

July 11, 2016

Project No.: 661M13236.2016.B

Mr. Kenneth Thiessen
Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah St., Suite 600
Portland, OR 97232
Thiessen.Kenneth@deq.state.or.us

Subject: Quarterly Progress, Operations, Monitoring, and Maintenance Report

Former Koppers Facility

Wauna, Oregon

Dear Mr. Thiessen:

On behalf of Georgia-Pacific Consumer Products LP (GP) and Beazer East, Inc. (Beazer), this quarterly progress report has been prepared for the former Koppers wood-treating facility in Wauna, Oregon. This report is submitted in accordance with Oregon Department of Environmental Quality (DEQ) Order on Consent No. LQVC-NWR-09-01. It covers operations, monitoring, and maintenance of the final remedy completed during the second quarter of 2016: April 1, 2016, through June 30, 2016.

ACTIONS TAKEN DURING PREVIOUS THREE MONTHS

- Following the May 27, 2016, approval by DEQ of the Final Report: Monitored Natural Attenuation Demonstration, the aeration trench was shut down on June 13, 2016. The monitored natural attenuation (MNA) plan outlined in this report will be implemented at the Site, which included semiannual and annual reporting and semiannual groundwater monitoring.
- Prior to shut down, biweekly inspections and maintenance of the aeration trench system were
 performed in general accordance with the Operation, Monitoring, Inspection, and Maintenance
 Plan (O&M Plan) approved by DEQ. The operating factor of the aeration system for the
 second quarter, prior to shutdown, was 89 percent, as described in more detail in the attached
 Quarterly Operation, Monitoring, and Maintenance Summary.
- The shoreline and seeps along the Columbia River were inspected bi-weekly, including along the region where a sheen was identified in June 2015. No sheen or odor was detected during any of these inspections.
- Groundwater elevations were measured during the semiannual monitoring event in April 2016 and a groundwater elevation contour map was prepared.
- Semiannual groundwater quality monitoring was performed in April 2016.

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 The Annual Cap Inspection was performed in April 2016. During the inspection, animal burrows were noted in the protective soil cap. These burrows were filled and the repairs and repairs are described in more detail in the attached Quarterly Operation, Monitoring, and Maintenance Summary.

ACTIONS SCHEDULED TO BE TAKEN IN THE NEXT FOUR MONTHS

- An updated Operations, Monitoring Inspection, and Maintenance Plan will be prepared to address the changes in operation outlined in the *Final Report: Monitored Natural Attenuation Demonstration* and the approved MNA plan.
- In accordance with the approved MNA plan, quarterly reports will no longer be provided to DEQ. Instead, semiannual and annual reports will be provided. The next scheduled report will be the 2016 Annual Report.

PROBLEMS EXPERIENCED DURING THE PREVIOUS THREE MONTHS AND ACTIONS TAKEN TO RESOLVE THEM

• Two power outages occurred at the GP mill, causing the air compressor to shut down; the system was restarted during the following biweekly Site visit.

SAMPLING, TESTING RESULTS, DATA GENERATED DURING THE PREVIOUS THREE MONTHS

 Laboratory analytical reports were received from ALS Environmental (ALS) laboratory of Kelso, Washington, containing the analytical results from the April 2016 semiannual groundwater monitoring. These data, along with groundwater level measurements, are tabulated in the Operation, Monitoring, and Maintenance Summary enclosed with this report.

Please contact me if you have any questions regarding this progress report.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure, Inc.

J. Stephen Barnett, RG Senior Associate Geologist

MR/ay

Enclosure(s): Quarterly Operation, Monitoring, and Maintenance Summary

cc: M. Hassett, Georgia-Pacific S. Johnson, Georgia Pacific K. Paschl, Beazer East, Inc.

Amec Foster Wheeler Environment & Infrastructure, Inc.



ATTACHMENTS



Memorandum

From

To Kurt Paschl Project No. 661M13236

Beazer East, Inc.

cc: Michael Hassett, GP

Shannon Johnson, GP

Steve Barnett Jeff Sorensen, GP Melissa Roskamp Project File

Amec Foster Wheeler Environment &

Infrastructure, Inc.

Date July 8, 2016

Subject Quarterly Operation, Monitoring, and Maintenance Summary,

Second Quarter 2016: April 1, 2016, through June 30, 2016

Former Koppers Facility

Wauna, Oregon

On behalf of Beazer East, Inc. and Georgia-Pacific Consumer Products LP (GP), this memorandum has been prepared by Amec Foster Wheeler Environment & Infrastructure, Inc. to summarize operation, maintenance, and performance monitoring for the final site remedy at the former Koppers facility in Wauna, Oregon. This report covers the second quarter of 2016, from April 1, 2016 through June 30, 2016. This report has been prepared in accordance with the requirements specified in the Operation, Monitoring, Inspection, and Maintenance Plan (O&M Plan) approved by the Oregon Department of Environmental Quality (DEQ) in January 2010 and the requirements specified in Order on Consent No. LQVC-NWR-09-01.

SUMMARY OF OPERATIONS

On June 13, 2016, the aeration trench was shut down for implementation of the monitored natural attenuation plan presented in *Final Report: Monitored Natural Attenuation Demonstration* and approved by DEQ on May 27, 2016. Prior to shutdown, biweekly inspections of the aeration trench system and biweekly readings of dissolved oxygen and pH were taken in aeration trench wells ATT-07, ATT-08, and ATT-09, in general accordance with the O&M Plan. Copies of the biweekly inspection forms are included in Attachment 1. Two shutdowns occurred, both due to loss of power at the GP mill. The operating factor for the system for the second quarter, prior to shutdown, was 89 percent. No planned maintenance shutdowns of the aeration system occurred during the second quarter.

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MAINTENANCE

On April 20, 2016, the Annual Cap Inspection was performed. During the inspection, two animal burrows were noted in the protective soil cap. These burrows were filled and the cap repaired. A copy of the annual inspection form is included in Attachment 1 and a photograph log of the burrows and repaired cap is included as Attachment 2.

SEMIANNUAL GROUNDWATER MONITORING

The first 2016 semiannual groundwater monitoring event was conducted on April 7, 2016. Groundwater level readings were taken on April 7, 2016, and are summarized on Table 1. The water level measurements were used to prepare the groundwater contours presented in Figure 1. The groundwater flow pattern shown on Figure 1 is generally consistent with previous results and demonstrates that the final groundwater remedy continues to meet hydraulic performance objectives.

During semiannual groundwater monitoring the 13 groundwater guality monitoring wells for the final remedy were sampled and analyzed in accordance with the requirements specified in the O&M Plan. The analytical results are consistent with previous results and are summarized in Table 2. The groundwater sampling logs are included in Attachment 3. Monitoring results for the point-ofcompliance wells were all well below the Level II screening level values. Water quality parameter field measurements taken during sampling are presented in Table 3.

Attachments: Table 1: April 7, 2016, Groundwater Elevations

> Table 2: April 2016 Groundwater Monitoring Analytical Results

Figure 1: **Groundwater Elevations** Attachment 1: Bi-Weekly Inspection Forms Attachment 2: Cap Repair Photograph Log Groundwater Sampling Logs Attachment 3:

TABLE 1

APRIL 7, 2016 GROUNDWATER ELEVATIONS

Former Koppers Facility Wauna, Oregon

					Groundwater	
			Top of	Measured		
		Ground	Casing	Depth to	Depth Below	1
		Elevation ¹	Elevation ¹	Water	Grade	Elevation ¹
Well Number	Time	(feet)	(feet)	(feet btoc)	(feet)	(feet)
ATT-01	11:20	10.26	12.31	4.76	2.71	7.55
ATT-02	11:23	12.69	15.21	7.38	4.86	7.83
ATT-03	11:30	11.51	14.06	6.32	3.77	7.74
ATT-04	11:36	10.54	12.73	5.38	3.19	7.35
ATT-05	11:10	12.43	14.37	6.17	4.23	8.20
ATT-06	10:25	11.98	14.11	6.01	3.88	8.10
ATT-10	11:14	10.42	12.57	4.28	2.13	8.29
ATT-11	11:47	12.21	13.88	6.60	4.93	7.28
ATT-12	11:41	9.34	11.27	5.09	3.16	6.18
PMW-2	8:40	9.18	11.62	2.59	0.15	9.03
PMW-5	8:43	12.72	12.33	2.80	3.19	9.53
PMW-6	8:57	9.38	9.28	0.32	0.42	8.96
PMW-7R	11:38	9.28	11.82	5.17	3.50	9.50
PMW-13	10:11	11.21	13.54	5.05	2.72	8.49
SBW-01	10:01	10.25	12.35	7.30	5.20	5.05
SBW-02	9:56	10.29	12.71	3.77	1.35	8.94
SBW-03	8:14	10.65	10.06	6.09	6.68	3.97
SBW-04	8:20	11.29	10.87	4.72	5.14	6.15
SBW-05	9:45	10.42	10.06	4.30	4.66	5.76
SBW-06	8:33	11.42	11.02	1.60	2.00	9.42
SBW-07	9:10	10.86	10.51	4.88	5.23	5.63
SBW-08	8:30	9.37	8.85	3.30	3.82	5.55
SBW-09	10:05	10.65	12.85	7.97	5.77	4.88
SBW-10	10:07	10.85	12.91	4.55	2.49	8.36

Notes

1. Elevation Datum: NGVD29. All elevations are relative to this datum.

Abbreviations

btoc = below top of casing

NGVD29 = National Geodetic Vertical Datum of 1929

TABLE 2

APRIL 2016 GROUNDWATER MONITORING ANALYTICAL RESULTS 1,2

Former Koppers Facility Wauna, Oregon

Concentrations are in micrograms per liter (µg/L)

					\(\frac{1}{3}\)			1
Constituent	ATT-01 ³	ATT-02 ³	ATT-03	ATT-04	ATT-05 ³	ATT-06 ³	ATT-06 ³	Level II SLV
Date	04/07/2016	04/07/2016	04/07/2016	04/07/2016	04/07/2016	04/07/2016	04/07/2016	(µg/L) ⁴
Ethylbenzene	7.5	1.6	0.050 U	0.050 U	5.7	8.5	6.4	7.3
2-Methylphenol	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	13
Benzoic acid	1.1 U	1.9 J	1.4 J	1.3 J	2.3 J	1.1 U	1.1 U	42
Naphthalene	160 D	170 D	0.022 U	0.022 U	250 D	110 D	110 D	620
Dibenzofuran	0.16 J	0.65	0.018 U	0.018 U	8.5	2.3	2.2	3.7
Fluorene	0.88	5.1	0.027 U	0.027 U	11	9.2	8.6	3.9
Pentachlorophenol	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	15
Phenanthrene	0.025 J	1.1	0.022 U	0.022 U	2.8	3.9	3.7	6.3
Fluoranthene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.029 J	0.026 J	6.2
bis(2-Ethylhexyl) phthalate	0.13 U	0.15 J	0.57 J	0.13 U	0.13 U	0.13 U	0.13 U	3

TABLE 2

APRIL 2016 GROUNDWATER MONITORING ANALYTICAL RESULTS 1,2

Former Koppers Facility Wauna, Oregon

Concentrations are in micrograms per liter (µg/L)

Constituent	ATT-10 ³	ATT-11	ATT-12	PMW-7R	SBW-05	SBW-07	SBW-08	Level II SLV
Date	04/07/2016	04/07/2016	04/07/2016	04/07/2016	04/07/2016	04/07/2016	04/07/2016	(μg/L) ⁴
Ethylbenzene	0.080 J	0.34 J	0.050 J	0.050 U	0.080 J	0.050 U	0.050 U	7.3
2-Methylphenol	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	13
Benzoic acid	1.1 U	1.6 J	2.0 J	2.2 J	1.3 J	1.4 J	1.6 J	42
Naphthalene	1.8	13	0.022 U	0.022 U	1.1	0.022 U	0.022 U	620
Dibenzofuran	0.16 J	0.018 U	3.7					
Fluorene	4.1	0.027 U	0.027 U	0.027 U	2.8	0.027 U	0.027 U	3.9
Pentachlorophenol	0.34 U	0.34 U	0.34 U	0.34 U	0.56 J	0.34 U	0.34 U	15
Phenanthrene	0.59	0.022 U	0.022 U	0.022 U	0.081 J	0.022 U	0.022 U	6.3
Fluoranthene	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	6.2
bis(2-Ethylhexyl) phthalate	0.13 U	0.16 J	0.13 U	0.25 J	0.13 U	0.46 J	0.38 J	3

Notes

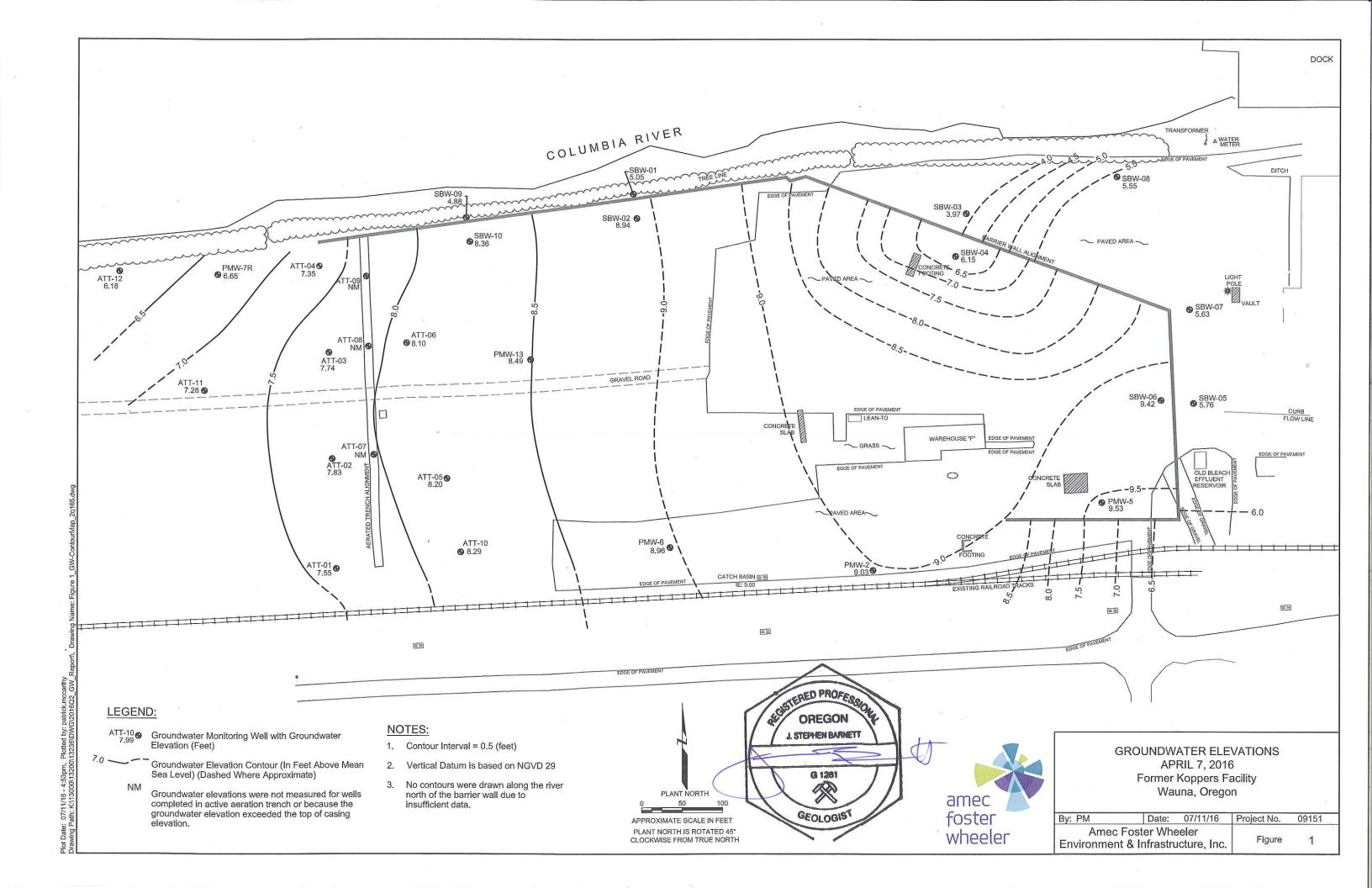
PMW-7R and ATT-12 are points of compliance.

- 1. Data qualifiers are as follows:
 - D = The result is reported from a dilution.
 - J = The reported result is an estimate.
 - U = Analyte was not detected at the concentrations indicated, which is standard laboratory detection limit.
- 2. **Bold** indicates that the constituent concentration exceeds the Oregon Level II SLV.
- 3. The reporting limits for these samples are elevated due to the laboratory diluting the samples prior to analysis.
- 4. Level II SLVs taken from Oregon Department of Environmental Quality, Guidance for Ecological Risk Assessment, Level II Screening Level Values, December 2001.

Abbreviations

 μ g/L = micrograms per liter

SLV = Oregon Department of Environmental Quality Screening Level Value



Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

Date/Time	System Status (On/Off)	High Pressure Light (On/Off)	Low Pressure Light (On/Off)	Pl-1 Pressure (psi)	PI-2 Pressure (psi)	T1 Temp. (° F)	Bleeder Valve Flow (scfm)	Fl-1 System Flow (in. H₂0)	FI-1 System Flow (cfm)	Run Time Meter (hours)
4-7-16 13:30	ON	OFF	OFF	13.75	13.75	128	0.0	4.85	NA	7862.7
18:00	ON	OFF	OFF	13,75	13.75	115	0.0	4.77	NA	7867.2

Chart	Change	Sparge	Sparge Zone 1		1 Sparge Zone 2		Sparge Zone 3		Sparge Zone 4		Zone 5
Recorder Flow (cfm)	Circle Chart (Yes/No)	PI-Z1 Pressure (psi)	FI-Z1 Flow (cfm)	PI-Z2 Pressure (psi)	FI-Z2 Flow (cfm)	PI-Z3 Pressure (psi)	FI-Z3 Flow (cfm)	PI-Z4 Pressure (psi)	FI-Z4 Flow (cfm)	PI-Z5 Pressure (psi)	FI-Z5 Flow (cfm)
4.85	YES	8.75	1.9	7.0	1.5	12.75	1.8	13.5	0.8	6.5	1.9
4.77		8.7	1.9	7.0	1.4	13.0	1,8	13.5	1.0	6.75	1.8

Sparge	Sparge Zone 6 Sparge Zone 7		Zone 7	Sparge Zone 8		Sparge Zone 9		Sparge Zone 10		Sparge Zone 11	
PI-Z6 Pressure (psi)	FI-Z6 Flow (cfm)	PI-Z7 Pressure (psi)	FI-Z7 Flow (cfm)	PI-Z8 Pressure (psi)	FI-Z8 Flow (cfm)	PI-Z9 Pressure (psi)	FI-Z9 Flow (cfm)	PI-Z10 Pressure (psi)	FI-Z10 Flow (cfm)	PI-Z11 Pressure (psi)	FI-Z11 Flow (cfm)
13.5	1.0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
13.5	1.0	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

	ATT-07	ATT-08	ATT-09
Well Depth (ft BTOC)	15	14.5	13.5
Water Level (ft BTOC)	6.64	6.06	4.73
Center of Water Column (ft BTOC)	10.82	10.03	9.12

	ATT-07	ATT-08	ATT-09
pН	6.55	7.20	7.33
DO (mg/l)	0.77	7.99	8.21
Depth Measured (ft BTOC)	10.82	10.03	9.12

Name:

Signature: College

William J. McFarland Senior Environmental Technician

Amec Foster Wheeler 7376 SW Durham Road Portland, Oregon 97224

Signature:

C:\Users\bill.mcfarland\Desktop\Stuff\Wauna\2016\Wauna Report 4-07-16.docx

Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

	Mainter	nance Issue		Maintenance Is	sue Resolution
Name	Date/Time	Description	Name	Date/Time	Description
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				-	
					
·					

Name:

William J. McFarland Senior Environmental Technician

Amec Foster Wheeler 7376 SW Durham Road

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Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

Date/Time	System Status (On/Off)	High Pressure Light (On/Off)	Low Pressure Light (On/Off)	PI-1 Pressure (psi)	PI-2 Pressure (psi)	T1 Temp. (° F)	Bleeder Valve Flow (scfm)	FI-1 System Flow (in. H ₂ 0)	FI-1 System Flow (cfm)	Run Time Meter (hours)
4-20-16 13:30	OFF	OFF	ON	OFF	OFF	68	0.0	OFF	OFF	8110.1
15:30	ON	OFF	OFF	15.0	15.0	115	0.0	1.5	4.52	8113.2

Chart	hart Change Sparge Zone 1		Sparge Zone 2		Sparge Zone 3		Sparge Zone 4		Sparge Zone 5		
Recorder Flow (cfm)	Circle Chart (Yes/No)	PI-Z1 Pressure (psi)	FI-Z1 Flow (cfm)	PI-Z2 Pressure (psi)	FI-Z2 Flow (cfm)	PI-Z3 Pressure (psi)	FI-Z3 Flow (cfm)	PI-Z4 Pressure (psi)	FI-Z4 Flow (cfm)	PI-Z5 Pressure (psi)	FI-Z5 Flow (cfm)
OFF	YES	OFF	OFF								
4.52		8.25	1.8	6.25	1.4	13.0	1.2	15.0	1.0	7.5	2.0

Sparge	Zone 6	Sparge Zone 7		Sparge Zone 8		Sparge Zone 9		Sparge Zone 10		Sparge Zone 11	
PI-Z6 Pressure (psi)	FI-Z6 Flow (cfm)	PI-Z7 Pressure (psi)	FI-Z7 Flow (cfm)	PI-Z8 Pressure (psi)	FI-Z8 Flow (cfm)	PI-Z9 Pressure (psi)	FI-Z9 Flow (cfm)	PI-Z10 Pressure (psi)	FI-Z10 Flow (cfm)	PI-Z11 Pressure (psi)	FI-Z11 Flow (cfm)
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
15.0	1.4	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

	ATT-07	ATT-08	ATT-09
Well Depth (ft BTOC)	15	14.5	13.5
Water Level (ft BTOC)	7.08	6.53	5.20
Center of Water Column (ft BTOC)	11.04	10.51	9.35

	ATT-07	ATT-08	ATT-09
рН	6.21	6.77	6.11
DO (mg/l)	0.38	5.44	4.73
Depth Measured (ft BTOC)	11.04	10.51	9.35

Name:

Signature:

Site inspection performed (yes/no)

William J. McFarland Senior Environmental Technician

Amec Foster Wheeler 7376 SW Durham Road

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Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

	Mair	ntenance Issue		Maintenar	nce Issue Resolution	
Name	Date/Time	Description	Name	Date/Time	Description	
Bill McFarland	4-20-16 13:30	System off on arrival. Mill maintenance is suspected cause for system off	Bill McFarland	4-20-16 13:30	Started system	
Bill McFarland	4-20-16 13:30	Circle chart pen dried out	Bill McFarland	4-20-16 13:30	Replaced pen	
Bill McFarland	4-20-16 13:30	Compressor oil scheduled change	Bill McFarland	4-20-16 13:30	Changed compressor oil	
Bill McFarland	4-20-16 13:30	Low flow to sparge line #4	Bill McFarland	4-20-16 13:30	Spent time forcing air into sparge line #4. Reduced flow to sparge lines#1&2 to increase flow to sparge line #4	

Name:

Signature: Up

Site inspection performed (yes/no)

William J. McFarland Senior Environmental Technician

Amec Foster Wheeler 7376 SW Durham Road

Portland, Oregon 97224 Signature: C:\Users\bill.mcfarland\Desktop\Stuff\Wauna\2016\Wauna Report 4-20-16.docx

TABLE 1

CAP, SOIL COVER, AND DITCH FILL AREAS INSPECTION AND MAINTENANCE LOG

Former Koppers Facility Wauna, Oregon

	Inspection	pn/Maintenance Issue		Maintena	ance Issue Resolution
Name	Date	Description	Name	Date	Description
Bill McFarlan		Annual Cap Inspection Completed			
Bill	Hlzolis	2 Animal burrow near PMW 13	Bill	4/20/16	Located, Logged, Photographed & Report
			2 To		
# # # # # # # # # # # # # # # # # # #			3 25 0		
		}			
ë ë			8 F 5		*

Signature: Cope

Site inspection performed (yes/no)

Amec Foster Wheeler Environment and Infrastructure



CAP, SOIL COVER, AND DITCH FILL AREAS INSPECTION AND MAINTENANCE LOG

Former Koppers Facility Wauna, Oregon

	Inspection	n/Maintenance Issue		Maintena	ance Issue Resolution
Name	Date	Description	Name	Date	Description
Bill McFarlan	HIZOLIL	Annual Cap Inspection Completed			
Bill McFarland	4/20/16	2 Animal burrow near Pine 13	Bill Meterla	4/20/16	Photographed & Reporte
Jason Gercher	Flielie	burrous neer phw	Jisson Gordner	5/18/16	Filled holes
	·	· · · · · · · · · · · · · · · · · · ·			·
				7	

Site inspection performed (yes/no)

Amec Foster Wheeler Environment and Infrastructure

Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

Date/Time	System Status (On/Off)	High Pressure Light (On/Off)	Low Pressure Light (On/Off)	PI-1 Pressure (psi)	PI-2 Pressure (psi)	T1 Temp. (° F)	Bleeder Valve Flow (scfm)	FI-1 System Flow (in. H ₂ 0)	FI-1 System Flow (cfm)	Run Time Meter (hours)
5-2-2016 14:00	Off	Off	Off	Off	Off	70	na	Na	Na	8391.3
16:00	Off	Off	Off	Off	Off	70	Na	na	na	8391.3

Chart	Change	Sparge	Zone 1	Sparge	Zone 2	Sparge	Zone 3	Sparge	Zone 4	Sparge	Zone 5
Recorder Flow (cfm)	Circle Chart (Yes/No)	PI-Z1 Pressure (psi)	FI-Z1 Flow (cfm)	PI-Z2 Pressure (psi)	FI-Z2 Flow (cfm)	PI-Z3 Pressure (psi)	FI-Z3 Flow (cfm)	PI-Z4 Pressure (psi)	FI-Z4 Flow (cfm)	PI-Z5 Pressure (psi)	FI-Z5 Flow (cfm)
0	Yes	Off	off	Off	Off	Off	Off	Off	Off	Off	Off
0	Yes	Off	off	Off	Off	Off	Off	Off	Off	Off	Off
Sparge	Zone 6	Sparge	Zone 7	Sparge	Zone 8	Sparge	Zone 9	Sparge	Zone 10	Sparge Z	Zone 11
PI-Z6 Pressure (psi)	FI-Z6 Flow (cfm)	PI-Z7 Pressure (psi)	FI-Z7 Flow (cfm)	PI-Z8 Pressure (psi)	FI-Z8 Flow (cfm)	PI-Z9 Pressure (psi)	FI-Z9 Flow (cfm)	PI-Z10 Pressure (psi)	FI-Z10 Flow (cfm)	PI-Z11 Pressure (psi)	FI-Z11 Flow (cfm)
Off	Off	Off	off	Off	Off	Off	Off	Off	Off	Off	Off
Off	off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off

	ATT-07	ATT-08	ATT-09
Well Depth (ft BTOC)	15	14.5	13.5
Water Level (ft BTOC)	7.31	6.76	5.43
Center of Water Column (ft BTOC)	11.15	10.63	9.46

	ATT-07	ATT-08	ATT-09
рН	6.72	6.90	6.83
DO (mg/l)	0.21	3.26	5.29
Depth Measured	11.15	10.63	9.46

Name:

Jason Gardner Chief Environmental Technician
Amec Foster Wheeler
7376 SW Durham Road
Portland, Oregon 97224
Signature:
C:\Users\jason.gardner\Documents\Wauna\Wauna 2016\Wauna 5-2-2016.docx

Signature:

Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

	Mair	ntenance Issue		Maintenar	nce Issue Resolution
Name	Date/Time	Description	Name	Date/Time	Description
Jason Gardner	5/2/2016	Checked for sheen at seeps along Columbia river where it had been noted. Water was low and seep was exposed.	Jason Gardner	5/2/2016	No sheen or odor was detected.
Jason Gardner	5/2/2016	Power was off due to annual week long facility outage.			
Jason Gardner	5/2/2016	Animal burrows in cap area.	Jason Gardner	5/2/2016	Filled ones along Columbia and near facility well.

Name:

Jason Gardner Chief Environmental Technician Amec Foster Wheeler 7376 SW Durham Road Portland, Oregon 97224 Signature: C:\Users\jason.gardner\Documents\Wauna\Wauna 2016\Wauna 5-2-2016.docx

Signature:

Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

Date/Time	System Status (On/Off)	High Pressure Light (On/Off)	Low Pressure Light (On/Off)	PI-1 Pressure (psi)	PI-2 Pressure (psi)	T1 Temp. (° F)	Bleeder Valve Flow (scfm)	FI-1 System Flow (in. H₂0)	FI-1 System Flow (cfm)	Run Time Meter (hours)
5-18-2016 14:30	Off	Off	Off	Off	Off	70	na	Na	Na	8391.4
17:00	On	Off	Off	16.0	16.0	89	Na	па	na	8393.9

Chart	Change	Sparge Zone 1		Sparge Zone 2		Sparge Zone 3		Sparge Zone 4		Sparge Zone 5	
Recorder Flow (cfm)	Circle Chart (Yes/No)	PI-Z1 Pressure (psi)	FI-Z1 Flow (cfm)	PI-Z2 Pressure (psi)	FI-Z2 Flow (cfm)	PI-Z3 Pressure (psi)	FI-Z3 Flow (cfm)	PI-Z4 Pressure (psi)	FI-Z4 Flow (cfm)	PI-Z5 Pressure (psi)	FI-Z5 Flow (cfm)
0	no	Off	off								
4.35	no	9.5	1.8	7.5	1.8	15.5	1.8	16.0	0.44	5.5	1.8

Sparge	Sparge Zone 6 Sparge Zone		Zone 7	Sparge Zone 8		Sparge Zone 9		Sparge Zone 10		Sparge Zone 11	
PI-Z6 Pressure (psi)	FI-Z6 Flow (cfm)	PI-Z7 Pressure (psi)	FI-Z7 Flow (cfm)	PI-Z8 Pressure (psi)	FI-Z8 Flow (cfm)	PI-Z9 Pressure (psi)	FI-Z9 Flow (cfm)	PI-Z10 Pressure (psi)	FI-Z10 Flow (cfm)	PI-Z11 Pressure (psi)	FI-Z11 Flow (cfm)
Off	Off	Off	off	Off	Off	Off	Off	Off	Off	Off	Off
16.0	1.0	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off

	ATT-07	ATT-08	ATT-09
Well Depth (ft BTOC)	15	14.5	13.5
Water Level (ft BTOC)	7.46	6.87	5.60
Center of Water Column (ft BTOC)	11.23	10.68	9.55

	ATT-07	ATT-08	ATT-09
Hq	6.84	6.93	6.87
DO (mg/l)	0.18	1.27	3,46
Depth Measured (ft BTOC)	11.23	10.68	9.55

Name:

Jason Gardner Chief Environmental Technician Amec Foster Wheeler

7376 SW Durham Road

Portland, Oregon 97224 Signature: C:\Users\jason.gardner\Documents\Wauna\Wauna 2016\Wauna 5-18-2016.docx

Signature:

Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

	Mair	ntenance Issue		Maintena	nce Issue Resolution
Name	Date/Time	Description	Name	Date/Time	Description
Jason Gardner	5/18/2016	Checked for sheen at seeps along Columbia river where it had been noted. Water was low and seep was exposed.	Jason Gardner	5/18/2016	No sheen or odor was detected.
Jason Gardner	5/18/2016	Power was off due to annual week long facility outage.			Power to treatment compound reestablished during visit.
Jason Gardner	5/18/2016	Animal burrows in cap area.	Jason Gardner	5/18/2016	Filled ones along Columbia and near facility well. Took pictures.
				-	

Name:

Jason Gardner Chief Environmental Technician **Amec Foster Wheeler** 7376 SW Durham Road

Portland, Oregon 97224 Signature: C:\Users\jason.gardner\Documents\Wauna\Wauna 2016\Wauna 5-18-2016.docx

Signature:

Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

Date/Time	System Status (On/Off)	High Pressure Light (On/Off)	Low Pressure Light (On/Off)	PI-1 Pressure (psi)	PI-2 Pressure (psi)	T1 Temp. (° F)	Bleeder Valve Flow (scfm)	FI-1 System Flow (in. H ₂ 0)	FI-1 System Flow (cfm)	Run Time Meter (hours)
5-31-2016 16:30	On	Off	Off	14.5	14.5	138	na	Na	Na	8704.5
17:30	On	Off	Off	115.0	15.0	138	Na	na	na	8706.4

Chart	Change	Sparge	Zone 1	Sparge	Zone 2	Sparge	Zone 3	Sparge	Zone 4	Sparge 2	Zone 5
Recorder Flow (cfm)	Circle Chart (Yes/No)	PI-Z1 Pressure (psi)	FI-Z1 Flow (cfm)	PI-Z2 Pressure (psi)	FI-Z2 Flow (cfm)	PI-Z3 Pressure (psi)	FI-Z3 Flow (cfm)	PI-Z4 Pressure (psi)	FI-Z4 Flow (cfm)	PI-Z5 Pressure (psi)	FI-Z5 Flow (cfm)
4.64	Yes	7.25	1.6	6.5	1.6	13.5	2.2	14.0	0.60	5.0	1.6
4.47	Yes	7.25	1.6	6.5	1.6	12.25	1.6	14.5	0.8	5.25	1.6
Sparge	Sparge Zone 6 Sparge Zone 7				Zone 8	Sparge	Zone 9	Sparge 2	Zone 10	Sparge Zone 11	
PI-Z6 Pressure (psi)	FI-Z6 Flow (cfm)	PI-Z7 Pressure (psi)	FI-Z7 Flow (cfm)	PI-Z8 Pressure (psi)	FI-Z8 Flow (cfm)	PI-Z9 Pressure (psi)	FI-Z9 Flow (cfm)	PI-Z10 Pressure (psi)	FI-Z10 Flow (cfm)	PI-Z11 Pressure (psi)	FI-Z11 Flow (cfm)
Off	Off	Off	off	Off	Off	Off	Off	Off	Off	Off	Off

Off

Off

Signature:

	ATT-07	ATT-08	ATT-09
Well Depth (ft BTOC)	15	14.5	13.5
Water Level (ft BTOC)	7.85	7.29	5.97
Center of Water Column (ft BTOC)	11.42	10.89	9.73

Off

	ATT-07	ATT-08	ATT-09
рН	6.79	6.93	6.90
DO (mg/l)	0.26	2.46	3.05
Depth Measured (ft BTOC)	11.42	10.89	9.73

Off

Off

Name:

14.5

1.2

Jason Gardner Chief Environmental Technician Amec Foster Wheeler 7376 SW Durham Road Portland, Oregon 97224 Signature: C:\Users\jason.gardner\Documents\Wauna\Wauna 2016\Wauna 5-31-2016.docx

Off

Off

Site inspection performed (yes/no)

Off

Off



Off

Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

	Mair	ntenance Issue			Maintenan	ice Issue Resolution
Name	Date/Time	Des	cription	Name	Date/Time	Description
Jason Gardner	5/31/2016	Columbia river v	een at seeps along where it had been as low and seep was	Jason Gardner	5/31/2016	No sheen or odor was detected.
	2				5	
		:				
			e	-	,	
5			8 - 2		4 80	

Name:

Jason Gardner Chief Environmental Technician Amec Foster Wheeler

7376 SW Durham Road

Portland, Oregon 97224 Signature: C:\Users\jason.gardner\Documents\Wauna\Wauna 2016\Wauna 5-31-2016.docx

Signature: 2



Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

Date/Time	System Status (On/Off)	High Pressure Light (On/Off)	Low Pressure Light (On/Off)	PI-1 Pressure (psi)	PI-2 Pressure (psi)	T1 Temp. (° F)	Bleeder Valve Flow (scfm)	FI-1 System Flow (in. H₂0)	FI-1 System Flow (cfm)	Run Time Meter (hours)
6-13-2016 11:30	On	Off	Off	15.0	15.0	138	na	Na	Na	9015.6
16:30	Off	Off	Off	Off	Off	Off	Na	na	na	9015.6

Chart	Change	Sparge	Sparge Zone 1		Sparge Zone 2		Sparge Zone 3		Zone 4	Sparge Zone 5	
Recorder Flow (cfm)	Circle Chart (Yes/No)	PI-Z1 Pressure (psi)	FI-Z1 Flow (cfm)	PI-Z2 Pressure (psi)	FI-Z2 Flow (cfm)	PI-Z3 Pressure (psi)	FI-Z3 Flow (cfm)	PI-Z4 Pressure (psi)	FI-Z4 Flow (cfm)	PI-Z5 Pressure (psi)	FI-Z5 Flow (cfm)
4.54	Yes	7.25	1.7	6.75	1.7	12.5	1.7	14.75	0.60	5.25	1.7
off	off	Off	Off	Off	Off	Off	Off	Off	Off	Off	off

Sparge	e Zone 6	e 6 Sparge Zone 7		Sparge Zone 8		Sparge Zone 9		Sparge Zone 10		Sparge Zone 11	
PI-Z6 Pressure (psi)	FI-Z6 Flow (cfm)	PI-Z7 Pressure (psi)	FI-Z7 Flow (cfm)	PI-Z8 Pressure (psi)	FI-Z8 Flow (cfm)	PI-Z9 Pressure (psi)	FI-Z9 Flow (cfm)	PI-Z10 Pressure (psi)	FI-Z10 Flow (cfm)	PI-Z11 Pressure (psi)	FI-Z11 Flow (cfm)
14.75	1.1	Off	off	Off	Off	Off	Off	Off	Off	Off	Off
Off	off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off

	ATT-07	ATT-08	ATT-09
Well Depth (ft BTOC)	15	14.5	13.5
Water Level (ft BTOC)	7.97	7.40	6.10
Center of Water Column (ft BTOC)	11.48	10.95	9.8

	ATT-07	ATT-08	ATT-09
pН	6.84	6.92	6.93
DO (mg/l)	0.21	2.79	4.16
Depth Measured (ft BTOC)	11.48	10.95	9.8

Name:

Jason Gardner Chief Environmental Technician

Amec Foster Wheeler

7376 SW Durham Road

Portland, Oregon 97224 Signature: C:\Users\jason.gardner\Documents\Wauna\Wauna 2016\Wauna 6-13-2016.docx

Signature:

Groundwater Seeps Interim Remedial Measure Former Koppers Facility Wauna, Oregon

	Mair	ntenance Issue		Maintenar	nce Issue Resolution		
Name	Date/Time	Description	Name	Date/Time	Description		
Jason 6/13/2016 Gardner 6/13/2016		Checked for sheen at seeps along Columbia river where it had been noted. Water was low and seep was exposed.	Jason Gardner	6/13/2016	No sheen or odor was detected.		
Jason Gardner	6/13/2016	System operation terminated to begin mna monitoring.	Jason Gardner	6/13/2016	All valves to sparge lines are closed and power to system is off at main disconnect.		
Jason Gardner	6/13/2016	Inventory	Jason Gardner	6/13/2016	1- Gast rotary lobe comp (old) 1- Zephyr compressor (current) 6gal- Bio disp. 2.5 gal- Glycolic acid 1- Shop vac 13- 5 gal buckets with lids 1- 55 gal steel drum empty 6qts-gear lube oil		
Jason Gardner	6/13/2016	Ants	Jason Gardner	6/13/2016	Sprayed all access points with insect barrier.		
Jason Gardner	6/13/2016	Cleaned up compound.					

Name:

Jason Gardner Chief Environmental Technician

Amec Foster Wheeler 7376 SW Durham Road

Portland, Oregon 97224 Signature: C:\Users\jason.gardner\Documents\Wauna\Wauna 2016\Wauna 6-13-2016.docx

Signature:





Photo 1: 04/20/2016: One of two animal burrows identified during the Annual Cap Inspection

amec foster wheeler Project No.: 661M132360.2016.B

PROCESSED: MR

DATE May 2016

PAGE 1

Cap Repairs Wauna Mill Wauna, Oregon



Photo 2: 05/18/2016-Photo of filled animal burrow which was identified during the annual cap inspection.



Project No.: 661M132360.2016.B

PROCESSED: MR

DATE May 2016

PAGE 2

Cap Repairs Wauna Mill Wauna, Oregon



Photo 3: 05/18/2016-Photo of filled animal burrow which was identified during the annual cap inspection



Project No.: 661M132360.2016.B

PROCESSED: MR

DATE May 2016

PAGE 3

Cap Repairs Wauna Mill Wauna, Oregon

April Water Level Monitoring Record

Former Koppers Facility Wauna, Oregon

Date: 4 7/16

Measured By:	JV6/1	min min	Instrument Used:			
	Time	TOC Elevation	Water Level Below	Average WL	Min/Max WL	F s
Well Name	(24-hour)	. (feet)	TOC (feet)	Below TOC	Below TOC	Remarks
ATT-01	1120	12.31	4.76	2.30	2.29 / 2.9	/All wells were opened &
ATT-02	1123	15.21	7.38	4.25	4.39 / 5.11	211bued to equilibrate
ATT-03	1130	14.06	6.32	3.27	3.29 / 4.02	For over an hour before
ATT-04	1136	12.73	5.38	2.72	2.74 / 3.42 -	lows were taken.
ATT-05	1110	14.37	6.17	3.66	3.74 / 4.50	
ATT-06	1025	14.11	6.41	3.38	3.42 / 4.15	
ATT-10	1114	12.57	4.28	1.78	1.62 / 2.41	€
ATT-11	1147	13.88	6:65	3.88	4.51 / 5.25	Ÿ
ATT-12	1141	11.27	5.d9	2.46	2.82 / 3.31	
PMW-2	0840	11.62	2.59	0.14	0.02 / 0.43	
PMW-5	0843	12.33	2.60	2.94	3.04 / 3.57	
PMW-6	0857	9.28	Ø.3a	0.37	0.22 / 0.85	
PMWR-7	1138	11.82	5.17	2.72	2.77 / 3.41	\$
PMW-13	101/101	13.54	5.05	2.21	2.12 / 2.85	to black bench sentite couldn't Find Amu-4
SBW-1	1001	12.35	7.30	4.14	3.99 / 5.43	(**
SBW-2	956	12.71	3.77	1.10	0.86 / 1.65	
SBW-3	0814	10.06	6.49	4.46	4.31 / 5.47	
SBW-4	0830	10.87	4.72	1.69	1.55 / 2.18	
SBW-5	0945	10.06	4.30	3.62	3.20 / 4.68	, i
SBW-6	0833	11.02	1.60	1.87	1.84 / 2.31	
SBW-7	910	10.51	4:88	4.36	4.40 / 5.31	
SBW-8	0830	8.85	3.30	3.42	3.14 / 5.91	
SBW-9	1005	12.85	7.97	4.77	4.55 / 6.29	
SBW-10	1007	12.91	4.55	2.15	2.07 / 2.82	4,

Elevation Datum: NGVD 29. All elevations are relative to this datum.

toc = below top of casing

ATT 9 - 4.73 ATT 9 - 6.64

Amec Foster Wheeler Environment and Infrastructure

		MONI	TORING	WELL/PIE	ZOMET	er nui	VIBER .	SBW	V-08	
Projec	t Name:	Former K	oppers F	acility, Waun	a, OR			, ა	5 1 1	
		30					Date:	42	8/7/16	
		The second secon	360.2016.	В	W	eather Co	onditions	s: <u> </u>	clear	
	on: Waun		/		100	ind Enga	d/Dirooti	on: F	6-0 lanu 1255	
Samp	ier	3 650 T	SOFCIN	er	VV	inu Spee	a/Directi	OII +	105 WINE 0-5	
				WELL	_ INFOF	RMATIO	N			
Casin	g Diamete	r (in):	2	"		Ground	water Ele	vation (f	ft):	
Top o	f Casing E	levation (f	t):	30		Depth of	f Well Ca	sing (ft):	: Ilons): 4	
Wellh	ead Condi	tion:	0000	50		Actual	uige vo	iuilie (ga	1110119J	
		8.		PURGING	G MEAS	UREMI	ENTS			
		Water	рН				Turbi			1
	Time	Level (ft btoc)	(std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	dity (NTU)	DO (mg/L)	Notes	
	08:30	3.30	5.93	161	12.77	-2¢ ¢	29.4	1415		cen
	08:35	3:38		146	12,89				11	
	08:40	3.38	5,41			-88.5				-
	08:45	3.38	5,42			-86.8			3 L	0 81
	08:50	3,38	5,42	143	12,90	- 87.1	12.0	\$15G	4L	-
						/				-
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							·			11
						n				
										1
	le ID No <u>.:</u>		V-09-04			=				•
		. Model & 1 Model & No		st 101 or equiv a U-22 or equi						
	Equipme		perist	altic pump						
Samp	ling Equip	ment Used	d: perist	altic pump, 2"	diameter	disposab	le bailer			
	Start Tim		-	08:30				on Time		
	Completi			08:50	-		g Method		peristaltic pump d: x40ml (HCl), x1	<u> </u>
		ALS Kelso		12 4M					OCs, VOCs	
					,					
Other	rieia Obs	ervations:	al example of the second secon							

		MONI	TORING	WELL/PIE	ZOMET	ER NUI	IBER .	SBW	-07		
Proj	ject Name:	Former K	Coppers Fa	cility, Waun	a, OR		Data	4/3	116		
Pro	iect Number	: 661M132	360.2016.E	3	We	eather Co	1.0		1650		
	ation: <u>Waun</u>										
San	npler:	7 NP			Wi	nd Spee	d/Directi	on:	3-0 DAW 186.	۷	
					_ INFOR	MATIO	N				
Cas	ing Diamete of Casing E al Depth to	r (in):	2'	1		Ground	water Ele	evation (f	t):		
Top	of Casing E al Depth to \	levation (f	t):	00.		Depth of	f Well Ca	ısing (ft): lume (gəl	lons):		
Wel	Ihead Condi	tion:	5000	.00		Actual i	uige vo	iuiiio (gai	10113).		
				PURGING	G MEAS	UREME	ENTS				
•		Water Level (ft	pH (std.	sc	Temp.	ORP	Turbi dity	DO	Netes	1	
	Time	btoc)	units)	(ms/cm)	(°C)	(mv)	(NTU)	and the second second	Notes	-	
	Ø\$:1¢	4.88	6.48	778		-143.9			COLORD A	-	
	09120	141 (2) (2)	6,47	789		-1247 -103.2		and the second section of			
	09125		6.44	724		-1057					
		4,96		719				0.32			
	0 1.70	17 10	0,10			, , , , , ,	7119				
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						'.'				-	
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	81									-	
	-									-	
										-	
Wat ORI Pur	Sample ID No.: SBW-07- CHETIO Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer										
	ge Start Tim		e 61 , 84	09:10				ion Time:	001130		
Pur	ge Completi	on Time:		@930		Purging	g Method	d:	peristaltic pump		
	rage Purge			124M					d: <u>x40ml (HCl), x1</u> DCs, VOCs	<u>L</u>	
	ilytical Lab:	1900		22. 42.				363. <u>370</u>	JO3, VOO3		
Oth	er Field Obs	ervations:		שול אשם	Flock	11 W	611				

Project Name: Former Koppers Facility, Wauna, OR Date: リーフィー リース・ロー リース・ロー	Date:	9	MONITORING WELL/PIEZOMETER NUMBERSBW-05									
Veather Conditions: Clear	Project Number: 651M132360.2016.B Location: Wauna, OR Sampler:	Project Na	ame:	Former K	oppers Fa	acility, Waun	a, OR			. 1.	1	
Wauna, OR Sampler: SV(S-) WJM Wind Speed/Direction: E 25	WELL INFORMATION Casing Diameter (in): 2" Groundwater Elevation (ft): Depth of Well Casing (ft): Actual Purge Volume (gallons): 世上 PURGING MEASUREMENTS PURGING MEASUREMENTS PURGING MEASUREMENTS PURGING MEASUREMENTS					_	.,					_
WELL INFORMATION Casing Diameter (in): 2" Groundwater Elevation (ft): — Depth of Well Casing (ft): — Depth of Well Casing (ft): — Actual Purge Volume (gallons): 世上 PURGING MEASUREMENTS PURGING MEASUREMENTS Water	WELL INFORMATION Casing Diameter (in):				360.2016.I	3	W	eather Co	onditions	s:	. DV	
WELL INFORMATION Casing Diameter (in):	WELL INFORMATION Casing Diameter (in): 2" Groundwater Elevation (ft): Depth of Well Casing (ft): Depth of Well Casing (ft): Actual Purge Volume (gallons): (担 Depth of Well Casing (ft): Actual Purge Volume (gallons): (担 Depth of Well Casing (ft): Actual Purge Volume (gallons): (担 Depth of Well Casing (ft): Actual Purge Volume (gallons): (担 Depth of Well Casing (ft): Actual Purge Volume (gallons): (担 Depth of Well Casing (ft): Depth o				. \. \		10/	nd Cnoo	d/Dirocti	on. =-	- 1 . Wad d 2	
Casing Diameter (in):	Casing Diameter (in):	Sampler:_		2002/W	1311		VV	ina Spee	u/Directi	OII:12	62+ MINION DOWN	11
Depth of Well Casing (ft):	Top of Casing Elevation (ft): 4.3\$ Actual Purge Volume (gallons): 44 Wellhead Condition: 9					WELL	_ INFOF	RMATIO	Ν .			38
Notes Not	Sample ID No: SBW-05-&					,,		Ground	water Ele	vation (f	t):	
### PURGING MEASUREMENTS Water pH Level (ft (std. SC Temp. ORP dity DO (ms/cm) (°C) (mv) (NTU) (mg/L) Notes	PURGING MEASUREMENTS Water pH (std. SC Temp. ORP dity DO (my) (mg/L) Notes	Top of Ca	sing E	levation (f	t):	a 1 ——	Depth of Well Casing (ft):					_
PURGING MEASUREMENTS Water	PURGING MEASUREMENTS Water pH (std. sC Temp. ORP dity DO (mg/L) Notes	Initial Dep	Condit	Vater (ft):	4.	30		Actual P	urge Vo	lume (gal	ions):	_
Water pH Level (ft (std. SC Temp. ORP dity DO (ms/cm) (°C) (mv) (NTU) (mg/L) Notes	Water pH (std. sC Temp. ORP dity DO (NTU) (mg/L) Notes	vveimeau	Contain				G WEAS	URFME	INTS	K.		
Level (ft (std. SC Temp. ORP dity DO (ms/cm) (°C) (mv) (NTU) (mg/L) Notes G:45 4:30 (公は3 コスロ 13:91 十元に 165 3:74 Cell G:50 4:34 (セ・144 3・3・4 13:4 13:5 1:53 1:4 1:55	Comparison Com		-				J WE TO	OTTEN				
Time btoc) units) (ms/cm) (°C) (mv) (NTU) (mg/L) Notes (9:45 4:30 6:63 220 13.91 +25.7 165 3.74 cell (9:50 4:34 6:40 239 12.77 +33.6 15.9 1:53 1に (9:55 4:35 6:45 303 12.82 ~6.0 3.2 1:11 2に 10:00 4:35 6:45 305 12:78 ~8.6 3.6 1:11 3し	Time bloc units (ms/cm) (°C (mv) (NTU) (mg/L) Notes					SC	Tomn	ORP		no		
9:50 4:34 6.40 239 12.77 +33.0 15.9 1.53 1. 9:55 4:35 6:45 302 12.82 -6.0 3.2 1.11 21 10:00 4:35 6:45 305 12:36 -8.6 3.6 1.11 30	Sample ID No.: SBW-05- \$\psi \psi \psi \psi \psi \psi \psi \psi	Т	ime					Signature A. C.			Notes	
9:55 4:35 6:44 302 12.82 -6.0 3.2 1:11 2L 10:00 4:35 6:45 305 12:36 -8.6 3.6 1:11 3L	Sample ID No.: SBW-05- \$\psi \psi \psi \psi \psi \psi \psi \psi	q.	:45	4.30	6.63	220	13.91	+28.7	165	3.74	Cell	
10:00 4.35 6.48 305 12.78 -8.6 3.6 1.11 30	Sample ID No.: SBW-05- \$\psi \psi \psi \psi \psi \psi \psi \psi	9	.50	4.34		239			15.9	1.53	14	
	Sample ID No.: SBW-05- \$\psi + \phi \sqrt{1 \psi}\$ Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: Peristaltic pump Sampling Equipment Used: Peristaltic pump Purge Start Time: Purge Completion Time: 101 05 Average Purge Rate (mL/min): 101 05 Analytical Lab: ALS Kelso Sample Containers Used: X40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs						12.82	-6.¢	3.2	1511	21	
10:05 4.35 6.45 307 12.82 - 8.5 3.5 1.09 46	Sample ID No.: SBW-05-\$\psi \psi \psi \psi \psi \psi \psi \psi	10	J. 00	4.35			12,78	-6.6	3,6	1.11	30	
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs	10	05	4.35	6.45	307	12,82	~. B.S	3.5	1,09	46	
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs											
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs											
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs	-										
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs	<u> </u>										
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs			2		2					٠.	
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs									-		
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs	, I										
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs	<u> </u>										
	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs				-							
Sample ID No.: SBW-05- ゆりゅうしゅ	Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump Sampling Equipment Used: peristaltic pump, 2" diameter disposable bailer Purge Start Time: Sample Collection Time: Purging Method: peristaltic pump Average Purge Rate (mL/min): 10105 Purging Method: peristaltic pump Average Purge Rate (mL/min): 321/M Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs	Sample ID	No.:	SBW-0	5-0467	16						
	Purge Equipment Used: Sampling Equipment Used: Purge Start Time: Purge Completion Time: Average Purge Rate (mL/min): Analytical Lab: ALS Kelso Peristaltic pump peristaltic pump peristaltic pump Sample Collection Time: Purging Method: peristaltic pump Purging Method: Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs						/alent					
2000 A 보이지 있는 사이지에 가는 이외에 가는 사이에 되었는데 가면 되었다. 그는 사이에 되었는데 보다는데 보다는데 보다는데 보다는데 보다는데 보다는데 보다는데 보다	Purge Start Time: Purge Completion Time: Average Purge Rate (mL/min): Analytical Lab: ALS Kelso Peristaltic pump, 2" diameter disposable bailer Sample Collection Time: Purging Method: Purging Method: Purging Method: Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs						ivalent					
	Purge Start Time: Purge Completion Time: Average Purge Rate (mL/min): Analytical Lab: ALS Kelso Sample Collection Time: Purging Method: Purging Method: Sample Containers Used: Addml (HCl), x1L Chemical Analyses: SVOCs, VOCs						diameter	dienneah	le hailer			
	Purge Completion Time: Average Purge Rate (mL/min): Analytical Lab: ALS Kelso Purging Method: Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs				i pensu		diameter		34	on There	1.4.1.1-	
. [Average Purge Rate (mL/min): ・スツм Sample Containers Used: <u>x40ml (HCl), x1L</u> Analytical Lab: ALS Kelso Chemical Analyses: SVOCs, VOCs											
Tango completion times	Analytical Lab: ALS Kelso Chemical Analyses: SVOCs, VOCs				nin):							
	Other Field Observations - Occasion - No. Ch. 1		-									
Other Field Observations: Orange Dio Flock n wen	Other Field Observations: Orange Dio Flock N Well	Other Fiel										

MONITORING WELL/PIEZOMETER NUMBER ATT-06

Projec	Project Name: <u>Former Koppers Facility, Wauna, OR</u> Date: <u>ザ/ブルル</u> Project Number: <u>661M132360.2016.B</u> Weather Conditions: <u>こんさった い</u>										
Projec	t Number	: 661M132	360.2016.	3	W	eather Co	onditions	s:	clear ~ Bo	>	
Locati	ion: Waun	a, OR									
Samp	ler:	JUL/W	ML		Wind Speed/Direction: をさか いいん もっる						
				WELL	. INFOR	RMATIO	N				
Casin	g Diamete	r (in):	2	,,		Ground	water Ele	vation (f	t):		
Top o	f Casing E	levation (f	t):	"	Depth of Well Casing (ft): Actual Purge Volume (gallons):						
Initial	Depth to Vead Condi	Water (ft): ition:	<u> </u>	21 20 cl		Actual P	urge vo	iume (ga	lions):	0	
****	ouu 001141			PURGING	G MEAS	UREM	ENTS				
		Water	рН				Turbi				
		Level (ft	(std.	SC	Temp.	ORP	dity	DO			
	Time	btoc)	units)	(ms/cm)	(°C)	(mv)	(NTU)	(mg/L)	Notes		
	1	6.01	6.79	130		.59.8		Ø.79	Cell		
		6.47	6.38	174		-50.9		dill.	14	_	
		6.07	6.35	174		-49,6		φ.ιφ			
		6.07	Ce134			-49.0					
	10,45	6.07	6.34	174	14,15	-40,5	11.5	(Dup	46		
				- kaner	-						
	±										
Camp	la ID Na i	ATT O	6 2	V	and o'T	(Io					
Water	Level Ind	. Model &	No.: Solins	<u>に い</u> いり・ st 101 or equiv	/alent	. •					
ORP/	OO Meter I	Model & No	o.: Horib	a U-22 or equi							
	Equipme	nt Used: ment Use		altic pump altic pump, 2"	diameter	dienoeah	le hailer		1		
			u. <u>penst</u>	10:25	didiffictor			ion Time:	10.45		
	Start Tim Completi			10145			g Method		peristaltic pum	p	
Avera	ge Purge	Rate (mL/r		, 2 5/M		Sample	Contair	ners Used	: x40ml (HCl),		
Analy	tical Lab:	ALS Kelso		*:		Chemic VOCs [-	ses: <u>SV</u>	OCs, SVOC's DU	P, VOCs,	
					1 ,						
Other	Field Obs	ervations:	Dip	was coll	ected	Q Y	415 W	eli			
-											

Project Name: Former Koppers Facility, Wauna, OR Date: 4/7/16 Project Number: 661M132360.2016.B Weather Conditions: 661M132360.D Weather Conditions: 661M132										
WELL INFORMATION Casing Diameter (in): Groundwater Elevation (ft): Depth of Well Casing (ft): Depth of Well Casing (ft): Actual Purge Volume (gallons): PURGING MEASUREMENTS										
	Time	Water Level (ft btoc)	pH (std. units)	SC (ms/cm)	Temp.	ORP (mv)	Turbi dity (NTU)	DO (mg/L)	Notes	
	11:16 11:15 11:20 11:25 11:30	6.17 6.29 6.29 6.39	6.43 6.34 6.35 6.36 6.38 6.38	213 208 206 204	15.03 13.53 13.65 13.70	2.01 0.36 0.42 0.05	4.6 1.0 0.8 0.8	-1.3 -34.1 -529 -61.6 -62.7	cell (L 2L 3h	
	11:35	6,29	0.00	<i>σ</i> Ψ (7075	Ψ.Ψ.(ψ	VET	76	
			0				7			
/ater RP/C urge	Level Ind O Meter I Equipme	Model & No	No.: Solins D.: Horiba perista	t 101 or equivalue of the total or equivalue	ivalent	disposab	le bailer			
urge vera			nin):	1:16 1:35 .24/11		Purging Sample	g Method Contair	ners Used	peristaltic pump	

		MONI	TORING	WELL/PIE	ZOMET	ER NUI	VIBER .	ATT	-10
Projec	t Name:	Former K	oppers Fa	cility, Waun	a, OR				laliz
Locati	on: Wauna	a, OR		3					Clebr ~ 80 West ward on
				WELL	. INFOR	MATIO	N		
Top of Initial	g Diamete Casing E Depth to V ead Condi	r (in): levation (f Nater (ft): tion:	2' t): Groom	18		Groundy Depth of Actual P	vater Ele Well Ca urge Vol	vation (ff sing (ft): ume (gal	lons): 4L
			•	PURGING	MEAS	UREME			
	Time	Water Level (ft btoc)	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	Turbi dity (NTU)	DO (mg/L)	Notes
	11:50	4.28	6.64	95				2.73	
	12:00	4.37	6,42	130		-25.7		φ.φ4 Φ.φ5	اد 2د
	12:05		6,25	133	13,86	-33.7	2.3	0.05	3
a	12:10	4.37	6:25	132	13:77	-35,6	2.3	Ø.\$5	46
	120								
	2.2							-	
			7	2				W.	
	*								
,									
Water ORP/D	Level Ind.	Vlodel & No	No.: Solins D.: Horiba perista	t 101 or equiva U-22 or equivaltic pump	valent			M.	
Sampl	ing Equip	ment Used	l: perista	altic pump, 2"	<u>diameter</u>				
Purge Averag	Purge Start Time: Purge Completion Time: Purge Completion Time: Average Purge Rate (mL/min): Analytical Lab: ALS Kelso Sample Collection Time: Purging Method: Sample Containers Used: Addml (HCl), x1L Chemical Analyses: SVOCs, VOCs								
Other	Other Field Observations: whitish bid Flock is purge water								

		MON	ITORING	WELL/PIE	ZOMET	ER NU	MBER	ATT	-01	
Project Na	ame:	Former K	oppers Fa	acility, Wauna	a, OR					
							Date:	4	7/16 Clear ~ 80'F	
			360.2016.E	3	W	eather Co	onditions	s:	C1654 ~ 80, E	
Location:	Wauna	a, OR								
Sampler:_	-		200 M	IM	Wi	ind Spee	d/Directi	on: <u>ა</u>	rest wind re	-(
				WELL	. INFOR	RMATIO	N			
Casing Di	iamete	r (in):	2"			Ground	water Ele	vation (f	t): llons): _ 5L	
Top of Cal	sing E	levation (f	t):	٦,		Depth of	f Well Ca	sing (ft):	llono); E1	
Wellhead	oth to v Condi	vater (ft):	Carre	<u>+(o</u>		Actual P	urge vo	iume (gai	nons): _ ƏL	
vvoimeau	Oonan		7	PURGING	G MEAS	UREME	ENTS			
		Water	рН	A			Turbi			7
Т	ime	Level (ft btoc)	(std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	dity (NTU)	DO (mg/L)	Notes	
12	2:36	4.76	6.3B	252	18.53	~241	30.1	3.06	cell	
200		4.89	4.39	2006				\$,20		
		4.89	6.39	267				6.60		
		4.89	6.39	268		-784		6.34		
		4.89	6.39	267	14.21	-708	Q.B	4.35	46	
	2,55		6.39	268	14,20	-79.0	P.7	0,37	SL	
				,						4
										_
									*	_
										-
	-								<u> </u>	_
Sample ID No.: ATT-01- 040716										
				t 101 or equiv	/alent					
ORP/DO N	Vieter N	Nodel & No	: Horiba	a U-22 or equi						
Purge Eque				altic pump altic pump, 2"	diameter	dienosah	le bailer			
			i. pensta		ulailletel			·		
Purge Sta Purge Cor				12:30			Collecti g Method	ion Time:	peristaltic pump	
Average F			nin):	1271					: x40ml (HCl), x	<u>1L</u>
				1)						
Analytical Lab: ALS Kelso Chemical Analyses: SVOCs, VOCs Other Field Observations:										

		MON	ITORING	WELL/PIE	ZOMET	ER NU	WBER	ATT-	.02	
Projec	t Name:	Former K	Coppers Fa	cility, Waun	a, OR			.1	1	
Locati	on: Waun	a, OR		3						
				WELI	_ INFOR	MATIO	N			
IIIItiai	Deptil to v	valer (it).	t):) KD		Grounds Depth of Actual P	water Ele f Well Ca urge Vo	vation (ft sing (ft): lume (gal	lons):	
PURGING MEASUREMENTS										
	Time	Water Level (ft btoc)	pH (std. units)	SC (ms/cm)	Temp.	ORP (mv)	Turbi dity (NTU)	DO (mg/L)	Notes	
	13:10	7.38	(e,68	147		- 869		-	cell	
	13:15	7.46	6.47	182		716, Big	29.7	φ. Э	16	
		7.46		181		-1149	14,5	4.22 4.22	2L 3L	
	13:3	7.47	6.53	173	13.49	-116.9		422	44	
				172		71170		0.22	5L	
			4.0			<i>-</i>	7. 2			
	L									
									· · · · · · · · · · · · · · · · · · ·	
									*	
Sample ID No.: ATT-02- © 40716 Water Level Ind. Model & No.: Solinst 101 or equivalent ORP/DO Meter Model & No.: Horiba U-22 or equivalent Purge Equipment Used: peristaltic pump										
Samp	ling Equip	ment Use	d: perista	altic pump, 2"	diameter	disposab	le bailer			
Purge Avera Analy	tical Lab:	on Time: Rate (mL/r ALS Kelso		13:14 13:35 12:41	n	Purging Sample	g Method Contair	ers Used	peristaltic pump x40ml (HCl), x1L DCs, VOCs	
Other	Field Obs	ervations:								

	Low Flow Gamping														
		MON	ITORING	WELL/PIE	ZOMET	ER NUI	MBER	ATT	-03						
Projec	t Name:	Former K	oppers Fa	cility, Wauna	a, OR		D-4		/i(a).						
				3					4)7/16 1ezr BO°F west-wad o-1						
				WELL	. INFOR	MATIO	N								
Casing Top of Initial Wellhe	Casing Diameter (in): 2" Groundwater Elevation (ft): Top of Casing Elevation (ft): Depth of Well Casing (ft): Initial Depth to Water (ft):														
	PURGING MEASUREMENTS														
	Time	Water Level (ft btoc)	pH (std. units)	SC (ms/cm)	Temp.	ORP (mv)	Turbi dity (NTU)	DO (mg/L)	Notes						
	13:55	Ce.32	475	83		-30.9	263		cei(
	14:00	(0.39)		79	15.18	-5,4	14.5	2,00	ار						
	14:05	6.39	6:43	78 78		+149	1.00	Commission							
	14:15	6.39		77		1152			46						
									, , , , , , , , , , , , , , , , , , ,						
		54													
		St													

	Solinst 101 or equivalent Horiba U-22 or equivalent Peristaltic pump	
	eristaltic pump, 2" diameter	disposable bailer
Purge Start Time: Purge Completion Time: Average Purge Rate (mL/min): Analytical Lab: <u>ALS Kelso</u>	13:55 14:15 12 4/M	Sample Collection Time: 1415 Purging Method: peristaltic pump Sample Containers Used: x40ml (HCl), x1L Chemical Analyses: SVOCs, VOCs
Other Field Observations:		

roject Number ocation: <u>Waun</u> ampler:	a OR		- 1					7/16 180 n.80 385)wind 0-2
asing Diamete op of Casing E litial Depth to V lellhead Condi	levation (f Water (ft):		.3 B		Groundy Depth of Actual P	vater Ele Well Ca urge Vol	vation (ft) sing (ft): ume (gall): ons): ちட
Time	Water Level (ft btoc)	pH (std. units)	SC (ms/cm)	Temp.	ORP (mv)	Turbi dity (NTU)	DO (mg/L)	Notes
14:40 14:45 14:50 14:55 15:00	5.38 5.44 5.44 5.44 5.44	(e.60) (e.62) (e.62) (e.63) (e.65)	167 163 157 161 161 161	13.58 13.58 13.98	+34.4 +8.5 -2.6 -4.1 -5.0 - 5.3	36,5	6.35 \$149 \$1.20 \$1.20 \$1.23	COU 1L 2L 3L 4L 5L
cample ID No.:_ Vater Level Ind DRP/DO Meter I Purge Equipme Campling Equip Purge Start Tim Purge Completi Everage Purge	. Model & Nodel & Node	No.: Solins perista d: perista innin):		ıivalent	Sample Purging Sample	Collecti g Method Contair	ners Used	peristaltic pump : _x40ml (HCl), x1L

		MONIT	ORING \	NELL/PIEZ	OMETE	R NUM	BER _	PMW-	07R	
Projec	t Name:	Former K	oppers Fa	cility, Wauna	a, OR		Data		- L.	
Locat	ion: Waun	: <u>661M1323</u> a, OR JV15/v		3			onditions	on: <u>w</u>	est wind a	3~
		e e		WELL	. INFOR					Ac
Top o Initial	Depth to \	levation (f	5,	17-): lons): <u>5</u> L	
			50	PURGING	G MEAS	UREM	ENTS			
	Time	Water Level (ft btoc)	pH (std. units)	SC (ms/cm)	Temp.	ORP (mv)	Turbi dity (NTU)	DO (mg/L)	Notes	
	15:25	5,17	Ce.95	126	12,72	+13.3	1	4.73	cell	to.
	15:40	5.26	Ce.36	123	12.52	-16,2	14	4.28	2L 3L	
	15:45	5.26		ハスス		-169 5-17:0		\$14 \$14	4L SL	
				*						
	e .			9					2	
									1	G.
Water ORP/I Purge Samp	OO Meter I Equipme	. Model & I Nodel & No nt Used: ment Used	perist	TI 6 st 101 or equive a U-22 or eque altic pump altic pump, 2"	ivalent			ion Time:	15:50	
Purge Avera Analy	Completi ge Purge tical Lab:	on Time: Rate (mL/n ALS Kelso	nin):	15:50 "LYM		Purgin Sample Chemic	g Metho e Contair cal Analy	d: ners Used /ses: <u>SVC</u>	peristaltic pump 1: x40ml (HCl), DCs, VOCs, MNA	x1L
Other	Field Obs	ervations:		onge bi	04100	KIN	Sorde	といでと		

PURGING MEASUREMENTS

Time	Water Level (ft btoc)	pH (std. units)	SC (ms/cm)	Temp. (°C)	ORP (mv)	Turbi dity (NTU)	DO (mg/L)	Notes
18:10	5.49	6,20	392	15,29	+ (1,1	7.2	3.19	cell
16/15	5.14	6,16	396	13.93	-7.9	スゆ	6.45	()
16120	5,14	6,12	395	13.87	01511	2,9	CP. 38	1.L
16125	5,14	6.10	393	13.86	-21:5	3.7	0.30	34
18:30	5.14	Ce. 09	390			1.6	Ø,18	46
18:35		6.49	391	13.92	-281	1.3	Q.15	SL
16:40	5.14	6.09	391	13,92	· 263	1,5	Q14	leL
	<i>)</i> , ,							# #
				1		5		
					10			
22								
			5.0					

Vater Level Ind. Model & No.: S DRP/DO Meter Model & No.: 1 Purge Equipment Used:		31	
	peristaltic pump, 2" diameter	disposable bailer	
Purge Start Time: Purge Completion Time: Average Purge Rate (mL/min): Analytical Lab: <u>ALS Kelso</u>	16 14 16:44 124/4	Sample Collection Time: Purging Method: Sample Containers Used: Chemical Analyses: <u>SVO</u>	
Other Field Observations:			2

		MON	ITORING	WELL/PIE	ZOMET	FR NU	MBFR	ΔΤΤ.	-11	
Projec	ct Name:			acility, Waun		LIVINO				
Locat	ion: Waun	a, OR		3			onditions	s:	Ueza ~ BOF	
			•		L INFOR	RMATIO	N			
Initial	Depth to	er (in): Elevation (f Water (ft): ition:	(0.0			Groundy Depth of Actual P	water Ele f Well Ca Purge Vo	evation (fi sing (ft): lume (gal	lons):	
				PURGING	G MEAS	UREM	ENTS			
	Time	Water Level (ft btoc)	pH (std. units)	SC (ms/cm)	Temp.	ORP (mv)	Turbi dity (NTU)	DO (mg/L)	Notes	
	17:10	672	6.36 6.29 6.31 6.31	466 401 376 315 315		-32.8	1.60	2.56 \$33 \$1.14 \$1.14 \$0.17	ce4 11 2L 3L	
		6.72		314		-42,3		Ф:12	5_	
- 16										
Water ORP/I Purge Samp Purge Purge	Level Ind DO Meter I Equipme ling Equip Start Tim Completi	Model & No nt Used: oment Used e:	No.: Solins D.: Horibi perist perist	st 101 or equivalent for the street of the s	ivalent	Sample Purging	Collecti g Method	ion Time:	peristaltic pump	
Analy	tical Lab:	ALS Kelso ervations:			 	Chemic	cal Analy	ses: SVC	DCs, VOCs	





CHAIN OF CUSTODY

68791

002	SR#
	COC Set of Z
	COC#

1317 South 13th Ave. Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068

(ALS) Engire											www.a	alsglob	pal.com	, , , , , (000) 000 1000		a	Page 1 of 1
Project Name	Project Nun	nber:	360,2	016.8		70	14D						=				
Project Manager Steve Backett					1	_	-		_			_					
AMECEW					CONTAINERS												
Address 1376 Sw Durt	ים חפר	d Par	Hand,	Ove	1 \{ \}												
Phone # 303 639 3400	email	NASCI.	eH@ a	nec co		-	ם										
Sampler Signature	Sampler Pri	inted Name			. R O.	SVO	Voc										
(A)		NUMBER OF	1270D / SVO LL	3260C / VOC FP													
/~	Jason Gardner									8	-7	9	Remarks	-			
CLIENT SAMPLE ID	CLIENT SAMPLE ID LABID Date Time																
1.500-08-040716		4/7/16	8:50	W	5	X	×]			
2.5BW-\$7-040716		1	09:30	1	1	×	×										
3.520-95-040716			10:05	3		×	×										
4. ATT-06-040716			10:45			×	×										
5. ATT- 05- 040716			11:35			×	×]			
6. ATT- 10-040716			12:10			X	X		@					-	€		
7. ATT- 01- 010716			12:55			x	×]			
8. ATT- 02- 040716			13:35			×	×							1.			
9.477-63-040716			14:15			X	X										
10. ATT-04-040716		4	15:05	+	4	×	×										
Report Requirements		ice Info	rmation										Circ	cle which metals are to	be analyzed		
I. Routine Report: Method Blank, Surrogate, as	P.O.#_ Bill To:			-			Tota	l Met	als: /	AI A	s S	Sb E	Ba Be B Ca Cd Cd	o Cr Cu Fe Pb	Mg Mn Mo Ni K Ag N	la Se Sr Tl Sn V	Zn Ha
required	Dill 10.			-											Pb Mg Mn Mo Ni K Ag		2000 102 3 1
II. Report Dup., MS, MSD as required				_ ₋	:-							30			- 32		822
III. CLP Like Summary	Turnaro	und Red	quireme	nts	Specia	arins	tructi	ons/	Com	men	its.		"indicate	State Hydrocarb	on Procedure: AK CA W	Northwest Other_	(Circle One)
(no raw data)	24 5 C		48 hr.														
IV. Data Validation Report	Sta	andard															
V. EDD		Requested Repo	ort Date														
Relinquished By:		Received	100000000000000000000000000000000000000	T	Re	ling	uisl	ned	Ву:				Received By:		Relinquished By:	Recei	ved By:
Signature	Sigr	nature						S	igna	ture	Signa	ture	Signature				
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Printed Name Joseph Good ner	Printed Na	me		Prin	ited N	ame					۱	rinte	d Name	Printe	d Name	Printed Name	
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AMECEW 4/7/16 20:00											4						
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CHAIN OF CUSTODY

002		

SR#				
COC Set_	1	_of_	2	
COC#				

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068

(ALS) LITUII											www.a	Isglob	al.com	- X		Page 1 of
Project Name	Project Nu	mber:	60.201	6.B		JD 7D	14D									
Project Manager Steve Backett					,,	-	~		_	_	Т	_				
Company					NER									A)		
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A505 639 3400	email Stev	Printed Name	ette an	racico	F CO	님	g.									
Sampler Signature	Sampler F	rinted Name			ER O	SVO	000		ŀ							
UK C	Los	on G	andre	1	NUMBER OF CONTAINERS	1370D / SVO LL	1260C / VOC FP						Remarks			
		SAMF	and the second second second			-86	-87	-	2		4	2	Remarks			
CLIENT SAMPLE ID	LABID	Date	Time	Matrix					_		_	\Box				
1 PMW-07R-040716		4/7/16	15:50	W)	5	×	X					_				
2. 977-12-040716			16:40			×	×			\Box	_	_				
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Report Requirements	P.O.#	oice Info	rmation										Circ	cle which metals are to be	e analyzed	
I. Routine Report: Method Blank, Surrogate, as required	Bill To:				Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg											
II. Report Dup., MS, MSD												Sb				
as required	Turnard	ound Red	guireme	nts S	pecia	linst	ructio	ons/(Comi	ment	ts:		*Indicate	State Hydrocarbon	Procedure: AK CA WI	Northwest Other(Circle One
III. CLP Like Summary (no raw data)	24	4 hr.	48 hr.													
IV. Data Validation Report	S	Day andard														
V. EDD		Requested Repo	d Date													
Relinquished By:		Received			Re	linq	uish	ed I	Ву:				Received By:	F	Relinquished By:	Received By:
Signature	Signature			Signa	ature						Si	gnati	ure	Signatui	re	Signature
Printed Name	Printed Na	ame		Print	ed Na	me					Pr	intec	Name	Printed I	Name	Printed Name
Firm	Firm			Firm							Fir	m		Firm		Firm
Date/Time 4/7/16 30:00	Date/Time	1	- 8	Date	/Time	0					D	ate/T	ime	Date/Tin	ne	Date/Time
4 710 30.00) Date/ Time	•		Date	THIE	00						ALC/ I	iiiic	Date/Til	iie	Date/Time