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March 30, 2020
Project No. 9081.01.19

Thomas L. Mackie, LHG
Washington State Department of Ecology
Central Regional Office
1250 West Alder Street
Union Gap, Washington 98903

Re: 2019 Annual Progress Report
McFarland Cascade Pole and Lumber Company Site, Tacoma, Washington
Facility Site ID: 1222; Cleanup Site ID: 3643

Dear Mr. Mackie:

In accordance with Pierce County Superior Court Consent Decree No. 16-2-08380-9 (CD), operation and maintenance (O&M) and monitoring of the remedies selected in the Final Cleanup Action Plan (CAP) for the Cascade Pole and Lumber site (the Site) (Washington State Department of Ecology [Ecology], 2016) were conducted at the Site in 2019. The CD, which became effective on June 7, 2016, requires annual progress reporting to document O&M and monitoring activities at the Site. The CAP is provided as Exhibit B to the CD.

Maul Foster & Alongi, Inc. (MFA) prepared this report on behalf of McFarland Cascade Holdings, Inc. (MCHI) and Tyee Management Company, LLC (Tyee) to fulfill the annual progress reporting requirements for the Site. O&M and monitoring activities required at the Site are defined in the Groundwater Compliance Monitoring Plan (CMP) (MFA, 2016a) and the Site Management Plan (SMP) (MFA, 2016b), which are included in the CAP as Appendices A and B, respectively. Specific reporting requirements are outlined in Section 7 of the CMP.

This progress report includes O&M and monitoring activities completed at the Site for the entire 2019 calendar year. This is the fourth annual progress report since the CD became effective.

BACKGROUND

The Site includes property, owned by Tyee, at 1640 E Marc Street in Tacoma, Washington (the Property), as well as a portion of an adjoining property owned by the Port of Tacoma. The Property and Site boundaries are shown in the attached figure. MCHI leases the Property from Tyee and operates a treated-wood products manufacturing and processing facility on a portion of the Property. The final remedy for the Site includes O&M of a protective cap covering residual soil contamination in the Restricted Area (see the figure), soil management to be undertaken should soil be excavated or disturbed below the cap, O&M of a horizontal

groundwater recovery system, groundwater compliance monitoring, and institutional controls (see the CAP, CMP, and SMP for details).

Groundwater monitoring at the Site is being conducted in accordance with the protection stage of monitoring, as defined in the CMP. During the protection stage, the horizontal groundwater recovery system is in operation, and monitoring is required to evaluate performance and effectiveness. The CMP states that during the protection stage, monitoring will be conducted semiannually for two years and then reduced to an annual frequency. The last semiannual protection monitoring event was conducted in February 2017. MFA notified Ecology of the reduction from semiannual to annual monitoring at the Site (MFA, 2017a). As confirmed by the Ecology site manager, the sampling reduction was consistent with the requirements outlined in the CMP (Ecology, 2017). Therefore, protection monitoring is now conducted on an annual basis during January or February, in accordance with the CMP. The most recent annual monitoring event was conducted in February 2020. A groundwater monitoring report for the February 2020 monitoring event will be included in next year's annual report.

SUMMARY OF ON-SITE ACTIVITIES

The following activities were conducted on the Site between January 1, 2019, and December 31, 2019:

- An annual groundwater compliance monitoring event was conducted in February 2019 (the groundwater monitoring report is provided as Attachment A).
- Routine operation and monthly inspections of the horizontal groundwater recovery system were conducted throughout the year (monthly inspection forms are provided as Attachment B).
- Annual inspection and maintenance of the protective cap (the 2019 annual cap inspection report is provided as Attachment C).
- The 2019 sampling data were uploaded to Ecology's Environmental Information Management database.

An initial inspection of the protective cap was conducted on November 22, 2019 (see Attachment C). Several areas were noted for monitoring, but no areas were noted for repair at the time.

Generally, the horizontal groundwater recovery system operated normally in 2019 (inspection logs and a summary table of inspection and performance data are provided as Attachment B). The following operational outages and repairs occurred:

- In January 2019, a new totalizer meter was installed.

- In February 2019, the horizontal recovery well system was temporarily shut down from February 5 to the 11 due to cold weather freezing components of the system.
- In April and May 2019, MCHI staff noted that the meter possibly malfunctioned and was counting backwards.
- In June 2019, a new totalizer meter was installed.

Groundwater compliance monitoring was conducted in accordance with the sampling requirements for the protection monitoring stage (see the CMP). Remediation levels were not exceeded in the sentry wells during the reporting period, and no contingent actions were triggered. Remediation levels were exceeded in source area wells; therefore, protection monitoring and operation of the groundwater horizontal recovery system will continue.

NEXT STEPS

An annual protection groundwater monitoring event was conducted in February 2020. A groundwater monitoring report for that event will be included in the 2020 annual progress report.

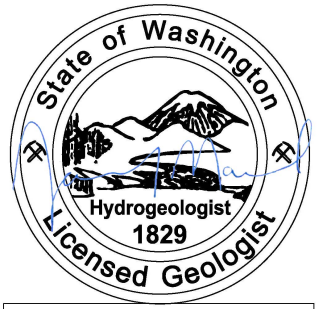
O&M and monthly monitoring of the horizontal groundwater recovery system will continue in 2020.

The next annual protective cap inspection is scheduled for the fall of 2020.

If you have any questions regarding this submittal, please feel free to contact either of us.

Sincerely,

Maul Foster & Alongi, Inc.



03/30/2020

Carolyn R. Wise, LG
Project Geologist

James J. Maul, LHG
Principal Hydrogeologist

Attachments: Limitations
References
Figure
A—Annual Groundwater Monitoring Report
B—Monthly Horizontal Well Inspection Forms
C—Annual Protective Cap Inspection Report

cc: Alex Clark, McFarland Cascade Holdings, Inc.
Les Lonning, Tyee Management, LLC

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

REFERENCES

Ecology. 2016. Final cleanup action plan, Cascade Pole and Lumber Company, Tacoma, Washington. Washington State Department of Ecology, Hazardous Waste and Toxics Reduction Program, Southwest Regional Office, Lacey, Washington. January 12.

Ecology. 2017. Letter (re: groundwater monitoring frequency reduction, McFarland Cascade Pole and Lumber Company site, Tacoma, Washington, facility site ID: 1222; cleanup site ID: 3643, Pierce County Superior Court Consent Decree No. 16-2-08380-9) to H. Good, Maul Foster & Alongi, Inc., Bellingham, Washington, from T. Mackie, Washington State Department of Ecology, Union Gap, Washington. May 31.

MFA. 2016a. Groundwater compliance monitoring plan—McFarland Cascade Pole and Lumber Company, Tacoma facility. Prepared for McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC. Maul Foster & Alongi, Inc., Bellingham, Washington. January 12.

MFA. 2016b. Site management plan—McFarland Cascade Pole and Lumber Company, Tacoma facility. Prepared for McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC. Maul Foster & Alongi, Inc., Bellingham, Washington. January 12.

MFA. 2017a. Letter (re: groundwater monitoring frequency reduction—McFarland Cascade Pole and Lumber Company site, Tacoma, Washington, facility site ID: 1222, cleanup site ID: 3643) to T.L. Mackie, Washington State Department of Ecology, from H. Good and J. Clary, Maul Foster & Alongi, Inc., Bellingham, Washington. May 3.

FIGURE

Figure
Site Features

McFarland Cascade Pole
and Lumber Company
Tacoma, Washington

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Railroad
- Site Boundary
- Property Boundary
- Protective Cap and Soil Restricted Area

Notes:
AST = aboveground storage tank.
CA-C = copper azole - type C.
PCP = pentachlorophenol.
SWTS = stormwater treatment system.

0 100 200
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM Environment, RETEC, MKA and USPCI; county parcel boundaries (July 2014) obtained from Pierce County.

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Path: X:\0999.01 Cascade Pole\01_MTCA Closure\02_CMP\Projects\Fig_Site Features.mxd
Print Date: 3/16/2017
Approved By: hgood
Produced By: cwise
Project: 9081.01.12

ATTACHMENT A

ANNUAL GROUNDWATER MONITORING REPORT

MAUL FOSTER ALONGI

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August 26, 2019
Project No. 9081.01.17

Alex Clark
Senior Environmental Manager
McFarland Cascade Holdings, Inc.
PO Box 1496
Tacoma, Washington 98401-1496

Re: 2019 Annual Groundwater Monitoring Event
McFarland Cascade Pole and Lumber Company Site, Tacoma, Washington
Facility Site ID: 1222; Cleanup Site ID: 3643

Dear Ms. Clark:

On February 4 through 6, 2019, Maul Foster & Alongi, Inc. (MFA) conducted a groundwater monitoring event at the Cascade Pole and Lumber Company site located at 1640 East Marc Street in Tacoma, Washington (the Site). The monitoring event was conducted on behalf of McFarland Cascade Holdings, Inc. (MCHI) and Tyee Management Company, LLC (Tyee) to fulfill the annual compliance monitoring requirement under the final cleanup action plan (CAP) (Washington State Department of Ecology [Ecology], 2016), which is included in the June 7, 2016, consent decree (Pierce County Superior Court No. 16-2-08380-9) as an exhibit. Sampling was conducted consistent with the groundwater compliance monitoring plan (CMP) (MFA, 2016a), which is included in the CAP as an appendix, and in accordance with compliance monitoring requirements put forth in the Washington State Model Toxics Control Act (Washington Administrative Code 173-340-410). Completed monitoring activities and sampling results are summarized below.

BACKGROUND

The Site includes property owned by Tyee (the Property) and a portion of the adjoining property owned by the Port of Tacoma (Port). The Property and Site boundaries are shown on Figure 1. MCHI leases the Property from Tyee and operates a treated-wood-products manufacturing and processing facility on a portion of the Property. Interim actions completed under a 1989 agreed order, including hydraulic containment and recovery via a horizontal groundwater recovery system, and compliance groundwater monitoring were selected as part of the final remedy for the Site (Ecology, 2016). The horizontal recovery system involves extracting groundwater from a horizontal recovery well; the extracted groundwater is used in the wood-treatment process.

The groundwater monitoring program includes three stages of monitoring: protection, performance, and confirmational (MFA, 2016a). During all three stages, groundwater

monitoring is required in order to evaluate whether indicator hazardous substance (IHS) concentrations comply with cleanup levels (CULs) at the conditional point of compliance (CPOC), which is located at the Site boundary (see Figure 1).

To demonstrate that CULs are being met at the CPOC, sentry wells are monitored for compliance with remediation levels (RELs). Sentry wells are located between the source area and the CPOC (see Figure 1). RELs are concentrations derived from attenuation modeling, that, if reached in a sentry well, indicate the potential for exceedance of a CUL at the CPOC. REL exceedances in a sentry well would trigger additional assessment consistent with the CMP (MFA, 2016a). Criteria for evaluating compliance with RELs and CULs, requirements for progressing to the next stage of monitoring, and steps for addressing REL exceedances are included in the CMP.

The current stage is annual protection monitoring. During this stage, the horizontal recovery system is in operation and monitoring is required to evaluate its performance and protectiveness. After two years of semiannual groundwater monitoring without sentry well exceedances, the last semiannual protection monitoring event was conducted in February 2018. MFA notified Ecology of the reduction from semiannual to annual monitoring at the Site (MFA, 2017b). As confirmed by the Ecology site manager, the sampling reduction was consistent with the requirements outlined in the CMP (Ecology, 2017). Therefore, protection monitoring is now conducted on an annual basis at the Site during January or February, in accordance with the CMP, and includes sampling of compliance monitoring network wells, including source area wells, sentry wells, and the horizontal recovery well; and measurement of water levels in all Site wells (see Figure 1). IHS concentrations in all compliance monitoring network wells are compared to RELs. It is required that the protection stage continue until it has been demonstrated, in accordance with the procedures outlined in the CMP, that RELs are being met in all compliance monitoring network wells.

Prior to the February 2018 event, protection monitoring events included analyzing groundwater samples for the following Site IHSs: dissolved arsenic, dissolved copper, total hexavalent chromium, benzene, ethylbenzene, xylenes, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and pentachlorophenol. Data from four semiannual monitoring events conducted between February 2015 and October 2016 indicated that dissolved arsenic and dissolved copper were the only IHSs exceeding their respective CULs (MFA, 2016c). Therefore, Ecology approved a request to remove total hexavalent chromium, benzene, ethylbenzene, xylenes, cPAHs, and pentachlorophenol from the groundwater compliance monitoring program (see Attachment A of MFA, 2017a). The February 2017, 2018, and 2019 monitoring events included analyses for dissolved arsenic and dissolved copper only; future monitoring events will also focus on only these two IHSs.

Groundwater is present in both shallow and deep water-bearing zones (WBZs) beneath the Site. Compliance monitoring network wells are completed in both WBZs, as shown in the attached tables and figures.

A monitoring well associated with the Union Pacific Railroad's Former Milwaukee Railyard site (UPRR Site), UPRR-MW-29, is included within the Site boundaries and is located on the Port property (see Figure 1). The Port completed cleanup actions and conducts ongoing groundwater monitoring to address petroleum-related contamination on the UPRR Site under Prospective Purchaser Consent Decree No. 95-2-02280-0. UPRR-MW-29 is monitored to evaluate concentration trends and hydraulic gradients as part of the protection and performance stages of monitoring for the Site but is not included in the compliance monitoring network; therefore, IHS concentrations detected in this well are not compared to RELs. UPRR-MW-29 will be included in the final confirmational monitoring network (MFA, 2016a).

This is the seventh protection monitoring event since protection monitoring began in February 2015. The previous monitoring event was conducted in February 2018 (MFA, 2019).

FIELD AND ANALYTICAL PROCEDURES

MFA measured static water levels in all existing Site wells and collected groundwater samples from all wells included in the compliance monitoring network and from UPRR-MW-29. A field duplicate sample was collected from source area well MW-3.

During the early February sampling event, the horizontal recovery well was temporarily shut down because of cold weather freezing components of the well and preventing its operation. The horizontal recovery well was sampled on February 26, 2019, approximately three weeks following the initial sampling effort.

Water quality parameters were measured before sample collection and were recorded on field sampling data sheets (FSDSs) (see Attachment A). Groundwater samples were collected using low-flow sampling techniques.

Samples were submitted to Analytical Resources, Inc., of Tukwila, Washington, under standard chain-of-custody procedures. Samples were analyzed for dissolved arsenic and dissolved copper by U.S. Environmental Protection Agency Method 200.8. Samples were filtered in the field.

GROUNDWATER FLOW

Water levels were measured in all Site wells on February 5, 2019. Depth-to-water measurements and groundwater elevations are summarized in Table 1. Groundwater elevations across the Site were, on average, about half a foot lower than those observed during the February 2018 monitoring event (see Table 1 and MFA, 2019).

Estimated groundwater elevation contours for the shallow and deep WBZs (shown in Figure 2) indicate that at the time of measurement, groundwater in the shallow WBZ was generally flowing north, northwest, west, or southwest, toward the Puyallup River. This is generally consistent with the shallow-WBZ groundwater flow direction observed during previous monitoring events (MFA, 2016b,c, 2017a, 2019). The general groundwater flow direction in the deep WBZ is west-southwest. This is consistent with the deep-WBZ groundwater flow direction observed during previous monitoring events, except for October 2016, in which the groundwater flow direction was west-northwest (MFA, 2016b,c, 2017a, 2019). The horizontal recovery well was installed beneath the transfer table pit and adjacent areas in 1997 for hydraulic containment in the treating area of the Site. The horizontal recovery well (HW-01) recovers groundwater from the shallow aquifer and influences shallow groundwater at the Site. Operation of HW-01 captures groundwater within the treating area as indicated by the groundwater contours and flow lines presented on Figure 2. Given this influence by the horizontal recovery well, shallow groundwater flow varies across the Site from northwest to southwest, however sentry wells MW-4, MW-19, and MW-20 remain down gradient of treating area, outside of the capture zone created by HW-01.

REDEVELOPMENT OF SENTRY WELLS

During previous groundwater monitoring events, turbidity in sentry wells MW-4, MW-19, and MW-20 was elevated (MFA, 2016b,c, 2017a). Given that the sentry wells were last sampled in February 2018, about a year ago, it was anticipated that finer-grained material would have accumulated in the wells, requiring extensive purging to reduce turbidity. Therefore, the wells were redeveloped before sampling.

Sentry wells MW-4 and MW-19 were redeveloped on February 4, 2019, and sentry well MW-20 was redeveloped on February 5, 2019. Redevelopment consisted of using a disposable bailer to surge and bail the well, followed by purging using a peristaltic pump and disposable tubing. Turbidity decreased during redevelopment and measured below 10 nephelometric turbidity units (NTUs) after redevelopment (see the well redevelopment forms, Attachment B). Before collection of the samples, the redeveloped sentry wells were allowed to recharge and stabilize for at least 24 hours. MFA collected samples from the sentry wells on February 6, 2019, after the water quality parameters had stabilized and turbidity had decreased to below 10 NTUs (see the FSDSs in Attachment A).

LABORATORY RESULTS

Analytical results are summarized in Table 2. The laboratory analytical reports are included as Attachment C. A data validation memorandum, which summarizes data evaluation procedures, usability of data, and deviations from field and/or laboratory methods, is included as Attachment D. Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether data quality objectives had been met. The data

were validated and are considered acceptable for their intended use, with the appropriate data qualifiers assigned (see Attachment D).

Dissolved arsenic and dissolved copper were detected in groundwater samples collected during the February 2019 monitoring event (see Table 2); arsenic and copper results from both the shallow and deep WBZs are shown in Figure 3.

COMPARISON TO CLEANUP LEVELS AND REMEDIATION LEVELS

IHS (i.e., arsenic and copper) concentrations were compared to the CULs and RELs included in the CMP (MFA, 2016a) (see Table 2).

Dissolved-arsenic REL exceedances were detected in the source area and in the shallow WBZ (MW-3 and MW-8). CULs were exceeded in all shallow WBZ wells, with the exception of MW-20. Dissolved arsenic was detected in the deep WBZ (MW-7 and MW-14), but no CUL or REL exceedances were detected in the deep WBZ wells.

Dissolved copper exceeded its REL and CUL in the shallow WBZ at the horizontal recovery well. Dissolved copper was detected in the shallow WBZ at sentry well MW-19 and in the deep WBZ in sentry well MW-7, but not above its CUL or RELs.

IHS concentrations detected in samples from the sentry wells were all below RELs.

The dissolved-arsenic and -copper concentrations detected in the sample collected from the Port property monitoring well (UPRR-MW-29), which is in the shallow WBZ, exceeded CULs. However, UPRR-MW-29 is not included in the compliance monitoring network, and groundwater results from this well are not compared to RELs.

SUMMARY OF FINDINGS

Below is a summary of findings from the February 2019 compliance monitoring event:

- RELs were not exceeded in any sentry wells.
- In the shallow and deep WBZs, groundwater generally flows northwest, west, or southwest, toward the Puyallup River.
- In the shallow WBZ sentry wells (MW-4 and MW-19), dissolved-arsenic concentrations exceeded CULs but were below RELs.
- In the shallow WBZ, the dissolved-copper concentration exceeded the CUL and REL at the horizontal recovery well.
- In the shallow WBZ source area wells, dissolved-arsenic concentrations exceeded CULs and RELs (MW-3 and MW-8).

- In the deep WBZ source area and sentry wells, dissolved-arsenic and dissolved-copper concentrations were below their respective CULs and RELs.
- The dissolved-copper and -arsenic concentrations detected in the Port property monitoring well (UPRR-MW-29) exceeded CULs. Groundwater results from this well were not compared to RELs.

CONCLUSIONS AND RECOMMENDATIONS

RELs were not exceeded in shallow or deep WBZ sentry wells during this or previous compliance monitoring events, which indicates that IHS concentrations are in compliance with CULs at the CPOC. Therefore, no contingent actions, as defined in the CMP (MFA, 2016a), are triggered.

Dissolved-arsenic and -copper concentrations detected in the source area exceeded RELs; therefore, operation of the horizontal recovery system and protection monitoring will continue.

The next annual monitoring event is scheduled for February 2020.

Sincerely,

Maul Foster & Alongi, Inc.

JAMES J. MAUL

08.26-2019

James J. Maul, LHG
Principal Hydrogeologist

Carolyn R. Wise, GIT
Project Geologist

Attachments: Limitations
References
Tables

Figures
A—Field Sampling Data Sheets
B—Well Redevelopment Logs
C—Laboratory Analytical Reports
D—Data Validation Memorandum

cc: Less Lonning, Tyee

LIMITATIONS

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REFERENCES

Ecology. 2016. Final cleanup action plan, Cascade Pole and Lumber Company, Tacoma, Washington. Washington State Department of Ecology, Hazardous Waste and Toxics Reduction Program, Southwest Regional Office, Lacey, Washington. January 12.

Ecology. 2017. Letter (re: groundwater monitoring frequency reduction, McFarland Cascade Pole and Lumber Company site, Tacoma, Washington, facility site ID: 1222; cleanup site ID: 3643, Pierce County Superior Court Consent Decree No. 16-2-08380-9) to H. Good, Maul Foster & Alongi, Inc., from T. Mackie, Washington State Department of Ecology, Union Gap, Washington. May 31.

MFA. 2016a. Groundwater compliance monitoring plan—McFarland Cascade Pole and Lumber Company, Tacoma facility. Prepared for McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC. Maul Foster & Alongi, Inc., Bellingham, Washington. January 12.

MFA. 2016b. Letter (re: spring 2016 semiannual groundwater monitoring event—McFarland Cascade Pole and Lumber Company site, Tacoma, Washington, Facility Site ID: 1222, Cleanup Site ID: 3643) to G. Caron, Washington State Department of Ecology, from H. Good and J. Clary, Maul Foster & Alongi, Inc. Prepared for McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC. Maul Foster & Alongi, Inc., Bellingham, Washington. March 25.

MFA. 2016c. Letter (re: fall 2016 semiannual groundwater monitoring event—McFarland Cascade Pole and Lumber Company site, Tacoma, Washington, Facility Site ID: 1222, Cleanup Site ID: 3643) to G. Caron, Washington State Department of Ecology, from H. Good and J. Clary, Maul Foster & Alongi, Inc. Prepared for McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC. Maul Foster & Alongi, Inc., Bellingham, Washington. December 29.

MFA. 2017a. Letter (re: spring 2017 semiannual groundwater monitoring event—McFarland Cascade Pole and Lumber Company site, Tacoma, Washington, Facility Site ID: 1222, Cleanup Site ID: 3643) to T. Smith, McFarland Cascade Holdings, Inc., from H. R. Good and J. L. Clary, Maul Foster & Alongi, Inc. Prepared for McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC. Maul Foster & Alongi, Inc., Bellingham, Washington. March 27.

MFA. 2017b. Letter (re: groundwater monitoring frequency reduction—McFarland Cascade Pole and Lumber Company site, Tacoma, Washington, facility site ID: 1222, cleanup site ID: 3643) to T. L. Mackie, Washington State Department of Ecology, by H. G. Good and J. L. Clary, Maul Foster & Alongi, Inc., Bellingham, Washington. May 3.

MFA. 2019. Letter (re: 2018 annual groundwater monitoring event—McFarland Cascade Pole and Lumber Company site, Tacoma, Washington, facility site ID: 1222, cleanup site ID: 3643) to T. L. Mackie, Washington State Department of Ecology, by C. R. Wise and J. J. Maul, Maul Foster & Alongi, Inc., Bellingham, Washington. February 1.

TABLES

Table 1
Water Level Measurements
McFarland Cascade Pole and Lumber Company
McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC
Tacoma, Washington

Well ID	MP Elevation (feet NGVD29)	Date	Time	DTW (feet)	DTB (feet)	Groundwater Elevation (feet)
Shallow Water-Bearing Zone Wells						
MW-1	11.68	02/05/2019	2:45 PM	5.67	13.42	6.01
MW-2	11.93	02/05/2019	12:15 PM	4.87	9.38	7.06
MW-3	12.69	02/05/2019	9:30 AM	6.28	10.55	6.41
MW-4	11.55	02/05/2019	2:50 PM	6.94	9.90	4.61
MW-5	12.71	02/05/2019	10:35 AM	7.28	11.96	5.43
MW-6	12.70	02/05/2019	2:00 PM	6.29	11.64	6.41
MW-8	14.02	02/05/2019	10:25 AM	7.83	12.30	6.19
MW-9	10.96	02/05/2019	1:00 PM	5.16	10.28	5.80
MW-10	12.15	02/05/2019	10:00 AM	6.29	9.92	5.86
MW-11	11.70	02/05/2019	11:30 AM	5.08	8.49	6.62
MW-12	12.32	02/05/2019	12:30 PM	5.18	10.09	7.14
MW-13	12.31	02/05/2019	11:00 AM	5.49	10.84	6.82
MW-15	11.90	02/05/2019	1:15 PM	7.23	10.80	4.67
MW-16	10.77	02/05/2019	1:20 PM	5.14	8.89	5.63
MW-17	13.56	02/05/2019	1:30 PM	8.14	10.69	5.42
MW-19	14.15	02/05/2019	3:05 PM	9.74	13.64	4.41
MW-20	14.99	02/05/2019	2:50 PM	8.25	13.98	6.74
UPRR-MW-29	11.80	02/05/2019	5:10 PM	4.45	15.48	7.35
Deep Water-Bearing Zone Wells						
MW-7	12.00	02/05/2019	10:15 AM	8.08	24.96	3.92
MW-14	12.30	02/05/2019	11:15 AM	8.26	24.52	4.04
MW-18	12.23	02/05/2019	9:45 AM	8.58	27.75	3.65

NOTES:

DTW and DTB are measured from top of well casing.

DTB = depth to bottom.

DTW = depth to water.

MP = measuring point (i.e., top of well casing).

NGVD29 = National Geodetic Vertical Datum of 1929.

Table 2
Groundwater Analytical Results (ug/L)
McFarland Cascade Pole and Lumber Company
McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC
Tacoma, Washington

			IHS:	Dissolved Arsenic	Dissolved Copper
			CUL:	5	2.4
Location	Location Type	Collection Date	Sample Type		
Shallow Water-Bearing Zone					
HW-01	Horizontal Recovery Well		*HW-01 RELs:*	*46*	*22*
		02/27/2015	N	**56.9**	2.2
		10/29/2015	N	**118**	**3**
		02/24/2016	N	**64.4**	1.3
		10/05/2016	N	**138**	**2.87**
		02/02/2017	N	**45.6**	0.921
		02/06/2018	N	**49.5**	0.5 U
		02/26/2019	N	**37.6**	**287**
		02/26/2019	FD	**38**	**290**
MW-3	Source Area Well		*MW-3 RELs:*	*45*	*21*
		02/27/2015	N	**694 J**	0.7
		02/27/2015	FD	**773 J**	0.6
		10/29/2015	N	**497**	0.5 U
		02/24/2016	N	**566**	0.6
		02/24/2016	FD	**567**	0.8
		10/05/2016	N	**3,410**	**3.75**
		10/05/2016	FD	**3,320**	**4.52**
		02/02/2017	N	**315**	0.5 U
		02/02/2017	FD	**343**	0.5 U
		02/06/2018	N	**706**	0.947
		02/06/2018	FD	**814**	1.29
		02/06/2019	N	**491**	1.0 U
		02/06/2019	FD	**507**	1.0 U
MW-4	Sentry Well		*MW-4 RELs:*	*32*	*15*
		02/27/2015	N	**16.8**	0.6
		10/28/2015	N	**27.8**	0.5 U
		02/24/2016	N	**15**	0.5 U
		10/04/2016	N	**31.8**	0.5 U
		02/01/2017	N	**21.5**	0.5 U
		02/07/2018	N	**22.2**	0.5 U
		02/06/2019	N	**20.3**	0.5 U

Table 2
Groundwater Analytical Results (ug/L)
McFarland Cascade Pole and Lumber Company
McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC
Tacoma, Washington

			IHS:	Dissolved Arsenic	Dissolved Copper
			CUL:	5	2.4
Location	Location Type	Collection Date	Sample Type		
MW-8	Source Area Well		*MW-8 RELs:*	*46*	*22*
		02/26/2015	N	**273**	1.1
		10/29/2015	N	**566**	0.8
		10/29/2015	FD	**604**	1.4
		02/24/2016	N	**236**	0.5 U
		10/06/2016	N	**594**	0.5 U
		02/02/2017	N	**160**	0.797
		02/06/2018	N	**139**	0.595
		02/05/2019	N	**188**	0.5 U
MW-19	Sentry Well		*MW-19 RELs:*	*35*	*17*
		02/27/2015	N	**14**	0.7
		10/30/2015	N	**36.9***	0.5
		11/24/2015	N	**18.2**	--
		11/24/2015	FD	**18.0**	--
		02/23/2016	N	**9.3**	0.8
		10/06/2016	N	**21.8**	0.576
		02/01/2017	N	**12.0**	0.5 U
		02/07/2018	N	**13.0**	0.5 U
		02/06/2019	N	**14.9**	0.558
MW-20	Sentry Well		*MW-20 RELs:*	*29*	*14*
		02/27/2015	N	2.1	0.6
		10/28/2015	N	0.9	0.5 U
		02/23/2016	N	0.6	0.5 U
		10/05/2016	N	0.966	0.5 U
		02/01/2017	N	0.672	0.5 U
		02/07/2018	N	0.645	0.5 U
		02/06/2019	N	0.493	0.5 U
UPRR-MW-29	Other Monitoring Well		*MW-29 RELs:*	*NA*	*NA*
		02/26/2015	N	**31.9**	**4**
		10/30/2015	N	**55.9**	1.9
		02/23/2016	N	**20.2**	**4.9**
		10/06/2016	N	**112**	0.5 U
		02/02/2017	N	**13.1**	**3.45**
		02/06/2018	N	**18**	**4.61**
		02/05/2019	N	**23.9**	**3.91**

Table 2
Groundwater Analytical Results (ug/L)
McFarland Cascade Pole and Lumber Company
McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC
Tacoma, Washington

			IHS:	Dissolved Arsenic	Dissolved Copper
			CUL:	5	2.4
Location	Location Type	Collection Date	Sample Type		
Deep Water-Bearing Zone					
MW-7	Sentry Well		*MW-7 RELs:*	*43*	*20*
		02/26/2015	N	0.9	0.8
		10/29/2015	N	1.4	0.7
		02/24/2016	N	0.7	0.5 U
		10/06/2016	N	0.668	0.5 U
		02/02/2017	N	0.709	0.5 U
		02/06/2018	N	0.704	0.5 U
		02/05/2019	N	0.88	0.546
MW-14	Source Area Well		*MW-14 RELs:*	*47*	*22*
		02/27/2015	N	**10.5**	**6**
		10/29/2015	N	2.8	0.6
		02/24/2016	N	4.5	**3.2**
		10/05/2016	N	2.86	0.5 U
		02/02/2017	N	3.04	0.551
		02/06/2018	N	2.47	0.5 U
		02/06/2019	N	2.05	0.5 U
MW-18	Sentry Well		*MW-18 RELs:*	*42*	*20*
		02/27/2015	N	0.6	1.1
		10/28/2015	N	0.4	0.5 U
		02/24/2016	N	0.2	0.6
		10/05/2016	N	0.283	0.5 U
		02/02/2017	N	0.287	1.04
		02/06/2018	N	0.2 U	0.5 U
		02/05/2019	N	0.2 U	0.5 U

Table 2
Groundwater Analytical Results (ug/L)
McFarland Cascade Pole and Lumber Company
McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC
Tacoma, Washington

NOTES:

Bold and highlighted values indicate an REL exceedance. Method reporting limits for non-detect results were not compared to RELs.

Bold values indicate a CUL exceedance. Method reporting limits for non-detect results were not compared to CULs.

-- = not analyzed.

CUL = cleanup level.

FD = field duplicate.

IHS = indicator hazardous substance.

J = result is an estimated value.

N = normal.

NA = not available/not applicable.

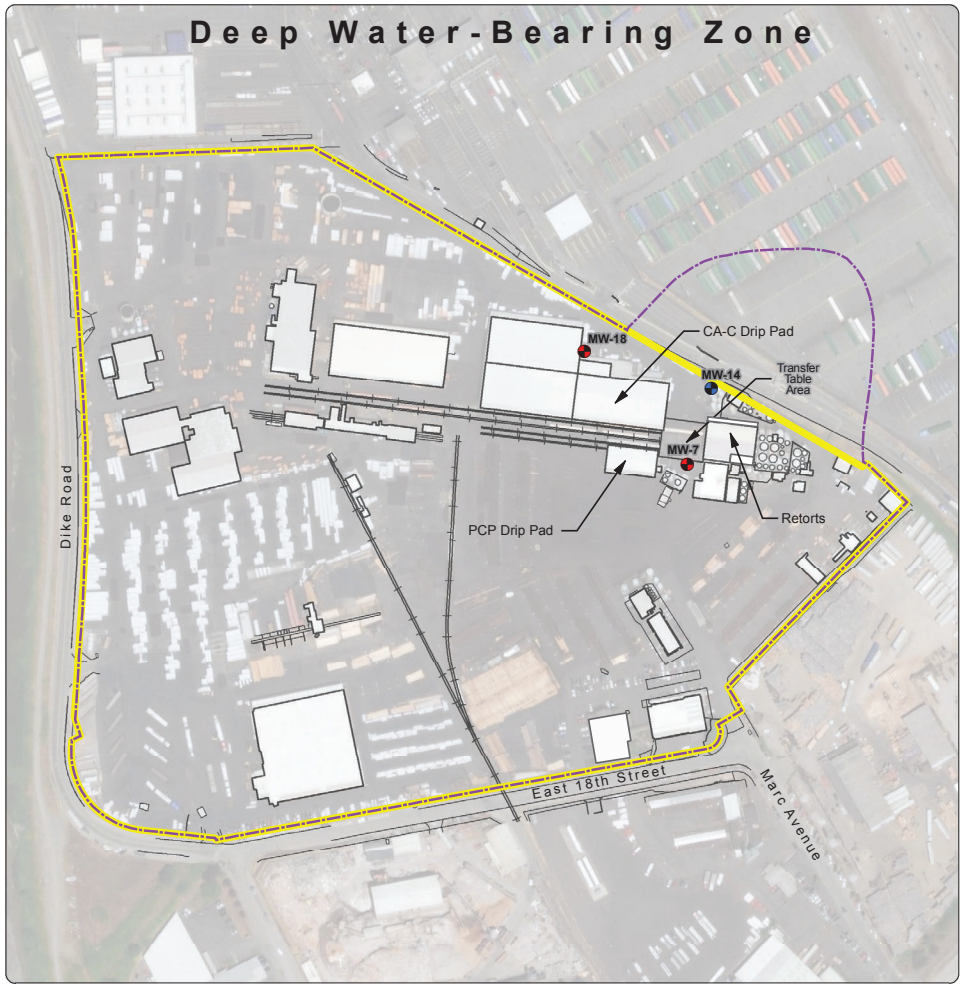
REL = remediation level.

U = analyte not detected at or above method reporting limit.

ug/L = micrograms per liter.

*Detection was determined not to be representative of aquifer conditions because of elevated turbidity in the sample. Following redevelopment of the well, an additional sample was collected from the location on November 24, 2015.

FIGURES



Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM Environment, RETEC, MKA and USPCI.

NOTES:
Water levels in the horizontal recovery well (HW-01) will not be monitored.
The Port of Tacoma property well, UPRR-MW-29, is not a sentry well and is not included in the compliance monitoring network. It will be monitored during the "Protection," "Performance," and "Confirmational" stages of monitoring to evaluate indicator hazardous substance concentration and hydraulic gradient trends, but will not be evaluated for compliance with RELs or CULs. However, this well is included in the final closure monitoring network and will be monitored for compliance with CULs during the "Final Closure" stage of monitoring.
CA-C = copper azole - type C.
CUL = cleanup level.
PCP = pentachlorophenol.
REL = remediation level.

Legend

Compliance Monitoring Network Includes:
- Sentry Well
- Source Area Well

Water Level Monitoring Network Includes:
- Sentry Well
- Source Area Well
- Other Monitoring Well

- Rail Line
- Site Boundary
- Property Boundary

Figure 1
Groundwater Monitoring Network

McFarland Cascade Pole and Lumber Company
Tacoma, Washington

0 135 270
Feet

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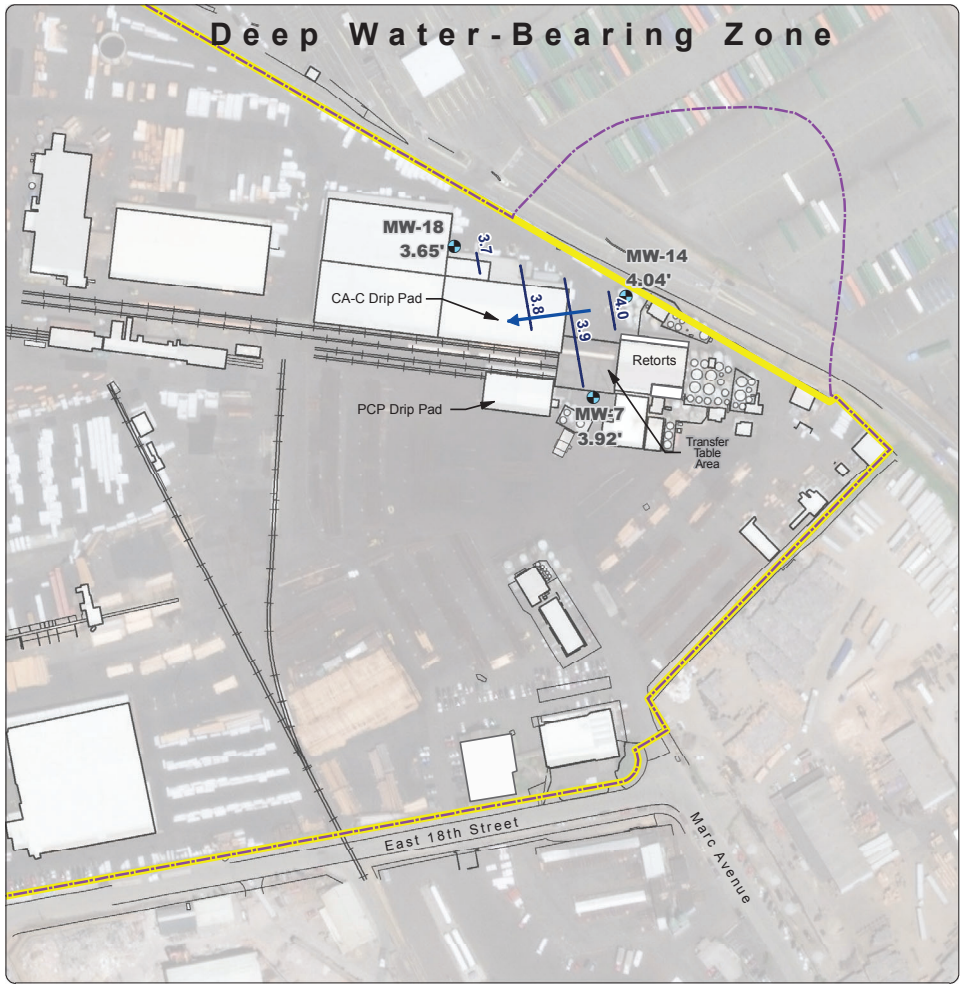
Path: X:\908101 Cascade Pole\17-GWMonitoring\Projects\Fig_GWMonitoringNetwork.mxd
Print Date: 4/4/2019
Approved By: owise
Produced By: abixby
Project: 908101.14.03



Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM Environment, RETEC, MKA and USPCI.

NOTES:
CA-C = copper azole - type C.
NGVD29 = National Geodetic Vertical Datum of 1929.
PCP = pentachlorophenol.

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Site Boundary
Property Boundary
Rail Line
Horizontal Recovery Well

Legend

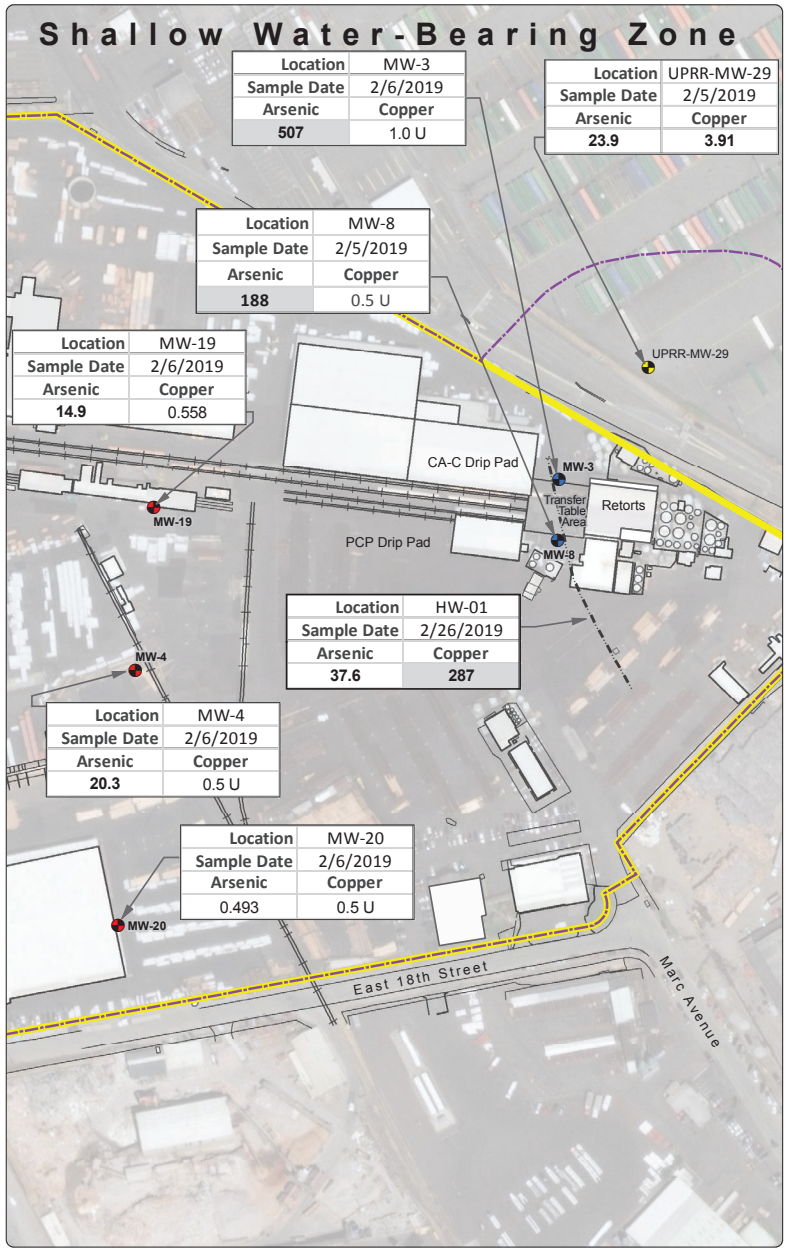
Water Level Monitoring Network Well (with Groundwater Elevation in Feet, NGVD29)
Shallow Groundwater Elevation Contour (0.5 ft.)
Deep Groundwater Elevation Contour (0.1 ft.)
Groundwater Flow Direction (approximate)

Figure 2
Groundwater Elevation Contours
February 2019

McFarland Cascade Pole and Lumber Company
Tacoma, Washington

0 100 200
Feet

Path: X:\908\01 Cascade Pole\17_GW\Monitoring\Projects\Fig_GroundwaterContours_Aug2019.mxd
Print Date: 8/20/2019
Approved By: owise
Produced By: abixby
Project: 908\01.14



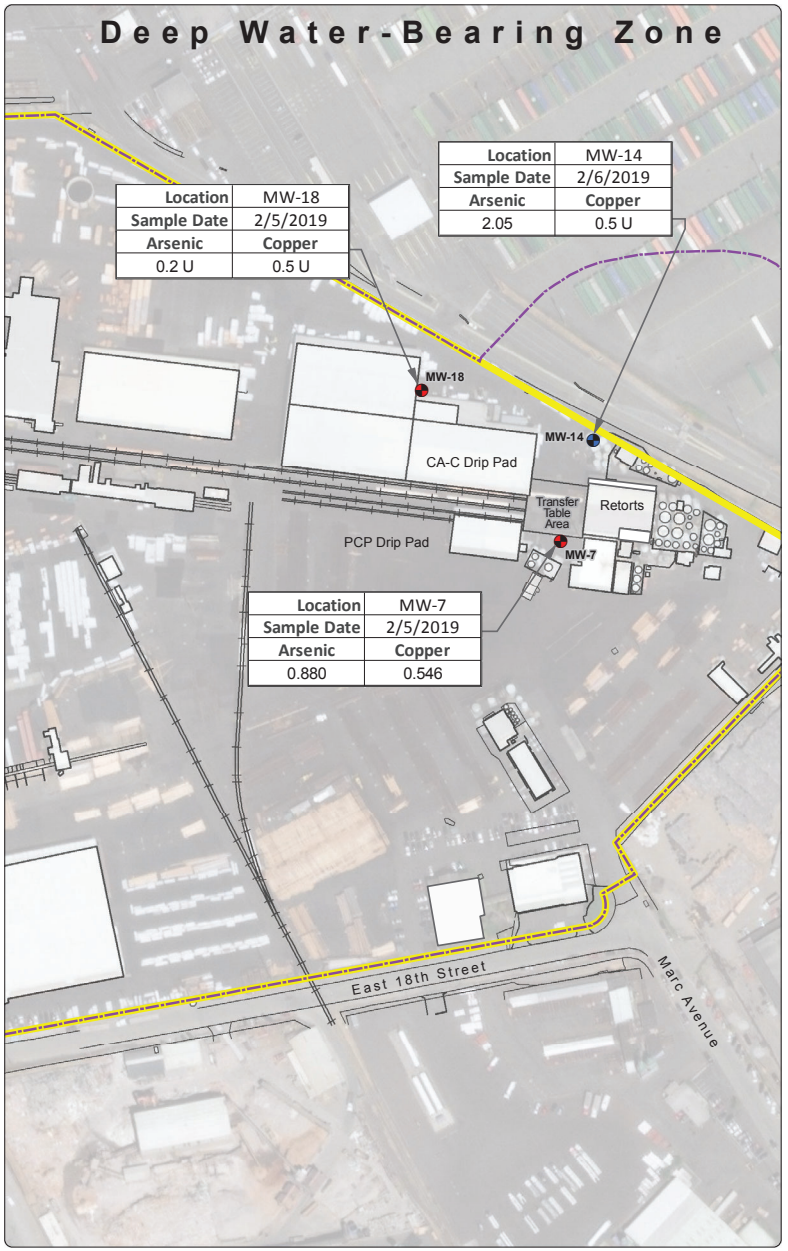


Figure 3
Dissolved Copper and Arsenic in Groundwater
February 2019

McFarland Cascade Pole and Lumber Company
Tacoma, Washington

Legend

- Rail Line
- Site Boundary
- Property Boundary

Compliance Monitoring Network Includes:

- Sentry Well
- Source Area Well

Not Included in Compliance Monitoring Network:

- Other Monitoring Well

Notes:
All values are shown in ug/L.
Bold values indicate a CUL exceedance.
Bold and highlighted cell values indicate an REL exceedance.
Arsenic CUL = 5 ug/L.
Copper CUL = 2.4 ug/L.
The greater of the parent or duplicate concentration is shown.
CA-C = copper-azole - type C.
CUL = cleanup level.
PCP = pentachlorophenol.
REL = remediation level. Remediation levels are identified in Table 2.
U = analyte not detected at or above method reporting limit.
ug/L = micrograms per liter.

0 100 200
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online; site layout and features obtained from AECOM Environment, RETEC, MKA and USPCI.

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Path: X:\908101 Cascade Pole\17-GWMonitoring\Projects\Fig_CopperandArsenicinGW_091902.mxd
Print Date: 4/11/2019
Approved By: owise
Produced By: abixby
Project: 908101.14.03

ATTACHMENT A

FIELD SAMPLING DATA SHEETS

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-3
Project #	9081.01.17	**Sampler**	A. Bixby
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2019
Sampling Event	February 2019	**Sample Name**	MW3-GW-020619
Sub Area		**Sample Depth**	8.39
FSDS QA:	ACC 2/12/2019	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/6/2019	13:50	10.63		6.15		4.48	0.73

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	3:40:00 PM	1	0.2	7.02	9.7	1120	8.1	-7.2	3.39
	3:45:00 PM	1.2	0.2	7.02	10	1042	7.6	-11.2	3.45
	3:50:00 PM	1.4	0.2	7.03	10.3	994	7.8	-20.5	3.6
	3:55:00 PM	1.6	0.2	7.03	10.7	979	9	-24	3.05
Final Field Parameters	4:00:00 PM	1.8	0.2	7.04	10.9	985	8.9	-26.4	3

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear with some particulates. No odor or visible sheen.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	4:05:00 PM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Began purging at 14:50. Field duplicate MWDUP-GW-020619 collected at 16:05. Field filtered.

Maul Foster & Alongi, Inc.

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Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-4				
Project #	9081.01.17	**Sampler**	A. Bixby				
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2019				
Sampling Event	February 2019	**Sample Name**	MW4-GW-020619				
Sub Area		**Sample Depth**	10.12				
FSDS QA:	ACC 2/12/2019	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/6/2019	9:45	13.05		7.19		5.86	0.96

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	10:20:00 AM	1.5	0.3	6.56	12	853	9.7	54.2	6.62
	10:25:00 AM	1.9	0.3	6.58	11.5	818	5.6	33.2	4.69
	10:30:00 AM	2.2	0.2	6.58	10.9	830	5.7	26.8	4.7
Final Field Parameters	10:35:00 AM	2.5	0.2	6.58	10.7	829	5.7	23.2	3.82

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear with a slight brown tint. No odor or visible sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:40:00 AM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Began purging at 09:50. Field filtered.

Maul Foster & Alongi, Inc.

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Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-7
Project #	9081.01.17	**Sampler**	A. Bixby
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/5/2019
Sampling Event	February 2019	**Sample Name**	MW7-GW-020519
Sub Area		**Sample Depth**	16.8
FSDS QA:	ACC 2/12/2019	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/5/2019	15:00	25.5		8.05		17.45	2.84

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	4:00:00 PM	4	0.2	7.21	14.5	2098	5.5	-88.6	5.98
	4:05:00 PM	4.2	0.2	7.22	14.3	2100	5.7	-88.9	5.15
Final Field Parameters	4:10:00 PM	4.4	0.2	7.22	14.5	2098	5.3	-88.1	5.99

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear with some brown particulates. No odor or visible sheen.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	4:10:00 PM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Began purging at 15:00. Field filtered.

Maul Foster & Alongi, Inc.

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Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-8
Project #	9081.01.17	**Sampler**	A. Bixby
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/5/2019
Sampling Event	February 2019	**Sample Name**	MW8-GW-020519
Sub Area		**Sample Depth**	10.16
FSDS QA:	ACC 2/12/2019	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/5/2019	13:50	12.45		7.87		4.58	0.75

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	2:30:00 PM	1.5	0.2		9.05	457	10.3	-9.4	8.72
	2:35:00 PM	1.7	0.2		8.7	454	10.9	-2.3	9.08
	2:40:00 PM	2	0.2		8.71	456	11.2	-1.6	8.8
Final Field Parameters	2:45:00 PM	2.2	0.2		8.67	462	11.3	-0.7	9.3

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear. Slight odor, no visible sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:50:00 PM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Began purging at 14:00. YSI meter not reading pH correctly. Field filtered.

Maul Foster & Alongi, Inc.

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Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-14
Project #	9081.01.17	**Sampler**	A. Bixby
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2019
Sampling Event	February 2019	**Sample Name**	MW14-GW-020619
Sub Area		**Sample Depth**	16.57
FSDS QA:	ACC 2/12/2019	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/6/2019	12:50	24.7		8.44		16.26	2.6

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	2:00:00 PM	3.5	0.2	7.28	11.3	1832	4.6	-70.2	10
	2:05:00 PM	3.8	0.2	7.28	11.4	1832	4.4	-75.8	9.04
	2:10:00 PM	4.2	0.2	7.28	10.9	1832	4.4	-77.1	8.2
	2:15:00 PM	4.4	0.2	7.28	10.6	1835	4.1	-76.9	7.52
Final Field Parameters	2:20:00 PM	4.7	0.2	7.28	10	1829	4.6	-75.1	7.62

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Slightly turbid and brown with some particulates. No odor, slight sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:30:00 PM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Began purging at 12:55. Field filtered.

Maul Foster & Alongi, Inc.

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Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-18
Project #	9081.01.17	**Sampler**	A. Bixby
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/5/2019
Sampling Event	February 2019	**Sample Name**	MW18-GW-020519
Sub Area		**Sample Depth**	17.7
FSDS QA:	ACC 2/12/2019	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/5/2019	11:40	26.89		8.45		18.44	3

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	12:35:00 PM	3.2	0.3		10.93	1612	1.71	-55.7	17.2
	12:45:00 PM	4	0.3		10.19	1619	0.82	-36.8	11.5
	1:00:00 PM	4.5	0.3		9.55	1611	0.71	-28.2	9.36
	1:05:00 PM	4.7	0.3		9.56	1611	0.48	-27	8.89
	1:10:00 PM	4.8	0.3		9.66	1609	0.41	-27.5	8.07
Final Field Parameters	1:15:00 PM	4.9	0.2		9.65	1609	0.43	-28.9	8.89

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear with white particulates. Slight odor, no visible sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	1:20:00 PM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Soft bottom. Began purging at 11:55. Field filtered.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-19				
Project #	9081.01.17	**Sampler**	A. Bixby				
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2019				
Sampling Event	February 2019	**Sample Name**	MW19-GW-020619				
Sub Area		**Sample Depth**	11.7				
FSDS QA:	ACC 2/12/2019	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/6/2019	8:25	13.72		9.75		3.97	0.64

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	9:05:00 AM	0.7	0.3	6.29	10.6	905	7	84.1	6.91
	9:10:00 AM	1	0.3	6.29	10.8	921	6.3	73.1	5.32
	9:15:00 AM	1.2	0.3	6.5	9.9	929	6.5	62.8	3.88
	9:20:00 AM	1.5	0.3	6.4	9.8	931	6	57.5	3.55
Final Field Parameters	9:25:00 AM	1.8	0.3	6.4	9.8	928	4.8	53.4	3.47

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Fairly clear with a slight gray tint and few particulates. Slight odor and sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:30:00 AM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Began purging at 8:40. Field filtered.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-20				
Project #	9081.01.17	**Sampler**	A. Bixby				
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2019				
Sampling Event	February 2019	**Sample Name**	MW20-GW-020619				
Sub Area		**Sample Depth**	11.19				
FSDS QA:	ACC 2/12/2019	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/6/2019	11:05	14.1		8.28		5.82	0.95

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	11:50:00 AM	2	0.2	6.84	9.7	672.2	7.9	31.4	5.64
	11:55:00 AM	2.2	0.2	6.85	9.8	652.3	7.5	23.5	4.39
Final Field Parameters	12:00:00 PM	2.4	0.2	6.85	9.7	646.4	6.9	21.5	3.82

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear. No odor, no visible sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:05:00 PM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Began purging at 11:10. Field filtered.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	UPRR-MW-29
Project #	9081.01.17	**Sampler**	A. Bixby
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/5/2019
Sampling Event	February 2019	**Sample Name**	UPRRMW29-GW-020519
Sub Area		**Sample Depth**	13.3
FSDS QA:	ACC 2/12/2019	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
2/5/2019	17:10	15.48		4.45		11.03	1.8

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	5:45:00 PM	1.8	0.3						11.5
	6:00:00 PM	2.2	0.3	7.06	8.5	133	46.8	88.8	10.4
	6:05:00 PM	2.4	0.3	7.07	8.5	120.6	46.6	74.6	8.53
	6:10:00 PM	2.6	0.3	7.07	8.5	117.5	45.9	64.8	7.81
Final Field Parameters	6:15:00 PM	2.8	0.3	7.08	8.4	116.9	46.7	66.7	7.17

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear with abundant orange and brown particulates. No odor, no visible sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	6:25:00 PM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	1	

General Sampling Comments

Began purging at 17:20. Orange particulates on interface probe tip. Field filtered.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	HW-01
Project #	9081.01.17	**Sampler**	A. Bixby
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/26/2019
Sampling Event	February 2019	**Sample Name**	HW01-GW-022619
Sub Area		**Sample Depth**	
FSDS QA:	ACC 2/12/2019	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
Final Field Parameters									

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(7) Other (specify)	Groundwater	3:50:00 PM	VOA-Glass		
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	2	Yes
			Total Bottles	2	

General Sampling Comments

Grab sample. Field filtered. Collected HWDUP-W-022619.

ATTACHMENT B

WELL REDEVELOPMENT LOGS

MAUL FOSTER ALONGI

Well Development Form

Project No.:	9081.01.17	Date:	2/4/2019		
Site Location:	1640 East Marc Street, Tacoma, WA	Well:	MW-4		
Name:	Cascade Pole Compliance Monitoring	Initial DTB:	13.10	Final DTB:	13.05
Development Method:	Surge and purge	Initial DTW:	7.12	Final DTW:	7.10
Total Water Removed:	10.0 gallons	Pore Volume:	0.97 gallon		
Water Contained:	5-gallon buckets	Casing Diameter:	2 inches		

Time	Cum. Vol Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP	Comments
16:32	--	--	--	--	--	--	--	Surge with bailer.
16:40	--	--	--	--	--	--	--	Purge with bailer. Water brown and silty, then clear.
16:55	4.0	--	--	--	--	--	--	Hook up peristaltic pump.
17:47	8.0	18.7	--	--	--	--	--	Hook up YSI meter.
17:55	8.1	14.7	7.43	788	10.34	1.41	-3.9	Slowly recharging. Allow 10 minutes to recharge.
18:05	8.3	11.2	8.11	781	10.62	0.92	-6.6	
18:10	8.5	9.98	8.48	783	10.43	0.87	-6.7	
18:15	9.0	8.84	8.80	784	9.95	0.84	-7.4	
18:20	9.3	8.23	8.86	785	10.05	0.80	-7.9	
18:25	10.0	8.10	8.83	786	10.05	0.79	-8.9	Complete well redevelopment.

Notes:

DO = dissolved oxygen.

DTB = depth to bottom.

DTW = depth to water.

mg/L = milligrams per liter.

NTU = nephelometric turbidity unit.

ORP = oxygen reduction potential.

uS/cm = microSiemens per centimeter.

MAUL FOSTER ALONGI

Well Development Form

Project No.:	9081.01.17	Date:	2/4/2019		
Site Location:	1640 East Marc Street, Tacoma, WA	Well:	MW-19		
Name:	Cascade Pole Compliance Monitoring	Initial DTB:	13.71	Final DTB:	13.72
Development Method:	Surge and purge	Initial DTW:	9.97	Final DTW:	10.16
Total Water Removed:	7.8 gallons	Pore Volume:	0.61 gallon		
Water Contained:	5-gallon buckets	Casing Diameter:	2 inches		

Time	Cum. Vol Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP	Comments
13:20	--	--	--	--	--	--	--	Surge with bailer.
13:25	1.5	--	--	--	--	--	--	Purge with bailer. Water gray and turbid; sheen on bubbles.
13:40	2.5	--	--	--	--	--	--	Slowly recharging. Allow 10 minutes to recharge.
14:30	5.0	--	--	--	--	--	--	Hook up peristaltic pump.
15:00	6.0	12.8	--	--	--	--	--	Hook up YSI meter.
15:22	6.5	11.8	6.47	883	10.42	4.13	-1.4	
15:27	6.7	12.2	6.51	904	10.72	3.50	-2.7	Slowly recharging. Allow 10 minutes to recharge.
15:43	7.0	10.0	6.72	928	9.67	2.80	0.5	
15:50	7.3	5.54	6.86	876	11.02	3.63	3.5	
15:55	7.6	4.36	6.91	876	11.07	3.32	5.1	
16:00	7.8	3.83	6.94	880	11.01	3.33	5.0	Complete well redevelopment.

Notes:

DO = dissolved oxygen.

DTB = depth to bottom.

DTW = depth to water.

mg/L = milligrams per liter.

NTU = nephelometric turbidity unit.

ORP = oxygen reduction potential.

uS/cm = microSiemens per centimeter.

MAUL FOSTER ALONGI

Well Development Form

Project No.:	9081.01.17	Date:	2/5/2019
Site Location:	1640 East Marc Street, Tacoma, WA	Well:	MW-20
Name:	Cascade Pole Compliance Monitoring	Initial DTB:	14.09
Development Method:	Surge and purge	Initial DTW:	8.25
Total Water Removed:	17.7 gallons	Pore Volume:	0.95 gallon
Water Contained:	5-gallon buckets	Casing Diameter:	2 inches

Time	Cum. Vol Removed	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP	Comments
8:05	--	--	--	--	--	--	--	Surge with bailer.
8:57	--	--	--	--	--	--	--	Purge with bailer. Water gray and silty. No sheen; slight odor.
9:25	12.0	--	--	--	--	--	--	Hook up peristaltic pump.
10:00	15.0	8.28	--	622	8.89	2.90	-53.1	Hook up YSI meter. Note: pH probe is not working correctly.
10:20	16.0	15.3	--	617	9.36	2.67	-20.3	
10:25	16.5	13.6	--	619	9.38	2.70	-16.7	
10:30	17.0	7.46	--	616	9.31	2.62	-16.4	
10:35	17.5	7.79	--	619	9.29	2.63	-15.9	
10:40	17.7	7.04	--	620	9.26	2.55	-15.1	Complete well redevelopment.

Notes:

DO = dissolved oxygen.

DTB = depth to bottom.

DTW = depth to water.

mg/L = milligrams per liter.

NTU = nephelometric turbidity unit.

ORP = oxygen reduction potential.

uS/cm = microSiemens per centimeter.

ATTACHMENT C

LABORATORY ANALYTICAL REPORTS

Analytical Resources, Incorporated
Analytical Chemists and Consultants

26 February 2019

Amanda Bixby
Maul, Foster & Alongi, Inc.
2001 NW 19th Avenue, Suite 200
Portland, WA 97209

RE: Cascade Pole 9081

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19B0069	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19B0069	Turn-around Requested: Standard TAT
ARI Client Company: Maul Foster & Alongi	Phone: (360) 635-8371
Client Contact: Amanda Bixby	
Client Project Name: 9081	
Client Project #: 9081.01.17	Samplers: A. Bixby

Page: 1 of 1	
Date: 2/7/19	Ice Present? Yes
No. of Coolers: 1	Cooler Temps: 0.7°C

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Dissolved Cu USEPA 200.8	Analysis Requested: Dissolved As USEPA 200.8	Notes/Comments
MW18-GW-020519	2/5/19	1320	W	1	X	X	Field filtered
MW8-GW-020519	2/5/19	1450	W	1	X	X	" "
MW7-GW-020519	2/5/19	1610	W	1	X	X	" "
UPRMW29-GW-020519	2/5/19	1825	W	1	X	X	" "
MW19-GW-020619	2/6/19	0930	W	1	X	X	" "
MW4-GW-020619	2/6/19	1040	W	1	X	X	" "
MW20-GW-020619	2/6/19	1205	W	1	X	X	" "
MW14-GW-020619	2/6/19	1430	W	1	X	X	" "
MW3-GW-020619	2/6/19	1605	W	1	X	X	" "
MWDUP-GW-020619	2/6/19	1605	W	1	X	X	Field duplicate; field filtered

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
Direct Bill to: Alex Clark McFarland Cascade Pole & Lumber Co. PO Box 1496 Tacoma, WA 98401-1496	(Signature) Amanda Bixby	(Signature) Jacob Haltz	(Signature)	(Signature)
	Printed Name: Amanda Bixby	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 2/7/19 0936	Date & Time: 02/07/19 0936	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW18-GW-020519	19B0069-01	Water	05-Feb-2019 13:20	07-Feb-2019 09:36
MW8-GW-020519	19B0069-02	Water	05-Feb-2019 14:50	07-Feb-2019 09:36
MW7-GW-020519	19B0069-03	Water	05-Feb-2019 16:10	07-Feb-2019 09:36
UPRMW29-GW-020519	19B0069-04	Water	05-Feb-2019 18:25	07-Feb-2019 09:36
MW19-GW-020619	19B0069-05	Water	06-Feb-2019 09:30	07-Feb-2019 09:36
MW4-GW-020619	19B0069-06	Water	06-Feb-2019 10:40	07-Feb-2019 09:36
MW20-GW-020619	19B0069-07	Water	06-Feb-2019 12:05	07-Feb-2019 09:36
MW14-GW-020619	19B0069-08	Water	06-Feb-2019 14:30	07-Feb-2019 09:36
MW3-GW-020619	19B0069-09	Water	06-Feb-2019 16:05	07-Feb-2019 09:36
MWDUP-GW-020619	19B0069-10	Water	06-Feb-2019 16:05	07-Feb-2019 09:36

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received February 7, 2019 under ARI work order 19B0069. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Dissolved Metals - EPA Method 200.8

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

The Duplicate RPD and Matrix Spike percent revcoveries were within control limits.

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WORK ORDER

19B0069

Client: Maul, Foster & Alongi, Inc.	**Project Manager: Amanda Volgardsen**
Project: Cascade Pole 9081	**Project Number: [none]**

Preservation Confirmation

Container ID	Container Type	pH
19B0069-01 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	12 pairs
19B0069-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
19B0069-03 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
19B0069-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
19B0069-05 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
19B0069-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
19B0069-07 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
19B0069-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
19B0069-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	
19B0069-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	

Sef — Preservation Confirmed By

2-7-19 — Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Mad Foster + Along. Project Name: 9081

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 19B0069 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 0936 0.3°C

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D0005206

Cooler Accepted by: JSm Date: 02/07/19 Time: 0936

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ...	Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: Sef Date: 2-7-19 Time: 1111 Labels checked by: JSm

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MW18-GW-020519

19B0069-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/05/2019 13:20

Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/18/2019 20:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-01 A 01

Preparation Batch: BHB0365 — Sample Size: 25 mL

Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.500	ND	ug/L	U

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MW8-GW-020519

19B0069-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/05/2019 14:50

Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/18/2019 20:14

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-02 A 01

Preparation Batch: BHB0365 — Sample Size: 25 mL

Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**188**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	ND	ug/L	U

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MW7-GW-020519

19B0069-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/05/2019 16:10

Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/18/2019 20:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-03 A 01

Preparation Batch: BHB0365 — Sample Size: 25 mL

Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**0.880**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	**0.546**	ug/L	

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

UPRMW29-GW-020519

19B0069-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/05/2019 18:25

Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/18/2019 20:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-04 A 01

Preparation Batch: BHB0365 — Sample Size: 25 mL

Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**23.9**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	**3.91**	ug/L	

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MW19-GW-020619

19B0069-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2019 09:30

Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/18/2019 20:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-05 A 01

Preparation Batch: BHB0365 — Sample Size: 25 mL

Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**14.9**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	**0.558**	ug/L	

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MW4-GW-020619

19B0069-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2019 10:40
Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/18/2019 20:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-06 A 01
Preparation Batch: BHB0365 — Sample Size: 25 mL
Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**20.3**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	ND	ug/L	U

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MW20-GW-020619

19B0069-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2019 12:05

Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/18/2019 20:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-07 A 01

Preparation Batch: BHB0365 — Sample Size: 25 mL

Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**0.493**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	ND	ug/L	U

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MW14-GW-020619

19B0069-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2019 14:30

Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/19/2019 13:40

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-08 A 01

Preparation Batch: BHB0365 — Sample Size: 25 mL

Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	2	0.400	**2.05**	ug/L	D
Copper, Dissolved	7440-50-8	1	0.500	ND	ug/L	U

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MW3-GW-020619

19B0069-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2019 16:05
Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/19/2019 13:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-09 A 01
Preparation Batch: BHB0365 — Sample Size: 25 mL
Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	2	0.400	**491**	ug/L	D
Copper, Dissolved	7440-50-8	2	1.00	ND	ug/L	U

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

MWDUP-GW-020619

19B0069-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2019 16:05

Instrument: ICPMS2 Analyst: TCH — Analyzed: 02/19/2019 13:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0069-10 A 01

Preparation Batch: BHB0365 — Sample Size: 25 mL

Prepared: 18-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	2	0.400	**507**	ug/L	D
Copper, Dissolved	7440-50-8	2	1.00	ND	ug/L	U

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BHB0365 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: TCH

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHB0365-BLK1)					Prepared: 18-Feb-2019 Analyzed: 18-Feb-2019 19:20						
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
Copper, Dissolved	63	ND	0.500	ug/L							U
Copper, Dissolved	65	ND	0.500	ug/L							U
LCS (BHB0365-BS1)					Prepared: 18-Feb-2019 Analyzed: 18-Feb-2019 19:25						
Arsenic, Dissolved	75a	24.4	0.200	ug/L	25.0		97.5	80-120			
Copper, Dissolved	63	26.3	0.500	ug/L	25.0		105	80-120			
Copper, Dissolved	65	26.4	0.500	ug/L	25.0		105	80-120			
Duplicate (BHB0365-DUP1)		**Source: 19B0069-01**			Prepared: 18-Feb-2019 Analyzed: 18-Feb-2019 20:54						
Arsenic, Dissolved	75a	ND	0.200	ug/L		ND					U
Copper, Dissolved	63	ND	0.500	ug/L		ND					U
Matrix Spike (BHB0365-MS1)		**Source: 19B0069-01**			Prepared: 18-Feb-2019 Analyzed: 18-Feb-2019 20:59						
Arsenic, Dissolved	75a	24.7	0.200	ug/L	25.0	ND	98.2	75-125			
Copper, Dissolved	63	25.2	0.500	ug/L	25.0	ND	98.8	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-63	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-65	NELAP,WADOE,WA-DW,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	02/07/2019
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	26-Feb-2019 14:16

Notes and Definitions

D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

11 March 2019

Amanda Bixby
Maul, Foster & Alongi, Inc.
2001 NW 19th Avenue, Suite 200
Portland, WA 97209

RE: Cascade Pole 9081

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19B0310	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19B0310	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Maul Foster & Alongi	Phone: (360)650-8371	Date: 2/26/19	Ice Present?
Client Contact: Amanda Bixby		No. of Coolers: 1	Cooler Temps: 2.1C
Client Project Name: Cascade Pole GW Monitoring			
Client Project #: 9081.01.17	Samplers: A. Bixby		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Dissolved Cu USEPA 200.8	Analysis Requested: Dissolved As USEPA 200.8	Notes/Comments
HW01-W-022619	2/26/19	1550	W	1	X	X	All samples were field filtered.
HWDUP-W-022619	2/26/19	1550	W	1	X	X	

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
Direct bill to: Alex Clark McFarland Cascade Pole & Lumber Co. PO Box 1496 Tacoma, WA 98401-1496	(Signature) Amanda Bixby	(Signature) Stephanie Fisher	(Signature)	(Signature)
	Printed Name: Amanda Bixby	Printed Name: Stephanie Fisher	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 2/26/19	Date & Time: 2-26-19 1041	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	11-Mar-2019 15:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HW01-W-022619	19B0310-01	Water	26-Feb-2019 15:50	26-Feb-2019 16:41
HWDUP-W-022619	19B0310-02	Water	26-Feb-2019 15:50	26-Feb-2019 16:41

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	11-Mar-2019 15:02

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received February 26, 2019 under ARI work order 19B0310. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Dissolved Metals - EPA Method 200.8

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

The LCS percent recoveries were within control limits.

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WORK ORDER

19B0310

Client: Maul, Foster & Alongi, Inc.
Project Manager: Amanda Volgardsen
Project: Cascade Pole
Project Number: [none]

Report To:
Maul, Foster & Alongi, Inc.
Carolyn Wise
2001 NW 19th Avenue, Suite 200
Portland, WA 97209
Phone: (971) 544-2139
Fax: -

Invoice To:
McFarland Cascade Pole and Lumber Company
Ted Smith
P.O. Box 1496
Tacoma, WA 98401
Phone :(253) 597-3319
Fax:

Date Due: 13-Mar-2019 18:00 (10 day TAT)
Received By: Stephanie Fishel
Date Received: 26-Feb-2019 16:41
Logged In By: Stephanie Fishel
Date Logged In: 26-Feb-2019 16:46

Samples Received at: **2.6°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	No	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	No
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	Yes
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

19B0310-01 HW01-W-022619 [Water] Sampled 26-Feb-2019 15:50

Met Diss 200.8 - As UCT	03/13/2019	10	8/25/2019
Met Diss 200.8 - Cu UCT	03/13/2019	10	8/25/2019

19B0310-02 HWDUP-W-022619 [Water] Sampled 26-Feb-2019 15:50

Met Diss 200.8 - As UCT	03/13/2019	10	8/25/2019
Met Diss 200.8 - Cu UCT	03/13/2019	10	8/25/2019

Preservation Confirmation

Container ID	Container Type	pH
19B0310-01 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	2 pass
19B0310-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	2 pass

SEF
Preservation Confirmed By

2-26-19
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: MF&A

Project Name: Cascade Pole

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 19B0310

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1641 — 2.6 ___ ___ ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: D20756

Cooler Accepted by: SF — Date: 2-26-19 — Time: 1641

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		(YES)	NO
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		_____

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: SF — Date: 2-26-19 — Time: 1646 — Labels checked by: SF

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	11-Mar-2019 15:02

HW01-W-022619

19B0310-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/26/2019 15:50

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/27/2019 18:33

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0310-01 A 01

Preparation Batch: BHB0596 — Sample Size: 25 mL

Prepared: 27-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**37.6**	ug/L	
Copper, Dissolved	7440-50-8	5	2.50	**287**	ug/L	D

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	11-Mar-2019 15:02

HWDUP-W-022619

19B0310-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/26/2019 15:50

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/27/2019 18:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 19B0310-02 A 01

Preparation Batch: BHB0596 — Sample Size: 25 mL

Prepared: 27-Feb-2019 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**38.0**	ug/L	
Copper, Dissolved	7440-50-8	5	2.50	**290**	ug/L	D

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	11-Mar-2019 15:02

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BHB0596 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHB0596-BLK1)				Prepared: 27-Feb-2019 Analyzed: 27-Feb-2019 16:58							
Arsenic, Dissolved	75a	ND	0.200	ug/L							U
Copper, Dissolved	63	ND	0.500	ug/L							U
Copper, Dissolved	65	ND	0.500	ug/L							U
LCS (BHB0596-BS1)				Prepared: 27-Feb-2019 Analyzed: 27-Feb-2019 17:02							
Arsenic, Dissolved	75a	24.8	0.200	ug/L	25.0		99.4	80-120			
Copper, Dissolved	63	26.8	0.500	ug/L	25.0		107	80-120			
Copper, Dissolved	65	27.3	0.500	ug/L	25.0		109	80-120			

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	11-Mar-2019 15:02

Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-63	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-65	NELAP,WADOE,WA-DW,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole 9081	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.17	**Reported:**
Portland WA, 97209	Project Manager: Amanda Bixby	11-Mar-2019 15:02

Notes and Definitions

B	This analyte was detected in the method blank.
D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

ATTACHMENT D

DATA VALIDATION MEMORANDUM

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 9081.01.17 | APRIL 15, 2019 | MCFARLAND CASCADE POLE AND LUMBER COMPANY SITE

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater samples collected at the Cascade Pole and Lumber Company site located at 1640 East Marc Street in Tacoma, WA. The samples were collected in February 2019.

Analytical Resources, Incorporated (ARI) performed the analyses. ARI report numbers 19B0069 and 19B0310 were reviewed. The analyses performed and samples analyzed are listed below.

Analysis	Reference
Dissolved Metals	USEPA 200.8

USEPA = U.S. Environmental Protection Agency.

Samples Analyzed		
Report 19B0069		
MW18-GW-020519	MW19-GW-020619	MW3-GW-020619
MW8-GW-020519	MW4-GW-020619	MWDUP-GW-020619
MW7-GW-020519	MW20-GW-020619	-
UPRMW29-GW-020519	MW14-GW-020619	-
Report 19B0310		
HW01-W-022619	HWDUP-W-022619	-

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2017) and appropriate laboratory and method-specific guidelines (ARI, 2018; USEPA, 1986).

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

BLANKS

Method Blanks

Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch. All method blanks were non-detect for all target analytes.

Trip Blanks

Trip blanks were not required for this sampling event.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicates (MS/MSD) results are used to evaluate laboratory precision and accuracy. MSD samples were not included in report 19B0069; batch precision was evaluated with laboratory duplicate results. MS/MSD results were not included in report 19B0310; laboratory precision and accuracy were evaluated with laboratory control sample (LCS) results. All MS samples were extracted and analyzed at the required frequency. All recoveries were within acceptance limits for percent recovery.

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. All duplicate samples were extracted and analyzed at the required frequency. Laboratory duplicate results within five times the method reporting limit (MRL) were not evaluated for precision. All laboratory duplicates relative percent differences (RPDs) were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

An LCS/LCS duplicate (LCSD) is spiked with target analytes to provide information on laboratory precision and accuracy. LCSD samples were not reported; batch precision was evaluated with laboratory duplicate results. The LCS samples were extracted and analyzed at the required frequency. All LCS analytes were within acceptance limits for percent recovery.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. Each report states that one field duplicate was submitted for analysis (MW3-GW-020619/MWDUP-GW-020619 in report 19B0069) and (HW01-W-022619/HWDUP-W-022619 in report 19B0310). MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the MRL, or 50 percent RPD for results that are greater than five times the MRL. Non-detect data are not used in the evaluation of field duplicate results. All analytes were within the acceptance criteria.

REPORTING LIMITS

ARI used routine reporting limits for non-detect results, except for samples requiring dilutions because of high analyte concentrations and/or matrix interferences.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies. None were found.

REFERENCES

ARI. 2018. Quality assurance plan. Rev. 016.1. Analytical Resources, Incorporated, Tukwila, Washington. November 12.

USEPA. 1986. Test methods for evaluating solid waste, physical/chemical methods. EPA publication SW-846. 3d ed. U.S. Environmental Protection Agency. Final updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), V (2015), VI phase I (2017), and VI phase II (2018).

USEPA. 2017. USEPA contract laboratory program, national functional guidelines for inorganic Superfund methods data review. EPA 540-R-2017-001. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

ATTACHMENT B

MONTHLY HORIZONTAL WELL INSPECTION FORMS

Table
Horizontal Recovery Well Inspections—2019
McFarland Cascade Pole and Lumber Company
McFarland Cascade Holdings, Inc., and Tyee Management Company, LLC
Tacoma, Washington

Date	Time	Discharge Pump Operating?	Water Level in Tank (feet)	Alarm Light On?	Pipes Leaking?	Discharge Totalizer Reading (gallons)	Inspector	Total (gallons)
01/15/19	8:45	Y	0.42	N	N	1,200	CC	5,696,220
01/21/19	7:30	Y	0.50	N	N	2,300	CC	5,697,320
02/01/19	8:00	Y	0.33	N	N	4,700	CC	5,699,720
03/01/19	12:30	Y	0.17	N	N	6,300	CC	5,701,320
04/04/19	7:00	Y	0.00	N	N	6,400	CC	5,707,720
05/01/19	6:00	Y	0.00	N	N	7,890	CC	5,709,210
06/03/19	6:30	Y	0.00	N	N	1,900	CC	5,711,110
07/01/19	7:00	Y	0.33	N	N	1,916	CC	5,711,126
08/01/19	7:45	Y	0.25	N	N	1,916	CC	5,711,126
09/03/19	7:00	Y	0.33	N	N	1,916	CC	5,711,126
10/02/19	7:45	Y	0.33	N	N	2,040	CC	5,711,250
11/04/19	6:40	Y	1.00	N	N	10,900	SB	5,720,110
11/11/19	7:30	Y	0.00	N	N	12,500	SB	5,721,710
11/18/19	8:15	Y	0.50	N	N	16,600	SB	5,725,810
12/03/19	7:15	Y	0.00	N	N	31,600	CC	5,740,810

NOTES:

A new totalizer meter was installed at the beginning of January 2019. The meter malfunctioned in April and May and was replaced in June 2019.

From July to September 2019, MCHI staff noted low rainfall.

CC = Chris Chase of MCHI.

MCHI = McFarland Cascade Holdings, Inc.

N = no.

SB = Shawn Baumann of MCHI.

Y = yes.

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 1-15-19 Time: 0845

Checked By: Chris Weather: Cold, overcast

1) Discharge pump operating? YES X NO _____

2) Water level in tank 5" ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading 000012 gallons

6) Describe any activities performed:

Visual inspection

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

2-5-19

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 1-21-19 Time: 0730

Checked By: Chris Weather: Cold, overcast

1) Discharge pump operating? YES X NO _____

2) Water level in tank 6" ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading 000023 gallons

6) Describe any activities performed:

Visual inspection

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

2-5-19

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 2-1-19 Time: 0800

Checked By: Chris Weather: Raining

1) Discharge pump operating? YES X NO _____

2) Water level in tank 4" ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading 000047 gallons

6) Describe any activities performed:

Visual inspection

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

MAR 0 5 2019

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 3-1-19 Time: 12:30

Checked By: Chris Weather: Sunny

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 2" ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 000063 gallons

6) Describe any activities performed:

None

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 4/1/19 Time: 0700

Checked By: Chris Weather: Over cast

1) Discharge pump operating? YES X NO _____

2) Water level in tank Ø ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading 999964 gallons

4/4/19
Meter was counting backwards. The correct flow was determined to be 359 gallons

6) Describe any activities performed:

_____

_____

_____

EMERGENCY SHUTDOWN PR[OCEDURES]

4/4/19

Turn off WELL PUMP (air supply
Turn off TRANSFER PUMP (at

per Jason, meter being replaced should read "64" for math of April

System Administration and Respon:
Ted Smith (253) 597-3[3]

INSPECTION FREQUENCY

Inspections are to be conducted on a mor

RECORDING PROCEDURES

File this form in the permanent records f[o]r the Property to be provided to Jones Property owners or to Ecology by request and also include in the groundwat[er monitoring reports to be prepared in accordance] with the schedule described in the Groundwater Complianc[e Monitoring Plan.]

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 1 May 2019 Time: 0600

Checked By: Chris Weather: Cool, Clear

1) Discharge pump operating? YES X NO _____

2) Water level in tank Ø ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading 999921 gallons

6) Describe any activities performed:

5/8/19
The meter was counting backwards; the correct flow is 789 gallons (430 in the month).

_____

_____

_____

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

5-2-19

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 6-3-19 Time: 0630

Checked By: Chris Weather: over cast

1) Discharge pump operating? YES X NO _____

2) Water level in tank Ø ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading ~~109~~ 190 gallons

6) Describe any activities performed:

_____

_____

_____

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

6-4-19

JUL 0 3 2019

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 7-1-19 Time: 0700

Checked By: Chris Weather: Clear / Sunny

1) Discharge pump operating? YES X NO _____

2) Water level in tank 4" ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading 190 gallons

Picture Verified

6) Describe any activities performed:

Visual inspection

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

7-2-19


0
10
20
30
40
50
60
70
80
90
x 100
GALLONS
1 1/2" MS
1170
MASTER METER
MADE IN ISRAEL

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 8-1-19 Time: 0745

Checked By: Chris Weather: over cast

1) Discharge pump operating? YES X NO _____

2) Water level in tank 3" ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading ~~150~~ 190 gallons

6) Describe any activities performed:

_____

_____

_____

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 9-3-19 Time: 0700

Checked By: Chris Chase Weather: Clear

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 4" ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 190 gallons

6) Describe any activities performed:

None

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

9-4-19

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 10-2-19 Time: 0745

Checked By: Chris Weather: Clear, cold

1) Discharge pump operating? YES Y NO _____

2) Water level in tank 4" ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO Y

5) Discharge TOTALIZER reading 204 gallons

6) Describe any activities performed:

_____

_____

_____

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 11/4 Time: 6:40

Checked By: Shawn Weather: Cloudy

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 1 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1090 gallons

6) Describe any activities performed:

_____

_____

_____

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

12-2-19

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 11/11/19 Time: 7:30

Checked By: SD Weather: Cloudy

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank _____ ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1250 gallons

6) Describe any activities performed:

_____

_____

_____

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

12-2-19

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 11/18/19 Time: 8:15

Checked By: SB Weather: Cloudy

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 1/2 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1660 gallons

6) Describe any activities performed:

_____

_____

_____

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

12-2-19

Groundwater Recovery System Check Form
Cascade Pole and Lumber Company
Tacoma, Washington

Date: 12-3-19 Time: 0715

Checked By: Chris Chase Weather: Clear

1) Discharge pump operating? YES X NO _____

2) Water level in tank Ø ft

3) Alarm light on? YES _____ NO X

4) Pipes leaking? YES _____ NO X

5) Discharge TOTALIZER reading 316 gallons

6) Describe any activities performed:

_____

_____

_____

EMERGENCY SHUTDOWN PROCEDURES

Turn off WELL PUMP (air supply)
Turn off TRANSFER PUMP (at electrical panel)

System Administration and Responsible Individual:
Ted Smith (253) 597-3319

INSPECTION FREQUENCY

Inspections are to be conducted on a monthly basis.

RECORDING PROCEDURES

File this form in the permanent records for the Property to be provided to future Property owners or to Ecology by request and also include in the groundwater monitoring reports to be prepared in accordance with the schedule described in the Groundwater Compliance Monitoring Plan.

ECOLOGY NOTIFICATION OF SHUTDOWN

If the horizontal recovery well is non-operational for 30 days or more during periods when operation of the horizontal recovery well is a required component of the groundwater treatment (i.e., during the protection stage of monitoring; see the groundwater compliance monitoring plan [MFA, 2015a]), Ecology must be notified within 30 days after the 30th consecutive day on which the well is not operated (i.e., within 60 days of the first day of the 30-consecutive-day shutdown).

12-2-19

ATTACHMENT C

ANNUAL PROTECTIVE CAP INSPECTION REPORT

SITE INSPECTION SUMMARY REPORT—CAP VISUAL MONITORING
CASCADE POLE AND LUMBER COMPANY

Date:	11/22/2019
Weather:	Foggy to Sunny, ~40° F
Precipitation (prior 24 hrs):	None
Completed By:	M. Tarbert, EIT, Maul Foster & Alongi, Inc.
Engineer of Record:	S. Taylor, PE, Maul Foster & Alongi, Inc.

General Observations:

This is the fourth annual cap inspection performed as required under the Consent Decree.

The cap (asphalt cap, concrete drip pad, building capped areas) all generally appear in good condition.

Typical site activities were being performed during the inspection, including movement of lumber poles.

No major areas of standing water were observed.

There was no visible demarcation fabric.

Specific Observations: To be noted with photographs, measurements, and locations:

Pavement Cap:

No settling, bulging, or punctures were observed.

Some minor linear asphalt cracks are beginning to form and should be closely monitored. These areas are shown on the attached figure.

Some sealant fatigue was observed in a couple locations which are identified on the attached figure. These areas should be closely monitored.

New asphalt was observed in several recently repaired areas, as shown on the attached figure.

Drip Pad Cap:

Drip pad was covered with steel plating in 2016, and is currently in good condition.

No settling or bulging was observed.

Transfer Table Pit Cap:

No settling or bulging was observed.

Building Cap:

Appears to be in good condition; no foundation cracks or penetrations were observed.

Measurements:

Areas of recently repaired asphalt are also shown on the attached figure.

Approximate extent of areas where observed sealant fatigue and cracks forming are shown on the attached figure.

MAUL FOSTER ALONGI

PHOTOGRAPHS

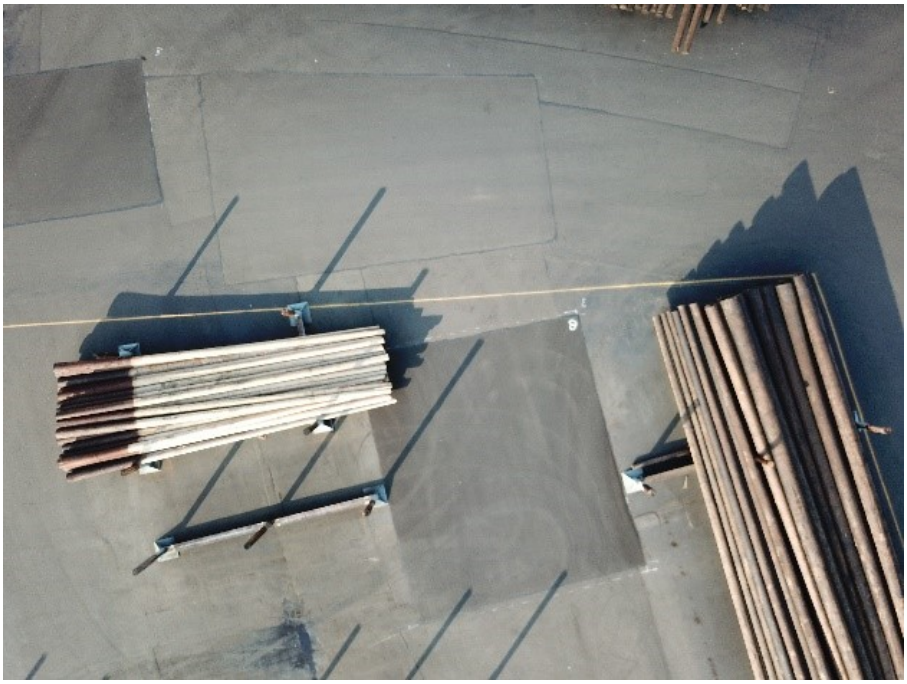
Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 11.22.19
Project Number: 9081.01.17
Location: 1640 East Marc Street, Tacoma, Washington

Photo No. 1.

Description
Area repaired with new asphalt. Near lumber storage, south of Retorts. View looking south/southeast.

Photo No. 2.

Description
Areas repaired with new asphalt. Southern end of cap and lumber storage. Photo pointing north



MAUL FOSTER ALONGI

PHOTOGRAPHS

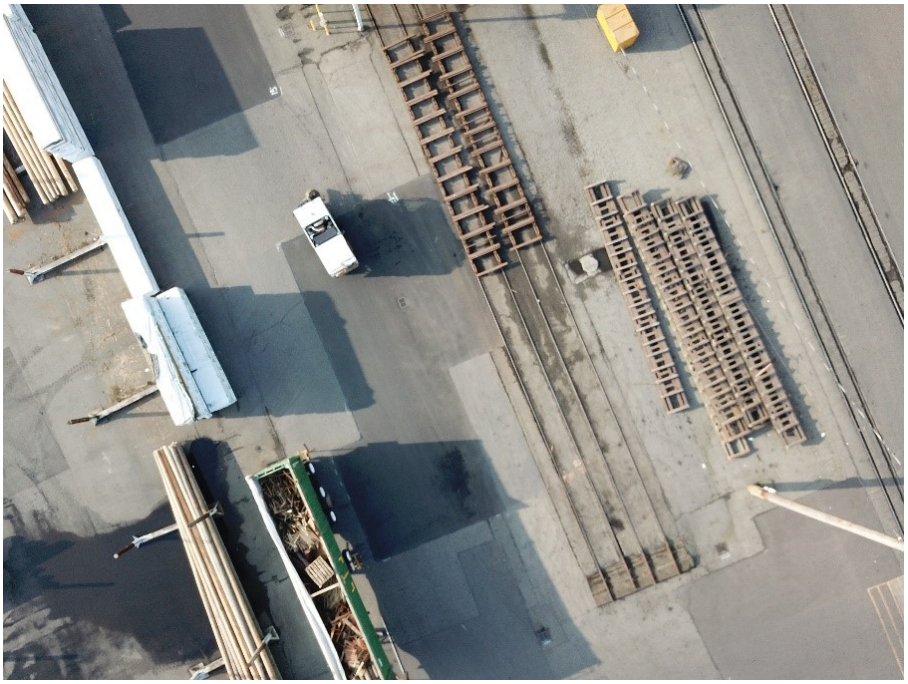
Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 11.22.19
Project Number: 9081.01.17
Location: 1640 East Marc Street, Tacoma, Washington

Photo No. 3.

Description
Area repaired with new asphalt. Near the lumber storage/CA-C area. Photo pointing north.

Photo No. 4.

Description
Area repaired with new asphalt and crack to monitor (to left of repair). Photo pointing west.



MAUL FOSTER ALONGI

PHOTOGRAPHS

Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 11.22.19
Project Number: 9081.01.17
Location: 1640 East Marc Street, Tacoma, Washington

Photo No. 5.

Description
Area repaired with new asphalt in lumber storage area south of CA-C drip pad. Photo pointing west.

Photo No. 6.

Description
Linear crack—to be monitored. South of CA-C Drip Pad building in general storage area, looking north.

PHOTOGRAPHS

Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 11.22.19
Project Number: 9081.01.17
Location: 1640 East Marc Street, Tacoma, Washington

Photo No. 7.

Description
End of covered CA-C Drip Pad, looking west

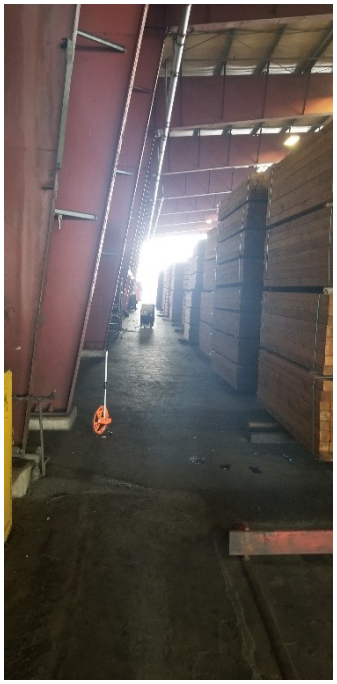


Photo No. 8.

Description
Steel plating covering drip pad and berm, view looking west.

PHOTOGRAPHS

Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 11.22.19
Project Number: 9081.01.17
Location: 1640 East Marc Street, Tacoma, Washington

Photo No. 9.

Description
Steel plating covering drip pad. View looking east.

Figure
2019 Cap Inspection

McFarland Cascade Pole
and Lumber Company
Tacoma, Washington

November 22, 2019

Legend

- Shallow Monitoring Well
- Deep Monitoring Well
- Railroad
- Site Boundary
- Linear Crack to Monitor
- Area to Watch
- Recent Repair - New Asphalt
- Protective Cap (Currently Paved) and Soil Restricted Area
- Property Boundary

0 100 200
Feet

Source: Aerial photograph obtained from Mapbox; site layout and features obtained from AECOM Environment, RETEC, MKA and USPCI; county parcel boundaries (July 2014) obtained from Pierce County.

MAUL FOSTER ALONGI
p. 971 544 2139 | www.maulfoster.com

Path: X:\9081.01 Cascade Pole\04 MTCA Closure Tacoma Facility\00_Projects\Fig_Protective Cap_2019.mxd
Print Date: 12/27/2019
Approved By: hhirsch
Produced By: mjosef
Project: 9081.01.04.00