160	001	Mercury	EPA 245.1
103.300	001	Asbestos	EPA 100.1
103.301	001	Asbestos	EPA 100.2

Field of Testing: 104 - Volatile Organic Chemistry of Drinking Water

104.040	000	Volatile Organic Compounds	EPA 524.2
104.040	001	Benzene	EPA 524.2
104.040	007	n-Butylbenzene	EPA 524.2
104.040	008	sec-Butylbenzene	EPA 524.2
104.040	009	tert-Butylbenzene	EPA 524.2
104.040	010	Carbon Tetrachloride	EPA 524.2
104.040	011	Chlorobenzene	EPA 524.2
104.040	015	2-Chlorotoluene	EPA 524.2
104.040	016	4-Chlorotoluene	EPA 524.2
104.040	019	1,3-Dichlorobenzene	EPA 524.2
104.040	020	1,2-Dichlorobenzene	EPA 524.2
104.040	021	1,4-Dichlorobenzene	EPA 524.2
104.040	022	Dichlorodifluoromethane	EPA 524.2
104.040	023	1,1-Dichloroethane	EPA 524.2
104.040	024	1,2-Dichloroethane	EPA 524.2
104.040	025	1,1-Dichloroethene	EPA 524.2
104.040	026	cis-1,2-Dichloroethene	EPA 524.2
104.040	027	trans-1,2-Dichloroethene	EPA 524.2
104.040	028	Dichloromethane	EPA 524.2
104.040	029	1,2-Dichloropropane	EPA 524.2
104.040	033	cis-1,3-Dichloropropene	EPA 524.2
104.040	034	trans-1,3-Dichloropropene	EPA 524.2
104.040	035	Ethylbenzene	EPA 524.2
104.040	037	Isopropylbenzene	EPA 524.2
104.040	039	Naphthalene	EPA 524.2
104.040	041	N-propylbenzene	EPA 524.2
104.040	042	Styrene	EPA 524.2
104.040	044	1,1,2,2-Tetrachloroethane	EPA 524.2
104.040	045	Tetrachloroethene	EPA 524.2

104.040	046	Toluene	EPA 524.2
104.040	048	1,2,4-Trichlorobenzene	EPA 524.2
104.040	049	1,1,1-Trichloroethane	EPA 524.2
104.040	050	1,1,2-Trichloroethane	EPA 524.2
104.040	051	Trichloroethene	EPA 524.2
104.040	052	Trichlorofluoromethane	EPA 524.2
104.040	054	1,2,4-Trimethylbenzene	EPA 524.2
104.040	055	1,3,5-Trimethylbenzene	EPA 524.2
104.040	056	Vinyl Chloride	EPA 524.2
104.040	057	Xylenes, Total	EPA 524.2
104.045	001	Bromodichloromethane	EPA 524.2
104.045	002	Bromoform	EPA 524.2
104.045	003	Chloroform	EPA 524.2
104.045	004	Dibromochloromethane	EPA 524.2
104.050	002	Methyl tert-butyl Ether (MTBE)	EPA 524.2
104.050	006	tert-Butyl Alcohol (TBA)	EPA 524.2
104.050	008	Carbon Disulfide	EPA 524.2
104.050	009	Methyl Isobutyl Ketone	EPA 524.2

Field of Testing: 109 - Toxic Chemical Elements of Wastewater

109.010	001	Aluminum	EPA 200.7
109.010	002	Antimony	EPA 200.7
109.010	003	Arsenic	EPA 200.7
109.010	004	Barium	EPA 200.7
109.010	005	Beryllium	EPA 200.7
109.010	007	Cadmium	EPA 200.7
109.010	009	Chromium	EPA 200.7
109.010	010	Cobalt	EPA 200.7
109.010	011	Copper	EPA 200.7
109.010	012	Iron	EPA 200.7
109.010	013	Lead	EPA 200.7
109.010	015	Manganese	EPA 200.7
109.010	016	Molybdenum	EPA 200.7
109.010	017	Nickel	EPA 200.7
109.010	019	Selenium	EPA 200.7
109.010	021	Silver	EPA 200.7
109.010	023	Thallium	EPA 200.7
109.010	024	Tin	EPA 200.7
109.010	026	Vanadium	EPA 200.7
109.010	027	Zinc	EPA 200.7
109.020	001	Aluminum	EPA 200.8
109.020	002	Antimony	EPA 200.8
109.020	003	Arsenic	EPA 200.8
109.020	004	Barium	EPA 200.8
109.020	005	Beryllium	EPA 200.8
109.020	006	Cadmium	EPA 200.8
109.020	007	Chromium	EPA 200.8
109.020	008	Cobalt	EPA 200.8

109.020	009	Copper	EPA 200.8
109.020	010	Lead	EPA 200.8
109.020	011	Manganese	EPA 200.8
109.020	012	Molybdenum	EPA 200.8
109.020	013	Nickel	EPA 200.8
109.020	014	Selenium	EPA 200.8
109.020	015	Silver	EPA 200.8
109.020	016	Thallium	EPA 200.8
109.020	017	Vanadium	EPA 200.8
109.020	018	Zinc	EPA 200.8
109.020	021	Iron	EPA 200.8
109.020	022	Tin	EPA 200.8
109.020	023	Titanium	EPA 200.8
109.025	010	Lead	EPA 200.9
109.190	001	Mercury	EPA 245.1
109.370	007	Gold	SM3111B
109.370	010	Lead	SM3111B
109.370	014	Palladium	SM3111B
109.370	015	Platinum	SM3111B
109.400	001	Mercury	SM3112B
109.430	001	Aluminum	SM3120B
109.430	002	Antimony	SM3120B
109.430	005	Beryllium	SM3120B
109.430	007	Cadmium	SM3120B
109.430	009	Chromium	SM3120B
109.430	010	Cobalt	SM3120B
109.430	011	Copper	SM3120B
109.430	012	Iron	SM3120B
109.430	013	Lead	SM3120B
109.430	015	Manganese	SM3120B
109.430	016	Molybdenum	SM3120B
109.430	017	Nickel	SM3120B
109.430	019	Selenium	SM3120B
109.430	021	Silver	SM3120B
109.430	024	Vanadium	SM3120B
109.430	025	Zinc	SM3120B
109.811	001	Chromium (VI)	SM3500-Cr D (18th/19th)

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010B
114.010	002	Arsenic	EPA 6010B
114.010	003	Barium	EPA 6010B
114.010	004	Beryllium	EPA 6010B
114.010	005	Cadmium	EPA 6010B
114.010	006	Chromium	EPA 6010B
114.010	007	Cobalt	EPA 6010B
114.010	008	Copper	EPA 6010B
114.010	009	Lead	EPA 6010B

114.010	010	Molybdenum	EPA 6010B
114.010	011	Nickel	EPA 6010B
114.010	012	Selenium	EPA 6010B
114.010	013	Silver	EPA 6010B
114.010	014	Thallium	EPA 6010B
114.010	015	Vanadium	EPA 6010B
114.010	016	Zinc	EPA 6010B
114.020	001	Antimony	EPA 6020
114.020	002	Arsenic	EPA 6020
114.020	003	Barium	EPA 6020
114.020	004	Beryllium	EPA 6020
114.020	005	Cadmium	EPA 6020
114.020	006	Chromium	EPA 6020
114.020	007	Cobalt	EPA 6020
114.020	008	Copper	EPA 6020
114.020	009	Lead	EPA 6020
114.020	010	Molybdenum	EPA 6020
114.020	011	Nickel	EPA 6020
114.020	012	Selenium	EPA 6020
114.020	013	Silver	EPA 6020
114.020	014	Thallium	EPA 6020
114.020	015	Vanadium	EPA 6020
114.020	016	Zinc	EPA 6020
114.103	001	Chromium (VI)	EPA 7196A
114.130	001	Lead	EPA 7420
114.131	001	Lead	EPA 7421
114.140	001	Mercury	EPA 7470A
114.141	001	Mercury	EPA 7471A
Field of Testing: 115 - Extraction Test of Hazardous Waste			
115.020	001	Toxicity Characteristic Leaching Procedure (TCLP)	EPA 1311
115.030	001	Waste Extraction Test (WET)	CCR Chapter11, Article 5, Appendix II
Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste			
116.010	000	EDB and DBCP	EPA 8011
116.020	030	Nonhalogenated Volatiles	EPA 8015B
116.020	031	Ethanol and Methanol	EPA 8015B
116.030	001	Gasoline-range Organics	EPA 8015B
116.080	000	Volatile Organic Compounds	EPA 8260B
116.080	120	Oxygenates	EPA 8260B
Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste			
117.010	001	Diesel-range Total Petroleum Hydrocarbons	EPA 8015B
117.110	000	Extractable Organics	EPA 8270C
117.210	000	Pesticides & PCBs	EPA 8081A
117.220	000	PCBs	EPA 8082
117.250	000	Chlorinated Herbicides	EPA 8151A
Field of Testing: 121 - Bulk Asbestos Analysis of Hazardous Waste			
121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 9/16/2015 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

Field of Testing: 129 - Cryptosporidium & Giardia			
129.020	001	Cryptosporidium and Giardia	EPA 1623
129.030	001	Cryptosporidium and Giardia	EPA 1623.1

Solids	EPA 8270D	5562	Azobenzene
		5595	Benzidine
		5575	Benzo(a)anthracene
		5580	Benzo(a)pyrene
		5590	Benzo(g,h,i)perylene
		9309	Benzo(j)fluoranthene
		5600	Benzo(k)fluoranthene
		5585	Benzo[b]fluoranthene
		5610	Benzoic acid
		5630	Benzyl alcohol
		5760	bis(2-Chloroethoxy)methane
		5765	bis(2-Chloroethyl) ether
		5780	bis(2-Chloroisopropyl) ether
		6062	bis(2-Ethylhexyl)adipate
		5670	Butyl benzyl phthalate
		5680	Carbazole
		5855	Chrysene
		6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)
		9354	Dibenz(a, h) acridine
		5900	Dibenz(a, j) acridine
		5895	Dibenz(a,h) anthracene
		9348	Dibenzo(a, h) pyrene
		5890	Dibenzo(a,e) pyrene
		5905	Dibenzofuran
		6070	Diethyl phthalate
		6135	Dimethyl phthalate
		5925	Di-n-butyl phthalate
		6200	Di-n-octyl phthalate
		6205	Diphenylamine
		6265	Fluoranthene
		6270	Fluorene
		6275	Hexachlorobenzene
		4835	Hexachlorobutadiene
		6285	Hexachlorocyclopentadiene
		4840	Hexachloroethane
		6315	Indeno(1,2,3-cd) pyrene
		6320	Isophorone
		5005	Naphthalene
		5015	Nitrobenzene
		6525	n-Nitrosodiethylamine
		6530	n-Nitrosodimethylamine
		6545	n-Nitrosodi-n-propylamine
		6535	n-Nitrosodiphenylamine

Solids

EPA 8270D	6605	Pentachlorophenol		
	6608	Perylene		
	6615	Phenanthrene		
	6625	Phenol		
	6665	Pyrene		
	5095	Pyridine		
EPA 8270D SIM			10242509	Semivolatile Organic compounds by GC/MS Selective Ion Monitoring
	6380	1-Methylnaphthalene		
	6385	2-Methylnaphthalene		
	5500	Acenaphthene		
	5505	Acenaphthylene		
	5555	Anthracene		
	5575	Benzo(a)anthracene		
	5580	Benzo(a)pyrene		
	5590	Benzo(g,h,i)perylene		
	5600	Benzo(k)fluoranthene		
	5585	Benzo[b]fluoranthene		
	5670	Butyl benzyl phthalate		
	5855	Chrysene		
	6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)		
	5895	Dibenz(a,h) anthracene		
	5905	Dibenzofuran		
	6070	Diethyl phthalate		
	6135	Dimethyl phthalate		
	5925	Di-n-butyl phthalate		
	6200	Di-n-octyl phthalate		
	6265	Fluoranthene		
	6270	Fluorene		
	6315	Indeno(1,2,3-cd) pyrene		
	5005	Naphthalene		
	6605	Pentachlorophenol		
	6615	Phenanthrene		
	6665	Pyrene		
EPA 8270E			988	Semivolatile Organic compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
	5155	1,2,4-Trichlorobenzene		
EPA 8270E			10242543	Semivolatile Organic compounds by GC/MS
	5155	1,2,4-Trichlorobenzene		
	4610	1,2-Dichlorobenzene		
	6155	1,2-Dinitrobenzene		
	4615	1,3-Dichlorobenzene		

Solids	EPA 8270E	6160	1,3-Dinitrobenzene (1,3-DNB)
		4620	1,4-Dichlorobenzene
		6165	1,4-Dinitrobenzene
		6380	1-Methylnaphthalene
		4659	2,2-Oxybis(1-chloropropane)
		6735	2,3,4,6-Tetrachlorophenol
		6740	2,3,5,6-Tetrachlorophenol
		6835	2,4,5-Trichlorophenol
		6840	2,4,6-Trichlorophenol
		6000	2,4-Dichlorophenol
		6130	2,4-Dimethylphenol
		6175	2,4-Dinitrophenol
		6185	2,4-Dinitrotoluene (2,4-DNT)
		6190	2,6-Dinitrotoluene (2,6-DNT)
		5795	2-Chloronaphthalene
		5800	2-Chlorophenol
		6360	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)
		5145	2-Methylaniline (o-Toluidine)
		6385	2-Methylnaphthalene
		6400	2-Methylphenol (o-Cresol)
		6460	2-Nitroaniline
		6490	2-Nitrophenol
		6412	3 & 4 Methylphenol
		5945	3,3'-Dichlorobenzidine
		6355	3-Methylcholanthrene
		6465	3-Nitroaniline
		5660	4-Bromophenyl phenyl ether (BDE-3)
		5700	4-Chloro-3-methylphenol
		5745	4-Chloroaniline
		5825	4-Chlorophenyl phenylether
		6470	4-Nitroaniline
		6500	4-Nitrophenol
		5500	Acenaphthene
		5505	Acenaphthylene
		5510	Acetophenone
		5545	Aniline
		5555	Anthracene
		5562	Azobenzene
		5570	Benzaldehyde
		5595	Benzidine
		5575	Benzo(a)anthracene
		5580	Benzo(a)pyrene
		5590	Benzo(g,h,i)perylene

Solids	EPA 8270E	9309	Benzo(j)fluoranthene
		5600	Benzo(k)fluoranthene
		5585	Benzo[b]fluoranthene
		5610	Benzoic acid
		5630	Benzyl alcohol
		5635	Benzyl chloride
		5760	bis(2-Chloroethoxy)methane
		5765	bis(2-Chloroethyl) ether
		5780	bis(2-Chloroisopropyl) ether
		6062	bis(2-Ethylhexyl)adipate
		5670	Butyl benzyl phthalate
		5680	Carbazole
		5855	Chrysene
		6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)
		9354	Dibenz(a, h) acridine
		5900	Dibenz(a, j) acridine
		5895	Dibenz(a,h) anthracene
		9348	Dibenzo(a, h) pyrene
		9351	Dibenzo(a, i) pyrene
		5890	Dibenzo(a,e) pyrene
		5905	Dibenzofuran
		6070	Diethyl phthalate
		6135	Dimethyl phthalate
		5925	Di-n-butyl phthalate
		6200	Di-n-octyl phthalate
		6205	Diphenylamine
		6265	Fluoranthene
		6270	Fluorene
		6275	Hexachlorobenzene
		4835	Hexachlorobutadiene
		6285	Hexachlorocyclopentadiene
		4840	Hexachloroethane
		6315	Indeno(1,2,3-cd) pyrene
		5005	Naphthalene
		5015	Nitrobenzene
		6530	n-Nitrosodimethylamine
		6545	n-Nitrosodi-n-propylamine
		6535	n-Nitrosodiphenylamine
		6605	Pentachlorophenol
		6608	Perylene
		6615	Phenanthrene
		6625	Phenol
		7985	Phorate

Solids

EPA 8270E	6665	Pyrene		
	5095	Pyridine		
EPA 8270E SIM			989	Semivolatile Organic compounds by Gas Chromatography/Mass Spectrometry (GC/MS) SIM Mode
	6380	1-Methylnaphthalene		
	5795	2-Chloronaphthalene		
	6385	2-Methylnaphthalene		
	5500	Acenaphthene		
	5505	Acenaphthylene		
	5555	Anthracene		
	5575	Benzo(a)anthracene		
	5580	Benzo(a)pyrene		
	5590	Benzo(g,h,i)perylene		
	5600	Benzo(k)fluoranthene		
	5585	Benzo[b]fluoranthene		
	5670	Butyl benzyl phthalate		
	5680	Carbazole		
	5855	Chrysene		
	6065	Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP)		
	5895	Dibenz(a,h) anthracene		
	5905	Dibenzofuran		
	6070	Diethyl phthalate		
	6135	Dimethyl phthalate		
	5925	Di-n-butyl phthalate		
	6200	Di-n-octyl phthalate		
	6265	Fluoranthene		
	6270	Fluorene		
	6315	Indeno(1,2,3-cd) pyrene		
	5005	Naphthalene		
	6605	Pentachlorophenol		
	6615	Phenanthrene		
	6665	Pyrene		
NWTPH-Dx			90018409	Oregon DEQ TPH Diesel Range
	9369	Diesel range organics (DRO)		
	9499	Motor Oil		
	2050	Total Petroleum Hydrocarbons (TPH)		
NWTPH-Gx			90018603	Oregon DEQ TPH Gasoline Range Organics by GC/FID-PID Purge & Trap
	9408	Gasoline range organics (GRO)		

Appendix C

J.C. Boyle Hazardous Waste Inventory

Table C-1. Universal Waste Inventory

Material Description	Approximate Quantity
Mercury-Containing fluorescent light tubes (4’ length)	68
Mercury-Containing fluorescent light tubes (6’ length)	10
Mercury-Containing fluorescent light tubes (8’ length)	8
Magnetic light ballasts	50
HID Lamps	39
Mercury-containing switches, controls, and recorders	None Observed

Table C-2. Non-RCRA Hazardous Waste Inventory

J.C. Boyle Development Asbestos and/or Lead-Based Materials		
Facility	**Asbestos**	**Lead**
Canal Headgate		✓
Communications Building	✓	✓
Fire Protection Building		✓
HazMat Shed	✓	✓
Intake Structure		✓
Outdoor Storage Area		✓
Penstock		✓
Powerhouse	✓	✓
Spillway		✓
Vehicle Storage Shed		✓
Warehouse	✓	✓
Office Wearhouse	✓	
Residence 1	✓	
Residence 2	✓	
Assumed to be present underground throughout the J.C. Boyle Development	✓	

Table C-3. Characteristic Hazardous Waste Inventory

Hazardous Class	Common Name	Quantity	Container
Flammable and Combustible Liquids	Gasoline	500 Gallons	AST
Flammable and Combustible Liquids	Diesel Fuel No. 2	300 Gallons	AST
Flammable Gas	Acetylene	200 Cubic Feet	Cylinder
Non-Flammable Gases	Argon, Liquid	200 Cubic Feet	Cylinder
Flammable and Combustible Liquids	Gear Oil	20 Gallons	Plastic Drum
Flammable and Combustible Liquids	Hydraulic Oil	30 Gallons	Plastic Drum
Corrosives (Liquids and Solids)	lead Acid Batteries	10,840 Pounds	Glass Bottle or Jug
Flammable and Combustible Liquids	Used Oil	20 Gallons	Steel Drum
Flammable and Combustible Liquids	Paint	15 Gallons	Cans
Nonflammable Gases	Nitrogen	1,200 Cubic Feet	Cylinder
Flammable Gas	Propane	300 Gallons	AST

Appendix D

Oregon Spill Prevention, Control, and Countermeasures Plan

KLAMATH RIVER RENEWAL CORPORATION

Lower Klamath Project
FERC Project No. 14803

Oregon Spill Prevention, Control, and Countermeasure Plan

Klamath River Renewal Corporation
2001 Addison Street, Suite 317
Berkeley, CA 94704

Prepared by:
Knight Piésold
KRRP Project Office
4650 Business Center Drive
Fairfield, CA 94534

February 2021

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Table of Contents

List of Tables

Appendices

Definition of Terms

Oil - Oil of any kind or in any form, including, but not limited to fats, oils, or greases of animal, fish, or marine mammal origin; vegetable oils, including oil from seeds, nuts, fruits, or kernels; and other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse or oil mixed with wastes other than dredged spoil.

Discharge - Includes but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping of oil, but excludes discharges in compliance with a permit under Section 402 of the Clean Water Act (CWA). Includes discharges of oil in such quantities that the Administrator has determined may be harmful to the public health or welfare or the environment of the United States, including discharges of oil that: (a) violate applicable water quality standards; or (b) cause a film, sheen, or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

Owner or Operator - Any person owning or operating an onshore Facility.

Bulk Storage Container – Any container used to store oil. These containers are used for purposes including, but not limited to, the storage of oil prior to use, while being used, or prior to further distribution in commerce.

Storage Capacity – Of a container means the shell capacity of the container.

Reportable Spill – Federal – The discharge of any amount of oil, as defined above, (including an amount sufficient to cause a sheen on the water) to navigable waterway or to a location where the spilled oil may enter into a navigable waterway.

Reportable Spill – State –

- Discharges or threatened discharges of oil in marine waters
- Any spill or other release of one barrel (42 gallons) or more of petroleum products
- Discharges of any hazardous substances or sewage, into or on any waters of the state (wetlands, waterways, vernal pools, etc.)
- Discharges that may threaten or impact water quality
- Discharges of oil or petroleum products, into or on any waters of the State
- Hazardous liquid pipeline releases and every rupture, explosion, or fire involving a pipeline
- Any release causing off-site damage to public or private property
- An uncontrolled or unpermitted release that has escaped secondary containment, or extended into any sewers, stormwater conveyance systems, utility vaults and conduits, wetlands, waterways, or public roads, or was conveyed off-site

Navigable Waterway - Navigable water means the waters of the United States, including the territorial seas. The term includes: a) all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; b) interstate waters, including interstate wetlands; c) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, and wetlands, the degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters: 1) that are, or could be, used by interstate or foreign travelers for recreational or other purposes: 2) from which fish or shell fish are, or could be, taken and sold interstate or foreign commerce; 3) that are used or could be used for industrial purposes by industries in interstate commerce.

Waters of the State – Waters of the State has similar meaning to navigable waterways and includes: all navigable waterways and other waters including lakes, rivers, streams (including intermittent streams), ditches, mudflats, vernal pools, sand flats, and wetlands. Fully enclosed private irrigation ponds, sewage treatment ponds, stormwater retention ponds, landscape ponds, and similar private facilities that do not release to or have a physical connection to Water of the State are not considered to be Waters of the State.

1.0 Introduction

The Oregon Spill Prevention, Control, and Countermeasure Plan (Plan) described herein is a subplan of the Waste Disposal and Hazardous Materials Management Plan for the Lower Klamath River Project (Project).

1.1 Purpose of the Oregon Spill Prevention, Control, and Countermeasure Plan

The purpose of the Oregon Spill Prevention, Control, and Countermeasure Plan is to describe the measures the Renewal Corporation will implement to prevent spills of oil from occurring as part of the Proposed Action. In addition, the Oregon Spill Prevention, Control, and Countermeasure Plan includes measures the Renewal Corporation will implement to mitigate any spill should one occur. This plan was developed in accordance with 40 CFR Part 112.

1.2 Relationship to Other Management Plans

The Oregon Spill Prevention, Control, and Countermeasure Plan is supported by elements of the following management plans for effective implementation: Health and Safety Plan, Emergency Response Plan, and Fire Management Plan. So as to not duplicate information, elements from these other management plans are not repeated herein but are, where appropriate, referred to in this Oregon Spill Prevention, Control, and Countermeasure Plan.

2.0 Spill Prevention, Control, and Countermeasure Plan Compliance

2.1 Designated Person

The Renewal Corporation will designate a person responsible for implementing, maintaining, and complying with the Plan for the J.C. Boyle Facility prior to the initiation of the Proposed Action.

2.2 Management Approval and Resource Dedication

The required management approval of this Plan and resource dedication for implementing and maintaining this Plan is provided in the cover pages herein.

2.3 Professional Engineer Certification

The required professional engineer's certification of this Plan will be included upon finalizing the construction camps.

2.4 Plan Location and Availability

A certified copy of the Plan will be maintained at the J.C. Boyle Facility. The certified copy of the Plan will be made available for all agency representative review at the J.C. Boyle Facility during

normal business hours (Monday through Friday, 8:00 a.m. to 5:00 p.m., with the exception of holidays).

2.5 Review, Certification, and Amendment

At a minimum, the Renewal Corporation will review this Plan annually to update any contact information. Amendments to this Plan will be implemented and documented as soon as possible, but no later than 6 months following preparation of the amendment. In addition, a signed statement will be included stating whether the Plan will be amended. The Reviews and Amendments Record Log, provided in the cover pages herein, document the reviews and amendments of this Plan. The log also provides a record of the Professional Engineer Certifications of the Plan.

The Renewal Corporation will amend this Plan whenever there is a change in Facility design, construction, operation, or maintenance that materially affects the Facility's potential for the discharge of oil. The Plan will be amended within 6 months and amendments will be fully implemented as soon as possible, but within the 6 months following preparation of the amendment. The Plan will also be amended when new regulations are promulgated to ensure that the Plan and its implementation are current. Professional Engineer's Certification of applicable amendments will be performed as necessary.

The Plan will be updated by the Renewal Corporation if requested/notified by the Regional Administrator as the result of a reportable spill event. The Regional Administrator will provide the terms of proposed amendment. The Plan will be amended within 30 days of receipt of notice.

2.6 Facilities, Procedures, Methods, or Equipment Not Fully Operational

The J.C. Boyle Facility, with the associated procedures, methods, and equipment, are operational Monday through Saturday, 24 hours a day, except for holidays.

2.7 Cross-Reference with Regulations

2.8 This Plan does not follow the exact order presented in 40 CFR 112. Section headings cite, where appropriate, the relevant section(s) of the Plan regulations. Compliance with State and Local Applicable Requirements

The Renewal Corporation's implementation of this Plan will comply with state and local rules, as applicable.

2.9 Substantial Harm Facility

The Proposed Action is not considered a Substantial Harm Facility (see Appendix B). .

3.0 Existing Spill History

Spill history for the J.C. Boyle Facility is provided in Table 3-1 below. Since 2015, two documented spills have occurred at the J.C. Boyle Facility on 2/2/2016 and 3/29/2017; no oil was discharged or released to the environment or navigable water during each spill. There has not been an oil discharge from this Facility > 1000 gallon to navigable waterway and there has not been two or more oil discharges in the past 12 months from this Facility.

Table 3-1. J.C. Boyle Facility Spill History

OBSERVATION DATE	DATE CLOSED	AGENCY NOTIFICATION REQUIRED (YES/NO)	DESCRIPTION	CORRECTIVE ACTION
2/2/2016	2/2/2016	No	The nitrogen blanket failed on the transformer associated with the J.C. Boyle unit #2 generation plant which released approximately 2 ounces of transformer oil into the vault located below the transformer. One hundred percent of the transformer oil was contained within the transformer vault. No transformer oil was released to the environment or water.	The J.C. Boyle crew began immediate assessment of the incident area to prohibit the migration of transformer oil to the environment or water. The assessment revealed the nitrogen blanket regulator value may have become frozen during the night or never was calibrated properly, which potentially allowed the nitrogen release. An estimated 2 ounces of transformer oil was released, as a result. This was observed as a sheen in the transformer vault. Oil absorbent pads were used to clean up the spilled material. No oil was discharged or released to the environment or water.
3/29/2017	3/29/2017	No	On March 29, 2017 for the J.C. Boyle Unit 2 turbine guide bearing low level alarm was acknowledged by the	The cause of the oil spill was determined to be a ruptured pressure gage attached to the lube oil skid associated with the turbine guide bearing. A discharge of approximately one gallon of hydraulic oil

			Hydro Control Center.	was released into the plant sump. No oil was discharged from the sump into the Klamath River. PacifiCorp staff took corrective actions by applying oil soaks to the sump to absorb the oil and replace the oil pressure gage.

4.0 Facility Map

The J.C. Boyle Facility is located on the Klamath River in Klamath County, Oregon, approximately 15 miles southwest of Keno. Maps of the J.C. Boyle Facility are provided in Appendix C and show all existing containers on site subject to Plan rules.

5.0 Oil Container Inventory

5.1 Existing Operational Equipment Oil Containers

Table 5-1 below includes a complete list of all existing electrical and operating equipment with oil storage capacity of 55 U.S. gallons or more at the J.C. Boyle Facility. This table includes only aboveground containers as there are no completely buried tanks at the J.C. Boyle Facility.

Table 5-1. Existing Oil-filled Operational Equipment

EQUIPMENT NUMBER	DESCRIPTION	TYPE OF OIL	CAPACITY
01	Penstock Intake Gate Hoist Gear Box	Gear Oil	83
02	Intake Gate Hydraulic System	Food Grade Hydraulic Oil	262
03	Steel Shed Oil Storage Drums (Approx. 2)	Misc. Oil Products	110
04	Convault Fuel Tank	Diesel Fuel	500
05	Convault Fuel Tank	Gasoline	1,000
06-01	Unit 1 Bearing Oil System - Lower Guide Bearing	DTE Heavy	118
06-02	Unit 1 Bearing Oil System - Thrust Bearing	DTE Heavy	282
07-01	Unit 2 Bearing Oil System - Lower Guide Bearing	DTE Heavy	118
07-02	Unit 2 Bearing Oil System - Thrust Bearing	DTE Heavy	282
08-01	Unit 1 Governor Oil Accumulator Tank	Hydraulic Oil	390

08-02	Unit 1 Governor Oil Reservoir	Hydraulic Oil	535
09-01	Unit 2 Governor Oil Accumulator Tank	Hydraulic Oil	390
09-02	Unit 2 Governor Oil Reservoir	Hydraulic Oil	535
10	Unit 1 Inlet Valve	Hydraulic Oil	85
11	Unit 2 Inlet Valve	Hydraulic Oil	85
12	Unit 1 Butterfly Valve HPU	Hydraulic Oil	106
13	Unit 2 Butterfly Valve HPU	Hydraulic Oil	106
14-01	Station Service Transformer #1	Transyl Oil	185
14-02	Station Service Transformer #2	Transyl Oil	185
15-01	Main Transformer - No. 3084	Transyl Oil	11,530
15-02	Main Transformer - No. 359763	Transyl Oil	9,152
16	Spare Transformer - No. 3083	Transyl Oil	11,530
17	Transformer, Pad mounted	Transyl Oil	185
	Total Existing Storage Capacity		37,694
	Facility Total Oil Storage Capacity		37,694

Notes:

Source: PacifiCorp Spill Prevention, Control, and Countermeasure Plan for the J.C. Boyle Facility (2019)
Aboveground storage containers that must be included when calculating total Facility oil storage capacity include: tanks and mobile or portable containers; oil-filled operational equipment (e.g. transformers); other oil-filled equipment, such as flow-through process equipment. Exempt containers that are not included in the capacity calculation include: any container with a storage capacity of less than 55 gallons of oil; containers used exclusively for wastewater treatment; permanently closed containers; motive power containers; hot-mix asphalt containers; heating oil containers used solely at a single-family residence; and pesticide application equipment or related mix containers.

5.2 Mobile or Portable Containers

During the Proposed Action at the J.C. Boyle Facility, there will be multiple plastic totes, steel drums, and flood lights and generators with belly tanks. The Renewal Corporation will utilize secondary containment and/or dedicated manpower, equipment, and clean-up materials for this equipment based on necessity determined by an in-field assessment of the spill risk associated with specific equipment location, oil contents/volume, use, and environmental surroundings in keeping with the typical failure mode as required by the general secondary containment provisions in 40 CFR 112. At a minimum, the Renewal Corporation will maintain spill kits in the vicinity of such equipment.

5.3 Oil-Filled Manufacturing Equipment

The J.C. Boyle Facility does not have any pieces of oil-filled manufacturing equipment with oil or oil- related fluid capacities of 55-gallons or more.

5.4 Mobile Refuelers and Motive Power Containers

The Renewal Corporation will utilize one mobile fuel/lube truck at the J.C. Boyle Facility during the Proposed Action. Secondary containment or the dedication of manpower, equipment, and clean-up materials will be based on necessity determined by an in-field assessment of the spill risk associated with specific equipment location, oil contents/volume, use, and environmental surroundings in keeping with the typical failure mode.

Truck spill kits will be maintained on the mobile refuelers (fuel and lube trucks). The spill kits will include absorbent pads and booms for quick response to spills. The materials are in a strong zipper bag and require minimal storage space on the operating equipment.

5.5 Bulk Storage Containers

Bulk storage containers are defined as any container used to store oil. These containers will be used for purposes including, but not limited to, the storage of oil prior to use, while being used, or prior to further distribution in commerce. Oil-filled electrical, operating, or manufacturing equipment is not a bulk storage container.

The J.C. Boyle Facility currently has a 500-gallon diesel fuel tank, a 1,000-gallon gasoline fuel tank and four 55-gallon oil storage drums as shown in Table 5-2 and with locations shown in Appendix C. Secondary containment is provided for all drum and tank storage.

Table 5-2. Existing Bulk Storage Oil Containers

CONTAINER DESCRIPTION	CONTAINER CONTENT	CONTAINER CAPACITY (GALLONS)	SECONDARY CONTAINMENT
Oil Storage Drums (Approx. 4)	Misc. Oil	220	Double Walled; inside Steel Container
Convault Fuel Tank	Gasoline	500	Steel tank isolated from concrete encasement for corrosion protection
Convault Fuel Tank	Gasoline	1,000	

Notes:

Source: PacifiCorp Spill Prevention, Control, and Countermeasure Plan for the J.C. Boyle Facility (2019)

Table 5-3 below includes an estimated list of construction-related bulk storage oil containers with capacity of 55 U.S. gallons or more that are anticipated to be located at vehicle staging areas at the J.C. Boyle Facility during construction.

Table 5-3. Construction Bulk Storage Oil Containers

CONTAINER DESCRIPTION	CONTAINER CONTENT	CONTAINER CAPACITY (GALLONS)	SECONDARY CONTAINMENT
Steel AST	Used Oil	650	Double Walled; inside Steel Container
Steel AST	Gasoline	552	Double Walled, 110% containment Tank
Steel AST	CAT 15W-50 Engine Oil	55	Double walled; inside Steel Container
Steel AST	Mobil Hydraulic 10W	55	Double walled; inside Steel Container
Steel AST	50/50 Coolant/Antifreeze	55	Double walled; inside Steel Container
Steel AST	Mineral Spirits Material: 122374	55	Double walled; inside Steel Container
Steel AST	Lubricant 85-140	55	Double walled; inside Steel Container
Steel AST	Synthetic SAE 5W-40	55	Double walled; inside Steel Container
Steel AST	SAE 5W-30 Motor Oil	55	Double walled; inside Steel Container
Steel AST	EAL 224H AW	55	Double walled; inside Steel Container
Steel AST	Mobil DTE 10 Excel 46	55	Double walled; inside Steel Container
Steel AST	Mobil Grease XHP 322 MINE	55	Double walled; inside Steel Container
Steel AST	Misc. Oil	55	Double walled; inside Steel Container
Steel AST	Used Oil	55	Double walled; inside Steel Container
Steel AST	Mobil Delvac 1300 Super SAE 15W-40	280	Double Walled; inside Steel Container
Steel AST	Mobil Hydraulic SAE 10W	280	Double Walled; inside Steel Container

CONTAINER DESCRIPTION	CONTAINER CONTENT	CONTAINER CAPACITY (GALLONS)	SECONDARY CONTAINMENT
Steel AST	Mobil Delvac 1300 Super SAE 15W-40	280	Double Walled; inside Steel Container
Steel AST	Mobil Delvac Extended Life 50/50 Coolant/Antifreeze	280	Double Walled; inside Steel Container
Steel AST	Gear Lubricant SAE	280	Double Walled; inside Steel Container
Steel AST	Mobile Trans HD SAE 50W	280	Double Walled; inside Steel Container
Steel AST	Drive Train Oil SAE	280	Double Walled; inside Steel Container
Steel AST	Oil Storage Drum	220	Double Walled; inside Steel Container
Generator (DCA125SSIU4F)	Diesel Fuel	169	128% spill containment of on-board engine fluids
Light Plant (ALLMAND-ML II 8V)	Diesel Fuel	100	110% spill containment of on-board engine fluids
Tandem Axle	DT-30W Drive Train Oil	100	Spill Kit
Tandem Axle	Coolant/Antifreeze	100	Spill Kit
Generator (DCA125SSIU4F)	Diesel Fuel	79	119% spill containment of on-board engine fluids
Lube Truck	Mobil 85W/140	60	Spill Kit

Notes:

AST = Aboveground Storage Tank
Monthly inspections are required for all tanks identified above.
Spill Kits, where indicated as Secondary Containment, are comprised of absorbent pads and booms and are located on and/or nearby the listed tank.

5.6 Secondary Containment

Bulk storage container installations will be constructed so that a secondary means of containment is provided for the entire capacity of the largest single container plus sufficient freeboard to contain precipitation (no less than 110% of the largest container), in order to prevent a discharge of oil from reaching navigable waterway/waters of the state. For the purposes of this Plan, a 24-hour duration, 25-year recurrence frequency storm event is considered for the allowance of precipitation volume in addition to secondary containment

volume, when the oil storage location is outside without a roofed cover or are otherwise exposed to rainfall. For the J.C. Boyle Facility, an average 24-hour duration, 25-year storm event of approximately 3.2 inches or 0.26 feet of accumulated precipitation (as per the National Oceanic and Atmospheric Administration) is utilized.

The remaining ASTs, steel drums, and plastic and steel totes at the Site will be stored in steel shipping containers (conexes), or are double-walled, or both. All the light towers and generators have built-in secondary containment and have spill kits nearby. In addition, the mobile refuelers all carry spill kits, which are comprised of absorbent pads and booms.

6.0 Spill Notification and Reporting

Depending upon the magnitude of a spill, the material spilled, and whether or not the spill is contained, spill reporting will require different courses of action. Whenever a spill occurs, the Renewal Corporation representative discovering the spill will, as soon as it is safely possible, notify their supervisor who will in turn notify the Spill Team Leader (or in his/her absence a designated alternate) as soon as possible (see below for Spill Team Leader contact information). If adequately trained and the conditions allow for safe access, the person who noticed the spill will then implement control and containment measures to try and minimize the extent of the spill.

The name and telephone number of the Spill Team Leader to be contacted in the event of a spill is:

ROLE	TELEPHONE	CONTACTED
Primary Spill Team Leader	TBD	prior to initiation of construction activities
Secondary Spill Team Leader	TBD	
Security Team (available 24 hours/seven days a week)	TBD	prior to initiation of construction activities

The Spill Team Leader or his/her alternate will gather the necessary information and notify the appropriate agencies as described below. The spill response procedures are described in detail in Section 7.0. The remainder of this section presents the external notification and reporting procedures that should be followed in the event of a spill or release.

Notification and reporting procedures are often dictated by whether or not a Reportable Quantity of a substance has been released into the environment. An Reportable Quantity is a pre-established quantity of a specific chemical or material that, if released into the environment above the specified limit, will require reporting to the proper agencies. An owner or operator is required to report a release or discharge anytime there is an uncontained release or spill of a

regulated chemical that exceeds its assigned Reportable Quantity. The Reportable Quantity for oil (defined in 40 CFR 112.2) is presented below:

The Reportable Quantity for the discharge of oil including crude oil into or upon navigable waters is any amount that causes a visible film or sheen upon the surface of the water.

6.1 Spill Notification

In the event of a material release or spill above its Reportable Quantity into the environment, the Renewal Corporation will give verbal notification as soon as knowledgeable to the National Response Center (NRC) at 800-424-8802; the Oregon's Office of Emergency Management (OEM) at 503-378-2911, Oregon Emergency Response System (OERS) at 800-452-0311 or 503-378-6377, ODEQ at 503-229-5696, and the Klamath County OEM at 541-851-3741.

Spill notification is also required for oil or oil-related product releases as follows:

- Discharges or threatened discharges of oil in marine waters.
- Any spill or other release of one barrel (42 gallons) or more of petroleum products at a tank Facility.
- Discharges of any hazardous substances or sewage, into or on any waters of the state (wetlands, waterways, vernal pools, etc.).
- Discharges that may threaten or impact water quality.
- Discharges of oil or petroleum products, into or on any waters (wetlands, waterways, vernal pools, etc.) of the State.
- Hazardous liquid pipeline releases and every rupture, explosion, or fire involving a pipeline.
- The release caused off-site damage to public or private property.
- An uncontrolled or unpermitted release escaped secondary containment, or extended into any sewers, stormwater conveyance systems, utility vaults and conduits, wetlands, waterways, public roads, or was conveyed off-site.

If the release of oil is on land and is not discharged or threatening to discharge into State Waters; and (a) does not cause harm or threaten to cause harm to the public health and safety, the environment, or property; property; (b) is under 42 gallons; and (c) does not enter a public stormwater or sanitary sewer conveyance system, then no notification to the Emergency Response Agency (911), ODEQ or Oregon OEM is required.

Federal

Contact NRC (800-424-8802), if:

1. Oil is spilled into or upon surface water or an adjoining shoreline.
2. Oil has potential of reaching navigable waterways.
3. If the release poses a significant threat to persons outside the Site.
4. If there is a release of a hazardous substance exceeding the Reportable Quantity.

State

Notification to the State Emergency Response Commission (SERC) can be made by calling the Oregon Emergency Response System (OERS) at 800-452-0311 or 503-378-6377. Initial notification can be made by telephone, radio, or in person. Spills must also be reported to the NRC at 800-424-8802. In addition, notify all Local Emergency Planning Committees (LEPCs) whose planning district could be impacted by the release. Contact information for Klamath County LEPC is 541-851-3741.

The following will be included in the initial notification:

- For OERS, advise them that you are making a 304 release notification.
- The substance name.
- Substance type.
- An estimate of the quantity released into the environment.
- The time and duration of the release.
- Whether the release occurred into air, water and/or land.
- Any known or anticipated acute or chronic health risks associated with the emergency, and where necessary, advice regarding medical attention for exposed individuals.
- Proper precautions, such as evacuation or sheltering in place.
- The name and telephone number of the contact person.

At a minimum, personnel will provide all required information as listed above. If the release occurs in an area bordering more than one state, notification may be required for the SERC and any LEPCs in the adjacent state. The Oregon Highway Patrol (911) must be notified for spills occurring on highways in the State of Oregon.

Local

The local Klamath County LEPC will be contacted at 541-851-3741, between 8:00 AM and 5:00 PM, Monday through Friday; 911 (all other hours) must also be notified.

In addition, the verbal notification to the NRC and Oregon OES will be made as soon as possible. Personnel will be prepared to relay as much of the information listed below that is known or can be estimated at the time of notification. The following items will be included in the initial verbal notification (Please remember this is an initial report and estimates can be corrected in the follow-up written report.):

- Date and time of release or discharge.
- Exact address or location of spill or release.
- Name and phone number of the person reporting the release or discharge.
- Chemical name or identity of any substance(s) involved in the release or discharge.
- Estimate of the quantity (gallons or pounds) discharged into the environment.
- Description of what happened

- Any injuries caused by the release or discharge.
- Measures taken or plans to abate, contain, and clean up the spill.
- Name of organizations that have also been contacted and their respective representative's name.
- Name of organizations that are on the site of the spill and respective representative's name.
- Source of release or discharge.
- Cause or release or discharge
- Corrective measures taken
- Corrective measures to be taken.

When a spill is reported to the appropriate agencies, the agencies will quickly determine from the information provided what additional measures need to be taken to control the spill. They will also identify and contact other parties that should be notified of the spill, such as local fire, police/sheriff, other applicable emergency services.

Table 6-1. Spill Verbal Notification and Reporting Requirements

TYPE OF SPILL	NOTIFICATION	REPORTING
Contained spill, does not impact environment, less than 42 gallons, does not go off-site, does not enter a storm drain or sanitary sewer collection or conveyance component, and does not reach a water of the State	Verbal notification not required	Reporting not required
Contained spill, does not impact environmental media, **equal to or more than 42 gallons**, does not go off-site, does not enter a storm drain or sanitary sewer collection or conveyance component, and does not reach a water of the State	Verbal notification to 911, ODEQ, Oregon OEM, and RA	Follow-up emergency report (Section 6.2)
Uncontained spill, does not impact the environment, below the Reportable Quantity and less than 42 gallons, does not go off-site, does not enter a storm drain or sanitary sewer collection or conveyance component, and does not reach a water of the State	Verbal notification not required	Reporting not required
Uncontained spill, does not impact the environment, below the Reportable Quantity **but equal to or more than 42 gallons**, does not go off-site, does not enter a storm drain or sanitary sewer collection or conveyance component, and does not reach a water of the State	Verbal notification to 911, ODEQ, Oregon OEM, and RA	Follow-up emergency report (Section 6.2)
Uncontained spill, does not impact the environment, below the Reportable Quantity, and **does enter a**	Verbal notification to 911, ODEQ, Oregon OEM, and RA	Reporting dependent on

storm drain or sanitary sewer collection or conveyance component	impacts and agency requirements

Note: "Spill" includes any spill, "release", or "discharge".

A more detailed description of spill notification procedures is provided in the Oil Spill Response Guide provided in Appendix F.

6.2 Spill Reporting

After a spill requiring agency notification (which also includes any "release" or "discharge"), the written follow-up emergency reporting will be completed as soon as practicable, but must be submitted within 30 days of the spill to the Oregon OEM and SERC (also known as the Chemical Emergency Preparedness Commission [CEPC]). This follow-up emergency report is the Renewal Corporation's opportunity to explain in its own words the circumstances and actions relating to the release of pollutants to the environment. The written emergency report will follow CEPC's "304 Emergency Release Notification Written Follow-up Report" (https://www.oregon.gov/osp/Docs/304FollowUpForm.pdf)". If any of the questions are not applicable to the incident, personnel will indicate N/A (not applicable) for that item. A copy of the Emergency 304 Emergency Release Notification Written Follow-up Report is presented in Appendix D. This information is required Per 40 CFR 355 (42USC Ch. 116 §11004 et seq.).

If the spill is a second oil spill exceeding 42 gallons at the Facility location within a 12- month period, or a spill of over 1,000 gallons that has reached a water of the State, a spill report and a copy of the J.C. Boyle Facility's Oregon Spill Prevention, Control, and Countermeasure Plan will be submitted to the U.S. EPA Regional Administrator and to CEPC/SERC within 60 days from the time of the discharge. The following response actions will be reported, should the above occur:

- Name of Site/Facility
- Name and title of person reporting
- Location of Site/Facility
- Maximum storage or handling capacity of the Site/Facility and normal daily throughput
- Corrective action and countermeasures undertaken, including a description of equipment repairs and replacement
- An adequate description of the Site/Facility and the surroundings, including maps, flow diagrams, and topographical maps, as necessary
- The cause of such discharge, including a failure analysis of the system or subsystem in which the failure occurred
- Additional preventative measures taken, or contemplated, to minimize the possibility of recurrence
- Other information as the U.S. EPA may reasonably require, pertinent to the Oregon Spill Prevention, Control, and Countermeasure Plan or discharge

Spill reports shall be submitted to the following:

Federal

US EPA – Region 10, M/S OCE-201
1200 6th Avenue, Suite 155
Seattle, WA 98101

State

Oregon State Emergency Response Commission (SERC)
3565 Trelstad Ave SE
Salem, Oregon 97317-9614

A more detailed description of spill reporting procedures is provided in the Oil Spill Response Guide provided in Appendix F.

7.0 Spill Control and Procedures

7.1 Spill Control Measures

The J.C. Boyle Facility is an onshore facility, and the Renewal Corporation will comply with general rule requirements as shown in Table 7-1.

Table 7-1. General Rule Requirements for Onshore Facilities

REQUIREMENTS		N/A
Drainage from diked storage areas is restrained by valves to prevent a discharge into the drainage system or Facility effluent treatment system, except where Facility systems are designed to control such discharge. Diked areas will be emptied by pumps or ejectors that must be manually activated after inspecting the condition of the accumulation to ensure no oil will be discharged. *[§§112.8(b)(1) and 112.12(b)(1)]*	☐	☐
Valves of manual, open-and-closed design will be used for the drainage of diked areas. *[§§112.8(b)(2) and 112.12(b)(2)]*	☐	☐
The containers at the Facility are compatible with materials stored and conditions of storage such as pressure and temperature. *[§§112.8(c)(1) and 112.12(c)(1)]*	☐	☐
Secondary containment for the bulk storage containers (including mobile/portable oil storage containers) will have the capacity of the largest container plus additional capacity to contain precipitation. Mobile or portable oil storage containers are positioned to prevent a discharge as described in §112.1(b). *[§112.6(a)(3)(ii)]*	☐	☐
If uncontaminated rainwater from diked areas drains into a storm drain or open watercourse the following procedures will be implemented at the Facility: *[§§112.8(c)(3) and 112.12(c)(3)]*		
Bypass valve will be normally sealed closed	☐	☐
Retained rainwater will be inspected to ensure that its presence will not cause a discharge to navigable waters or adjoining shorelines	☐	☐
Bypass valve will be opened and resealed under responsible supervision	☐	☐
Adequate records of drainage will be kept	☐	☐

REQUIREMENTS		N/A
For completely buried metallic tanks installed on or after January 10, 1974 at this Facility *[§§112.8(c)(4) and 112.12(c)(4)]*:		
Tanks will have corrosion protection with coatings or cathodic protection compatible with local soil conditions.	☐	☐
Regular leak testing will be conducted.	☐	☐
For partially buried or bunkered metallic tanks *[§112.8(c)(5) and §112.12(c)(5)]*:		
Tanks will have corrosion protection with coatings or cathodic protection compatible with local soil conditions.	☐	☐
Each aboveground bulk container will be tested or inspected for integrity on a regular schedule and whenever material repairs are made. Scope and frequency of the inspections and inspector qualifications will be in accordance with industry standards. Container supports and foundations will be regularly inspected. [See Inspection Log and Schedule and Bulk Storage Container Inspection Schedule in Appendix E] *[§112.8(c)(6) and §112.12(c)(6)(i)]*	☐	☐
Outsides of bulk storage containers will be frequently inspected for signs of deterioration, discharges, or accumulation of oil inside diked areas. [See Inspection Log and Schedule in Appendix E] *[§§112.8(c)(6) and 112.12(c)(6)]*	☐	☐
For bulk storage containers that are subject to 21 CFR part 110 which are shop-fabricated, constructed of austenitic stainless steel, elevated and have no external insulation, formal visual inspection will be conducted on a regular schedule. Appropriate qualifications for personnel performing tests and inspections will be documented. [See Inspection Log and Schedule and Bulk Storage Container Inspection Schedule in Appendix E] *[§112.12(c)(6)(ii)]*	☐	☐
Each container will be provided with a system or documented procedure to prevent overfills for the container. Describe: All personnel handling oil will be trained in securing master flow and drain valves as well as securing out-of-service and loading/unloading connection of oil pipelines. Container volume will always be measured physically with a stick and confirmed with visual inspection before filling. Only qualified oil-handling personnel will monitor level gauges during the filling of containers at the J.C. Boyle Facility. Liquid level gauges are regularly tested and maintained to ensure proper operation. Container overfill prevention will be provided by engineering control and fuels pumps inside the fenced in compound will be instrumented with direct	☐	☐
Liquid level sensing devices will be regularly tested to ensure proper operation [See Inspection Log and Schedule in Appendix E]. *[§112.6(a)(3)(iii)]*	☐	☐
Visible discharges which result in a loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts will be promptly corrected and oil in diked areas is promptly removed. *[§§112.8(c)(10) and 112.12(c)(10)]*	☐	☐

REQUIREMENTS		N/A
Aboveground valves, piping, and appurtenances such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces will be inspected regularly. [See Inspection Log and Schedule in Appendix E] *[§§112.8(d)(4) and 112.12(d)(4)]*	☐	☐
Integrity and leak testing will be conducted on buried piping at the time of installation, modification, construction, relocation, or replacement. [See Inspection Log and Schedule in Appendix E] *[§§112.8(d)(4) and 112.12(d)(4)]*	☐	☐

In addition, the following requirements will be followed at the J.C. Boyle Facility.

- Vehicle staging, cleaning, maintenance, refueling, and fuel storage will be performed at least 150 feet from waters of the state,
- All vehicles will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected in the vehicle staging will be repaired before the vehicle resumes operation,
- Before operations begin and as often as necessary during operation, equipment will be steam cleaned (or undergo an approved equivalent cleaning) until all visible external oil, grease, mud, and other visible contaminants are removed if the equipment will be used below the bank of a waterbody,
- All stationary power equipment (e.g., generators, cranes, stationary drilling equipment) operated within 150 feet of any waters of the state will have adequate suitable containment provided to prevent potential spills from entering any waters of the state,
- An adequate supply of materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials) needed to contain spills will be maintained at the project construction site and deployed as necessary, and
- All equipment operated in state waters will use biodegradable hydraulic fluid. A maintenance log documenting equipment maintenance inspections and actions must be kept on-site and available upon request.

7.1.1 Containment Structures and Equipment to Prevent Discharges for Existing Oil-Filled Equipment

Table 7-2 below identifies the electrical, operating, or manufacturing equipment currently at the Facility with the potential for an oil discharge; the potential mode of failure; the flow direction; and the secondary containment method and containment capacity that is provided.

Table 7-2. Containment Structures and Equipment to Prevent Discharges for Existing Oil-filled Operational Equipment

EQUIPMENT NUMBER/ DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
01 Penstock Intake Gate Hoist Gear Box	83	Secondary Containment is provided by a constructed barrier. Containment capacity = 101 gallons.	Could discharge to the containment provided by the constructed barrier.	Pump free oil from containment to drums. Use sorbent from the spill response inventory to remove residual oil.
02 Intake Gate Hydraulic System	262	Secondary containment is provided by the containment pan on the skid and by the concrete block building that houses the skid. Food grade oil is used in the system to mitigate the effects of a spill from the hydraulic lines. Containment pan capacity = 34 gallons.	Could discharge into the containment pan of the skid, then onto the building floor and potentially onto the gravel outside the building.	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they block and absorb the flow of oil.
03 Steel Shed Oil Storage Drums (Approximately 2)	110	Secondary containment is provided by the spill pallets on which the drums sit. Containment capacity = 66 gallons.	Could discharge into the containment reservoir of the spill pallets.	Pump free oil from containment to drums. Use sorbent from the spill response inventory to remove residual oil.
04 Convault Fuel Tank	500	The container is double walled, which provides sufficient secondary containment.	Spills from the inner tank will be contained within the outer containment tank.	If the inner tank is breached, place sorbent booms and pads from the spill response inventory around the base of the tank until all product has been removed from both the main and containment tanks.

EQUIPMENT NUMBER/ DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
05 Convault Fuel Tank	1000	The container is double walled, which provides sufficient secondary containment.	Spills from the inner tank will be contained within the outer containment tank. Oil could discharge into the yard gravel only if the outer containment tank were also breached.	If the Inner tank is breached, place sorbent booms and pads from the spill response inventory around the base of the tank until all product has been removed from both the main and containment tanks.
06-01 Unit 1 Bearing Oil System - Lower Guide Bearing	118	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.
06-02 Unit 1 Bearing Oil System - Thrust Bearing	282	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.

EQUIPMENT NUMBER/ DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
07-01 Unit 2 Bearing Oil System - Lower Guide Bearing	118	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.
07-02 Unit 2 Bearing Oil System - Thrust Bearing	282	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.
08-01 Unit 1 Governor Oil Accumulator Tank	390	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.

EQUIPMENT NUMBER/ DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
		Containment capacity = 3,830 gallons.		
08-02 Unit 1 Governor Oil Reservoir	535	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.
09-01 Unit 2 Governor Oil Accumulator Tank	390	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.
09-02 Unit 2 Governor Oil Reservoir	535	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as

EQUIPMENT NUMBER/ DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
		sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.		possible and prevent it from flowing into the sump.
10 Unit 1 Inlet Valve	85	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.
11 Unit 2 Inlet Valve	85	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.
12 Unit 1 Butterfly Valve HPU	106	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area.	Could discharge onto the powerhouse floor, through floor plates or	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a

EQUIPMENT NUMBER/ DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
		The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	drains, and into the powerhouse sump.	manner as to absorb much oil as possible and prevent it from flowing into the sump.
13 Unit 2 Butterfly Valve HPU	106	Secondary containment is provided by the concrete powerhouse sump located near the southwest corner of the plant and construction area. The sump is equipped with level controls and a programmable oil sensor that function to prevent oil discharges from the sump. Containment capacity = 3,830 gallons.	Could discharge onto the powerhouse floor, through floor plates or drains, and into the powerhouse sump.	Deploy sorbent booms and pads from the spill response inventory between the spill source and the powerhouse sump in such a manner as to absorb much oil as possible and prevent it from flowing into the sump.
14-01 Station Service Transformer #1	185	No secondary containment is provided for the Station Service Transformers.	Could discharge onto the ground surrounding the service transformer, which is covered with gravel.	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they block and absorb the flow of oil.
14-02 Station Service Transformer #2	185	No secondary containment is provided for the Station Service Transformers.	Could discharge onto the ground surrounding the service transformer, which is covered with gravel.	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in

EQUIPMENT NUMBER/ DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
				places and manners that they block and absorb the flow of oil.
15-01 Main Transformer - No. 3084	11,530	Secondary containment for the two main transformers is provided by the two curbed transformer pads that are connected by buried piping. The pads drain to a sump equipped with an oil sensor that shuts off the pump when oil is detected. Containment capacity = 17,851 gallons.	Could discharge onto the transformer pad and be contained by the concrete curb surrounding the transformer pad.	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they block and absorb the flow of oil.
15-02 Main Transformer - No. 359763	9,152	Secondary containment for the two main transformers is provided by the two curbed transformer pads that are connected by buried piping. The pads drain to a sump equipped with an oil sensor that shuts off the pump when oil is detected. Containment capacity = 17,851 gallons.	Could discharge onto the transformer pad and be contained by the concrete curb surrounding the transformer pad.	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they block and absorb the flow of oil.
16 Spare Transformer - No. 3083	11,530	Secondary containment is provided by the curbed transformer pad and an oil collection vault. The vault is equipped with an oil sensor that shuts down the pump when oil is detected. Containment capacity = 12,321 gallons.	Could discharge onto the transformer pad, through a drain line, and into the oil collection vault.	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they block and absorb the flow of oil.

EQUIPMENT NUMBER/ DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
17 Transformer – Pad Mounted 3 Phase Transformer	185	No secondary containment is provided for the Station Service Transformers.	Could discharge onto the transformer pad, and surrounding gravel surface between the transformer and the fire/irrigation water pump house.	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they black and absorb the flow of oil.
18 Construction Diesel Storage Tank 1	1000	Double-walled tank on concrete pad	TBD	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they black and absorb the flow of oil.
19 Construction Diesel Storage Tank 2	1000	Double-walled tank on concrete pad	TBD	Place sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they black and absorb the flow of oil.

Notes:

Source: PacifiCorp Spill Prevention, Control, and Countermeasure Plan for the J.C. Boyle Facility (2019)

7.1.2 Containment Structures and Equipment to Prevent Discharges for Construction Bulk Storage Oil Containers

Table 7-3 identifies construction-related bulk storage oil containers at the Facility with the potential for an oil discharge; the potential mode of failure; the flow direction; and the secondary containment method and containment capacity that is provided.

Table 7-3. Containment Structures and Equipment to Prevent Discharges for Construction Bulk Storage Oil Containers

CONTAINER DESCRIPTION	MAXIMUM VOLUME (GALLONS)	SECONDARY CONTAINMENT AND CAPACITY	DISCHARGE POTENTIAL/DIRECTION OF FLOW	SPILL RESPONSE EQUIPMENT PLACEMENT
Mobile Maintenance / Refueler Tank	60 to 100	Manpower and spill kits containing absorbent pads	Tank failure (collapse or puncture below product level). Direction of flow: ground surface	Manpower and spill kits containing absorbent pads and booms.
Generator Tank	79	Double walled tank, 119% spill containment system for on- board engine fluids	Tank failure (collapse or puncture below product level). Direction of flow: ground surface	Manpower and spill kits containing absorbent pads and booms.
Light Plant Tank	100	Double walled tank, 110% spill containment system for on- board engine fluids	Tank failure (collapse or puncture below product level). Direction of flow: ground surface	Manpower and spill kits containing absorbent pads and booms.
Generator Tank	169	Double walled tank, 128% spill containment system for on- board engine fluids	Tank failure (collapse or puncture below product level). Direction of flow: ground surface	Manpower and spill kits containing absorbent pads and booms.
AST	280 to 650	Double walled steel tank, inside steel container	Tank failure (collapse or puncture below product level). Direction of flow: ground surface	Manpower and spill kits containing absorbent pads and booms.
AST	5000	Double walled steel tank, attached steel containment pan	Tank failure (collapse or puncture below product level). Direction of flow: ground surface	Manpower and spill kits containing absorbent pads and booms.

Note:

AST = Aboveground Storage Tank
Transfer Operations

7.2 Routine Handling of Products

Good housekeeping practices will be implemented at the J.C. Boyle Facility to maintain a clear and orderly Facility, which will reduce the potential for chemicals or oil to come in contact with soils, stormwater, or groundwater. Site personnel will be instructed that all oil material storage and delivery areas must remain neat and orderly and be free of any spills or debris, as per Kiewit standard operating procedures.

When equipment is in operation, employees will routinely inspect the equipment at least once per shift. Whenever an employee utilizes a fueling facility, obtains other oil products from a bulk oil container, or places waste oil in a bulk oil container, the employee will check for leaks and minor spills.

7.3 Unloading Procedures

Unloading procedures for tank trucks are detailed in the Tank Truck Unloading Procedures, a copy of which is provided in Appendix G. These procedures will be followed exactly or used as a guide for training purposes with the intent that site-specific conditions will dictate the exact methodology for:

- Control and clean-up of minor spills
- Use of drip pans and absorbent pads and booms
- Procedures for chocking and signing trucks
- Ensuring closure, capping, and locking of fill valves after filling to prevent drips or leakage
- The various steel drums, the lubricating oils and hydraulic fluid do not have any type of visual, mechanical, or electrical tank level indicators.
- All ASTs that are refilled have gauges that are used to ensure they are not overfilled. The fuel vendor's tank truck driver and a Facility employee provide continuous observations during unloading of inbound oil or oil-related products; or outgoing spent or waste oil or oil-related products.
- All valves, pump controls, loading connections, and any other equipment, which may cause spillage of oil-related materials are secured, locked, and capped when in non-operating mode or in standby status.

7.4 Facility Transfer Operations

Oil transfer operations will mainly involve minor volumes within the J.C. Boyle Facility from bulk-storage containers to the various pieces of equipment and vehicles including fueling vehicles.

There is no known buried oil transfer, distribution, or conveyance piping within the J.C. Boyle Facility. All oil transfer, distribution, or conveyance piping is above ground.

All fuel or oil transfer points will be properly labeled, and all pipe supports will be properly designed to minimize abrasion and corrosion. All secondary containment drain valves that could

discharge oil will be locked closed when the valves are in non-operating position. All unloading connections for oil transfers will be securely capped or blank-flanged when not in service, or when in standby service for any extended time. Aboveground piping is designed to ensure minimal hazards with vehicular traffic. No piping exists in areas with vehicular traffic.

All aboveground piping, valves, fittings, hoses, and appurtenances are regularly inspected for signs of leaks, corrosion, stress, or other signs indicative of a pending release point.

7.4.1 Oil Transfer to Container

General oil transfer procedures are provided in a checklist in Appendix H. This checklist will be used as a guide for training purposes for all new drivers with the intent that site-specific conditions will dictate the exact methodology to be used to ensure safe oil transfer.

When transferring oil from a storage container to a working container for placement in a service operation, the following spill procedures will be followed:

- Active drums used for oil distribution shall be supported on a spill basin, within an oil barrier, or atop oil-absorbing pads. The pads will not be completely spent, and only one active barrel of each chemical type will be opened at a time.
- When pouring oil from a distribution barrel, vessel, or container, oil-absorbing pads will be located below the container to catch any fluid spilled during the process.
- The container being used for the transfer of oil to field equipment will have self-closing lid, sealed lid, or valve which prevents oil being spilled in transit.
- An oil-absorbing pad will be placed below the inlet where oil is poured into the equipment or system. Pads will be replaced when three-quarters of the surface area is spent.
- Oil will not be transported in open pails and will not be allowed to fill greater than three-quarters or the capacity of the container; oil will also not be transported by hand in containers greater than five gallons.

7.4.2 Oil Transfer to Equipment

When transferring oil from an oil distributor to a plant and/or construction area by pump transfer, bulk container, or commercial drum, the following spill prevention procedures will be followed:

- When transferring petroleum products in bulk by pump, hose ends will be drained in an available drum both before and after transfer. When couplings are connected, oil-absorbing pads will be placed below couplings connections and couplings checked to ensure tight and proper connection.
- If there are leaking or dripping connections, joints will be repaired before transferring oil.
- When pouring oil form a distribution barrel, vessel, or container, oil-absorbing pads will be located below the container to catch any fluid spilled during the process.

7.4.3 Oil Drip Collection

When collecting oil drip vessels or container staged about a plant and/or construction area, the following preventative spill procedures will be followed:

- Oil will be collected before three-quarters of the container becomes full.
- Upon placing pads, cans, or containers, an oil pad will be staged below the container to absorb any oil that may condense on the container or inadvertently drip on the ground.
- Upon retrieving the container, only one container will be collected at a time and covered with an oil-absorbing pad during transport to the waste drum area
- Upon pouring the used oil into collection drums, oil will be transferred to the drum using an appropriate funnel.
- Residual oil found on the outside of the drip container and atop the collection drum will be wiped clean before returning collection container back in service.

7.4.4 Detailed Oil Transfer Procedures (Containers with >5000 Gallon Capacity)

The 15-01 Main Transformer – No. 3084 has a 11,530-gallon capacity and the 15-02 Main Transformer – No. 359763 has a 9,152-gallon capacity (Table 7-2) and both are currently at the J.C. Boyle Facility. Both transformers have secondary containment using two curbed transformer pads that are connected by buried piping. The pads drain to a sump equipped with an oil sensor that shuts off the pump when oil is detected. The secondary containment capacity is 17,851 gallons. In the event of a spill, spill response will involve placing sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they block and absorb the flow of oil.

The 16 Spare Transformer - No. 3083 has a 11,530-gallon capacity (Table 7-2) and is currently at the J.C. Boyle Facility. Similar to containment measures for the two main transformers (section 7.4.4.1), secondary containment will be provided by the curbed transformer pad and an oil collection vault. The vault is equipped with an oil sensor that shuts down the pump when oil is detected. The secondary containment capacity is 12,321 gallons. In the event of a spill, spill response will involve placing sorbent booms and sorbent pads from the spill response inventory downstream of the equipment and in the flow path in places and manners that they block and absorb the flow of oil.

A certified contractor will transfer the oil from all three transformers into a DOT-approved vessel and dispose of the oil off site. At a minimum, the oil transfer procedure will follow all protocols described in Section 7.4.1.

8.0 Procedures for Spill Containment, Cleanup, and Reporting

8.1 Spill Containment and Cleanup Equipment

The J.C. Boyle Facility maintains an adequate supply of spill control equipment to respond to spills. In the event of a release, the J.C. Boyle Facility has trained personnel and on-site equipment available to contain and clean-up any minor oil spills. The following response equipment will be maintained at the various bulk oil storage container areas within the J.C. Boyle Facility and staging areas and will be available in the event of a spill of a regulated material:

- Spill kits (absorbent pads, pillows, and booms)
- Bulk absorbent material
- Shovels and pumps
- Mops and drums

8.2 Spill Containment

The Facility employs a variety of countermeasures to contain spills once they occur. The secondary containment features around all bulk oil storage containers will prevent a spill from happening.

NOTE: TYPICAL RESPONSE IS LIMITED TO RECOGNITION, DIVERTING, AND MITIGATING SPREAD OF A SPILL, UNLESS RESPONDING KIEWIT STAFF HAVE COMPLETED AND ARE CURRENT WITH THE REQUIRED HAZWOPER AND SPILL RESPONSE TRAINING, AND ARE UNDER THE DIRECTION AND SUPERVISION OF THE SPILL TEAM LEADER.

If a minor oil product spill occurs in a secondary containment area, safety and protection of human health is first priority. All pumps or valves will be immediately shut-off or closed, and all transfer operations will be stopped if safe to do so. If safe access can be afforded, then the supply and source of the spill will be determined, and the leak will be stopped. If a small release (typically less than 5 gallons) occurrs, the spilled oil material will be removed with absorbent materials (pads, pillows, and bulk material) and thethe spent absorbent materials will be placed in a properly labeled, Department of Transportation (DOT) approved container for transport off-site for disposal purposes. If a larger (typically greater than 5 gallons of oil product) release occurs within the secondary containment area, the spilled oil product will be recovered with pumps or a vacuum truck. The spill cleanup materials will be properly discharged into DOT-approved and properly labeled drums or left in the vacuum truck; and transported and disposed/recycled off-site at a permitted Facility. Residual oil product will be collected with absorbent materials (pads, pillows, booms, or bulk material) to the extent practicable. No “wash-down” of spilled oil materials will occur.

Should a spill escape the secondary containment structure, the following general procedures are followed:

- Safety and protection of human health is first priority.
- Immediately shut off all pumps or close appropriate valves and stop all transfer operations if safe to do so.
- Determine the supply and source of the spill and stop the leak, if possible and is safe to do so.
- Contact emergency response personnel.
- Warn people in the area if there is a danger to life or property; warn all Facility personnel, guests, and visitors that may be in the area.
- Assist any injured people.
- Provide physical barrier to prevent unauthorized access to spill.
- Control and contain the spilled material, limiting the extent of the spill, especially if there is a danger of it entering an on- or off-site stormwater or sanitary sewer conveyance system, or waterway; or spreading off-site.
- Utilize absorbent pads, blankets, booms, spill dikes, absorbent bulk material berms or soil berms as needed to divert and contain the flow and keep the spilled oil material from going off- site or into a storm drain feature or surface water body, or into a sanitary sewer Facility.
- Cover and contain as feasible and divert flow around and away from any storm drain collection features (drop inlets, area drains, curb inlets, catch basins, ditches, etc.), limiting the extent of the spill, especially if there is a danger of it entering an off-site stormwater or sanitary sewer conveyance system, or waterway.
- Recover and remove the spilled material as quickly as possible. For small quantities, utilize absorbent materials; for larger quantities, the Kiewit Project Director will make a decision whether to use portable pumps and waste containers/tanks to collect the spill; or to contract with outside spill response contractor. The recovered material must be properly contained (in containers compatible with materials recovered) and stored until disposed of by an acceptable method in accordance with all local, state and federal requirements.
- Remove residual material by the use of absorbent materials. When saturated, the absorbent material must be properly containerized (in containers compatible with materials recovered), stored, and disposed of, by an acceptable method in accordance with all local, state, and federal requirements.
- These procedures vary depending on the size and location of the spill. Employees who have received Spill Prevention, Control, and Countermeasure Plan training are qualified and authorized to undertake response and countermeasures to minor oil spills.

8.3 Spill Control Equipment

The J.C. Boyle Facility maintains an adequate supply of spill control equipment to respond to spills. In the event of a release, the J.C. Boyle Facility has trained personnel and on-site equipment available to contain and clean-up any minor oil spills. On-site equipment and materials include PPE, spill kits, and absorbent materials such as booms, pads, and bulk absorbent material.

The J.C. Boyle Facility also has a limited amount of small-scale heavy equipment that, if properly trained employees are available, will be used to assist in spill control and containment, (i.e., the creation of temporary berms, boom/pad layout, temporary plugging, or redirection of stormwater run-off, etc.).

8.4 Spill Clean-Up

The Facility employs a variety of countermeasures to handle spills once they occur. These procedures vary depending on the size and location of the spill. The following procedures should be implemented in the case of small spills retained within containment areas, if safe to do so.

- Absorb spilled materials using loose absorbent materials, pads, blankets, or pillows for low volume releases; a contracted vacuum truck will be utilized for larger oil spill or oily water recovery. Non-liquid materials will be picked up with non-sparking shovels or with brooms and dust pans.
- The recovered oil product, oily water, and/or spent absorbent materials will be placed in DOT-approved containers and will be disposed of off-site in accordance with applicable federal and state regulations. Container liners will be used as required.
- The Kiewit Project Director and/or Project Environmental Coordinator will be consulted to ensure proper labeling of drums and disposal techniques and procedures.
- Properly label all drums for temporary on-site storage and off-site disposal.
- Clean spill control equipment and return them to proper storage space.
- Clean and/or restore spill surface as needed.
- As applicable, retain all wash and rinse water and transfer to appropriate on-site location for temporary storage management according to state and federal regulations; or permitted on-site treatment and/or disposal Facility.
- Establish and maintain an exclusion zone in the area of the spill to prevent unauthorized contact with spilled material, clean-up materials, and to avoid impacts to the public and to other Kiewit employees and guests during the spill response and clean-up period.
- Determine spill reporting requirements and contact the appropriate agencies.
- File a completed Spill Release Report Form with the ODEQ (e.g., Oregon Emergency Response System) in Appendix D, any forms from the National Response Center (see section 8.3.3) and document the spill internally with the Renewal Corporation.

Large spills or spills that have the potential to enter the environment may require the response of an outside spill response contractor. In addition, per the Clean Water Act Section 401 certification for the KRRC License Surrender and Removal of the Lower Klamath Project, if a release of petroleum products, chemicals, or other materials results in distressed or dying fish, personnel will immediately do the following: cease operations; take appropriate corrective measures to prevent further environmental damage; collect fish specimens and water samples; and notify ODEQ and Oregon Department of Fish and Wildlife.

8.5 Response to Discharge in Water

A discharge to water is defined as a discharge of any amount of oil to any portion of the Klamath River, its tributaries, associated reservoirs, or other regulated bodies of water. In general, cleanup of a discharge to water is beyond Facility personnel capability. This is because discharges to water spread quickly over the surface of still water and downstream in fast water, require specialized equipment and training to clean up, and involve actions that pose unacceptable safety risk to untrained Facility personnel. In the event of a discharge to water, the following guidelines apply:

- Assess the situation for safety.
- If it is safely possible, attempt to stop the source of the discharge.
- Notify the Kiewit Project Director and Primary Spill Team Leader.
- Notify all local, state, and federal agencies (see Table 8-1).
- Contact spill response contractors as required (see Table 8-1).
- Take actions to contain and lean portions of the spill only is it can be completed safely and in accordance with training received.
- Deploy absorbent booms in still or slow-moving water, as appropriate, to contain absorb, and/or divert oil spilled into water.
- Agency notification is required and will be completed by 24/7 on-call compliance duty person.

8.6 Spill Response during Off-Shifts, Weekends or Holidays

For spills occurring during off-shifts, weekends and holidays, notify the Spill Team Leader immediately.

8.7 Recovered Spill Material Containment and Disposal

The following response equipment will be maintained at the various bulk oil storage container areas within the J.C. Boyle Facility and will be available in the event of a spill of a regulated material:

- Spill kits (absorbent pads, pillows, and booms)
- Bulk absorbent material
- Shovels and pumps
- Mops and drums

8.8 Methods of Disposal

Wastes resulting from all discharge response efforts will be containerized in impervious bags, drums, or buckets. The Kiewit Project Director and Primary Spill Team Leader will coordinate with a compliance technician to characterize the waste for proper disposal and ensure that it is removed from the Facility and properly disposed. All waste will be disposed of by a licensed waste hauler in accordance with local and state regulations.

8.9 Contact Information

The J.C. Boyle Facility is located at:

John C. Boyle Hydroelectric Facility
26020 Highway 66
Keno, OR 97627

Table 8-1 below provides contact information for the J.C. Boyle Facility including emergency response reporting organizations, key Facility personnel, and local emergency departments.

Table 8-1. Contact Information for the J.C. Boyle Facility

CONTACT ORGANIZATION / PERSON	TELEPHONE NUMBER
National Response Center (NRC)	1-800-424-8802
Cleanup Contractor(s) NWFF	1-800-942-4614
KEY FACILITY PERSONNEL	
Designated Person Accountable for Discharge Prevention: Kiewit Project Director	Office: TBD
	Emergency: TBD
Primary Spill Team Leader	Office: TBD
	Emergency: TBD
Secondary Spill Team Leader	Office: TBD
	TBD
Security Team	Office: TBD
	Emergency: TBD
STATE OIL POLLUTION CONTROL AGENCIES	
Oregon Office of Emergency Management (OEM)	503-378-2911
Oregon Emergency Response System (OERS) / State Emergency Response Commission (SERC)	800-452-0311 or 503-378-6377
Oregon Department of Environmental Quality	503-229-5696

OTHER STATE AND FEDERAL AGENCIES	
National Response Center (NRC)	800-424-8802
US EPA, 24-Hour Environmental Emergencies	1-800-300-2193
Oregon Highway Patrol	911
LOCAL AGENCIES	
Klamath County Office of Emergency Management	541-851-3741
Keno Fire Department	911 or 541-884-5844
Klamath Falls Police Department	911 or 541-883-5336
Sky Lakes Medical Center	541-882-6311
OTHER CONTACT REFERENCES (E.G., DOWNSTREAM WATER INTAKES OR NEIGHBORING FACILITIES)	
TBD	TBD

9.0 Inspections, Testing, and Recordkeeping

9.1 Inspections and Tests

Uniform inspection procedures have been established and will continue during the implementation of the Proposed Action at the J.C. Boyle Facility to help in preventing spills; prevent and address leakage; and to maintain the integrity of the bulk oil containers (ASTs, drums, barrels, etc.); and the associated containment measures.

Oil storage containers are subject to specific inspection procedures. Each aboveground bulk storage container will be visually inspected and tested for integrity monthly, and whenever material repairs are made. The frequency and type of testing will take into account the size and design of the container, (e.g., floating roof, skid-mounted, elevated, or partially buried). The container's supports and foundations will be inspected, and the outside of the container will be inspected frequently for signs of deterioration, discharge, or accumulation of oil on the outside of the container or inside diked areas. Records of inspections and testing will be kept in a secure, dry place for at least three (3) years.

There are single-wall shop-fabricated steel tanks and/or drum type bulk oil storage containers at the J.C. Boyle Facility covered under this Oregon Spill Prevention, Control, and Countermeasure Plan. Specific inspection procedures are presented below for these bulk

storage containers. For any oil-filled equipment, the same type of inspections and inspection frequencies will be followed as listed below for the oil-filled containers.

The ASTs will be inspected in accordance with Steel Tank Institute's Standard for the Inspection of Aboveground Storage Tanks, SP001, issued January 2018, 6th edition. This standard applies to aboveground storage tanks (ASTs) storing stable, flammable, and combustible liquids at atmospheric pressure with a specific gravity less than approximately 1.0.

The STI SP001 standard consists of two types of inspections that will be conducted at the Facility. The first type of inspection is called a Periodic Inspection that is conducted by qualified personnel. The second type of inspection is a Certified Inspection normally conducted by a certified inspector, but through a provision in STI SP001 for the types and sized of bulk oil storage containers and oil-filled equipment at the J.C. Boyle Facility, will be conducted by trained and qualified personnel.

9.2 Periodic Inspections

The periodic inspection program will consist of routine and monthly visual inspections of each oil- containing AST, drum, or equipment. The inspections will be performed by the Spill Team Leader, or his/her designee. Inspections will be documented using an inspection checklist which will be located on Site (Section 9.2.2).

9.2.1 Routine Inspections

ASTs, equipment reservoirs, oil-filled equipment, and drums and any associated above-grade oil product distribution lines, dispensing equipment, valves, or dispensing hoses will be visually inspected during normal business hours by operating personnel during the normal course of business.

Operators will look for signs of equipment deterioration and/or leaks. Leaks from ASTs, equipment reservoirs, oil-filled equipment, drums, associated piping or hoses, valves, or caps will be investigated, and the source problem will be promptly corrected.

All oil or oil-related product valves, flanges, hoses, and piping are aboveground, and will be regularly examined by operating personnel. Documentation of routine inspections will not be required but suggested when issues or problems are found as per the Kiewit Daily Visual Inspection (DVI) program.

9.2.2 Monthly Visual Inspections

Items on the monthly inspection checklist sheet include: ASTs, measurement devices, equipment reservoirs, oil-filled equipment, drums, tank foundations and supports, pipelines, hoses, pumps, valves, roadways, containment, portable equipment, machinery and ladders, fire extinguishers, safety equipment and stations, signs, placards, and storm drainage facilities. All container supports and foundations will be inspected, and the outside of the container will be

inspected for signs of deterioration, discharge, or accumulation of oil on the outside of the container or inside secondary containment areas.

An example monthly oil storage container visual inspection checklist is presented in Appendix I and a more specific checklist, designed to match up with Kiewit's KieTrac program, is provided in Appendix D. A monthly inspection checklist will be completed via KieTrac and signed by the appropriate Facility supervisor or manager, and any required remedial action will be implemented by the appropriate Facility supervisor or manager to minimize any spill risk and facilitate spill prevention. Copies of the completed monthly oil storage container visual inspection checklists will be stored electronically in Kietrac and accessible at the J.C. Boyle Facility for a period of at least three (3) years.

Facility personnel, who are familiar with the Facility operations involving oil or oil-related product use at the J.C. Boyle Facility, and this Oregon Spill Prevention, Control, and Countermeasure Plan and its related policies, will perform the monthly visual inspections. It is the responsibility of the Spill Team Leader, or his designee, to routinely inspect all facilities which could contribute to a pollution incident, with the express intent of detecting and correcting weaknesses or suspected problems before spills, releases, or potential failure could occur.

9.2.3 Stormwater

Inside the outdoor secondary containment area(s) of the outdoor drum storage areas (palletized secondary containment); rainwater can accumulate in the concrete-walled and in the palletized secondary containment. After a major storm event, a qualified personnel will inspect the accumulated rainwater in secondary containment structures for signs of oil impact (sheen, emulsion, film, etc.). If no oil impacts are observed, the accumulated rainwater in the secondary containment structure will be allowed to drain either by gravity drainage; or will be removed by the utilization of a portable submersible sump pump under direct responsible supervision, as applicable. If the accumulated rainwater demonstrates oil impact, then alternative arrangements will be made to remove, contain, and transport off Site the impacted accumulated rainwater following state and federal requirements.

9.3 Certified Inspection

The certified inspection will be conducted on the steel tanks in accordance with the frequency specified in the standard by a qualified tank inspector. A certified inspection will not be performed on the bulk oil storage drums. A qualified tank inspector is a person who is certified by one or more of the following sources:

- American Petroleum Institute (API) Certified AST Inspector; API AST Inspector Certification Program, 1220 L Street NW, Washington, D.C. 20005.
- Steel Tank Institute (STI) trained and certified inspectors who have received their training by STI; STI, 570 Oakwood Road, Lake Zurich, IL 60047.

The STI SP001 standard will be utilized for the "certified" inspection of the ASTs at the J.C. Boyle Facility. The STI SP001 standard specifies tank inspection requirements for: 1) formal

external inspection guidelines (horizontal ASTs, vertical or rectangular ASTs, and insulated ASTs), and 2) formal internal inspection guidelines. Inspections will be recorded on a Certified Tank Inspection Report to be provided by the inspector.

In accordance with SP001, ASTs with a capacity of less than or equal to 5,000 gallons will only have periodic external visual inspections. The SP001 standard requires that the owner or his designee perform and document a periodic, visual, non-destructive inspection of each AST at least monthly, in accordance with the provisions and the checklists provided in SP001. This inspection will be performed by a person that is knowledgeable of the storage Facility operations, the AST and its associated components, and the characteristics of the liquid stored, and meets the qualifications stipulated in SP001. The routine inspections focus specifically on detecting any change in conditions or signs of product leakage from the AST, piping system, and appurtenances. In accordance with inspection procedures outlined in this Oregon Spill Prevention, Control, and Countermeasure Plan, if signs of leakage or deterioration from the AST are observed by Facility personnel, they will be immediately reported to the Spill Team Leader who will then contract to have the AST inspected by a tank inspector (certified by API or STI) to assess its suitability for continued service, according to SP001.

Facility personnel who conduct the monthly inspections of the bulk oil storage containers will be qualified in accordance with SP001. The AST's physical configuration, combined with monthly inspections, ensures that any small leak that could develop in the tank shell will be detected before it can become significant, escape secondary containment, and reach the environment. This approach provides equivalent environmental protection to the non-destructive shell evaluation component of integrity testing required under 40 CFR 112.8(c)(6) since it provides an appropriate and effective means of assessing the condition of the tank and its suitability for continued service.

Thus, in lieu of physical integrity testing, this conformance with SP001 provides an equivalent environmental protection to prevent a discharge, as described in 40 CFR 112.1(b).

9.4 Recordkeeping

Reviewed and signed bulk oil storage container and containment inspection checklists and test records will be kept on file in a dry, weather resistant area at the J.C. Boyle Facility for at least three (3) years. The completed inspection checklists will be considered to be a part of this SPCC Plan. As noted in the completed inspection checklist and test records, appropriate remedial or corrective action will be implemented as necessary to facilitate spill prevention and countermeasure.

Documentation of all training pertaining to this SPCC plan will be maintained by the manager for at least three (3) years. Documentation will additionally be stored on the Kiewit Project SharePoint.

10.0 Training and Awareness

Kiewit has an extensive training program for all management and operations personnel at the Site. New employees will receive introductory training on environmental, health, and safety issues, during the new employee orientation. Since all operations at the J.C. Boyle Facility are conducted under Kiewit's standard operating procedures (SOP), there will be an extensive training program for the employees understanding and utilization of the SOPs.

In addition to equipment operation and manual tasks, site personnel will receive training in health, safety, and environmental issues at the site including the following topics:

- Site Hazards
- Hazard Communication
- General Safety Rules
- Emergency Action and Fire Prevention Plan
- Hazardous Materials Storage and Handling Plan
- Personal Protective Equipment applicable to their work tasks
- Safety Permits
- Emergency Response
- Environmental Awareness
- Spill Hazard Recognition and Reporting
- Spill Reporting
- Waste Minimization
- Hazardous Waste Handling

Annual refresher training will be provided to all applicable employees to ensure understanding of the SPCC Plan for the J.C. Boyle Facility. Annual refreshers will also include a discharge briefing section including the following topics: known discharges, failures, and recently developed precautionary, control, and countermeasures. Also, periodic reviews of existing requirements and briefings on new requirements will be provided at monthly safety meetings.

Additional training on SPCC Plan Amendments will be completed as necessary. The items to be covered in these training sessions will include, but not necessarily be limited to, the following:

- Operation and maintenance of equipment to prevent discharges.
- Discharge procedure protocols including notification requirements (internal and external); control and countermeasure implementation; communications and alarm systems; response procedures to various types of spills; and location and use of spill response equipment.
- Applicable pollution control laws, rules, and regulations.
- General Facility operations.
- Contents of this SPCC Plan.

- Highlights and descriptions of known discharges or failures, malfunctioning components, and any recently developed precautionary measures.
- Reporting requirements to regulatory authorities.

Documentation of all employee training is kept in the main Kiewit office and on the Kiewit SharePoint website.

10.1 SPCC Training

Personnel responsible for handling oil will be trained in the operation and maintenance of equipment to prevent discharges including discharge procedure protocols, applicable pollution control laws, rules, and regulations, and general Facility operations. Discharge prevention briefings will be conducted for oil-handling personnel annually to assure adequate understanding of the SPCC Plan for the J.C. Boyle Facility. Such briefings will highlight and describe past reportable discharges or failures, malfunctioning components, and any recently developed precautionary measures.

10.2 Toolbox Talks

Toolbox talks will cover discharge prevention briefings. These talks will be conducted for oil-handling personnel annually to assure adequate understanding of the SPCC Plan for the J.C. Boyle Facility. Talks will highlight and describe past reportable discharges or failures, malfunctioning components, and any recently developed precautionary measures.

10.3 Security

10.3.1 Main Facility

Security measures for oil handling, processing, and storage areas will be always implemented at the J.C. Boyle Facility. Preventing unauthorized access will be conducted via security lighting, fences, and guard shack and success in security measures will stem from preventative measures and training to prevent unauthorized access to oil handing, processing, and storage areas. The J.C. Boyle Facility is protected on all sides by a chain link fence with barbed wire. Road access to the Facility will be controlled by manned guard shacks with pipe gates and unmanned pipe gates as shown in Appendix C.

The fuel pump storage area will be securely locked when the Facility is closed or in standby status for an extended period of time. All master flow and drain valves in the fuel pump storage area will be locked in the closed position when the Facility is closed. The diesel and gasoline fuel dispensing pumps are air-operated and outside of construction hours and during non-standby status, the air power to these pumps will be cut off the prevent unauthorized use. Loading and unloading connections for the diesel and gasoline tanks will be secured with lockable caps on the fill port tank tops. The fill ports on these fuel tanks will be unlocked only for refilling or inspection purposes and will be locked when tanks are not in service or are in standby status for an extended period.

The fuel pump storage area, waste storage area, and all SPCC container and tank storage areas will have adequate lighting to allow personnel to identify spills or leaks and to minimize the risk of discharges occurring though acts of vandalism.

After hours, gates will be closed and locked. Access to the site during non-regular hours will only be gained through contact with the Kiewit Project Director. Private vehicles will not be allowed on the construction site unless approved by the Kiewit Project Director. If approved on site, private vehicles will adhere to all instructions and safety requirements designated by the Kiewit Project Director. If traveling through or to any operational areas, private vehicles will be escorted. Visitors will undergo a visitor's induction and their host will be responsible for all actions and conduct of the visitor. During all times, visitors will be accompanied by personnel who have previously undergone training as described in Section 10.0.

10.3.2 Spencer Creek

Resource Environmental Solutions (RES) will establish a construction staging area at the Spencer Creek restoration area. The staging area will be protected on all sides by a chain link fence with barbed wire. Fueling of construction equipment will take place via a mobile fuel truck during daylight hours. The fuel truck will be stored in a secure offsite Facility after hours.

11.0 References

Federal Energy Regulatory Commission (FERC). 2018 Order Amending License and Deferring Consideration of Transfer Application FERC Project Nos. 2082-062 and 14803-000. 162 FERC ¶ 61,236. Washington, DC, Federal Energy Regulatory Commission, Office of Energy Projects, Division of Hydropower Licensing.

PacifiCorp (PacifiCorp). 2004. Environmental Report. Final License Application, Volume 2, Exhibit E. Klamath Hydroelectric Project (FERC Project No. 2082).

Appendix A

Quick Reference Information

Quick Reference Information

John C. Boyle Hydroelectric Facility

26020 Highway 66

Keno, OR 97627

PHONE

Spill Team Leaders

Primary Spill Team Leader	TBD
Telephone:	TBD
Secondary Spill Team Leader	TBD
Telephone:	TBD
Security Team (available 24 hours/seven days a week)	TBD
Telephone:	TBD

Local/State/Federal Agencies

Federal Energy Regulatory Commission (FERC) Regional Office	503-552-2715
National Response Center (NRC)	800-424-8802
Oregon Office of Emergency Management (OEM)	503-378-2911
Oregon Emergency Response System (OERS) / State Emergency Response Commission (SERC)	800-452-0311
Oregon Department of Environmental Quality (ODEQ)	503-229-5696
Klamath County Office of Emergency Management	541-851-3741
Keno Fire Department	911 or 541-884-5844
Klamath Falls Police Department	911 or 541-883-5336
Sky Lakes Medical Center	541-882-6311

Emergency Response Contractors

TBD	TBD

Oil Spill Discharge Notice

In the event of an oil spill, employees will take the following actions:

1. Immediately notify Spill Team Leader or closest supervisor.
2. The Spill Team Leader (primary or alternate) or supervisor in the absence of the Spill Team Leader(s) will assemble the Response Team (properly trained employees) for immediate action.
3. The properly trained employees will contain the spill with an absorbent material such as floor dry or absorbent pads or booms.
4. The properly trained employees will take steps to safelystop the cause of spill such as shut off pumps, close valves, or stop loading/unloading operations.
5. Take additional steps as directed by the Spill Team Leader(s) or supervisor to contain or clean up the spill.
6. Make every effort to prevent the spillfrom reaching surrounding or underlying soil, sanitary sewers, storm sewers, ditches, streams, ponds, or otherwise escaping from the Site.

Discharge to Water

A discharge to water is defined as a discharge of any amount of oil to any portion of the Klamath River, its tributaries, associated reservoirs, or other regulated bodies of water. In general, cleanup of a discharge to water is beyond Facility personnel capability. In the event of a discharge to water, immediately notify the Spill Team Leader and follow all reporting and response procedures for discharges in Section 8.5 of this SPCC.

Reportable Quantity

In the event of a spill, estimate the amount of oil or fuel released and report this quantity to the Spill Team Leader(s). The Spill Team Leader(s) will determine if agency verbal notification and/or report(s) is/are needed. The Spill Team Leader(s) is familiar with the reporting procedures (Section 6.0) and has a copy of this SPCC Plan. Below provides a summary of reporting requirements for local, state, and federal agencies.

Release Reporting Requirements

Pertinent federal and state reporting requirements are summarized below. Complete spill reporting procedures are presented in Section 6.0 of this SPCC.

Federal

A report must be made to the National Response Center (800-424-8802) if there is a single discharge of more than 1,000 US gallons; or more than 42 gallons in each of two discharges within any 12-month period. In addition, contact the National Response Center, (800) 424-8802, within an hour of the event if:

1. Oil is spilled into or upon surface water or an adjoining shoreline.
2. Oil has potential of reaching navigable waterways.
3. If there is a release of a hazardous substance exceeding the Reportable Quantity (Section 6.0).

State

Immediate notification must be made to the Local Emergency Response Agency (911); Oregon Office of Emergency Management (OEM) at 503-378-2911, Oregon Emergency Response System (OERS) / State Emergency Response Commission (SERC) at 800-452-0311; and the Oregon Department of Environmental Quality (ODEQ) at 503-229-5696; and the Klamath County Office of Emergency Management at 541-851-3741 for any of the following:

- Discharges or "threatened release" of oil in marine waters
    - A "threatened release" is a condition creating a substantial probability of harm that requires immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment (Health and Safety Code §25501 (v)).
- Any spill or other release of one barrel (42 gallons) or more of petroleum products at a tank Facility
- Discharges of any hazardous substances or sewage, into or on any waters of thestate (wetlands, waterways, vernal pools, etc.) that produce a sheen on the water
- Discharges that may threaten or impact water quality
- Any found or lost radioactive materials
- Discharges of oil or petroleum products, into or on any waters (wetlands, waterways,vernal pools, etc.) of the State
- Hazardous liquid pipeline releases and every rupture, explosion, or fire involving a pipeline
- A release causing off-site damage to public or private property
- An uncontrolled or unpermitted release that has escaped secondary containment, orextended into any sewers, stormwater conveyance systems, utility vaults and

conduits, wetlands, waterways, or public roads, or was conveyed off-site.

If the release of oil is on LAND and is not discharged or threatening to discharge into State Waters and (a) does not cause harm or threaten to cause harm to the public health and safety, the environment, or property; (b) is under 42 gallons; **and** (c) does not enter a public stormwater or sanitary sewer conveyance system, then **no notification** to the OEM, OERS/SERC, ODEQ or Klamath County Office of Emergency Management **is required**.

The Oregon Highway Patrol (911) must be notified for spills occurring on highways in the State of Oregon. The nearest highway is I-5.

Local

In the event of either of the above, the local Certified Unified Program Agency (CUPA) must also be notified. Call the Klamath County Office of Emergency Management at 541-851-3741 (between 8:00 AM and 5:00 PM, Monday through Friday) or 911 after office hours.

Appendix B

Certification of the Applicability of the Substantial Harm Criteria

Appendix B J.C. Boyle Facility Certification of the Applicability of the Substantial Harm Criteria

Facility Name: J.C. Boyle Facility

Facility Address: John C. Boyle Hydroelectric Facility, 26020 Highway 66, Keno, OR 97627

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes_____ No X

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

Yes_____ No X

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix to a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, See Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to this part, Section 10, for availability) and the applicable Area Contingency Plan.

Yes_____ No X

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake?

Yes_____ No X

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced reportable oil spill in an amount greater than or equal to 10,000 gallons within the past five (5) years?

Yes_____ No X

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature:

_____

Name:

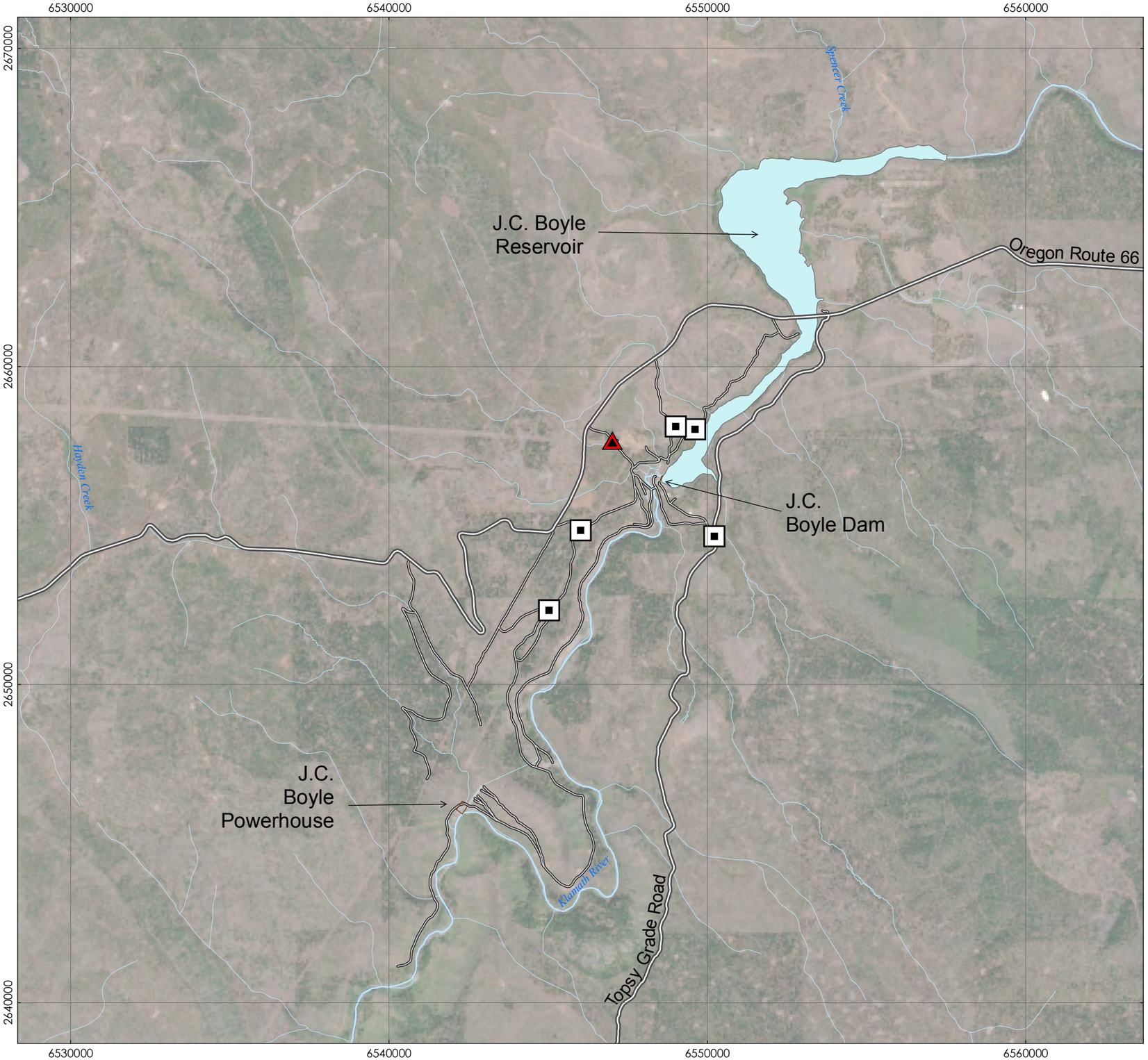
_____

(please print or type)

Title: _____ Date: _____

Appendix C

J.C. Boyle Facility Maps



KLAMATH RIVER RENEWAL CORPORATION

Klamath River Restoration Project

Security Map

J.C. Boyle Facility

November 13, 2020

(At original document size of 11x17)

1:39,700

N

0 0.25 0.5 0.75 1 1.25 Miles

PRELIMINARY DESIGN
(NOT FOR CONSTRUCTION)

Legend

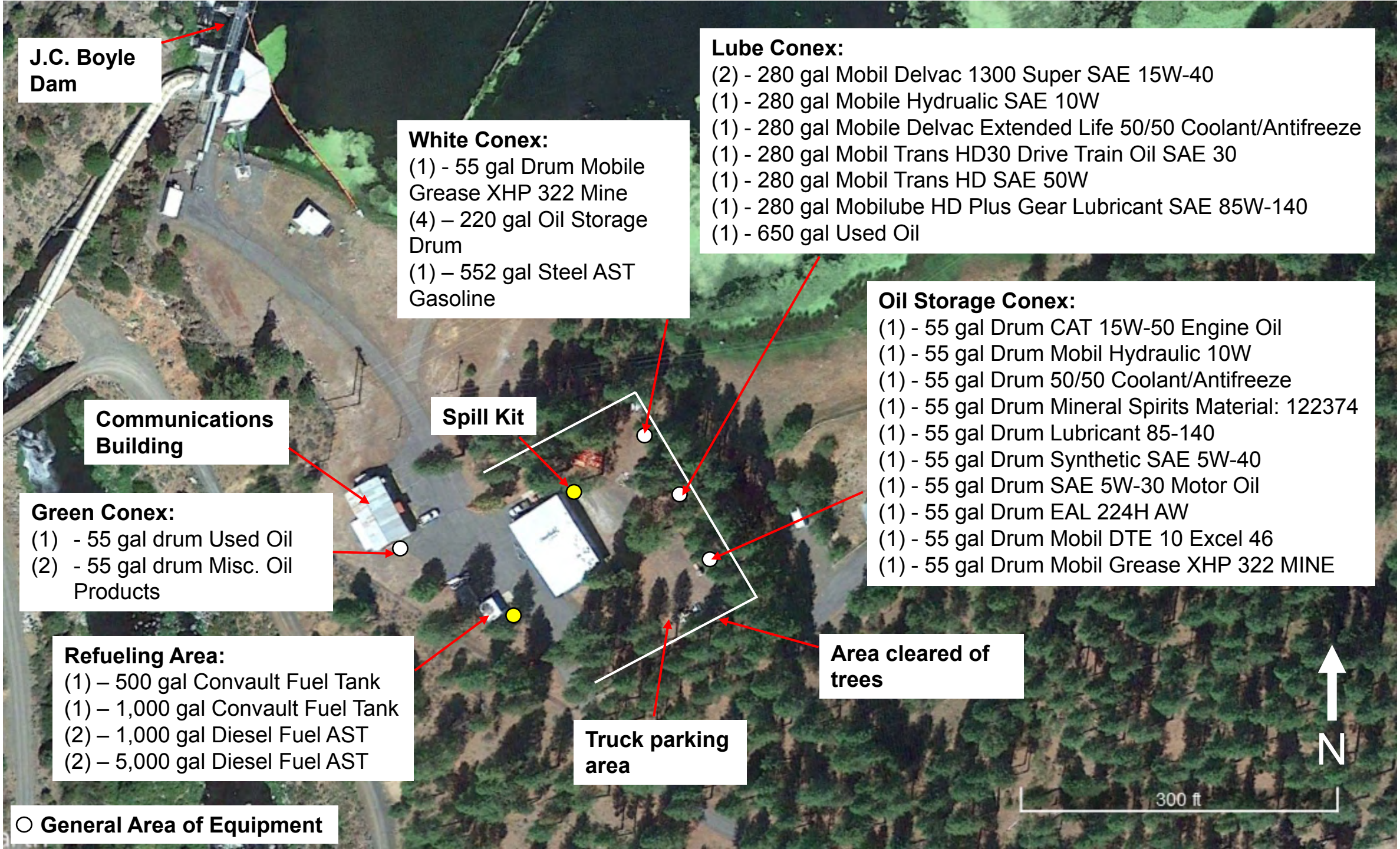
- Security Pipe Gate and Guard Shack
- Security Unmanned Pipe Gate
- Access Routes
- Project Features
- Reservoir Boundaries
- Streams

Notes

1. *Coordinate System: NAD 1983 2011 StatePlane California I FIPS 0401 Ft US*

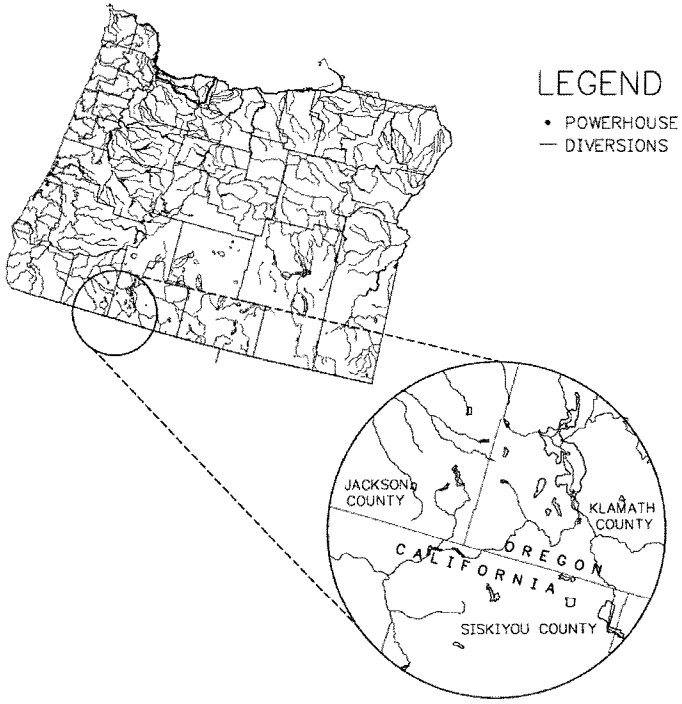
2. *Data Sources:*
Security Locations: Knight Piesold; Access Routes: Knight Piesold, 100 Design Drawings; Streams and Reservoir: NHD.
Background Imagery: Copernicus Sentinel data Nov. 5 2020, processed by ESA

C:\Users\uhlmann\Box\GIS\Project_Based\Klamath_River_Renewal_MJA\GIS_Request_Tracking\GIS_Requests_Management_Plans\KnightPiesold_MP\traffic_MP\traffic_MP_draft2\Security_MP_KP_v2.mxd Revised: 2020-11-13 By: uhlmann


J.C. Boyle Dam
White Conex:
(1) - 55 gal Drum Mobile Grease XHP 322 Mine
(4) – 220 gal Oil Storage Drum
(1) – 552 gal Steel AST Gasoline
Lube Conex:
(2) - 280 gal Mobil Delvac 1300 Super SAE 15W-40
(1) - 280 gal Mobile Hydrualic SAE 10W
(1) - 280 gal Mobile Delvac Extended Life 50/50 Coolant/Antifreeze
(1) - 280 gal Mobil Trans HD30 Drive Train Oil SAE 30
(1) - 280 gal Mobil Trans HD SAE 50W
(1) - 280 gal Mobilube HD Plus Gear Lubricant SAE 85W-140
(1) - 650 gal Used Oil
Oil Storage Conex:
(1) - 55 gal Drum CAT 15W-50 Engine Oil
(1) - 55 gal Drum Mobil Hydraulic 10W
(1) - 55 gal Drum 50/50 Coolant/Antifreeze
(1) - 55 gal Drum Mineral Spirits Material: 122374
(1) - 55 gal Drum Lubricant 85-140
(1) - 55 gal Drum Synthetic SAE 5W-40
(1) - 55 gal Drum SAE 5W-30 Motor Oil
(1) - 55 gal Drum EAL 224H AW
(1) - 55 gal Drum Mobil DTE 10 Excel 46
(1) - 55 gal Drum Mobil Grease XHP 322 MINE
Communications Building
Spill Kit
Green Conex:
(1) - 55 gal drum Used Oil
(2) - 55 gal drum Misc. Oil Products
Refueling Area:
(1) – 500 gal Convault Fuel Tank
(1) – 1,000 gal Convault Fuel Tank
(2) – 1,000 gal Diesel Fuel AST
(2) – 5,000 gal Diesel Fuel AST
Area cleared of trees
Truck parking area
N
300 ft
General Area of Equipment

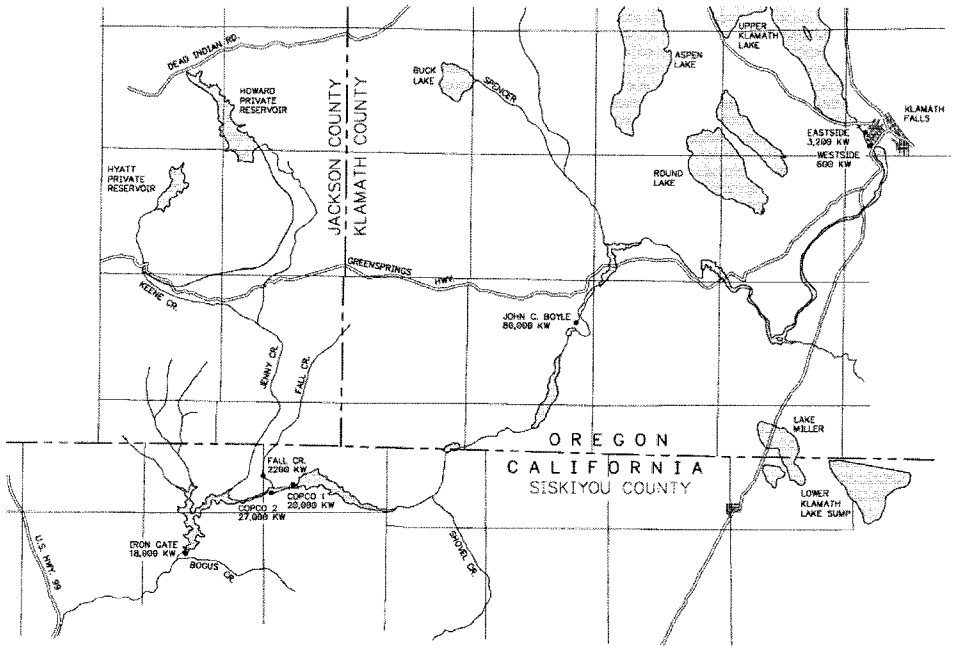

Trailer Parking
Yellow Conex:
(1) - Spill Kit
(1) - Generator Oil (<10 gal)
Generator (DCA125SSIU4F)
(1) – 169 gal diesel fuel
Employee Parking
Office
N
200 ft
General Area of Equipment


Truck and Equipment Parking
Green Conex:
(1) - 55 gal drum Used Oil
(2) - 55 gal drum Misc. Oil Products
Main Yard
Powerhouse
Employee Parking
Yellow Conex:
(1) - Spill Kit
(1) - Generator Oil (<10 gal)
Generator (DCA125SSIU4F)
(1) – 169 gal diesel fuel
N
200 ft
General Area of Equipment



LEGEND

- POWERHOUSE
- DIVERSIONS



VICINITY MAP
KLAMATH PROJECT
APPROXIMATE SCALE: 1"=30000'

0 120 240
1"=120 MILES

0 30000 60000
1"=30000'

CALIFORNIA, OREGON
GENERAL LOCATION
SCALE: 1"=120' MILES

CAD No: 45608H01.DWG

PLOT SCALE: 1 = 7603200

PROJ#	14913
ER#	KJC4SPCC
DATE	08-12-94
ENG CM/RISI	DES CM/RISI
DR FN/RISI	CH BJ
APPROVAL	
BARBARA JASA	
ROGER L RAEBURN	

J.C. BOYLE HYDRO PLANT
SPCC PLAN
EXHIBIT A
GENERAL LOCATION & VICINITY MAP

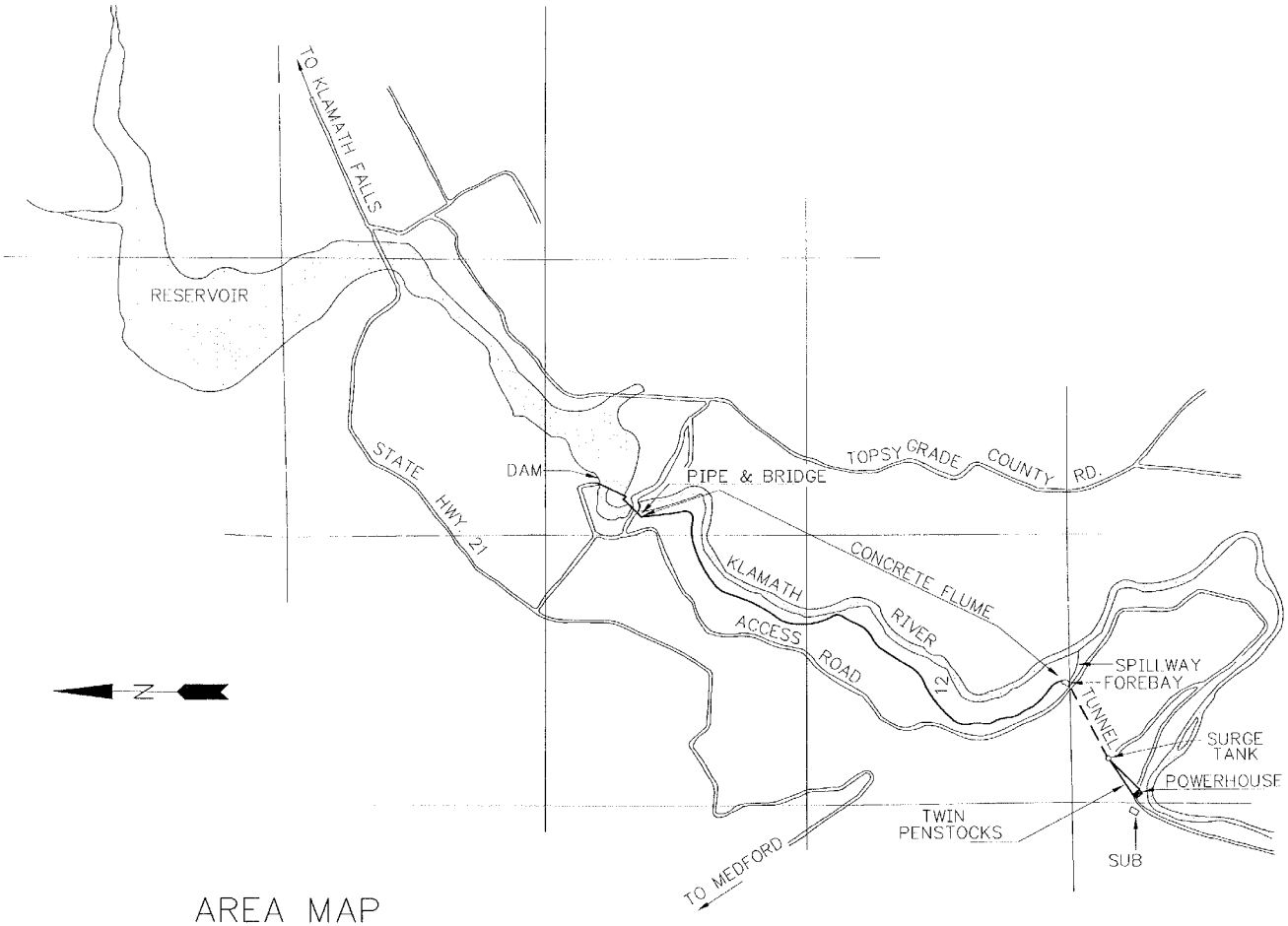
PACIFICORP HYDRO

SCALE: AS NOTED | SHEET 1 OF 1 | PB-45608 | REV. 1

No.	DATE	REVISION	BY	CHK	APP	DRAWING No.	REFERENCE DRAWINGS
0	3-14-95	ISSUED WITH INITIAL SPCC PLAN	CM	BJ	RLR		
1		ISSUED AS-BUILT FOR SPCC PLAN	TSB				

BORDER REVISED 02/14/94 M.T.R.

NAME: R:\HYDRO_EN\BATB-R\SPCCPLAN\KLAMATH\ACAD\JCBOYLE\45608H01.DWG DATE: JUL 30, 1998 TIME: 3:15 PM



AREA MAP

SCALE: N.T.S.

REVISION	BY	CHK	APP	DRAWING No.	REFERENCE DRAWINGS
ISSUED WITH INITIAL SPCC PLAN	MW/CM	BJ	RLR		
ISSUED AS-BUILT FOR SPCC PLAN	TSB	MFC	BJ		

No.	DATE
0	3-14-95
1	8//96

PROJ#	14913
ER#	KJC4SPCC
DATE	08-12-94
ENG CM/RISI	DES MW/RISI
DR EP/CIT	CH BJ
APPROVAL	
BARBARA JASA	
ROGER L RAEBURN	

J.C. BOYLE HYDRO PLANT
SPCC PLAN
EXHIBIT B
DEVELOPMENT AREA MAP

PACIFICORP HYDRO

SCALE: NONE | SHEET 1 OF 1 | PB-45609 | REV. 1

CAD No: 45609H01.DWG

PLOT SCALE: 1 = 1

BORDER REVISED 07/14/94 V.I.R.

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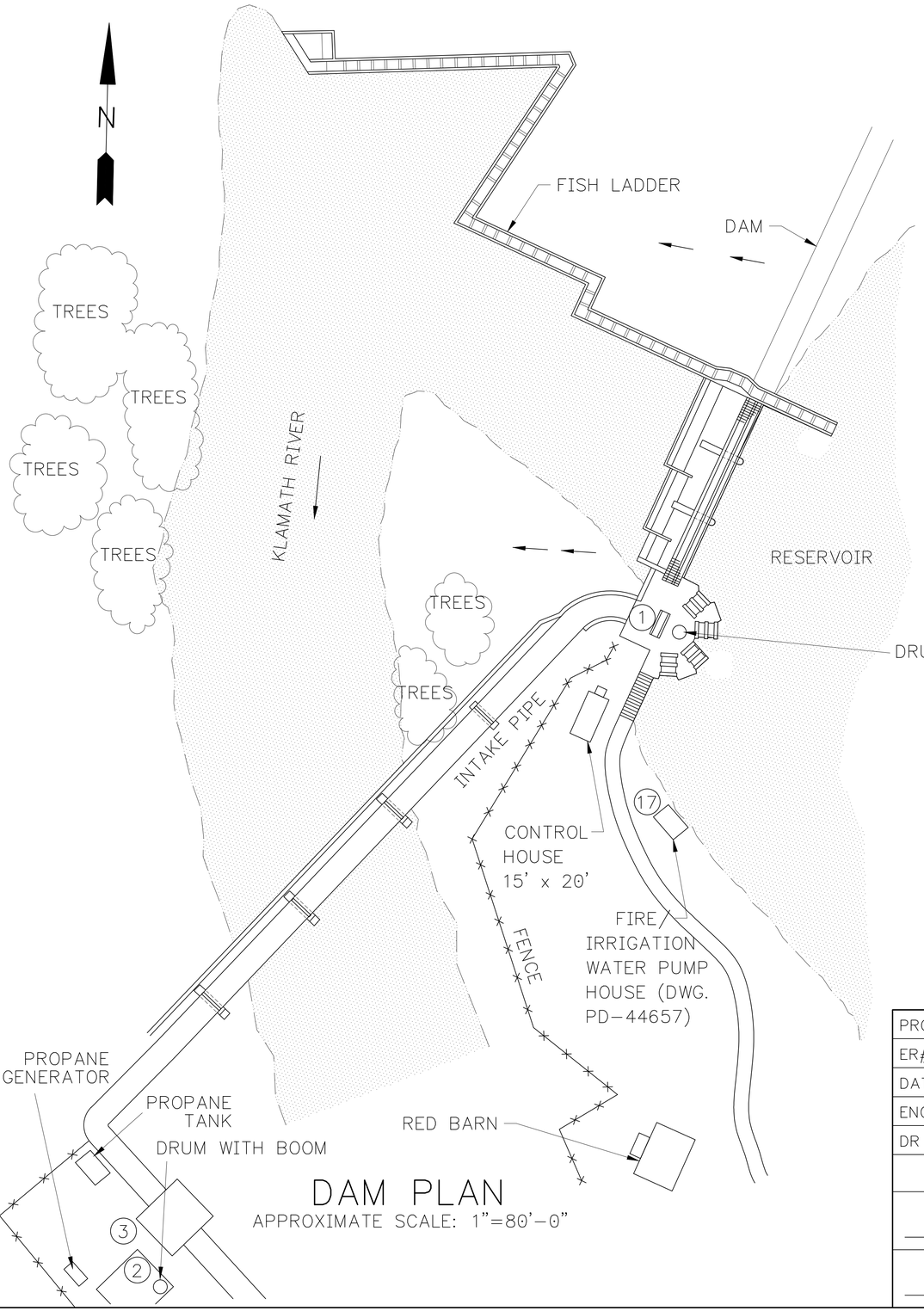


DAM PLAN
APPROXIMATE SCALE: 1"=80'-0"

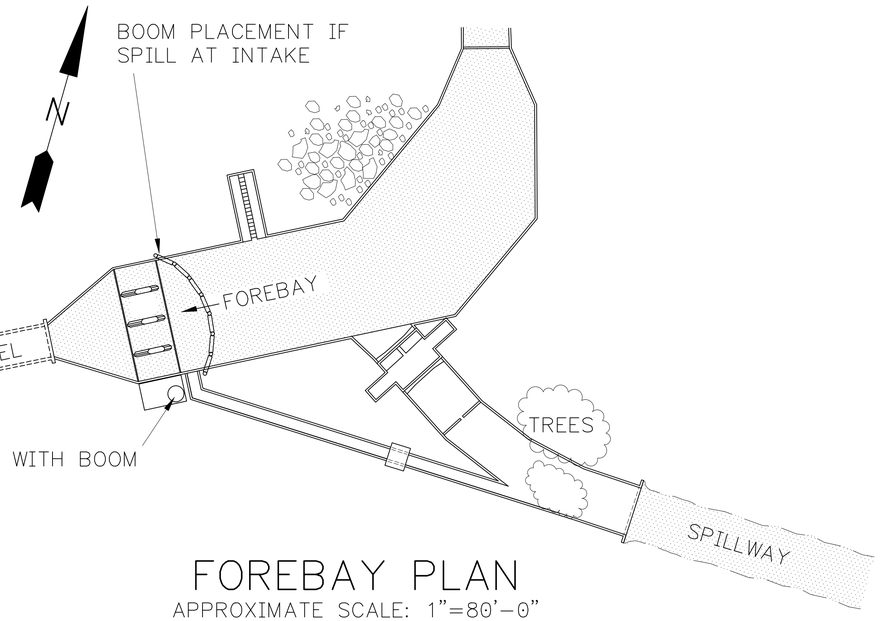
NO. CONTAINER DESCRIPTION

1. PENSTOCK INTAKE GATE HOIST, 83g, GEAR OIL
2. INTAKE GATE HYDRAULIC SYSTEM, 262g, FOOD GRADE HYDRAULIC OIL
3. OIL STORAGE DRUM, 55g, FOOD GRADE HYDRAULIC OIL
17. TRANSFORMER – PAD MOUNTED, 185g, TRANSIL OIL

LEGEND

- (1) CONTAINER NUMBERS
- GENERAL DIRECTION OF SURFACE DRAINAGE
- BERM OR DIKE
- DRAINAGE DITCH
- CONTAINMENT BOOM
- FENCE

80 0 80 FT
1"=80'-0"



FOREBAY PLAN
APPROXIMATE SCALE: 1"=80'-0"

PROJ#	14913
ER#	KJC4SPCC
DATE	08-12-94
ENG CM/RISI	DES MG/RISI
DR EMG/WES	CH BJ
APPROVAL	
BARBARA JASA	
ROGER L RAEBURN	

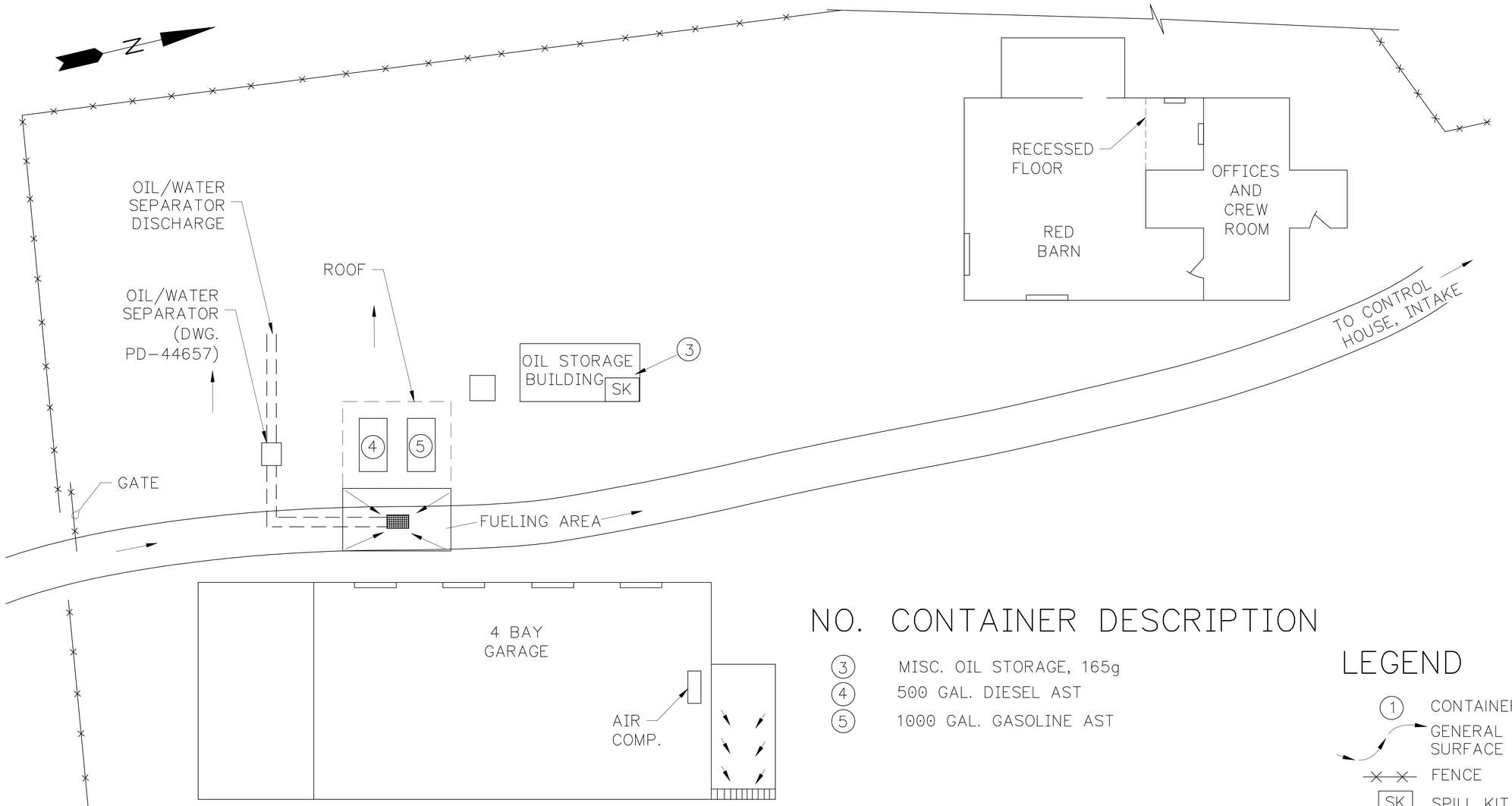
J.C. BOYLE HYDRO PLANT
SPCC PLAN
EXHIBIT C
DAM AND PENSTOCK INTAKE PLANS

PACIFICORP
A BERKSHIRE HATHAWAY ENERGY COMPANY
HYDRO

SCALE: AS NOTED | SHEET 1 | PB-45610 | REV. 4

No.	DATE	REVISION	BY	CHK	APP	DRAWING No.	REFERENCE DRAWINGS
0	3-14-95	ISSUED WITH INITIAL SPCC PLANS	MG/CM	BJ	RLR		
1	8/7/96	ISSUED AS-BUILT FOR SPCC PLANS	TSB	MFC	BJ		
2	10/4/04	PERIODIC REVIEW OF SPCC PLANS	HMS	DMJ	HS		
3	9/25/08	ISSUED: UPDATE FOR SPCC PLANS	MJ/SF	DNW	DW		
4	9/5/19	ISSUED UPDATE FOR SPCC PLANS	JS				

BORDER REVISED 7/13/15 DW.



RED BARN VICINITY MAP

SCALE 1/16"=1'-0"

NO. CONTAINER DESCRIPTION

(3) MISC. OIL STORAGE, 165g
(4) 500 GAL. DIESEL AST
(5) 1000 GAL. GASOLINE AST

LEGEND

(1) CONTAINER NUMBERS
GENERAL DIRECTION OF SURFACE DRAINAGE
FENCE
SK SPILL KIT

1 0 8 16 24 32 FT
1/16"=1'-0"

PROJ#	14913
ER#	KJC4SPCC
DATE	08-12-94
ENG CM/RISI	DES MW/RISI
DR EMG/WES	CH BJ
APPROVAL	
BARBARA JASA	
ROGER L RAEBURN	

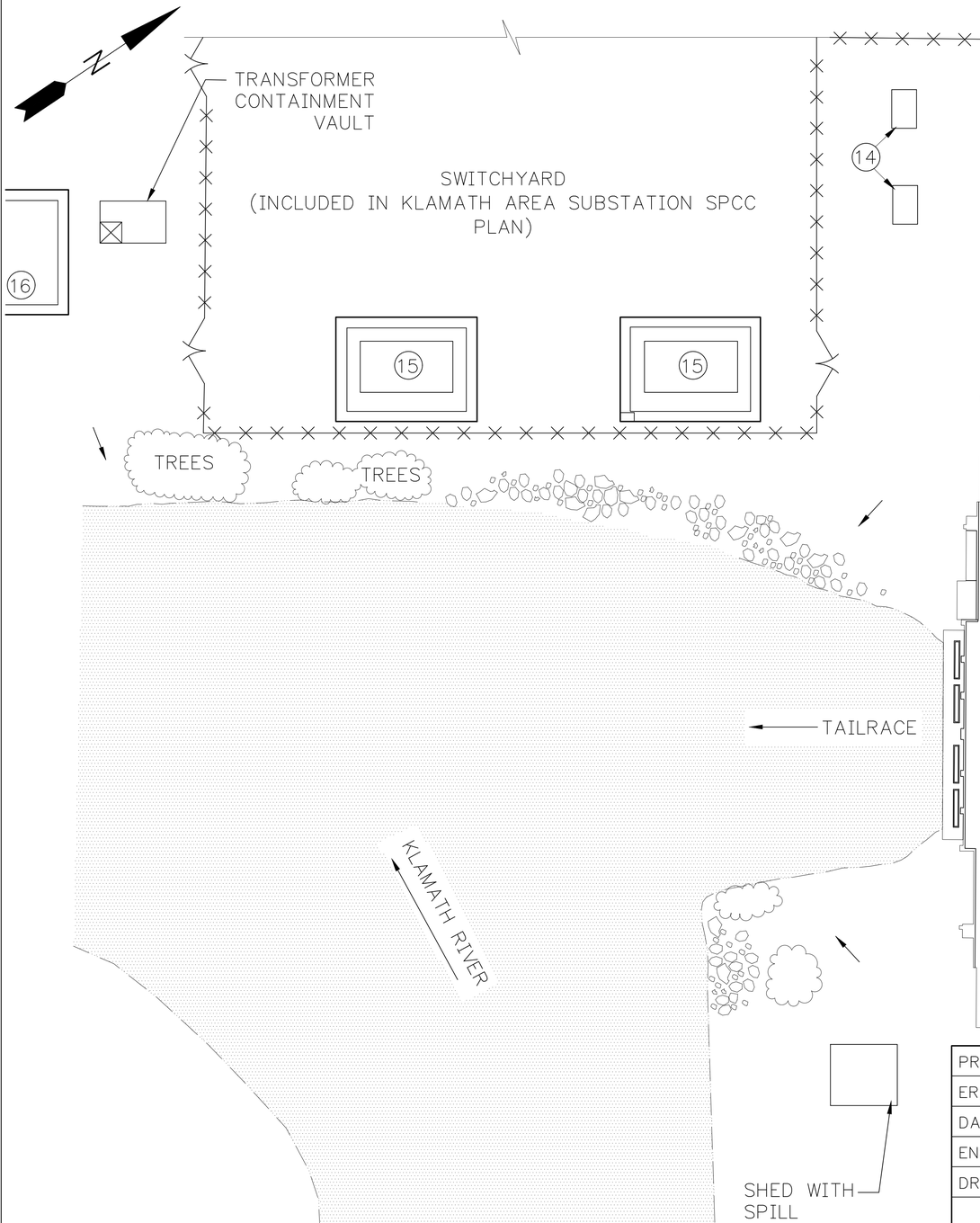
J.C. BOYLE HYDRO PLANT
SPCC PLAN
EXHIBIT D
RED BARN SHOP SITE PLAN

PACIFICORP A BERKSHIRE HATHAWAY ENERGY COMPANY — HYDRO

SCALE: AS NOTED | SHEET 1 | PB-45611 | REV. 5

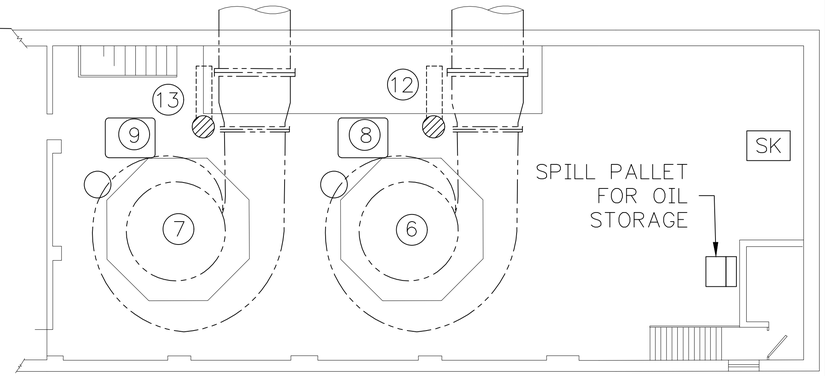
No.	DATE	REVISION	BY	CHK	APP	DRAWING No.	REFERENCE DRAWINGS
1	8/7/96	ISSUED AS-BUILT FOR SPCC PLANS	TSB	MFC	BJ		
2	10/4/04	PERIODIC REVIEW OF SPCC PLANS	HMS	DMJ	HS		
3	12/10/04	PERIODIC REVIEW OF SPCC PLANS	HMS	DMJ	HS		
4	9/25/08	PERIODIC REVIEW OF SPCC PLANS	MJ/SF	DNW	DW		
5	9/5/19	ISSUED UPDATE FOR SPCC PLANS	JS				

BORDER REVISED 7/13/15 DW.



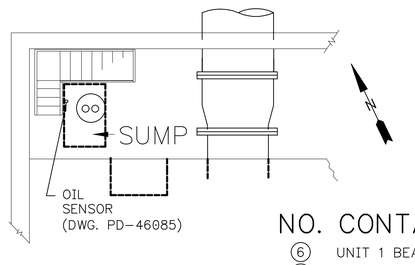
POWERHOUSE SITE PLAN

APPROXIMATE SCALE: 1"=40'-0"



TURBINE FLOOR PLAN

APPROXIMATE SCALE: 1"=20'-0"



BASEMENT PARTIAL PLAN

APPROXIMATE SCALE: 1"=20'-0"

NO. CONTAINER DESCRIPTION

6. UNIT 1 BEARING OIL SYSTEM, 400g, DTE HEAVY
7. UNIT 2 BEARING OIL SYSTEM, 400g, DTE HEAVY
8. UNIT 1 GOVERNOR OIL SYSTEM, 925g, HYDRAULIC OIL
9. UNIT 2 GOVERNOR OIL SYSTEM, 925g, HYDRAULIC OIL
12. UNIT 1 BF VALVE HPU, 106g, HYDRAULIC OIL
13. UNIT 2 BF VALVE HPU, 106g, HYDRAULIC OIL
14. STATION SERVICE TRANSFORMERS, 370g, TRANSIL OIL
15. MAIN TRANSFORMERS, 20,682g, TRANSIL OIL
16. SPARE TRANSFORMERS, 11,530g, TRANSIL OIL

LEGEND

1 CONTAINER NUMBERS
GENERAL DIRECTION OF SURFACE DRAINAGE
FENCE
SK SPILL KIT
CONCRETE CURBING

20 0 20 FT 1"=20'-0"
40 0 40 FT 1"=40'-0"

PROJ#	14913
ER#	KJC4SPCC
DATE	8-12-94
ENG CM/RISI	DES MG/RISI
DR EMG/WES	CH BJ
APPROVAL	
BARBARA JASA	
ROGER RAEBURN	

J.C. BOYLE HYDRO PLANT
SPCC PLAN
EXHIBIT E
POWERHOUSE SITE PLANS

PACIFICORP
A BERKSHIRE HATHAWAY ENERGY COMPANY

HYDRO

SCALE: NONE | SHEET 1 | PB-45612 | REV. 5

No.	DATE	REVISION	BY	CHK	APP	DRAWING No.	REFERENCE DRAWINGS
1	8/7/96	ISSUED ASBUILT FOR SPCC PLANS	TSB	MFC	BJ		
2	10/4/04	PERIODIC REVIEW OF SPCC PLANS	HMS	DMJ	HS		
3	12/10/04	PERIODIC REVIEW OF SPCC PLANS	HMS	DMJ	CBS		
4	11/18/11	ADDED DESCRIPTIONS 13, 14, 15, 16 & 17	SSH	JS	JS		
5	9/5/19	ISSUED UPDATE OF SPCC PLANS	JS				

BORDER REVISED 7/13/15 DW.

Appendix D

Internal Spill Report Form and CEPC Form

Appendix D J.C. Boyle Facility Internal Spill Report Form

NOTE: All spill reports are uploaded to KieTrac.

In the event of an oil or hazardous substance spill, the Spill Report Form must be completed to the extent information is available prior to contacting regulatory agencies and/or emergency response organizations.

Date of Spill:_____ Date of Spill Discovery: _____

Time of Spill:_____ Time of Spill Discovery: _____

Facility Name: J.C. Boyle Facility

Facility Location (Address/Lat-Long/Section Township Range): _____

Name and Title of Discoverer: _____

Damage and injuries: _____

National Response Center (800) 424-8802 called; name of person to whom report was made; and time called:

_____

Oregon Office of Emergency Management (OEM) 503-378-2911 called; name of person to who report was made; ___

and time called: _____

Klamath County Office of Emergency Management 541-851-3741 called; name of person to whom report was made; and time called: _____

Cleanup contractor contacted; name of person who was spoken to; and time called: _____

_____

Other and time: _____

Type of material spilled and manufacturer's name: _____

Description of spill location: _____

Directions from nearest community: _____

Estimated volume of spill: _____

Weather conditions: _____

Topography and surface conditions of spill site: _____

Spill underlying medium (pavement, sandy soil, water, etc.): _____

Proximity of spill to surface waters: _____

Did the spill reach a body of water_____Yes_____No

If so, was an oil sheen present on the water body?_____Yes_____No

Describe the causes and circumstances resulting in the spill: _____

_____

Describe the extent of observed contamination, both horizontal and vertical (*i.e.*, spill-stained soil in a 5-foot radius to a depth of 1 inch): _____

_____

_____

Describe immediate spill control and/or cleanup methods used and implementation schedule: _____

_____

_____

Current status of cleanup actions: _____

Name/Company/Address/Phone Number for the following:

Spill Team Leader: _____

Person Who Reported the Spill: _____

Environmental Inspector: _____

Form completed by:_____Date: _____

304 Emergency Release Notification

WRITTEN FOLLOW-UP REPORT

Per 40 CFR 355 (42USC Ch. 116 §11004 et seq.)

This form must be submitted within 30 days of the release.

GENERAL INFORMATION
1. COMPANY NAME:
2. LOCATION ADDRESS:
3. COMPANY CONTACT PERSON:
4. CONTACT PHONE NUMBER:
RELEASE INFORMATION
5. CHEMICAL RELEASED:
6. AMOUNT/STATE OF RELEASE:
7. DATE/TIME OF RELEASE:
8. DATE/TIME STOPPED:
9. LOCATION OF SPILL:
10. ACTIONS TAKEN:
11. RELEASE REPORTED TO:
12. PERSON(S) AGENCY REPORTING RELEASE:
13. KNOWN HEALTH RISKS:

304 Emergency Release Notification

WRITTEN FOLLOW-UP REPORT

Per 40 CFR 355 (42USC Ch. 116 §11004 et seq.)

This form must be submitted within 30 days of the release.

14. ADVICE FOR EXPOSED INDIVIDUALS:

15. ADDITIONAL INFORMATION:

16. LIST OF ATTACHED INFORMATION:

MAIL TO BOTH: Oregon State Emergency Response Commission (SERC)
3565 Trelstad Ave SE
Salem, Oregon 97317-9614

Erin Williams
US EPA – Region 10, M/S OCE-201
1200 6th Avenue, Suite 155
Seattle, WA 98101

EMAIL TO: or_serc@osp.oregon.gov AND sfm.cr2k@osp.oregon.gov AND Williams.Erin@epa.gov

Appendix E

Bulk Oil Container Inspection Checklist and Secondary Containment Retained Precipitation Discharge Log

Appendix E

J.C. Boyle Facility
Bulk Oil Container Inspection Checklist and Secondary Containment Retained Precipitation Discharge Log

These written inspection and log forms or their KieTrac equivalent, and their associated procedures, are to be completed by qualified and trained J.C. Boyle (Kiewit) facility personnel and signed by the appropriate Kiewit supervisor or manager. They should be made part of the Kiewit facility SPCC Plan or stored electronically and maintained for a period of three (3) years. The qualified and trained inspector must complete this form for each oil-containing container listed in the Kiewit facility SPCC Plan on a monthly basis.

The secondary containment retained precipitation discharge log must be completed at every discharge of accumulated precipitation and other waters within the secondary containment areas.

1.1.1.1 J.C. Boyle Facility

Oil Containing Equipment, ASTs, Reservoirs, or Drums Inspection Checklist

Date:_____ Inspected By: _____

Tank No./Drummed Area No._____ Tank/Drum Contents: _____

General Comments: _____

_____

Legend: "X" = Satisfactory; "RR" = Repair Required; "NA" = Not Applicable

Container Structure and Corrosion Control	
____	General tank/drum appearance good: No rusting, corrosion, pitting, cracking, seam failure leaks or drips (circle if present)
____	Tank/drum surfaces and underlying areas absent of any oil product or other signs of leakage, overfilling, or spillage.
____	General pipes and valves appearance good: No rusting, corrosion, pitting, cracking, leaks or drips (circle if present)
____	All insulating/isolating flange washers and sleeves in place and not damaged
____	All ground and/or anode straps in place and not damaged
____	Bolt, rivets, or seams not damaged
____	For Tanks/Equipment Reservoirs: all access manways or ports fastened tight and secured
____	For Tanks/Equipment Reservoirs: Supporting structures and seismic/floating restraints competent, in place, and functioning
____	For Tanks/Equipment Reservoirs: all vents clear, all fill ports capped and locked
____	For Tanks/Equipment Reservoirs: all site gauges, mechanical gauges, overfill prevention devices, and other appurtenances are operable and functioning
____	For Drums: all fill ports adequately capped and sealed; drum top adequately secured; drums placed outside of areas of vehicular traffic
____	Paint/ coating in place and not damaged
Corrective Action Needed:	

Hoses and Piping	
____	General pipes and valves appearance good: No rusting, corrosion, abrasion, pitting, cracking, leaks, or drips (circle if present)
____	All valves in locked position; all locks/chains in place to prevent valve movement
____	All valved connection or fill port ends blind-flanged or capped
____	Buried piping is not exposed
____	Buried piping's cathodic protection in place
____	Secondary containment around piping or hoses outside of secondary containment areas in place with no apparent damage
Corrective Action Needed:	
<u>Rainwater Accumulations/Contamination</u>	
____	Water in Containment Area: Yes/No (circle); if so free of oil sheen presence: Yes/No (circle); If water present was water removed as part of inspection: Yes/No (circle)
____	Containment area drainage valves are closed and locked to prevent valve movement.
____	All tank/drum surfaces clean and absent of signs of leakage; spillage, or overfilling
<u>Corrective Action Needed:</u>	
Signage/Security	
____	All required placards, signage, and labels are in place and current
____	High level alarms functioning properly and tested to verify
____	All AST, equipment, or piping barricades, bollards, guards, or fencing is in place to prevent damage from vehicular traffic or equipment movement
Corrective Action Needed:	

Inspection Checklist Stormwater

Removal/Dewatering Form

Project Name:	J.C. Boyle Facility	Tank/Equipment ID Number (if applicable):	
Date & Time:		Type of Tank/Equipment in containment (generator, transformer, fuel tank, etc.):	
Tank/Equipment Location:		Your Name:	

This procedure is for draining storm water from secondary containment enclosures for fuel tanks, generator containments, transformer containments and sumps.

1.1.2 This form is used to ensure that oil pollutants are not able to migrate or mix with surfaced waters.

1	Look at the containment. Is there water in the containment with a sheen on it?	**No,** there is no oil sheen or residue observed – proceed to step # 3 **Yes**, an oil sheen or residue exists – proceed to step # 2	*Yes/No (circle one)*
2	Use oil absorbent white diapers to collect sheen from water, repeat step 1.	If the quantity of oil or fuel is too great to be removed with diapers, contact your supervisor or environmental to get assistance with disposal.	*Mark X when complete*
3	Allow clean water to drain from the containment.	To do this insert clean sump pump, open drain valve or fold down flexible containment.	*Mark X when complete*
4	Re-stage the containment back to proper working order.	Ensure containment has all sides erected and supported. Pumps and hoses should be removed from containment.	*Mark X when complete*
5	Take oily diapers and debris to Green Conex for disposal.	Oil diapers must be bagged and placed into an oily debris black barrel, located at the green conex.	*Mark X when complete*
6	Give this COMPLETED form to Kiewit Environmental.	COMPLETED form can be submitted by scan and email, hand delivered or dropped off at building 1environmental drop•box.	*Mark X when complete*
Comments:			

Signature by field operation

This form will be maintained with the project SPCC environmental files.

Appendix F

Oil Spill Response Guide

Appendix F J.C. Boyle Facility Oil Spill Response Guide

These written instructions provide a generalized outline for a spill response. However, the magnitude, type of released materials, weather conditions at time of release, and the associated hazards they present will dictate the actual type of response performed. All responses shall take into account personnel and public health and safety as priority. All spill response must be performed by skilled, qualified, and trained responders and be as approved by or contracted by J.C. Boyle Facility (Kiewit), and the associated Spill Team Leader.

Oil Spill Response Guide

1. Introduction

1.1 Purpose

The purpose of this Spill Response Guide is to provide a generalized guidance document regarding the procedures to be followed by Kiewit staff in the event of a spill at the Kiewit facility.

1.2 Chain-of-Command

A chain-of-command for the responsibility and supervision of the implementation of this Spill Prevention, Control, and Countermeasure Plan (SPCC) has been developed and made known to all applicable Kiewit employees and supervisory personnel. This chain-of-command outlines the emergency notification procedures to be used in the event of an oil spill. Kiewit personnel are instructed to immediately contact the Spill Team Leader in the event of a spill incident. The Spill Team Leader will make an immediate inspection and assessment of the spill; implement initial spill control and countermeasures as applicable; and advise designated management personnel.

The name and telephone number of the Spill Team Leader to be contacted in the event of a spill is:

Primary Spill Team Leader	TBD
Telephone:	TBD
Secondary Spill Team Leader	TBD
Telephone:	TBD
Security Team (available 24 hours/seven days a week)	TBD
Telephone:	TBD

1.3 Incident Occurrence

The following sections detail the response actions of the various personnel involved in responding to an emergency incident.

1.3.1 Observation/Immediate Corrective Action/Containment

When a spill incident occurs, the Kiewit employee who witnesses the spill shall conduct the following actions:

- Notify the employee's supervisor of the spill incident.
- Employee's supervisor notifies the Spill Team Leader of the incident.
- The Spill Team Leader will notify other Site workers, contractors and visitors of the potential hazards present and notify appropriate Federal, State, Local and Emergency Agencies, as warranted per the details in Section 6.0 of the SPCC Plan.

Any employee who witnesses the spill is trained during initial employment to determine: the type of material spilled and its associated hazards; the extent and need for control or countermeasure for the release; and if the implementation of spill control and countermeasure/clean-up measures can be implemented safely. The employee reporting the spill incident shall remain at a safe location near the incident until spill team responders arrive or is told otherwise by the employee's supervisor or the Spill Team leader.

In the case where verbal notification to regulatory authorities is required (as per Section 6.0 in the SPCC), the Spill Team Leader reporting the spill incident to applicable regulatory agency or emergency services personnel will typically provide the following information:

- Person and job title of person making report (if not the Spill Response Team Leader/Spill Incident Responsible Person), with applicable contact information.
- Exact address and location of the Site, including longitude and latitude if requested.
- Date, duration, and estimated time of initial release.
- Type of material released and indication if material is an extremely hazardous substance.
- Estimates of the quantity released (in pounds [required] / in gallons [optional]).
- Released to what medium (containment structure, building interior, outside paved surface, outside permeable (graveled, landscaped, or bare ground surface, air, water, etc.).
- Whether an evacuation is needed, or has been initiated.
- Source of the release.
- Cause of the release (human error, equipment malfunction, vehicle impact, etc.).
- Description of the location of the release.
- Description of all affected media (surface water, ground water, soils, pavements, facilities, and air).
- Physical damage to or loss of facilities.
- Human injuries or rapid illnesses (including anticipated acute or chronic human-health based risks).
- Actions being used to stop, control, contain, remove, and mitigate the effects of the release, and discharge.
- Did the discharged material enter a sanitary sewer collection and conveyance system on-site and /or off-site, including the Site's septic tank or leachfield.
- Did the discharged material enter a surface/stormwater collection and conveyance system on-site (i.e. the sumps), or was it conveyed off-site.
- Total estimated volume and type of oil products on-site ("approximately 700 pounds/100 gallons of diesel fuel").
- Names of individuals and organizations that have been contacted.
- Emergency personnel and regulatory authorities on scene.
- Emergency personnel and regulatory authorities notified.

Once immediate and further control, countermeasure, and clean-up activities have been implemented and the incident has been controlled and stabilized, the Spill Team Leader will conduct an assessment to determine the appropriate further actions, if any, including the identification of external reporting

obligations. The primary focus of the assessment is to gather factual information regarding the nature, extent, and timeframe of the release as well as to determine potential impacts to on-site and off-site personnel and all environmental media. The assessment includes a review of the spill/release details, the nature and quantity of material involved, and the reportable quantity.

1.4 Agency Notification

Based on the assessment, the Spill Team Leader determines whether immediate notification to agencies, including United States Environmental Protection Agency (U.S. EPA), Oregon's Office of Emergency Management (OEM), Oregon Emergency Response System (OERS), local emergency response personnel, and other local regulatory authorities is required.

Per 40 CFR 112.7(a)(4), the Spill Team Leader, or other personnel designated, will report the following information to all agencies requiring notification:

- Exact address or location and phone number of Site (Refer to Applicable Appendix).
- Date and time of the discharge.
- Type of materials discharged.
- Estimates of the total quantity discharged (pounds/gallons [use 8.3 pounds per gallon]).
- Source of discharge.
- A description of all impacted media (soil, groundwater, surface water, air, etc.).
- The cause of the discharge.
- Any damages or injuries caused by the discharge.
- Actions being used to stop, remove, and mitigate the effects of the discharge.
- Whether an evacuation is needed.
- The names of individuals and/or organizations that have also been contacted.

Primary Contacts:

- National Response Center (NRC)
- Oregon's Office of Emergency Management (OEM)
- Oregon Emergency Response System (OERS)

In the event of an incident that presents a serious hazard to property or public health and safety, the Spill Team Leader or his designee will notify the following municipal agencies:

- Fire 911
- Sheriff / Police 911

1.5 Spill Response Procedures

Spill control and cleanup equipment, such as absorbent materials pads, socks, pillows, booms, bulk loose, brooms, shovels, and portable pumps, as well as personal protective equipment, are located in spill kits placed in proximity to the bulk oil container locations.

The following general procedures will be initiated upon the release of oil and/or liquid chemicals:

1. Spill and Hazard Recognition

- Recognizes that spill has occurred.
- Identify the type of material release and its potential hazards; review MSDS as warranted.
- Assess the hazards to human health and the environment as represented by the spilled materials.
- Determines best next course of action for response and notification in accordance with the Kiewit SPCC plan.

2. Spill Response Procedure for On-Site Personal

- Safety and protection of human health is first priority.
- Immediately shut off all pumps or close appropriate valves and stop all transfer operations if safe to do so.
- Determine the supply and source of the spill and stop the leak, if possible and is safe to do so.
- Contact emergency response personnel, as warranted.
- Warn people in the area if there is a danger to life or property, warn all plant employees, and assist any injured people.
- Provide physical barrier to prevent unauthorized access to spill.
- **NOTE: TYPICAL SPILL RESPONSE IS LIMITED TO RECOGNITION, DIVERTING, AND MITIGATING SPREAD OF SPILL ONLY, UNLESS RESPONDING KIEWIT STAFF HAVE COMPLETED AND ARE CURRENT WITH THE REQUIRED HAZWOPER AND SPILL RESPONSE TRAINING, AND ARE UNDER THE DIRECTION AND SUPERVISION OF THE SPILL TEAM LEADER.**
- Control and contain the spilled material, limiting the extent of the spill, especially if there is a danger of it entering an on- or off-site stormwater or sanitary sewer conveyance system, or waterway, or spreading off-site. Utilize absorbent pads, booms, spill dikes, absorbent bulk material berms or soil berms as needed to divert and contain the flow, and keep the spilled oil material from going off-site or into a storm drain feature or surface water body, or into a sanitary sewer facility.
- Recover and remove the spilled material as quickly as possible. For small quantities, utilize absorbent materials; for larger quantities, Spill Team Leader to make decision whether to use portable pumps and waste containers/tanks to collect the spill; or to contract with outside spill response contractor. The recovered material must be properly contained (in containers compatible with materials recovered) and stored until disposed of by an acceptable method in accordance with all local, state and federal requirements.
- Remove residual material by the use of absorbent materials. When saturated, the absorbent material must be properly containerized (in containers compatible with materials recovered), stored, and disposed of, by an acceptable method in accordance with all local, state, and federal requirements.
- The Spill Team Leader or his alternate will notify appropriate individuals and regulatory authorities as per Section 6.0 in the SPCC of the Kiewit SPCC Plan.

Notify the Spill Team Leader or his alternate and be prepared to provide the following information:

1. Type of materials discharged.

2. Estimates of the total quantity discharged (pounds and/or gallons; use 8.3 pounds per gallon for approximate conversion, round up to nearest pound).
3. Source of discharge.
4. A description of all impacted environmental media (soil, surface water, groundwater, air).
5. The cause of the discharge.
6. Any damages or injuries caused by the discharge, actions being used to stop, remove, and mitigate the effects of the discharge.
7. Actions being used to stop, remove, and mitigate the effects of the discharge.
8. Whether an evacuation is needed.
9. Emergency or regulatory authority personnel notified.
10. Emergency or regulatory authority personnel on scene (including names and who they are representing).
11. Name and job title of person making report.

Remain on-site until arrival of emergency response personnel and Spill Team Leader.

3. Responsibility of Spill Team Leader
    a. Evaluate situation and hazards present based on initial information and give instructions as required.
    b. Proceed immediately to location of incident to direct response efforts.
    c. If a release of oil or liquid chemicals has occurred which could threaten human health or the environment, immediate notification must be given to emergency response personnel (i.e. fire and sheriff/police). As warranted, and if a reportable quantity has been released, or if the spill has or could have the potential to reach a navigable water way, contact the **National Response Center (1-800-424-8802); Local Emergency Response Agency (911); State Emergency Response Commission (SERC) can be made by calling the Oregon Emergency Response System (OERS) at 800-452-0311 or 503-378-6377; the Oregon's Office of Emergency Management (OEM) at 503-378-2911 and the Certified Unified Program Agency (CUPA) / Administering Agency (AA) / Participation Agency (PA) Klamath County Public Health Department at 541-851-3741.; 911 (all other hours)).** As warranted, following notification to OERS Warning Center, Kiewit may need to notify the the Klamath County Public Health Department, and/or Oregon Department of Fish and Wildlife, depending on the actual or potential threats or impacts present as a result of the release. Have the following information ready when making the call.

- Person and job title of person making report (if not the Spill Response Team Leader/Spill Incident Responsible Person), with applicable contact information.
- Exact address and location of the Site, including longitude and latitude if requested (see various Appendices for information).
- Date, duration, and estimated time of initial release.
- Type of material released and indication if material is an extremely hazardous substance.

- Estimates of the quantity released (in pounds [required] / in gallons [optional]; use 8.3 pounds per gallon for approximate conversion, round up to nearest pound).
- Released to what medium (containment structure, building interior, outside paved surface, outside permeable (graveled, landscaped, or bare ground surface water, air, groundwater, etc.).
- Whether an evacuation is needed, or has been initiated.
- Source of the release.
- Cause of the release (human error, equipment malfunction, vehicle impact, etc.).
- Description of the location of the release.
- Description of all affected media (surface water, groundwater, soils, pavements, facilities, and air).
- Physical damage to or loss of facilities.
- Human injuries or rapid illnesses (including anticipated acute or chronic human-health based risks).
- Actions being used to stop, control, contain, remove, and mitigate the effects of the release, and any off-site discharge.
- Did the released material enter a sanitary sewer collection and conveyance system on-site and/or off-site, including any applicable septic tank or leach field.
- Did the discharged material enter a surface/stormwater collection and conveyance system on-site (including ditches), or was it conveyed off-site.
- Total estimated volume and typed of oil products on-site ("approximately 830 pounds/100 gallons of diesel fuel," etc.).
- Names of individuals and organizations that have been contacted.
- Emergency personnel and regulatory authorities on scene.
- Emergency personnel and regulatory authorities notified.

d. Complete entering the initial information, complete incident investigation and enter remaining required information in online report.

e. Ensure that all corrective and items remedial measures identified in the incident report have been implemented and entered in the online reporting system.

1.6 Spill Containment (40 CFR 112.7[C])

The Kiewit facility employs a variety of countermeasures to contain spills once they occur. The secondary containment features around all bulk oil storage containers should prevent a spill from happening.

NOTE: TYPICAL SPILL RESPONSE IS LIMITED TO RECOGNITION, DIVERTING, AND MITIGATING SPREAD OF SPILL ONLY, UNLESS RESPONDING KIEWIT STAFF HAVE COMPLETED AND ARE CURRENT WITH THE REQUIRED HAZWOPER AND SPILL RESPONSE TRAINING, AND ARE UNDER THE DIRECTION AND SUPERVISION OF THE SPILL TEAM LEADER.

If a minor oil product spill occurs in a secondary containment area, safety and protection of human health is first priority. All pumps or valves are immediate shut-off or closed, and all transfer operations are stopped if safe to do so. If safe access can be afforded, then the supply and source of the spill is determined and the leak is stopped. If a small release (typically less than 5 gallons) has occurred, and if judged safe to do so by the Spill Team Leader the spilled oil material will typically be removed with

absorbent materials (pads, pillows, and bulk material), with the spent absorbent materials being placed in a properly labeled, DOT approved container for transport off-site for disposal purposes. If a larger (typically greater than 5 gallons of oil product) release occurs within the secondary containment area, the type of recovery will be determined by the Spill Team Leader, but generally the spilled oil product will be recovered with pumps or a vacuum truck; properly discharged into DOT approved and properly labeled drums or left in the vacuum truck; and transported and disposed/recycled off-site at a permitted facility. Residual oil product will be collected with absorbent materials (pads or bulk material) to the extent practicable. No “wash-down” of spilled oil materials will occur.

Should a spill escape the secondary containment structure, the following general procedures are followed:

- Safety and protection of human health is first priority.
- Immediately shut off all pumps or close appropriate valves and stop all transfer operations if safe to do so.
- Determine the supply and source of the spill and stop the leak, if possible and is safe to do so, as determined by the Spill Team Leader.
- Contact emergency response personnel, as determined by the Spill Team Leader.
- Warn people in the area if there is a danger to life or property; warn all facility personnel, guests, and visitors that may be in the area.
- Assist any injured people.
- Provide physical barrier to prevent unauthorized access to spill.
- Control and contain the spilled material, limiting the extent of the spill, especially if there is a danger of it entering an on- or off-site stormwater or sanitary sewer conveyance system, or waterway; or spreading off-site. Utilize absorbent pads, booms, spill dikes, absorbent bulk material berms or soil berms as needed to divert and contain the flow, and keep the spilled oil material from going off-site or into a storm drain feature or surface water body, or into a sanitary sewer facility.
- Cover and respond as feasible, and divert flow around and away from any storm drain collection features (drop inlets, area drains, curb inlets, catch basins, ditches, etc.), sanitary sewer collection and conveyance facilities (drains, traps, clean-outs, pipes, etc.), limiting the extent of the spill, especially if there is a danger of it entering an off-site stormwater or sanitary sewer conveyance system, or waterway.
- Recover and remove the spilled material as quickly as possible. For small quantities, utilize absorbent materials; for larger quantities, Spill Team Leader to make decision whether to use portable pumps and waste containers/tanks to collect the spill; or to contract with outside spill response contractor. The recovered material must be properly contained (in containers compatible with materials recovered) and stored until disposed of by an acceptable method in accordance with all local, State, and federal requirements.
- Remove residual material by the use of absorbent materials. When saturated, the absorbent material must be properly containerized (in containers compatible with materials recovered), stored, and disposed of, by an acceptable method in accordance with all local, State, and federal requirements.

These procedures vary depending on the size and location of the spill. Kiewit employees, who have received SPCC training are qualified and authorized to undertake response and countermeasures to minor oil spills.

1.7 Spill Control Equipment (40 CFR 112.7[A])

The Kiewit facility maintains an adequate supply of spill control equipment to respond to spills. This equipment is maintained throughout the facility, placed in relative close proximity to the bulk oil storage containers. Materials maintained for Hazardous Material Cleanup at the Kiewit facility include loose absorbent material, spill pads, socks, booms, PPE, etc.

The facility also has a limited amount of small-scale heavy equipment that if properly trained employees are available, could be utilized to assist in spill control and containment (i.e. the creation of temporary berms, boom/pad layout, temporary plugging or redirection of stormwater run-off, etc.).

1.8 Spill Clean-Up (40 CFR 112.7[A])

The facility employs a variety of countermeasures to handle spills once they occur. These procedures vary depending on the size and location of the spill. The following procedures should be followed in the case of small spills retained within containment areas if safe to do so:

- Absorb spilled materials using loose absorbent materials, pads, blankets, or pillows for low volume releases; a contracted vacuum truck will be utilized for larger oil spill or oily water recovery. Pick up non-liquid materials with non-sparking shovels or with brooms and dustpans.
- The recovered oil product, oily water, and/or spent absorbent materials will be placed in DOT approved containers and will be disposed of off-site in accordance with applicable federal and state regulations. Use liners as required.
- Consult with the Spill Team Leader and the Technical Advisor (as listed in the Hazardous Materials Business Plan) to ensure proper labeling of drums and disposal techniques and procedures.
- Properly label all drums for temporary on-site storage and off-site disposal.
- Clean spill control equipment and return them to proper storage space.
- Clean and/or restore spill surface as needed.
- As applicable, retain all wash and rinse water and transfer to appropriate on-site location for temporary storage for off-site disposal; or permitted on-site treatment and/or disposal facility.
- Establish and maintain an exclusion zone in the area of the spill to prevent unauthorized contact with spilled material, clean-up materials, and to avoid impacts to the public and to other Kiewit employees and guests during the spill response and clean-up period.

Large spills or spills that have the potential to enter the environment may require the response of an outside spill response contractor. If the Kiewit spill response team cannot adequately respond to a spill, the Spill Team Leader will contact the Management Team and jointly decide whether or not outside spill response contractor (or potentially others) needs to be engaged.

1.9 Spill Response during Off Shifts, Weekends or Holidays

For spills occurring during off-shifts, weekends and holidays, notify the area Supervisor, Security, and the Spill Team Leader immediately. If unable to make contact, the alternate Spill Team Leader shall be contacted immediately. If unable to make contact with the Spill Team Leader, the alternate Spill Team Leader shall be contacted immediately. Signage with contact numbers is posted.

1.10 Recovered Spill Material Containment and Disposal

The following response equipment is maintained at the various bulk oil storage container areas with the Kiewit facility and is available in the event of a spill of a regulated material.

- Spill kits (absorbent pads, pillows, and booms; bulk absorbent material)
- Shovels and pumps
- Mops and drums

The spill kits are placed in proximity to the location of the bulk oil storage containers.

1.11 Methods of Disposal

Recovered material will be properly containerized in suitable containers compatible with material to be stored or removed with the use of a contracted vacuum truck. All containers will be properly sealed and labeled. Recovered material will be properly disposed of at an appropriate approved disposal facility per local, state, and federal requirements.

Appendix G

Tank Truck Unloading Procedures

Appendix H

J.C. Boyle Facility
Oil Transfer Procedure Checklist

Driver Name: _____	**Date:**_____		
Driver Company: _____	**Vehicle License:**		
	_____	YES	NO
1.) Equipped with personal protective equipment (PPE). Chemical resistant gloves, hard hat, and safety goggles used during bulk transfer. PPE inspected for defeats or chemical residues prior to use. Gloves tested for leaks. Replace defective equipment, if necessary.		☐	☐
2.) No eating, drinking, smoking or open flame within 50 feet of the area where the product is being transferred.		☐	☐
3.) Wheels of all oil containing vehicles adequately chocked to prevent movement of the vehicle during oil transfer procedures.		☐	☐
4.) Placed drip pans of absorbent pads under valves and hose connections to contain any leaks or drips that may occur during the transfer operation.		☐	☐
5.) All adjacent or in proximity area drains, catch basins, curb inlets, floor drains, etc. plugged or otherwise capped to prevent inadvertent spillage into these collection facilities in the event of a release.		☐	☐
6.) All hoses, pipelines, and connections to be used for receipt or discharge of oil product visually inspected for damage or neglect prior to use.		☐	☐
7.) Inspected receiving vessel or vehicle prior to loading or unloading for evidence of external damage or leakage.		☐	☐
Continued on next page			

8.) Ensured all hose and pipe connections are securely and appropriately fastened and secured.	☐	☐
9.) Closed and chained or locked all valves not in use to prevent drippage or leakage.	☐	☐
10.) Verified the available storage capacity of the receiving tank prior to filling. All ASTs and drums dipped prior to fuel or oil transfer to determine the ASTs or drum's remaining capacity.	☐	☐
11.) Ensured availability of absorbent pads and booms and BDG employee training in emergency shut-down system procedures is current.	☐	☐
12.) Provided constant surveillance of loading/unloading operations.	☐	☐
13.) Only filled ASTs or drums to 95% of rated nominal capacity to avoid overfilling.	☐	☐
14.) Ensured all valves and transfer facilities are adequately plugged, capped, flanged, etc. on both the container being filled and on the delivery truck, after completion of oil transfer procedures.	☐	☐
15.) Wiped up any drip or minor spills with absorbent pads as needed and properly disposed of scent pads. Employee training in emergency shutdown system procedure is current.	☐	☐

Appendix H

Oil Transfer Procedure Checklist

J.C. Boyle Facility (Klamath County, OR)
Monthly Inspection - Coversheet

The Coversheet, Tank Inspection Checklist, and Notes & Remarks sheets form the body of the Monthly Inspection Form (MIF) as required per Section 7.1 *Inspections and Tests* (40 CFR 112.7[E] and 112.8[C]) of the SPCC. Note: All SPCC inspections are uploaded to KieTrac.

PROCEDURE

1. Read through the entire SPCC Plan to ensure understanding of the intent of the Plan.

2. Read through all of the MIF (Coversheet, Tank Inspection Checklist, and Notes & Remarks) to understand how to complete the inspection process. Kiewit's electronic KieTrac program can be used in lieu of manually filling out this form.

3. Review the Contacts Update section below to ensure all contact information is current and accurate. Revise as needed.

4. Complete the Tank Update section to ensure all added, removed, modified, or relocated tanks are identified and described.

5. Complete the Tank Inspection Checklist (or the equivalent on KieTrac) for all tanks on site.

6. When finished, summarize all findings in the Notes & Remarks section. All issues identified during the inspection should be listed in Notes & Remarks.

CONTACTS UPDATE

ROLE	Y*	N	New Name or Comment
1. Have the Spill Team Leaders changed?			**Primary** Spill Team Leader: TBD, (PHONE TBD) **Secondary** Spill Team Leader: TBD, (PHONE TBD)
2. Has the Spill Team Alternate changed?			TBD, TITLE TBD, (PHONE TBD)
3. Has the Project Construction Manager changed?			
4. Are there any other pertinent changes to the SPCC Plan that warrant an amendment?			

*Any item that receives **"yes"** as an answer shall be updated in the "New Name or Comment" Section.

TANK UPDATE

	Y*	N	Tank ID, Site Location
1. Have any NEW tanks been added?			
2. Have any tanks been taken out of service? (tank must be labeled "OUT OF SERVICE" with the date taken out of service)			
3. Have any tanks been REMOVED?			
4. Have any tanks been relocated elsewhere on the site? Indicate new location:			

NOTES:

AST = Above-ground Storage Tank

Monthly and 5-year inspections are required for all tanks identified.

Refer to Figures 2 through 8 for tank locations.

Tank "Type": G = Generator/Belly Tank, A = Above-ground Storage Tank, M = Mobile Refueler, ST = Steel Tote, P = Plastic Tote, D = Steel Drum

Tank Inspection Checklist adapted from the Steel Tank Institute Standard SP001, Fourth Edition July 2006

J.C. Boyle Facility (Klamath County, OR)

Monthly Inspection - Tank Inspection Checklist

This inspection record must be completed *each month* for *each tank* and maintained for three years. Any discrepancies shall be noted in the Description & Comments Section on each checklist. A summary of all discrepancies should be added to the Notes and Remarks sheet.

Tank ID:_____ **Date:**_____ **Time:** _____ **Weather Conditions:** _____

*Any item that receives **"yes"** as an answer shall be described in the "Notes & Remarks" sheet and addressed immediately.

	Y*	N	N/A	DESCRIPTION & COMMENTS
1. Tank Containment				
*1.1 Is there **water** in primary tank, secondary containment, interstice, or spill container?*				
*1.2 Is there **product** in the secondary containment, interstice, or spill container?*				
1.3 Debris or fire hazard in containment?				
1.4 Drain valves operable and in closed position?				
1.5 Drainage pipes/valves fit for continued service?				
1.6 Tank containment manways and egress pathways clear?				
1.7 Tank containment gates/doors operable?				
1.8 Containment structure in satisfactory condition?				
2. Tank Foundation, Supports and Coating				
2.1 Evidence of tank settlement or foundation washout?				
2.2 Cracking or spalling of concrete pad or ringwall?				
2.3 Tank supports in satisfactory condition?				
2.4 Is water able to drain away from the tank?				
2.5 Evidence of the tank coating cracking, crazing, peeling, or blistering?				
3. Cathodic Protection				
3.1 CP system functional?				
3.2 Rectifier reading: (if applicable)				
4. Tank Shell/Heads				
4.1 Noticeable shell/head distortions, buckling, denting, or bulging?				
4.2 Evidence of shell/head corrosion or cracking?				

	Y*	N	N/A	DESCRIPTION & COMMENTS
5. Tank Roof Satisfactory?				
5.1 Standing water on roof?				
5.2 Holes in roof?				
5.3 Evidence of the roof coating cracking, crazing, peeling, or blistering?				
6. Tank Venting Satisfactory?				
6.1 Vents free of obstructions?				
6.2 Emergency vent operable? Lift as required?				
7. Insulated Tanks				
7.1 Tank insulation missing?				
7.2 Are there noticeable areas of moisture on the insulation?				
7.3 Mold on insulation?				
7.4 Insulation exhibiting damage?				
7.5 Is the insulation sufficiently protected from water intrusion?				
8. Leak Detection				
8.1 Visible signs of leakage around the tank, concrete, pad, containment, ringwall, or ground?				
9. Tank Attachments and Appurtenances				
9.1 Ladder and platform structure secure with no sign of severe corrosion or damage?				
9.2 Check all tank openings are properly sealed				
9.3 Piping connections, piping, and valves in good condition?				
9.4 Flanged connection bolts tight and fully engaged with no sign of wear or corrosion?				
10. Tank Level & Overfill Protection				
10.1 Tank liquid level gauge readable and in good condition?				
10.2 Tank overflow protection satisfactory?				
10.3 Has the tank liquid level sensing device been tested to ensure proper operation?				
10.4 Are overfill protection devices in proper working condition?				

	Y*	N	N/A	DESCRIPTION & COMMENTS
11. Tank Electrical Equipment				
11.1 Grounding strap secured to the tank and the ground and in good condition?				
11.2 Is electrical wiring for control boxes/lights in good condition?				
12. Other Conditions				
12.1 Are there other conditions that should be addressed for continued safe operation or that may affect the SPCC?				
12.2 Identification labels and tags secure, intact, and readable?				
LOADING/UNLOADING AND TRANSFER EQUIPMENT				
Loading/unloading rack is damaged or deteriorated				
Connections are not capped or blank-flanged				
Rollover berm is damaged or stained				
Berm drainage valve is open or is not locked				
Drip pans have accumulated oil or are leaking				
SECURITY				
Fencing, gates, or lighting are non-functional				
Alarm system is not available and/or operational				
Pumps and valves are not locked (not in use)				
SPILL RESPONSE EQUIPMENT				
Spill kit inventory is incomplete				

NOTE: See the Inspection Coversheet for explanation of how to complete this checklist.

Inspector Printed Name:_____ **Inspector Signature:**_____

J.C. Boyle Facility (Klamath County, OR)

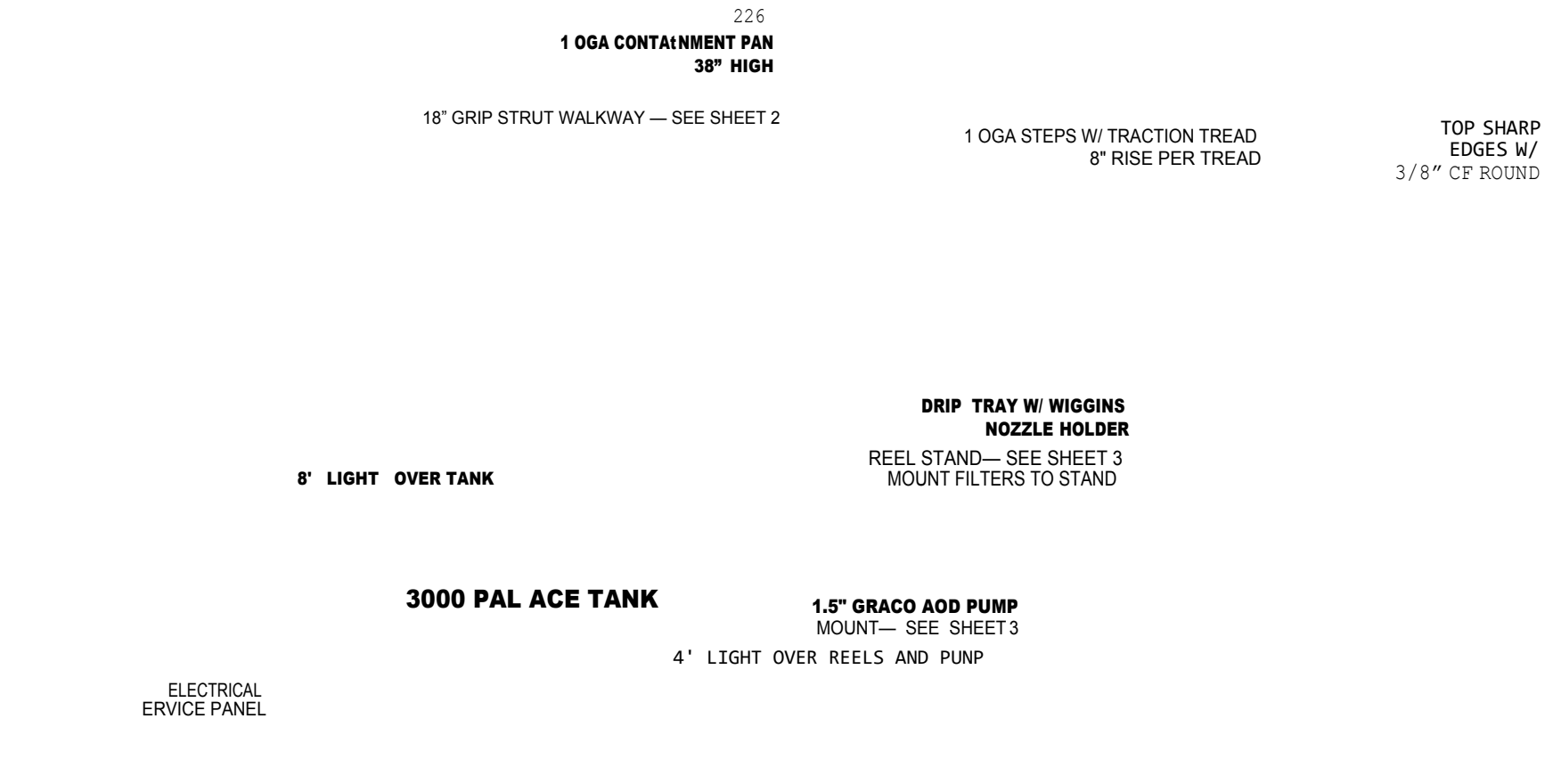
Monthly Inspection - Notes and Remarks (page___of_____)

This page is intended as a place to summarize all discrepancies found for all of the tanks inspected, as well as additional room to elaborate on *Description & Comments* from the Monthly Inspection Form (or equivalent KieTrac form). For each tank with at least one discrepancy: Add the Tank ID number, tank type, location, and Responsible Person and a description of the findings. Note: All SPCC inspections are uploaded to KieTrac.

Tank ID, Type, Location, Responsible Person, Findings

Appendix I

Monthly Inspection Checklist



NOTES:

BULK FUEL STORAGE

CONTAINER — LAYOUT

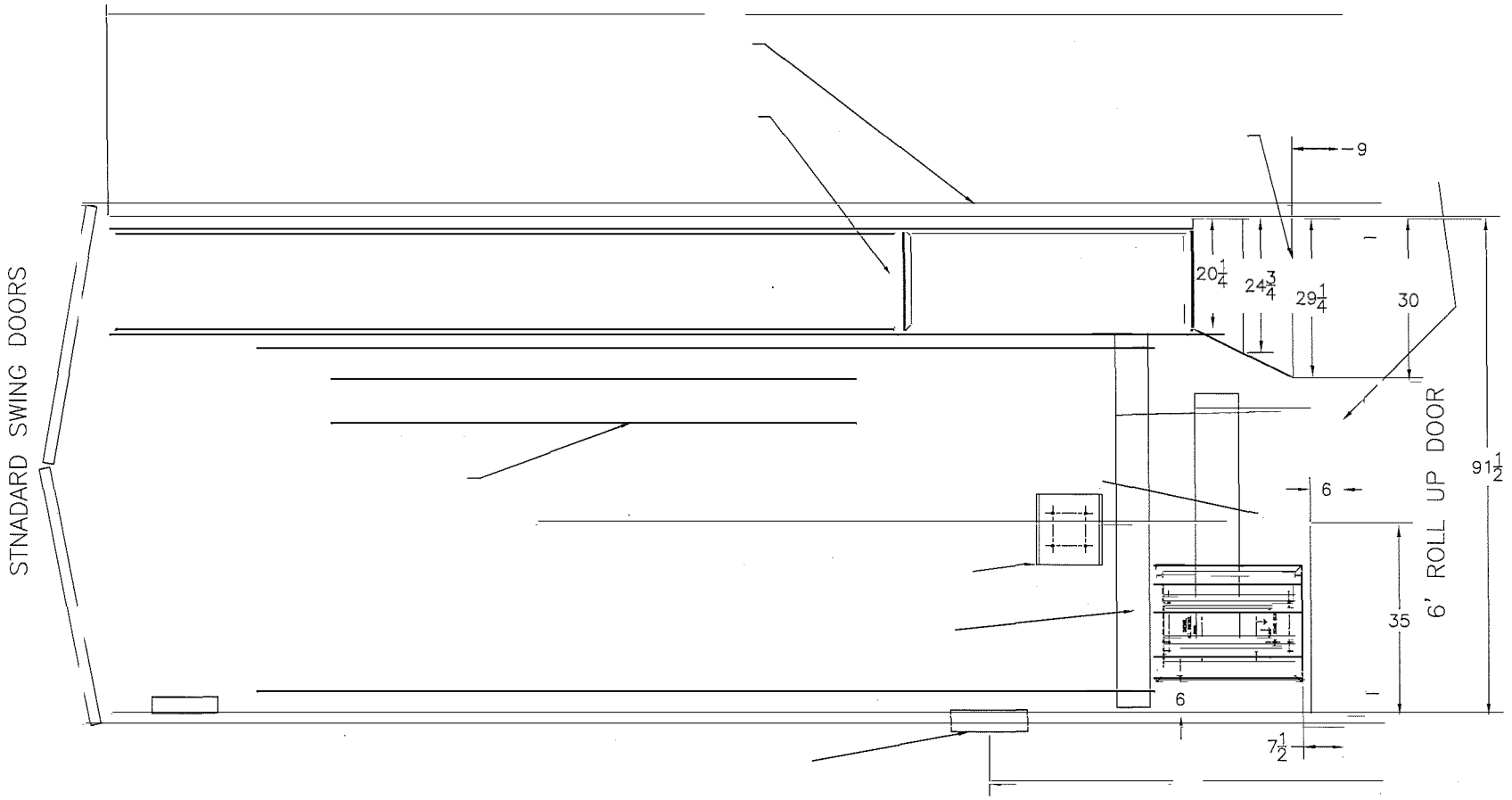
SCALE

DWN: RYAN WAFER

COLUMBIA SHOP
13000 NE WHITAKER WAY

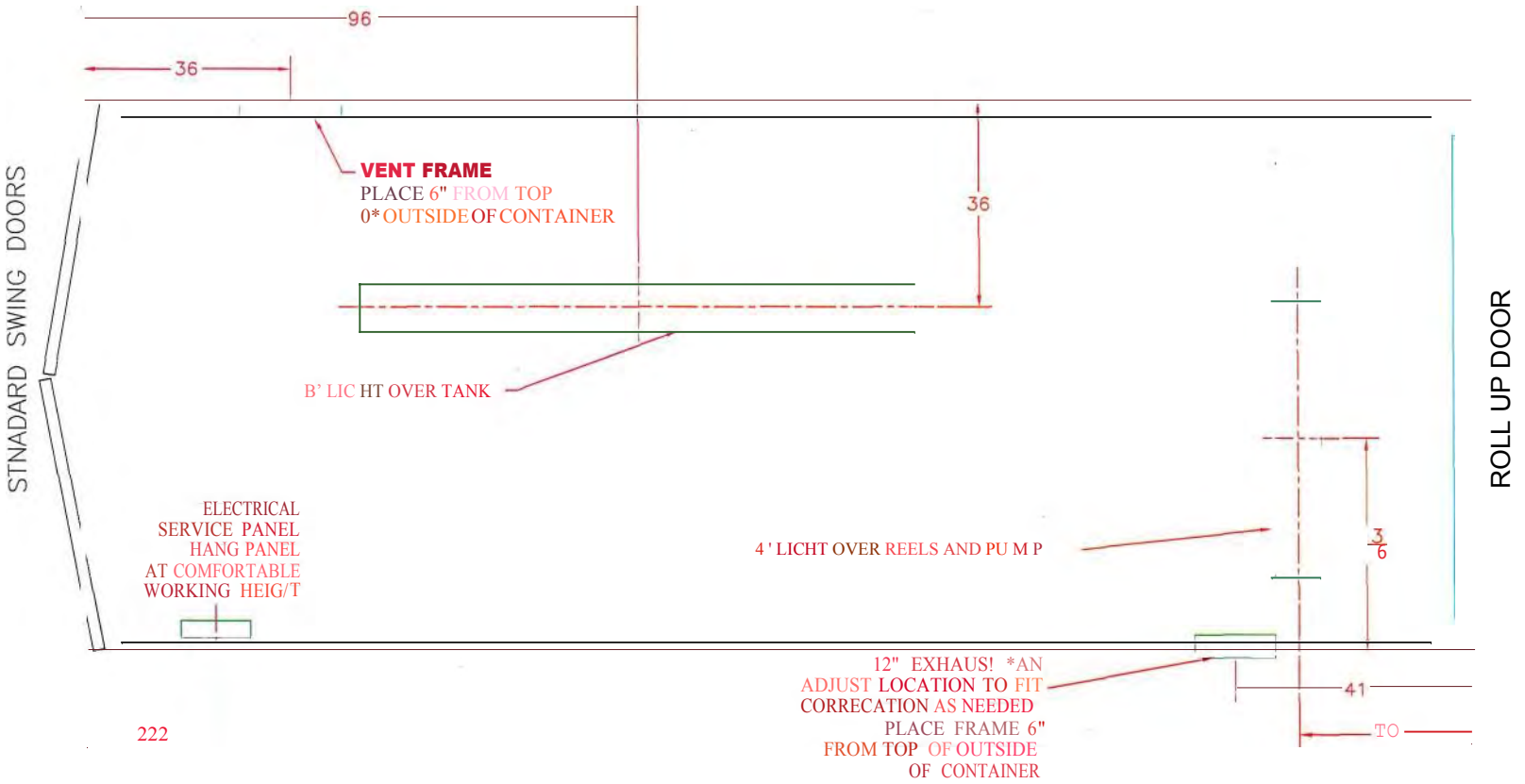
*ORTLAND, OR 97220
(503) 256—5541

SIZE. FSCM N 0. **DWG NO.** REV
A



KIEWIT PKS SINCE 1884

SCALE **DWN: RYAN WAFER** SHEET 1/



KIEVIT INFRASTRUCTURE WEST CO.

5000 GAL FUEL CONTAt NER
ELECTRICAL COMPONENTS

CQ LUMBIA SHOP
13000 NE WHITAK ER WAY
PORTLAND, OR 9 7230
(503) 256—5541

NOT ES :

WELD ON FLAT BAR PLATES TO ROOF AND WALLS TO MOUNT

LI G HTS & PANEL AS SHOWN

SIZE FSCU NO.
SCALE

DWN: RYAN WAFER

SHEET 4

A

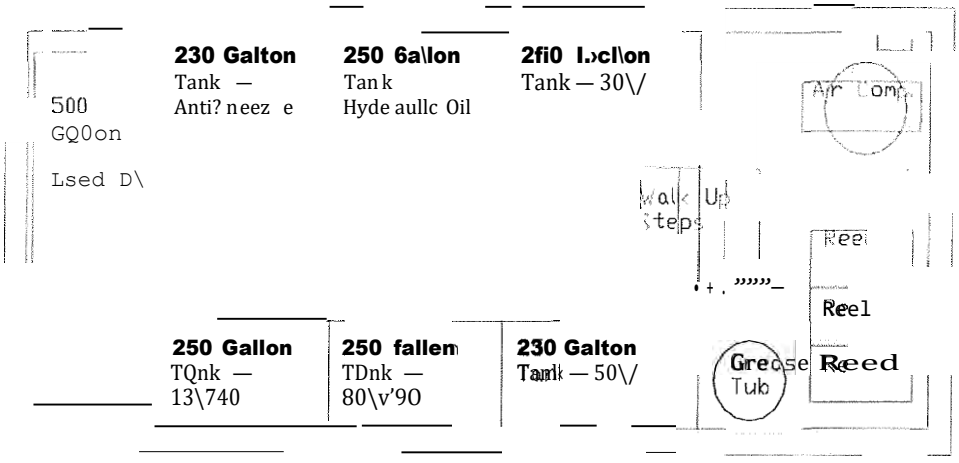
DWG NO.

REV
0

SCALE

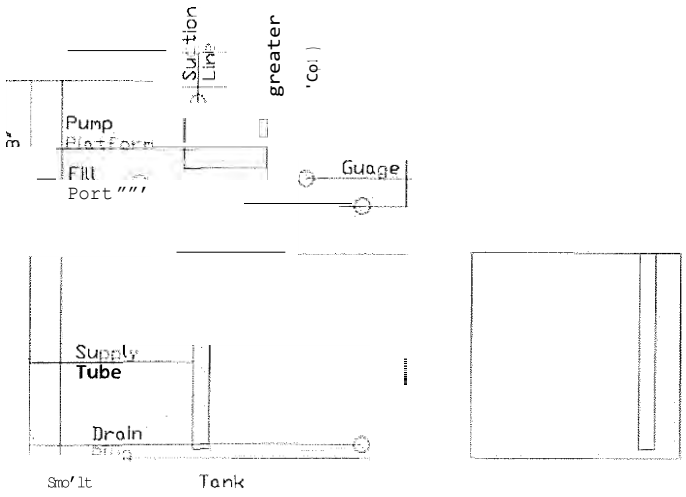
DWN: RYAN WAFER

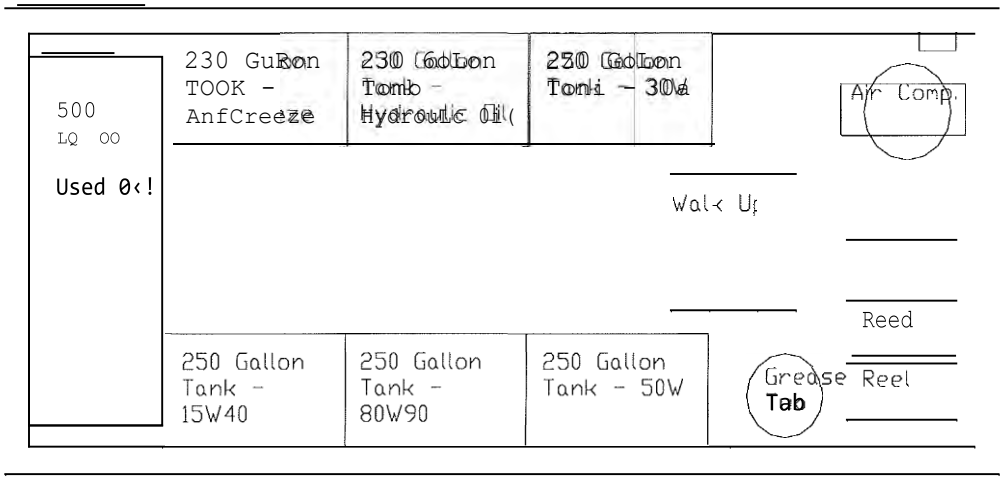
SHEET 4



8‘ x 20’ Conne x oas ie La you I

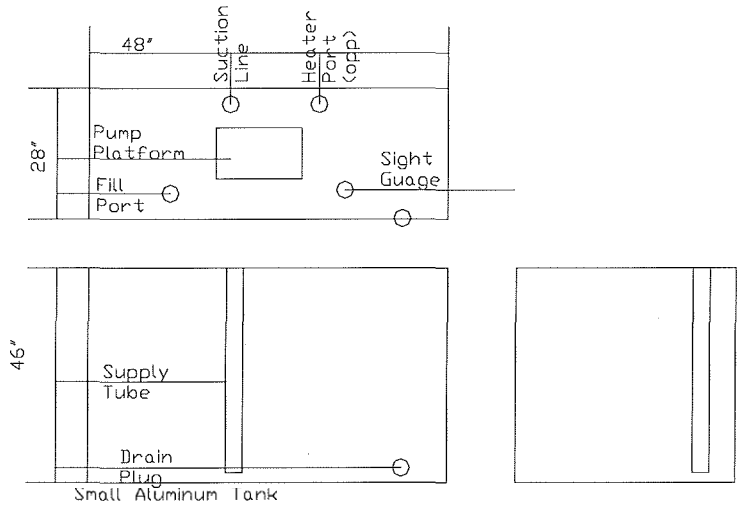
Above is the layout for an 8’ x 20’ Connex box. Below is the layout for the small aluminum tank and on the next page is the large aluminum tank.

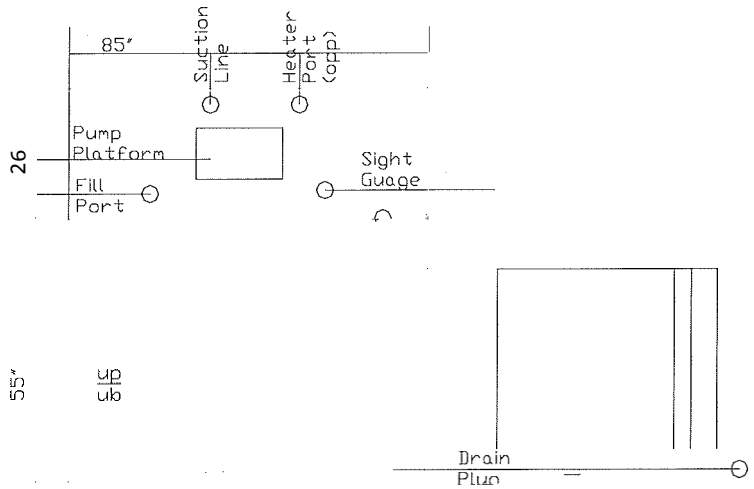




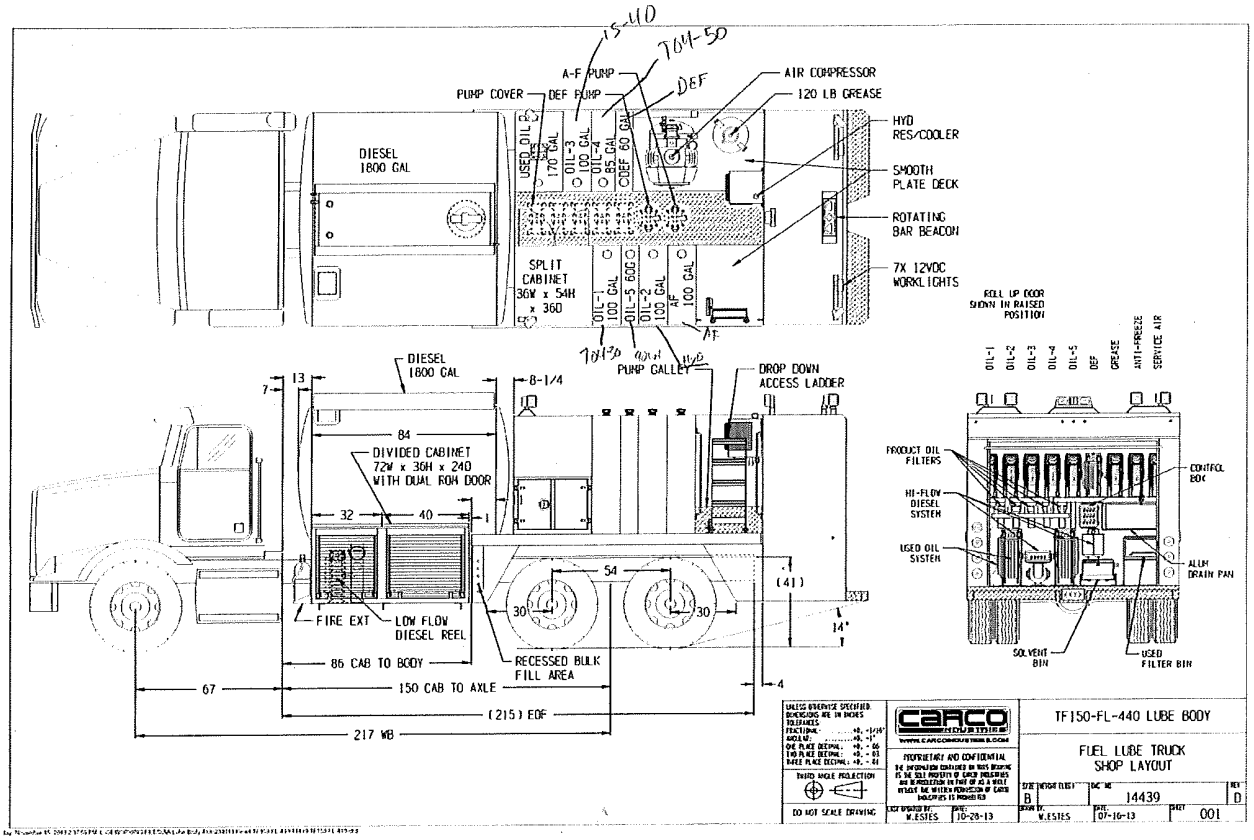
8’ x 20‘ Connex ba sic Layout

Above is the layout for an 8’ x 20’ Connex box. Below is the layout for the small alumlnum task and on the next page 1s the large aluminum tank.




85"
Suction Line
Heater Port (opp)
Pump Platform
26
Fill Port
Sight Guage
55"
up
ub
Drain Plug

Large Tank



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES
FRACTIONAL ±0. ±1/16"
ANGULAR ±0. ±1°
ONE PLACE DECIMAL ±0. ± .06
TWO PLACE DECIMAL ±0. ± .03
THREE PLACE DECIMAL ±0. ± .01

THIRD ANGLE PROJECTION

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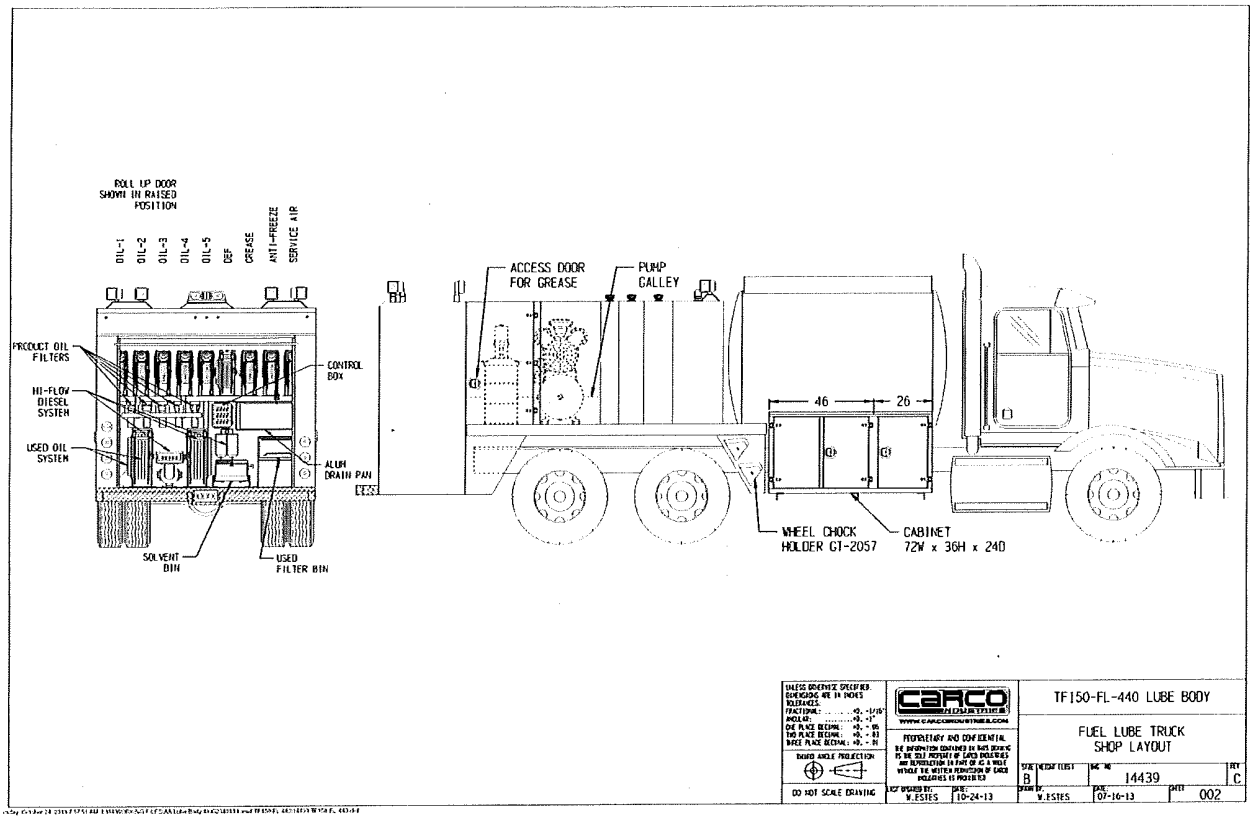
DESIGNED BY: M.ESTES DATE: 10-28-13

TF150-FL-440 LUBE BODY

FUEL LUBE TRUCK SHOP LAYOUT

SIZE B | DWG NO 14439 | REV D

DRAWN BY: M.ESTES | DATE 07-16-13 | SHEET 001



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ±0. ±1/16" ANGULAR: ±0. ±1° ONE PLACE DECIMAL: ±0. ±.1 TWO PLACE DECIMAL: ±0. ±.03 THREE PLACE DECIMAL: ±0. ±.01 THIRD ANGLE PROJECTION DO NOT SCALE DRAWING	CARCO INDUSTRIES WWW.CARCOINDUSTRIES.COM PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF CARCO INDUSTRIES AND REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF CARCO INDUSTRIES IS PROHIBITED	TF150-FL-440 LUBE BODY FUEL LUBE TRUCK SHOP LAYOUT
	LAST UPDATED BY: W.ESTES DATE: 10-24-13	SIZE: B DWG. NO: 14439 REV: C DRAWN BY: W.ESTES DATE: 07-16-13 SHEET: 002

SPECIFICATION DATA SHEET I MODEL : 20TCG

The TRANSCUBE*™ 20TCG is a multi—task on-site fuel deployment solution for the direct supply to stationary diesel engines or the refueling of equipment on demand .

- **Transportable. Full load lifting eyes, forklift pockets and internal baffles designed to allow handling of the tank full of fuel .**
- **Stachable. Easily stackable (2)-high full of fuel and (4)-high empty to reduce storage space requirements.**
- **Accessible. Access manway for maintenance and inspection of inner tank. Removable inner tank for servicing and cleaning.**
- **Efficient. Lockable equipment cabinet locks and secures equipment and fuel ports to run up to 3 pieces of diesel-powered equipment.**
- **Environmentally Safe. Double-walled, 1 7 0% containment eliminates the need for spill pans, U L 142 approved.**

SPECIFICATIONS *	
STANDARD FITTINGS: High accuracy contents gauge; 3"Fill Point; 2" fusible link fill port; 1" pump feed with flexible dip pipe, strainer & non-return valve; (1) engine feed and return port set; pressure/vacuum vent; breather vent. OPTIONAL FITTINGS: Complete transfer pump kits; water & particulate filter kits; fuel up to (2) feed & return blocks; fuel hose & quick couplets.	
Capacity (Brim-Fill) Litres: 2091	Dimension Height (mmfin): 1319 mm/51. 91"
Capacity (Brim-Fill) Imperial Gallons: 460	**Weight Empty (lbs/kg): 1815 lbs (823kg)**
Capacity (Brin-Fill) US Gallons: 552	**Weight Full (lbs/kg): 6424 lbs (2914kg)**
Dimension Length (nm/in): 2292 mm/90.24"	**Approvals: U L142, ULC S—60 1-07, SUN I BC Type 3 IA,**
Dimension Width (mm/in): 1140 mm/44.88"	**U N DOT, NFPA, Transport Canada, Vlarem, Kiwa**

'Model specifications may slightly differ based on stock availability in your area. Please contact your local representative to confirm tank specifications.

Appendix J

Supplied Tank Information

Appendix G

J.C. Boyle Facility
Tank Truck Unloading Procedures

Driver Name: _____	**Date:**_____		
Driver Company: _____	**Vehicle License:**		
Tank Truck Unloading Procedure Checklist:	_____		
		YES	NO
1.) Tank trailer brakes set and driver remains with the vehicle during the entire unloading period.		☐	☐
2.) Chocks placed behind and in front of the wheels of the trucks to prevent movement of the truck until unloading and all oil transfer procedures have been completed.		☐	☐
3.) Unloading operations performed only by reliable persons properly trained, instructed in, and made responsible, for careful compliance with applicable regulations.		☐	☐
4.) Unloading of tank trailers done during daylight hours except under emergency conditions.		☐	☐
5.) No naked flame of any kind permitted, for any purpose whatsoever, near the tank trailer or within the vapor area surrounding the tank trailer. Smoking is forbidden within this area. Only spark-proof tools used.		☐	☐
6.) The storage tank or container and tank trailer vented before connecting the unloading line.		☐	☐
7.) The level in the receiving tank checked to assure that sufficient space is available to receive the contents of the trailer.		☐	☐
8.) The tank trailer number compared with that on shipping papers or invoices to determine the trailer's contents and avoid product mix-ups or contamination.		☐	☐

Continued on next page		
9.) Ground strap attached to the bumper of the tank trailer.	☐	☐
10.) The unloading line attached to the proper connection.	☐	☐
11.) Drip pans or absorbent pads placed under the valves and hose connections to contain any leaks or drips that may occur during the transfer operation.	☐	☐
12.) All adjacent or in proximity area drains, catch basins, curb inlets, floor drains, etc. plugged or otherwise capped to prevent inadvertent spillage into these collection facilities in the event of a release.	☐	☐
13.) All hoses, pipelines, and connections to be used for receipt or discharge of oil product visually inspected for damage or neglect prior to use.	☐	☐
14.) Inspection of receiving vessel or vehicle prior to loading or unloading for evidence of external damage or leakage.	☐	☐
15.) Ensure all hose and pipe connections are securely and appropriately fastened and secured.	☐	☐
16.) Verify requirement that the available storage capacity of the receiving tank prior to filling.	☐	☐
17.) Inspect the availability of absorbent pads and booms.	☐	☐
18.) Constant surveillance of loading/unloading operations.	☐	☐
19.) The bottom inlet valve and other proper valves opened in the unloading lines.	☐	☐
20.) Begin checking pump to assure no leakage at any of the connections. Should leakage be present, the pump will immediately be stopped. The liquid level in the receiving tank will be checked regularly and the pump stopped before the liquid overflows.	☐	☐
21.) After the liquid has been unloaded, close all valves, disconnect the loading line from the tank trailer, close the cap to the inlet, and tighten, cap, and secure all other closures with chains and locks, as appropriate.	☐	☐

Appendix E

Consultation Record

Consultation Record

Waste Disposal and Hazardous Materials Management Plan				
Sub-Plan	**Agency**	**Date of Agency Plan Submittal**	**Agency Comments Received Date**	**Date of Call to Resolve Agency Comments**
Oregon Spill Prevention, Control, and Countermeasures Plan	Oregon Department of Environmental Quality	January 26, 2021	Pending	Pending
	Oregon Department of Fish and Wildlife	January 26, 2021	Pending	Pending
Oregon Waste Disposal and Hazardous Materials Management Plan	Oregon Department of Environmental Quality	January 26, 2021	February 11, 2021	Pending
	Oregon Department of Fish and Wildlife	January 26, 2021	Pending	Pending
California Waste Disposal Plan	California State Water Resource Control Board	January 26, 2021	February 11, 2021	February 11, 2021
	North Coast Regional Water Quality Control Board	January 26, 2021	Pending	February 11, 2021
	California Department of Fish and Wildlife	January 26, 2021	February 9, 2021	February 11, 2021
	California Department of Water Resources	January 26, 2021	Pending	February 11, 2021
California Hazardous Materials Management Plan	California State Water Resource Control Board	January 26, 2021	February 11, 2021	February 11, 2021
	California Department of Fish and Wildlife	January 26, 2021	February 9, 2021	February 11, 2021
	California Department of Water Resources	January 26, 2021	Pending	February 11, 2021