LETTER OF TRANSMITTAL

TO:

Dale Truskett Lockheed Martin Corporation Enterprise Business Services – EESH 2550 N. Hollywood Way, Suite 406 Burbank, CA 91505	Date:	May 25, 2017
	Job No:	661M129556.16
	RE:	Lockheed Martin- The Dalles

We are sending you: ☒ Attached ☐ Under Separate Cover via _____

Copies	Dated	Description
1 CD	5/23/2017	Combined 2017 Semiannual RCRA and Annual CERCLA Groundwater Monitoring Report, Former Martin Marietta Reduction Facility, Lockheed Martin Corporation, The Dalles, Oregon

THESE ARE TRANSMITTED as checked below:

☐ For Review ☐ For Approval ☒ For Your Use ☐ As Requested

Amec Foster Wheeler Environment & Infrastructure, Inc.
7376 SW Durham Road
Portland, Oregon
USA 97224
Tel+1 (503) 639-3400
Fax+1 (503) 620-7892
www.amec.com

Lockheed Martin Corporation
Corporate Energy, Environment, Safety and Health
2550 North Hollywood Way, Suite 406 Burbank, CA 91505
Telephone: 818.847.0197 Facsimile: 818.847.0256

LOCKHEED MARTIN

May 25, 2017

Mr. Fredrick Moore
Department of Environmental Quality
Eastern Region Bend Office
475 NE Bellevue Drive, Suite 110
Bend, OR 97701

Subject: Former Martin Marietta Company Reduction Facility
The Dalles, Wasco County, Oregon
Transmittal – Combined 2017 Semiannual RCRA and Annual CERCLA Report

Dear Mr. Moore:

Attached is the Combined 2017 Semiannual RCRA and Annual CERCLA Report for the former Martin Marietta Reduction Facility located in The Dalles, Oregon. A CD of the full report has been sent via FedEx, please let me know if you would also like a hard copy of the report.

Please contact me with questions regarding this report at 720-842-6121 or liaht.rosenstein@lmco.com.

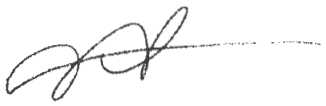
Sincerely,

Liaht Rosenstein
Lockheed Martin Corporation

Cc: Ms. Emerald Laija, U.S. Environmental Protection Agency
Mr. Bob Schwarz, Oregon Department of Environmental Quality
Mr. Bernie Zavala, U.S. Environmental Protection Agency
Mr. Brian Thorne, Lockheed Martin Corporation

Certification

I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



5/25/17

Liaht Rosenstein
Environmental Remediation Project Lead

Date

COMBINED 2017 SEMIANNUAL RCRA AND ANNUAL CERCLA REPORT

Former Martin Marietta Reduction Facility

Lockheed Martin Corporation

The Dalles, Oregon

ORD 052 221 025

Prepared for:

Lockheed Martin Corporation
2550 N. Hollywood Way, Suite 406
Burbank, CA 91505

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.
7376 SW Durham Road
Portland, Oregon 97224
(503) 639-3400

May 23, 2017

Project No. 661M129556

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May 23, 2017
Project No. 661M129556

Eastern Region Hazardous Waste Program
Oregon Department of Environmental Quality
475 NE Bellevue, Suite 110
Bend, OR 97701

Attention: Mr. Fredrick Moore

Subject: Combined 2017 Semiannual RCRA and Annual CERCLA Report
Former Martin Marietta Reduction Facility, The Dalles, Oregon
ORD 052 221 025

Dear Mr. Moore:

Amec Foster Wheeler Environment & Infrastructure, Inc., on behalf of Lockheed Martin Corporation, has prepared the attached Combined 2017 Semiannual RCRA and Annual CERCLA Report for the former Martin Marietta Reduction Facility in The Dalles, Oregon. This report is required by the Post-Closure Care Permit (ORD 052 221 025) dated July 3, 2000. The report summarizes the analytical results from the March 2017 groundwater sampling event for the RCRA and CERCLA programs, as well as March 2017 analytical data for the site-wide Comprehensive Groundwater Monitoring Program as requested by the EPA in their 2013 five-year review for the above-referenced Site.

If you have questions, please contact Liaht Rosenstein of Lockheed Martin Corporation at (720) 842-6121.

Sincerely,

Amec Foster Wheeler
Environment & Infrastructure, Inc.

Christy L. Duitman, RG
Senior Geologist/Project Manager

MR/ay

Amec Foster Wheeler Environment & Infrastructure, Inc.
7376 SW Durham Road
Portland, Oregon
USA 97224
Tel+1 (503) 639-3400
Fax+1 (503) 620-7892
www.amecfw.com

Combined 2017 Semiannual RCRA and Annual CERCLA Report

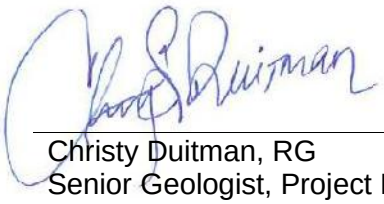
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon
ORD 052 221 025

Prepared for:

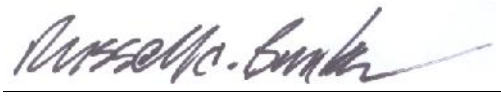
Lockheed Martin Corporation
2550 N. Hollywood Way, Suite 406
Burbank, CA 91505

Prepared by:

Amec Foster Wheeler Environment & Infrastructure, Inc.
7376 SW Durham Road
Portland, Oregon 97224

Prepared by:  Date: 5/23/17

Christy Duitman, RG
Senior Geologist, Project Manager

Reviewed/Approved By:  Date: 5/23/17

Russ Bunker, RG
Senior Associate Geologist

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ACRONYMS

µg/L	micrograms per liter
ACL	Alternate Concentration Limit
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
Apex	Apex Laboratories
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COCs	Constituents of Concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
DEQ	Oregon Department of Environmental Quality
DGWR	The Dalles Groundwater Reservoir
EPA	U.S. Environmental Protection Agency
ESD	Explanation of Significant Differences
ft	feet
J	Estimated value
LCS	leachate collection system
Lockheed Martin	Lockheed Martin Corporation
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
MMRF	Martin Marietta Reduction Facility
MOA	Memorandum of Agreement
msl	mean sea level
NAC	Northwest Aluminum Company
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
ORELAP	State of Oregon Environmental Laboratory Accreditation Program
ORP	oxidation-reduction potential
PAHs	Polycyclic aromatic hydrocarbons
POTW	Publically Owned Treatment Works
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SIM	selective ion monitoring
SM	Standard Method

ACRONYMS CONTINUED

SMCL	Secondary Maximum Contaminant Level
SWMU	Solid Waste Management Units
TOC	Total Organic Carbon
WAD	weak acid-dissociable cyanide

COMBINED
2017 SEMIANNUAL RCRA AND ANNUAL CERCLA REPORT
Former Martin Marietta Reduction Facility
The Dalles, Oregon

1.0 INTRODUCTION

1.1 PURPOSE

Lockheed Martin Corporation (Lockheed Martin) contracted Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), to conduct post-closure monitoring for the closed Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) landfills and to implement the Final Work Plan (Tetra Tech, Inc. 2014) for the Comprehensive Groundwater Investigation at the former Martin Marietta Reduction Facility (MMRF) in The Dalles, Oregon (Site).

This report presents the results of groundwater and Site monitoring activities as summarized below:

- RCRA Landfill monitoring (October 2016 through March 2017) and groundwater monitoring (March 2017); and
- CERCLA Landfill monitoring (October 2016 through March 2017) and groundwater monitoring (March 2017); and
- Site-wide Comprehensive Groundwater Monitoring Program (March 2017).

1.2 BACKGROUND

The former MMRF Site is located on the west bank of the Columbia River. The former facility was a primary aluminum smelter that operated from 1958 through 2001. During production operations, the former MMRF occupied approximately 350 acres within an 800-acre area zoned for heavy industry and manufacturing (Figure 1).

Wastes, including cathode waste [currently classified as a RCRA listed waste (K088)], were generated during aluminum production and accumulated on Site. After Oregon listed spent potliner as a hazardous waste, a lined storage pad was constructed and permitted under RCRA as a waste pile. Cathode waste and some underlying soil from an area historically used for storage of spent potliner were consolidated into this permitted waste pile. The waste pile was subsequently closed

in place as a RCRA Landfill, in accordance with a closure plan approved by the Oregon Department of Environmental Quality (DEQ). Post-closure care has been performed in accordance with RCRA Post-Closure Care Permit ORD 052 221 025. Constituents derived from alumina production generated prior to 1984 were placed in an unlined landfill. As part of the initial remedial actions at the Site, this landfill (known as the CERCLA Landfill) was capped and a lined Leachate Collection System (LCS) and treatment system were installed.

Sludge from the MMRF's primary and secondary air scrubbers were directed into unlined ponds (SSP-1, SSP-2, SSP-3, and SSP-4). The Scrubber Sludge Ponds cover an area of approximately 15 acres and were constructed in phases during the 1970s. Even though the Post-Closure Permit refers to all four ponds as RCRA Solid Waste Management Units (SWMUs), the September 1988 Record of Decision (ROD) for the Site only applied to SSP-2 and SSP-3 because they were still deemed a potential risk while SSP-1 and SSP-4 already had soil and vegetative cover. Following closure, each pond was capped with 12-24 inches of soil and a vegetative cover.

In 1987, the U.S. Environmental Protection Agency (EPA) listed the MMRF property as the "Martin Marietta Aluminum Company" on the CERCLA National Priorities List (NPL). The NPL Site definition included most of the former MMRF property, but excluded the RCRA Landfill. Therefore, the RCRA Landfill was surrounded by, but not part of, the CERCLA Site. Martin Marietta remediated the CERCLA Site under a 1988 ROD, a 1989 Consent Decree, and a 1994 Explanation of Significant Differences (ESD). In 1996, the EPA delisted the Site from the NPL.

In 2004, a Memorandum of Agreement (MOA) between the DEQ and EPA integrated management of the CERCLA Landfill into the RCRA Post-Closure Care Permit. In 2006, the RCRA Post-Closure Care Permit was modified to integrate CERCLA and RCRA groundwater monitoring and reporting requirements, including preparing a combined RCRA and CERCLA report. The RCRA Post-Closure Care Permit specifies semiannual groundwater monitoring at the RCRA Landfill and annual groundwater monitoring at the CERCLA Landfill. EPA terminated the MOA on October 4, 2012; however, the 2006 RCRA Post-Closure Care Permit, with approved modifications through the present, remains the governing document. The specific components of the Site owned by Lockheed Martin and are covered under the Post-Closure Care Permit are listed below and shown on Figure 2:

- RCRA Landfill,
- RCRA LCS,
- CERCLA Landfill,
- CERCLA LCS,

- CERCLA Leachate Treatment System, and
- Scrubber Sludge Ponds.

Northwest Aluminum Company (NAC) is the current owner of record for the largest part of the former plant property not owned by Lockheed Martin.

2.0 RCRA POST-CLOSURE CARE PROGRAM

The RCRA Post-Closure Care Permit specifies post-closure requirements for the RCRA Landfill:

- Maintain the integrity and effectiveness of the final RCRA Landfill cover, including preventing stormwater run-on and runoff from eroding or otherwise damaging the final cover, and repairing the cover as necessary to correct the effects of settling, subsidence, erosion, or other events.
- Operate and monitor the leachate collection and removal system.
- Maintain and monitor the groundwater monitoring system and comply with other applicable requirements of Title 40 Code of Federal Regulations (CFR) Part 264.
- Protect and maintain surveyed benchmarks used in complying with surveying and recordkeeping requirements of Title 40 CFR 264.309.

To support these requirements, the following activities are performed:

- Inspections of the RCRA Landfill final cover,
- Inspections of the LCS, and
- Semiannual groundwater monitoring in accordance with the Sampling and Analysis Plan (SAP) (AMEC, 2014a).

The layout of the former MMRF Site, including the RCRA Landfill is shown on Figure 2. Figure 3 shows the locations of all Site monitoring wells. Figure 4 shows a close-up view of the locations of the RCRA monitoring wells. Figures 5 and 6 provide details on groundwater elevations and groundwater quality near the RCRA Landfill. Water level information for March 2017 is provided on Table 1. Groundwater quality data for the RCRA Landfill is provided in Table 2. Chart 1 presents the RCRA LCS production rate through December 2016, which was the last time leachate was removed for treatment and disposal. RCRA Groundwater Hydrograph for the S Zone is presented graphically on Chart 2. Groundwater quality data for weak acid dissociable (WAD) cyanide, fluoride, and sulfate are presented graphically on Charts 3 through 5, respectively.

2.1 RCRA LANDFILL AND LCS INSPECTIONS

The RCRA Landfill cover and LCS are inspected annually and quarterly, respectively. Inspections are also performed after severe weather events. The inspections monitor for deterioration, malfunction, or improper operation of the run-on and run-off systems, and to verify proper functioning of the leachate collection and removal system.

The annual inspection of the RCRA Landfill consists of:

- Cover inspection (checking for erosion, animal burrows, and woody vegetation),
- Fence and gate inspection (checking fence and gate integrity to ensure that warning signs are in place),
- Drainage system inspection (checking for ponded water or blockages in the channels or culverts and checking cap drain discharge pipes), and
- Inspection of the area adjacent to the landfill (checking for riprap erosion, ponded water, silt deposits, and damaged well heads).

The quarterly RCRA LCS inspection consists of:

- Inspecting the sump leak detection system, fluid high-level warning lights, and testing of the system alarm autodialer,
- Inspecting the temporary storage drums, and
- Inspecting the building and building slab.

The following quarterly RCRA inspections were performed during the reporting period:

Inspection	4th Quarter 2016	1st Quarter 2017
RCRA Landfill	December 1, 2016	March 20, 2017
RCRA LCS	December 1, 2016	March 20, 2017

During the LCS inspections, all items were found to be in good condition. The depth of leachate measured in the bottom of the sump during December 2016 was approximately 0.45 feet (34 gallons) following the transfer of approximately 200 gallons on December 1, 2016. In March 2017, the depth of leachate measured in the bottom of the sump was approximately 1.52 feet (187 gallons). Quarterly inspection forms for this reporting period are provided in Appendix A.

Comparison of precipitation data provided by National Oceanic and Atmospheric Administration (NOAA) with leachate production records indicates that precipitation had little effect, if any, on the quantity of leachate from the RCRA Landfill. As reported in Appendix B, the maximum daily precipitation during the reporting period was 1.14 inches on February 27, 2017 (National Oceanic and Atmospheric Administration [NOAA], 2017; Appendix B).

2.2 LEACHATE TRANSFER SAMPLING AND ANALYSIS

2.2.1 Background

In accordance with RCRA Post-Closure Care Permit Condition V.C.1.b. (modified in February 2015), leachate collected from the RCRA tank is transferred to an offsite treatment and disposal facility as necessary.

2.2.2 Leachate Transfer

Leachate was transferred once during this reporting period, on December 1, 2016. Leachate from the December 1, 2016, transfer was treated and disposed of at Chemical Waste Management in Arlington, Oregon, a RCRA Subtitle C Landfill, under profile OR333176 in accordance with the Waste Management Plan (Amec Foster Wheeler, 2015a).

2.2.3 Leachate Sampling and Analysis

The transferred RCRA leachate was sampled on December 6, 2016, to prepare a profile for landfill disposal. Laboratory analytical is included in Appendix C. The leachate was sampled and tested for:

- Total metals by EPA 200.8;
- Polycyclic aromatic hydrocarbons (PAHs) by EPA 8270D selective ion monitoring (SIM);
- Total cyanide by EPA Method 335.4;
- WAD and amenable cyanide by Standard Method (SM) 4500-CN-I/E; and
- Fluoride by EPA SW-846-9056.

2.3 RCRA LANDFILL GROUNDWATER MONITORING

2.3.1 Objective

The groundwater monitoring points of compliance consist of one upgradient monitoring well (MW-5S) and eight downgradient or cross-gradient wells (MW-3S, MWR-4S, MW-17S, MW-22S, MW-23S, MW-35S, MW-36S, and MW-37S). The monitoring well locations are shown on Figure 4.

The primary objective of the RCRA Landfill groundwater monitoring program is to document constituent concentrations in groundwater and determine if the following groundwater protection standards are met, which were developed as part of the Consent Decree (EPA and DEQ, 1989) and are the approved groundwater protection standard in the Post-Closure Care Permit currently active at the Site:

- Free cyanide (represented by WAD cyanide): 0.77 milligrams per liter (mg/L; Perched and S Zones);
- Fluoride: 9.7 mg/L (Perched and S Zones);
- Sulfate: 3,020 mg/L (Perched and S Zones);

Groundwater monitoring for the RCRA Post-Closure Care Permit program was conducted in accordance with the SAP (AMEC, 2014a), which was revised under a II.S permit modification, and approved by DEQ on March 19, 2014.

2.3.2 March 2017 Semiannual Monitoring Well Sampling

Groundwater was sampled for RCRA Landfill Post-Closure Care Permit compliance on March 14, 2017. The samples were collected with a peristaltic pump using pre-installed, dedicated tubing using EPA low-flow sampling techniques. At each well, field groundwater quality parameters (turbidity, dissolved oxygen, pH, specific conductivity, oxidation reduction potential [ORP], and temperature) were measured and recorded. Groundwater sampling field forms are presented in Appendix D.

The groundwater samples were collected using laboratory-supplied bottles, placed on ice, and transported under Chain of Custody to the contract laboratory, Apex Laboratories (Apex) in Tigard, Oregon, for analysis. Apex is accredited by the State of Oregon Environmental Laboratory Accreditation Program (ORELAP OR100062) and is an approved laboratory for analysis of the RCRA Post-Closure Care Permit groundwater samples. The groundwater samples were analyzed for:

- WAD cyanide by SM 4500-CN-I/E;
- Total cyanide by EPA Method 335.4;
- Fluoride by EPA SW-846-9056; and
- Sulfate by EPA Method 300.0.

The analytical reports are provided in Appendix C. Validation of the data was completed on April 17, 2017 (see Appendix E). Data collected in March 2017 is presented in Table 2. Groundwater

quality data are presented graphically in Charts 3 through 5. The RCRA groundwater quality analytical results from March 2017 for WAD cyanide, total cyanide, fluoride, and sulfate are shown on Figure 6. There were no exceedances of free cyanide, fluoride, and sulfate groundwater standards at any of the RCRA wells sampled in March 2017.

2.3.3 Water Level Measurements

The RCRA Landfill groundwater monitoring program includes measuring water levels in the monitoring wells. The reference points for determining water level elevations are the tops of the polyvinyl chloride (PVC) well casings, which have been surveyed relative to mean sea level (msl); (North American Vertical Datum of 1988 [NAVD88]). To reduce variation in groundwater level measurements, static water levels for all wells are measured on the same day and before the wells are purged and sampled. Groundwater levels were measured to the nearest 0.01 foot using an electronic water level meter. Groundwater measurements from March 17, 2017, are included in Table 1. Groundwater elevation data are presented graphically in Chart 2 and on Figure 5.

2.4 HYDROGEOLOGY

Water levels are measured semiannually as part of the ongoing RCRA monitoring program. The stratigraphy and hydrogeology of the Site were characterized during the Remedial Investigation/Feasibility Study (RI/FS) (Geraghty & Miller, 1988) and recently updated as part of the Comprehensive Groundwater Monitoring Program (Tetra Tech, Inc. 2014; AMEC 2014e, Amec Foster Wheeler, 2015c). The Site is underlain by the Columbia River Basalt Group, which includes the following stratigraphic units (listed in order of descending depth):

- The Lolo Flow of the Priest Rapids Member,
- The Byron Interbed,
- The Rosalia Flow of the Priest Rapids Member,
- The Quincy/Squaw Creek Interbed, and
- The Sentinel Gap Flow of the Frenchman Springs Member.

Four hydrostratigraphic units were identified in the RI/FS: the S Zone (unconfined), the A aquifer (semi-confined), the B aquifer (confined), and The Dalles Groundwater Reservoir (DGWR). The S Zone is the interflow zone between the Lolo and Rosalia flows, including the Byron Member. The A and B aquifers are the upper and lower pillow complexes, respectively, in the Rosalia flow. The DGWR is a permeable groundwater system within the Sentinel Gap Flow.

This system was refined in the Comprehensive Groundwater Investigation Work Plan (Tetra Tech, Inc. 2014) to include two additional zones: the Perched Zone and the S_L Zone. The Perched Zone consists of shallow groundwater found in fractures within the Lolo flow within about 25 feet of ground surface and higher than the Byron Interbed zone and, where present, in saturated soil (fill or natural) present in depressions on top of the flow. The S_L aquifer is the S Zone where the overlying Lolo flow and Byron Member components are missing because of erosion. The S_L aquifer is relevant in the area of the Scrubber Sludge Ponds.

RCRA monitoring wells are completed in the S Zone with the exception of monitoring well MW-5S which is completed in the Perched Zone. Monitoring well MW-37S is being reevaluated to be completed in the Perched Zone because its screen depth of 22 feet is above the Byron Interbed interpreted to be a depth of 25 feet. Assignment of these wells to the Perched Zone is based on additional characterization data developed in the First and Second Comprehensive Groundwater Investigation Technical Memorandums (AMEC 2014e; Amec Foster Wheeler 2015c).

2.4.1 Groundwater Flow

Water level measurements were evaluated to assess the magnitude and direction of the hydraulic gradient. Water levels in all nine RCRA groundwater monitoring wells were measured and recorded on March 17, 2017. These water levels, along with water levels collected for the Comprehensive Groundwater Investigation program, were used to prepare a water level map for the S Zone (See Figure 5).

Groundwater flow velocities within the S Zone were estimated on the basis of the measured groundwater gradient and hydraulic conductivity estimates from aquifer tests (ARCADIS G&M, 2001). The estimated average hydraulic conductivity value for the S Zone at intervals intercepting the Byron Interbed is approximately 6×10^{-3} centimeters per second (the measured range is 3.2×10^{-4} to 1.2×10^{-2} centimeters per second; ARCADIS G&M, 2001).

Because groundwater moves only through pores (a combination of fractures within basalt and the interstitial spaces between sediments within the Byron Interbed of the S Zone at the NAC Site), a term for effective porosity (Ne) is included in the expression for seepage velocity (V_s) or average linear velocity, where (*i*) is the hydraulic gradient:

$$V_s = \frac{Ki}{Ne}$$

A reasonable estimate of effective porosity of the S Zone at intervals intercepting the Byron Interbed is 10 percent (Divine, C. E. and Rask, B, 2002). A hydraulic gradient of 0.02 was calculated near S Zone monitoring wells MW-17S and MW-3S in the area of the RCRA Landfill on March 17, 2017. Using the equation above, the average linear velocity of groundwater in the S Zone in the area of the RCRA Landfill is estimated at approximately 1.2×10^{-3} centimeters per second (1242 feet [ft] per year).

2.4.2 Water Level Variations

Groundwater elevations for the RCRA monitoring wells for March 2017 ranged from 131.28 ft above msl in MW-36S to 139.11 ft above msl in MW-35S (Table 1). Water level data collected between March 1994 and March 2017 were used to construct hydrographs comparing all RCRA monitoring wells (Chart 2). Seasonal fluctuations are evident, and while the water level elevations observed in the area of the RCRA Landfill in March 2017 were within the historical range, the fluctuation from low water (fall) to high water (spring) was greater than is typically observed.

2.5 DATA VALIDATION RESULTS

The RCRA groundwater monitoring results were reviewed in accordance with the Data Validation Checklist (Appendix E).

Documentation provided in the analytical data package was acceptable. Data quality was acceptable and results from these samples may be considered usable with the limitations described in the data validation checklist. No data qualifiers were added during validation.

Based on the data validation, 100 percent of the data are useable, meeting the SAP-specified minimum completeness goal of 90 percent (AMEC, 2014a).

2.6 MARCH 2017 RCRA GROUNDWATER QUALITY SUMMARY

Table 2 summarizes groundwater quality data from September 2015 through March 2017 for the RCRA monitoring wells.

All concentrations of detected constituents are below their applicable groundwater protection standard from the Post-Closure Care Permit (Table 2). Samples analyzed for WAD cyanide were compared to the free cyanide groundwater protection standards. WAD cyanide concentrations ranged from nondetect (monitoring wells MW-3S, MWR-4S, MW-17S, MW-23, MW-35S, MW-36S, and MW-37S) to 0.00830 mg/L at monitoring well MW-5S. Total cyanide concentrations ranged from nondetect (monitoring wells MW-3S, MWR-4S, MW-36S, and MW-37S) to 0.193 mg/L

(MW-5S). Fluoride concentrations ranged from 0.180 mg/L (MW-36S) to 6.60 mg/L (MW-5S). Sulfate concentrations ranged from 6.21 mg/L (MW-37S) to 96.6 mg/L (MW-35S).

3.0 CERCLA POST-CLOSURE CARE PROGRAM

The CERCLA Landfill and LCS and Scrubber Sludge Ponds Post-Closure Care requirements consist of the following:

- Maintain the integrity and effectiveness of the final cover, including prevention of run-on and run-off from eroding or otherwise damaging the final cover and repairing the cap as necessary to correct the effects of settling, subsidence, erosion, or other events.
- Continue to operate and monitor the leachate collection and treatment system.
- Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of Title 40 CFR Part 264.
- Present groundwater quality and hydrogeology data.
- Protect and maintain surveyed benchmarks.

In support of meeting these requirements, the following activities are performed:

- Inspections of the CERCLA Landfill final cover;
- Inspections of the LCS;
- Inspection of the Scrubber Sludge Ponds; and
- Annual groundwater monitoring in accordance with the SAP.

The layout of the CERCLA Landfill is provided on Figure 2. Landfill leachate production and quality data for the CERCLA Landfill are provided in Tables 3 and 4. Chart 6 presents the CERCLA leachate production rate versus precipitation data.

3.1 CERCLA LANDFILL AND LCS INSPECTIONS

The CERCLA Landfill is inspected annually to detect and repair, if necessary, defects in the landfill cover. The LCS is inspected quarterly to detect and repair, if necessary, defects in the infrastructure in accordance with the 1989 Consent Decree and the RCRA Post-Closure Care Permit.

Annual inspection of the CERCLA Landfill consists of the following:

- Cover inspection (checking for erosion, slumping, animal burrows, woody vegetation, and survey benchmarks),
- Fence and gate inspection (checking fence and gate integrity and ensuring that warning signs are in place),
- Drainage system inspection (checking for ponded water or blockages in the channels or culvert and checking cap drain discharge pipes), and
- Inspection of the area adjacent to the landfill (checking for riprap erosion, ponded water, silt deposits, and damaged well heads).

The quarterly CERCLA LCS inspection consists of the following:

- Inspecting the lift station pumps and alarm lights,
- Inspecting the piping, and
- Inspecting CERCLA tank integrity.

The following CERCLA inspections were performed during the reporting period for this report:

Inspection	4th Quarter 2016	1st Quarter 2017
CERCLA Landfill	December 1, 2016	March 20, 2017
CERCLA LCS	December 1, 2016	March 20, 2017

All items were found to be in good condition during the quarterly inspections in December 2016 and March 2017. Quarterly inspection forms for this reporting period are provided in Appendix F.

3.2 SCRUBBER SLUDGE PONDS INSPECTION

The Scrubber Sludge Ponds are inspected annually as well as following a significant precipitation event (2.5 inches of precipitation in a 24-hour period per the Post-Closure Care Permit). The annual inspection includes the following:

- Cover inspection (checking for erosion, animal burrows, and exposed sludge),
- Drainage system (checking for ponded water and sedimentation or blockage in ditches and culverts),

- Fence and gate inspection (checking fence and gate integrity and ensuring that warning signs are in place, as well as checking that the fence is clear of trees), and
- Inspection of the area adjacent to the Scrubber Sludge Ponds (vegetation control and intrusions).

The annual inspection form is provided in Appendix G. No significant precipitation events occurred during the reporting period.

3.3 LEACHATE COLLECTION, TREATMENT, SAMPLING AND ANALYSIS, AND DISCHARGE

The following sections describe activities associated with the CERCLA LCS between October 2016 and March 2017.

3.3.1 Background

The CERCLA LCS, which consists of perforated pipe buried in a covered collection trench, surrounds three sides of the landfill (Figure 2), captures both shallow groundwater and leachate that migrates to the shallow groundwater. The captured leachate drains under gravity to two lift stations: Lift Station 2 pumps leachate over a bedrock high to Lift Station 1, and Lift Station 1 pumps directly to the CERCLA Utility Building where it is treated by the CERCLA Leachate Treatment System. Up until February 2017, treated leachate was directed to the 300,000-gallon CERCLA tank (for batch discharge to the Columbia River) following the batch discharge protocol specified under the multiparty-National Pollution Discharge Elimination System (NPDES) permit. Since February 2017, discharge of treated leachate has been conveyed to the City of The Dalles Publically Owned Treatment Works (POTW) system. Discharge to the POTW is conducted under City of The Dalles Industrial Pretreatment Program under Permit Number 2016-003.

3.3.2 Leachate Collection

Total influent to the CERCLA Leachate Treatments System during the reporting period (October 2017 through March 2017) was 691,600 gallons. Table 3 presents monthly LCS flows measured at Lift Stations 1 and 2. Table 3 also presents monthly precipitation data totals. Increases in leachate production lag slightly behind increases in precipitation as shown on Chart 6.

3.3.3 Treatment

An ion exchange resin treatment system was constructed in the CERCLA Building in December 2014. The CERCLA Leachate Treatment System uses ion exchange resin media to remove cyanide compounds from the combined CERCLA Landfill leachate and shallow groundwater that are collected in the LCS and conveyed to the Leachate Treatment System from Lift Station #1. The

CERCLA Leachate Treatment System is located within the CERCLA Building located within the CERCLA treatment area. Untreated leachate is first conveyed through particulate bag filters to remove solids before treatment in a series (lead and lag vessel) configuration. After removal of cyanide compounds through contract with ion exchange media in the two vessels, the treated leachate is routed through another bag filter to collect potential resin particles downstream of the vessels. Up until February 2017, treated leachate was directed to the 300,000-gallon CERCLA tank (for batch discharge to the Columbia River) following the batch discharge protocol specified under the multiparty-NPDES permit. Since February 2017, discharge of treated leachate has been conveyed to the City of The Dalles POTW system. Discharge to the POTW is conducted under City of The Dalles Industrial Pretreatment Program under Permit Number 2016-003.

The CERCLA Leachate Treatment System has been operating almost continuously since start-up in November 2014. The system is inspected quarterly to detect and repair, if necessary, defects in the system detected during the inspections.

On January 4, 2017, the primary resin vessel was temporarily taken off line for ion exchange media change-out. In accordance with the CERCLA operation and maintenance manual, during the switch the primary vessel was replaced with the lag, and the lag vessel was replaced with a spare vessel containing virgin resin (Amec Foster Wheeler, 2015c). After the vessel change, spent resin from the original primary vessel was transferred to drums for profiling and disposal in accordance with the WMP (Amec Foster Wheeler, 2015a). Disposal of the resin at Columbia Ridge Landfill in Arlington, Oregon, is pending pick-up and transport.

The quarterly CERCLA Leachate Treatment System inspection consists of the following:

- Testing of gauges and transmitters
- Testing of the flow meter
- Checking the building temperature sensor
- Testing autodialer alarm notification and delivery

The following CERCLA Leachate Treatment System inspections were performed during the reporting period for this report:

Inspection	4th Quarter 2016	1st Quarter 2017
CERCLA Leachate Treatment System	December 1, 2016	March 20, 2017

All items were found to be in good condition during the quarterly inspections in December 2016 and March 2017. Quarterly inspection forms for this reporting period are provided in Appendix F.

Table 3 presents the monthly total flow volumes of influent to the LCS, flow through the CERCLA Leachate Treatment System, and monthly discharge volumes from the CERCLA tank/to the POTW during the reporting period. Table 4 presents the analytical data for samples collected from the effluent (Lift Station #1). Table 5 presents the performance monitoring data for the ion exchange treatment process after passing through the lead and lag vessels. The performance monitoring data indicate that the treatment system is operating as designed and removing total and WAD cyanide concentrations to below the limits set in the design criteria (0.1 mg/L). Laboratory reports for the LCS and CERCLA Leachate Treatment System performance monitoring are included in Appendix C.

3.3.4 Sampling and Analysis

The multi-party NPDES permit (101759) specifies sampling and analysis for leachate in the CERCLA Tank before it can be discharged. In addition, leachate at Lift Stations #1 and #2 and Manholes 2 and 4 is sampled at a minimum yearly or quarterly as needed for system checks.

Leachate in the LCS (Lift Station #1 and Lift Station #2 and Manholes 2 and 4) was sampled on December 21, 2016, and March 13, 2017 (Table 4). Treated leachate samples from the CERCLA tank were collected and analyzed twice during the reporting period on December 19, 2016 and February 6, 2017 prior to discharge. The treated leachate pre-discharge samples were analyzed for the following:

- WAD cyanide by SM 4500-CN-I/E;
- Total cyanide by EPA Method 335.4;
- Free cyanide ASTM D4282;
- Fluoride by EPA SW-846-9056;
- Sulfate by EPA Method 300.0; and
- Total Organic Carbon (TOC) by 415.1/5310C.

The LCS samples were analyzed for:

- WAD cyanide by method SM 4500-CN-I/E;
- Total cyanide by EPA Method 335.4;

- Fluoride by EPA SW-846-9056; and
- Sulfate by EPA Method 300.0.

Results of the analytical data from the CERCLA LCS for between 2014 and 2017 and the pre-discharge treated leachate samples are presented in Table 4. Laboratory reports and chain-of-custody documentation are provided in Appendix C.

3.3.5 CERCLA Tank Discharge

Treated effluent from the CERCLA tank is discharged via outfall "C" under a multi-party NPDES permit (101759) that includes NAC, Sapa Extrusions (formerly Northwest Aluminum Specialties), and Lockheed Martin. There was one discharge from the CERCLA tank during the reporting period. All pre-discharge analytical results from tank samples met the 0.1 mg/L free cyanide requirement. Discharge start dates, free cyanide results, and volumes of discharge for the reporting period are summarized below:

Start Date	Free Cyanide (mg/L)	Total Discharge (gallons)
December 19, 2016	0.0050U	193,582
February 6, 2017	0.0050U	225,211

3.3.6 POTW Discharge and Sampling

In February 2017, discharge of treated effluent to the POTW began under Industrial Wastewater Discharge Permit No. 2016-003 (Industrial Discharge Permit). Semi-continuous POTW discharge is expected to replace batch discharge through the NPDES system. Semi-continuous discharge will begin following installation and testing of additional real-time monitoring equipment. The point of discharge was changed to an equivalent point of discharge by conveying the treated leachate to the City of The Dalles POTW under Industrial Discharge Permit via a constructed discharge pipeline. DEQ was notified of the change in discharge method in a II.S Permit Change - Temporary Leachate Treatment Discharge Method letter dated December 14, 2016 (Lockheed Martin, 2016). Batch discharges to the POTW via temporary tanks were conducted in February and March 2017. In February 2017, 183,171 gallons were discharged to the POTW and in March 167,640 gallons were discharged. Twelve pre-discharge samples were collected and analyzed for total cyanide; all pre-discharge results were non-detect (less than 0.0050 mg/L). Pre-discharge analytical results are included in Appendix C. Volume weighted compliance sampling was performed at the frequency and for the analytes specified in the Industrial Discharge Permit. Analytes include total metals,

biological oxygen demand, total suspended solids, total cyanide, and fluoride. Compliance sample results and discharge records were reported to the City of The Dalles in monthly Discharge Monitoring Reports (Appendix H) in accordance with the discharge permit.

3.4 CERCLA LANDFILL GROUNDWATER MONITORING

3.4.1 Objective

The groundwater monitoring wells (Figure 7) for the CERCLA annual compliance program are completed in one of three monitoring zones:

- Perched Zone: MW-5S.
- S Zone: MWR-15S, MW-26S, MWR-27S, MW-29S, MW-38S, MW-39S, MW-40S, MW-41S, and MW-42S. MW-26S is monitored annually for water elevation only.
- A Aquifer: MW-6AA, MWR-7A, MW-12A, and MW-13A.

CERCLA monitoring well MWR-7A was previously designated as a B aquifer monitoring well. MWR-7A was reassigned to the A aquifer based on additional characterization data developed during the Comprehensive Groundwater Investigation (Tetra Tech, Inc. 2014; AMEC, 2014e; Amec Foster Wheeler, 2015b).The primary objective of the CERCLA groundwater monitoring program is to document that dissolved constituent concentrations remain below the standards set in the CERCLA 1988 ROD (EPA and DEQ 1989).

3.4.2 2017 Annual Monitoring Well Sampling

Annual CERCLA compliance groundwater sampling was conducted from March 13 through 21, 2017. The samples were collected in accordance with the updated project SAP, approved under a II.S permit modification (AMEC, 2014a). Samples were collected with either dedicated bladder pumps or with a peristaltic pump using pre-installed, dedicated tubing using EPA low- flow sampling techniques. At each well, field groundwater quality parameters (turbidity, dissolved oxygen, pH, specific conductivity, ORP, and temperature) were measured and recorded. Groundwater sampling field forms are presented in Appendix D.

The groundwater samples were collected using laboratory-supplied bottles, placed on ice, and transported under Chain of Custody to the contract laboratory, Apex in Tigard, Oregon, for analysis. Apex is accredited by the State of Oregon Environmental Laboratory Accreditation Program (ORELAP OR100062) and is an approved laboratory for analysis of the CERCLA groundwater samples. Groundwater samples were analyzed for:

- WAD cyanide by method SM 4500-CN-I/E;
- Total cyanide by EPA Method 335.4;
- Fluoride by EPA SW-846-9056; and
- Sulfate by EPA Method 300.0.

The analytical reports are provided in Appendix C. Validation of the data was completed on April 18, 2017 (See Appendix E). Data collected from March 2016 through March 2017 are presented in Table 6. Groundwater quality data are presented graphically in Charts 9 through 14. The CERCLA groundwater quality analytical results for WAD cyanide, total cyanide, fluoride, and sulfate are shown on Figure 8.

The location of MW-29S conflicts with future development plans on the former Rodeo Grounds property and the new property owner has requested that MW-29S be relocated to Lockheed Martin owned property. At the request of the current property owner, in March 2016, replacement well MWR-29S was installed approximately 150 feet north of MW-29S (Figure 7). MW-29S and MWR-29S were sampled concurrently in March, September, and December 2016, and in March 2017. Analytical results for MW-29S and MWR-29S from these events are provided in Table 7. Table 6, Charts 9 through 14, and Figure 8 present analytical data for the CERCLA Landfill groundwater monitoring program compliance location MW-29S.

3.4.3 Water Level Measurements

The CERCLA Landfill groundwater monitoring program includes measuring of water levels in monitoring wells. The reference points for determining water level elevations are the tops of the protective well casings, which have been surveyed relative to msl (NAVD88). To reduce variation in groundwater level measurements, static water levels are measured on the same day for all wells and before the wells are purged and sampled. Groundwater levels were measured to the nearest 0.01 foot at all wells using an electronic water level meter. Groundwater measurements from March 17, 2017 are included in Table 1. Groundwater elevation data are presented graphically in Charts 7 and 8 and Figures 5, 9, and 10.

3.5 HYDROGEOLOGY

The stratigraphy and hydrogeology of the Site are outlined in Section 2.4. As described in Section 3.4.1, the CERCLA wells are completed in the Perched Zone, the S Zone, or the A aquifer.

3.5.1 Groundwater Flow

Groundwater levels were measured and evaluated to assess the magnitude and direction of the hydraulic gradient. Water levels in all CERCLA groundwater monitoring wells were measured and recorded on March 17, 2017. These water levels, along with water levels collected for the Comprehensive Groundwater Investigation program, were used to prepare water level maps for the Perched Zone (Figure 9); S Zone (Figure 5); and A aquifer (Figure 10).

3.5.2 Water Level Variations

During March 2017, groundwater elevations in the area of the CERCLA Landfill for the S Zone ranged from 93.89 ft above msl in well MW-40S to 128.79 ft above msl in MWR-27S. Groundwater elevations for the A aquifer ranged from 71.46 ft above msl in wells MW-13A to 73.02 ft above msl in MW-6AA. In the B aquifer the water level elevation in monitoring well MWR-7A was 71.52 ft above msl.

Charts 7 and 8 present CERCLA groundwater hydrographs in the S Zone and A Aquifer over time. Seasonal fluctuations are evident, however the seasonal range of fluctuations remains relatively unchanged. Some water levels within the S Zone exhibit a slight increase since 2011, particularly during the month of March. Water level elevations for the A aquifer continue a pronounced upward trend since 2001, with the highest water level elevations on record measured for all four of the wells completed in the A Aquifer measured during March 2015.

3.6 DATA VALIDATION RESULTS

The groundwater monitoring results for the CERCLA Landfill monitoring were reviewed in accordance with the Data Validation Checklist (See Appendix E). Documentation provided in the analytical data package was acceptable. Data quality was acceptable and results from these samples may be considered usable with the limitations described in the data validation checklist. No data qualifiers were added during validation.

Based on the data validation, 100 percent of the data should be considered useable, meeting the SAP-specified minimum completeness goal of 90 percent.

3.7 MARCH 2017 GROUNDWATER QUALITY SUMMARY

Table 6 includes groundwater quality data from March 2016 through March 2017 for CERCLA monitoring wells.

All concentrations of detected constituents are below their applicable groundwater protection standard per the Post-Closure Care Permit (Table 6). Samples analyzed for WAD cyanide were

compared to the free cyanide groundwater protection standards. Total cyanide concentrations ranged from nondetect (less than 0.0050 mg/L) in MW-29S to 5.49 mg/L (MWR-27S). WAD cyanide concentrations ranged from nondetect (less than 0.0050 mg/L) in monitoring wells MW-13A, MW-39S, and MW-29S to 0.0891 mg/L (MW-15S). Fluoride concentrations ranged from 0.324 mg/L (MW-41S) to 6.60 mg/L (MW-5S). Sulfate concentrations ranged from 6.39 mg/L (MW-42S) to 814 mg/L (MW-29S).

4.0 COMPREHENSIVE GROUNDWATER INVESTIGATION PROGRAM

This section summarizes the scope of work completed to implement the recommended long term Comprehensive Groundwater Monitoring Program presented in Table 5 of the Final Second Technical Memorandum (Amec Foster Wheeler, 2015e). The sampling focused on additional groundwater monitoring at wells installed in September 2015, resampling of locations with rejected January 2015 cyanide data to develop four consecutive quarters of groundwater quality data, and semi-annual sampling of the groundwater monitoring network at locations not routinely sampled as part of the RCRA and CERCLA Landfill programs or locations with less than five years of monitoring data. The scope of work was completed in accordance with the Final Work Plan (Tetra Tech, Inc. 2014), associated addenda (AMEC 2014b,c,d; Amec Foster Wheeler, 2015b), and Table 5 of Final Second Technical Memorandum (Amec Foster Wheeler, 2015e).

4.1 OBJECTIVE

In the 2013 EPA five-year review, EPA recommended implementing a comprehensive site-wide groundwater characterization investigation to refine the understanding of groundwater flow and contaminant transport at the Site and to evaluate the effectiveness of the groundwater monitoring network. EPA directed Lockheed Martin to prepare a Work Plan for a Comprehensive Site-Wide Groundwater Investigation and develop and implement a Comprehensive Site-Wide Groundwater Monitoring Program in a letter dated September 20, 2013. The Work Plan responding to this EPA directive was prepared and subsequently approved by the EPA (Tetra Tech, Inc. 2014).

Section 2.4 of the Work Plan (Tetra Tech, Inc. 2014) identified three data gaps and associated data needs:

- Characterization and groundwater monitoring of the Perched Zone;
- Groundwater monitoring and characterization in the S Zone for areas east and downgradient of the Scrubber Sludge Ponds and the former main plant area; and
- Groundwater characterization and monitoring near recently demolished former operating areas of the plant.

The field activities completed after well installation and the initial rounds of sampling were reported in the First Technical Memorandum and Final Second Technical Memorandum (AMEC, 2014e; Amec Foster Wheeler, 2015e). The field activities for the additional groundwater monitoring conducted between December 2015 and September 2016 are documented in the Site Combined Annual RCRA and CERCLA Monitoring Reports and Semiannual RCRA Monitoring Reports (Amec Foster Wheeler, 2016a, b). The December 2016 field activities will be presented in a forthcoming "Modifications to CERCLA Monitoring Well Location" letter. The March 2017 groundwater monitoring events conducted as recommended in the Final Second Technical Memorandum are summarized in Section 4.3. Findings from the work are presented in Section 4.5.

4.2 CLEANUP LEVELS

The 1988 EPA ROD and 1989 Consent Decree established groundwater cleanup levels. Three Alternate Concentration Levels (ACLs) were established for groundwater quality in the then-defined uppermost aquifer (S Zone). The ACLs were 9.7 mg/L for fluoride and 3,020 mg/L for sulfate.

The 1988 EPA ROD specified EPA Safe Drinking Water Act Maximum Concentration Levels (MCLs) as applicable cleanup standards for fluoride and the Secondary Maximum Contaminant Level (SMCL) for sulfate as the cleanup standard for the deeper A and B aquifers. The MCL for cyanide is 0.2 mg/L, the MCL for fluoride is 4 mg/L, and the SMCL for sulfate is 250 mg/L. The cyanide MCL is based on free cyanide concentrations, which are currently measured as WAD cyanide. WAD cyanide provides a conservative estimate of free cyanide, since it will detect both the free form and the disassociated complexes.

The 2013 EPA five-year review indicated that carcinogenic polycyclic aromatic hydrocarbons (cPAH) compounds should be considered as constituents of concern (COCs) at the Site, with MCLs being the relevant comparison basis. This has not been promulgated in an ESD, but is considered in discussion of the analytical data collected for the Comprehensive Groundwater Monitoring Program.

4.3 GROUNDWATER MONITORING

Groundwater monitoring consisted of manual water level measurements, monitoring of pressure transducers in MW13-01P and MW13-01S, and the collection of groundwater samples for chemical testing in March 2017. Monitoring well locations are shown on Figure 3.

4.3.1 Monitoring Activities

Groundwater samples were collected using EPA low-flow sampling techniques consistent with the Work Plan. At each well, field groundwater quality parameters (turbidity, dissolved oxygen, pH,

specific conductivity, ORP, and temperature) were measured and recorded. The field records are found in Appendix D.

The groundwater samples were collected using laboratory-supplied bottles, placed on ice, and transported under chain-of-custody to the contract laboratory, Apex in Tigard, Oregon, for analysis. Apex is accredited by ORELAP (OR100062).

Apex analyzed the samples for one or more of the following:

- WAD cyanide by EPA Method 4500-CN-I/E;
- Total cyanide by EPA Method 335.4;
- Fluoride by EPA Method SW-846-9056; and
- Sulfate by EPA Method 300.0.

Data from 2014 through the March 2017 sampling event is included on Tables 7 and 8. The laboratory reports are provided in Appendix C. Appendix E present the data validation reports.

4.3.2 Water Level Measurements

Water level monitoring was also conducted at 51 locations on March 17, 2017. Groundwater levels were measured to the nearest 0.01 foot at all wells sampled using an electronic water level meter. The depth to groundwater was also measured in sampled wells on the day of sampling. Tabulated water level measurements are presented in Table 1. Beginning in December 2014, groundwater levels in MW13-01P and MW13-01S were also measured using pressure transducers to support conceptual site model development for the Perched and S Zones. Instrument Northwest PT2X pressure transducers fitted with vented, direct-read communication cables were used to measure water levels at one hour frequency over the monitoring period. Groundwater elevations recorded at MW13-01P and MW13-01S are presented in Appendix I.

4.4 HYDROGEOLOGY

4.4.1 Groundwater Gradients and Flow Directions

A potentiometric surface map was prepared for the Perched Zone (Figure 9), S Zone (Figure 5), and A Aquifer (Figure 10) monitoring wells using water levels measured on March 17, 2017. The water level measurements are summarized in Table 1.

Groundwater levels were measured near the RCRA Landfill in March 2017 to evaluate potential for groundwater flow in the Perched and S Zones in this portion of the Site. Well MW-5S, which was

installed in 1987 to monitor the RCRA Landfill, is screened in the interval above the Byron Interbed, based on available logs, which have limited detail. Because the monitored interval at well MW-5S may be representative of either the Perched or S zones, the water levels from March 2017 for this well along with the Perched Zone wells MW15-18P, MW15-20P, and MW13-13P installed in September 2015 are shown on the March 2017 Perched Zone potentiometric surface map.

In the Perched Zone, the March 2017 horizontal direction of groundwater flow near the RCRA Landfill is to the southeast to east-northeast (Figure 9). In the S Zone, the March 2017 overall horizontal groundwater flow direction near the RCRA Landfill in the S Zone varies from southwest to northeast, away from a high centered near well MW-35S and toward a low near MW-36S (Figure 5).

The hydraulic gradient for the S Zone (including the S_L wells) shown on Figure 5 (March 2017) indicates that the horizontal groundwater flow direction for the S Zone for much of the Site is to the southeast, toward the Columbia River. Near the CERCLA Landfill, however, the horizontal flow direction is to the north, towards Chenoweth Creek, which in turn drains northeastward to the Columbia River. The water levels plotted on Figure 5 also indicate locally higher groundwater elevations around wells MW13-11S, MW35-S, and MW-42S/MW13-01S.

The horizontal groundwater flow direction in the A aquifer beneath the southeastern portion of the CERCLA Landfill is generally to the northwest away from the Columbia River (Figure 10).

4.5 DATA VALIDATION RESULTS

Data validation for the March 2017 groundwater data was completed by Amec Foster Wheeler in accordance with the Data Validation Checklist (See Appendix E) and the SAP (AMEC, 2014a). Documentation provided by the laboratory was acceptable, and results from these samples may be considered usable with the limitations described in the data validation checklist. No data qualifiers were added during validation.

Based on the data validation, 100 percent of the data from the March 2017 event is useable, meeting the SAP-specified minimum completeness goal of 90 percent.

4.6 GROUNDWATER QUALITY SUMMARY

This section compares the analytical results from the March 2017 monitoring event with the ACLs for the Perched, S, and S_L zones for fluoride, sulfate, and cyanide. The analytical results for the A Aquifer is compared with the MCLs.

The ACLs are 0.22 mg/L for free cyanide, 9.7 mg/L for fluoride, and 3,020 mg/L for sulfate. The MCLs are 0.20 mg/L for free cyanide and 4 mg/L for fluoride. The SMCL for sulfate is 250 mg/L. In addition, benzo(a)pyrene results are compared to the benzo(a)pyrene MCL of 0.2 micrograms per liter (µg/L).

Perched Zone

Analytical results for the Perched Zone are summarized in Table 7, and in Figures 11 through 14 and Figure 22 through 24.Thirteen Perched Zone monitoring wells were sampled during the March 2017 event and one WAD cyanide detection at MW13-01P (1.04 mg/L) exceeded the free cyanide ACL of 0.22 mg/L (Figures 11 and 22).

In March 2017, fluoride was detected in all thirteen Perched Zone monitoring wells (Figure 12 and Figure 23). Concentrations in eight wells sampled were below the ACL of 9.7 mg/L. Six locations exceeded the fluoride ACL with concentrations ranging from 10.8 mg/L (MW13-04P) to 115 mg/L (MW13-07P).

No sulfate detections from the March 2017 sampling event exceeded the ACL of 3,020 mg/L (Figures 13 and 24).

S Zone

Total and WAD cyanide analytical results for the S Zone are summarized in Table 7, and in Figures 15 through 18 and Figures 25 through 27. S Zone wells were sampled for total cyanide, WAD cyanide, fluoride, and sulfate. No S Zone wells were sampled for cPAHs; however, historical data is presented for comparison on Figure 18 and Table 8. Of the 26 monitoring wells sampled during March 2017, no WAD cyanide detections exceeded the ACL for free cyanide (0.22 mg/L; Figures 15 and 25). In September 2016 a single exceedance of the ACL for free cyanide was seen at MW13-06S (0.762 mg/L); however, the March 2017 result of 0.0404 mg/L WAD Cyanide was below the ACL for free cyanide (0.22 mg/L; Table 7).

No fluoride or sulfate detections from the March 2017 sampling event exceeded their respective ACLs of 9.7 mg/L and 3,020 mg/L (Figures 16, 17, 26, and 27).

S_L Zone

Analytical results for the S_L Zone are summarized in Tables 7 and 8, and in Figures 15 through 18 and Figures 25 through 27. S_L Zone wells were sampled for total cyanide, WAD cyanide, fluoride, and sulfate. No S Zone wells were sampled for cPAHs; however, historical data is presented for comparison on Figure 18 and Table 8.

WAD cyanide and sulfate detections in the five S_L Zone monitoring wells (MW-5, MW13-14SL, MW13-15SL, MW15-17SL, and MW15-19SL) sampled in March 2017 did not exceed ACLs (Figures 15 and 17). A single detection of fluoride at MW13-14SL (40.5 mg/L) exceeded the ACL of 9.7 mg/L during the March 2017 sampling event (Figure 16). The exceedance at this monitoring location is consistent with historical data (Table 7).

A Aquifer

Analytical results for the A Aquifer are summarized in Table 7, and in Figures 19 through 21 and Figures 28 through 30.

No MCLs or SMCLs (sulfate only) were exceeded in the seven A Aquifer wells (MWR-7A, MW-6AA, MWR-7A, MW-12A, MW-13A, MW13-02A, and MW13-06A) sampled in March 2017.

5.0 CONCLUSIONS

- There are no exceedances of free cyanide, fluoride, and sulfate groundwater protection standards at monitoring wells sampled for the semi-annual RCRA Post-Closure Care Monitoring program.
- There are no exceedances of free cyanide, fluoride, and sulfate groundwater protection standards at monitoring wells sampled for the annual CERCLA Post-Closure Care Monitoring program.
- No exceedances of the sulfate ACL or MCLs have been observed in Site monitoring wells sampled since 2014 for the Comprehensive Groundwater Monitoring Program.
- Exceedances of the fluoride ACL/MCL are limited to monitoring wells in the Perched and S_L Zones for the Comprehensive Groundwater Monitoring Program.
- Exceedances of the free cyanide ACL/MCL are limited to monitoring wells in the Perched and S Zones near the CERCLA Landfill for the Comprehensive Groundwater Monitoring Program.
- The next scheduled sampling events as part of the Comprehensive Groundwater Monitoring Program will occur in June and September 2017. After completion of the September 2017 event, statistical analysis will be performed on all data collected throughout the Comprehensive Groundwater Monitoring Program. The purpose of this analysis will be to perform long-term monitoring optimization of the groundwater monitoring programs at the former MMRF.

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TABLES

TABLE 1
Water Level Measurements
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

Monitoring Zone	Location	Date	Measuring Point Elevation (ft msl)	Depth to Water (ft)	Water Level Elevation (ft msl)
Perched	MW-5S	3/14/2016	158.16	19.51	138.65
	MW-5S	6/21/2016	158.16	23.09	135.07
	MW-5S	9/19/2016	158.16	23.64	134.52
	MW-5S	3/17/2017	158.16	19.63	138.53
	MW13-01P	3/14/2016	135.47	4.25	131.22
	MW13-01P	6/21/2016	135.47	8.42	127.05
	MW13-01P	9/19/2016	135.47	9.73	125.74
	MW13-01P	3/17/2017	135.47	5.15	130.32
	MW13-02P	3/14/2016	143.23	4.13	139.10
	MW13-02P	6/21/2016	143.23	10.59	132.64
	MW13-02P	9/19/2016	143.23	13.04	130.19
	MW13-02P	3/17/2017	143.23	4.65	138.58
	MW13-03P	3/14/2016	145.30	4.24	141.06
	MW13-03P	6/21/2016	145.30	10.35	134.95
	MW13-03P	9/19/2016	145.30	11.99	133.31
	MW13-03P	3/17/2017	145.30	4.73	140.57
	MW13-04P	3/14/2016	137.31	4.16	133.15
	MW13-04P	6/21/2016	137.31	11.57	125.74
	MW13-04P	9/19/2016	137.31	12.07	125.24
	MW13-04P	3/17/2017	137.31	4.72	132.59
	MW13-05P	3/14/2016	134.00	3.19	130.81
	MW13-05P	6/21/2016	134.00	8.60	125.40
	MW13-05P	9/19/2016	134.00	9.91	124.09
	MW13-05P	3/17/2017	134.00	6.85	127.15
	MW13-06P	3/14/2016	135.56	4.80	130.76
	MW13-06P	6/21/2016	135.56	7.57	127.99
	MW13-06P	9/19/2016	135.56	8.91	126.65
	MW13-06P	3/17/2017	135.56	9.10	126.46
	MW13-07P	3/14/2016	140.32	6.53	133.79
	MW13-07P	6/21/2016	140.32	8.68	131.64
	MW13-07P	9/19/2016	140.32	8.76	131.56
	MW13-07P	3/17/2017	140.32	6.63	133.69
	MW13-08P	3/14/2016	138.02	4.53	133.49
	MW13-08P	6/21/2016	138.02	10.46	127.56
	MW13-08P	9/19/2016	138.02	11.98	126.04
	MW13-08P	3/17/2017	138.02	4.44	133.58
	MW13-10P	3/14/2016	146.57	5.97	140.60
	MW13-10P	6/21/2016	146.57	10.22	136.35
	MW13-10P	9/19/2016	146.57	12.47	134.10
	MW13-10P	3/17/2017	146.57	6.14	140.43
	MW13-12P	3/14/2016	134.91	8.86	126.05
	MW13-12P	6/21/2016	134.91	11.24	123.67
	MW13-12P	9/19/2016	134.91	11.70	123.21
	MW13-12P	3/17/2017	134.91	9.02	125.89
	MW15-18P	3/14/2016	143.84	7.47	136.37
	MW15-18P	6/21/2016	143.84	9.32	134.52
	MW15-18P	9/19/2016	143.84	9.79	134.05
	MW15-18P	3/17/2017	143.84	7.55	136.29
	MW15-20P	3/14/2016	141.63	11.87	129.76
	MW15-20P	6/21/2016	141.63	17.35	124.28
	MW15-20P	9/19/2016	141.63	19.16	122.47
	MW15-20P	3/17/2017	141.63	12.56	129.07

TABLE 1
Water Level Measurements
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

Monitoring Zone	Location	Date	Measuring Point Elevation (ft msl)	Depth to Water (ft)	Water Level Elevation (ft msl)
S (Continued)	MW-2S	3/14/2016	113.95	10.30	103.65
	MW-2S	6/21/2016	113.95	19.19	94.76
	MW-2S	9/19/2016	113.95	21.50	92.45
	MW-2S	3/17/2017	113.95	10.19	103.76
	MW-3S	3/14/2016	140.55	6.84	133.71
	MW-3S	6/21/2016	140.55	10.88	129.67
	MW-3S	9/19/2016	140.55	11.48	129.07
	MW-3S	3/17/2017	140.55	6.81	133.74
	MWR-4S	3/14/2016	143.22	11.28	131.94
	MWR-4S	6/21/2016	143.22	13.79	129.43
	MWR-4S	9/19/2016	143.22	15.41	127.81
	MWR-4S	3/17/2017	143.22	6.41	136.81
	MWR-15S	3/14/2016	136.94	23.79	113.15
	MWR-15S	6/21/2016	136.94	24.38	112.56
	MWR-15S	9/19/2016	136.94	24.92	112.02
	MWR-15S	3/17/2017	136.94	22.82	114.12
	MW-17S	3/14/2016	151.40	12.88	138.52
	MW-17S	6/21/2016	151.40	17.98	133.42
	MW-17S	9/19/2016	151.40	19.17	132.23
	MW-17S	3/17/2017	151.40	13.27	138.13
	MW-22S	3/14/2016	155.75	19.91	135.84
	MW-22S	6/21/2016	155.75	24.62	131.13
	MW-22S	9/19/2016	155.75	25.51	130.24
	MW-22S	3/17/2017	155.75	19.63	136.12
	MW-23S	3/14/2016	143.79	8.02	135.77
	MW-23S	6/21/2016	143.79	13.23	130.56
	MW-23S	9/19/2016	143.79	14.27	129.52
	MW-23S	3/17/2017	143.79	8.22	135.57
	MW-26S	3/14/2016	135.63	19.72	115.91
	MW-26S	6/21/2016	135.63	20.67	114.96
	MW-26S	9/19/2016	135.63	12.70	122.93
	MW-26S	3/17/2017	135.63	19.79	115.84
	MWR-27S	3/14/2016	141.11	12.65	128.46
	MWR-27S	6/21/2016	141.11	16.86	124.25
	MWR-27S	9/19/2016	141.11	19.46	121.65
	MWR-27S	3/17/2017	141.11	12.32	128.79
	MW-29S	3/14/2016	117.64	10.59	107.05
	MW-29S	6/21/2016	117.64	13.63	104.01
	MW-29S	9/19/2016	117.64	16.01	101.63
	MW-29S	3/17/2017	117.64	10.40	107.24
	MWR-29S	3/17/2017	Pend.	11.46	Pend.
	MW-35S	3/14/2016	146.76	7.36	139.40
	MW-35S	6/21/2016	146.76	12.86	133.90
	MW-35S	9/19/2016	146.76	13.80	132.96
	MW-35S	3/17/2017	146.76	7.65	139.11
	MW-36S	3/14/2016	146.45	15.38	131.07
	MW-36S	6/21/2016	146.45	19.14	127.31
	MW-36S	9/19/2016	146.45	20.61	125.84
	MW-36S	3/17/2017	146.45	15.17	131.28
	MW-37S	3/14/2016	143.64	7.81	135.83
	MW-37S	6/21/2016	143.64	12.48	131.16
	MW-37S	9/19/2016	143.64	13.42	130.22

TABLE 1
Water Level Measurements
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

Monitoring Zone	Location	Date	Measuring Point Elevation (ft msl)	Depth to Water (ft)	Water Level Elevation (ft msl)
S (Continued)	MW-37S	3/17/2017	143.64	6.04	137.60
	MW-38S	3/14/2016	133.19	22.33	110.86
	MW-38S	6/21/2016	133.19	25.74	107.45
	MW-38S	9/19/2016	133.19	28.15	105.04
	MW-38S	3/17/2017	133.19	21.30	111.89
	MW-39S	3/14/2016	144.66	35.61	109.05
	MW-39S	6/21/2016	144.66	34.15	110.51
	MW-39S	9/19/2016	144.66	34.51	110.15
	MW-39S	3/17/2017	144.66	36.25	108.41
	MW-40S	3/14/2016	142.97	49.16	93.81
	MW-40S	6/21/2016	142.97	49.34	93.63
	MW-40S	9/19/2016	142.97	49.33	93.64
	MW-40S	3/17/2017	142.97	49.08	93.89
	MW-41S	3/14/2016	132.94	35.38	97.56
	MW-41S	6/21/2016	132.94	36.37	96.57
	MW-41S	9/19/2016	132.94	37.50	95.44
	MW-41S	3/17/2017	132.94	35.34	97.60
	MW-42S	3/14/2016	135.19	11.30	123.89
	MW-42S	6/21/2016	135.19	15.88	119.31
	MW-42S	9/19/2016	135.19	16.95	118.24
	MW-42S	3/17/2017	135.19	11.10	124.09
	MW13-01S	3/14/2016	135.20	11.70	123.50
	MW13-01S	6/21/2016	135.20	16.04	119.16
	MW13-01S	9/19/2016	135.20	17.12	118.08
	MW13-01S	3/17/2017	135.20	11.55	123.65
	MW13-02S	3/14/2016	143.03	7.28	135.75
	MW13-02S	6/21/2016	143.03	11.83	131.20
	MW13-02S	9/19/2016	143.03	13.89	129.14
	MW13-02S	3/17/2017	143.03	11.52	131.51
	MW13-06S	3/14/2016	135.34	18.31	117.03
	MW13-06S	6/21/2016	135.34	22.73	112.61
	MW13-06S	9/19/2016	135.34	23.47	111.87
	MW13-06S	3/17/2017	135.34	19.10	116.24
	MW13-08S	3/14/2016	138.06	26.95	111.11
	MW13-08S	6/21/2016	138.06	28.60	109.46
	MW13-08S	9/19/2016	138.06	29.08	108.98
	MW13-08S	3/17/2017	138.06	25.80	112.26
	MW13-11S	3/14/2016	150.34	5.39	144.95
	MW13-11S	6/21/2016	150.34	9.83	140.51
	MW13-11S	9/19/2016	150.34	12.03	138.31
	MW13-11S	3/17/2017	150.34	5.89	144.45
	MW13-13S	3/14/2016	143.34	7.88	135.46
	MW13-13S	6/21/2016	143.34	9.90	133.44
	MW13-13S	9/19/2016	143.34	10.04	133.30
	MW13-13S	3/17/2017	143.34	8.10	135.24
	MW13-16S	3/14/2016	151.16	34.52	116.64
	MW13-16S	6/21/2016	151.16	34.75	116.41
	MW13-16S	9/19/2016	151.16	36.43	114.73
	MW13-16S	3/17/2017	151.16	33.50	117.66
	MW-5	3/14/2016	124.51	9.35	115.16
	MW-5	6/21/2016	124.51	11.42	113.09
	MW-5	9/19/2016	124.51	12.88	111.63
	MW-5	3/17/2017	124.51	9.51	115.00

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Water Level Measurements
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

Monitoring Zone	Location	Date	Measuring Point Elevation (ft msl)	Depth to Water (ft)	Water Level Elevation (ft msl)
S_L	MW13-14SL	3/14/2016	113.96	5.43	108.53
	MW13-14SL	6/21/2016	113.96	9.20	104.76
	MW13-14SL	9/19/2016	113.96	10.86	103.10
	MW13-14SL	3/17/2017	113.96	6.81	107.15
	MW13-15SL	3/14/2016	111.00	4.31	106.69
	MW13-15SL	6/21/2016	111.00	9.42	101.58
	MW13-15SL	9/19/2016	111.00	11.88	99.12
	MW13-15SL	3/17/2017	111.00	5.23	105.77
	MW15-17SL	3/14/2016	103.30	10.00	93.30
	MW15-17SL	6/21/2016	103.30	15.00	88.30
	MW15-17SL	9/19/2016	103.30	16.69	86.61
	MW15-17SL	3/17/2017	103.30	9.49	93.81
	MW15-19SL	3/14/2016	113.99	10.55	103.44
	MW15-19SL	6/21/2016	113.99	13.70	100.29
	MW15-19SL	9/19/2016	113.99	14.40	99.59
	MW15-19SL	3/17/2017	113.99	16.75	97.24
A	MWR-2A	3/14/2016	115.13	45.42	69.71
	MWR-2A	6/21/2016	115.13	47.54	67.59
	MWR-2A	9/19/2016	115.13	50.23	64.90
	MWR-2A	3/17/2017	115.13	43.66	71.47
	MW-6AA	3/14/2016	133.81	62.08	71.73
	MW-6AA	6/21/2016	133.81	61.52	72.29
	MW-6AA	9/19/2016	133.81	63.66	70.15
	MW-6AA	3/17/2017	133.81	60.79	73.02
	MWR-7A	3/14/2016	132.83	63.10	69.73
	MWR-7A	6/21/2016	132.83	65.19	67.64
	MWR-7A	9/19/2016	132.83	67.92	64.91
	MWR-7A	3/17/2017	132.83	61.31	71.52
	MW-12A	3/14/2016	144.19	74.43	69.76
	MW-12A	6/21/2016	144.19	73.79	70.40
	MW-12A	9/19/2016	144.19	75.82	68.37
	MW-12A	3/17/2017	144.19	72.80	71.39
	MW-13A	3/14/2016	142.97	73.19	69.78
	MW-13A	6/21/2016	142.97	72.46	70.51
	MW-13A	9/19/2016	142.97	74.57	68.40
	MW-13A	3/17/2017	142.97	71.51	71.46
	MW13-02A	3/14/2016	143.22	73.88	69.34
	MW13-02A	6/21/2016	143.22	75.91	67.31
	MW13-02A	9/19/2016	143.22	78.66	64.56
	MW13-02A	3/17/2017	143.22	72.00	71.22
	MW13-06A	3/14/2016	135.77	52.04	83.73
	MW13-06A	6/21/2016	135.77	53.35	82.42
	MW13-06A	9/19/2016	135.77	54.08	81.69
	MW13-06A	3/17/2017	135.77	50.04	85.73
B	MW13-02B	3/14/2016	142.38	73.03	69.35
	MW13-02B	6/21/2016	142.38	75.10	67.28
	MW13-02B	9/19/2016	142.38	77.82	64.56

Notes:
ft = feet
ft msl = feet above mean sea level (North American Vertical Datum of 1988 [NAVD88])
NM = not measured
Pend. = elevation surveys pending

TABLE 2
RCRA Landfill Groundwater Analytical Results
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate
				Method	E335.4	SM4500-CN-E	SW9056A	E300
				Groundwater Protection Standard, Perched and S Zones	-	0.77	9.7	3,020
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	mg/L	mg/L	mg/L	mg/L
Perched	MW-5S	MW-5S-GW	9/24/2015	N	**0.330**	**0.038 J**	**6.60**	**66.0**
	MW-5S	MW5S_20160315	3/15/2016	N	**0.443**	**0.0398**	**6.87**	**60.6**
	MW-5S	MW-5S_20160922	9/22/2016	N	**0.402**	**0.0554**	**7.63**	**73.3**
	MW-5S	MW-5S_20170314	3/14/2017	N	**0.193**	**0.00830**	**6.60**	**49.0**
S	MW-3S	MW-3S-GW	9/23/2015	N	0.060 U	0.060 U	**0.26**	**27.0**
	MW-3S	MW3S_20160315	3/15/2016	N	0.0047 U	0.0050 U	**0.35**	**29.5**
	MW-3S	MW-3S_20160923	9/23/2016	N	0.0047 U	0.0050 U	**0.24**	**29.8**
	MW-3S	DUP04_20160923	9/23/2016	FD	0.0047 U	0.0050 U	**0.24**	**29.9**
	MW-3S	MW-3S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**0.286**	**29.0**
	MWR-4S	MW-4S-GW	9/23/2015	N	0.060 U	0.060 U	**0.14 J**	**67.0**
	MWR-4S	MWR-4S_20160315	3/15/2016	N	0.0047 U	0.0050 U	**0.27**	**48.9**
	MWR-4S	MWR-4S_20160923	9/23/2016	N	**0.001 J**	0.0050 U	**0.13 J**	**51.1**
	MWR-4S	MWR-4S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**0.230**	**58.6**
	MW-17S	MW-17S-GW	9/24/2015	N	0.060 U	0.060 U	**0.54**	**27.0**
	MW-17S	MW17S_20160315	3/15/2016	N	**0.0351**	0.0050 U	**0.36**	**28.4**
	MW-17S	MW-17S_20160923	9/23/2016	N	**0.020**	**0.0025 J**	**0.31**	**37.0**
	MW-17S	MW-17S_20170314	3/14/2017	N	**0.0252**	0.00500 U	**0.265**	**31.7**
	MW-22S	MW-22S-GW	9/24/2015	N	**0.120**	**0.038 J**	**0.46**	**39.0**
	MW-22S	MW22S_20160315	3/15/2016	N	**0.164**	**0.0125 J**	**0.49**	**50.5**
	MW-22S	DUP2_20160315	3/15/2016	FD	**0.203**	**0.0193 J**	**0.49**	**50.8**
	MW-22S	MW-22S_20160922	9/22/2016	N	**0.107**	**0.0272**	**0.42**	**45.4**
	MW-22S	MW-22S_20170314	3/14/2017	N	**0.122**	**0.00820**	**0.427**	**51.2**
	MW-23S	MW-23S-GW	9/24/2015	N	**0.047 J**	0.060 U	**0.26**	**24.0**
	MW-23S	MW23S_20160315	3/15/2016	N	**0.0342**	**0.0023 J**	**0.36**	**27.5**
	MW-23S	MW-23S_20160922	9/22/2016	N	**0.0206**	**0.0044 J**	**0.22**	**24.8**
	MW-23S	MW-23S_20170314	3/14/2017	N	**0.0211**	0.00500 U	**0.235**	**24.4**
	MW-35S	MW-35S-GW	9/24/2015	N	**0.029 J**	0.060 U	**0.59**	**95.0**
	MW-35S	MW35S_20160315	3/15/2016	N	**0.0243**	0.0050 U	**0.63**	**92.6**
	MW-35S	MW-35S_20160922	9/22/2016	N	**0.0192**	**0.0027 J**	**0.55**	**104.0**
	MW-35S	MW-35S_20170314	3/14/2017	N	**0.0212**	0.00500 U	**0.532**	**96.6**
	MW-36S	MW-36S-GW	9/24/2015	N	0.060 U	0.060 U	**0.16 J**	**67.0**
	MW-36S	MW36S_20160315	3/15/2016	N	0.0047 U	0.0050 U	**0.25**	**84.7**
	MW-36S	MW-36S_20160922	9/22/2016	N	0.0047 U	0.0050 U	**0.14 J**	**70.3**
	MW-36S	MW-36S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**0.180**	**88.1**
	MW-37S	MW-37S-GW	9/24/2015	N	**0.035 J**	0.060 U	**3.90**	**22.0**
	MW-37S	MW37S_20160315	3/15/2016	N	**0.0204 J**	**0.0018 J**	**4.54**	**22.7**
	MW-37S	DUP3_20160315	3/15/2016	FD	**0.0505 J**	**0.0011 J**	**4.52**	**22.7**
	MW-37S	MW-37S_20160920	9/20/2016	N	**0.0343**	0.0050 U	**3.88**	**23.7**
	MW-37S	MW-37S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**3.55**	**6.31**
	MW-37S	DUP01_20170314	3/14/2017	FD	0.00500 U	0.00500 U	**3.59**	**6.21**

Notes:

Groundwater Protection Standards from Post-Closure Care Permit, July 3, 2010, and apply to the P and S Zones

Bold indicates laboratory result detections

Grey shading indicates screening level exceedance

Comparison of WAD Cyanide to Free Cyanide screening level

- = not applicable
mg/L = milligrams per liter
U = not detected at the reporting limit
FD = field duplicate
N = normal sample
UJ = not detected at or above the stated level, which is an approximate value
J = estimated value
NT = not tested
WAD = weak acid dissociable

TABLE 3
CERCLA Leachate Collection System Production, Treatment System Volumes, and Discharge Volumes
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

Date	Rain (inches)	Lift Station 2			Lift Station 1				Total Treated Leachate (gallons)	Discharge per Month (gallons)
		Total (gallons)	Avg Flow (gpd)	Avg Flow (gpm)	Total (gallons)	Avg Flow (gpd)	Avg Flow (gpm)	LS 1 Net (gallons)		
Oct-16	3.07	**8,710**	281	0.2	**18,800**	671	0.5	**10,090**	**18,800**	**0**
Nov-16	1.21	**34,095**	1,100	0.8	**60,300**	2,154	1.5	**26,205**	**60,300**	**0**
Dec-16	2.43	**59,337**	1,914	1.3	**125,900**	4,496	3.1	**66,563**	**125,900**	**193,582**
Jan-17	1.15	**71,667**	2,312	1.6	**139,800**	4,993	3.5	**68,133**	**139,800**	**0**
Feb-17[a]	2.03	**89,531**	2,888	2.0	**170,500**	6,089	4.2	**80,969**	**170,500**	**408,382**
Mar-17[a]	2.36	**88,690**	2,861	2.0	**176,300**	6,296	4.4	**87,610**	**176,300**	**167,640**
								Totals:	**691,600**	**769,604**

Notes:
Rainfall Data Sources:
NOAA- NOAA National Weather Service Station The Dalles Municipal Airport, WA US GHCND:USW00024219
a: Discharge wholly or partially through NPDES batch system, prior to completion of POTW discharge system.

Definitions:
Avg = average
gpd = gallons per day
gpm = gallons per minute
LS = lift station

TABLE 4
CERCLA Leachate Collection System Analytical Results
Former Martin Marietta Facility
Lockheed Martin Corporation
The Dalles, Oregon

Sample Date	CERCLA Tank						Lift Station #1				Lift Station #2				Manhole #2				Manhole #4				Notes
	Total CN (mg/L)	WAD CN (mg/L)	Free CN (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TOC (mg/L)	Total CN (mg/L)	WAD CN (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Total CN (mg/L)	WAD CN (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Total CN (mg/L)	WAD CN (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Total CN (mg/L)	WAD CN (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	
03/21/14	--	--	--	--	--	--	**1.81**	**0.0418**	**9.9**	**122**	**1.94**	**0.0510**	**9.0**	**215**	--	--	--	--	**2.5**	**0.167**	**16.5**	**112**	
4/8/2014	**1.53**	**0.092**	--	**6.8**	**139**	**53**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
5/28/2014	**1.48**	**0.044**	--	**10.2**	**67.6**	**14.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
6/13/2014	--	--	--	--	--	--	**2.44**	**0.024**	**10.4**	**178**	**2.58**	**0.088**	**10.6**	**315**	--	--	--	--	**2.86**	**0.127**	**18.3**	**111**	
6/27/2014	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**33**	**0.39**	**19.1**	**941**	--	--	--	--	
8/8/2014	**1.39**	**0.0249**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Interim check
9/23/2014	--	--	--	--	--	--	**2.42**	**0.019**	**11.1**	**328**	**1.87**	**0.015**	**10.3**	**355**	**16.6**	**0.318**	**19.3**	**555**	**4.75**	**0.134**	**15.8**	**156**	
11/10/2014	**1.1**	**0.077**	--	**8.4**	**190**	**10**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
12/15/2014	--	--	--	--	--	--	**0.211**	**0.0484**	**12.8**	**142**	**2.23**	**0.069**	**11.4**	**254**	**1.39**	**0.0198**	**17.2**	**125**	**4.83**	**0.187**	**17.6**	**132**	
12/29/2014	**0.0819**	**0.0131**	0.0050 U	**9.19**	**62.3**	**2.38**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
1/7/2015	**0.0817**	**0.0172**	0.0050 U	**9.28**	**65.4**	**2.84**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
1/14/2015	**0.0735**	**0.0151**	0.0050 U	**9.57**	**93.0**	**2.25**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
2/2/2015	**0.0333**	**0.00590**	**0.00540**	**11.2**	**131**	**2.54**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
3/5/2015	**0.0163**	**0.0065**	0.0050 U	**10.60**	**159.0**	**2.63**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
3/26/2015	--	--	--	--	--	--	**1.5**	**0.090**	**12**	**170**	**2.3**	**0.24**	**7.7**	**160**	**2.0**	**0.094**	**17**	**110**	**2.4**	**0.11**	**18**	**110**	
4/9/2015	**0.0119**	0.0050 U	0.0020 U	**10.20**	**206.0**	**2.22**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
6/25/2015	--	--	--	--	--	--	**2.8**	**0.29**	**9.4**	**330**	**3.9**	**0.45**	**9.1**	**220**	**24.0**	**2.400**	**19**	**730**	**8.3**	**0.14**	**15**	**370**	MH4 dry; Sampled MH3 instead
9/23/2015	--	--	--	--	--	--	**3.7**	**0.14**	**9.2**	**300**	**4.2**	**0.085**	**9.3**	**280**	**Insufficient Flow for Sample**				**12**	**0.28**	**14**	**490**	MH1, MH2, MH4 dry or insufficient flow for sample. MH3 results in place of MH4
12/9/2015	**0.0185**	**0.00620**	0.0050 U	**11.10**	**314**	**3.20**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
12/30/2015	--	--	--	--	--	--	**2.0**	**0.089**	**11**	**94**	**4**	**0.14**	**9.1**	**190**	**1.5**	**0.067**	**17**	**54**	**1.4**	**0.035**	**15**	**65**	MH4 too low to sample; Sampled MH3 instead
1/13/2016	0.0050 U	0.0050 U	0.0050 U	**10.6**	**181**	**2.41**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
2/10/2016	0.0050 U	0.0050 U	0.0050 U	**10.7**	**146**	**4.36**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
3/15/2016	0.0050 U	0.0050 U	0.0050 U	**10.2**	**142**	**5.06**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
3/31/2016	--	--	--	--	--	--	**2.0**	**0.12**	**10**	**210**	**3.8**	**0.32**	**9.1**	**160**	**1.6**	**0.140**	**17**	**81**	**1.5**	**0.14**	**14**	**97**	MH4 Insufficient flow; Sampled MH3 instead
4/27/2016	0.0050 U	0.0050 U	0.0050 U	**11.0**	**178**	**1.51**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
6/20/2016	--	--	--	--	--	--	**2.30**	**0.166**	**8.5**	**175**	**2.12**	**0.111**	**9.3**	**343**	--	--	--	--	--	--	--	--	MH2 and MH4 dry; no sample collected
9/22/2016	--	--	--	--	--	--	**3.83**	**0.153**	**9.4**	**305**	**3.61**	**0.209**	**8.8**	**326**	**9.7**	**0.556**	**13.4**	**537**	**6.79**	**0.223**	**14.5**	**194**	
12/19/2016	**0.0056**	0.0050 U	0.0050 U	**11.1**	**242**	**2.35**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
12/21/2016	--	--	--	--	--	--	**0.659**	**0.0283**	**12.6**	**48.1**	**1.65**	**0.0417**	**6.45**	**71.2**	**0.576**	**0.0268**	**13.6**	**39.9**	**6.40**	**0.122**	**14.7**	**126**	
2/6/2017	**0.0105**	0.0050 U	0.0050 U	**10.4**	**122**	**1.11**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Batch discharge sample
3/13/2017	--	--	--	--	--	--	**1.48**	**0.0347**	**9.40**	**128**	**1.88**	**0.0430**	**9.11**	**211**	**18.3**	**1.56**	**13.2**	**47.2**	**2.46**	**0.0539**	**14.5**	**91.6**	

Notes:

Bold = Analyte detected above the laboratory reporting limit

Historical groundwater data can be found in Appendix A and B

Definitions:

-- = Not sampled, analyzed, or not available

CN = cyanide

mg/L = milligrams per liter

TOC = total organic carbon

WAD = Weak Acid Dissociable

Qualifiers:

U = not detected at the reporting limit

TABLE 5
CERCLA Treatment System Analytical Results
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

				Total Cyanide	WAD Cyanide
			Method	E335.4	SM4500-CN-E
Location	**Sample ID**	**Sample Date**	**Sample Type**	mg/L	mg/L
MidEffluent	Midpoint	4/13/2016	N	**0.059 J**	0.060 U
Effluent	Effluent	4/13/2016	N	**0.057 J**	0.060 U
MidEffluent	MidEffluent_20160512	5/12/2016	N	0.0047 U	0.0050 U
Effluent	Effluent_20160512	5/12/2016	N	0.0047 U	0.0050 U
MidEffluent	MidEffluent_20160614	6/14/2016	N	0.0047 U	0.0050 U
Effluent	Effluent_20160614	6/14/2016	N	0.0047 U	0.0050 U
MidEffluent	MidEffluent_20160712	7/12/2016	N	0.0047 U	0.0050 U
Effluent	Effluent_20160712	7/12/2016	N	0.0047 U	0.0050 U
MidEffluent	MidEff_20160812	8/12/2016	N	0.0047 U	0.0050 U
Effluent	Effl_20160812	8/12/2016	N	0.0047 U	0.0050 U
MidEffluent	MidEffluent_20160912	9/12/2016	N	**0.0066**	0.0050 U
Effluent	Effluent_20160912	9/12/2016	N	0.0047 U	0.0050 U
MidEffluent	MIDEFF-20161107	11/7/2016	N	**0.0050 U**	**0.0010 J**
Effluent	EFF-20161107	11/7/2016	N	**0.0050 U**	0.0047 U
MidEffluent	MIDEFFLUENT_2016120	12/6/2016	N	0.00500 U	0.00500 U
Effluent	EFFLUENT_20161206	12/6/2016	N	0.00500 U	0.00500 U
MidEffluent	MID-EFF-012017	1/20/2017	N	0.00500 U	**0.0333**
Effluent	EFF-012017	1/20/2017	N	0.00500 U	0.00500 U
MidEffluent	MIDEFF-20170216	2/16/2017	N	0.00500 U	**0.0134**
Effluent	EFF-20170216	2/16/2017	N	0.00500 U	0.00500 U
MidEffluent	MID EFF- 20170313	3/13/2017	N	0.00500 U	**0.0237**
Effluent	EFF-20170313	3/13/2017	N	0.00500 U	0.00500 U

Notes:

Bold indicates laboratory result detections

mg/L = milligrams per liter

N = normal sample

J = estimated value

U = not detected at the reporting limit

UJ = not detected at or above the stated level, which is an approximate value

TABLE 6
CERCLA Groundwater Analytical Results
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate
				Method	E335.4	SM4500-CN-E	E300	
				Groundwater Protection Standard for P and S Zones	-	0.77	9.7	3,020
				Groundwater Protection Standard for A Aquifer	-	0.77/0.22	4.0	250
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)
P	MW-5S	MW5S_20160315	3/15/2016	N	**0.443**	**0.0398**	**6.87**	**60.6**
	MW-5S	MW-5S_20170314	3/14/2017	N	**0.193**	**0.00830**	**6.60**	**49.0**
S	MWR-15S	MWR-15S_20160315	3/15/2016	N	**0.425**	**0.0695**	**0.96**	**120**
	MWR-15S	MWR-15S_20170315	3/15/2017	N	**4.32**	**0.0891**	**0.956**	**127**
	MWR-27S	MWR-27S_20160315	3/15/2016	N	**6.03**	**0.708**	**0.41**	**77.2**
	MWR-27S	MWR-27S_20170315	3/15/2017	N	**5.49**	**0.0890**	**0.329**	**79.0**
	MW-29S	MW29S_20160324	3/24/2016	N	0.0047 U	0.0050 U	**2.05**	**884**
	MW-29S	MW-29S_20170316	3/16/2017	N	0.00500 U	0.00500 U	**2.04**	**814**
	MW-38S	MW38S-20160323	3/23/2016	N	**0.250**	**0.0168**	**4.13**	**20.3**
	MW-38S	MW-38S_20170316	3/16/2017	N	**0.130**	**0.00530**	**4.73**	**16.3**
	MW-39S	MW39S_20160317	3/17/2016	N	**0.0089**	**0.0044 J**	**0.57**	**8.92**
	MW-39S	MW-39S_20170321	3/21/2017	N	**0.0100**	0.00500 U	**0.508**	**8.28**
	MW-40S	MW40S_20160317	3/17/2016	N	**0.192**	**0.0191**	**0.51**	**8.19**
	MW-40S	MW-40S_20170321	3/21/2017	N	**0.180**	**0.0142**	**0.537**	**8.51**
	MW-41S	MW41S_20160317	3/17/2016	N	**0.508**	**0.0565 J**	**0.41**	**68.5**
	MW-41S	DUP4_20160317	3/17/2016	FD	**0.388**	**0.106 J**	**0.42**	**68.1**
	MW-41S	MW-41S_20170321	3/21/2017	N	**0.442**	**0.00810**	**0.324**	**83.3**
	MW-42S	MW42S_20160318	3/18/2016	N	**0.340**	**0.0640**	**0.86**	**5.38**
	MW-42S	MW-42S_20170315	3/15/2017	N	**0.424**	**0.0327**	**0.868**	**6.39**
A	MW-6AA	MW6AA-20160323	3/23/2016	N	**0.490**	**0.0368**	**0.61**	**34.5**
	MW-6AA	DUP6_20160323	3/23/2016	FD	**0.488**	**0.0545**	**0.60**	**34.7**
	MW-6AA	MW-6AA_20170316	3/16/2017	N	**0.522**	**0.0265**	**0.735**	**38.4**
	MWR-7A	MWR-7A_20160317	3/17/2016	N	**0.360**	**0.0387**	**1.00**	**19.5**
	MWR-7A	MWR-7A_20170321	3/21/2017	N	**0.323**	**0.0173**	**0.773**	**20.0**
	MW-12A	MW12A_20160317	3/17/2016	N	**0.0482**	**0.0053**	**0.60**	**83.8**
	MW-12A	MW-12A_20170321	3/21/2017	N	**0.0542**	**0.00550**	**0.626**	**55.5**
	MW-13A	MWR-13A_20160317	3/17/2016	N	**0.0107 J**	0.0050 U	**0.79**	**12.7**
	MW-13A	MWR-13A_20170321	3/21/2017	N	**0.00710**	0.00500 U	**0.496**	**13.2**

Notes:

Bold indicates laboratory result detections

Grey shading indicates one or more regulatory criteria exceedance

Data reported to reporting limit

FD = field duplicate

mg/L = milligrams per liter

N = normal sample

WAD = weak acid dissociable

Groundwater Protection Standards from the Post-Closure Care Permit, July 3, 2010, and apply to the P and S Zones and the A Aquifer.

Qualifiers

B = blank contamination

J = estimated result

UJ = not detected at or above the stated level, which is an approximate value

U = not detected above indicated reporting limit

TABLE 7
Groundwater Analytical Results for Non-PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate	Chloride	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Total (AS CaCO3)	Hardness (AS CaCO3)	Total Dissolved Solids
				Method	E335.4	SM4500-CN-E	E300			SW6010C				SM2320B	SM2340B	SM2540C
				ACLs for Perched, S, and S_L Zones	-	0.22	9.7	3,020	-	-	-	-	-	-	-	-
				MCLs or SMCLs for A and B Aquifers	-	0.20	4.0	250	-	-	-	-	-	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
Perched	EAST DWT	EAST DWT-20140730	7/30/2014	N	**0.126**	**0.0115**	**15.6**	**67.3**	NR	NR	NR	NR	NR	NR	NR	NR
	EAST DWT	EAST DWT_20141025	10/25/2014	N	**0.0672**	**0.0103**	**19.2**	**72.5**	NR	NR	NR	NR	NR	NR	NR	NR
	EAST DWT	EAST DWT_20150120	1/20/2015	N	**0.0555 J**	**0.0110**	**16.5**	**66.6**	NR	NR	NR	NR	NR	NR	NR	NR
	EAST DWT	EAST DWT_20150418	4/18/2015	N	**0.0750**	**0.0107**	**14.8**	**77.5**	NR	NR	NR	NR	NR	NR	NR	NR
	WEST DWT	WEST DWT-20140730	7/30/2014	N	**0.0470**	**0.0055**	**8.0**	**49.5**	NR	NR	NR	NR	NR	NR	NR	NR
	WEST DWT	WEST DWT_20141025	10/25/2014	N	**0.228**	**0.0039 J**	**8.05**	**120**	NR	NR	NR	NR	NR	NR	NR	NR
	WEST DWT	WEST DWT_20150120	1/20/2015	N	**0.0940**	**0.0096**	**5.6**	**41.4**	NR	NR	NR	NR	NR	NR	NR	NR
	WEST DWT	WEST DWT_20150418	4/18/2015	N	**0.396**	**0.0045 J**	**7.1**	**72.1 J**	NR	NR	NR	NR	NR	NR	NR	NR
	PZ-01	PZ-01_20150121	1/21/2015	N	**0.0026 J**	**0.0055**	**0.51**	**10.8**	**1.16**	**12200**	**6610**	**690**	**10200**	NR	**57.6**	NR
	PZ-02	PZ-02_20140724A	7/24/2014	N	**0.022**	**0.003 J**	**0.28**	**14.0**	**1.89**	**34000**	**21200**	**4750**	**14500**	**145**	**172**	**159**
	PZ-02	PZ-02_20141024	10/24/2014	N	**0.0274**	**0.0069**	**0.27**	**59.0**	NR	NR	NR	NR	NR	NR	NR	NR
	PZ-02	PZ-02_20150121	1/21/2015	N	**0.0184**	**0.0017 J**	**0.32**	**3.74**	**1.24**	**12000**	**7050**	**960**	**8660**	NR	**59.0**	NR
	PZ-02	PZ-02_20150416	4/16/2015	N	**0.0176**	**0.0035 J**	**0.20**	**11.2**	NR	NR	NR	NR	NR	NR	NR	NR
	PZ-03	PZ-3-20140725	7/25/2014	N	0.0047 U	0.010 U	**0.21**	**3.56**	**1.45**	**23700**	**11100**	**1760**	**5190**	**94.0**	**105**	**146**
	PZ-03	PZ-03_20141026	10/26/2014	N	0.0047 U	0.0050 U	**0.19 J**	**4.12**	NR	NR	NR	NR	NR	NR	NR	NR
	PZ-03	PZ-03_20150121	1/21/2015	N	0.0047 U	0.0050 U	**0.31**	**3.35**	**2.77**	**13000**	**6880**	**814**	**5230**	NR	**60.9**	NR
	PZ-03	PZ-03_20150416	4/16/2015	N	0.0047 U	0.0050 U	**0.10 J**	**3.13**	NR	NR	NR	NR	NR	NR	NR	NR
	P-1	P-1_20140801	8/1/2014	N	**0.0278**	**0.0061**	**5.5**	**39.9**	**25.3**	**73200**	**36000**	**5120**	**111000**	**423**	**331**	**666**
	P-1	P-1_20141025	10/25/2014	N	**0.0226**	**0.0045 J**	**5.72**	**45.5**	NR	NR	NR	NR	NR	NR	NR	NR
	P-1	P-1_20150120	1/20/2015	N	**0.0427 J**	**0.0295**	**5.5**	**47.8**	**28.3**	**99300**	**56900**	**6040**	**154000**	NR	**482**	NR
	P-1	P-1_20150418	4/18/2015	N	**0.0422**	**0.0098**	**6.0**	**55.0**	NR	NR	NR	NR	NR	NR	NR	NR
	P-2	P-2_20140801	8/1/2014	N	**0.0740**	**0.0110**	**46.9**	**52.1**	NR	NR	NR	NR	NR	NR	NR	NR
	P-2	P-2_20150120	1/20/2015	N	**0.0248**	**0.0015 J**	**16.0**	**39.8**	**4.7**	**60900**	**32000**	**3320**	**90300**	NR	**284**	NR
	P-2	P-2_20150418	4/18/2015	N	**0.0515**	**0.0079**	**32.2**	**49.2**	NR	NR	NR	NR	NR	NR	NR	NR
	P-3	P-3_20140801	8/1/2014	N	**0.0047 J**	**0.0037 J**	**17.5**	**65.7**	NR	NR	NR	NR	NR	NR	NR	NR
	P-3	P-3_20141025	10/25/2014	N	**0.0079**	**0.0017 J**	**18.5**	**66.8**	NR	NR	NR	NR	NR	NR	NR	NR
	P-3	P-3_20150120	1/20/2015	N	**0.0183**	**0.0076**	**18.1**	**68.5**	**49.4**	**142000**	**88100**	**7190**	**134000**	NR	**717**	NR
	P-3	P-3_20150418	4/18/2015	N	**0.0077**	**0.0008 J**	**11.5**	**99.0**	NR	NR	NR	NR	NR	NR	NR	NR
	P-5	P-5_20150120	1/20/2015	N	**0.0017 J**	**0.0009 J**	**1.16**	**12.3**	**1.90**	**25800**	**11900**	**1740**	**26000**	NR	**114**	NR
	P-6	P-6_20150120	1/20/2015	N	0.0047 U	**0.0288**	**11.8**	**81.7**	**6.8**	**16900**	**8880**	**5880**	**303000**	NR	**78.9**	NR
	P-6	P-6_20150418	4/18/2015	N	**0.136**	**0.0167**	**6.4**	**50.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW-5S_20140731	7/31/2014	N	**0.209**	**0.121**	**6.6**	**68.2**	**7.1**	**84800**	**49000**	**3200**	**144000**	**596**	**413**	**848**
	MW-5S	MW5-S-20140731S	7/31/2014	S	**0.38**	**0.14**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW-5S_20141024	10/24/2014	N	**0.365**	**0.0130**	**7.1**	**82.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW-5S_20150123	1/23/2015	N	**0.0900**	**0.0011 J**	**10.4**	**32.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW-5S-032515	3/25/2015	N	**0.38**	**0.031 J**	**7.1**	**60**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW-5S_20150415	4/15/2015	N	**0.250**	**0.0221**	**6.6**	**54.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW-5S-GW	9/24/2015	N	**0.33**	**0.038 J**	**6.6**	**66**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW5S_20160315	3/15/2016	N	**0.443**	**0.0398**	**6.87**	**60.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW-5S_20160922	9/22/2016	N	**0.402**	**0.0554**	**7.63**	**73.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5S	MW-5S_20170314	3/14/2017	N	**0.193**	**0.00830**	**6.60**	**49.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01P	MW13-01P_20140729A	7/29/2014	N	**58.5**	**0.625**	**11.7**	**164**	**19.5**	**70700**	**50000**	**14700**	**337000**	**807**	**383**	**1330**
	MW13-01P	MW13-01P_20141025	10/25/2014	N	**56.5**	**0.575**	**11.9**	**140**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01P	MW13-01P_20150125	1/25/2015	N	**42.5**	**--**	**14.8**	**139**	**18.8**	**69000**	**47000**	**12500**	**400000**	NR	**366**	NR
	MW13-01P	MW13-01P_20150418	4/18/2015	N	**49.5**	**1.38**	**10.6 J**	**74.4 J**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01P	DUP07_20150418	4/18/2015	FD	**47.0**	**1.59**	**15.2 J**	**129 J**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01P	MW13-01P_20151210	12/10/2015	N	**52.3**	**0.0282**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01P	MW13-01P_20160316	3/16/2016	N	**63.3**	**2.59**	**15.9**	**125**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01P	MW13-01P_20160621	6/21/2016	N	**45.7**	**2.63**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01P	MW13-01P_20160919	9/19/2016	N	**46.1**	**1.91**	**17.8**	**130**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01P	MW13-01P_20170315	3/15/2017	N	**52.4**	**1.04**	**19.4**	**130**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	MW13-02P_20140801	8/1/2014	N	**0.150**	**0.0189**	**7.3**	**111**	**31.4**	**90600**	**45600**	**5410**	**104000**	**448**	**414**	**727**
	MW13-02P	DUP06_20140801	8/1/2014	FD	**0.142**	**0.0181**	**7.3**	**111**	**31.9**	**90700**	**45600**	**5370**	**104000**	**447**	**414**	**736**
	MW13-02P	MW13-02P_20141025	10/25/2014	N	**0.144**	**0.0222**	**6.9**	**107**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	MW13-02P_20150125	1/25/2015	N	**0.189**	**--**	**4.97**	**116**	**19.9**	**85300**	**38700**	**5110**	**93900**	NR	**372**	NR
	MW13-02P	MW13-02P_20150418	4/18/2015	N	**0.177 J**	**0.0229 J**	**4.1 J**	**105 J**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	DUP06_20150418	4/18/2015	FD	**0.0102 J**	0.005 UJ	**0.7 J**	**5.17 J**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	MW13-02P_20151209	12/9/2015	N	**0.157**	**0.0399**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	MW13-02P_20160316	3/16/2016	N	**0.172**	**0.0318**	**6.97**	**98.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	MW13-02P_20160622	6/22/2016	N	**0.103**	**0.0161**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	MW13-02P_20160921	9/21/2016	N	**0.108**	**0.029**	**6.02**	**107**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	DUP02_20160921	9/21/2016	FD	**0.104**	**0.0303**	**5.85**	**106**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02P	MW13-02P_20170316	3/16/2017	N	**0.143**	**0.0130**	**7.58**	**102**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-03P	MW13-03P_20140724	7/24/2014	N	**0.0024 J**	0.0050 U	**0.19 J**	**2.79**	**1.77**	**23200**	**11900**	**1620**	**6430**	**101**	**107**	**140**
	MW13-03P	MW13-03P_20141020	10/20/2014	N	**0.0104**	0.0050 U	**0.32**	**5.57**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-03P	MW13-03P_20150121	1/21/2015	N	**0.0011 J**	0.0050 U	**0.28**	**7.64**	**3.76**	**22000**	**13300**	**2290**	**23200**	NR	**110**	NR
	MW13-03P	MW13-03P_20150416	4/16/2015	N	0.0047 U	0.0050 U	**0.21**	**10.3 J**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-03P	MW13-03P_20160317	3/17/2016	N	**0.0086**	0.0050 U	**0.24**	**11.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-03P	MW13-03P_20160923	9/23/2016	N	0.0047 U	0.0050 U	**0.29**	**12.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-03P	MW13-03P_20170321	3/21/2017	N	0.00500 U	0.00500 U	**0.274**	**12.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-04P	MW13-04P-20140725	7/25/2014	N	**0.0600**	**0.006 J**	**20.3**	**17.5**	**2.65**	**16200**	**9160**	**2270**	**117000**	**257**	**78.1**	**378**
	MW13-04P	MW13-04P_20141020	10/20/2014	N	**0.0930**	**0.0115**	**15.5**	**33.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-04P	MW13-04P_20150121	1/21/2015	N	**0.0166**	**0.0201**	**12.2**	**35.4**	**4.8**	**41500**	**26100**	**5200**	**104000**	NR	**211**	NR
	MW13-04P	MW13-04P_20150416	4/16/2015	N	**0.106**	**0.0133**	**12.4**	**30.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-04P	MW13-04P_20160317	3/17/2016	N	**0.151**	**0.0083**	**11.3**	**38.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-04P	MW13-04P_20160923	9/23/2016	N	**0.182**	**0.0249**	**9.6**	**51**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-04P	MW13-04P_20170321	3/21/2017	N	**0.143**	**0.0150**	**10.8**	**41.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-05P	MW13-05P_20140729	7/29/2014	N	**0.476**	**0.0212**	**5.08**	**84.6**	**10.9**	**79100**	**42600**	**7260**	**89800**	**460**	**373**	**623**
	MW13-05P	MW13-05P_20141025	10/25/2014	N	**0.252**	**0.0176**	**4.2**	**100**	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 7
Groundwater Analytical Results for Non-PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate	Chloride	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Total (AS CaCO3)	Hardness (AS CaCO3)	Total Dissolved Solids
				Method	E335.4	SM4500-CN-E	E300			SW6010C				SM2320B	SM2340B	SM2540C
				ACLs for Perched, S, and S_L Zones	-	0.22	9.7	3,020	-	-	-	-	-	-	-	-
				MCLs or SMCLs for A and B Aquifers	-	0.20	4.0	250	-	-	-	-	-	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
Perched (Continued)	MW13-05P	MW13-05P_20150119	1/19/2015	N	**0.0030 J**	**0.0030 J**	**4.02**	**88.4**	**9.0**	**81000**	**42000**	**5200**	**90000**	NR	**375**	NR
	MW13-05P	DUP01_20150119	1/19/2015	FD	**0.215 J**	**0.0339 J**	**4.1**	**91.8**	**8.2**	**78300**	**40100**	**6180**	**94000**	NR	**361**	NR
	MW13-05P	MW13-05P_20150414	4/14/2015	N	**0.435**	**0.0485**	**4.3**	**83.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-05P	MW13-05P_20160318	3/18/2016	N	**0.475**	**0.0810**	**4.3**	**86.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-05P	MW13-05P_20160919	9/19/2016	N	**0.395**	**0.0587**	**3.78**	**85.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-05P	MW13-05P_20170315	3/15/2017	N	**0.529**	**0.0172**	**3.75**	**83.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06P	MW-13-06P_20140728	7/28/2014	N	**2.61**	**0.305**	**5.3**	**959**	**6.1**	**180000**	**91300**	**6900**	**99100**	**214**	**824**	**1370**
	MW13-06P	MW13-06P_20141026	10/26/2014	N	**2.30**	**0.191**	**4.8**	**786**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06P	MW13-06P_20150124	1/24/2015	N	**0.723**	**0.145**	**4.4**	**682**	**5.0**	**169000**	**81300**	**10700**	**87900**	NR	**756**	NR
	MW13-06P	MW13-06P_20150417	4/17/2015	N	**1.64 J**	**0.148 J**	**4.6**	**541**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06P	MW13-06P_20160315	3/15/2016	N	**2.69**	**0.134**	**4.10**	**613**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06P	MW13-06P_20160921	9/21/2016	N	**2.07**	**0.343**	**3.88**	**610**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06P	MW13-06P_20170315	3/15/2017	N	**2.51**	**0.0516**	**4.12**	**597**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-07P	MW13-07P_20140723	7/23/2014	N	**10.0**	**0.0272**	**248**	**175**	**9.8**	**3130**	**3860**	**3160**	**587000**	**515**	**23.7**	**1410**
	MW13-07P	MW13-07P_20141022	10/22/2014	N	**12.2**	**0.080**	**208**	**188**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-07P	DUP03_20141022	10/22/2014	FD	**11.5**	**0.079**	**213**	**191**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-07P	MW13-07P_20150128	1/28/2015	N	**2.77**	**0.187**	**140**	**201**	**6.0**	**2520**	**3940**	**3960**	**484000**	NR	**22.5**	NR
	MW13-07P	MW13-07P_20150419	4/19/2015	N	**11.3**	**0.146**	**178**	**188**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-07P	MW13-07P_20160323	3/23/2016	N	**17.9**	**0.206**	**137**	**190**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-07P	MW13-07P_20160919	9/19/2016	N	**8.29**	**0.275**	**164**	**125**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-07P	MW13-07P_20170315	3/15/2017	N	**19.2**	**0.0840**	**115**	**213**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08P	MW13-08P_20140730	7/30/2014	N	**1.05**	**0.197**	**6.1**	**693**	**9.2**	**109000**	**49800**	**11400**	**235000**	**246**	**476**	**1350**
	MW13-08P	MW13-08P_20141025	10/25/2014	N	**1.11**	**0.0248**	**4.3**	**638**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08P	MW13-08P_20150125	1/25/2015	N	**0.391**	**--**	**4.76**	**662**	**9.6**	**123000**	**46500**	**13100**	**199000**	NR	**498**	NR
	MW13-08P	MW13-08P_20150418	4/18/2015	N	**1.51**	**0.064**	**4.3**	**656**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08P	MW13-08P_20151210	12/10/2015	N	**3.06**	**0.0444**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08P	MW13-08P_20160316	3/16/2016	N	**1.86**	**0.116**	**5.1**	**759**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08P	MW13-08P_20160621	6/21/2016	N	**1.25**	**0.0635**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08P	MW13-08P_20160920	9/20/2016	N	**1.29**	**0.353**	**4.95**	**823**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08P	MW13-08P_20170316	3/16/2017	N	**1.43**	**0.0214**	**5.21**	**786**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-09P	MW13-09P-20140725A	7/25/2014	N	**0.0043 J**	0.0050 U	**1.21**	**359**	**16.7**	**90100**	**53200**	**3960**	**58000**	**116**	**444**	**704**
	MW13-09P	MW13-09P_20141010	10/10/2014	N	**0.0014 J**	0.010 U	**1.03**	**417**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-09P	MW13-09P_20150124	1/24/2015	N	0.0047 U	0.005 UJ	**0.57**	**217**	**5.65**	**68700**	**43200**	**2220**	**30600**	NR	**350**	NR
	MW13-09P	MW13-09P_20150419	4/19/2015	N	0.0047 U	0.0050 U	**0.46**	**256**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-10P	MW13-10P_20140723	7/23/2014	N	0.0047 U	0.0050 U	**1.9**	**136**	**23.5**	**117000**	**99300**	**3600**	**105000**	**712**	**702**	**1020**
	MW13-10P	MW13-10P_20141022	10/22/2014	N	0.0047 U	0.0050 U	**2.2**	**185**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-10P	MW13-10P_20150124	1/24/2015	N	0.0047 U	**--**	**2.16**	**101**	**16.7**	**81800**	**65100**	**3010**	**88900**	NR	**473**	NR
	MW13-10P	MW13-10P_20150417	4/17/2015	N	0.0047 U	0.0050 U	**2.03**	**70.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-10P	MW13-10P_20151210	12/10/2015	N	**0.0037 J**	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-10P	MW13-10P_20160316	3/16/2016	N	0.0047 U	0.0050 U	**2.10**	**34.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-10P	MW13-10P_20160621	6/21/2016	N	0.0047 U	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-10P	MW13-10P_20160921	9/21/2016	N	0.0047 U	0.0050 U	**2.15**	**138**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-10P	MW13-10P_20170315	3/15/2017	N	0.00500 U	0.00500 U	**2.00**	**69.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11P	MW13-11P-20140725A	7/25/2014	N	**0.0029 J**	0.0050 U	**0.97**	**99.0**	**65.4**	**38400**	**16000**	**9600**	**78800**	**144**	**162**	**426**
	MW13-11P	MW13-11P_20141010	10/10/2014	N	**0.001 J**	0.010 U	**0.50**	**128**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11P	MW13-11P_20150124	1/24/2015	N	**0.0019 J**	0.0050 UJ	**0.38**	**98.7**	**44**	**38900**	**17500**	**9910**	**61900**	NR	**169**	NR
	MW13-11P	MW13-11P_20150419	4/19/2015	N	0.0047 U	0.0050 U	**0.34**	**103**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-12P	MW13-12P_20140723	7/23/2014	N	**0.482**	**0.0227**	**11.4**	**613**	**6.3**	**129000**	**55600**	**3850**	**112000**	**114**	**550**	**1050**
	MW13-12P	MW13-12P_20141022	10/22/2014	N	**0.303**	**0.0112**	**11.0**	**489**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-12P	MW13-12P_20150124	1/24/2015	N	**0.001 B**	**--**	**14.6**	**140**	**1.70**	**38500**	**17700**	**2190**	**45300**	NR	**169**	NR
	MW13-12P	MW13-12P_20150419	4/19/2015	N	**0.320**	**0.0080**	**8.8**	**469**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-12P	MW13-12P_20151210	12/10/2015	N	**0.242 J**	**0.0195**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-12P	MW13-12P_20160315	3/15/2016	N	**0.0600**	**0.0071**	**16.7**	**74.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-12P	MW13-12P_20160621	6/21/2016	N	**0.323**	**0.0095**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-12P	MW13-12P_20160921	9/21/2016	N	**0.228**	**0.0145**	**12.3**	**441**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-12P	MW13-12P_20170315	3/15/2017	N	**0.0580**	0.00500 U	**16.0**	**65.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13P	MW13-13P-20140725A	7/25/2014	N	**0.0024 J**	0.0050 U	**1.16**	**51.8**	**129**	**35800**	**13700**	**10200**	**77300**	**92**	**146**	**392**
	MW13-13P	MW13-13P_20141025	10/25/2014	N	**0.0020 J**	0.0050 U	**0.44**	**56.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13P	MW13-13P_20150123	1/23/2015	N	**0.0031 J**	0.0050 UJ	**0.37**	**49.0**	**124**	**37800**	**13700**	**10700**	**80600**	NR	**151**	NR
	MW13-13P	MW13-13P_20150417	4/17/2015	N	**0.0018 J**	0.0050 U	**0.34**	**47.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16P	MW13-16P_20140723	7/23/2014	N	0.0047 U	0.0050 U	**0.4 J**	**207**	**38.4**	**141000**	**95400**	**5250**	**118000**	**634**	**744**	**1140**
	MW13-16P	MW13-16P_20141021	10/21/2014	N	0.0047 U	**0.0013 J**	**1.2**	**215**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16P	MW13-16P_20150124	1/24/2015	N	**0.0014 J**	0.0050 UJ	**0.61**	**194**	**32**	**142000**	**98000**	**5100**	**116000**	NR	**757**	NR
	MW13-16P	MW13-16P_20150417	4/17/2015	N	**0.0038 J**	0.0050 U	**0.37**	**199**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-18P	MW15-18_20151016	10/16/2015	N	**0.0040 J**	**0.0017 J**	**11.5**	**53.8**	**29.3**	**23300**	**11100**	**18200**	**95400**	**166**	**104**	**347**
	MW15-18P	MW15-18P_20151209	12/9/2015	N	**0.0043 J**	**0.0014 J**	**10.3**	**68.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-18P	MW15-18P_20160323	3/23/2016	N	**0.0020 J**	0.0050 U	**13.0**	**24.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-18P	DUP1_20160323	3/23/2016	FD	**0.0111 J**	0.0050 U	**13.6**	**23.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-18P	MW15-18P_20160623	6/23/2016	N	**0.0052**	0.0050 U	**13.4**	**27.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-18P	MW15-18P_20160920	9/20/2016	N	**0.0035 J**	**0.0019 J**	**13.9**	**53.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-18P	MW15-18P_20161221	12/21/2016	N	**0.00600**	0.00500 U	**16.2**	**40.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-18P	MW15-18P_20170314	3/14/2017	N	0.00500 U	0.00500 U	**14.5**	**14.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-18P	DUP02_20170314	3/14/2017	FD	0.00500 U	0.00500 U	**14.4**	**18.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-20P	MW15-20_20151016	10/16/2015	N	0.0047 U	0.0050 U	**0.54**	**35.3**	**3.90**	**40000**	**10600**	**11300**	**11300**	**124**	**144**	**214**
	MW15-20P	MW15-20P_20151209	12/9/2015	N	0.0047 U	0.0050 U	**3.82**	**14.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-20P	MW15-20P_20160323	3/23/2016	N	0.0047 U	0.0050 U	**3.35**	**19.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-20P	MW15-20P_20160623	6/23/2016	N	**0.0035 J**	0.0050 U	**0.84**	**29.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-20P	MW15-20P_20160920	9/20/2016	N	0.0047 U	0.0050 U	**0.8**	**30.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-20P	DUP01_20160920	9/20/2016	FD	0.0047 U	0.0050 U	**0.8**	**30.3**	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 7
Groundwater Analytical Results for Non-PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate	Chloride	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Total (AS CaCO3)	Hardness (AS CaCO3)	Total Dissolved Solids
				Method	E335.4	SM4500-CN-E	E300			SW6010C				SM2320B	SM2340B	SM2540C
				ACLs for Perched, S, and S_L Zones	-	0.22	9.7	3,020	-	-	-	-	-	-	-	-
				MCLs or SMCLs for A and B Aquifers	-	0.20	4.0	250	-	-	-	-	-	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
Perched	MW15-20P	MW15-20P_20161221	12/21/2016	N	0.00500 U	0.00500 U	**4.69**	**11.6**	NR	NR	NR	NR	NR	NR	NR	NR
(Continued)	MW15-20P	MW15-20P_20170314	3/14/2017	N	0.00500 U	0.00500 U	**3.52**	**12.9**	NR	NR	NR	NR	NR	NR	NR	NR
S	MW-2S	MW-2S_20140729	7/29/2014	N	**0.0036 J**	**0.0009 J**	**0.16 J**	**24.2**	**5.67**	**28100**	**9890**	**5470**	**8080**	**97.3**	**111**	**174**
	MW-2S	MW-2S_20141022	10/22/2014	N	**0.0055**	**0.0014 J**	**0.20 J**	**25.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-2S	MW-2S_20150128	1/28/2015	N	**0.0086**	**0.0049 J**	**0.12 B**	**22.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-2S	MW-2S_20150416	4/16/2015	N	**0.0042 J**	**0.0022 J**	**0.11 J**	**20.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-2S	MW-2S_20160923	9/23/2016	N	**0.0046 J**	**0.0008 J**	**0.12 J**	**25**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-2S	MW2S_20160317	3/17/2016	N	**0.0083**	0.0050 U	**0.14 J**	**22.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-2S	MW-2S_20170320	3/20/2017	N	**0.00630**	0.00500 U	**0.143**	**23.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW-3S_20140730	7/30/2014	N	0.0047 U	0.0050 U	**0.27**	**31.7**	**12.8**	**20200**	**5870**	**8330**	**30900**	**107**	**74.7**	**190**
	MW-3S	MW-3S_20141024	10/24/2014	N	**0.0023 J**	0.0050 U	**0.25**	**30.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW-3S_20150123	1/23/2015	N	--	0.0050 U	**0.27**	**29.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW-3S-032515	3/25/2015	N	0.060 U	0.060 U	**0.27**	**29**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW3S_20150419	4/19/2015	N	0.0047 U	0.0050 U	**0.23**	**27.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW-3S-GW	9/23/2015	N	0.060 U	0.060 U	**0.26**	**27**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW-13R-GW	9/23/2015	FD	0.060 U	0.060 U	**0.26**	**27**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW3S_20160315	3/15/2016	N	0.0047 U	0.0050 U	**0.35**	**29.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW-3S_20160923	9/23/2016	N	0.0047 U	0.0050 U	**0.24**	**29.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	DUP04_20160923	9/23/2016	FD	0.0047 U	0.0050 U	**0.24**	**29.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3S	MW-3S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**0.286**	**29.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-4S	MWR-4S_20140801	8/1/2014	N	0.0047 U	0.0050 U	**0.17 J**	**111**	**1.47**	**79400**	**21700**	**8620**	**9930**	**167**	**287**	**419**
	MWR-4S	MWR-4S_20141024	10/24/2014	N	0.0047 U	0.0050 U	**0.13 J**	**94.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-4S	MWR-4S_20150123	1/23/2015	N	--	**0.0010 J**	**0.19 J**	**66.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-4S	MWR-4S-032515	3/25/2015	N	0.060 U	0.060 U	**0.12**	**95**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-4S	MWR-4S_20150415	4/15/2015	N	0.0047 U	0.0050 U	**0.07 J**	**86.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-4S	MW-4S-GW	9/23/2015	N	0.060 U	0.060 U	**0.14 J**	**67**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-4S	MWR-4S_20160315	3/15/2016	N	0.0047 U	0.0050 U	**0.27**	**48.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-4S	MWR-4S_20160923	9/23/2016	N	**0.001 J**	0.0050 U	**0.13 J**	**51.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-4S	MWR-4S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**0.230**	**58.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-15S	MWR-15S_20140729	7/29/2014	N	**2.90**	**0.318**	**0.93**	**129**	**4.15**	**13300**	**1010**	**7670**	**61500**	**32.1**	**37.3**	**261**
	MWR-15S	DUP03_20140729	7/29/2014	FD	**2.85**	**0.355**	**0.93**	**132**	**4.28**	**12700**	**979**	**7530**	**58800**	**29.9**	**35.8**	**257**
	MWR-15S	MWR-15S_20140729S	7/29/2014	S	**3.3**	**0.35**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-15S	MWR-15S_20141026	10/26/2014	N	**3.18**	**0.155**	**0.87**	**137**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-15S	MWR-15S_20150124	1/24/2015	N	**0.909**	--	**0.95**	**117**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-15S	MWR-15S-032515	3/25/2015	N	**4.7**	**0.26**	**0.95**	**120**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-15S	MWR-15S_20150419	4/19/2015	N	**4.28**	**0.136**	**0.81**	**115**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-15S	MWR-15S_20160315	3/15/2016	N	**0.425**	**0.0695**	**0.96**	**120**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-15S	MWR-15S_20170315	3/15/2017	N	**4.32**	**0.0891**	**0.956**	**127**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-17S	MW-17S_20140731	7/31/2014	N	**0.0108**	**0.0046 J**	**0.55**	**36.0**	**3.76**	**66400**	**21800**	**6870**	**18900**	**233**	**256**	**332**
	MW-17S	MW-17S_20141024	10/24/2014	N	**0.0197**	**0.0026 J**	**0.50**	**35.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-17S	MW-17S_20150123	1/23/2015	N	**0.0306**	0.0050 UJ	**0.24**	**29.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-17S	MW-17S-032415	3/24/2015	N	0.060 U	0.060 U	**0.27**	**41**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-17S	MW-17S_20150415	4/15/2015	N	**0.0209**	**0.0013 J**	**0.30**	**28.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-17S	MW-17S-GW	9/24/2015	N	0.060 U	0.060 U	**0.54**	**27**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-17S	MW17S_20160315	3/15/2016	N	**0.0351**	0.0050 U	**0.36**	**28.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-17S	MW-17S_20160923	9/23/2016	N	**0.02**	**0.0025 J**	**0.31**	**37**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-17S	MW-17S_20170314	3/14/2017	N	**0.0252**	0.00500 U	**0.265**	**31.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW-22S_20140731	7/31/2014	N	**0.102**	**0.0425**	**0.45**	**53.3**	**6.47**	**23100**	**5110**	**7420**	**31100**	**94.0**	**78.7**	**199**
	MW-22S	MW22-S-20140731S	7/31/2014	S	**0.16**	**0.030**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW-22S_20141024	10/24/2014	N	**0.157**	**0.0186**	**0.44**	**52.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW-22S_20150123	1/23/2015	N	**0.131**	0.0050 UJ	**0.45**	**44.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW-22S-032515	3/25/2015	N	**0.13**	**0.014 J**	**0.45**	**53**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW-22S_20150415	4/15/2015	N	**0.145**	**0.0280**	**0.36**	**52.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW-22S-GW	9/24/2015	N	**0.12**	**0.038 J**	**0.46**	**39**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW22S_20160315	3/15/2016	N	**0.164**	**0.0125 J**	**0.49**	**50.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	DUP2_20160315	3/15/2016	FD	**0.203**	**0.0193 J**	**0.49**	**50.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW-22S_20160922	9/22/2016	N	**0.107**	**0.0272**	**0.42**	**45.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-22S	MW-22S_20170314	3/14/2017	N	**0.122**	**0.00820**	**0.427**	**51.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-23S	MW-23S_20140731	7/31/2014	N	**0.0199**	**0.0029 J**	**0.25**	**26.6**	**2.86**	**31600**	**7140**	**9880**	**18600**	**129**	**108**	**206**
	MW-23S	MW-23S_20141024	10/24/2014	N	**0.0372**	**0.0055**	**0.24**	**27.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-23S	MW-23S_20150123	1/23/2015	N	**0.0474**	**0.0014 J**	**0.24**	**26.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-23S	MW-23S-032415	3/24/2015	N	**0.029 J**	0.060 U	**0.25**	**26**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-23S	MW-23S_20150415	4/15/2015	N	**0.0278**	**0.0038 J**	**0.21**	**23.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-23S	MW-23S-GW	9/24/2015	N	**0.047 J**	0.060 U	**0.26**	**24**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-23S	MW23S_20160315	3/15/2016	N	**0.0342**	**0.0023 J**	**0.36**	**27.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-23S	MW-23S_20160922	9/22/2016	N	**0.0206**	**0.0044 J**	**0.22**	**24.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-23S	MW-23S_20170314	3/14/2017	N	**0.0211**	0.00500 U	**0.235**	**24.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-26S	MW-26S_20140729	7/29/2014	N	**0.123**	**0.0237**	**0.38**	**30.7**	**2.91**	**15000**	**3900**	**8600**	**31300**	**91.9**	**53.4**	**171**
	MW-26S	MW-26S_20141027	10/27/2014	N	**0.125**	**0.0126**	**0.36**	**30.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-26S	MW-26S_20150128	1/28/2015	N	**0.115**	**0.0138**	**0.33**	**26.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-26S	MW-26S_20150416	4/16/2015	N	**0.118**	**0.0172**	**0.31**	**26.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-26S	MW26S_20160316	3/16/2016	N	**0.136**	**0.0159**	**0.41**	**29.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-26S	MW-26S_20170316	3/16/2017	N	**0.117**	**0.00830**	**0.340**	**30.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-27S	MW27S-20140728	7/28/2014	N	**5.50**	**0.633**	**0.42**	**83.7**	**7.14**	**50500**	**11300**	**15100**	**18200**	**130**	**173**	**308**
	MWR-27S	MW-27S_20140728S	7/28/2014	S	**5.9**	**0.41**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-27S	MWR-27S_20141026	10/26/2014	N	**5.55**	**0.104**	**0.4 J**	**76.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-27S	MWR-27S_20150124	1/24/2015	N	**0.590 J**	--	**0.37**	**76.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-27S	DUP06_20150124	1/24/2015	FD	**0.482 J**	--	**0.33**	**72.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-27S	MW-27S-032615	3/26/2015	N	**5.5**	**0.20**	**0.33**	**71**	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 7
Groundwater Analytical Results for Non-PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate	Chloride	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Total (AS CaCO3)	Hardness (AS CaCO3)	Total Dissolved Solids
				Method	E335.4	SM4500-CN-E	E300			SW6010C				SM2320B	SM2340B	SM2540C
				ACLs for Perched, S, and S_L Zones	-	0.22	9.7	3,020	-	-	-	-	-	-	-	-
				MCLs or SMCLs for A and B Aquifers	-	0.20	4.0	250	-	-	-	-	-	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
S (Continued)	MWR-27S	MWR-027S_20150417	4/17/2015	N	**4.05**	**0.413**	**0.25**	**71.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-27S	MWR-27S_20160315	3/15/2016	N	**6.03**	**0.708**	**0.41**	**77.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-27S	MWR-27S_20170315	3/15/2017	N	**5.49**	**0.0890**	**0.329**	**79.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	MW-29S_20140804	8/4/2014	N	**0.0015 J**	0.0050 U	**2.3**	**1030**	**7.8**	**196000**	**111000**	**31900**	**233000**	**356**	**946**	**1850**
	MW-29S	DUP07_20140804	8/4/2014	FD	**0.0011 J**	**0.0008 J**	**2.4**	**997**	**7.9**	**194000**	**111000**	**31400**	**234000**	**361**	**943**	**1750**
	MW-29S	MW-29S_20141023	10/23/2014	N	**0.0013 J**	0.0050 U	**1.8**	**1210**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	MW-29S_20150122	1/22/2015	N	**0.0016 J**	0.0050 UJ	**2.58**	**591**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	DUP04_20150122	1/22/2015	FD	**0.0015 J**	**0.0009 J**	**2.74**	**548**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	MW-29S-032515	3/25/2015	N	0.060 U	0.060 U	**2.6**	**590**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	MW-29S_20150415	4/15/2015	N	**0.0015 J**	0.0050 U	**2.3**	**494**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	MW29S_20160324	3/24/2016	N	0.0047 U	0.0050 U	**2.05**	**884**	**6.57**	**140000**	**80800**	**24400**	**195000**	**316**	**683**	**1720**
	MW-29S	MW-29S_20160922	9/22/2016	N	0.0047 U	0.0050 U	**2.02**	**1380**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	MW-29S_20161222	12/22/2016	N	0.00500 U	0.00500 U	**2.11**	**1260**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	MW-29S_20170316	3/16/2017	N	0.00500 U	0.00500 U	**2.04**	**814**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-29S	MWR29S_20160324	3/24/2016	N	**0.0046 J**	0.0050 U	**1.85**	**343**	**31.4**	**108000**	**52200**	**18000**	**182000**	**400**	**486**	**1070**
	MWR-29S	MWR-29S_20160922	9/22/2016	N	**0.0020 J**	0.0050 U	**1.21**	**581**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-29S	DUP03_20160922	9/22/2016	FD	**0.0020 J**	0.0050 U	**1.18**	**572**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-29S	MWR-29S_20161222	12/22/2016	N	0.00500 U	0.00500 U	**3.75**	**398**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-29S	DUP01_20161222	12/22/2016	FD	0.00500 U	0.00500 U	**3.68**	**400**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-29S	MWR-29S_20170316	3/16/2017	N	0.00500 U	0.00500 U	**2.07**	**411**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW-35S_20140731	7/31/2014	N	**0.0228**	**0.0058**	**0.65**	**101**	**10.0**	**43700**	**11100**	**9800**	**24800**	**115**	**155**	**300**
	MW-35S	MW-35S_20141024	10/24/2014	N	**0.0226**	0.0050 U	**0.56**	**97.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW-35S_20150123	1/23/2015	N	**--**	**0.0051 J**	**0.52**	**96.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW-135S-032415	3/24/2015	N	**0.027 J**	0.060 U	**0.58**	**98**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW-35S-032415	3/24/2015	N	0.060 U	0.060 U	**0.59**	**98**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW-35S_20150415	4/15/2015	N	**0.0229**	**0.0015 J**	**0.47**	**90.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW-35S-GW	9/24/2015	N	**0.029 J**	0.060 U	**0.59**	**95**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW35S_20160315	3/15/2016	N	**0.0243**	0.0050 U	**0.63**	**92.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW-35S_20160922	9/22/2016	N	**0.0192**	**0.0027 J**	**0.55**	**104**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-35S	MW-35S_20170314	3/14/2017	N	**0.0212**	0.00500 U	**0.532**	**96.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-36S	MW-36S_20140731	7/31/2014	N	**0.0017 J**	**0.0008 J**	**0.17 J**	**84.4**	**2.26**	**44400**	**9990**	**12100**	**18100**	**108**	**152**	**265**
	MW-36S	MW-36S_20141024	10/24/2014	N	**0.0022 J**	0.0050 U	**0.19 J**	**71.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-36S	MW-36S_20150123	1/23/2015	N	**--**	0.0050 U	**0.16 J**	**65.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-36S	MW-36S-032415	3/24/2015	N	0.060 U	0.060 U	**0.2**	**89**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-36S	MW-36S_20150415	4/15/2015	N	**0.0026 J**	0.005 U	**0.14 J**	**77.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-36S	MW-36S-GW	9/24/2015	N	0.060 U	0.060 U	**0.16 J**	**67**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-36S	MW36S_20160315	3/15/2016	N	0.0047 U	0.0050 U	**0.25**	**84.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-36S	MW-36S_20160922	9/22/2016	N	0.0047 U	0.0050 U	**0.14 J**	**70.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-36S	MW-36S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**0.180**	**88.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	MW-37S_20140731	7/31/2014	N	**0.0446**	**0.0038 J**	**4.25**	**24.4**	**3.78**	**45000**	**22600**	**2510**	**45600**	**255**	**206**	**340**
	MW-37S	MW-37S_20141024	10/24/2014	N	**0.0349 J**	**0.0016 J**	**4.3**	**19.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	DUP05_20141024	10/24/2014	FD	**0.0393 J**	**0.0023 J**	**4.6**	**20.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	MW-37S_20150123	1/23/2015	N	**0.0439**	**0.0015 J**	**4.90**	**23.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	MW-37S-032515	3/25/2015	N	**0.051 J**	0.060 U	**3.5**	**22**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	MW-37S_20150415	4/15/2015	N	**0.0855**	**0.0041 J**	**4.1**	**22.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	DUP02_20150415	4/15/2015	FD	**0.0770**	**0.0044 J**	**4.3**	**23.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	MW-37S-GW	9/24/2015	N	**0.035 J**	0.060 U	**3.9**	**22**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	MW37S_20160315	3/15/2016	N	**0.0204 J**	**0.0018 J**	**4.54**	**22.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	DUP3_20160315	3/15/2016	FD	**0.0505 J**	**0.0011 J**	**4.52**	**22.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	MW-37S_20160920	9/20/2016	N	**0.0343**	0.0050 U	**3.88**	**23.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	MW-37S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**3.55**	**6.31**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-37S	DUP01_20170314	3/14/2017	FD	0.00500 U	0.00500 U	**3.59**	**6.21**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-38S	MW-38S_20140729	7/29/2014	N	**0.582**	**0.0327**	**3.33**	**48.8**	**5.52**	**35500**	**10400**	**11800**	**64300**	**210**	**131**	**312**
	MW-38S	MW-38S_20141021	10/21/2014	N	**0.920**	**0.043**	**2.72**	**58.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-38S	DUP02_20141021	10/21/2014	FD	**0.860**	**0.051**	**2.71**	**58.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-38S	MW-38S_20150121	1/21/2015	N	**0.0320**	**0.0101**	**5.3**	**20.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-38S	MW-38S-032415	3/24/2015	N	**0.48**	**0.062**	**3.9**	**37**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-38S	MW-38S_20150416	4/16/2015	N	**0.643**	**0.0417**	**3.6**	**40.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-38S	MW38S-20160323	3/23/2016	N	**0.250**	**0.0168**	**4.13**	**20.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-38S	MW-38S_20170316	3/16/2017	N	**0.130**	**0.00530**	**4.73**	**16.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-39S	MW39S-20140724	7/24/2014	N	**0.0083**	0.010 U	**0.62**	**8.60**	**4.44**	**8770**	**2220**	**5380**	**33400**	**103**	**31.0**	**121**
	MW-39S	MW-39S_20141020	10/20/2014	N	**0.0069**	**0.0009 J**	**0.56**	**7.74**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-39S	MW-39S_20150121	1/21/2015	N	**0.0106**	**0.0037 J**	**0.54**	**7.61**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-39S	MW-39S-032415	3/24/2015	N	0.060 U	0.060 U	**0.63**	**7.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-39S	MW-39S_20150416	4/16/2015	N	**0.0096 J**	**0.0023 J**	**0.56**	**7.51**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-39S	DUP03_20150416	4/16/2015	FD	**0.0118 J**	**0.0012 J**	**0.58**	**7.56**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-39S	MW39S_20160317	3/17/2016	N	**0.0089**	**0.0044 J**	**0.57**	**8.92**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-39S	MW-39S_20170321	3/21/2017	N	**0.0100**	0.00500 U	**0.508**	**8.28**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-40S	MW40S-20140724	7/24/2014	N	**0.149**	**0.018**	**0.58**	**9.57**	**2.71**	**12000**	**3230**	**7920**	**30000**	**103**	**43.4**	**154**
	MW-40S	MW-40S_20141020	10/20/2014	N	**0.144**	**0.0194**	**0.56**	**9.42**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-40S	MW-40S_20150121	1/21/2015	N	**0.167**	**0.0033 J**	**0.60**	**8.55**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-40S	MW-40S-032415	3/24/2015	N	**0.16**	**0.010 J**	**0.57**	**8.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-40S	MW-40S_20150416	4/16/2015	N	**0.168**	**0.0321**	**0.53**	**8.11**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-40S	MW40S_20160317	3/17/2016	N	**0.192**	**0.0191**	**0.51**	**8.19**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-40S	MW-40S_20170321	3/21/2017	N	**0.180**	**0.0142**	**0.537**	**8.51**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-41S	MW41S-20170725	7/25/2014	N	**0.378**	**0.030**	**0.38**	**71.7**	**14.2**	**30100**	**8850**	**10600**	**30500**	**93.3**	**112**	**246**
	MW-41S	MW-41S_20141020	10/20/2014	N	**0.395**	**0.024**	**0.36**	**71.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-41S	MW-41S_20150121	1/21/2015	N	**0.270**	**0.0535**	**0.40**	**67.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-41S	MW-141S-032515	3/25/2015	N	**0.38**	**0.032 J**	**0.37**	**66**	NR	NR	NR	NR	NR	NR	NR	NR

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Former Martin Marietta Reduction Facility
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The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate	Chloride	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Total (AS CaCO3)	Hardness (AS CaCO3)	Total Dissolved Solids
				Method	E335.4	SM4500-CN-E	E300			SW6010C				SM2320B	SM2340B	SM2540C
				ACLs for Perched, S, and S_L Zones	-	0.22	9.7	3,020	-	-	-	-	-	-	-	-
				MCLs or SMCLs for A and B Aquifers	-	0.20	4.0	250	-	-	-	-	-	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
S	MW-41S	MW-41S-032515	3/25/2015	N	**0.36**	**0.035 J**	**0.37**	**66**	NR	NR	NR	NR	NR	NR	NR	NR
(Continued)	MW-41S	MW41-S_20150416	4/16/2015	N	**0.378**	**0.0625**	**0.30**	**65.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-41S	MW41S_20160317	3/17/2016	N	**0.508**	**0.0565 J**	**0.41**	**68.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-41S	DUP4_20160317	3/17/2016	FD	**0.388**	**0.106 J**	**0.42**	**68.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-41S	MW-41S_20170321	3/21/2017	N	**0.442**	**0.00810**	**0.324**	**83.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-42S	MW42S-20140725	7/25/2014	N	**0.157**	**0.021**	**0.77**	**14.7**	**5.28**	**13100**	**3320**	**7080**	**39200**	**116**	**46.2**	**148**
	MW-42S	MW-42S_20141025	10/25/2014	N	**0.108**	**0.0203**	**0.84**	**9.99**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-42S	MW-42S_20150125	1/25/2015	N	**0.174**	**--**	**0.88**	**5.87**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-42S	MW-42S-032615	3/26/2015	N	**0.18**	**0.024 J**	**0.86**	**4.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-42S	MW-42S_20150418	4/18/2015	N	**0.192**	**0.0164**	**0.76**	**4.70**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-42S	MW42S_20160318	3/18/2016	N	**0.340**	**0.0640**	**0.86**	**5.38**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-42S	MW-42S_20170315	3/15/2017	N	**0.424**	**0.0327**	**0.868**	**6.39**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20140808	8/8/2014	N	**0.0850**	**0.0113**	**0.79**	**7.32**	**4.56**	**11700**	**2920**	**7860**	**39300**	**123**	**41.2**	**162**
	MW13-01S	MW13-01S_20140808S	8/8/2014	S	**0.084**	**0.015**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20141025	10/25/2014	N	**0.0500**	**0.0053**	**0.75**	**8.77**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20150125	1/25/2015	N	**0.123**	**--**	**0.81**	**9.43**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20150414	4/14/2015	N	**0.140**	**0.0129 J**	**0.78**	**10.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20151209	12/9/2015	N	**0.212**	**0.0520**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20160318	3/18/2016	N	**0.303**	**0.0367**	**0.76**	**13.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20160621	6/21/2016	N	**0.214**	**0.0147**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20160919	9/19/2016	N	**0.281**	**0.0559**	**0.68**	**15.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-01S	MW13-01S_20170315	3/15/2017	N	**0.444**	**0.0346**	**0.691**	**20.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	MW13-02S_20140801	8/1/2014	N	**0.0400**	**0.0042 J**	**0.79**	**13.6**	**18.5**	**16000**	**4390**	**8580**	**44000**	**122**	**57.9**	**184**
	MW13-02S	MW13-02S_20141025	10/25/2014	N	**0.0540 J**	**0.0050 J**	**0.68**	**15.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	DUP06_20141025	10/25/2014	FD	**0.0173 J**	**0.0092 J**	**0.74**	**15.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	MW13-02S_20150125	1/25/2015	N	**--**	**--**	**0.74**	**13.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	MW13-02S_20150418	4/18/2015	N	**0.0481**	**0.0069**	**0.54**	**13.7 J**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	MW13-02S_20151209	12/9/2015	N	**0.0472**	**0.0113**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	MW13-02S_20160316	3/16/2016	N	**0.0418**	**0.0134**	**0.60**	**13.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	MW13-02S_20160622	6/22/2016	N	**0.0359**	**0.0030 J**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	MW13-02S_20160920	9/20/2016	N	**0.0421**	**0.04**	**0.59**	**14.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02S	MW13-02S_20170316	3/16/2017	N	**0.0523**	**0.00560**	**0.602**	**13.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06S	MW13-06S_20140723	7/23/2014	N	**2.00**	**0.0645**	**1.13**	**131**	**6.41**	**52200**	**13200**	**14900**	**34400**	**126**	**185**	**350**
	MW13-06S	MW13-06S_20141026	10/26/2014	N	**1.59 J**	**0.137**	**1.24**	**164**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06S	DUP07_20141026	10/26/2014	FD	**1.22 J**	**0.165**	**1.35**	**178**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06S	MW13-06S_20150124	1/24/2015	N	**0.640**	**0.172**	**1.03**	**142**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06S	MW13-06S_20150417	4/17/2015	N	**1.33**	**0.159**	**1.12**	**177**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06S	MW13-06S_20160315	3/15/2016	N	**2.28**	**0.0960**	**1.97**	**271**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06S	MW13-06S_20160921	9/21/2016	N	**1.89**	**0.762**	**1.69**	**268**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06S	MW13-06S_20170315	3/15/2017	N	**1.94**	**0.0404**	**1.64**	**258**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08S	MW13-08S_20140730	7/30/2014	N	**0.364**	**0.140**	**0.5 J**	**221**	**37.3**	**58000**	**14700**	**13300**	**76100**	**125**	**205**	**534**
	MW13-08S	MW13-08S_20141025	10/25/2014	N	**0.298**	**0.0319**	**0.37**	**259**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08S	MW13-08S_20150125	1/25/2015	N	**0.400 J**	**--**	**0.30**	**258**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08S	MW13-08S_20150418	4/18/2015	N	**0.590**	**0.042**	**0.29**	**238**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08S	MW13-08S_20151209	12/9/2015	N	**0.725**	**0.0645**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08S	MW13-08S_20160316	3/16/2016	N	**0.820**	**0.0930**	**0.26**	**281**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08S	MW13-08S_20160622	6/22/2016	N	**0.555**	**0.0318**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08S	MW13-08S_20160921	9/21/2016	N	**0.559**	**0.118**	**0.3**	**283**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-08S	MW13-08S_20170316	3/16/2017	N	**0.784**	**0.0447**	**0.227**	**355**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	MW13-11S_20140723	7/23/2014	N	0.0047 U	0.0050 U	**0.57**	**46.8**	**18.8**	**43800**	**12900**	**11100**	**47800**	**210**	**163**	**340**
	MW13-11S	MW13-11S_20141022	10/22/2014	N	0.0047 U	0.0050 U	**0.50**	**45.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	MW13-11S_20150124	1/24/2015	N	**0.0860**	**--**	**0.51**	**44.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	MW13-11S_20150417	4/17/2015	N	0.0047 U	0.0050 U	**0.40**	**40.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	MW13-11S_20151210	12/10/2015	N	0.0047 UJ	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	MW13-11S_20160316	3/16/2016	N	0.0047 U	0.0050 U	**0.52**	**45.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	MW13-11S_20160621	6/21/2016	N	0.0047 U	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	DUP01_20160621	6/21/2016	FD	0.0047 U	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	MW13-11S_20160921	9/21/2016	N	0.0047 U	0.0050 U	**0.48**	**45.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-11S	MW13-11S_20170315	3/15/2017	N	0.00500 U	0.00500 U	**0.485**	**46.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13S	MW13-13S_20140723	7/23/2014	N	0.0047 U	0.0050 U	**0.61**	**8.93**	**87.2**	**15900**	**3010**	**9040**	**58800**	**67.0**	**52.0**	**257**
	MW13-13S	DUP01_20140723	7/23/2014	FD	0.0047 U	0.0050 U	**0.61**	**8.07**	**83.3**	**16300**	**3060**	**9370**	**60600**	**66.7**	**53.3**	**229**
	MW13-13S	MW13-13S_20140730	7/30/2014	N	0.0047 U	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13S	MW13-13S_20140730S	7/30/2014	S	0.0050 U	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13S	MW13-13S_20141025	10/25/2014	N	0.0047 U	0.0050 U	**0.52**	**29.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13S	MW13-13S_20150123	1/23/2015	N	**0.0017 J**	0.0050 UJ	**0.48**	**29.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13S	MW13-13S_20150417	4/17/2015	N	0.0047 U	0.0050 U	**0.37**	**22.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13S	MW13-13S_20160323	3/23/2016	N	**0.0840**	0.0050 U	**0.47**	**37.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13S	MW13-13S_20160920	9/20/2016	N	0.0047 U	0.0050 U	**0.49**	**41.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-13S	MW13-13S_20170314	3/14/2017	N	0.00500 U	0.00500 U	**0.537**	**43.5**	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 7
Groundwater Analytical Results for Non-PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate	Chloride	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Total (AS CaCO3)	Hardness (AS CaCO3)	Total Dissolved Solids
				Method	E335.4	SM4500-CN-E	E300			SW6010C				SM2320B	SM2340B	SM2540C
				ACLs for Perched, S, and S_L Zones	-	0.22	9.7	3,020	-	-	-	-	-	-	-	-
				MCLs or SMCLs for A and B Aquifers	-	0.20	4.0	250	-	-	-	-	-	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
S (Continued)	MW13-16S	MW13-16S-20140728	7/28/2014	N	0.0047 U	0.010 U	**0.55**	**38.3**	**16.8**	**35300**	**10700**	**9540**	**45300**	**176**	**132**	**268**
	MW13-16S	DUP02-20140728	7/28/2014	FD	0.0047 U	0.010 U	**0.56**	**37.7**	**16.7**	**35400**	**10800**	**9720**	**45600**	**177**	**133**	**280**
	MW13-16S	MW13-16S_20141022	10/22/2014	N	0.0047 U	0.0050 U	**0.53**	**38.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	MW13-16S_20150124	1/24/2015	N	**0.0017 B**	--	**0.48**	**42.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	MW13-16S_20150417	4/17/2015	N	0.0047 U	0.0050 U	**0.35**	**40.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	DUP05_20150417	4/17/2015	FD	0.0047 U	0.0050 U	**0.35**	**43.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	MW13-16S_20151209	12/9/2015	N	0.0047 UJ	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	DUP02_20151209	12/9/2015	FD	0.0047 U	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	MW13-16S_20160316	3/16/2016	N	0.0047 U	0.0050 U	**0.53**	**41.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	MW13-16S_20160622	6/22/2016	N	0.0047 U	0.0050 U	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	MW13-16S_20160921	9/21/2016	N	0.0047 U	0.0050 U	**0.41**	**54**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-16S	MW13-16S_20170315	3/15/2017	N	0.00500 U	0.00500 U	**0.426**	**69.7**	NR	NR	NR	NR	NR	NR	NR	NR
S_L	MW-1	MW-1_20140805	8/5/2014	N	0.0047 U	0.0050 U	**0.58**	**51.2**	**19.2**	**43200**	**17900**	**11300**	**43800**	**216**	**182**	**352**
	MW-1	MW-1_20141023	10/23/2014	N	0.0047 U	0.0050 U	**0.58**	**52.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-1	DUP04_20141023	10/23/2014	FD	0.0047 U	0.0050 U	**0.57**	**51.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-1	MW-1_20150122	1/22/2015	N	0.0047 U	0.0050 UJ	**0.57**	**46.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-1	MW-1_20150415	4/15/2015	N	0.0047 U	**0.001 J**	**0.55**	**47.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-2	MW-2_20140805	8/5/2014	N	0.0047 U	0.0050 U	**0.4 J**	**75.9**	**30.4**	**75400**	**28700**	**12500**	**61300**	**350**	**306**	**524**
	MW-2	MW-2_20141023	10/23/2014	N	0.0047 U	0.0050 U	**0.47**	**72.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-2	MW-2_20150122	1/22/2015	N	**0.0014 J**	0.0050 UJ	**0.44**	**69.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-2	MW-2_20150415	4/15/2015	N	**0.0011 J**	0.0050 U	**0.31**	**61.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3	MW-3_20140804	8/4/2014	N	**0.0037 J**	**0.0013 J**	**1.6**	**630**	**49.1**	**144000**	**63700**	**25200**	**179000**	**422**	**622**	**1540**
	MW-3	MW-3_20141023	10/23/2014	N	**0.0037 J**	**0.0012 J**	**1.3**	**567**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3	MW-3_20150122	1/22/2015	N	**0.0031 J**	0.0050 UJ	**2.13**	**298**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-3	MW-3_20150415	4/15/2015	N	**0.0031 J**	0.0050 U	**1.6**	**384**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-4U	MW-4U_20140805	8/5/2014	N	**0.0025 J**	0.0050 U	1.0 U	**727**	**17.7**	**223000**	**91200**	**86500**	**76700**	**398**	**934**	**1800**
	MW-4U	MW-4U_20141023	10/23/2014	N	0.0047 U	0.0050 U	1.0 U	**724**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-4U	MW-4U_20150122	1/22/2015	N	**0.0017 J**	0.0050 UJ	**0.26 J**	**564**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-4U	MW-4U_20150414	4/14/2015	N	**0.0012 J**	**0.0020 J**	1.0 U	**762**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-4L	MW-4L_20140805	8/5/2014	N	**0.0013 J**	0.0050 U	**0.9 J**	**952**	**84.4**	**212000**	**117000**	**63600**	**234000**	**531**	**1010**	**1980**
	MW-4L	MW-4L_20141023	10/23/2014	N	0.0047 U	0.0050 U	**0.7 J**	**1060**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-4L	MW-4L_20150122	1/22/2015	N	**0.0026 J**	**0.0019 J**	**0.88**	**779**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-4L	MW-4L_20150414	4/14/2015	N	**0.0016 J**	0.0050 U	**0.7 J**	**804**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-4L	DUP01_20150414	4/14/2015	FD	**0.0015 J**	**0.0014 J**	**0.6 J**	**809**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5	MW-5_20140805	8/5/2014	N	0.0047 U	0.0050 U	**0.53**	**44.5**	**20.2**	**45000**	**18100**	**11500**	**43000**	**210**	**187**	**271**
	MW-5	MW-5_20141023	10/23/2014	N	0.0047 U	0.0050 U	**0.55**	**43.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5	MW-5_20150122	1/22/2015	N	0.0047 U	0.0050 UJ	**0.45**	**39.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5	MW-5_20150415	4/15/2015	N	0.0047 U	0.0050 U	**0.41**	**38.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5	MW5_20160324	3/24/2016	N	0.0047 U	0.0050 U	**0.47**	**38.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5	MW-5_20160922	9/22/2016	N	0.0047 U	0.0050 U	**0.44**	**42.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5	MW-5_20170316	3/16/2017	N	0.00500 U	0.00500 U	**0.485**	**42.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-5	DUP04_20170316	3/16/2017	FD	0.00500 U	0.00500 U	**0.492**	**41.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-14SL	MW13-14SL_20140730	7/30/2014	N	**0.0515**	**0.0113**	**15.1**	**452**	**4.2**	**61200**	**21100**	**4490**	**202000**	**185**	**240**	**918**
	MW13-14SL	MW13-14SL_20141027	10/27/2014	N	**0.0515**	**0.0051**	**9.8**	**669**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-14SL	MW13-14SL_20150122	1/22/2015	N	**0.0278**	**0.0013 J**	**19.2**	**143**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-14SL	MW13-14SL_20150419	4/19/2015	N	**0.0620**	**0.0067**	**14.8**	**310**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-14SL	MW13-14SL_20160324	3/24/2016	N	**0.0870**	**0.0088**	**33.2**	**236**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-14SL	MW13-14SL_20160922	9/22/2016	N	**0.0676**	**0.0091**	**19.1**	**386**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-14SL	MW13-14SL_20170316	3/16/2017	N	**0.0972**	**0.0135**	**40.5**	**244**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-15SL	MW13-15SL_20140730	7/30/2014	N	**0.0023 J**	**0.0011 J**	**0.9 J**	**438**	**75.1**	**82300**	**36500**	**14800**	**155000**	**228**	**356**	**976**
	MW13-15SL	DUP04_20140730	7/30/2014	FD	**0.0022 J**	**0.0012 J**	**0.9 J**	**430**	**75.6**	**81300**	**37700**	**15400**	**164000**	**232**	**358**	**968**
	MW13-15SL	MW13-15SL_20141027	10/27/2014	N	**0.0021 J**	0.0050 U	**0.58**	**316**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-15SL	MW13-15SL_20150122	1/22/2015	N	**0.0088**	0.0050 UJ	**4.54**	**1020**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-15SL	MW13-15SL_20150419	4/19/2015	N	**0.0073**	0.0050 U	**5.4**	**771**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-15SL	MW13-15SL_20160324	3/24/2016	N	**0.0210**	**0.0013 J**	**6.3**	**1150**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-15SL	DUP5_20160324	3/24/2016	FD	**0.0229**	**0.0015 J**	**5.8**	**1150**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-15SL	MW13-15SL_20160922	9/22/2016	N	**0.0052**	0.0050 U	**2.16**	**1090**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-15SL	MW13-15SL_20170316	3/16/2017	N	**0.0164**	0.00500 U	**3.65**	**1240**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-15SL	DUP05_20170316	3/16/2017	FD	**0.0159**	0.00500 U	**3.63**	**1250**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-17SL	MW15-17_20151016	10/16/2015	N	**0.234**	**0.0605 J**	**0.41**	**166**	**7.11**	**80200**	**23800**	**10900**	**16800**	**147**	**298**	**450**
	MW15-17SL	DUP01_20151016	10/16/2015	FD	**0.228**	**0.0474 J**	**0.42**	**165**	**7.20**	**80400**	**24000**	**11100**	**17400**	**147**	**299**	**456**
	MW15-17SL	MW15-17SL_20151208	12/8/2015	N	**0.268**	**0.0273 J**	**0.47**	**167**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-17SL	DUP-1_20151208	12/8/2015	FD	**0.251**	**0.0196 J**	**0.48**	**174**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-17SL	MW15-17SL_20160324	3/24/2016	N	**0.214**	**0.0146**	**0.48**	**138**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-17SL	MW15-17SL_20160622	6/22/2016	N	**0.19**	**0.0373**	**0.61**	**166**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-17SL	DUP02_20160622	6/22/2016	FD	**0.18**	**0.0317**	**0.63**	**167**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-17SL	MW15-17SL_20160921	9/21/2016	N	**0.17**	**0.0133**	5.0 UJ	**155**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-17SL	MW15-17SL_20161221	12/21/2016	N	**0.206**	**0.0113**	1.00 U	**160**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-17SL	MW15-17SL_20170316	3/16/2017	N	**0.224**	**0.0115**	**0.644**	**166**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-19SL	MW15-19SL_20151208	12/8/2015	N	**0.0013 J**	0.0050 U	**2.95**	**155**	**17.9**	**44400**	**15700**	**12100**	**64400**	**115**	**176**	**444**
	MW15-19SL	MW15-19SL_20160324	3/24/2016	N	0.0047 U	0.0050 U	**5.4**	**82.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-19SL	MW15-19SL_20160622	6/22/2016	N	0.0047 U	0.0050 U	**4.03**	**97.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-19SL	MW15-19SL_20160921	9/21/2016	N	0.0047 U	0.0050 U	**4.4**	**94.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-19SL	MW15-19SL_20161222	12/22/2016	N	0.00500 U	0.00500 U	**5.06**	**104**	NR	NR	NR	NR	NR	NR	NR	NR
	MW15-19SL	MW15-19SL_20170316	3/16/2017	N	0.00500 U	0.00500 U	**4.60**	**102**	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 7
Groundwater Analytical Results for Non-PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate	Chloride	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Total (AS CaCO3)	Hardness (AS CaCO3)	Total Dissolved Solids
				Method	E335.4	SM4500-CN-E	E300			SW6010C				SM2320B	SM2340B	SM2540C
				ACLs for Perched, S, and S_L Zones	-	0.22	9.7	3,020	-	-	-	-	-	-	-	-
				MCLs or SMCLs for A and B Aquifers	-	0.20	4.0	250	-	-	-	-	-	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
A	MWR-2A	MWR-2A_20140729	7/29/2014	N	**0.0053**	**0.001 J**	**0.19 J**	**13.4**	**2.66**	**17800**	**4730**	**4330**	**35200**	**110**	**63.8**	**150**
	MWR-2A	MWR-2A_20141022	10/22/2014	N	**0.0175**	**0.0010 J**	**0.25**	**15.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-2A	MWR-2A_20150128	1/28/2015	N	**0.0444**	**0.0036 J**	**0.29 B**	**17.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-2A	MWR-2A_20150417	4/17/2015	N	**0.0459**	**0.0098 J**	**0.38**	**17.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-2A	MWR-2A_20160317	3/17/2016	N	**0.0358**	0.0050 U	**0.25**	**10.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-2A	MWR-2A_20170320	3/20/2017	N	**0.0294**	0.00500 U	**0.438**	**17.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-2A	DUP06_20170320	3/20/2017	FD	**0.0289**	0.00500 U	**0.401**	**17.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-6AA	MW6AA-20140725	7/25/2014	N	**0.500**	**0.122**	**0.66**	**37.9**	**5.41**	**18200**	**5360**	**8030**	**34600**	**106**	**67.4**	**199**
	MW-6AA	MW-6AA_20141021	10/21/2014	N	**0.520**	**0.0306**	**0.63**	**37.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-6AA	MW-6AA_20150121	1/21/2015	N	**0.224 J**	**0.0700**	**0.68**	**35.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-6AA	MW-6AA-032315	3/23/2015	N	**0.46**	**0.032 J**	**0.68**	**36**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-6AA	MW-6AA_20150416	4/16/2015	N	**0.465**	**0.0620 J**	**0.59 J**	**33.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-6AA	DUP04_20150416	4/16/2015	FD	**0.513**	**0.0078 J**	**1.1 J**	**33.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-6AA	MW6AA-20160323	3/23/2016	N	**0.490**	**0.0368**	**0.61**	**34.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-6AA	DUP6_20160323	3/23/2016	FD	**0.488**	**0.0545**	**0.60**	**34.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-6AA	MW-6AA_20170316	3/16/2017	N	**0.522**	**0.0265**	**0.735**	**38.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-7A	MWR-7A-032515	3/25/2015	N	**0.29**	**0.015 J**	**0.79**	**19**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-7A	MWR-7A_20160317	3/17/2016	N	**0.360**	**0.0387**	**1.00**	**19.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-7A	MWR-7A_20170321	3/21/2017	N	**0.323**	**0.0173**	**0.773**	**20.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-12A	MW12A-20140724	7/24/2014	N	**0.0520**	**0.010**	**0.69**	**38.8**	**2.86**	**23000**	**9730**	**7530**	**31000**	**132**	**97.5**	**231**
	MW-12A	MW-12A_20141020	10/20/2014	N	**0.0545**	**0.0045 J**	**0.65**	**29.3**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-12A	DUP01_20141020	10/20/2014	FD	**0.0605**	**0.0042 J**	**0.64**	**27.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-12A	MW-12A_20150121	1/21/2015	N	**0.0630**	**0.0144**	**0.69**	**31.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-12A	MW-12A-032415	3/24/2015	N	**0.059 J**	0.060 U	**0.68**	**37**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-12A	MW-12A_20150416	4/16/2015	N	**0.0605**	**0.0072**	**0.57**	**35.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-12A	MW12A_20160317	3/17/2016	N	**0.0482**	**0.0053**	**0.60**	**83.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-12A	MW-12A_20170321	3/21/2017	N	**0.0542**	**0.00550**	**0.626**	**55.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-13A	MWR-13A-20140724	7/24/2014	N	**0.0062**	**0.001 J**	**0.55**	**7.83**	**2.07**	**13500**	**4470**	**7310**	**26900**	**109**	**52.1**	**152**
	MW-13A	MWR-13A_20141020	10/20/2014	N	**0.0063**	0.0050 U	**0.44**	**18.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-13A	MWR-13A_20150121	1/21/2015	N	**0.0059**	**0.0029 J**	**0.54**	**10.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-13A	MWR-13A-032615	3/26/2015	N	0.060 U	0.060 U	**0.54**	**8.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-13A	MWR-13A_20150416	4/16/2015	N	**0.0060**	**0.0011 J**	**0.50**	**8.38**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-13A	MWR-13A_20160317	3/17/2016	N	**0.0107 J**	0.0050 U	**0.79**	**12.7**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-13A	MWR-13A_20170321	3/21/2017	N	**0.00710**	0.00500 U	**0.496**	**13.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02A	MW13-02A_20140805	8/5/2014	N	**0.0011 J**	0.0050 U	**0.88**	**8.56**	**9.13**	**10800**	**3710**	**11900**	**46200**	**130**	**42.2**	**189**
	MW13-02A	MW13-02A_20141025	10/25/2014	N	**0.0146**	**0.0021 J**	**0.80**	**6.97**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02A	MW13-02A_20150125	1/25/2015	N	**0.0153**	**--**	**1.1**	**5.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02A	MW13-02A_20150418	4/18/2015	N	**0.0111**	**0.0009 J**	**0.86**	**5.17**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02A	MW13-02A_20151209	12/9/2015	N	**0.0545**	**0.0235**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02A	MW13-02A_20160316	3/16/2016	N	**0.0315**	**0.0103**	**0.94**	**17.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02A	MW13-02A_20160622	6/22/2016	N	**0.0256 J**	**0.0022 J**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02A	MW13-02A_20160920	9/20/2016	N	**0.0262**	**0.0156**	**0.79**	**12.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02A	MW13-02A_20170320	3/20/2017	N	**0.0289**	0.00500 U	**0.934**	**12.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	MW13-06A-20140728	7/28/2014	N	**1.20**	**0.080**	**0.55**	**214**	**33.4**	**65400**	**20000**	**37700**	**98600**	**215**	**246**	**496**
	MW13-06A	MW13-06A_20141026	10/26/2014	N	**0.840**	**0.0359**	**1.2**	**195**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	MW13-06A_20150124	1/24/2015	N	**0.435 J**	**--**	**0.51**	**148**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	DUP05_20150124	1/24/2015	FD	**0.353 J**	**--**	**0.55**	**151**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	MW13-06A_20150417	4/17/2015	N	**0.790**	**0.140**	**0.54**	**101**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	MW13-06A_20151209	12/9/2015	N	**0.915 J**	**0.0525 J**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	MW13-06A_20160323	3/23/2016	N	**0.785**	**0.0496**	**0.64**	**69.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	MW13-06A_20160622	6/22/2016	N	**0.592**	**0.025**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	MW13-06A_20160921	9/21/2016	N	**0.803**	**0.164**	**0.62**	**72.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	MW13-06A_20170315	3/15/2017	N	**0.795**	**0.0109**	**0.822**	**60.5**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-06A	DUP03_20170315	3/15/2017	FD	**0.731**	**0.0149**	**0.570**	**60.7**	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 7
Groundwater Analytical Results for Non-PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Total Cyanide	Cyanide, WAD	Fluoride (F-, Anion)	Sulfate	Chloride	Calcium	Magnesium	Potassium	Sodium	Alkalinity, Total (AS CaCO3)	Hardness (AS CaCO3)	Total Dissolved Solids
				Method	E335.4	SM4500-CN-E	E300			SW6010C				SM2320B	SM2340B	SM2540C
				ACLs for Perched, S, and S_L Zones	-	0.22	9.7	3,020	-	-	-	-	-	-	-	-
				MCLs or SMCLs for A and B Aquifers	-	0.20	4.0	250	-	-	-	-	-	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	(mg/L)	(mg/L)
B	MWR-2B	MWR-2B_20140731	7/31/2014	N	**0.477 J**	**0.0550 J**	**0.72**	**85.4**	**5.43**	**23400**	**4690**	**9490**	**48000**	**96.7**	**77.6**	**277**
	MWR-2B	DUP05_20140731	7/30/2014	FD	**0.628 J**	**0.0398 J**	**0.72**	**87.3**	**5.55**	**23400**	**4700**	**9190**	**46700**	**95.1**	**79.0**	**284**
	MWR-2B	MWR-2B_20141022	10/22/2014	N	**0.629**	**0.0150**	**0.67**	**89.9**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-2B	MWR-2B_20150128	1/28/2015	N	**0.265**	**0.0660**	**0.57**	**83.2**	NR	NR	NR	NR	NR	NR	NR	NR
	MWR-2B	MWR-2B_20150416	4/16/2015	N	**0.625**	**0.0279**	**0.53**	**83.0**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-27B	MW27B-20140729	7/29/2014	N	**0.0176**	**0.006 J**	**0.48**	**17.3**	**2.85**	**18600**	**9390**	**5620**	**13700**	**95.7**	**85.1**	**177**
	MW-27B	MW-27B_20141026	10/26/2014	N	**0.0189**	**0.0010 J**	**0.44**	**17.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-27B	MW-27B_20150124	1/24/2015	N	**0.0161**	**--**	**0.42**	**16.4**	NR	NR	NR	NR	NR	NR	NR	NR
	MW-27B	MW27B_20150417	4/17/2015	N	0.0047 U	**0.0059**	**0.32**	**13.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02B	MW13-02B_20140805	8/5/2014	N	**0.0160**	**0.0058**	**0.43 J**	**266**	**20.2**	**238000**	**122**	**414000**	**260000**	**1290**	**594**	**2050**
	MW13-02B	MW13-02B_20141025	10/25/2014	N	**0.0238**	**0.0025 J**	**0.38**	**32.1**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02B	MW13-02B_20150125	1/25/2015	N	**0.0382**	**--**	**0.3 J**	**19.8**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02B	DUP07_20150125	1/25/2015	FD	**0.0367**	**--**	**0.3 J**	**20.6**	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02B	MW13-02B_20150418	4/18/2015	N	**0.0259**	**0.0081**	**0.23**	0.20 U	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02B	MW13-02B_20151209	12/9/2015	N	**0.0347**	**0.0032 J**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02B	MW13-02B_20160316	3/16/2016	N	**0.0219**	**0.0054**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02B	MW13-02B_20160622	6/22/2016	N	**0.0185**	**0.0064**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	MW13-02B	MW13-02B_20160920	9/20/2016	N	**0.0251**	**0.008**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Notes:
Bold indicates laboratory result detections
Grey shading indicates one or more regulatory criteria exceedance
Data reported to reporting limit
FD = field duplicate
mg/L = milligrams per liter
µg/L = micrograms per liter
N = normal sample
NR = not requested
S = split sample
WAD = weak acid dissociable
Total Alkalinity is reported as $CaCO_3$
ACL = Alternate Concentration Level
MCL or SMCL= United States Environmental Protection Agency (EPA) Safe Drinking Water Act Maximum Contaminant Level or secondary MCL

Qualifiers
B = blank contamination
J = estimated result
UJ = not detected at or above the stated level, which is an approximate value
U = not detected above indicated reporting limit

TABLE 8
Groundwater Analytical Results for PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
				Method	SW8270D-SIM						
				MCLs for All Monitoring Zones	-	0.2	--	--	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Perched	EAST DWT	EAST DWT_20141025	10/25/2014	N	**0.0045 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	EAST DWT	EAST DWT_20150120	1/20/2015	N	**0.0064 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	EAST DWT	EAST DWT_20150418	4/18/2015	N	**0.0036 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	WEST DWT	WEST DWT_20141025	10/25/2014	N	**0.042**	**0.021**	**0.029**	**0.0052 J**	**0.17**	**0.0062 J**	**0.012 J**
	WEST DWT	WEST DWT_20150120	1/20/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	WEST DWT	WEST DWT_20150418	4/18/2015	N	**0.024**	**0.0077 J**	**0.011 J**	**0.0033 J**	**0.085**	0.019 U	**0.0037 J**
	PZ-01	PZ-01_20150121	1/21/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	PZ-02	PZ-02_20150121	1/21/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	PZ-02	PZ-02_20150416	4/16/2015	N	**0.0037 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	PZ-03	PZ-3-20140725	7/25/2014	N	**0.0050 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	PZ-03	PZ-03_20141026	10/26/2014	N	**0.0055 J**	0.020 U	**0.0042 J**	0.020 U	**0.0051 J**	0.020 U	0.020 U
	PZ-03	PZ-03_20150121	1/21/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	PZ-03	PZ-03_20150416	4/16/2015	N	**0.0040 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	P-1	P-1_20140801	8/1/2014	N	**0.014 B**	**0.018 J**	**0.025**	**0.0093 J**	**0.017 J**	**0.0029 J**	**0.017 J**
	P-1	P-1_20141025	10/25/2014	N	**0.0088 J**	**0.0076 J**	**0.012 J**	**0.0030 J**	**0.0060 J**	0.020 U	**0.0070 J**
	P-1	P-1_20150120	1/20/2015	N	**0.011 B**	**0.013 J**	**0.015 J**	**0.0052 J**	**0.017 J**	0.019 U	**0.013 J**
	P-1	P-1_20150418	4/18/2015	N	**0.0068 B**	**0.0070 J**	**0.0091 J**	**0.0037 J**	**0.0067 J**	0.019 U	**0.0056 J**
	P-2	P-2_20150120	1/20/2015	N	**0.0068 B**	**0.0052 J**	**0.0051 J**	0.020 U	**0.0042 J**	0.020 U	**0.0051 J**
	P-2	P-2_20150418	4/18/2015	N	**0.0046 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	P-3	P-3_20141025	10/25/2014	N	**0.0051 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	P-3	P-3_20150120	1/20/2015	N	**0.0072 B**	**0.0065 J**	**0.0076 J**	0.020 U	**0.0050 J**	0.020 U	**0.0055 J**
	P-3	P-3_20150418	4/18/2015	N	**0.0032 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	P-5	P-5_20150120	1/20/2015	N	**0.0042 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	P-6	P-6_20150120	1/20/2015	N	**0.0069 B**	0.020 U	0.020 U	0.020 U	**0.0063 J**	0.020 U	**0.0047 J**
	P-6	P-6_20150418	4/18/2015	N	**0.0075 B**	**0.0055 J**	**0.0080 J**	**0.0047 J**	**0.0067 J**	**0.0063 J**	**0.0089 J**
	MW-5S	MW-5S_20140731	7/31/2014	N	**0.0074 J**	0.020 U	**0.0080 J**	**0.0037 J**	**0.0055 J**	0.020 U	**0.0043 J**
	MW-5S	MW-5S_20141024	10/24/2014	N	**0.0033 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-5S	MW-5S_20150123	1/23/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-5S	MW-5S_20150415	4/15/2015	N	**0.0059 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-01P	MW13-01P_20140729B	8/1/2014	N	**0.0053 B**	0.020 U	0.020 U	0.020 U	**0.0038 J**	0.020 U	0.020 U
	MW13-01P	MW13-01P_20141025	10/25/2014	N	**0.0036 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-01P	MW13-01P_20150125	1/25/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-01P	MW13-01P_20150418	4/18/2015	N	**0.0053 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-01P	DUP07_20150418	4/18/2015	FD	**0.0057 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.0027 J**
	MW13-02P	MW13-02P_20140801	8/1/2014	N	**0.0051 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02P	DUP06_20140801	8/1/2014	FD	**0.0050 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02P	MW13-02P_20141025	10/25/2014	N	**0.0050 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02P	MW13-02P_20150125	1/25/2015	N	**0.0064 J**	0.020 U	0.020 U	0.020 U	**0.0054 J**	0.020 U	0.020 U
	MW13-02P	MW13-02P_20150418	4/18/2015	N	**0.0047 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-02P	DUP06_20150418	4/18/2015	FD	**0.0030 B**	**0.030**	**0.015 J**	**0.0078 J**	0.020 U	0.020 U	0.020 U
	MW13-03P	MW13-03P_20140724	7/24/2014	N	**0.0045 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-03P	MW13-03P_20141020	10/20/2014	N	**0.0031 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-03P	MW13-03P_20150121	1/21/2015	N	**0.0040 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-03P	MW13-03P_20150416	4/16/2015	N	**0.0034 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-04P	MW13-04P-20140725	7/25/2014	N	**0.0047 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-04P	MW13-04P_20141020	10/20/2014	N	**0.0039 B**	0.020 U	0.020 U	0.020 U	**0.0035 J**	0.020 U	0.020 U

TABLE 8
Groundwater Analytical Results for PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
				Method	SW8270D-SIM						
				MCLs for All Monitoring Zones	-	0.2	--	--	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Perched (continued)	MW13-04P	MW13-04P_20150121	1/21/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-04P	MW13-04P_20150416	4/16/2015	N	**0.0043 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-05P	MW13-05P_20140729	7/29/2014	N	**0.0043 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-05P	MW13-05P_20141025	10/25/2014	N	**0.0050 J**	0.020 U	0.020 U	0.020 U	**0.0038 J**	0.020 U	0.020 U
	MW13-05P	MW13-05P_20150119	1/19/2015	N	**0.0037 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-05P	DUP01_20150119	1/19/2015	FD	**0.0038 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-05P	MW13-05P_20150414	4/14/2015	N	**0.0063 J**	0.020 U	0.020 U	0.020 U	**0.0047 J**	0.020 U	0.020 U
	MW13-06P	MW-13-06P_20140728	7/28/2014	N	**0.0050 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06P	MW13-06P_20141026	10/26/2014	N	**0.0072 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06P	MW13-06P_20150124	1/24/2015	N	0.025 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06P	MW13-06P_20150417	4/17/2015	N	**0.0095 B**	0.020 U	**0.0043 J**	0.020 U	**0.0067 J**	0.020 U	0.020 U
	MW13-07P	MW13-07P_20140723	7/23/2014	N	**0.071**	**0.16**	**0.33**	**0.085**	**0.12**	**0.016 J**	**0.10**
	MW13-07P	MW13-07P_20141022	10/22/2014	N	**0.075**	**0.086**	**0.17**	**0.055**	**0.081**	**0.012 J**	**0.051**
	MW13-07P	DUP03_20141022	10/22/2014	FD	**0.086**	**0.081**	**0.17**	**0.061**	**0.090**	**0.012 J**	**0.052**
	MW13-07P	MW13-07P_20150128	1/28/2015	N	**0.032**	**0.037**	**0.061**	**0.022**	**0.055**	**0.0036 J**	**0.023**
	MW13-07P	MW13-07P_20150419	4/19/2015	N	**0.16**	**0.24**	**0.38**	**0.13**	**0.24**	**0.036**	**0.20**
	MW13-08P	MW13-08P_20140730	7/30/2014	N	**0.0047 J**	0.020 U	**0.0045 J**	0.020 U	0.020 U	0.020 U	**0.0037 J**
	MW13-08P	MW13-08P_20141025	10/25/2014	N	**0.0032 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-08P	MW13-08P_20150125	1/25/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-08P	MW13-08P_20150418	4/18/2015	N	**0.0072 B**	0.020 U	0.020 U	0.020 U	**0.0044 J**	0.020 U	0.020 U
	MW13-09P	MW13-09P_20140725C	8/1/2014	N	**0.034**	**0.034**	**0.050**	**0.016 J**	**0.052**	**0.0045 J**	**0.031**
	MW13-09P	MW13-09P_20141010A	10/14/2014	N	**0.0061 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	**0.0028 J**
	MW13-09P	MW13-09P_20150124	1/24/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-09P	MW13-09P_20150419	4/19/2015	N	**0.0045 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-10P	MW13-10P_20140723	7/23/2014	N	**0.0034 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-10P	MW13-10P_20141022	10/22/2014	N	**0.0027 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-10P	MW13-10P_20150124	1/24/2015	N	0.034 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-10P	MW13-10P_20150417	4/17/2015	N	**0.0037 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-11P	MW13-11P_20140725E	8/1/2014	N	**0.015 J**	**0.012 J**	**0.019 J**	**0.0054 J**	**0.024 J**	0.020 UJ	**0.011 J**
	MW13-11P	MW13-11P_20141010A	10/14/2014	N	**0.0090 B**	**0.0080 J**	**0.0050 J**	0.019 U	**0.0059 J**	0.019 U	0.019 U
	MW13-11P	MW13-11P_20150124	1/24/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-11P	MW13-11P_20150419	4/19/2015	N	**0.0069 B**	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U
	MW13-12P	MW13-12P_20140723	7/23/2014	N	**0.0083 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-12P	MW13-12P_20141022	10/22/2014	N	**0.0085 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-12P	MW13-12P_20150124	1/24/2015	N	**0.013 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-12P	MW13-12P_20150419	4/19/2015	N	**0.0070 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-13P	MW13-13P_20140725C	8/1/2014	N	**0.0071 B**	0.020 U	**0.0050 J**	0.020 U	**0.0039 J**	0.020 U	**0.0032 J**
	MW13-13P	MW13-13P_20141025	10/25/2014	N	**0.014 J**	**0.014 J**	**0.020**	**0.0072 J**	**0.015 J**	**0.0033 J**	**0.014 J**
	MW13-13P	MW13-13P_20150123	1/23/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-13P	MW13-13P_20150417	4/17/2015	N	**0.0098 B**	**0.0076 J**	**0.0089 J**	0.020 U	**0.0068 J**	0.020 U	**0.0049 J**
	MW13-16P	MW13-16P_20140723	7/23/2014	N	**0.0044 B**	0.020 U	0.020 U	0.020 U	0.020 U	**0.0031 B**	**0.0074 B**
	MW13-16P	MW13-16P_20141021	10/21/2014	N	**0.0032 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-16P	MW13-16P_20150124	1/24/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-16P	MW13-16P_20150417	4/17/2015	N	**0.011 B**	**0.0099 J**	**0.015 J**	**0.0057 J**	**0.011 J**	0.019 U	**0.0067 J**
	MW15-18P	MW15-18_20151016	10/16/2015	N	**0.0070 B**	0.020 U	**0.0044 J**	0.020 U	0.020 U	**0.0042 J**	**0.0037 J**
	MW15-18P	MW15-18P_20151209	12/9/2015	N	**0.0067 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 UJ

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					Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
				Method	SW8270D-SIM						
				MCLs for All Monitoring Zones	-	0.2	--	--	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Perched (continued)	MW15-18P	MW15-18P_20160323	3/23/2016	N	0.0060 U	0.0060 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-18P	DUP1_20160323	3/23/2016	FD	0.0056 U	0.0056 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW15-18P	MW15-18P_20160623	6/23/2016	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ	0.020 U
	MW15-18P	MW15-18P_20160920	9/20/2016	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-18P	MW15-18P_20161221	12/21/2016	N	0.0400 U	0.0400 U	0.0400 U	0.0400 U	0.0400 U	0.0400 U	0.0400 U
	MW15-20P	MW15-20_20151016	10/16/2015	N	**0.0026 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-20P	MW15-20P_20151209	12/9/2015	N	**0.0097 J**	**0.0059 J**	**0.0089 J**	**0.0059 J**	**0.0071 J**	**0.0050 J**	**0.0081 J**
	MW15-20P	MW15-20P_20160323	3/23/2016	N	0.0049 U	0.0049 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-20P	MW15-20P_20160623	6/23/2016	N	0.020 U	0.020 U	0.020 U	0.020 U	**0.0068 J**	0.020 UJ	0.020 U
	MW15-20P	MW15-20P_20160920	9/20/2016	N	**0.0038 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-20P	DUP01_20160920	9/20/2016	FD	0.011 J	0.0053 J	0.0064 J	0.020 U	0.020 J	0.020 U	0.020 U
	MW15-20P	MW15-20P_20161221	12/21/2016	N	0.0388 U	0.0388 U	0.0388 U	0.0388 U	0.0388 U	0.0388 U	0.0388 U
S	MW-2S	MW-2S_20140729	7/29/2014	N	**0.0039 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-2S	MW-2S_20141022	10/22/2014	N	**0.0043 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-2S	MW-2S_20150128	1/28/2015	N	**0.0030 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-2S	MW-2S_20150416	4/16/2015	N	**0.0038 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-3S	MW-3S_20140730	7/30/2014	N	**0.018 J**	**0.020 J**	**0.037**	**0.013 J**	**0.025**	**0.0027 J**	**0.019 J**
	MW-3S	MW-3S_20141024	10/24/2014	N	**0.0099 J**	**0.0086 J**	**0.018 J**	**0.0052 J**	**0.015 J**	0.019 U	**0.011 J**
	MW-3S	MW-3S_20150123	1/23/2015	N	**0.0030 B**	0.020 U	**0.0051 J**	0.020 U	**0.0042 J**	0.020 U	**0.0035 J**
	MW-3S	MW3S_20150419	4/19/2015	N	**0.011 B**	**0.0089 J**	**0.017 J**	**0.0077 J**	**0.013 J**	0.019 U	**0.0071 J**
	MWR-4S	MWR-4S_20140801	8/1/2014	N	**0.0039 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.0040 J**
	MWR-4S	MWR-4S_20141024	10/24/2014	N	**0.014 J**	**0.017 J**	**0.027**	**0.010 J**	**0.015 J**	**0.0039 J**	**0.017 J**
	MWR-4S	MWR-4S_20150123	1/23/2015	N	**0.0037 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-4S	MWR-4S_20150415	4/15/2015	N	**0.0053 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-15S	MWR-15S_20140729	7/29/2014	N	**0.0042 JB**	0.020 U	0.020 U	0.020 U	0.020 U	**0.0038 JB**	**0.0047 JB**
	MWR-15S	DUP03_20140729	7/29/2014	FD	**0.0032 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-15S	MWR-15S_20141026	10/26/2014	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-15S	MWR-15S_20150124	1/24/2015	N	**0.0043 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-15S	MWR-15S_20150419	4/19/2015	N	**0.0035 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-17S	MW-17S_20140731	7/31/2014	N	**0.0054 B**	0.020 U	**0.0055 J**	0.020 U	**0.0043 J**	0.020 U	**0.0031 J**
	MW-17S	DUP01B_20140731	7/31/2014	FD	**0.0044 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-17S	MW-17S_20141024	10/24/2014	N	**0.0030 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-17S	MW-17S_20150123	1/23/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-17S	MW-17S_20150415	4/15/2015	N	**0.0058 B**	0.019 U	**0.0066 J**	**0.0031 J**	**0.0052 J**	0.019 U	**0.0030 J**
	MW-22S	MW-22S_20140731	7/31/2014	N	**0.0045 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.0027 J**
	MW-22S	MW-22S_20141024	10/24/2014	N	**0.0035 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-22S	MW-22S_20150123	1/23/2015	N	**0.0069 B**	**0.0059 J**	**0.0072 J**	0.019 U	**0.0054 J**	0.019 U	**0.0056 J**
	MW-22S	MW-22S_20150415	4/15/2015	N	**0.0032 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-23S	MW-23S_20140731	7/31/2014	N	**0.0033 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-23S	MW-23S_20141024	10/24/2014	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-23S	MW-23S_20150123	1/23/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-23S	MW-23S_20150415	4/15/2015	N	**0.0040 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-26S	MW-26S_20140729	7/29/2014	N	**0.0049 B**	**0.0049 B**	**0.0043 B**	0.020 U	0.020 U	0.020 U	0.020 U
	MW-26S	MW-26S_20141027	10/27/2014	N	**0.0042 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.0028 J**
	MW-26S	MW-26S_20150128	1/28/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-26S	MW-26S_20150416	4/16/2015	N	**0.0028 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-27S	MW27S-20140728	7/28/2014	N	**0.011 B**	**0.012 J**	**0.015 J**	**0.0052 J**	**0.0098 J**	0.019 U	**0.0083 J**
	MWR-27S	MWR-27S_20141026	10/26/2014	N	**0.0045 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

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					Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
				Method	SW8270D-SIM						
				MCLs for All Monitoring Zones	-	0.2	--	--	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
S (continued)	MWR-27S	MWR-27S_20150124	1/24/2015	N	**0.01 B**	**0.0050 J**	**0.0067 J**	**0.0030 J**	**0.0044 J**	0.020 U	**0.0050 J**
	MWR-27S	DUP06_20150124	1/24/2015	FD	**0.0047 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-27S	MWR-027S_20150417	4/17/2015	N	**0.0086 B**	0.019 U	**0.0056 J**	0.019 U	**0.0049 J**	0.019 U	**0.0031 J**
	MW-29S	MW-29S_20140804	8/4/2014	N	**0.0068 B**	**0.0045 J**	**0.0085 J**	0.020 U	**0.0041 J**	0.020 U	**0.0051 B**
	MW-29S	DUP07_20140804	8/4/2014	FD	**0.0067 B**	0.020 U	**0.0062 J**	0.020 U	0.020 U	0.020 U	**0.0039 B**
	MW-29S	MW-29S_20141023	10/23/2014	N	**0.0077 J**	**0.0063 J**	**0.01 J**	**0.0031 J**	**0.0052 J**	0.020 U	**0.0059 J**
	MW-29S	MW-29S_20150122	1/22/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-29S	DUP04_20150122	1/22/2015	FD	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-29S	MW-29S_20150415	4/15/2015	N	**0.0043 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-29S	MW29S_20160324	3/24/2016	N	**0.018 J**	**0.017 J**	**0.034**	**0.012 J**	**0.023**	**0.0033 J**	**0.015 J**
	MWR-29S	MWR29S_20160324	3/24/2016	N	0.0039 U	0.0039 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-35S	MW-35S_20140731	7/31/2014	N	**0.017 J**	0.020 U	**0.0049 J**	0.020 U	**0.039**	0.020 U	0.020 U
	MW-35S	MW-35S_20141024	10/24/2014	N	**0.011 J**	0.020 U	0.020 U	0.020 U	**0.010 J**	0.020 U	0.020 U
	MW-35S	MW-35S_20150123	1/23/2015	N	**0.016 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-35S	MW-35S_20150415	4/15/2015	N	**0.014 J**	0.022 U	**0.0094 J**	**0.0035 J**	**0.038**	0.022 U	0.022 U
	MW-36S	MW-36S_20140731	7/31/2014	N	**0.0031 B**	0.020 U	0.020 U	0.020 U	0.020 U	**0.0058 J**	**0.0050 J**
	MW-36S	MW-36S_20141024	10/24/2014	N	**0.0028 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-36S	MW-36S_20150123	1/23/2015	N	**0.0033 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-36S	MW-36S_20150415	4/15/2015	N	**0.0027 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-37S	MW-37S_20140731	7/31/2014	N	**0.0033 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-37S	MW-37S_20141024	10/24/2014	N	**0.012 J**	**0.0098 J**	**0.020**	**0.0065 J**	**0.014 J**	**0.0026 J**	**0.013 J**
	MW-37S	DUP05_20141024	10/24/2014	FD	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-37S	MW-37S_20150123	1/23/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-37S	MW-37S_20150415	4/15/2015	N	**0.0036 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-37S	DUP02_20150415	4/15/2015	FD	**0.0027 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-38S	MW-38S_20140729	7/29/2014	N	**0.0044 B**	0.020 U	**0.0043 B**	**0.0035 B**	**0.0034 J**	**0.0043 B**	**0.0053 B**
	MW-38S	MW-38S_20141021	10/21/2014	N	**0.0026 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-38S	DUP02_20141021	10/21/2014	FD	**0.0026 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-38S	MW-38S_20150121	1/21/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-38S	MW-38S_20150416	4/16/2015	N	**0.0029 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-39S	MW39S-20140724	7/24/2014	N	**0.0059 B**	**0.0052 J**	**0.0070 J**	0.020 U	**0.0043 J**	0.020 U	**0.0049 B**
	MW-39S	MW-39S_20141020	10/20/2014	N	**0.0051 B**	0.020 U	**0.0049 J**	0.020 U	**0.0044 J**	0.020 U	**0.0037 J**
	MW-39S	MW-39S_20150121	1/21/2015	N	**0.0039 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-39S	MW-39S_20150416	4/16/2015	N	**0.0029 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-39S	DUP03_20150416	4/16/2015	FD	**0.0026 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-40S	MW40S-20140724	7/24/2014	N	**0.0040 B**	0.020 U	0.020 U	0.020 U	0.020 U	**0.0026 B**	**0.0038 B**
	MW-40S	MW-40S_20141020	10/20/2014	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-40S	MW-40S_20150121	1/21/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-40S	MW-40S_20150416	4/16/2015	N	**0.0029 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-41S	MW41S-20170725	7/25/2014	N	**0.0043 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-41S	MW-41S_20141020	10/20/2014	N	**0.0031 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-41S	MW-41S_20150121	1/21/2015	N	**0.0034 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-41S	MW41-S_20150416	4/16/2015	N	**0.0034 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-42S	MW42S-20140725	7/25/2014	N	**0.0031 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-42S	MW-42S_20141025	10/25/2014	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-42S	MW-42S_20150125	1/25/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-42S	MW-42S_20150418	4/18/2015	N	**0.0026 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

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					Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
				Method	SW8270D-SIM						
				MCLs for All Monitoring Zones	-	0.2	--	--	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
S (continued)	MW13-01S	MW13-01S_20140808	8/8/2014	N	**0.0053 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-01S	MW13-01S_20141025	10/25/2014	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-01S	MW13-01S_20150125	1/25/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-01S	MW13-01S_20150414	4/14/2015	N	**0.0075 J**	0.021 U	0.021 U	0.021 U	**0.0048 J**	0.021 U	0.021 U
	MW13-02S	MW13-02S_20140801	8/1/2014	N	**0.0051 B**	**0.0051 J**	**0.013 J**	**0.0053 J**	**0.0057 J**	0.020 U	**0.016 J**
	MW13-02S	MW13-02S_20141025	10/25/2014	N	**0.0031 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02S	DUP06_20141025	10/25/2014	FD	**0.0044 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02S	MW13-02S_20150125	1/25/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02S	MW13-02S_20150418	4/18/2015	N	**0.0033 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06S	MW13-06S_20140723	7/23/2014	N	**0.0070 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06S	MW13-06S_20141026	10/26/2014	N	**0.0062 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.0040 J**
	MW13-06S	DUP07_20141026	10/26/2014	FD	**0.0056 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-06S	MW13-06S_20150124	1/24/2015	N	**0.0042 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06S	MW13-06S_20150417	4/17/2015	N	**0.0054 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-08S	MW13-08S_20140730	7/30/2014	N	**0.0054 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-08S	MW13-08S_20141025	10/25/2014	N	**0.0065 J**	0.020 U	**0.0050 J**	0.020 U	**0.0042 J**	0.020 U	**0.0039 J**
	MW13-08S	MW13-08S_20150125	1/25/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-08S	MW13-08S_20150418	4/18/2015	N	**0.0073 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-11S	MW13-11S_20140723	7/23/2014	N	**0.0038 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-11S	MW13-11S_20141022	10/22/2014	N	**0.0027 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-11S	MW13-11S_20150124	1/24/2015	N	**0.0034 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-11S	MW13-11S_20150417	4/17/2015	N	**0.0091 B**	**0.0067 J**	**0.011 J**	**0.0037 J**	**0.0064 J**	0.020 U	**0.0053 J**
	MW13-13S	MW13-13S_20140723	7/23/2014	N	**0.0066 B**	**0.0049 J**	**0.0070 J**	0.020 U	**0.0036 J**	0.020 U	**0.0079 B**
	MW13-13S	MW13-13S_20141025	10/25/2014	N	**0.0033 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-13S	MW13-13S_20150123	1/23/2015	N	**0.0096 B**	**0.0067 J**	**0.0083 J**	**0.0050 J**	**0.0079 J**	0.019 U	**0.0058 J**
	MW13-13S	MW13-13S_20150417	4/17/2015	N	**0.0058 B**	0.020 U	**0.0055 J**	0.020 U	**0.0039 J**	0.020 U	0.020 U
	MW13-16S	MW13-16S-20140728	7/28/2014	N	**0.0038 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-16S	DUP02-20140728	7/28/2014	FD	**0.0046 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-16S	MW13-16S_20141022	10/22/2014	N	**0.023**	**0.028**	**0.046**	**0.014 J**	**0.034**	**0.0091 J**	**0.029**
	MW13-16S	MW13-16S_20150124	1/24/2015	N	**0.0084 B**	**0.0061 J**	**0.0080 J**	**0.0043 J**	**0.0075 J**	0.020 U	**0.0063 J**
	MW13-16S	MW13-16S_20150417	4/17/2015	N	**0.0066 B**	**0.0048 J**	**0.0072 J**	0.020 U	**0.0052 J**	0.020 U	**0.0045 J**
	MW13-16S	DUP05_20150417	4/17/2015	FD	**0.0070 B**	0.020 U	**0.0059 J**	0.020 U	**0.0036 J**	0.020 U	**0.0040 J**
S_L	MW-1	MW-1_20140805	8/5/2014	N	**0.0031 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-1	MW-1_20141023	10/23/2014	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-1	DUP04_20141023	10/23/2014	FD	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-1	MW-1_20150122	1/22/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-1	MW-1_20150415	4/15/2015	N	**0.0034 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-2	MW-2_20140805	8/5/2014	N	**0.0039 B**	0.020 U	0.020 U	0.020 U	0.020 U	**0.0025 B**	**0.0031 B**
	MW-2	MW-2_20141023	10/23/2014	N	**0.0029 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-2	MW-2_20150122	1/22/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-2	MW-2_20150415	4/15/2015	N	**0.0035 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-3	MW-3_20140804	8/4/2014	N	**0.0051 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-3	MW-3_20141023	10/23/2014	N	**0.0032 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-3	MW-3_20150122	1/22/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.0053 J**	**0.0063 J**
	MW-3	MW-3_20150415	4/15/2015	N	**0.0044 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-4U	MW-4U_20140805	8/5/2014	N	**0.0043 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-4U	MW-4U_20141023	10/23/2014	N	**0.0030 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

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					Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
				Method	SW8270D-SIM						
				MCLs for All Monitoring Zones	-	0.2	--	--	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
S_L (continued)	MW-4U	MW-4U_20150122	1/22/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-4U	MW-4U_20150414	4/14/2015	N	**0.0041 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-4L	MW-4L_20140805	8/5/2014	N	**0.0056 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.0035 B**
	MW-4L	MW-4L_20141023	10/23/2014	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-4L	MW-4L_20150122	1/22/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-4L	MW-4L_20150414	4/14/2015	N	**0.0050 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-4L	DUP01_20150414	4/14/2015	FD	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-5	MW-5_20140805	8/5/2014	N	**0.0030 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-5	MW-5_20141023	10/23/2014	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-5	MW-5_20150122	1/22/2015	N	**0.0029 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-5	MW-5_20150415	4/15/2015	N	**0.0047 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-14SL	MW13-14SL_20140730	7/30/2014	N	**0.0082 J**	0.020 U	**0.0080 J**	**0.0070 J**	0.020 U	0.020 U	**0.0055 J**
	MW13-14SL	MW13-14SL_20141027	10/27/2014	N	**0.0096 J**	0.020 U	**0.0055 J**	0.020 U	0.020 U	0.020 U	**0.0040 J**
	MW13-14SL	MW13-14SL_20150122	1/22/2015	N	**0.017 J**	**0.0097 J**	**0.026**	**0.0095 J**	0.020 UJ	**0.0083 J**	**0.033**
	MW13-14SL	MW13-14SL_20150419	4/19/2015	N	**0.0095 B**	0.020 U	**0.0043 J**	0.020 U	0.020 U	0.020 U	**0.0038 J**
	MW13-15SL	MW13-15SL_20140730	7/30/2014	N	**0.0043 J**	**0.0050 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-15SL	DUP04_20140730	7/30/2014	FD	**0.0051 J**	**0.0055 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-15SL	MW13-15SL_20141027	10/27/2014	N	**0.0057 J**	**0.0054 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-15SL	MW13-15SL_20150122	1/22/2015	N	**0.0055 B**	**0.0084 J**	0.020 U	0.020 U	**0.0053 J**	0.020 U	**0.0030 J**
	MW13-15SL	MW13-15SL_20150419	4/19/2015	N	**0.0048 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW15-17SL	MW15-17_20151016	10/16/2015	N	**0.0033 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-17SL	DUP01_20151016	10/16/2015	FD	**0.0031 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-17SL	MW15-17SL_20151208	12/8/2015	N	**0.0034 J**	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 UJ
	MW15-17SL	DUP-1_20151208	12/8/2015	FD	**0.0032 J**	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 UJ
	MW15-17SL	MW15-17SL_20160324	3/24/2016	N	0.0040 U	0.0040 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-17SL	MW15-17SL_20160622	6/22/2016	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ	0.020 U
	MW15-17SL	DUP02_20160622	6/22/2016	FD	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 UJ	0.020 U
	MW15-17SL	MW15-17SL_20160921	9/21/2016	N	**0.0053 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW15-17SL	MW15-17SL_20161221	12/21/2016	N	0.0396 U	0.0396 U	0.0396 U	0.0396 U	0.0396 U	0.0396 U	**0.0225 J**
	MW15-19SL	MW15-19SL_20151208	12/8/2015	N	**0.0056 J**	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 UJ
	MW15-19SL	MW15-19SL_20160324	3/24/2016	N	0.01 U	0.010 U	0.020 U	0.020 U	**0.023**	0.020 U	0.020 U
	MW15-19SL	MW15-19SL_20160622	6/22/2016	N	0.020 U	0.020 U	0.020 U	0.020 U	**0.014 J**	0.020 UJ	0.020 U
	MW15-19SL	MW15-19SL_20160921	9/21/2016	N	**0.0064 J**	**0.0060 J**	0.020 U	0.020 U	**0.0040 J**	0.020 U	0.020 U
	MW15-19SL	MW15-19SL_20161222	12/22/2016	N	0.0388 U	0.0388 U	0.0388 U	0.0388 U	0.0388 U	0.0388 U	0.0388 U
A	MWR-2A	MWR-2A_20140729	7/29/2014	N	**0.0067 B**	**0.0063 B**	**0.0075 B**	**0.0034 B**	**0.0055 J**	**0.0069 B**	**0.0085 B**
	MWR-2A	MWR-2A_20141022	10/22/2014	N	**0.0060 J**	**0.0057 J**	**0.0097 J**	**0.0036 J**	**0.0067 J**	0.020 U	**0.0052 J**
	MWR-2A	MWR-2A_20150128	1/28/2015	N	**0.0076 J**	**0.0086 J**	**0.015 J**	**0.0050 J**	**0.013 J**	0.020 U	**0.0094 J**
	MWR-2A	MWR-2A_20150417	4/17/2015	N	**0.0043 B**	0.020 U	**0.0062 J**	0.020 U	0.020 U	0.020 U	**0.0029 J**
	MW-6AA	MW6AA-20140725	7/25/2014	N	**0.0049 B**	**0.0053 J**	**0.0050 J**	**0.0045 J**	0.019 U	**0.0075 B**	**0.012 B**
	MW-6AA	MW-6AA_20141021	10/21/2014	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-6AA	MW-6AA_20150121	1/21/2015	N	**0.0033 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-6AA	MW-6AA_20150416	4/16/2015	N	**0.0031 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-6AA	DUP04_20150416	4/16/2015	FD	**0.0029 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-12A	MW12A-20140724	7/24/2014	N	**0.0042 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	**0.0026 B**
	MW-12A	MW-12A_20141020	10/20/2014	N	**0.0037 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-12A	DUP01_20141020	10/20/2014	FD	**0.0049 B**	0.020 U	**0.0053 J**	0.020 U	**0.0040 J**	0.020 U	0.020 U
	MW-12A	MW-12A_20150121	1/21/2015	N	**0.0047 B**	0.020 U	**0.0050 J**	0.020 U	**0.0037 J**	0.020 U	**0.0027 J**
	MW-12A	MW-12A_20150416	4/16/2015	N	**0.0035 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

TABLE 8
Groundwater Analytical Results for PAHs
Former Martin Marietta Reduction Facility
Lockheed Martin Corporation
The Dalles, Oregon

					Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
				Method	SW8270D-SIM						
				MCLs for All Monitoring Zones	-	0.2	--	--	-	-	-
Monitoring Zone	**Monitoring Well**	**Sample ID**	**Sample Date**	**Sample Type**	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
A (continued)	MW-13A	MWR-13A-20140724	7/24/2014	N	**0.0036 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MW-13A	MWR-13A_20141020	10/20/2014	N	**0.0041 B**	0.020 U	0.020 U	**0.0032 J**	0.020 U	**0.0045 J**	**0.0072 J**
	MW-13A	MWR-13A_20150121	1/21/2015	N	**0.0027 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-13A	MWR-13A_20150416	4/16/2015	N	**0.0089 B**	0.020 U	0.020 U	**0.0031 J**	**0.0062 J**	0.020 U	0.020 U
	MW13-02A	MW13-02A_20140805	8/5/2014	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02A	MW13-02A_20141025	10/25/2014	N	**0.0030 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02A	MW13-02A_20150125	1/25/2015	N	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02A	MW13-02A_20150418	4/18/2015	N	0.019 U	**0.026**	**0.011 J**	0.019 U	0.019 U	0.019 U	0.019 U
	MW13-06A	MW13-06A-20140728	7/28/2014	N	**0.0036 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06A	MW13-06A_20141026	10/26/2014	N	**0.0042 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06A	MW13-06A_20150124	1/24/2015	N	**0.0061 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06A	DUP05_20150124	1/24/2015	FD	**0.0050 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-06A	MW13-06A_20150417	4/17/2015	N	**0.0051 B**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
B	MWR-2B	MWR-2B_20140731	7/31/2014	N	**0.0042 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-2B	DUP05_20140731	7/30/2014	FD	**0.0047 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-2B	MWR-2B_20141022	10/22/2014	N	**0.0042 J**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
	MWR-2B	MWR-2B_20150128	1/28/2015	N	**0.0050 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MWR-2B	MWR-2B_20150416	4/16/2015	N	**0.0049 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW-27B	MW27B-20140729	7/29/2014	N	**0.058**	**0.079**	**0.10**	**0.036**	**0.064**	**0.016 B**	**0.075**
	MW-27B	MW-27B_20141026	10/26/2014	N	**0.026**	**0.033**	**0.040**	**0.014 J**	**0.032**	**0.0068 J**	**0.028**
	MW-27B	MW-27B_20150124	1/24/2015	N	**0.0060 B**	0.019 U	**0.0054 J**	0.019 U	**0.0054 J**	0.019 U	**0.0043 J**
	MW-27B	MW27B_20150417	4/17/2015	N	**0.015 B**	**0.013 J**	**0.019 J**	**0.0067 J**	**0.016 J**	**0.0037 J**	**0.011 J**
	MW13-02B	MW13-02B_20140805	8/5/2014	N	**0.0031 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02B	MW13-02B_20141025	10/25/2014	N	**0.0026 J**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02B	MW13-02B_20150125	1/25/2015	N	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	**0.013 J**
	MW13-02B	DUP07_20150125	1/25/2015	FD	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
	MW13-02B	MW13-02B_20150418	4/18/2015	N	**0.0030 B**	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U

Notes:

Bold indicates laboratory result detections

Data reported to reporting limit

FD = field duplicate

N = normal sample

µg/L = micrograms per liter

MCL = United States Environmental Protection Agency (EPA) Safe Drinking Water Act Maximum Contaminant Level

PAHs - Polynuclear Aromatic Hydrocarbons

Grey shading indicates one or more regulatory criteria exceedance

Qualifiers

B = blank contamination

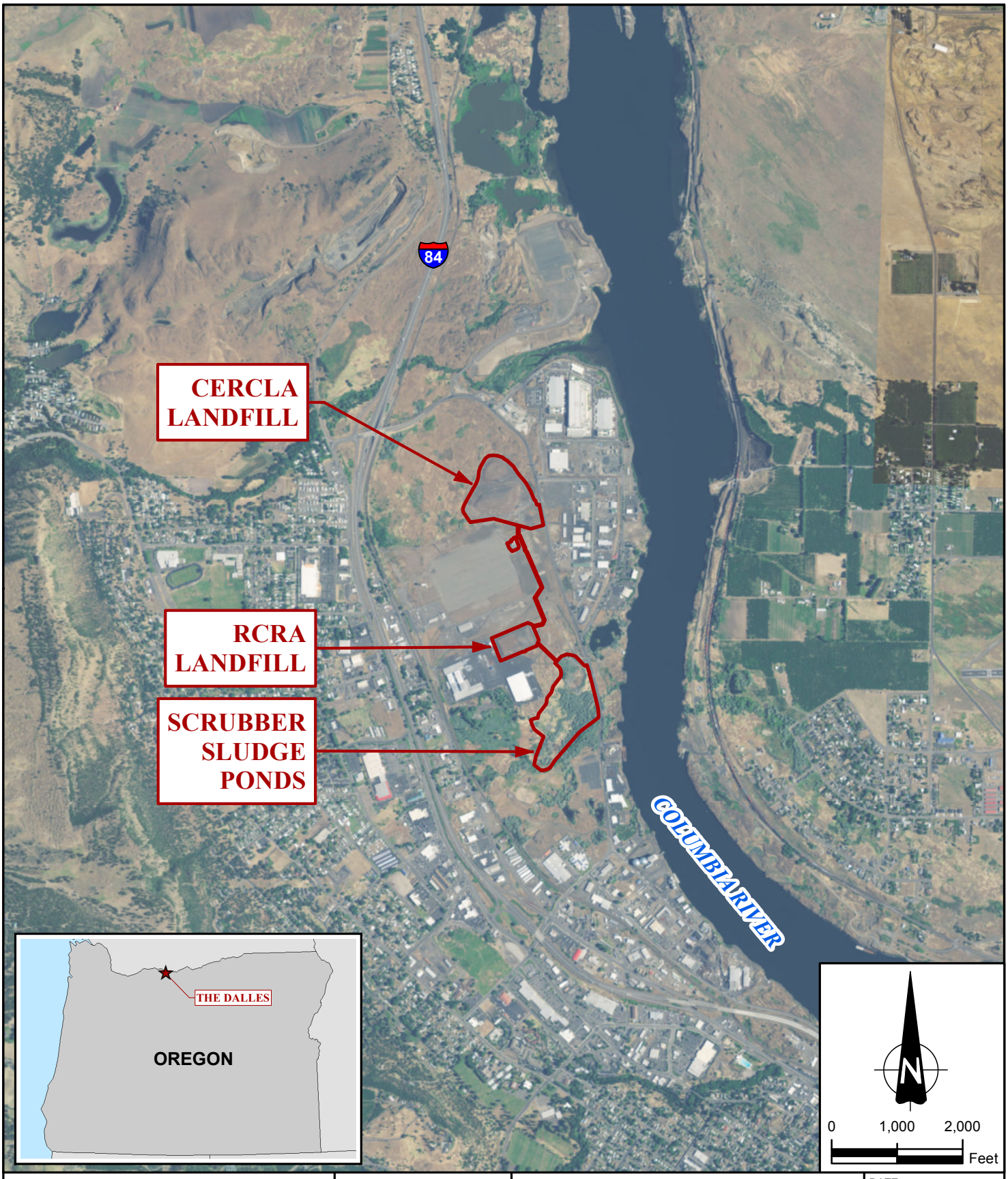
J = estimated result

UJ = not detected at or above the stated level, which is an approximate value

U = not detected above indicated reporting limit



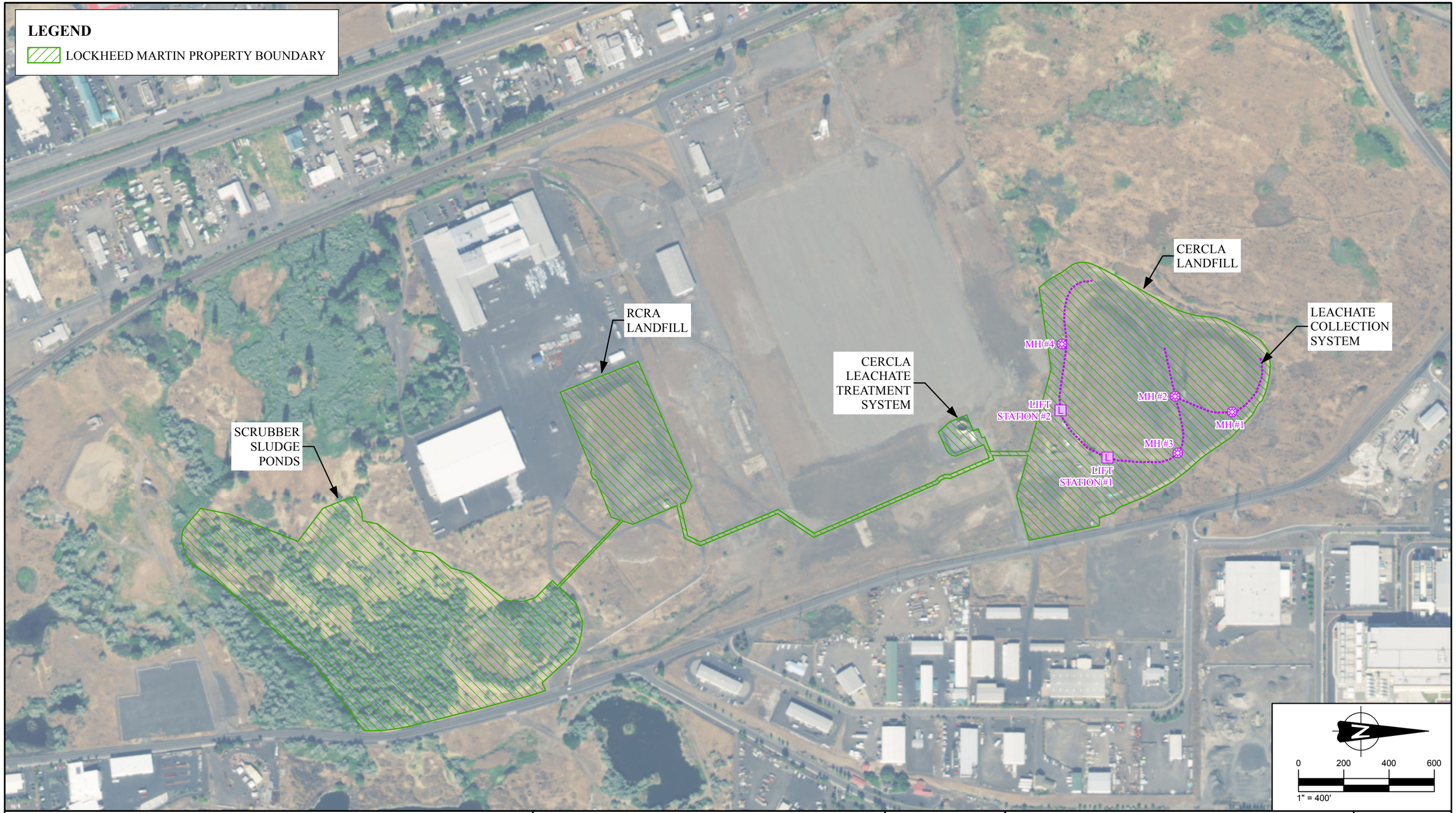
FIGURES



LOCKHEED MARTIN CORPORATION		LOCKHEED MARTIN CORPORATION SITE THE DALLES, OREGON	DATE: APRIL 2017
			SCALE: 1 " = 2,000 '
Amec Foster Wheeler Environment & Infrastructure, Inc. 7376 S.W. Durham Road Portland, OR 97224	amec foster wheeler	SITE LOCATION	PROJECT NO.: 661M129556
			FIGURE: 1

DRAWN BY: BRJ CHECKED BY: CB

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\1 - Site Location.mxd - brian.johnson - 4/19/2017 - 1:22:50 PM



	LOCKHEED MARTIN CORPORATION	amec foster wheeler	LOCKHEED MARTIN CORPORATION SITE THE DALLES, OREGON	DATE: APRIL 2017 SCALE: 1 " = 400 ' PROJECT NO.: 661M129556 FIGURE: 2
	Amec Foster Wheeler Environment & Infrastructure, Inc. 7376 S.W. Durham Road Portland, OR 97224		SITE LAYOUT	

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LEGEND

- PIEZOMETER
- WIRELINE COREHOLE
- MONITORING WELL
  - P = PERCHED ZONE
  - S = S AQUIFER
  - S_L = LOWER S AQUIFER
  - A = A AQUIFER
  - B = B AQUIFER
- LOCKHEAD MARTIN DECOMMISSIONED WELL
- NORTHWEST ALUMINUM COMPANY (NAC) - PRODUCTION WELL (DC = DECOMMISSIONED)
- NORTHWEST ALUMINUM COMPANY (NAC) - MONITORING WELL
- LOCKHEED MARTIN PROPERTY BOUNDARY

MW13-16P
MW13-16S
MWR-1A
MWR-1B
MW13-11S
MW-34B
MW-34A
NAC1A
MW13-11P
MW-102
MW13-10P
NAC3A
MW-12A
MW-39S
MW-12B
MW13-03P
13-02
MW13-02P
MW13-02S
MW13-02A
MW13-02B
P-5
P-3
P-6
WEST DWT
P-1
P-2
EAST DWT
MW-13A
PZ-03
MW-13B
MW-101
MW-40S
PZ-02
MW13-09P
MW-16A
MW13-08S
MW-103
MW13-08P
MW-9S
MW-9A
MW-9B
MW-16B
MW-16D
PZ-01
MW-2S
MWR-2A
MWR-2B
MW15-18P
MW13-13S
MW13-13P
MW-22S
MWR-4B
MW-4B
MW-4A
MWR-4S
MW-36S
MW-23S
MW-5S
NAC4A
MW-5A
MW-14A
MW-14B
NAC2A
(DC)
MW13-07P
MWR-9A
MWR-9B
13-01
MW13-01P
MW13-01S
MW-42S
MW13-04P
MW-10A
MW-35S
MWR-8S
MWR-8S
MW-104
MWR-7B
MW-24S
MW-24A
MW-37S
MW-17S
MW-8A
MWR-8A
MW13-05P
MW-6AA
MW-38S
MWR-6B
MWR-7A
MW-41S
MW-8B
MWR-8B
MR-11D
MWR-15S
MW-15S
MW-15A
MW-15B
MW-3S
MWR-3A
MWR-3B
MW-25S
MW15-20P
MW-27A
MW-33A
MW-33B
MW13-06P
MW13-06S
MW13-06A
MWR-27S
MW-27B
MW13-12P
MW-28S
MW-26B
MW-26A
MW-26S
MW-32S
MW-1
MW-2
MW-19S
MW-29S
MWR-29S
MW-18S
MW13-14S$_L$
MW13-15S$_L$
MW-5
MW-4L
MW-4U
MW-3
MW-18B
MW-18A
MW-30S
MW15-19S$_L$
MW-20S
MW-20A
MW-31S
MW-21S
MW15-17S$_L$

N

0 200 400 600

1" = 400'

	LOCKHEED MARTIN CORPORATION		LOCKHEED MARTIN CORPORATION SITE THE DALLES, OREGON
	Amec Foster Wheeler Environment & Infrastructure, Inc. 7376 S.W. Durham Road Portland, OR 97224	amec foster wheeler	MONITORING WELL LOCATIONS

DATE: MAY 2017
SCALE: 1 " = 400 '
PROJECT NO.: 661M129556
FIGURE: 3

DRAWN BY: PM CHECKED BY: CB

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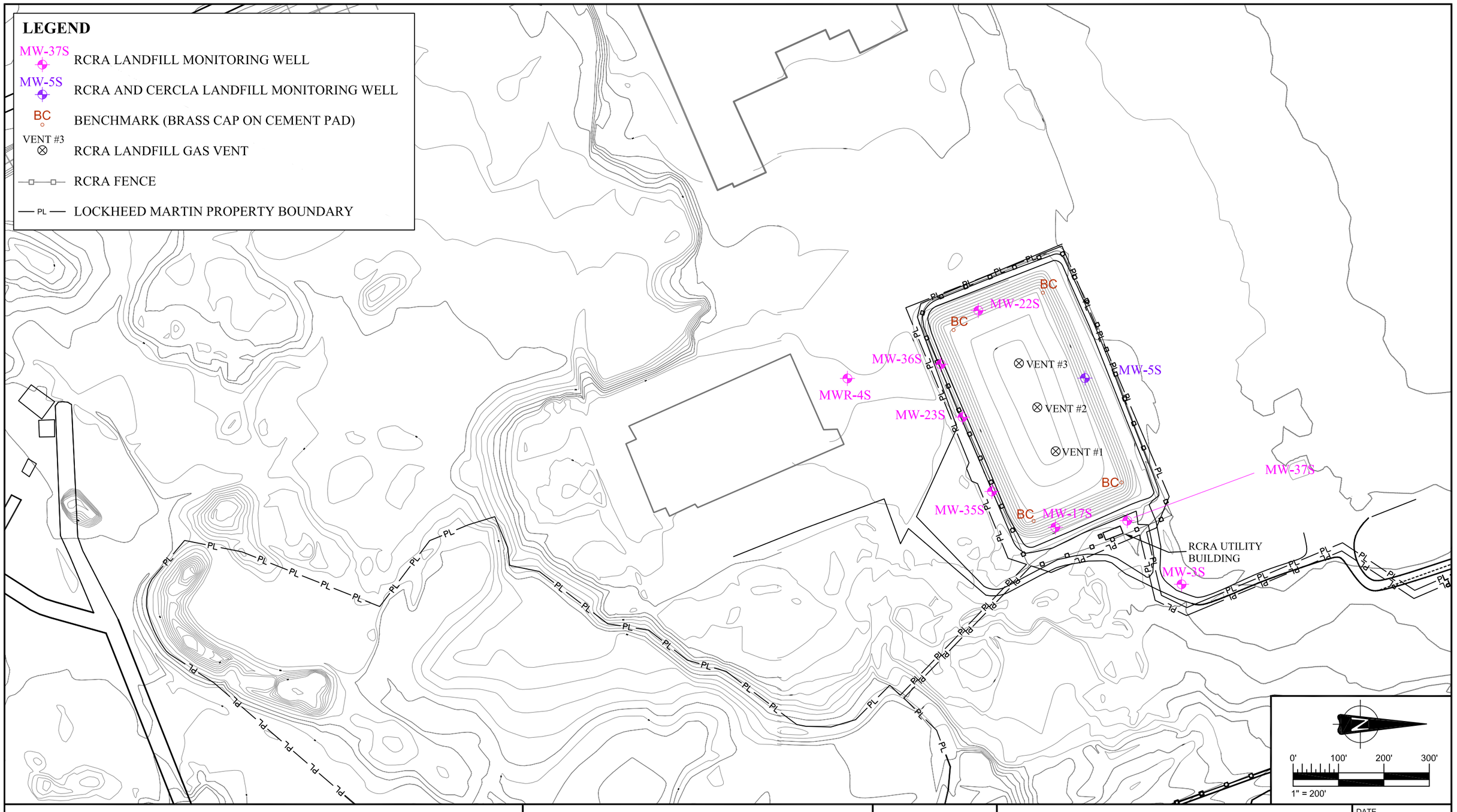
LEGEND

- MW-37S — RCRA LANDFILL MONITORING WELL
- MW-5S — RCRA AND CERCLA LANDFILL MONITORING WELL
- BC — BENCHMARK (BRASS CAP ON CEMENT PAD)
- VENT #3 — RCRA LANDFILL GAS VENT
- RCRA FENCE
- PL — LOCKHEED MARTIN PROPERTY BOUNDARY



	LOCKHEED MARTIN CORPORATION Amec Foster Wheeler Environment & Infrastructure, Inc. 7376 S.W. Durham Road Portland, OR 97224	amec foster wheeler	LOCKHEED MARTIN CORPORATION SITE THE DALLES, OREGON RCRA LANDFILL MONITORING LOCATIONS	DATE: APRIL 2017 SCALE: 1" = 200' PROJECT NO.: 661M129556 FIGURE: 4

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_04-06-07-08 RCRA CERCLA Landfill GW Quality Monitoring Locations.dwg – Fig 4 RCRA ML – Apr. 27, 2017 11:39am – patrick.mccarthy

LEGEND

MW13-02S — MONITORING WELL - S & S_L ZONES

135.75 — POTENTIOMETRIC SURFACE ELEVATION (FEET ABOVE MEAN SEA LEVEL [NAVD88]) (MEASURED 03/17/2016)

NM — NOT MEASURED

ESTIMATED POTENTIOMETRIC SURFACE ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL [NAVD88])

MW13-16S 117.66
MW13-11S 144.45
MW-39S 108.41
MW13-02S 131.51
MW-40S 93.89
MW13-08S 112.26
MW-2S 103.76
MW13-01S 123.65
MW-42S 124.09
MW-41S 97.60
MW-38S 111.89
MWR-15S 114.12
MW13-06S 116.24
MWR-27S 128.79
MW-26S 115.84
MW13-17SL 93.81
MW-36S 131.28
MW-22S 136.12
MW13-13S 135.24
MWR-4S 136.81
MW-23S 135.57
MW-35S 139.11
MW-37S 137.60
MW-17S 138.13
MW-3S 133.74
MW-1 NM
MW-2 NM
MW-29S 107.24
MW-5 115.00
MW13-14SL 107.15
MW13-15SL 105.77
MW15-19SL 97.24
MW-4L NM
MW-4U NM

0' 200' 400' 600'
1" = 400'

- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**
- **MW-5S IS NOW CONSIDERED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN INTERVAL OF DEPTH 10.5 TO 20.5-FEET IS ABOVE THE BYRON INTERBED REPORTED IN THE MW-5 BOREHOLE AT DEPTH 26 TO 34-FEET.**

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

POTENTIOMETRIC SURFACE MAP FOR
S & S_L ZONES
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 5

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_05-09-10 Potentiometric Surface Map S-SL-P-A.dwg – Fig 5 S & SL Zones – May. 09, 2017 5:53am – brian.johnson

LEGEND

- MW-37S — RCRA LANDFILL MONITORING WELL
- MW-5S — RCRA AND CERCLA LANDFILL MONITORING WELL
- BC — BENCHMARK (BRASS CAP ON CEMENT PAD)
- VENT #3 — RCRA LANDFILL GAS VENT
- RCRA FENCE
- PL — LOCKHEED MARTIN PROPERTY BOUNDARY

MW-22S	
Total CN	**0.122**
WAD CN	**0.00820**
Fluoride	**0.427**
Sulfate	**51.2**

MWR-4S	
Total CN	0.00500 U
WAD CN	0.00500 U
Fluoride	**0.230**
Sulfate	**58.6**

MW-36S	
Total CN	0.00500 U
WAD CN	0.00500 U
Fluoride	**0.180**
Sulfate	**88.1**

MW-23S	
Total CN	**0.0211**
WAD CN	0.00500 U
Fluoride	**0.235**
Sulfate	**24.4**

MW-5S	
Total CN	**0.193**
WAD CN	**0.00830**
Fluoride	**6.60**
Sulfate	**49.0**

MW-35S	
Total CN	**0.0212**
WAD CN	0.00500 U
Fluoride	**0.532**
Sulfate	**96.6**

MW-17S	
Total CN	**0.0252**
WAD CN	0.00500 U
Fluoride	**0.265**
Sulfate	**31.7**

MW-37S	
Total CN	0.00500 U
WAD CN	0.00500 U
Fluoride	**3.55**
Sulfate	**6.31**

MW-3S	
Total CN	0.00500 U
WAD CN	0.00500 U
Fluoride	**0.286**
Sulfate	**29.0**

RCRA UTILITY BUILDING

0' 100' 200' 300'
1" = 200'

- **MW-5S IS NOW CONSIDERED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN INTERVAL OF DEPTH 10.5 TO 20.5-FEET IS ABOVE THE BYRON INTERBED REPORTED IN THE MW-5S BOREHOLE LOG AT DEPTH 26 TO 34-FEET.**
- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**

Notes:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
BOLD	DETECTION
CN	CYANIDE
WAD	WEAK ACID DISSOCIABLE

ALL RESULTS REPORTED IN mg/L

DRAWN BY: BRJ CHECKED BY:

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

amec foster wheeler

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

RCRA LANDFILL
GROUNDWATER QUALITY
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 200'
PROJECT NO.: 661M129556
FIGURE: 6

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_04-06-07-08 RCRA CERCLA Landfill GW Quality Monitoring Locations.dwg – Fig 6 RCRA WQ – May. 09, 2017 5:55am – brian.johnson

LEGEND

- MW-39S — CERCLA LANDFILL MONITORING WELL
- MW-5S — RCRA AND CERCLA LANDFILL MONITORING WELL
- BC — BENCHMARK (BRASS CAP ON CEMENT PAD)
- MH #3 — MANHOLE
- APPROXIMATE LOCATIONS OF BURIED PIPELINES (LCS AND OUTFALL)
- CERCLA LANDFILL FENCE
- PL — LOCKHEED MARTIN PROPERTY BOUNDARY

CERCLA UTILITY BUILDING

ELEVATED PAD IN CONTAINMENT
CERCLA TANK OUTFALL C
FENCE
DISCHARGE PIPING
ANCILLARY TANK
LCS PIPE FROM LIFT STATION #1
PUMPS/ VALVES SEE SOP
SUMP
CONTAINMENT
GATE
RAMP
BERM
FIRST AID/ PPE IN CABINET FIRE EXTINGUISHER AND EXTRA PUMPS IN BUILDING

CERCLA TREATMENT SYSTEM

GATE
FENCE
BURIED PIPE TO OUTFALL C

INLET CULVERT
FENCE
LCS START
CULVERT MH
DWT
MH #4
FENCE
CULVERT OUTLET
LIFT STATION #2
LOBE B
LOBE A
LCS START
LCS START
MH #2
MH #1
CULVERT
CULVERT
LIFT STATION #1
MH #3

MW-12A
MW-39S
MW-13A
MW-40S
MW-42S
MW-41S
MWR-7A
MW-6AA
MW-38S
MWR-15S
MWR-27S

RIVER ROAD
COLUMBIA

VENT #2
VENT #1

EXPANDED VIEW

MW-5S
MW-29S
SCRUBBER POND AREA
RECYCLE POND
CRATES WAY
KUNDY DRIVE
COLUMBIA RIVER

N
0' 100' 200' 300'
1" = 200'

	LOCKHEED MARTIN CORPORATION	LOCKHEED MARTIN CORPORATION SITE THE DALLES, OREGON	DATE: APRIL 2017 SCALE: 1" = 200' PROJECT NO.: 661M129556 FIGURE: 7
	Amec Foster Wheeler Environment & Infrastructure, Inc. 7376 S.W. Durham Road Portland, OR 97224	CERCLA LANDFILL MONITORING LOCATIONS	

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_04-06-07-08 RCRA CERCLA Landfill GW Quality Monitoring Locations.dwg — Fig 7 CERCLA ML — Apr. 27, 2017 11:51am — patrick.mccarthy

LEGEND

- MW-39S — CERCLA LANDFILL MONITORING WELL
- MW-5S — RCRA AND CERCLA LANDFILL MONITORING WELL
- BC — BENCHMARK (BRASS CAP ON CEMENT PAD)
- MH #3 — MANHOLE
- APPROXIMATE LOCATIONS OF BURIED PIPELINES (LCS AND OUTFALL)
- CERCLA LANDFILL FENCE
- PL — LOCKHEED MARTIN PROPERTY BOUNDARY

EXPANDED VIEW

MW-5S	
Total CN	**0.193**
WAD CN	**0.00830**
Fluoride	**6.60**
Sulfate	**49.0**

MW-29S	
Total CN	0.00500 U
WAD CN	0.00500 U
Fluoride	**2.04**
Sulfate	**814**

MW-39S	
Total CN	**0.0100**
WAD CN	0.00500 U
Fluoride	**0.508**
Sulfate	**8.28**

MW-12A	
Total CN	**0.0542**
WAD CN	**0.00550**
Fluoride	**0.626**
Sulfate	**55.5**

MW-13A	
Total CN	**0.00710**
WAD CN	0.00500 U
Fluoride	**0.496**
Sulfate	**13.2**

MW-40S	
Total CN	**0.180**
WAD CN	**0.0142**
Fluoride	**0.537**
Sulfate	**8.51**

MW-42S	
Total CN	**0.424**
WAD CN	**0.0327**
Fluoride	**0.868**
Sulfate	**6.39**

MW-41S	
Total CN	**0.442**
WAD CN	**0.00810**
Fluoride	**0.324**
Sulfate	**83.3**

MWR-7A	
Total CN	**0.323**
WAD CN	**0.0173**
Fluoride	**0.773**
Sulfate	**20.0**

MW-38S	
Total CN	**0.130**
WAD CN	**0.00530**
Fluoride	**4.73**
Sulfate	**16.3**

MW-6AA	
Total CN	**0.522**
WAD CN	**0.0265**
Fluoride	**0.735**
Sulfate	**38.4**

MWR-15S	
Total CN	**4.32**
WAD CN	**0.0891**
Fluoride	**0.956**
Sulfate	**127**

MWR-27S	
Total CN	**5.49**
WAD CN	**0.0890**
Fluoride	**0.329**
Sulfate	**79.0**

FENCE, INLET CULVERT, LCS START, DWT, CULVERT MH, MH #4, LOBE A, LOBE B, CERCLA TREATMENT SYSTEM, CULVERT OUTLET, LIFT STATION #2, GATE, CULVERT, LIFT STATION #1, MH #1, MH #2, MH #3, BURIED PIPE TO OUTFALL C, VENT #1, VENT #2, COLUMBIA RIVER

0' 100' 200' 300'
1" = 200'

Notes:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
BOLD	DETECTION
CN	CYANIDE
WAD	WEAK ACID DISSOCIABLE

ALL RESULTS REPORTED IN mg/L

DRAWN BY: BRJ CHECKED BY:

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Environment & Infrastructure, Inc.
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Portland, OR 97224

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LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

CERCLA LANDFILL
GROUNDWATER QUALITY
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 200'
PROJECT NO.: 661M129556
FIGURE: 8

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_04-06-07-08 RCRA CERCLA Landfill GW Quality Monitoring Locations.dwg – Fig 8 CERCL WQ – Apr. 27, 2017 11:50am – patrick.mccarthy

LEGEND

MW13-10P — MONITORING WELL - PERCHED ZONE

140.60 — POTENTIOMETRIC SURFACE ELEVATION (FEET ABOVE MEAN SEA LEVEL [NAVD88]) (MEASURED 03/27/2016)

NM — NOT MEASURED

ESTIMATED POTENTIOMETRIC SURFACE ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL [NAVD88])

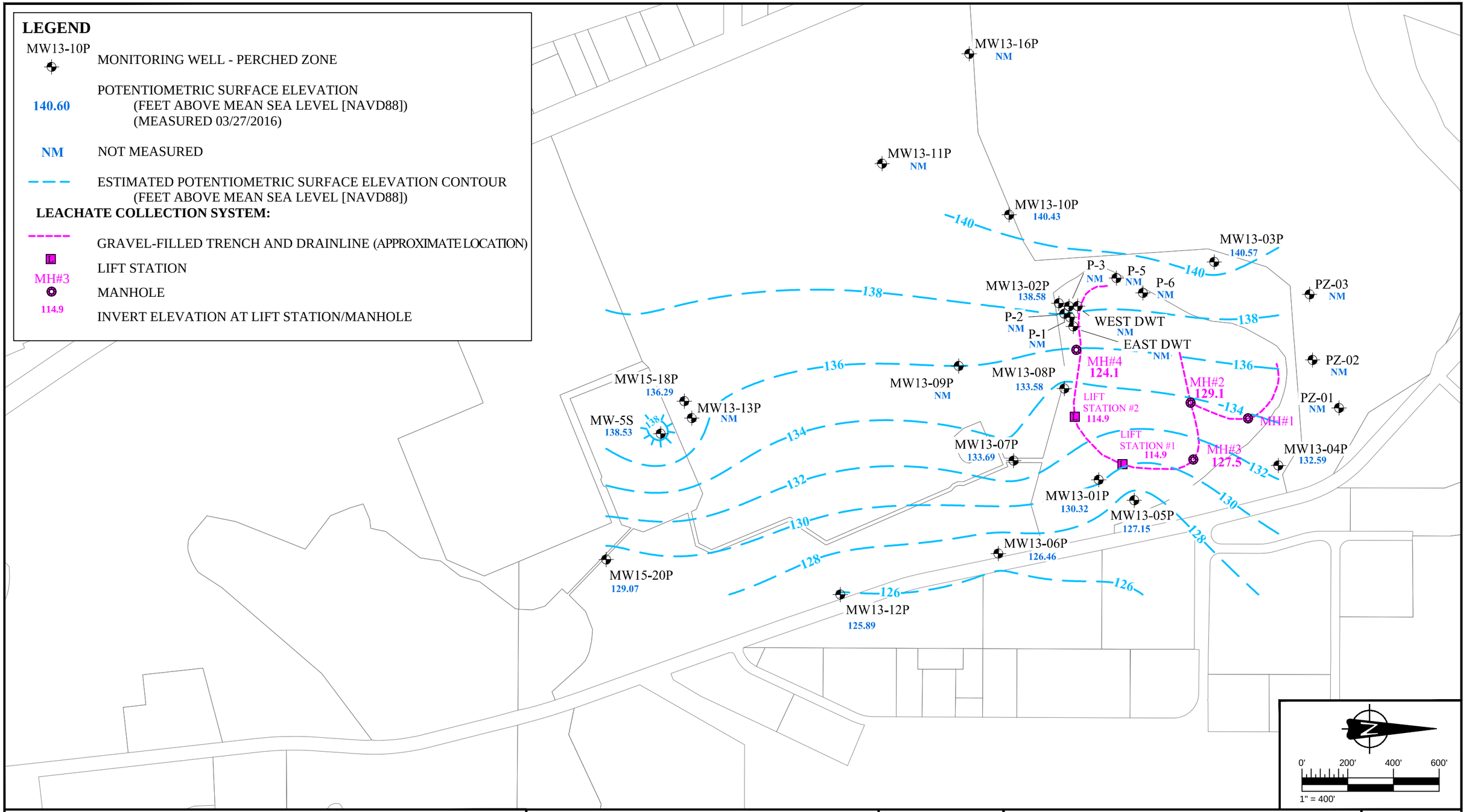
LEACHATE COLLECTION SYSTEM:

GRAVEL-FILLED TRENCH AND DRAINLINE (APPROXIMATE LOCATION)

L — LIFT STATION

MH#3 — MANHOLE

114.9 — INVERT ELEVATION AT LIFT STATION/MANHOLE



- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**
- **MW-5S IS NOW CONSIDERED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN INTERVAL OF DEPTH 10.5 TO 20.5-FEET IS ABOVE THE BYRON INTERBED REPORTED IN THE MW-5 BOREHOLE AT DEPTH 26 TO 34-FEET.**

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THE DALLES, OREGON

POTENTIOMETRIC SURFACE MAP FOR PERCHED ZONE
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 9

DRAWN BY: BRJ CHECKED BY:

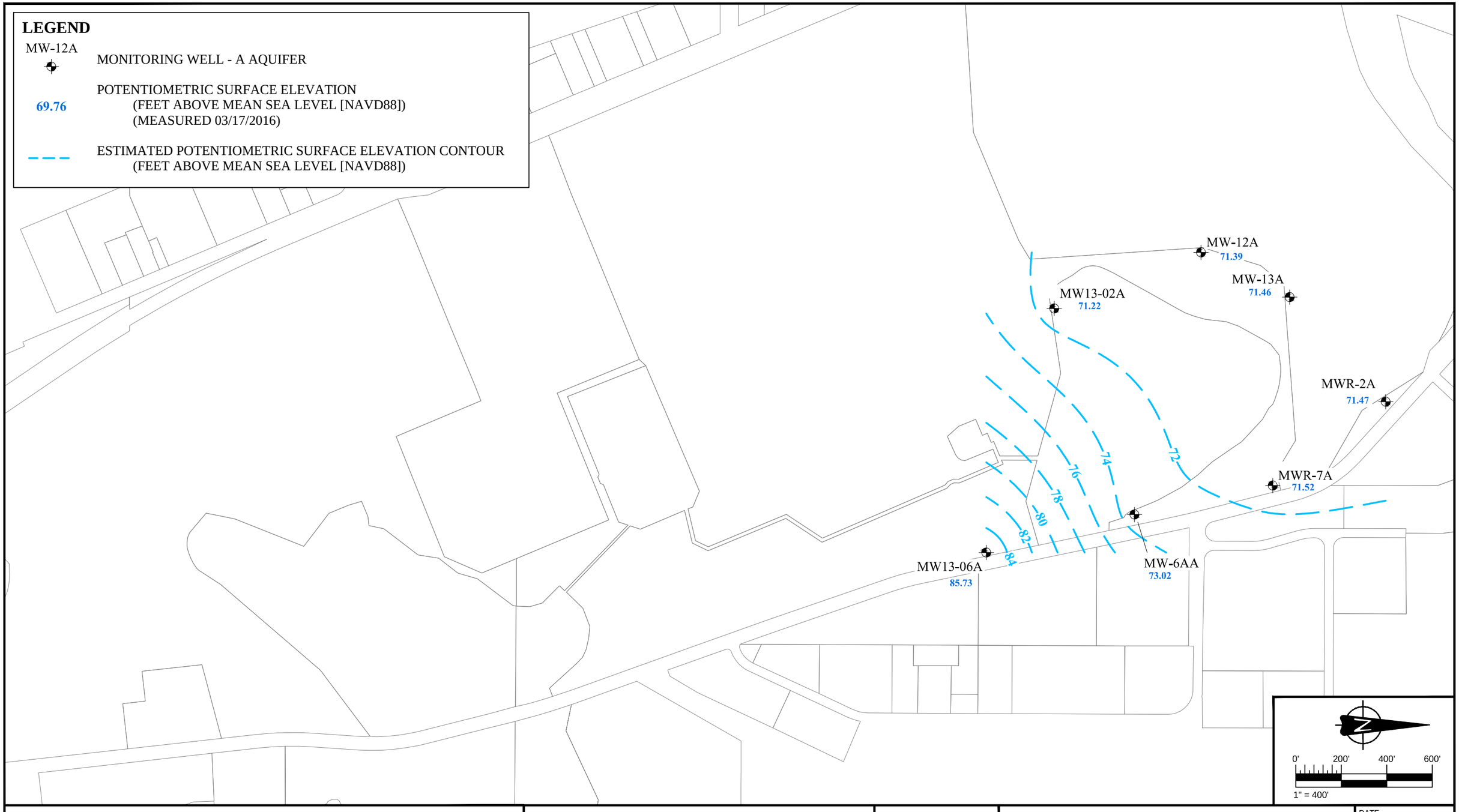
K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_05-09-10 Potentiometric Surface Map S-SL-P-A.dwg – Fig 9 Perched Zone – May. 08, 2017 2:33pm – brian.johnson

LEGEND

MW-12A
MONITORING WELL - A AQUIFER

69.76
POTENTIOMETRIC SURFACE ELEVATION
(FEET ABOVE MEAN SEA LEVEL [NAVD88])
(MEASURED 03/17/2016)

ESTIMATED POTENTIOMETRIC SURFACE ELEVATION CONTOUR
(FEET ABOVE MEAN SEA LEVEL [NAVD88])



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Portland, OR 97224

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POTENTIOMETRIC SURFACE MAP FOR
A AQUIFER
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 10

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_05-09-10 Potentiometric Surface Map S-SL-P-A.dwg – Fig 10 A Aquifer – May. 08, 2017 2:34pm – brian.johnson

LEGEND

- MONITORING WELL - PERCHED ZONE
- 03/16 — MONTH/YEAR OF SAMPLING EVENT
- 0.0024 — WAD CYANIDE CONCENTRATION (mg/L)
- *0.005* — TOTAL CYANIDE CONCENTRATION (mg/L)

MW13-16P			
07/14	10/14	01/15	04/15
0.0050 U	**0.0013 J**	0.0050 UJ	0.0050 U
0.0047 U	*0.0047 U*	***0.0014 J***	***0.0038***

MW13-11P			
07/14	10/14	01/15	04/15
0.0050 U	0.010 U	0.0050 UJ	0.0050 U
0.0029 J	***0.001 J***	***0.0019 J***	*0.0047 U*

MW13-10P			
03/16	06/16	09/16	03/17
0.0050 U	0.0050 U	0.0050 U	0.00500 U
0.0047 U	*0.0047 U*	*0.0047 U*	*0.00500 U*

WEST DWT			
07/14	10/14	01/15	04/15
0.0055	**0.0039 J**	**0.0096**	**0.0045**
0.0470	***0.228***	***0.0940***	***0.396***

P-5			
--	--	--	01/15
--	--	--	**0.0009 J**
--	--	--	***0.0017 J***

MW13-03P			
04/15	03/16	09/16	03/17
0.0050 U	0.0050 U	0.0050 U	0.00500 U
0.0047 U	***0.0086***	*0.0047 U*	*0.00500 U*

P-3			
08/14	10/14	01/15	04/15
0.0037 J	**0.0017 J**	**0.0076**	**0.0008**
0.0047 J	***0.0079***	***0.0183***	***0.0077***

P-6			
--	--	01/15	04/15
--	--	**0.0288**	**0.0167**
--	--	*0.0047 U*	***0.136***

PZ-03			
07/14	10/14	01/15	04/15
0.010 U	0.0050 U	0.0050 U	0.0050 U
0.0047 U	*0.0047 U*	*0.0047 U*	*0.0047 U*

MW13-02P			
03/16	06/16	09/16	03/17
0.0318	**0.0161**	**0.0290**	**0.0130**
0.172	***0.103***	***0.108***	***0.143***

P-1			
08/14	10/14	01/15	04/15
0.0061	**0.0045 J**	**0.0295**	**0.0098**
0.0278	***0.0226***	***0.0427 J***	***0.0422***

MW13-09P			
07/14	10/14	01/15	04/15
0.0050 U	0.010 U	0.0050 UJ	0.0050 U
0.0043 J	***0.0014 J***	*0.0047 U*	*0.0047 U*

MW15-18P			
06/16	09/16	12/16	03/17
0.0050 U	**0.0019 J**	0.00500 U	0.00500 U
0.0052	***0.0035 J***	***0.00600***	*0.00500 U*

P-2			
--	08/14	01/15	04/15
--	**0.0110**	**0.0015 J**	**0.0079**
--	***0.0740***	***0.0248***	***0.0515***

EAST DWT			
07/14	10/14	01/15	04/15
0.0115	**0.0103**	**0.0110**	**0.0107**
0.126	***0.0672***	***0.0555 J***	***0.0750***

PZ-02			
07/14	10/14	01/15	04/15
0.003 J	**0.0069**	**0.0017 J**	**0.0035**
0.0220	***0.0274***	***0.0184***	***0.0176***

MW13-08P			
03/16	06/16	09/16	03/17
0.116	**0.0635**	**0.353**	**0.0214**
1.86	***1.25***	***1.29***	***1.43***

MW13-13P			
07/14	10/14	01/15	04/15
0.0050 U	0.0050 U	0.0050 UJ	0.0050 U
0.0024 J	***0.0020 J***	***0.0031 J***	***0.0018***

PZ-01			
--	--	--	01/15
--	--	--	**0.0055**
--	--	--	***0.0026 J***

MW-5S			
09/15	03/16	09/16	03/17
0.038 J	**0.0398**	**0.0554**	**0.00830**
0.33	***0.443***	***0.402***	***0.193***

MW13-01P			
03/16	06/16	09/16	03/17
2.59	**2.63**	**1.91**	**1.04**
63.3	***45.7***	***46.1***	***52.4***

MW13-07P			
04/15	03/16	09/16	03/17
0.146	**0.206**	**0.275**	**0.0840**
11.3	***17.9***	***8.29***	***19.2***

MW13-04P			
04/15	03/16	09/16	03/17
0.0133	**0.0083**	**0.0249**	**0.0150**
0.106	***0.151***	***0.182***	***0.143***

MW13-05P			
04/15	03/16	09/16	03/17
0.0485	**0.0810**	**0.0587**	**0.0172**
0.435	***0.475***	***0.395***	***0.529***

MW15-20P			
06/16	09/16	12/16	03/17
0.0050 U	0.0050 U	0.00500 U	0.00500 U
0.0035 J	*0.0047 U*	*0.00500 U*	*0.00500 U*

MW13-06P			
04/15	03/16	09/16	03/17
0.148	**0.134**	**0.343**	**0.0516**
1.64	***2.69***	***2.07***	***2.51***

MW13-12P			
03/16	06/16	09/16	03/17
0.0071	**0.0095**	**0.0145**	0.00500 U
0.0600	***0.323***	***0.228***	***0.0580***

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
0.625	SCREENING LEVEL EXCEEDANCE: WAD CYANIDE ACL 0.22 mg/L
--	NOT SAMPLED

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Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

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CYANIDE CONCENTRATIONS IN
PERCHED ZONE
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 11

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_11-15-19-22-24-25-27-28-30 Cyanide Concentrations in P-S-SL-A-B Zones.dwg – Fig 11 Perched Zone – Apr. 20, 2017 11:46am – brian.johnson

LEGEND

- MONITORING WELL - PERCHED ZONE
- 03/16 MONTH/YEAR OF SAMPLING EVENT
- 0.0024 FLUORIDE CONCENTRATION (mg/L)

MW13-16P			
07/14	10/14	01/15	04/15
0.4 J	1.2	0.61	0.37

MW13-11P			
07/14	10/14	01/15	04/15
0.97	0.50	0.38	0.34

MW13-10P			
04/15	03/16	09/16	03/17
2.03	2.10	2.15	2.00

WEST DWT			
07/14	10/14	01/15	04/15
8.0	8.05	5.6	7.1

P-5			
--	--	--	01/15
--	--	--	1.16

MW13-03P			
04/15	03/16	09/16	03/17
0.21	0.24	0.29	0.274

P-3			
08/14	10/14	01/15	04/15
17.5	18.5	18.1	11.5

PZ-03			
07/14	10/14	01/15	04/15
0.21	0.19 J	0.31	0.10

P-6			
--	--	01/15	04/15
--	--	11.8	6.4

MW13-02P			
04/15	03/16	09/16	03/17
4.1	6.97	6.02	7.58

P-1			
08/14	10/14	01/15	04/15
5.5	5.72	5.5	6.0

MW13-09P			
07/14	10/14	01/15	04/15
1.21	1.03	0.57	0.46

MW15-18P			
06/16	09/16	12/16	03/17
13.4	13.9	16.2	14.5

EAST DWT			
07/14	10/14	01/15	04/15
15.6	19.2	16.5	14.8

PZ-02			
07/14	10/14	01/15	04/15
0.28	0.27	0.32	0.20

P-2			
--	08/14	01/15	04/15
--	46.9	16.0	32.2

MW13-08P			
04/15	03/16	09/16	03/17
4.3	5.1	4.95	5.21

PZ-01			
--	--	--	01/15
--	--	--	0.51

MW13-13P			
07/14	10/14	01/15	04/15
1.16	0.44	0.37	0.34

MW13-01P			
04/15	03/16	09/16	03/17
10.6	15.9	17.8	19.4

MW-5S			
09/15	03/16	09/16	03/17
6.6	6.87	7.63	6.60

MW13-07P			
04/15	03/16	09/16	03/17
178	137	164	115

MW13-04P			
04/15	03/16	09/16	03/17
12.4	11.3	9.6	10.8

MW13-05P			
04/15	03/16	09/16	03/17
4.3	4.3	3.78	3.75

MW15-20P			
06/16	09/16	12/16	03/17
0.84	0.80	4.69	3.52

MW13-06P			
04/15	03/16	09/16	03/17
4.6	4.10	3.88	4.12

MW13-12P			
04/15	03/16	09/16	03/17
8.8	16.7	12.3	16.0

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
9.8	SCREENING LEVEL EXCEEDANCE: FLUORIDE ACL 9.7 mg/L
--	NOT SAMPLED

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Portland, OR 97224

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THE DALLES, OREGON

FLUORIDE CONCENTATIONS IN PERCHED ZONE (FOUR MOST RECENT EVENTS)

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 12

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_12-16-20-23-26-29 Fluoride Concentrations in P-S-SL-A Zones.dwg – Fig 12 Perched Zone – Apr. 20, 2017 10:15am – brian.johnson

LEGEND

- MONITORING WELL - PERCHED ZONE
- 03/16 MONTH/YEAR OF SAMPLING EVENT
- 0.0024 SULFATE CONCENTRATION (mg/L)

MW13-16P			
07/14	10/14	01/15	04/15
207	**215**	**194**	**199**

MW13-11P			
07/14	10/14	01/15	04/15
99.0	**128**	**98.7**	**103**

MW13-10P			
04/15	03/16	09/16	03/17
70.8	**34.5**	**138**	**69.2**

WEST DWT			
07/14	10/14	01/15	04/15
49.5	**120**	**41.4**	**72.1**

P-5			
--	--	--	01/15
--	--	--	**12.3**

MW13-03P			
04/15	03/16	09/16	03/17
10.3	**11.6**	**12.5**	**12.4**

P-3			
08/14	10/14	01/15	04/15
65.7	**66.8**	**68.5**	**99.0**

PZ-03			
07/14	10/14	01/15	04/15
3.56	**4.12**	**3.35**	**3.13**

P-6			
--	--	01/15	04/15
--	--	**81.7**	**50.5**

MW13-02P			
04/15	03/16	09/16	03/17
105	**98.5**	**107**	**102**

P-1			
08/14	10/14	01/15	04/15
39.9	**45.5**	**47.8**	**55.0**

MW13-09P			
07/14	10/14	01/15	04/15
359	**417**	**217**	**256**

MW15-18P			
06/16	09/16	12/16	03/17
27.1	**53.2**	**40.1**	**14.3**

EAST DWT			
07/14	10/14	01/15	04/15
67.3	**72.5**	**66.6**	**77.5**

PZ-02			
07/14	10/14	01/15	04/15
14.0	**59.0**	**3.74**	**11.2**

P-2			
--	08/14	01/15	04/15
--	**52.1**	**39.8**	**49.2**

MW13-08P			
04/15	03/16	09/16	03/17
656	**759**	**823**	**786**

PZ-01			
--	--	--	01/15
--	--	--	**10.8**

MW13-13P			
07/14	10/14	01/15	04/15
51.8	**56.2**	**49.0**	**47.3**

MW-5S			
09/15	03/16	09/16	03/17
66	**60.6**	**73.3**	**49.0**

MW13-01P			
04/15	03/16	09/16	03/17
74.4	**125**	**130**	**130**

MW13-07P			
04/15	03/16	09/16	03/17
188	**190**	**125**	**213**

MW13-04P			
04/15	03/16	09/16	03/17
30.3	**38.8**	**51.0**	**41.7**

MW13-05P			
04/15	03/16	09/16	03/17
83.7	**86.3**	**85.4**	**83.1**

MW15-20P			
06/16	09/16	12/16	03/17
29.8	**30.6**	**11.6**	**12.9**

MW13-06P			
04/15	03/16	09/16	03/17
541	**613**	**610**	**597**

MW13-12P			
04/15	03/16	09/16	03/17
469	**74.9**	**441**	**65.3**

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
4,000	SCREENING LEVEL EXCEEDANCE: SULFATE ACL 3,020 mg/L
--	NOT SAMPLED

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

amec foster wheeler

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

SULFATE CONCENTATIONS IN
PERCHED ZONE
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017

SCALE: 1" = 400'

PROJECT NO.: 661M129556

FIGURE: 13

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_13-17-21-24-27-30 Sulfate Concentrations in P-S-SL-A Zones.dwg – Fig 13 Perched Zone – Apr. 20, 2017 10:18am – brian.johnson

LEGEND

- MONITORING WELL - PERCHED ZONE
- 03/16 MONTH/YEAR OF SAMPLING EVENT
- 0.0024 PAH CONCENTRATION (µg/L)

	PAH Compound
Baa	Benzo(a)anthracene
Bap	Benzo(a)pyrene
Bpf	Benzo(b)fluoranthene
Bkf	Benzo(k)fluoranthene
C	Chrysene
D	Dibenzo(a,h)anthracene
I	Indeno(1,2,3-cd)pyrene

MW13-10P

	07/14	10/14	01/15	04/15
Baa	**0.0034 B**	**0.0027 J**	0.034 U	**0.0037**
Bap	0.019 U	0.020 U	0.020 U	0.020 U
Bbf	0.019 U	0.020 U	0.020 U	0.020 U
Bkf	0.019 U	0.020 U	0.020 U	0.020 U
C	0.019 U	0.020 U	0.020 U	0.020 U
D	0.019 U	0.020 U	0.020 U	0.020 U
I	0.019 U	0.020 U	0.020 U	0.020 U

WEST DWT

	–	10/14	01/15	04/15
Baa	–	**0.042**	0.019 U	**0.024**
Bap	–	**0.021**	0.019 U	**0.0077**
Bbf	–	**0.029**	0.019 U	**0.011**
Bkf	–	**0.0052 J**	0.019 U	**0.0033**
C	–	**0.17**	0.019 U	**0.085**
D	–	**0.0062 J**	0.019 U	0.019 U
I	–	**0.012 J**	0.019 U	**0.0037**

MW13-16P

	07/14	10/14	01/15	04/15
Baa	**0.0044 B**	**0.0032 B**	0.019 U	**0.011**
Bap	0.020 U	0.020 U	0.019 U	**0.0099**
Bbf	0.020 U	0.020 U	0.019 U	**0.015**
Bkf	0.020 U	0.020 U	0.019 U	**0.0057**
C	0.020 U	0.020 U	0.019 U	**0.011**
D	**0.0031 B**	0.020 U	0.019 U	0.019 U
I	**0.0074 B**	0.020 U	0.019 U	**0.0067**

P-5

	--	--	--	01/15
Baa	--	--	--	**0.0042 B**
Bap	--	--	--	0.019 U
Bbf	--	--	--	0.019 U
Bkf	--	--	--	0.019 U
C	--	--	--	0.019 U
D	--	--	--	0.019 U
I	--	--	--	0.019 U

P-6

	--	--	01/15	04/15
Baa	--	--	**0.0069 B**	**0.0075**
Bap	--	--	0.020 U	**0.0055**
Bbf	--	--	0.020 U	**0.0080**
Bkf	--	--	0.020 U	**0.0047**
C	--	--	**0.0063 J**	**0.0067**
D	--	--	0.020 U	**0.0063**
I	--	--	**0.0047 J**	**0.0089**

MW13-03P

	07/14	10/14	01/15	04/15
Baa	**0.0045 B**	**0.0031 B**	**0.0040 B**	**0.0034**
Bap	0.020 U	0.020 U	0.020 U	0.019 U
Bbf	0.020 U	0.020 U	0.020 U	0.019 U
Bkf	0.020 U	0.020 U	0.020 U	0.019 U
C	0.020 U	0.020 U	0.020 U	0.019 U
D	0.020 U	0.020 U	0.020 U	0.019 U
I	0.020 U	0.020 U	0.020 U	0.019 U

PZ-03

	07/14	10/14	01/15	04/15
Baa	**0.0050 B**	**0.0055 J**	0.019 U	**0.0040**
Bap	0.020 U	0.020 U	0.019 U	0.020 U
Bbf	0.020 U	**0.0042 J**	0.019 U	0.020 U
Bkf	0.020 U	0.020 U	0.019 U	0.020 U
C	0.020 U	**0.0051 J**	0.019 U	0.020 U
D	0.020 U	0.020 U	0.019 U	0.020 U
I	0.020 U	0.020 U	0.019 U	0.020 U

MW13-11P

	08/14	10/14	01/15	04/15
Baa	**0.015 J**	**0.0090 B**	0.020 U	**0.0069**
Bap	**0.012 J**	**0.0080 J**	0.020 U	0.021 U
Bbf	**0.019 J**	**0.0050 J**	0.020 U	0.021 U
Bkf	**0.0054 J**	0.019 U	0.020 U	0.021 U
C	**0.024 J**	**0.0059 J**	0.020 U	0.021 U
D	0.020 UJ	0.019 U	0.020 U	0.021 U
I	**0.011 J**	0.019 U	0.020 U	0.021 U

MW13-02P

	08/14	10/14	01/15	04/15
Baa	**0.0051 B**	**0.0050 J**	**0.0064 J**	**0.0047**
Bap	0.020 U	0.020 U	0.020 U	0.019 U
Bbf	0.020 U	0.020 U	0.020 U	0.019 U
Bkf	0.020 U	0.020 U	0.020 U	0.019 U
C	0.020 U	0.020 U	**0.0054 J**	0.019 U
D	0.020 U	0.020 U	0.020 U	0.019 U
I	0.020 U	0.020 U	0.020 U	0.019 U

MW15-18P

	03/16	06/16	09/16	12/16
Baa	0.0060 U	0.020 U	0.020 U	0.0400 U
Bap	0.020 U	0.020 U	0.020 U	0.0400 U
Bbf	0.020 U	0.020 U	0.020 U	0.0400 U
Bkf	0.020 U	0.020 U	0.020 U	0.0400 U
C	0.020 U	0.020 U	0.020 U	0.0400 U
D	0.020 U	0.020 UJ	0.020 U	0.0400 U
I	0.020 U	0.020 U	0.020 U	0.0400 U

P-3

	–	10/14	01/15	04/15
Baa	–	**0.0051 J**	**0.0072 B**	**0.0032**
Bap	–	0.020 U	**0.0065 J**	0.020 U
Bbf	–	0.020 U	**0.0076 J**	0.020 U
Bkf	–	0.020 U	0.020 U	0.020 U
C	–	0.020 U	**0.0050 J**	0.020 U
D	–	0.020 U	0.020 U	0.020 U
I	–	0.020 U	**0.0055 J**	0.020 U

P-1

	08/14	10/14	01/15	04/15
Baa	**0.014 B**	**0.0088 J**	**0.011 B**	**0.0068**
Bap	**0.018 J**	**0.0076 J**	**0.013 J**	**0.0070**
Bbf	**0.025**	**0.012 J**	**0.015 J**	**0.0091**
Bkf	**0.0093 J**	**0.0030 J**	**0.0052 J**	**0.0037**
C	**0.017 J**	**0.0060 J**	**0.017 J**	**0.0067**
D	**0.0029 J**	0.020 U	0.019 U	0.019 U
I	**0.017 J**	**0.0070 J**	**0.013 J**	**0.0056**

MW13-13P

	08/14	10/14	01/15	04/15
Baa	**0.0071 B**	**0.014 J**	0.020 U	**0.0098**
Bap	0.020 U	**0.014 J**	0.020 U	**0.0076**
Bbf	**0.0050 J**	**0.020**	0.020 U	**0.0089**
Bkf	0.020 U	**0.0072 J**	0.020 U	0.020 U
C	**0.0039 J**	**0.015 J**	0.020 U	**0.0068**
D	0.020 U	**0.0033 J**	0.020 U	0.020 U
I	**0.0032 J**	**0.014 J**	0.020 U	**0.0049**

P-2

	--	--	01/15	04/15
Baa	--	--	**0.0068 B**	**0.0046**
Bap	--	--	**0.0052 J**	0.020 U
Bbf	--	--	**0.0051 J**	0.020 U
Bkf	--	--	0.020 U	0.020 U
C	--	--	**0.0042 J**	0.020 U
D	--	--	0.020 U	0.020 U
I	--	--	**0.0051 J**	0.020 U

EAST DWT

	--	10/14	01/15	04/15
Baa	--	**0.0045 J**	**0.0064 B**	**0.0036**
Bap	--	0.020 U	0.020 U	0.019 U
Bbf	--	0.020 U	0.020 U	0.019 U
Bkf	--	0.020 U	0.020 U	0.019 U
C	--	0.020 U	0.020 U	0.019 U
D	--	0.020 U	0.020 U	0.019 U
I	--	0.020 U	0.020 U	0.019 U

MW-5S

	07/14	10/14	01/15	04/15
Baa	**0.0074 J**	**0.0033 J**	0.020 U	**0.0059**
Bap	0.020 U	0.020 U	0.020 U	0.019 U
Bbf	**0.0080 J**	0.020 U	0.020 U	0.019 U
Bkf	**0.0037 J**	0.020 U	0.020 U	0.019 U
C	**0.0055 J**	0.020 U	0.020 U	0.019 U
D	0.020 U	0.020 U	0.020 U	0.019 U
I	**0.0043 J**	0.020 U	0.020 U	0.019 U

MW13-09P

	08/14	10/14	01/15	04/15
Baa	**0.034**	**0.0061 B**	0.020 U	**0.0045**
Bap	**0.034**	0.019 U	0.020 U	0.020 U
Bbf	**0.050**	0.019 U	0.020 U	0.020 U
Bkf	**0.016 J**	0.019 U	0.020 U	0.020 U
C	**0.052**	0.019 U	0.020 U	0.020 U
D	**0.0045 J**	0.019 U	0.020 U	0.020 U
I	**0.031**	**0.0028 J**	0.020 U	0.020 U

MW13-07P

	07/14	10/14	01/15	04/15
Baa	**0.071**	**0.075**	**0.032**	**0.16**
Bap	**0.16**	**0.086**	**0.037**	**0.24**
Bbf	**0.33**	**0.17**	**0.061**	**0.38**
Bkf	**0.085**	**0.055**	**0.022**	**0.13**
C	**0.12**	**0.081**	**0.055**	**0.24**
D	**0.016 J**	**0.012 J**	**0.0036 J**	**0.036**
I	**0.10**	**0.051**	**0.023**	**0.20**

MW13-05P

	07/14	10/14	01/15	04/15
Baa	**0.0043 B**	**0.0050 J**	**0.0037 J**	**0.0063**
Bap	0.020 U	0.020 U	0.019 U	0.020 U
Bbf	0.020 U	0.020 U	0.019 U	0.020 U
Bkf	0.020 U	0.020 U	0.019 U	0.020 U
C	0.020 U	**0.0038 J**	0.019 U	**0.0047**
D	0.020 U	0.020 U	0.019 U	0.020 U
I	0.020 U	0.020 U	0.019 U	0.020 U

PZ-02

	--	--	01/15	04/15
Baa	--	--	0.019 U	**0.0037**
Bap	--	--	0.019 U	0.020 U
Bbf	--	--	0.019 U	0.020 U
Bkf	--	--	0.019 U	0.020 U
C	--	--	0.019 U	0.020 U
D	--	--	0.019 U	0.020 U
I	--	--	0.019 U	0.020 U

MW13-06P

	07/14	10/14	01/15	04/15
Baa	**0.0050 B**	**0.0072 J**	0.025 U	**0.0095**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	**0.0043**
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	**0.0067**
D	0.020 U	0.020 U	0.020 U	0.020 U
I	0.020 U	0.020 U	0.020 U	0.020 U

MW13-01P

	08/14	10/14	01/15	04/15
Baa	**0.0053 B**	**0.0036 J**	0.020 U	**0.0053**
Bap	0.020 U	0.020 U	0.020 U	0.019 U
Bbf	0.020 U	0.020 U	0.020 U	0.019 U
Bkf	0.020 U	0.020 U	0.020 U	0.019 U
C	**0.0038 J**	0.020 U	0.020 U	0.019 U
D	0.020 U	0.020 U	0.020 U	0.019 U
I	0.020 U	0.020 U	0.020 U	0.019 U

MW13-04P

	07/14	10/14	01/15	04/15
Baa	**0.0047 B**	**0.0039 B**	0.019 U	**0.0043**
Bap	0.019 U	0.020 U	0.019 U	0.020 U
Bbf	0.019 U	0.020 U	0.019 U	0.020 U
Bkf	0.019 U	0.020 U	0.019 U	0.020 U
C	0.019 U	**0.0035 J**	0.019 U	0.020 U
D	0.019 U	0.020 U	0.019 U	0.020 U
I	0.019 U	0.020 U	0.019 U	0.020 U

PZ-01

	--	--	--	01/15
Baa	--	--	--	0.020 U
Bap	--	--	--	0.020 U
Bbf	--	--	--	0.020 U
Bkf	--	--	--	0.020 U
C	--	--	--	0.020 U
D	--	--	--	0.020 U
I	--	--	--	0.020 U

MW15-20P

	03/16	06/16	09/16	12/16
Baa	0.0049 U	0.020 U	**0.0038 J**	0.0388 U
Bap	0.020 U	0.020 U	0.020 U	0.0388 U
Bbf	0.020 U	0.020 U	0.020 U	0.0388 U
Bkf	0.020 U	0.020 U	0.020 U	0.0388 U
C	0.020 U	**0.0068 J**	0.020 U	0.0388 U
D	0.020 U	0.020 UJ	0.020 U	0.0388 U
I	0.020 U	0.020 U	0.020 U	0.0388 U

MW13-12P

	07/14	10/14	01/15	04/15
Baa	**0.0083 B**	**0.0085 J**	**0.013 B**	**0.0070**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	0.020 U	0.020 U	0.020 U	0.020 U
I	0.020 U	0.020 U	0.020 U	0.020 U

MW13-08P

	07/14	10/14	01/15	04/15
Baa	**0.0047 J**	**0.0032 J**	0.020 U	**0.0072**
Bap	0.020 U	0.019 U	0.020 U	0.020 U
Bbf	**0.0045 J**	0.019 U	0.020 U	0.020 U
Bkf	0.020 U	0.019 U	0.020 U	0.020 U
C	0.020 U	0.019 U	0.020 U	**0.0044**
D	0.020 U	0.019 U	0.020 U	0.020 U
I	**0.0037 J**	0.019 U	0.020 U	0.020 U

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
µg/L	MICROGRAMS PER LITER
0.250	SCREENING LEVEL EXCEEDANCE: Bap PAH MCL 0.200 µg/L
--	NOT SAMPLED

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

PAH CONCENTATIONS IN
PERCHED ZONE
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017

SCALE: 1" = 400'

PROJECT NO.: 661M129556

FIGURE: 14

DRAWN BY: BRJ CHECKED BY:

C:\Users\brian.johnson\appdata\local\temp\AcPublish_4180_Figures_14-18 PAH Concentrations in P-S-SL Zones.dwg – Fig 14 Perched Zone – Apr. 20, 2017 10:09am – brian.johnson

LEGEND

- MONITORING WELL - S & S_L ZONES
- 03/16 — MONTH/YEAR OF SAMPLING EVENT
- 0.0024 — WAD CYANIDE CONCENTRATION (mg/L)
- *0.005* — TOTAL CYANIDE CONCENTRATION (mg/L)

MW13-16S			
03/16	06/16	09/16	03/17
0.0050 U	0.0050 U	0.0050 U	0.00500 U
0.0047 U	*0.0047 U*	*0.0047 U*	*0.00500 U*

MW13-11S			
03/16	06/16	09/16	03/17
0.0050 U	0.0050 U	0.0050 U	0.00500 U
0.0047 U	*0.0047 U*	*0.0047 U*	*0.00500 U*

MW-39S			
03/15	04/15	03/16	03/17
0.060 U	**0.0023**	**0.0044 J**	0.00500 U
0.060 U	***0.0096***	***0.0089***	***0.0100***

MW13-02S			
03/16	06/16	09/16	03/17
0.0134	**0.0030 J**	**0.0400**	**0.00560**
0.0418	***0.0359***	***0.0421***	***0.0523***

MW-22S			
09/15	03/16	09/16	03/17
0.038 J	**0.0125 J**	**0.0272**	**0.00820**
0.12	***0.164***	***0.107***	***0.122***

MW-36S			
09/15	03/16	09/16	03/17
0.060 U	0.0050 U	0.0050 U	0.00500 U
0.060 U	*0.0047 U*	*0.0047 U*	*0.00500 U*

MW13-13S			
04/15	03/16	09/16	03/17
0.0050 U	0.0050 U	0.0050 U	0.00500 U
0.0047 U	***0.0840***	*0.0047 U*	*0.00500 U*

MW13-08S			
03/16	06/16	09/16	03/17
0.0930	**0.0318**	**0.118**	**0.0447**
0.820	***0.555***	***0.559***	***0.784***

MW-40S			
03/15	04/15	03/16	03/17
0.010 J	**0.0321**	**0.0191**	**0.0142**
0.16	***0.168***	***0.192***	***0.180***

MWR-4S			
09/15	03/16	09/16	03/17
0.060 U	0.0050 U	0.0050 U	0.00500 U
0.060 U	*0.0047 U*	***0.001 J***	*0.00500 U*

MW-23S			
09/15	03/16	09/16	03/17
0.060 U	**0.0023 J**	**0.0044 J**	0.00500 U
0.047 J	***0.0342***	***0.0206***	***0.0211***

MW13-01S			
03/16	06/16	09/16	03/17
0.0367	**0.0147**	**0.0559**	**0.0346**
0.303	***0.214***	***0.281***	***0.444***

MW-2S			
04/15	03/16	09/16	03/17
0.0022	0.0050 U	**0.0008 J**	0.00500 U
0.0042	***0.0083***	***0.0046 J***	***0.00630***

MW-37S			
09/15	03/16	09/16	03/17
0.060 U	**0.0018 J**	0.0050 U	**0.0327**
0.035 J	***0.0204 J***	***0.0343***	*0.00500 U*

MW-42S			
03/15	04/15	03/16	03/17
0.024 J	**0.0164**	**0.0640**	**0.0327**
0.18	***0.192***	***0.340***	***0.424***

MW-41S			
03/15	04/15	03/16	03/17
0.032 J	**0.0625**	**0.0565 J**	**0.00810**
0.38	***0.378***	***0.508***	***0.442***

MW-35S			
09/15	03/16	09/16	03/17
0.060 U	0.0050 U	**0.0027 J**	0.00500 U
0.029 J	*0.0243*	*0.0192*	*0.0212*

MW-3S			
09/15	03/16	09/16	03/17
0.060 U	0.0050 U	0.0050 U	0.00500 U
0.060 U	*0.0047 U*	*0.0047 U*	*0.00500 U*

MWR-15S			
03/15	04/15	03/16	03/17
0.26	**0.136**	**0.0695**	**0.0891**
4.7	***4.28***	***0.425***	***4.32***

MW-38S			
03/15	04/15	03/16	03/17
0.062	**0.0417**	**0.0168**	**0.00530**
0.48	***0.643***	***0.250***	***0.130***

MW-17S			
09/15	03/16	09/16	03/17
0.060 U	0.0050 U	**0.0025 J**	0.00500 U
0.060 U	***0.0351***	***0.0200***	***0.0252***

MW13-06S			
04/15	03/16	09/16	03/17
0.159	**0.0960**	**0.762**	**0.0404**
1.33	***2.28***	***1.89***	***1.94***

MW-2				
08/14	10/14	01/15	04/15	
0.0050 U	0.0050 U	0.0050 UJ	0.0050 U	
0.0047 U	*0.0047 U*	***0.0014 J***	***0.0011***	

MWR-29S				
03/16	09/16	12/16	03/17	
0.0050 U	0.0050 U	0.00500 U	0.00500 U	
0.0046 J	***0.0020 J***	*0.00500 U*	*0.00500 U*	

MWR-27S			
03/15	04/15	03/16	03/17
0.20	**0.413**	**0.708**	**0.0890**
5.5	***4.05***	***6.03***	***5.49***

MW-26S			
01/15	04/15	03/16	03/17
0.0138	**0.0172**	**0.0159**	**0.00830**
0.115	***0.118***	***0.136***	***0.117***

MW-1				
08/14	10/14	01/15	04/15	
0.0050 U	0.0050 U	0.0050 UJ	**0.001**	
0.0047 U	*0.0047 U*	*0.0047 U*	*0.0047 U*	

MW-29S				
03/16	09/16	12/16	03/17	
0.0050 U	0.0050 U	0.00500 U	0.00500 U	
0.0047 U	*0.0047 U*	*0.00500 U*	*0.00500 U*	

MW13-15SL			
04/15	03/16	09/16	03/17
0.0050 U	**0.0013 J**	0.0050 U	0.00500 U
0.0073	***0.0210***	***0.0052***	***0.0164***

MW-5				
04/15	03/16	09/16	03/17	
0.0050 U	0.0050 U	0.0050 U	0.00500 U	
0.0047 U	*0.0047 U*	*0.0047 U*	*0.00500 U*	

MW-3				
08/14	10/14	01/15	04/15	
0.0013 J	**0.0012 J**	0.0050 UJ	0.0050 U	
0.0037 J	***0.0037 J***	***0.0031 J***	***0.0031***	

MW13-14SL				
04/15	03/16	09/16	03/17	
0.0067	**0.0088**	**0.0091**	**0.0135**	
0.0620	***0.0870***	***0.0676***	***0.0972***	

MW15-17SL				
06/16	09/16	12/16	03/17	
0.0373	**0.0133**	**0.0113**	**0.0115**	
0.190	***0.170***	***0.206***	***0.224***	

MW-4L				
08/14	10/14	01/15	04/15	
0.0050 U	0.0050 U	**0.0019 J**	0.0050 U	
0.0013 J	*0.0047 U*	***0.0026 J***	***0.0016***	

MW-4U				
08/14	10/14	01/15	04/15	
0.0050 U	0.0050 U	0.0050 UJ	**0.0020**	
0.0025 J	*0.0047 U*	***0.0017 J***	***0.0012***	

MW15-19SL				
06/16	09/16	12/16	03/17	
0.0050 U	0.0050 U	0.00500 U	0.00500 U	
0.0047 U	*0.0047 U*	*0.00500 U*	*0.00500 U*	

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
0.625	SCREENING LEVEL EXCEEDANCE: WAD CYANIDE ACL 0.22 mg/L
--	NOT SAMPLED

MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.

** **CONCENTRATIONS OF WAD CYANIDE AT MWR-27S DOES NOT EXCEED THE RCRA POST-CLOSURE CARE PERMIT GROUNDWATER PROTECTION STANDARD.**

DRAWN BY: BRJ CHECKED BY:

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

amec foster wheeler

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

CYANIDE CONCENTRATIONS IN
S & S_L ZONES
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 15

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_11-15-19-22-24-25-27-28-30 Cyanide Concentrations in P-S-SL-A-B Zones.dwg – Fig 15 S & SL Zones – Apr. 20, 2017 11:46am – brian.johnson

LEGEND

- MONITORING WELL - S & S_L ZONES
- 03/16 MONTH/YEAR OF SAMPLING EVENT
- 0.0024 FLUORIDE CONCENTRATION (mg/L)

MW13-16S			
04/15	03/16	09/16	03/17
0.35	**0.53**	**0.41**	**0.426**

MW13-11S			
04/15	03/16	09/16	03/17
0.40	**0.52**	**0.48**	**0.485**

MW-39S			
03/15	04/15	03/16	03/17
0.63	**0.56**	**0.57**	**0.508**

MW13-02S			
04/15	03/16	09/16	03/17
0.54	**0.60**	**0.59**	**0.602**

MW-40S			
03/15	04/15	03/16	03/17
0.57	**0.53**	**0.51**	**0.537**

MW-22S			
09/15	03/16	09/16	03/17
0.46	**0.49**	**0.42**	**0.427**

MW-36S			
09/15	03/16	09/16	03/17
0.16 J	**0.25**	**0.14 J**	**0.180**

MW13-13S			
04/15	03/16	09/16	03/17
0.37	**0.47**	**0.49**	**0.537**

MW13-08S			
04/15	03/16	09/16	03/17
0.29	**0.26**	**0.30**	**0.227**

MW-2S			
04/15	03/16	09/16	03/17
0.11	**0.14 J**	**0.12 J**	**0.143**

MWR-4S			
09/15	03/16	09/16	03/17
0.14 J	**0.27**	**0.13 J**	**0.230**

MW-23S			
09/15	03/16	09/16	03/17
0.26	**0.36**	**0.22**	**0.235**

MW13-01S			
04/15	03/16	09/16	03/17
0.78	**0.76**	**0.68**	**0.691**

MW-35S			
09/15	03/16	09/16	03/17
0.59	**0.63**	**0.55**	**0.532**

MW-37S			
09/15	03/16	09/16	03/17
3.9	**4.54**	**3.88**	**3.55**

MW-42S			
03/15	04/15	03/16	03/17
0.86	**0.76**	**0.86**	**0.868**

MW-41S			
03/15	04/15	03/16	03/17
0.37	**0.30**	**0.41**	**0.324**

MW-17S			
09/15	03/16	09/16	03/17
0.54	**0.36**	**0.31**	**0.265**

MW-3S			
09/15	03/16	09/16	03/17
0.26	**0.35**	**0.24**	**0.286**

MWR-15S			
03/15	04/15	03/16	03/17
0.95	**0.81**	**0.96**	**0.956**

MW-38S			
03/15	04/15	03/16	03/17
3.9	**3.6**	**4.13**	**4.73**

MW13-06S			
04/15	03/16	09/16	03/17
1.12	**1.97**	**1.69**	**1.64**

MW-2			
08/14	10/14	01/15	04/15
0.4 J	**0.47**	**0.44**	**0.31**

MWR-29S			
03/16	09/16	12/16	03/17
1.85	**1.21**	**3.75**	**2.07**

MW-29S			
03/16	09/16	12/16	03/17
2.05	**2.02**	**2.11**	**2.04**

MW13-15SL			
04/15	03/16	09/16	03/17
5.4	**6.3**	**2.16**	**3.65**

MW-1			
08/14	10/14	01/15	04/15
0.58	**0.58**	**0.57**	**0.55**

MWR-27S			
03/15	04/15	03/16	03/17
0.33	**0.25**	**0.41**	**0.329**

MW-26S			
01/15	04/15	03/16	03/17
0.33	**0.31**	**0.41**	**0.340**

MW-5			
04/15	03/16	09/16	03/17
0.41	**0.47**	**0.44**	**0.485**

MW-3			
08/14	10/14	01/15	04/15
1.6	**1.3**	**2.13**	**1.6**

MW13-14SL			
04/15	03/16	09/16	03/17
14.8	**33.2**	**19.1**	**40.5**

MW15-17SL			
06/16	09/16	12/16	03/17
0.61	5.0 UJ	1.00 U	**0.644**

MW-4L			
08/14	10/14	01/15	04/15
0.9 J	**0.7 J**	**0.88**	**0.7**

MW-4U			
08/14	10/14	01/15	04/15
1.0 U	1.0 U	**0.26 J**	1.0 U

MW15-19SL			
06/16	09/16	12/16	03/17
4.03	**4.4**	**5.06**	**4.60**

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
9.8	SCREENING LEVEL EXCEEDANCE: FLUORIDE ACL 9.7 mg/L
--	NOT SAMPLED

- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**

DRAWN BY: BRJ CHECKED BY:

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

amec foster wheeler

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

FLUORIDE CONCENTATIONS IN
S & S_L ZONES
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017

SCALE: 1" = 400'

PROJECT NO.: 661M129556

FIGURE: 16

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_12-16-20-23-26-29 Fluoride Concentrations in P-S-SL-A Zones.dwg – Fig 16 S & SL Zones – Apr. 20, 2017 10:15am – brian.johnson

LEGEND

- MONITORING WELL - S & S_L ZONES
- 03/16 MONTH/YEAR OF SAMPLING EVENT
- 0.0024 SULFATE CONCENTRATION (mg/L)

MW13-16S			
04/15	03/16	09/16	03/17
40.9	**41.3**	**54.0**	**69.7**

MW13-11S			
04/15	03/16	09/16	03/17
40.0	**45.6**	**45.1**	**46.2**

MW-39S			
03/15	04/15	03/16	03/17
7.7	**7.51**	**8.92**	**8.28**

MW13-02S			
04/15	03/16	09/16	03/17
13.7	**13.1**	**14.1**	**13.9**

MW-40S			
03/15	04/15	03/16	03/17
8.5	**8.11**	**8.19**	**8.51**

MW-22S			
09/15	03/16	09/16	03/17
39	**50.5**	**45.4**	**51.2**

MW-36S			
09/15	03/16	09/16	03/17
67	**84.7**	**70.3**	**88.1**

MW13-13S			
04/15	03/16	09/16	03/17
22.0	**37.3**	**41.9**	**43.5**

MW13-08S			
04/15	03/16	09/16	03/17
238	**281**	**283**	**355**

MW-2S			
04/15	03/16	09/16	03/17
20.2	**22.5**	**25.0**	**23.4**

MWR-4S			
09/15	03/16	09/16	03/17
67	**48.9**	**51.1**	**58.6**

MW-23S			
09/15	03/16	09/16	03/17
24	**27.5**	**24.8**	**24.4**

MW13-01S			
04/15	03/16	09/16	03/17
10.1	**13.1**	**15.8**	**20.8**

MW-35S			
09/15	03/16	09/16	03/17
95	**92.6**	**104**	**96.6**

MW-37S			
09/15	03/16	09/16	03/17
22	**22.7**	**23.7**	**6.31**

MW-42S			
03/15	04/15	03/16	03/17
4.3	**4.70**	**5.38**	**6.39**

MW-41S			
03/15	04/15	03/16	03/17
66	**65.9**	**68.5**	**83.3**

MW-17S			
09/15	03/16	09/16	03/17
27	**28.4**	**37.0**	**31.7**

MW-3S			
09/15	03/16	09/16	03/17
27	**29.5**	**29.8**	**29.0**

MWR-15S			
03/15	04/15	03/16	03/17
120	**115**	**120**	**127**

MW-38S			
03/15	04/15	03/16	03/17
37	**40.1**	**20.3**	**16.3**

MW13-06S			
04/15	03/16	09/16	03/17
177	**271**	**268**	**258**

MW-2			
08/14	10/14	01/15	04/15
75.9	**72.0**	**69.0**	**61.6**

MWR-29S			
03/16	09/16	12/16	03/17
343	**581**	**398**	**411**

MWR-27S			
03/15	04/15	03/16	03/17
71	**71.7**	**77.2**	**79.0**

MW-26S			
01/15	04/15	03/16	03/17
26.2	**26.9**	**29.4**	**30.7**

MW-1			
08/14	10/14	01/15	04/15
51.2	**52.5**	**46.4**	**47.6**

MW-29S			
03/16	09/16	12/16	03/17
884	**1380**	**1260**	**814**

MW13-15SL			
04/15	03/16	09/16	03/17
771	**1150**	**1090**	**1240**

MW-5			
04/15	03/16	09/16	03/17
38.6	**38.2**	**42.5**	**42.1**

MW-3			
08/14	10/14	01/15	04/15
630	**567**	**298**	**384**

MW13-14SL			
04/15	03/16	09/16	03/17
310	**236**	**386**	**244**

MW15-17SL			
06/16	09/16	12/16	03/17
166	**155**	**160**	**166**

MW-4L			
08/14	10/14	01/15	04/15
952	**1060**	**779**	**804**

MW-4U			
08/14	10/14	01/15	04/15
727	**724**	**564**	**762**

MW15-19SL			
06/16	09/16	12/16	03/17
97.6	**94.2**	**104**	**102**

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
4,000	SCREENING LEVEL EXCEEDANCE: SULFATE ACL 3,020 mg/L
--	NOT SAMPLED

- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**

DRAWN BY: BRJ CHECKED BY:

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

amec foster wheeler

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

SULFATE CONCENTATIONS IN
S & S_L ZONES
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 17

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_13-17-21-24-27-30 Sulfate Concentrations in P-S-SL-A Zones.dwg – Fig 17 S & SL Zones – Apr. 20, 2017 10:18am – brian.johnson

LEGEND

- MONITORING WELL - S & S_L ZONES
- 03/16 MONTH/YEAR OF SAMPLING EVENT
- 0.0024 PAH CONCENTRATION (µg/L)

	PAH Compound
Baa	Benzo(a)anthracene
Bap	Benzo(a)pyrene
Bpf	Benzo(b)fluoranthene
Bkf	Benzo(k)fluoranthene
C	Chrysene
D	Dibenzo(a,h)anthracene
I	Indeno(1,2,3-cd)pyrene

MW-1

	08/14	10/14	01/15	04/15
Baa	**0.0031 B**	0.019 U	0.020 U	**0.0034**
Bap	0.020 U	0.019 U	0.020 U	0.019 U
Bbf	0.020 U	0.019 U	0.020 U	0.019 U
Bkf	0.020 U	0.019 U	0.020 U	0.019 U
C	0.020 U	0.019 U	0.020 U	0.019 U
D	0.020 U	0.019 U	0.020 U	0.019 U
I	0.020 U	0.019 U	0.020 U	0.019 U

MW-5

	08/14	10/14	01/15	04/15
Baa	**0.0030 B**	0.020 U	**0.0029 B**	**0.0047**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	0.020 U	0.020 U	0.020 U	0.020 U
I	0.020 U	0.020 U	0.020 U	0.020 U

MW-2

	08/14	10/14	01/15	04/15
Baa	**0.0039 B**	**0.0029 J**	0.020 U	**0.0035**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	**0.0025 B**	0.020 U	0.020 U	0.020 U
I	**0.0031 B**	0.020 U	0.020 U	0.020 U

MW-3

	08/14	10/14	01/15	04/15
Baa	**0.0051 B**	**0.0032 J**	0.020 U	**0.0044**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	0.020 U	0.020 U	**0.0053 J**	0.020 U
I	0.020 U	0.020 U	**0.0063 J**	0.020 U

MW-4L

	08/14	10/14	01/15	04/15
Baa	**0.0056 B**	0.020 U	0.020 U	**0.0050**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	0.020 U	0.020 U	0.020 U	0.020 U
I	**0.0035 B**	0.020 U	0.020 U	0.020 U

MW-4U

	08/14	10/14	01/15	04/15
Baa	**0.0043 B**	**0.0030 J**	0.019 U	**0.0041**
Bap	0.020 U	0.020 U	0.019 U	0.020 U
Bbf	0.020 U	0.020 U	0.019 U	0.020 U
Bkf	0.020 U	0.020 U	0.019 U	0.020 U
C	0.020 U	0.020 U	0.019 U	0.020 U
D	0.020 U	0.020 U	0.019 U	0.020 U
I	0.020 U	0.020 U	0.019 U	0.020 U

MW-29S

	10/14	01/15	04/15	03/16
Baa	**0.0077 J**	0.020 U	**0.0043**	**0.018 J**
Bap	**0.0063 J**	0.020 U	0.020 U	**0.017 J**
Bbf	**0.010 J**	0.020 U	0.020 U	**0.034**
Bkf	**0.0031 J**	0.020 U	0.020 U	**0.012 J**
C	**0.0052 J**	0.020 U	0.020 U	**0.023**
D	0.020 U	0.020 U	0.020 U	**0.0033 J**
I	**0.0059 J**	0.020 U	0.020 U	**0.015 J**

MWR-29S

	–	–	--	03/16
Baa	–	–	--	0.0039 U
Bap	–	–	--	0.020 U
Bbf	–	–	--	0.020 U
Bkf	–	–	--	0.020 U
C	–	–	--	0.020 U
D	–	–	--	0.020 U
I	–	–	--	0.020 U

MWR-4S

	08/14	10/14	01/15	04/15
Baa	**0.0039 B**	**0.014 J**	**0.0037 B**	**0.0053**
Bap	0.020 U	**0.017 J**	0.020 U	0.020 U
Bbf	0.020 U	**0.027**	0.020 U	0.020 U
Bkf	0.020 U	**0.010 J**	0.020 U	0.020 U
C	0.020 U	**0.015 J**	0.020 U	0.020 U
D	0.020 U	**0.0039 J**	0.020 U	0.020 U
I	**0.0040 J**	**0.017 J**	0.020 U	0.020 U

MW-36S

	07/14	10/14	01/15	04/15
Baa	**0.0031 B**	**0.0028 J**	**0.0033 B**	**0.0027**
Bap	0.020 U	0.020 U	0.019 U	0.020 U
Bbf	0.020 U	0.020 U	0.019 U	0.020 U
Bkf	0.020 U	0.020 U	0.019 U	0.020 U
C	0.020 U	0.020 U	0.019 U	0.020 U
D	**0.0058 J**	0.020 U	0.019 U	0.020 U
I	**0.0050 J**	0.020 U	0.019 U	0.020 U

MW-17S

	07/14	10/14	01/15	04/15
Baa	**0.0054 B**	**0.0030 J**	0.020 U	**0.0058**
Bap	0.020 U	0.020 U	0.020 U	0.019 U
Bbf	**0.0055 J**	0.020 U	0.020 U	**0.0066**
Bkf	0.020 U	0.020 U	0.020 U	**0.0031**
C	**0.0043 J**	0.020 U	0.020 U	**0.0052**
D	0.020 U	0.020 U	0.020 U	0.019 U
I	**0.0031 J**	0.020 U	0.020 U	**0.0030**

MW13-15SL

	07/14	10/14	01/15	04/15
Baa	**0.0043 J**	**0.0057 J**	**0.0055 B**	**0.0048**
Bap	**0.0050 J**	**0.0054 J**	**0.0084 J**	0.019 U
Bbf	0.020 U	0.020 U	0.020 U	0.019 U
Bkf	0.020 U	0.020 U	0.020 U	0.019 U
C	0.020 U	0.020 U	**0.0053 J**	0.019 U
D	0.020 U	0.020 U	0.020 U	0.019 U
I	0.020 U	0.020 U	**0.0030 J**	0.019 U

MW15-19SL

	03/16	06/16	09/16	12/16
Baa	0.010 U	0.020 U	**0.0064 J**	0.0388 U
Bap	0.020 U	0.020 U	**0.0060 J**	0.0388 U
Bbf	0.020 U	0.020 U	0.020 U	0.0388 U
Bkf	0.020 U	0.020 U	0.020 U	0.0388 U
C	**0.023**	**0.014 J**	**0.0040 J**	0.0388 U
D	0.020 U	0.020 UJ	0.020 U	0.0388 U
I	0.020 U	0.020 U	0.020 U	0.0388 U

MW-22S

	07/14	10/14	01/15	04/15
Baa	**0.0045 J**	**0.0035 J**	**0.0069 B**	**0.0032**
Bap	0.020 U	0.020 U	**0.0059 J**	0.020 U
Bbf	0.020 U	0.020 U	**0.0072 J**	0.020 U
Bkf	0.020 U	0.020 U	0.019 U	0.020 U
C	0.020 U	0.020 U	**0.0054 J**	0.020 U
D	0.020 U	0.020 U	0.019 U	0.020 U
I	**0.0027 J**	0.020 U	**0.0056 J**	0.020 U

MW-23S

	07/14	10/14	01/15	04/15
Baa	**0.0033 B**	0.019 U	0.020 U	**0.0040**
Bap	0.020 U	0.019 U	0.020 U	0.020 U
Bbf	0.020 U	0.019 U	0.020 U	0.020 U
Bkf	0.020 U	0.019 U	0.020 U	0.020 U
C	0.020 U	0.019 U	0.020 U	0.020 U
D	0.020 U	0.019 U	0.020 U	0.020 U
I	0.020 U	0.019 U	0.020 U	0.020 U

MW-35S

	07/14	10/14	01/15	04/15
Baa	**0.017 J**	**0.011 J**	**0.016 B**	**0.014**
Bap	0.020 U	0.020 U	0.019 U	0.022 U
Bbf	**0.0049 J**	0.020 U	0.019 U	**0.0094**
Bkf	0.020 U	0.020 U	0.019 U	**0.0035**
C	**0.039**	**0.010 J**	0.019 U	**0.038**
D	0.020 U	0.020 U	0.019 U	0.022 U
I	0.020 U	0.020 U	0.019 U	0.022 U

MW-3S

	07/14	10/14	01/15	04/15
Baa	**0.018 J**	**0.0099 J**	**0.0030 B**	**0.011**
Bap	**0.020 J**	**0.0086 J**	0.020 U	**0.0089**
Bbf	**0.037**	**0.018 J**	**0.0051 J**	**0.017**
Bkf	**0.013 J**	**0.0052 J**	0.020 U	**0.0077**
C	**0.025**	**0.015 J**	**0.0042 J**	**0.013**
D	**0.0027 J**	0.019 U	0.020 U	0.019 U
I	**0.019 J**	**0.011 J**	**0.0035 J**	**0.0071**

MWR-27S

	07/14	10/14	01/15	04/15
Baa	**0.011 B**	**0.0045 J**	**0.010 B**	**0.0086**
Bap	**0.012 J**	0.020 U	**0.0050 J**	0.019 U
Bbf	**0.015 J**	0.020 U	**0.0067 J**	**0.0056**
Bkf	**0.0052 J**	0.020 U	**0.0030 J**	0.019 U
C	**0.0098 J**	0.020 U	**0.0044 J**	**0.0049**
D	0.019 U	0.020 U	0.020 U	0.019 U
I	**0.0083 J**	0.020 U	**0.0050 J**	**0.0031**

MW13-11S

	07/14	10/14	01/15	04/15
Baa	**0.0038 B**	**0.0027 J**	**0.0034 B**	**0.0091**
Bap	0.020 U	0.020 U	0.020 U	**0.0067**
Bbf	0.020 U	0.020 U	0.020 U	**0.011**
Bkf	0.020 U	0.020 U	0.020 U	**0.0037**
C	0.020 U	0.020 U	0.020 U	**0.0064**
D	0.020 U	0.020 U	0.020 U	0.020 U
I	0.020 U	0.020 U	0.020 U	**0.0053**

MW13-13S

	07/14	10/14	01/15	04/15
Baa	**0.0066 B**	**0.0033 J**	**0.0096 B**	**0.0058**
Bap	**0.0049 J**	0.020 U	**0.0067 J**	0.020 U
Bbf	**0.0070 J**	0.020 U	**0.0083 J**	**0.0055**
Bkf	0.020 U	0.020 U	**0.0050 J**	0.020 U
C	**0.0036 J**	0.020 U	**0.0079 J**	**0.0039**
D	0.020 U	0.020 U	0.019 U	0.020 U
I	**0.0079 B**	0.020 U	**0.0058 J**	0.020 U

MW-37S

	07/14	10/14	01/15	04/15
Baa	**0.0033 J**	**0.012 J**	0.020 U	**0.0036**
Bap	0.020 U	**0.0098 J**	0.020 U	0.020 U
Bbf	0.020 U	**0.020**	0.020 U	0.020 U
Bkf	0.020 U	**0.0065 J**	0.020 U	0.020 U
C	0.020 U	**0.014 J**	0.020 U	0.020 U
D	0.020 U	**0.0026 J**	0.020 U	0.020 U
I	0.020 U	**0.013 J**	0.020 U	0.020 U

MW13-14SL

	07/14	10/14	01/15	04/15
Baa	**0.0082 J**	**0.0096 J**	**0.017 J**	**0.0095**
Bap	0.020 U	0.020 U	**0.0097 J**	0.020 U
Bbf	**0.0080 J**	**0.0055 J**	**0.026**	**0.0043**
Bkf	**0.0070 J**	0.020 U	**0.0095 J**	0.020 U
C	0.020 U	0.020 U	0.020 UJ	0.020 U
D	0.020 U	0.020 U	**0.0083 J**	0.020 U
I	**0.0055 J**	**0.0040 J**	**0.033**	**0.0038**

MW13-16S

	07/14	10/14	01/15	04/15
Baa	**0.0038 B**	**0.023**	**0.0084 B**	**0.0066**
Bap	0.020 U	**0.028**	**0.0061 J**	**0.0048**
Bbf	0.020 U	**0.046**	**0.0080 J**	**0.0072**
Bkf	0.020 U	**0.014 J**	**0.0043 J**	0.020 U
C	0.020 U	**0.034**	**0.0075 J**	**0.0052**
D	0.020 U	**0.0091 J**	0.020 U	0.020 U
I	0.020 U	**0.029**	**0.0063 J**	**0.0045**

MW13-02S

	08/14	10/14	01/15	04/15
Baa	**0.0051 B**	**0.0031 J**	0.020 U	**0.0033**
Bap	**0.0051 J**	0.020 U	0.020 U	0.020 U
Bbf	**0.013 J**	0.020 U	0.020 U	0.020 U
Bkf	**0.0053 J**	0.020 U	0.020 U	0.020 U
C	**0.0057 J**	0.020 U	0.020 U	0.020 U
D	0.020 U	0.020 U	0.020 U	0.020 U
I	**0.016 J**	0.020 U	0.020 U	0.020 U

MW13-08S

	07/14	10/14	01/15	04/15
Baa	**0.0054 B**	**0.0065 J**	0.019 U	**0.0073**
Bap	0.020 U	0.020 U	0.019 U	0.020 U
Bbf	0.020 U	**0.0050 J**	0.019 U	0.020 U
Bkf	0.020 U	0.020 U	0.019 U	0.020 U
C	0.020 U	**0.0042 J**	0.019 U	0.020 U
D	0.020 U	0.020 U	0.019 U	0.020 U
I	0.020 U	**0.0039 J**	0.019 U	0.020 U

MW13-01S

	08/14	10/14	01/15	04/15
Baa	**0.0053 B**	0.020 U	0.020 U	**0.0075**
Bap	0.020 U	0.020 U	0.020 U	0.021 U
Bbf	0.020 U	0.020 U	0.020 U	0.021 U
Bkf	0.020 U	0.020 U	0.020 U	0.021 U
C	0.020 U	0.020 U	0.020 U	**0.0048**
D	0.020 U	0.020 U	0.020 U	0.021 U
I	0.020 U	0.020 U	0.020 U	0.021 U

MW-42S

	07/14	10/14	01/15	04/15
Baa	**0.0031 B**	0.020 U	0.020 U	**0.0026**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	0.020 U	0.020 U	0.020 U	0.020 U
I	0.020 U	0.020 U	0.020 U	0.020 U

MW13-06S

	07/14	10/14	01/15	04/15
Baa	**0.0070 B**	**0.0062 J**	**0.0042 B**	**0.0054**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	0.020 U	0.020 U	0.020 U	0.020 U
I	0.020 U	**0.0040 J**	0.020 U	0.020 U

MW15-17SL

	03/16	06/16	09/16	12/16
Baa	0.0040 U	0.020 U	**0.0053 J**	0.0396 U
Bap	0.020 U	0.020 U	0.020 U	0.0396 U
Bbf	0.020 U	0.020 U	0.020 U	0.0396 U
Bkf	0.020 U	0.020 U	0.020 U	0.0396 U
C	0.020 U	0.020 U	0.020 U	0.0396 U
D	0.020 U	0.020 UJ	0.020 U	0.0396 U
I	0.020 U	0.020 U	0.020 U	**0.0225 J**

MW-39S

	07/14	10/14	01/15	04/15
Baa	**0.0059 B**	**0.0051 B**	**0.0039 B**	**0.0029**
Bap	**0.0052 J**	0.020 U	0.019 U	0.020 U
Bbf	**0.0070 J**	**0.0049 J**	0.019 U	0.020 U
Bkf	0.020 U	0.020 U	0.019 U	0.020 U
C	**0.0043 J**	**0.0044 J**	0.019 U	0.020 U
D	0.020 U	0.020 U	0.019 U	0.020 U
I	**0.0049 B**	**0.0037 J**	0.019 U	0.020 U

MW-40S

	07/14	10/14	01/15	04/15
Baa	**0.0040 B**	0.020 U	0.020 U	**0.0029**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	**0.0026 B**	0.020 U	0.020 U	0.020 U
I	**0.0038 B**	0.020 U	0.020 U	0.020 U

MW-2S

	07/14	10/14	01/15	04/15
Baa	**0.0039 B**	**0.0043 J**	**0.0030 J**	**0.0038**
Bap	0.020 U	0.019 U	0.019 U	0.020 U
Bbf	0.020 U	0.019 U	0.019 U	0.020 U
Bkf	0.020 U	0.019 U	0.019 U	0.020 U
C	0.020 U	0.019 U	0.019 U	0.020 U
D	0.020 U	0.019 U	0.019 U	0.020 U
I	0.020 U	0.019 U	0.019 U	0.020 U

MW-41S

	07/14	10/14	01/15	04/15
Baa	**0.0043 B**	**0.0031 B**	**0.0034 B**	**0.0034**
Bap	0.020 U	0.019 U	0.020 U	0.020 U
Bbf	0.020 U	0.019 U	0.020 U	0.020 U
Bkf	0.020 U	0.019 U	0.020 U	0.020 U
C	0.020 U	0.019 U	0.020 U	0.020 U
D	0.020 U	0.019 U	0.020 U	0.020 U
I	0.020 U	0.019 U	0.020 U	0.020 U

MWR-15S

	07/14	10/14	01/15	04/15
Baa	**0.0042 JB**	0.020 U	**0.0043 B**	**0.0035**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	0.020 U	0.020 U	0.020 U	0.020 U
Bkf	0.020 U	0.020 U	0.020 U	0.020 U
C	0.020 U	0.020 U	0.020 U	0.020 U
D	**0.0038 JB**	0.020 U	0.020 U	0.020 U
I	**0.0047 JB**	0.020 U	0.020 U	0.020 U

MW-38S

	07/14	10/14	01/15	04/15
Baa	**0.0044 B**	**0.0026 B**	0.020 U	**0.0029**
Bap	0.020 U	0.020 U	0.020 U	0.020 U
Bbf	**0.0043 B**	0.020 U	0.020 U	0.020 U
Bkf	**0.0035 B**	0.020 U	0.020 U	0.020 U
C	**0.0034 J**	0.020 U	0.020 U	0.020 U
D	**0.0043 B**	0.020 U	0.020 U	0.020 U
I	**0.0053 B**	0.020 U	0.020 U	0.020 U

MW-26S

	07/14	10/14	01/15	04/15
Baa	**0.0049 B**	**0.0042 J**	0.019 U	**0.0028**
Bap	**0.0049 B**	0.020 U	0.019 U	0.020 U
Bbf	**0.0043 B**	0.020 U	0.019 U	0.020 U
Bkf	0.020 U	0.020 U	0.019 U	0.020 U
C	0.020 U	0.020 U	0.019 U	0.020 U
D	0.020 U	0.020 U	0.019 U	0.020 U
I	0.020 U	**0.0028 J**	0.019 U	0.020 U

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
µg/L	MICROGRAMS PER LITER
0.250	SCREENING LEVEL EXCEEDANCE: Bap PAH MCL 0.200 µg/L
--	NOT SAMPLED

- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**

DRAWN BY: BRJ CHECKED BY:

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

amec foster wheeler

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THE DALLES, OREGON

PAH CONCENTRATIONS IN
S & S_L ZONES
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 18

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual_Figures_14-18 PAH Concentrations in P-S-SL Zones.dwg – Fig 18 S & SL Zones – Apr. 20, 2017 10:10am – brian.johnson

LEGEND

- MONITORING WELL - A AQUIFER
- 03/16 — MONTH/YEAR OF SAMPLING EVENT
- 0.0024 — WAD CYANIDE CONCENTRATION (mg/L)
- *0.005* — TOTAL CYANIDE CONCENTRATION (mg/L)

MW-12A

03/15	04/15	03/16	03/17
0.060 U	**0.0072**	**0.0053**	**0.00550**
0.059 J	***0.0605***	***0.0482***	***0.0542***

MW-13A

01/15	03/15	04/15	03/17
0.0029 J	0.060 U	**0.0011**	0.00500 U
0.0059	*0.060 U*	***0.0060***	***0.00710***

MW13-02A

03/16	06/16	09/16	03/17
0.0103	**0.0022 J**	**0.0156**	0.00500 U
0.0315	***0.0256 J***	***0.0262***	***0.0289***

MWR-2A

01/15	04/15	03/16	03/17
0.0036 J	**0.0098**	0.0050 U	0.00500 U
0.0444	***0.0459***	***0.0358***	***0.0294***

MWR-7A

03/14	03/15	03/16	03/17
0.0600	**0.015 J**	**0.0387**	**0.0173**
0.313	***0.29***	***0.360***	***0.323***

MW-6AA

03/15	04/15	03/16	03/17
0.032 J	**0.0620**	**0.0368**	**0.0265**
0.46	***0.465***	***0.490***	***0.522***

MW13-06A

03/16	06/16	09/16	03/17
0.0496	**0.0250**	**0.164**	**0.0109**
0.785	***0.592***	***0.803***	***0.795***

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
0.625	SCREENING LEVEL EXCEEDANCE: WAD CYANIDE MCL 0.20 mg/L
--	NOT SAMPLED

DRAWN BY: BRJ CHECKED BY:

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

amec foster wheeler

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

CYANIDE CONCENTATIONS IN
A AQUIFER
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017

SCALE: 1" = 400'

PROJECT NO.: 661M129556

FIGURE: 19

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_11-15-19-22-24-25-27-28-30 Cyanide Concentrations in P-S-SL-A-B Zones.dwg — Fig 19 A Aquifer — Apr. 20, 2017 11:46am — brian.johnson

LEGEND

- MONITORING WELL - A AQUIFER
- 03/16 MONTH/YEAR OF SAMPLING EVENT
- 0.0024 FLUORIDE CONCENTRATION (mg/L)

MW-12A			
03/15	04/15	03/16	03/17
0.68	**0.57**	**0.60**	**0.626**

MW-13A			
01/15	03/15	04/15	03/17
0.54	**0.54**	**0.50**	**0.496**

MW13-02A			
04/15	03/16	09/16	03/17
0.86	**0.94**	**0.79**	**0.934**

MWR-2A			
01/15	04/15	03/16	03/17
0.29 B	**0.38**	**0.25**	**0.438**

MWR-7A			
03/14	03/15	03/16	03/17
0.63 U	**0.79**	**1.00**	**0.773**

MW-6AA			
03/15	04/15	03/16	03/17
0.68	**0.59**	**0.61**	**0.735**

MW13-06A			
04/15	03/16	09/16	03/17
0.54	**0.64**	**0.62**	**0.822**

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
9.8	SCREENING LEVEL EXCEEDANCE: FLUORIDE MCL 4.0 mg/L
--	NOT SAMPLED

DRAWN BY: BRJ CHECKED BY:

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

amec foster wheeler

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THE DALLES, OREGON

FLUORIDE CONCENTATIONS IN
A AQUIFER
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017

SCALE: 1" = 400'

PROJECT NO.: 661M129556

FIGURE: 20

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_12-16-20-23-26-29 Fluoride Concentrations in P-S-SL-A Zones.dwg — Fig 20 A Aquifer — Apr. 20, 2017 10:15am — brian.johnson

LEGEND

- MONITORING WELL - A AQUIFER
- 03/16 MONTH/YEAR OF SAMPLING EVENT
- 0.0024 SULFATE CONCENTRATION (mg/L)

MW-12A			
03/15	04/15	03/16	03/17
37	**35.7**	**83.8**	**55.5**

MW-13A			
01/15	03/15	04/15	03/17
10.1	**8.7**	**8.38**	**13.2**

MW13-02A			
04/15	03/16	09/16	03/17
5.17	**17.8**	**12.8**	**12.1**

MWR-2A			
01/15	04/15	03/16	03/17
17.5	**17.7**	**10.5**	**17.7**

MWR-7A			
03/14	03/15	03/16	03/17
16.5	**19**	**19.5**	**20.0**

MW-6AA			
03/15	04/15	03/16	03/17
36	**33.7**	**34.5**	**38.4**

MW13-06A			
04/15	03/16	09/16	03/17
101	**69.0**	**72.5**	**60.5**

N

0' 200' 400' 600'

1" = 400'

NOTE:

U	NOT DETECTED AT THE REPORTING LIMIT
J	ESTIMATED VALUE
UJ	NOT DETECTED AT OR ABOVE THE STATED LEVEL, WHICH IS AN APPROXIMATE VALUE
B	BLANK CONTAMINATION
mg/L	MILLIGRAMS PER LITER
4,000	SCREENING LEVEL EXCEEDANCE: SULFATE SMCL 250 mg/L
--	NOT SAMPLED

DRAWN BY: BRJ CHECKED BY:

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

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LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

SULFATE CONCENTATIONS IN
A AQUIFER
(FOUR MOST RECENT EVENTS)

DATE: APRIL 2017

SCALE: 1" = 400'

PROJECT NO.: 661M129556

FIGURE: 21

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_13-17-21-24-27-30 Sulfate Concentrations in P-S-SL-A Zones.dwg – Fig 21 A Aquifer – Apr. 20, 2017 10:18am – brian.johnson

LEGEND

- MONITORING WELL - PERCHED ZONE
- WAD CYANIDE DETECTED ABOVE ACL OF 0.22 mg/L
- WAD CYANIDE DETECTED BELOW ACL OF 0.22 mg/L
- WAD CYANIDE NOT DETECTED

MW13-16P
MW13-11P
MW13-10P
MW13-03P
P-5
MW13-02P
P-6
P-3
WEST DWT
PZ-03
P-2
P-1
EAST DWT
MW13-09P
PZ-02
MW13-08P
MW15-18P
MW13-13P
PZ-01
MW-5S
MW13-07P
MW13-04P
MW13-01P
MW13-05P
MW15-20P
MW13-06P
MW13-12P

0' 200' 400' 600'
1" = 400'

LOCKHEED MARTIN CORPORATION

Amec Foster Wheeler
Environment & Infrastructure, Inc.
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Portland, OR 97224

amec foster wheeler

LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

WAD CYANIDE DOT MAP IN
PERCHED ZONE
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 22

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_11-15-19-22-24-25-27-28-30 Cyanide Concentrations in P-S-SL-A-B Zones.dwg – Fig 22 DOT Perched Zone – May. 08, 2017 2:37pm – brian.johnson

LEGEND

- MONITORING WELL - PERCHED ZONE
- FLUORIDE DETECTED ABOVE ACL OF 9.7 mg/L
- FLUORIDE DETECTED BELOW ACL OF 9.7 mg/L
- FLUORIDE NOT DETECTED

MW13-16P
MW13-11P
MW13-10P
MW13-03P
P-5
MW13-02P
P-6
P-3
WEST DWT
P-2
P-1
EAST DWT
PZ-03
MW13-09P
PZ-02
MW13-08P
MW15-18P
MW13-13P
PZ-01
MW-5S
MW13-07P
MW13-04P
MW13-01P
MW13-05P
MW15-20P
MW13-06P
MW13-12P

N

0' 200' 400' 600'

1" = 400'

DRAWN BY: BRJ CHECKED BY:

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THE DALLES, OREGON

FLUORIDE DOT MAP IN
PERCHED ZONE
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 23

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_12-16-20-23-26-29 Fluoride Concentrations in P-S-SL-A Zones.dwg — Fig 23 DOT Perched Zone — May. 08, 2017 2:43pm — brian.johnson

LEGEND

- MONITORING WELL - PERCHED ZONE
- SULFATE DETECTED ABOVE ACL OF 3,020 mg/L
- SULFATE DETECTED BELOW ACL OF 3,020 mg/L
- SULFATE NOT DETECTED

MW13-16P
MW13-11P
MW13-10P
MW13-03P
P-5
MW13-02P
P-6
PZ-03
P-3
WEST DWT
P-2
P-1
EAST DWT
MW13-09P
PZ-02
MW13-08P
MW15-18P
MW13-13P
PZ-01
MW-5S
MW13-07P
MW13-04P
MW13-01P
MW13-05P
MW15-20P
MW13-06P
MW13-12P

0' 200' 400' 600'
1" = 400'

DRAWN BY: BRJ CHECKED BY:

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THE DALLES, OREGON

SULFATE DOT MAP IN
PERCHED ZONE
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 24

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_13-17-21-24-27-30 Sulfate Concentrations in P-S-SL-A Zones.dwg – Fig 24 DOT Perched Zone – May. 08, 2017 2:47pm – brian.johnson

LEGEND

- MONITORING WELL - S & S_L ZONES
- WAD CYANIDE DETECTED ABOVE ACL OF 0.22 mg/L
- WAD CYANIDE DETECTED BELOW ACL OF 0.22 mg/L
- WAD CYANIDE NOT DETECTED

MW13-16S
MW13-11S
MW-39S
MW13-02S
MW-40S
MW13-08S
MW-2S
MW-22S
MW13-13S
MW-36S
MW-23S
MWR-4S
MW-35S
MW-17S
MW-37S
MW-3S
MW13-01S
MW-42S
MW-41S
MW-38S
MWR-15S
MWR-27S
MW13-06S
MW-26S
MW-1
MW-2
MW-29S
MW13-14SL
MW13-15SL
MW-3
MW-5
MW-4L
MW-4U
MW15-19P
MW15-17SL

0' 200' 400' 600'
1" = 400'

- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**

DRAWN BY: BRJ CHECKED BY:

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LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

WAD CYANIDE DOT MAP IN S & S_L ZONES MARCH 2017

DATE	APRIL 2017
SCALE	1" = 400'
PROJECT NO.	661M129556
FIGURE	25

C:\Users\brian.johnson\appdata\local\temp\AcPublish_6320\Figures_11-15-19-22-24-25-27-28-30 Cyanide Concentrations in P-S-SL-A-B Zones.dwg – Fig 25 DOT S & SL Zones – May. 08, 2017 2:39pm – brian.johnson

LEGEND

- MONITORING WELL - S & S_L ZONES
- FLUORIDE DETECTED ABOVE ACL OF 9.7 mg/L
- FLUORIDE DETECTED BELOW ACL OF 9.7 mg/L
- FLUORIDE NOT DETECTED

MW13-16S
MW13-11S
MW-39S
MW13-02S
MW-40S
MW13-08S
MW-2S
MW-22S
MW13-13S
MW-36S
MWR-4S
MW-23S
MW-35S
MW-17S
MW-37S
MW-3S
MW13-01S
MW-42S
MW-41S
MW-38S
MWR-15S
MWR-27S
MW13-06S
MW-26S
MW-1
MW-2
MW-29S
MW13-14SL
MW13-15SL
MW-3
MW-5
MW-4L
MW-4U
MW15-19P
MW15-17SL

0' 200' 400' 600'
1" = 400'

- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**

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LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

FLUORIDE DOT MAP IN
S & S_L ZONES
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 26

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_12-16-20-23-26-29 Fluoride Concentrations in P-S-SL-A Zones.dwg – Fig 26 DOT S & SL Zones – May. 08, 2017 2:43pm – brian.johnson

LEGEND

- MONITORING WELL - S & S_L ZONES
- SULFATE DETECTED ABOVE ACL OF 3,020 mg/L
- SULFATE DETECTED BELOW ACL OF 3,020 mg/L
- SULFATE NOT DETECTED

MW13-16S
MW13-11S
MW-39S
MW13-02S
MW-40S
MW13-08S
MW-2S
MW-22S
MW13-13S
MW-36S
MWR-4S
MW-23S
MW-35S
MW-17S
MW-37S
MW-3S
MW13-01S
MW-42S
MW-41S
MW-38S
MWR-15S
MWR-27S
MW13-06S
MW-26S
MW-1
MW-2
MW-29S
MW13-14SL
MW13-15SL
MW-3
MW-5
MW-4L
MW-4U
MW15-19P
MW15-17SL

0' 200' 400' 600'
1" = 400'

- **MW-37S IS BEING REEVALUATED TO BE COMPLETED IN THE PERCHED ZONE BECAUSE ITS SCREEN DEPTH OF 22-FEET IS ABOVE THE BYRON INTERBED INTERPRETED TO BE A DEPTH OF 25-FEET.**

DRAWN BY: BRJ CHECKED BY:

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Amec Foster Wheeler
Environment & Infrastructure, Inc.
7376 S.W. Durham Road
Portland, OR 97224

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LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

SULFATE DOT MAP IN
S & S_L ZONES
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 27

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_13-17-21-24-27-30 Sulfate Concentrations in P-S-SL-A Zones.dwg — Fig 27 S & SL Zones — May. 08, 2017 2:48pm — brian.johnson

LEGEND

- MONITORING WELL - A AQUIFER
- WAD CYANIDE DETECTED ABOVE MCL OF 0.20 mg/L
- WAD CYANIDE DETECTED BELOW MCL OF 0.20 mg/L
- WAD CYANIDE NOT DETECTED

MW-12A
MW-13A
MW13-02A
MWR-2A
MWR-7A
MW-6AA
MW13-06A

N

0' 200' 400' 600'

1" = 400'

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Portland, OR 97224

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LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

WAD CYANIDE DOT MAP IN
A AQUIFER
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 28

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_11-15-19-22-24-25-27-28-30 Cyanide Concentrations in P-S-SL-A-B Zones.dwg — Fig 28 DOT A Aquifer — May. 08, 2017 2:40pm — brian.johnson



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LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

FLUORIDE DOT MAP IN
A AQUIFER
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 29

DRAWN BY: BRJ CHECKED BY:

C:\Users\brian.johnson\appdata\local\temp\AcPublish_6320\Figures_12-16-20-23-26-29 Fluoride Concentrations in P-S-SL-A Zones.dwg - Fig 29 DOT A Aquifer - May. 08, 2017 2:44pm - brian.johnson

LEGEND

- MONITORING WELL - A AQUIFER
- SULFATE DETECTED ABOVE SMCL OF 250 mg/L
- SULFATE DETECTED BELOW SMCL OF 250 mg/L
- SULFATE NOT DETECTED

MW-12A
MW-13A
MW13-02A
MWR-2A
MWR-7A
MW-6AA
MW13-06A

N

0' 200' 400' 600'

1" = 400'

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Portland, OR 97224

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LOCKHEED MARTIN CORPORATION SITE
THE DALLES, OREGON

SULFATE DOT MAP IN
A AQUIFER
MARCH 2017

DATE: APRIL 2017
SCALE: 1" = 400'
PROJECT NO.: 661M129556
FIGURE: 30

DRAWN BY: BRJ CHECKED BY:

K:\Lockheed Martin\Projects\661M129556_OMM_GWMR\DWG\Combined_2017_Semi-Annual\Figures_13-17-21-24-27-30 Sulfate Concentrations in P-S-SL-A Zones.dwg – Fig 30 A Aquifer – May. 08, 2017 2:49pm – brian.johnson



CHARTS

CHART 1
RCRA Leachate Collection System Production
Lockheed Martin Corporation Site, The Dalles, Oregon

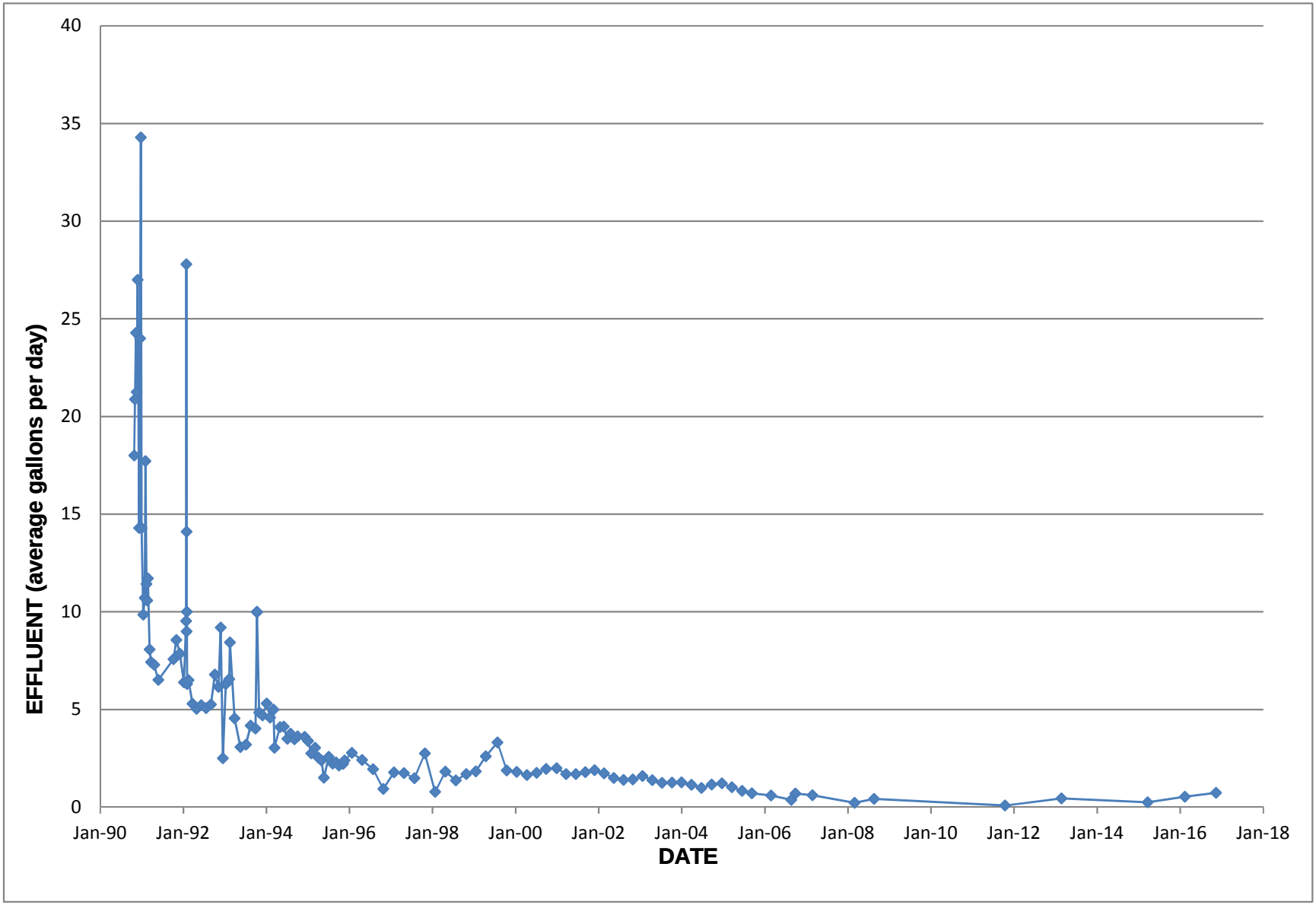


CHART 2
RCRA Groundwater Hydrograph - S Zone
Lockheed Martin Corporation Site, The Dalles, Oregon

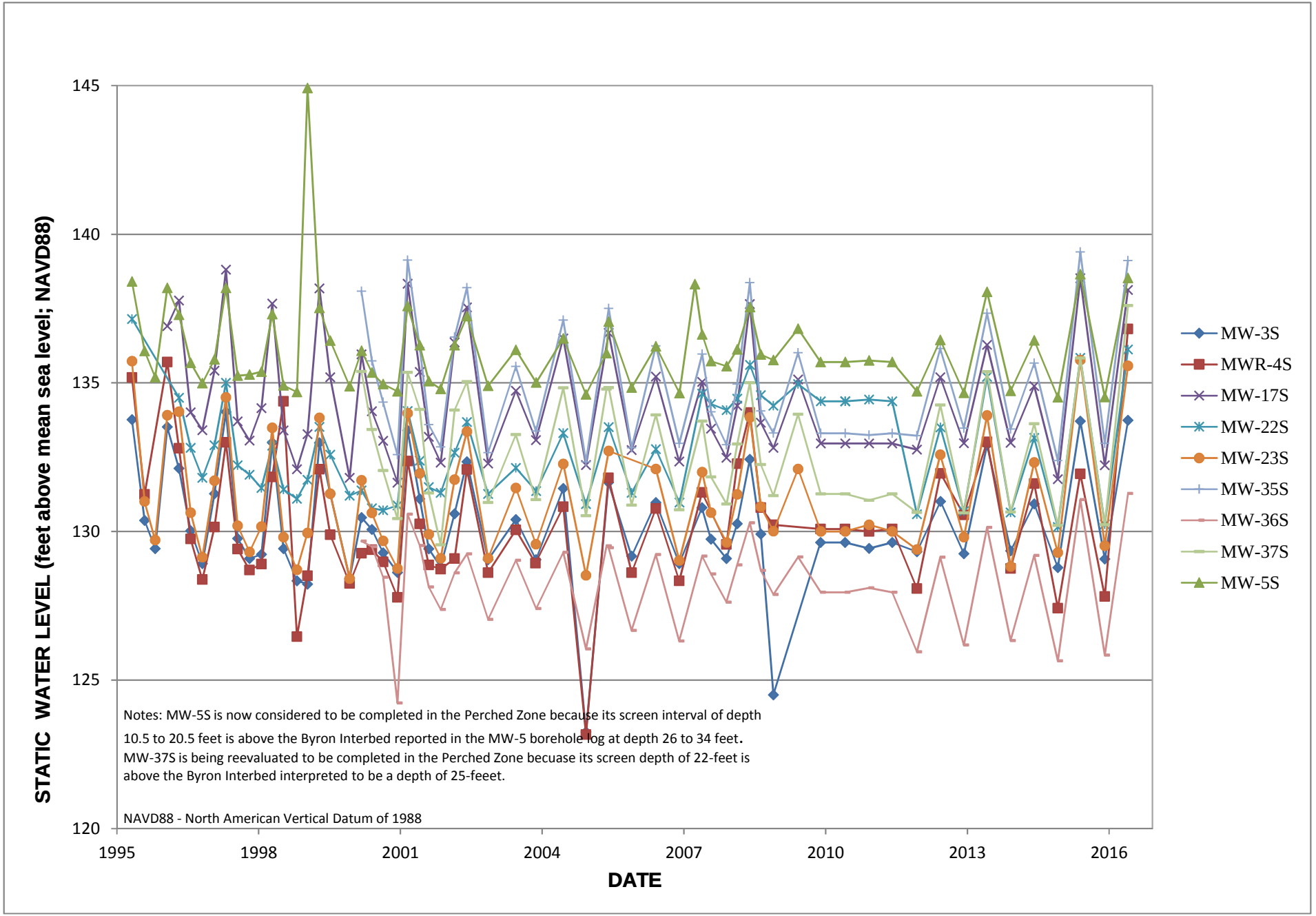


CHART 3
RCRA Groundwater Analytical Data - WAD Cyanide
Lockheed Martin Corporation, The Dalles, Oregon

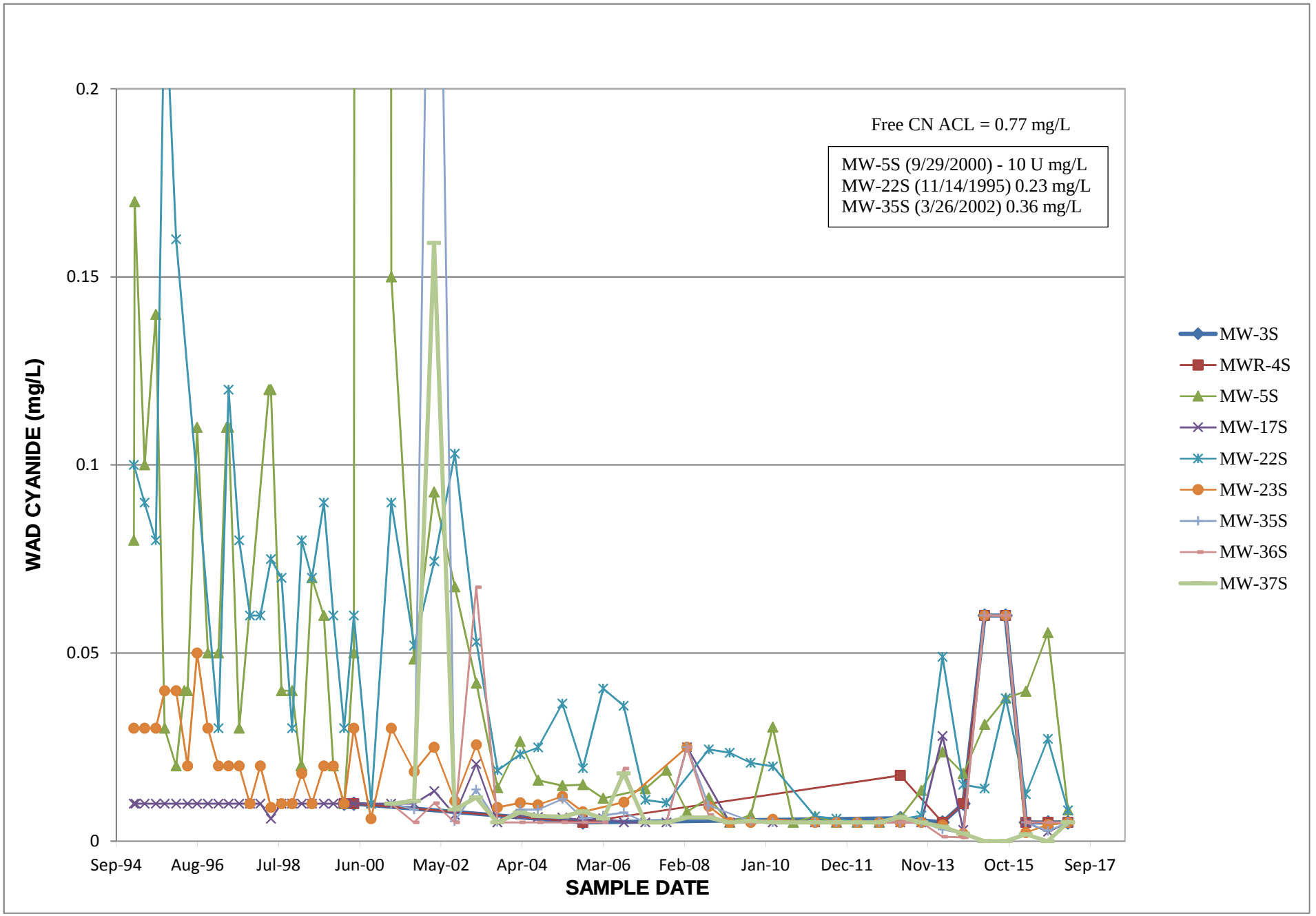


CHART 4
RCRA Groundwater Analytical Data - Fluoride
Lockheed Martin Corporation, The Dalles, Oregon

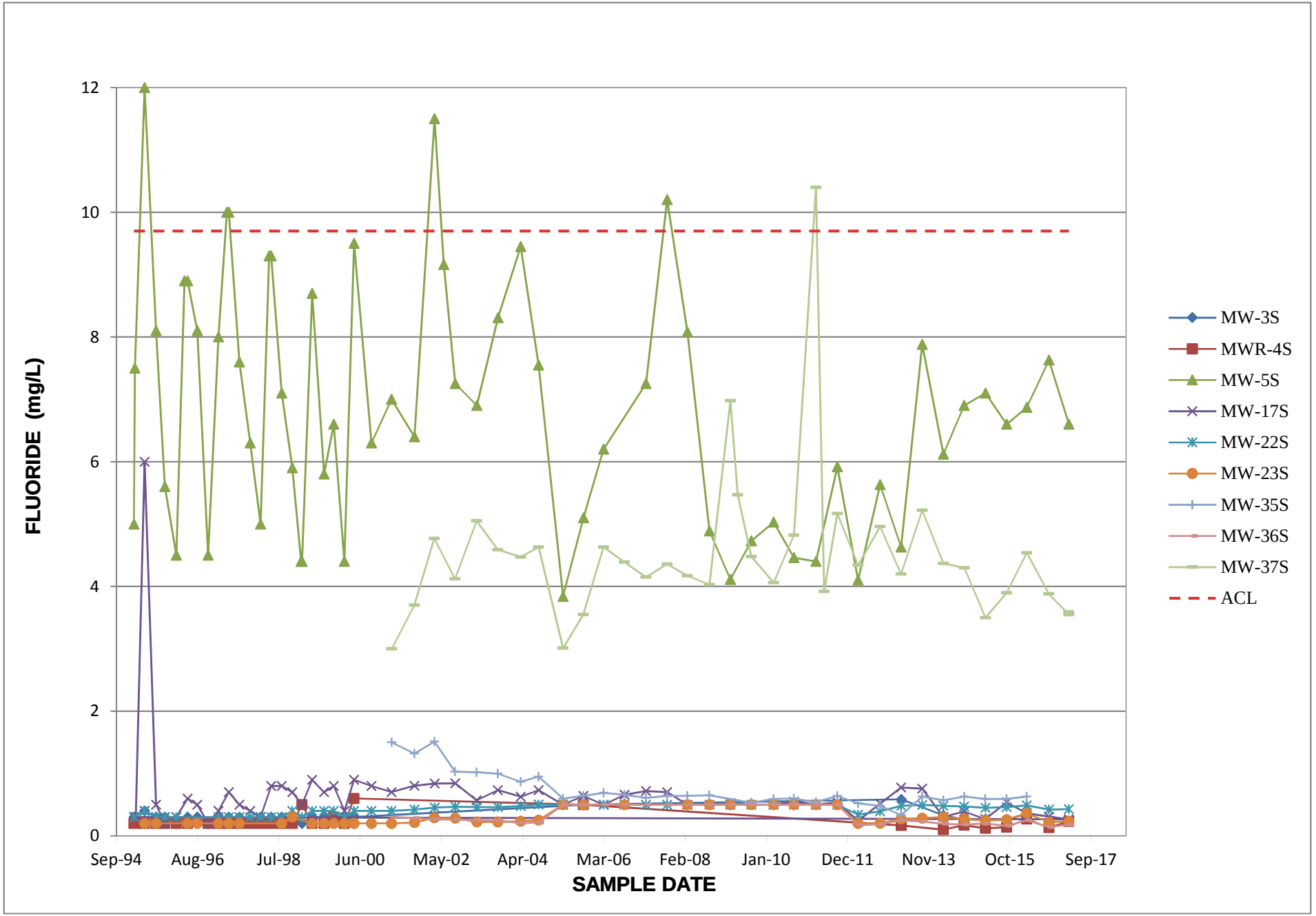


CHART 5
RCRA Groundwater Analytical Data - Sulfate
Lockheed Martin Corporation, The Dalles, Oregon

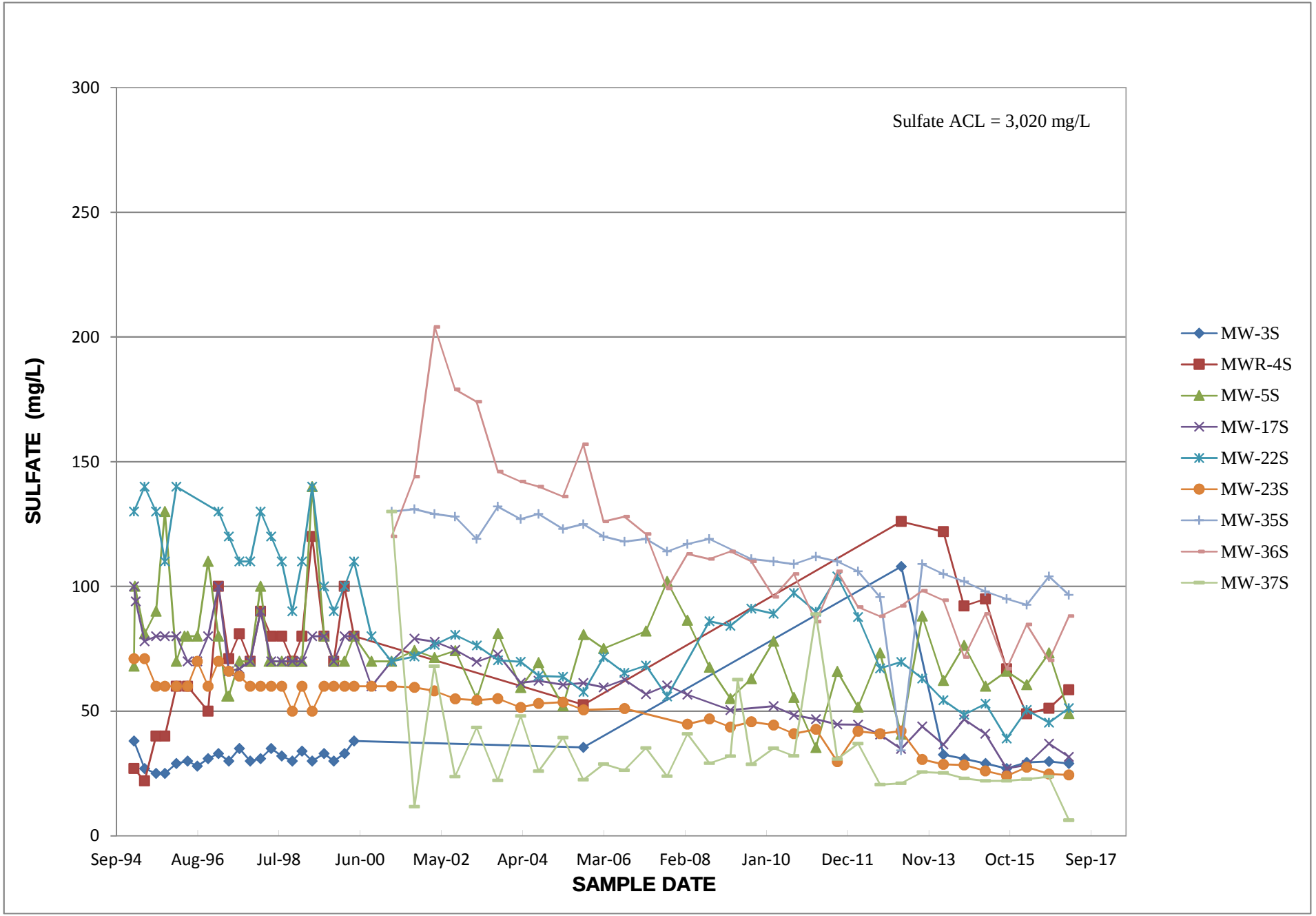
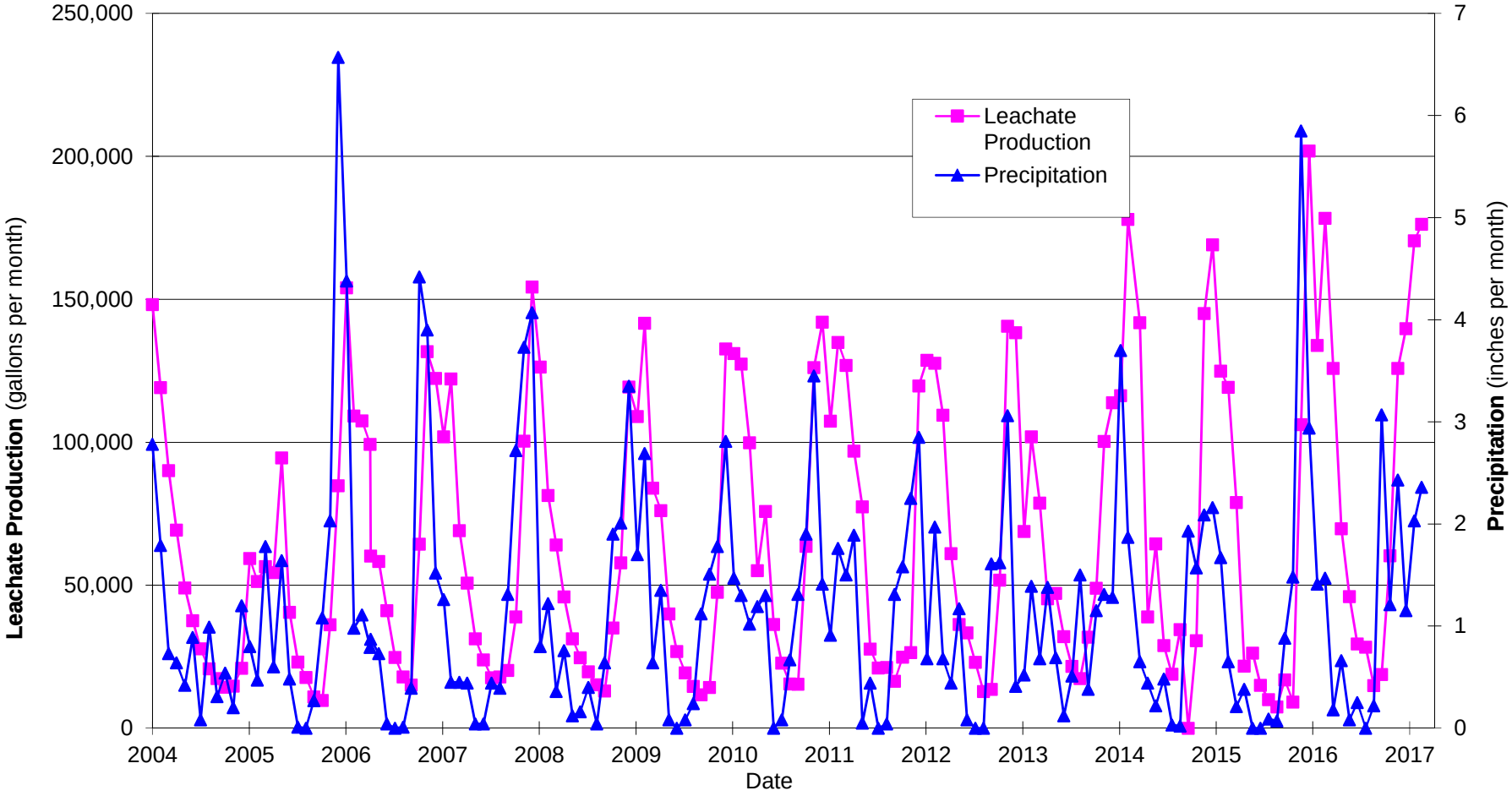


CHART 6

CERCLA Leachate Collection System Production vs Precipitation

Lockheed Martin Corporation Site, The Dalles, Oregon



Note: Daily precipitation data as reported by Northwest Aluminum Company and NOAA.

CHART 7
CERCLA Groundwater Hydrograph - S Zone
Lockheed Martin Corporation Site, The Dalles, Oregon

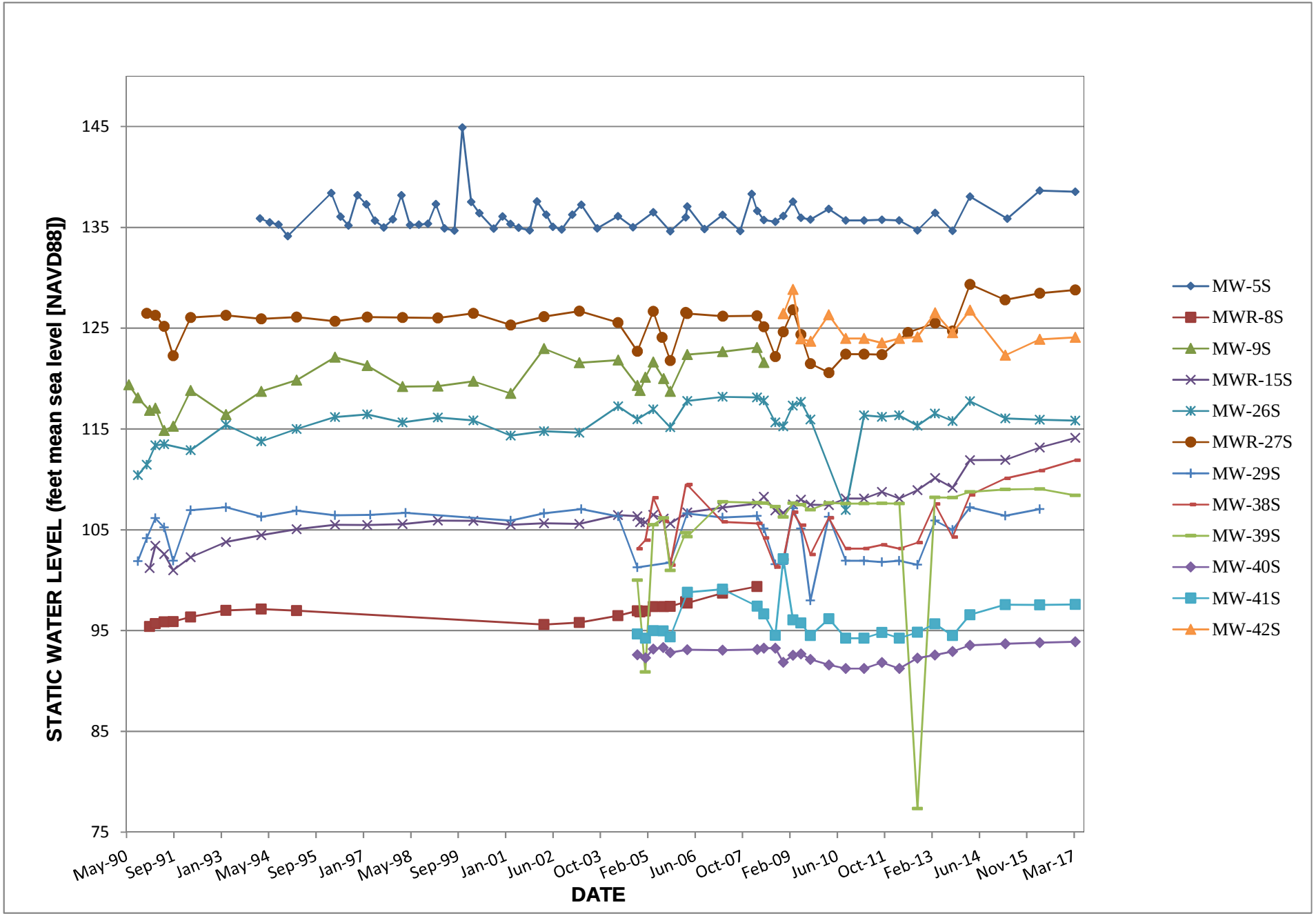


CHART 8
CERCLA Groundwater Hydrograph - A Aquifer
Lockheed Martin Corporation Site, The Dalles, Oregon

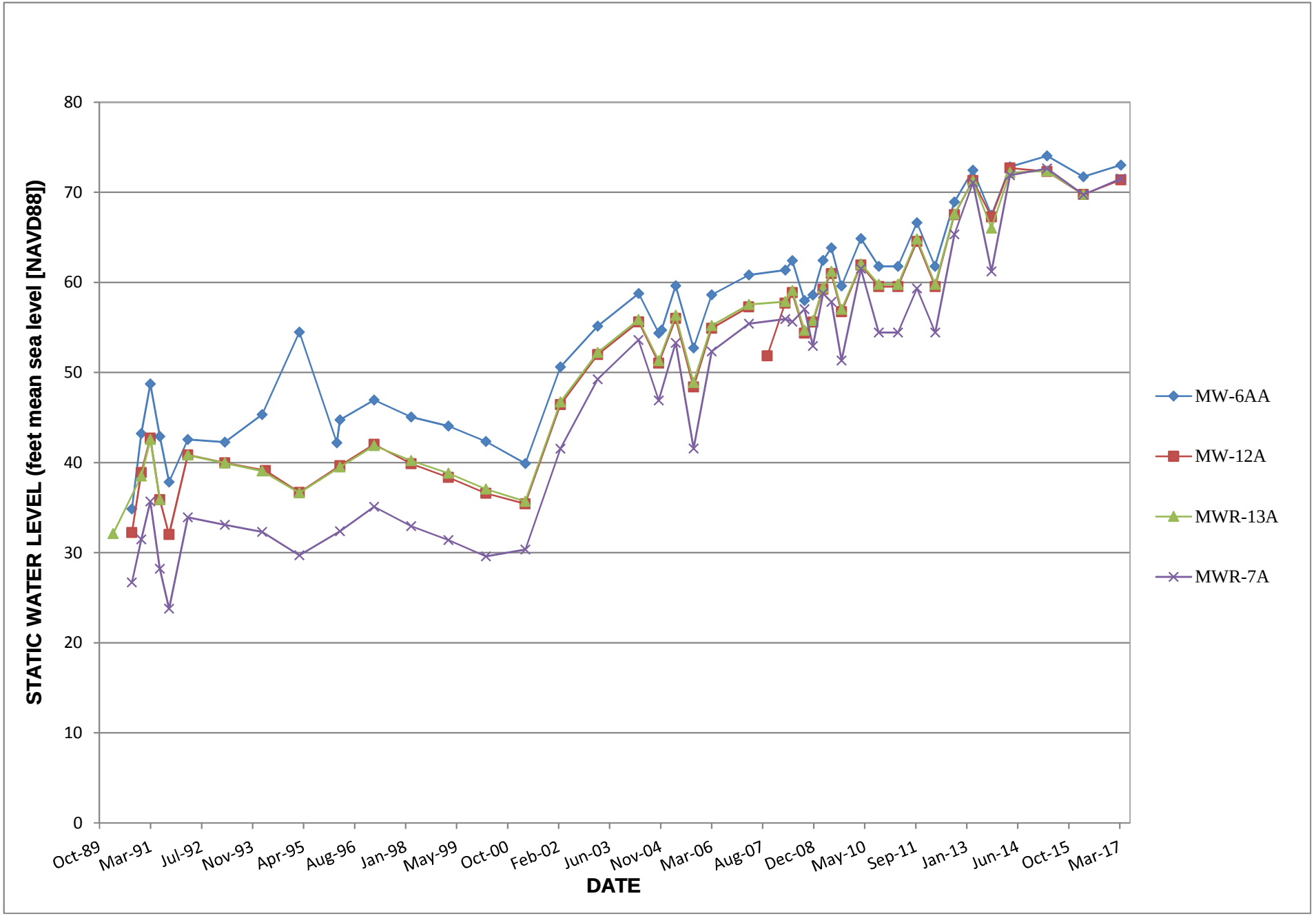


CHART 9
CERCLA Groundwater Analytical Data - WAD Cyanide, S Zone
Lockheed Martin Corporation Site, The Dalles, Oregon

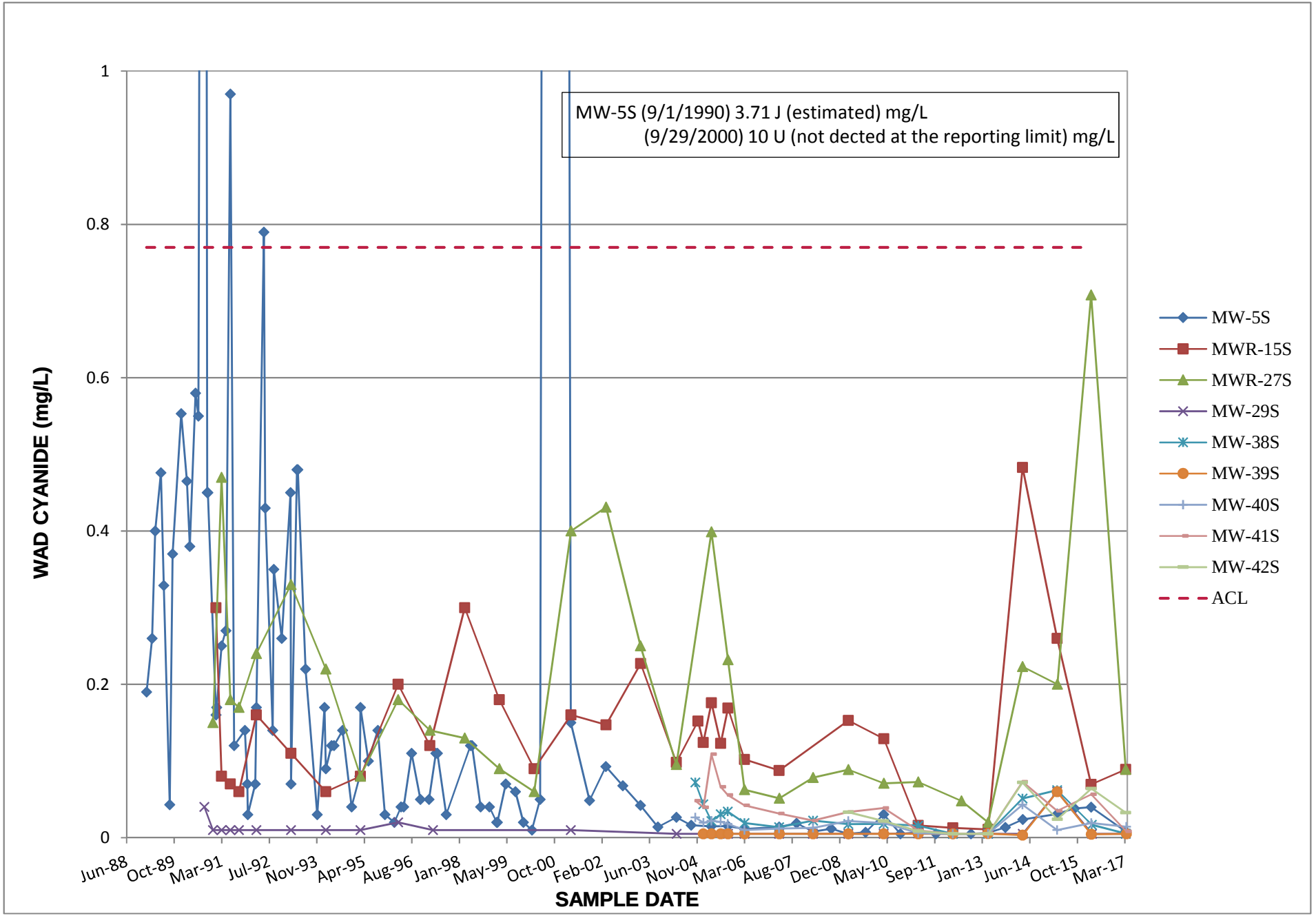


CHART 10
CERCLA Groundwater Analytical Data - Fluoride, S Zone
Lockheed Martin Corporation Site, The Dalles, Oregon

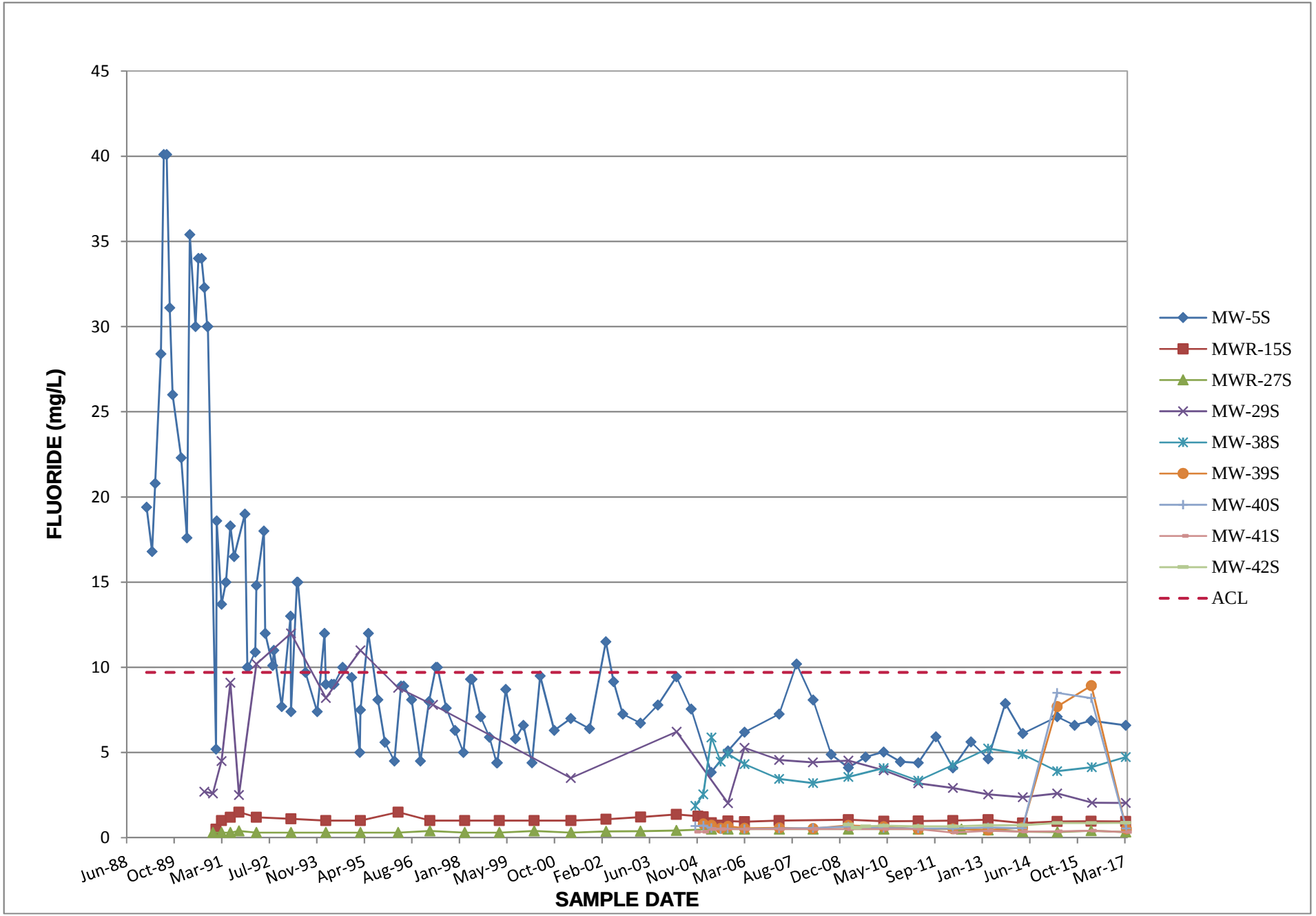


CHART 11
CERCLA Groundwater Analytical Data - Sulfate, S Zone
Lockheed Martin Corporation Site, The Dalles, Oregon

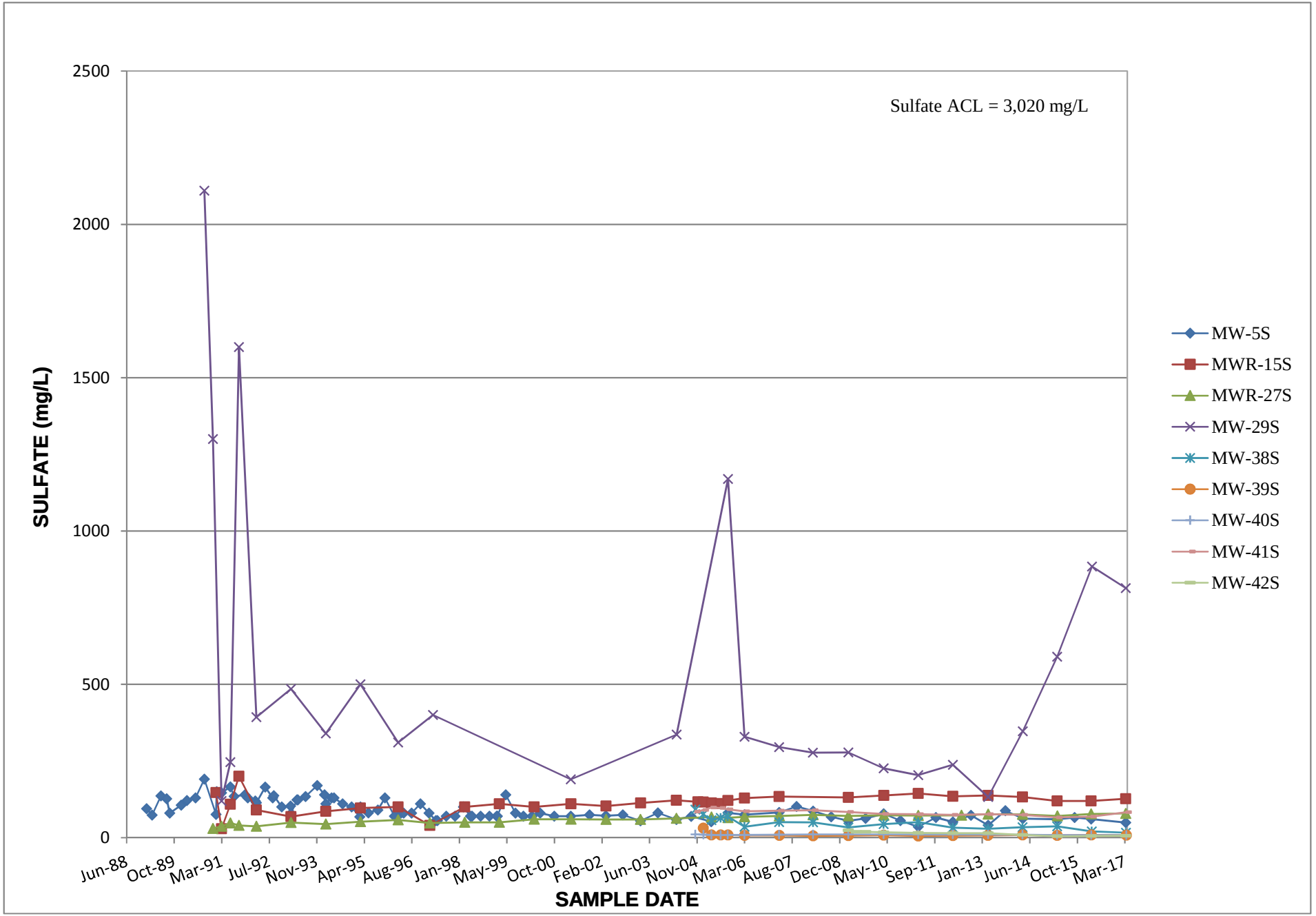


CHART 12
CERCLA Groundwater Analytical Data - WAD Cyanide, A Aquifer
Lockheed Martin Corporation Site, The Dalles, Oregon

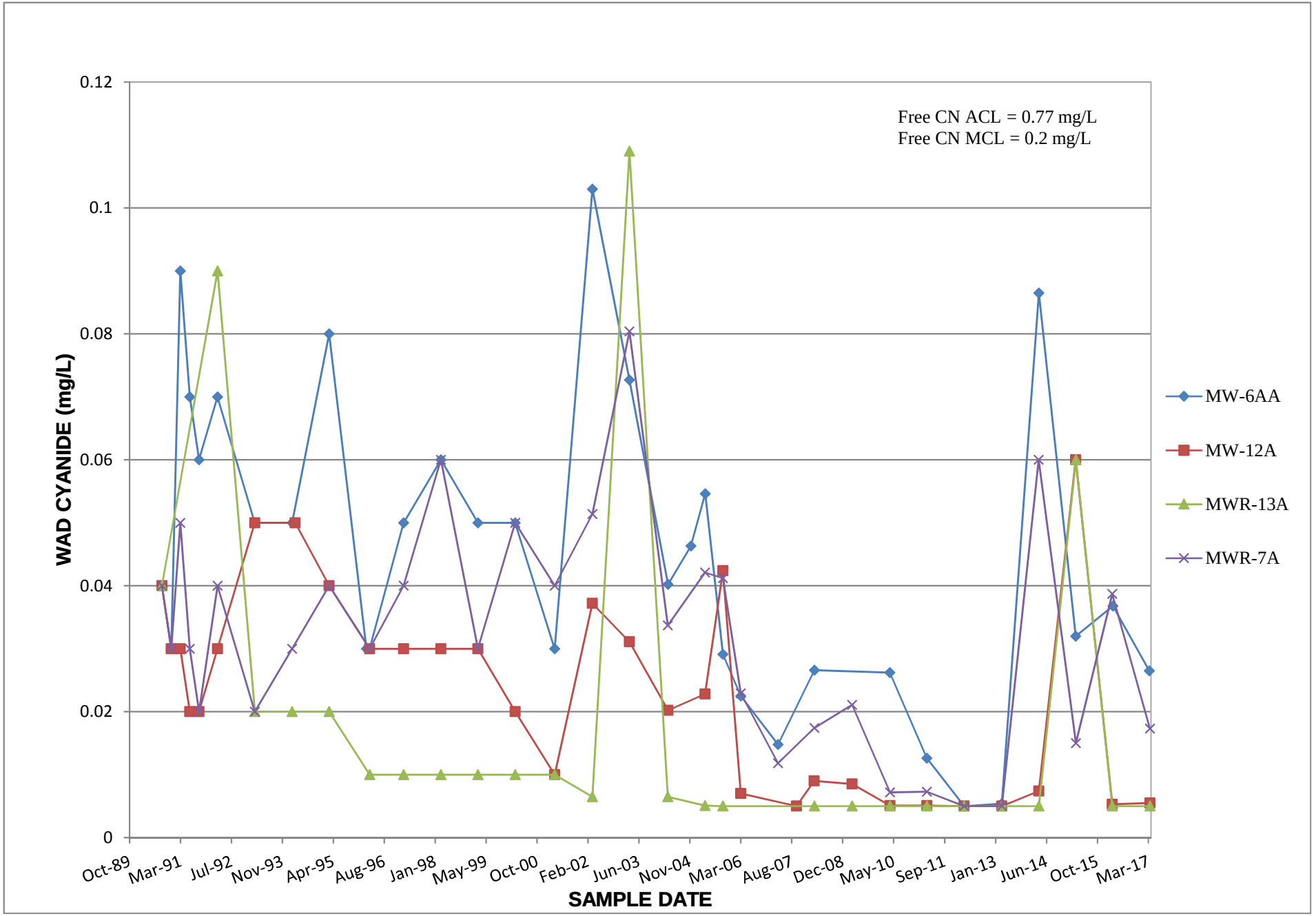


CHART 13
CERCLA Groundwater Analytical Data - Fluoride, A Aquifer
Lockheed Martin Corporation Site, The Dalles, Oregon

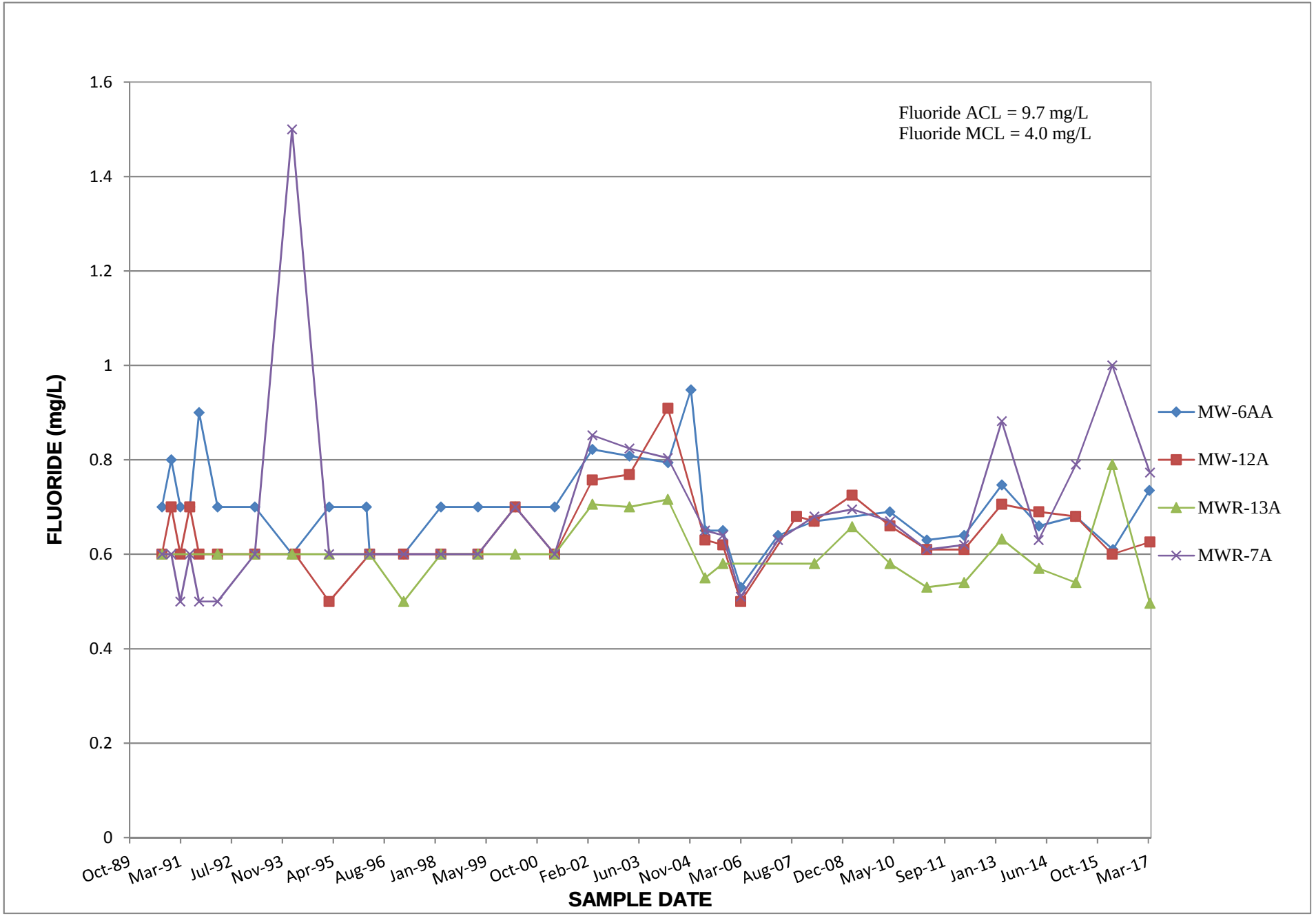
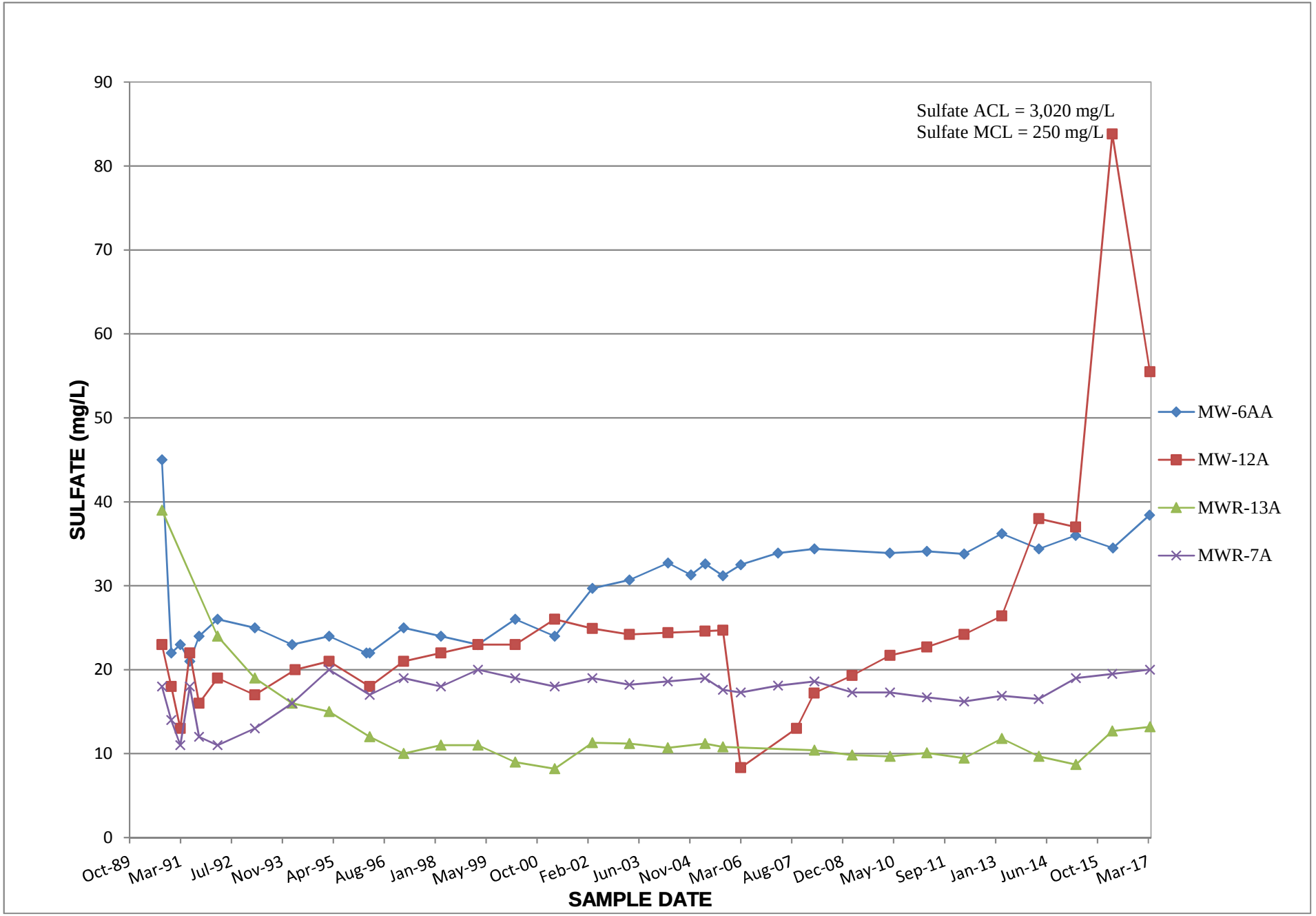


CHART 14
CERCLA Groundwater Analytical Data - Sulfate, A Aquifer
Lockheed Martin Corporation Site, The Dalles, Oregon



APPENDIX A

RCRA Inspection Forms

RCRA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Date/Time: 12/11/14 1500

Inspected by: YG

Inspectors Signature:

Reviewed by: CLD

Reviewer's Signature:

Note: This form replaces the RCRA Landfill-LCS weekly inspection form

Cover Inspection:	**Observation**	**Remarks**
Top Erosion	ND	
Top Settling / Subsidence	ND	
Ponded Water (or signs of)	ND	
Animal Burrows	ND	
Woody Vegetation	ND	
Benchmarks (4 on top)	OK	
(survey every 4.5 years)		May 2018
Side Riprap Erosion	ND	
Slope Stability/Failures	ND	

Gas Vent System:

	Observation	**Remarks**
Vent Pipes Damaged	ND	
Vent Caps Clogged	ND	
Vent Screens Missing	ND	
Survey Vents with Benchmarks (4.5 yrs)	OK	May 2018

Lightning Rod System:

	Observation	**Remarks**
Lightning Rods Damaged	NO	
Cable Connections Loose or Damaged	ND	
Metal Bonds Damaged	ND	
Connectors Tight	YES	
Leads Connected (no loose ends)	YES	
Down-conductors Damaged, Including Fittings and Bolts	ND	

Cap Drain Discharge Pipes:

	Observation	**Remarks**
Pipes Damaged	ND	
Pipes Clogged	ND	

Drainage System:

	Observation	**Remarks**
Ponded Water (or signs of)	ND	
Channels Blocked (weeds, litter, silt)	ND	
Culverts Blocked (weeds, litter, silt)	ND	

Areas Adjacent to Landfill:

	Observation	**Remarks**
Riprap Erosion	ND	
Ponded Water, Silt Deposits	ND	
Well Heads (good condition, locked)	ND	

RCRA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

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Building, Fences and Gates:

	Observation	Remarks
Warning Signs in Place (minimum 4)	Yes	
Building Secured	Yes	
Gate Lock Secured and Lock Boxes in Place	Yes	
Damaged Fence or Posts	NO	
Tumbleweeds (safety or fire hazard)	NO	
Gaps / Animal Burrows Beneath Fence	NO	
Top Wires Secure	Yes	
Check Benchmark (1 north of gate)	OK	
Perimeter Berms Inspected	Yes	
Access Roads Inspected	Yes	

Building and Slab:

	Observation	Remarks
Exit light OK?	Yes	
Emergency Light OK?	Yes	
Emergency Equiptment OK?	Yes	
Roofing and Siding OK?	Yes	
Outside Dewatering Pump OK?	Yes	
Concrete Slab Inspected and OK?	Yes	
Sump Evacuated, Inspected and OK?	Yes	

Leachate Sump Inspection:

	Observation	Remarks
Depth to Leachate (ft)	3.19	prior to transfer
Leachate Valve Open?	Yes	
Secondary Petcock Checked?	Yes	
Quarterly Wet Test of Leak Alarm	Yes	
Quarterly Wet Test of High Value?	Yes	
Leachate Pumped from Sump?	Yes	12/1/16
If Pumped- Record Gallons	200	
If Pumped to Drums- label w/ Hazardous Waste Decal w/Date	4 DRUMS	

Leachate Drum Inspection:

	Observation	Remarks
Is Leachate stored in Drums?	Yes	
Drums Properly Marked?	Yes	
Drum Condition Good?	Yes	

Autodialer:

	Observation	Remarks
Operational	Yes	
Test Alarm Completed (wet tests)	Yes	
Alarm Light Operational	Yes	

RCRA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Date/Time: 3/20/17 1000

Inspected by: WJM / JG Inspectors Signature:

Reviewed by: CLD Reviewer's Signature:

Note: This form replaces the RCRA Landfill-LCS weekly inspection form

Cover Inspection:	Observation	Remarks
Top Erosion	NO	
Top Settling / Subsidence	NO	
Ponded Water (or signs of)	NO	
Animal Burrows	NO	
Woody Vegetation	yes	Pulled
Benchmarks (4 on top)	Yes	
(survey every 4.5 years)	OK	May 2018
Side Riprap Erosion	NO	
Slope Stability/Failures	NO	

Gas Vent System:	Observation	Remarks
Vent Pipes Damaged	ND	
Vent Caps Clogged	ND	
Vent Screens Missing	ND	
Survey Vents with Benchmarks (4.5 yrs)	ND	May 2018

Lightning Rod System:	Observation	Remarks
Lightning Rods Damaged	NO	
Cable Connections Loose or Damaged	NO	
Metal Bonds Damaged	NO	
Connectors Tight	yes	
Leads Connected (no loose ends)	yes	
Down-conductors Damaged, Including Fittings and Bolts	NO	

Cap Drain Discharge Pipes:	Observation	Remarks
Pipes Damaged	NO	
Pipes Clogged	NO	

Drainage System:	Observation	Remarks
Ponded Water (or signs of)	NO	
Channels Blocked (weeds, litter, silt)	NO	
Culverts Blocked (weeds, litter, silt)	NO	

Areas Adjacent to Landfill:	Observation	Remarks
Riprap Erosion	NO	
Ponded Water, Silt Deposits	NO	
Well Heads (good condition, locked)	yes	

RCRA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Building, Fences and Gates:

	Observation	Remarks
Warning Signs in Place (minimum 4)	Yes	
Building Secured	Yes	
Gate Lock Secured and Lock Boxes in Place	Yes	
Damaged Fence or Posts	No	
Tumbleweeds (safety or fire hazard)	No	
Gaps / Animal Burrows Beneath Fence	Yes	Filled
Top Wires Secure	Yes	
Check Benchmark (1 north of gate)	Yes	
Perimeter Berms Inspected	Yes	
Access Roads Inspected	Yes	

Building and Slab:

	Observation	Remarks
Exit light OK?	Yes	
Emergency Light OK?	Yes	
Emergency Equiptment OK?	Yes	
Roofing and Siding OK?	Yes	
Outside Dewatering Pump OK?	Yes	
Concrete Slab Inspected and OK?	Yes	
Sump Evacuated, Inspected and OK?	Y/Y/Y	

Leachate Sump Inspection:

	Observation	Remarks
Depth to Leachate (ft)	3.98	
Leachate Valve Open?	Yes	
Secondary Petcock Checked?	Yes	
Quarterly Wet Test of Leak Alarm	Yes	
Quarterly Wet Test of High Value?	Yes	
Leachate Pumped from Sump?	No	
If Pumped- Record Gallons	NA	
If Pumped to Drums- label w/ Hazardous Waste Decal w/Date	NA	

Leachate Drum Inspection:

	Observation	Remarks
Is Leachate stored in Drums?	No	
Drums Properly Marked?	NA	
Drum Condition Good?	NA	

Autodialer:

	Observation	Remarks
Operational	Yes	
Test Alarm Completed (wet tests)	Yes	
Alarm Light Operational	Yes	

APPENDIX B

Precipitation Data

NOAA - The Dalles, Oregon
Climate Data
October, 2016

Date	High	Low	Rainfall Inches	Snowfall Inches
1	69	42		
2	65	36		
3	65	41	T	
4	65	43	0.07	
5	60	44	0.05	
6	64	49	T	
7	64	52	0.09	
8	74	47	T	
9	67	54	0.03	
10	60	42	0.13	
11	56	30		
12	59	29		
13	64	42	0.38	
14	67	50	0.05	
15	60	47	0.27	
16	62	47	0.08	
17	62	45	0.04	
18	57	43	0.03	
19	65	39		
20	70	52	0.07	
21	56	49	0.17	
22	59	41		
23	58	41		
24	74	41	0.05	
25	63	46	0.16	
26	61	50	0.11	
27	53	44	0.01	
28	61	40		
29	50	43	0.32	
30	50	43	0.21	
31	56	41	T	
AVG	61.81	43.65	0.12	0
MEDIAN	62.00	43.00	0.08	0
MAX	74.00	54.00	0.38	0
MIN	50.00	29.00	0.01	0
MEAN	61.81	43.65	0.07	0
TOTAL	--	--	2.32	0

NOAA - The Dalles, Oregon
Climate Data
November, 2016

Date	High	Low	Rainfall Inches	Snowfall Inches
1	60	41		
2	71	40		
3	66	43		
4	62	37		
5	63	37		
6	59	42	0.19	
7	62	40		
8	60	39		
9	65	41		
10	50	36		
11	50	35		
12	64	45	0.01	
13	52	39	0.02	
14	58	46	0.09	
15	59	40	0.04	
16	49	32		
17	50	30		
18	50	31		
19	55	35	0.05	
20	52	37	0.11	
21	52	35	T	
22	53	31	0.03	
23	50	37	0.24	
24	54	38	T	
25	54	46	0.03	
26	56	41		
27	48	40	0.06	
28	48	40		
29	49	34		
30	50	36	0.04	
31				
AVG	55.70	38.13	0.08	0
MEDIAN	54.00	38.50	0.05	0
MAX	71.00	46.00	0.24	0
MIN	48.00	30.00	0.01	0
MEAN	53.90	36.90	0.03	0
TOTAL	--	--	0.91	0

NOAA - The Dalles, Oregon Climate Data December, 2016				
Date	**High**	**Low**	**Rainfall Inches**	**Snowfall Inches**
1	44	32		
2	47	31	T	
3	50	39	T	
4	46	28	0.01	
5	40	25	0.12	1.2
6	31	11	0.08	1.4
7	25	5		
8	18	6	0.2	3.1
9	23	18	0.03	0.4
10	33	14	0.05	0.4
11	40	28	0.06	
12	38	18	0.12	0.3
13	27	20		
14	22	15	0.55	5.7
15	21	16	0.07	0.9
16	18	-5	0.04	1.7
17	18	0		
18	24	6		
19	43	13	T	
20	48	35	0.16	
21	43	24		
22	37	24		
23	40	30	0.61	3.4
24	35	27	T	T
25	34	22		
26	38	20	T	T
27	45	32	0.02	T
28	44	31		M
29	39	28		
30	40	27	0.17	
31	45	24		
AVG	35.35	20.77	0.15	0
MEDIAN	38.00	24.00	0.08	0
MAX	50.00	39.00	0.61	5.7
MIN	18.00	-5.00	0.01	0.3
MEAN	35.35	20.77	0.07	0.596774194
TOTAL	--	--	2.29	18.5

NOAA - The Dalles, Oregon
Climate Data
January, 2017

Date	High	Low	Rainfall Inches	Snowfall Inches
1	37	26	0.07	0.9
2	26	21	0.04	0.8
3	21	16	T	T
4	16	2	T	0.1
5	16	44		
6	18	49		
7	15	-1	0.11	1.4
8	21	15	0.2	0.3
9	41	21	0.13	1.5
10	36	17	0.38	4.5
11	18	2	0.13	2.9
12	12	-6		
13	10	-8	T	T
14	12	-2	T	0.3
15	15	47	T	0.5
16	15	1	T	0.1
17	24	45	0.14	T
18	48	21	0.12	
19	47	36	0.01	
20	46	32	T	
21	45	31	T	
22	47	31	T	
23	33	25	T	M
24	31	29		
25	38	29	T	0.1
26	37	30	0.02	0.5
27	32	28		
28	33	29		
29	38	27		
30	39	29		
31	34	14	0.3	4.6
AVG	29.06	21.94	0.14	0
MEDIAN	32.00	26.00	0.13	0
MAX	48.00	49.00	0.38	4.6
MIN	10.00	-8.00	0.01	0.1
MEAN	29.06	21.94	0.05	0.596774194
TOTAL	--	--	1.65	18.5

NOAA - The Dalles, Oregon
Climate Data
February, 2017

Date	High	Low	Rainfall Inches	Snowfall Inches
1	21	11	T	T
2	21	18	0.01	T
3	24	16	0.06	T
4	41	20	0.03	T
5	52	31	T	
6	54	31	T	
7	34	22	0.15	3
8	30	24	0.04	
9	49	25	0.05	
10	49	34	T	
11	45	29		
12	43	26		
13	36	23		
14	41	25		
15	56	25	0.37	
16	57	37	0.25	
17	56	34	0.01	
18	40	33	0.22	
19	51	33	0.03	
20	63	40	0.19	
21	42	34	0.47	T
22	42	31	T	
23	42	27		
24	43	27		
25	43	23	T	T
26	38	32	0.18	1.8
27	41	29	1.14	1.9
28	45	31	0.07	0.4
29				
30				
31				
AVG	42.82	27.54	0.20	0
MEDIAN	42.50	28.00	0.11	0
MAX	63.00	40.00	1.14	3
MIN	21.00	11.00	0.01	0.4
MEAN	38.68	24.87	0.11	0.229032258
TOTAL	--	--	3.27	7.1

NOAA - The Dalles, Oregon
Climate Data
March, 2017

Date	High	Low	Rainfall Inches	Snowfall Inches
1	51	32		
2	52	33		
3	58	32	T	
4	50	32	0.3	0.2
5	47	32	0.04	0.1
6	44	31	0.02	T
7	50	33	0.02	T
8	46	41	0.23	
9	57	41	0.08	
10	61	41	T	
11	52	36	0.07	
12	57	39		
13	61	42	0.11	
14	72	47	0.05	
15	63	46	0.14	
16	52	36	T	
17	52	35	0.1	
18	66	41	0.02	
19	52	33		
20	48	33	T	
21	51	36	0.16	
22	52	36	0.18	
23	57	32		
24	53	41	0.53	
25	53	37	T	
26	53	36	0.21	
27	57	38	0.01	
28	55	38	T	
29	58	44	0.07	
30	56	40	0.01	
31	58	33		
AVG	54.65	37.00	0.12	0
MEDIAN	53.00	36.00	0.08	0
MAX	72.00	47.00	0.53	0.2
MIN	44.00	31.00	0.01	0.1
MEAN	54.65	37.00	0.08	0.009677419
TOTAL	--	--	2.35	0.3

APPENDIX C

Laboratory Reports

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Thursday, December 29, 2016

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: Lockheed Martin / 661M129556

Enclosed are the results of analyses for work order A6L0156, which was received by the laboratory on 12/6/2016 at 3:55:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Lisa A Domenighini

Lisa Domenighini For Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RCRA Sump_20161206	A6L0156-01	Water	12/06/16 12:00	12/06/16 15:55

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
RCRA Sump_20161206 (A6L0156-01RE1)			**Matrix: Water**					
Batch: 6120606								
Fluoride	**441**	---	20.0	mg/L	20	12/20/16 10:31	EPA 300.0	

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Lisa Domenighini For Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
RCRA Sump_20161206 (A6L0156-01)			**Matrix: Water**		**Batch: 6120558**			
Cyanide, Total	**81.8**	---	1.00	mg/L	10	12/16/16 15:20	EPA 335.4	A-01

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Lisa Domenighini For Philip Nerenberg, Lab Director

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

ANALYTICAL SAMPLE RESULTS

Cyanide - Amenable (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
RCRA Sump_20161206 (A6L0156-01)			**Matrix: Water**		**Batch: [CALC]**			
Cyanide, Amenable	**0.859**	---	0.0500	mg/L	10	12/13/16 12:23	SM 4500-CN (G/C/E) Calc	

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Lisa Domenighini For Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
RCRA Sump_20161206 (A6L0156-01)			**Matrix: Water**		**Batch: 6120452**			
Cyanide, WAD	**0.396**	---	0.0500	mg/L	10	12/13/16 12:27	SM 4500-CN (I/E)	

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Lisa Domenighini For Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
RCRA Sump_20161206 (A6L0156-01RE1)			**Matrix: Water**		**Batch: 6120445**			
Acenaphthene	ND	---	0.0385	ug/L	1	12/13/16 16:52	EPA 8270D (SIM)	
Acenaphthylene	ND	---	0.0385	"	"	"	"	
Anthracene	**0.0435**	---	0.0385	"	"	"	"	
Benz(a)anthracene	ND	---	0.0385	"	"	"	"	
Benzo(a)pyrene	ND	---	0.0385	"	"	"	"	
Benzo(b)fluoranthene	**0.0496**	---	0.0385	"	"	"	"	M-02
Benzo(k)fluoranthene	ND	---	0.0385	"	"	"	"	
Benzo(g,h,i)perylene	ND	---	0.0385	"	"	"	"	
Chrysene	**0.0568**	---	0.0385	"	"	"	"	M-02
Dibenz(a,h)anthracene	ND	---	0.0385	"	"	"	"	
Dibenzofuran	ND	---	0.0385	"	"	"	"	
Fluoranthene	**0.0478**	---	0.0385	"	"	"	"	
Fluorene	ND	---	0.0385	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	---	0.0385	"	"	"	"	
1-Methylnaphthalene	ND	---	0.0769	"	"	"	"	
2-Methylnaphthalene	ND	---	0.0769	"	"	"	"	
Naphthalene	ND	---	0.0769	"	"	"	"	
Phenanthrene	ND	---	0.0385	"	"	"	"	
Pyrene	**0.0503**	---	0.0385	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 56 %*	*Limits: 44-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*33 %*	*Limits: 50-133 %*	"	"	"	*S-03*

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Lisa Domenighini For Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
RCRA Sump_20161206 (A6L0156-01RE1)			**Matrix: Water**					
Batch: 6120589								
Antimony	ND	---	90.0	ug/L	10	12/21/16 18:51	EPA 200.8	R-04
Arsenic	**1950**	---	90.0	"	"	"	"	
Barium	ND	---	90.0	"	"	"	"	R-04
Beryllium	ND	---	18.0	"	"	"	"	R-04
Cadmium	**113**	---	18.0	"	"	"	"	
Chromium	ND	---	90.0	"	"	"	"	R-04
Lead	ND	---	18.0	"	"	"	"	R-04
Mercury	ND	---	7.20	"	"	"	"	R-04
Nickel	**480**	---	90.0	"	"	"	"	
Selenium	ND	---	90.0	"	"	"	"	R-04
Silver	ND	---	18.0	"	"	"	"	

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120567 - Method Prep: Aq							**Water**					
Blank (6120567-BLK1)					Prepared: 12/16/16 15:13		Analyzed: 12/16/16 16:21					
EPA 300.0												
Fluoride	ND	---	1.00	mg/L	1	---	---	---	---	---	---	
LCS (6120567-BS1)					Prepared: 12/16/16 15:13		Analyzed: 12/16/16 16:42					
EPA 300.0												
Fluoride	8.20	---	1.00	mg/L	1	8.00	---	103	90-110%	---	---	
Duplicate (6120567-DUP1)					Prepared: 12/16/16 15:13		Analyzed: 12/16/16 17:25					
QC Source Sample: Other (A6L0406-02)												
EPA 300.0												
Fluoride	ND	---	1.00	mg/L	1	---	ND	---	---	---	15%	
Duplicate (6120567-DUP3)					Prepared: 12/16/16 15:13		Analyzed: 12/16/16 21:00					
QC Source Sample: Other (A6L0234-06)												
EPA 300.0												
Fluoride	**6.59**	---	1.00	mg/L	1	---	6.71	---	---	2	15%	
Matrix Spike (6120567-MS1)					Prepared: 12/16/16 15:13		Analyzed: 12/16/16 17:47					
QC Source Sample: Other (A6L0406-02)												
EPA 300.0												
Fluoride	10.5	---	1.25	mg/L	1	10.0	ND	105	80-120%	---	---	
Matrix Spike (6120567-MS3)					Prepared: 12/16/16 15:13		Analyzed: 12/16/16 21:22					
QC Source Sample: Other (A6L0234-06)												
EPA 300.0												
Fluoride	17.2	---	1.25	mg/L	1	10.0	6.71	105	80-120%	---	---	
Batch 6120606 - Method Prep: Aq							**Water**					
Blank (6120606-BLK1)					Prepared: 12/20/16 06:47		Analyzed: 12/20/16 09:48					
EPA 300.0												
Fluoride	ND	---	1.00	mg/L	1	---	---	---	---	---	---	
LCS (6120606-BS1)					Prepared: 12/20/16 06:47		Analyzed: 12/20/16 10:10					
EPA 300.0												
Fluoride	8.14	---	1.00	mg/L	1	8.00	---	102	90-110%	---	---	

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Lisa Domenighini For Philip Nerenberg, Lab Director

Apex Labs

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120606 - Method Prep: Aq									**Water**			
Duplicate (6120606-DUP1)					Prepared: 12/20/16 06:47		Analyzed: 12/20/16 09:05					
QC Source Sample: Other (A6L0415-01)												
EPA 300.0												
Fluoride	ND	---	1.00	mg/L	1	---	ND	---	---	---	15%	
Matrix Spike (6120606-MS1)					Prepared: 12/20/16 06:47		Analyzed: 12/20/16 09:27					
QC Source Sample: Other (A6L0415-01)												
EPA 300.0												
Fluoride	10.2	---	1.25	mg/L	1	10.0	ND	102	80-120%	---	---	

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Lisa Domenighini For Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120558 - Method Prep: Aq									**Water**			
Blank (6120558-BLK1)					Prepared: 12/16/16 13:20		Analyzed: 12/16/16 15:06					
EPA 335.4												
Cyanide, Total	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120558-BS1)					Prepared: 12/16/16 13:20		Analyzed: 12/16/16 15:08					
EPA 335.4												
Cyanide, Total	0.252	---	0.00500	mg/L	1	0.250	---	101	85-115%	---	---	
Duplicate (6120558-DUP1)					Prepared: 12/16/16 13:20		Analyzed: 12/16/16 15:12					
QC Source Sample: Other (A6L0350-01)												
EPA 335.4												
Cyanide, Total	ND	---	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (6120558-MS1)					Prepared: 12/16/16 13:20		Analyzed: 12/16/16 15:14					
QC Source Sample: Other (A6L0350-01)												
EPA 335.4												
Cyanide, Total	0.217	---	0.00500	mg/L	1	0.250	ND	87	80-120%	---	---	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120452 - Method Prep: Aq									**Water**			
Blank (6120452-BLK1)					Prepared: 12/13/16 08:55		Analyzed: 12/13/16 11:59					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120452-BS1)					Prepared: 12/13/16 08:55		Analyzed: 12/13/16 12:25					
SM 4500-CN (I/E)												
Cyanide, WAD	0.232	---	0.00500	mg/L	1	0.250	---	93	85-115%	---	---	
Duplicate (6120452-DUP1)					Prepared: 12/13/16 08:55		Analyzed: 12/13/16 12:07					
QC Source Sample: Other (A6L0160-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	---	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (6120452-MS1)					Prepared: 12/13/16 08:55		Analyzed: 12/13/16 12:09					
QC Source Sample: Other (A6L0160-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.256	---	0.00500	mg/L	1	0.250	ND	102	80-120%	---	---	

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Tigard, OR 97223
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503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Cyanide by UV Digestion/Gas Diffusion/Amperometric Detection

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120458 - Method Prep: Aq									**Water**			
Blank (6120458-BLK1)					Prepared: 12/13/16 10:36		Analyzed: 12/14/16 13:05					
ASTM D7511-09e2												
Cyanide, Total	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120458-BS1)					Prepared: 12/13/16 10:36		Analyzed: 12/14/16 13:05					
ASTM D7511-09e2												
Cyanide, Total	0.233	---	0.00500	mg/L	1	0.250	---	93	80-120%	---	---	
Duplicate (6120458-DUP1)					Prepared: 12/13/16 10:36		Analyzed: 12/14/16 13:05					
QC Source Sample: Other (A6L0160-01)												
ASTM D7511-09e2												
Cyanide, Total	ND	---	0.00500	mg/L	1	---	ND	---	---	---	20%	
Matrix Spike (6120458-MS1)					Prepared: 12/13/16 10:36		Analyzed: 12/14/16 13:05					
QC Source Sample: Other (A6L0160-01)												
ASTM D7511-09e2												
Cyanide, Total	0.247	---	0.00513	mg/L	1	0.256	ND	96	75-125%	---	---	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120294 - EPA 3510C (Acid Extraction)									**Water**			
Blank (6120294-BLK1)					Prepared: 12/07/16 07:30 Analyzed: 12/12/16 09:51							
EPA 8270D (SIM)												
Acenaphthene	ND	---	0.0182	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Anthracene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Chrysene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.0182	"	"	---	---	---	---	---	---	
Fluoranthene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Fluorene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.0182	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.0364	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Naphthalene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Phenanthrene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Pyrene	ND	---	0.0182	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 61 %*	*Limits: 44-120 %*		*Dilution: 1x*						
p-Terphenyl-d14 (Surr)			*62 %*	*50-133 %*		*"*						
LCS (6120294-BS1)					Prepared: 12/07/16 07:30 Analyzed: 12/12/16 10:17							
EPA 8270D (SIM)												
Acenaphthene	2.93	---	0.0200	ug/L	1	4.00	---	73	47-122%	---	---	
Acenaphthylene	2.84	---	0.0200	"	"	"	---	71	41-130%	---	---	
Anthracene	3.03	---	0.0200	"	"	"	---	76	57-123%	---	---	
Benz(a)anthracene	3.23	---	0.0200	"	"	"	---	81	58-125%	---	---	
Benzo(a)pyrene	3.62	---	0.0200	"	"	"	---	91	54-128%	---	---	
Benzo(b)fluoranthene	3.42	---	0.0200	"	"	"	---	86	53-131%	---	---	
Benzo(k)fluoranthene	3.46	---	0.0200	"	"	"	---	86	57-129%	---	---	
Benzo(g,h,i)perylene	3.07	---	0.0200	"	"	"	---	77	50-134%	---	---	
Chrysene	3.20	---	0.0200	"	"	"	---	80	59-123%	---	---	
Dibenz(a,h)anthracene	3.56	---	0.0200	"	"	"	---	89	51-134%	---	---	
Dibenzofuran	2.88	---	0.0200	"	"	"	---	72	53-120%	---	---	

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120294 - EPA 3510C (Acid Extraction)									**Water**			
LCS (6120294-BS1)					Prepared: 12/07/16 07:30 Analyzed: 12/12/16 10:17							
EPA 8270D (SIM)												
Fluoranthene	3.38	---	0.0200	ug/L	"	"	---	84	57-128%	---	---	
Fluorene	2.84	---	0.0200	"	"	"	---	71	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	3.20	---	0.0200	"	"	"	---	80	52-133%	---	---	
1-Methylnaphthalene	2.45	---	0.0400	"	"	"	---	61	41-120%	---	---	
2-Methylnaphthalene	2.35	---	0.0400	"	"	"	---	59	40-121%	---	---	
Naphthalene	2.27	---	0.0400	"	"	"	---	57	"	---	---	
Phenanthrene	2.74	---	0.0200	"	"	"	---	68	59-120%	---	---	
Pyrene	3.41	---	0.0200	"	"	"	---	85	57-126%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 64 %*		*Limits: 44-120 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*63 %*		*50-133 %*			*"*				
LCS Dup (6120294-BSD1)					Prepared: 12/07/16 07:30 Analyzed: 12/12/16 10:43							Q-19
EPA 8270D (SIM)												
Acenaphthene	2.95	---	0.0200	ug/L	1	4.00	---	74	47-122%	0.9	30%	
Acenaphthylene	2.89	---	0.0200	"	"	"	---	72	41-130%	2	30%	
Anthracene	2.94	---	0.0200	"	"	"	---	73	57-123%	3	30%	
Benz(a)anthracene	3.23	---	0.0200	"	"	"	---	81	58-125%	0.2	30%	
Benzo(a)pyrene	3.61	---	0.0200	"	"	"	---	90	54-128%	0.3	30%	
Benzo(b)fluoranthene	3.48	---	0.0200	"	"	"	---	87	53-131%	2	30%	
Benzo(k)fluoranthene	3.55	---	0.0200	"	"	"	---	89	57-129%	3	30%	
Benzo(g,h,i)perylene	3.09	---	0.0200	"	"	"	---	77	50-134%	0.8	30%	
Chrysene	3.23	---	0.0200	"	"	"	---	81	59-123%	1	30%	
Dibenz(a,h)anthracene	3.60	---	0.0200	"	"	"	---	90	51-134%	1	30%	
Dibenzofuran	2.82	---	0.0200	"	"	"	---	71	53-120%	2	30%	
Fluoranthene	3.38	---	0.0200	"	"	"	---	84	57-128%	0.05	30%	
Fluorene	2.77	---	0.0200	"	"	"	---	69	52-124%	2	30%	
Indeno(1,2,3-cd)pyrene	3.24	---	0.0200	"	"	"	---	81	52-133%	2	30%	
1-Methylnaphthalene	2.77	---	0.0400	"	"	"	---	69	41-120%	13	30%	
2-Methylnaphthalene	2.71	---	0.0400	"	"	"	---	68	40-121%	14	30%	
Naphthalene	2.58	---	0.0400	"	"	"	---	64	"	13	30%	
Phenanthrene	2.71	---	0.0200	"	"	"	---	68	59-120%	1	30%	
Pyrene	3.38	---	0.0200	"	"	"	---	85	57-126%	0.8	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 65 %*		*Limits: 44-120 %*			*Dilution: 1x*				
p-Terphenyl-d14 (Surr)			*65 %*		*50-133 %*			*"*				

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Apex Labs

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120445 - EPA 3510C (Acid Extraction)									**Water**			
Blank (6120445-BLK1)					Prepared: 12/13/16 07:13 Analyzed: 12/13/16 15:34							
EPA 8270D (SIM)												
Acenaphthene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Anthracene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Chrysene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.0364	"	"	---	---	---	---	---	---	
Fluoranthene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Fluorene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.0364	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.0727	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.0727	"	"	---	---	---	---	---	---	
Naphthalene	ND	---	0.0727	"	"	---	---	---	---	---	---	
Phenanthrene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Pyrene	ND	---	0.0364	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 83 %*		*Limits: 44-120 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*76 %*		*50-133 %*				*"*			
LCS (6120445-BS1)					Prepared: 12/13/16 07:13 Analyzed: 12/13/16 16:00							
EPA 8270D (SIM)												
Acenaphthene	7.90	---	0.0400	ug/L	1	8.00	---	99	47-122%	---	---	
Acenaphthylene	7.60	---	0.0400	"	"	"	---	95	41-130%	---	---	
Anthracene	7.68	---	0.0400	"	"	"	---	96	57-123%	---	---	
Benz(a)anthracene	7.86	---	0.0400	"	"	"	---	98	58-125%	---	---	
Benzo(a)pyrene	8.78	---	0.0400	"	"	"	---	110	54-128%	---	---	
Benzo(b)fluoranthene	8.42	---	0.0400	"	"	"	---	105	53-131%	---	---	
Benzo(k)fluoranthene	8.57	---	0.0400	"	"	"	---	107	57-129%	---	---	
Benzo(g,h,i)perylene	7.36	---	0.0400	"	"	"	---	92	50-134%	---	---	
Chrysene	7.86	---	0.0400	"	"	"	---	98	59-123%	---	---	
Dibenz(a,h)anthracene	8.62	---	0.0400	"	"	"	---	108	51-134%	---	---	
Dibenzofuran	7.54	---	0.0400	"	"	"	---	94	53-120%	---	---	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120445 - EPA 3510C (Acid Extraction)									**Water**			
LCS (6120445-BS1)					Prepared: 12/13/16 07:13		Analyzed: 12/13/16 16:00					
EPA 8270D (SIM)												
Fluoranthene	8.50	---	0.0400	ug/L	"	"	---	106	57-128%	---	---	
Fluorene	7.54	---	0.0400	"	"	"	---	94	52-124%	---	---	
Indeno(1,2,3-cd)pyrene	7.79	---	0.0400	"	"	"	---	97	52-133%	---	---	
1-Methylnaphthalene	7.53	---	0.0800	"	"	"	---	94	41-120%	---	---	
2-Methylnaphthalene	7.43	---	0.0800	"	"	"	---	93	40-121%	---	---	
Naphthalene	6.97	---	0.0800	"	"	"	---	87	"	---	---	
Phenanthrene	7.03	---	0.0400	"	"	"	---	88	59-120%	---	---	
Pyrene	8.44	---	0.0400	"	"	"	---	105	57-126%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 85 %*		*Limits: 44-120 %*		*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*78 %*		*50-133 %*		*"*					
LCS Dup (6120445-BSD1)					Prepared: 12/13/16 07:13		Analyzed: 12/13/16 16:26					Q-19
EPA 8270D (SIM)												
Acenaphthene	7.70	---	0.0400	ug/L	1	8.00	---	96	47-122%	3	30%	
Acenaphthylene	7.47	---	0.0400	"	"	"	---	93	41-130%	2	30%	
Anthracene	7.53	---	0.0400	"	"	"	---	94	57-123%	2	30%	
Benz(a)anthracene	7.79	---	0.0400	"	"	"	---	97	58-125%	0.9	30%	
Benzo(a)pyrene	8.62	---	0.0400	"	"	"	---	108	54-128%	2	30%	
Benzo(b)fluoranthene	8.19	---	0.0400	"	"	"	---	102	53-131%	3	30%	
Benzo(k)fluoranthene	8.56	---	0.0400	"	"	"	---	107	57-129%	0.2	30%	
Benzo(g,h,i)perylene	7.22	---	0.0400	"	"	"	---	90	50-134%	2	30%	
Chrysene	7.69	---	0.0400	"	"	"	---	96	59-123%	2	30%	
Dibenz(a,h)anthracene	8.51	---	0.0400	"	"	"	---	106	51-134%	1	30%	
Dibenzofuran	7.39	---	0.0400	"	"	"	---	92	53-120%	2	30%	
Fluoranthene	8.28	---	0.0400	"	"	"	---	104	57-128%	3	30%	
Fluorene	7.37	---	0.0400	"	"	"	---	92	52-124%	2	30%	
Indeno(1,2,3-cd)pyrene	7.61	---	0.0400	"	"	"	---	95	52-133%	2	30%	
1-Methylnaphthalene	7.22	---	0.0800	"	"	"	---	90	41-120%	4	30%	
2-Methylnaphthalene	7.15	---	0.0800	"	"	"	---	89	40-121%	4	30%	
Naphthalene	6.76	---	0.0800	"	"	"	---	85	"	3	30%	
Phenanthrene	6.83	---	0.0400	"	"	"	---	85	59-120%	3	30%	
Pyrene	8.30	---	0.0400	"	"	"	---	104	57-126%	2	30%	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 82 %*		*Limits: 44-120 %*		*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*74 %*		*50-133 %*		*"*					

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Lisa Domenighini For Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120589 - EPA 3015A							**Water**					
Blank (6120589-BLK1)					Prepared: 12/19/16 11:57		Analyzed: 12/20/16 14:49					
EPA 200.8												
Antimony	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Arsenic	ND	---	1.00	"	"	---	---	---	---	---	---	
Barium	ND	---	1.00	"	"	---	---	---	---	---	---	
Chromium	ND	---	1.00	"	"	---	---	---	---	---	---	
Lead	ND	---	0.200	"	"	---	---	---	---	---	---	
Mercury	ND	---	0.0800	"	"	---	---	---	---	---	---	
Nickel	ND	---	1.00	"	"	---	---	---	---	---	---	
Selenium	ND	---	1.00	"	"	---	---	---	---	---	---	
Silver	ND	---	0.200	"	"	---	---	---	---	---	---	
Blank (6120589-BLK2)					Prepared: 12/19/16 11:57		Analyzed: 12/21/16 18:01					
EPA 200.8												
Beryllium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	Q-16
Cadmium	ND	---	0.200	"	"	---	---	---	---	---	---	Q-16
LCS (6120589-BS1)					Prepared: 12/19/16 11:57		Analyzed: 12/20/16 15:07					
EPA 200.8												
Antimony	26.8	---	1.00	ug/L	1	27.8	---	96	85-115%	---	---	
Arsenic	54.8	---	1.00	"	"	55.6	---	99	"	---	---	
Barium	54.1	---	1.00	"	"	"	---	97	"	---	---	
Cadmium	54.3	---	1.00	"	"	"	---	98	"	---	---	
Chromium	52.1	---	1.00	"	"	"	---	94	"	---	---	
Lead	56.4	---	0.200	"	"	"	---	101	"	---	---	
Mercury	1.14	---	0.0800	"	"	1.11	---	103	"	---	---	
Nickel	53.8	---	1.00	"	"	55.6	---	97	"	---	---	
Selenium	26.8	---	1.00	"	"	27.8	---	96	"	---	---	
Silver	26.7	---	0.200	"	"	"	---	96	"	---	---	
LCS (6120589-BS2)					Prepared: 12/19/16 11:57		Analyzed: 12/21/16 18:07					
EPA 200.8												
Beryllium	27.6	---	0.200	ug/L	1	27.8	---	100	85-115%	---	---	Q-16
Duplicate (6120589-DUP1)					Prepared: 12/19/16 11:57		Analyzed: 12/20/16 15:22					
QC Source Sample: Other (A6L0184-02)												
EPA 200.8												

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120589 - EPA 3015A									**Water**			
Duplicate (6120589-DUP1)					Prepared: 12/19/16 11:57		Analyzed: 12/20/16 15:22					
QC Source Sample: Other (A6L0184-02)												
EPA 200.8												
Antimony	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	
Arsenic	ND	---	1.00	"	"	---	0.522	---	---		20%	
Barium	**42.1**	---	1.00	"	"	---	42.4	---	---	0.6	20%	
Cadmium	ND	---	1.00	"	"	---	ND	---	---	---	20%	
Chromium	ND	---	1.00	"	"	---	ND	---	---	---	20%	
Lead	ND	---	0.200	"	"	---	0.111	---	---	46	20%	Q-05
Mercury	ND	---	0.0800	"	"	---	ND	---	---	---	20%	
Nickel	**1.40**	---	1.00	"	"	---	1.51	---	---	8	20%	
Selenium	ND	---	1.00	"	"	---	ND	---	---	---	20%	
Silver	ND	---	0.200	"	"	---	ND	---	---	---	20%	
Duplicate (6120589-DUP2)					Prepared: 12/19/16 11:57		Analyzed: 12/21/16 18:57					
QC Source Sample: Other (A6L0184-02RE1)												
EPA 200.8												
Beryllium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	Q-16
Matrix Spike (6120589-MS1)					Prepared: 12/19/16 11:57		Analyzed: 12/20/16 15:28					
QC Source Sample: Other (A6L0184-03)												
EPA 200.8												
Antimony	26.1	---	1.00	ug/L	1	27.8	ND	94	70-130%	---	---	
Arsenic	58.1	---	1.00	"	"	55.6	2.54	100	"	---	---	
Barium	101	---	1.00	"	"	"	45.7	100	"	---	---	
Cadmium	54.6	---	1.00	"	"	"	ND	98	"	---	---	
Chromium	55.4	---	1.00	"	"	"	ND	100	"	---	---	
Lead	65.9	---	0.200	"	"	"	12.3	96	"	---	---	
Mercury	1.08	---	0.0800	"	"	1.11	ND	97	"	---	---	
Nickel	58.3	---	1.00	"	"	55.6	3.51	99	"	---	---	
Selenium	25.7	---	1.00	"	"	27.8	ND	93	"	---	---	
Silver	26.2	---	0.200	"	"	"	ND	94	"	---	---	
Matrix Spike (6120589-MS2)					Prepared: 12/19/16 11:57		Analyzed: 12/21/16 19:28					
QC Source Sample: Other (A6L0359-02)												
EPA 200.8												

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120589 - EPA 3015A							**Water**					
Matrix Spike (6120589-MS2)					Prepared: 12/19/16 11:57		Analyzed: 12/21/16 19:28					
QC Source Sample: Other (A6L0359-02)												
EPA 200.8												
Antimony	31.3	---	5.00	ug/L	5	27.8	4.39	97	70-130%	---	---	
Arsenic	73.4	---	5.00	"	"	55.6	20.0	96	"	---	---	
Barium	100	---	5.00	"	"	"	45.6	98	"	---	---	
Beryllium	23.7	---	1.00	"	"	27.8	ND	85	"	---	---	
Cadmium	50.4	---	1.00	"	"	55.6	ND	91	"	---	---	
Chromium	151	---	5.00	"	"	"	93.5	104	"	---	---	
Lead	50.5	---	1.00	"	"	"	ND	91	"	---	---	
Mercury	1.27	---	0.400	"	"	1.11	ND	96	"	---	---	
Nickel	3510	---	5.00	"	"	55.6	3530	-31	"	---	---	Q-03
Selenium	34.3	---	5.00	"	"	27.8	4.44	107	"	---	---	
Silver	24.7	---	1.00	"	"	"	ND	89	"	---	---	
Matrix Spike (6120589-MS3)					Prepared: 12/19/16 11:57		Analyzed: 12/21/16 19:03					
QC Source Sample: Other (A6L0184-03RE1)												
EPA 200.8												
Beryllium	27.0	---	0.200	ug/L	1	27.8	ND	97	70-130%	---	---	Q-16

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120606							
A6L0156-01RE1	Water	EPA 300.0	12/06/16 12:00	12/20/16 06:47	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120558							
A6L0156-01	Water	EPA 335.4	12/06/16 12:00	12/16/16 13:20	0.3mL/6mL	6mL/6mL	20.00

Cyanide - Amenable (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120451							
A6L0156-01	Water	SM 4500-CN (C/E)	12/06/16 12:00	12/13/16 08:53	6mL/6mL	6mL/6mL	1.00
A6L0156-01	Water	SM 4500-CN (G/C/E)	12/06/16 12:00	12/13/16 08:53	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120452							
A6L0156-01	Water	SM 4500-CN (I/E)	12/06/16 12:00	12/13/16 08:55	6mL/6mL	6mL/6mL	1.00

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120445							
A6L0156-01RE1	Water	EPA 8270D (SIM)	12/06/16 12:00	12/13/16 07:13	1040mL/2mL	1000mL/2mL	0.96

Total Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120589							

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Lisa Domenighini For Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A6L0156-01RE1	Water	EPA 200.8	12/06/16 12:00	12/19/16 11:57	5mL/50mL	45mL/50mL	9.00

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

Notes and Definitions

Qualifiers:

A-01	Sample suspected to contain carbonates. Results may be biased low due to possible analyte loss during distillation.
M-02	Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
Q-16	Reanalysis of an original Batch QC sample.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
R-04	Reporting levels elevated due to dilution necessary for analysis.
S-03	Reextraction and analysis, or analysis of laboratory duplicate, confirms surrogate failure due to sample matrix effect.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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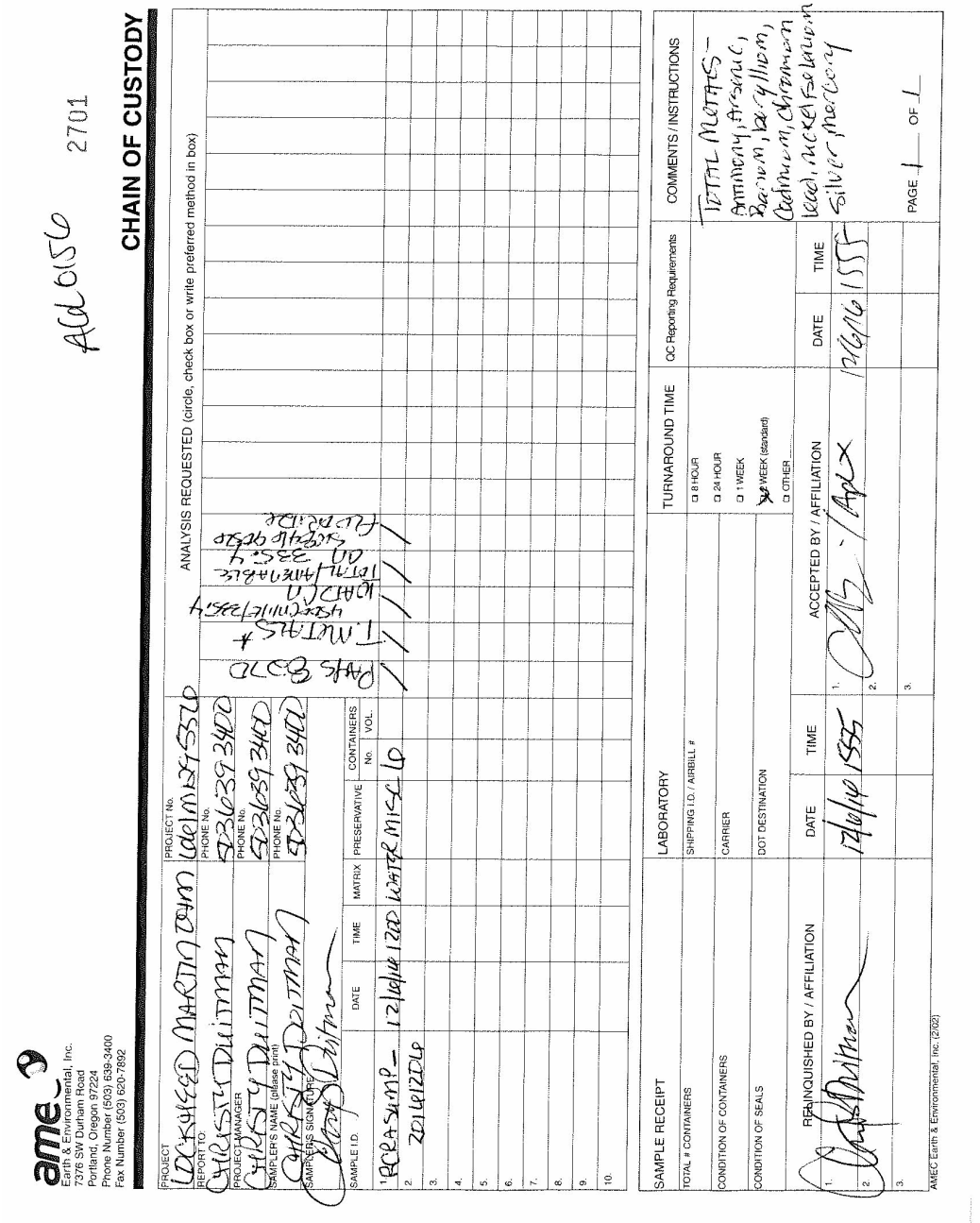
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44



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503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/29/16 10:44

APEX LABS COOLER RECEIPT FORM

Client: AMEC Element WO#: A6 L0156

Project/Project #: Lockheed Martin O+M / 661M129556

Delivery info:

Date/Time Received: 12/6/16 @ 1555 By: ak

Delivered by: Apex____Client X ESS____FedEx____UPS____Swift____Senvoy____SDS____Other____

Cooler Inspection Inspected by: ak : 12/6/16 @ 1558

Chain of Custody Included? Yes X No__ Custody Seals? Yes____ No X

Signed/Dated by Client? Yes X No__

Signed/Dated by Apex? Yes X No__

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	1.2						
Received on Ice? (Y/N)	(Y)						
Temp. Blanks? (Y/N)	(N)						
Ice Type: (Gel/Real/Other)	N/A						
Condition:							

Cooler out of temp? (Y/N) Possible reason why: Not received on ice

If some coolers are in temp and some out, were circle dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: ak : 12/6/16 @ 1727

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA √

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes √ No___ NA____

Comments:

Additional Information:

Labeled by: ak Witness: KM Cooler Inspected by: JM See Project Contact Form: Y

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Lisa A Domenighini

Lisa Domenighini For Philip Nerenberg, Lab Director

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AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Friday, January 13, 2017

Caprielle Larson
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: Lockheed Martin / 661M129556.01

Enclosed are the results of analyses for work order A6L0642, which was received by the laboratory on 12/23/2016 at 11:27:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
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503-718-0333 Fax

AMENDED REPORT

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LS-1_20161221	A6L0642-01	Water	12/21/16 09:50	12/23/16 11:27
LS-2_20161221	A6L0642-02	Water	12/21/16 10:20	12/23/16 11:27
MH-2_20161221	A6L0642-03	Water	12/21/16 11:10	12/23/16 11:27
MH-4_20161221	A6L0642-04	Water	12/21/16 10:45	12/23/16 11:27

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503-718-0333 Fax

AMENDED REPORT

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

ANALYTICAL CASE NARRATIVE

Work Order: A6L0642

Amended Report Revision 1:

Reporting the Method Detection Limits (MDL)

This report supersedes all previous reports.

The final report has been amended to report all data to the method detection limits (MDLs).

Philip Nerenberg
Lab Director
1/13/2017

Apex Labs

AMENDED REPORT

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LS-1_20161221 (A6L0642-01)			**Matrix: Water**					
Batch: 6120802								
Fluoride	**12.6**	1.00	1.00	mg/L	1	12/27/16 16:20	EPA 300.0	
Batch: 7010113								
Sulfate	**48.1**	5.00	5.00	"	5	01/03/17 11:03	"	
LS-2_20161221 (A6L0642-02)			**Matrix: Water**					
Batch: 6120802								
Fluoride	**6.45**	1.00	1.00	mg/L	1	12/27/16 17:24	EPA 300.0	
Batch: 7010113								
Sulfate	**71.2**	5.00	5.00	"	5	01/03/17 11:24	"	
MH-2_20161221 (A6L0642-03)			**Matrix: Water**					
Batch: 6120802								
Fluoride	**13.6**	1.00	1.00	mg/L	1	12/27/16 17:46	EPA 300.0	
Batch: 7010113								
Sulfate	**39.9**	2.00	2.00	"	2	01/03/17 18:56	"	
MH-4_20161221 (A6L0642-04)			**Matrix: Water**					
Batch: 6120802								
Fluoride	**14.7**	1.00	1.00	mg/L	1	12/27/16 18:07	EPA 300.0	
Batch: 7010113								
Sulfate	**126**	5.00	5.00	"	5	01/03/17 12:50	"	

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LS-1_20161221 (A6L0642-01)			**Matrix: Water**		**Batch: 6120835**			
Cyanide, Total	**0.659**	0.0500	0.0500	mg/L	10	12/28/16 11:40	EPA 335.4	
LS-2_20161221 (A6L0642-02)			**Matrix: Water**		**Batch: 6120835**			
Cyanide, Total	**1.65**	0.0500	0.0500	mg/L	10	12/28/16 11:42	EPA 335.4	
MH-2_20161221 (A6L0642-03)			**Matrix: Water**		**Batch: 6120835**			
Cyanide, Total	**0.576**	0.0500	0.0500	mg/L	10	12/28/16 11:44	EPA 335.4	
MH-4_20161221 (A6L0642-04)			**Matrix: Water**		**Batch: 6120835**			
Cyanide, Total	**6.40**	0.500	0.500	mg/L	100	12/28/16 11:52	EPA 335.4	

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LS-1_20161221 (A6L0642-01)			**Matrix: Water**		**Batch: 7010112**			
Cyanide, WAD	**0.0283**	0.00500	0.00500	mg/L	1	01/03/17 10:15	SM 4500-CN (I/E)	
LS-2_20161221 (A6L0642-02)			**Matrix: Water**		**Batch: 7010112**			
Cyanide, WAD	**0.0417**	0.00500	0.00500	mg/L	1	01/03/17 10:21	SM 4500-CN (I/E)	
MH-2_20161221 (A6L0642-03)			**Matrix: Water**		**Batch: 7010112**			
Cyanide, WAD	**0.0268**	0.00500	0.00500	mg/L	1	01/03/17 10:23	SM 4500-CN (I/E)	
MH-4_20161221 (A6L0642-04)			**Matrix: Water**		**Batch: 7010112**			
Cyanide, WAD	**0.122**	0.00500	0.00500	mg/L	1	01/03/17 10:25	SM 4500-CN (I/E)	

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120802 - Method Prep: Aq							**Water**					
Blank (6120802-BLK1)					Prepared: 12/27/16 09:41		Analyzed: 12/27/16 10:57					
EPA 300.0												
Fluoride	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (6120802-BS1)					Prepared: 12/27/16 09:41		Analyzed: 12/27/16 11:18					
EPA 300.0												
Fluoride	8.40	1.00	1.00	mg/L	1	8.00	---	105	90-110%	---	---	
Duplicate (6120802-DUP2)					Prepared: 12/27/16 09:41		Analyzed: 12/27/16 16:41					
QC Source Sample: LS-1_20161221 (A6L0642-01)												
EPA 300.0												
Fluoride	**12.6**	1.00	1.00	mg/L	1	---	12.6	---	---	0.1	15%	
Matrix Spike (6120802-MS2)					Prepared: 12/27/16 09:41		Analyzed: 12/27/16 17:03					
QC Source Sample: LS-1_20161221 (A6L0642-01)												
EPA 300.0												
Fluoride	23.3	1.25	1.25	mg/L	1	10.0	12.6	107	80-120%	---	---	
Batch 7010113 - Method Prep: Aq							**Water**					
Blank (7010113-BLK1)					Prepared: 01/03/17 08:27		Analyzed: 01/03/17 10:20					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7010113-BS1)					Prepared: 01/03/17 08:27		Analyzed: 01/03/17 10:41					
EPA 300.0												
Sulfate	8.46	1.00	1.00	mg/L	1	8.00	---	106	90-110%	---	---	
Duplicate (7010113-DUP3)					Prepared: 01/03/17 08:27		Analyzed: 01/03/17 19:18					
QC Source Sample: MH-2_20161221 (A6L0642-03)												
EPA 300.0												
Sulfate	**39.6**	2.00	2.00	mg/L	2	---	39.9	---	---	0.8	15%	
Matrix Spike (7010113-MS3)					Prepared: 01/03/17 08:27		Analyzed: 01/03/17 19:39					
QC Source Sample: MH-2_20161221 (A6L0642-03)												
EPA 300.0												
Sulfate	49.7	2.50	2.50	mg/L	2	10.0	39.9	98	80-120%	---	---	

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Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120835 - Method Prep: Aq							**Water**					
Blank (6120835-BLK1)					Prepared: 12/28/16 08:11		Analyzed: 12/28/16 11:26					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120835-BS1)					Prepared: 12/28/16 08:11		Analyzed: 12/28/16 11:28					
EPA 335.4												
Cyanide, Total	0.236	0.00500	0.00500	mg/L	1	0.250	---	94	85-115%	---	---	

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7010112 - Method Prep: Aq									Water			
Blank (7010112-BLK1)					Prepared: 01/03/17 08:08		Analyzed: 01/03/17 10:11					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7010112-BS1)					Prepared: 01/03/17 08:08		Analyzed: 01/03/17 10:13					
SM 4500-CN (I/E)												
Cyanide, WAD	0.242	0.00500	0.00500	mg/L	1	0.250	---	97	85-115%	---	---	
Duplicate (7010112-DUP1)					Prepared: 01/03/17 08:08		Analyzed: 01/03/17 10:17					
QC Source Sample: LS-1_20161221 (A6L0642-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	**0.0275**	0.00500	0.00500	mg/L	1	---	0.0283	---	---	3	10%	
Matrix Spike (7010112-MS1)					Prepared: 01/03/17 08:08		Analyzed: 01/03/17 10:19					
QC Source Sample: LS-1_20161221 (A6L0642-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.268	0.00500	0.00500	mg/L	1	0.250	0.0283	96	80-120%	---	---	

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120802							
A6L0642-01	Water	EPA 300.0	12/21/16 09:50	12/27/16 09:41	10mL/10mL	10mL/10mL	1.00
A6L0642-02	Water	EPA 300.0	12/21/16 10:20	12/27/16 09:41	10mL/10mL	10mL/10mL	1.00
A6L0642-03	Water	EPA 300.0	12/21/16 11:10	12/27/16 09:41	10mL/10mL	10mL/10mL	1.00
A6L0642-04	Water	EPA 300.0	12/21/16 10:45	12/27/16 09:41	10mL/10mL	10mL/10mL	1.00
Batch: 7010113							
A6L0642-01	Water	EPA 300.0	12/21/16 09:50	01/03/17 08:27	10mL/10mL	10mL/10mL	1.00
A6L0642-02	Water	EPA 300.0	12/21/16 10:20	01/03/17 08:27	10mL/10mL	10mL/10mL	1.00
A6L0642-03	Water	EPA 300.0	12/21/16 11:10	01/03/17 08:27	10mL/10mL	10mL/10mL	1.00
A6L0642-04	Water	EPA 300.0	12/21/16 10:45	01/03/17 08:27	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120835							
A6L0642-01	Water	EPA 335.4	12/21/16 09:50	12/28/16 08:11	6mL/6mL	6mL/6mL	1.00
A6L0642-02	Water	EPA 335.4	12/21/16 10:20	12/28/16 08:11	6mL/6mL	6mL/6mL	1.00
A6L0642-03	Water	EPA 335.4	12/21/16 11:10	12/28/16 08:11	6mL/6mL	6mL/6mL	1.00
A6L0642-04	Water	EPA 335.4	12/21/16 10:45	12/28/16 08:11	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7010112							
A6L0642-01	Water	SM 4500-CN (I/E)	12/21/16 09:50	01/03/17 08:08	6mL/6mL	6mL/6mL	1.00
A6L0642-02	Water	SM 4500-CN (I/E)	12/21/16 10:20	01/03/17 08:08	6mL/6mL	6mL/6mL	1.00
A6L0642-03	Water	SM 4500-CN (I/E)	12/21/16 11:10	01/03/17 08:08	6mL/6mL	6mL/6mL	1.00
A6L0642-04	Water	SM 4500-CN (I/E)	12/21/16 10:45	01/03/17 08:08	6mL/6mL	6mL/6mL	1.00

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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Philip Nerenberg, Lab Director

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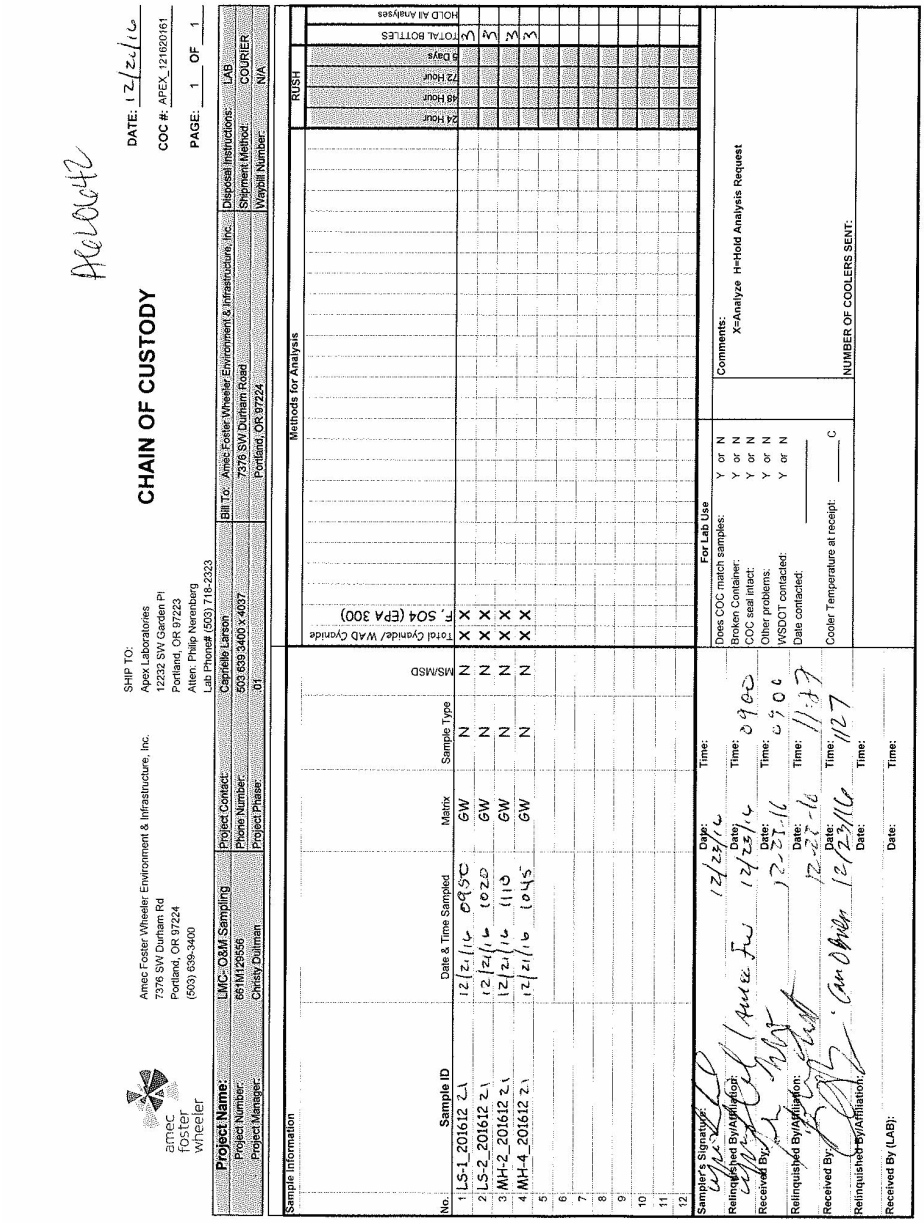
AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48



amec foster wheeler

Amec Foster Wheeler Environment & Infrastructure, Inc.
7376 SW Durham Rd
Portland, OR 97224
(503) 639-3400

SHIP TO:
Apex Laboratories
12232 SW Garden Pl
Portland, OR 97223
Attn: Philip Nerenberg
Lab Phone#: (503) 718-2323

DATE: 12/12/16
COC #: APEX_121620161
PAGE: 1 OF 1

CHAIN OF CUSTODY

Project Name:	LMC: O&M Sampling	Project Contact:	Caprielle Larson	Bill To:	Amec Foster Wheeler Environment & Infrastructure, Inc.	Disposal Instructions:	LAB
Project Number:	661M129556	Phone Number:	503.639.3400 x 4037		7376 SW Durham Road	Shipment Method:	COURIER
Project Manager:	Christy Dullman	Project Phase:	01		Portland, OR 97224	Waybill Number:	N/A

Sample Information							Methods for Analysis							RUSH				
No.	Sample ID	Date & Time Sampled	Matrix	Sample Type	MS/MSD	Total Cyanide/ WAD Cyanide F, 504 (EPA 300)							24 Hour	48 Hour	72 Hour	5 Days	TOTAL BOTTLES	HOLD All Analyses
1	LS-1_201612 21	12/21/16 0950	GW	N	N	X											3	
2	LS-2_201612 21	12/21/16 1020	GW	N	N	X											3	
3	MH-2_201612 21	12/21/16 1110	GW	N	N	X											3	
4	MH-4_201612 21	12/21/16 1045	GW	N	N	X											3	
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Sampler's Signature: Date: 12/23/16 Time:

Relinquished By/Affiliation:	Date:	Time:	Received By:	Date:	Time:
	12/23/16	0900	Amec Fw	12/23/16	0900
Relinquished By/Affiliation:	Date:	Time:	Received By:	Date:	Time:
	12-23-16	1700		12-23-16	1700
Relinquished By/Affiliation:	Date:	Time:	Received By:	Date:	Time:
	12-23-16	1127	Can Apex	12/23/16	1127
Relinquished By/Affiliation:	Date:	Time:	Received By:	Date:	Time:
Relinquished By (LAB):	Date:	Time:	Received By (LAB):	Date:	Time:

For Lab Use

Does COC match samples:	Y or N	Comments:
Broken Container:	Y or N	X=Analyze H=Hold Analysis Request
COC seal intact:	Y or N	
Other problems:	Y or N	
WSDOT contacted:	Y or N	
Date contacted:	_____	
Cooler Temperature at receipt:	_____ C	NUMBER OF COOLERS SENT:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Larson	01/13/17 12:48

APEX LABS COOLER RECEIPT FORM

Client: Amec Element WO#: A6 L0642

Project/Project #: LMC - O+M Sampling / 661M129556

Delivery info:

Date/Time Received: 12/23/16 @ 1127 By: [signature]

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: [signature] : 12/23/16 @ 1130

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.9	3.5					
Received on Ice? (Y/N)	Y						
Temp. Blanks? (Y/N)	Y						
Ice Type: (Gel/Real/Other)	Real						
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: AKK : 12/23/16 @ 1215

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: AKK Witness: [signature] Cooler Inspected by: AKK See Project Contact Form: Y

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Tuesday, April 25, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556

Enclosed are the results of analyses for work order A7C0467, which was received by the laboratory on 3/15/2017 at 11:57:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

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Philip Nerenberg, Lab Director

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AMENDED REPORT

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LS-1_20170313	A7C0467-01	Water	03/13/17 15:00	03/15/17 11:57
LS-2_20170313	A7C0467-02	Water	03/13/17 15:10	03/15/17 11:57
MH2_20170313	A7C0467-03	Water	03/13/17 15:50	03/15/17 11:57
MH4_20170313	A7C0467-04	Water	03/13/17 15:30	03/15/17 11:57

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

ANALYTICAL CASE NARRATIVE

Work Order: A7C0467

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LS-1_20170313 (A7C0467-01RE1)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**128**	5.00	5.00	mg/L	5	03/24/17 15:15	EPA 300.0	
LS-2_20170313 (A7C0467-02RE1)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**211**	10.0	10.0	mg/L	10	03/24/17 15:37	EPA 300.0	
MH2_20170313 (A7C0467-03RE1)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**47.2**	5.00	5.00	mg/L	5	03/24/17 15:58	EPA 300.0	
MH4_20170313 (A7C0467-04)			**Matrix: Water**					
Batch: 7030739								
Sulfate	**91.6**	5.00	5.00	mg/L	5	03/17/17 19:43	EPA 300.0	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LS-1_20170313 (A7C0467-01)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**9.40**	0.100	0.100	mg/L	1	03/21/17 12:20	EPA 300.0-LL	
LS-2_20170313 (A7C0467-02)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**9.11**	0.100	0.100	mg/L	1	03/21/17 12:42	EPA 300.0-LL	
MH2_20170313 (A7C0467-03)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**13.2**	0.100	0.100	mg/L	1	03/21/17 13:03	EPA 300.0-LL	
MH4_20170313 (A7C0467-04)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**14.5**	0.100	0.100	mg/L	1	03/21/17 14:08	EPA 300.0-LL	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LS-1_20170313 (A7C0467-01)			**Matrix: Water**		**Batch: 7030669**			
Cyanide, Total	**1.48**	0.0500	0.0500	mg/L	10	03/16/17 14:34	EPA 335.4	
LS-2_20170313 (A7C0467-02)			**Matrix: Water**		**Batch: 7030669**			
Cyanide, Total	**1.88**	0.0500	0.0500	mg/L	10	03/16/17 14:36	EPA 335.4	
MH2_20170313 (A7C0467-03)			**Matrix: Water**		**Batch: 7030669**			
Cyanide, Total	**18.3**	0.500	0.500	mg/L	100	03/16/17 14:38	EPA 335.4	
MH4_20170313 (A7C0467-04)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**2.46**	0.0500	0.0500	mg/L	10	03/21/17 11:28	EPA 335.4	

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Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
LS-1_20170313 (A7C0467-01)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	**0.0347**	0.00500	0.00500	mg/L	1	03/20/17 11:36	SM 4500-CN (I/E)	
LS-2_20170313 (A7C0467-02)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	**0.0430**	0.00500	0.00500	mg/L	1	03/20/17 11:38	SM 4500-CN (I/E)	
MH2_20170313 (A7C0467-03)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	**1.56**	0.0500	0.0500	mg/L	10	03/20/17 11:40	SM 4500-CN (I/E)	
MH4_20170313 (A7C0467-04)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	**0.0539**	0.00500	0.00500	mg/L	1	03/20/17 12:21	SM 4500-CN (I/E)	

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Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030739 - Method Prep: Aq							**Water**					
Blank (7030739-BLK1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 12:11					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7030739-BS1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 12:33					
EPA 300.0												
Sulfate	8.54	1.00	1.00	mg/L	1	8.00	---	107	90-110%	---	---	
Duplicate (7030739-DUP1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 22:57					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0												
Sulfate	**24.7**	1.00	1.00	mg/L	1	---	31.7	---	---	25	15%	Q-17
Matrix Spike (7030739-MS1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 23:19					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0												
Sulfate	42.0	1.25	1.25	mg/L	1	10.0	31.7	103	80-120%	---	---	
Matrix Spike Dup (7030739-MSD1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 23:40					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0												
Sulfate	41.9	1.25	1.25	mg/L	1	10.0	31.7	103	80-120%	0.2	15%	
Batch 7030953 - Method Prep: Aq							**Water**					
Blank (7030953-BLK1)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 13:27					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7030953-BS1)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 13:49					
EPA 300.0												
Sulfate	8.56	1.00	1.00	mg/L	1	8.00	---	107	90-110%	---	---	
Duplicate (7030953-DUP1)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 14:32					
QC Source Sample: MW-37S_20170314 (A7C0467-16)												
EPA 300.0												
Sulfate	**6.31**	1.00	1.00	mg/L	1	---	6.31	---	---	0.05	15%	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030953 - Method Prep: Aq							**Water**					
Duplicate (7030953-DUP2)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 19:55					
QC Source Sample: Other (A7C0467-18)												
EPA 300.0												
Sulfate	**18.4**	1.00	1.00	mg/L	1	---	18.5	---	---	0.6	15%	
Matrix Spike (7030953-MS1)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 14:53					
QC Source Sample: MW-37S_20170314 (A7C0467-16)												
EPA 300.0												
Sulfate	16.9	1.25	1.25	mg/L	1	10.0	6.31	106	80-120%	---	---	
Matrix Spike (7030953-MS2)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 20:16					
QC Source Sample: Other (A7C0467-18)												
EPA 300.0												
Sulfate	28.9	1.25	1.25	mg/L	1	10.0	18.5	104	80-120%	---	---	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030803 - Method Prep: Aq							**Water**					
Blank (7030803-BLK1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 09:50					
EPA 300.0-LL												
Fluoride	ND	0.100	0.100	mg/L	1	---	---	---	---	---	---	
LCS (7030803-BS1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 10:11					
EPA 300.0-LL												
Fluoride	1.38	0.100	0.100	mg/L	1	1.50	---	92	90-110%	---	---	
Duplicate (7030803-DUP1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 10:54					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0-LL												
Fluoride	**0.270**	0.100	0.100	mg/L	1	---	0.265	---	---	2	15%	
Matrix Spike (7030803-MS1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 11:16					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0-LL												
Fluoride	1.71	0.104	0.104	mg/L	1	1.56	0.265	92	80-120%	---	---	
Matrix Spike Dup (7030803-MSD1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 11:37					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0-LL												
Fluoride	1.77	0.104	0.104	mg/L	1	1.56	0.265	96	80-120%	4	15%	

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Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030669 - Method Prep: Aq							**Water**					
Blank (7030669-BLK1)					Prepared: 03/16/17 08:25		Analyzed: 03/16/17 11:49					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030669-BS1)					Prepared: 03/16/17 08:25		Analyzed: 03/16/17 11:51					
EPA 335.4												
Cyanide, Total	0.266	0.00500	0.00500	mg/L	1	0.250	---	106	85-115%	---	---	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030806 - Method Prep: Aq							**Water**					
Blank (7030806-BLK1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:24					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030806-BS1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:26					
EPA 335.4												
Cyanide, Total	0.257	0.00500	0.00500	mg/L	1	0.250	---	103	85-115%	---	---	
Duplicate (7030806-DUP1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:32					
QC Source Sample: MW-35S_20170314 (A7C0467-11)												
EPA 335.4												
Cyanide, Total	**0.0198**	0.00500	0.00500	mg/L	1	---	0.0212	---	---	7	10%	
Matrix Spike (7030806-MS1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:34					
QC Source Sample: MW-35S_20170314 (A7C0467-11)												
EPA 335.4												
Cyanide, Total	0.306	0.00500	0.00500	mg/L	1	0.250	0.0212	114	80-120%	---	---	

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Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030764 - Method Prep: Aq									Water			
Blank (7030764-BLK1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 10:30					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030764-BS1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 10:32					
SM 4500-CN (I/E)												
Cyanide, WAD	0.270	0.00500	0.00500	mg/L	1	0.250	---	108	85-115%	---	---	
Duplicate (7030764-DUP1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 11:08					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7030764-MS1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 11:10					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.275	0.00500	0.00500	mg/L	1	0.250	ND	110	80-120%	---	---	
Matrix Spike Dup (7030764-MSD1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 11:12					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.265	0.00500	0.00500	mg/L	1	0.250	ND	106	80-120%	4	10%	

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SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030739							
A7C0467-04	Water	EPA 300.0	03/13/17 15:30	03/17/17 09:49	10mL/10mL	10mL/10mL	1.00
Batch: 7030953							
A7C0467-01RE1	Water	EPA 300.0	03/13/17 15:00	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-02RE1	Water	EPA 300.0	03/13/17 15:10	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-03RE1	Water	EPA 300.0	03/13/17 15:50	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030803							
A7C0467-01	Water	EPA 300.0-LL	03/13/17 15:00	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-02	Water	EPA 300.0-LL	03/13/17 15:10	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-03	Water	EPA 300.0-LL	03/13/17 15:50	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-04	Water	EPA 300.0-LL	03/13/17 15:30	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030669							
A7C0467-01	Water	EPA 335.4	03/13/17 15:00	03/16/17 08:25	6mL/6mL	6mL/6mL	1.00
A7C0467-02	Water	EPA 335.4	03/13/17 15:10	03/16/17 08:25	6mL/6mL	6mL/6mL	1.00
A7C0467-03	Water	EPA 335.4	03/13/17 15:50	03/16/17 08:25	6mL/6mL	6mL/6mL	1.00
Batch: 7030806							
A7C0467-04	Water	EPA 335.4	03/13/17 15:30	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030764							
A7C0467-01	Water	SM 4500-CN (I/E)	03/13/17 15:00	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-02	Water	SM 4500-CN (I/E)	03/13/17 15:10	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-03	Water	SM 4500-CN (I/E)	03/13/17 15:50	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

SAMPLE PREPARATION INFORMATION

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A7C0467-04	Water	SM 4500-CN (I/E)	03/13/17 15:30	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

Notes and Definitions

Qualifiers:

Q-17	RPD between original and duplicate sample is outside of established control limits.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



Philip Nerenberg, Lab Director

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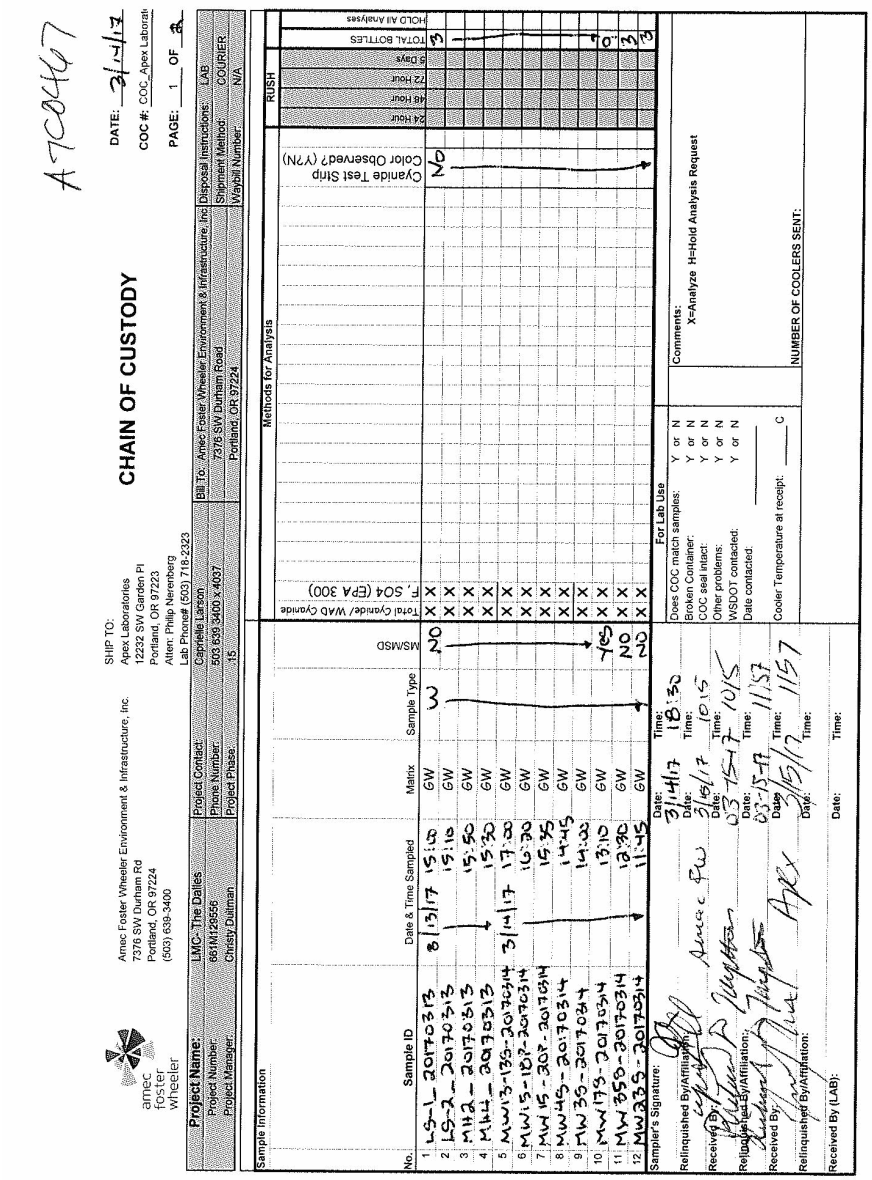
Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46



Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
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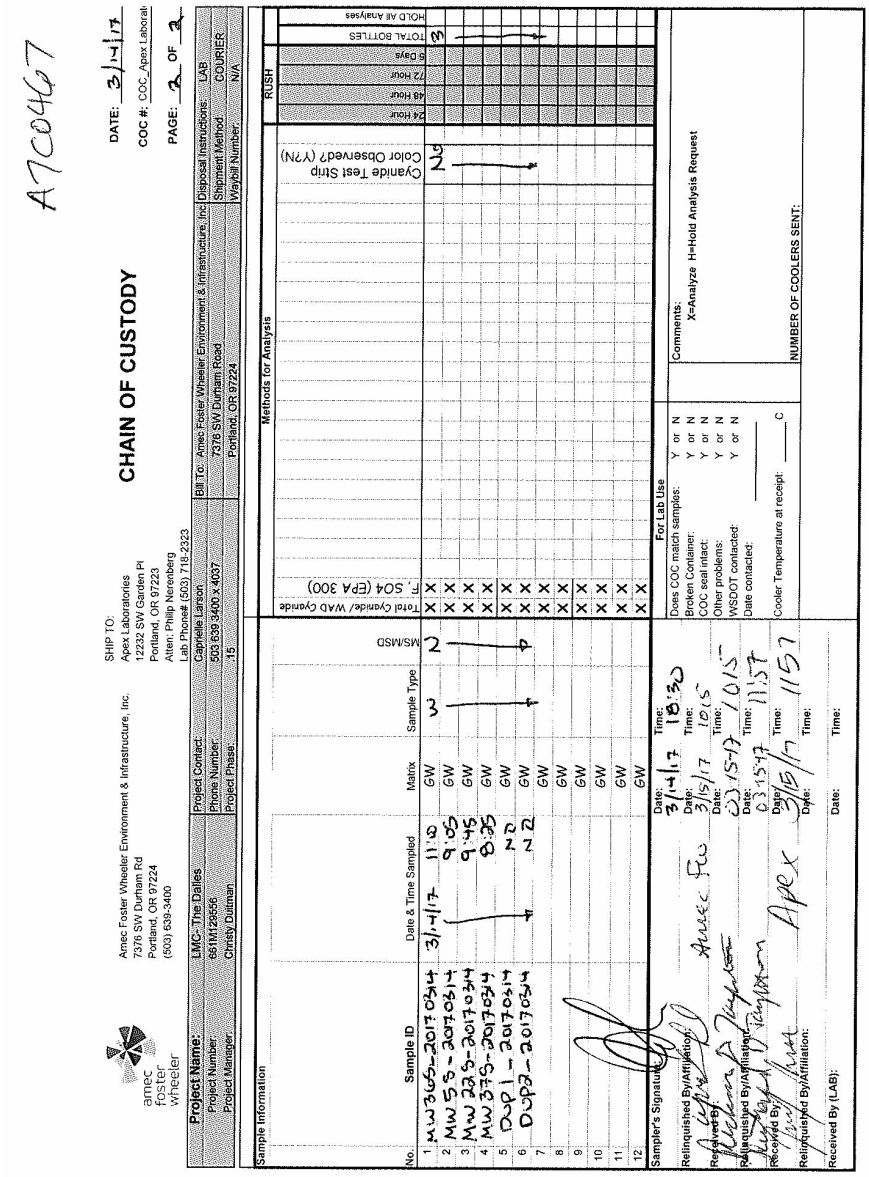
AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46



A7C0467

amec foster wheeler

Amec Foster Wheeler Environment & Infrastructure, Inc.
7376 SW Durham Rd
Portland, OR 97224
(503) 639-3400

SHIP TO:
Apex Laboratories
12232 SW Garden Pl
Portland, OR 97223
Atten: Philip Nerenberg
Lab Phone# (503) 718-2323

CHAIN OF CUSTODY

DATE: 3/14/17
COC #: COC_Apex Laborat
PAGE: 2 OF 2

Project Name:	LMC- The Dalles	Project Contact:	Capriele Larson	Bill To: Amec Foster Wheeler Environment & Infrastructure, Inc	Disposal Instructions: LAB
Project Number:	661M129556	Phone Number:	503 639 3400 x 4037	7376 SW Durham Road	Shipment Method: COURIER
Project Manager:	Christy Duitman	Project Phase:	15	Portland, OR 97224	Waybill Number: N/A

Sample Information

No.	Sample ID	Date & Time Sampled	Matrix	Sample Type	MS/MSD	Total Cyanide/ WAD Cyanide	F, SO4 (EPA 300)	Cyanide Test Strip Color Observed? (Y?N)	24 Hour	48 Hour	72 Hour	6 Days	TOTAL BOTTLES	HOLD All Analyses
1	MW36S-20170314	3/14/17 11:10	GW	W	N	X	X	No					3	
2	MW5S-20170314	9:05	GW			X	X							
3	MW22S-20170314	9:45	GW			X	X							
4	MW37S-20170314	8:25	GW			X	X							
5	DUP1-20170314	NO	GW			X	X							
6	DUP2-20170314	NO	GW			X	X							
7			GW			X	X							
8			GW			X	X							
9			GW			X	X							
10			GW			X	X							
11			GW			X	X							
12			GW			X	X							

Methods for Analysis

Sampler's Signature: Date: 3/14/17 Time: 18:30

Relinquished By/Affiliation: Date: 3/15/17 Time: 1015

Received By: Amec Fw Date: 03-15-17 Time: 1015

Relinquished By/Affiliation: Date: 03-15-17 Time: 1157

Received By: Apex Date: 3/15/17 Time: 1157

Relinquished By/Affiliation: Date: Time:

Received By (LAB): Date: Time:

For Lab Use

Does COC match samples: Y or N
Broken Container: Y or N
COC seal intact: Y or N
Other problems: Y or N
WSDOT contacted: Y or N
Date contacted: ____
Cooler Temperature at receipt: ____ C

Comments:
X=Analyze H=Hold Analysis Request

NUMBER OF COOLERS SENT:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:46

APEX LABS COOLER RECEIPT FORM

Client: AMEC Element WO#: A7 C0467

Project/Project #: LMC - The Dalles

Delivery info:

Date/Time Received: 3/15/17 @ 1157 By: JS

Delivered by: Apex ___ Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Servoy ___ SDS ___ Other X

Cooler Inspection Inspected by: JS : 3/15/17 @ 1205

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	1.8	0.9	JS 3/15/17				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	1.8	0.9					
Ice Type: (Gel/Real/Other)							
Condition:	good	good					

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CMD : 3/15/17 @ 1720

All Samples Intact? Yes X No ___ Comments: ___

Bottle Labels/COCs agree? Yes ___ No X Comments: Dup1_20170314 reads DUP01_20170314 on cust. Dup2_20170314

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No ___ NA ___

Comments: ___

Additional Information: reads Dup02_20170314 on cust MW4S-20170314 reads MWR4S-20170314 on cust.

Labeled by: CM Witness: KAL Cooler Inspected by: CMD See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Monday, December 26, 2016

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: Lockheed Martin / 661M129556

Enclosed are the results of analyses for work order A6L0160, which was received by the laboratory on 12/6/2016 at 3:55:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MidEffluent_20161206	A6L0160-01	Water	12/06/16 13:00	12/06/16 15:55
Effluent_20161206	A6L0160-02	Water	12/06/16 13:05	12/06/16 15:55

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MidEffluent_20161206 (A6L0160-01)			**Matrix: Water**		**Batch: 6120558**			
Cyanide, Total	ND	---	0.00500	mg/L	1	12/16/16 15:16	EPA 335.4	
Effluent_20161206 (A6L0160-02)			**Matrix: Water**		**Batch: 6120558**			
Cyanide, Total	ND	---	0.00500	mg/L	1	12/16/16 15:18	EPA 335.4	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MidEffluent_20161206 (A6L0160-01)			**Matrix: Water**		**Batch: 6120452**			
Cyanide, WAD	ND	---	0.00500	mg/L	1	12/13/16 12:29	SM 4500-CN (I/E)	
Effluent_20161206 (A6L0160-02)			**Matrix: Water**		**Batch: 6120452**			
Cyanide, WAD	ND	---	0.00500	mg/L	1	12/13/16 12:11	SM 4500-CN (I/E)	

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Apex Labs

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120558 - Method Prep: Aq									**Water**			
Blank (6120558-BLK1)					Prepared: 12/16/16 13:20		Analyzed: 12/16/16 15:06					
EPA 335.4												
Cyanide, Total	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120558-BS1)					Prepared: 12/16/16 13:20		Analyzed: 12/16/16 15:08					
EPA 335.4												
Cyanide, Total	0.252	---	0.00500	mg/L	1	0.250	---	101	85-115%	---	---	
Duplicate (6120558-DUP1)					Prepared: 12/16/16 13:20		Analyzed: 12/16/16 15:12					
QC Source Sample: Other (A6L0350-01)												
EPA 335.4												
Cyanide, Total	ND	---	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (6120558-MS1)					Prepared: 12/16/16 13:20		Analyzed: 12/16/16 15:14					
QC Source Sample: Other (A6L0350-01)												
EPA 335.4												
Cyanide, Total	0.217	---	0.00500	mg/L	1	0.250	ND	87	80-120%	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120452 - Method Prep: Aq									Water			
Blank (6120452-BLK1)					Prepared: 12/13/16 08:55		Analyzed: 12/13/16 11:59					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120452-BS1)					Prepared: 12/13/16 08:55		Analyzed: 12/13/16 12:25					
SM 4500-CN (I/E)												
Cyanide, WAD	0.232	---	0.00500	mg/L	1	0.250	---	93	85-115%	---	---	
Duplicate (6120452-DUP1)					Prepared: 12/13/16 08:55		Analyzed: 12/13/16 12:07					
QC Source Sample: MidEffluent_20161206 (A6L0160-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	---	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (6120452-MS1)					Prepared: 12/13/16 08:55		Analyzed: 12/13/16 12:09					
QC Source Sample: MidEffluent_20161206 (A6L0160-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.256	---	0.00500	mg/L	1	0.250	ND	102	80-120%	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120558							
A6L0160-01	Water	EPA 335.4	12/06/16 13:00	12/16/16 13:20	6mL/6mL	6mL/6mL	1.00
A6L0160-02	Water	EPA 335.4	12/06/16 13:05	12/16/16 13:20	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120452							
A6L0160-01	Water	SM 4500-CN (I/E)	12/06/16 13:00	12/13/16 08:55	6mL/6mL	6mL/6mL	1.00
A6L0160-02	Water	SM 4500-CN (I/E)	12/06/16 13:05	12/13/16 08:55	6mL/6mL	6mL/6mL	1.00

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Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

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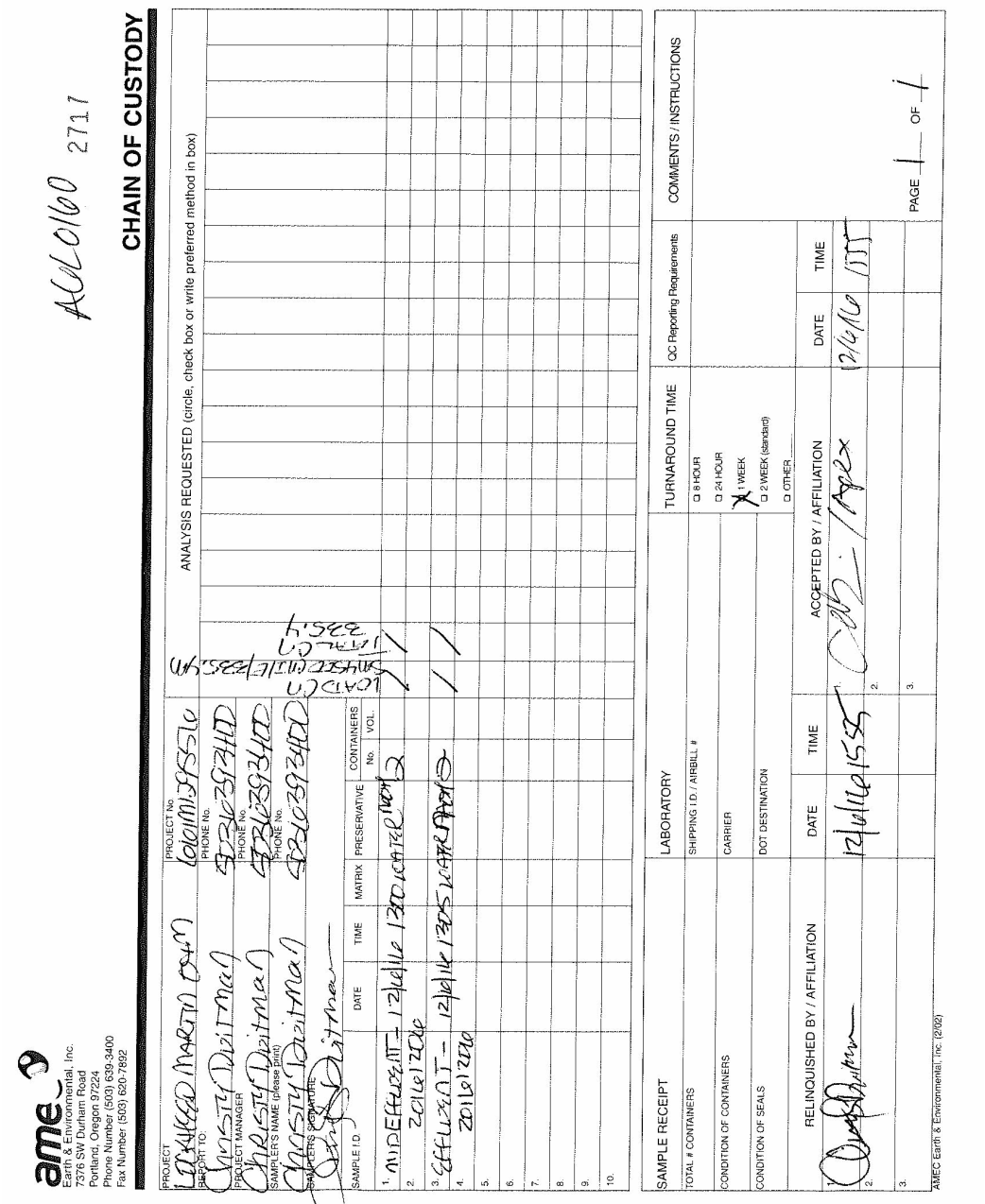
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20



Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	12/26/16 11:20

APEX LABS COOLER RECEIPT FORM

Client: AMEC Element WO#: A6 L0160

Project/Project #: Lockheed Martin O + M / 661M129556

Delivery info:

Date/Time Received: 12/6/16 @ 1555 By: CB

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: CB : 12/6/16 @ 1558

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	11.2						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)	N/A						
Condition:							

Cooler out of temp? (Y/N) Possible reason why: Not received on ice

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CB : 12/6/16 @ 1825

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: CB Witness: MAZ Cooler Inspected by: CB See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, January 4, 2017

Caprielle Barlow
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: Lockheed Martin / 461M129555.01

Enclosed are the results of analyses for work order A6L0427, which was received by the laboratory on 12/19/2016 at 1:11:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Batch_20161219	A6L0427-01	Water	12/19/16 09:30	12/19/16 13:11

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch_20161219 (A6L0427-01)			**Matrix: Water**					
Batch: 6120729								
Fluoride	**11.1**	---	1.00	mg/L	1	12/22/16 16:46	EPA 300.0	
Sulfate	**242**	---	20.0	"	20	12/22/16 17:08	"	

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch_20161219 (A6L0427-01)			**Matrix: Water**		**Batch: 6120615**			
Cyanide, Total	**0.00560**	---	0.00500	mg/L	1	12/20/16 10:21	EPA 335.4	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch_20161219 (A6L0427-01)			**Matrix: Water**		**Batch: 6120616**			
Cyanide, WAD	ND	---	0.00500	mg/L	1	12/20/16 10:53	SM 4500-CN (I/E)	

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Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

ANALYTICAL SAMPLE RESULTS

Cyanide - Free (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch_20161219 (A6L0427-01)			**Matrix: Water**		**Batch: 6120832**			
Cyanide, Free	ND	---	0.00500	mg/L	1	12/28/16 12:59	ASTM D4282	

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7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch_20161219 (A6L0427-01)			**Matrix: Water**					
Batch: 6120674								
Total Organic Carbon	**2.35**	---	1.00	mg/L	1	12/22/16 12:20	SM 5310 B	

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7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120729 - Method Prep: Aq									Water			
Blank (6120729-BLK1)					Prepared: 12/22/16 09:34		Analyzed: 12/22/16 11:45					
EPA 300.0												
Fluoride	ND	---	1.00	mg/L	1	---	---	---	---	---	---	
Sulfate	ND	---	1.00	"	"	---	---	---	---	---	---	
LCS (6120729-BS1)					Prepared: 12/22/16 09:34		Analyzed: 12/22/16 12:06					
EPA 300.0												
Fluoride	8.62	---	1.00	mg/L	1	8.00	---	108	90-110%	---	---	
Sulfate	8.64	---	1.00	"	"	"	---	108	"	---	---	

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120615 - Method Prep: Aq							**Water**					
Blank (6120615-BLK1)					Prepared: 12/20/16 08:20		Analyzed: 12/20/16 10:17					
EPA 335.4												
Cyanide, Total	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120615-BS1)					Prepared: 12/20/16 08:20		Analyzed: 12/20/16 10:19					
EPA 335.4												
Cyanide, Total	0.261	---	0.00500	mg/L	1	0.250	---	104	85-115%	---	---	
Duplicate (6120615-DUP1)					Prepared: 12/20/16 08:20		Analyzed: 12/20/16 10:23					
QC Source Sample: Batch_20161219 (A6L0427-01)												
EPA 335.4												
Cyanide, Total	ND	---	0.00500	mg/L	1	---	0.00560	---	---		10%	
Matrix Spike (6120615-MS1)					Prepared: 12/20/16 08:20		Analyzed: 12/20/16 10:25					
QC Source Sample: Batch_20161219 (A6L0427-01)												
EPA 335.4												
Cyanide, Total	0.260	---	0.00500	mg/L	1	0.250	0.00560	102	80-120%	---	---	

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120616 - Method Prep: Aq							**Water**					
Blank (6120616-BLK1)					Prepared: 12/20/16 08:22		Analyzed: 12/20/16 10:49					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120616-BS1)					Prepared: 12/20/16 08:22		Analyzed: 12/20/16 10:51					
SM 4500-CN (I/E)												
Cyanide, WAD	0.249	---	0.00500	mg/L	1	0.250	---	99	85-115%	---	---	
Duplicate (6120616-DUP1)					Prepared: 12/20/16 08:22		Analyzed: 12/20/16 10:55					
QC Source Sample: Batch_20161219 (A6L0427-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	---	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (6120616-MS1)					Prepared: 12/20/16 08:22		Analyzed: 12/20/16 10:57					
QC Source Sample: Batch_20161219 (A6L0427-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.266	---	0.00500	mg/L	1	0.250	ND	106	80-120%	---	---	

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Free (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120832 - Method Prep: Aq									**Water**			
Blank (6120832-BLK1)					Prepared: 12/28/16 08:15		Analyzed: 12/28/16 12:53					
ASTM D4282												
Cyanide, Free	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (6120832-BS1)					Prepared: 12/28/16 08:15		Analyzed: 12/28/16 12:59					
ASTM D4282												
Cyanide, Free	0.0710	---	0.00500	mg/L	1	0.0667	---	106	85-115%	---	---	
Duplicate (6120832-DUP1)					Prepared: 12/28/16 08:15		Analyzed: 12/28/16 12:59					
QC Source Sample: Batch_20161219 (A6L0427-01)												
ASTM D4282												
Cyanide, Free	ND	---	0.00500	mg/L	1	---	ND	---	---	---	20%	
Matrix Spike (6120832-MS1)					Prepared: 12/28/16 08:15		Analyzed: 12/28/16 13:00					
QC Source Sample: Batch_20161219 (A6L0427-01)												
ASTM D4282												
Cyanide, Free	0.0700	---	0.00500	mg/L	1	0.0667	ND	105	80-120%	---	---	

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6120674 - Method Prep: Aq									**Water**			
Blank (6120674-BLK1)					Prepared: 12/21/16 09:16		Analyzed: 12/22/16 12:20					
SM 5310 B												
Total Organic Carbon	ND	---	1.00	mg/L	1	---	---	---	---	---	---	
LCS (6120674-BS1)					Prepared: 12/21/16 09:16		Analyzed: 12/22/16 12:20					
SM 5310 B												
Total Organic Carbon	10.3	---	1.00	mg/L	1	10.0	---	103	85-115%	---	---	
LCS (6120674-BS2)					Prepared: 12/21/16 09:16		Analyzed: 12/22/16 12:20					
SM 5310 B												
Total Organic Carbon	ND	---	1.00	mg/L	1	0.00	---		85-115%	---	---	TOC_I

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AMEC Foster Wheeler	Project: **Lockheed Martin**	
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120729							
A6L0427-01	Water	EPA 300.0	12/19/16 09:30	12/22/16 09:34	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120615							
A6L0427-01	Water	EPA 335.4	12/19/16 09:30	12/20/16 08:20	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120616							
A6L0427-01	Water	SM 4500-CN (I/E)	12/19/16 09:30	12/20/16 08:22	6mL/6mL	6mL/6mL	1.00

Cyanide - Free (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120832							
A6L0427-01	Water	ASTM D4282	12/19/16 09:30	12/28/16 08:15	3mL/3mL	3mL/3mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 6120674							
A6L0427-01	Water	SM 5310 B	12/19/16 09:30	12/21/16 09:16	40mL/40mL	40mL/40mL	1.00

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7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

Notes and Definitions

Qualifiers:

TOC_I	Inorganic Carbon Spike Check. Results valid if Non Detect (No Inorganic Carbon detected.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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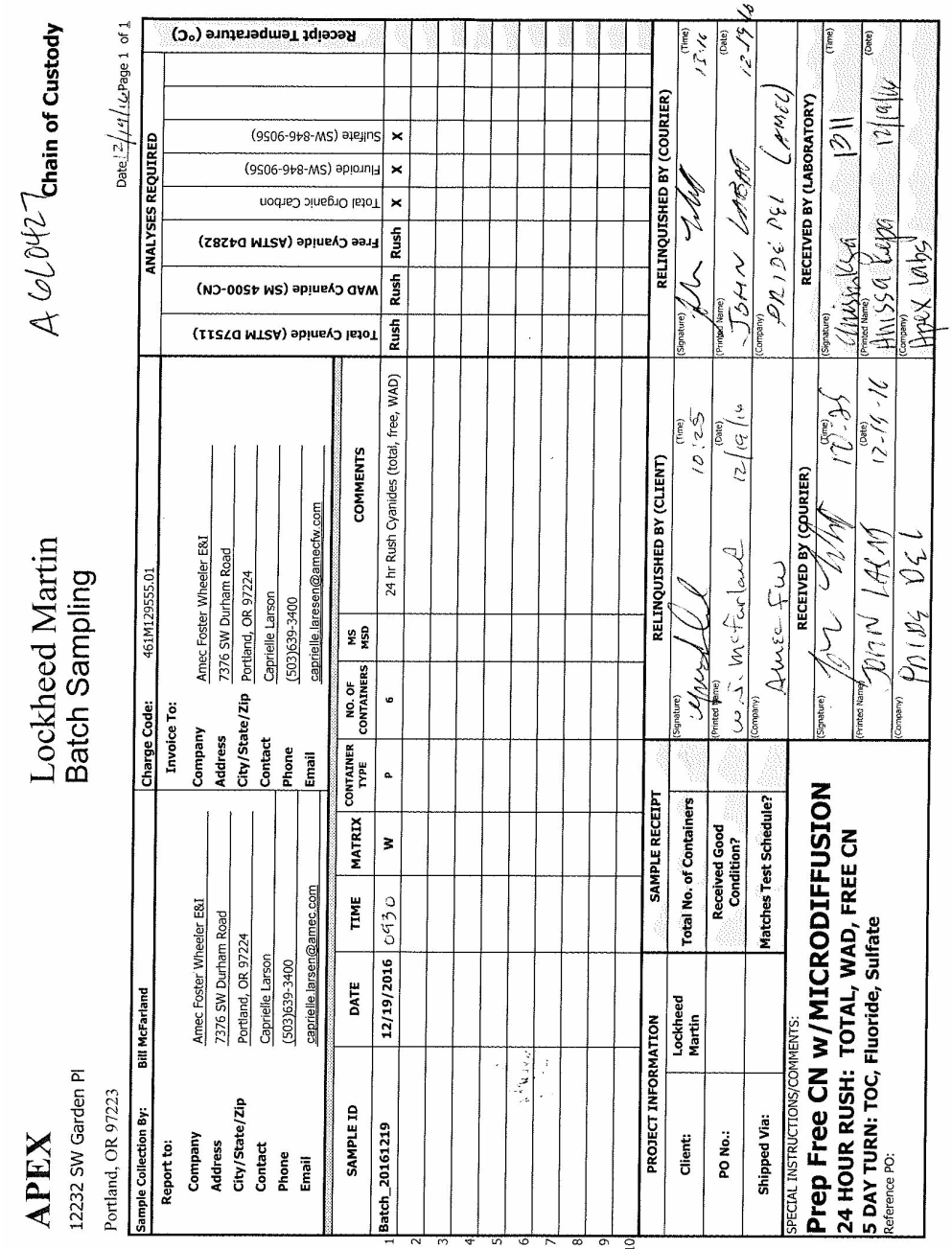
7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00



APEX
12232 SW Garden Pl
Portland, OR 97223

Lockheed Martin
Batch Sampling

A 610427 Chain of Custody

Date: 12/19/16 Page 1 of 1

Sample Collection By: Bill McFarland
Charge Code: 461M129555.01

Report to:
Company: Amec Foster Wheeler E&I
Address: 7376 SW Durham Road
City/State/Zip: Portland, OR 97224
Contact: Caprielle Larson
Phone: (503)639-3400
Email: caprielle.larsen@amec.com

Invoice To:
Company: Amec Foster Wheeler E&I
Address: 7376 SW Durham Road
City/State/Zip: Portland, OR 97224
Contact: Caprielle Larson
Phone: (503)639-3400
Email: caprielle.larsen@amecfw.com

ANALYSES REQUIRED

	Total Cyanide (ASTM D7511)		WAD Cyanide (SM 4500-CN)		Free Cyanide (ASTM D4282)		Total Organic Carbon		Fluoride (SW-846-9056)		Sulfate (SW-846-9056)		Receipt Temperature (°C)
	Rush		Rush		Rush		Rush	X	X	X	X	X	
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

SAMPLE ID	DATE	TIME	MATRIX	CONTAINER TYPE	NO. OF CONTAINERS	MS MSD	COMMENTS
Batch_20161219	12/19/2016	0430	W	P	6		24 hr Rush Cyanides (total, free, WAD)

PROJECT INFORMATION
Client: Lockheed Martin
PO No.:
Shipped Via:

SAMPLE RECEIPT
Total No. of Containers
Received Good Condition?
Matches Test Schedule?

RELINQUISHED BY (CLIENT)
(Signature) (Time) 10:25
(Printed Name) (Date) 12/19/16
(Company) Amec FW

RELINQUISHED BY (COURIER)
(Signature) (Time) 12:16
(Printed Name) JOHN LARSEN (Date) 12-19-16
(Company) APEX LABS

RECEIVED BY (COURIER)
(Signature) (Time) 12:17
(Printed Name) JOHN LARSEN (Date) 12-19-16
(Company) APEX LABS

RECEIVED BY (LABORATORY)
(Signature) (Time) 1211
(Printed Name) MELISSA KEPP (Date) 12/19/16
(Company) APEX LABS

SPECIAL INSTRUCTIONS/COMMENTS:
Prep Free CN w/MICRODIFFUSION
24 HOUR RUSH: TOTAL, WAD, FREE CN
5 DAY TURN: TOC, Fluoride, Sulfate
Reference PO:

Apex Laboratories

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7376 SW Durham Road	Project Number: 461M129555.01	**Reported:**
Portland, OR 97224	Project Manager: Caprielle Barlow	01/04/17 14:00

APEX LABS COOLER RECEIPT FORM

Client: AMEC FW Element WO#: A6 L0427

Project/Project #: Lockheed Martin

Delivery info:

Date/Time Received: 12/19/16 @ 1311 By: AKK

Delivered by: Apex___Client___ESS___FedEx___UPS___Swift___Senvoy___SDS___Other Pride DEL

Cooler Inspection Inspected by: AKK : 12/19/16 @ 1311

Chain of Custody Included? Yes X No___ Custody Seals? Yes_____ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.6						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CMS : 12/19/16 @ 1352

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___ No___ NA___

Comments:

Additional Information:

Labeled by: CMS Witness: AKK Cooler Inspected by: CMS See Project Contact Form: Y

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Tuesday, January 31, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / [none]

Enclosed are the results of analyses for work order A7A0444, which was received by the laboratory on 1/23/2017 at 10:40:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EFF-012017	A7A0444-01	Water	01/20/17 16:00	01/23/17 10:40
Mid-EFF-012017	A7A0444-02	Water	01/20/17 16:20	01/23/17 10:40

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
EFF-012017 (A7A0444-01)			**Matrix: Water**		**Batch: 7010676**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	01/24/17 14:07	EPA 335.4	
Mid-EFF-012017 (A7A0444-02)			**Matrix: Water**		**Batch: 7010676**			
Cyanide, Total	**0.0333**	0.00500	0.00500	mg/L	1	01/24/17 14:13	EPA 335.4	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
EFF-012017 (A7A0444-01)			**Matrix: Water**		**Batch: 7010678**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	01/24/17 11:40	SM 4500-CN (I/E)	
Mid-EFF-012017 (A7A0444-02)			**Matrix: Water**		**Batch: 7010678**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	01/24/17 11:42	SM 4500-CN (I/E)	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7010676 - Method Prep: Aq									Water			
Blank (7010676-BLK1)					Prepared: 01/24/17 08:22		Analyzed: 01/24/17 14:03					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7010676-BS1)					Prepared: 01/24/17 08:22		Analyzed: 01/24/17 14:05					
EPA 335.4												
Cyanide, Total	0.278	0.00500	0.00500	mg/L	1	0.250	---	111	85-115%	---	---	
Duplicate (7010676-DUP1)					Prepared: 01/24/17 08:22		Analyzed: 01/24/17 14:09					
QC Source Sample: EFF-012017 (A7A0444-01)												
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7010676-MS1)					Prepared: 01/24/17 08:22		Analyzed: 01/24/17 14:11					
QC Source Sample: EFF-012017 (A7A0444-01)												
EPA 335.4												
Cyanide, Total	0.273	0.00500	0.00500	mg/L	1	0.250	ND	109	80-120%	---	---	

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7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7010678 - Method Prep: Aq									Water			
Blank (7010678-BLK1)					Prepared: 01/24/17 08:24		Analyzed: 01/24/17 12:26					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7010678-BS1)					Prepared: 01/24/17 08:24		Analyzed: 01/24/17 12:28					
SM 4500-CN (I/E)												
Cyanide, WAD	0.232	0.00500	0.00500	mg/L	1	0.250	---	93	85-115%	---	---	
Duplicate (7010678-DUP2)					Prepared: 01/24/17 08:24		Analyzed: 01/24/17 11:44					
QC Source Sample: Mid-EFF-012017 (A7A0444-02)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7010678-MS2)					Prepared: 01/24/17 08:24		Analyzed: 01/24/17 11:46					
QC Source Sample: Mid-EFF-012017 (A7A0444-02)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.265	0.00500	0.00500	mg/L	1	0.250	ND	106	80-120%	---	---	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7010676							
A7A0444-01	Water	EPA 335.4	01/20/17 16:00	01/24/17 08:22	6mL/6mL	6mL/6mL	1.00
A7A0444-02	Water	EPA 335.4	01/20/17 16:20	01/24/17 08:22	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7010678							
A7A0444-01	Water	SM 4500-CN (I/E)	01/20/17 16:00	01/24/17 08:24	6mL/6mL	6mL/6mL	1.00
A7A0444-02	Water	SM 4500-CN (I/E)	01/20/17 16:20	01/24/17 08:24	6mL/6mL	6mL/6mL	1.00

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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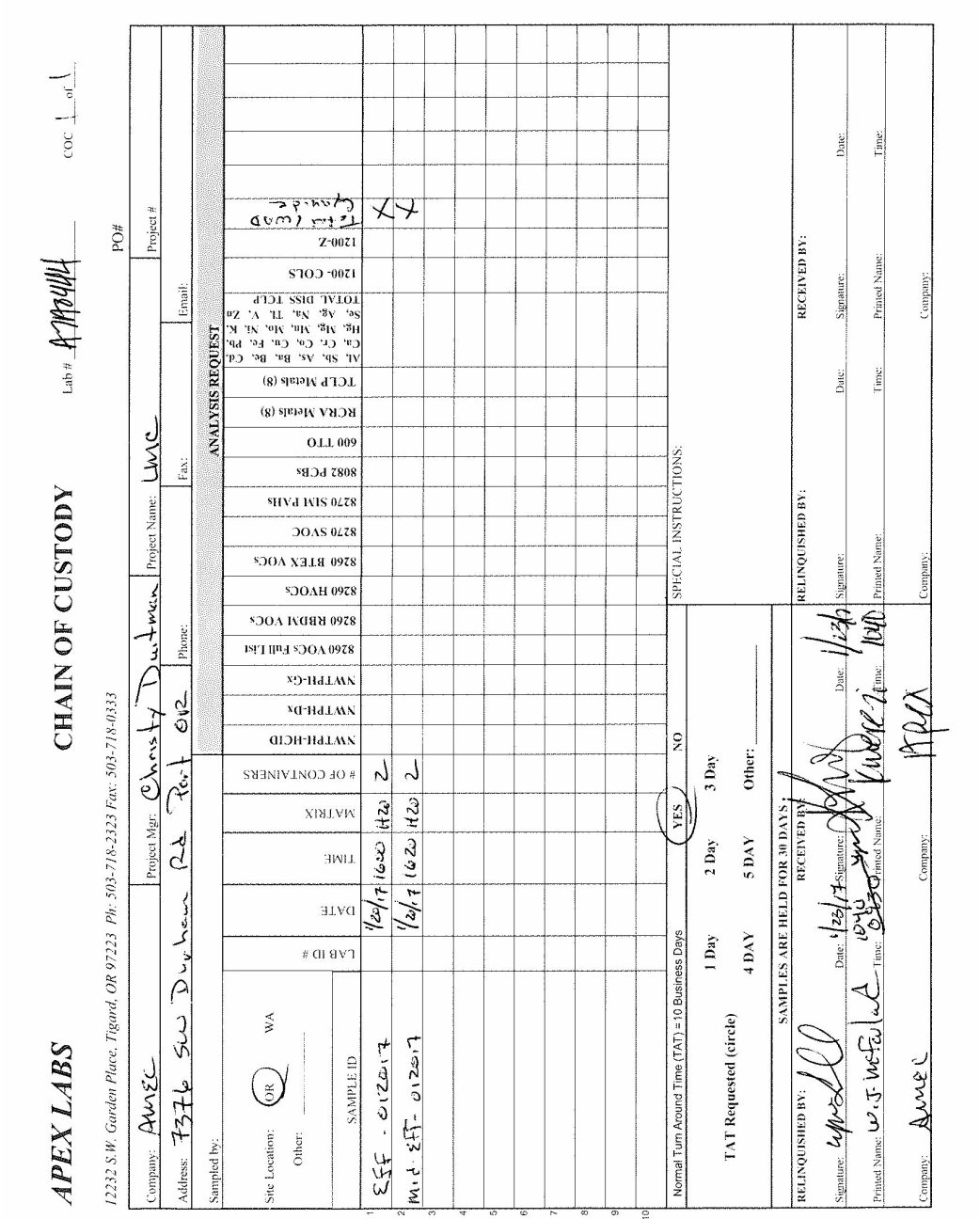
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39



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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	01/31/17 19:39

APEX LABS COOLER RECEIPT FORM

Client: Amec Element WO#: A7 A04414

Project/Project #: LMC

Delivery info:

Date/Time Received: 1040 @ 1/23/17 By: KM

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: KM : 1/23/17 @ 1040

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.6						
Received on Ice? (Y/N)	Y						
Temp. Blanks? (Y/N)	N						
Ice Type: (Gel/Real/Other)	Gel						
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: KM : 1/23/17 @ 1040

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: KM Witness: WD Cooler Inspected by: KM See Project Contact Form: Y

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503-718-0333 Fax

Thursday, February 16, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556.0001

Enclosed are the results of analyses for work order A7B0145, which was received by the laboratory on 2/7/2017 at 8:15:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Batch-020617	A7B0145-01	Water	02/06/17 12:05	02/07/17 08:15

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch-020617 (A7B0145-01)			**Matrix: Water**					
Batch: 7020389								
Sulfate	**122**	5.00	5.00	mg/L	5	02/08/17 18:46	EPA 300.0	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch-020617 (A7B0145-01)			**Matrix: Water**					
Batch: 7020390								
Fluoride	**10.4**	0.100	0.100	mg/L	1	02/08/17 12:18	EPA 300.0-LL	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch-020617 (A7B0145-01)			**Matrix: Water**		**Batch: 7020331**			
Cyanide, Total	**0.0105**	0.00500	0.00500	mg/L	1	02/07/17 11:46	EPA 335.4	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch-020617 (A7B0145-01)			**Matrix: Water**		**Batch: 7020342**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	02/07/17 12:08	SM 4500-CN (I/E)	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

ANALYTICAL SAMPLE RESULTS

Cyanide - Free (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch-020617 (A7B0145-01)			**Matrix: Water**		**Batch: 7020384**			
Cyanide, Free	ND	0.00200	0.00500	mg/L	1	02/08/17 12:42	ASTM D4282	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Batch-020617 (A7B0145-01)			**Matrix: Water**					
Batch: 7020560								
Total Organic Carbon	**1.11**	1.00	1.00	mg/L	1	02/14/17 13:14	SM 5310 B	

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7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020389 - Method Prep: Aq									Water			
Blank (7020389-BLK1)					Prepared: 02/08/17 09:05		Analyzed: 02/08/17 15:10					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7020389-BS1)					Prepared: 02/08/17 09:05		Analyzed: 02/08/17 15:32					
EPA 300.0												
Sulfate	8.39	1.00	1.00	mg/L	1	8.00	---	105	90-110%	---	---	
Duplicate (7020389-DUP2)					Prepared: 02/08/17 09:05		Analyzed: 02/08/17 19:07					
QC Source Sample: Batch-020617 (A7B0145-01)												
EPA 300.0												
Sulfate	**122**	5.00	5.00	mg/L	5	---	122	---	---	0.1	15%	
Matrix Spike (7020389-MS2)					Prepared: 02/08/17 09:05		Analyzed: 02/08/17 19:29					
QC Source Sample: Batch-020617 (A7B0145-01)												
EPA 300.0												
Sulfate	133	6.25	6.25	mg/L	5	10.0	122	108	80-120%	---	---	

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7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020390 - Method Prep: Aq									Water			
Blank (7020390-BLK1)					Prepared: 02/08/17 09:06		Analyzed: 02/08/17 11:35					
EPA 300.0-LL												
Fluoride	ND	0.100	0.100	mg/L	1	---	---	---	---	---	---	
LCS (7020390-BS1)					Prepared: 02/08/17 09:06		Analyzed: 02/08/17 11:56					
EPA 300.0-LL												
Fluoride	1.46	0.100	0.100	mg/L	1	1.50	---	98	90-110%	---	---	
Duplicate (7020390-DUP1)					Prepared: 02/08/17 09:06		Analyzed: 02/08/17 12:40					
QC Source Sample: Batch-020617 (A7B0145-01)												
EPA 300.0-LL												
Fluoride	**10.5**	0.100	0.100	mg/L	1	---	10.4	---	---	0.9	15%	
Matrix Spike (7020390-MS1)					Prepared: 02/08/17 09:06		Analyzed: 02/08/17 13:01					
QC Source Sample: Batch-020617 (A7B0145-01)												
EPA 300.0-LL												
Fluoride	12.0	0.104	0.104	mg/L	1	1.56	10.4	106	80-120%	---	---	

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Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020331 - Method Prep: Aq									Water			
Blank (7020331-BLK1)					Prepared: 02/07/17 09:42		Analyzed: 02/07/17 11:28					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7020331-BS1)					Prepared: 02/07/17 09:42		Analyzed: 02/07/17 11:30					
EPA 335.4												
Cyanide, Total	0.244	0.00500	0.00500	mg/L	1	0.250	---	98	85-115%	---	---	

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Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020342 - Method Prep: Aq									Water			
Blank (7020342-BLK1)					Prepared: 02/07/17 09:44		Analyzed: 02/07/17 12:04					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7020342-BS1)					Prepared: 02/07/17 09:44		Analyzed: 02/07/17 12:06					
SM 4500-CN (I/E)												
Cyanide, WAD	0.213	0.00500	0.00500	mg/L	1	0.250	---	85	85-115%	---	---	
Duplicate (7020342-DUP1)					Prepared: 02/07/17 09:44		Analyzed: 02/07/17 12:10					
QC Source Sample: Batch-020617 (A7B0145-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7020342-MS1)					Prepared: 02/07/17 09:44		Analyzed: 02/07/17 12:12					
QC Source Sample: Batch-020617 (A7B0145-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.247	0.00500	0.00500	mg/L	1	0.250	ND	99	80-120%	---	---	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Free (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020384 - Method Prep: Aq							**Water**					
Blank (7020384-BLK1)					Prepared: 02/08/17 07:55		Analyzed: 02/08/17 12:36					
ASTM D4282												
Cyanide, Free	ND	0.00200	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7020384-BS1)					Prepared: 02/08/17 07:55		Analyzed: 02/08/17 12:36					
ASTM D4282												
Cyanide, Free	0.0690	0.00200	0.00500	mg/L	1	0.0667	---	104	85-115%	---	---	
Duplicate (7020384-DUP1)					Prepared: 02/08/17 07:55		Analyzed: 02/08/17 12:43					
QC Source Sample: Batch-020617 (A7B0145-01)												
ASTM D4282												
Cyanide, Free	ND	0.00200	0.00500	mg/L	1	---	ND	---	---	---	20%	
Matrix Spike (7020384-MS1)					Prepared: 02/08/17 07:55		Analyzed: 02/08/17 12:43					
QC Source Sample: Batch-020617 (A7B0145-01)												
ASTM D4282												
Cyanide, Free	0.0680	0.00200	0.00500	mg/L	1	0.0667	ND	102	80-120%	---	---	

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Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020560 - Method Prep: Aq							**Water**					
Blank (7020560-BLK1)					Prepared: 02/14/17 08:42		Analyzed: 02/14/17 12:05					
SM 5310 B												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7020560-BS1)					Prepared: 02/14/17 08:42		Analyzed: 02/14/17 12:30					
SM 5310 B												
Total Organic Carbon	10.4	1.00	1.00	mg/L	1	10.0	---	104	85-115%	---	---	
LCS (7020560-BS2)					Prepared: 02/14/17 08:42		Analyzed: 02/14/17 12:51					
SM 5310 B												
Total Organic Carbon	ND	1.00	1.00	mg/L	1	0.00	---		85-115%	---	---	TOC_I
Duplicate (7020560-DUP1)					Prepared: 02/14/17 08:42		Analyzed: 02/14/17 13:36					
QC Source Sample: Batch-020617 (A7B0145-01)												
SM 5310 B												
Total Organic Carbon	**1.12**	1.00	1.00	mg/L	1	---	1.11	---	---	0.5	20%	
Matrix Spike (7020560-MS1)					Prepared: 02/14/17 08:42		Analyzed: 02/14/17 14:00					
QC Source Sample: Batch-020617 (A7B0145-01)												
SM 5310 B												
Total Organic Carbon	11.5	1.01	1.01	mg/L	1	10.0	1.11	104	75-125%	---	---	

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7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020389							
A7B0145-01	Water	EPA 300.0	02/06/17 12:05	02/08/17 09:05	10mL/10mL	10mL/10mL	1.00

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020390							
A7B0145-01	Water	EPA 300.0-LL	02/06/17 12:05	02/08/17 09:06	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020331							
A7B0145-01	Water	EPA 335.4	02/06/17 12:05	02/07/17 09:42	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020342							
A7B0145-01	Water	SM 4500-CN (I/E)	02/06/17 12:05	02/07/17 09:44	6mL/6mL	6mL/6mL	1.00

Cyanide - Free (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020384							
A7B0145-01	Water	ASTM D4282	02/06/17 12:05	02/08/17 07:55	3mL/3mL	3mL/3mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020560							
A7B0145-01	Water	SM 5310 B	02/06/17 12:05	02/14/17 08:42	40mL/40mL	40mL/40mL	1.00

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

Notes and Definitions

Qualifiers:

TOC_I	Inorganic Carbon Spike Check. Results valid if Non Detect (No Inorganic Carbon detected.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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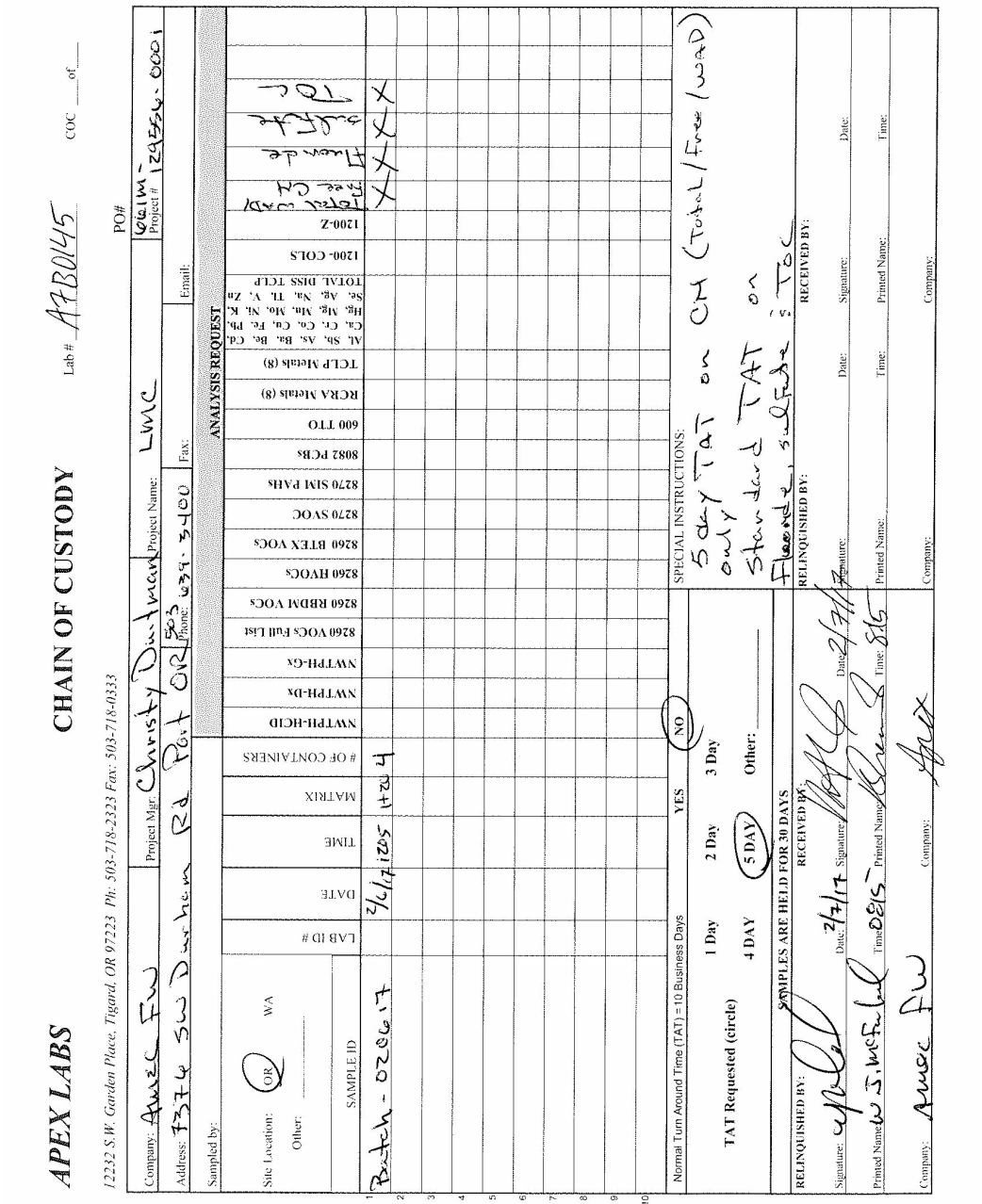
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15



APEX LABS

CHAIN OF CUSTODY

Lab # A7B0145 COC ___ of ___

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: AMEC FW | Project Mgr: Christy Duitman | Project Name: LMC | PO# 661M-129556.0001

Address: 7376 SW Durham Rd Port OR 503 | Phone: 639-3400 | Fax: | Email:

Sampled by:

Site Location: OR WA Other: ___

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 VOCs Full List	8260 RBDM VOCs	8260 HVOCs	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS TCLP	1200-COLS	1200-Z	Total WAD Free CN	Fluoride	Sulfide	TOC
1 Batch-020617		2/6/17	1205	1+20	4																	X	X	X	X
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Normal Turn Around Time (TAT) = 10 Business Days YES NO

TAT Requested (circle) 1 Day 2 Day 3 Day 4 DAY 5 DAY Other: ___

SPECIAL INSTRUCTIONS: 5 day TAT on CN (Total/Free/WAD) only Standard TAT on Fluoride, sulfide & TOC

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: [signature] Date: 2/7/17 Printed Name: W J. McFarland Time: 0815 Company: AMEC FW

RECEIVED BY: Signature: [signature] Date: 2/7/17 Printed Name: [signature] Time: 815 Company: Apex

RELINQUISHED BY: Signature: Date: Printed Name: Time: Company:

RECEIVED BY: Signature: Date: Printed Name: Time: Company:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Tigard, OR 97223
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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.0001	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:15

APEX LABS COOLER RECEIPT FORM 2/7/17

Client: Amec Element WO#: A702B0145

Project/Project #: LMC / 661M-129556-0001

Delivery info:

Date/Time Received: 2/7/17 @ 8:15 By:

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: : 2/7/17 @ 8:17

Chain of Custody Included? Yes X No ___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.3						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: : 2/6/17 @ 8:25

All Samples Intact? Yes X No ___ Comments:

Bottle Labels/COCs agree? Yes X No ___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___NA_____

Comments:

Additional Information:

Labeled by: Witness: Cooler Inspected by: See Project Contact Form: Y

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, March 1, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556.04

Enclosed are the results of analyses for work order A7B0559, which was received by the laboratory on 2/17/2017 at 11:20:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MIDEFF-20170216	A7B0559-01	Water	02/16/17 12:50	02/17/17 11:20
EFF-20170216	A7B0559-02	Water	02/16/17 13:00	02/17/17 11:20

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MIDEFF-20170216 (A7B0559-01)			**Matrix: Water**		**Batch: 7020727**			
Cyanide, Total	**0.0134**	0.00500	0.00500	mg/L	1	02/20/17 09:55	EPA 335.4	
EFF-20170216 (A7B0559-02)			**Matrix: Water**		**Batch: 7020727**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	02/20/17 10:19	EPA 335.4	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MIDEFF-20170216 (A7B0559-01)			**Matrix: Water**		**Batch: 7020728**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	02/20/17 10:11	SM 4500-CN (I/E)	
EFF-20170216 (A7B0559-02)			**Matrix: Water**		**Batch: 7020728**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	02/20/17 10:17	SM 4500-CN (I/E)	

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7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020727 - Method Prep: Aq									Water			
Blank (7020727-BLK1)					Prepared: 02/20/17 07:35		Analyzed: 02/20/17 09:41					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7020727-BS1)					Prepared: 02/20/17 07:35		Analyzed: 02/20/17 09:43					
EPA 335.4												
Cyanide, Total	0.261	0.00500	0.00500	mg/L	1	0.250	---	104	85-115%	---	---	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020728 - Method Prep: Aq									Water			
Blank (7020728-BLK1)					Prepared: 02/20/17 07:37		Analyzed: 02/20/17 10:07					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7020728-BS1)					Prepared: 02/20/17 07:37		Analyzed: 02/20/17 10:09					
SM 4500-CN (I/E)												
Cyanide, WAD	0.230	0.00500	0.00500	mg/L	1	0.250	---	92	85-115%	---	---	
Duplicate (7020728-DUP1)					Prepared: 02/20/17 07:37		Analyzed: 02/20/17 10:13					
QC Source Sample: MIDEFF-20170216 (A7B0559-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7020728-MS1)					Prepared: 02/20/17 07:37		Analyzed: 02/20/17 10:15					
QC Source Sample: MIDEFF-20170216 (A7B0559-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.264	0.00500	0.00500	mg/L	1	0.250	ND	106	80-120%	---	---	

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Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020727							
A7B0559-01	Water	EPA 335.4	02/16/17 12:50	02/20/17 07:35	6mL/6mL	6mL/6mL	1.00
A7B0559-02	Water	EPA 335.4	02/16/17 13:00	02/20/17 07:35	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020728							
A7B0559-01	Water	SM 4500-CN (I/E)	02/16/17 12:50	02/20/17 07:37	6mL/6mL	6mL/6mL	1.00
A7B0559-02	Water	SM 4500-CN (I/E)	02/16/17 13:00	02/20/17 07:37	6mL/6mL	6mL/6mL	1.00

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7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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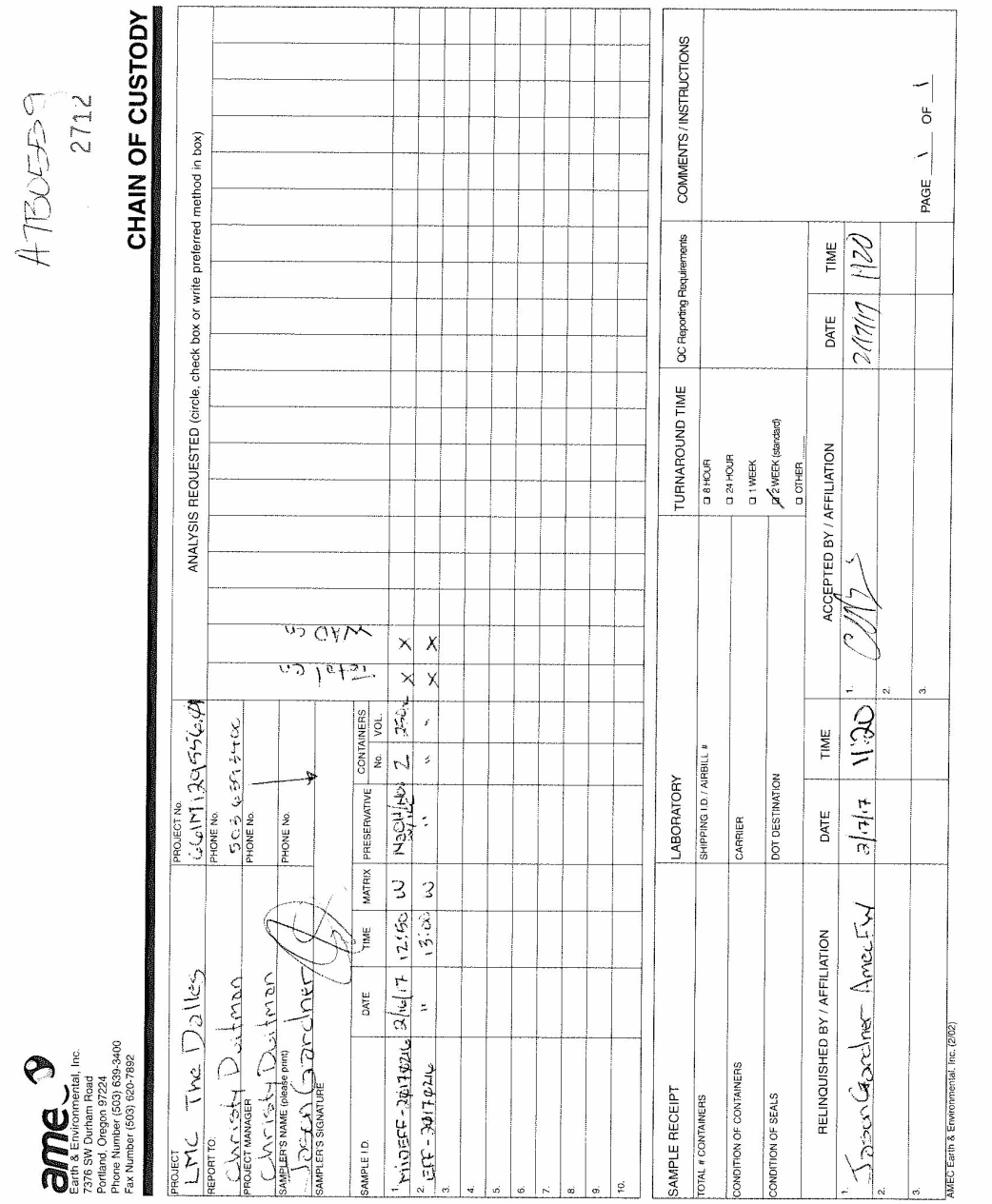
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59



CHAIN OF CUSTODY

ATB0E59 2712

ame
Earth & Environmental, Inc.
7376 SW Durham Road
Portland, Oregon 97224
Phone Number (503) 639-3400
Fax Number (503) 620-7892

PROJECT: LMC The Dalles
PROJECT No.: 661M129556.04
REPORT TO: Christy Duitman
PHONE No.: 503 639 3400
PROJECT MANAGER: Christy Duitman
PHONE No.:
SAMPLER'S NAME (please print): Jason Gardner
PHONE No.:
SAMPLER'S SIGNATURE:

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.	
1 MW05EF-20170216	2/16/17	12:15	W	NaOH/Zn Acetate	2	250mL	X
2 EFF-20170216	"	13:00	W	"	"	"	X
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

SAMPLE RECEIPT
TOTAL # CONTAINERS
CONDITION OF CONTAINERS
CONDITION OF SEALS

LABORATORY
SHIPPING I.D. / AIRBILL #
CARRIER
DOT DESTINATION

TURNAROUND TIME
☐ 8 HOUR
☐ 24 HOUR
☐ 1 WEEK
☑ 2 WEEK (standard)
☐ OTHER

QC Reporting Requirements

COMMENTS / INSTRUCTIONS

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1. Jason Gardner AMEC FW	2/17/17	11:30	1.	2/17/17	1120
2.			2.		
3.			3.		

PAGE 1 OF 1

AMEC Earth & Environmental, Inc. (2/02)

Apex Laboratories

Philip Nerenberg

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Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:59

APEX LABS COOLER RECEIPT FORM

Client: AMEC Element WO#: A7 B0559

Project/Project #: LMC - The Dalles

Delivery info:

Date/Time Received: 2/17/17 @ 1120 By:

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: : 2/17/17 @ 1125

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.2						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)	Snow						
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: JS : 2/17/17 @ 1150

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: JS Witness: Cooler Inspected by: JS See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Saturday, March 25, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556

Enclosed are the results of analyses for work order A7C0436, which was received by the laboratory on 3/15/2017 at 11:57:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Mid eff- 20170313	A7C0436-01	Water	03/13/17 16:00	03/15/17 11:57
eff-20170313	A7C0436-02	Water	03/13/17 16:10	03/15/17 11:57

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Mid eff- 20170313 (A7C0436-01)			**Matrix: Water**		**Batch: 7030669**			
Cyanide, Total	**0.0237**	0.00500	0.00500	mg/L	1	03/16/17 12:07	EPA 335.4	
eff-20170313 (A7C0436-02)			**Matrix: Water**		**Batch: 7030669**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/16/17 14:32	EPA 335.4	

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Philip Nerenberg, Lab Director

Apex Labs

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Mid eff- 20170313 (A7C0436-01)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 10:34	SM 4500-CN (I/E)	
eff-20170313 (A7C0436-02)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 10:40	SM 4500-CN (I/E)	

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Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030669 - Method Prep: Aq									Water			
Blank (7030669-BLK1)					Prepared: 03/16/17 08:25		Analyzed: 03/16/17 11:49					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030669-BS1)					Prepared: 03/16/17 08:25		Analyzed: 03/16/17 11:51					
EPA 335.4												
Cyanide, Total	0.266	0.00500	0.00500	mg/L	1	0.250	---	106	85-115%	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030764 - Method Prep: Aq									Water			
Blank (7030764-BLK1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 10:30					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030764-BS1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 10:32					
SM 4500-CN (I/E)												
Cyanide, WAD	0.270	0.00500	0.00500	mg/L	1	0.250	---	108	85-115%	---	---	
Duplicate (7030764-DUP2)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 10:36					
QC Source Sample: Mid eff- 20170313 (A7C0436-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7030764-MS2)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 10:38					
QC Source Sample: Mid eff- 20170313 (A7C0436-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.261	0.00500	0.00500	mg/L	1	0.250	ND	104	80-120%	---	---	

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Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030669							
A7C0436-01	Water	EPA 335.4	03/13/17 16:00	03/16/17 08:25	6mL/6mL	6mL/6mL	1.00
A7C0436-02	Water	EPA 335.4	03/13/17 16:10	03/16/17 08:25	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030764							
A7C0436-01	Water	SM 4500-CN (I/E)	03/13/17 16:00	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0436-02	Water	SM 4500-CN (I/E)	03/13/17 16:10	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00

Apex Laboratories



Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



Philip Nerenberg, Lab Director

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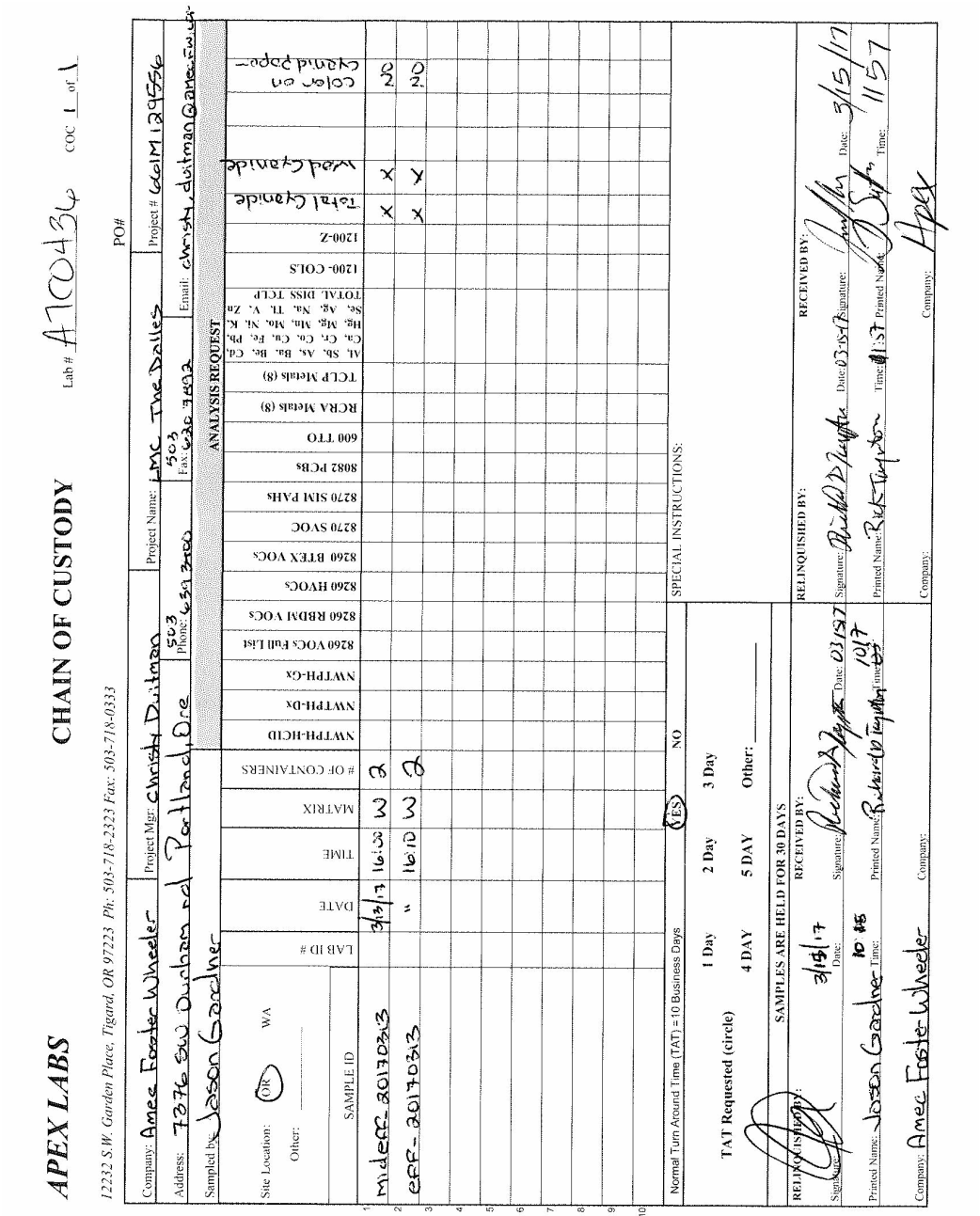
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50



Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:50

APEX LABS COOLER RECEIPT FORM

Client: AMEC Element WO#: A7 C0436

Project/Project #: LMC The Dalles

Delivery info:

Date/Time Received: 3/15/17 @ 1157 By: JS

Delivered by: Apex___ Client___ ESS___ FedEx___ UPS___ Swift___ Servoy___ SDS___ Other X

Cooler Inspection Inspected by: JS : 3/15/17 @ 1205

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	1.8	0.9	JS 3/15/17				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	1.8	0.9					
Ice Type: (Gel/Real/Other)							
Condition:	good	good					

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: JS : 3/15/17 @ 1240

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: JS Witness: VM Cooler Inspected by: JS See Project Contact Form: Y

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Tuesday, April 25, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556

Enclosed are the results of analyses for work order A7C0467, which was received by the laboratory on 3/15/2017 at 11:57:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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AMENDED REPORT

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW13-13S_20170314	A7C0467-05	Water	03/14/17 17:00	03/15/17 11:57
MW15-18P_20170314	A7C0467-06	Water	03/14/17 16:20	03/15/17 11:57
MW15-20P_20170314	A7C0467-07	Water	03/14/17 15:35	03/15/17 11:57
MWR-4S_20170314	A7C0467-08	Water	03/14/17 14:45	03/15/17 11:57
MW-3S_20170314	A7C0467-09	Water	03/14/17 14:00	03/15/17 11:57
MW-17S_20170314	A7C0467-10	Water	03/14/17 13:10	03/15/17 11:57
MW-35S_20170314	A7C0467-11	Water	03/14/17 12:30	03/15/17 11:57
MW-23S_20170314	A7C0467-12	Water	03/14/17 11:45	03/15/17 11:57
MW-36S_20170314	A7C0467-13	Water	03/14/17 11:00	03/15/17 11:57
MW-5S_20170314	A7C0467-14	Water	03/14/17 09:05	03/15/17 11:57
MW-22S_20170314	A7C0467-15	Water	03/14/17 09:45	03/15/17 11:57
MW-37S_20170314	A7C0467-16	Water	03/14/17 08:25	03/15/17 11:57
Dup01_20170314	A7C0467-17	Water	03/14/17 00:00	03/15/17 11:57
Dup02_20170314	A7C0467-18	Water	03/14/17 00:00	03/15/17 11:57

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMENDED REPORT

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

ANALYTICAL CASE NARRATIVE

Work Order: A7C0467

Sample Identification Change-

The following sample ID has been edited from the original chain of custody:

Sample MW4S_20170314 is now MWR-4S_20170314.

Lisa Domenighini
Client Services Manager
3/29/17

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-13S_20170314 (A7C0467-05RE1)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**43.5**	5.00	5.00	mg/L	5	03/24/17 16:20	EPA 300.0	
MW15-18P_20170314 (A7C0467-06)			**Matrix: Water**					
Batch: 7030739								
Sulfate	**14.3**	1.00	1.00	mg/L	1	03/17/17 21:09	EPA 300.0	
MW15-20P_20170314 (A7C0467-07)			**Matrix: Water**					
Batch: 7030739								
Sulfate	**12.9**	1.00	1.00	mg/L	1	03/17/17 21:31	EPA 300.0	
MWR-4S_20170314 (A7C0467-08RE1)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**58.6**	5.00	5.00	mg/L	5	03/24/17 16:41	EPA 300.0	
MW-3S_20170314 (A7C0467-09)			**Matrix: Water**					
Batch: 7030739								
Sulfate	**29.0**	1.00	1.00	mg/L	1	03/17/17 22:14	EPA 300.0	
MW-17S_20170314 (A7C0467-10)			**Matrix: Water**					
Batch: 7030739								
Sulfate	**31.7**	1.00	1.00	mg/L	1	03/17/17 22:36	EPA 300.0	
MW-35S_20170314 (A7C0467-11RE1)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**96.6**	5.00	5.00	mg/L	5	03/24/17 17:46	EPA 300.0	
MW-23S_20170314 (A7C0467-12)			**Matrix: Water**					
Batch: 7030739								
Sulfate	**24.4**	1.00	1.00	mg/L	1	03/18/17 01:06	EPA 300.0	
MW-36S_20170314 (A7C0467-13RE1)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**88.1**	5.00	5.00	mg/L	5	03/24/17 18:07	EPA 300.0	
MW-5S_20170314 (A7C0467-14RE1)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**49.0**	5.00	5.00	mg/L	5	03/24/17 18:29	EPA 300.0	
MW-22S_20170314 (A7C0467-15)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**51.2**	5.00	5.00	mg/L	5	03/24/17 18:50	EPA 300.0	
MW-37S_20170314 (A7C0467-16)			**Matrix: Water**					

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AMENDED REPORT

12232 S.W. Garden Place
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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-37S_20170314 (A7C0467-16)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**6.31**	1.00	1.00	mg/L	1	03/24/17 14:10	EPA 300.0	
Dup01_20170314 (A7C0467-17)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**6.21**	1.00	1.00	mg/L	1	03/24/17 19:12	EPA 300.0	
Dup02_20170314 (A7C0467-18)			**Matrix: Water**					
Batch: 7030953								
Sulfate	**18.5**	1.00	1.00	mg/L	1	03/24/17 19:33	EPA 300.0	

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Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-13S_20170314 (A7C0467-05)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**0.537**	0.100	0.100	mg/L	1	03/21/17 14:30	EPA 300.0-LL	
MW15-18P_20170314 (A7C0467-06)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**14.5**	0.100	0.100	mg/L	1	03/21/17 14:51	EPA 300.0-LL	
MW15-20P_20170314 (A7C0467-07)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**3.52**	0.100	0.100	mg/L	1	03/21/17 15:13	EPA 300.0-LL	
MWR-4S_20170314 (A7C0467-08)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**0.230**	0.100	0.100	mg/L	1	03/21/17 15:34	EPA 300.0-LL	
MW-3S_20170314 (A7C0467-09)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**0.286**	0.100	0.100	mg/L	1	03/21/17 15:56	EPA 300.0-LL	
MW-17S_20170314 (A7C0467-10)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**0.265**	0.100	0.100	mg/L	1	03/21/17 10:33	EPA 300.0-LL	
MW-35S_20170314 (A7C0467-11)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**0.532**	0.100	0.100	mg/L	1	03/21/17 16:17	EPA 300.0-LL	
MW-23S_20170314 (A7C0467-12)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**0.235**	0.100	0.100	mg/L	1	03/21/17 16:39	EPA 300.0-LL	
MW-36S_20170314 (A7C0467-13)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**0.180**	0.100	0.100	mg/L	1	03/21/17 17:00	EPA 300.0-LL	
MW-5S_20170314 (A7C0467-14)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**6.60**	0.100	0.100	mg/L	1	03/21/17 17:22	EPA 300.0-LL	
MW-22S_20170314 (A7C0467-15)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**0.427**	0.100	0.100	mg/L	1	03/21/17 18:26	EPA 300.0-LL	
MW-37S_20170314 (A7C0467-16)			**Matrix: Water**					

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-37S_20170314 (A7C0467-16)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**3.55**	0.100	0.100	mg/L	1	03/21/17 18:48	EPA 300.0-LL	
Dup01_20170314 (A7C0467-17)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**3.59**	0.100	0.100	mg/L	1	03/21/17 19:09	EPA 300.0-LL	
Dup02_20170314 (A7C0467-18)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**14.4**	0.100	0.100	mg/L	1	03/21/17 19:31	EPA 300.0-LL	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-13S_20170314 (A7C0467-05)			**Matrix: Water**		**Batch: 7030670**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/17/17 14:29	EPA 335.4	
MW15-18P_20170314 (A7C0467-06)			**Matrix: Water**		**Batch: 7030670**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/17/17 14:31	EPA 335.4	
MW15-20P_20170314 (A7C0467-07)			**Matrix: Water**		**Batch: 7030670**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/17/17 14:33	EPA 335.4	
MWR-4S_20170314 (A7C0467-08)			**Matrix: Water**		**Batch: 7030670**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/17/17 14:35	EPA 335.4	
MW-3S_20170314 (A7C0467-09)			**Matrix: Water**		**Batch: 7030670**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/17/17 14:37	EPA 335.4	
MW-17S_20170314 (A7C0467-10)			**Matrix: Water**		**Batch: 7030670**			
Cyanide, Total	**0.0252**	0.00500	0.00500	mg/L	1	03/17/17 14:39	EPA 335.4	
MW-35S_20170314 (A7C0467-11)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**0.0212**	0.00500	0.00500	mg/L	1	03/21/17 11:30	EPA 335.4	
MW-23S_20170314 (A7C0467-12)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**0.0211**	0.00500	0.00500	mg/L	1	03/21/17 11:36	EPA 335.4	
MW-36S_20170314 (A7C0467-13)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 11:38	EPA 335.4	
MW-5S_20170314 (A7C0467-14)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**0.193**	0.00500	0.00500	mg/L	1	03/21/17 11:40	EPA 335.4	
MW-22S_20170314 (A7C0467-15)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**0.122**	0.00500	0.00500	mg/L	1	03/21/17 11:42	EPA 335.4	
MW-37S_20170314 (A7C0467-16)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 11:50	EPA 335.4	
Dup01_20170314 (A7C0467-17)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 11:52	EPA 335.4	
Dup02_20170314 (A7C0467-18)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 11:54	EPA 335.4	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-13S_20170314 (A7C0467-05)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 10:56	SM 4500-CN (I/E)	
MW15-18P_20170314 (A7C0467-06)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 10:58	SM 4500-CN (I/E)	
MW15-20P_20170314 (A7C0467-07)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:00	SM 4500-CN (I/E)	
MWR-4S_20170314 (A7C0467-08)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:02	SM 4500-CN (I/E)	
MW-3S_20170314 (A7C0467-09)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:04	SM 4500-CN (I/E)	
MW-17S_20170314 (A7C0467-10)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:06	SM 4500-CN (I/E)	
MW-35S_20170314 (A7C0467-11)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:14	SM 4500-CN (I/E)	
MW-23S_20170314 (A7C0467-12)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:22	SM 4500-CN (I/E)	
MW-36S_20170314 (A7C0467-13)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:24	SM 4500-CN (I/E)	
MW-5S_20170314 (A7C0467-14)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	**0.00830**	0.00500	0.00500	mg/L	1	03/20/17 11:26	SM 4500-CN (I/E)	
MW-22S_20170314 (A7C0467-15)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	**0.00820**	0.00500	0.00500	mg/L	1	03/20/17 11:28	SM 4500-CN (I/E)	
MW-37S_20170314 (A7C0467-16)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:30	SM 4500-CN (I/E)	
Dup01_20170314 (A7C0467-17)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:32	SM 4500-CN (I/E)	
Dup02_20170314 (A7C0467-18)			**Matrix: Water**		**Batch: 7030764**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/20/17 11:34	SM 4500-CN (I/E)	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030739 - Method Prep: Aq							**Water**					
Blank (7030739-BLK1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 12:11					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7030739-BS1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 12:33					
EPA 300.0												
Sulfate	8.54	1.00	1.00	mg/L	1	8.00	---	107	90-110%	---	---	
Duplicate (7030739-DUP1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 22:57					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0												
Sulfate	**24.7**	1.00	1.00	mg/L	1	---	31.7	---	---	25	15%	Q-17
Matrix Spike (7030739-MS1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 23:19					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0												
Sulfate	42.0	1.25	1.25	mg/L	1	10.0	31.7	103	80-120%	---	---	
Matrix Spike Dup (7030739-MSD1)					Prepared: 03/17/17 09:49		Analyzed: 03/17/17 23:40					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0												
Sulfate	41.9	1.25	1.25	mg/L	1	10.0	31.7	103	80-120%	0.2	15%	
Batch 7030953 - Method Prep: Aq							**Water**					
Blank (7030953-BLK1)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 13:27					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7030953-BS1)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 13:49					
EPA 300.0												
Sulfate	8.56	1.00	1.00	mg/L	1	8.00	---	107	90-110%	---	---	
Duplicate (7030953-DUP1)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 14:32					
QC Source Sample: MW-37S_20170314 (A7C0467-16)												
EPA 300.0												
Sulfate	**6.31**	1.00	1.00	mg/L	1	---	6.31	---	---	0.05	15%	

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Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030953 - Method Prep: Aq							**Water**					
Duplicate (7030953-DUP2)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 19:55					
QC Source Sample: Other (A7C0467-18)												
EPA 300.0												
Sulfate	**18.4**	1.00	1.00	mg/L	1	---	18.5	---	---	0.6	15%	
Matrix Spike (7030953-MS1)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 14:53					
QC Source Sample: MW-37S_20170314 (A7C0467-16)												
EPA 300.0												
Sulfate	16.9	1.25	1.25	mg/L	1	10.0	6.31	106	80-120%	---	---	
Matrix Spike (7030953-MS2)					Prepared: 03/24/17 10:34		Analyzed: 03/24/17 20:16					
QC Source Sample: Other (A7C0467-18)												
EPA 300.0												
Sulfate	28.9	1.25	1.25	mg/L	1	10.0	18.5	104	80-120%	---	---	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030803 - Method Prep: Aq							**Water**					
Blank (7030803-BLK1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 09:50					
EPA 300.0-LL												
Fluoride	ND	0.100	0.100	mg/L	1	---	---	---	---	---	---	
LCS (7030803-BS1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 10:11					
EPA 300.0-LL												
Fluoride	1.38	0.100	0.100	mg/L	1	1.50	---	92	90-110%	---	---	
Duplicate (7030803-DUP1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 10:54					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0-LL												
Fluoride	**0.270**	0.100	0.100	mg/L	1	---	0.265	---	---	2	15%	
Matrix Spike (7030803-MS1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 11:16					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0-LL												
Fluoride	1.71	0.104	0.104	mg/L	1	1.56	0.265	92	80-120%	---	---	
Matrix Spike Dup (7030803-MSD1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 11:37					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 300.0-LL												
Fluoride	1.77	0.104	0.104	mg/L	1	1.56	0.265	96	80-120%	4	15%	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030670 - Method Prep: Aq							**Water**					
Blank (7030670-BLK1)					Prepared: 03/16/17 08:27		Analyzed: 03/17/17 14:21					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030670-BS1)					Prepared: 03/16/17 08:27		Analyzed: 03/17/17 14:23					
EPA 335.4												
Cyanide, Total	0.250	0.00500	0.00500	mg/L	1	0.250	---	100	85-115%	---	---	
Duplicate (7030670-DUP1)					Prepared: 03/16/17 08:27		Analyzed: 03/17/17 14:47					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 335.4												
Cyanide, Total	**0.0247**	0.00500	0.00500	mg/L	1	---	0.0252	---	---	2	10%	
Matrix Spike (7030670-MS1)					Prepared: 03/16/17 08:27		Analyzed: 03/17/17 14:49					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 335.4												
Cyanide, Total	0.287	0.00500	0.00500	mg/L	1	0.250	0.0252	105	80-120%	---	---	
Matrix Spike Dup (7030670-MSD1)					Prepared: 03/16/17 08:27		Analyzed: 03/17/17 14:51					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
EPA 335.4												
Cyanide, Total	0.285	0.00500	0.00500	mg/L	1	0.250	0.0252	104	80-120%	0.6	10%	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030806 - Method Prep: Aq							**Water**					
Blank (7030806-BLK1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:24					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030806-BS1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:26					
EPA 335.4												
Cyanide, Total	0.257	0.00500	0.00500	mg/L	1	0.250	---	103	85-115%	---	---	
Duplicate (7030806-DUP1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:32					
QC Source Sample: MW-35S_20170314 (A7C0467-11)												
EPA 335.4												
Cyanide, Total	**0.0198**	0.00500	0.00500	mg/L	1	---	0.0212	---	---	7	10%	
Matrix Spike (7030806-MS1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:34					
QC Source Sample: MW-35S_20170314 (A7C0467-11)												
EPA 335.4												
Cyanide, Total	0.306	0.00500	0.00500	mg/L	1	0.250	0.0212	114	80-120%	---	---	

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Philip Nerenberg, Lab Director

Apex Labs

AMENDED REPORT

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030764 - Method Prep: Aq									Water			
Blank (7030764-BLK1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 10:30					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030764-BS1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 10:32					
SM 4500-CN (I/E)												
Cyanide, WAD	0.270	0.00500	0.00500	mg/L	1	0.250	---	108	85-115%	---	---	
Duplicate (7030764-DUP1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 11:08					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7030764-MS1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 11:10					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.275	0.00500	0.00500	mg/L	1	0.250	ND	110	80-120%	---	---	
Matrix Spike Dup (7030764-MSD1)					Prepared: 03/20/17 08:14		Analyzed: 03/20/17 11:12					
QC Source Sample: MW-17S_20170314 (A7C0467-10)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.265	0.00500	0.00500	mg/L	1	0.250	ND	106	80-120%	4	10%	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030739							
A7C0467-06	Water	EPA 300.0	03/14/17 16:20	03/17/17 09:49	10mL/10mL	10mL/10mL	1.00
A7C0467-07	Water	EPA 300.0	03/14/17 15:35	03/17/17 09:49	10mL/10mL	10mL/10mL	1.00
A7C0467-09	Water	EPA 300.0	03/14/17 14:00	03/17/17 09:49	10mL/10mL	10mL/10mL	1.00
A7C0467-10	Water	EPA 300.0	03/14/17 13:10	03/17/17 09:49	10mL/10mL	10mL/10mL	1.00
A7C0467-12	Water	EPA 300.0	03/14/17 11:45	03/17/17 09:49	10mL/10mL	10mL/10mL	1.00
Batch: 7030953							
A7C0467-05RE1	Water	EPA 300.0	03/14/17 17:00	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-08RE1	Water	EPA 300.0	03/14/17 14:45	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-11RE1	Water	EPA 300.0	03/14/17 12:30	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-13RE1	Water	EPA 300.0	03/14/17 11:00	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-14RE1	Water	EPA 300.0	03/14/17 09:05	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-15	Water	EPA 300.0	03/14/17 09:45	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-16	Water	EPA 300.0	03/14/17 08:25	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-17	Water	EPA 300.0	03/14/17 00:00	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00
A7C0467-18	Water	EPA 300.0	03/14/17 00:00	03/24/17 10:34	10mL/10mL	10mL/10mL	1.00

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030803							
A7C0467-05	Water	EPA 300.0-LL	03/14/17 17:00	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-06	Water	EPA 300.0-LL	03/14/17 16:20	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-07	Water	EPA 300.0-LL	03/14/17 15:35	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-08	Water	EPA 300.0-LL	03/14/17 14:45	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-09	Water	EPA 300.0-LL	03/14/17 14:00	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-10	Water	EPA 300.0-LL	03/14/17 13:10	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-11	Water	EPA 300.0-LL	03/14/17 12:30	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-12	Water	EPA 300.0-LL	03/14/17 11:45	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-13	Water	EPA 300.0-LL	03/14/17 11:00	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-14	Water	EPA 300.0-LL	03/14/17 09:05	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-15	Water	EPA 300.0-LL	03/14/17 09:45	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-16	Water	EPA 300.0-LL	03/14/17 08:25	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00
A7C0467-17	Water	EPA 300.0-LL	03/14/17 00:00	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00

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AMENDED REPORT

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A7C0467-18	Water	EPA 300.0-LL	03/14/17 00:00	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030670							
A7C0467-05	Water	EPA 335.4	03/14/17 17:00	03/16/17 08:27	6mL/6mL	6mL/6mL	1.00
A7C0467-06	Water	EPA 335.4	03/14/17 16:20	03/16/17 08:27	6mL/6mL	6mL/6mL	1.00
A7C0467-07	Water	EPA 335.4	03/14/17 15:35	03/16/17 08:27	6mL/6mL	6mL/6mL	1.00
A7C0467-08	Water	EPA 335.4	03/14/17 14:45	03/16/17 08:27	6mL/6mL	6mL/6mL	1.00
A7C0467-09	Water	EPA 335.4	03/14/17 14:00	03/16/17 08:27	6mL/6mL	6mL/6mL	1.00
A7C0467-10	Water	EPA 335.4	03/14/17 13:10	03/16/17 08:27	6mL/6mL	6mL/6mL	1.00
Batch: 7030806							
A7C0467-11	Water	EPA 335.4	03/14/17 12:30	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0467-12	Water	EPA 335.4	03/14/17 11:45	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0467-13	Water	EPA 335.4	03/14/17 11:00	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0467-14	Water	EPA 335.4	03/14/17 09:05	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0467-15	Water	EPA 335.4	03/14/17 09:45	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0467-16	Water	EPA 335.4	03/14/17 08:25	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0467-17	Water	EPA 335.4	03/14/17 00:00	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0467-18	Water	EPA 335.4	03/14/17 00:00	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030764							
A7C0467-05	Water	SM 4500-CN (I/E)	03/14/17 17:00	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-06	Water	SM 4500-CN (I/E)	03/14/17 16:20	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-07	Water	SM 4500-CN (I/E)	03/14/17 15:35	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-08	Water	SM 4500-CN (I/E)	03/14/17 14:45	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-09	Water	SM 4500-CN (I/E)	03/14/17 14:00	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-10	Water	SM 4500-CN (I/E)	03/14/17 13:10	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-11	Water	SM 4500-CN (I/E)	03/14/17 12:30	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-12	Water	SM 4500-CN (I/E)	03/14/17 11:45	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00

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Philip Nerenberg, Lab Director

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AMENDED REPORT

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

SAMPLE PREPARATION INFORMATION

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A7C0467-13	Water	SM 4500-CN (I/E)	03/14/17 11:00	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-14	Water	SM 4500-CN (I/E)	03/14/17 09:05	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-15	Water	SM 4500-CN (I/E)	03/14/17 09:45	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-16	Water	SM 4500-CN (I/E)	03/14/17 08:25	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-17	Water	SM 4500-CN (I/E)	03/14/17 00:00	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00
A7C0467-18	Water	SM 4500-CN (I/E)	03/14/17 00:00	03/20/17 08:14	6mL/6mL	6mL/6mL	1.00

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

Notes and Definitions

Qualifiers:

Q-17	RPD between original and duplicate sample is outside of established control limits.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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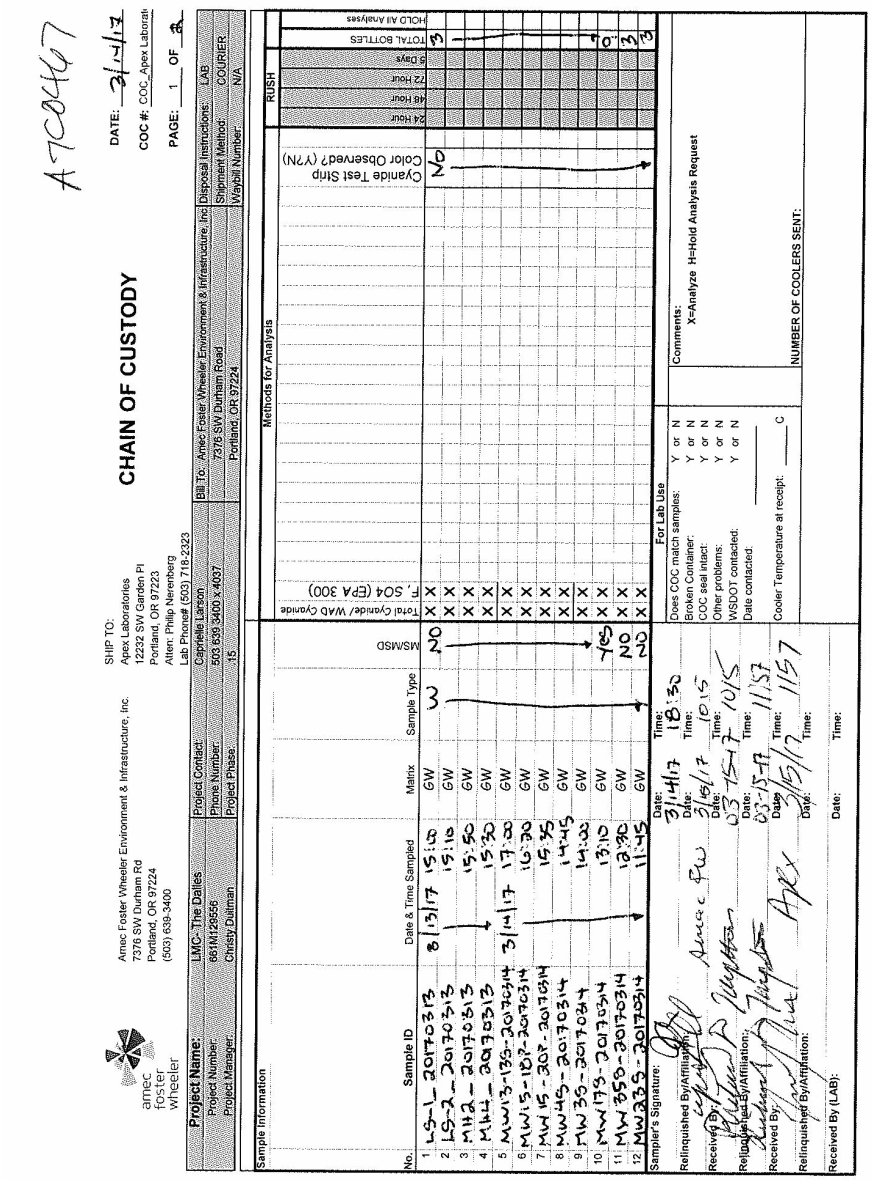
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43



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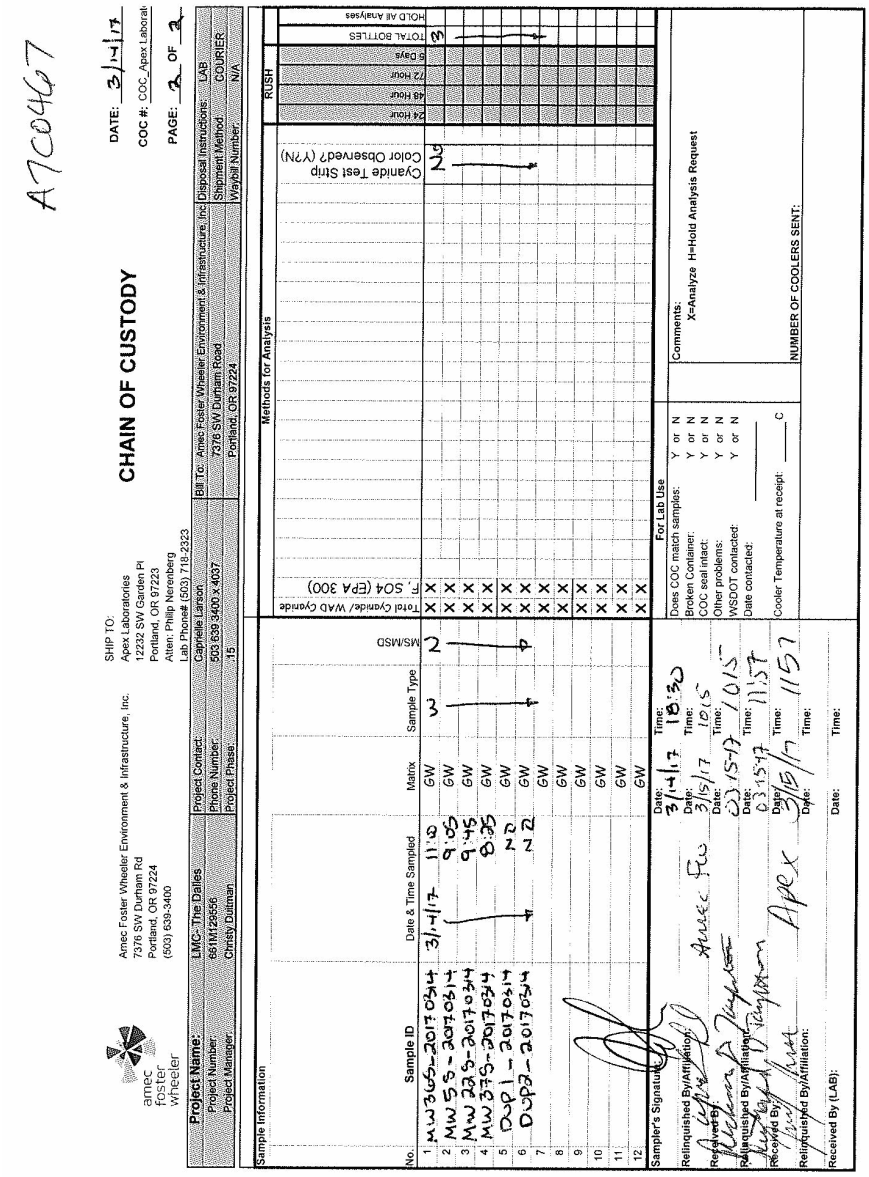
AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43


A7C0467
CHAIN OF CUSTODY
DATE: 3/14/17
COC #: COC_Apex Laborat
PAGE: 2 OF 2
SHIP TO:
Apex Laboratories
12232 SW Garden Pl
Portland, OR 97223
Attn: Philip Nerenberg
Lab Phone# (503) 718-2323
amec foster wheeler
Amec Foster Wheeler Environment & Infrastructure, Inc.
7376 SW Durham Rd
Portland, OR 97224
(503) 639-3400
Project Name: LMC The Dalles
Project Number 661M129556
Project Manager Christy Duitman
Project Contact: Capnelle Larson
Phone Number: 503 639 3400 x 4037
Project Phase: 15
Bill To: Amec Foster Wheeler Environment & Infrastructure, Inc
7376 SW Durham Road
Portland, OR 97224
Disposal Instructions: LAB
Shipment Method: COURIER
Waybill Number: N/A
Sample Information
Methods for Analysis
RUSH
24 Hour
48 Hour
72 Hour
5 Days
TOTAL BOTTLES
HOLD All Analyses
Cyanide Test Strip Color Observed? (Y?N)
Total Cyanide/ WAD Cyanide
F, SO4 (EPA 300)
No.
Sample ID
Date & Time Sampled
Matrix
Sample Type
MS/MSD
1 MW36S-20170314 3/14/17 11:10 GW N
2 MW55-20170314 9:05 GW X X X

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AMENDED REPORT

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/25/17 12:43

APEX LABS COOLER RECEIPT FORM

Client: AMEC Element WO#: A7 C0467

Project/Project #: LMC - The Dalles

Delivery info:

Date/Time Received: 3/15/17 @ 1157 By: JS

Delivered by: Apex ___ Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Servoy ___ SDS ___ Other X

Cooler Inspection Inspected by: JS : 3/15/17 @ 1205

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	1.8	0.9	JS 3/15/17				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	1.8	0.9					
Ice Type: (Gel/Real/Other)							
Condition:	good	good					

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CMD : 3/15/17 @ 1720

All Samples Intact? Yes X No ___ Comments: ___

Bottle Labels/COCs agree? Yes ___ No X Comments: Dup1_20170314 reads DUP01_20170314 on cust. Dup2_20170314

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No ___ NA ___

Comments: ___

Additional Information: reads Dup02_20170314 on cust MW4S-20170314 reads MWR4S-20170314 on cust.

Labeled by: CM Witness: KAL Cooler Inspected by: CMD See Project Contact Form: Y

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Philip Nerenberg

Philip Nerenberg, Lab Director

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Tuesday, April 4, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556

Enclosed are the results of analyses for work order A7C0581, which was received by the laboratory on 3/17/2017 at 4:10:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW13-10P_20170315	A7C0581-01	Water	03/15/17 09:15	03/17/17 16:10
MW-42S_20170315	A7C0581-02	Water	03/15/17 16:05	03/17/17 16:10
MWR-15S_20170315	A7C0581-03	Water	03/15/17 14:10	03/17/17 16:10
MW13-16S_20170315	A7C0581-04	Water	03/15/17 07:50	03/17/17 16:10
MW13-01P_20170315	A7C0581-05	Water	03/15/17 16:45	03/17/17 16:10
MW13-12P_20170315	A7C0581-06	Water	03/15/17 10:20	03/17/17 16:10
MW13-06S_20170315	A7C0581-07	Water	03/15/17 12:40	03/17/17 16:10
MW13-06P_20170315	A7C0581-08	Water	03/15/17 12:00	03/17/17 16:10
MW13-07P_20170315	A7C0581-09	Water	03/15/17 15:00	03/17/17 16:10
MW13-06A_20170315	A7C0581-10	Water	03/15/17 13:25	03/17/17 16:10
MW13-01S_20170315	A7C0581-11	Water	03/15/17 17:15	03/17/17 16:10
MW13-11S_20170315	A7C0581-12	Water	03/15/17 08:35	03/17/17 16:10
MW13-05P_20170315	A7C0581-13	Water	03/15/17 15:40	03/17/17 16:10
MWR-27S_20170315	A7C0581-14	Water	03/15/17 11:10	03/17/17 16:10
EB01_20170315	A7C0581-15	Water	03/15/17 07:15	03/17/17 16:10
EB02_20170315	A7C0581-16	Water	03/15/17 12:50	03/17/17 16:10
DUP03_20170315	A7C0581-17	Water	03/15/17 00:00	03/17/17 16:10
MWR-29S_20170316	A7C0581-18	Water	03/16/17 11:40	03/17/17 16:10
MW-26S_20170316	A7C0581-19	Water	03/16/17 08:15	03/17/17 16:10
MW-29S_20170316	A7C0581-20	Water	03/16/17 10:55	03/17/17 16:10
MW15-17SL_20170316	A7C0581-21	Water	03/16/17 09:10	03/17/17 16:10
MW13-08S_20170316	A7C0581-22	Water	03/16/17 16:20	03/17/17 16:10
MW13-08P_20170316	A7C0581-23	Water	03/16/17 16:55	03/17/17 16:10
MW15-19SL_20170316	A7C0581-24	Water	03/16/17 10:00	03/17/17 16:10
MW13-15SL_20170316	A7C0581-25	Water	03/16/17 14:40	03/17/17 16:10
MW-5_20170316	A7C0581-26	Water	03/16/17 12:20	03/17/17 16:10
MW13-02S_20170316	A7C0581-27	Water	03/16/17 18:15	03/17/17 16:10
MW13-02P_20170316	A7C0581-28	Water	03/16/17 17:35	03/17/17 16:10
MW13-14SL_20170316	A7C0581-29	Water	03/16/17 15:30	03/17/17 16:10
MW-6AA_20170316	A7C0581-30	Water	03/16/17 13:55	03/17/17 16:10
MW-38S_20170316	A7C0581-31	Water	03/16/17 13:15	03/17/17 16:10
DUP04_20170316	A7C0581-32	Water	03/16/17 00:00	03/17/17 16:10
DUP05_20170316	A7C0581-33	Water	03/16/17 00:00	03/17/17 16:10

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503-718-2323 Phone
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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-10P_20170315 (A7C0581-01)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**69.2**	5.00	5.00	mg/L	5	03/30/17 02:23	EPA 300.0	
MW-42S_20170315 (A7C0581-02)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**6.39**	1.00	1.00	mg/L	1	03/30/17 03:50	EPA 300.0	
MWR-15S_20170315 (A7C0581-03)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**127**	10.0	10.0	mg/L	10	03/30/17 04:11	EPA 300.0	
MW13-16S_20170315 (A7C0581-04)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**69.7**	5.00	5.00	mg/L	5	03/30/17 04:33	EPA 300.0	
MW13-01P_20170315 (A7C0581-05)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**130**	10.0	10.0	mg/L	10	03/30/17 04:54	EPA 300.0	
MW13-12P_20170315 (A7C0581-06)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**65.3**	5.00	5.00	mg/L	5	03/30/17 05:59	EPA 300.0	
MW13-06S_20170315 (A7C0581-07)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**258**	10.0	10.0	mg/L	10	03/30/17 06:20	EPA 300.0	
MW13-06P_20170315 (A7C0581-08)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**597**	20.0	20.0	mg/L	20	03/30/17 06:42	EPA 300.0	
MW13-07P_20170315 (A7C0581-09)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**213**	10.0	10.0	mg/L	10	03/30/17 07:03	EPA 300.0	
MW13-06A_20170315 (A7C0581-10)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**60.5**	5.00	5.00	mg/L	5	03/30/17 07:25	EPA 300.0	
MW13-01S_20170315 (A7C0581-11)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**20.8**	1.00	1.00	mg/L	1	03/30/17 07:46	EPA 300.0	
MW13-11S_20170315 (A7C0581-12)			**Matrix: Water**					

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503-718-0333 Fax

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-11S_20170315 (A7C0581-12)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**46.2**	5.00	5.00	mg/L	5	03/30/17 08:51	EPA 300.0	
MW13-05P_20170315 (A7C0581-13)			**Matrix: Water**					
Batch: 7031073								
Sulfate	**83.1**	5.00	5.00	mg/L	5	03/30/17 09:12	EPA 300.0	
MWR-27S_20170315 (A7C0581-14)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**79.0**	5.00	5.00	mg/L	5	03/30/17 13:11	EPA 300.0	
EB01_20170315 (A7C0581-15)			**Matrix: Water**					
Batch: 7031125								
Sulfate	ND	1.00	1.00	mg/L	1	03/30/17 13:33	EPA 300.0	
EB02_20170315 (A7C0581-16)			**Matrix: Water**					
Batch: 7031125								
Sulfate	ND	1.00	1.00	mg/L	1	03/30/17 13:55	EPA 300.0	
DUP03_20170315 (A7C0581-17)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**60.7**	5.00	5.00	mg/L	5	03/30/17 14:16	EPA 300.0	
MWR-29S_20170316 (A7C0581-18)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**411**	20.0	20.0	mg/L	20	03/31/17 04:59	EPA 300.0	
MW-26S_20170316 (A7C0581-19)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**30.7**	1.00	1.00	mg/L	1	03/30/17 15:42	EPA 300.0	
MW-29S_20170316 (A7C0581-20)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**814**	50.0	50.0	mg/L	50	03/31/17 05:21	EPA 300.0	
MW15-17SL_20170316 (A7C0581-21)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**166**	10.0	10.0	mg/L	10	03/30/17 11:45	EPA 300.0	
MW13-08S_20170316 (A7C0581-22)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**355**	10.0	10.0	mg/L	10	03/30/17 16:25	EPA 300.0	
MW13-08P_20170316 (A7C0581-23)			**Matrix: Water**					

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-08P_20170316 (A7C0581-23)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**786**	20.0	20.0	mg/L	20	03/30/17 16:47	EPA 300.0	
MW15-19SL_20170316 (A7C0581-24)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**102**	10.0	10.0	mg/L	10	03/30/17 17:08	EPA 300.0	
MW13-15SL_20170316 (A7C0581-25)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**1240**	50.0	50.0	mg/L	50	03/31/17 06:26	EPA 300.0	
MW-5_20170316 (A7C0581-26)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**42.1**	5.00	5.00	mg/L	5	03/30/17 17:51	EPA 300.0	
MW13-02S_20170316 (A7C0581-27)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**13.9**	1.00	1.00	mg/L	1	03/30/17 18:13	EPA 300.0	
MW13-02P_20170316 (A7C0581-28)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**102**	10.0	10.0	mg/L	10	03/30/17 18:34	EPA 300.0	
MW13-14SL_20170316 (A7C0581-29)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**244**	10.0	10.0	mg/L	10	03/30/17 19:39	EPA 300.0	
MW-6AA_20170316 (A7C0581-30)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**38.4**	1.00	1.00	mg/L	1	03/30/17 20:00	EPA 300.0	
MW-38S_20170316 (A7C0581-31)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**16.3**	1.00	1.00	mg/L	1	03/30/17 20:22	EPA 300.0	
DUP04_20170316 (A7C0581-32)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**41.1**	5.00	5.00	mg/L	5	03/30/17 21:27	EPA 300.0	
DUP05_20170316 (A7C0581-33)			**Matrix: Water**					
Batch: 7031125								
Sulfate	**1250**	50.0	50.0	mg/L	50	03/31/17 06:48	EPA 300.0	

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-10P_20170315 (A7C0581-01)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**2.00**	0.100	0.100	mg/L	1	03/28/17 10:08	EPA 300.0-LL	
MW-42S_20170315 (A7C0581-02)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.868**	0.100	0.100	mg/L	1	03/28/17 11:35	EPA 300.0-LL	
MWR-15S_20170315 (A7C0581-03)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.956**	0.100	0.100	mg/L	1	03/28/17 11:56	EPA 300.0-LL	
MW13-16S_20170315 (A7C0581-04)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.426**	0.100	0.100	mg/L	1	03/28/17 12:18	EPA 300.0-LL	
MW13-01P_20170315 (A7C0581-05)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**19.4**	0.100	0.100	mg/L	1	03/28/17 12:39	EPA 300.0-LL	
MW13-12P_20170315 (A7C0581-06)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**16.0**	0.100	0.100	mg/L	1	03/28/17 13:44	EPA 300.0-LL	
MW13-06S_20170315 (A7C0581-07)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**1.64**	0.100	0.100	mg/L	1	03/28/17 15:33	EPA 300.0-LL	
MW13-06P_20170315 (A7C0581-08)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**4.12**	0.100	0.100	mg/L	1	03/28/17 15:54	EPA 300.0-LL	
MW13-07P_20170315 (A7C0581-09)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**115**	1.00	1.00	mg/L	10	03/29/17 08:25	EPA 300.0-LL	
MW13-06A_20170315 (A7C0581-10)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.822**	0.100	0.100	mg/L	1	03/28/17 16:37	EPA 300.0-LL	
MW13-01S_20170315 (A7C0581-11)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.691**	0.100	0.100	mg/L	1	03/28/17 16:59	EPA 300.0-LL	
MW13-11S_20170315 (A7C0581-12)			**Matrix: Water**					

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-11S_20170315 (A7C0581-12)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.485**	0.100	0.100	mg/L	1	03/28/17 18:04	EPA 300.0-LL	
MW13-05P_20170315 (A7C0581-13)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**3.75**	0.100	0.100	mg/L	1	03/28/17 19:30	EPA 300.0-LL	
MWR-27S_20170315 (A7C0581-14)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.329**	0.100	0.100	mg/L	1	03/28/17 19:51	EPA 300.0-LL	
EB01_20170315 (A7C0581-15)			**Matrix: Water**					
Batch: 7031026								
Fluoride	ND	0.100	0.100	mg/L	1	03/28/17 20:13	EPA 300.0-LL	
EB02_20170315 (A7C0581-16)			**Matrix: Water**					
Batch: 7031026								
Fluoride	ND	0.100	0.100	mg/L	1	03/28/17 20:34	EPA 300.0-LL	
DUP03_20170315 (A7C0581-17)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.570**	0.100	0.100	mg/L	1	03/28/17 20:56	EPA 300.0-LL	
MWR-29S_20170316 (A7C0581-18)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**2.07**	0.100	0.100	mg/L	1	03/28/17 21:17	EPA 300.0-LL	
MW-26S_20170316 (A7C0581-19)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**0.340**	0.100	0.100	mg/L	1	03/28/17 21:39	EPA 300.0-LL	
MW-29S_20170316 (A7C0581-20)			**Matrix: Water**					
Batch: 7031026								
Fluoride	**2.04**	0.100	0.100	mg/L	1	03/28/17 22:01	EPA 300.0-LL	
MW15-17SL_20170316 (A7C0581-21)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**0.644**	0.100	0.100	mg/L	1	03/29/17 00:10	EPA 300.0-LL	
MW13-08S_20170316 (A7C0581-22)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**0.227**	0.100	0.100	mg/L	1	03/29/17 01:36	EPA 300.0-LL	
MW13-08P_20170316 (A7C0581-23)			**Matrix: Water**					

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-08P_20170316 (A7C0581-23)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**5.21**	0.100	0.100	mg/L	1	03/29/17 01:58	EPA 300.0-LL	
MW15-19SL_20170316 (A7C0581-24)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**4.60**	0.100	0.100	mg/L	1	03/29/17 02:19	EPA 300.0-LL	
MW13-15SL_20170316 (A7C0581-25)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**3.65**	0.100	0.100	mg/L	1	03/29/17 02:41	EPA 300.0-LL	
MW-5_20170316 (A7C0581-26)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**0.485**	0.100	0.100	mg/L	1	03/29/17 04:07	EPA 300.0-LL	
MW13-02S_20170316 (A7C0581-27)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**0.602**	0.100	0.100	mg/L	1	03/29/17 04:29	EPA 300.0-LL	
MW13-02P_20170316 (A7C0581-28)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**7.58**	0.100	0.100	mg/L	1	03/29/17 04:50	EPA 300.0-LL	
MW13-14SL_20170316 (A7C0581-29)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**40.5**	0.500	0.500	mg/L	5	03/29/17 08:47	EPA 300.0-LL	
MW-6AA_20170316 (A7C0581-30)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**0.735**	0.100	0.100	mg/L	1	03/29/17 05:33	EPA 300.0-LL	
MW-38S_20170316 (A7C0581-31)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**4.73**	0.100	0.100	mg/L	1	03/29/17 05:55	EPA 300.0-LL	
DUP04_20170316 (A7C0581-32)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**0.492**	0.100	0.100	mg/L	1	03/29/17 06:16	EPA 300.0-LL	
DUP05_20170316 (A7C0581-33)			**Matrix: Water**					
Batch: 7031029								
Fluoride	**3.63**	0.100	0.100	mg/L	1	03/29/17 06:38	EPA 300.0-LL	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-10P_20170315 (A7C0581-01)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 13:43	EPA 335.4	
MW-42S_20170315 (A7C0581-02)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**0.424**	0.00500	0.00500	mg/L	1	03/21/17 13:51	EPA 335.4	
MWR-15S_20170315 (A7C0581-03)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**4.32**	0.0500	0.0500	mg/L	10	03/21/17 14:58	EPA 335.4	
MW13-16S_20170315 (A7C0581-04)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 15:00	EPA 335.4	
MW13-01P_20170315 (A7C0581-05)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**52.4**	5.00	5.00	mg/L	1000	03/21/17 15:02	EPA 335.4	
MW13-12P_20170315 (A7C0581-06)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**0.0580**	0.00500	0.00500	mg/L	1	03/21/17 15:04	EPA 335.4	
MW13-06S_20170315 (A7C0581-07)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**1.94**	0.0500	0.0500	mg/L	10	03/21/17 15:26	EPA 335.4	
MW13-06P_20170315 (A7C0581-08)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**2.51**	0.0500	0.0500	mg/L	10	03/21/17 15:28	EPA 335.4	
MW13-07P_20170315 (A7C0581-09)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**19.2**	0.500	0.500	mg/L	100	03/21/17 15:30	EPA 335.4	
MW13-06A_20170315 (A7C0581-10)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**0.795**	0.0500	0.0500	mg/L	10	03/21/17 15:32	EPA 335.4	
MW13-01S_20170315 (A7C0581-11)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**0.444**	0.00500	0.00500	mg/L	1	03/21/17 12:02	EPA 335.4	
MW13-11S_20170315 (A7C0581-12)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 12:04	EPA 335.4	
MW13-05P_20170315 (A7C0581-13)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**0.529**	0.0500	0.0500	mg/L	10	03/21/17 12:46	EPA 335.4	
MWR-27S_20170315 (A7C0581-14)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**5.49**	0.500	0.500	mg/L	100	03/21/17 12:48	EPA 335.4	
EB01_20170315 (A7C0581-15)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 12:16	EPA 335.4	
EB02_20170315 (A7C0581-16)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 12:18	EPA 335.4	

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Tigard, OR 97223
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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DUP03_20170315 (A7C0581-17)			**Matrix: Water**		**Batch: 7030806**			
Cyanide, Total	**0.731**	0.0500	0.0500	mg/L	10	03/21/17 12:50	EPA 335.4	
MWR-29S_20170316 (A7C0581-18)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 15:34	EPA 335.4	
MW-26S_20170316 (A7C0581-19)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	**0.117**	0.00500	0.00500	mg/L	1	03/21/17 15:16	EPA 335.4	
MW-29S_20170316 (A7C0581-20)			**Matrix: Water**		**Batch: 7030820**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/21/17 15:24	EPA 335.4	
MW15-17SL_20170316 (A7C0581-21)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.224**	0.00500	0.00500	mg/L	1	03/27/17 11:04	EPA 335.4	
MW13-08S_20170316 (A7C0581-22)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.784**	0.0500	0.0500	mg/L	10	03/27/17 11:47	EPA 335.4	
MW13-08P_20170316 (A7C0581-23)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**1.43**	0.0500	0.0500	mg/L	10	03/27/17 11:49	EPA 335.4	
MW15-19SL_20170316 (A7C0581-24)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/27/17 11:51	EPA 335.4	
MW13-15SL_20170316 (A7C0581-25)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.0164**	0.00500	0.00500	mg/L	1	03/27/17 11:24	EPA 335.4	
MW-5_20170316 (A7C0581-26)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/27/17 11:26	EPA 335.4	
MW13-02S_20170316 (A7C0581-27)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.0523**	0.00500	0.00500	mg/L	1	03/27/17 11:28	EPA 335.4	
MW13-02P_20170316 (A7C0581-28)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.143**	0.00500	0.00500	mg/L	1	03/27/17 11:30	EPA 335.4	
MW13-14SL_20170316 (A7C0581-29)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.0972**	0.00500	0.00500	mg/L	1	03/27/17 11:32	EPA 335.4	
MW-6AA_20170316 (A7C0581-30)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.522**	0.0500	0.0500	mg/L	10	03/27/17 11:53	EPA 335.4	
MW-38S_20170316 (A7C0581-31)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.130**	0.00500	0.00500	mg/L	1	03/27/17 11:36	EPA 335.4	
DUP04_20170316 (A7C0581-32)			**Matrix: Water**		**Batch: 7030989**			

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DUP04_20170316 (A7C0581-32)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/27/17 11:38	EPA 335.4	
DUP05_20170316 (A7C0581-33)			**Matrix: Water**		**Batch: 7030989**			
Cyanide, Total	**0.0159**	0.00500	0.00500	mg/L	1	03/27/17 11:55	EPA 335.4	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW13-10P_20170315 (A7C0581-01)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 10:36	SM 4500-CN (I/E)	
MW-42S_20170315 (A7C0581-02)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0327**	0.00500	0.00500	mg/L	1	03/24/17 10:44	SM 4500-CN (I/E)	
MWR-15S_20170315 (A7C0581-03)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0891**	0.00500	0.00500	mg/L	1	03/24/17 10:46	SM 4500-CN (I/E)	
MW13-16S_20170315 (A7C0581-04)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 10:48	SM 4500-CN (I/E)	
MW13-01P_20170315 (A7C0581-05)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**1.04**	0.0500	0.0500	mg/L	10	03/24/17 13:20	SM 4500-CN (I/E)	
MW13-12P_20170315 (A7C0581-06)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 10:58	SM 4500-CN (I/E)	
MW13-06S_20170315 (A7C0581-07)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0404**	0.00500	0.00500	mg/L	1	03/24/17 11:00	SM 4500-CN (I/E)	
MW13-06P_20170315 (A7C0581-08)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0516**	0.00500	0.00500	mg/L	1	03/24/17 11:02	SM 4500-CN (I/E)	
MW13-07P_20170315 (A7C0581-09)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0840**	0.00500	0.00500	mg/L	1	03/24/17 11:04	SM 4500-CN (I/E)	
MW13-06A_20170315 (A7C0581-10)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0109**	0.00500	0.00500	mg/L	1	03/24/17 11:06	SM 4500-CN (I/E)	
MW13-01S_20170315 (A7C0581-11)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0346**	0.00500	0.00500	mg/L	1	03/24/17 11:08	SM 4500-CN (I/E)	
MW13-11S_20170315 (A7C0581-12)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 11:10	SM 4500-CN (I/E)	
MW13-05P_20170315 (A7C0581-13)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0172**	0.00500	0.00500	mg/L	1	03/24/17 11:12	SM 4500-CN (I/E)	
MWR-27S_20170315 (A7C0581-14)			**Matrix: Water**		**Batch: 7030939**			
Cyanide, WAD	**0.0890**	0.00500	0.00500	mg/L	1	03/24/17 11:14	SM 4500-CN (I/E)	
EB01_20170315 (A7C0581-15)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 11:30	SM 4500-CN (I/E)	
EB02_20170315 (A7C0581-16)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 11:32	SM 4500-CN (I/E)	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DUP03_20170315 (A7C0581-17)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	**0.0149**	0.00500	0.00500	mg/L	1	03/24/17 11:34	SM 4500-CN (I/E)	
MWR-29S_20170316 (A7C0581-18)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 11:36	SM 4500-CN (I/E)	
MW-26S_20170316 (A7C0581-19)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	**0.00830**	0.00500	0.00500	mg/L	1	03/24/17 11:38	SM 4500-CN (I/E)	
MW-29S_20170316 (A7C0581-20)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 11:40	SM 4500-CN (I/E)	
MW15-17SL_20170316 (A7C0581-21)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	**0.0115**	0.00500	0.00500	mg/L	1	03/24/17 11:42	SM 4500-CN (I/E)	
MW13-08S_20170316 (A7C0581-22)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	**0.0447**	0.00500	0.00500	mg/L	1	03/24/17 11:56	SM 4500-CN (I/E)	
MW13-08P_20170316 (A7C0581-23)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	**0.0214**	0.00500	0.00500	mg/L	1	03/24/17 11:58	SM 4500-CN (I/E)	
MW15-19SL_20170316 (A7C0581-24)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:00	SM 4500-CN (I/E)	
MW13-15SL_20170316 (A7C0581-25)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:02	SM 4500-CN (I/E)	
MW-5_20170316 (A7C0581-26)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:04	SM 4500-CN (I/E)	
MW13-02S_20170316 (A7C0581-27)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	**0.00560**	0.00500	0.00500	mg/L	1	03/24/17 12:06	SM 4500-CN (I/E)	
MW13-02P_20170316 (A7C0581-28)			**Matrix: Water**		**Batch: 7030940**			
Cyanide, WAD	**0.0130**	0.00500	0.00500	mg/L	1	03/24/17 12:08	SM 4500-CN (I/E)	
MW13-14SL_20170316 (A7C0581-29)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	**0.0135**	0.00500	0.00500	mg/L	1	03/24/17 12:24	SM 4500-CN (I/E)	
MW-6AA_20170316 (A7C0581-30)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	**0.0265**	0.00500	0.00500	mg/L	1	03/24/17 12:30	SM 4500-CN (I/E)	
MW-38S_20170316 (A7C0581-31)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	**0.00530**	0.00500	0.00500	mg/L	1	03/24/17 12:32	SM 4500-CN (I/E)	
DUP04_20170316 (A7C0581-32)			**Matrix: Water**		**Batch: 7030941**			

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503-718-0333 Fax

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
DUP04_20170316 (A7C0581-32)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:34	SM 4500-CN (I/E)	
DUP05_20170316 (A7C0581-33)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:42	SM 4500-CN (I/E)	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7031073 - Method Prep: Aq								**Water**				
Blank (7031073-BLK1)					Prepared: 03/29/17 08:10		Analyzed: 03/30/17 01:40					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7031073-BS1)					Prepared: 03/29/17 08:10		Analyzed: 03/30/17 02:02					
EPA 300.0												
Sulfate	8.32	1.00	1.00	mg/L	1	8.00	---	104	90-110%	---	---	
Duplicate (7031073-DUP1)					Prepared: 03/29/17 08:10		Analyzed: 03/30/17 02:45					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 300.0												
Sulfate	**68.0**	5.00	5.00	mg/L	5	---	69.2	---	---	2	15%	
Duplicate (7031073-DUP2)					Prepared: 03/29/17 08:10		Analyzed: 03/30/17 08:08					
QC Source Sample: MW13-01S_20170315 (A7C0581-11)												
EPA 300.0												
Sulfate	**20.9**	1.00	1.00	mg/L	1	---	20.8	---	---	0.4	15%	
Matrix Spike (7031073-MS1)					Prepared: 03/29/17 08:10		Analyzed: 03/30/17 03:07					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 300.0												
Sulfate	78.8	6.25	6.25	mg/L	5	10.0	69.2	97	80-120%	---	---	
Matrix Spike (7031073-MS2)					Prepared: 03/29/17 08:10		Analyzed: 03/30/17 08:29					
QC Source Sample: MW13-01S_20170315 (A7C0581-11)												
EPA 300.0												
Sulfate	31.2	1.25	1.25	mg/L	1	10.0	20.8	104	80-120%	---	---	
Matrix Spike Dup (7031073-MSD1)					Prepared: 03/29/17 08:10		Analyzed: 03/30/17 03:28					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 300.0												
Sulfate	78.5	6.25	6.25	mg/L	5	10.0	69.2	94	80-120%	0.4	15%	
Batch 7031125 - Method Prep: Aq								**Water**				
Blank (7031125-BLK1)					Prepared: 03/30/17 08:09		Analyzed: 03/30/17 11:02					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7031125 - Method Prep: Aq							**Water**					
LCS (7031125-BS1)					Prepared: 03/30/17 08:09		Analyzed: 03/30/17 11:24					
EPA 300.0												
Sulfate	8.23	1.00	1.00	mg/L	1	8.00	---	103	90-110%	---	---	
Duplicate (7031125-DUP1)					Prepared: 03/30/17 08:09		Analyzed: 03/30/17 12:07					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 300.0												
Sulfate	**165**	10.0	10.0	mg/L	10	---	166	---	---	0.7	15%	
Duplicate (7031125-DUP2)					Prepared: 03/30/17 08:09		Analyzed: 03/30/17 20:43					
QC Source Sample: MW-38S_20170316 (A7C0581-31)												
EPA 300.0												
Sulfate	**16.3**	1.00	1.00	mg/L	1	---	16.3	---	---	0.07	15%	
Matrix Spike (7031125-MS1)					Prepared: 03/30/17 08:09		Analyzed: 03/30/17 12:28					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 300.0												
Sulfate	175	12.5	12.5	mg/L	10	10.0	166	93	80-120%	---	---	
Matrix Spike (7031125-MS2)					Prepared: 03/30/17 08:09		Analyzed: 03/30/17 21:05					
QC Source Sample: MW-38S_20170316 (A7C0581-31)												
EPA 300.0												
Sulfate	26.6	1.25	1.25	mg/L	1	10.0	16.3	103	80-120%	---	---	
Matrix Spike Dup (7031125-MSD1)					Prepared: 03/30/17 08:09		Analyzed: 03/30/17 12:50					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 300.0												
Sulfate	175	12.5	12.5	mg/L	10	10.0	166	88	80-120%	0.3	15%	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7031026 - Method Prep: Aq							**Water**					
Blank (7031026-BLK1)					Prepared: 03/28/17 07:52		Analyzed: 03/28/17 09:25					
EPA 300.0-LL												
Fluoride	ND	0.100	0.100	mg/L	1	---	---	---	---	---	---	
LCS (7031026-BS1)					Prepared: 03/28/17 07:52		Analyzed: 03/28/17 09:47					
EPA 300.0-LL												
Fluoride	1.40	0.100	0.100	mg/L	1	1.50	---	93	90-110%	---	---	
Duplicate (7031026-DUP1)					Prepared: 03/28/17 07:52		Analyzed: 03/28/17 10:30					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 300.0-LL												
Fluoride	**1.85**	0.100	0.100	mg/L	1	---	2.00	---	---	8	15%	
Duplicate (7031026-DUP2)					Prepared: 03/28/17 07:52		Analyzed: 03/28/17 17:20					
QC Source Sample: MW13-01S_20170315 (A7C0581-11)												
EPA 300.0-LL												
Fluoride	**0.686**	0.100	0.100	mg/L	1	---	0.691	---	---	0.8	15%	
Matrix Spike (7031026-MS1)					Prepared: 03/28/17 07:52		Analyzed: 03/28/17 10:51					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 300.0-LL												
Fluoride	3.52	0.104	0.104	mg/L	1	1.56	2.00	97	80-120%	---	---	
Matrix Spike (7031026-MS2)					Prepared: 03/28/17 07:52		Analyzed: 03/28/17 17:42					
QC Source Sample: MW13-01S_20170315 (A7C0581-11)												
EPA 300.0-LL												
Fluoride	2.16	0.104	0.104	mg/L	1	1.56	0.691	94	80-120%	---	---	
Matrix Spike Dup (7031026-MSD1)					Prepared: 03/28/17 07:52		Analyzed: 03/28/17 11:13					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 300.0-LL												
Fluoride	3.53	0.104	0.104	mg/L	1	1.56	2.00	98	80-120%	0.4	15%	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7031029 - Method Prep: Aq							**Water**					
Blank (7031029-BLK1)					Prepared: 03/28/17 08:23		Analyzed: 03/28/17 22:22					
EPA 300.0-LL												
Fluoride	ND	0.100	0.100	mg/L	1	---	---	---	---	---	---	
LCS (7031029-BS1)					Prepared: 03/28/17 08:23		Analyzed: 03/28/17 23:48					
EPA 300.0-LL												
Fluoride	1.38	0.100	0.100	mg/L	1	1.50	---	92	90-110%	---	---	
Duplicate (7031029-DUP1)					Prepared: 03/28/17 08:23		Analyzed: 03/29/17 00:32					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 300.0-LL												
Fluoride	**0.645**	0.100	0.100	mg/L	1	---	0.644	---	---	0.08	15%	
Duplicate (7031029-DUP2)					Prepared: 03/28/17 08:23		Analyzed: 03/29/17 06:59					
QC Source Sample: Other (A7C0581-33)												
EPA 300.0-LL												
Fluoride	**3.62**	0.100	0.100	mg/L	1	---	3.63	---	---	0.1	15%	
Matrix Spike (7031029-MS1)					Prepared: 03/28/17 08:23		Analyzed: 03/29/17 00:53					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 300.0-LL												
Fluoride	2.11	0.104	0.104	mg/L	1	1.56	0.644	94	80-120%	---	---	
Matrix Spike (7031029-MS2)					Prepared: 03/28/17 08:23		Analyzed: 03/29/17 07:21					
QC Source Sample: Other (A7C0581-33)												
EPA 300.0-LL												
Fluoride	5.11	0.104	0.104	mg/L	1	1.56	3.63	95	80-120%	---	---	
Matrix Spike Dup (7031029-MSD1)					Prepared: 03/28/17 08:23		Analyzed: 03/29/17 01:15					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 300.0-LL												
Fluoride	2.16	0.104	0.104	mg/L	1	1.56	0.644	97	80-120%	2	15%	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030806 - Method Prep: Aq							**Water**					
Blank (7030806-BLK1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:24					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030806-BS1)					Prepared: 03/21/17 08:34		Analyzed: 03/21/17 11:26					
EPA 335.4												
Cyanide, Total	0.257	0.00500	0.00500	mg/L	1	0.250	---	103	85-115%	---	---	

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Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030820 - Method Prep: Aq							**Water**					
Blank (7030820-BLK1)					Prepared: 03/21/17 11:54		Analyzed: 03/21/17 13:33					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030820-BS1)					Prepared: 03/21/17 11:54		Analyzed: 03/21/17 13:35					
EPA 335.4												
Cyanide, Total	0.273	0.00500	0.00500	mg/L	1	0.250	---	109	85-115%	---	---	
Duplicate (7030820-DUP1)					Prepared: 03/21/17 11:54		Analyzed: 03/21/17 13:45					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7030820-MS1)					Prepared: 03/21/17 11:54		Analyzed: 03/21/17 13:47					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 335.4												
Cyanide, Total	0.274	0.00500	0.00500	mg/L	1	0.250	ND	110	80-120%	---	---	
Matrix Spike Dup (7030820-MSD1)					Prepared: 03/21/17 11:54		Analyzed: 03/21/17 13:49					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
EPA 335.4												
Cyanide, Total	0.278	0.00500	0.00500	mg/L	1	0.250	ND	111	80-120%	1	10%	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030989 - Method Prep: Aq									Water			
Blank (7030989-BLK1)					Prepared: 03/27/17 07:53		Analyzed: 03/27/17 10:54					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030989-BS1)					Prepared: 03/27/17 07:53		Analyzed: 03/27/17 10:56					
EPA 335.4												
Cyanide, Total	0.280	0.00500	0.00500	mg/L	1	0.250	---	112	85-115%	---	---	
Duplicate (7030989-DUP1)					Prepared: 03/27/17 07:53		Analyzed: 03/27/17 11:06					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 335.4												
Cyanide, Total	**0.221**	0.00500	0.00500	mg/L	1	---	0.224	---	---	1	10%	
Matrix Spike (7030989-MS1)					Prepared: 03/27/17 07:53		Analyzed: 03/27/17 11:08					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 335.4												
Cyanide, Total	0.493	0.00500	0.00500	mg/L	1	0.250	0.224	108	80-120%	---	---	
Matrix Spike Dup (7030989-MSD1)					Prepared: 03/27/17 07:53		Analyzed: 03/27/17 11:10					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
EPA 335.4												
Cyanide, Total	0.486	0.00500	0.00500	mg/L	1	0.250	0.224	105	80-120%	1	10%	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030939 - Method Prep: Aq							**Water**					
Blank (7030939-BLK1)					Prepared: 03/24/17 07:59		Analyzed: 03/24/17 10:32					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030939-BS1)					Prepared: 03/24/17 07:59		Analyzed: 03/24/17 10:34					
SM 4500-CN (I/E)												
Cyanide, WAD	0.229	0.00500	0.00500	mg/L	1	0.250	---	92	85-115%	---	---	
Duplicate (7030939-DUP1)					Prepared: 03/24/17 07:59		Analyzed: 03/24/17 10:38					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Duplicate (7030939-DUP2)					Prepared: 03/24/17 07:59		Analyzed: 03/24/17 11:16					
QC Source Sample: MWR-27S_20170315 (A7C0581-14)												
SM 4500-CN (I/E)												
Cyanide, WAD	**0.0842**	0.00500	0.00500	mg/L	1	---	0.0890	---	---	6	10%	
Matrix Spike (7030939-MS1)					Prepared: 03/24/17 07:59		Analyzed: 03/24/17 10:40					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.246	0.00500	0.00500	mg/L	1	0.250	ND	98	80-120%	---	---	
Matrix Spike (7030939-MS2)					Prepared: 03/24/17 07:59		Analyzed: 03/24/17 11:24					
QC Source Sample: MWR-27S_20170315 (A7C0581-14)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.325	0.00500	0.00500	mg/L	1	0.250	0.0890	95	80-120%	---	---	
Matrix Spike Dup (7030939-MSD1)					Prepared: 03/24/17 07:59		Analyzed: 03/24/17 10:42					
QC Source Sample: MW13-10P_20170315 (A7C0581-01)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.250	0.00500	0.00500	mg/L	1	0.250	ND	100	80-120%	2	10%	

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030940 - Method Prep: Aq							**Water**					
Blank (7030940-BLK1)					Prepared: 03/24/17 08:05		Analyzed: 03/24/17 11:26					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030940-BS1)					Prepared: 03/24/17 08:05		Analyzed: 03/24/17 11:28					
SM 4500-CN (I/E)												
Cyanide, WAD	0.248	0.00500	0.00500	mg/L	1	0.250	---	99	85-115%	---	---	
Duplicate (7030940-DUP1)					Prepared: 03/24/17 08:05		Analyzed: 03/24/17 11:50					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
SM 4500-CN (I/E)												
Cyanide, WAD	**0.0116**	0.00500	0.00500	mg/L	1	---	0.0115	---	---	0.9	10%	
Duplicate (7030940-DUP2)					Prepared: 03/24/17 08:05		Analyzed: 03/24/17 12:16					
QC Source Sample: MW13-02P_20170316 (A7C0581-28)												
SM 4500-CN (I/E)												
Cyanide, WAD	**0.0123**	0.00500	0.00500	mg/L	1	---	0.0130	---	---	6	10%	
Matrix Spike (7030940-MS1)					Prepared: 03/24/17 08:05		Analyzed: 03/24/17 11:52					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.264	0.00500	0.00500	mg/L	1	0.250	0.0115	101	80-120%	---	---	
Matrix Spike (7030940-MS2)					Prepared: 03/24/17 08:05		Analyzed: 03/24/17 12:18					
QC Source Sample: MW13-02P_20170316 (A7C0581-28)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.267	0.00500	0.00500	mg/L	1	0.250	0.0130	102	80-120%	---	---	
Matrix Spike Dup (7030940-MSD1)					Prepared: 03/24/17 08:05		Analyzed: 03/24/17 11:54					
QC Source Sample: MW15-17SL_20170316 (A7C0581-21)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.262	0.00500	0.00500	mg/L	1	0.250	0.0115	100	80-120%	0.6	10%	

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Tigard, OR 97223
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503-718-0333 Fax

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Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030941 - Method Prep: Aq							**Water**					
Blank (7030941-BLK1)					Prepared: 03/24/17 08:07		Analyzed: 03/24/17 12:20					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030941-BS1)					Prepared: 03/24/17 08:07		Analyzed: 03/24/17 12:22					
SM 4500-CN (I/E)												
Cyanide, WAD	0.244	0.00500	0.00500	mg/L	1	0.250	---	98	85-115%	---	---	
Duplicate (7030941-DUP1)					Prepared: 03/24/17 08:07		Analyzed: 03/24/17 12:26					
QC Source Sample: MW13-14SL_20170316 (A7C0581-29)												
SM 4500-CN (I/E)												
Cyanide, WAD	**0.0128**	0.00500	0.00500	mg/L	1	---	0.0135	---	---	5	10%	
Matrix Spike (7030941-MS1)					Prepared: 03/24/17 08:07		Analyzed: 03/24/17 12:28					
QC Source Sample: MW13-14SL_20170316 (A7C0581-29)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.270	0.00500	0.00500	mg/L	1	0.250	0.0135	103	80-120%	---	---	

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Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7031073							
A7C0581-01	Water	EPA 300.0	03/15/17 09:15	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-02	Water	EPA 300.0	03/15/17 16:05	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-03	Water	EPA 300.0	03/15/17 14:10	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-04	Water	EPA 300.0	03/15/17 07:50	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-05	Water	EPA 300.0	03/15/17 16:45	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-06	Water	EPA 300.0	03/15/17 10:20	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-07	Water	EPA 300.0	03/15/17 12:40	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-08	Water	EPA 300.0	03/15/17 12:00	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-09	Water	EPA 300.0	03/15/17 15:00	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-10	Water	EPA 300.0	03/15/17 13:25	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-11	Water	EPA 300.0	03/15/17 17:15	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-12	Water	EPA 300.0	03/15/17 08:35	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
A7C0581-13	Water	EPA 300.0	03/15/17 15:40	03/29/17 08:10	10mL/10mL	10mL/10mL	1.00
Batch: 7031125							
A7C0581-14	Water	EPA 300.0	03/15/17 11:10	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-15	Water	EPA 300.0	03/15/17 07:15	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-16	Water	EPA 300.0	03/15/17 12:50	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-17	Water	EPA 300.0	03/15/17 00:00	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-18	Water	EPA 300.0	03/16/17 11:40	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-19	Water	EPA 300.0	03/16/17 08:15	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-20	Water	EPA 300.0	03/16/17 10:55	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-21	Water	EPA 300.0	03/16/17 09:10	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-22	Water	EPA 300.0	03/16/17 16:20	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-23	Water	EPA 300.0	03/16/17 16:55	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-24	Water	EPA 300.0	03/16/17 10:00	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-25	Water	EPA 300.0	03/16/17 14:40	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-26	Water	EPA 300.0	03/16/17 12:20	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-27	Water	EPA 300.0	03/16/17 18:15	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-28	Water	EPA 300.0	03/16/17 17:35	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-29	Water	EPA 300.0	03/16/17 15:30	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-30	Water	EPA 300.0	03/16/17 13:55	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-31	Water	EPA 300.0	03/16/17 13:15	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00
A7C0581-32	Water	EPA 300.0	03/16/17 00:00	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A7C0581-33	Water	EPA 300.0	03/16/17 00:00	03/30/17 08:09	10mL/10mL	10mL/10mL	1.00

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7031026							
A7C0581-01	Water	EPA 300.0-LL	03/15/17 09:15	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-02	Water	EPA 300.0-LL	03/15/17 16:05	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-03	Water	EPA 300.0-LL	03/15/17 14:10	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-04	Water	EPA 300.0-LL	03/15/17 07:50	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-05	Water	EPA 300.0-LL	03/15/17 16:45	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-06	Water	EPA 300.0-LL	03/15/17 10:20	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-07	Water	EPA 300.0-LL	03/15/17 12:40	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-08	Water	EPA 300.0-LL	03/15/17 12:00	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-09	Water	EPA 300.0-LL	03/15/17 15:00	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-10	Water	EPA 300.0-LL	03/15/17 13:25	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-11	Water	EPA 300.0-LL	03/15/17 17:15	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-12	Water	EPA 300.0-LL	03/15/17 08:35	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-13	Water	EPA 300.0-LL	03/15/17 15:40	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-14	Water	EPA 300.0-LL	03/15/17 11:10	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-15	Water	EPA 300.0-LL	03/15/17 07:15	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-16	Water	EPA 300.0-LL	03/15/17 12:50	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-17	Water	EPA 300.0-LL	03/15/17 00:00	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-18	Water	EPA 300.0-LL	03/16/17 11:40	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-19	Water	EPA 300.0-LL	03/16/17 08:15	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
A7C0581-20	Water	EPA 300.0-LL	03/16/17 10:55	03/28/17 07:52	10mL/10mL	10mL/10mL	1.00
Batch: 7031029							
A7C0581-21	Water	EPA 300.0-LL	03/16/17 09:10	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-22	Water	EPA 300.0-LL	03/16/17 16:20	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-23	Water	EPA 300.0-LL	03/16/17 16:55	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-24	Water	EPA 300.0-LL	03/16/17 10:00	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-25	Water	EPA 300.0-LL	03/16/17 14:40	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-26	Water	EPA 300.0-LL	03/16/17 12:20	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-27	Water	EPA 300.0-LL	03/16/17 18:15	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A7C0581-28	Water	EPA 300.0-LL	03/16/17 17:35	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-29	Water	EPA 300.0-LL	03/16/17 15:30	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-30	Water	EPA 300.0-LL	03/16/17 13:55	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-31	Water	EPA 300.0-LL	03/16/17 13:15	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-32	Water	EPA 300.0-LL	03/16/17 00:00	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00
A7C0581-33	Water	EPA 300.0-LL	03/16/17 00:00	03/28/17 08:23	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030806							
A7C0581-11	Water	EPA 335.4	03/15/17 17:15	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0581-12	Water	EPA 335.4	03/15/17 08:35	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0581-13	Water	EPA 335.4	03/15/17 15:40	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0581-14	Water	EPA 335.4	03/15/17 11:10	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0581-15	Water	EPA 335.4	03/15/17 07:15	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0581-16	Water	EPA 335.4	03/15/17 12:50	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
A7C0581-17	Water	EPA 335.4	03/15/17 00:00	03/21/17 08:34	6mL/6mL	6mL/6mL	1.00
Batch: 7030820							
A7C0581-01	Water	EPA 335.4	03/15/17 09:15	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-02	Water	EPA 335.4	03/15/17 16:05	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-03	Water	EPA 335.4	03/15/17 14:10	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-04	Water	EPA 335.4	03/15/17 07:50	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-05	Water	EPA 335.4	03/15/17 16:45	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-06	Water	EPA 335.4	03/15/17 10:20	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-07	Water	EPA 335.4	03/15/17 12:40	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-08	Water	EPA 335.4	03/15/17 12:00	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-09	Water	EPA 335.4	03/15/17 15:00	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-10	Water	EPA 335.4	03/15/17 13:25	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-18	Water	EPA 335.4	03/16/17 11:40	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-19	Water	EPA 335.4	03/16/17 08:15	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
A7C0581-20	Water	EPA 335.4	03/16/17 10:55	03/21/17 11:54	6mL/6mL	6mL/6mL	1.00
Batch: 7030989							
A7C0581-21	Water	EPA 335.4	03/16/17 09:10	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A7C0581-22	Water	EPA 335.4	03/16/17 16:20	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-23	Water	EPA 335.4	03/16/17 16:55	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-24	Water	EPA 335.4	03/16/17 10:00	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-25	Water	EPA 335.4	03/16/17 14:40	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-26	Water	EPA 335.4	03/16/17 12:20	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-27	Water	EPA 335.4	03/16/17 18:15	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-28	Water	EPA 335.4	03/16/17 17:35	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-29	Water	EPA 335.4	03/16/17 15:30	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-30	Water	EPA 335.4	03/16/17 13:55	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-31	Water	EPA 335.4	03/16/17 13:15	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-32	Water	EPA 335.4	03/16/17 00:00	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00
A7C0581-33	Water	EPA 335.4	03/16/17 00:00	03/27/17 07:53	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030939							
A7C0581-01	Water	SM 4500-CN (I/E)	03/15/17 09:15	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-02	Water	SM 4500-CN (I/E)	03/15/17 16:05	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-03	Water	SM 4500-CN (I/E)	03/15/17 14:10	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-04	Water	SM 4500-CN (I/E)	03/15/17 07:50	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-05	Water	SM 4500-CN (I/E)	03/15/17 16:45	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-06	Water	SM 4500-CN (I/E)	03/15/17 10:20	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-07	Water	SM 4500-CN (I/E)	03/15/17 12:40	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-08	Water	SM 4500-CN (I/E)	03/15/17 12:00	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-09	Water	SM 4500-CN (I/E)	03/15/17 15:00	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-10	Water	SM 4500-CN (I/E)	03/15/17 13:25	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-11	Water	SM 4500-CN (I/E)	03/15/17 17:15	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-12	Water	SM 4500-CN (I/E)	03/15/17 08:35	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-13	Water	SM 4500-CN (I/E)	03/15/17 15:40	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
A7C0581-14	Water	SM 4500-CN (I/E)	03/15/17 11:10	03/24/17 07:59	6mL/6mL	6mL/6mL	1.00
Batch: 7030940							
A7C0581-15	Water	SM 4500-CN (I/E)	03/15/17 07:15	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-16	Water	SM 4500-CN (I/E)	03/15/17 12:50	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

SAMPLE PREPARATION INFORMATION

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A7C0581-17	Water	SM 4500-CN (I/E)	03/15/17 00:00	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-18	Water	SM 4500-CN (I/E)	03/16/17 11:40	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-19	Water	SM 4500-CN (I/E)	03/16/17 08:15	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-20	Water	SM 4500-CN (I/E)	03/16/17 10:55	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-21	Water	SM 4500-CN (I/E)	03/16/17 09:10	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-22	Water	SM 4500-CN (I/E)	03/16/17 16:20	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-23	Water	SM 4500-CN (I/E)	03/16/17 16:55	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-24	Water	SM 4500-CN (I/E)	03/16/17 10:00	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-25	Water	SM 4500-CN (I/E)	03/16/17 14:40	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-26	Water	SM 4500-CN (I/E)	03/16/17 12:20	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-27	Water	SM 4500-CN (I/E)	03/16/17 18:15	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
A7C0581-28	Water	SM 4500-CN (I/E)	03/16/17 17:35	03/24/17 08:05	6mL/6mL	6mL/6mL	1.00
Batch: 7030941							
A7C0581-29	Water	SM 4500-CN (I/E)	03/16/17 15:30	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0581-30	Water	SM 4500-CN (I/E)	03/16/17 13:55	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0581-31	Water	SM 4500-CN (I/E)	03/16/17 13:15	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0581-32	Water	SM 4500-CN (I/E)	03/16/17 00:00	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0581-33	Water	SM 4500-CN (I/E)	03/16/17 00:00	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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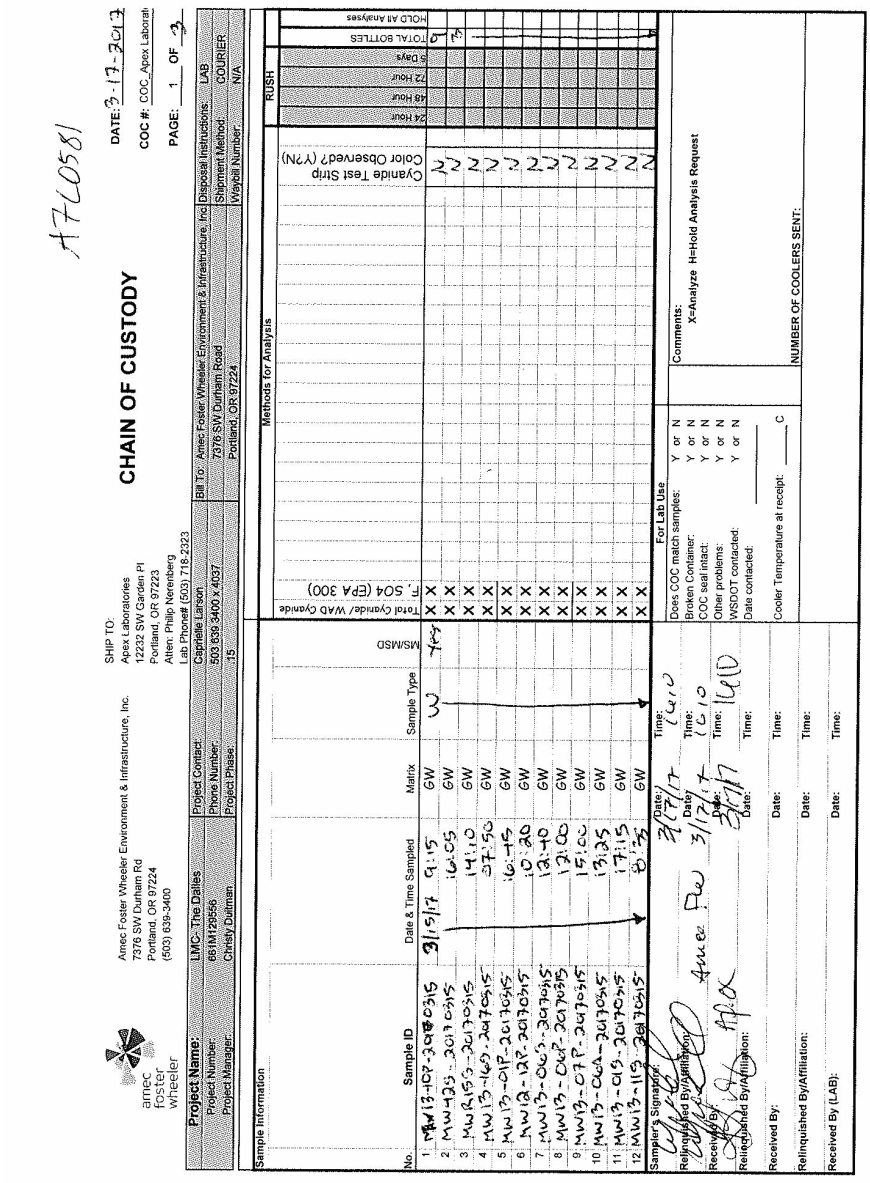
Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10



Apex Laboratories

Philip Nerenberg

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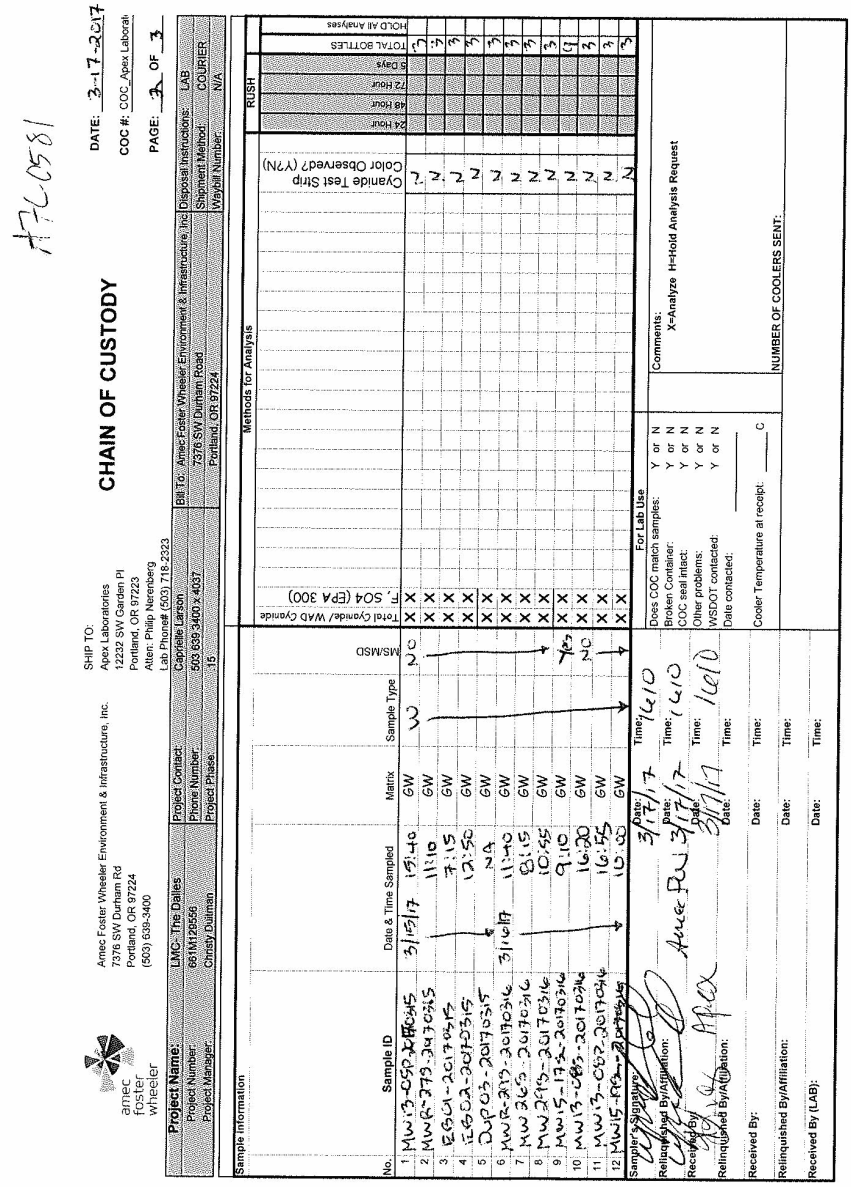

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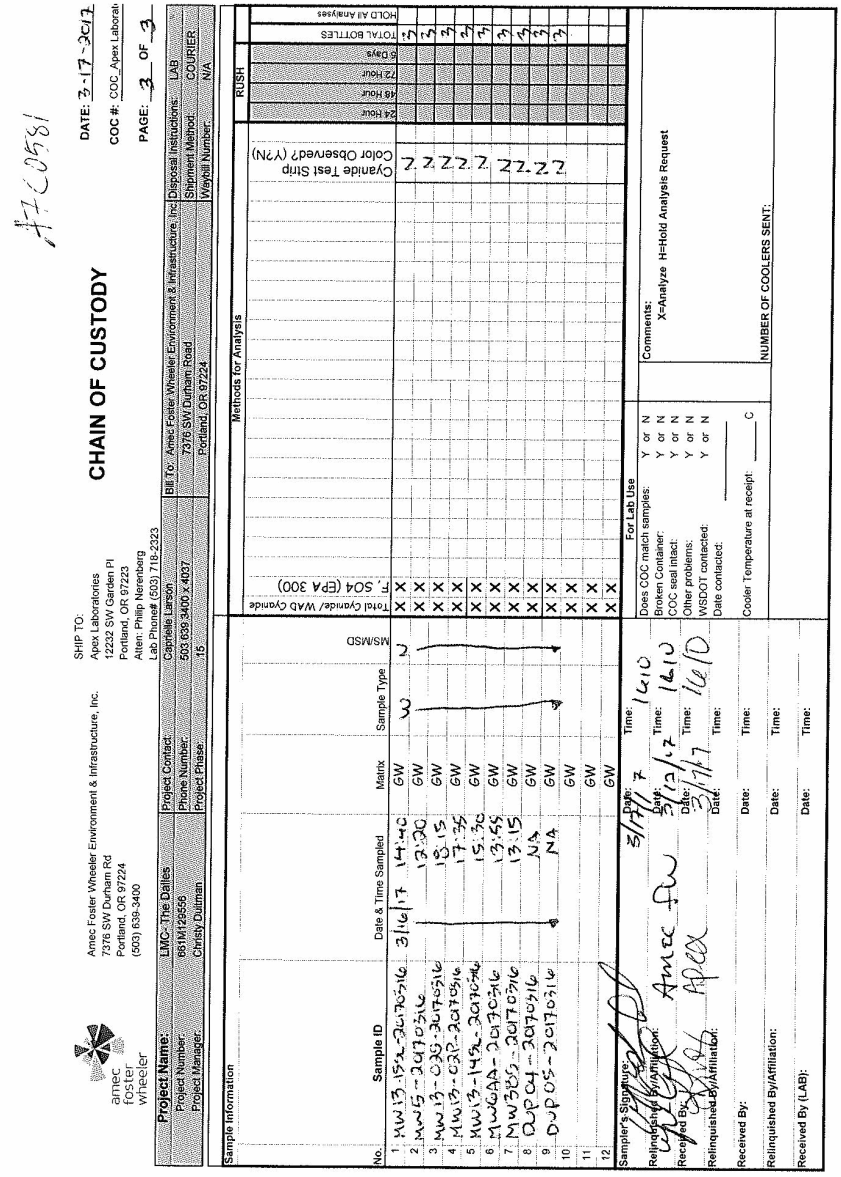

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Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

APEX LABS COOLER RECEIPT FORM

Client: Amec Element WO#: A7 C0581

Project/Project #: LMC - The Dalles

Delivery info:

Date/Time Received: 3/17/17 @ 1610 By: KAL

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: KAL : 3/17/17 @ 1610

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	—	—					
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	4.9	4.4					
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: MS : 3/20/17 @ 14:39

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes___ No X Comments: Label reads MW13-07P-20170315, COC read MW13-07P-20170315 on Cyanide bottle

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:
Label reads MW13-12P-20170315, COC reads MW12-12P-20170315. Matched by ONE.

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: MS Witness: KAL Cooler Inspected by: JOH See Project Contact Form: Y

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/04/17 16:10

A7C0581
Revisions

Lab ID	Current Sample ID	Correct Sample ID	Notes
A7C0581-06	MW12-12P-20170315	MW13-12P_20170315	There is no MW12-12P, based on sampling time and date, this should be **MW13-12P**, and the **dash before "20170315"** should be an **underscore**
A7C0581-02	MW42S-20170315	MW-42S_20170315	There should be a **dash after MW, before 42S**, and the **dash before "20170315"** should be an **underscore**
A7C0581-03	MWR15S-20170315	MWR-15S_20170315	There should be a **dash after MWR, before 15S**, and the **dash before "20170315"** should be an **underscore**
A7C0581-19	MW26S-20170316	MW-26S_20170316	There should be a **dash after MW, before 26S**, and the **dash before "20170316"** should be an **underscore**
A7C0581-20	MW29S-20170316	MW-29S_20170316	There should be a **dash after MW, before 29S**, and the **dash before "20170316"** should be an **underscore**
A7C0581-26	MW5-20170316	MW-5_20170316	There should be a **dash after MW, before 5**, and the **dash before "20170316"** should be an **underscore**
A7C0581-30	MW6AA-20170316	MW-6AA_20170316	There should be a **dash after MW, before 6AA**, and the **dash before "20170316"** should be an **underscore**
A7C0581-31	MW38S-20170316	MW-38S_20170316	There should be a **dash after MW, before 38S**, and the **dash before "20170316"** should be an **underscore**
A7C0581 (all others)	MW(R)##-2017031# or DUP##-2017031# or EB##-2017031#	MW(R)##_2017031# or DUP##_20170316 or EB##_2017031#	In all of the samples, there was a **dash between the well/sample identifier and the date** (20170315 or 20170316), and this should be an **underscore** instead

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Wednesday, April 5, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556

Enclosed are the results of analyses for work order A7C0666, which was received by the laboratory on 3/22/2017 at 10:00:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2S_20170320	A7C0666-01	Water	03/20/17 12:05	03/22/17 10:00
MWR-2A_20170320	A7C0666-02	Water	03/20/17 12:45	03/22/17 10:00
MW13-02A_20170320	A7C0666-03	Water	03/20/17 13:45	03/22/17 10:00
DUP06_20170320	A7C0666-04	Water	03/20/17 00:00	03/22/17 10:00
MW-12A_20170321	A7C0666-06	Water	03/21/17 13:45	03/22/17 10:00
MW13-03P_20170321	A7C0666-07	Water	03/21/17 12:25	03/22/17 10:00
MW-39S_20170321	A7C0666-08	Water	03/21/17 13:05	03/22/17 10:00
MW-40S_20170321	A7C0666-09	Water	03/21/17 11:05	03/22/17 10:00
MW13-04P_20170321	A7C0666-10	Water	03/21/17 10:00	03/22/17 10:00
MWR-13A_20170321	A7C0666-11	Water	03/21/17 11:45	03/22/17 10:00
MW-41S_20170321	A7C0666-12	Water	03/21/17 08:35	03/22/17 10:00
MWR-7A_20170321	A7C0666-13	Water	03/21/17 09:15	03/22/17 10:00

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-2S_20170320 (A7C0666-01)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**23.4**	1.00	1.00	mg/L	1	04/04/17 11:09	EPA 300.0	
MWR-2A_20170320 (A7C0666-02)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**17.7**	1.00	1.00	mg/L	1	04/04/17 12:14	EPA 300.0	
MW13-02A_20170320 (A7C0666-03)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**12.1**	1.00	1.00	mg/L	1	04/04/17 12:35	EPA 300.0	
DUP06_20170320 (A7C0666-04)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**17.5**	1.00	1.00	mg/L	1	04/04/17 12:57	EPA 300.0	
MW-12A_20170321 (A7C0666-06)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**55.5**	5.00	5.00	mg/L	5	04/04/17 13:18	EPA 300.0	
MW13-03P_20170321 (A7C0666-07)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**12.4**	1.00	1.00	mg/L	1	04/04/17 13:40	EPA 300.0	
MW-39S_20170321 (A7C0666-08)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**8.28**	1.00	1.00	mg/L	1	04/04/17 14:44	EPA 300.0	
MW-40S_20170321 (A7C0666-09)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**8.51**	1.00	1.00	mg/L	1	04/04/17 15:06	EPA 300.0	
MW13-04P_20170321 (A7C0666-10)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**41.7**	5.00	5.00	mg/L	5	04/04/17 15:27	EPA 300.0	
MWR-13A_20170321 (A7C0666-11)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**13.2**	1.00	1.00	mg/L	1	04/04/17 15:49	EPA 300.0	
MW-41S_20170321 (A7C0666-12)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**83.3**	5.00	5.00	mg/L	5	04/04/17 16:10	EPA 300.0	
MWR-7A_20170321 (A7C0666-13)			**Matrix: Water**					

Apex Laboratories



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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MWR-7A_20170321 (A7C0666-13)			**Matrix: Water**					
Batch: 7040218								
Sulfate	**20.0**	1.00	1.00	mg/L	1	04/04/17 16:32	EPA 300.0	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-2S_20170320 (A7C0666-01)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.143**	0.100	0.100	mg/L	1	04/01/17 01:54	EPA 300.0-LL	
MWR-2A_20170320 (A7C0666-02)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.438**	0.100	0.100	mg/L	1	04/01/17 02:58	EPA 300.0-LL	
MW13-02A_20170320 (A7C0666-03)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.934**	0.100	0.100	mg/L	1	04/01/17 03:20	EPA 300.0-LL	
DUP06_20170320 (A7C0666-04)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.401**	0.100	0.100	mg/L	1	04/01/17 03:41	EPA 300.0-LL	
MW-12A_20170321 (A7C0666-06)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.626**	0.100	0.100	mg/L	1	04/01/17 04:03	EPA 300.0-LL	
MW13-03P_20170321 (A7C0666-07)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.274**	0.100	0.100	mg/L	1	04/01/17 04:24	EPA 300.0-LL	
MW-39S_20170321 (A7C0666-08)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.508**	0.100	0.100	mg/L	1	04/01/17 05:29	EPA 300.0-LL	
MW-40S_20170321 (A7C0666-09)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.537**	0.100	0.100	mg/L	1	04/01/17 05:50	EPA 300.0-LL	
MW13-04P_20170321 (A7C0666-10)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**10.8**	0.100	0.100	mg/L	1	04/01/17 06:12	EPA 300.0-LL	
MWR-13A_20170321 (A7C0666-11)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.496**	0.100	0.100	mg/L	1	04/01/17 06:33	EPA 300.0-LL	
MW-41S_20170321 (A7C0666-12)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.324**	0.100	0.100	mg/L	1	04/01/17 06:55	EPA 300.0-LL	
MWR-7A_20170321 (A7C0666-13)			**Matrix: Water**					

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ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MWR-7A_20170321 (A7C0666-13)			**Matrix: Water**					
Batch: 7031188								
Fluoride	**0.773**	0.100	0.100	mg/L	1	04/01/17 07:17	EPA 300.0-LL	

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Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-2S_20170320 (A7C0666-01)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.00630**	0.00500	0.00500	mg/L	1	03/30/17 11:11	EPA 335.4	
MWR-2A_20170320 (A7C0666-02)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.0294**	0.00500	0.00500	mg/L	1	03/30/17 11:19	EPA 335.4	
MW13-02A_20170320 (A7C0666-03)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.0289**	0.00500	0.00500	mg/L	1	03/30/17 11:21	EPA 335.4	
DUP06_20170320 (A7C0666-04)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.0289**	0.00500	0.00500	mg/L	1	03/30/17 11:23	EPA 335.4	
MW-12A_20170321 (A7C0666-06)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.0542**	0.00500	0.00500	mg/L	1	03/30/17 11:25	EPA 335.4	
MW13-03P_20170321 (A7C0666-07)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/30/17 11:27	EPA 335.4	
MW-39S_20170321 (A7C0666-08)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.0100**	0.00500	0.00500	mg/L	1	03/30/17 11:29	EPA 335.4	
MW-40S_20170321 (A7C0666-09)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.180**	0.00500	0.00500	mg/L	1	03/30/17 11:31	EPA 335.4	
MW13-04P_20170321 (A7C0666-10)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.143**	0.00500	0.00500	mg/L	1	03/30/17 11:33	EPA 335.4	
MWR-13A_20170321 (A7C0666-11)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.00710**	0.00500	0.00500	mg/L	1	03/30/17 11:35	EPA 335.4	
MW-41S_20170321 (A7C0666-12)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.442**	0.00500	0.00500	mg/L	1	03/30/17 11:37	EPA 335.4	
MWR-7A_20170321 (A7C0666-13)			**Matrix: Water**		**Batch: 7031124**			
Cyanide, Total	**0.323**	0.00500	0.00500	mg/L	1	03/30/17 11:45	EPA 335.4	

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Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

ANALYTICAL SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-2S_20170320 (A7C0666-01)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:44	SM 4500-CN (I/E)	
MWR-2A_20170320 (A7C0666-02)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:46	SM 4500-CN (I/E)	
MW13-02A_20170320 (A7C0666-03)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:48	SM 4500-CN (I/E)	
DUP06_20170320 (A7C0666-04)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:50	SM 4500-CN (I/E)	
MW-12A_20170321 (A7C0666-06)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	**0.00550**	0.00500	0.00500	mg/L	1	03/24/17 12:54	SM 4500-CN (I/E)	
MW13-03P_20170321 (A7C0666-07)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:56	SM 4500-CN (I/E)	
MW-39S_20170321 (A7C0666-08)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 12:58	SM 4500-CN (I/E)	
MW-40S_20170321 (A7C0666-09)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	**0.0142**	0.00500	0.00500	mg/L	1	03/24/17 13:00	SM 4500-CN (I/E)	
MW13-04P_20170321 (A7C0666-10)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	**0.0150**	0.00500	0.00500	mg/L	1	03/24/17 13:08	SM 4500-CN (I/E)	
MWR-13A_20170321 (A7C0666-11)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	03/24/17 13:10	SM 4500-CN (I/E)	
MW-41S_20170321 (A7C0666-12)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	**0.00810**	0.00500	0.00500	mg/L	1	03/24/17 13:12	SM 4500-CN (I/E)	
MWR-7A_20170321 (A7C0666-13)			**Matrix: Water**		**Batch: 7030941**			
Cyanide, WAD	**0.0173**	0.00500	0.00500	mg/L	1	03/24/17 13:14	SM 4500-CN (I/E)	

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7040218 - Method Prep: Aq							**Water**					
Blank (7040218-BLK1)					Prepared: 04/04/17 07:51		Analyzed: 04/04/17 10:26					
EPA 300.0												
Sulfate	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	
LCS (7040218-BS1)					Prepared: 04/04/17 07:51		Analyzed: 04/04/17 10:47					
EPA 300.0												
Sulfate	8.32	1.00	1.00	mg/L	1	8.00	---	104	90-110%	---	---	
Duplicate (7040218-DUP1)					Prepared: 04/04/17 07:51		Analyzed: 04/04/17 11:30					
QC Source Sample: MW-2S_20170320 (A7C0666-01)												
EPA 300.0												
Sulfate	**21.7**	1.00	1.00	mg/L	1	---	23.4	---	---	7	15%	
Matrix Spike (7040218-MS1)					Prepared: 04/04/17 07:51		Analyzed: 04/04/17 11:52					
QC Source Sample: MW-2S_20170320 (A7C0666-01)												
EPA 300.0												
Sulfate	33.6	1.25	1.25	mg/L	1	10.0	23.4	103	80-120%	---	---	

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7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7031188 - Method Prep: Aq							**Water**					
Blank (7031188-BLK1)					Prepared: 03/31/17 11:18		Analyzed: 04/01/17 01:10					
EPA 300.0-LL												
Fluoride	ND	0.100	0.100	mg/L	1	---	---	---	---	---	---	
LCS (7031188-BS1)					Prepared: 03/31/17 11:18		Analyzed: 04/01/17 01:32					
EPA 300.0-LL												
Fluoride	1.39	0.100	0.100	mg/L	1	1.50	---	93	90-110%	---	---	
Duplicate (7031188-DUP1)					Prepared: 03/31/17 11:18		Analyzed: 04/01/17 02:15					
QC Source Sample: MW-2S_20170320 (A7C0666-01)												
EPA 300.0-LL												
Fluoride	**0.145**	0.100	0.100	mg/L	1	---	0.143	---	---	1	15%	
Duplicate (7031188-DUP2)					Prepared: 03/31/17 11:18		Analyzed: 04/01/17 07:39					
QC Source Sample: MWR-7A_20170321 (A7C0666-13)												
EPA 300.0-LL												
Fluoride	**0.769**	0.100	0.100	mg/L	1	---	0.773	---	---	0.6	15%	
Matrix Spike (7031188-MS1)					Prepared: 03/31/17 11:18		Analyzed: 04/01/17 02:37					
QC Source Sample: MW-2S_20170320 (A7C0666-01)												
EPA 300.0-LL												
Fluoride	1.61	0.104	0.104	mg/L	1	1.56	0.143	94	80-120%	---	---	
Matrix Spike (7031188-MS2)					Prepared: 03/31/17 11:18		Analyzed: 04/01/17 08:00					
QC Source Sample: MWR-7A_20170321 (A7C0666-13)												
EPA 300.0-LL												
Fluoride	2.25	0.104	0.104	mg/L	1	1.56	0.773	95	80-120%	---	---	

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503-718-2323 Phone
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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7031124 - Method Prep: Aq									Water			
Blank (7031124-BLK1)					Prepared: 03/30/17 08:04		Analyzed: 03/30/17 10:53					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7031124-BS1)					Prepared: 03/30/17 08:04		Analyzed: 03/30/17 10:55					
EPA 335.4												
Cyanide, Total	0.278	0.00500	0.00500	mg/L	1	0.250	---	111	85-115%	---	---	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030941 - Method Prep: Aq									Water			
Blank (7030941-BLK1)					Prepared: 03/24/17 08:07		Analyzed: 03/24/17 12:20					
SM 4500-CN (I/E)												
Cyanide, WAD	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030941-BS1)					Prepared: 03/24/17 08:07		Analyzed: 03/24/17 12:22					
SM 4500-CN (I/E)												
Cyanide, WAD	0.244	0.00500	0.00500	mg/L	1	0.250	---	98	85-115%	---	---	
Duplicate (7030941-DUP2)					Prepared: 03/24/17 08:07		Analyzed: 03/24/17 13:16					
QC Source Sample: MWR-7A_20170321 (A7C0666-13)												
SM 4500-CN (I/E)												
Cyanide, WAD	**0.0187**	0.00500	0.00500	mg/L	1	---	0.0173	---	---	8	10%	
Matrix Spike (7030941-MS2)					Prepared: 03/24/17 08:07		Analyzed: 03/24/17 13:18					
QC Source Sample: MWR-7A_20170321 (A7C0666-13)												
SM 4500-CN (I/E)												
Cyanide, WAD	0.276	0.00500	0.00500	mg/L	1	0.250	0.0173	103	80-120%	---	---	

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7040218							
A7C0666-01	Water	EPA 300.0	03/20/17 12:05	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-02	Water	EPA 300.0	03/20/17 12:45	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-03	Water	EPA 300.0	03/20/17 13:45	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-04	Water	EPA 300.0	03/20/17 00:00	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-06	Water	EPA 300.0	03/21/17 13:45	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-07	Water	EPA 300.0	03/21/17 12:25	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-08	Water	EPA 300.0	03/21/17 13:05	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-09	Water	EPA 300.0	03/21/17 11:05	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-10	Water	EPA 300.0	03/21/17 10:00	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-11	Water	EPA 300.0	03/21/17 11:45	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-12	Water	EPA 300.0	03/21/17 08:35	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00
A7C0666-13	Water	EPA 300.0	03/21/17 09:15	04/04/17 07:51	10mL/10mL	10mL/10mL	1.00

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7031188							
A7C0666-01	Water	EPA 300.0-LL	03/20/17 12:05	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-02	Water	EPA 300.0-LL	03/20/17 12:45	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-03	Water	EPA 300.0-LL	03/20/17 13:45	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-04	Water	EPA 300.0-LL	03/20/17 00:00	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-06	Water	EPA 300.0-LL	03/21/17 13:45	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-07	Water	EPA 300.0-LL	03/21/17 12:25	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-08	Water	EPA 300.0-LL	03/21/17 13:05	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-09	Water	EPA 300.0-LL	03/21/17 11:05	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-10	Water	EPA 300.0-LL	03/21/17 10:00	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-11	Water	EPA 300.0-LL	03/21/17 11:45	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-12	Water	EPA 300.0-LL	03/21/17 08:35	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00
A7C0666-13	Water	EPA 300.0-LL	03/21/17 09:15	03/31/17 11:18	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor

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Tigard, OR 97223
503-718-2323 Phone
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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7031124							
A7C0666-01	Water	EPA 335.4	03/20/17 12:05	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-02	Water	EPA 335.4	03/20/17 12:45	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-03	Water	EPA 335.4	03/20/17 13:45	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-04	Water	EPA 335.4	03/20/17 00:00	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-06	Water	EPA 335.4	03/21/17 13:45	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-07	Water	EPA 335.4	03/21/17 12:25	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-08	Water	EPA 335.4	03/21/17 13:05	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-09	Water	EPA 335.4	03/21/17 11:05	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-10	Water	EPA 335.4	03/21/17 10:00	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-11	Water	EPA 335.4	03/21/17 11:45	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-12	Water	EPA 335.4	03/21/17 08:35	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00
A7C0666-13	Water	EPA 335.4	03/21/17 09:15	03/30/17 08:04	6mL/6mL	6mL/6mL	1.00

Cyanide - Weak Acid Dissociable (WAD) (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030941							
A7C0666-01	Water	SM 4500-CN (I/E)	03/20/17 12:05	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-02	Water	SM 4500-CN (I/E)	03/20/17 12:45	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-03	Water	SM 4500-CN (I/E)	03/20/17 13:45	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-04	Water	SM 4500-CN (I/E)	03/20/17 00:00	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-06	Water	SM 4500-CN (I/E)	03/21/17 13:45	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-07	Water	SM 4500-CN (I/E)	03/21/17 12:25	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-08	Water	SM 4500-CN (I/E)	03/21/17 13:05	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-09	Water	SM 4500-CN (I/E)	03/21/17 11:05	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-10	Water	SM 4500-CN (I/E)	03/21/17 10:00	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-11	Water	SM 4500-CN (I/E)	03/21/17 11:45	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-12	Water	SM 4500-CN (I/E)	03/21/17 08:35	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00
A7C0666-13	Water	SM 4500-CN (I/E)	03/21/17 09:15	03/24/17 08:07	6mL/6mL	6mL/6mL	1.00

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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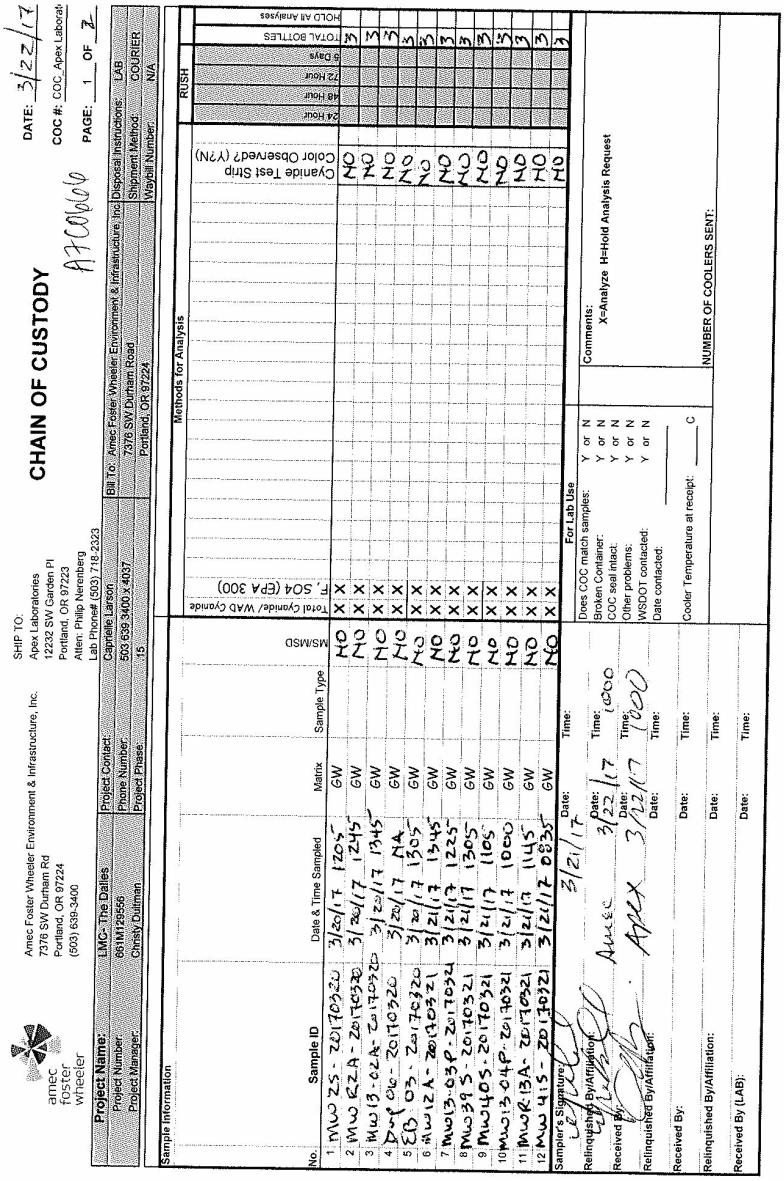
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49



amec foster wheeler

Amec Foster Wheeler Environment & Infrastructure, Inc.
7376 SW Durham Rd
Portland, OR 97224
(503) 639-3400

SHIP TO:
Apex Laboratories
12232 SW Garden Pl
Portland, OR 97223
Attn: Philip Nerenberg
Lab Phone# (503) 718-2323

CHAIN OF CUSTODY

DATE: 3/22/17
COC #: COC_Apex Laborat
PAGE: 1 OF 2

Project Name:	LMC - The Dalles	Project Contact:	Caprielle Larson	Bill To: Amec Foster Wheeler Environment & Infrastructure, Inc	Disposal Instructions:	LAB
Project Number:	661M129556	Phone Number:	503 639 3400 x 4037	7376 SW Durham Road	Shipment Method:	COURIER
Project Manager:	Christy Duitman	Project Phase:	15	Portland, OR 97224	Waybill Number:	N/A

Sample Information

Methods for Analysis

RUSH

No.	Sample ID	Date & Time Sampled	Matrix	Sample Type	MS/MSD	Total Cyanide/ WAD Cyanide F, SO4 (EPA 300)	Cyanide Test Strip Color Observed? (Y/N)	24 Hour	48 Hour	72 Hour	5 Days	TOTAL BOTTLES	HOLD All Analyses
1	MW25-20170320	3/20/17 1205	GW		NO	X X	NO					3	
2	MW22A-20170321	3/21/17 1245	GW		NO	X X	NO					3	
3	MW13-022A-20170321	3/21/17 1345	GW		NO	X X	NO					3	
4	Dup one-20170320	3/20/17 NA	GW		NO	X X	NO					3	
5	EB03-20170320	3/20/17 1305	GW		NO	X X	NO					3	
6	MW12A-20170321	3/21/17 1345	GW		NO	X X	NO					3	
7	MW13-034P-20170321	3/21/17 1225	GW		NO	X X	NO					3	
8	MW39S-20170321	3/21/17 1305	GW		NO	X X	NO					3	
9	MW405-20170321	3/21/17 1105	GW		NO	X X	NO					3	
10	MW13-044P-20170321	3/21/17 1000	GW		NO	X X	NO					3	
11	MW-13A-20170321	3/21/17 1145	GW		NO	X X	NO					3	
12	MW415-20170321	3/21/17 0835	GW		NO	X X	NO					3	

Sampler's Signature: Date: 3/21/17 Time:

For Lab Use

Does COC match samples:	Y or N	Comments:
Broken Container:	Y or N	X=Analyze H=Hold Analysis Request
COC seal intact:	Y or N	
Other problems:	Y or N	
WSDOT contacted:	Y or N	
Date contacted:		
Cooler Temperature at receipt: ____ C		NUMBER OF COOLERS SENT:

Relinquished By/Affiliation:	Amec	Date: 3/22/17	Time: 1000
Received By:	Apex	Date: 3/22/17	Time: 1000
Relinquished By/Affiliation:		Date:	Time:
Received By:		Date:	Time:
Relinquished By/Affiliation:		Date:	Time:
Received By:		Date:	Time:
Relinquished By/Affiliation:		Date:	Time:
Received By (LAB):		Date:	Time:

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

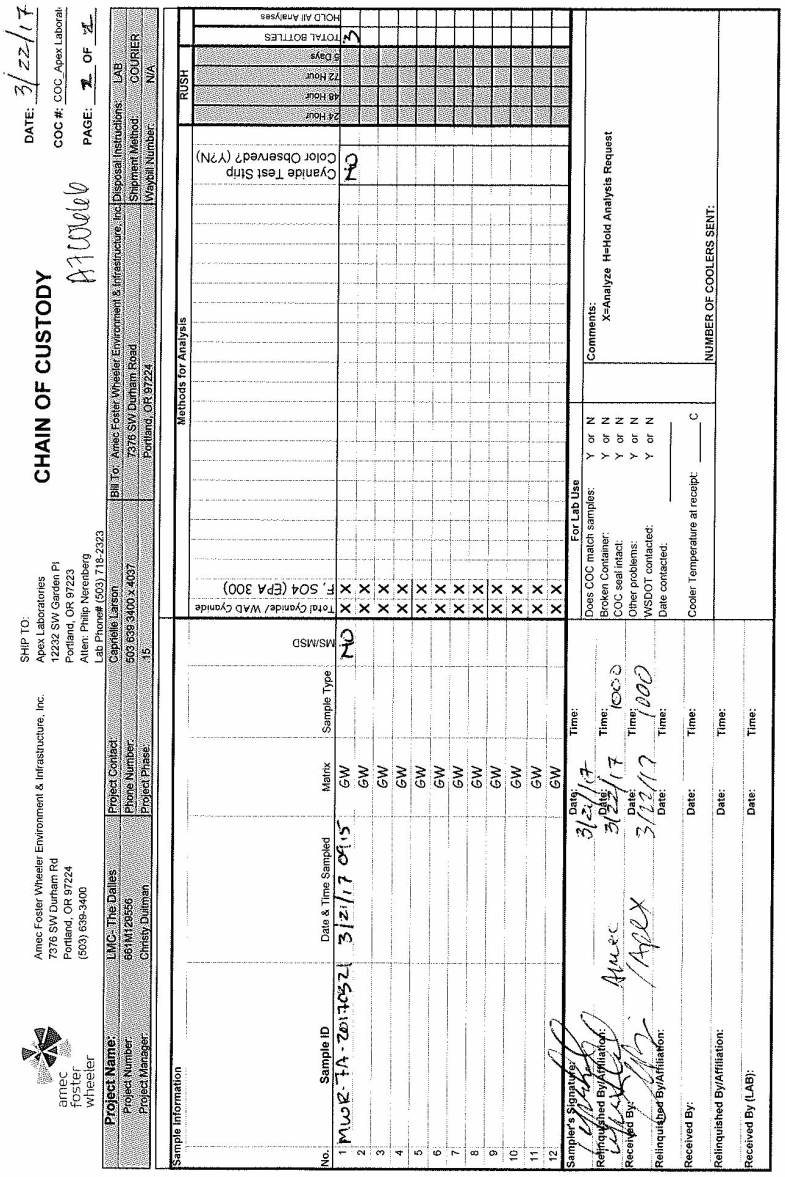
Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49



Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	04/05/17 10:49

APEX LABS COOLER RECEIPT FORM

Client: Amec Element WO#: A7 [illegible]

Project/Project #: LMC - The Dalles

Delivery info:

Date/Time Received: 3/22/17 @ 1000 By: [illegible]

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: [illegible] : 3/22/17 @ 1000

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.1						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	AKK 3/22/17 Y=3.4						
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: AKK : 3/22/17 @ 1127

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes___ No X Comments: MW40S-20170321 125mL HP poly ID reads MW40S-201703

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: AKK Witness: JS Cooler Inspected by: AKK See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

APPENDIX D

Groundwater Sampling Field Forms

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-29

Field Personnel: JVG / WJM
Date: 3/20/17
Weather Conditions: Overcast (OC)
Approx. Air Temp (F): ~50

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/20/17
Depth to Water (TOC - ft.): 10.49
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.34	8.35	284	2.0	3.01	+89.6	10.49	11:55	Cell
13.40	8.31	271	0.9	2.00	+92.8	10.50	11:55	4
12.99	8.31	271	0.9	1.98	+92.8	10.50	12:00	5
12.96	8.31	271	0.9	1.99	+92.4	10.50	12:05	6

Total Purged: 6 L
Final DTW: 10.50
Total Drawdown: 0.01

Purge Pumping Rate (approx. mL/m): .24/4
Approx. Pump/Intake Depth: Screen
Well Yield: (High) / Moderate / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/20/17 10:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/20/17
Time Sampled: 12:05
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW29-20170320		250/250 ml	Poly	NaOH/unpres.	Apex	NA	Total CN (335.4); WAD CN (SM4500)
		500 ml	Poly	None	Apex	"	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Josh Gardner
Sampler Signature:
Date Signed: 3/20/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MWR-2A

Field Personnel: JWG/[illegible] **Date:** 3/20/17

Weather Conditions: OC **Approx. Air Temp (F):**

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel PVC CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/20/17 Depth to Water (TOC - ft.): 43.40

Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.43	8.69	236	184 *	6.27	+96.5	43.40	12:15	cell
13.78	8.59	236	91.1*	4.96	+107.9	43.56	12135	4
13.80	8.59	238	89.4*	4.82	+112.4	43.55	12:40	5
13.83	8.59	238	96.2*	4.79	+113.1	43.57	12:45	6
							1	

Total Purged: 6L Final DTW: 43.57 Total Drawdown: 0.17

Purge Pumping Rate (approx. mL/m): .24/M Approx. Pump/Intake Depth: Screen

Well Yield: High / Moderate / Low Sampling Technique: low-flow / low-yield

Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =

Decontamination Method: Alconox /DI Water /DI Water SG Water Disposal: Storage Tank

Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/20/17 10:00

Field Observations/Notes of Sampling Event: very cloudy with a white precipitate

SAMPLING INFORMATION / DATA

Date Sampled: 3/20/17 Time Sampled: 12:45

QA/QC Sample (circle one): DUP #6 Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MWR-2A-20170320	2	250/250 ml	Poly	NaOH/unpres.	Apex	DUP6	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex		Fluoride (SW846-9056); Sulfate (300.0)
DUP6-20170320	2	250mL	↓	NaOH/unpres	↓	↓	→ ←
"	1	↓	↓	unpres.	↓	↓	

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES/NO If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO

Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: [signature] Date Signed: 3/20/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-35

Field Personnel: JVG / WJM
Date: 3/14/17
Weather Conditions: Rain
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 1330
Depth to Water (TOC - ft.): 6.67
Depth Well Bottom (TOC - ft.): ——

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.10	8.02	320	1.6	3.03	+195.1	6.67	13:30	1gal
14.97	7.95	316	1.6	2.55	+187.5	6.70	13:50	4
14.95	7.95	316	1.6	2.56	+187.1	6.70	13:55	5
14.95	7.94	316	1.6	2.56	+187.0	6.70	14:00	6

Total Purged: 6L
Final DTW: 6.70
Total Drawdown: 6L 0.03

Purge Pumping Rate (approx. mL/m): .24/M
Approx. Pump/Intake Depth: Screen
Well Yield: High (Moderate) / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/14/17 730

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17
Time Sampled: 14:00
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW35-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	"	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): (courier) Amec FW Delivery UPS/Fed-Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-48

Field Personnel: JVG/WJM **Date:** 3/14/17

Weather Conditions: Rain **Approx. Air Temp (F):** ~45

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:		Casing Diameter (in.): 2"	
Casing Condition: (OK) / NA / Needs Repairs/Repaired		Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition: (OK) / NA / Needs Repairs/Repaired		Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition: (OK) / NA / Needs Repairs/Repaired		Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 Depth to Water (TOC - ft.): 6.67

Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
16.54	7.18	445	2.4	3.39	+190.3	6.67	14:15	cell
16.65	7.05	446	0.9	3.41	+189.3	6.84	14:35	4
16.66	7.05	446	0.9	3.38	+189.2	6.84	14:40	5
16.69	7.04	446	0.9	3.39	+189.2	6.84	14:45	6

Total Purged: 6L Final DTW: 6.84 Total Drawdown: 0.17

Purge Pumping Rate (approx. mL/m): 120 Approx. Pump/Intake Depth:

Well Yield: High / (Moderate) / Low Sampling Technique: (low-flow) / low-yield

Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =

Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank

Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17 Time Sampled: 14:45

QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW48-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES/(NO) If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES)/ NO

Sample Transport (circle one): (courier) Amec FW Delivery UPS/Fed EX/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-5

Field Personnel: JVG/WJM — **Date:** 3/16/17
Weather Conditions: clear — **Approx. Air Temp (F):** ~45

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:		Casing Diameter (in.): 2"	
Casing Condition: (OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced	
Cap Condition: (OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired	
Paint Condition: (OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired	

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17 — Depth to Water (TOC - ft.): 9.58
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.31	7.88	610	2.0	2.00	-39.5	9.58	11:50	(el)
15.94	7.83	563	0.8	0.12	-120.9	9.62	12:10	4
15.93	7.83	564	0.8	0.10	-121.7	9.62	12:15	5
15.90	7.83	564	0.8	0.13	-121.4	9.62	12:20	6

Total Purged: 6L — Final DTW: 9.62 — Total Drawdown: 0.04

Purge Pumping Rate (approx. mL/m): 124M — Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / (Low) — Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water — Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 — Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17 — Time Sampled: 12:20
QA/QC Sample (circle one): (DUP #4) Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW5-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	yes	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	yes	Fluoride (SW846-9056); Sulfate (300.0)
DUP4-20170316	2	250ml	↓	NaOH/UNP	↓	DUP4	↓
"	1	↓	↓	UNP	↓	DUP4	↓

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES) NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner — Sampler Signature: [signature] — Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-5S

Field Personnel: JVG / WJM **Date:** 3/14/17
Weather Conditions: Rain **Approx. Air Temp (F):** ~45

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel PVC CPVC Other: Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 0835 Depth to Water (TOC - ft.): 19.43
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.08	7.34	1251	12.5	4.30	+261.5	19.43	08:35	cell
14.28	7.22	1234	7.3	2.13	+292.7	19.50	8:55	4
14.29	7.18	1234	7.1	2.09	+292.7	19.50	9:00	5
14.29	7.16	1230	7.0	2.02	+292.5	19.50	09:05	6

Total Purged: 6L Final DTW: 19.50 Total Drawdown: 0.07

Purge Pumping Rate (approx. mL/m): .2L/h Approx. Pump/Intake Depth: screen
Well Yield: High / Moderate / Low Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17 Time Sampled: 9:05
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW5S-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	↓	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner Sampler Signature: [signature] Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW-6AA

Field Personnel: JVG/WM
Date: 3/16/17
Weather Conditions: Clear
Approx. Air Temp (F): ~50

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17
Depth to Water (TOC - ft.): 60.75
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.84	7.88	323	1.6	60.7	+226.2	60.75	13:25	cell
15.06	7.89	321	1.3	1.06	+228.2	60.89	13:45	4
15.04	7.90	321	1.1	1.09	+225.3	60.86	13:50	5
15.10	7.92	321	0.9	1.00	+226.7	60.87	13:55	6

Total Purged: 6L
Final DTW: 60.87
Total Drawdown: 0.12

Purge Pumping Rate (approx. mL/m): .24M
Approx. Pump/Intake Depth: screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / (Dedicated) / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/16/17 700

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17
Time Sampled: 13:55
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW6AA-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MWR-7A

Field Personnel: JVG **Date:** 3/21/17

Weather Conditions: RAIN **Approx. Air Temp (F):** ~40

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other: | Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/21/17 8:45 | Depth to Water (TOC - ft.): 60.62

Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.29	7.93	291	1.6	6.30	+183.2	60.82	8:45	cell
15.34	7.84	292	0.9	0.41	+189.1	60.95	9:05	4
15.34	7.84	293	0.9	0.39	+189.3	60.94	9:10	5
15.37	7.84	292	0.9	0.37	+190.1	60.92	9:15	6

Total Purged: 6L | Final DTW: 60.92 | Total Drawdown: 0.10

Purge Pumping Rate (approx. mL/m): ~200 mL/m Approx. Pump/Intake Depth: Screen

Well Yield: High / (Moderate) / Low Sampling Technique: (low-flow) / low-yield

Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / (Dedicated) / Other =

Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank

Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/21/17 07:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/21/17 Time Sampled: 9:15

QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	(size)	(type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MWR-7A-20170321	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES/(NO) If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) NO

Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/21/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW-12A

Field Personnel: JVG / WJM
Date: 3/21/17
Weather Conditions: RAIN
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/21/17 13:15
Depth to Water (TOC - ft.):
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
11.71	7.94	405	2.3	3.59	+133.2	7.237	13:15	cell
14.66	7.78	383	1.9	1.93	+167.9	7.241	13:35	4
14.67	7.77	383	2.0	1.85	+168.2	7.240	13:40	5
14.67	7.77	383	1.9	1.83	+170.7	7.230	13:45	6

Total Purged: 6L
Final DTW: 7.238
Total Drawdown: 0.01

Purge Pumping Rate (approx. mL/m): 24/M
Approx. Pump/Intake Depth: screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / (Dedicated) / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/21/17

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/21/17
Time Sampled: 13:45
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW12A-20170321	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gaecher Sampler Signature: Date Signed: 3/21/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MWR-13A

Field Personnel: JVG / WJM
Date: 3/21/17
Weather Conditions: RAIN
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/21/17 11:15
Depth to Water (TOC - ft.): 71.98
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
12.28	8.14	245	16.3	8.68	+151.8	71.98	11:15	cevl
12.56	8.26	233	3.1	6.27	+147.6	72.07	11:35	4
12.59	8.29	233	3.1	6.28	+147.4	72.09	11:40	5
12.60	8.31	233	3.0	6.30	+147.3	72.07	11:45	6

Total Purged: 6L
Final DTW: 72.07
Total Drawdown: 0.09
Purge Pumping Rate (approx. mL/m): ~2 L/M
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / (Dedicated) / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal:
Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/21/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/21/17
Time Sampled: 11:45
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MWR-13A-20170321	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice" unless otherwise noted: (YES) NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/21/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MWR-15S

Field Personnel: JVG / WJM
Date: 3/15/17
Weather Conditions: OC
Approx. Air Temp (F): ~50

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 14:10 Depth to Water (TOC - ft.): 22.46
Depth Well Bottom (TOC - ft.): N/A

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.58	9.95	407	11.0	1.99	+215.6	22.46	13:40	cell
14.65	9.86	401	9.5	0.65	+152.2	22.60	14:00	4
14.63	9.86	401	9.3	0.64	+152.1	22.59	14:05	5
14.61	9.86	401	9.0	0.64	+151.8	22.60	14:10	6

Total Purged: 6L Final DTW: 22.60 Total Drawdown: 0.14
Purge Pumping Rate (approx. mL/m): .24 Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / (Low) Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/15/17 14:10
Field Observations/Notes of Sampling Event: Purge water has a slight yellow hue

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17 Time Sampled: 14:10
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MWR-15S-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	N	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW-17S

Field Personnel: JVG / WJM
Date: 3/14/17
Weather Conditions: Rain
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel PVC CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 | Depth to Water (TOC - ft.): 12.84
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.20	7.06	491	2.2	2.90	+221.3	12.84	12:40	cell
15.34	7.04	490	1.3	2.78	+234.2	12.91	13:00	4
15.35	7.04	490	1.3	2.77	+234.6	12.91	13:05	5
15.34	7.04	490	1.3	2.76	+235.8	12.91	13:10	6

Total Purged: | Final DTW: 12.91 | Total Drawdown: 0.07

Purge Pumping Rate (approx. mL/m): .22/m | Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low | Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water | Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 | Instrument Calibration Date & Time:

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17 | Time Sampled: 13:10
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW17S20170314	6	250/250 ml	Poly	NaOH/unpres.	Apex	MS/MSD	Total CN (335.4); WAD CN (SM4500)
"	3	500 ml	Poly	None	Apex	"	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / NO. If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner | Sampler Signature: | Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-225

Field Personnel: JVG / WJM
Date: 3/14/17
Weather Conditions: Rain
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel PVC CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17
Depth to Water (TOC - ft.): 19.48
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.01	8.33	348	3.5	4.28	+220.1	19.48	9:15	est
14.85	7.94	322	1.8	2.03	+200.5	19.50	9:35	4
14.85	7.94	322	1.8	1.96	+199.6	19.56	9:40	5
14.85	7.94	322	1.8	1.99	+198.4	19.56	9:45	6

Total Purged: 6L
Final DTW: 19.56
Total Drawdown: 0.08

Purge Pumping Rate (approx. mL/m): .24/m
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17
Time Sampled: 09:45
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW225-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed-Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-23S

Field Personnel: JVG **Date:** 3/14/17
Weather Conditions: Rain **Approx. Air Temp (F):** ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 Depth to Water (TOC - ft.): 8.98
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.53	8.02	325	3.8	4.50	+191.7	8.98	11:15	CE4
14.26	8.03	324	2.7	1.76	+198.7	9.04	11:35	4
14.26	8.03	324	2.5	1.75	+199.2	9.04	11:40	5
14.25	8.03	324	2.5	1.70	+199.4	9.04	11:45	6

Total Purged: 6L Final DTW: 9.04 Total Drawdown: 0.06

Purge Pumping Rate (approx. mL/m): .24m Approx. Pump/Intake Depth: Screen
Well Yield: High (Moderate) / Low Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17 Time Sampled: 11:45
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW23S-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): (courier) Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-26S

Field Personnel: NB / NJM
Date: 3/16/17
Weather Conditions: clear
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17
Depth to Water (TOC - ft.): 18.88
Depth Well Bottom (TOC - ft.): ____

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.26	8.20	294	12.6	5.51	+147.5	18.88	7:45	cell
15.44	8.39	271	1.7	1.16	+174.7	19.02	8:05	4
15.49	8.39	270	1.2	1.12	+174.4	19.02	8:10	5
15.50	8.38	270	1.2	1.10	+173.6	19.02	8:15	6

Total Purged: 6L
Final DTW: 19.02
Total Drawdown: 0.14
Purge Pumping Rate (approx. mL/m): 124/M
Approx. Pump/Intake Depth: screen
Well Yield: High / (Moderate) / low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17
Time Sampled: 8:15
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW26S-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MWR-273

Field Personnel: JVG / WJM **Date:** 3/15/17
Weather Conditions: O.C. **Approx. Air Temp (F):** ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 10:40 Depth to Water (TOC - ft.): 12.33
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
12.84	7.60	431	2.6	4.05	+256.2	12.33	10:40	cell
14.15	7.85	432	1.8	5.11	+263.2	12.47	11:00	4
14.17	7.85	432	1.8	5.10	+267.7	12.47	11:05	5
14.17	7.85	432	1.8	5.10	+261.9	12.47	11:10	6

Total Purged: 6L Final DTW: Total Drawdown:

Purge Pumping Rate (approx. mL/m): ~2 L/M Approx. Pump/Intake Depth: 30 (Screen)
Well Yield: High / (Moderate) / Low Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/15/17 07:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17 Time Sampled: 11:00 11:10
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank (96) Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MWR-273-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	"	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-29S

Field Personnel: JVG / WJM
Date: 3/16/17
Weather Conditions: clear
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17
Depth to Water (TOC - ft.): 10.39
Depth Well Bottom (TOC - ft.): ——

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.86	7.08	2610	3.9	0.65	+152.5	10.39	10:25	3
13.70	7.13	2200	2.4	1.67	+138.5	10.52	10:45	4
13.65	7.14	2199	2.4	1.71	+137.5	10.52	10:50	5
13.61	7.13	2198	2.6	1.71	+137.5	10.52	10:55	6

Total Purged: 6L
Final DTW: 10.52
Total Drawdown: 0.13

Purge Pumping Rate (approx. mL/m): ~2 L/m
Approx. Pump/Intake Depth: screen
Well Yield: High / (Moderate) / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/16/17 0700

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/2017
Time Sampled: 10:55
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW29S-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Goodine
Sampler Signature: [signature]
Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MWR-29S

Field Personnel: JVG / WJM
Date: 3/16/17
Weather Conditions: clear
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17 11:10
Depth to Water (TOC - ft.): 11.48
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.48	7.21	1834	6.3	1.82	+154.4	11.48	11:10	Cell
14.26	7.03	1764	4.9	0.13	+165.9	11.65	11:30	4
14.20	7.04	1765	4.8	0.14	+166.2	11.66	11:35	5
14.19	7.03	1767	4.5	0.15	+166.1	11.66	11:40	6

Total Purged: 6L
Final DTW: 11.66
Total Drawdown: 0.18

Purge Pumping Rate (approx. mL/m): ~2 L/m
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17
Time Sampled: 11:40
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MWR-29S-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Goodine
Sampler Signature:
Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-36S

Field Personnel: JVG / WJM
Date: 3/14/17
Weather Conditions: Rain
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel PVC CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17
Depth to Water (TOC - ft.):
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.81	7.86	395	1.0	7.16	+198.5	15.03	10:00	cecl
15.60	7.85	407	0.8	0.55	+197.9	15.16	10:20	4
15.98	7.85	408	0.8	0.52	+196.4	15.16	10:25	5
15.54	7.84	408	0.8	0.50	+195.9	15.16	11:00	6

Total Purged: 6L
Final DTW: 15.16
Total Drawdown: 0.14
Purge Pumping Rate (approx. mL/m): 124
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17
Time Sampled: 11:00
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW36S-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
11	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/14/17

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GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW-35S

Field Personnel: JVG / WJM
Date: 3/14/17
Weather Conditions: Rain
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 12:20
Depth to Water (TOC - ft.): 7.98
Depth Well Bottom (TOC - ft.): ——

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.51	8.06	466	1.1	5.06	+209.9	7.98	12:00	Cell
14.79	8.05	467	1.3	4.41	+203.6	8.14	12:20	4
14.79	8.05	467	1.3	4.43	+203.8	8.15	12:25	5
14.80	8.05	467	1.0	4.46	+203.9	8.15	12:30	Ce

Total Purged: 6L
Final DTW: 8.15
Total Drawdown: 0.17
Purge Pumping Rate (approx. mL/m): 247M
Approx. Pump/Intake Depth: ——
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other = ——
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17
Time Sampled: 12:30
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW353-031417	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): (courier) Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW-37S

Field Personnel: JVG / WJM
Date: 3/14/17
Weather Conditions: Rain
Approx. Air Temp (F): ~47

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17
Depth to Water (TOC - ft.): 5.78
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
12.30	7.19	302	1.4	5.23	+217.5	5.78	08:00	cey
12.03	7.09	272	1.3	6.04	+222.1	5.86	08:15	3.0
11.98	7.09	272	1.3	6.03	+221.9	5.86	08:20	4.0
12.01	7.09	272	1.1	5.98	+221.5	5.86	08:25	5.0

Total Purged: 5.0 L
Final DTW: 5.86
Total Drawdown: 0.08

Purge Pumping Rate (approx. mL/m): .24/M
Approx. Pump/Intake Depth:
Well Yield: High / (Moderate) / Low
Sampling Technique: low-flow / low-yield JG
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / (Dedicated) / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/14/17 9:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17
Time Sampled: 08:25
QA/QC Sample (circle one): (DUP) Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW37S-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	DUP	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	DUP	Fluoride (SW846-9056); Sulfate (300.0)
DUP1-20170314	2	250	Poly	NaOH/UNP	↓	↓	↳
DUP1-20170314	1	250	Poly	UNP	↓	↓	

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): (courier) Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/14/17

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GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-38S

Field Personnel: JV6 / WM
Date: 3/16/17
Weather Conditions: clear
Approx. Air Temp (F): ~50

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17 12:45
Depth to Water (TOC - ft.): 21.15
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.67	7.15	364	0.9	3.05	+210.6	21.15	12:45	cell
15.21	8.03	347	0.8	2.51	+222.9	21.19	13:05	4
15.25	8.01	346	0.8	2.51	+223.0	21.19	13:10	5
15.26	8.00	346	0.8	2.47	+223.0	21.19	13:15	6

Total Purged: 6 L
Final DTW: 21.19
Total Drawdown: 0.04

Purge Pumping Rate (approx. mL/m): .25/M
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17
Time Sampled: 13:15
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW38S-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gordon
Sampler Signature:
Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-39S

Field Personnel: JV6 / WJM
Date: 3/21/17
Weather Conditions: RAIN
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/21/17 12:35
Depth to Water (TOC - ft.): 34.89
Depth Well Bottom (TOC - ft.): ——

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
12.89	8.15	244	32.6	5.74	+128.2	34.89	12:35	Cell
14.80	8.05	234	3.5	4.33	+95.6	34.96	12:55	4
14.83	8.04	233	1.8	4.37	+97.4	34.96	13:00	5
14.83	8.03	231	1.5	4.37	+97.6	34.98	13:05	6

Total Purged: 6L
Final DTW: 34.98
Total Drawdown: 0.09
Purge Pumping Rate (approx. mL/m): .24M
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / (Dedicated) / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/21/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/21/17
Time Sampled: 13:05
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW39S-20170321	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): JasonGrading Sampler Signature: Date Signed: 3/21/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW-40S

Field Personnel: JVG / WJM
Date: 3/21/17
Weather Conditions: Rain
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/21/17 10:35
Depth to Water (TOC - ft.): 48.70
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.44	8.34	243	19.2	3.99	+176.6	48.70	10:35	Cal
14.70	8.32	234	2.5	1.03	+166.4	49.02	10:55	4
14.76	8.33	234	2.5	0.99	+166.5	49.05	11:00	5
14.75	8.33	233	2.7	0.98	+166.1	49.03	11:05	6

Total Purged: 6L
Final DTW: 49.03
Total Drawdown: 0.25
Purge Pumping Rate (approx. mL/m): .24/M
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/21/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/21/17
Time Sampled: 3/21/17 11:05
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW40S-20170321	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/21/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-41S

Field Personnel: JVG / WJM
Date: 3/21/17
Weather Conditions: Rain
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/21/17 8:05
Depth to Water (TOC - ft.): 34.97
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.80	7.77	454	23.5	4.17	+229.0	34.97	8:05	cal
14.34	7.96	468	7.2	0.40	+213.1	34.99	8:25	4
14.34	7.93	468	7.2	0.35	+246.6	34.98	8:30	5
14.34	7.93	468	7.2	0.32	+246.2	35.02	8:35	6

Total Purged: 6L
Final DTW: 35.02
Total Drawdown: 0.05
Purge Pumping Rate (approx. mL/m): .24/1
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / (Dedicated) / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/21/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/21/17
Time Sampled: 8:35
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW41S-20170321	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/21/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW-423

Field Personnel: JVG / W.JM
Date: 3/15/17
Weather Conditions: OC
Approx. Air Temp (F): ~50

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 15:40
Depth to Water (TOC - ft.): 10.80
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.44	7.98	291	3.2	3.38	+220.4	10.80	15:40	cal
14.04	7.95	281	1.7	0.94	+180.5	10.89	15:55	3
14.00	7.95	279	1.7	0.89	+127.7	10.89	16:00	4
14.01	7.98	279	1.5	0.90	+127.5	10.90	16:05	5

Total Purged: 5 L
Final DTW: 10.90
Total Drawdown: 0.1

Purge Pumping Rate (approx. mL/m): .2 L/M
Approx. Pump/Intake Depth: screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/15/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17
Time Sampled: 3/15/17
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW423-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-01P

Field Personnel: JW / WJM
Date: 3/15/17
Weather Conditions: cc w/ some rain
Approx. Air Temp (F): ~ 50

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:		Casing Diameter (in.): 2"	
Casing Condition: (OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced	
Cap Condition: (OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired	
Paint Condition: (OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired	

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 16:20 | Depth to Water (TOC - ft.): 4.78
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
11.69	8.15	2333	15.6	9.17	+235	4.78	16:20	cal
12.15	7.95	2346	14.8	1.41	+285.4	4.91	16:35	3 3
12.14	7.95	2346	14.8	1.47	+285.7	4.91	16:40	4 4
12.14	7.95	2346	14.8	1.40	+285.8	4.91	16:45	5 5

Total Purged: 5L | Final DTW: 4.91 | Total Drawdown: 0.13

Purge Pumping Rate (approx. mL/m): ~ 2/4 | Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low | Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water | Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 | Instrument Calibration Date & Time: 3/15/17 7:00

Field Observations/Notes of Sampling Event: purge water had a slight yellow tint

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17 | Time Sampled: 16:45
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-01P-20170317	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	"	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner | Sampler Signature: | Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW13-01S

Field Personnel: JVG / WJM
Date: 3/15/17
Weather Conditions: OC - Rain
Approx. Air Temp (F): ~50

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition: (OK) / NA / Needs Repairs/Repaired
Lock Condition: OK / NA / Needs Repairs / Replaced
Cap Condition: (OK) / NA / Needs Repairs/Repaired
Inner Casing Condition: (OK) / NA / Needs Repairs / Repaired
Paint Condition: (OK) / NA / Needs Repairs/Repaired
Monument Condition: (OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 16:45
Depth to Water (TOC - ft.): 11.07
Depth Well Bottom (TOC - ft.): ←

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.42	8.19	399	1.3	3.65	+263.7	11.07	16:45	cell
13.59	8.14	327	1.2	3.54	+257.7	11.15	17:05	4
13.59	8.14	327	1.3	3.59	+256.9	11.13	17:10	5
13.59	8.14	327	1.3	3.51	+256.4	11.15	17:15	6

Total Purged: 6 L
Final DTW: 11.15
Total Drawdown: 0.08

Purge Pumping Rate (approx. mL/m): .2 .24/m
Approx. Pump/Intake Depth: screen
Well Yield: High / (Moderate) / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / (Bladder Pump) / Dedicated / Other =
Decontamination Method: Alconox / DI Water / DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/15/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17
Time Sampled: 17:15
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-01S-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/23/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-02P

Field Personnel: JV6/WJM **Date:** 3/16/17

Weather Conditions: clear **Approx. Air Temp (F):** ~50

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17 Depth to Water (TOC - ft.): 4.65

Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.60	7.08	926	8.3	0.98	+214.9	4.65	17:05	3
14.32	7.06	885	5.2	0.19	+196.3	4.67	17:25	4
14.37	7.06	884	5.2	0.18	+196.2	4.67	17:30	5
14.38	7.06	883	5.0	0.18	+196.1	4.67	17:35	6

Total Purged: 6L Final DTW: 4.67 Total Drawdown: 0.02

Purge Pumping Rate (approx. mL/m): .24M Approx. Pump/Intake Depth: Screen

Well Yield: High / (Moderate) / Low Sampling Technique: ~~low-flow~~ / low-yield

Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =

Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank

Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/16/17 17:35

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17 Time Sampled: 17:35

QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-02P-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES/(NO) If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice" unless otherwise noted: (YES) / NO

Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW13-029

Field Personnel: JVG / WJM
Date: 3/16/17
Weather Conditions: clear
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition: (OK) / NA / Needs Repairs/Repaired
Lock Condition: OK / NA / Needs Repairs / Replaced

Cap Condition: (OK) / NA / Needs Repairs/Repaired
Inner Casing Condition: (OK) / NA / Needs Repairs / Repaired

Paint Condition: (OK) / NA / Needs Repairs/Repaired
Monument Condition: (OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17
Depth to Water (TOC - ft.): 8.05
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.00	7.70	377	4.4	2.78	+153.1	8.05	17:45	cell
15.24	7.59	359	2.9	0.19	+123.5	8.16	18:05	4
15.23	7.59	359	2.9	0.18	+123.2	8.16	18:10	5
15.21	7.59	359	2.9	0.18	+121.8	8.16	18:15	6

Total Purged: 6L
Final DTW: 8.16
Total Drawdown: 0.11

Purge Pumping Rate (approx. mL/m): .24/m
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17
Time Sampled: 18:15

QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-029-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Carlisle
Sampler Signature:
Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-02A

Field Personnel: JNG/WM
Date: 3/20/17
Weather Conditions: OC
Approx. Air Temp (F): ~50

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel PVC CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/20/17
Depth to Water (TOC - ft.): 71.80
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.61	11.19	607	9.3	1.60	-116.4	71.80	13:15	cell
15.26	11.33	588	7.7	0.29	-169.9	72.14	13:35	4
15.26	11.32	588	8.1	0.24	-171.2	72.10	13:40	5
15.30	11.32	588	8.6	0.21	-171.0	72.08	13:45	6

Total Purged: 6L
Final DTW: 72.08
Total Drawdown: 1

Purge Pumping Rate (approx. mL/m): .24M
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/20/17 10:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/20/17
Time Sampled: 13:45 EB-03@13:05
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank #3 Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-02A-20170320	2	250/250 ml	Poly	NaOH/unpres.	Apex	EB#3	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex		Fluoride (SW846-9056); Sulfate (300.0)
EB03-20170320	2	250 ml		NaOH/unpres.			
"	1			unpres.			

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/20/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-03P

Field Personnel: JVG / WJM
Date: 3/21/17
Weather Conditions: RAIN
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel PVC CPVC Other:	Casing Diameter (in.):	
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/21/17 11:55 | Depth to Water (TOC - ft.): 4.54
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
12.48	7.79	324	16.8	4.02	+119.0	4.54	11:55	cell
12.75	7.76	331	1.7	0.94	+121.3	4.61	12:15	4
12.75	7.76	332	1.7	0.90	+121.6	4.61	12:20	5
12.74	7.76	332	1.7	0.91	+122.0	4.61	12:25	6

Total Purged: 6L | Final DTW: 4.61 | Total Drawdown: 0.01

Purge Pumping Rate (approx. mL/m): .24M | Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low | Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water | Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 | Instrument Calibration Date & Time: 3/21/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/21/17 | Time Sampled: 12:25
QA/QC Sample (circle one): DUP | Lab MS/MSD | Equip Blank | Trip Blank | None

Sample ID	Bottles (total)	(size)	(type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-03P-20170321	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / NO | If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier | Amec FW Delivery | UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner | Sampler Signature: [signature] | Date Signed: 3/21/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-04P

Field Personnel: JVG / WJM
Date: 3/21/17
Weather Conditions: RAIN
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/21/17 9:30
Depth to Water (TOC - ft.): 4.94
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
11.54	7.87	819	17.4	15.5	+236.0	4.94	9:30	Cell
12.32	7.86	835	8.3	0.74	+233.6	4.96	9:50	4
12.33	7.84	835	8.0	0.72	+233.2	4.98	9:55	5
12.33	7.84	835	7.2	0.72	+233.1	4.98	10:00	6

Total Purged: 6L
Final DTW: 4.98
Total Drawdown: 0.04

Purge Pumping Rate (approx. mL/m): 124M
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/21/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/21/17
Time Sampled: 10:00
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-04P-20170321	2	250/250 ml	Poly	NaOH/unpres.	Apex	No	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	No	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/21/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW13-05 ?

Field Personnel: JVG / WJM
Date: 3/15/17
Weather Conditions: OC
Approx. Air Temp (F): ~ 50

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17
Depth to Water (TOC - ft.): 3.55
Depth Well Bottom (TOC - ft.): ~

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
12.39	7.79	844	12.8	1.28	+231.2	3.55	15:10	cell
12.50	7.72	881	6.2	0.29	+283.3	3.69	15:30	4
12.52	7.60	882	6.2	0.26	+286.4	3.69	15:35	5
12.47	7.62	883	6.1	0.25	+286.4	3.69	15:40	6

Total Purged: 6L
Final DTW: 3.69
Total Drawdown: 0.14
Purge Pumping Rate (approx. mL/m): .24M
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other = ~
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/15/17

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17
Time Sampled: 15:40
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-052-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-06P

Field Personnel: JVG/WJM **Date:** 3/15/17

Weather Conditions: OC with some rain **Approx. Air Temp (F):** ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel PVC CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 11:30 Depth to Water (TOC - ft.): 4.70

Depth Well Bottom (TOC - ft.): ←

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.32	7.71	1483	16.4	1.20	+274.9	4.70	11:30	cell
12.55	7.68	1494	8.2	0.32	+297.0	4.78	11:50	4
12.55	7.68	1494	7.9	0.31	+296.8	4.78	11:55	5
12.54	7.68	1494	7.9	0.33	+296.2	4.78	12:00	6

Total Purged: 6L Final DTW: 4.70 Total Drawdown: 0.08

Purge Pumping Rate (approx. mL/m): .24M Approx. Pump/Intake Depth: Screen

Well Yield: High / (Moderate) / Low Sampling Technique: (low-flow) / low-yield

Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =

Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank

Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/15/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17 Time Sampled: 12:00

QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-06P-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES/NO If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO

Sample Transport (circle one): courier (Amec F/W Driver) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW13-06S

Field Personnel: JVG / WJM
Date: 3/15/17
Weather Conditions: OC
Approx. Air Temp (F): 48

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel PVC CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement:
Depth to Water (TOC - ft.):
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.85	7.87	819	6.6	4.51	+249.7	18.86	12:10	cell
14.55	7.81	791	7.1	1.95	+254.6	19.23	12:30	4
14.48	7.81	791	7.2	1.93	+254.0	19.15	12:35	5
14:46	7.81	791	6.9	1.91	+253.4	19.06	12:40	6

Total Purged:
Final DTW: 19.06
Total Drawdown: 0.21

Purge Pumping Rate (approx. ~~mL/m~~): High flow slowed to 0.2 L/m
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/15/17 0700

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17
Time Sampled: 12:40
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-06S-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	ND	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex		Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW13-06A

Field Personnel: JWG / WJM
Date: 3/15/17
Weather Conditions: OC
Approx. Air Temp (F): ~50

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 12:55 | Depth to Water (TOC - ft.): 50.01
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.45	11.69	1283	14.5	6.84	+53.8	50.01	12:55	cell
13.17	11.74	1489	9.9	5.97	+36.4	51.63	13:15	4
13.20	11.75	1501	9.9	5.90	+33.7	51.64	13:20	5
13.12	11.79	1504	9.9	5.92	+33.1	51.67	13:25	6

Total Purged: 6 | Final DTW: 51.67 | Total Drawdown: 1.66

Purge Pumping Rate (approx. mL/m): .24/M | Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low | Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / (Bladder Pump) / Dedicated / Other =
Decontamination Method: Alconox /DI Water /(DI Water) | Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 | Instrument Calibration Date & Time: 3/15/17

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17 | Time Sampled: EB02 = 12:50 ; MW13-06A-20150315 = 13:25
QA/QC Sample (circle one): (DUP) Lab MS/MSD (Equip Blank) Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-06A-20150315	2	250/250 ml	Poly	NaOH/unpres.	Apex	YES	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	"	Fluoride (SW846-9056); Sulfate (300.0)
EB02-20170315	2	↓	↓	NaOH/unpres.	↓	EB02	" "
"	1			None		"	" "
DUP03-20170315	2			NaOH/unpres.		DUP03	" "
"	1			None		"	" "

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner | Sampler Signature: | Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-07P

Field Personnel: JWG/WJM **Date:** 3/15/17
Weather Conditions: OC w/ some rain **Approx. Air Temp (F):** ~50

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel PVC CPVC Other: Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 Depth to Water (TOC - ft.): 6.56 * under pressure
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.36	8.87	2019	7.7	0.99	+208.2	6.56*	14:30	cell
13.20	8.86	2336	7.7	0.09	+209.1	6.74*	14:50	4
13.18	8.85	2336	7.7	0.09	+209.3	6.77*	14:55	5
13.16	8.85	2337	7.5	0.10	+209.2	6.77*	15:00	6

Total Purged: 6L Final DTW: 6.77 * Total Drawdown: 0.21 *

Purge Pumping Rate (~~approx. mL/m~~): .24 Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/15/17 7:00

Field Observations/Notes of Sampling Event: Purge water has a slight yellow hue.

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17 Time Sampled: 15:00
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
~~MW13-07P~~ JG ↑	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
MW13-07P-20170315	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner Sampler Signature: Jason Gardner Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-0BP

Field Personnel: JVG | WJM
Date: 3/16/17
Weather Conditions: clear
Approx. Air Temp (F): ~55-

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17 | Depth to Water (TOC - ft.): 4.96
Depth Well Bottom (TOC - ft.): ____

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.17	7.79	1921	4.9	1.55	+210.9	4.96	16:25	0
14.64	7.69	1925	3.7	0.17	+254.0	5.03	16:45	4
14.62	7.67	1925	3.5	0.16	+253.4	5.03	16:50	5
14.57	7.67	1927	3.1	0.18	+252.9	5.03	16:55	6

Total Purged: 6L | Final DTW: 5.03 | Total Drawdown: 0.07

Purge Pumping Rate (approx. mL/m): ~250 mL/m | Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / (Low) | Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water | Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 | Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17 | Time Sampled: 16:55
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-0BP-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
	"	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner | Sampler Signature: [signature] | Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-085

Field Personnel: JVG / WJM
Date: 3/16/17
Weather Conditions: Clear
Approx. Air Temp (F): ~55

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17
Depth to Water (TOC - ft.): 25.07
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
16.52	7.71	1054	1.8	0.71	-15.3	25.07	15:50	ceil
16.85	7.75	1055	1.0	0.34	-28.9	25.10	16:10	4
16.85	7.75	1055	1.0	0.34	-29.7	25.10	16:15	5
16.85	7.75	1055	1.0	0.33	-30.6	25.10	16:20	6

Total Purged: 6L
Final DTW: 25.10
Total Drawdown: 0.03

Purge Pumping Rate (approx. mL/m): ~2L/m
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17
Time Sampled: 16:20
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-085-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW/Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/16/17

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GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-10P

Field Personnel: JVG/WJM
Date: 3/15/17
Weather Conditions: OC
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17
Depth to Water (TOC - ft.): 6.06
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
12.15	7.43	824	3.2	3.14	+54.2	6.08	8:45	Cal
11.64	7.42	697	3.8	3.52	+63.3	6.14	9:05	4
11.62	7.42	694	3.7	3.60	+64.7	6.14	9:10	5
11.61	7.42	694	3.7	3.59	+64.5	6.14	9:15	6

Total Purged: 6L
Final DTW: 6.14
Total Drawdown: 0.06

Purge Pumping Rate (approx. mL/m): .25/m
Approx. Pump/Intake Depth: Screen
Well Yield: High (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/15/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17
Time Sampled: 9:15
QA/QC Sample (circle one): DUP (Lab MS/MSD) Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-10P-20170315	6	250/250 ml	Poly	NaOH/unpres.	Apex	MS/MSD	Total CN (335.4); WAD CN (SM4500)
"	3	500 ml	Poly	None	Apex	"	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gordon
Sampler Signature:
Date Signed: 3/15/17

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GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-115

Field Personnel: JVG/WJM
Date: 3/15/17
Weather Conditions: OC
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2

Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17
Depth to Water (TOC - ft.): 5.60
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.20	7.85	580	1.7	0.91	+35.3	5.60	8:05	3
12.97	7.85	581	1.1	0.17	-13.9	5.69	8:25	4
12.97	7.85	581	1.1	0.17	-14.3	5.69	8:30	5
12.97	7.85	581	1.0	0.17	-14.8	5.69	8:35	6

Total Purged: 6L
Final DTW: 5.69
Total Drawdown: 0.09

Purge Pumping Rate (approx. mL/m): .2 LPM
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: (low-flow) low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/15/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17
Time Sampled: 8:35
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-115-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES) / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Croche
Sampler Signature:
Date Signed: 3/15/17

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GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-12P

Field Personnel: JVG / WM
Date: 3/15/17
Weather Conditions: OC
Approx. Air Temp (F): ~40

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 9:50
Depth to Water (TOC - ft.): 8.87
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
12.49	7.49	469	18.5	3.65	+101.2	8.87	9:50	Cal
12.87	6.94	359	7.9	3.94	+132.4	9.02	10:10	4
12.84	6.94	361	7.9	3.92	+132.2	9.02	10:15	5
12.84	6.94	361	7.6	3.90	+133.5	9.02	10:20	6

Total Purged: 6L
Final DTW: 9.02
Total Drawdown: 9.02 − 8.87 = 0.15

Purge Pumping Rate (approx. mL/m): .24/M
Approx. Pump/Intake Depth: 16
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox / DI Water / DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/15/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17
Time Sampled: 10:20
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-12P-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/15/17

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GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-13S

Field Personnel: JVG/WJM **Date:** 3/14/17
Weather Conditions: RAN **Approx. Air Temp (F):** ~45

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel PVC CPVC Other: Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 16:30 Depth to Water (TOC - ft.): 7.80
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.59	7.60	540	7.5	2.56	+167.3	7.80	16:30	cey
14.85	7.85	553	6.4	1.09	+160.4	7.95	16:50	4
14.83	7.87	553	6.4	1.05	+159.7	7.95	16:55	5
14.81	7.89	554	6.4	1.10	+159.6	7.95	17:00	6

Total Purged: 6L Final DTW: 7.95 Total Drawdown: 0.15
Purge Pumping Rate (~~approx. mL/m~~): .24/M Approx. Pump/Intake Depth: screen
Well Yield: High / Moderate / Low Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17 Time Sampled: 17:00
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-13S-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-145L

Field Personnel:	VG / WM	**Date:**	3/16/17
Weather Conditions:	Clear	**Approx. Air Temp (F):**	~55

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement:	3/16/17	Depth to Water (TOC - ft.):	5.47
Depth Well Bottom (TOC - ft.):	—		

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.89	7.42	1926	15.5	1.83	-145.6	5.47	14:50	Cell
13.35	7.16	1314	9.8	0.98	-105.8	5.62	15:20	4
13.34	7.16	1310	9.8	0.95	-106.3	5.62	15:26	5
13.34	7.16	1309	9.8	1.07	-100.5	5.62	15:30	6

Total Purged:	6L	Final DTW:	5.62	Total Drawdown:	0.17

Purge Pumping Rate (approx. mL/m): ~2 L/M Approx. Pump/Intake Depth: screen

Well Yield: High / Moderate / Low Sampling Technique: low-flow / low-yield

Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =

Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank

Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17 Time Sampled: 15:30

QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-145L-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES/(NO) If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES) / NO

Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-165

Field Personnel: JVG / WJM
Date: 3/15/17
Weather Conditions: overcast
Approx. Air Temp (F): ~38

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/15/17 07:20
Depth to Water (TOC - ft.): 33.09
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
11.94	7.86	471	116	1.04	-279	33.09	07:20	cal
11.86	7.79	584	19.2	0.42	-31.6	33.22	07:40	4
11.84	7.79	587	17.1	0.40	-31.5	33.24	07:45	5
11.81	7.79	587	17.6	0.37	-33.4	33.24	07:50	6

Total Purged: 6 L
Final DTW: 33.24
Total Drawdown: 0.15
Purge Pumping Rate (approx. mL/m): .24M
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / (Bladder Pump) / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/15/17 07:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/15/17
Time Sampled: 07:50
QA/QC Sample (circle one): DUP Lab MS/MSD (Equip Blank) Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-165-20170315	2	250/250 ml	Poly	NaOH/unpres.	Apex	EB-01	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	EB-01	Fluoride (SW846-9056); Sulfate (300.0)
EB-01-20170315	2	250	↓	NaOH/unp	↓	↓	→
	1	"	↓	unp	↓	↓	←

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES) / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/15/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW13-15SL

Field Personnel: SVG/WM
Date: 3/16/17
Weather Conditions: Clear
Approx. Air Temp (F): ~55

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17
Depth to Water (TOC - ft.): 4.44
Depth Well Bottom (TOC - ft.):

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
10.82	9.16	3514	7.0	3.43	+204.8	4.44	14:10	Cell
10.69	7.36	3570	1.4	2.28	+194.0	4.60	14:30	4
10.68	7.36	3570	1.4	2.28	+194.0	4.60	14:35	5
10.69	7.36	3570	1.4	2.28	+193.8	4.60	14:40	6

Total Purged: Cal
Final DTW: 4.60
Total Drawdown: 4.56 0.16
Purge Pumping Rate (approx. mL/m): 124M
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17
Time Sampled: 14:40
QA/QC Sample (circle one): (DUP) Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW13-15SL-20170316	2	250/250 ml	Poly	NaOH/unpres.	Apex	DUP5	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex		Fluoride (SW846-9056); Sulfate (300.0)
DUP5-20170316	2	250 ml	"	NaOH/unpres	"	"	"
"	1	"	"	unpres	"	"	"

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/(NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES / NO)
Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gonder
Sampler Signature:
Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW15-17SL

Field Personnel: JVG / WJM **Date:** 3/16/17
Weather Conditions: clear **Approx. Air Temp (F):** ~40

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel PVC CPVC Other: Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 8:40 3/16/17 Depth to Water (TOC - ft.): 10.60
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.63	7.53	695	10.7	2.98	+156.9	10.60	8:40	cey
15.27	7.40	696	4.9	1.27	+209.2	10.69	9:00	4
15.25	7.40	697	4.9	1.30	+209.7	10.69	9:05	5
15.27	7.40	697	4.9	1.24	+210.3	10.69	9:10	6

Total Purged: 6L Final DTW: 10.69 Total Drawdown: 0.09

Purge Pumping Rate (approx. mL/m): .24M Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank
Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17 Time Sampled: 9:10
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW15-17SL-20170316	6	250/250 ml	Poly	NaOH/unpres.	Apex	MS/MSD	Total CN (335.4); WAD CN (SM4500)
"	3	500 ml	Poly	None	Apex	"	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES/NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner Sampler Signature: [signature] Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW15-18P

Field Personnel: JVG / WJM
Date: 3/14/17
Weather Conditions: RCln
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel PVC CPVC Other:	Casing Diameter (in.):	
Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	OK / NA / Needs Repairs/Repaired	Inner Casing Condition:	OK / NA / Needs Repairs / Repaired
Paint Condition:	OK / NA / Needs Repairs/Repaired	Monument Condition:	OK / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 15:[illegible]
Depth to Water (TOC - ft.):
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
14.46	7.18	363	4.8	1.85	+173.6	7.44	15:50	cell
14.53	7.13	360	2.1	1.28	+174.7	7.62	16:10	4
14.51	7.13	360	2.0	1.23	+174.7	7.62	16:15	5
14.50	7.13	360	1.8	1.20	+174.7	7.62	16:20	6

Total Purged:
Final DTW:
Total Drawdown:

Purge Pumping Rate (approx. mL/m): .24M
Approx. Pump/Intake Depth: Screen
Well Yield: High / Moderate / Low
Sampling Technique: low-flow / low-yield
Purge/Sampling Method: Disposable Bailer / Peristaltic Pump / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17
Time Sampled: 16:20
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank None

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW15-18P20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	DUP	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	DUP	Fluoride (SW846-9056); Sulfate (300.0)
DUP2-20170314	2	250ml	Poly	NaOH/unpr			"
"	1	"	"	unpr			"

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES / NO If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted YES / NO
Sample Transport (circle one): courier Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gortcher Sampler Signature: Date Signed: 3/14/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13

Monitoring Well ID: MW 15-19 SL

Field Personnel: JVG / WM **Date:** 3/16/17

Weather Conditions: Clear **Approx. Air Temp (F):** ~50

WELL CONDITION

Casing (circle one):	Stainless Steel Carbon Steel (PVC) CPVC Other:	Casing Diameter (in.):	2"
Casing Condition:	(OK) / NA / Needs Repairs/Repaired	Lock Condition:	(OK) / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/16/17 Depth to Water (TOC - ft.): 11.45

Depth Well Bottom (TOC - ft.): ✓

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
15.91	7.75	520	1.2	1.96	+47.2	11.45	9:30	cell
15.89	7.72	519	0.9	1.89	+69.0	11.49	9:50	4
15.91	7.72	519	0.9	1.90	+69.1	11.49	9:55	5
15.93	7.72	518	0.9	1.89	+69.4	11.49	10:00	6

Total Purged: 6L Final DTW: 11.49 Total Drawdown: 0.04

Purge Pumping Rate (approx. mL/m): .24/M Approx. Pump/Intake Depth: Screen

Well Yield: High / (Moderate) / Low Sampling Technique: (low-flow) / low-yield

Purge/Sampling Method: Disposable Bailer / (Peristaltic Pump) / Bladder Pump / Dedicated / Other =

Decontamination Method: Alconox /DI Water /DI Water Water Disposal: Storage Tank

Instrument Type & Number: YSI 556 Instrument Calibration Date & Time: 3/16/17 7:00

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/16/17 Time Sampled: 10:00

QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW15-19SL-20160316	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES (NO) If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO

Sample Transport (circle one): courier (Amec FW Delivery) UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/16/17

amec foster wheeler

GROUNDWATER SAMPLING FIELD FORM

Lockheed Martin - The Dalles
Job #: 661M129556.13
Monitoring Well ID: MW-15-20P

Field Personnel: JVG / WJM
Date: 3/14/17
Weather Conditions: Rain
Approx. Air Temp (F): ~45

WELL CONDITION

Casing (circle one): Stainless Steel Carbon Steel (PVC) CPVC Other:
Casing Diameter (in.): 2"

Casing Condition:	OK / NA / Needs Repairs/Repaired	Lock Condition:	OK / NA / Needs Repairs / Replaced
Cap Condition:	(OK) / NA / Needs Repairs/Repaired	Inner Casing Condition:	(OK) / NA / Needs Repairs / Repaired
Paint Condition:	(OK) / NA / Needs Repairs/Repaired	Monument Condition:	(OK) / NA / Needs Repairs / Repaired

Recommended Well Repairs/Additional Notes:

INITIAL WELL DATA

Date/Time of Measurement: 3/14/17 15:45
Depth to Water (TOC - ft.): 11.80
Depth Well Bottom (TOC - ft.): —

WELL PURGING INFORMATION

Water Temperature (degree C)	pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen ug/L mg/L	ORP (mV)	DTW (ft TOC)	Time (00:00 - 23:59)	Volume Purged (liters)
13.71	7.56	270	0.9	5.65	+173.4	11.80	15:05	cell
13.54	7.49	259	0.9	6.02	+179.5	11.89	15:25	4
13.55	7.48	258	0.9	6.05	+179.4	11.89	15:30	5
13.52	7.48	259	0.9	6.01	+179.1	11.89	15:35	6

Total Purged: 6L
Final DTW: 11.89
Total Drawdown: 0.09

Purge Pumping Rate (approx. mL/m): .2 L/M
Approx. Pump/Intake Depth: Screen
Well Yield: High / (Moderate) / Low
Sampling Technique: (low-flow) / low-yield
Purge/Sampling Method: Disposable Bailer / ~~Peristaltic Pump~~ / Bladder Pump / Dedicated / Other =
Decontamination Method: Alconox /DI Water /DI Water
Water Disposal: Storage Tank
Instrument Type & Number: YSI 556
Instrument Calibration Date & Time: 3/14/17 7:30

Field Observations/Notes of Sampling Event:

SAMPLING INFORMATION / DATA

Date Sampled: 3/14/17
Time Sampled: 15:35
QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank (None)

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MW15-20P-20170314	2	250/250 ml	Poly	NaOH/unpres.	Apex	NO	Total CN (335.4); WAD CN (SM4500)
"	1	500 ml	Poly	None	Apex	NO	Fluoride (SW846-9056); Sulfate (300.0)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.
Color change observed? YES (NO) If YES, which strip?
All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted (YES) / NO
Sample Transport (circle one): (Courier) Amec FW Delivery UPS/Fed Ex/USPS

CERTIFICATION STATEMENT

By signing below, the listed AMEC sampler states that the information provided on this page is accurate.
Sampler (Print): Jason Gardner
Sampler Signature:
Date Signed: 3/

amec foster wheeler

Amec Foster Wheeler
SAMPLING FIELD FORM
CERCLA Liftstations / Manholes

Project Name:	LMC- The Dalles OMM
Project #:	661M129556.01
Location ID:	LS-1
Site ID:	LMC THE DALLES

Field Personnel: JVG/M2JM Date: 3/13/17

Weather Conditions: Mostly Cloudy Approx. Air Temp (F): ~50°

Field Parameters (YSI 556)

Time (0:00 - 23:59)	Water Temperature (degree C)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	ORP (mV)	Tubidity (NTU)
1500	14.05	864	6.94	7.36	+253.3	0.9

QA/QC Sample (circle one): (None) DUP Lab MS/MSD Equip Blank Trip Blank Interlaboratory Split

Sample ID	Bottles (total)	(size)	(type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
LS1-20170313	1	500 ml	Poly	None	Apex	No	Fluoride (SW-846-9056) and Sulfate (EPA-300)
	1	250/250r	Poly	NaOH/Unpres	Apex	No	WAD Cyanide (SM 4500-CN I/E or EPA 335.4M) and Total Cyanide (EPA 335A)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES / (NO) If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO

Sample Transport (circle one): (courier) Amec Foster Wheeler Delivery UPS/Fed Ex/USPS

SAMPLING INFORMATION / DATA

Field Observations/Notes of Sampling Event:

CERTIFICATION STATEMENT

By signing below, the listed Amec Foster Wheeler sampler states that the information provided on this page is accurate.

Sampler (Print): GREG STEELMAN Sampler Signature: Greg Steelman for JVG Date Signed: 3/28/17

* Data transferred from GW Sampling Form.

amec foster wheeler

Amec Foster Wheeler
SAMPLING FIELD FORM
CERCLA Liftstations / Manholes

Project Name:	LMC- The Dalles OMM
Project #:	661M129556.01
Location ID:	LS-2
Site ID:	LMC The Dalles

Field Personnel: JVG/WJM Date: 3/13/17

Weather Conditions: overcast Approx. Air Temp (F): 50

Field Parameters (YSI 556)

Time (0:00 - 23:59)	Water Temperature (degree C)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	ORP (mV)	Tubidity (NTU)
15:10	13.84	1015	8.10	7.60	+292.3	1.02

QA/QC Sample (circle one): (NONE) DUP Lab MS/MSD Equip Blank Trip Blank Interlaboratory Split

Sample ID	Bottles (total)	(size)	(type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
LS2-20170313	1	500 ml	Poly	None	Apex	NO	Fluoride (SW-846-9056) and Sulfate (EPA-300)
"	1	250/250r	Poly	NaOH/Unpres	Apex	NO	WAD Cyanide (SM 4500-CN I/E or EPA 335.4M) and Total Cyanide (EPA 335A)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES / (NO) If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO

Sample Transport (circle one): (courier) Amec Foster Wheeler Delivery UPS/Fed Ex/USPS

SAMPLING INFORMATION / DATA

Field Observations/Notes of Sampling Event:

CERTIFICATION STATEMENT

By signing below, the listed Amec Foster Wheeler sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/13/17

amec foster wheeler

Amec Foster Wheeler
SAMPLING FIELD FORM
CERCLA Liftstations / Manholes

Project Name:	LMC- The Dalles OMM
Project #:	661M129556.01
Location ID:	MH-2
Site ID:	

Field Personnel: JVG / WJM Date: 3/13/17

Weather Conditions: overcast Approx. Air Temp (F): ~50

Field Parameters (YSI 556)

Time (0:00 - 23:59)	Water Temperature (degree C)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	ORP (mV)	Tubidity (NTU)
15:50	12.09	616	6.88	7.74	+260.4	68.4

QA/QC Sample (circle one): DUP Lab MS/MSD Equip Blank Trip Blank Interlaboratory Split

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MH2-20170313-0356	1	500 ml	Poly	None	Apex		Fluoride (SW-846-9056) and Sulfate (EPA-300)
	1	250/250r	Poly	NaOH/Unpres	Apex		WAD Cyanide (SM 4500-CN I/E or EPA 335.4M) and Total Cyanide (EPA 335A)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES / (NO) If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: (YES) / NO

Sample Transport (circle one): courier Amec Foster Wheeler Delivery UPS/Fed Ex/USPS

SAMPLING INFORMATION / DATA

Field Observations/Notes of Sampling Event:

CERTIFICATION STATEMENT

By signing below, the listed Amec Foster Wheeler sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/13/17

amec foster wheeler

Amec Foster Wheeler
SAMPLING FIELD FORM
CERCLA Liftstations / Manholes

Project Name:	LMC- The Dalles OMM
Project #:	661M129556.01
Location ID:	MH 4
Site ID:	LMC - The Dalles

Field Personnel: JVG / w JM Date : 3/13/17

Weather Conditions: Overcast Approx. Air Temp (F): ~50

Field Parameters (YSI 556)

Time (0:00 - 23:59)	Water Temperature (degree C)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH (S.U.)	ORP (mV)	Tubidity (NTU)
1530	13.61	1233	7.77	8.09	294.5	0.9

QA/QC Sample (circle one): NA DUP Lab MS/MSD Equip Blank Trip Blank Interlaboratory Split

Sample ID	Bottles (total)	Bottles (size)	Bottles (type)	Preservative	Destination Laboratory	QA/QC Sample	Analytical Parameters
MH4-20170313	1	500 ml	Poly	None	Apex	NO	Fluoride (SW-846-9056) and Sulfate (EPA-300)
"	1	250/250n	Poly	NaOH/Unpres	Apex	NO	WAD Cyanide (SM 4500-CN I/E or EPA 335.4M) and Total Cyanide (EPA 335A)

Field Testing

Cyanide interference testing: If color change is observed on either test strip **contact the PM immediately** as sample will require RUSH analysis.

Color change observed? YES / NO If YES, which strip?

All samples were immediately placed into a cooler and packed with ice or "Blue Ice", unless otherwise noted: YES / NO

Sample Transport (circle one): courier Amec Foster Wheeler Delivery UPS/Fed Ex/USPS

SAMPLING INFORMATION / DATA

Field Observations/Notes of Sampling Event:

CERTIFICATION STATEMENT

By signing below, the listed Amec Foster Wheeler sampler states that the information provided on this page is accurate.

Sampler (Print): Jason Gardner Sampler Signature: Date Signed: 3/13/17

APPENDIX E

Data Validation Reports

DATA VALIDATION CHECKLIST

Project Information			
Project Name:	Lockheed Martin	Lab Name:	Apex Labs
Project Number:	661M129556 PHASE 16	Lab Report Number:	A7C0467
Reviewer's Signature:	Nathalie Perry-Freer	Number of Samples:	18
Review Date:	April 12, 2017	Matrix:	Groundwater

Field Sample Identification	Collection Date	Laboratory Sample Identification
LS-1	3/13/17	A7C0467-01
LS-2	3/13/17	A7C0467-02
MH2	3/13/17	A7C0467-03
MH4	3/13/17	A7C0467-04
MW13-13S	3/14/17	A7C0467-05
MW15-18P	3/14/17	A7C0467-06
MW15-20P	3/14/17	A7C0467-07
MWR-4S	3/14/17	A7C0467-08
MW-3S	3/14/17	A7C0467-09
MS-17S	3/14/17	A7C0467-10
MW-35S	3/14/17	A7C0467-11
MW-23S	3/14/17	A7C0467-12
MW-36S	3/14/17	A7C0467-13
MW-5S	3/14/17	A7C0467-14
MW-22S	3/14/17	A7C0467-15
MW-37S	3/14/17	A7C0467-16
DUP01	3/14/17	A7C0467-17
DUP02	3/14/17	A7C0467-18

DEFINITIONS OF QUALIFIERS THAT MAY BE ADDED DURING DATA QUALITY REVIEW

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Assessment Summary - General Chemistry

Using the codes O, M, R, and X described below, complete the table for a single quality control batch or sample delivery group. Identify comments by means of a footnote, e.g. X(2), and describe in the space provided.

Method/Analyte:	Sulfate	Fluoride	Total Cyanide	WAD Cyanide
Method Number:	EPA 300.0	EPA 300.0	EPA 335.4	SM 4500-CN-E EPA 335.4M
Preservation:	≤ 6℃	≤ 6℃	pH ≥ 12, ≤ 6℃	pH ≥ 12, ≤ 6℃
Maximum Hold Time:	28 days	28 days	14 days	14 days
Reporting Limits (mg/L):	1	0.1	0.005	0.005
1. Preservation/hold times	O	O	O	O
2. Reporting Limits	**X[1]**	O	**X[2]**	**X[3]**
3. Initial Calibration (r ≥ 0.995)	O	O	O	O
4. Initial Calibration Verification (90% - 110%)	O	O	O	O
5. Continuing Calibration Verification (90%-110%)	O	O	O	O
6. Field Blanks (no detections > reporting limits)	NA	NA	NA	NA
7. Laboratory and Calibration Blanks (no detections > reporting limits)	O	O	O	O
8. Laboratory Control Sample accuracy (75% - 125%)	O	O	O	O
9. Laboratory Control Sample Precision (≤ 25%)	NA	NA	NA	NA
10. Laboratory Duplicate Precision (≤ 25%)	O	O	O	O
11. Matrix Spike Accuracy (75% - 125%)	O	O	O	O
12. Matrix Spike Precision (≤ 25%)	O	O	O	O
13. Field Duplicate Precision (≤ 40%)	O	O	O	O

Assessment Codes:

O = No quality controls (QC) problems were identified for these criteria.

M = The results are qualified due to QC problems. The quantitative results will be qualified with a QC flag indicating that the results are estimated due to error greater than specified in the method.

R = The results are unacceptable due to gross QC problems. The results will be qualified as rejected (R).

X = QC problems were identified, but they do not affect the results, or the reviewer is not certain of the effect on the results.

NA = Supporting documentation or data is not present in the laboratory data package.

-- = Parameter is not appropriate for this analysis.

Assessment Code	Description	Action Required
X[1]	Sulfate reporting limits were elevated for samples LS-1, LS-2, MH2, MH4, MW13-13S, MWR-4S, MW-35S, MW-36S, MW-5S, and MW-22S due to 5 to 10-fold dilutions.	Sulfate was detected above the elevated reporting limit in all of the affected samples. Additionally, the undiluted reporting limit for sulfate was 1.0 mg/L, and data usability is not adversely affected by the elevated limits for the diluted samples.
X[2]	Total cyanide reporting limits were elevated for samples LS-1, LS-2, MH2, and MH4 due to 10 to 100-fold dilutions.	Total cyanide was detected at concentrations above the reporting limit in all of the affected samples. Additionally, the undiluted reporting limit for total cyanide was 0.00500 mg/L, and data usability is not adversely affected by the elevated limits for the diluted samples.
X[3]	The WAD cyanide reporting limit for sample MH2 was elevated due to a 10-fold dilution.	WAD cyanide was detected at a concentration above the reporting limit in the affected sample. Additionally, the undiluted reporting limit for WAD cyanide was 0.00500 mg/L, and data usability is not adversely affected by the elevated limits for the diluted sample.

Field Duplicate Detections

Analyte	Average Reporting Limit	Primary Concentration	Field Duplicate Concentration	RPD	Notes
Samples MW-37S and DUP01					
Sulfate	3.5 mg/L	6.31	6.21	2%	
Fluoride	0.1 mg/L	3.55	3.59	1%	
Samples MW15-18P and DUP02					
Sulfate	3.5 mg/L	14.3	18.5	26%	
Fluoride	0.1 mg/L	14.5	14.4	1%	

Notes:
mg/L = milligrams per liter

DATA VALIDATION CHECKLIST

Project Information			
Project Name:	Lockheed Martin	Lab Name:	Apex Labs
Project Number:	661M129556 PHASE 16	Lab Report Number:	A7C0581
Reviewer's Signature:	Nathalie Perry-Freer	Number of Samples:	33
Review Date:	April 12, 2017	Matrix:	Groundwater

Field Sample Identification	Collection Date	Laboratory Sample Identification
MW13-10P	03/15/17	A7C0581-01
MW-42S	03/15/17	A7C0581-02
MWR-15S	03/15/17	A7C0581-03
MW13-16S	03/15/17	A7C0581-04
MW13-01P	03/15/17	A7C0581-05
MW13-12P	03/15/17	A7C0581-06
MW13-06S	03/15/17	A7C0581-07
MW13-06P	03/15/17	A7C0581-08
MW13-07P	03/15/17	A7C0581-09
MW13-06A	03/15/17	A7C0581-10
MW13-01S	03/15/17	A7C0581-11
MW13-11S	03/15/17	A7C0581-12
MW13-05P	03/15/17	A7C0581-13
MWR-27S	03/15/17	A7C0581-14
EB01	03/15/17	A7C0581-15
EB02	03/15/17	A7C0581-16
DUP03	03/15/17	A7C0581-17
MWR-29S	03/16/17	A7C0581-18
MW-26S	03/16/17	A7C0581-19
MW-29S	03/16/17	A7C0581-20
MW15-17SL	03/16/17	A7C0581-21
MW13-08S	03/16/17	A7C0581-22
MW13-08P	03/16/17	A7C0581-23
MW15-19SL	03/16/17	A7C0581-24
MW13-15SL	03/16/17	A7C0581-25
MW-5	03/16/17	A7C0581-26
MW13-02S	03/16/17	A7C0581-27
MW13-02P	03/16/17	A7C0581-28
MW13-14SL	03/16/17	A7C0581-29
MW-6AA	03/16/17	A7C0581-30
MW-38S	03/16/17	A7C0581-31
DUP04	03/16/17	A7C0581-32
DUP05	03/16/17	A7C0581-33

DEFINITIONS OF QUALIFIERS THAT MAY BE ADDED DURING DATA QUALITY REVIEW

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J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

	Assessment Summary - General Chemistry			
	Using the codes O, M, R, and X described below, complete the table for a single quality control batch or sample delivery group. Identify comments by means of a footnote, e.g. X(2), and describe in the space provided.			
Method/Analyte:	Sulfate	Fluoride	Total Cyanide	WAD Cyanide
Method Number:	EPA 300.0	EPA 300.0	EPA 335.4	SM 4500-CN-E EPA 335.4M
Preservation:	≤ 6℃	≤ 6℃	pH ≥ 12, ≤ 6℃	pH ≥ 12, ≤ 6℃
Maximum Hold Time:	28 days	28 days	14 days	14 days
Reporting Limits (mg/L):	1	0.1	0.005	0.005
1. Preservation/hold times	O	O	O	O
2. Reporting Limits	**X[1]**	**X[2]**	**X[3]**	**X[4]**
3. Initial Calibration (r ≥ 0.995)	O	O	O	O
4. Initial Calibration Verification (90% - 110%)	O	O	O	O
5. Continuing Calibration Verification (90%-110%)	O	O	O	O
6. Field Blanks (no detections > reporting limits)	O	O	O	O
7. Laboratory and Calibration Blanks (no detections > reporting limits)	O	O	O	O
8. Laboratory Control Sample accuracy (75% - 125%)	O	O	O	O
9. Laboratory Control Sample Precision (≤ 25%)	NA	NA	NA	NA
10. Laboratory Duplicate Precision (≤ 25%)	O	O	O	O
11. Matrix Spike Accuracy (75% - 125%)	O	O	O	O
12. Matrix Spike Precision (≤ 25%)	O	O	O	O
13. Field Duplicate Precision (≤ 40%)	O	O	O	O

	Assessment Codes: O = No quality controls (QC) problems were identified for these criteria.
	M = The results are qualified due to QC problems. The quantitative results will be qualified with a QC flag indicating that the results are estimated due to error greater than specified in the method.
	R = The results are unacceptable due to gross QC problems. The results will be qualified as rejected (R).
	X = QC problems were identified, but they do not affect the results, or the reviewer is not certain of the effect on the results.
	NA = Supporting documentation or data is not present in the laboratory data package.
	-- = Parameter is not appropriate for this analysis.

Assessment Code	Description	Action Required
X[1]	Sulfate reporting limits were elevated for samples MW13-10P, MWR-15S, MW13-16S, MW13-01P, MW13-12P, MW13-06S, MW13-06P, MW13-07P, MW13-06A, MW13-01S, MW13-11S, MW13-05P, MWR-27S, DUP03, MWR-29S, MW-29S, MW15-17SL, MW13-08S, MW13-08P, MW15-19SL, MW13-15SL, MW-5, MW13-02P, MW13-14SL, DUP04, and DUP05 due to 5 to 50-fold dilutions.	Sulfate was detected above the elevated reporting limit in all of the affected samples. Additionally, the undiluted reporting limit for sulfate was 1.0 mg/L, and data usability is not adversely affected by the elevated limits for the diluted samples.
X[2]	Fluoride reporting limits were elevated for samples MW13-07P and MW13-14SL due to 5 to 10-fold dilutions.	Fluoride was detected at concentrations above the reporting limit in all of the affected samples. Additionally, the undiluted reporting limit for fluoride was 0.100 mg/L, and data usability is not adversely affected by the elevated limits for the diluted samples.
X[3]	Total cyanide reporting limits were elevated for samples MWR-15S, MW13-01P, MW13-06S, MW13-06P, MW13-07P, MW13-06A, MW13-05P, MWR-27S, DUP03, MW13-08S, MW13-08P, and MW-6AA due to 10 to 1,000-fold dilutions.	Total cyanide was detected at concentrations above the reporting limit in all of the affected samples. Additionally, the undiluted reporting limit for total cyanide was 0.00500 mg/L, and data usability is not adversely affected by the elevated limits for the diluted samples.
X[4]	The WAD cyanide reporting limit was elevated for sample MW13-01P due to a 10-fold dilution.	WAD cyanide was detected at a concentration above the reporting limit in the affected sample. The undiluted reporting limit for WAD cyanide was 0.00500 mg/L, and data usability is not adversely affected by the elevated limit for the diluted sample.

Field Duplicate Detections				
Analyte	Average Reporting Limit	Primary Concentration	Field Duplicate Concentration	RPD	Notes
Samples MW13-06A and DUP03					
Sulfate	10.09 mg/L	60.5 mg/L	60.7 mg/L	0.3%	
Fluoride	0.139 mg/L	0.822 mg/L	0.570 mg/L	36.2%	
Total Cyanide	0.198 mg/L	0.795 mg/L	0.731 mg/L	8.39%	
WAD Cyanide	0.006 mg/L	0.0109 mg/L	0.0149 mg/L	31.0%	
Samples MW-5 and DUP04					
Sulfate	10.09 mg/L	42.1 mg/L	41.1 mg/L	2.40%	
Fluoride	0.139 mg/L	0.485 mg/L	0.492 mg/L	1.43%	
Samples MW13-15SL and DUP05					
Sulfate	10.09 mg/L	1240 mg/L	1250 mg/L	0.80%	
Fluoride	0.139 mg/L	3.65 mg/L	3.63 mg/L	0.55%	
Total Cyanide	0.198 mg/L	0.0164 mg/L	0.0159 mg/L	3.10%	

Notes:
mg/L = milligrams per liter
FD = Field duplicate imprecision. The analytical results are considered quantitatively uncertain.

DATA VALIDATION CHECKLIST

Project Information			
Project Name:	Lockheed Martin	Lab Name:	Apex Labs
Project Number:	661M129556 PHASE 16	Lab Report Number:	A7C0666
Reviewer's Signature:	Nathalie Perry-Freer	Number of Samples:	12
Review Date:	April 12, 2017	Matrix:	Groundwater

Field Sample Identification	Collection Date	Laboratory Sample Identification
MW-2S_20170320	3/20/17	A7C0666-01
MWR-2A_20170320	3/20/17	A7C0666-02
MW13-02A_20170320	3/20/17	A7C0666-03
DUP06_20170320	3/20/17	A7C0666-04
MW-12A_20170321	3/21/17	A7C0666-06
MW13-03P_20170321	3/21/17	A7C0666-07
MW-39S_20170321	3/21/17	A7C0666-08
MW-40S_20170321	3/21/17	A7C0666-09
MW13-04P_20170321	3/21/17	A7C0666-10
MWR-13A_20170321	3/21/17	A7C0666-11
MW-41S_20170321	3/21/17	A7C0666-12
MWR-7A_20170321	3/21/17	A7C0666-13

DEFINITIONS OF QUALIFIERS THAT MAY BE ADDED DURING DATA QUALITY REVIEW

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Assessment Summary - General Chemistry

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Method/Analyte:	Sulfate	Fluoride	Total Cyanide	WAD Cyanide
Method Number:	EPA 300.0	EPA 300.0	EPA 335.4	SM 4500-CN-E EPA 335.4M
Preservation:	≤ 6℃	≤ 6℃	pH ≥ 12, ≤ 6℃	pH ≥ 12, ≤ 6℃
Maximum Hold Time:	28 days	28 days	14 days	14 days
Reporting Limits (mg/L):	1	0.1	0.005	0.005
1. Preservation/hold times	O	O	O	O
2. Reporting Limits	**X[1]**	O	O	O
3. Initial Calibration (r ≥ 0.995)	O	O	O	O
4. Initial Calibration Verification (90% - 110%)	O	O	O	O
5. Continuing Calibration Verification (90%-110%)	O	O	O	O
6. Field Blanks (no detections > reporting limits)	NA	NA	NA	NA
7. Laboratory and Calibration Blanks (no detections > reporting limits)	O	O	O	O
8. Laboratory Control Sample accuracy (75% - 125%)	O	O	O	O
9. Laboratory Control Sample Precision (≤ 25%)	NA	NA	NA	NA
10. Laboratory Duplicate Precision (≤ 25%)	O	O	O	O
11. Matrix Spike Accuracy (75% - 125%)	O	O	O	O
12. Matrix Spike Precision (≤ 25%)	NA	NA	NA	NA
13. Field Duplicate Precision (≤ 40%)	O	O	O	O

Assessment Codes:

O = No quality controls (QC) problems were identified for these criteria.

M = The results are qualified due to QC problems. The quantitative results will be qualified with a QC flag indicating that the results are estimated due to error greater than specified in the method.

R = The results are unacceptable due to gross QC problems. The results will be qualified as rejected (R).

X = QC problems were identified, but they do not affect the results, or the reviewer is not certain of the effect on the results.

NA = Supporting documentation or data is not present in the laboratory data package.

-- = Parameter is not appropriate for this analysis.

Assessment Code	Description	Action Required
X[1]	Sulfate reporting limits were elevated for samples MW-12A, MW13-04P, and MW-41S due to 5-fold dilutions.	Sulfate was detected above the elevated reporting limit in all of the affected samples. Additionally, the undiluted reporting limit for sulfate was 1.0 mg/L, and data usability is not adversely affected by the elevated limits for the diluted samples.

Field Duplicate Detections

Analyte	Average Reporting Limit	Primary Concentration	Field Duplicate Concentration	RPD	Notes
Samples MWR-2A and DUP06					
Sulfate	2 mg/L	17.7 mg/L	17.5 mg/L	1.14%	
Fluoride	0.100 mg/L	0.438 mg/L	0.401 mg/L	8.82%	
Total Cyanide	0.00500 mg/L	0.0294 mg/L	0.0289 mg/L	1.72%	

Notes:
mg/L = milligrams per liter

APPENDIX F

CERCLA Inspection Forms

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CERCLA Treatment System
Quarterly Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

Date/Time: 12/1/10 10:30

Inspected by: JG

Inspectors Signature:

Reviewed by: CD

Reviewer's Signature:

Note: This form replaces the CERCLA Treatment System weekly and monthly inspection forms

Fences & Gates:

	Observation	Remarks
Warning Signs in Place	Yes	
Gate Locks Secured	Yes	
Damaged Fence or Posts	NO	
Tumbleweeds (safety or fire hazard)	NO	
Gaps / Animal Burrows Beneath Fence	NO	
Top Wires Secure	Yes	

Fire Extinguisher check:

	Observation	Remarks
Within Date (Monthly)	Yes	

CERCLA Building:

	Observation	Remarks
Building Lock Secured	Yes	
Runoff from building drain to secondary containment	Yes	

Tank Containment:

	Observation	Remarks
Pump Operating	NO	
Pump Switch (on/off/auto)	OFF	
Sump Free of Debris	NO	
Asphalt Cracking	NO	

Treatment System:

Totalizer Reading (gals x1000)	998.2	
Observed Flow Rate (gpm)	4.8	
Alarm Conditions Present	NO	
Pressure Reading: I-01, PSI	210	
Pressure Reading: I-03, Digital, PSI	14.3	
Pressure Reading: I-04, PSI	16	
Pressure Reading: I-05, PSI	17	
Pressure Reading: I-06, PSI	17	
Pressure Reading: I-07, Digital, PSI	14.5	
Pressure Reading: I-08, PSI	14	
Pressure Reading: I-09, PSI	18	
Pressure Reading: I-10, PSI	14	
Pressure Reading: I-11, PSI	20	
Pressure Reading: I-12, PSI	10	
Pressure Reading: I-13, PSI	10	
Pressure Reading: I-14, PSI	12	
Pressure difference between I-03 and I-07 less that 3PSI	Yes	
BF-100 and BF-200 Changed	NO	
BF-300 Changed	NO	
Quantity of spare bag filters	Less than 20, need to order 25/ea	
Autodialer Tested	Yes	
Flow meter FIT I-02 Tested	Yes	
Pressure Transmitter PSH-1 Tested	Yes	
Pressure Transmitter PSH-2 Tested	Yes	
Flow Indiciator I-16 Tested	Yes	
Leak Detector I-18 Tested	Yes	
Float Switch I-19 Tested	Yes	
Temperature Sensor TEMP I-17 Checked	Yes	
Main Telemetry Panel UPS Tested	Yes	
Monthly Mid-Effluent Sample Collected	NO	
Monthly Effluent Sample Collected	NO	

CERCLA Treatment System
Quarterly Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Tank Inspection:

	Observation	Remarks
Visually Inspect Above-ground Piping for Leaks	Yes	
Leaks Found- Note Repairs	NO	
If Leaks- Spill Cleaned up	–	
Visually Inspect Tank for Leaks	Yes	
Leaks Found- Note Repairs	NO	
If Leaks- Spill Cleaned up	–	
Depth to water in tank (ft)	9.42	
Aerator is Operating	Yes	
Influent Totalizer Reading (gal) x 100	9886	
Effluent Totalizer Reading (gal)		

General Remarks and Items Requiring Correction:

CERCLA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Date/Time: 12/1/14 10:00

Inspected by: JG Inspectors Signature:

Reviewed by: CS Reviewer's Signature:

Note: This form replaces the CERCLA Landfill-LCS weekly inspection form

SAFETY INSPECTION

	Observation	Remarks
What tasks are you doing today?	Odm	
MX-6 Calibrated?	Yes	
In Reach device worn?	Yes	
Have AHAs been reviewed?	Yes	
Check in with AMEC Office performed?	Yes	

Cover Inspection:

	Observation	Remarks
Top Erosion or Damage	ND	
Top Settling / Subsidence	ND	
Ponded Water (or signs of)	ND	
Animal Burrows	ND	
Woody Vegetation	ND	
Benchmarks (1 on top of each lobe)	Yes	
Side Riprap Erosion	ND	
Slope Stability / Failures	ND	

Drainage System:

	Observation	Remarks
Ponded Water (or signs of)	ND	
Channels Blocked (weeds, litter, silt)	ND	
Culverts Blocked (weeds, litter, silt)	ND	

Area Adjacent to Landfill:

	Observation	Remarks
Riprap Erosion	ND	
Ponded Water / Silt Deposits	ND	
Well Heads (good condition, locked)	Yes	

Fences & Gates:

	Observation	Remarks
Warning Signs in Place (minimum 10)	Yes	
Gate Locks Secured and Lock Boxes in Place	Yes	
Door Secure and Lock Box in Place	Yes	
Damaged Fence or Posts	ND	
Tumbleweeds (safety or fire hazard)	ND	
Gaps / Animal Burrows Beneath Fence	ND	
Top Wires Secure	Yes	

LS#1:

	Observation	Remarks
Pump Operating	Yes	IN OFF CYCLE
Pump Switch (on/off/auto)	AUTO	
Control Panel in Good Condition	Yes	
Lift Station Lights	Yes	
Electrical Cables in Good Condition	Yes	
Manhole Cover Secured	Yes	
Piping in Good Condition	Yes	
Depth to Leachate (ft)	16.10	

CERCLA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

LS#2:

	Observation	Remarks
Pump Operating	YES	IN OFF CYCLE
Pump Switch (on/off/auto)	AUTO	
Control Panel in Good Condition	YES	
Lift Station Lights	YES	
Electrical Cables in Good Condition	YES	
Manhole Cover Secured	YES	
Piping in Good Condition	YES	
Depth to Leachate (ft)	16.95	
Totalizer Reading (gal)	2810945	

Sump:

	Observation	Remarks
Float Functioning Appropriately	YES	
Depth to Water (ft)	6.31	
Totalizer Reading (cubic ft)		270845 1.3

MH#1:

	Observation	Remarks
Manhole Cover Secured	YES	
Depth to Leachate (ft)	12.01	

MH#2:

	Observation	Remarks
Manhole Cover Secured	YES	
Depth to Leachate (ft)	14.660	

MH#3:

	Observation	Remarks
Manhole Cover Secured	YES	
Depth to Leachate (ft)	11.82	

MH#4:

	Observation	Remarks
Manhole Cover Secured	YES	
Depth to Leachate (ft)	15.30	
Nutrient Shed Secured	YES	

Quarterly:

	Observation	Remarks
LS 1 Pump #1- Water Level Between High and Low Floats	OK	
LS 1 Pump #2- Water Level Between High and Low Floats	OK	
LS 2 Pump #1- Water Level Between High and Low Floats	OK	
LS 2 Pump #2- Water Level Between High and Low Floats	OK	
LS1 Pump #1- Pulled or Checked		
LS1 Pump #2- Pulled or Checked		
LS2 Pump #1- Pulled or Checked		
LS2 Pump #2- Pulled or Checked		
LS1 Pump #1- Piping Observed/Checked		
LS1 Pump #2- Piping Observed/Checked		
LS2 Pump #1- Piping Observed/Checked		
LS2 Pump #2- Piping Observed/Checked		
Alarm Light at LS1 Tested	YES	
Alarm Light at LS2 Tested	YES	
Perimeter Berms Inspected	YES	
Access Roads Inspected	YES	

CERCLA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Annually:

	Observation	Remarks
Double-wall Pipe Alarm Tested	ND	
Visual Inspection of 300,000 Gallon Tank	YES	
Visual Inspection of 4,700 Gallon Tank	YES	

Notes:
LS = Lift Station
MH = Manhole

General remarks and items requiring correction:

Photo Documentation:

amec foster wheeler

CERCLA Treatment System
Quarterly Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

Date/Time: 3/20/17 10:00

Inspected by: Jason Gardner

Inspectors Signature:

Reviewed by: Cheryl Quitman

Reviewer's Signature:

Note: This form replaces the CERCLA Treatment System weekly and monthly inspection forms

Fences & Gates:

	Observation	Remarks
Warning Signs in Place	yes	
Gate Locks Secured	yes	
Damaged Fence or Posts	NO	
Tumbleweeds (safety or fire hazard)	NO	
Gaps / Animal Burrows Beneath Fence	NO	
Top Wires Secure	yes	

Fire Extinguisher check:

	Observation	Remarks
Within Date (Monthly)	yes	

CERCLA Building:

	Observation	Remarks
Building Lock Secured	yes	
Runoff from building drain to secondary containment	NO	

Tank Containment:

	Observation	Remarks
Pump Operating	yes	
Pump Switch (on/off/auto)	Auto	
Sump Free of Debris	yes	
Asphalt Cracking	yes	

Treatment System:

Totalizer Reading (gals x1000)	15559	
Observed Flow Rate (gpm)	8.8	
Alarm Conditions Present	NO	
Pressure Reading: I-01, PSI	14.0	
Pressure Reading: I-03, Digital, PSI	4.5	
Pressure Reading: I-04, PSI	4.0	
Pressure Reading: I-05, PSI	5.5	
Pressure Reading: I-06, PSI	5.0	
Pressure Reading: I-07, Digital, PSI	4.4	
Pressure Reading: I-08, PSI	7.0	
Pressure Reading: I-09, PSI	3.5	
Pressure Reading: I-10, PSI	4.0	
Pressure Reading: I-11, PSI	4.0	
Pressure Reading: I-12, PSI	1.0	
Pressure Reading: I-13, PSI	2.0	
Pressure Reading: I-14, PSI	4.0	
Pressure difference between I-03 and I-07 less that 3PSI	yes	
BF-100 and BF-200 Changed	NO	
BF-300 Changed	NO	
Quantity of spare bag filters	→	35 of 25 micron, 36 of 10 micron, 30 of 5 micron
Autodialer Tested	yes	
Flow meter FIT I-02 Tested	yes	
Pressure Transmitter PSH-1 Tested	yes	
Pressure Transmitter PSH-2 Tested	yes	
Flow Indiciator I-16 Tested	yes	
Leak Detector I-18 Tested	yes	
Float Switch I-19 Tested	yes	
Temperature Sensor TEMP I-17 Checked	yes	
Main Telemetry Panel UPS Tested	yes	
Monthly Mid-Effluent Sample Collected	NA	collected 3/13/17
Monthly Effluent Sample Collected	NA	" "

CERCLA Treatment System
Quarterly Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Tank Inspection:

	Observation	Remarks
Visually Inspect Above-ground Piping for Leaks	Yes	
Leaks Found- Note Repairs	NO	
If Leaks- Spill Cleaned up	NA	
Visually Inspect Tank for Leaks	Yes	
Leaks Found- Note Repairs	NO	
If Leaks- Spill Cleaned up	NA	
Depth to water in tank (ft)	21'	AT TANK SET #2
Aerator is Operating	NA	
Influent Totalizer Reading (gal) x 100	15559	
Effluent Totalizer Reading (gal)	—	977785

General Remarks and Items Requiring Correction:

CERCLA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

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Date/Time: 3/20/17 1000

Inspected by: WJM / JG Inspectors Signature:

Reviewed by: CD Reviewer's Signature:

Note: This form replaces the CERCLA Landfill-LCS weekly inspection form

SAFETY INSPECTION

	Observation	Remarks
What tasks are you doing today?	OMM	
MX-6 Calibrated?	Yes	
In Reach device worn?	Yes	
Have AHAs been reviewed?	Yes	
Check in with AMEC Office performed?	Yes	

Cover Inspection:

	Observation	Remarks
Top Erosion or Damage	NO	
Top Settling / Subsidence	NO	
Ponded Water (or signs of)	NO	
Animal Burrows	NO	
Woody Vegetation	NO	
Benchmarks (1 on top of each lobe)	Yes	
Side Riprap Erosion	No	
Slope Stability / Failures	No	

Drainage System:

	Observation	Remarks
Ponded Water (or signs of)	NO	
Channels Blocked (weeds, litter, silt)	NO	
Culverts Blocked (weeds, litter, silt)	NO	

Area Adjacent to Landfill:

	Observation	Remarks
Riprap Erosion	NO	
Ponded Water / Silt Deposits	NO	
Well Heads (good condition, locked)	Yes	

Fences & Gates:

	Observation	Remarks
Warning Signs in Place (minimum 10)	Yes	
Gate Locks Secured and Lock Boxes in Place	Yes	
Door Secure and Lock Box in Place	Yes	
Damaged Fence or Posts	No	
Tumbleweeds (safety or fire hazard)	No	
Gaps / Animal Burrows Beneath Fence	Yes	Filled
Top Wires Secure	Yes	

LS#1:

	Observation	Remarks
Pump Operating	Yes	
Pump Switch (on/off/auto)	Auto	
Control Panel in Good Condition	Yes	
Lift Station Lights	Yes	
Electrical Cables in Good Condition	Yes	
Manhole Cover Secured	Yes	
Piping in Good Condition	Yes	
Depth to Leachate (ft)	15.93	

CERCLA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

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LS#2:

	Observation	Remarks
Pump Operating	Yes	
Pump Switch (on/off/auto)	Auto	
Control Panel in Good Condition	Yes	
Lift Station Lights	Yes	
Electrical Cables in Good Condition	Yes	
Manhole Cover Secured	Yes	
Piping in Good Condition	Yes	
Depth to Leachate (ft)	17.10	
Totalizer Reading (gal)	316395.4	

Sump:

	Observation	Remarks
Float Functioning Appropriately	Yes	
Depth to Water (ft)	6.50	
Totalizer Reading (cubic ft)	22669.0	

MH#1:

	Observation	Remarks
Manhole Cover Secured	Yes	
Depth to Leachate (ft)	11.41	

MH#2:

	Observation	Remarks
Manhole Cover Secured	Yes	
Depth to Leachate (ft)	14.60	

MH#3:

	Observation	Remarks
Manhole Cover Secured	Yes	
Depth to Leachate (ft)	11.88	

MH#4:

	Observation	Remarks
Manhole Cover Secured	Yes	
Depth to Leachate (ft)	15.08	
Nutrient Shed Secured	Yes	

Quarterly:

	Observation	Remarks
LS 1 Pump #1- Water Level Between High and Low Floats	~ 17.20	High Level ~ 11.0 on ~ 15.0 off ~ 19.5'
LS 1 Pump #2- Water Level Between High and Low Floats	↓	↓ ↓ ↓ ↓
LS 2 Pump #1- Water Level Between High and Low Floats	~ 16.5'	High Level 13.0 on ~ 16.5 off ~ 19.5'
LS 2 Pump #2- Water Level Between High and Low Floats	↓	↓ ↓ ↓ ↓
LS1 Pump #1- Pulled or Checked	Yes	
LS1 Pump #2- Pulled or Checked	Yes	
LS2 Pump #1- Pulled or Checked	Yes	
LS2 Pump #2- Pulled or Checked	Yes	
LS1 Pump #1- Piping Observed/Checked	Yes	
LS1 Pump #2- Piping Observed/Checked	Yes	
LS2 Pump #1- Piping Observed/Checked	Yes	
LS2 Pump #2- Piping Observed/Checked	Yes	
Alarm Light at LS1 Tested	Yes	
Alarm Light at LS2 Tested	Yes	
Perimeter Berms Inspected	Yes	
Access Roads Inspected	Yes	North side Road Extremely rutted ; slight

CERCLA Landfill- Leachate Collection System
Quarterly/Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Annually:

	Observation	Remarks
Double-wall Pipe Alarm Tested	Yes	
Visual Inspection of 300,000 Gallon Tank	Yes	
Visual Inspection of 4,700 Gallon Tank	N/A	

Notes:
LS = Lift Station
MH = Manhole

General remarks and items requiring correction:

Photo Documentation:

APPENDIX G

Scrubber Sludge Ponds Inspection Form

Scrubber Sludge Ponds
Annual Post Closure Care Inspection
Lockheed Martin Corporation Site – The Dalles, Oregon

amec foster wheeler

Date/Time: 6/3/16 10:00

Inspected by: JG/WJM Inspectors Signature:

Reviewed by: Chris Bell Reviewer's Signature:

Note: This form replaces the SSP weekly inspection form

Soil Cover Inspection:

	Observation	Remarks
Top Erosion or Damage	yes	some animal and ant disturbed (cont.)
Side Gulley Clear	yes	
Animal Burrows	yes	Filled

Drainage System:

	Observation	Remarks
Ponded Water (or signs of)	NO	
Sedimentation	NO	
Channels Blocked (weeds, litter, silt)	NO	
Culverts Blocked (weeds, litter, silt)	NO	

Fences and Gates:

	Observation	Remarks
Warning Signs in Place	YES	
Gate Locks Secured	yes	
Damaged Fence or Posts	NO	
Tumbleweeds or Other Windblown Debris	NO	
Fence Fabric Secure	Yes	
Top Wire Secure	YES	
Fence Clear of Trees	YES	

Area Adjacent to Scrubber Sludge Ponds:

	Observation	Remarks
Vegetation Control	NO	
Intrusions	NO	

General remarks and items requiring correction

None

Soil exposing PAH appearing material @ surface, Took pics And showed areas to Scott A. w/CDM. area was between E15 & C15 as well as between D13 & E15. Possible exposed PAH's were in former pond 1 location where Plants have never done well. Hydro seed that was clearly sprayed in these locations never grew any ground cover.

APPENDIX H

Monthly POTW Reports

Lockheed Martin Corporation
Energy, Environment, Safety and Health
2550 North Hollywood Way, Suite 406 Burbank, CA 91505
Telephone: 818.847.0197 Facsimile: 818.847.0256

LOCKHEED MARTIN

March 8, 2017

Jo Kemper
City of The Dalles Public Works
1215 West First Street
The Dalles, OR 97058

Subject: **Discharge Monitoring at the Lockheed Martin Corporation, 3313 West Second Street, The Dalles, OR 97058 Reporting Period: February 2017**

Reference: **Industrial Waste Discharge Permit No. 2016-003**

Dear Ms. Kemper:

Pursuant to the referenced permit, Lockheed Martin Corporation hereby submits the industrial waste discharge monitoring report for the February 2017 reporting period at the Lockheed Martin The Dalles site located at 3313 West Second Street, The Dalles, Oregon 97058.

During the month of February the system operated for 14 days and a total of 183,171 gallons of water were discharged under Permit No. 2016-003 to the City of The Dalles Publicly Owned Treatment Works. Discharged water consisted of pretreated landfill leachate, and/or groundwater sampling decontamination water from environmental remediation at the Site. No permit violations occurred during the reporting period.

Daily flow (total, maximum, and minimum) and pH monitoring data (daily maximum and minimum) are included in Table 1. Laboratory analytical data are summarized in Table 2. Laboratory reports including chain of custody and quality control/quality assurance documentation are included in Attachment A.

Please call me at (720) 842-6121 or send an email to liaht.rosenstein@lmco.com if you have any questions regarding this report.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Executed on the 8th day of March, 2017 at the offices of Lockheed Martin, Littleton, CO.

Sincerely,



Liaht Rosenstein
Environmental Remediation Project Lead
Lockheed Martin Corporation

Attachments:
Table 1—Daily Flow and pH Data, February 2017
Table 2—Laboratory Analytical Results, February 2017
Attachment A – Laboratory Analytical Reports

cc: Mr. Rick Wolf, CH2MHill

Table 1
Daily Flow and pH Data, February 2017
Industrial Waste Discharge Permit No 2016-003
Lockheed Martin Corporation
3313 West Second Street, The Dalles, OR

Day	Daily Flow Total	Daily Flow Max	Daily Flow Average	pH Daily Min	pH Daily Max
Units	gallons per day	gallons per minute	gallons per minute	SU	SU
Permit Limit	36,000	30	30	6.0	9.0
2/1/2017	0				
2/2/2017	0				
2/3/2017	5,708	24.5	23.3	7.66	7.69
2/4/2017	0				
2/5/2017	15,480	24.8	23.6	7.70	7.72
2/6/2017	13,885	22.8	21.8	7.71	7.73
2/7/2017	0				
2/8/2017	0				
2/9/2017	10,548	24.5	23.3	6.48	7.59
2/10/2017	9,520	22.4	22.2	7.59	7.64
2/11/2017	0				
2/12/2017	0				
2/13/2017	11,220	22.3	21.9	7.38	7.68
2/14/2017	12,701	24.8	24.7	7.44	8.23
2/15/2017	21,398	23.8	22.3	7.44	8.35
2/16/2017	2,939	21.1	20.8	7.44	8.43
2/17/2017	0				
2/18/2017	0				
2/19/2017	0				
2/20/2017	11,757	24.8	24.3	7.40	8.94
2/21/2017	18,298	23.8	22.1	7.40	8.94
2/22/2017	20,575	26.1	22.6	7.40	8.94
2/23/2017	0				
2/24/2017	0				
2/25/2017	0				
2/26/2017	0				
2/27/2017	10,915	26.1	23.8	7.40	8.94
2/28/2017	18,227	26.1	22.1	7.40	8.94
Monthly Total	183,171				
Min				6.48	
Max		26.1	24.7		8.94

Notes:
Max - Maximum
Min - Minimum
SU - Standard Units

Table 2
Laboratory Analytical Results, February 2017
Industrial Waste Discharge Permit No 2016-003
Lockheed Martin Corporation
3313 West Second Street, The Dalles, OR

Date Sampled	Date Final Analytical Received	Sample Type	Parameter	Cyanide, Total	BOD-5	TSS	Fluoride	Arsenic	Cadmium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc
			Analytical Method	EPA 335.4	SM5210B	SM2540D	EPA 300.0	EPA 6020									
			Units	mg/L	mg/L	mg/L	mg/L	mg/L									
			Permit Limit	0.33	--	--	--	0.11	0.09	2.15	0.09	0.027	--	0.79	0.50	1.18	4.5
2/6/2017	2/16/2017	Composite	POTW-020617	0.005 U	3.40 U	5.00 U	**9.71**	**0.0022**	0.0002 U	**0.00797**	**0.00019**	0.00008 U	**0.00241**	**0.00166**	**0.00121**	0.0002 U	**0.0133**
2/16/2017	3/1/2017	Composite	POTW Discharge-2017-0216	0.005 U	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
2/21/2017	3/1/2017	Composite	POTW-022117	0.005 U	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:
BOD-5= 5 day biological oxygen demand
Bold= Detected result
mg/L= milligrams per liter
NT= Not Tested
Pending = Sample has been submitted to the laboratory, but analytical results were unavailable at month's end
TSS= Total suspended solids
U = The analyte was analyzed for, but was not detected above the method reporting limit. MRL has been reported.
Concentration exceeds permit limit stated in Industrial Wastewater Discharge Permit No. 2016-003

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Thursday, February 16, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556-0004

Enclosed are the results of analyses for work order A7B0159, which was received by the laboratory on 2/7/2017 at 8:15:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
POTW-020617	A7B0159-01	Water	02/06/17 17:30	02/07/17 08:15

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-020617 (A7B0159-01)			**Matrix: Water**					
Batch: 7020390								
Fluoride	**9.71**	0.100	0.100	mg/L	1	02/08/17 13:23	EPA 300.0-LL	

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-020617 (A7B0159-01)			**Matrix: Water**		**Batch: 7020513**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	02/13/17 10:28	EPA 335.4	

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-020617 (A7B0159-01)			**Matrix: Water**					
Batch: 7020501								
Arsenic	**2.16**	0.500	1.00	ug/L	1	02/13/17 14:43	EPA 6020A	
Cadmium	ND	0.0400	0.200	"	"	"	"	
Copper	**7.97**	0.500	1.00	"	"	"	"	
Lead	**0.189**	0.100	0.200	"	"	"	"	J
Mercury	ND	0.0400	0.0800	"	"	"	"	
Molybdenum	**2.41**	0.500	1.00	"	"	"	"	
Nickel	**1.66**	0.500	1.00	"	"	"	"	
Selenium	**1.21**	0.500	1.00	"	"	"	"	
Silver	ND	0.100	0.200	"	"	"	"	B
Zinc	**13.3**	2.00	4.00	"	"	"	"	

Apex Laboratories

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Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-020617 (A7B0159-01)			**Matrix: Water**					
Batch: 7020380								
Biochemical Oxygen Demand (5 Day)	ND	3.40	3.40	mg/L	1	02/13/17 13:45	SM 5210 B	
Batch: 7020399								
Total Suspended Solids	ND	5.00	5.00	"	"	02/09/17 09:32	SM 2540 D	

Apex Laboratories



Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020390 - Method Prep: Aq									Water			
Blank (7020390-BLK1)					Prepared: 02/08/17 09:06		Analyzed: 02/08/17 11:35					
EPA 300.0-LL												
Fluoride	ND	0.100	0.100	mg/L	1	---	---	---	---	---	---	
LCS (7020390-BS1)					Prepared: 02/08/17 09:06		Analyzed: 02/08/17 11:56					
EPA 300.0-LL												
Fluoride	1.46	0.100	0.100	mg/L	1	1.50	---	98	90-110%	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020513 - Method Prep: Aq									Water			
Blank (7020513-BLK1)					Prepared: 02/13/17 08:45		Analyzed: 02/13/17 10:24					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7020513-BS1)					Prepared: 02/13/17 08:45		Analyzed: 02/13/17 10:26					
EPA 335.4												
Cyanide, Total	0.247	0.00500	0.00500	mg/L	1	0.250	---	99	85-115%	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020501 - EPA 3015A									Water			
Blank (7020501-BLK1)					Prepared: 02/10/17 15:51		Analyzed: 02/13/17 13:25					
EPA 6020A												
Arsenic	ND	0.500	1.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	
Copper	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Lead	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	"	"	---	---	---	---	---	---	
Molybdenum	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Nickel	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Selenium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Silver	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Zinc	ND	2.00	4.00	"	"	---	---	---	---	---	---	
LCS (7020501-BS1)					Prepared: 02/10/17 15:51		Analyzed: 02/13/17 13:28					
EPA 6020A												
Arsenic	55.5	0.500	1.00	ug/L	1	55.6	---	100	80-120%	---	---	
Cadmium	56.6	0.0400	0.200	"	"	"	---	102	"	---	---	
Copper	55.5	0.500	1.00	"	"	"	---	100	"	---	---	
Lead	56.7	0.100	0.200	"	"	"	---	102	"	---	---	
Mercury	1.09	0.0400	0.0800	"	"	1.11	---	98	"	---	---	
Molybdenum	30.5	0.500	1.00	"	"	27.8	---	110	"	---	---	
Nickel	55.7	0.500	1.00	"	"	55.6	---	100	"	---	---	
Selenium	27.6	0.500	1.00	"	"	27.8	---	99	"	---	---	
Silver	27.9	0.100	0.200	"	"	"	---	101	"	---	---	
Zinc	55.8	2.00	4.00	"	"	55.6	---	100	"	---	---	
Matrix Spike (7020501-MS1)					Prepared: 02/10/17 15:51		Analyzed: 02/13/17 14:52					
QC Source Sample: POTW-020617 (A7B0159-01)												
EPA 6020A												
Arsenic	58.8	0.500	1.00	ug/L	1	55.6	2.16	102	75-125%	---	---	
Cadmium	57.5	0.0400	0.200	"	"	"	ND	104	"	---	---	
Copper	61.2	0.500	1.00	"	"	"	7.97	96	"	---	---	
Lead	55.3	0.100	0.200	"	"	"	0.189	99	"	---	---	
Mercury	1.05	0.0400	0.0800	"	"	1.11	ND	95	"	---	---	
Molybdenum	34.8	0.500	1.00	"	"	27.8	2.41	116	"	---	---	
Nickel	55.4	0.500	1.00	"	"	55.6	1.66	97	"	---	---	
Selenium	28.6	0.500	1.00	"	"	27.8	1.21	99	"	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020501 - EPA 3015A							**Water**					
Matrix Spike (7020501-MS1)					Prepared: 02/10/17 15:51 Analyzed: 02/13/17 14:52							
QC Source Sample: POTW-020617 (A7B0159-01)												
EPA 6020A												
Silver	27.5	0.100	0.200	ug/L	"	"	ND	99	"	---	---	B
Zinc	65.7	2.00	4.00	"	"	55.6	13.3	94	"	---	---	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020380 - Method Prep: Aq									**Water**			
Blank (7020380-BLK1)					Prepared: 02/08/17 08:20		Analyzed: 02/13/17 13:45					
SM 5210 B												
Biochemical Oxygen Demand (5 Day)	ND	4.00	4.00	mg/L	1	---	---	---	---	---	---	
Reference (7020380-SRM1)					Prepared: 02/08/17 08:20		Analyzed: 02/13/17 13:45					
SM 5210 B												
Biochemical Oxygen Demand (5 Day)	215			mg/L	1	198		109	84.6-115.4%	---	---	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020399 - Total Suspended Solids												**Water**
Blank (7020399-BLK1)					Prepared: 02/08/17 10:44		Analyzed: 02/09/17 09:32					
SM 2540 D												
Total Suspended Solids	ND	5.00	5.00	mg/L	1	---	---	---	---	---	---	
Reference (7020399-SRM1)					Prepared: 02/08/17 10:44		Analyzed: 02/09/17 09:32					
SM 2540 D												
Total Suspended Solids	91.0			mg/L	1	100		91	77.1-110%	---	---	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020390							
A7B0159-01	Water	EPA 300.0-LL	02/06/17 17:30	02/08/17 09:06	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020513							
A7B0159-01	Water	EPA 335.4	02/06/17 17:30	02/13/17 08:45	6mL/6mL	6mL/6mL	1.00

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020501							
A7B0159-01	Water	EPA 6020A	02/06/17 17:30	02/10/17 15:51	45mL/50mL	45mL/50mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020380							
A7B0159-01	Water	SM 5210 B	02/06/17 17:30	02/08/17 08:20	150mL/300mL	150mL/300mL	NA

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020399							
A7B0159-01	Water	SM 2540 D	02/06/17 17:30	02/08/17 10:44	1N/A/1N/A	1N/A/1N/A	NA

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

Notes and Definitions

Qualifiers:

B	Analyte detected in an associated blank at a level above the MRL. (See Notes and Conventions below.)
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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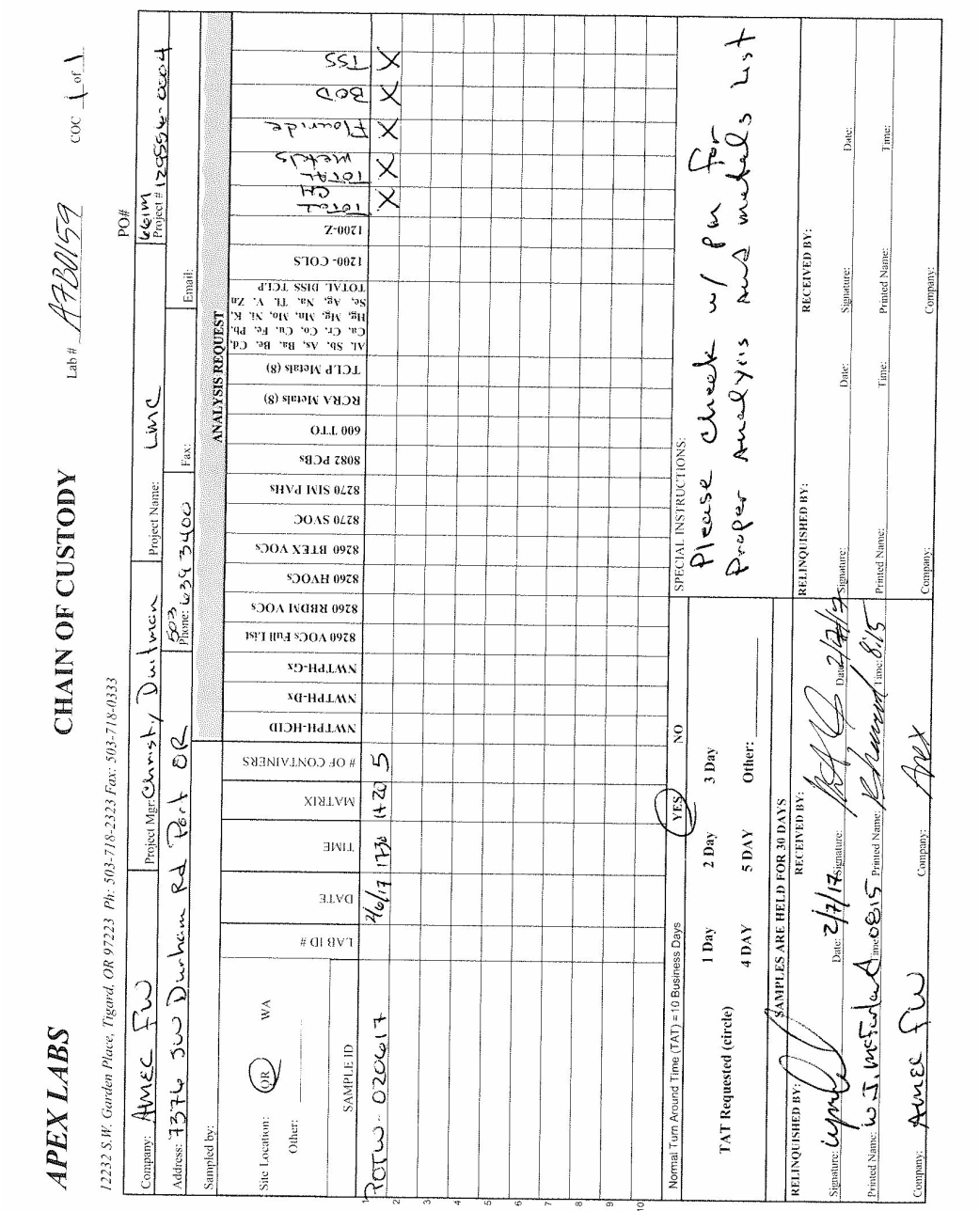
AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17



Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556-0004	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	02/16/17 17:17

APEX LABS COOLER RECEIPT FORM MM 2/7

Client: AMEC Element WO#: A67B0155

Project/Project #: LMC / 661M129556-0004

Delivery info:

Date/Time Received: 2/7/17 @ 8:15 By: MM

Delivered by: Apex____Client X ESS____FedEx____UPS____Swift____Senvoy____SDS____Other_____

Cooler Inspection Inspected by: MM : 2/7/17 @ 8:17

Chain of Custody Included? Yes X No ___ Custody Seals? Yes_____ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.3						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: MM : 2/7/17 @ 8:22

All Samples Intact? Yes X No ___ Comments:

Bottle Labels/COCs agree? Yes ___ No X Comments: Label mails POTW-020612 on 250 unpres poly.

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No ___ NA _____

Comments:

Additional Information:

Labeled by: Witness: Cooler Inspected by: MM See Project Contact Form: Y

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, March 1, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / [none]

Enclosed are the results of analyses for work order A7B0558, which was received by the laboratory on 2/17/2017 at 11:20:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:57

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
POTW Discharge-2017-0216	A7B0558-01	Water	02/16/17 14:00	02/17/17 11:20

Apex Laboratories



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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:57

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW Discharge-2017-0216 (A7B0558-01)			**Matrix: Water**		**Batch: 7020727**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	02/20/17 09:53	EPA 335.4	

Apex Laboratories



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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:57

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020727 - Method Prep: Aq									Water			
Blank (7020727-BLK1)					Prepared: 02/20/17 07:35		Analyzed: 02/20/17 09:41					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7020727-BS1)					Prepared: 02/20/17 07:35		Analyzed: 02/20/17 09:43					
EPA 335.4												
Cyanide, Total	0.261	0.00500	0.00500	mg/L	1	0.250	---	104	85-115%	---	---	

Apex Laboratories



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Tigard, OR 97223
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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:57

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020727							
A7B0558-01	Water	EPA 335.4	02/16/17 14:00	02/20/17 07:35	6mL/6mL	6mL/6mL	1.00

Apex Laboratories



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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:57

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
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---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
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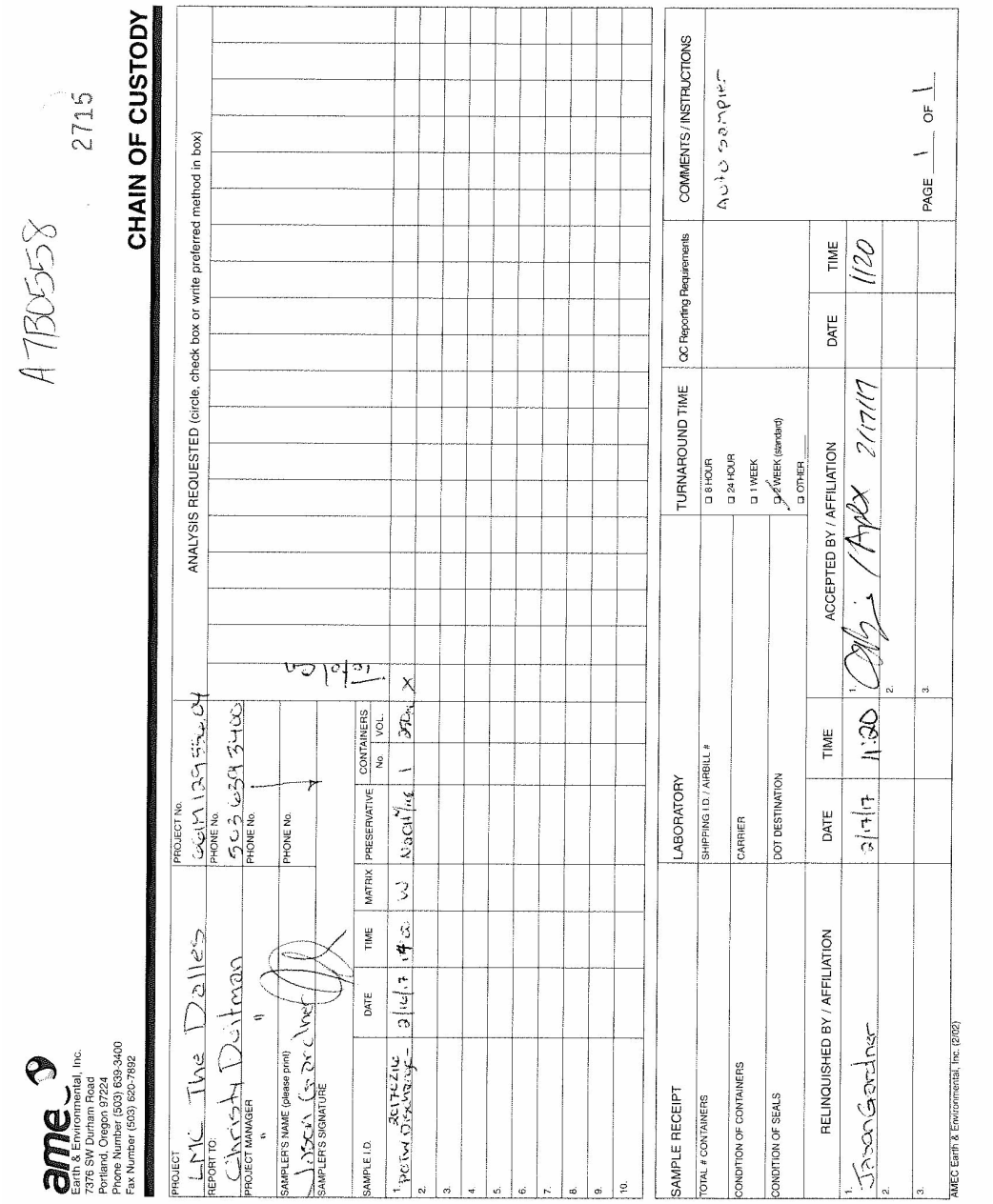
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:57



A7B0558

2715

CHAIN OF CUSTODY

ame
Earth & Environmental, Inc.
7376 SW Durham Road
Portland, Oregon 97224
Phone Number (503) 639-3400
Fax Number (503) 620-7892

PROJECT: LMC The Dalles
PROJECT No.: 66M129556.04
REPORT TO: Christy Duitman
PHONE No.: 503 639 3400
PROJECT MANAGER: "
PHONE No.:
SAMPLER'S NAME (please print): Jason Gardner
PHONE No.:
SAMPLER'S SIGNATURE:

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.	
1. 20170216 POTW Discharge	2/16/17	14:00	W	NaOH/ice	1	250mL	X
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

SAMPLE RECEIPT	LABORATORY	TURNAROUND TIME	QC Reporting Requirements	COMMENTS / INSTRUCTIONS
TOTAL # CONTAINERS	SHIPPING I.D. / AIRBILL #	☐ 8 HOUR ☐ 24 HOUR ☐ 1 WEEK ☑ 2 WEEK (standard) ☐ OTHER		Auto sampler
CONDITION OF CONTAINERS	CARRIER			
CONDITION OF SEALS	DOT DESTINATION			

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1. Jason Gardner	2/17/17	11:20	1. [signature] / Apex 2/17/17		1120
2.			2.		
3.			3.		

PAGE 1 OF 1

AMEC Earth & Environmental, Inc. (2/02)

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: [none]	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 21:57

APEX LABS COOLER RECEIPT FORM

Client: AMEC Element WO#: A7 B0558

Project/Project #: LMC - The Dalles

Delivery info:

Date/Time Received: 2/17/17 @ 1120 By:

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: : 2/17/17 @ 1125

Chain of Custody Included? Yes Y No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes Y No___

Signed/Dated by Apex? Yes Y No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.2						
Received on Ice? (Y/N)	(Y)						
Temp. Blanks? (Y/N)	(Y)						
Ice Type: (Gel/Real/Other)	Snow						
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: JS : 2/17/17 @ 1147

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes___ No X Comments: Sample cont. reads POTW - Discharge 20170217

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: JS Witness: Cath Cooler Inspected by: JS See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, March 1, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556.04

Enclosed are the results of analyses for work order A7B0699, which was received by the laboratory on 2/22/2017 at 12:00:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 22:10

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
POTW-022117	A7B0699-01	Water	02/21/17 15:40	02/22/17 12:00

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

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Tigard, OR 97223
503-718-2323 Phone
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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 22:10

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-022117 (A7B0699-01)			**Matrix: Water**		**Batch: 7020931**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	02/27/17 12:54	EPA 335.4	

Apex Laboratories



Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 22:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020931 - Method Prep: Aq									Water			
Blank (7020931-BLK1)					Prepared: 02/27/17 07:52		Analyzed: 02/27/17 12:40					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7020931-BS1)					Prepared: 02/27/17 07:52		Analyzed: 02/27/17 12:42					
EPA 335.4												
Cyanide, Total	0.246	0.00500	0.00500	mg/L	1	0.250	---	98	85-115%	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 22:10

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020931							
A7B0699-01	Water	EPA 335.4	02/21/17 15:40	02/27/17 07:52	6mL/6mL	6mL/6mL	1.00

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 22:10

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

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Philip Nerenberg, Lab Director

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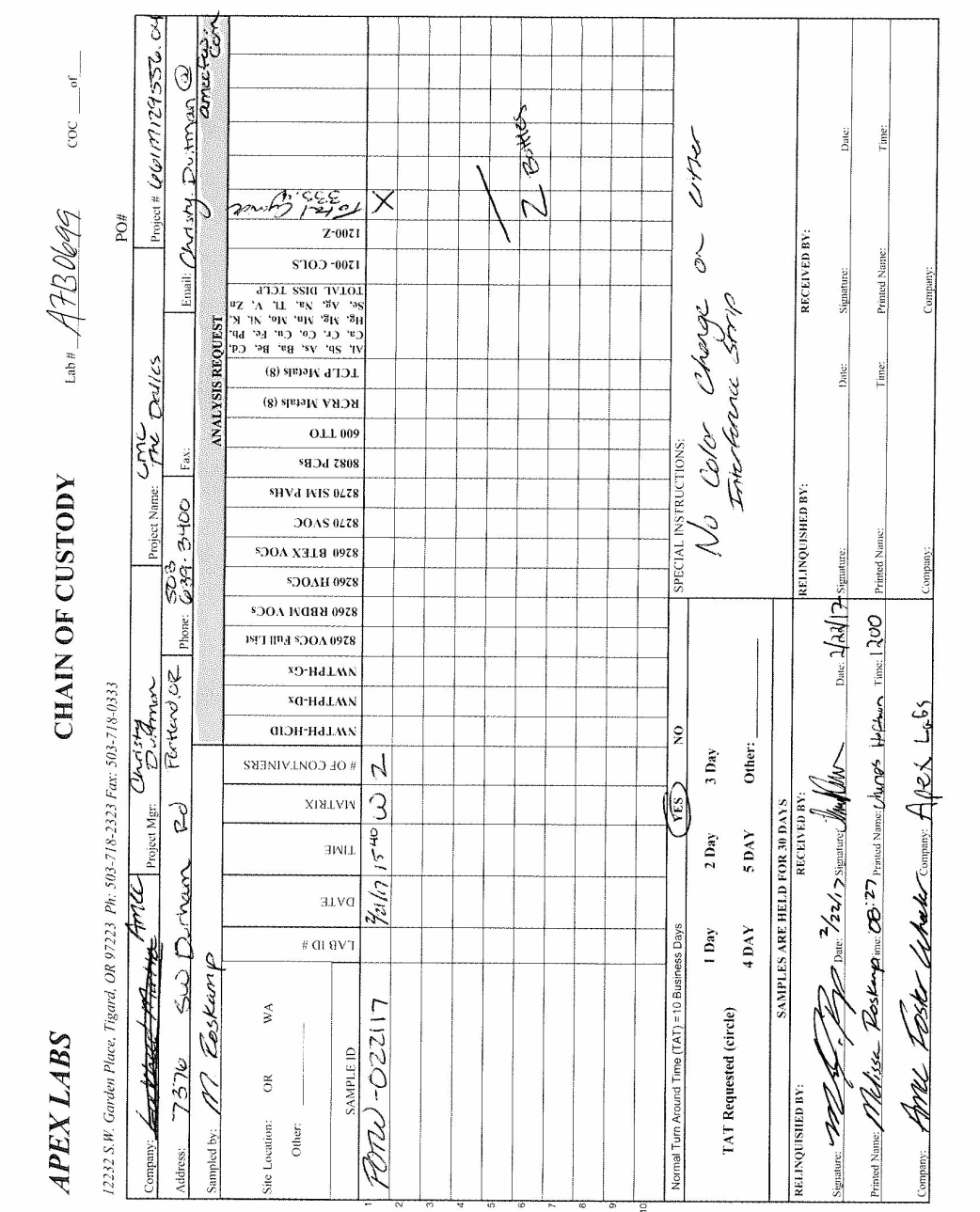
AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 22:10


APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333
CHAIN OF CUSTODY
Lab # AFB0693
COC ___ of ___
PO#
Company: AMEC
Project Mgr: Christy Duitman
Project Name: LMC The Dalles
Project # 661M129556.04
Address: 7376 SW Durham Rd Portland, OR
Phone: 503-639-3400
Fax:
Email: Christy.Duitman@amecfw.com
Sampled by: M Eskamp
ANALYSIS REQUEST
Site Location: OR WA
Other:
SAMPLE ID
LAB ID #
DATE
TIME
MATRIX
OF CONTAINERS
NWTPH-HCID
NWTPH-Dx
NWTPH-Gx
8260 VOCs Full List
8260 RBDM VOCs
8260 HVOCs
8260 BTEX VOCs
8270 SVOC
8270 SIM PAHs
8082 PCBs
600 TTO
RCRA Metals (8)
TCLP Metals (8)
Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS TCLP
1200- COLS
1200-Z
1 FOR 2 Bottles
2 Bottles
1 FOR 2 Bottles
1 FOR 2 Bottles
1 FOR

Apex Labs

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503-718-2323 Phone
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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/01/17 22:10

APEX LABS COOLER RECEIPT FORM

Client: AMEC Element WO#: A7 B0699

Project/Project #: LMC The Dalles 661M129556.04

Delivery info:

Date/Time Received: 2/22/17 @ 1200 By: CFH

Delivered by: Apex X Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: CFH : 2/22/17 @ 1222

Chain of Custody Included? Yes Y No ___ Custody Seals? Yes ___ No —

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	3.1						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	Good						

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: MS : 2/22/17 @ 12:40

All Samples Intact? Yes X No ___ Comments: ___

Bottle Labels/COCs agree? Yes X No ___ Comments: ___

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No ___ NA ___

Comments: ___

Additional Information: ___

Labeled by: Witness: Cooler Inspected by: See Project Contact Form: Y

Lockheed Martin Corporation
Energy, Environment, Safety and Health
2550 North Hollywood Way, Suite 406 Burbank, CA 91505
Telephone: 818.847.0197 Facsimile: 818.847.0256

LOCKHEED MARTIN

April 12, 2017

Jo Kemper
City of The Dalles Public Works
1215 West First Street
The Dalles, OR 97058

Subject: **Discharge Monitoring at the Lockheed Martin Corporation, 3313 West Second Street, The Dalles, OR 97058 Reporting Period: March 2017**

Reference: **Industrial Waste Discharge Permit No. 2016-003**

Dear Ms. Kemper:

Pursuant to the referenced permit, Lockheed Martin Corporation hereby submits the industrial waste discharge monitoring report for the March 2017 reporting period at the Lockheed Martin The Dalles site located at 3313 West Second Street, The Dalles, Oregon 97058.

During the month of March the system operated for 12 days and a total of 167,640 gallons of water were discharged under Permit No. 2016-003 to the City of The Dalles Publicly Owned Treatment Works. Discharged water consisted of pretreated landfill leachate, and/or groundwater sampling decontamination water from environmental remediation at the Site. No permit violations occurred during the reporting period.

Daily flow (total, maximum, and minimum) and pH monitoring data (daily maximum and minimum) are included in Table 1. Laboratory analytical data are summarized in Table 2. Laboratory reports including chain of custody and quality control/quality assurance documentation are included in Attachment A.

Please call me at (720) 842-6121 or send an email to liaht.rosenstein@lmco.com if you have any questions regarding this report.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Executed on the 12th day of April, 2017 at the offices of Lockheed Martin, Littleton, Colorado.

Sincerely,



Liaht Rosenstein
Environmental Remediation Project Lead
Lockheed Martin Corporation

Attachments:
Table 1—Daily Flow and pH Data, March 2017
Table 2—Laboratory Analytical Results, March 2017
Attachment A – Laboratory Analytical Reports

cc: Mr. Rick Wolf, CH2MHill

Table 1
Daily Flow and pH Data, March 2017
Industrial Waste Discharge Permit No 2016-003
Lockheed Martin Corporation
3313 West Second Street, The Dalles, OR

Day	Daily Flow Total	Daily Flow Max	Daily Flow Average	pH Daily Min	pH Daily Max
Units	gallons per day	gallons per minute	gallons per minute	SU	SU
Permit Limit	36,000	30	30	6.0	9.0
3/1/2017	0				
3/2/2017	0				
3/3/2017	13,151	27.1	23.5	7.40	8.94
3/4/2017	0				
3/5/2017	0				
3/6/2017	0				
3/7/2017	0				
3/8/2017	11,937	27.1	21.6	7.40	8.94
3/9/2017	0				
3/10/2017	0				
3/11/2017	0				
3/12/2017	0				
3/13/2017	10,237	27.1	24.5	7.40	7.58
3/14/2017	22,245	27.1	20.9	7.51	7.54
3/15/2017	0				
3/16/2017	7,570	29.1	25.1	7.31	7.42
3/17/2017	23,393	29.1	23.2	7.42	7.55
3/18/2017	0				
3/19/2017	0				
3/20/2017	0				
3/21/2017	6,836	29.1	23.9	7.33	7.55
3/22/2017	22,526	29.1	22.0	7.44	7.89
3/23/2017	0				
3/24/2017	0				
3/25/2017	0				
3/26/2017	0				
3/27/2017	0				
3/28/2017					
3/29/2017	32,872*	25.0	24.9	7.65	7.65
3/30/2017					
3/31/2017	16,873	25.1	23.6	7.31	8.19
Monthly Total	167,640				
Min				7.31	
Max		29.1	25.1		8.94

Notes:
Max - Maximum
Min - Minimum
SU - Standard Units
* - Power failure on March 24, 2017 resulted in PLC malfunction; daily measurements not recorded. Manual measurements at start and end of discharge recorded to meet permit requirements. Total volume of 32,872 gallons discharged between March 28 and March 30, 2017, does not exceed individual daily limit of 36,000 gallons.

Table 2
Laboratory Analytical Results, March 2017
Industrial Waste Discharge Permit No 2016-003

Date Sampled	Date Final Analytical Received	Sample Type	Parameter	Cyanide, Total	BOD-5	TSS	Fluoride	Arsenic	Cadmium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc
			Analytical Method	EPA 335.4	SM5210B	SM2540D	EPA 300.0	EPA 6020									
			Units	mg/L	mg/L	mg/L	mg/L	mg/L									
			Permit Limit	0.33	--	--	--	0.11	0.09	2.15	0.09	0.027	--	0.79	0.50	1.18	4.5
3/1/2017	3/15/2017	Composite	POTW-030117	0.005 U	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
3/10/2017	3/15/2017	Composite	POTW-20170310	0.005 U	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
3/14/2017	3/25/2017	Composite	POTW-20170314	0.005 U	2.95 U	5.00 U	**10.1**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
3/22/2017	3/30/2017	Composite	POTW-20170322	0.005 U	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
3/31/2017	pending	Composite	POTW-20170331	pending	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:

BOD-5= 5 day biological oxygen demand

Bold= Detected result

mg/L= milligrams per liter

NT= Not Tested

Pending = Sample has been submitted to the laboratory, but analytical results were unavailable at month's end

TSS= Total suspended solids

U = The analyte was analyzed for, but was not detected above the method reporting limit. MRL has been reported.

Concentration exceeds permit limit stated in Industrial Wastewater Discharge Permit No. 2016-003

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, March 15, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556.04

Enclosed are the results of analyses for work order A7C0048, which was received by the laboratory on 3/2/2017 at 9:20:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 17:17

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
POTW-030117	A7C0048-01	Water	03/01/17 12:00	03/02/17 09:20

Apex Laboratories



Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 17:17

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-030117 (A7C0048-01)			**Matrix: Water**		**Batch: 7030281**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/03/17 10:05	EPA 335.4	

Apex Laboratories



Philip Nerenberg, Lab Director

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7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 17:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030281 - Method Prep: Aq									Water			
Blank (7030281-BLK1)					Prepared: 03/03/17 08:10		Analyzed: 03/03/17 09:55					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030281-BS1)					Prepared: 03/03/17 08:10		Analyzed: 03/03/17 09:57					
EPA 335.4												
Cyanide, Total	0.264	0.00500	0.00500	mg/L	1	0.250	---	106	85-115%	---	---	

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7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 17:17

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030281							
A7C0048-01	Water	EPA 335.4	03/01/17 12:00	03/03/17 08:10	6mL/6mL	6mL/6mL	1.00

Apex Laboratories



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7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 17:17

Notes and Definitions

Qualifiers:

Notes and Conventions:

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MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
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---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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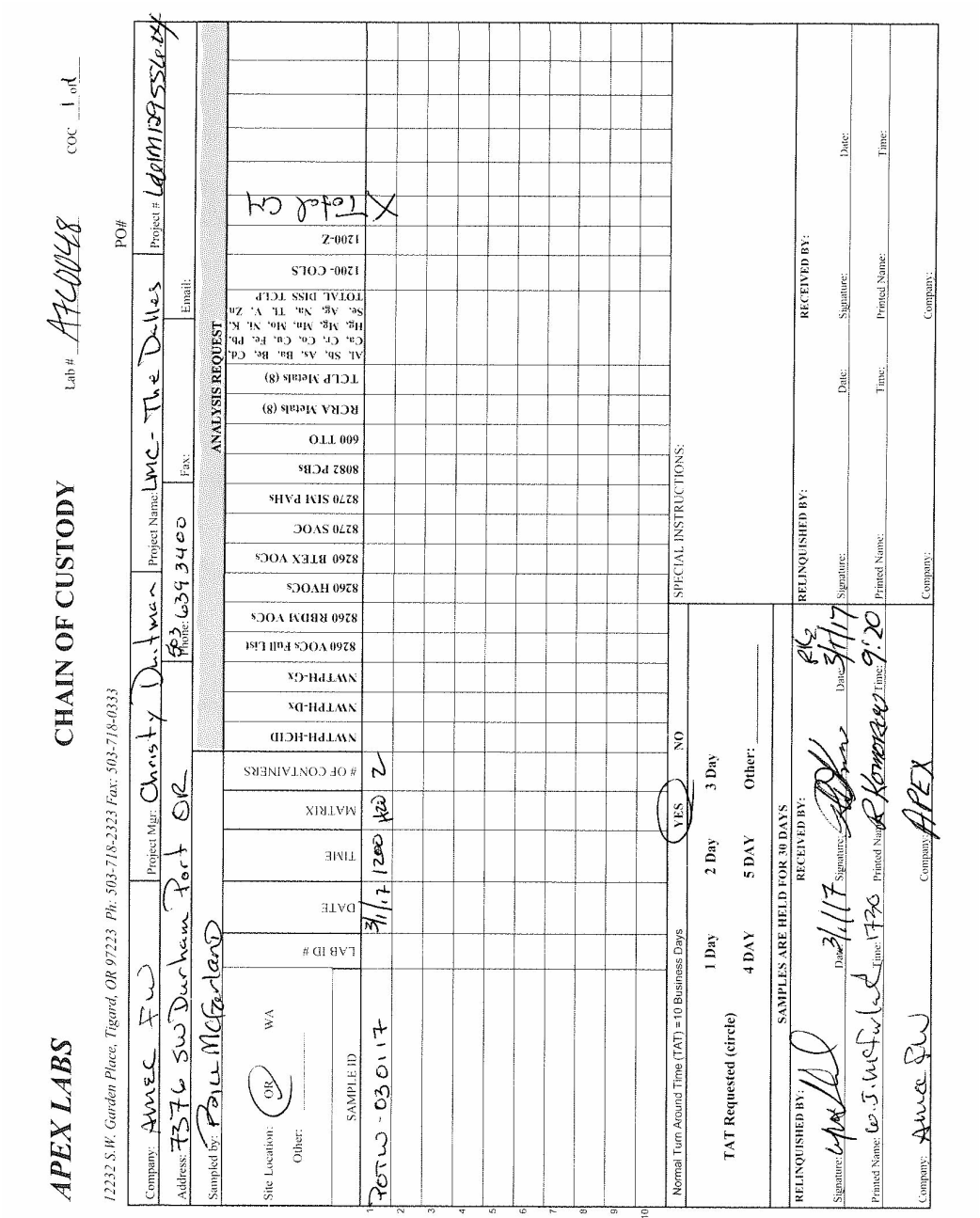
AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 17:17



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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556.04	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 17:17

APEX LABS COOLER RECEIPT FORM

Client: Amec Element WO#: A7 C0048

Project/Project #: LMC The Dalles / 661M129556.04

Delivery info: 20 kms 3/2

Date/Time Received: 9:28 @ 3/2/17 By: RK

Delivered by: Apex X Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: kms : 3/2/17 @ 9:28

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	5.3						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: kms : 3/2/17 @ 9:31

All Samples Intact? Yes X No ___ Comments: ___

Bottle Labels/COCs agree? Yes X No ___ Comments: ___

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments: ___

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No ___ NA ___

Comments: ___

Additional Information: ___

Labeled by: kms Witness: JS Cooler Inspected by: kms See Project Contact Form: Y

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Philip Nerenberg

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, March 15, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556

Enclosed are the results of analyses for work order A7C0319, which was received by the laboratory on 3/10/2017 at 4:25:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 18:10

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Pair02-20170310	A7C0319-01	Water	03/10/17 15:00	03/10/17 16:25
POTW-20170310	A7C0319-02	Water	03/10/17 15:15	03/10/17 16:25

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 18:10

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Pair02-20170310 (A7C0319-01)			**Matrix: Water**		**Batch: 7030534**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/13/17 11:05	EPA 335.4	
POTW-20170310 (A7C0319-02)			**Matrix: Water**		**Batch: 7030534**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/13/17 11:07	EPA 335.4	

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 18:10

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030534 - Method Prep: Aq									Water			
Blank (7030534-BLK1)					Prepared: 03/13/17 08:01		Analyzed: 03/13/17 10:51					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030534-BS1)					Prepared: 03/13/17 08:01		Analyzed: 03/13/17 10:53					
EPA 335.4												
Cyanide, Total	0.278	0.00500	0.00500	mg/L	1	0.250	---	111	85-115%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 18:10

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030534							
A7C0319-01	Water	EPA 335.4	03/10/17 15:00	03/13/17 08:01	6mL/6mL	6mL/6mL	1.00
A7C0319-02	Water	EPA 335.4	03/10/17 15:15	03/13/17 08:01	6mL/6mL	6mL/6mL	1.00

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 18:10

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

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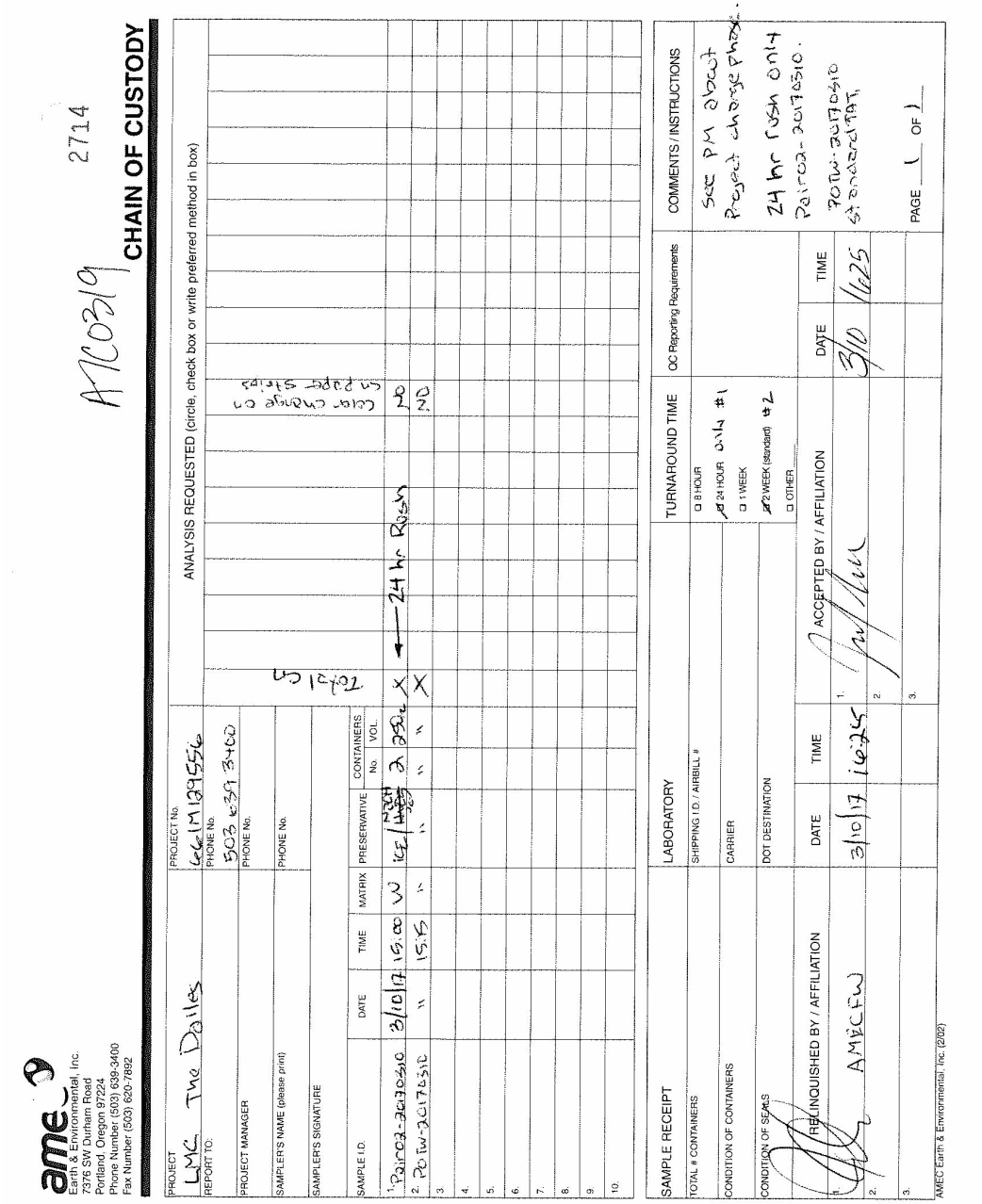
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 18:10



ame
Earth & Environmental, Inc.
7376 SW Durham Road
Portland, Oregon 97224
Phone Number (503) 639-3400
Fax Number (503) 620-7892

CHAIN OF CUSTODY

A1703/9 2714

PROJECT: LMC The Dalles
REPORT TO:
PROJECT MANAGER
SAMPLER'S NAME (please print)
SAMPLER'S SIGNATURE
PROJECT No.: 661M129556
PHONE No.: 503 639 3400
PHONE No.:
PHONE No.:

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.
1. Pairoa-20170310	3/10/17	16:00	W	Ice/HNO3	3	250ml
2. Potw-20170310	"	15:15	"	"	"	"
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

5 ICE/22
Color change to Purple
← 24 hr Rush
X X
NO NO

SAMPLE RECEIPT
TOTAL # CONTAINERS
CONDITION OF CONTAINERS
CONDITION OF SEALS

LABORATORY
SHIPPING I.D. / AIRBILL #
CARRIER
DOT DESTINATION

TURNAROUND TIME
☐ 8 HOUR
☑ 24 HOUR only #1
☐ 1 WEEK
☑ 2 WEEK (standard) #2
☐ OTHER

QC Reporting Requirements

COMMENTS / INSTRUCTIONS
See PM about Project charge phase.
24 hr rush only Pairoa-20170310. POTW-20170310 standard TAT.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1.			1.		
2. AMEC FW	3/10/17	16:45	2.	3/10	1625
3.			3.		

PAGE 1 OF 1

AMEC Earth & Environmental, Inc. (2/02)

Apex Laboratories

Philip Nerenberg

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Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/15/17 18:10

APEX LABS COOLER RECEIPT FORM

Client: AmeC Element WO#: A7C0319

Project/Project #: LMC The Dalles

Delivery info:

Date/Time Received: 3/10/17 @ 1625 By: JS

Delivered by: Apex___ Client X ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS___ Other___

Cooler Inspection Inspected by: JS : 3/10/17 @ 1630

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.7						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: KAR : 3/16/17 @ 1650

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes___ No X Comments: T on 1st Sample Pair02-20170310 reads 1300 T on 2nd Sample

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

POTW-20170310 1315

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No___ NA___

Comments:

Additional Information:

Labeled by: Witness: Cooler Inspected by: See Project Contact Form: Y

KM CFH KAR

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Saturday, March 25, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556

Enclosed are the results of analyses for work order A7C0435, which was received by the laboratory on 3/15/2017 at 11:56:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Pair 01- 20170314	A7C0435-01	Water	03/14/17 17:30	03/15/17 11:56
POTW-20170314	A7C0435-02	Water	03/14/17 17:30	03/15/17 11:56

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Philip Nerenberg, Lab Director

Apex Labs

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-20170314 (A7C0435-02)			**Matrix: Water**					
Batch: 7030803								
Fluoride	**10.1**	0.100	0.100	mg/L	1	03/21/17 11:59	EPA 300.0-LL	

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Pair 01- 20170314 (A7C0435-01)			**Matrix: Water**		**Batch: 7030669**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/16/17 12:05	EPA 335.4	
POTW-20170314 (A7C0435-02)			**Matrix: Water**		**Batch: 7030670**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/17/17 14:25	EPA 335.4	

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-20170314 (A7C0435-02)			**Matrix: Water**					
Batch: 7030629								
Biochemical Oxygen Demand (5 Day)	ND	2.95	2.95	mg/L	1	03/20/17 14:01	SM 5210 B	
Batch: 7030642								
Total Suspended Solids	ND	5.00	5.00	"	"	03/16/17 08:43	SM 2540 D	

Apex Laboratories



Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030803 - Method Prep: Aq									**Water**			
Blank (7030803-BLK1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 09:50					
EPA 300.0-LL												
Fluoride	ND	0.100	0.100	mg/L	1	---	---	---	---	---	---	
LCS (7030803-BS1)					Prepared: 03/21/17 07:37		Analyzed: 03/21/17 10:11					
EPA 300.0-LL												
Fluoride	1.38	0.100	0.100	mg/L	1	1.50	---	92	90-110%	---	---	

Apex Laboratories



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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030669 - Method Prep: Aq							**Water**					
Blank (7030669-BLK1)					Prepared: 03/16/17 08:25		Analyzed: 03/16/17 11:49					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030669-BS1)					Prepared: 03/16/17 08:25		Analyzed: 03/16/17 11:51					
EPA 335.4												
Cyanide, Total	0.266	0.00500	0.00500	mg/L	1	0.250	---	106	85-115%	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030670 - Method Prep: Aq									Water			
Blank (7030670-BLK1)					Prepared: 03/16/17 08:27		Analyzed: 03/17/17 14:21					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7030670-BS1)					Prepared: 03/16/17 08:27		Analyzed: 03/17/17 14:23					
EPA 335.4												
Cyanide, Total	0.250	0.00500	0.00500	mg/L	1	0.250	---	100	85-115%	---	---	

Apex Laboratories



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503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030629 - Method Prep: Aq							**Water**					
Blank (7030629-BLK1)					Prepared: 03/15/17 10:20		Analyzed: 03/20/17 14:01					
SM 5210 B												
Biochemical Oxygen Demand (5 Day)	ND	4.00	4.00	mg/L	1	---	---	---	---	---	---	
Reference (7030629-SRM1)					Prepared: 03/15/17 10:20		Analyzed: 03/20/17 14:01					
SM 5210 B												
Biochemical Oxygen Demand (5 Day)	216			mg/L	1	198		109	84.6-115.4%	---	---	

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7030642 - Total Suspended Solids									Water			
Blank (7030642-BLK1)					Prepared: 03/15/17 14:55		Analyzed: 03/16/17 08:43					
SM 2540 D												
Total Suspended Solids	ND	5.00	5.00	mg/L	1	---	---	---	---	---	---	
Reference (7030642-SRM1)					Prepared: 03/15/17 14:55		Analyzed: 03/16/17 08:43					
SM 2540 D												
Total Suspended Solids	88.0			mg/L	1	100		88	77.1-110%	---	---	

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography) - Low Level

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030803							
A7C0435-02	Water	EPA 300.0-LL	03/14/17 17:30	03/21/17 07:37	10mL/10mL	10mL/10mL	1.00

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030669							
A7C0435-01	Water	EPA 335.4	03/14/17 17:30	03/16/17 08:25	6mL/6mL	6mL/6mL	1.00
Batch: 7030670							
A7C0435-02	Water	EPA 335.4	03/14/17 17:30	03/16/17 08:27	6mL/6mL	6mL/6mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030629							
A7C0435-02	Water	SM 5210 B	03/14/17 17:30	03/15/17 17:23	150mL/300mL	150mL/300mL	NA

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7030642							
A7C0435-02	Water	SM 2540 D	03/14/17 17:30	03/15/17 14:55	1N/A/1N/A	1N/A/1N/A	NA

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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Philip Nerenberg, Lab Director

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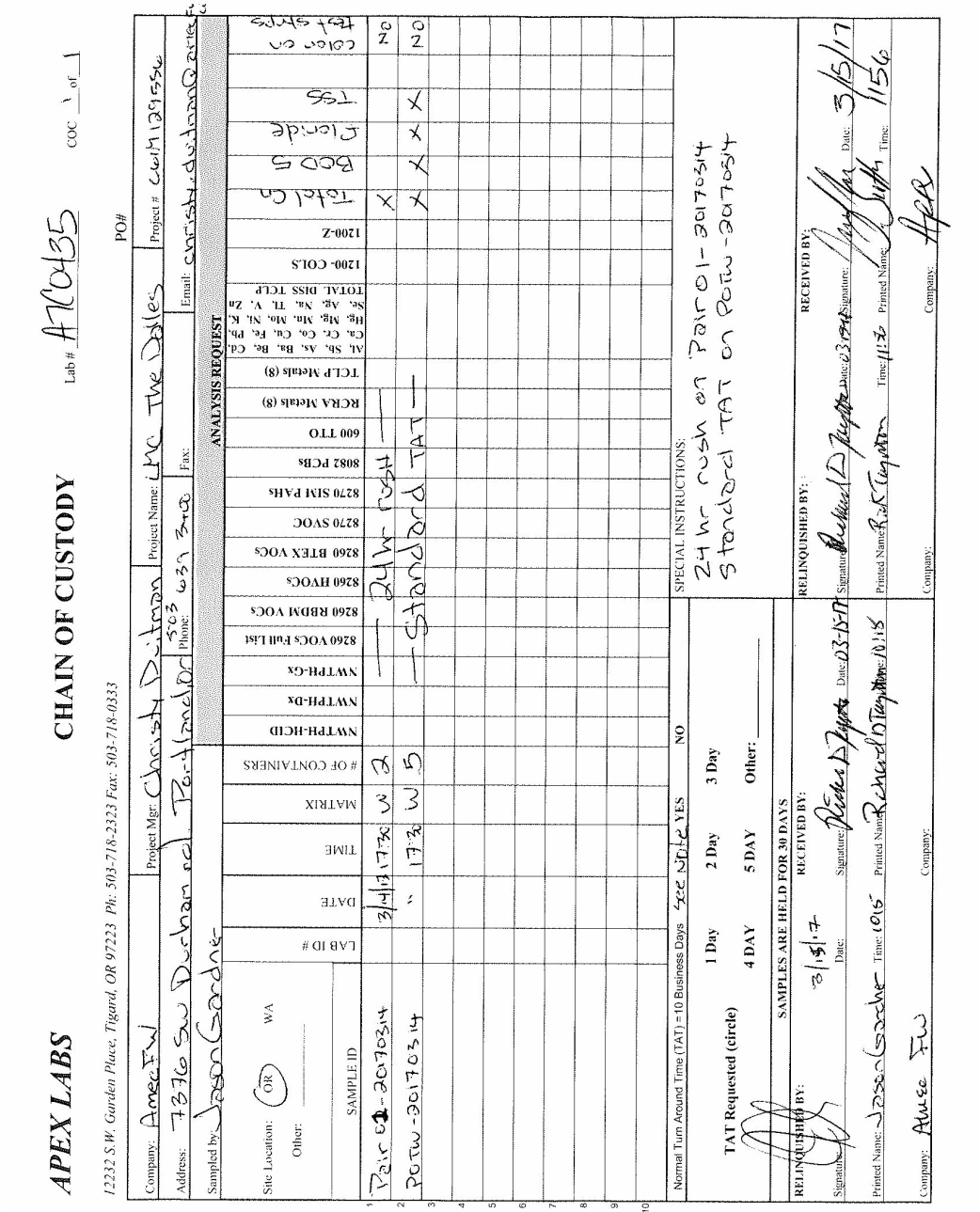
AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45



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Philip Nerenberg

Philip Nerenberg, Lab Director

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503-718-0333 Fax

AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/25/17 19:45

APEX LABS COOLER RECEIPT FORM

Client: Amec Element WO#: A7 C0435

Project/Project #: LMC The Dalles

Delivery info:

Date/Time Received: 3/15/17 @ 1157 By: JS

Delivered by: Apex___ Client___ ESS___ FedEx___ UPS___ Swift___ Servoy___ SDS___ Other X

Cooler Inspection Inspected by: JS : 3/15/17 @ 1205

Chain of Custody Included? Yes X No___ Custody Seals? Yes_____ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	1.8	0.9	JS 3/15/17				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	1.8	0.9					
Ice Type: (Gel/Real/Other)							
Condition:	good	good					

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: JS : 3/15/17 @ 1240

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes ✓ No___ NA_____

Comments:

Additional Information:

Labeled by: JS Witness: AK Cooler Inspected by: JS See Project Contact Form: Y

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Apex Labs

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Thursday, March 30, 2017

Christy Duitman
AMEC Foster Wheeler
7376 SW Durham Road
Portland, OR 97224

RE: LMC The Dalles / 661M129556

Enclosed are the results of analyses for work order A7C0729, which was received by the laboratory on 3/23/2017 at 4:35:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini For Philip Nerenberg, Lab Director

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Tigard, OR 97223
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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/30/17 16:23

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
POTW-20170322	A7C0729-01	Water	03/22/17 16:00	03/23/17 16:35

Apex Laboratories

Lisa A Domenighini

Lisa Domenighini For Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/30/17 16:23

ANALYTICAL SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
POTW-20170322 (A7C0729-01)			**Matrix: Water**		**Batch: 7031138**			
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	03/30/17 13:25	EPA 335.4	

Apex Laboratories



Lisa Domenighini For Philip Nerenberg, Lab Director

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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/30/17 16:23

QUALITY CONTROL (QC) SAMPLE RESULTS

Cyanide - Total (Aqueous)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7031138 - Method Prep: Aq									Water			
Blank (7031138-BLK1)					Prepared: 03/30/17 11:10		Analyzed: 03/30/17 12:47					
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	---	---	---	---	---	
LCS (7031138-BS1)					Prepared: 03/30/17 11:10		Analyzed: 03/30/17 12:49					
EPA 335.4												
Cyanide, Total	0.281	0.00500	0.00500	mg/L	1	0.250	---	112	85-115%	---	---	
Duplicate (7031138-DUP2)					Prepared: 03/30/17 11:10		Analyzed: 03/30/17 13:27					
QC Source Sample: POTW-20170322 (A7C0729-01)												
EPA 335.4												
Cyanide, Total	ND	0.00500	0.00500	mg/L	1	---	ND	---	---	---	10%	
Matrix Spike (7031138-MS2)					Prepared: 03/30/17 11:10		Analyzed: 03/30/17 13:29					
QC Source Sample: POTW-20170322 (A7C0729-01)												
EPA 335.4												
Cyanide, Total	0.276	0.00500	0.00500	mg/L	1	0.250	ND	111	80-120%	---	---	

Apex Laboratories



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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/30/17 16:23

SAMPLE PREPARATION INFORMATION

Cyanide - Total (Aqueous)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7031138							
A7C0729-01	Water	EPA 335.4	03/22/17 16:00	03/30/17 11:10	6mL/6mL	6mL/6mL	1.00

Apex Laboratories



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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/30/17 16:23

Notes and Definitions

Qualifiers:

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***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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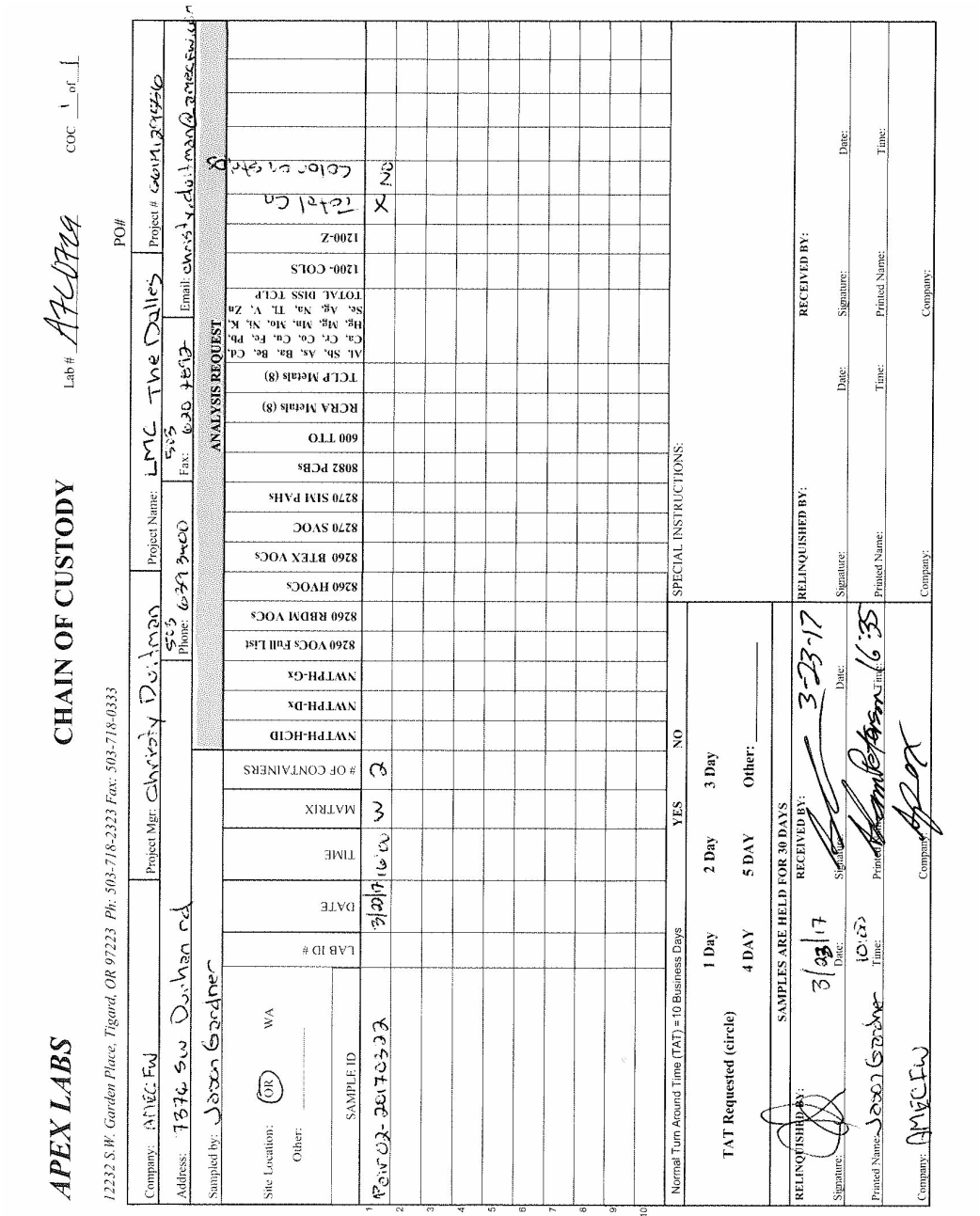
AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/30/17 16:23



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AMEC Foster Wheeler	Project: **LMC The Dalles**	
7376 SW Durham Road	Project Number: 661M129556	**Reported:**
Portland, OR 97224	Project Manager: Christy Duitman	03/30/17 16:23

APEX LABS COOLER RECEIPT FORM

Client: Amec Element WO#: A7 C0729

Project/Project #: LMC The Dalles / 661M129556

Delivery info:

Date/Time Received: 3-23-17 @ 16:35 By: AP

Delivered by: Apex X Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Inspected by: AP : 3-23-17 @ 17:00

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	4.8						
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: MA : 3/23/17 @ 17:25

All Samples Intact? Yes X No ___ Comments:

Bottle Labels/COCs agree? Yes ___ No X Comments: Label reads Pair2-20170322 on 125 ml unpreserved

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No ___ NA + MS 3/23

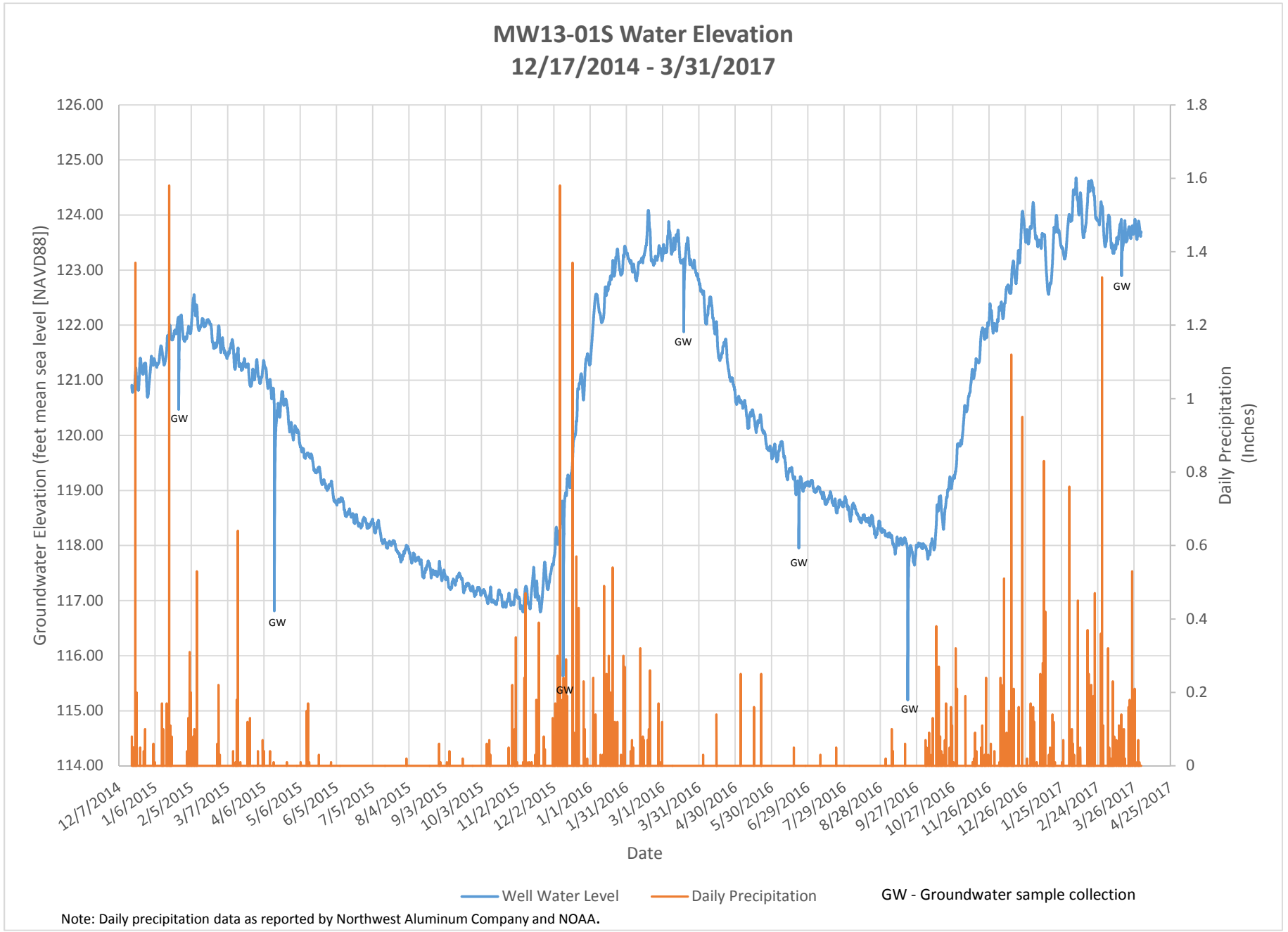
Comments:

Additional Information:

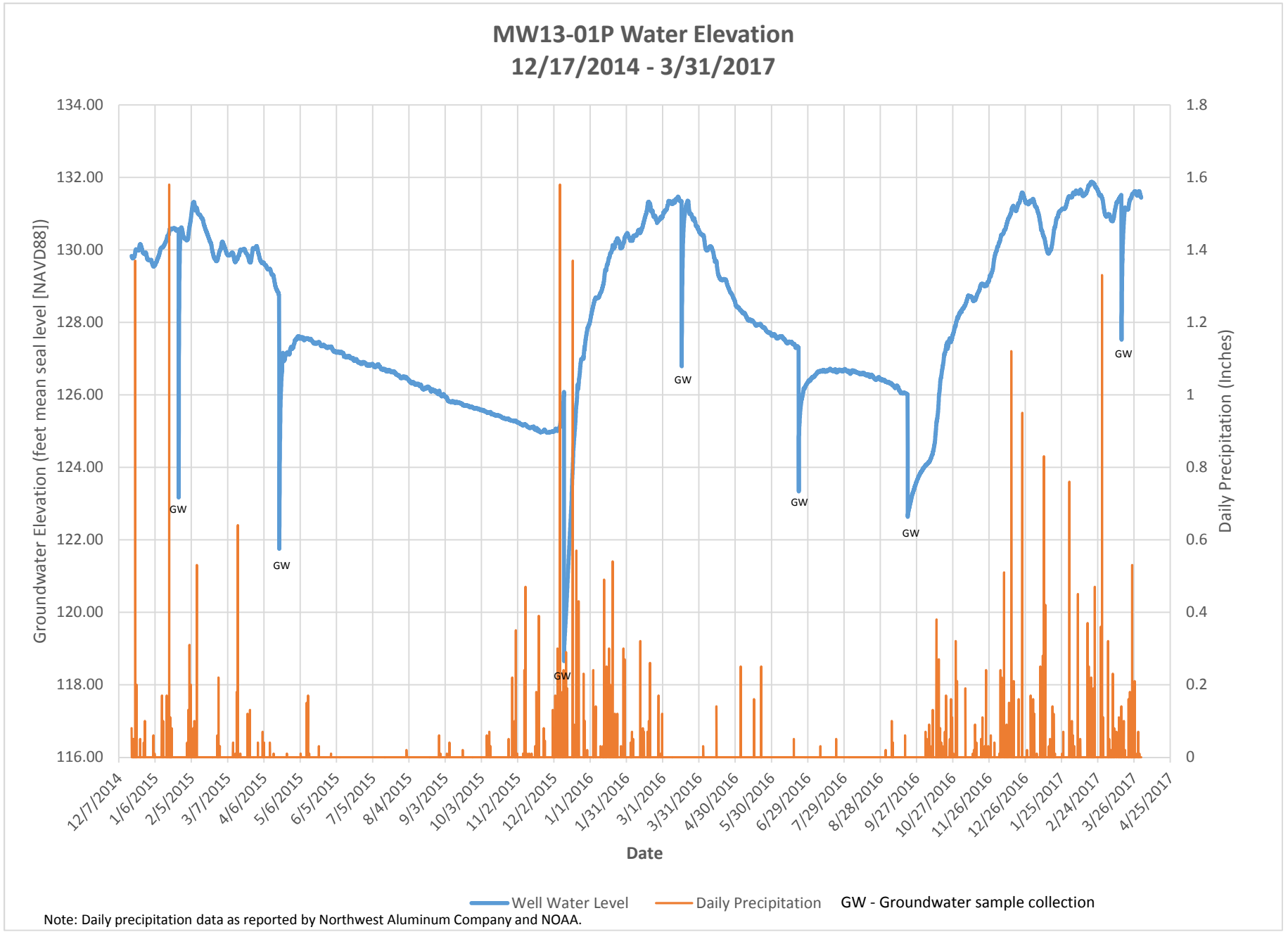
Labeled by: Witness: Cooler Inspected by: See Project Contact Form: Y

APPENDIX I

Hydrographs



Note: Daily precipitation data as reported by Northwest Aluminum Company and NOAA.



Note: Daily precipitation data as reported by Northwest Aluminum Company and NOAA.