1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

T +1 503 488 5282
F +1 503 488 5142

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Ms. Katie Daugherty
Oregon Department of Environmental Quality
Northwest Region 28
700 NE Multnomah St, Suite 600
Portland, OR 97232

DATE
15 July 2024

SUBJECT
Quarter 2, 2024, Progress Report
(April through June 2024)
Arkema Inc. Portland Plant

REFERENCE
0732436.103

Dear Ms. Daugherty:

Environmental Resources Management, Inc. (ERM) is submitting this Quarterly Progress Report (QPR) on behalf of Legacy Site Services LLC (LSS) agent for Arkema Inc. (Arkema) to summarize Quarter 2, 2024, activities at the Arkema facility located at 6400 NW Front Avenue in Portland, Oregon.

Paragraph 8(G) of the Order on Consent Requiring Source Control Measures and Feasibility Study between the Oregon Department of Environmental Quality (ODEQ) and LSS, dated 31 October 2008, requires submittal of QPRs. The following progress report summarizes activities for Quarter 2, 2024 (April through June).

Weekly progress summaries for implementation of the stormwater and groundwater source control measures (SCM) have been developed over the duration of the project. The reports for Quarter 2, 2024, are included as Attachment 1 to this QPR for reference, and activities documented in the reports are not duplicated in this letter.

Actions Taken Quarter 2, 2024 (April through June)

- 7 April 2024: The GWET system was shut down for 11 hours due to a failed pump causing an automatic shutoff.
- 9 April 2024: ERM received via certified mail a warning letter with opportunity to correct from ODEQ Hazardous Waste.
- 10 April 2024: The GWET system was shut down for 27 hours due to pH probe maintenance.
- 19 April 2024: ERM, on behalf of LSS, submitted the QPR for Quarter 1, 2024, to the ODEQ.
- 19 April 2024: ERM, on behalf of LSS, submitted the February 2024 Monthly Progress Report (MPR), to the ODEQ.
- 19 April 2024: ERM, on behalf of LSS, submitted the February 2024 monthly Discharge Monitoring Report (DMR) for National Pollutant Discharge Elimination

System (NPDES) permit compliance monitoring of the Groundwater Extraction and Treatment (GWET) system.

- 19 April 2024: ERM, on behalf of LSS, submitted the March 2024 monthly and Quarter 1 quarterly DMR for the performance monitoring of the stormwater SCM, including supplemental Copper Biotic Ligand Model (BLM) and Toxics data.
- 29 April 2024: ERM, on behalf of LSS, shut down the GWET system to perform a carbon change-out at carbon vessel CT-2. The ODEQ was notified of the shutdown, and the GWET system was restarted on 2 May 2024.
- 3 May 2024: The ODEQ provided comments regarding the Quarter 4, 2023 Groundwater Monitoring Report.
- 4 May 2024: ERM, on behalf of LSS, responded to the 9 April ODEQ Hazardous Waste warning letter with opportunity to correct.
- 8 May 2024: The GWET system was shut down for 1 hour due to a failed level alarm.
- 8 May 2024: Representatives from ERM and LSS had a biweekly progress call with ODEQ regarding IRAM #1.
- 8 May 2024: ERM, on behalf of LSS, sent meeting minutes from the IRAM #1 call to ODEQ.
- 13 May 2024: The ODEQ provided comments on 2023 SEE Report.
- 16 May 2024: ERM, on behalf of LSS, submitted the March 2024 monthly Discharge Monitoring Report (DMR) for National Pollutant Discharge Elimination System (NPDES) permit compliance monitoring of the Groundwater Extraction and Treatment (GWET) system.
- 16 May 2024: ERM, on behalf of LSS, submitted the April 2024 monthly DMR for the performance monitoring of the stormwater SCM, including supplemental Copper BLM data.
- 17 May 2024: ERM, on behalf of LSS, submitted the March 2024 Monthly Progress Report (MPR), to the ODEQ.
- 17 May 2024: ERM, on behalf of LSS, submitted the first draft of the In Situ Stabilization Pre-Design Investigation Work Plan to the ODEQ.
- 20 May 2024: The ODEQ requested additional figures that were missing from the Trespass Contamination Determination Memo.
- 22 May 2024: Representatives from ERM and LSS had a biweekly progress call with the ODEQ regarding IRAM #1.
- 3 June 2024: ERM sent meeting minutes from the 22 May call regarding IRAM #1.
- 5 June 2024: ERM, on behalf of LSS, shut down the GWET system for 2 hours due to conveyance line maintenance.
- 6 June 2024: Representatives from ERM and LSS had a biweekly progress call with the ODEQ regarding IRAM #1.

- 10 June 2024: ERM, on behalf of LSS, began the Quarter 2, 2024, groundwater monitoring event. The event was completed on 14 June 2024.
- 12 June 2024: ERM, on behalf of LSS, submitted the Quarter 1, 2024, Groundwater Monitoring Report to the ODEQ.
- 14 June 2024: ERM, on behalf of LSS, submitted the April 2024 DMR for NPDES permit compliance monitoring of the GWET system.
- 14 June 2024: ERM, on behalf of LSS, submitted the May 2024 monthly DMR for the performance monitoring of the stormwater SCM, including supplemental Copper BLM data.
- 19 June 2024: ERM, on behalf of LSS, submitted the April 2024 Monthly Progress Report (MPR), to the ODEQ.
- 20 June 2024: ERM, on behalf of LSS, submitted additional requested documents referenced in the PDI WP to the ODEQ.
- 21 June 2024: ERM, on behalf of LSS, sent the meeting minutes from the 6 June meeting regarding IRAM #1.
- 22 June 2024: The GWET system was shut down, for 30 minutes, due to fouled bag filters.
- 26 June 2024: Representatives from ERM and Retia had a biweekly progress call with ODEQ regarding IRAM #1.
- 28 June 2024: ERM, on behalf of LSS, resubmitted the Trespass Contamination Determination Memo to the ODEQ.

Actions Scheduled for Quarter 3, 2024 (July through September)

- The QPR for Quarter 2, 2024, will be prepared and submitted.
- LSS will continue to monitor discharges from the stormwater SCM and submit monthly monitoring reports as well as supplemental effluent toxics data and Copper BLM data to the ODEQ.
- LSS will continue to monitor discharges from the groundwater SCM and submit monthly DMRs to the ODEQ.
- LSS will continue optimization of the GWET system as part of the implementation of the groundwater SCM and in accordance with the GWET System Corrective Action Plan and associated updates.
- LSS will conduct routine maintenance on the stormwater SCM.
- LSS will submit monthly status reports consistent with the Performance Monitoring Plan and per the ODEQ letter DEQ Review "Draft GWET System Effectiveness Evaluation Report" (SEE) received on 31 May 2019.
- LSS will conduct groundwater monitoring for Quarter 3, 2024.
- LSS will submit the Quarter 2, 2024, Groundwater Monitoring Report.

- LSS will submit the Revised In Situ Stabilization Pre-Design Investigation Workplan.
- LSS will begin implementation of the In Situ Pre-Design Investigation.

Summary of Validated Data

- Weekly compliance and quarterly characterization sampling of the GWET system data were received and validated. These data were presented in the respective monthly DMRs.
- Quarter 1, 2024, groundwater monitoring data were reviewed and validated during Quarter 2, 2024. These data are included in Attachment 2 and are presented in the Quarterly Monitoring Report for Quarter 1, 2024.
- Quarter 2, 2024, groundwater monitoring event data were collected. These data will be reviewed, validated, and presented in the Quarterly Groundwater Monitoring Report for Quarter 2, 2024.

Problems Experienced During Quarter

Specific problems experienced during the GWET system optimization and operation are documented in the attached weekly progress reports. No other problems were experienced during Quarter 2, 2024.

Closing

If you have questions or comments pertaining to this progress report, please contact us at (503) 488-5282.

Sincerely,

Brendan Robinson
Partner

Avery Soplata
Project Manager

Attachments

cc: Todd Slater, LSS
Laura Hanna, USEPA
Matt Stock, Joyce Ziker Parkinson
Lance Peterson, CDM
Karen Traeger, LSS
David Livermore, Integral

ATTACHMENT 1 QUARTER 2, 2024, WEEKLY PROGRESS REPORTS

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

T +1 503 488 5282
F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 21 June 2024 to 27 June 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 99 percent due to high tank levels causing the wellfield to shut down for 30min. The average system influent flow rate for the week was 49.0 gpm. Recovery / Extraction wells RW-23, RW-25, EW-03, EW-04, EW-05, EW-08, EW-10, EW-11, and EW-14 were in operation during the reporting period. The total influent volume for the week was 480,000 gallons or 79 percent of the target capture objective of 60 gpm at 100 percent uptime.

- Friday, 21 May 2024: Operators performed general O&M and cycled the filter press. Additional staff onsite for PDI investigation work. Calibrated transducer at PA-25d. Repaired transducer at monitoring well RW-15, there was a loose wire connection. Backwashed carbon vessel CT-1. Recirculated low pH water in Flat Bottom Tank (FBT) and added sodium bicarbonate to pH 7.8.
- Saturday, 22 June 2024: Operator performed general O&M and cycled the filter press. Early morning alarm from fouled bag filters caused tank T-5 to fill up resulting in the wellfield to shut down. Operator restarted remotely and the wellfield was off for 30 min. Calibrated transducers at RW-23, EW-13, and PA-10i.
- Sunday, 23 June 2024: Operator performed general O&M and cycled the filter press.
- Monday, 24 June 2024: Operators performed general O&M and cycled the filter press. Additional staff onsite for PDI investigation work. Transferred low pH water from Frac tank to flat bottom tanks to be neutralized with sodium bicarbonate. Transferred balanced water from FBT to GWET-INF at 1 gpm. Changed out ½-hp motor and pump at Extraction Well EW-08 due to motor overload fault.
- Tuesday, 25 June 2024: Operators performed general O&M and cycled the filter press. Northstar representative onsite to perform jar tests and confirm operators results. Transferred balanced water from FBT to GWET-INF at 1 gpm. Changed out pump from Extraction Well EW-11 and recalibrated the transducer. Pulled pump from EW-12 to prepare for line jetting and camera inspection. Transferred balanced water from FBT to GWET-INF at 1 gpm.
- Wednesday, 26 June 2024: Operators performed general O&M and cycled the filter press. Operator started the auto-sampler for collection of the quarterly NPDES compliance samples. Transferred balanced water from FBT to GWET-INF at 1 gpm.

Johnson Controls were onsite troubleshooting the security cameras, updated the firmware and will return Friday 6/28.

- Thursday, 27 June 2024: Operators performed general O&M and cycled the filter press. Collected weekly compliance samples and sent to Eurofins. Turned off Trench 5 (EW-10) due to high perchlorate levels and help the FBR. Adjusted the underflow timer for pump P-PS-1 at the Plate Separator (PS-1) to 290/300 sec to increase the sludge bed. Turned on EW-02 on manual.

Recovery / Extraction Well Status

- The current influent flow rate is **45 gpm,** with Recovery / Extraction wells RW-23, RW-25, EW-03, EW-04, EW-05, EW-08, EW-11, and EW-14 in operation.
- EW-01: Off since 6/12, totalizer malfunctioning, operators to troubleshoot.
- EW-02: Totalizer malfunctioning, operators to troubleshoot. Manually turned on 6/27.
- EW-06: Off since 6/8.
- EW-07: Off since 6/7.
- EW-08: Motor overload fault, changed out the 1/2hp motor and pump.
- EW-09: Off since 6/6.
- EW-10: Off since 6/27 due to high perchlorate levels.
- EW-11: Changed out the 1/2hp pump, 6/25.
- EW-12: Pump removed for camera inspection and line jetting.
- EW-13: Off since 5/14.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.

Transducer Status

- MWA-34iR: To be recalibrated following survey.
- RW-15: Loose wire repaired, 6/21.
- PA-25d: Recalibrated transducer, 6/21.
- PA-10i: Recalibrated transducer, 6/22

Sampling

- LGAC check samples were not collected this week.
- Weekly compliance samples collected 27 June 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

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F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 14 June 2024 to 20 June 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100 percent. The average system influent flow rate for the week was 54.2 gpm. Recovery / Extraction wells RW-23, RW-25, EW-03, EW-04, EW-05, EW-08, EW-10, EW-11, and EW-14 were in operation during the reporting period. The total influent volume for the week was 482,240 gallons or 80 percent of the target capture objective of 60 gpm at 100 percent uptime.

- Friday, 14 May 2024: Operators performed general O&M and cycled the filter press. Completed quarterly groundwater sampling event. Operator decontaminated autosampler, changed out the tubing, and started the auto-sampler for collection of the weekly NPDES compliance samples. Additional staff onsite for PDI investigation work.
- Saturday, 15 June 2024: Operator performed general O&M and cycled the filter press. Compliance samples were collected and to be sent to Eurofins on Monday, 17 June.
- Sunday, 16 June 2024: Operator performed general O&M and cycled the filter press.
- Monday, 17 June 2024: Operators performed general O&M and cycled the filter press. Telluric onsite for vegetation removal event. Collected samples at FBR-INF, FBR-EFF, and LGAC-INF and sent to ALS to be tested for perchlorate. Additional staff onsite for PDI investigation work.
- Tuesday, 18 June 2024: Operators performed general O&M and cycled the filter press. Telluric onsite for vegetation removal event. Collected samples at GWET-INF, EW-03, EW-05, EW-08, EW-10, EW-11, and EW-14 to be tested for perchlorate. Univar onsite to batch caustic mini-bulk. Northstar onsite to batch coagulant mini-bulk. Staff mobilized to Scappoose Wastewater Treatment Plant to obtain Waste Activated Sludge (WAS) and transferred it to the FBR. Additional staff onsite for PDI investigation work. Transferred totes of development water into a dewatering box.
- Wednesday, 19 June 2024: Operators performed general O&M and cycled the filter press. Telluric onsite to complete vegetation removal event. Operator started the auto-sampler for collection of the quarterly NPDES compliance samples.

Redeployed 1-hp pump at Recovery Well RW-23. Additional staff onsite for PDI investigation work. Continued transferring totes of development water into a dewatering box. Performed jar tests on the Frac tank water. Good settling at 10:1 dilution with GWET-INF water, pH @7.5, 330 ppm of M-1883, 1.2 ppm of EA-230 polymer, iron at 0.79 mg/L in supernate. With pH @ 9.0, 380 ppm M-1883, and 1.2 ppm of EA-230 polymer, iron at 0.23 mg/L.

- Thursday, 20 June 2024: Operators performed general O&M and cycled the filter press. Collected quarterly compliance samples and sent to Eurofins. Started Extraction Well EW-11. Transferred low pH water from Frac tank to flat bottom tanks to be neutralized with sodium bicarbonate. Additional staff onsite for PDI investigation work.

Recovery / Extraction Well Status

- The current influent flow rate is **60 gpm,** with Recovery / Extraction wells RW-23, RW-25, EW-03, EW-04, EW-05, EW-08, EW-10, EW-11, and EW-14 in operation.
- EW-01: Off since 6/12, process high iron groundwater at low flow on 6/24.
- EW-02: Off due to high iron in groundwater.
- EW-06: Off since 6/8.
- EW-07: Off since 6/7.
- EW-09: Off since 6/6.
- EW-11: Off since 6/13. Restarted 6/20.
- EW-13: Off since 5/14.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: Redeployed 1-hp pump, 6/19.

Transducer Status

- MWA-34iR: To be recalibrated following survey.
- RW-15: Transducer to be replaced.

Sampling

- FBR-INF, FBR-EFF, and LGAC-INF samples collected 17 June 2024 and sent to ALS.
- Perchlorate samples from EWs collected 18 June 2024 and sent to Eurofins.
- FBR samples collected 19 June 2024 and sent to Microbial Insights.
- Quarterly compliance samples collected 20 June 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

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F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 7 June 2024 to 13 June 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100 percent. The average system influent flow rate for the week was 49.4 gpm. Recovery / Extraction wells RW-25, EW-01, EW-03 through EW-10, EW-11, EW-12, and EW-14 were in operation during the reporting period. The total influent volume for the week was 435,800 gallons or 72 percent of the target capture objective of 60 gpm at 100 percent uptime.

- Friday, 7 May 2024: Operators performed general O&M and cycled the filter press. Staff performed June water level event, observed MWA-58d monument shifted after the installation of monitoring well MWA-34iR last week. Recalibrated PA-05 and PA-19d. Removed the following transducers to prepare for groundwater sampling event next week; PA-16i, PA-26d, PA-08, PA-25d, PA-15I, PA-09, PA-23d, PA-24d, MWA-58d, PA-22d, PA-03, PA-17iR, PA-27d, PA-04, PA-10, PA-18d, PA-20d, PA-21d, PA-19d, and P0-30d. Lowered transducer at EW-12 and recalibrated. Dewatered outside flat bottom tank containing neutralized water from Trench 1 into tank T-7. Trench 1 pH @ 6.16 S.U. Manually backwashed all three pressure filters throughout the day. Turned on Extraction Wells from Trenches 2, 3, and 4 and achieved up to 70gpm. S. Lucas adjusted level controls in the PLC.
- Saturday, 8 June 2024: Operator performed general O&M and cycled the filter press. Dewatered outside flat bottom tank containing neutralized water from Trench 1 into tank T-7. Backwashed carbon vessels CT-1 and CT-2. S. Lucas adjusted level controls for EWs in the PLC.
- Sunday, 9 June 2024: Operator performed general O&M and cycled the filter press. Increased phosphoric acid pump CFP-6 to 80% stroke length from 70%. Placed plate separator (PS-1) underflow pump P-PS-1 on manual due to solids buildup in PS-1. Started Extraction Well EW-01 through conveyance line to GWET plant.
- Monday, 10 June 2024: Operators performed general O&M and cycled the filter press. Staff begun quarterly groundwater sampling event. Collected quarterly process check samples. Changed backwash timer to 3-hrs from 2-hrs. Drained totes from well development into dewatering box. Rotated pumps P-2 to P-1 and P-9 to P-10.
- Tuesday, 11 June 2024: Operators performed general O&M and cycled the filter press. Continued quarterly groundwater sampling event. Telluric onsite for

vegetation removal event. Cleaned tank T-3 turbidimeter. Placed plate separator (PS-1) underflow pump P-PS-1 back in Auto. Increased the acetic acid pump CFP-8 from 9% to 10%. PS-1 @ 0.81 NTU with 0.53 mg/L of iron. Conducted jar tests on Precipitate Reactor (PR-1) to determine correct chemical dosages. Determined 335 ppm of M-1883 coagulant and 1.4 ppm from 1.2 ppm of EA-230 polymer are the correct dosages. Operator documented pressure reading from the shallow cleanout location and Extraction Wells. S. Lucas adjusted level controls for EWs in the PLC. Repaired monitoring well monument at MWA-58d.

- Wednesday, 12 June 2024: Operators performed general O&M and cycled the filter press. Operator responded to early morning turbidity alarm for T-3 and arrived on site to check on the GWET plant. Continued quarterly groundwater sampling event. Stopped Extraction Well EW-01 through conveyance line to GWET plant. Rewired transducers MWA-34iR, MWA-19, and MWA-58d. Operators mobilized to Scappoose Wastewater Treatment Plant to obtain Waste Activated Sludge (WAS) and transferred it to the FBR due to higher-than-normal perchlorate results and help with the FBR health. Pulled pump from Extraction Well EW-04 to investigate motor overload fault. S. Lucas adjusted level controls for EWs in the PLC.
- Thursday, 13 June 2024: Operators performed general O&M and cycled the filter press. Continued quarterly groundwater sampling event. Telluric onsite to continue with vegetation removal event. Tidewater Environmental Services picked up two iron sludge boxes (2 and 4) for transportation to the Roosevelt Landfill Disposal facility. Recirculated 40 gpm from tanks T-5 to T-3. Redeployed Extraction Well EW-04 with a new 1-hp pump/motor/cable and restarted. S. Lucas adjusted level controls for RW-25 in the PLC.

Recovery / Extraction Well Status

- The current influent flow rate is **60 gpm,** with Recovery / Extraction wells RW-25, EW-03, EW-04, EW-05, EW-08, EW-10, and EW-14 in operation.
- EW-01: Off since 6/12, due to high iron in groundwater. pH @ 6.1 S.U.
- EW-02: Off due to high iron in groundwater. pH @ 6.1 S.U.
- EW-04: Swapped out ½-hp pump/motor/cable with new 1-hp pump/motor/cable.
- EW-06: Off since 6/8.
- EW-07: Off since 6/7.
- EW-09: Off since 6/6.
- EW-11: Off since 6/13.
- EW-13: Off since 5/14.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: 1-HP pump to be redeployed.

Transducer Status

- MWA-34iR: Transducer rewired and back in service 6/12.
- MWA-19: Transducer rewired and back in service 6/12.
- MWA-58d: Transducer rewired and back in service 6/12.
- RW-15: Transducer to be replaced.

Sampling

- LGAC check samples not collected this week.
- Quarterly process check samples collected 10 June 2024 and sent to Eurofins
- Compliance samples to be collected 15 June 2024 and sent to Eurofins on 17 June 2024.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

T +1 503 488 5282
F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 31 May 2024 to 6 June 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously except for a 2-hr shutdown of the wellfield to switch from cleaning the intermediate conveyance line to the shallow conveyance line. Uptime for the reporting period was 99 percent. The average system influent flow rate for the week was 26.3 gpm. Recovery / Extraction wells RW-25, EW-03 through EW-10, EW-12, and EW-14 were in operation during the reporting period. The total influent volume for the week was 239,520 gallons or 24 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 31 May 2024: Operators performed general O&M and cycled the filter press. Cascade Drilling was onsite and completed work at MWA-34iR and begin redeveloping intermediate monitoring wells, completing RW-19i. Groundwater from Trench 1 (Extraction Wells EW-01+EW-02) was transferred to frac tank, pH was at 4.14 S.U. Removed and cleaned plumbing from EW-09 and EW-11 vaults. Replaced and recalibrated transducer at PA-06. Repaired plumbing at EW-08.
- Saturday, 1 June 2024: Operator performed general O&M. Transferred groundwater from Trench 1 to frac tank.
- Sunday, 2 June 2024: Operator performed general O&M. Transferred groundwater from Trench 1 to frac tank. Drained the intermediate conveyance line to prepare for conveyance line cleaning.
- Monday, 3 June 2024: Operators performed general O&M and cycled the filter press. Collected LGAC check samples and sent to ALS. Cascade Drilling onsite to redevelop intermediate monitoring wells, completed RW-26i and RW-21i. S. Lucas adjusted level controls in the PLC for Extraction wells EW-03 through EW-07. Transferred groundwater from Trench 1 to frac tank, pH at 4.50 S.U. Cleaned laterals in Trenches 5, 6, and 7. Worked on rearranging vault plumbing in EW-13 and EW-14.
- Tuesday, 4 June 2024: Operators performed general O&M and cycled the filter press. Cascade Drilling onsite to redevelop intermediate monitoring wells, completed RW-16i. Unable to redevelop RW-13i due to overhead power line. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. Telluric onsite to start the conveyance line cleaning on the intermediate piping. Operators worked on reconfiguring plumbing in vaults EW-13 and EW-14,

redeployed clean pumps, and cleaned plumbing at EW-09 through EW-12. Transferred groundwater from Trench 1 to frac tank, pH at 4.80 S.U. Continued to work on rearranging vault plumbing in EW-13 and EW-14.

- Wednesday, 5 June 2024: Operators performed general O&M and cycled the filter press. Compliance samples were collected and sent to Eurofins. Cascade Drilling onsite to redevelop intermediate monitoring wells, completed RW-11i and RW-09i. Transferred groundwater from Trench 1 to frac tank, pH at 4.80 S.U. Telluric onsite to complete conveyance line cleaning on the intermediate piping and began cleaning the shallow pipe. Wellfield was shut down for 2-hrs to prepare the shallow line. Started Extraction Wells EW-14, EW-12, EW-10, and EW-09. Cleaned lateral piping in Trenches 1, 2, and 3. Completed rearranging vault plumbing in EW-13 and EW-14, added 1" hoses to replace some of the 90-degree PVC elbows.
- Thursday, 6 June 2024: Operators performed general O&M and cycled the filter press. Cleaned lateral piping in Trench 3 and 4. Cascade Drilling onsite to redevelop intermediate monitoring wells, completed RW-06i and PA-12i. Redeployed clean pumps in EW-03, EW-04, EW-05, EW-06, EW-07, and EW-08.

Recovery / Extraction Well Status

- The current influent flow rate is **20 gpm,** with Extraction / Recovery wells on the intermediate line EW-10, EW-12, and EW-14 are in operation. The shallow line wells should be operational tomorrow morning (6/7).
- EW-01 & EW-02: Continued to transfer low pH groundwater to Frac tank.
- EW-04: Redeployed clean pump and cleaned vault plumbing.
- EW-06: Redeployed clean pump and cleaned vault plumbing.
- EW-07: Redeployed clean pump and cleaned vault plumbing.
- EW-08: Repaired y-strainer. Redeployed clean pump and cleaned vault plumbing.
- EW-09: Redeployed clean pump and cleaned vault plumbing.
- EW-10: Redeployed clean pump and cleaned vault plumbing.
- EW-11: Redeployed clean pump and cleaned vault plumbing.
- EW-12: Redeployed clean pump and cleaned vault plumbing.
- EW-13: Redeployed clean pump and reconfigured vault plumbing.
- EW-14: Redeployed clean pump and reconfigured vault plumbing.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: 1-HP pump to be redeployed.

Transducer Status

- MWA-34iR: Transducer to be rewired and surveyed.
- MWA-19: Transducer to be rewired.
- MWA-58d: Transducer to be rewired.
- PA-06: Replaced and recalibrated transducer, 5/31.
- PA-12i: Redeveloped

Sampling

- LGAC check samples collected 3 June 2024 and sent to ALS.
- Compliance samples collected 5 June 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

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F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 24 May 2024 to 30 May 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100 percent. The average system influent flow rate for the week was 35.3 gpm. Recovery / Extraction wells RW-25, EW-03 through EW-07, EW-10, EW-12, and EW-14 were in operation during the reporting period. The total influent volume for the week was 293,520 gallons or 29 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 24 May 2024: Operators performed general O&M and cycled the filter press. Backwashed carbon vessels CT-1. Received two rental AP4 pumps from Pine Environmental. Assembled air manifold for the Hydropuls event. Installed an air dampener at P-PS-9 to help with vibrating pipes. Recirculated water from EW-02 to Trench 1 monitoring well MWA-83. Procured 3000 lb of NaHCO3 (sodium bicarbonate) to neutralize Trench 1 groundwater from pH of 3.25 to 6.5 S.U. Recirculated 5000 gal of low pH water utilizing outside flat bottom tank and 250 gal batch tank to add NaHCO3. Transferred 20 gpm water from flat bottom tank to GWET-INF and observed 247 mg/L of iron with GWET-INF at 40gpm. Transferred 10gpm water from flat bottom tank to GWET-INF and observed 165mg/L of iron with GWET-INF at 30 gpm. Normal operational GWET-INF iron at 8-15mg/L. Plan to conduct jar tests over the weekend.
- Saturday, 25 May 2024: Operator performed general O&M and cycled the filter press.
- Sunday, 26 May 2024: Operator performed general O&M. Attempt to filter out the iron from the outside flat bottom tank with Trench 1 groundwater through 0.5 um bag filters failed. Operators performed jar tests on groundwater from Trench 1 with failed results.
- Monday, 27 May 2024: Operators performed general O&M and cycled the filter press. Operators continued to perform jar tests on diluted groundwater from Trench 1 with failed results.
- Tuesday, 28 May 2024: Operators performed general O&M and cycled the filter press. Cascade Drilling onsite to abandon and replace monitoring well MWA-34i. Wasted tank T-9 into dewatering box #5 then dewatered box #5 into tank T-10. Replaced the salt bridge on the ORP probe at FBR-REC and recalibrated. Received

one rental AP4 pump from Field Environmental. Recirculated water from EW-02 to Trench 1 monitoring well MWA-83.

- Wednesday, 29 May 2024: Operators performed general O&M and cycled the filter press. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. Cascade Drilling onsite and install new monitoring well MWA-34iR. Shannon and Wilson onsite and performed Hydropuls redevelopment at Extraction Wells EW-07, EW-09, and EW-11. All 3 rental AP4 pumps failed, operators used client owned AP4 pump. Initial pulse at each location removed considerable silt and possible biofouling from the Extraction Wells. Significant biofouling observed at Trench 5 (EW-09). Hydropuls redevelopment did not occur at Trench 1 (EW-01) due to concerns with groundwater pH of 3.75 S.U. Recirculated water from EW-02 to Trench 1 monitoring well MWA-83.
- Thursday, 30 May 2024: Operators performed general O&M and cycled the filter press. Compliance samples were collected and sent to Eurofins. Cascade Drilling onsite and abandoned monitoring well MWA-34i, observed corrosion on the pipe at 17-ft. Disassembled and cleaned plumbing from Extraction Well EW-12.

Recovery / Extraction Well Status

- The current influent flow rate is **30 gpm,** with Extraction / Recovery wells EW-03, EW-04, EW-05, EW-06, EW-10, EW-14 in operation.
- EW-01 & EW-02: Redeveloped with glycolic acid. Low pH water in Trench 1. Redeploy pump at EW-01 and transfer groundwater to Frac tank 5/31.
- EW-04: Operating but Motor Overload Fault at higher frequency.
- EW-06: Operating but Motor Overload Fault at higher frequency.
- EW-07: Off since 5/28, completed Hydropuls redevelopment. Redeploy pump 5/31.
- EW-08: Off since 5/17, y-strainer union cracked and leaking, to be repaired.
- EW-09: Off since 5/4, completed Hydropuls redevelopment. Redeploy pump 5/31.
- EW-11: Off since 5/14, completed Hydropuls redevelopment. Redeploy pump 5/31.
- EW-12: Disassemble and cleaned plumbing.
- EW-13: Observed check valve leaking, to be repaired.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: 1-HP pump to be redeployed.

Transducer Status

- MWA-34i: Damaged well casing. Completed abandonment and replacement.
- MWA-34iR to be surveyed next week.

Sampling

- LGAC check samples were not collected this week.
- Compliance samples collected 30 May 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

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F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 17 May 2024 to 23 May 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100 percent. The average system influent flow rate for the week was 40.4 gpm. Recovery / Extraction wells RW-25, EW-03 through EW-08 and EW-10, EW-11, EW-12, and EW-14 were in operation during the reporting period. The total influent volume for the week was 384,090 gallons or 38 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 17 May 2024: Operators performed general O&M and cycled the filter press. Backwashed carbon vessels CT-1. Staff performed May water level event and transducer calibrations. Staff recorded pressure gauges on the shallow conveyance line cleanouts and extraction well vaults. Wasted tank T-9 into dewatering box #5 then dewatered box #5 into tank T-10. Observed extraction well EW-08 y-strainer union cracked, stopped EW-08 and started EW-07. Dewatered EW-08 vault.
- Saturday, 18 May 2024: Operator performed general O&M and cycled the filter press. Updated transducers calibrations in the PLC. Received alarm for EW-13 vault level, mobilized to well and observed flooded vault with check valve leaking. Operator shut off the valve to conveyance line at EW-13. Repaired loose wire at PA-26d.
- Sunday, 19 May 2024: Operator performed general O&M and cycled the filter press. Observed that Recovery Well RW-25 affecting Extraction Well EW-07 flow rate resulting in LOAD_FLT alarm, restarted EW-07 and stopped RW-25.
- Monday, 20 May 2024: Operators performed general O&M and cycled the filter press. Installed new head on the YSI meter with ammonium, D.O., pH, and temp/ conductivity probes. Deployed ½-hp pump at EW-01. Injected approximately 4000 lb of glycolic acid (or 3000 gal diluted with hydrant water) into monitoring well MWA-83 to chemically redevelop Trench 1.
- Tuesday, 21 May 2024: Operators performed general O&M and cycled the filter press. Trench 1 pH @ 5.95 S.U., added remaining 200 gal of diluted glycolic acid to MWA-83 and continued to recirculate. Trench 1 pH @ 3 S.U. end of day. Replaced the ORP probe at FBR-REC and recalibrated.
- Wednesday, 22 May 2024: Operators performed general O&M and cycled the filter press. Operator started the auto-sampler for collection of the weekly NPDES

compliance samples. Trench 1 pH @ 3 S.U., continued to recirculate. Started extraction well EW-02 at low flow through the conveyance line to the GWET plant. GWET-INF @ pH 6.06 S.U.

- Thursday, 23 May 2024: Operators performed general O&M and cycled the filter press. Compliance samples were collected and sent to Eurofins. Trench 1 pH @ 3 S.U. Discharged low pH water from EW-01 to outside flat bottom tank for pH adjustment.

Recovery / Extraction Well Status

- The current influent flow rate is **35 gpm,** with Extraction / Recovery wells EW-03, EW-04, EW-05, EW-06, EW-07, EW-10, EW-12, EW-14 in operation.
- EW-01: Redeveloped with glycolic acid. Installed clean 1/2-Hp pump. Plan to pull pump for Hydropuls redevelopment.
- EW-02: Redeveloped with glycolic acid. Started 5/22 at low flow rate.
- EW-04: Operating but Motor Overload Fault at higher frequency.
- EW-06: Operating but Motor Overload Fault at higher frequency.
- EW-07: Started 5/17, Plan to pull pump for Hydropuls redevelopment.
- EW-08: Off since 5/17, y-strainer union cracked and leaking, to be repaired.
- EW-09: Off since 5/4. Plan to pull pump for Hydropuls redevelopment.
- EW-11: Off since 5/14. Plan to pull pump for Hydropuls redevelopment.
- EW-13: Observed check valve leaking, to be repaired.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: 1-HP pump to be redeployed.

Transducer Status

- MWA-34i: Damaged well casing. Scheduled next week for abandonment and replacement.
- Recalibrated the following transducers: PA-06, PA-13i, PA-15i, PA-16i, PA-24d, PA-25d, PA-26d, RW-06i, RW-08, RW-14, RW-17, RW-21i, RW-23
- Repaired loose wire at PA-26d on 5/18.

Sampling

- LGAC check samples were not collected this week.
- Compliance samples collected 23 May 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

T +1 503 488 5282
F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 10 May 2024 to 16 May 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100 percent. The average system influent flow rate for the week was 44.4 gpm. Recovery / Extraction wells RW-25, EW-03 through EW-08 and EW-10 through EW-14 were in operation during the reporting period. The total influent volume for the week was 450,190 gallons or 45 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 10 May 2024: Operators performed general O&M and cycled the filter press.
- Saturday, 11 May 2024: Operator performed general O&M and cycled the filter press. Backwashed carbon vessels CT-1 and CT-2.
- Sunday, 12 May 2024: Operator performed general O&M and cycled the filter press.
- Monday, 13 May 2024: Operators performed general O&M and cycled the filter press. Mobilized to extraction well EW-13 and swapped out fouled pump and cleaned the plumbing. EW-13 receiving Motor Overload Fault, suspect issue with the pump.
- Tuesday, 14 May 2024: Operators performed general O&M and cycled the filter press. Swapped out fouled 1/2-hp pump at EW-03 with 1-hp pump from EW-01. Operator changed pump settings on Connected Components Workbench for EW-03 but was no increase in flow rate. Cochran onsite and performed site walk for MCC-1 utility relocation. Investigated EW-13 pump and found that it was reassembled incorrectly. Mobilized to EW-14 to swap out fouled pump and cleaned the plumbing. Re-deployed EW-13 and EW-14 and observed pressures in the vaults at 90psi.
- Wednesday, 15 May 2024: Operators performed general O&M and cycled the filter press. GPRS onsite for utility locates at piezometer MWA-34i. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. Tidewater Environmental Services picked up two iron sludge boxes (1 and 2) for transportation to the Roosevelt Landfill Disposal facility.
- Thursday, 16 May 2024: Operators performed general O&M and cycled the filter press. Compliance samples were collected and sent to Eurofins. Univar onsite to batch caustic mini-bulk.

Recovery / Extraction Well Status

- The current influent flow rate is **45 gpm,** with Extraction / Recovery wells RW-25, EW-03, EW-04, EW-05, EW-06, EW-08, EW-10, EW-12, EW-14 in operation.
- EW-01 + EW-02: Off until Trench 1 redeveloped with glycolic acid.
- EW-03: ½-Hp pump swapped out for a 1-Hp pump from EW-01
- EW-04: Operating but Motor Overload Fault at higher frequency.
- EW-06: Operating but Motor Overload Fault at higher frequency.
- EW-07: Off since 5/10.
- EW-08: Operating but Motor Overload when running at higher frequency.
- EW-09: Off since 5/4.
- EW-11: Off since 5/14.
- EW-13: Swapped out fouled 1-hp pump, cleaned plumbing in vault.
- EW-14: Swapped out fouled 1-hp pump, cleaned plumbing in vault.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: 1-HP pump to be redeployed 5/17.

Transducer Status

- MWA-34i: Damaged well casing. Requires abandonment and replacement. GPRS completed locates of utilities (5/15).
- PA-06: Faulting, to be investigated.

Sampling

- LGAC check samples were not collected this week.
- Compliance samples collected 16 May 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

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F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 3 May 2024 to 9 May 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 99 percent due to a one-hour unplanned shutdown to deal with flooding in the Bio plant. The average system influent flow rate for the week was 45.9 gpm. Recovery / Extraction wells RW-25, EW-03 through EW-14 were in operation during the reporting period. The total influent volume for the week was 444,670 gallons or 44 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 3 May 2024: Operators performed general O&M and cycled the filter press. Operators calibrated the handheld YSI meter, ORP sensor at FBR-REC and pH at FBR-EFF. Operator started the auto-sampler for collection of the weekly NPDES compliance samples.
- Saturday, 4 May 2024: Operator performed general O&M and cycled the filter press. Compliance samples were collected and to be sent to Eurofins on Monday May 6, 2024.
- Sunday, 5 May 2024: Operator performed general O&M and cycled the filter press. Operator turned on the caustic pump at FBR-INF, the FBR pH @ 6.99 and assembled flow meter wiring covers for extraction wells.
- Monday, 6 May 2024: Operators performed general O&M and cycled the filter press. The 24-Hr ORP on the FBR-REC was @ 60mV. Operator mobilized to Scappoose Wastewater Treatment Plant to obtain Waste Activated Sludge (WAS). Telluric was onsite to grade the site with gravel. Staff observed drops of hydraulic fluid from the gravel truck travelling along road on the way out of site. Telluric staff used BioSolve on the hydraulic fluid and placed a straw berm next to the storm water swale. The LGAC check samples were collected and sent to ALS. Operators packed compliance samples and sent to Eurofins.
- Tuesday, 7 May 2024: Operators performed general O&M and cycled the filter press. Telluric was onsite to continue grading the site with gravel. Cochran was onsite to change out the faulty VFD (variable frequency drive) for pump P-10. S. Lucas configured the new VFD with new I.P. address 10.0.0.110. S. Lucas also adjusted the overload settings for EW-04 to test motor overload faults and changed port #413 from 1.2A to 1.3A.

- Wednesday, 8 May 2024: Operators performed general O&M and cycled the filter press. Operators were woken up by an alarm in the early morning and were onsite to investigate. The Bio plant was flooded as a level alarm failed to trigger and shut off the pumps. The wellfield was shut down for 1-hr at 0230. Bio-water was observed to be seeping under the center wall to the pre-treatment plant. S. Lucas determined a discrepancy in the PLC logic for the new VFD for pump P-10. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. Operator cleaned 1-Hp and 1/2-Hp pumps.
- Thursday, 9 May 2024: Operators performed general O&M and cycled the filter press. Compliance samples were collected and sent to Eurofins. Operators observed a trespasser onsite through the security camera. Portland Police were contacted to investigate but not find a trespasser. S. Lucas performed a PLC program download to update pump P-10 logic.

Recovery / Extraction Well Status

- The current influent flow rate is **50 gpm,** with Extraction / Recovery wells EW-03 through EW-07, EW-10, EW-11, EW-13, and EW-14 in operation.
- EW-01 + EW-02: Off until Trench 1 redeveloped with glycolic acid.
- EW-03: ½-Hp pump to be swapped out for a 1-Hp pump from EW-09
- EW-04: Motor Overload Fault, S.Lucas adjusted the overload settings.
- EW-08: Off, Motor Overload when running at a 60Hz, will test adjusting overload settings.
- EW-09: 1-Hp pump to be swapped out for a 1/2-Hp pump from EW-03
- EW-12: Off since 4/29
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: 1-HP pump to be redeployed.

Transducer Status

- MWA-34i: Damaged well casing. Requires abandonment and replacement.
- PA-06: Faulting, to be investigated.

Sampling

- LGAC check samples were collected 6 May 2024 and sent to ALS.
- Compliance samples collected 9 May 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 26 April 2024 to 2 May 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously except for a planned shutdown from 4/29 to 5/2 to change out the carbon from vessel CT-2 and relocate the coagulant / polymer tanks. Uptime for the reporting period was 56 percent. The average system influent flow rate for the week was 26.2 gpm. Recovery / Extraction wells RW-25, EW-03 through EW-14 were in operation during the reporting period. The total influent volume for the week was 263,610 gallons or 26 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 26 April 2024: Operators performed general O&M and cycled the filter press. Carbon vessel CT-1 was backwashed. Mobilized to the beach to collect river samples with the RC boat. Cochran onsite to inspect the Admin building electrical system to develop a one-line diagram.
- Saturday, 27 April 2024: Operator performed general O&M and cycled the filter press.
- Sunday, 28 April 2024: Operator performed general O&M and cycled the filter press.
- Monday, 29 April 2024: Operators performed general O&M and cycled the filter press. Collected storm water bottles and sent them to Eurofins. Dismantled the old caustic/acid skid to make room for the coagulant day tank. Turned off the wellfield at 1010 and placed the Bio plant in a recirculation loop to prepare for carbon changeout at CT-2. Applied rubber bumpers to the concrete pads at the Pressure Filter and Filter Press. Desotec onsite and staged their slurry truck at the GWET plant.
- Tuesday, 30 April 2024: Operators performed general O&M and cycled the filter press. Desotec onsite to changeout the carbon on vessel CT-2. Backwashed CT-2 to tank T-10. Recirculated water in the bio plant from tanks T-3 to T-5 to CT-2 to T-3. Relocated EA-230 polymer tank. Calibrated the pH probe at PR-1.
- Wednesday, 1 May 2024: Operators performed general O&M. Drained and cleaned the Plate Separator (PS-1). Relocated the coagulant day tank. Rewired CFP-1 caustic pump, CFP-9 coagulant pump, and CFP-3B EA-230 polymer pump. The FBR-INF pH is at 8.35 due to new carbon in CT-2. Added HCl to tank T-12 to lower the pH. Recirculated water from tanks T-5 to CT-2 to T-12 to SF-1 to T-5 and

continued to monitor the pH adding HCl as needed. Drained the shallow conveyance line and deployed caps with pressure gauges on the cleanouts in the wellfield. Operator conducted fire extinguisher/ AED inspections. Performed LOTO on totalizers at extraction wells EW-03, EW-04, EW-07, EW-08, EW-09, and EW-10. Swapped out fouled pumps at EW-03, EW-04, EW-07. Mobilized to piezometers PA-07 and PA-26d to replace malfunctioning transducers. Installed plumbing for FBR recirculation pump P-7. Observed FBR recirculation pump P-8 butterfly valve damaged, placed P-8 out of service and installed a blind flange in the plumbing.

- Thursday, 2 May 2024: Operators performed general O&M. Swapped out fouled pump at extraction well EW-08. Troubleshoot wiring issue at CFP-3B polymer pump with S. Lucas. Restarted the wellfield at 1200. Discharge to river at 1400.

Recovery / Extraction Well Status

- The current influent flow rate is **55 gpm,** with Extraction / Recovery wells EW-03 through EW-07 and EW-09 through EW-14 in operation.
- EW-01 + EW-02: Off until Trench 1 redeveloped with glycolic acid.
- EW-03: Fouled pump swapped out.
- EW-04: Fouled pump swapped out.
- EW-07: Fouled pump swapped out.
- EW-08: Fouled pump swapped out, Motor Overload when running at a 60Hz. Need to change out the motor.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: 1-HP pump to be redeployed.
- RW-25: Not turned on.

Transducer Status

- PA-07, PA-26d: Transducers replaced and recalibrated.
- MWA-34i: Damaged well casing. Requires abandonment and replacement.

Sampling

- LGAC check samples were not collected this week.
- Compliance samples to be collected 4 May 2024 and sent to Eurofins 6 May 2024.
- Pressure Filter samples collected 30 April 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.
- Storm water and river samples collected 29 April 2024 and sent to Eurofins.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

T +1 503 488 5282
F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 19 April 2024 to 25 April 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100 percent. The average system influent flow rate for the week was 45.1 gpm. Recovery / Extraction wells RW-25, EW-03 through EW-06, EW-09, EW-10, and EW-12 through EW-14 were in operation during the reporting period. The total influent volume for the week was 479,420 gallons or 48 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 19 April 2024: Operators performed general O&M and cycled the filter press. The carbon vessel CT-2 was backwashed. Operator observed the pH sensor failed on the handheld YSI meter. A backup Hannah handheld pH probe will be used until a replacement sensor arrives. Performed April water level event. Calibrated transducers at PA-18d, PA-04, PA-03, RW-05, PA-11i, PA-12i, MWA-66i, RW-09i, RW-10, RW-12, PA-29i, and RW-22. Cleaned the pre-filters on the air compressor.
- Saturday, 20 April 2024: Operator performed general O&M and cycled the filter press. Observed solids flowing over the weirs on the Plate Separator (PS-1). Increased the underflow timer to 190/300 sec from 180/300 sec and cleaned PS-1 plates.
- Sunday, 21 April 2024: Operator performed general O&M and cycled the filter press. Observed solids flowing over the weirs on the Plate Separator (PS-1). Increased the underflow timer to 200/300 sec from 190/300 sec and cleaned PS-1 plates. Operator had difficulties making the EA-640 polymer due to poorly mixed bulk polymer but was able to batch.
- Monday, 22 April 2024: Operators performed general O&M and cycled the filter press. The remaining development water totes were emptied into dewatering box #7. The YSI pH sensor was replaced with an old working sensor and recalibrated. Manually cleaned PS-1 plates with a brush and air lance. No more solids flowing over the weirs.
- Tuesday, 23 April 2024: Operators performed general O&M and cycled the filter press. The hole near GCC-1 was filled with river rock. General housekeeping was done in the wellfield. The equipment tag inventory was documented. The wasted material in tank T-7 was put into Box #7 so that old polymer could be collected in

a tote. Operator had difficulties making the EA-230 polymer due to clogged tubing. A new strainer was used in the bulk polymer to correct the issue and new tubing will be procured.

- Wednesday, 24 April 2024: Operators performed general O&M and cycled the filter press. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. Tidewater Environmental Services picked up two iron sludge boxes (2 and 4) for transportation to the Roosevelt Landfill Disposal facility. Tidewater operator and ERM observed a slow leak at a weld from the repurposed dewatering box (Box #2). The water from the leak was clear, PM was notified and gave ok to transport.
- Thursday, 25 April 2024: Operators performed general O&M. Tidewater repaired the weld for Box#2 at their yard and ERM plan to procure and apply JB Weld to the area and at other sludge boxes if needed. Operator had difficulties making the EA-640 polymer due to clogged tubing. A bag filter was used in the bulk polymer to correct the issue.

Recovery / Extraction Well Status

- The current influent flow rate is **44 gpm,** with Extraction / Recovery wells RW-25, EW-03 through EW-06, EW-09, EW-10, EW-12, EW-13, EW-14 in operation.
- EW-01 + EW-02: Off until Trench 1 treated with glycolic acid.
- EW-07: Load fault alarm, pump to be swapped out.
- EW-08: Motor Overload fault, pump to be swapped out.
- EW-11: Not turned on, low water level.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to swap out cable leads.
- RW-23: 1-HP pump to be redeployed.

Transducer Status

- PA-07, PA-26d: Transducers malfunctioned, replacement transducers ordered.
- MWA-34i: Damaged well casing. Requires abandonment and replacement.

Sampling

- LGAC check samples were not collected this week.
- Compliance samples collected 25 April 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.
- Setup storm water bottles for upcoming rain event.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

T +1 503 488 5282
F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 12 April 2024 to 18 April 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100 percent. The average system influent flow rate for the week was 44.1 gpm. Recovery / Extraction wells RW-25, EW-03 through EW-10, and EW-12 through EW-14 were in operation during the reporting period. The total influent volume for the week was 441,280 gallons or 44 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 12 April 2024: Operators performed general O&M and cycled the filter press. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. The carbon vessel CT-2 was backwashed. Fe sludge waste boxes were labeled and indicated start/end dates. Debris was removed from storm water swales.
- Saturday, 13 April 2024: Operator performed general O&M and cycled the filter press. Compliance samples were collected and buffered Cr(VI). Tank T-5 differential bag filter gauge not working on vessel 2.
- Sunday, 14 April 2024: Operator performed general O&M and cycled the filter press.
- Monday, 15 April 2024: Operators performed general O&M and cycled the filter press. Fouled ports on the T-5 differential bag filter gauge vessel 2 were cleaned. T-5 turbidity meter maintenance was completed, which included replacing desiccant, vial, and cleaned wiper. Filter press desiccant was changed out.
- Tuesday, 16 April 2024: Operators performed general O&M and cycled the filter press twice. Mobilized to wellfield to troubleshoot transducers. Recovery Well RW-25 transducer appears to be working and calibrated. Extraction Well EW-12 transducer lowered and recalibrated. RW-13i transducer replaced and recalibrated. Placed fresh utility marker whiskers near MCC-1.
- Wednesday, 17 April 2024: Operators performed general O&M and cycled the filter press. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. ERMer M. Reyes site walk for fall protection assessment. Operator adjusted flow rate settings for pumps in the wellfield.
- Thursday, 18 April 2024: Operators performed general O&M and cycled the filter press. Mobilized to the wellfield and cleaned check valves at EW-13 and EW-14. Cleaned fouled ports on the T-5 differential bag filter gauge vessel 1.

Recovery / Extraction Well Status

- The current influent flow rate is **50 gpm,** with Extraction / Recovery wells EW-03 through EW-06, EW-09, EW-10, EW-12, EW-13, EW-14 in operation.
- EW-01 + EW-02: Off, until Trench 1 treated with glycolic acid.
- EW-07: Load fault alarm, pump to be swapped out.
- EW-08: Motor Overload fault, pump to be swapped out
- EW-11: Not turned on, low water level.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to investigate.
- RW-23: 1-HP pump to be redeployed.
- RW-25: Started 4/17, transducer working and will monitor.

Transducer Status

- PA-07, PA-26d: Transducers malfunctioned, replacement transducers ordered.
- RW-13: Transducer replaced and recalibrated.

Sampling

- LGAC check samples were not collected this week.
- Compliance samples collected 18 April 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

T +1 503 488 5282
F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 5 April 2024 to 11 April 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously until the GF Signet pH probe at GWET-EFF malfunctioned and the Pressure Filter differential pressure reached setpoint to cause multiple wellfield shutdowns this week. Uptime for the reporting period was 84 percent. The average system influent flow rate for the week was 45.5 gpm. Recovery / Extraction wells EW-EW-03 through EW-06 and EW-08 through EW-14 were in operation during the reporting period. The total influent volume for the week was 407,060 gallons or 40 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 5 April 2024: Operators performed general O&M and cycled the filter press. A UPS was installed in the Main Control Panel and connected the EWON VPN to send alarms in case of power failure. The GF Signet pH probe at GWET-EFF malfunctioned, reaching the low level setpoint of 6.0. The Hach pH probe and YSI handheld meter for T-6 was reading approximately 7.5. Operator recalibrated the pH probe and planned to switch the pH/Temp output wiring from GF Signet controller to the Hach controller (SC200) for the PLC to receive.
- Saturday, 6 April 2024: Operator performed general O&M and cycled the filter press. GF Signet pH probe at GWET-EFF was still malfunctioning.
- Sunday, 7 April 2024: Operator performed general O&M and cycled the filter press. GF Signet pH probe at GWET-EFF was still malfunctioning. Backwash pump P-3 failed and Pressure Filter differential pressure reached high setpoint of 30 psi, shutting down the wellfield at 2000.
- Monday, 8 April 2024: Operators performed general O&M and cycled the filter press. The wellfield restarted at 0700. All three pressure filter vessels were manually backwashed. The new GF Signet pH probe was installed at GWET-EFF and successfully calibrated.
- Tuesday, 9 April 2024: Operators performed general O&M and cycled the filter press twice.
- Wednesday, 10 April 2024: Operators performed general O&M and cycled the filter press. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. The GF Signet pH probe at GWET-EFF malfunctioned again, causing wellfield shutdown at 1000. The bio side was placed in a recirculation loop from tanks T-5 to T-3. Operator planned on connecting the Hach pH/temp probe to

the PLC. An SOP, permit to work, and JHA were written and are waiting on PIC approval.

- Thursday, 11 April 2024: Operators performed general O&M and cycled the filter press. Operators received PIC approval to rewire the output from GF Signet controller to the output of the Hach controller. A network module was installed in the Hach controller to be able send outputs to the PLC and complete the rewiring. The PLC now has the ability to read the pH from the Hach controller but unable to read the temperature. Discharged to the river @ 1305 and wellfield restarted at 1310.

Recovery / Extraction Well Status

- The current influent flow rate is **53 gpm,** with Extraction / Recovery wells EW-03 through EW-06, EW-08, EW-09, EW-10, EW-12, EW-13, EW-14 in operation.
- EW-01 + EW-02: Off, until Trench 1 treated with glycolic acid.
- EW-07: Load fault alarm, suspect fouled check valve, pressure gauge at 50 psi.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to investigate.
- RW-25: Off, Transducer to be replaced.
- RW-23: 1-HP pump to be redeployed.

Transducer Status

- PA-07, PA-26d, RW-13, and RW-25: Transducers malfunctioned, replacement transducers ordered.

Sampling

- LGAC check samples were not collected this week.
- Compliance samples to be collected 13 April 2024 and sent to Eurofins on 15 April 2024.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

1050 SW 6th Avenue
Suite 1650
Portland, OR 97204

T +1 503 488 5282
F +1 503 488 5142

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Groundwater Extraction and Treatment (GWET) System Weekly Progress Report
Week from: 29 March 2024 to 4 April 2024
Former Arkema Facility, Portland, Oregon

Plant Operations

Groundwater extraction at select recovery / extraction wells, treatment, and discharge proceeded continuously. Uptime for the reporting period was 100 percent. The average system influent flow rate for the week was 53.0 gpm. Recovery / Extraction wells EW-EW-03 through EW-06 and EW-08 through EW-14 were in operation during the reporting period. The total influent volume for the week was 480,470 gallons or 48 percent of the target capture objective of 100 gpm at 100 percent uptime.

- Friday, 29 March 2024: Operators performed general O&M and cycled the filter press. The backwash flow rate was adjusted from 80 gpm to 105 gpm on pump P-4. Operator performed LOTO on backwash pump P-3 and was able to turn the shaft with a pipe wrench. Pump P-3 was back in service, and P-4 was out of service. Extraction Well pressure gauge readings were documented in the wellfield.
- Saturday, 30 March 2024: Operator performed general O&M and cycled the filter press.
- Sunday, 31 March 2024: Operator performed general O&M and cycled the filter press.
- Monday, 1 April 2024: Operators performed general O&M and cycled the filter press. Flow rate setpoints were increased to 5 gpm from 3 gpm at extraction wells EW-03 and EW-04. Hach pH probe in tank T-6 was installed and calibrated. Monthly calibrations were performed on the YSI, FBR ORP probe, and FBR-EFF probe. All three pressure filter vessels were manually backwashed.
- Tuesday, 2 April 2024: Operators performed general O&M and cycled the filter press. All three pressure filter vessels were manually backwashed. Solids were drained from outside cone bottom tanks T-7A+B into a dewatering box. Batteries at front gate sensor were replaced. Home Depot delivered river rock for sink hole next to the stormwater Connex box.
- Wednesday, 3 April 2024: Operators performed general O&M and cycled the filter press. Operator started the auto-sampler for collection of the weekly NPDES compliance samples. Western States Fire Protection was onsite to exchange three fire extinguishers. Operator updated the text alarm descriptions. All three pressure filter vessels were manually backwashed.
- Thursday, 4 April 2024: Operators performed general O&M and cycled the filter press. Compliance samples were collected and sent to Eurofins. NorthStar

Chemical onsite to batch coagulant mini-bulk (M-1883). New GF Signet pH probe at tank T-6 was operating inconsistently, operators plan on connecting the new Hach pH probe to the PLC.

Recovery / Extraction Well Status

- The current influent flow rate is **53 gpm,** with Extraction / Recovery wells EW-03 through EW-06 and EW-08 through EW-14 in operation.
- EW-01 + EW-02: Off, until Trench 1 treated with glycolic acid.
- EW-07: Load fault alarm, suspect fouled check valve, pressure gauge at 50psi.
- RW-14: Not turned on.
- RW-22: Off, Ground fault, Operators to investigate.
- RW-25: Off, Transducer to be replaced.
- RW-23: 1-HP pump to be redeployed.

Transducer Status

- PA-07, PA-26d, RW-13, and RW-25: Transducers malfunctioned, replacement transducers ordered.

Sampling

- LGAC check samples were collected 1 April 2024 and sent to ALS.
- Compliance samples were collected 4 April 2024 and sent to Eurofins.

Stormwater

- Weekly ISCO sampler and stormwater pond inspection conducted.

ATTACHMENT 2 QUARTER 1, 2024, GROUNDWATER MONITORING DATA

Table 2-1
Volatile Organic Compounds Results
Arkema Quarter 1, 2024, Groundwater Monitoring Report
Arkema Inc. Facility
Portland, Oregon

Analyte					1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene
Unit					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
FSWP SHSC (shaded values indicate results above the value shown)					NE	11	0.4	1.6	47	710	NE	NE	NE	0.076
Location ID	Sample Date	Sample Type	Aquifer Classification	Sample ID										
MWA-41	2/26/2024	N	Shallow	MWA-41-022624	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	*< 0.025 U*	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
MWA-63	2/27/2024	N	Shallow	MWA-63-022724	*< 1.8 U*	*< 3.9 U*	*< 5.2 U*	*< 2.4 U*	*< 2.2 U*	*< 2.8 U*	*< 2.9 U*	*< 4.3 U*	*< 4.1 U*	*< 3.3 U*
MWA-82	2/25/2024	N	Shallow	MWA-82-022524	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	*< 0.025 U*	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-03	2/26/2024	N	Shallow	PA-03-022624	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	**0.13 j**	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-04	2/27/2024	N	Shallow	PA-04-022724	*< 0.038 U*	**0.029 j**	*< 0.056 U*	*< 0.070 U*	**0.23**	**0.20**	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-04	2/27/2024	FD	Shallow	DUP-01-022724	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	**0.21**	**0.16 j**	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-08	2/26/2024	N	Shallow	PA-08-022624	*< 0.038 U*	**0.037 j**	*< 0.056 U*	*< 0.070 U*	**0.10 j**	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-09	2/26/2024	N	Shallow	PA-09-022624	*< 0.038 U*	**0.070 j**	*< 0.056 U*	*< 0.070 U*	*< 0.025 U*	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-31	2/27/2024	N	Shallow	PA-31-022724	*< 0.038 U*	**0.22**	*< 0.056 U*	*< 0.070 U*	**0.23**	**0.73**	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
MWA-81i	2/26/2024	N	Intermediate	MWA-81i-022624	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	*< 0.025 U*	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-10i	2/27/2024	N	Intermediate	PA-10i-022724	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	*< 0.025 U*	**0.078 j**	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-15i	2/26/2024	N	Intermediate	PA-15i-022624	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	**0.23**	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-16i	2/27/2024	N	Intermediate	PA-16i-022724	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	**0.074 j**	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-17iR	2/26/2024	N	Intermediate	PA-17iR-022624	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	**0.087 j**	**0.15 j**	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-32i	2/28/2024	N	Intermediate	PA-32i-022824	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	**0.057 j**	**0.070 j**	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-44i	2/25/2024	N	Intermediate	PA-44i-022524	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	**0.15 j**	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
MWA-11i(d)	2/28/2024	N	Deep	MWA-11i(d)-022824	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	*< 0.025 U*	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
MWA-31i(d)	2/28/2024	N	Deep	MWA-31i(d)-022824	*< 0.18 U*	*< 0.39 U*	*< 0.52 U*	*< 0.24 U*	**0.39 J+**	*< 0.28 U*	*< 0.29 U*	*< 0.43 U*	*< 0.41 U*	*< 0.33 U*
MWA-56d	2/28/2024	N	Deep	MWA-56d-022824	*< 1.8 U*	*< 3.9 U*	*< 5.2 U*	*< 2.4 U*	*< 2.2 U*	*< 2.8 U*	*< 2.9 U*	*< 4.3 U*	*< 4.1 U*	*< 3.3 U*
MWA-58d	2/28/2024	N	Deep	MWA-58d-022824	*< 1.8 U*	*< 3.9 U*	*< 5.2 U*	*< 2.4 U*	*< 2.2 U*	*< 2.8 U*	*< 2.9 U*	*< 4.3 U*	*< 4.1 U*	*< 3.3 U*
MWA-58d	2/28/2024	FD	Deep	DUP-02-022824	*< 0.18 U*	*< 0.39 U*	*< 0.52 U*	*< 0.24 U*	**0.22 j**	*< 0.28 U*	*< 0.29 U*	*< 0.43 U*	*< 0.41 U*	*< 0.33 U*
PA-18d	2/27/2024	N	Deep	PA-18d-022724	*< 0.18 U*	*< 0.39 U*	*< 0.52 U*	*< 0.24 U*	*< 0.22 U*	*< 0.28 U*	*< 0.29 U*	*< 0.43 U*	*< 0.41 U*	*< 0.33 U*
PA-19d	2/28/2024	N	Deep	PA-19d-022824	*< 180 U*	*< 390 U*	*< 520 U*	*< 240 U*	*< 220 U*	*< 280 U*	*< 290 U*	*< 430 U*	*< 410 U*	*< 330 U*
PA-20d	2/28/2024	N	Deep	PA-20d-022824	*< 0.18 U*	*< 0.39 U*	*< 0.52 U*	*< 0.24 U*	**2.1**	*< 0.28 U*	*< 0.29 U*	*< 0.43 U*	*< 0.41 U*	*< 0.33 U*
PA-21d	2/28/2024	N	Deep	PA-21d-022824	*< 180 U*	*< 390 U*	*< 520 U*	*< 240 U*	*< 220 U*	*< 280 U*	*< 290 U*	*< 430 U*	*< 410 U*	*< 330 U*
PA-22d	2/27/2024	N	Deep	PA-22d-022724	*< 0.18 U*	*< 0.39 U*	*< 0.52 U*	*< 0.24 U*	*< 0.22 U*	*< 0.28 U*	*< 0.29 U*	*< 0.43 U*	*< 0.41 U*	*< 0.33 U*
PA-23d	2/27/2024	N	Deep	PA-23d-022724	*< 0.18 U*	*< 0.39 U*	*< 0.52 U*	*< 0.24 U*	*< 0.22 U*	*< 0.28 U*	*< 0.29 U*	*< 0.43 U*	*< 0.41 U*	*< 0.33 U*
PA-24d	2/27/2024	N	Deep	PA-24d-022724	*< 0.18 U*	*< 0.39 U*	*< 0.52 U*	*< 0.24 U*	*< 0.22 U*	*< 0.28 U*	*< 0.29 U*	*< 0.43 U*	*< 0.41 U*	*< 0.33 U*
PA-25d	2/27/2024	N	Deep	PA-25d-022724	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	*< 0.025 U*	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-26d	2/26/2024	N	Deep	PA-26d-022624	*< 0.038 U*	*< 0.025 U*	*< 0.056 U*	*< 0.070 U*	*< 0.025 U*	*< 0.035 U*	*< 0.084 U*	*< 0.15 U*	*< 0.050 U*	*< 0.17 U*
PA-27d	2/27/2024	N	Deep	PA-27d-022724	*< 0.18 U*	*< 0.39 U*	*< 0.52 U*	*< 0.24 U*	**0.28 j**	*< 0.28 U*	*< 0.29 U*	*< 0.43 U*	*< 0.41 U*	*< 0.33 U*
PA-30d	2/28/2024	N	Deep	PA-30d-022824	*< 180 U*	*< 390 U*	*< 520 U*	*< 240 U*	*< 220 U*	*< 280 U*	*< 290 U*	*< 430 U*	*< 410 U*	*< 330 U*

Notes:
Bolded values indicate concentrations above the Method Detection Limit.
Shaded values indicate concentrations above the FSWP SHSC.
< = Compound not detected. Method Detection Limit shown.
µg/L = micrograms per liter
FD = Field Duplicate Sample
FSWP SHSC = Feasibility Study Work Plan Indirect Exposure Pathway Selected Hot Spot Criteria
N = Normal Environmental Sample
NE = Not Established
SW8260C analyses performed by TestAmerica - Seattle, WA of Seattle.

Qualifiers - Organic:
j = The analyte was positively identified below the RDL; associated numerical value is the approximate concentration of the analyte in the sample.
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits.
U = Analyte was analyzed for, but not detected above, the limit displayed.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

Table 2-1
Volatile Organic Compounds Results
Arkema Quarter 1, 2024, Groundwater Monitoring Report
Arkema Inc. Facility
Portland, Oregon

				Analyte	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane
				Unit	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
				FSWP SHSC (shaded values indicate results above the value shown)	NE	NE	14	3.7	1.5	NE	10	NE	15	NE
Location ID	**Sample Date**	**Sample Type**	**Aquifer Classification**	**Sample ID**										
MWA-41	2/26/2024	N	Shallow	MWA-41-022624	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
MWA-63	2/27/2024	N	Shallow	MWA-63-022724	*< 6.1 U*	*< 5.7 U*	*< 4.6 U*	*< 4.2 U*	*< 1.8 U*	*< 5.5 U*	*< 4.8 U*	*< 3.5 U*	*< 4.6 U*	*< 3.2 U*
MWA-82	2/25/2024	N	Shallow	MWA-82-022524	*< 0.20 U*	*< 0.17 U*	**0.072 j**	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-03	2/26/2024	N	Shallow	PA-03-022624	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-04	2/27/2024	N	Shallow	PA-04-022724	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-04	2/27/2024	FD	Shallow	DUP-01-022724	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.20 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-08	2/26/2024	N	Shallow	PA-08-022624	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-09	2/26/2024	N	Shallow	PA-09-022624	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-31	2/27/2024	N	Shallow	PA-31-022724	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.20 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
MWA-81i	2/26/2024	N	Intermediate	MWA-81i-022624	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-10i	2/27/2024	N	Intermediate	PA-10i-022724	*< 0.20 U*	*< 0.17 U*	**0.15 j**	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-15i	2/26/2024	N	Intermediate	PA-15i-022624	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-16i	2/27/2024	N	Intermediate	PA-16i-022724	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	**0.065 j**	*< 0.060 U*
PA-17iR	2/26/2024	N	Intermediate	PA-17iR-022624	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-32i	2/28/2024	N	Intermediate	PA-32i-022824	*< 0.20 U*	*< 0.17 U*	**0.23 j**	*< 0.20 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-44i	2/25/2024	N	Intermediate	PA-44i-022524	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
MWA-11i(d)	2/28/2024	N	Deep	MWA-11i(d)-022824	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.20 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
MWA-31i(d)	2/28/2024	N	Deep	MWA-31i(d)-022824	*< 0.61 U*	*< 0.57 U*	*< 0.46 U*	*< 0.42 U*	*< 0.18 U*	*< 0.55 UJ*	*< 0.48 U*	*< 0.35 U*	*< 0.46 U*	*< 0.32 U*
MWA-56d	2/28/2024	N	Deep	MWA-56d-022824	*< 6.1 U*	*< 5.7 U*	*< 4.6 U*	*< 4.2 U*	*< 1.8 U*	*< 5.5 U*	*< 4.8 U*	*< 3.5 U*	*< 4.6 U*	*< 3.2 U*
MWA-58d	2/28/2024	N	Deep	MWA-58d-022824	*< 6.1 U*	*< 5.7 U*	*< 4.6 U*	*< 4.2 U*	*< 1.8 U*	*< 5.5 U*	*< 4.8 U*	*< 3.5 U*	*< 4.6 U*	*< 3.2 U*
MWA-58d	2/28/2024	FD	Deep	DUP-02-022824	*< 0.61 U*	*< 0.57 U*	*< 0.46 U*	*< 0.42 U*	*< 0.18 U*	*< 0.55 U*	*< 0.48 U*	*< 0.35 U*	*< 0.46 U*	*< 0.32 U*
PA-18d	2/27/2024	N	Deep	PA-18d-022724	*< 0.61 U*	*< 0.57 U*	*< 0.46 U*	*< 0.42 U*	*< 0.18 U*	*< 0.55 U*	*< 0.48 U*	*< 0.35 U*	*< 0.46 U*	*< 0.32 U*
PA-19d	2/28/2024	N	Deep	PA-19d-022824	*< 610 U*	*< 570 U*	*< 460 U*	*< 420 U*	*< 180 U*	*< 550 U*	*< 480 U*	*< 350 U*	*< 460 U*	*< 320 U*
PA-20d	2/28/2024	N	Deep	PA-20d-022824	*< 0.61 U*	*< 0.57 U*	*< 0.46 U*	**1.8**	*< 0.18 U*	*< 0.55 U*	*< 0.48 U*	*< 0.35 U*	*< 0.46 U*	*< 0.32 U*
PA-21d	2/28/2024	N	Deep	PA-21d-022824	*< 610 U*	*< 570 U*	*< 460 U*	*< 420 U*	*< 180 U*	*< 550 U*	*< 480 U*	*< 350 U*	*< 460 U*	*< 320 U*
PA-22d	2/27/2024	N	Deep	PA-22d-022724	*< 0.61 U*	*< 0.57 U*	*< 0.46 U*	*< 0.42 U*	*< 0.18 U*	*< 0.55 U*	*< 0.48 U*	*< 0.35 U*	*< 0.46 U*	*< 0.32 U*
PA-23d	2/27/2024	N	Deep	PA-23d-022724	*< 0.61 U*	*< 0.57 U*	*< 0.46 U*	*< 0.42 U*	*< 0.18 U*	*< 0.55 U*	*< 0.48 U*	*< 0.35 U*	*< 0.46 U*	*< 0.32 U*
PA-24d	2/27/2024	N	Deep	PA-24d-022724	*< 0.61 U*	*< 0.57 U*	*< 0.46 U*	**1.2**	*< 0.18 U*	*< 0.55 U*	*< 0.48 U*	*< 0.35 U*	*< 0.46 U*	*< 0.32 U*
PA-25d	2/27/2024	N	Deep	PA-25d-022724	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	*< 0.043 U*	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	**0.11 j**	*< 0.060 U*
PA-26d	2/26/2024	N	Deep	PA-26d-022624	*< 0.20 U*	*< 0.17 U*	*< 0.038 U*	**0.30**	*< 0.060 U*	*< 0.15 U*	*< 0.050 U*	*< 0.025 U*	*< 0.050 U*	*< 0.060 U*
PA-27d	2/27/2024	N	Deep	PA-27d-022724	*< 0.61 U*	*< 0.57 U*	*< 0.46 U*	*< 0.42 U*	*< 0.18 U*	*< 0.55 U*	*< 0.48 U*	*< 0.35 U*	*< 0.46 U*	*< 0.32 U*
PA-30d	2/28/2024	N	Deep	PA-30d-022824	*< 610 U*	*< 570 U*	*< 460 U*	*< 420 U*	*< 180 U*	*< 550 U*	*< 480 U*	*< 350 U*	*< 460 U*	*< 320 U*

Notes:
Bolded values indicate concentrations above the Method Detection Limit.
Shaded values indicate concentrations above the FSWP SHSC.
< = Compound not detected. Method Detection Limit shown.
µg/L = micrograms per liter
FD = Field Duplicate Sample
FSWP SHSC = Feasibility Study Work Plan Indirect Exposure Pathway Selected Hot Spot Criteria
N = Normal Environmental Sample
NE = Not Established
SW8260C analyses performed by TestAmerica - Seattle, WA of Seattle.

Qualifiers - Organic:
j = The analyte was positively identified below the RDL; associated numerical value is the approximate concentration of the analyte in the sample.
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits.
U = Analyte was analyzed for, but not detected above, the limit displayed.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

Table 2-1
Volatile Organic Compounds Results
Arkema Quarter 1, 2024, Groundwater Monitoring Report
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				Analyte	2-Butanone (Methyl ethyl ketone)	4-Chlorotoluene	4-Isopropyltoluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromobenzene	Bromodichloromethane	Bromoform	Bromomethane
				Unit	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
				FSWP SHSC (shaded values indicate results above the value shown)	14000	NE	NE	NE	1500	1.4	NE	1.7	14	150
Location ID	**Sample Date**	**Sample Type**	**Aquifer Classification**	**Sample ID**										
MWA-41	2/26/2024	N	Shallow	MWA-41-022624	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	*< 0.030 U*	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
MWA-63	2/27/2024	N	Shallow	MWA-63-022724	*< 47 U*	*< 3.8 U*	*< 2.8 U*	*< 25 U*	*< 32 U*	*< 2.4 U*	*< 4.3 U*	*< 2.9 U*	*< 5.1 U*	*< 2.1 U*
MWA-82	2/25/2024	N	Shallow	MWA-82-022524	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.082 j**	*< 0.038 U*	*< 0.060 U*	< 0.16 U	*< 0.13 U*
PA-03	2/26/2024	N	Shallow	PA-03-022624	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.086 j**	*< 0.038 U*	*< 0.060 U*	< 0.16 U	*< 0.13 U*
PA-04	2/27/2024	N	Shallow	PA-04-022724	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.033 j**	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-04	2/27/2024	FD	Shallow	DUP-01-022724	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.032 j**	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-08	2/26/2024	N	Shallow	PA-08-022624	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	*< 0.030 U*	*< 0.038 U*	*< 0.060 U*	< 0.16 U	*< 0.13 U*
PA-09	2/26/2024	N	Shallow	PA-09-022624	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.070 j**	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-31	2/27/2024	N	Shallow	PA-31-022724	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.030 j**	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
MWA-81i	2/26/2024	N	Intermediate	MWA-81i-022624	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	*< 0.030 U*	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-10i	2/27/2024	N	Intermediate	PA-10i-022724	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.038 j**	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-15i	2/26/2024	N	Intermediate	PA-15i-022624	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	*< 0.030 U*	*< 0.038 U*	*< 0.060 U*	< 0.16 U	*< 0.13 U*
PA-16i	2/27/2024	N	Intermediate	PA-16i-022724	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	*< 0.030 U*	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-17iR	2/26/2024	N	Intermediate	PA-17iR-022624	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.15 j**	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-32i	2/28/2024	N	Intermediate	PA-32i-022824	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.089 j**	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-44i	2/25/2024	N	Intermediate	PA-44i-022524	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	*< 0.030 U*	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
MWA-11i(d)	2/28/2024	N	Deep	MWA-11i(d)-022824	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	*< 0.030 U*	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
MWA-31i(d)	2/28/2024	N	Deep	MWA-31i(d)-022824	*< 4.7 U*	*< 0.38 U*	*< 0.28 U*	*< 2.5 U*	*< 3.2 U*	*< 0.24 U*	*< 0.43 U*	*< 2.9 U*	*< 0.51 U*	*< 0.21 U*
MWA-56d	2/28/2024	N	Deep	MWA-56d-022824	*< 47 U*	*< 3.8 U*	*< 2.8 U*	*< 25 U*	*< 32 U*	*< 2.4 U*	*< 4.3 U*	*< 2.9 U*	*< 5.1 U*	*< 2.1 U*
MWA-58d	2/28/2024	N	Deep	MWA-58d-022824	*< 47 U*	*< 3.8 U*	*< 2.8 U*	*< 25 U*	*< 32 U*	*< 2.4 U*	*< 4.3 U*	*< 2.9 U*	*< 5.1 U*	*< 2.1 U*
MWA-58d	2/28/2024	FD	Deep	DUP-02-022824	*< 4.7 U*	*< 0.38 U*	*< 0.28 U*	*< 2.5 U*	*< 3.2 U*	**0.28 j**	*< 0.43 U*	*< 2.9 U*	*< 0.51 U*	*< 0.21 U*
PA-18d	2/27/2024	N	Deep	PA-18d-022724	*< 4.7 U*	*< 0.38 U*	*< 0.28 U*	*< 2.5 U*	*< 3.2 U*	*< 0.24 U*	*< 0.43 U*	*< 0.29 U*	*< 0.51 U*	*< 0.21 U*
PA-19d	2/28/2024	N	Deep	PA-19d-022824	*< 4700 U*	*< 380 U*	*< 280 U*	*< 2500 U*	*< 3200 U*	*< 240 U*	*< 430 U*	*< 290 U*	*< 510 U*	*< 210 U*
PA-20d	2/28/2024	N	Deep	PA-20d-022824	*< 4.7 U*	*< 0.38 U*	*< 0.28 U*	*< 2.5 U*	*< 3.2 U*	**0.86 j**	*< 0.43 U*	*< 0.29 U*	*< 0.51 U*	*< 0.21 U*
PA-21d	2/28/2024	N	Deep	PA-21d-022824	*< 4700 U*	*< 380 U*	*< 280 U*	*< 2500 U*	*< 3200 U*	*< 240 U*	*< 430 U*	*< 290 U*	*< 510 U*	*< 210 U*
PA-22d	2/27/2024	N	Deep	PA-22d-022724	*< 4.7 U*	*< 0.38 U*	*< 0.28 U*	*< 2.5 U*	*< 3.2 U*	*< 0.24 U*	*< 0.43 U*	*< 0.29 U*	*< 0.51 U*	*< 0.21 U*
PA-23d	2/27/2024	N	Deep	PA-23d-022724	*< 4.7 U*	*< 0.38 U*	*< 0.28 U*	*< 2.5 U*	*< 3.2 U*	*< 0.24 U*	*< 0.43 U*	*< 0.29 U*	*< 0.51 U*	*< 0.21 U*
PA-24d	2/27/2024	N	Deep	PA-24d-022724	*< 4.7 U*	*< 0.38 U*	*< 0.28 U*	*< 2.5 U*	*< 3.2 U*	*< 0.24 U*	*< 0.43 U*	*< 0.29 U*	*< 0.51 U*	*< 0.21 U*
PA-25d	2/27/2024	N	Deep	PA-25d-022724	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	*< 0.030 U*	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-26d	2/26/2024	N	Deep	PA-26d-022624	*< 2.5 U*	*< 0.12 U*	*< 0.15 U*	*< 1.7 U*	*< 3.1 U*	**0.064 j**	*< 0.038 U*	*< 0.060 U*	*< 0.16 U*	*< 0.13 U*
PA-27d	2/27/2024	N	Deep	PA-27d-022724	*< 4.7 U*	*< 0.38 U*	*< 0.28 U*	*< 2.5 U*	*< 3.2 U*	*< 0.24 U*	*< 0.43 U*	*< 0.29 U*	*< 0.51 U*	*< 0.21 U*
PA-30d	2/28/2024	N	Deep	PA-30d-022824	*< 4700 U*	*< 380 U*	*< 280 U*	*< 2500 U*	*< 3200 U*	*< 240 U*	*< 430 U*	*< 290 U*	*< 510 U*	*< 210 U*

Notes:
Bolded values indicate concentrations above the Method Detection Limit.
Shaded values indicate concentrations above the FSWP SHSC.
< = Compound not detected. Method Detection Limit shown.
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SW8260C analyses performed by TestAmerica - Seattle, WA of Seattle.

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UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

Table 2-1
Volatile Organic Compounds Results
Arkema Quarter 1, 2024, Groundwater Monitoring Report
Arkema Inc. Facility
Portland, Oregon

Location ID	Sample Date	Sample Type	Aquifer Classification	Sample ID	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorobromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane
Analyte														
Unit					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
FSWP SHSC (shaded values indicate results above the value shown)					0.92	0.16	64	NE	NE	28	NE	590	NE	1.3
MWA-41	2/26/2024	N	Shallow	MWA-41-022624	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	*< 0.030 U*	*< 0.14 UJ*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
MWA-63	2/27/2024	N	Shallow	MWA-63-022724	*< 5.3 U*	*< 3.0 U*	*< 4.4 U*	*< 2.9 U*	*< 3.5 U*	**68**	*< 2.8 U*	*< 3.5 U*	*< 4.2 U*	*< 4.3 U*
MWA-82	2/25/2024	N	Shallow	MWA-82-022524	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	**0.64**	*< 0.14 UJ*	**0.067 j**	*< 0.090 U*	*< 0.055 U*
PA-03	2/26/2024	N	Shallow	PA-03-022624	*< 0.083 U*	*< 0.025 U*	*< 0.20 U*	*< 0.050 U*	*< 0.096 U*	*< 0.030 U*	*< 0.14 UJ*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
PA-04	2/27/2024	N	Shallow	PA-04-022724	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 UJ*	**0.042 j**	*< 0.14 U*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
PA-04	2/27/2024	FD	Shallow	DUP-01-022724	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 UJ*	**0.039 j**	*< 0.14 U*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
PA-08	2/26/2024	N	Shallow	PA-08-022624	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	**0.079 j**	*< 0.14 UJ*	**0.062 j**	*< 0.090 U*	*< 0.055 U*
PA-09	2/26/2024	N	Shallow	PA-09-022624	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	**0.24**	**0.16 J-**	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
PA-31	2/27/2024	N	Shallow	PA-31-022724	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 UJ*	**0.063 j**	*< 0.14 U*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
MWA-81i	2/26/2024	N	Intermediate	MWA-81i-022624	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	*< 0.030 U*	*< 0.14 UJ*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
PA-10i	2/27/2024	N	Intermediate	PA-10i-022724	*< 0.083 U*	*< 0.025 U*	**0.53**	*< 0.050 U*	*< 0.096 U*	*< 0.030 U*	*< 0.14 U*	**0.27**	*< 0.090 U*	*< 0.055 U*
PA-15i	2/26/2024	N	Intermediate	PA-15i-022624	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	*< 0.030 U*	*< 0.14 UJ*	**0.090 j**	*< 0.090 U*	*< 0.055 U*
PA-16i	2/27/2024	N	Intermediate	PA-16i-022724	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 UJ*	*< 0.030 U*	*< 0.14 U*	**0.10 j**	*< 0.090 U*	*< 0.055 U*
PA-17iR	2/26/2024	N	Intermediate	PA-17iR-022624	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	*< 0.030 U*	*< 0.14 U*	**0.080 j**	*< 0.090 U*	*< 0.055 U*
PA-32i	2/28/2024	N	Intermediate	PA-32i-022824	*< 0.083 U*	*< 0.025 U*	**0.29**	*< 0.050 U*	**0.39 j**	*< 0.030 U*	*< 0.14 U*	**0.11 j**	*< 0.090 U*	*< 0.055 U*
PA-44i	2/25/2024	N	Intermediate	PA-44i-022524	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	*< 0.030 U*	*< 0.14 UJ*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
MWA-11i(d)	2/28/2024	N	Deep	MWA-11i(d)-022824	*< 0.083 U*	*< 0.025 U*	**0.061 j**	*< 0.050 U*	*< 0.096 UJ*	*< 0.030 U*	*< 0.14 U*	**0.17 j**	*< 0.090 U*	*< 0.055 U*
MWA-31i(d)	2/28/2024	N	Deep	MWA-31i(d)-022824	*< 0.53 U*	*< 0.30 U*	*< 0.44 U*	*< 0.29 U*	*< 0.35 U*	**66**	*< 0.28 U*	*< 0.35 U*	*< 0.42 U*	*< 0.43 U*
MWA-56d	2/28/2024	N	Deep	MWA-56d-022824	*< 5.3 U*	*< 3.0 U*	*< 4.4 U*	*< 2.9 U*	*< 3.5 U*	**170**	*< 2.8 U*	*< 3.5 U*	*< 4.2 U*	*< 4.3 U*
MWA-58d	2/28/2024	N	Deep	MWA-58d-022824	*< 5.3 U*	*< 3.0 U*	*< 4.4 U*	*< 2.9 U*	*< 3.5 U*	**190**	*< 2.8 U*	*< 3.5 U*	*< 4.2 U*	*< 4.3 U*
MWA-58d	2/28/2024	FD	Deep	DUP-02-022824	*< 0.53 U*	*< 0.30 U*	*< 0.44 U*	*< 0.29 U*	*< 0.35 U*	**150**	*< 0.28 U*	*< 0.35 U*	*< 0.42 U*	**0.44 j**
PA-18d	2/27/2024	N	Deep	PA-18d-022724	*< 0.53 U*	*< 0.30 U*	*< 0.44 U*	*< 0.29 U*	*< 0.35 U*	*< 0.26 U*	*< 0.28 U*	*< 0.35 U*	*< 0.42 U*	*< 0.43 U*
PA-19d	2/28/2024	N	Deep	PA-19d-022824	*< 530 U*	*< 300 U*	**5700**	*< 290 U*	*< 350 U*	*< 260 U*	*< 280 U*	*< 350 U*	*< 420 U*	*< 430 U*
PA-20d	2/28/2024	N	Deep	PA-20d-022824	*< 0.53 U*	*< 0.30 U*	**14**	*< 0.29 U*	*< 0.35 U*	*< 0.26 U*	*< 0.28 U*	*< 0.35 U*	*< 0.42 U*	*< 0.43 U*
PA-21d	2/28/2024	N	Deep	PA-21d-022824	*< 530 U*	*< 300 U*	**27000**	*< 290 U*	*< 350 U*	*< 260 U*	*< 280 U*	*< 350 U*	*< 420 U*	*< 430 U*
PA-22d	2/27/2024	N	Deep	PA-22d-022724	*< 0.53 U*	*< 0.30 U*	*< 0.44 U*	*< 0.29 U*	*< 0.35 U*	**12**	*< 0.28 U*	*< 0.35 U*	*< 0.42 U*	*< 0.43 U*
PA-23d	2/27/2024	N	Deep	PA-23d-022724	*< 0.53 U*	*< 0.30 U*	*< 0.44 U*	*< 0.29 U*	*< 0.35 U*	*< 0.26 U*	*< 0.28 U*	*< 0.35 U*	*< 0.42 U*	*< 0.43 U*
PA-24d	2/27/2024	N	Deep	PA-24d-022724	*< 0.53 U*	*< 0.30 U*	*< 0.44 U*	*< 0.29 U*	*< 0.35 U*	*< 0.26 U*	*< 0.28 U*	*< 0.35 U*	*< 0.42 U*	*< 0.43 U*
PA-25d	2/27/2024	N	Deep	PA-25d-022724	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 UJ*	*< 0.030 U*	*< 0.14 U*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
PA-26d	2/26/2024	N	Deep	PA-26d-022624	*< 0.083 U*	*< 0.025 U*	*< 0.060 U*	*< 0.050 U*	*< 0.096 U*	*< 0.030 U*	*< 0.14 UJ*	*< 0.055 U*	*< 0.090 U*	*< 0.055 U*
PA-27d	2/27/2024	N	Deep	PA-27d-022724	*< 0.53 U*	*< 0.30 U*	*< 0.44 U*	*< 0.29 U*	*< 0.35 U*	*< 0.26 U*	*< 0.28 U*	**0.54 j**	*< 0.42 U*	*< 0.43 U*
PA-30d	2/28/2024	N	Deep	PA-30d-022824	*< 530 U*	*< 300 U*	**18000**	*< 290 U*	*< 350 U*	*< 260 U*	*< 280 U*	*< 350 U*	*< 420 U*	*< 430 U*

Notes:
Bolded values indicate concentrations above the Method Detection Limit.
Shaded values indicate concentrations above the FSWP SHSC.
< = Compound not detected. Method Detection Limit shown.
µg/L = micrograms per liter
FD = Field Duplicate Sample
FSWP SHSC = Feasibility Study Work Plan Indirect Exposure Pathway Selected Hot Spot Criteria
N = Normal Environmental Sample
NE = Not Established
SW8260C analyses performed by TestAmerica - Seattle, WA of Seattle.

Qualifiers - Organic:
j = The analyte was positively identified below the RDL; associated numerical value is the approximate concentration of the analyte in the sample.
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits.
U = Analyte was analyzed for, but not detected above, the limit displayed.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

Table 2-1
Volatile Organic Compounds Results
Arkema Quarter 1, 2024, Groundwater Monitoring Report
Arkema Inc. Facility
Portland, Oregon

				Analyte	Dibromomethane	Dichlorodifluoromethane (Freon 12)	Ethylbenzene	Ethylene dibromide	Hexachlorobutadiene	Isopropylbenzene (Cumene)	m,p-Xylenes	Methyl tert-butyl ether	Methylene chloride	Naphthalene
				Unit	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
				FSWP SHSC (shaded values indicate results above the value shown)	NE	NE	7.3	NE	0.01	NE	1.8	NE	59	12
Location ID	**Sample Date**	**Sample Type**	**Aquifer Classification**	**Sample ID**										
MWA-41	2/26/2024	N	Shallow	MWA-41-022624	*< 0.062 U*	*< 0.13 UJ*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
MWA-63	2/27/2024	N	Shallow	MWA-63-022724	*< 3.4 U*	*< 5.3 U*	*< 5.0 U*	*< 4.0 U*	*< 7.9 U*	*< 4.4 U*	*< 5.3 U*	*< 4.4 U*	*< 14 U*	*< 9.3 U*
MWA-82	2/25/2024	N	Shallow	MWA-82-022524	*< 0.062 U*	*< 0.13 UJ*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-03	2/26/2024	N	Shallow	PA-03-022624	*< 0.062 U*	*< 0.13 UJ*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-04	2/27/2024	N	Shallow	PA-04-022724	*< 0.062 U*	*< 0.13 U*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-04	2/27/2024	FD	Shallow	DUP-01-022724	*< 0.062 U*	*< 0.13 U*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-08	2/26/2024	N	Shallow	PA-08-022624	*< 0.062 U*	*< 0.13 UJ*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-09	2/26/2024	N	Shallow	PA-09-022624	*< 0.062 U*	*< 0.13 UJ*	**0.035 j**	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-31	2/27/2024	N	Shallow	PA-31-022724	*< 0.062 U*	*< 0.13 U*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
MWA-81i	2/26/2024	N	Intermediate	MWA-81i-022624	*< 0.062 U*	*< 0.13 UJ*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-10i	2/27/2024	N	Intermediate	PA-10i-022724	*< 0.062 U*	*< 0.13 U*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-15i	2/26/2024	N	Intermediate	PA-15i-022624	*< 0.062 U*	*< 0.13 UJ*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-16i	2/27/2024	N	Intermediate	PA-16i-022724	*< 0.062 U*	*< 0.13 U*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-17iR	2/26/2024	N	Intermediate	PA-17iR-022624	*< 0.062 U*	*< 0.13 UJ*	**0.078 j**	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	**0.14 j**	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-32i	2/28/2024	N	Intermediate	PA-32i-022824	*< 0.062 U*	*< 0.13 U*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-44i	2/25/2024	N	Intermediate	PA-44i-022524	*< 0.062 U*	*< 0.13 UJ*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
MWA-11i(d)	2/28/2024	N	Deep	MWA-11i(d)-022824	*< 0.062 U*	*< 0.13 U*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
MWA-31i(d)	2/28/2024	N	Deep	MWA-31i(d)-022824	*< 0.34 U*	*< 0.53 U*	*< 0.50 U*	*< 0.40 U*	*< 0.79 U*	*< 0.44 U*	*< 0.53 U*	*< 0.44 U*	**1.5 j**	*< 0.93 U*
MWA-56d	2/28/2024	N	Deep	MWA-56d-022824	*< 3.4 U*	*< 5.3 U*	*< 5.0 U*	*< 4.0 U*	*< 7.9 U*	*< 4.4 U*	*< 5.3 U*	*< 4.4 U*	*< 14 U*	*< 9.3 U*
MWA-58d	2/28/2024	N	Deep	MWA-58d-022824	*< 3.4 U*	*< 5.3 U*	*< 5.0 U*	*< 4.0 U*	*< 7.9 U*	*< 4.4 U*	*< 5.3 U*	*< 4.4 U*	*< 14 U*	*< 9.3 U*
MWA-58d	2/28/2024	FD	Deep	DUP-02-022824	*< 0.34 U*	*< 0.53 U*	*< 0.50 U*	*< 0.40 U*	*< 0.79 U*	*< 0.44 U*	*< 0.53 U*	*< 0.44 U*	**1.4 j**	*< 0.93 U*
PA-18d	2/27/2024	N	Deep	PA-18d-022724	*< 0.34 U*	*< 0.53 U*	*< 0.50 U*	*< 0.40 U*	*< 0.79 U*	*< 0.44 U*	*< 0.53 U*	*< 0.44 U*	*< 1.4 U*	*< 0.93 U*
PA-19d	2/28/2024	N	Deep	PA-19d-022824	*< 340 U*	*< 530 U*	*< 500 U*	*< 400 U*	*< 790 U*	*< 440 U*	*< 530 U*	*< 440 U*	*< 1400 U*	*< 930 U*
PA-20d	2/28/2024	N	Deep	PA-20d-022824	*< 0.34 U*	*< 0.53 U*	*< 0.50 U*	*< 0.40 U*	*< 0.79 U*	*< 0.44 U*	*< 0.53 U*	*< 0.44 U*	*< 1.4 U*	*< 0.93 U*
PA-21d	2/28/2024	N	Deep	PA-21d-022824	*< 340 U*	*< 530 U*	*< 500 U*	*< 400 U*	*< 790 U*	*< 440 U*	*< 530 U*	*< 440 U*	*< 1400 U*	*< 930 U*
PA-22d	2/27/2024	N	Deep	PA-22d-022724	*< 0.34 U*	*< 0.53 U*	*< 0.50 U*	*< 0.40 U*	*< 0.79 U*	*< 0.44 U*	*< 0.53 U*	*< 0.44 U*	*< 1.4 U*	*< 0.93 U*
PA-23d	2/27/2024	N	Deep	PA-23d-022724	*< 0.34 U*	*< 0.53 U*	*< 0.50 U*	*< 0.40 U*	*< 0.79 U*	*< 0.44 U*	*< 0.53 U*	*< 0.44 U*	*< 1.4 U*	*< 0.93 U*
PA-24d	2/27/2024	N	Deep	PA-24d-022724	*< 0.34 U*	*< 0.53 U*	*< 0.50 U*	*< 0.40 U*	*< 0.79 U*	*< 0.44 U*	*< 0.53 U*	*< 0.44 U*	*< 1.4 U*	*< 0.93 U*
PA-25d	2/27/2024	N	Deep	PA-25d-022724	*< 0.062 U*	*< 0.13 U*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	*< 0.070 U*	*< 1.2 U*	*< 0.22 U*
PA-26d	2/26/2024	N	Deep	PA-26d-022624	*< 0.062 U*	*< 0.13 UJ*	*< 0.030 U*	*< 0.025 U*	*< 0.067 U*	*< 0.19 U*	*< 0.12 U*	**0.087 j**	*< 1.2 U*	*< 0.22 U*
PA-27d	2/27/2024	N	Deep	PA-27d-022724	*< 0.34 U*	*< 0.53 U*	*< 0.50 U*	*< 0.40 U*	*< 0.79 U*	*< 0.44 U*	*< 0.53 U*	*< 0.44 U*	*< 1.4 U*	*< 0.93 U*
PA-30d	2/28/2024	N	Deep	PA-30d-022824	*< 340 U*	*< 530 U*	*< 500 U*	*< 400 U*	*< 790 U*	*< 440 U*	*< 530 U*	*< 440 U*	*< 1400 U*	*< 930 U*

Notes:
Bolded values indicate concentrations above the Method Detection Limit.
Shaded values indicate concentrations above the FSWP SHSC.
< = Compound not detected. Method Detection Limit shown.
µg/L = micrograms per liter
FD = Field Duplicate Sample
FSWP SHSC = Feasibility Study Work Plan Indirect Exposure Pathway Selected Hot Spot Criteria
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SW8260C analyses performed by TestAmerica - Seattle, WA of Seattle.

Qualifiers - Organic:
j = The analyte was positively identified below the RDL; associated numerical value is the approximate concentration of the analyte in the sample.
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U = Analyte was analyzed for, but not detected above, the limit displayed.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

Table 2-1
Volatile Organic Compounds Results
Arkema Quarter 1, 2024, Groundwater Monitoring Report
Arkema Inc. Facility
Portland, Oregon

Location ID	Sample Date	Sample Type	Aquifer Classification	Sample ID	n-Butylbenzene	n-Propylbenzene	o-Chlorotoluene (2-chlorotoluene)	o-Xylene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene
Analyte														
Unit					µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
FSWP SHSC (shaded values indicate results above the value shown)					NE	NE	NE	13	NE	NE	NE	0.33	9.8	1000
MWA-41	2/26/2024	N	Shallow	MWA-41-022624	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
MWA-63	2/27/2024	N	Shallow	MWA-63-022724	*< 4.4 U*	*< 5.0 U*	*< 5.1 U*	*< 3.9 U*	*< 4.9 U*	*< 5.3 U*	*< 5.8 U*	**8.9 j**	*< 3.9 U*	*< 3.9 U*
MWA-82	2/25/2024	N	Shallow	MWA-82-022524	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	**0.61**	*< 0.050 U*	*< 0.033 U*
PA-03	2/26/2024	N	Shallow	PA-03-022624	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	**0.18 j**	*< 0.033 U*
PA-04	2/27/2024	N	Shallow	PA-04-022724	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	**0.13 j**	*< 0.050 U*	*< 0.033 U*
PA-04	2/27/2024	FD	Shallow	DUP-01-022724	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	**0.12 j**	*< 0.050 U*	*< 0.033 U*
PA-08	2/26/2024	N	Shallow	PA-08-022624	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	**0.21 j**	*< 0.050 U*	*< 0.033 U*
PA-09	2/26/2024	N	Shallow	PA-09-022624	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	**0.29**	**0.083 j**	*< 0.033 U*
PA-31	2/27/2024	N	Shallow	PA-31-022724	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	**0.17 j**	*< 0.050 U*	*< 0.033 U*
MWA-81i	2/26/2024	N	Intermediate	MWA-81i-022624	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
PA-10i	2/27/2024	N	Intermediate	PA-10i-022724	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
PA-15i	2/26/2024	N	Intermediate	PA-15i-022624	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
PA-16i	2/27/2024	N	Intermediate	PA-16i-022724	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
PA-17iR	2/26/2024	N	Intermediate	PA-17iR-022624	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	**0.15 j**	*< 0.033 U*
PA-32i	2/28/2024	N	Intermediate	PA-32i-022824	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
PA-44i	2/25/2024	N	Intermediate	PA-44i-022524	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
MWA-11i(d)	2/28/2024	N	Deep	MWA-11i(d)-022824	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
MWA-31i(d)	2/28/2024	N	Deep	MWA-31i(d)-022824	*< 0.44 U*	*< 0.50 U*	*< 0.51 U*	*< 0.39 U*	*< 0.49 U*	*< 0.53 UJ*	*< 0.58 U*	*< 0.41 U*	*< 0.39 U*	*< 0.39 U*
MWA-56d	2/28/2024	N	Deep	MWA-56d-022824	*< 4.4 U*	*< 5.0 U*	*< 5.1 U*	*< 3.9 U*	*< 4.9 U*	*< 5.3 U*	*< 5.8 U*	*< 4.1 U*	*< 3.9 U*	*< 3.9 U*
MWA-58d	2/28/2024	N	Deep	MWA-58d-022824	*< 4.4 U*	*< 5.0 U*	*< 5.1 U*	*< 3.9 U*	*< 4.9 U*	*< 5.3 U*	*< 5.8 U*	*< 4.1 U*	*< 3.9 U*	*< 3.9 U*
MWA-58d	2/28/2024	FD	Deep	DUP-02-022824	*< 0.44 U*	*< 0.50 U*	*< 0.51 U*	*< 0.39 U*	*< 0.49 U*	*< 0.53 U*	*< 0.58 U*	*< 0.41 U*	*< 0.39 U*	*< 0.39 U*
PA-18d	2/27/2024	N	Deep	PA-18d-022724	*< 0.44 U*	*< 0.50 U*	*< 0.51 U*	*< 0.39 U*	*< 0.49 U*	*< 0.53 U*	*< 0.58 U*	*< 0.41 U*	*< 0.39 U*	*< 0.39 U*
PA-19d	2/28/2024	N	Deep	PA-19d-022824	*< 440 U*	*< 500 U*	*< 510 U*	*< 390 U*	*< 490 U*	*< 530 U*	*< 580 U*	*< 410 U*	*< 390 U*	*< 390 U*
PA-20d	2/28/2024	N	Deep	PA-20d-022824	*< 0.44 U*	*< 0.50 U*	*< 0.51 U*	*< 0.39 U*	*< 0.49 U*	*< 0.53 U*	*< 0.58 U*	*< 0.41 U*	*< 0.39 U*	*< 0.39 U*
PA-21d	2/28/2024	N	Deep	PA-21d-022824	*< 440 U*	*< 500 U*	*< 510 U*	*< 390 U*	*< 490 U*	*< 530 U*	*< 580 U*	*< 410 U*	*< 390 U*	*< 390 U*
PA-22d	2/27/2024	N	Deep	PA-22d-022724	*< 0.44 U*	*< 0.50 U*	*< 0.51 U*	*< 0.39 U*	*< 0.49 U*	*< 0.53 U*	*< 0.58 U*	*< 0.41 U*	*< 0.39 U*	*< 0.39 U*
PA-23d	2/27/2024	N	Deep	PA-23d-022724	*< 0.44 U*	*< 0.50 U*	*< 0.51 U*	*< 0.39 U*	*< 0.49 U*	*< 0.53 U*	*< 0.58 U*	*< 0.41 U*	**4.0**	*< 0.39 U*
PA-24d	2/27/2024	N	Deep	PA-24d-022724	*< 0.44 U*	*< 0.50 U*	*< 0.51 U*	*< 0.39 U*	*< 0.49 U*	*< 0.53 U*	*< 0.58 U*	*< 0.41 U*	*< 0.39 U*	*< 0.39 U*
PA-25d	2/27/2024	N	Deep	PA-25d-022724	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	*< 0.050 U*	*< 0.033 U*
PA-26d	2/26/2024	N	Deep	PA-26d-022624	*< 0.23 U*	*< 0.091 U*	*< 0.12 U*	*< 0.15 U*	*< 0.17 U*	*< 0.19 U*	*< 0.26 U*	*< 0.084 U*	**0.082 j**	*< 0.033 U*
PA-27d	2/27/2024	N	Deep	PA-27d-022724	*< 0.44 U*	*< 0.50 U*	*< 0.51 U*	*< 0.39 U*	*< 0.49 U*	*< 0.53 U*	*< 0.58 U*	*< 0.41 U*	*< 0.39 U*	*< 0.39 U*
PA-30d	2/28/2024	N	Deep	PA-30d-022824	*< 440 U*	*< 500 U*	*< 510 U*	*< 390 U*	*< 490 U*	*< 530 U*	*< 580 U*	*< 410 U*	*< 390 U*	*< 390 U*

Notes:
Bolded values indicate concentrations above the Method Detection Limit.
Shaded values indicate concentrations above the FSWP SHSC.
< = Compound not detected. Method Detection Limit shown.
µg/L = micrograms per liter
FD = Field Duplicate Sample
FSWP SHSC = Feasibility Study Work Plan Indirect Exposure Pathway Selected Hot Spot Criteria
N = Normal Environmental Sample
NE = Not Established
SW8260C analyses performed by TestAmerica - Seattle, WA of Seattle.

Qualifiers - Organic:
j = The analyte was positively identified below the RDL; associated numerical value is the approximate concentration of the analyte in the sample.
J- = The concentration of the sample is considered to be biased low, as the associated QC results are outside the lower control limits.
J+ = The concentration of the sample is considered to be biased high, as the associated QC results exceed the upper control limits.
U = Analyte was analyzed for, but not detected above, the limit displayed.
UJ = Analyte was analyzed for, but not detected. The detection limit is a quantitative estimate.

Table 2-1
Volatile Organic Compounds Results
Arkema Quarter 1, 2024, Groundwater Monitoring Report
Arkema Inc. Facility
Portland, Oregon

				Analyte	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane (Freon 11)	Vinyl chloride
				Unit	µg/L	µg/L	µg/L	µg/L
				FSWP SHSC (shaded values indicate results above the value shown)	NE	3	NE	0.24
Location ID	**Sample Date**	**Sample Type**	**Aquifer Classification**	**Sample ID**				
MWA-41	2/26/2024	N	Shallow	MWA-41-022624	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	*< 0.040 U*
MWA-63	2/27/2024	N	Shallow	MWA-63-022724	*< 4.1 U*	*< 2.6 U*	*< 3.6 U*	*< 2.2 U*
MWA-82	2/25/2024	N	Shallow	MWA-82-022524	*< 0.092 U*	**0.35**	*< 0.12 U*	*< 0.040 U*
PA-03	2/26/2024	N	Shallow	PA-03-022624	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	*< 0.040 U*
PA-04	2/27/2024	N	Shallow	PA-04-022724	*< 0.092 U*	*< 0.066 U*	*< 0.12 UJ*	*< 0.040 UJ*
PA-04	2/27/2024	FD	Shallow	DUP-01-022724	*< 0.092 U*	*< 0.066 U*	*< 0.12 UJ*	*< 0.040 UJ*
PA-08	2/26/2024	N	Shallow	PA-08-022624	*< 0.092 U*	**0.11 j**	*< 0.12 U*	*< 0.040 U*
PA-09	2/26/2024	N	Shallow	PA-09-022624	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	*< 0.040 U*
PA-31	2/27/2024	N	Shallow	PA-31-022724	*< 0.092 U*	**0.070 j**	*< 0.12 UJ*	*< 0.040 UJ*
MWA-81i	2/26/2024	N	Intermediate	MWA-81i-022624	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	*< 0.040 U*
PA-10i	2/27/2024	N	Intermediate	PA-10i-022724	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	**0.12**
PA-15i	2/26/2024	N	Intermediate	PA-15i-022624	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	*< 0.040 U*
PA-16i	2/27/2024	N	Intermediate	PA-16i-022724	*< 0.092 U*	*< 0.066 U*	*< 0.12 UJ*	*< 0.040 UJ*
PA-17iR	2/26/2024	N	Intermediate	PA-17iR-022624	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	*< 0.040 U*
PA-32i	2/28/2024	N	Intermediate	PA-32i-022824	*< 0.092 U*	*< 0.066 U*	*< 0.12 UJ*	**0.15**
PA-44i	2/25/2024	N	Intermediate	PA-44i-022524	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	*< 0.040 U*
MWA-11i(d)	2/28/2024	N	Deep	MWA-11i(d)-022824	*< 0.092 U*	*< 0.066 U*	*< 0.12 UJ*	*< 0.040 UJ*
MWA-31i(d)	2/28/2024	N	Deep	MWA-31i(d)-022824	*< 0.41 U*	*< 0.26 U*	*< 0.36 U*	*< 0.22 U*
MWA-56d	2/28/2024	N	Deep	MWA-56d-022824	*< 4.1 U*	*< 2.6 U*	*< 3.6 U*	*< 2.2 U*
MWA-58d	2/28/2024	N	Deep	MWA-58d-022824	*< 4.1 U*	*< 2.6 U*	*< 3.6 U*	*< 2.2 U*
MWA-58d	2/28/2024	FD	Deep	DUP-02-022824	*< 0.41 U*	**0.26 j**	*< 0.36 U*	*< 0.22 U*
PA-18d	2/27/2024	N	Deep	PA-18d-022724	*< 0.41 U*	*< 0.26 U*	*< 0.36 U*	*< 0.22 U*
PA-19d	2/28/2024	N	Deep	PA-19d-022824	*< 410 U*	*< 260 U*	*< 360 U*	*< 220 U*
PA-20d	2/28/2024	N	Deep	PA-20d-022824	*< 0.41 U*	*< 0.26 U*	*< 0.36 U*	*< 0.22 U*
PA-21d	2/28/2024	N	Deep	PA-21d-022824	*< 410 U*	*< 260 U*	*< 360 U*	*< 220 U*
PA-22d	2/27/2024	N	Deep	PA-22d-022724	*< 0.41 U*	*< 0.26 U*	*< 0.36 U*	*< 0.22 U*
PA-23d	2/27/2024	N	Deep	PA-23d-022724	*< 0.41 U*	*< 0.26 U*	*< 0.36 U*	*< 0.22 U*
PA-24d	2/27/2024	N	Deep	PA-24d-022724	*< 0.41 U*	*< 0.26 U*	*< 0.36 U*	*< 0.22 U*
PA-25d	2/27/2024	N	Deep	PA-25d-022724	*< 0.092 U*	*< 0.066 U*	*< 0.12 UJ*	*< 0.040 UJ*
PA-26d	2/26/2024	N	Deep	PA-26d-022624	*< 0.092 U*	*< 0.066 U*	*< 0.12 U*	*< 0.040 U*
PA-27d	2/27/2024	N	Deep	PA-27d-022724	*< 0.41 U*	*< 0.26 U*	*< 0.36 U*	*< 0.22 U*
PA-30d	2/28/2024	N	Deep	PA-30d-022824	*< 410 U*	*< 260 U*	*< 360 U*	*< 220 U*

Notes:
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< = Compound not detected. Method Detection Limit shown.
µg/L = micrograms per liter
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FSWP SHSC = Feasibility Study Work Plan Indirect Exposure Pathway Selected Hot Spot Criteria
N = Normal Environmental Sample
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SW8260C analyses performed by TestAmerica - Seattle, WA of Seattle.

Qualifiers - Organic:
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Table 2-2
Additional Compounds Results
Arkema Quarter 1, 2024, Groundwater Monitoring Report
Arkema Inc. Facility
Portland, Oregon

				Analyte	Chloride	Perchlorate
				Unit	mg/L	µg/L
				FSWP SHSC (shaded values indicate results above the value shown)	230	1,800
Location ID	Sample Date	Sample Type	Aquifer Classification	Sample ID		
MWA-41	2/26/2024	N	Shallow	MWA-41-022624	**8.0**	*< 2.0 U*
MWA-63	2/27/2024	N	Shallow	MWA-63-022724	**4.5**	*< 2.0 U*
MWA-82	2/25/2024	N	Shallow	MWA-82-022524	**7.9**	**20**
PA-03	2/26/2024	N	Shallow	PA-03-022624	**4.2**	*< 2.0 U*
PA-04	2/27/2024	N	Shallow	PA-04-022724	**5.3**	*< 4.0 U*
PA-04	2/27/2024	FD	Shallow	DUP-01-022724	**5.3**	*< 4.0 U*
PA-08	2/26/2024	N	Shallow	PA-08-022624	**140**	*< 10 U*
PA-09	2/26/2024	N	Shallow	PA-09-022624	**160**	*< 20 U*
PA-31	2/27/2024	N	Shallow	PA-31-022724	**3.5**	*< 2.0 U*
MWA-81i	2/26/2024	N	Intermediate	MWA-81i-022624	**23**	*< 2.0 U*
PA-10i	2/27/2024	N	Intermediate	PA-10i-022724	**55**	*< 10 U*
PA-15i	2/26/2024	N	Intermediate	PA-15i-022624	**20**	*< 10 U*
PA-16i	2/27/2024	N	Intermediate	PA-16i-022724	**12**	*< 20 U*
PA-17iR	2/26/2024	N	Intermediate	PA-17iR-022624	**32**	*< 2.0 U*
PA-32i	2/28/2024	N	Intermediate	PA-32i-022824	**7,600**	*< 20 U*
PA-44i	2/25/2024	N	Intermediate	PA-44i-022524	**93**	*< 10 U*
MWA-11i(d)	2/28/2024	N	Deep	MWA-11i(d)-022824	**6,300**	*< 10 U*
MWA-31i(d)	2/28/2024	N	Deep	MWA-31i(d)-022824	**26,000**	**100,000**
MWA-56d	2/28/2024	N	Deep	MWA-56d-022824	**14,000**	**16,000**
MWA-58d	2/28/2024	N	Deep	MWA-58d-022824	**19,000**	**50,000**
MWA-58d	2/28/2024	FD	Deep	DUP-02-022824	**20,000**	**49,000**
PA-18d	2/27/2024	N	Deep	PA-18d-022724	**98**	*< 20 U*
PA-19d	2/28/2024	N	Deep	PA-19d-022824	**330**	*< 10 U*
PA-20d	2/28/2024	N	Deep	PA-20d-022824	**820**	*< 10 U*
PA-21d	2/28/2024	N	Deep	PA-21d-022824	**300**	*< 10 U*
PA-22d	2/27/2024	N	Deep	PA-22d-022724	**5,300**	**14,000**
PA-23d	2/27/2024	N	Deep	PA-23d-022724	**9,700**	*< 100 U*
PA-24d	2/27/2024	N	Deep	PA-24d-022724	**30,000**	*< 400 U*
PA-25d	2/27/2024	N	Deep	PA-25d-022724	**13**	*< 2.0 U*
PA-26d	2/26/2024	N	Deep	PA-26d-022624	**64**	*< 2.0 U*
PA-27d	2/27/2024	N	Deep	PA-27d-022724	**460**	*< 20 U*
PA-30d	2/28/2024	N	Deep	PA-30d-022824	**370**	*< 20 U*

Notes:
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µg/L = micrograms per liter
mg/L = milligrams per liter
FD = Field Duplicate Sample
FSWP SHSC = Feasibility Study Work Plan Indirect Exposure Pathway Selected Hot Spot Criteria
N = Normal Environmental Sample
E300 analyses performed by TestAmerica - Seattle, WA of Seattle.
E314.0 analyses performed by TestAmerica - Sacramento, CA of West Sacramento.
U = Analyte was analyzed for, but not detected above, the limit displayed.