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MEMO

TO	Katie Daugherty, ODEQ
FROM	Brendan Robinson, PE, ERM; Todd Slater, LSS
DATE	15 November 2024
REFERENCE	0732445.204
SUBJECT	Groundwater Source Control Measure Monthly Performance Monitoring Report

1. INTRODUCTION

The Oregon Department of Environmental Quality (ODEQ), in its letter dated 31 May 2019 and in the subsequent meeting with Legacy Site Services LLC (LSS) and Environmental Resources Management, Inc. (ERM) on 2 July 2019, requested that LSS initiate monthly status reports associated with the onsite groundwater source control measure (GW SCM) at the Arkema site (Site) consistent with the Performance Monitoring Plan (PMP; ERM 2014¹) beginning July 2019. The 2014 PMP was prepared pursuant to the Order on Consent issued by ODEQ, signed on 31 October 2008 (ODEQ No. LQVC-NWR-08-04; Consent Order). The purpose of the PMP was to present the monitoring, reporting, and adaptive management processes used during implementation of the GW SCM. On 30 November 2021, ODEQ directed LSS that following the October 2021 Monthly Performance Monitoring Report (MPR), subsequent MPRs would be suspended pending the implementation of the Groundwater Extraction Enhancement (GEE) project in 2022. During that time, ODEQ requested monthly schedule updates in lieu of MPRs. The trench wells installed as part of the GEE project were started on 27 November 2022, and MPR writing restarted in December 2022. The purpose of the GEE project was to install new extraction capacity to achieve the Capture Zone Objectives.

On 6 June 2024, ODEQ requested that LSS and ERM reduce the scope of future MPRs to facilitate faster review. On 11 September 2024, ODEQ agreed for the first amended MPR to be the August 2024 MPR submitted in October 2024.

¹ ERM-West, Inc. 2014. *Revised Final Performance Monitoring Plan – Groundwater Source Control Measure, Arkema Inc. Facility, Portland, Oregon*. July 2014.

2. GWET SYSTEM PERFORMANCE

The average system influent flow rate was 21.38 gallons per minute (gpm) for the entire month of September 2024, including non-operational periods. The average operational influent flow during operational periods was 36.60 gpm.

Extraction pumps become fouled with accumulated solids over time. A proactive pump removal and maintenance program is in place to address fouling and maximize flow rates. A low pressure Hydropuls redevelopment was completed at Trenches 5 and 6 during September 2024 to address accumulation of silt in the filter pack. Ongoing redevelopment is anticipated in October 2024 to maintain the productivity of the groundwater extraction trenches, and conveyance line cleaning will be conducted as needed based on analysis of backpressure.

The reduction in average monthly groundwater extraction rate in September 2024 compared to August 2024 is believed to be a result of extremely low groundwater elevations onsite as shown on Attachments A-1 and A-2. The average shallow groundwater level onsite, interior to the barrier wall, has been observed lower on only one occasion, in October 2023. This decrease in interior groundwater elevations onsite occurred despite a slight increase in average river elevation.

LSS is continuing to optimize extraction rates within the system to increase flow rates at each operational well until either the extraction rates specified in the *Groundwater Extraction Enhancement Final Design Report* (ERM 2022²) are achieved, the wells are producing the maximum quantity of water possible, or until the Capture Zone Objectives are met.

2.1 GWET PLANT OPERATIONS

The groundwater extraction and treatment (GWET) plant operated within permit conditions during the reporting period. There were two shutdowns:

- 19 September 2024: The GWET system was shut down for 25-minutes to install pressure gauges along the influent conveyance lines.
- 30 September 2024: The wellfield was shut down for 25.5-hours due to motor control maintenance necessitating lock-out-tag-out of the system.

² ERM-West, Inc. 2022. *Final Design Report, Arkema Inc. Facility, Portland, Oregon*. May 2022.

3. CAPTURE ZONE EVALUATION

As described in the PMP, the purpose of hydraulic monitoring (i.e., groundwater elevation data) is to provide sufficient data to demonstrate an inward hydraulic gradient across the groundwater barrier wall (GWBW) and to evaluate the effective hydraulic capture produced by the GW SCM.

3.1 GROUNDWATER ELEVATION MONITORING

Groundwater elevation monitoring was completed on 6 September 2024. The Serfes (1991)³ method was used to account for tidal variations as described in the PMP. Using Serfes corrected data, both horizontal and vertical gradients were calculated and plotted over time (Attachment B). Groundwater elevations, horizontal gradients, and vertical gradients from 6 September 2024 are shown in Attachment B-3 and Attachment B-4.

3.2 POTENTIOMETRIC SURFACE, GROUNDWATER ELEVATION DIFFERENCE MAPS, AND GROUNDWATER FLOW DIRECTIONS

Groundwater elevation data collected on 6 September 2024 were used to prepare potentiometric surface maps based on manual measurements and averaged transducer groundwater elevations (Figures 2 through 4) and vertical difference maps (Figures 5 and 6).

The generalized flow direction indicated by the potentiometric surface maps shows overall groundwater flow from upgradient toward the GWBW. Potentiometric maps (Figures 2, 3, and 4) indicate generalized groundwater movement to the extraction trenches in the Shallow, Intermediate, and Deep Zones due to GW SCM pumping, and cones of depression are apparent around each groundwater extraction trench primarily on the north end of the Site in the Shallow and Intermediate Zones. Horizontal gradients at gradient control clusters (GCCs) across the Site are generally outward, but steady. Horizontal gradients and trend lines are shown in Attachments B-1 and B-2.

River elevations are shown over time on Attachments A-1 and A-2, and in an inset on the potentiometric surface maps (Figures 2 through 4). The river elevation in September 2024 had an average elevation of 8.25 feet North American Vertical Datum of 1988 (NAVD88) with a minimum elevation of 6.24 feet NAVD88 and a maximum elevation of 10.54 feet NAVD88, a slight increase compared to August 2024. The average Shallow Zone groundwater elevation decreased from August by 0.75 feet and the average Intermediate Zone groundwater elevation decreased from August by 1.00 feet, and the river elevation has largely been trending downward since January 2024 but is anticipated to rise over the coming months as the seasonal rains begin. There was not as significant of a seasonal rise in Willamette River level this year compared to previous years.

Vertical gradients were calculated for each vertical well pair and are plotted on Figures 5 and 6. Vertical groundwater gradients and trend lines are shown in Attachments B-2 and B-4. Vertical

³ Serfes, Michael. 1991. "Determining the Mean Hydraulic Gradient of Ground Water Affected by Tidal Fluctuations." *Groundwater* 29(4): July–August.

groundwater gradients interior and exterior to the GWBW were primarily downward between the Shallow and Intermediate Zones and between the Intermediate and Deep Zones.

4. CONCLUSIONS

Recovery rates indicate that the active recovery wells (RWs) and extraction wells (EWs) are operating as designed, except for the troubleshooting discussed above. The extraction rates throughout the GWET system will continue to be optimized to meet Target Capture Objectives. Redevelopment of the trenches is planned for October 2024 to mitigate accumulation of silt in the filter pack in both the vertical and horizontal sections using impulse redevelopment techniques. These efforts will be targeted at trenches that are currently underperforming, including Trenches 1, 4, 5, and 6. LSS will continue to optimize new EWs, including pump maintenance and upgrades. Additional modifications to the system, if needed to progress toward capture objectives, will be included in subsequent MPRs. The project schedule provided as Attachment C summarizes planned activities.

Regards,



Brendan Robinson, PE
Partner



ATTACHMENTS

FIGURE 1 – SITE LAYOUT

FIGURE 2 – SHALLOW ZONE GROUNDWATER CONTOURS

FIGURE 3 – INTERMEDIATE ZONE GROUNDWATER CONTOURS

FIGURE 4 – DEEP ZONE GROUNDWATER CONTOURS

FIGURE 5 – SHALLOW TO INTERMEDIATE ZONE VERTICAL HEAD DIFFERENCE MAPS

FIGURE 6 – INTERMEDIATE TO DEEP ZONE VERTICAL HEAD DIFFERENCE MAPS

ATTACHMENT A-1 – OPERATIONAL PUMPING RATE GRAPH

ATTACHMENT A-2 – AVERAGE MONTHLY PUMPING RATE GRAPH

ATTACHMENT A-3 – GWET SYSTEM GROUNDWATER EXTRACTION RATES TABLE

ATTACHMENT B-1 – HORIZONTAL GRADIENTS SUMMARY GRAPH

ATTACHMENT B-2 – VERTICAL GRADIENTS SUMMARY GRAPH

ATTACHMENT B-3 – WATER LEVELS AND HORIZONTAL GRADIENTS TABLE

ATTACHMENT B-4 – WATER LEVELS AND VERTICAL GRADIENTS TABLE

ATTACHMENT C – PROJECT SCHEDULE



FIGURES

FIGURE 1: SITE LAYOUT

FIGURE 2: SEPTEMBER SHALLOW ZONE GROUNDWATER CONTOURS

FIGURE 3: SEPTEMBER 2024 INTERMEDIATE ZONE GROUNDWATER CONTOURS

FIGURE 4: SEPTEMBER 2024 DEEP ZONE GROUNDWATER CONTOURS

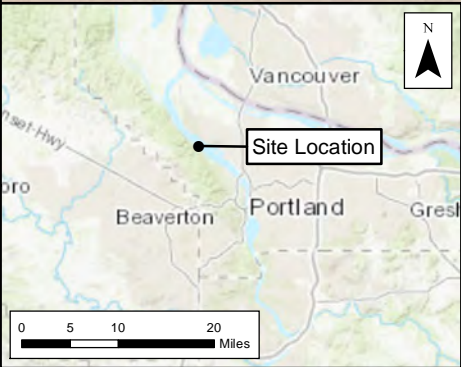
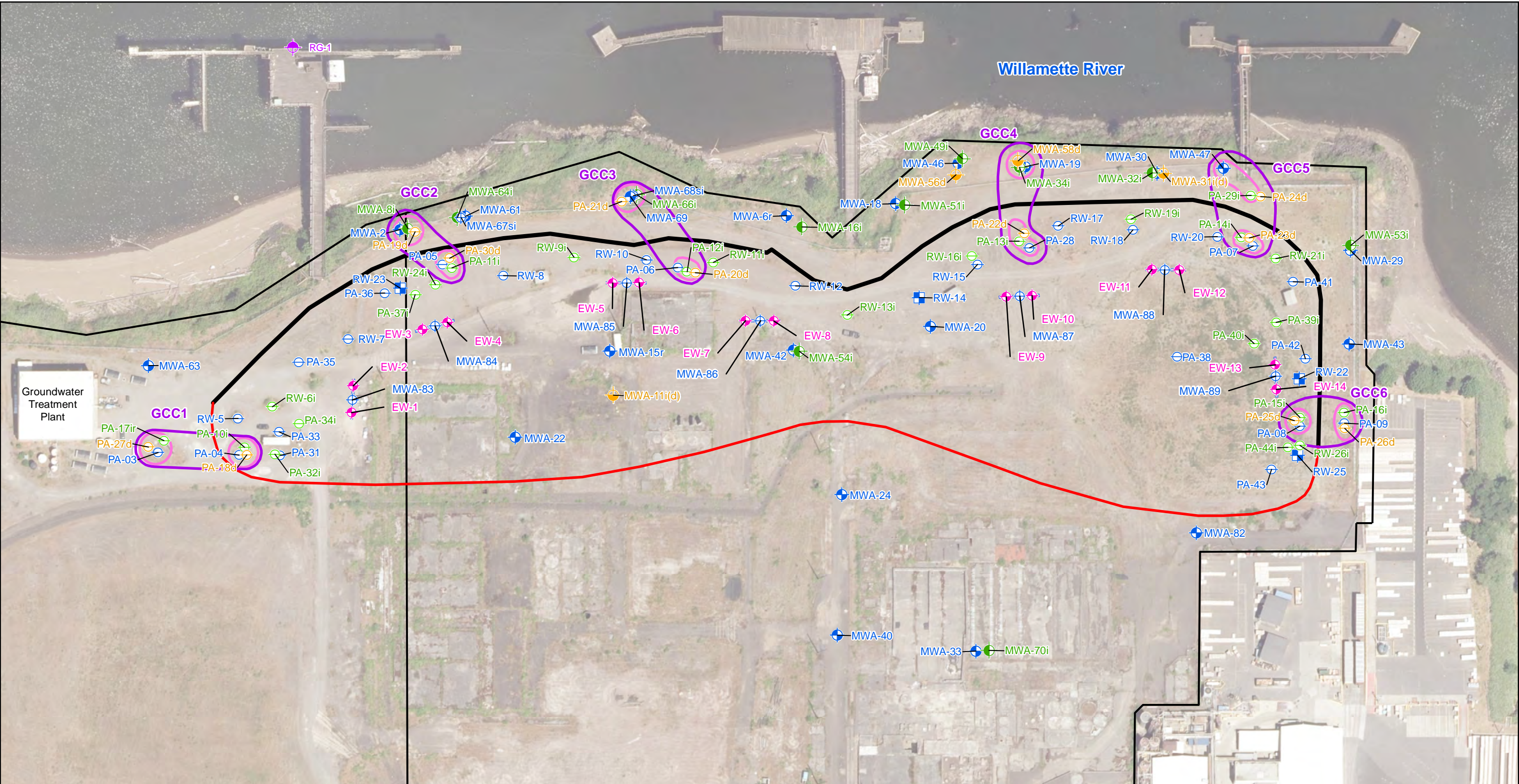
FIGURE 5: SEPTEMBER 2024 SHALLOW TO INTERMEDIATE ZONE VERTICAL HEAD DIFFERENCE

FIGURE 6: SEPTEMBER 2024 INTERMEDIATE TO DEEP ZONE VERTICAL HEAD DIFFERENCE

Source: City of Portland Aerial Imagery, flown Summer 2021; NAD 1983 StatePlane Oregon North FIPS 3601 Feet Intl

M:\US\Projects\S-U\Total\Arkema - Portland\Groundwater Source Control\maps\MP\GWET_PMP_202212\Figure 1 Site Layout for MPR .mxd, REVISED: 02/06/2023, SCALE: 1:1,440 when printed at 11x17

DRAWN BY: Jake Sullivan



Legend

- | | |
|---|--------------------------------|
| Shallow Zone Monitoring Well | Deep Zone Piezometer |
| Intermediate Zone Monitoring Well | Shallow Zone Recovery Well |
| Shallow-Intermediate Zone Monitoring Well | River Gauge |
| Deep Zone Monitoring Well | Trench Extraction Well |
| Shallow Zone Piezometer | Target Capture Zone |
| Intermediate Zone Piezometer | Barrier Wall Alignment |
| | Parcel and Property Boundaries |

GradientClusters

- Type**
- Gradient Control Cluster
 - Vertical Flow Cluster
 - Extraction Trench

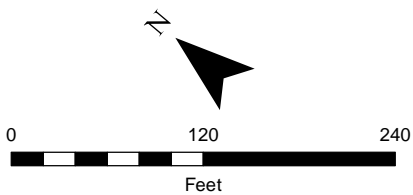
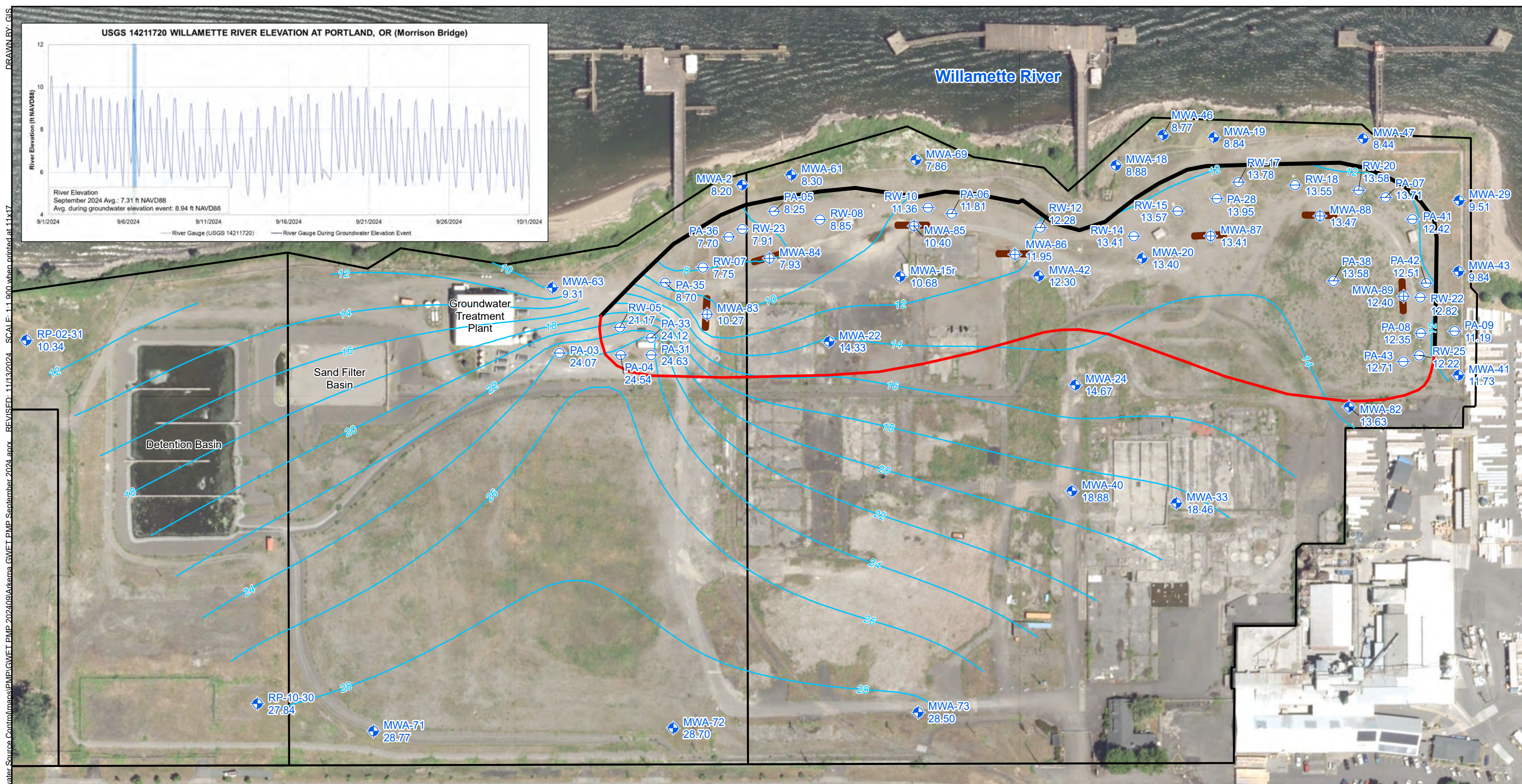


Figure 1
Site Layout
Monthly Progress Report
Groundwater Source Control Measure
Arkema Inc.
Portland, Oregon



Legend

- Shallow Zone Piezometer
- Shallow Zone Monitoring Well
- Active Recovery Well;
Not Used During Contouring
- Shallow-Intermediate Zone Monitoring Well
- 27.70 Groundwater Elevation (ft NAVD88)

- Shallow Zone Groundwater Contours
(ft NAVD88) Dashed where Inferred
- Target Capture Zone
- Barrier Wall Alignment
- Extraction Trench (Not To Scale)

Notes:

- * Value not used for contouring.
- Water levels collected September 9–11, 2024.
- ft NAVD88: feet North American Vertical Datum of 1988.
- Aerial Photo: City of Portland, Summer 2017.

Figure 2

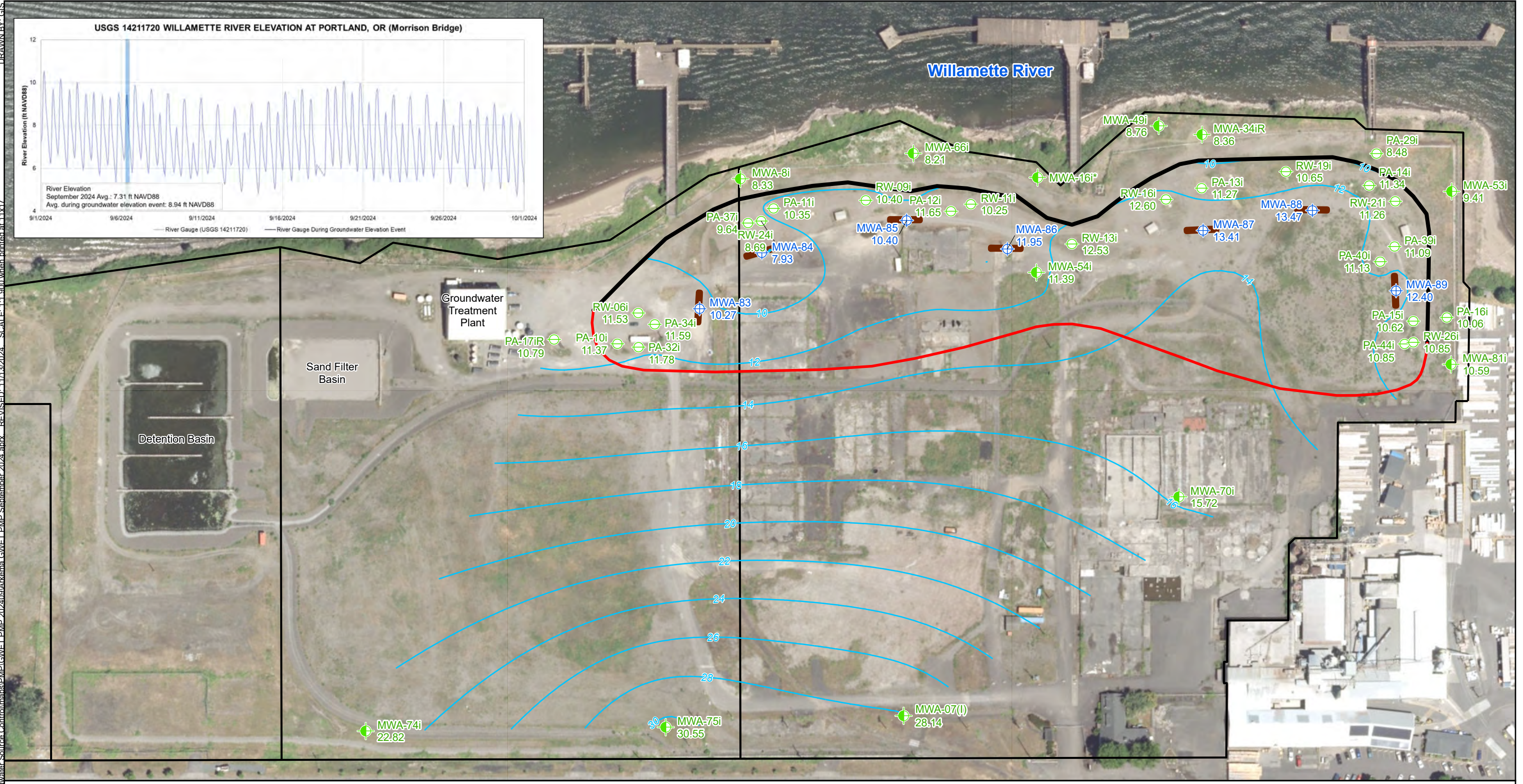
September 2024 Shallow Zone Groundwater Contours

Monthly Progress Report
Groundwater Source Control Measures
Arkema Inc.
Portland, Oregon

Environmental Resources Management
www.erm.com

DRAWN BY: GIS
SCALE: 1:1,900 when printed at 11x17
REVISED: 11/13/2024
Source: Control Maps/PMP/GWET PMP 20240901Arkema GWET PMP September 2024.aprx
NAD 1983 StatePlane Oregon North FIPS 3601 Feet Intl

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DRAWN BY: GIS
SCALE: 1:1,900 when printed at 11x17
REVISED: 11/13/2024



Legend

- Intermediate Zone Piezometer
- Intermediate Zone Monitoring Well
- Shallow-Intermediate Zone Monitoring Well
- 27.70 Groundwater Elevation (ft NAVD88)
- Intermediate Zone Groundwater Contours (ft NAVD88) Dashed where Inferred
- Target Capture Zone
- Barrier Wall Alignment
- Extraction Trench (Not To Scale)

Notes:

* Value not used for contouring.
Water levels collected September 9–11, 2024.
ft NAVD88: feet North American Vertical Datum of 1988.
Aerial Photo: City of Portland, Summer 2017.

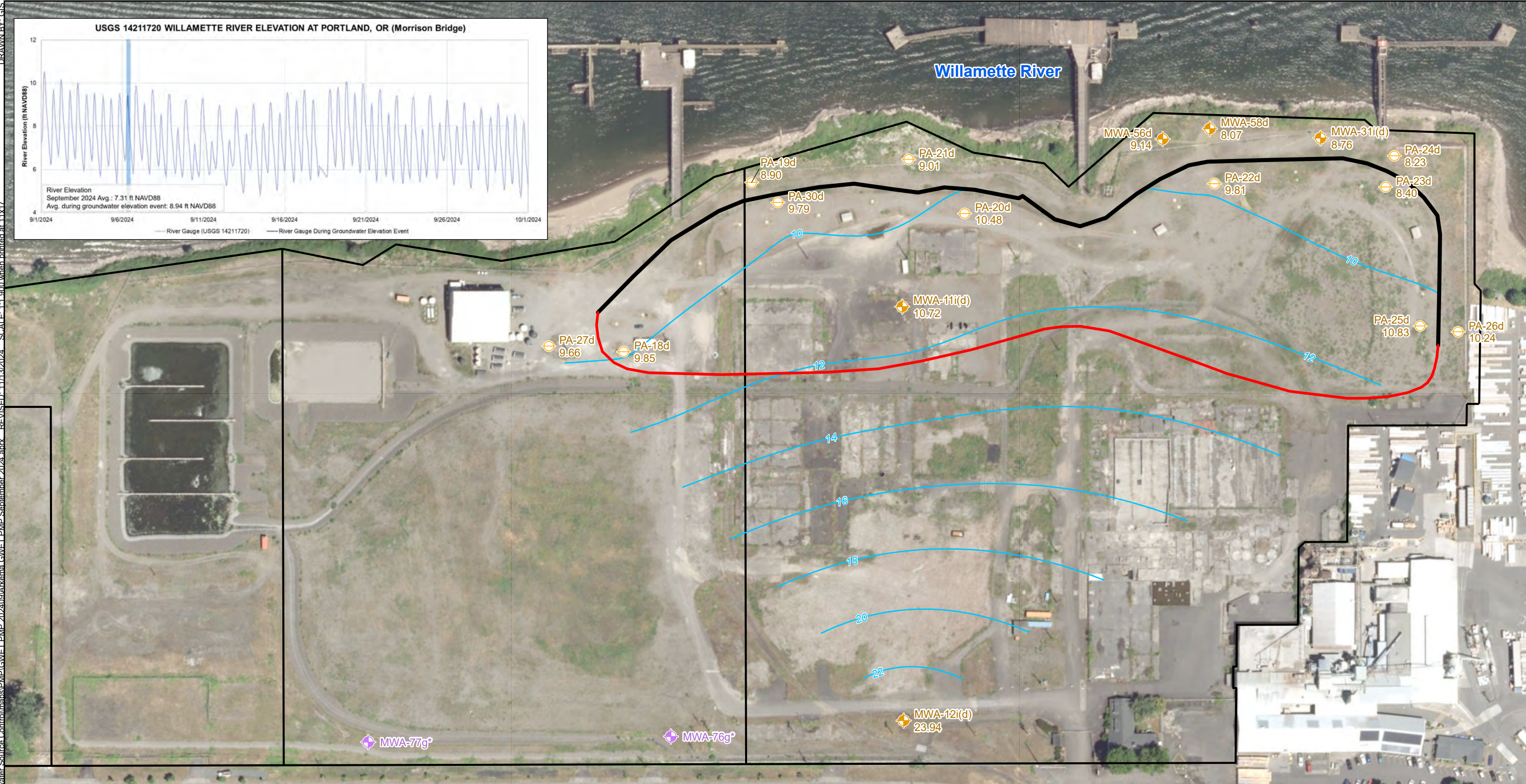
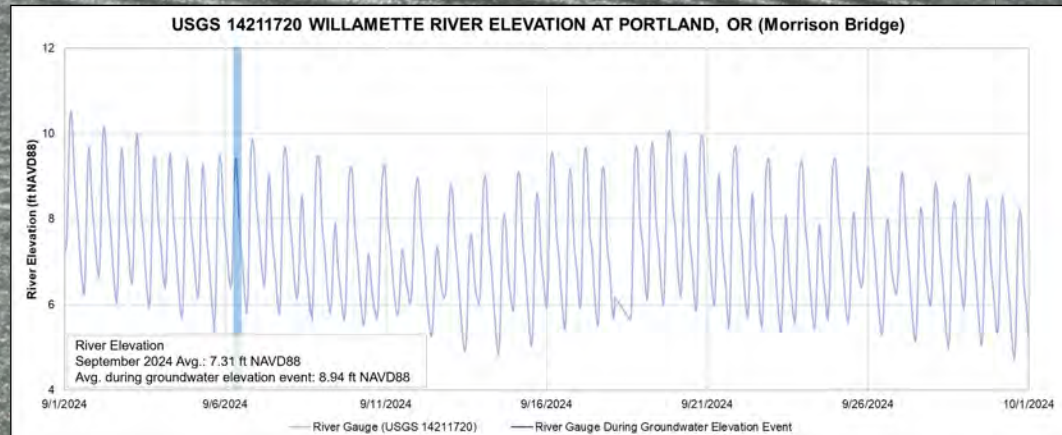
Figure 3

September 2024 Intermediate Zone Groundwater Contours

Monthly Progress Report
Groundwater Source Control Measures
Arkema Inc.
Portland, Oregon

Environmental Resources Management
www.erm.com

MA\US\Projects\SI\U\Total\Arkema_Portland\Groundwater_Source_Control\maps\PM\GWET\PMW\GWET_PMP_202409\Arkema_GWET_PMP_September_2024.aprx REVISED: 11/13/2024 SCALE: 1:1,900 when printed at 11x17 DRAWN BY: GIS



Legend

- ⊕ Deep Zone Piezometer
- ⊕ Deep Zone Monitoring Well
- ⊕ Gravel Zone Monitoring Well
- 27.70 Groundwater Elevation (ft NAVD88)
- Deep Zone Groundwater Contours (ft NAVD88)
Dashed where Inferred
- Target Capture Zone
- Barrier Wall Alignment

Notes:
* Value not used for contouring.
Gravel zone wells not used in contouring.
Water levels collected September 9–11, 2024.
ft NAVD88: feet North American Vertical Datum of 1988.
Aerial Photo: City of Portland, Summer 2017.

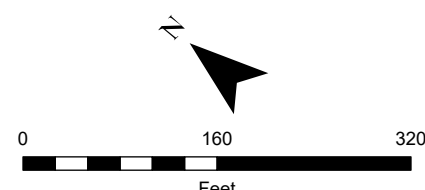


Figure 4
September 2024 Deep Zone Groundwater Contours
Monthly Progress Report
Groundwater Source Control Measures
Arkema Inc.
Portland, Oregon

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Legend

- | | | |
|-----------------------------------|--------------------------|-------------------|
| Shallow Zone Monitoring Well | Target Capture Zone | Downward Gradient |
| Intermediate Zone Monitoring Well | Barrier Wall Alignment | Upward Gradient |
| Shallow Zone Piezometer | Extraction Trench | |
| Intermediate Zone Piezometer | Gradient Control Cluster | |
| Shallow Zone Recovery Well | Vertical Flow Cluster | |

Notes:

Brown gradient: Downward gradient.
Green gradient: Upward gradient.
Vertical gradient calculated as shallow zone minus intermediate zone potentiometric surfaces.
Water levels collected September 9–11, 2024.
Aerial Photo: City of Portland, Summer 2017.

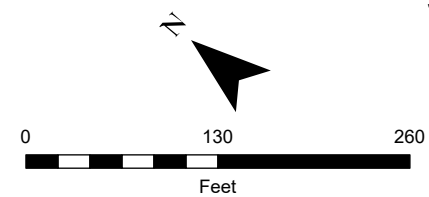
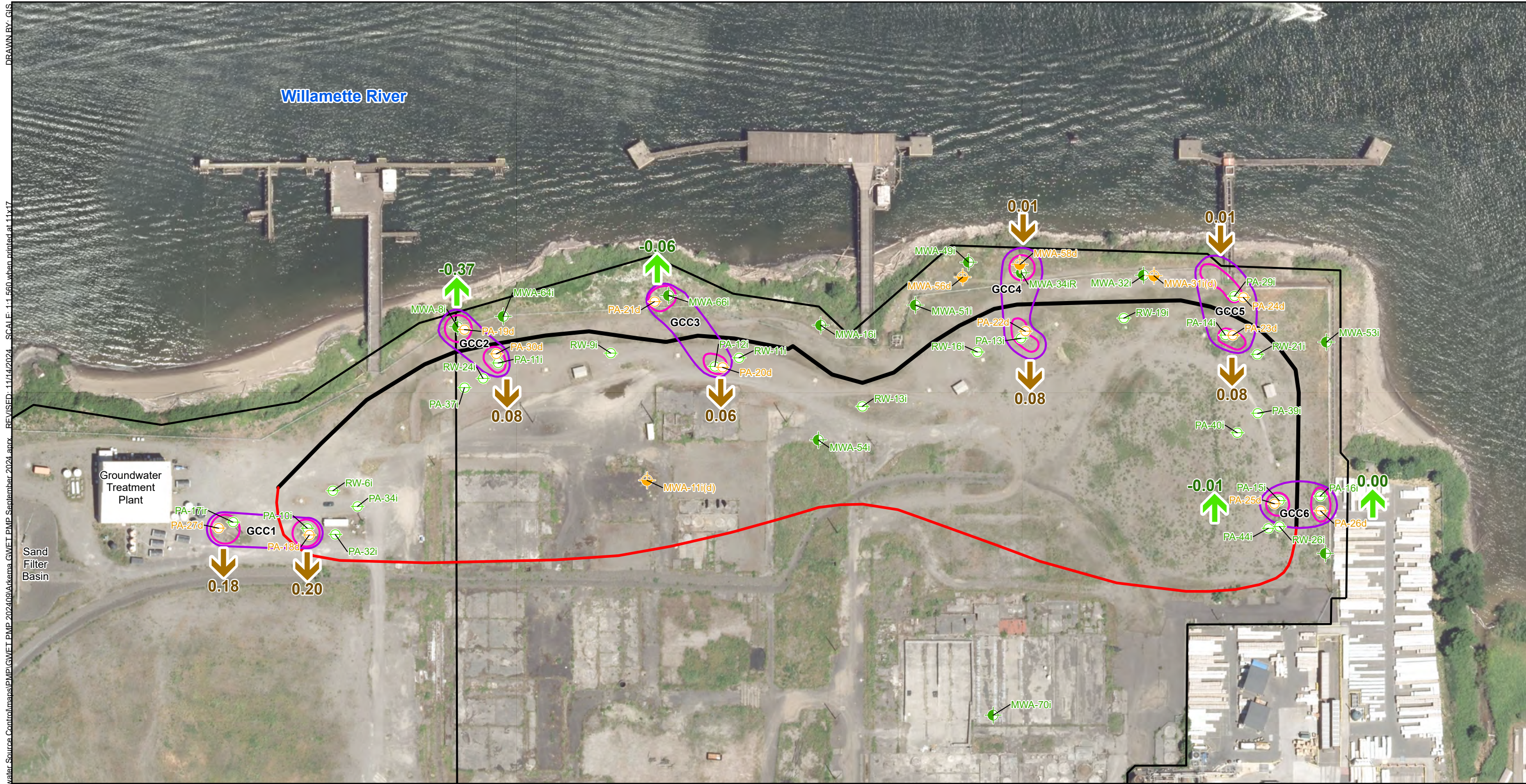


Figure 5
September 2024 Shallow to Intermediate Zone
Vertical Head Difference
Monthly Progress Report
Groundwater Source Control Measures
Arkema Inc.
Portland, Oregon

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REVISED: 11/14/2024



Legend

Intermediate Zone Monitoring Well	Target Capture Zone	Downward Gradient
Deep Zone Monitoring Well	Barrier Wall Alignment	Upward Gradient
Intermediate Zone Piezometer	Extraction Trench	
Deep Zone Piezometer	Gradient Control Cluster	
	Vertical Flow Cluster	

Notes:
Brown gradient: Downward gradient.
Green gradient: Upward gradient.
Vertical gradient calculated as intermediate zone minus deep zone potentiometric surfaces.
Water levels collected September 9–11, 2024.
Aerial Photo: City of Portland, Summer 2017.

Figure 6
September 2024 Intermediate to Deep Zone Vertical Head Difference
Monthly Progress Report
Groundwater Source Control Measures
Arkema Inc.
Portland, Oregon

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0 130 260
Feet

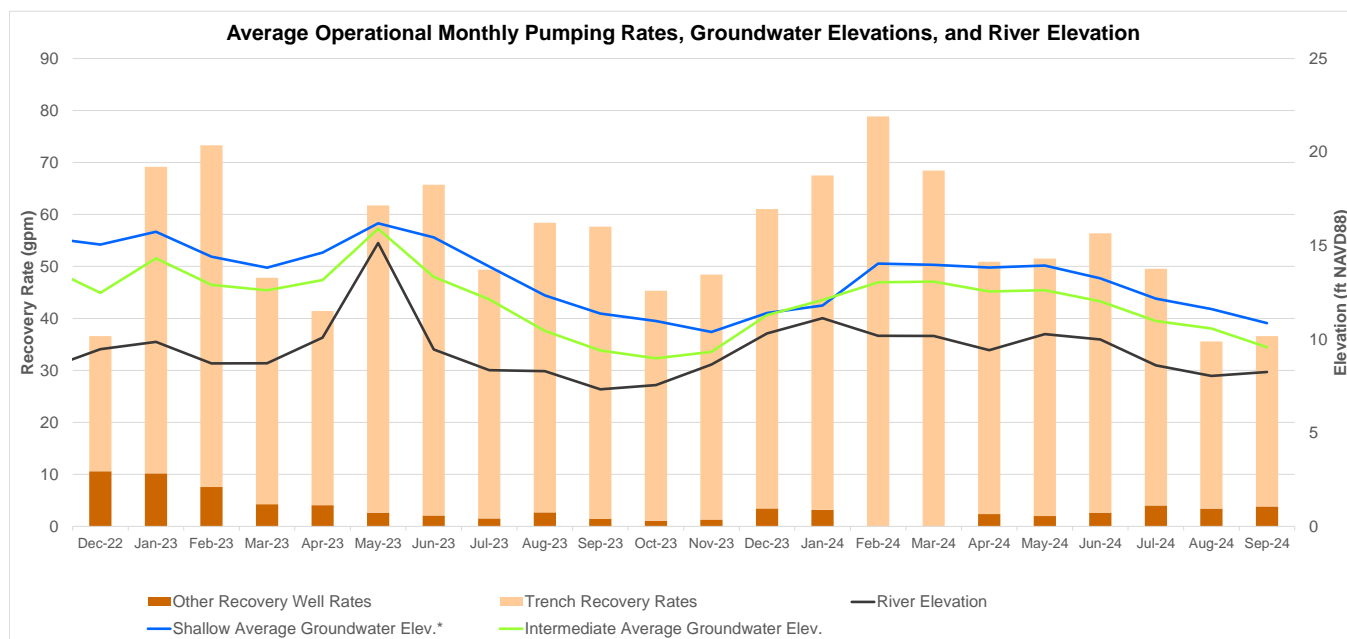


ATTACHMENT A-1

OPERATIONAL PUMPING RATE GRAPH

Attachment A-1

Operational Pumping Rate Graph Arkema Inc. Facility Portland, Oregon



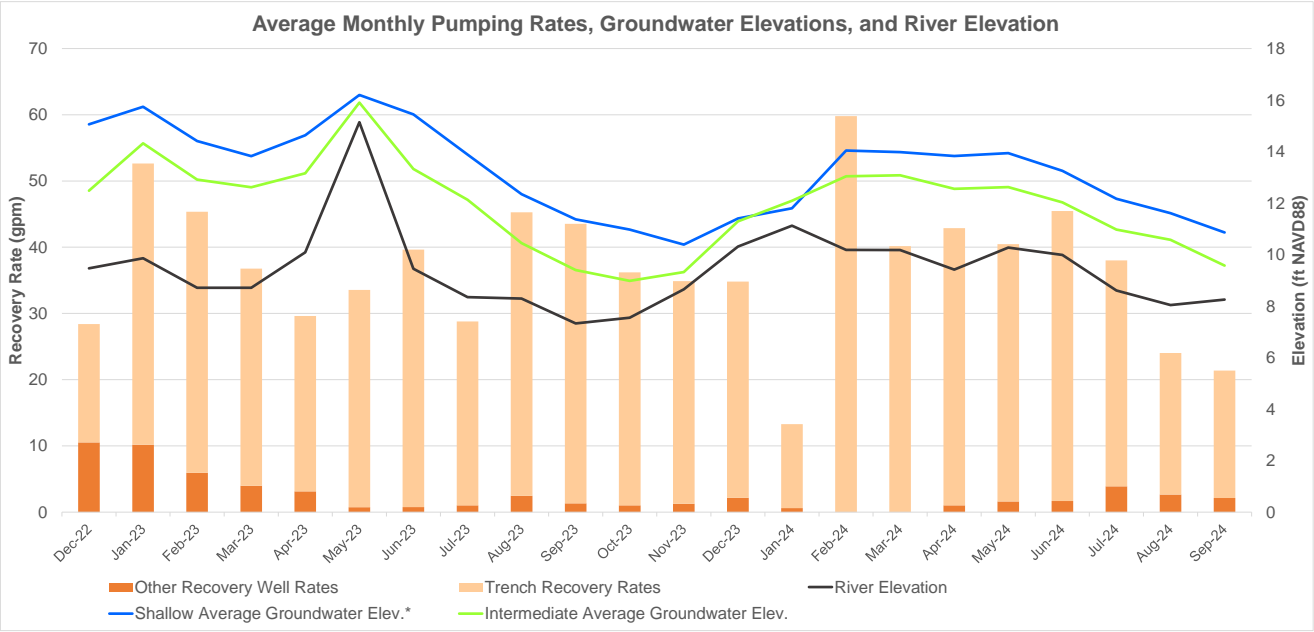


ATTACHMENT A-2

AVERAGE MONTHLY PUMPING RATE
GRAPH

Attachment A-2

Average Monthly Pumping Rate Graph
Arkema Inc. Facility
Portland, Oregon





ATTACHMENT A-3

GWET SYSTEM GROUNDWATER
EXTRACTION RATES TABLE

Attachment A-3

GWET System Groundwater Extraction Rates Table Arkema Inc. Facility Portland, Oregon

Recovery Well	September 2024 Average Operational Pumping Rate (gpm)	September 2024 Average Monthly Pumping Rate (gpm)
RW-14	1.18	0.16
RW-22*	0.00	0.00
RW-23	1.27	0.98
RW-25	1.36	1.00
EW-01	0.74	0.56
EW-02*	0.00	0.00
EW-03	9.99	7.66
EW-04	0.00	0.00
EW-05	4.94	3.79
EW-06*	0.00	0.00
EW-07*	0.00	0.00
EW-08	1.21	0.92
EW-09	1.77	0.24
EW-10	1.77	1.12
EW-11	1.30	0.99
EW-12*	0.00	0.00
EW-13	6.53	1.09
EW-14	4.54	2.87
Total	36.60	21.38

* = Recovery well not in service during reporting period

gpm = gallon per minute



ATTACHMENT B-1

HORIZONTAL GRADIENTS SUMMARY
GRAPH

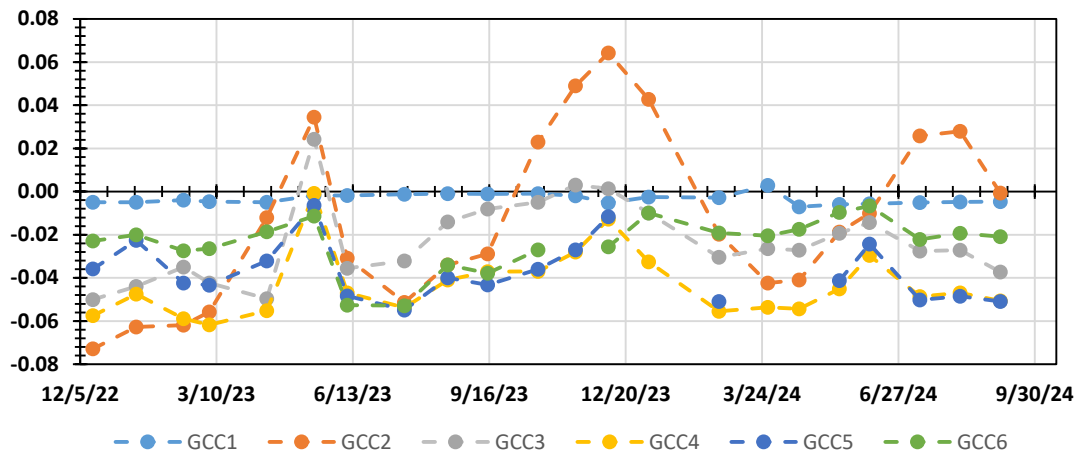
Attachment B-1

Horizontal Gradients Summary: September 2024

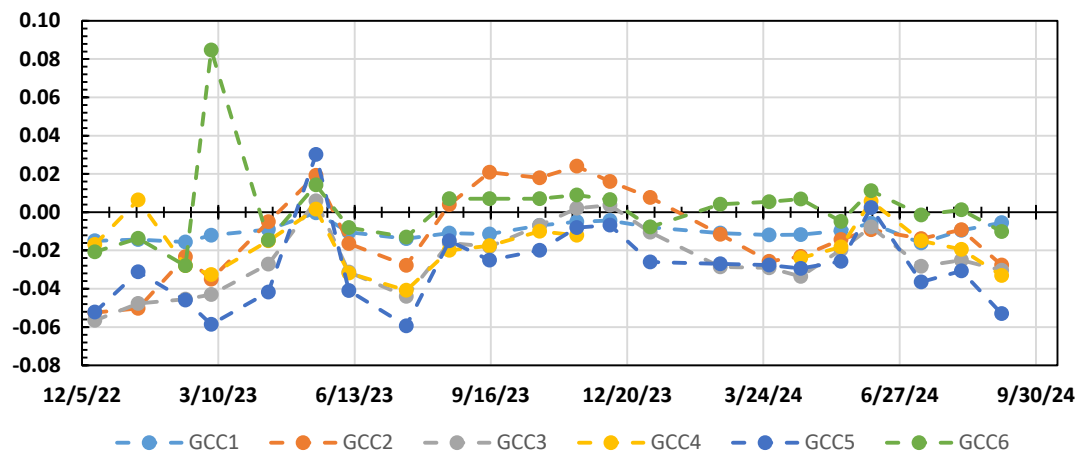
Arkema Inc. Facility

Portland, Oregon

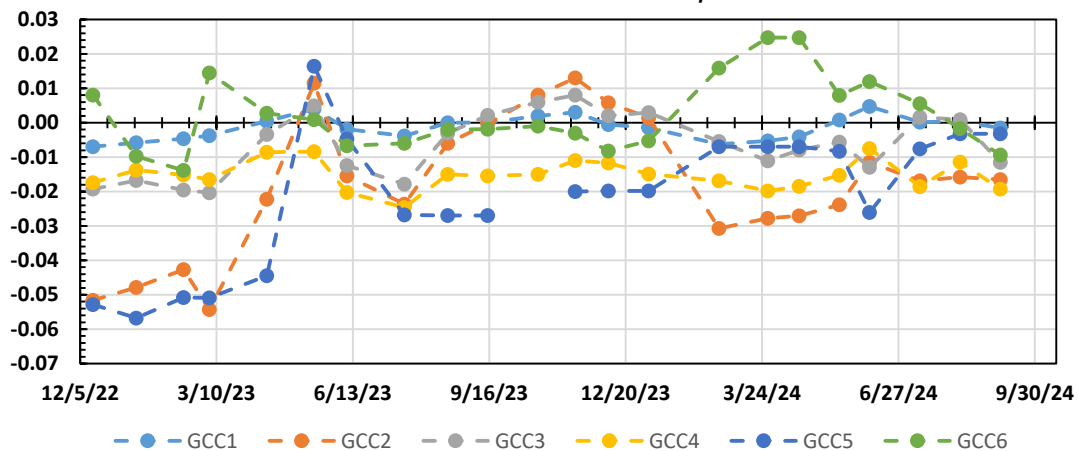
Horizontal Gradients - Shallow Zone



Horizontal Gradients - Intermediate Zone



Horizontal Gradients - Deep Zone



Positive horizontal gradient indicates an inward hydraulic gradient across the GWBW.



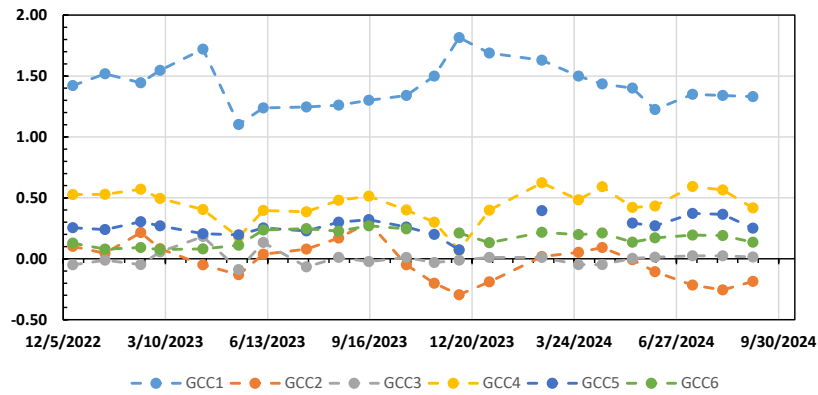
ATTACHMENT B-2

HORIZONTAL GRADIENTS

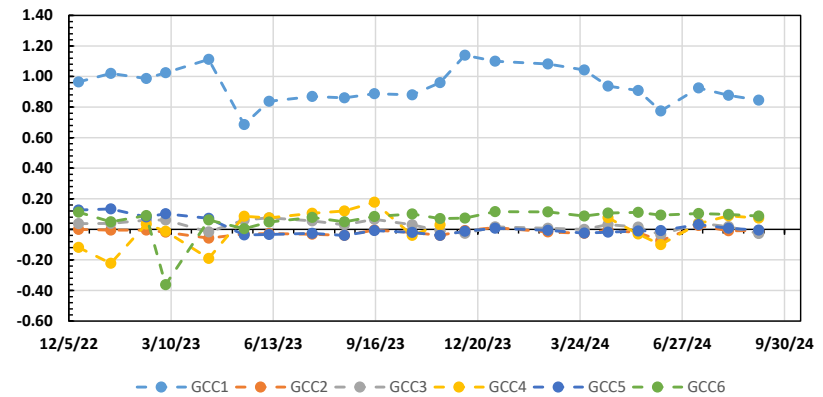
Attachment B-2

Vertical Gradients Summary: September 2024
Arkema Inc. Facility
Portland, Oregon

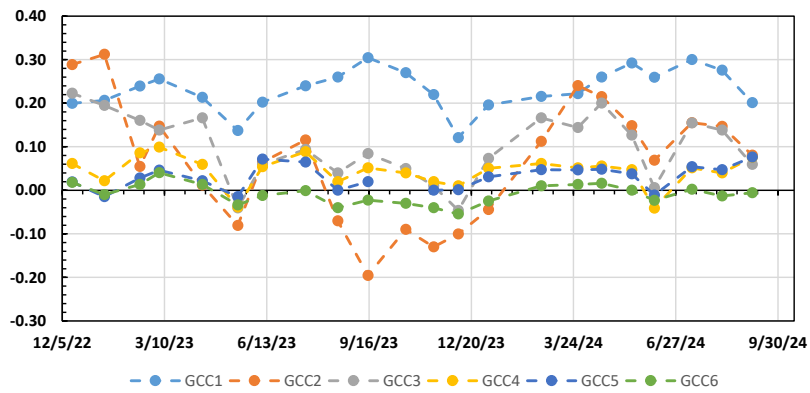
Vertical Gradients - Interior SZ-IZ



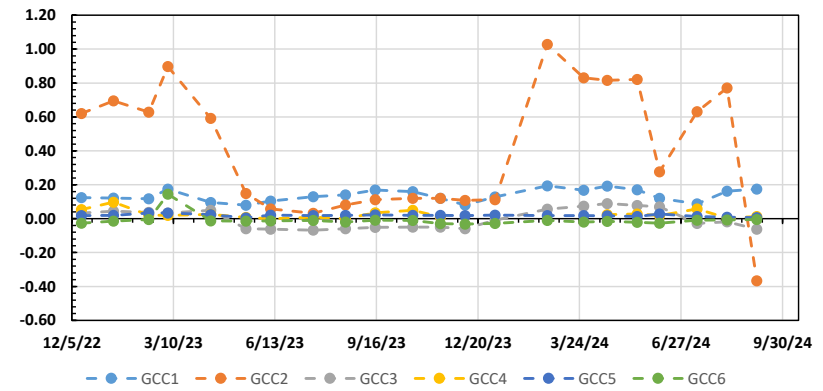
Vertical Gradients - Exterior SZ-IZ



Vertical Gradients - Interior IZ-DZ



Vertical Gradients - Exterior IZ-DZ





ATTACHMENT B-3

VERTICAL GRADIENTS

Attachment B-3

Water Levels and Horizontal Gradients Table

Arkema Inc. Facility

Portland, Oregon

Gradient Cluster	Well Pair Zone	Exterior Well	Water Elevation (ft NAVD88)	Interior Well	Water Elevation (ft NAVD88)	Horizontal Gradient (ft/ft)
GCC1	Shallow	PA-03	24.07	PA-04	24.54	-0.005
	Intermediate	PA-17iR ^M	10.79	PA-10i	11.37	-0.006
	Deep	PA-27d	9.66	PA-18d	9.85	-0.002
GCC2	Shallow	PA-03	8.20	PA-04	8.25	-0.001
	Intermediate	PA-17iR ^M	8.33	PA-10i	10.35	-0.028
	Deep	PA-27d	8.90	PA-18d	9.79	-0.017
GCC3	Shallow	PA-03	7.86	PA-04	11.81	-0.037
	Intermediate	PA-17iR ^M	8.21	PA-10i	11.65	-0.030
	Deep	PA-27d	9.01	PA-18d	10.48	-0.012
GCC4	Shallow	PA-03	8.84	PA-04	13.95	-0.051
	Intermediate	PA-17iR ^M	8.36	PA-10i	11.27	-0.033
	Deep	PA-27d	8.07	PA-18d	9.81	-0.019
GCC5	Shallow	PA-03	8.44	PA-04	13.71	-0.051
	Intermediate	PA-17iR ^M	8.48	PA-10i	11.34	-0.053
	Deep	PA-27d	8.23	PA-18d	8.40	-0.003
GCC6	Shallow	PA-03	11.19	PA-04	12.35	-0.021
	Intermediate	PA-17iR ^M	10.06	PA-10i	10.62	-0.010
	Deep	PA-27d	10.24	PA-18d	10.83	-0.009

Positive horizontal gradient indicates an inward hydraulic gradient across the GWBW.

Horizontal gradient calculated as (Exterior Elevation – Interior Elevation) / Horizontal distance.

* = anomalous groundwater elevation

** = horizontal gradient cannot be calculated due to anomalous elevation reading

ft NAVD88 = feet North American Vertical Datum of 1988

^M = manual groundwater elevation measurement



ATTACHMENT B-4

WATER LEVELS AND VERTICAL
GRADIENTS TABLE

Attachment B-4

Water Levels and Vertical Gradients Table Arkema Inc. Facility Portland, Oregon

Region	Pair	Gradient Cluster	Upper Well	Water Elevation (ft NAVD88)	Lower Well	Water Elevation (ft NAVD88)	Vertical Gradient (ft/ft)
Interior	SZ-IZ	GCC1	PA-04	24.54	PA-10i	11.37	1.33
		GCC2	PA-05	8.25	PA-11i	10.35	-0.18
		GCC3	PA-06	11.81	PA-12i	11.65	0.02
		GCC4	PA-28	13.95	PA-13i	11.27	0.42
		GCC5	PA-07	13.71	PA-14i	11.34	0.25
		GCC6	PA-08	12.35	PA-15i	10.62	0.14
	IZ-DZ	GCC1	PA-10i	11.37	PA-18d	9.85	0.20
		GCC2	PA-11i	10.35	PA-30d	9.79	0.08
		GCC3	PA-12i	11.65	PA-20d	10.48	0.06
		GCC4	PA-13i	11.27	PA-22d	9.81	0.08
		GCC5	PA-14i	11.34	PA-23d	8.40	0.08
		GCC6	PA-15i	10.62	PA-25d	10.83	-0.01
Exterior	SZ-IZ	GCC1	PA-03	24.07	PA-17iR ^M	10.79	0.85
		GCC2	MWA-2	8.20	MWA-8i	8.33	-0.01
		GCC3	MWA-69	7.86	MWA-66i	8.21	-0.03
		GCC4	MWA-19	8.84	MWA-34iR	8.36	0.07
		GCC5	MWA-47	8.44	PA-29i	8.48	0.00
		GCC6	PA-09	11.19	PA-16i	10.06	0.09
	IZ-DZ	GCC1	PA-17iR ^M	10.79	PA-27d	9.66	0.18
		GCC2	MWA-8i	8.33	PA-19d	8.90	-0.37
		GCC3	MWA-66i	8.21	PA-21d	9.01	-0.06
		GCC4	MWA-34iR	8.36	MWA-58d	8.07	0.01
		GCC5	PA-29i	8.48	PA-24d	8.23	0.01
		GCC6	PA-16i	10.06	PA-26d	10.24	0.00

Positive vertical gradient indicates an downward hydraulic gradient.

Vertical gradient calculated as (Upper Elevation – Lower Elevation) / Screen Midpoint distance.

* = anomalous groundwater elevation

** = vertical gradient cannot be calculated due to anomalous elevation reading

DZ = Deep Zone

ft NAVD88 = feet North American Vertical Datum of 1988

IZ = Intermediate Zone

^M = manual groundwater elevation measurement

SZ = Shallow Zone



ATTACHMENT C

PROJECT SCHEDULE

ID	Task Name	Duration	Start	Finish																												
					Q4	2024	Q1	Q2	Q3	Q4	2025	Q1	Q2	Q3	Q4	2026	Q1	Q2	Q3	Q4	2027	Q1	Q2	Q3	Q4	2028	Q1	Q2	Q3	Q4	2029	Q1
1	Quarterly GW Monitoring																															
2	4th Quarter 2023 Groundwater Monitoring	70 days	Mon 12/11/23	Fri 3/15/24																												
7	1st Quarter 2024 Groundwater Monitoring	4 days	Mon 2/26/24	Thu 2/29/24																												
8	Sample Wells	4 days	Mon 2/26/24	Thu 2/29/24																												
9	Obtain Analytical Data	1 day	Mon 4/1/24	Mon 4/1/24																												
10	Data Validation	1 day	Mon 4/15/24	Mon 4/15/24																												
11	Report Completed	1 day	Fri 6/7/24	Fri 6/7/24																												
12	2nd Quarter 2024 Groundwater Monitoring	81 days	Mon 6/10/24	Mon 9/30/24																												
13	Sample Wells	5 days	Mon 6/10/24	Fri 6/14/24																												
14	Obtain Analytical Data	1 day	Thu 6/27/24	Thu 6/27/24																												
15	Data Validation	1 day	Tue 7/30/24	Tue 7/30/24																												
16	Report Completed	1 day	Mon 9/30/24	Mon 9/30/24																												
17	Monthly Progress Reports	175 days	Thu 2/15/24	Tue 10/15/24																												
18	December 2023 MPR	1 day	Thu 2/15/24	Thu 2/15/24																												
19	January 2024 MPR	1 day	Fri 3/15/24	Fri 3/15/24																												
20	February 2024 MPR	1 day	Mon 4/15/24	Mon 4/15/24																												
21	March 2024 MPR	1 day	Wed 5/15/24	Wed 5/15/24																												
22	April 2024 MPR	1 day	Mon 6/17/24	Mon 6/17/24																												
23	May 2024 MPR	1 day	Mon 7/15/24	Mon 7/15/24																												
24	June 2024 MPR	1 day	Thu 8/15/24	Thu 8/15/24																												
25	July 2024 MPR	1 day	Mon 9/16/24	Mon 9/16/24																												
26	August 2024 MPR	1 day	Tue 10/15/24	Tue 10/15/24																												
27	Datagaps Workplan	175 days	Mon 4/1/24	Fri 11/29/24																												
28	Data Gaps Investigations	87 days	Mon 12/2/24	Tue 4/1/25																												
29	IRAM 1- Acid Plant Area Soil & GW ISS *	699 days	Mon 4/1/24	Thu 12/3/26																												
30	PDI Workplan Submittal	35 days	Mon 4/1/24	Fri 5/17/24																												
31	ODEQ Review	10 days	Thu 5/23/24	Wed 6/5/24																												
32	PDI Workplan Revisions	23 days	Wed 6/5/24	Fri 7/5/24																												
33	PDI Field Effort - Site Prep	15 days	Mon 6/17/24	Fri 7/5/24																												
34	PDI Field Effort - Soil Sampling Program	35 days	Mon 7/15/24	Fri 8/30/24																												
35	PDI Field Effort - DPT	25 days	Mon 10/7/24	Fri 11/8/24																												
36	Treatability Study Testing	122 days	Mon 9/2/24	Tue 2/18/25																												
37	Pre-final Design Report	23 days	Wed 2/19/25	Fri 3/21/25																												
38	ODEQ Review	20 days	Mon 3/24/25	Fri 4/18/25																												
39	Final Design Report	21 days	Mon 4/21/25	Mon 5/19/25																												
40	IRAM 1 Implementation (Summer/Fall 2025)	132 days	Mon 6/2/25	Tue 12/2/25																												
41	IRAM 1 Performance Monitoring	262 days	Wed 12/3/25	Thu 12/3/26																												
42	IRAM 2-Enhanced ISCR Perchlorate & CrVI In Chlorate Plant Area, if needed (Summer 2026 implementation)	261 days	Mon 9/15/25	Mon 9/14/26																												
43	IRAM 3-Remove Human Health Direct Contact Hot Spots, if needed (Summer 2028 implementation)	261 days	Mon 9/13/27	Mon 9/11/28																												
44	IRAM 4-Enhanced ISCR of Acid Plant Vicinity, if needed (Summer 2027 implementation)	207 days	Fri 12/4/26	Mon 9/20/27																												
Arkema Portland Monthly Progress Report Attachment C					<div><div>Task</div><div>Summary</div><div>Inactive Milestone</div><div>Split</div><div>Milestone</div></div> <div><div>Duration-only</div><div>Manual Summary Rollup</div><div>Manual Summary</div><div>Start-only</div><div>Finish-only</div><div>External Tasks</div><div>External Milestone</div><div>Deadline</div><div>Progress</div></div> <div><div>Manual Progress</div></div>																											
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