MAUL FOSTER ALONGI

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March 25, 2019
Project No. 9081.01.17

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

Re: 2018 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 (CD) No. 16-2-08380-9, 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 2018. 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 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 2018 calendar year. This is the third annual progress report since the CD became effective.

BACKGROUND

The Site includes property, owned by Tyee, at 1640 East 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 its 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 2019. A groundwater monitoring report for the February 2019 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, 2018, and December 31, 2018:

- An annual groundwater compliance monitoring event was conducted in February 2018 (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 2018 annual cap inspection report is provided as Attachment C).
- 2018 sampling data were uploaded to Ecology's Environmental Information Management database.

An initial inspection of the protective cap was conducted on September 14, 2018 (see Attachment C). Several areas were noted for monitoring, but no areas were noted for repair at that time.

The groundwater horizontal recovery system operated normally in 2018 (inspection logs and a summary table of inspection and performance data are provided as Attachment B). There were no operational failures or outages, and no repairs were needed. Between August and November 2018, there was a gap in monthly reporting of the horizontal recovery well; however, the system operated normally during this time period with no operational failures or outages or repairs needed.

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 2019. A groundwater monitoring report for that event will be included in the 2019 annual progress report.

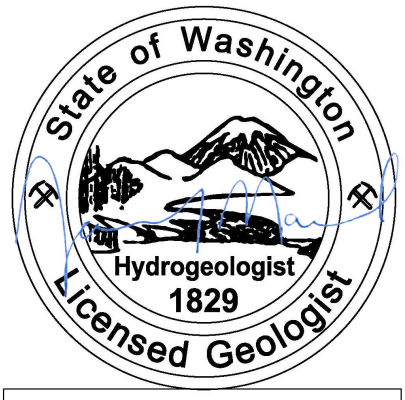
O&M and monthly monitoring of the horizontal groundwater recovery system will continue in 2019.

The next annual protective cap inspection is scheduled for the fall of 2019.

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

Sincerely,

Maul Foster & Alongi, Inc.



Carolyn R. Wise, GIT
Project Geologist

James J. Maul, LHG 3/25/19
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, MCHI
Les Lonning, Tyee

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.G. Good and J. L. 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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February 1, 2019
Project No. 9081.01.14

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

Re: 2018 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 5 through 7, 2018, Maul Foster & Alongi, Inc. (MFA) conducted a groundwater monitoring event at the Cascade Pole and Lumber Company site located at 1640 East Marc Street, Tacoma, Washington (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 in 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 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, would 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, protection groundwater monitoring is conducted annually. 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, 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 2017 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 and 2018 monitoring events, included analyses only for dissolved arsenic and dissolved copper; 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 sixth protection monitoring event since protection monitoring began in February 2015. The previous monitoring event was conducted in February 2017 (MFA, 2017a).

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.

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.

A small amount of light nonaqueous-phase liquid (LNAPL) was observed in monitoring well UPRR-MW-29. The LNAPL was dark brown and viscous, and coated only the tip of the interface probe. Not enough LNAPL was present to measure its thickness. Petroleum-like odor was observed in the purge water. To prevent LNAPL contamination of the groundwater samples, the interface probe and sample tubing were lowered slowly down the well, the sample tubing was not raised or lowered during purging or sampling, and a low-flow pumping rate was used to avoid creating turbulence or drawdown in the water column. A small amount of LNAPL was observed on the exterior of the tubing following purging; however, no LNAPL was observed in the interior of the tubing during purging or sampling and no LNAPL was present in the sample.

GROUNDWATER FLOW

Water levels were measured in all Site wells on February 6 and 7, 2018. Depth-to-water measurements and groundwater elevations are summarized in Table 1. Groundwater elevations across the Site were on average less than a half a foot higher than those observed during the February 2017 monitoring event (see Table 1 and MFA, 2017a).

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 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). 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 to the west-northwest (MFA, 2016b,c, 2017a).

REDEVELOPMENT OF SENTRY WELLS

During previous monitoring events, sentry wells MW-4, MW-19, and MW-20 had elevated turbidity measurements (MFA, 2016b,c, 2017a). Given that the sentry wells were last sampled in February 2017, 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.

The sentry wells MW-4, MW-19, and MW-20 were redeveloped on February 5, 2018. 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 was 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 7, 2018, 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 report is 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 2018 monitoring event (see Table 2); arsenic and copper results in 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 was the only IHS that exceeded its monitoring-well-specific RELs. REL exceedances were detected only in the source area and in the shallow WBZ (MW-3, MW-8, and the horizontal recovery well [also referred to as HW-01]). Dissolved arsenic was also the only IHS that exceeded its CUL. CUL exceedances were detected in all shallow WBZ wells except 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 was detected in the source area and in the shallow WBZ (MW-3 and MW-8), but not above its CUL or RELs; it was not detected in the deep WBZ.

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

The dissolved-arsenic and -copper concentrations detected in the sample collected from the Port property monitoring well (UPRR-MW-29), which is completed in the shallow WBZ, exceeded their 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 2018 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, dissolved-arsenic concentrations exceeded CULs (MW-4 and MW-19), but were below RELs.

- In the shallow WBZ source area wells, dissolved-arsenic concentrations exceeded CULs and RELs (MW-3, MW-8, and the horizontal recovery well).
- 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.
- An unmeasurable quantity of LNAPL, likely associated with the UPRR Site, was observed in the Port property monitoring well (UPRR-MW-29).

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.

Arsenic 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 2019.

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

Sincerely,

Maul Foster & Alongi, Inc.

James J. Maul, LHG 2/1/19
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 Report
D—Data Validation Memorandum

cc: Les 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.

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	02/06/2018	Morning[a]	4.74	13.41	6.94
MW-2	11.93	02/06/2018	Morning[a]	4.34	9.38	7.59
MW-3	12.69	02/06/2018	Morning[a]	6.02	10.60	6.67
MW-4	11.55	02/07/2018	10:20 AM	6.31	13.00	5.24
MW-5	12.71	02/06/2018	Morning[a]	7.19	11.92	5.52
MW-6	12.70	02/06/2018	Morning[a]	5.63	11.65	7.07
MW-8	14.02	02/06/2018	Morning[a]	7.52	12.40	6.50
MW-9	10.96	02/06/2018	Morning[a]	4.89	10.28	6.07
MW-10	12.15	02/06/2018	Morning[a]	5.81	9.92	6.34
MW-11	11.70	02/06/2018	Morning[a]	4.73	8.49	6.97
MW-12	12.32	02/06/2018	Morning[a]	4.98	10.08	7.34
MW-13	12.31	02/06/2018	Morning[a]	4.88	10.66	7.43
MW-15	11.90	02/06/2018	Morning[a]	6.33	10.80	5.57
MW-16	10.77	02/06/2018	Morning[a]	4.68	8.85	6.09
MW-17	13.56	02/06/2018	Morning[a]	7.38	10.67	6.18
MW-19	14.15	02/07/2018	9:15 AM	8.90	13.70	5.25
MW-20	14.99	02/07/2018	8:05 AM	7.51	14.10	7.48
UPRR-MW-29	11.80	02/06/2018	11:00 AM	3.63	15.55	8.17
Deep Water-Bearing Zone Wells						
MW-7	12.00	02/06/2018	Morning[a]	7.34	24.98	4.66
MW-14	12.30	02/06/2018	Morning[a]	7.56	24.68	4.74
MW-18	12.23	02/06/2018	Morning[a]	7.83	26.80	4.40

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.

[a]Water level measurements were collected between 7:00 AM and 12:00 PM.

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
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
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
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

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-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
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
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**
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
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

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-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

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.

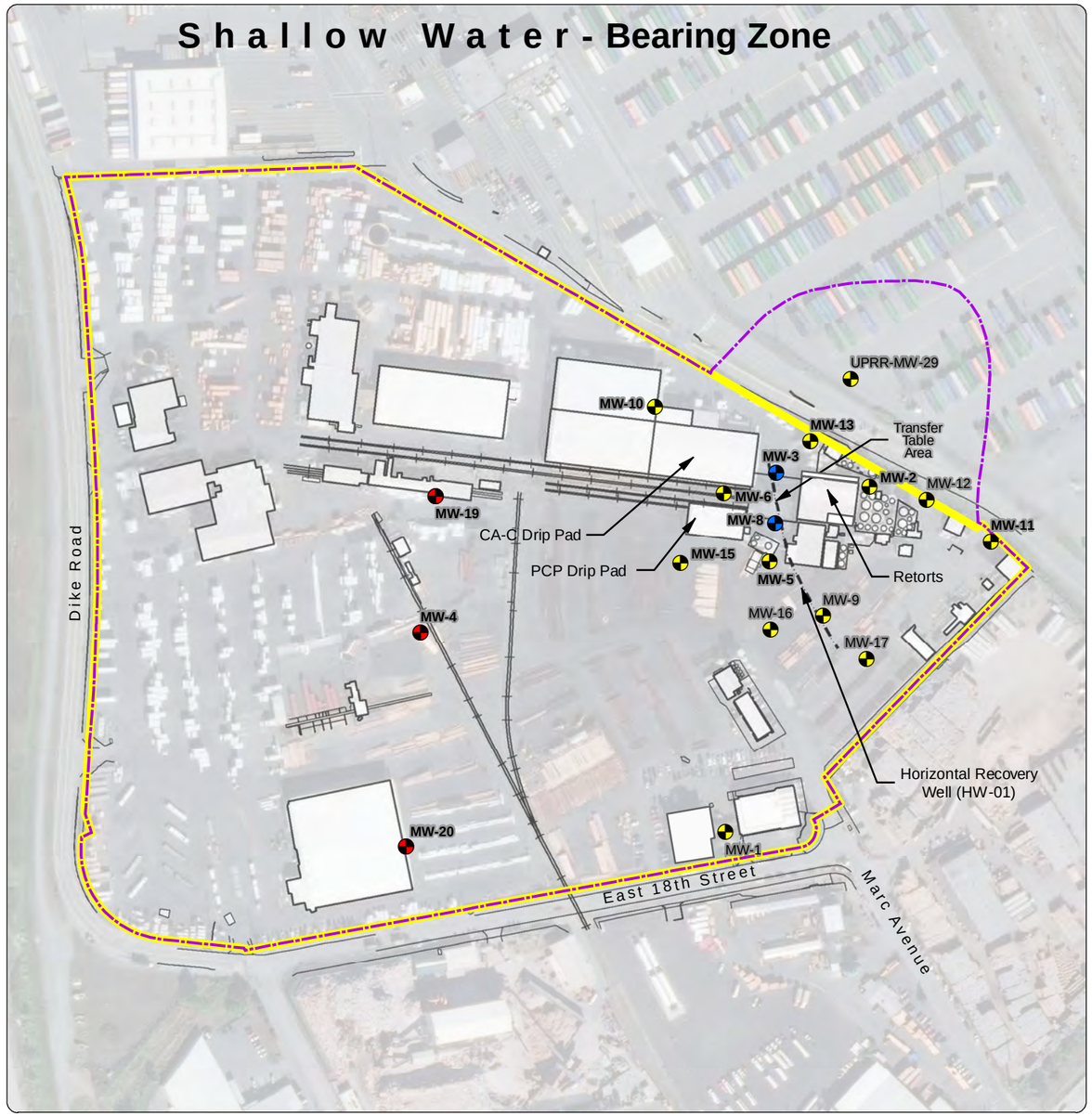
U = Analyte not detected at or above method reporting limit.

ug/L = micrograms per liter.

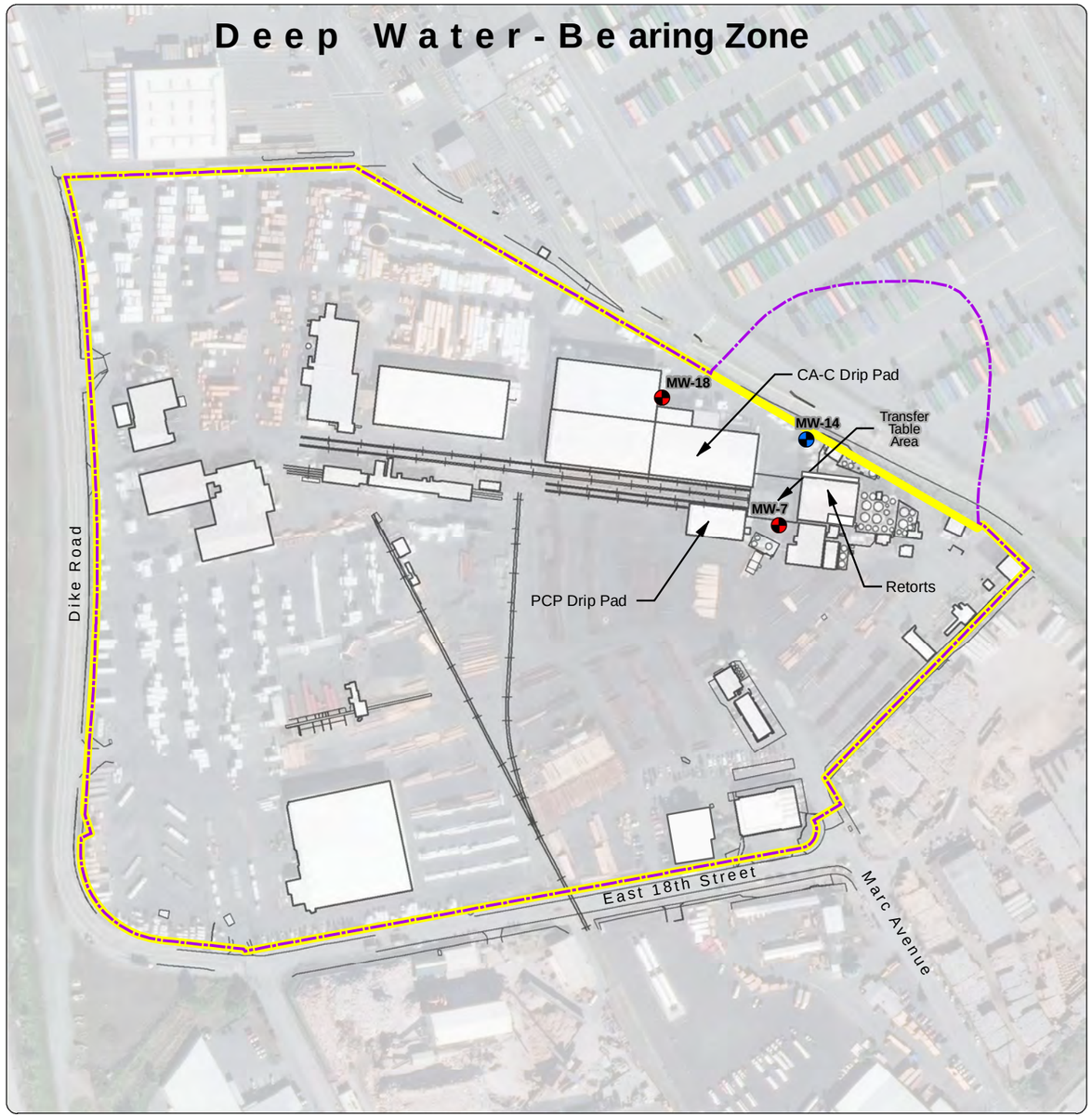
*Detection was determined not to be representative of aquifer conditions because of elevated turbidity in the sample. Following redevelopment of the well, an additional sample was collected from the location on November 24, 2015.

FIGURES

Shallow Water-Bearing Zone



Deep Water-Bearing Zone



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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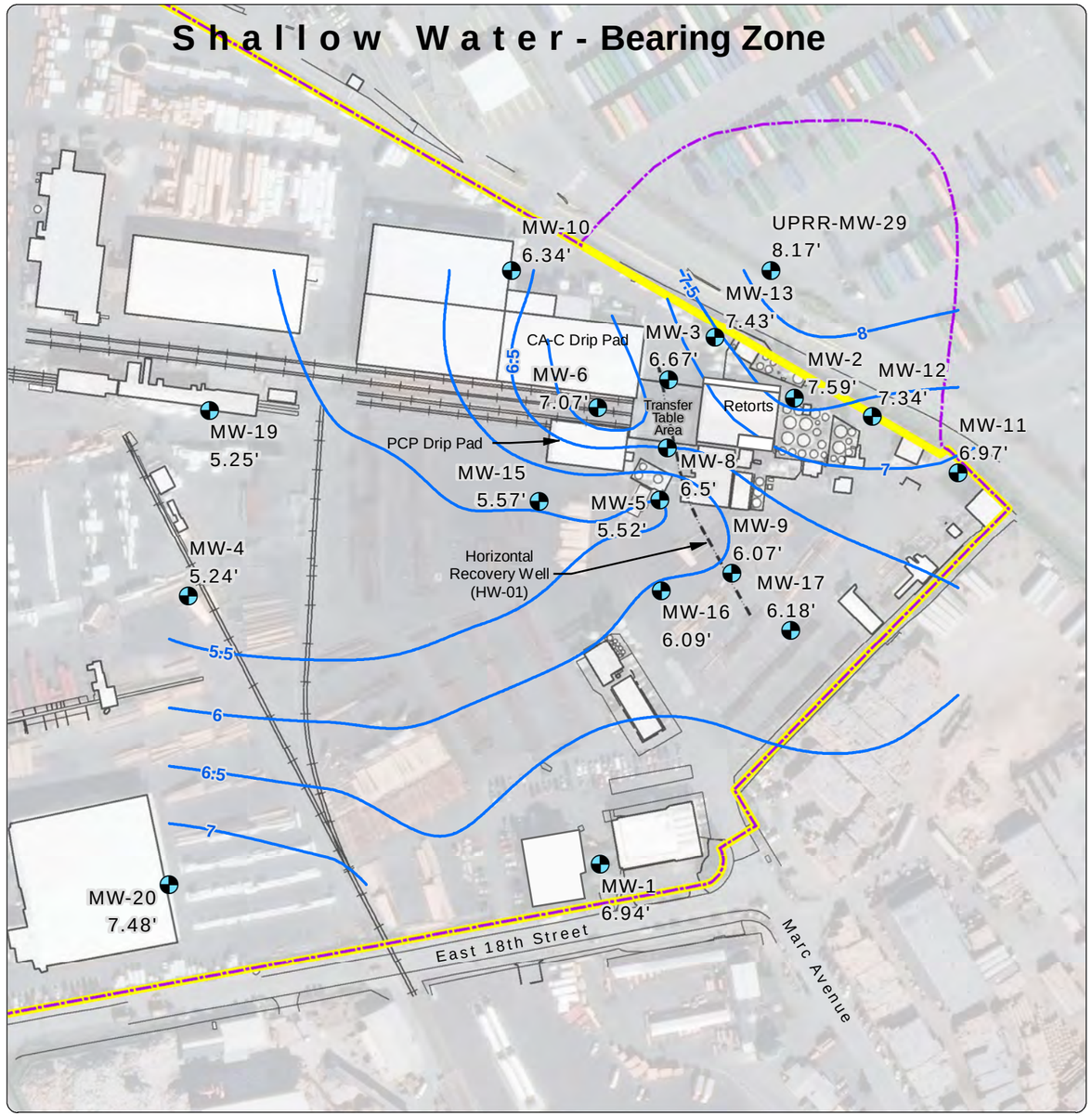
Shallow Water-Bearing Zone



Deep Water-Bearing Zone

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 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.)

Figure 2
Groundwater Elevation Contours
February 2018

McFarland Cascade Pole and Lumber Company
Tacoma, Washington

0 100 200
Feet

Shallow Water - Bearing Zone

Location	MW-3
Sample Date	2/6/2018
Arsenic	Copper
814	1.29

Location	UPRR-MW-29
Sample Date	2/6/2018
Arsenic	Copper
18.0	**4.61**

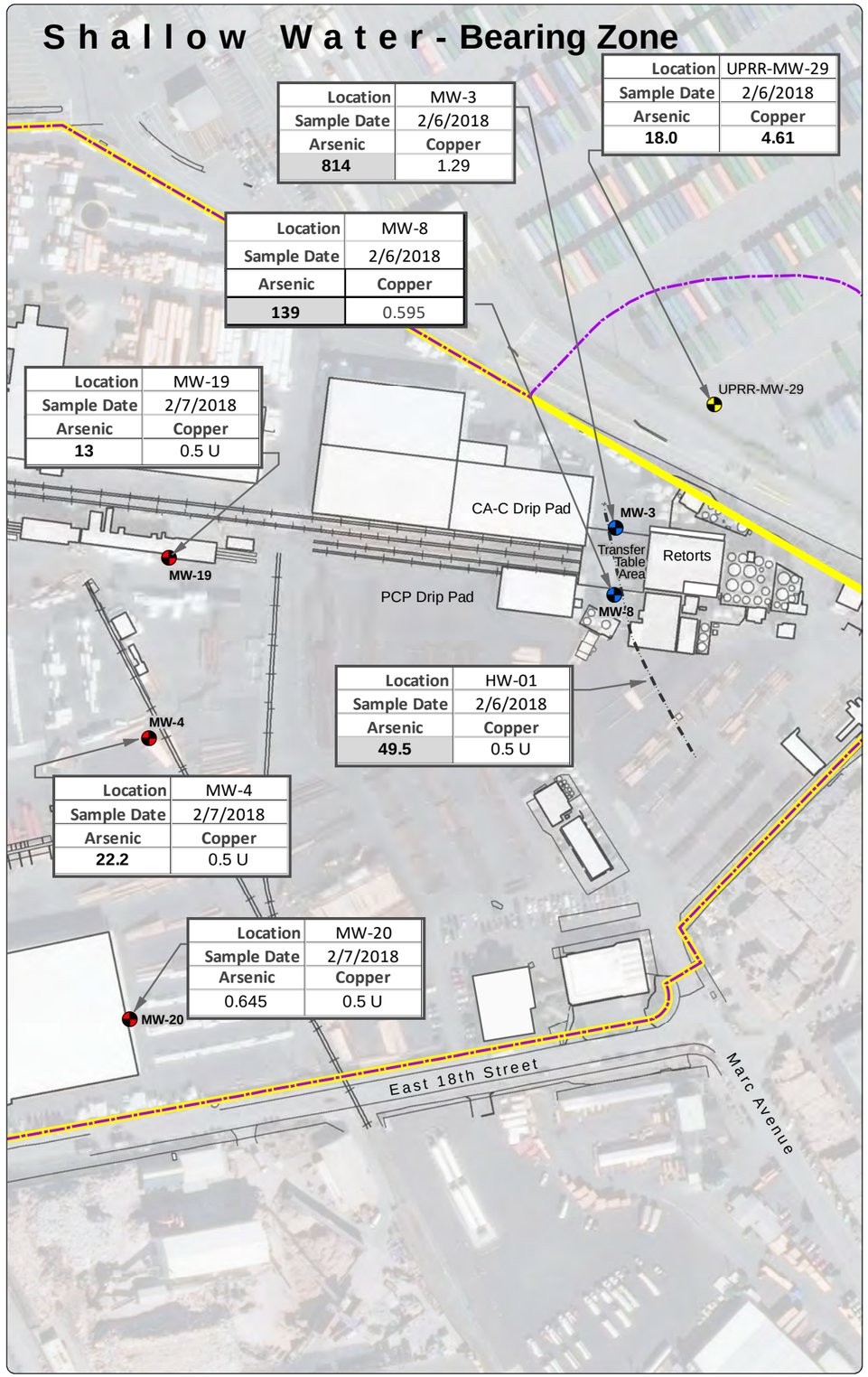
Location	MW-8
Sample Date	2/6/2018
Arsenic	Copper
139	0.595

Location	MW-19
Sample Date	2/7/2018
Arsenic	Copper
13	0.5 U

Location	HW-01
Sample Date	2/6/2018
Arsenic	Copper
49.5	0.5 U

Location	MW-4
Sample Date	2/7/2018
Arsenic	Copper
22.2	0.5 U

Location	MW-20
Sample Date	2/7/2018
Arsenic	Copper
0.645	0.5 U



Deep Water - Bearing Zone

Location	MW-14
Sample Date	2/6/2018
Arsenic	Copper
2.47	0.5 U

Location	MW-18
Sample Date	2/6/2018
Arsenic	Copper
0.2 U	0.5 U

Location	MW-7
Sample Date	2/6/2018
Arsenic	Copper
0.704	0.5 U

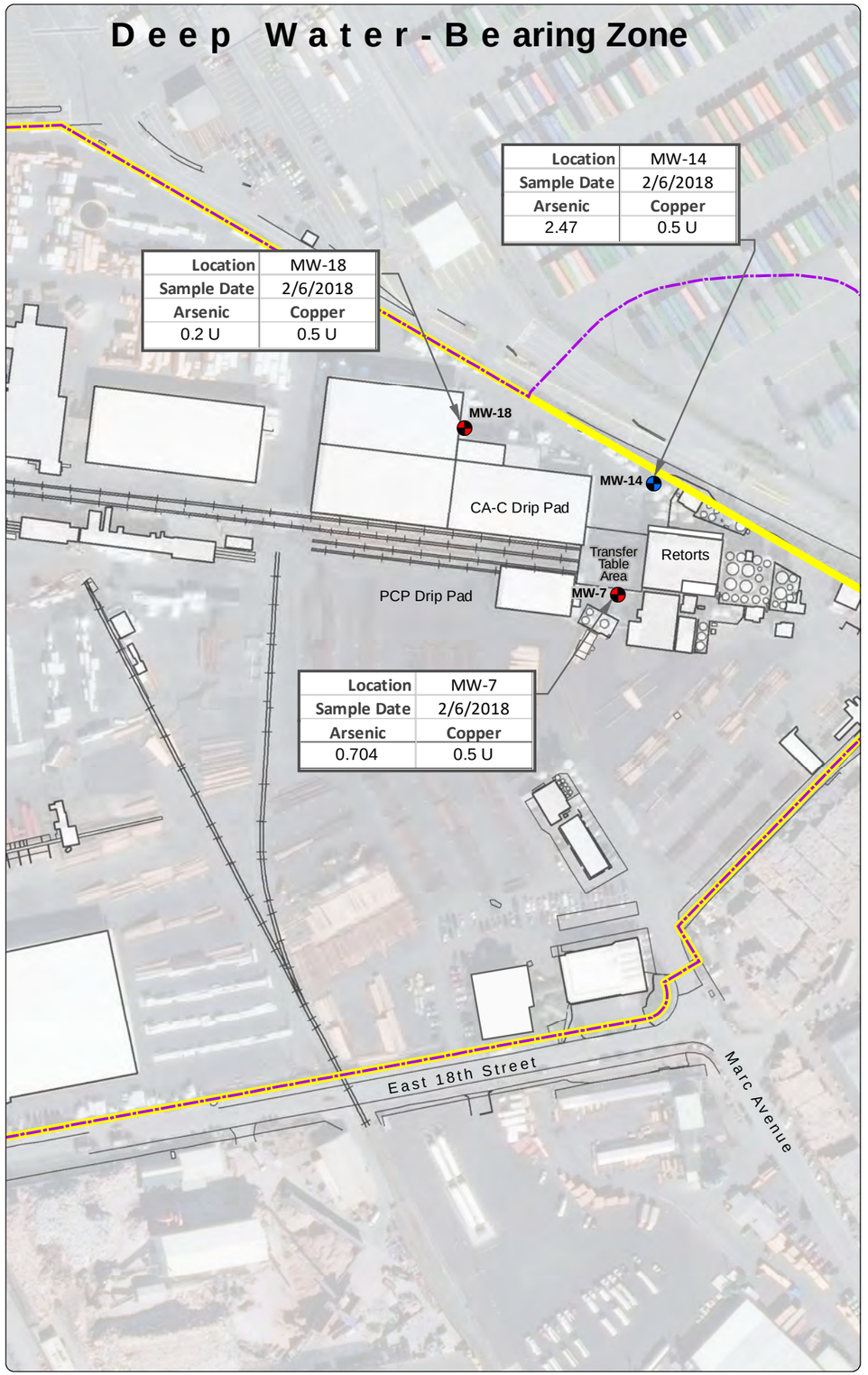


Figure 3
Dissolved Copper and Arsenic in Groundwater
February 2018

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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ATTACHMENT A

FIELD SAMPLING DATA SHEETS

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-3
Project #	9081.01.14	**Sampler**	C. Wise
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2018
Sampling Event	February 2018	**Sample Name**	MW3-GW-020618
Sub Area		**Sample Depth**	8.25
FSDS QA:	EMC 2/16/2018	**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**
2/6/2018	13:30	10.61		5.92		4.36	0.71

(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	1:55:00 PM	0.75	0.2	6.72	12.85	1179	4.55	-35.4	2.47
	2:00:00 PM	1	0.2	6.72	12.88	1153	3.2	-42.1	2.31
	2:05:00 PM	1.25	0.2	6.72	12.9	1147	3.17	-42.8	1.83
	2:10:00 PM	1.5	0.2	6.72	12.9	1140	2.85	-43	1.71
	2:15:00 PM	1.75	0.2	6.72	12.92	1138	2.66	-43.3	1.64
	2:20:00 PM	2	0.2	6.72	12.93	1139	2.51	-42.6	2.33
Final Field Parameters	2:25:00 PM	2.25	0.2	6.72	12.93	1138	2.45	-42.3	1.5

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. Strong odor and sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:25:00 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 purge at 13:35. Collect MW3-GW-020618.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-3		
Project #	9081.01.14	**Sampler**	C. Wise		
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2018		
Sampling Event	February 2018	**Sample Name**	MWDUP-GW-020618		
Sub Area		**Sample Depth**	8.25		
FSDS QA:	EMC 2/16/2018	**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**
2/6/2018	13:30	10.61		5.92		4.36	0.71

(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	1:55:00 PM	0.75	0.2	6.72	12.85	1179	4.55	-35.4	2.47
	2:00:00 PM	1	0.2	6.72	12.88	1153	3.2	-42.1	2.31
	2:05:00 PM	1.25	0.2	6.72	12.9	1147	3.17	-42.8	1.83
	2:10:00 PM	1.5	0.2	6.72	12.9	1140	2.85	-43	1.71
	2:15:00 PM	1.75	0.2	6.72	12.92	1138	2.66	-43.3	1.64
	2:20:00 PM	2	0.2	6.72	12.93	1139	2.51	-42.6	2.33
Final Field Parameters	2:25:00 PM	2.25	0.2	6.72	12.93	1138	2.45	-42.3	1.5

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. Strong odor and sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	2:25:00 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 purge at 13:35. Collect MWDUP-GW-020618.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-4				
Project #	9081.01.14	**Sampler**	C. Wise				
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/7/2018				
Sampling Event	February 2018	**Sample Name**	MW4-GW-020718				
Sub Area		**Sample Depth**	9.5				
FSDS QA:	EMC 2/16/2018	**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**
2/7/2018	10:20	13		6.31		6.69	1.09

(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	10:45:00 AM	1	0.2	6.58	12.48	756	0.3	26.3	21.1
	10:50:00 AM	1.25	0.2	6.58	12.49	761	0.28	23.6	16.6
	10:55:00 AM	1.5	0.2	6.59	12.51	774	0.24	20	13.8
	11:00:00 AM	1.75	0.2	6.59	12.48	784	0.23	16.9	10.1
	11:05:00 AM	2	0.2	6.6	12.5	798	0.23	15	4.72
	11:10:00 AM	2.25	0.2	6.61	12.51	804	0.21	13.8	4.33
Final Field Parameters	11:15:00 AM	2.5	0.2	6.6	12.52	814	0.21	12.5	4.73

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 or sheen. Initially, lots of white particulates in purge water.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	11:25:00 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 purge at 10:25.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-7				
Project #	9081.01.14	**Sampler**	C. Wise				
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2018				
Sampling Event	February 2018	**Sample Name**	MW7-GW-020618				
Sub Area		**Sample Depth**	15.5				
FSDS QA:	EMC 2/16/2018	**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**
2/6/2018	9:25	24.98		7.37		17.61	2.87

(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	10:10:00 AM	2	0.2	6.74	15.08	2246	6.41	-122	1.85
	10:15:00 AM	2.25	0.2	6.73	15.13	2246	5.56	-123	1.47
	10:20:00 AM	2.5	0.2	6.73	15.14	2253	4.14	-125.2	1.33
	10:25:00 AM	2.75	0.2	6.73	15.14	2252	3.57	-125.9	2.26
	10:30:00 AM	3	0.2	6.73	15.04	2256	2.83	-126.5	2.38
	10:35:00 AM	3.25	0.2	6.72	14.96	2253	2.46	-121.5	2.14
Final Field Parameters	10:40:00 AM	3.5	0.2	6.72	14.95	2254	2.36	-121.7	1.81

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:

Initially, some debris in purge water. Clear. Slight odor and sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:45:00 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 purge at 9:30.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-8				
Project #	9081.01.14	**Sampler**	C. Wise				
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2018				
Sampling Event	February 2018	**Sample Name**	MW8-GW-020618				
Sub Area		**Sample Depth**	10				
FSDS QA:	EMC 2/16/2018	**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**
2/6/2018	8:00	12.42		7.36		5.06	0.82

(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	8:45:00 AM	1.5	0.2	6.47	11.32	483	5.85	-2.9	3.17
	8:50:00 AM	1.75	0.2	6.48	11.34	482	5.36	-5.6	2.78
	8:55:00 AM	2	0.2	6.49	11.29	484	4.71	-10.8	5.25
	9:00:00 AM	2.25	0.2	6.5	11.2	487	4.21	-12.5	8.53
	9:05:00 AM	2.5	0.2	6.5	11.14	490	3.9	-13.8	8.71
	9:10:00 AM	2.75	0.2	6.51	11.08	495	3.85	-13.8	8.62
Final Field Parameters	9:15:00 AM	3	0.2	6.51	11.06	496	3.7	-14.3	8.16

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 sheen. Strong odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:20:00 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 purge at 8:15.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-14
Project #	9081.01.14	**Sampler**	C. Wise
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2018
Sampling Event	February 2018	**Sample Name**	MW14-GW-020618
Sub Area		**Sample Depth**	16
FSDS QA:	EMC 2/16/2018	**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**
2/6/2018	14:45	24.68		7.51		17.17	2.79

(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	2.5	0.2	6.76	13.72	1901	2.82	-93.4	3.56
	3:45:00 PM	2.75	0.2	6.76	13.71	1906	1.46	-103.4	5.51
	3:50:00 PM	3	0.2	6.76	13.7	1905	1.15	-107.9	4.88
	3:55:00 PM	3.25	0.2	6.76	13.71	1907	1.12	-110.5	2.62
	4:00:00 PM	3.5	0.2	6.76	13.68	1908	1	-112.8	2.54
	4:05:00 PM	3.75	0.2	6.76	13.69	1908	0.9	-114.9	1.71
Final Field Parameters	4:10:00 PM	4	0.2	6.76	13.68	1907	0.91	-115.1	2.31

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 and 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 purge at 14:50.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-18
Project #	9081.01.14	**Sampler**	C. Wise
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2018
Sampling Event	February 2018	**Sample Name**	MW18-GW-020618
Sub Area		**Sample Depth**	17.5
FSDS QA:	EMC 2/16/2018	**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**
2/6/2018	12:20	26.8		7.82		18.98	3.09

(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	1:05:00 PM	2	0.2	6.77	13.58	1898	1.37	-47.3	2.04
	1:10:00 PM	2.25	0.2	6.76	13.58	1891	1.04	-52.4	1.87
	1:15:00 PM	2.5	0.2	6.77	13.6	1890	1	-53	1.76
Final Field Parameters	1:20:00 PM	2.75	0.2	6.77	13.59	1892	0.97	-53.3	1.63

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 and 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 Began purge at 12:25.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-19
Project #	9081.01.14	**Sampler**	C. Wise
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/7/2018
Sampling Event	February 2018	**Sample Name**	MW19-GW-020718
Sub Area		**Sample Depth**	11
FSDS QA:	EMC 2/16/2018	**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**
2/7/2018	9:15	13.7		8.9		4.8	0.78

(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	9:45:00 AM	0.75	0.2	6.51	12.64	858	2.28	39.7	9.07
	9:50:00 AM	0.87	0.1	6.51	12.64	864	1.56	33.5	8
	9:55:00 AM	1	0.1	6.51	12.59	879	0.75	24.4	6.13
	10:00:00 AM	1.12	0.1	6.51	12.61	890	0.59	18.4	5.18
	10:05:00 AM	1.24	0.1	6.51	12.56	898	0.55	14.3	4.23
	10:10:00 AM	1.36	0.1	6.51	12.54	904	0.53	11.1	4.33
Final Field Parameters	10:15:00 AM	1.48	0.1	6.51	12.55	905	0.54	10.3	4.11

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 and sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:15:00 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 purge at 9:20.

Signature _____

Maul Foster & Alongi, Inc.

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Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	MW-20
Project #	9081.01.14	**Sampler**	C. Wise
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/7/2018
Sampling Event	February 2018	**Sample Name**	MW20-GW-020718
Sub Area		**Sample Depth**	10.5
FSDS QA:	EMC 2/16/2018	**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**
2/7/2018	8:05	14.09		7.51		6.58	1.07

(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	8:35:00 AM	1	0.2	6.41	11.55	711	7.8	5.8	19.1
	8:40:00 AM	1.12	0.1	6.46	11.4	695	6.84	-7.2	16.8
	8:45:00 AM	1.24	0.1	6.48	11.33	690	5.95	-12.2	14.1
	8:50:00 AM	1.36	0.1	6.5	11.21	688	4.51	-17.2	9.77
	8:55:00 AM	1.48	0.1	6.51	11.17	688	2.8	-20.1	7.23
	9:00:00 AM	1.6	0.1	6.52	11.11	687	2.71	-23.1	7.64
Final Field Parameters	9:05:00 AM	1.72	0.1	6.53	11.11	687	2.65	-24.8	7.81

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 sheen or odor. Some white particulates in purge water.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	9:10:00 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 purge at 8:15.

Signature _____

Maul Foster & Alongi, Inc.

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Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	UPRR-MW-29				
Project #	9081.01.14	**Sampler**	C. Wise				
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2018				
Sampling Event	February 2018	**Sample Name**	UPRRMW29-020618				
Sub Area		**Sample Depth**	8.5				
FSDS QA:	EMC 2/16/2018	**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**
2/6/2018	11:00	15.55		3.63		11.92	1.94

(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	11:40:00 AM	2	0.2	6.66	9.42	113	3.92	80.1	2.98
	11:45:00 AM	2.25	0.2	6.65	9.31	113	3.76	91.2	2.32
	11:50:00 AM	2.5	0.2	6.66	9.29	112	3.65	91.1	1.84
Final Field Parameters	11:55:00 AM	2.75	0.2	6.67	9.25	113	3.71	90	2.14

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. Odor and sheen. Initially, some particulates in purge water. Some dark, viscous free product on side of tubing.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:00:00 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 purge at 11:00.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	McFarland Cascade Holdings, Inc.	**Sample Location**	HW-01
Project #	9081.01.14	**Sampler**	C. Wise
Project Name	Cascade Pole Compliance Monitoring	**Sampling Date**	2/6/2018
Sampling Event	February 2018	**Sample Name**	HW01-020618
Sub Area		**Sample Depth**	
FSDS QA:	EMC 2/16/2018	**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**
(2) Peristaltic Pump									
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: Slightly cloudy, some particulates.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(7) Other (specify)	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 Grab sample.

Signature _____

ATTACHMENT B

WELL REDEVELOPMENT LOGS

MAUL FOSTER ALONGI

Well Development Form

Project No.	9081.01.14	Date:	2/5/2018
Site Location:	1640 East Marc Street, Tacoma, WA	Well:	MW-4
Name:	Cascade Pole Compliance Monitoring	Initial DTB:	13.01
Development Method:	Surge and purge	Initial DTW:	6.27
Total Water Removed:	16.8 gallons	Pore Volume:	1.1 gallons
Water Contained:	5-gallon buckets	Casing Diameter:	2 inches

Time	Cum. Vol. Removed (gallons)	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
13:00	--	--	--	--	--	--	--	Surge with bailer.
13:10	--	--	--	--	--	--	--	Water reddish and silty, then clear.
14:00	14	12.0	--	--	--	--	--	Hook up peristaltic pump.
14:04	14.4	11.2	--	--	--	--	--	
14:08	14.8	9.26	--	--	--	--	--	Hook up YSI meter.
14:12	15.2	7.96	6.56	766	12.43	0.47	24.1	
14:16	15.6	6.57	6.56	784	12.44	0.36	22.3	
14:20	16	5.49	6.57	795	12.47	0.33	18.7	
14:24	16.4	5.08	6.58	803	12.48	0.31	15.5	
14:28	16.8	5.25	6.59	808	12.48	0.31	14.7	Complete well redevelopment.

NOTES:
°C = degrees Celsius.
Cum. Vol. = cumulative volume.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
NTU = nephelometric turbidity unit.
ORP = oxidation-reduction potential.
uS/cm = microSiemens per centimeter.

MAUL FOSTER ALONGI

Well Development Form

Project No.	9081.01.14	Date:	2/5/2018
Site Location:	1640 East Marc Street, Tacoma, WA	Well:	MW-19
Name:	Cascade Pole Compliance Monitoring	Initial DTB:	13.7
Development Method:	Surge and purge	Initial DTW:	8.78
Total Water Removed:	22.4 gallons	Pore Volume:	0.8 gallon
Water Contained:	5-gallon buckets	Casing Diameter:	2 inches

Time	Cum. Vol Removed (gallons)	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
14:45	--	--	--	--	--	--	--	Surge with bailer.
14:55	--	--	--	--	--	--	--	Purge with bailer. Purge water very dark with slight sheen.
15:20	7.0	--	--	--	--	--	--	Still very cloudy. Slowing recharging. Allowed 10 minutes to recharge.
15:30	--	--	--	--	--	--	--	Begin purging with bailer again.
15:35	9.0	--	--	--	--	--	--	Still very cloudy. Slowing recharging. Allowed 5 minutes to recharge.
15:40	--	--	--	--	--	--	--	Begin purging with bailer again.
16:00	13.0	--	--	--	--	--	--	Still very cloudy. Slowing recharging. Allowed 5 minutes to recharge.
16:05	--	--	--	--	--	--	--	Begin purging with bailer again.
16:15	16.0	--	--	--	--	--	--	Still very cloudy. Slowing recharging. Allowed 5 minutes to recharge.
16:20	--	--	--	--	--	--	--	Begin purging with bailer again.
16:40	18.0	106	--	--	--	--	--	Slightly cloudy. Hook up peristaltic pump.
16:44	18.4	75.2	--	--	--	--	--	
16:48	18.8	17.6	--	--	--	--	--	
16:52	19.2	11.6	--	--	--	--	--	
16:56	19.6	10.4	--	--	--	--	--	
17:00	20.0	7.76	--	--	--	--	--	Hook up YSI meter.
17:04	20.4	6.73	6.49	863	12.55	0.84	21.2	
17:08	20.8	5.74	6.49	874	12.54	0.71	16.1	
17:12	21.2	6.14	6.50	878	12.46	0.68	12.2	

MAUL FOSTER ALONGI

Well Development Form

Project No.	9081.01.14	Date:	2/5/2018		
Site Location:	1640 East Marc Street, Tacoma, WA	Well:	MW-19		
Name:	Cascade Pole Compliance Monitoring	Initial DTB:	13.7	Final DTB:	13.7
Development Method:	Surge and purge	Initial DTW:	8.78	Final DTW:	8.15
Total Water Removed:	22.4 gallons	Pore Volume:	0.8 gallon		
Water Contained:	5-gallon buckets	Casing Diameter:	2 inches		

Time	Cum. Vol Removed (gallons)	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
17:16	21.6	4.21	6.50	876	12.46	0.65	10.1	
17:20	22.0	3.76	6.51	890	12.47	0.66	10.0	
17:24	22.4	4.71	6.50	891	12.46	0.61	9.8	Complete well redevelopment.

NOTES:
°C = degrees Celsius.
Cum. Vol. = cumulative volume.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
NTU = nephelometric turbidity unit.
ORP = oxidation-reduction potential.
uS/cm = microSiemens per centimeter.

MAUL FOSTER ALONGI

Well Development Form

Project No.	9081.01.14	Date:	2/5/2018
Site Location:	1640 East Marc Street, Tacoma, WA	Well:	MW-20
Name:	Cascade Pole Compliance Monitoring	Initial DTB: 14.11	Final DTB: 14.1
Development Method:	Surge and purge	Initial DTW: 7.51	Final DTW: 7.08
Total Water Removed:	16.8 gallons	Pore Volume:	1.07 gallons
Water Contained:	5-gallon buckets	Casing Diameter:	2 inches

Time	Cum. Vol Removed (gallons)	Turbidity (NTU)	pH	Conductivity (uS/cm)	Temp (°C)	DO (mg/L)	ORP (mV)	Comments
11:00	--	--	--	--	--	--	--	Surge with bailer.
11:10	--	--	--	--	--	--	--	Purge with bailer.
12:00	12.0	--	--	--	--	--	--	Hook up peristaltic pump.
12:04	12.4	20.5	--	--	--	--	--	
12:08	12.8	9.35	--	--	--	--	--	
12:12	13.2	11.1	--	--	--	--	--	
12:18	13.6	7.35	--	--	--	--	--	
12:22	14.0	7.14	--	--	--	--	--	
12:26	14.4	14.1	--	--	--	--	--	
12:30	14.8	12.2	--	--	--	--	--	Hook up YSI meter.
12:34	15.2	9.81	6.47	688	11.45	2.94	-15.9	
12:38	15.6	9.61	6.49	688	11.38	2.93	-17.8	
12:42	16.0	7.42	6.49	695	11.35	2.87	-18.1	
12:46	16.4	7.04	6.50	698	11.33	2.86	-19.9	
12:50	16.8	6.89	6.50	698	11.31	2.84	-20.3	Complete well redevelopment.

NOTES:
°C = degrees Celsius.
Cum. Vol. = cumulative volume.
DO = dissolved oxygen.
DTB = depth to bottom.
DTW = depth to water.
mg/L = milligrams per liter.
mV = millivolts.
NTU = nephelometric turbidity unit.
ORP = oxidation-reduction potential.
uS/cm = microSiemens per centimeter.

ATTACHMENT C

LABORATORY ANALYTICAL REPORT

Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 February 2018

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

RE: Cascade Pole

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)
18B0110	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.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 18B0110	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Maul Foster Alongi	Phone: 3606905982	Date: 2/7/18	Ice Present?
Client Contact: Carolyn Wise		No. of Coolers:	Cooler Temps:
Client Project Name: Cascade Pole			
Client Project #: 9081.01.14	Samplers: C. Wise		

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: Diss. Cu* USEPA 200.8	Diss As* USEPA 200.8							Notes/Comments
MW8-GW-020618	2/6/18	920	W	1	X	X							*Diss As and Ca were field filtered
MW7-GW-020618	2/6/18	1045	W	1	X	X							
UPRRMW29-020618	2/6/18	1200	W	1	X	X							
MW18-GW-020618	2/6/18	1320	W	1	X	X							
MW3-GW-020618	2/6/18	1425	W	1	X	X							
MWDUP-GW-020618	2/6/18	1425	W	1	X	X							
HW01-020618	2/6/18	1430	W	1	X	X							
MW14-GW-020618	2/6/18	1610	W	1	X	X							
MW20-GW-020718	2/7/18	910	W	1	X	X							
MW4-GW-020718	2/7/18	1125	W	1	X	X							

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Direct Bill to: Ted Smith McFarland Cascade Pole ? Lumber Co PO Box 1496 Tacoma, WA 98401	Printed Name: Carolyn Wise	Printed Name: Brandon Fisk	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 2/7/18 1233	Date & Time: 2/7/18 1233	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.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 18B0110	Turn-around Requested:
ARI Client Company: Maul Foster Alongi	Phone: 3606905982
Client Contact: Carolyn Wise	
Client Project Name: Cascade Pole	
Client Project #: 9081.01.14	Samplers: C. Wise

Page: 2 of 2	
Date: 2/7/18	Ice Present?
No. of Coolers:	Cooler Temps:

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www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: * Diss Cu USEPA 200.8	* Diss As USEPA 200.8							Notes/Comments
MW19-GW-020718	2/7/18	1015	W	1	X	X							*Diss As and Cu were field filtered

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Direct Bill to: Ted Smith McFarland Cascade Pole & Lumber Co PO Box 1496 Tacoma, WA 98401	Printed Name: Carolyn Wise	Printed Name: Brandon Fisk	Printed Name:	Printed Name:
	Company: MFA	Company: ARI	Company:	Company:
	Date & Time: 2/7/18 1233	Date & Time: 2/7/18 1233	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	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW8-GW-020618	18B0110-01	Water	06-Feb-2018 09:20	07-Feb-2018 12:33
MW7-GW-020618	18B0110-02	Water	06-Feb-2018 10:45	07-Feb-2018 12:33
UPRRMW29-GW-020618	18B0110-03	Water	06-Feb-2018 12:00	07-Feb-2018 12:33
MW18-GW-020618	18B0110-04	Water	06-Feb-2018 13:20	07-Feb-2018 12:33
MW3-GW-020618	18B0110-05	Water	06-Feb-2018 14:25	07-Feb-2018 12:33
MWDUP-GW-020618	18B0110-06	Water	06-Feb-2018 14:25	07-Feb-2018 12:33
HW01-020618	18B0110-07	Water	06-Feb-2018 14:30	07-Feb-2018 12:33
MW14-GW-020618	18B0110-08	Water	06-Feb-2018 16:10	07-Feb-2018 12:33
MW20-GW-020718	18B0110-09	Water	07-Feb-2018 09:10	07-Feb-2018 12:33
MW4-GW-020718	18B0110-10	Water	07-Feb-2018 11:25	07-Feb-2018 12:33
MW19-GW-020718	18B0110-11	Water	07-Feb-2018 10:15	07-Feb-2018 12:33

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

Case Narrative

Sample receipt

Samples as listed on the preceding page were received February 7, 2018 under ARI workorder 18B0110. 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.

A matrix spike and duplicate were prepared in conjunction with sample MW8-GW-020618. The matrix spike percent recoveries and duplicate RPD were within QC limits.

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WORK ORDER

18B0110

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

Preservation Confirmation

Container ID	Container Type	pH	
18B0110-01 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-03 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-05 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-07 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P
18B0110-11 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	P

P = pass

BF
Preservation Confirmed By

2/8/18
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: MFA Project Name: Cascade Pole

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

Assigned ARI Job No: 18B0110 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): 0.3

Time: _____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 200256S

Cooler Accepted by: BF Date: 2/7/18 Time: 1233

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: _____

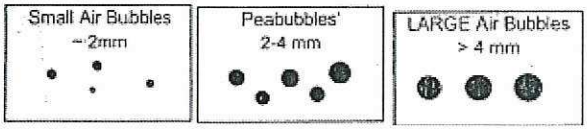
Samples Logged by: BF Date: 2/8/18 Time: 1237

***** 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:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MW8-GW-020618

18B0110-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2018 09:20

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 15:08

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**139**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	**0.595**	ug/L	

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MW7-GW-020618

18B0110-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2018 10:45

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 13:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**0.704**	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	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

UPRRMW29-GW-020618

18B0110-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2018 12:00

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 14:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**18.0**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	**4.61**	ug/L	

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MW18-GW-020618

18B0110-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2018 13:20

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 14:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — 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	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MW3-GW-020618

18B0110-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2018 14:25

Instrument: ICPMS2 — Analyzed: 19-Feb-2018 15:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	20	4.00	**706**	ug/L	D
Copper, Dissolved	7440-50-8	1	0.500	**0.947**	ug/L	

Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MWDUP-GW-020618

18B0110-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2018 14:25

Instrument: ICPMS2 — Analyzed: 19-Feb-2018 15:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	20	4.00	**814**	ug/L	D
Copper, Dissolved	7440-50-8	1	0.500	**1.29**	ug/L	

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Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

HW01-020618

18B0110-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2018 14:30

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 14:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**49.5**	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	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MW14-GW-020618

18B0110-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/06/2018 16:10

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 14:44

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**2.47**	ug/L	
Copper, Dissolved	7440-50-8	1	0.500	ND	ug/L	U

Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MW20-GW-020718

18B0110-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/07/2018 09:10

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 14:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**0.645**	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	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MW4-GW-020718

18B0110-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/07/2018 11:25

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 14:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**22.2**	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	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

MW19-GW-020718

18B0110-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 02/07/2018 10:15

Instrument: ICPMS2 — Analyzed: 16-Feb-2018 14:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGB0281 — Sample Size: 25 mL
Prepared: 13-Feb-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.200	**13.0**	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	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BGB0281 - 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 (BGB0281-BLK1)				Prepared: 13-Feb-2018 Analyzed: 16-Feb-2018 14:34							
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 (BGB0281-BS1)				Prepared: 13-Feb-2018 Analyzed: 16-Feb-2018 15:18							
Arsenic, Dissolved	75a	25.5	0.200	ug/L	25.0		102	80-120			
Copper, Dissolved	63	27.7	0.500	ug/L	25.0		111	80-120			
Copper, Dissolved	65	26.8	0.500	ug/L	25.0		107	80-120			
Duplicate (BGB0281-DUP1)		**Source: 18B0110-01**		Prepared: 13-Feb-2018 Analyzed: 16-Feb-2018 15:03							
Arsenic, Dissolved	75a	135	0.200	ug/L		139			3.14	20	
Copper, Dissolved	63	0.606	0.500	ug/L		0.595			1.83	20	
Matrix Spike (BGB0281-MS1)		**Source: 18B0110-01**		Prepared: 13-Feb-2018 Analyzed: 16-Feb-2018 15:13							
Arsenic, Dissolved	75a	164	0.200	ug/L	25.0	139	99.0	75-125			
Copper, Dissolved	63	26.9	0.500	ug/L	25.0	0.595	105	75-125			

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

Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

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	UST-033	05/11/2018
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/07/2019
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2018
WADOE	WA Dept of Ecology	C558	06/30/2018
WA-DW	Ecology - Drinking Water	C558	06/30/2018

Maul, Foster & Alongi, Inc.	Project: Cascade Pole	
2001 NW 19th Avenue, Suite 200	Project Number: 9081.01.14	**Reported:**
Portland WA, 97209	Project Manager: Carolyn Wise	20-Feb-2018 16:23

Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
J	Estimated concentration value detected below the reporting limit.
D	The reported value is from a dilution
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. 9081.01.14 | FEBRUARY 1, 2019 | MCFARLAND CASCADE HOLDINGS, INC., AND TYEE MANAGEMENT COMPANY, LLC

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater samples collected at the McFarland Cascade Pole and Lumber Company site located at 1640 East Marc Street in Tacoma, Washington. The samples were collected on February 6 and 7, 2018.

Analytical Resources, Inc. (ARI) performed the analyses. ARI report 18B0110 was 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 18B0110	
MW8-GW-020618	HW01-020618
MW7-GW-020618	MW14-GW-020618
UPRRMW29-GW-020618	MW20-GW-020718
MW18-GW-020618	MW4-GW-020718
MW3-GW-020618	MW19-GW-020718
MWDUP-GW-020618	-

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2017) and appropriate laboratory and method-specific guidelines (ARI, 2016; 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, as volatile organic compounds were not analyzed.

Equipment Rinsate Blanks

Equipment rinsate blanks were not submitted for analysis.

SURROGATE RECOVERY RESULTS

No surrogate results were reported, as surrogate compounds are not required by USEPA Method 200.8.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were extracted and analyzed at the required frequency. All MS/MSD results were within acceptance limits for percent recovery and relative percent differences (RPDs).

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. All duplicate samples were extracted and analyzed at the required frequency. All laboratory duplicate RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency. All LCS/LCSD results were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. One field duplicate was submitted for analysis (MW3-GW-020618/MWDUP-GW-020618). MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the method reporting limit (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. 2016. Quality assurance plan. Analytical Resources, Inc., Tukwila, Washington. January.

USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. EPA-530/SW-846. Update V. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. September (revision 1, July 2014).

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—2018
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)
01/01/18	13:27	Y	0.50	N	N	1,089,320	ECS	5,552,464
01/08/18	10:05	Y	1.00	N	N	1,083,589	ECS	5,546,733
01/11/18	13:26	Y	1.00	N	N	1,089,932	ECS	5,553,076
02/12/18	16:46	Y	0.50	N	N	1,169,630	ECS	5,632,774
02/21/18	11:43	Y	0.50	N	N	1,185,483	ECS	5,648,627
03/16/18	16:51	Y	0.50	N	N	1,206,730	ECS	5,669,874
03/21/18	12:01	Y	0.50	N	N	1,207,262	ECS	5,670,406
03/27/18	15:12	Y	0.20	N	N	1,213,361	ECS	5,676,505
04/06/18	8:49	Y	0.00	N	N	1,216,299	ECS	5,679,443
05/01/18	15:44	Y	1.50	N	N	1,222,036	ECS	5,685,180
05/22/18	12:21	Y	2.00	N	N	1,223,495	ECS	5,686,639
06/26/18	12:15	Y	1.00	N	N	1,224,352	ECS	5,687,496
07/17/18	14:20	Y	0.00	N	N	1,226,444	ECS	5,689,588
12/05/18	14:09	Y	0.00	N	N	1,231,876	AC	5,695,020

NOTES:

AC = Alex Clark.

ECS = Edward C. Smith.

N = no.

Y = yes.

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

Date: 1/1/18 Time: 1327

Checked By: ECS Weather: Rain

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 0.5 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1089320 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: 1/8/18 Time: 10:05

Checked By: ECS Weather: Cloudy

1) Discharge pump operating? YES ↘ NO _____

2) Water level in tank 1.0 ft

3) Alarm light on? YES _____ NO ↘

4) Pipes leaking? YES _____ NO ↘

5) Discharge TOTALIZER reading 1083589 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: 1/11/18 Time: 13:26

Checked By: EC S Weather: Rain

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 1.0 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1089932 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: 02/12/18 Time: 1646

Checked By: EC Weather: Clear

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 0.5 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1169630 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: 2/21/18 Time: 11:43

Checked By: ECS Weather: Cloudy

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 0.5 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1185483 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: 7/16/18 Time: 10:51

Checked By: ECS Weather: Clear

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 0.5 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1206730 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: 3/21/18 Time: 12:01

Checked By: CS Weather: Partly Cloudy

1) Discharge pump operating? YES ↘ NO _____

2) Water level in tank 0.5 ft

3) Alarm light on? YES _____ NO ↘

4) Pipes leaking? YES _____ NO ↘

5) Discharge TOTALIZER reading 1207262 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: 3/27/18 Time: 15:12

Checked By: ECS Weather: Cloudy

1) Discharge pump operating? YES ↘ NO _____

2) Water level in tank 0.2 ft

3) Alarm light on? YES _____ NO ↘

4) Pipes leaking? YES _____ NO ↘

5) Discharge TOTALIZER reading 1213361 _____ 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: 4/6/18 Time: 8:49

Checked By: ECJ Weather: Rain

1) Discharge pump operating? YES _____ NO _____

2) Water level in tank 0.0 ft

3) Alarm light on? YES _____ NO _____

4) Pipes leaking? YES _____ NO _____

5) Discharge TOTALIZER reading 1216299 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: 5/1/18 Time: 1544

Checked By: ECS Weather: Partly Cloudy

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 1.5 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1220736 gallons

6) Describe any activities performed:

Done

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: 5/22/18 Time: 12:21

Checked By: ECS Weather: Clear

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 2.0 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1223495 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: 6/26/18 Time: 12:15 PM

Checked By: ECS Weather: Partly Cloudy

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 1.0 ft

3) Alarm light on? YES _____ NO _____

4) Pipes leaking? YES _____ NO _____

5) Discharge TOTALIZER reading 1224352 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: 7/17/18 Time: 2:20 PM

Checked By: ECS Weather: Clear/Sunny

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 0 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1226444 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: 12/5/18 Time: 2:09pm

Checked By: Alex Clark Weather: clear

1) Discharge pump operating? YES ✓ NO _____

2) Water level in tank 0 ft

3) Alarm light on? YES _____ NO ✓

4) Pipes leaking? YES _____ NO ✓

5) Discharge TOTALIZER reading 1231876 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).

ATTACHMENT C

ANNUAL PROTECTIVE CAP INSPECTION REPORT

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

Date:	9/14/2018
Weather:	Sunny, ~65° F
Precipitation (prior 24 hrs):	None
Completed By:	A. Kaparos, PE, Maul Foster & Alongi, Inc.

General Observations:

This is the third 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 moving lumber poles.

No major areas of standing water were observed; however, some very small areas of standing water were observed. The asphalt cap appeared in good condition within the vicinity.

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.

Figure
2018 Cap Inspection

McFarland Cascade Pole
and Lumber Company
Tacoma, Washington

September 14, 2018

Puyallup River

Dike Road

East 18th Street

Marc Avenue

Lumber Storage/ CA-C

CA-C Drip Pad

Retorts

Hazardous Waste Storage (< 90 Days)

Transfer Table Area

Storage

Monitor Sealant (typ.)

Steel-covered Drip Pad

PCP Thermal Butt Vat

AST/ Unleaded Fuel

Timber Stain/ Incisor

Timber Fabrication

Horizontal Recovery Well (HW-01)

Legend

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

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:\9081.01 Cascade Pole\04 MTCA Closure Tacoma Facility\00_Projects\Fig_Protective Cap_2018.mxd
Project: 9081.01.04-00 Produced By: mjosef Approved By: hhirsch Print Date: 9/19/2018

PHOTOGRAPHS

Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 09.14.18
Project Number: 9081.01.14
Location: 1640 East Marc Street Tacoma, Washington

Photo No.
1

Description
Area repaired with new asphalt. Near lumber storage, south of thermal butt vat. View looking north/northeast.

Photo No.
2

Description
Areas repaired with new asphalt. East of pole incisor. View looking northwest.

PHOTOGRAPHS

Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 09.14.18
Project Number: 9081.01.14
Location: 1640 East Marc Street Tacoma, Washington

Photo No.
3

Description
Area repaired with new asphalt. Near the lumber storage/CA-C area. View looking west.

Photo No.
4

Description
Small cracks forming and some sealant fatigue—to be monitored. Pole storage area. View looking south.

PHOTOGRAPHS

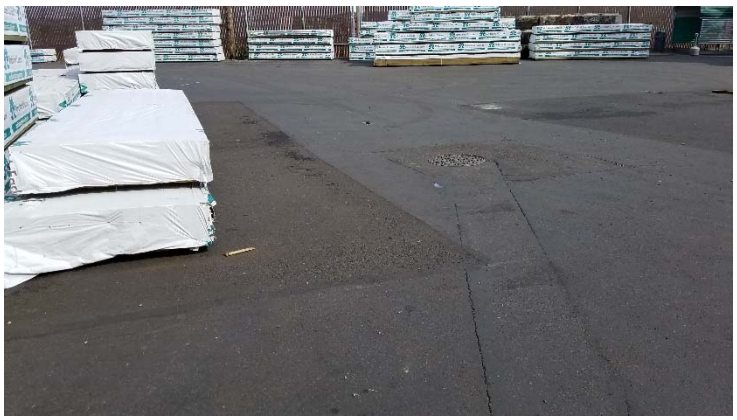
Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 09.14.18
Project Number: 9081.01.14
Location: 1640 East Marc Street Tacoma, Washington

Photo No.
5

Description
Cracks forming, and some sealant fatigue observed—to be monitored.
Near CA-C lumber storage, northwest of the drip pad. View looking south.

Photo No.
6

Description
Linear crack—to be monitored. North of the CA-C drip pad. View looking north.



PHOTOGRAPHS

Project Name: McFarland Cascade Pole and Lumber Company—Cap Inspection, 09.14.18
Project Number: 9081.01.14
Location: 1640 East Marc Street Tacoma, Washington

Photo No.
7

Description
Minor sealant fatigue in asphalt, south of drip pad building. View looking north.

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, 09.14.18
Project Number: 9081.01.14
Location: 1640 East Marc Street
Tacoma, Washington

Photo No.
9

Description
Steel plating covering drip pad. View looking east.

Photo No.
10

Description
Drip pad curb, west end.