

2024 Annual Report Interim Action Performance Monitoring and Remedial Action Compliance Monitoring

Pasco Landfill NPL Site
Pasco, Washington

Submitted to:

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On Behalf of the:

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Data Validation Report, Pasco Sanitary Landfill Groundwater Monitoring, September 2024 Sampling
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2024 – East Pasco Plume Area – Well Location Survey

1 INTRODUCTION

On behalf of the Industrial Waste Area Generators Group III (IWAG), PBS Engineering and Environmental LLC (PBS) has prepared this *2024 Annual Report—Interim Action Performance Monitoring and Remedial Action Compliance Monitoring* (2024 Annual Report) for the Pasco Landfill National Priorities List (NPL) Site (Site) in Pasco, Washington. This report is being submitted to the Washington State Department of Ecology (Ecology) in support of the ongoing obligations of the potentially liable persons (PLPs) under the 2012 Agreed Order No. DE 9240 (Agreed Order), Enforcement Order No. DE 16899 (Enforcement Order), which went into effect on November 8, 2019, and the First Amendment to the Enforcement Order, dated November 20, 2024.

This 2024 Annual Report summarizes the results of interim action performance monitoring and remedial action compliance monitoring activities conducted during 2024 with respect to sitewide groundwater compliance monitoring and the Industrial Waste Areas (IWAs) at the Site. These activities included supplemental groundwater monitoring during Phase 1 in situ thermal remediation (ISTR) of Zone A, operation and maintenance of the Zone A soil vapor extraction (SVE) system prior to transition to ISTR vapor recovery (VR), regenerative thermal oxidizer (RTO) system operation and maintenance, associated waste management, performance monitoring of Zones C/D and E, and institutional controls. The IWAG has developed and submitted to Ecology a separate 2024 Annual Report summarizing the monitoring and management actions conducted in 2024 with respect to the Municipal Solid Waste (MSW) disposal areas at the Site.

A significant component of the IWA-related activities conducted by the IWAG in 2024 was final preparation for and implementation of ISTR in Zone A following Ecology approval of the *Zone A Post-Excavation Engineering Design Report* (Post-Excavation EDR) dated September 2023. This report does not discuss ISTR activities or ISTR-related waste management, which will be reported in accordance with the requirements of the Post-Excavation EDR.

This 2024 Annual Report contains the following enclosures:

- Attachment A contains data validation reports for groundwater monitoring events from June through November 2024.
- Attachment B contains waste shipment records for wastes generated through SVE and RTO system operation and transported off site for treatment or disposal during the second half of 2024.
- Attachment C contains monthly inspection checklists for the covers, detention/evaporation basins, and perimeter fencing for Zones A, C/D, and E during the second half of 2024.
- Attachment D contains the “2024 – East Pasco Plume Area – Well Location Survey” memorandum prepared by the City of Pasco.

1.1 Site Location

The general location of the Site and the Pasco Sanitary Landfill (PSL) property are depicted in Figure 1. The PSL property is located approximately 1.5 miles northeast of the city of Pasco, in the southwest quarter of Section 15 and the northwest quarter of Section 22, Township 9 North, Range 30 East, Willamette Meridian, located in Franklin County, Washington. The PSL property is located on Dietrich Road near the intersection of Pasco-Kahlotus Road and US Highway 12.

The formal definition of the Site is presented in the Agreed and Enforcement Orders. The Site boundary, as defined in the Orders and illustrated in Exhibit A of the Orders, encompasses both the PSL property and the Groundwater Protection Area (GPA).

The PSL property occupies an area of more than 250 acres consisting of rolling hills surrounded by irrigated cropland. The former MSW landfill (MSW Landfill), Balefill and Inert Waste Disposal Areas, burn trenches, IWAs, and the New Waste, Inc. (NWI) landfill are located within the PSL property. Figure 2 shows the locations of each waste area on the PSL property. The NWI landfill is a modern and fully lined solid waste landfill located to the north of the MSW Landfill that opened on May 31, 1993, and closed in 2002. The NWI landfill is not part of the Site and is not considered further in this report. In addition, Zone B is no longer part of the Site. Data and discussion related to Zone B are presented in a separate report prepared by Bayer Crop Science.

1.2 Background

The operational and interim action history of the Site is documented in the *Draft Final Focused Feasibility Study – Pasco Landfill National Priorities List Site (FFS)*, dated August 31, 2017. The reviewer is directed to the FFS for information related to the Site background.

The interim and remedial actions were conducted under the Agreed and Enforcement Orders in accordance with the following Ecology-approved documents:

- *Zone A Removal Action Supplemental Groundwater Monitoring Plan*, dated February 28, 2020, resubmitted April 16, 2020, with a revised table of reporting limits, approved by Ecology on April 22, 2020
- *Final Operations and Maintenance Manual for Industrial Waste Areas: Zones C/D and E* dated November 11, 2020, and approved by Ecology on November 17, 2020
- *Final Site-wide Groundwater Compliance Monitoring Plan*, dated December 15, 2020, approved by Ecology on February 1, 2021

Additional plans pertaining to Site operations are referenced in each section below.

The following summary reports pertaining to groundwater monitoring and interim actions under the Agreed and Enforcement Orders were submitted to Ecology during 2024:

- *2023 Annual Report: Regenerative Thermal Oxidizer Performance Monitoring*, dated January 31, 2024
- *2023 Annual Report - Groundwater Monitoring and Interim Action Performance Monitoring*, submitted March 18, 2024
- *Source Test Report for Phase 1 2024 Compliance Testing Regenerative Thermal Oxidizer (RTO)*, dated September 9, 2024
- *2024 Semiannual Report*, dated September 16, 2024

Additionally, 12 Monthly Status Reports were submitted to Ecology during 2024. Each monthly report was submitted on or around the 10th day of the month and summarize activities and publications delivered to Ecology during the preceding month. Separate monthly progress reports documenting both the ISTR activities within Zone A and the activities related to the MSW landfill were also submitted to Ecology throughout the year.

2 OBJECTIVES

The specific objectives of the interim action performance monitoring and remedial action compliance monitoring conducted at the Site include:

- Assessment of groundwater quality relative to the Site cleanup levels (CULs) in the Enforcement Order;
- Evaluation of trends in groundwater quality;
- Evaluation of the performance of the SVE system operating beneath the Zone A IWA prior to the start of ISTR;
- Evaluation of the RTO system used to treat SVE system effluent and vapor recovered from ISTR operations within Zone A;
- Documentation of waste management from Site monitoring and operations;
- Monitoring of the Zone C/D and E landfill caps; and
- Monitoring of institutional controls at the Site.

2.1 Contaminants of Potential Concern

Contaminants of potential concern (COPCs) were evaluated and defined in Ecology’s *Cleanup Action Plan* (CAP), which was presented as Exhibit B of the Enforcement Order in August 2019.

2.2 Groundwater Cleanup Levels

The groundwater CULs for the Site were established in the CAP. For this annual report, results from groundwater monitoring are compared to these CULs, hereafter referred to as Site CULs. In the Enforcement Order, the point of compliance was established as the standard point of compliance, defined as “...throughout the site from the uppermost level of the saturated zone extending vertically to the lowest depth that potentially could be affected by the site.”

For detected compounds with no Site-specific CUL, Model Toxics Control Act (MTCA) Method B CULs are used. The values used are listed in the *Zone A Removal Action Supplemental Groundwater Monitoring Plan* (Zone A Plan) and the *Final Site-wide Groundwater Compliance Monitoring Plan* (Site-Wide Groundwater CMP).

The following table summarizes the Site CULs.

Compound	CUL (µg/L)
Tetrachloroethene	0.69
Trichloroethene	2.5
1,1-Dichloroethene	0.057
cis-1,2-Dichloroethene	12
Vinyl Chloride	0.053
1,1,1-Trichloroethane	200
1,2-Dichloroethane	0.38
1,1-Dichloroethane	7.68
Benzene	1.2
Methylene Chloride	5
Toluene	157
Total Chromium	100

µg/L = micrograms per liter

3 GROUNDWATER MONITORING

3.1 Methodology

3.1.1 *Groundwater Monitoring Wells*

Groundwater monitoring at the Site was conducted in accordance with schedules and field sampling methods presented in:

- Zone A Plan, dated February 28, 2020, re-submitted April 16, 2020, with a revised table of reporting limits, approved by Ecology on April 22, 2020.
- Site-Wide Groundwater CMP, dated December 15, 2020, approved by Ecology on February 1, 2021.
- Beginning in November 2024, additional groundwater monitoring was conducted between the regularly scheduled supplemental and quarterly monitoring events, referred to as “3-week” events, in accordance with the Ecology letter dated November 8, 2024. This letter also expanded the set of wells to be monitored during the supplemental and quarterly monitoring events.

As part of the nine groundwater monitoring activities conducted in January, March, April, June, July, September, October, November, and December 2024, groundwater levels were measured at each monitoring well sampled to the nearest 0.01-foot. Additionally, beginning in November 2024, the potential for non-aqueous phase liquid (LNAPL) in the Zone A monitoring wells was measured as requested by Ecology. Figure 3 illustrates the location of each sampled well in the groundwater monitoring well network. Groundwater levels are not measured in the private off-property wells because those wells were not constructed in a manner allowing such measurements.

Quarterly groundwater samples were collected in January and July 2024; supplemental groundwater samples were collected in March, June, September, and December 2024; sitewide semiannual groundwater samples were collected in April and October 2024; and 3-week samples were collected in November and December 2024. Table 1 summarizes the wells sampled and the specific chemical analyses performed on each sample during each quarterly, supplemental, semiannual, and 3-week sampling event.

All laboratory data from groundwater samples collected at the Site during 2024 was submitted to a third-party data validator for evaluation. Data validation reports for the January through April 2024 groundwater sampling events were submitted in the 2024 Semiannual Report. Attachment A contains the data validation reports for the June, July, September, October, and November 2024 groundwater sampling events. Due to laboratory delays, the data validation report for December 2024 is not complete and will be included in the 2025 Semiannual Report due in September 2025. A list of all analytical methods utilized for groundwater sample analysis is provided in the data validation reports.

Following approval of this annual report, the laboratory analytical data from the June, July, September, October, and November 2024 groundwater sampling will be submitted to Ecology’s Environmental Information Management (EIM) System database as required by Ecology Policy 840, Data Submittal Requirements.

3.1.2 *Private Off-Property Wells*

The target sampling frequency for private off-property wells in the GPA is presented in the Site-Wide Groundwater CMP. At a minimum, the six wells listed in the plan, if functional and safely accessible, are sampled on a semiannual basis during April and October. If any compound is detected in a private well at a concentration that exceeds a Site CUL, that well would be moved to a quarterly sampling schedule. If all

analytical results are below the Site CULs in four consecutive quarterly samples, the well would then be moved back to a semiannual sampling schedule.

At the start of 2024, none of the analytical data from the samples collected in 2023 from any private well contained a volatile organic compound (VOC) concentration above a Site CUL. Therefore, the private wells were sampled semiannually during April and October of 2024, which is consistent with the frequency of private well monitoring in 2023.

The actual number of wells sampled during each semiannual event in 2024 is dependent upon many factors including whether permission was granted by the property owner, the well was safely accessible, and the equipment or piping were functional. The IWAG does not control or maintain the private wells and is not responsible for their upkeep or performance. Three wells—Bradley, Hand, and West—were sampled as scheduled in April and October 2024. The Montalvo and Yenny3 wells have been decommissioned and were therefore not sampled. The Yenny1 well was also not sampled, in coordination with Ecology, due to issues with cross-connection and backflow prevention. Table 1 summarizes the private wells sampled during 2024 and additional information regarding the private wells is included in section 3.3.2.6.

3.2 Groundwater Elevation Data

Groundwater elevation monitoring was performed at all sampled wells except the private off-property wells during all nine groundwater monitoring events during 2024. Table 2 and Figures 4 and 5 present the water level measurement data for 2024.

3.3 Groundwater Quality Findings

Well stabilization parameters collected during well purging are summarized in Table 3. Laboratory analytical results from groundwater monitoring during 2024 are summarized in Tables 4 through 7. For ease of review, the data summaries in Tables 4 and 5 only include compounds that were detected at a concentration exceeding a reporting limit specified in the approved groundwater monitoring plan.

Groundwater quality data are evaluated by well groupings in section 3.3.2 and by distribution of dissolved-phase contaminants in section 3.3.3. Overall concentration trends for 2024 are also discussed in relation to Remediation System Performance Monitoring in section 4.5.

3.3.1 Well Stabilization Parameters

Well stabilization parameters are collected to evaluate steady-state conditions in each well prior to sampling and to evaluate data relative to measurements collected across the Site during the same event. Conductivity, pH, dissolved oxygen (DO), and turbidity are the primary parameters used to evaluate steady-state conditions prior to sample collection. During well purging, temperature and oxidation-reduction potential (ORP) are also recorded. Well stabilization data are presented in Table 3.

3.3.2 Evaluation by Well Grouping

This section presents a discussion of the analytical results for the following groups of wells:

- Compliance Monitoring Wells
 - MSW Landfill
 - Zone A
 - Zone C/D
 - Zone E
- Sentinel Wells

- Property Boundary Wells
- Off-Property Downgradient Wells
- Upgradient Wells
- Private Off-Property Wells

These well groupings are based on the Site-Wide Groundwater CMP and results are shown in Tables 4, 5, and 6. Well locations are shown in Figure 3.

3.3.2.1 Compliance Monitoring Wells

Compliance monitoring consists of protection monitoring, performance monitoring, and confirmational monitoring. Protection monitoring confirms that human health and the environment are adequately protected during construction and operation of the cleanup action. Performance monitoring confirms that the cleanup action has attained cleanup and/or performance standards, including the Site CULs listed in section 2.2. Confirmational monitoring confirms the long-term effectiveness of the cleanup action once cleanup standards are attained.

Groundwater monitoring wells across the Site are used to monitor the effectiveness of remedial measures and track changes in contaminant concentrations and distribution over time. Site wells located on the downgradient boundary of a zone are grouped into wells monitoring groundwater quality at the MSW Landfill, Zone A, Zone C/D, and Zone E IWAs. The wells associated with each zone, and wells at the property boundary, downgradient of the property, and upgradient of the landfills are discussed below.

MSW Landfill Wells

The groundwater monitoring network for the hydraulically upgradient MSW Landfill consists of wells 4R, MW-16S, MW-17SR, MW-23S, MW-61S, MW-62S, and MW-63S. Table 1 summarizes the wells sampled and analyses performed on samples from the MSW Landfill wells. Samples for VOC and landfill parameter analysis were collected from all MSW wells in April and October of 2024, as well as total chromium from 4R, MW-16S, MW-61S, MW62S, and MW-63S in April and October 2024, all in accordance with the Site-Wide Groundwater CMP. Supplemental sampling for VOCs was conducted for all MSW wells in January, March, June, July, September, and December 2024, in accordance with the Rebound Test Work Plan, dated July 12, 2024.

Tetrachloroethene (PCE) was detected at a concentration of 0.87 micrograms per liter ($\mu\text{g/L}$) in well 4R during the September 2024 sampling event and at a concentration of 1.1 $\mu\text{g/L}$ during the October 2024 sampling event, which are both above the CUL of 0.69 $\mu\text{g/L}$. These PCE results at well 4R are consistent with historical detections and periodic CUL exceedances reported in recent annual reports. No other VOC concentrations exceeded a Site CUL in samples collected from the MSW Landfill wells; VOC data for the MSW Landfill wells are summarized in Table 4. There were no exceedances of the total chromium CUL for the MSW Landfill wells and data are summarized in Table 7. The landfill parameters analyzed include nitrate, ammonia, sulfate, manganese, total dissolved solids (TDS), total alkalinity, bicarbonate, carbonate, hydroxide, chloride, total organic carbon (TOC), calcium, iron, magnesium, potassium, and sodium and these data are summarized in Table 7.

Evaluation of MSW Landfill groundwater data is provided in the 2024 Annual Report for the MSW Landfill, which is submitted as a separate report.

Zone A Wells

The groundwater monitoring network for Zone A consisted of 11 wells during 2024. Wells MW-12S, MW-13S, MW-47S, MW-48S, MW-49S, MW-50S, MW-56S, MW-57S, MW-58S, and NVM-01 are completed in the

shallow portion of the aquifer, and well MW-471 is completed in the intermediate portion of the aquifer. Intermediate well MW-471 is paired with the adjacent shallow well MW-47S. Well MW-48S was a contingent well that was added to the monitoring network beginning in October 2024, with analyses and monitoring frequencies equivalent to MW-47S. Table 1 summarizes the analyses performed on samples from each Zone A performance monitoring well.

- VOC analysis was performed on samples from seven Zone A wells (MW-13S, MW-47S, MW-50S, MW-56S, MW-57S, MW-58S, and NVM-01) during the January and July 2024 quarterly monitoring events, in accordance with the Zone A Plan. VOC analysis was also performed on samples from eight Zone A wells (MW-13S, MW-47S, MW-47I, MW-50S, MW-56S, MW-57S, MW-58S, and NVM-01) during the March, June, and September supplemental monitoring events in accordance with the Zone A Plan. During the December supplemental monitoring event, three additional Zone A wells (MW-12S, MW-48S, and MW-49S) were added per Ecology's request in addition to the eight wells listed above. VOC analysis was performed on samples from all Zone A wells during the April and October 2024 semiannual monitoring events, as well as MW-48S in October only, in accordance with the Site-Wide Groundwater CMP. Finally, VOC analysis was performed on samples from Zone A wells MW-12S, MW-47S, MW-47I, MW-48S, MW-49S, MW-57S, MW-58S, and NVM-01 collected during the 3-week monitoring event in November 2024. Table 4 summarizes VOC data for the Zone A wells for the following discussion.

During 2024, 21 VOCs were detected across nine sampling events described above: 1,1-dichloroethane, 1,1-dichloroethene, 1,2,4-trimethylbenzene, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,3,5-trimethylbenzene, 4-methyl-2-pentanone, benzene, chlorobenzene, chloroform, cis-1,2-dichloroethene, ethylbenzene, isopropylbenzene, m- & p-xylenes, n-propylbenzene, o-xylene, styrene, PCE, toluene, trichloroethene (TCE), and vinyl chloride.

- Of the 21 detected VOCs, 12 were at concentrations that did not exceed either the Site CUL or the MTCA Method B values.
- Results for two VOCs, chloroform and m- & p- xylenes, exceeded a MTCA Method B value between October and December 2024. Neither of these VOCs have a Site CUL.
- The remaining seven VOCs—1,1-dichloroethene, benzene, cis-1,2-dichloroethene, PCE, toluene, TCE, and vinyl chloride—all exceeded Site CULs in at least one monitoring well between September and December 2024; PCE also exceeded its CUL in July.

The following discussion points provide additional details for the nine VOCs that had exceedances for Site CULs or MTCA Method B values in 2024.

- For July quarterly monitoring, the first VOC exceedance occurred at well NVM-01 for PCE, for a total of one exceedance.
- For September supplemental monitoring, MW-47S and NVM-01 each had 5 VOC exceedances, for a total of 10 exceedances.
- For October semiannual monitoring, MW-48S had 1 VOC exceedance, MW-12S had 2 VOC exceedances, MW-47S had 5 VOC exceedances, and NVM-01 had 8 VOC exceedances, for a total of 16 exceedances.
- For November 3-week monitoring, MW-49S had 1 VOC exceedance, MW-12S had 4 VOC exceedances, MW-47S had 5 VOC exceedances, and NVM-01 had 8 VOC exceedances, for a total of 18 exceedances.

- For December supplemental monitoring, MW-49S had one VOC exceedance, MW-12S had 4 VOC exceedances, MW-47S had 5 VOC exceedances, and NVM-01 had 7 VOC exceedances, for a total of 17 exceedances.

The following discussion points outline the extents of the detections and exceedances for VOCs during 2024. Refer to Figure 3 for monitoring locations.

- The Zone A background well MW-56S had no VOC detections during 2024.
- Five wells had VOC detections that did not exceed a Site CUL or MTCA Method B value:
 - MW-13S had 2 detections
 - MW-47I had 8 detections
 - MW-50S had 15 detections
 - MW-57S had 8 detections
 - MW-58S had 9 detections
- The five remaining Zone A wells had VOC detections that exceeded a Site CUL or MTCA Method B value:
 - MW-12S had 22 detections, of which 10 were exceedances
 - MW-47S had 55 detections, of which 20 were exceedances
 - MW-48S had 4 detections, of which 1 was an exceedance
 - MW-49S had 7 detections, of which 2 were exceedances
 - NVM-01 had 65 detections, of which 29 were exceedances
- SVOC analysis was performed on samples from the Zone A wells MW-47S, MW-50S, MW-56S, MW-57S, MW-58S, and NVM-01 during March, June, September, and December 2024, as well as MW-48S in December only, in accordance with the Zone A Plan. SVOC analysis was also performed on samples from the Zone A wells MW-47S, MW-50S, MW-56S, MW-57S, and MW-58S during January, April, July, and October 2024, as well as MW-48S in October only, in accordance with the Site-Wide Groundwater CMP.

Six SVOCs—4-chloroaniline, 4-nitroaniline, aniline, benzyl alcohol, N-nitrosodimethylamine, and pyridine—were detected in samples from MW-57S and MW-58S during September 2024. There are no Site CULs for SVOCs, so results are compared to the MTCA Method B values for the following discussion.

- Results for N-nitrosodimethylamine from both MW-57S and MW-58S exceeded both the MTCA Method B cancer and non-cancer values.
- Results for pyridine from both MW-57S and MW-58S exceeded the MTCA Method B non-cancer value; there is no corresponding cancer value for pyridine.
- Results for 4-chloroaniline and aniline from both MW-57S and MW-58S exceeded the MTCA Method B cancer value but did not exceed the corresponding non-cancer value.
- Results for 4-nitroaniline and benzyl alcohol from both MW-57S and MW-58S were below the MTCA Method B non-cancer values; there are no corresponding cancer values for 4-nitroaniline and benzyl alcohol.

One SVOC, 1-methylnaphthalene, was detected in the sample from NVM-01 during December 2024. There is no Site CUL for 1-methylnaphthalene, so it is compared to the MTCA Method B values for discussion. The concentration of 1-methylnaphthalene detected in NVM-01 was below both the MTCA Method B cancer and non-cancer values. No other SVOCs were detected in any other wells or during any other sampling events in 2024. SVOC data are summarized in Table 5.

- Herbicide analysis was performed on samples from the Zone A wells MW-47S, MW-50S, MW-56S, MW-57S, MW-58S and NVM-01 during March, June, September, and December 2024, as well as MW-48S in December only, in accordance with the Zone A Plan. Herbicide analysis was also performed at MW-56S, MW-57S, and MW-58S during April and October 2024, in accordance with the Site-Wide Groundwater CMP.

One herbicide compound, MCPA, was detected in the sample taken from NVM-01 during December 2024. There are no Site CULs for herbicides; therefore, the MCPA concentration was compared to the MTCA Method B values for discussion. The concentration of MCPA detected in NVM-01 was below the MTCA Method B non-cancer value; there is no established Method B cancer value. No other herbicides were detected above the laboratory reporting limits in samples analyzed during 2024. Herbicide data are summarized in Table 6.

- Pesticide analysis was performed on samples from the Zone A wells MW-47S, MW-50S, MW-56S, MW-57S, MW-58S, and NVM-01 during March, June, September, and December 2024, as well as MW-48S in December only, in accordance with the Zone A Plan. There are no Site CULs for pesticides. No pesticides were detected above the laboratory reporting limits in samples analyzed during 2024 and no summary table is provided.
- Analysis for polychlorinated biphenyls (PCBs) was performed on samples from the Zone A wells MW-47S, MW-50S, MW-56S, MW-57S, MW-58S and NVM-01 during March, June, September, and December 2024, as well as MW-48S in December only, in accordance with the Zone A Plan. There are no Site CULs for PCBs. No PCBs were detected above the laboratory reporting limits in samples analyzed during 2024 and no summary table is provided.
- Target analyte list (TAL) metal and mercury analysis was performed on samples from the Zone A wells MW-47S, MW-50S, MW-56S, MW-57S, MW-58S, and NVM-01 during March, June, September, and December 2024, as well as MW-48S in December only, in accordance with the Zone A Plan. The metals aluminum, antimony, arsenic, barium, cadmium, copper, iron, lead, manganese, nickel, silver, thallium, vanadium, and zinc were detected in Zone A wells in 2024. Chromium, which was also detected in Zone A wells, is discussed separately below. There are no Site CULs for any of the detected metals.

Results of TAL metals are below MTCA Method A or B limits listed in the groundwater monitoring plans, except for arsenic and manganese. Arsenic concentrations, which ranged from 0.77 µg/L to 5 µg/L, exceed Ecology's MTCA Method B values established for arsenic; however, the detected concentrations are also below the federal drinking water standard for arsenic of 10 µg/L established by the Environmental Protection Agency (EPA). The range of natural arsenic concentration in the Pasco area is 3.8 to 8.4 µg/L, according to "Figure 1: Statewide filled contour map of natural background groundwater arsenic concentrations" of *Natural Background Groundwater Arsenic Concentrations in Washington State*, dated January 2022, which also lists the statewide groundwater background arsenic concentration at 5.5 µg/L. Consistent with previous years, the arsenic concentrations detected in 2024 are not considered to be exceedances. Manganese was detected at a

concentration exceeding the MTCA Method B value during December 2024 in well NVM-01; there is no site CUL established for manganese. No mercury was detected above laboratory reporting limits in samples analyzed in 2024. TAL metals and mercury data are summarized in Table 7.

- Total chromium analysis was performed on samples from the Zone A wells MW-47S, MW-50S, MW-56S, MW-57S, MW-58S, and NVM-01 during March, June, September, and December 2024, plus MW-48S in December only, in accordance with the Zone A Plan. Total chromium analysis was also performed on samples from MW-47S, MW-50S, and MW-56S during April and October 2024, as well as MW-48S in October only, in accordance with the Site-Wide Groundwater CMP.

Detections of total chromium above the approved reporting limits occurred at MW-48S in October and December; at MW-56S in April, June, October, and December; and in MW-58S in March, June, and December. No total chromium detections were at concentrations above the Site CUL during 2024. Chromium data are summarized in Table 7 with the TAL metals and mercury data.

Zone C/D Wells

The groundwater monitoring network for Zone C/D consists of wells MW-55S and MW-59S. Wells MW-55S and MW-59S were sampled for VOCs during April and October 2024, and well MW-55S was sampled for total chromium during April and October of 2024, in accordance with the Site-Wide Groundwater CMP. Table 1 summarizes the analyses performed on samples from the Zone C/D wells.

- No VOC concentrations were detected nor exceeded a Site CUL in samples collected from Zone C/D wells during 2024. VOC data are summarized in Table 4.
- No total chromium concentrations exceeded the Site CUL at MW-55S in April and October. Chromium data are summarized in Table 7.

Zone E Wells

The groundwater monitoring network for Zone E consists of wells MW-27SR and MW-60S. Wells MW-27SR and MW-60S were sampled for VOCs, total chromium, and mercury in April and October 2024, in accordance with the Site-Wide Groundwater CMP. Table 1 summarizes the analyses performed on samples from the Zone E wells.

- No VOCs concentrations exceeded a Site CUL in samples collected Zone E wells in 2024. VOC data are summarized in Table 4.
- No total chromium concentrations exceeded a Site CUL in Zone E wells during April and October 2024. Total chromium data are summarized in Table 7.
- Mercury was not detected above the laboratory reporting limit in MW-27SR or MW-60S during 2024. There are no Site CULs for mercury. Mercury data are summarized and compared to MTCA Method A in Table 7.

3.3.2.2 Sentinel Wells

The Sentinel Well monitoring network, also referred to as “Other On-Property Wells” in the Site-Wide Groundwater CMP, consists of three shallow wells—MW-15S, MW-18S, and MW-19S—located between Zones A, C/D, and E and the MSW Landfill. All three wells were analyzed for VOCs in April and October 2024, in accordance with the Site-Wide Groundwater CMP. MW-19S was also analyzed for SVOCs, landfill parameters, and total chromium in April and October 2024. Table 1 summarizes the analyses performed on samples from each of these wells.

- Four VOCs—benzene, chloroform, PCE, and TCE—were detected in one or more sentinel wells 2024. Benzene was detected at each well during October only. Chloroform was detected only at MW-19S during both April and October at a level that exceeded the MTCA Method B cancer value, but below the corresponding non-cancer value. PCE was detected at MW-15S in October and at MW-19S in April and October; it was not detected at MW-18S. TCE was detected at both MW-15S and MW-19S in April and October; it was not detected at MW-18S. None of the detections exceeded the corresponding Site CUL for benzene, PCE, or TCE. Results for chloroform, PCE, and TCE are consistent concentrations reported in previous annual reports; however, detections of benzene at all three wells in October 2024 is a new result compared to previous years. VOC data are summarized in Table 4.
- There were no SVOC detections at MW-19S during the October monitoring event. MW-19S was inadvertently excluded from SVOC analysis for the April monitoring event and results are therefore not available. SVOC data are summarized in Table 5.
- Total chromium was detected in the sample from well MW-19S during the April and October 2024 sampling events at concentrations below the Site CUL. Total chromium data are summarized in Table 7. Landfill parameter data for MW-19S are summarized in Table 8.

3.3.2.3 Property Boundary Wells

The property boundary groundwater monitoring network consists of five shallow wells (MW-10S, MW-11S, MW-22S, MW-24S, and MW-51S). Samples from the five property boundary wells were analyzed for VOCs on a semiannual basis during April and October 2024. Beginning in October 2024, property boundary wells MW-10S and MW-11S were included in the 3-week monitoring events, so additional VOC analyses were conducted for these wells in November and December 2024. Samples from well MW-22S, which is located downgradient of the MSW Landfill, were also analyzed for total chromium on a semiannual basis during April and October 2024. Table 1 summarizes the analyses performed on samples from the property boundary wells.

- Three VOCs—1,2-dichloroethane, PCE, and TCE—were detected at one or more property boundary wells MW-10S and MW-24S; there were no VOC detections at MW-11S, MW-22S and MW-51S. VOC data are summarized below and in Table 4.
 - At MW-10S, 1,2-dichloroethane was detected below the Site CUL in December and TCE was detected below the Site CUL in April, October, November, and December.
 - At MW-10S, PCE was detected above the Site CUL in October, November, and December.
 - At MW-24S, PCE was detected in April and TCE was detected in April and October; all results were below the Site CUL.
- No total chromium concentrations exceeded the Site CUL in samples collected from well MW-22S during 2024. Total chromium data are summarized in Table 7.

3.3.2.4 Off-Property Downgradient Wells

The off-property downgradient monitoring well network consists of eight shallow wells (MW-29S, MW-31S, MW-37S, MW-38S, MW-42S, MW-43S, MW-45S, and MW-46S) and one intermediate depth wells (MW-54I). All downgradient off-property wells were analyzed for VOCs semiannually during April and October 2024. Beginning in October 2024, property boundary wells MW-29S, MW-31S, MW-37S, and MW-46S were included in the 3-week monitoring events, so additional VOC analyses were conducted for these wells in November and December 2024. Table 1 summarizes the analyses performed on samples from the off-property downgradient monitoring wells.

- Three VOCs—1,2-dichloroethane, PCE, and TCE—were detected at one or more off-property downgradient wells MW-29S, MW-31S, MW-37S, MW-38S, MW-43S, and MW-54I and exceeded the Site CUL for PCE and TCE at MW-29S; there were no VOC detections at MW-42S, MW-45S and MW-46S. VOC data are summarized below and in Table 4.
 - At MW-29S, 1,2-dichloroethane was detected below the Site CUL in December, PCE exceeded the Site CUL in October, November, and December, and TCE was detected below the Site CUL in April and December and above the Site CUL in October and November.
 - At MW-31S, TCE was detected below the Site CUL in April, October, November, and December.
 - At MW-37S, TCE was detected below the Site CUL in October, November, and December.
 - At MW-38S, TCE was detected below the Site CUL in April, October, November, and December.
 - At MW-43S, TCE was detected below the Site CUL in April and October.
 - At MW-54I, TCE was detected below the Site CUL in April and October.

3.3.2.5 Upgradient Wells

The upgradient monitoring well network consists of the shallow well MW-20S. Samples from MW-20S were analyzed for VOCs and total chromium during April and October 2024. Table 1 summarizes the analyses performed on samples from the upgradient well.

No VOCs were detected in samples collected from the upgradient monitoring well during 2024. VOC data are summarized in Table 4. No chromium concentrations exceeded the Site CUL in samples from the upgradient well during 2024. Chromium data are summarized in Table 7.

3.3.2.6 Private Off-Property Wells

As outlined in the methodology section for private wells, at the start of 2024, private wells in the GPA were scheduled for semiannual VOC sampling and analysis in April and October. Three wells were sampled as scheduled in April and October 2024. Similar to the previous year, the Montalvo well was not sampled as it was decommissioned due to redevelopment of the property, and the Yenney1 and Yenney3 wells were not sampled, in coordination with Ecology, due to issues with cross-connection and backflow prevention. Table 1 summarizes private well sampling and analysis. Additionally, the Yenney1 well was decommissioned by the IWAG in December 2024.

VOC sampling results for samples collected from the private wells are summarized in Table 4. No VOC concentrations exceeded Site CULs in any samples collected from the residential wells during 2024. Based on this data, and according to the Site-Wide Groundwater CMP, all residential wells will remain on a semiannual monitoring schedule at the start of 2025.

3.3.3 Contaminant Distribution

This section discusses the distribution of the dissolved-phase contaminants for which CULs have been established for the Site and for which observed concentrations exceeded a Site CUL during 2024. There are seven compounds that meet these criteria for 2024: 1,1-dichloroethene, benzene, cis-1,2-dichloroethene, PCE, toluene, TCE, and vinyl chloride.

In accordance with the Site-Wide Groundwater CMP, contaminant distribution maps are only prepared for compounds that exceed a Site CUL in two or more wells and detected in more than three wells outside of Zone A.

3.3.3.1 1,1-Dichloroethene

Detections of 1,1-dichloroethene were limited to three Zone A wells—MW-12S, MW-47S, and NVM-01—and 10 of the 11 detections exceeded the Site CUL of 0.057 µg/L, as follows:

- At MW-12S, the two exceedances were 0.065 µg/L in November and 0.091 µg/L in December.
- At MW-47S, four exceedances started with 0.17 µg/L in September to 0.16 µg/L in December, with a maximum concentration of 0.21 µg/L in October.
- At NVM-01, four exceedances started with 0.074 µg/L in September to 0.75 µg/L in December, with a maximum concentration of 0.91 µg/L in November.

Since all 1,1-dichloroethene detections occurred at Zone A wells, a contaminant distribution map is not required for this compound for 2024. Refer to Table 4 for a summary of VOC results.

3.3.3.2 Benzene

Detections of benzene occurred in 11 wells in 2024 and included 1 MSW well (4R), 7 Zone A wells (MW-12S, MW-13S, MW-47S, MW-48S, MW-49S, MW-50S, and NVM-01), and 3 sentinel wells (MW-15S, MW-18S, and MW-19S), and 10 of the 20 detections exceeded the Site CUL of 1.2 µg/L. Exceedances occurred at the following three wells:

- At MW-12S, the two exceedances were 110 µg/L in November and 140 µg/L in December.
- At MW-47S, four exceedances started with 140 µg/L in September to 1,700 µg/L in December.
- At NVM-01, four exceedances started with 270 µg/L in September to 3,400 µg/L in December, with a maximum concentration of 4,200 µg/L in November.

Since benzene was detected in four wells outside of Zone A, contaminant distribution maps have been prepared to represent the October and December 2024 data for benzene and are included as Figures 7a and 7b, respectively. Refer to Table 4 for a summary of VOC results.

3.3.3.3 cis-1,2-Dichloroethene

Detections of cis-1,2-dichloroethene were limited to three Zone A wells—MW-12S, MW-47S, and NVM-01—and two of the seven detections exceeded the Site CUL of 12 µg/L. Concentrations of cis-1,2-dichloroethene were detected below the Site CUL at MW-12S and MW-47S. The two exceedances occurred at NVM-01 and were 33 µg/L in November and 50 µg/L in December.

Since all cis-1,2-dichloroethene detections occurred at Zone A wells, a contaminant distribution map is not required for this compound for 2024. Refer to Table 4 for a summary of VOC results.

3.3.3.4 PCE

Detections of PCE occurred at 17 wells in 2024 and included 3 MSW wells (4R, MW-16S, and MW-61S), 8 Zone A wells (MW-12S, MW-47S, MW-47I, MW-48S, MW-49S, MW-50S, MW-57S, and NVM-01), 1 Zone E well (MW-60S), 2 sentinel wells (MW-15S and MW-19S), 2 property boundary wells (MW-10S and MW-24S), and 1 off-property downgradient well (MW-29S), and 23 of the 54 detections exceeded the Site CUL of 0.69 µg/L at the following eight wells:

- At 4R, the two exceedances were 0.87 µg/L in September and 1.1 µg/L in October.
- At MW-10S, three exceedances started with 5.7 µg/L in October to 5.3 µg/L in December, with a maximum concentration of 5.9 µg/L in November.
- At MW-12S, three exceedances started with 8.3 µg/L in October to 18 µg/L in December.
- At MW-29S, three exceedances started with 2.0 µg/L in October to 1.3 µg/L in December.
- At MW-47S, four exceedances started with 24 µg/L in September to 15 µg/L in December, with a maximum concentration of 39 µg/L in November.
- At MW-48S, the one exceedance was 14 µg/L in October.
- At MW-49S, the two exceedances were 1.3 µg/L in November and 1.7 µg/L in December.
- At NVM-01, five exceedances started with 1.4 µg/L in July to 150 µg/L in December, with a maximum concentration of 190 µg/L in October.

Since PCE was detected in nine wells outside of Zone A, contaminant distribution maps have been prepared to represent the October and December 2024 data for PCE and are included as Figures 8a and 8b, respectively. Refer to Table 4 for a summary of VOC results.

3.3.3.5 Toluene

Detections of toluene were limited to three Zone A wells—MW-12S, MW-47S, and NVM-01—and 2 of the 10 detections exceeded the Site CUL of 157 µg/L. Concentrations of toluene were detected below the Site CUL at MW-12S and MW-47S. The two exceedances occurred at NVM-01 and were 1,000 µg/L in October and 230 µg/L in November.

Since all toluene detections occurred at Zone A wells, a contaminant distribution map is not required for this compound for 2024. Refer to Table 4 for a summary of VOC results.

3.3.3.6 TCE

Detections of TCE occurred at 25 wells in 2024 and included 3 MSW wells (4R, MW-16S, and MW-17SR), 10 Zone A wells (MW-12S, MW-13S, MW-47S, MW-47I, MW-48S, MW-49S, MW-50S, MW-57S, MW-58S, and NVM-01), 1 Zone E well (MW-60S), 2 sentinel wells (MW-15S and MW-19S), 2 property boundary wells (MW-10S and MW-24S), 6 off-property downgradient wells (MW-29S, MW-31S, MW-37S, MW-38S, MW-43S, and MW-54I), and 1 private off-property well (West), and 13 of the 94 detections exceeded the Site CUL of 2.5 µg/L at the following four wells:

- At MW-12S, three exceedances started with 8.6 µg/L in October to 28 µg/L in December.
- At MW-29S, from the two exceedances were 3.5 µg/L in October and 2.9 µg/L in November.
- At MW-47S, four exceedances started with 17 µg/L in September to 26 µg/L in December, with a maximum concentration of 38 µg/L in October and November.
- At NVM-01, four exceedances started with 39 µg/L in September to 160 µg/L in December, with a maximum concentration of 200 µg/L in October and November.

Since TCE was detected in 15 wells outside of Zone A, contaminant distribution maps have been prepared to represent the October and December 2024 data for TCE and are included as Figures 9a and 9b, respectively. Refer to Table 4 for a summary of VOC results.

3.3.3.7 Vinyl Chloride

Detections of vinyl chloride were limited to one MSW well (MW-16S) and three Zone A wells (MW-12S, MW-47S, and NVM-01), and 9 of the 12 detections exceeded the Site CUL of 0.053 µg/L at the following three wells:

- At MW-12S, the one exceedance was 0.076 µg/L in December.
- At MW-47S, four exceedances started with 0.32 µg/L in September to 0.15 µg/L in December, with a maximum concentration of 0.44 µg/L in November.
- At NVM-01, four exceedances started with 0.074 µg/L in September to 0.36 µg/L in December, with a maximum concentration of 0.64 µg/L in November.

Since vinyl chloride was only detected in one well outside of Zone A, a contaminant distribution map is not required for this compound for 2024. Refer to Table 4 for a summary of VOC results.

3.3.4 Landfill Parameters

Samples from wells 4R, MW-16S, MW-17SR, MW-19S, MW-23S, MW-61S, MW-62S, and MW-63S were analyzed for landfill parameters during April and October 2024. Table 1 summarizes the wells subject to landfill parameter monitoring. Landfill parameter data are summarized in Table 8. Landfill parameter data are discussed in the 2024 Annual Report for the MSW Landfill, which is submitted as a separate report.

4 REMEDIATION SYSTEM PERFORMANCE MONITORING

4.1 SVE System Operation

The SVE system operated within Zone A as part of Interim Actions performed at the Site beginning in May 1997. During 2020, the system was connected to two horizontal wells in the deep zone beneath Zone A, VEW-06H and VEW-07H. Information on the horizontal wells was presented to Ecology in the *Final Soil Vapor Extraction System Operations and Maintenance Manual – 2021 Revision*, dated October 28, 2021. Locations of the horizontal SVE wells are shown in Figure 6. During January 2024, ongoing vapor extraction operations from Zone A from the SVE horizontal wells ceased and vapor extraction from the ISTR vapor recovery system began in April 2024; all monitoring data and discussion for the final weeks of SVE system operation are presented in the 2024 Semiannual Report, including SVE system operational parameters, carbon monoxide (CO) monitoring data from the horizontal extraction wells, and Zone A vacuum monitoring data.

4.2 RTO System Operation

Vapors collected from Zone A SVE and ISTR operations during 2024 have been piped directly to the RTO, built by Anguil Environmental Systems, Inc. (Anguil), since July 14, 2017. The RTO system was permitted under *Synthetic Minor Approval Order #16AQ-E031*, issued by Ecology's Air Quality Program (AQP) on May 2, 2017 (SVE Approval Order) for the final weeks of SVE system operation before transitioning to *Synthetic Minor Approval Order #23AQ-E033* issued by AQP on September 19, 2023 (ISTR Approval Order) for ISTR operations.

During 2024, operations and monitoring of the RTO were conducted in accordance with the following Ecology-approved documents:

- *Operations and Maintenance Manual, Soil Vapor Extraction System and Regenerative Thermal Oxidizer, Volume 2: RTO System O&M Manual (2017 Installation)*, dated December 13, 2017 and the Addendum dated August 2023.
- *In Situ Thermal Remediation Vapor Recovery Operations and Maintenance Manual*, dated March 2024 and Revision 1 dated November 2024.

In accordance with the ISTR Approval Order, RTO system performance in 2024 has been previously reported to Ecology in the following documents:

- *Source Test Report for Phase 1 2024 Compliance Testing Regenerative Thermal Oxidizer (RTO)*, dated September 9, 2024
- *2024 Annual Report: Regenerative Thermal Oxidizer Performance Monitoring*, dated January 31, 2025

RTO performance testing, conducted in July 2024, indicates that the RTO is operating in compliance with the ISTR Approval Order. Regular communications between the IWAG and Ecology also guided operations and monitoring of the RTO. During 2024, routine performance monitoring included both field observation and measurement, and laboratory analysis of the ISTR vapor stream. The thermal remediation contractor, TRS Group, Inc. (TRS), conducts all ISTR system operation, maintenance, and monitoring, which is reported separately in accordance with the Post-Excavation EDR. RTO system monitoring data includes the following:

- Vapor samples were collected on a biweekly schedule throughout 2024 from the combined line before fresh air dilution at the RTO (SV-BRTO), in addition to the horizontal extraction wells (VEW-06H and VEW-07H) during the final weeks of SVE system operations in January 2024. Samples were submitted for laboratory analysis of VOCs using a modified EPA Method 8260. The laboratory data (detected compounds only) are presented in Table 9.
- RTO system operational parameters were measured and recorded at the RTO in conjunction with collection of SV-BRTO vapor samples. Parameters recorded included barometric pressure, skid vacuum pressure, ambient temperature, carbon dioxide (CO₂), oxygen (O₂), and CO. Field measurements were conducted using a GEM 5000 (or GEM 2000) Landfill Gas Analyzer to monitor CO₂, O₂, and CO. This data is transmitted to TRS to supplemental ISTR vacuum monitoring data, which is reported separately.
- For ISTR operations beginning April 24 through December 31, 2024, the average daily flow rates for the RTO ranged from 363 to 822 standard cubic feet per minute (scfm) and averaged 588 scfm, as recorded by the ISTR vapor recovery system. This flow data is automatically transmitted to the existing RTO automated datalogger for monitoring and recordkeeping.
- Table 9 summarizes the laboratory analytical data, average daily flow rates, and VOC mass removal rates calculated from the SV-BRTO data. Figure 10 highlights the RTO flow rates and Figure 11 charts the RTO removal rates. These contaminant removal rates correspond to the vapor flow rates delivered to the RTO from the ISTR vapor recovery blower. Based on biweekly SV-BRTO vapor sample results beginning April 24, PBS estimates that removal rates for VOCs treated by the RTO during ISTR operations ranged from 16 to 98 pounds per day (lbs/day), with an average of 41 lbs/day. Similarly, PBS estimates that approximately 10,039 pounds of VOCs were treated by the RTO as vapor recovered during ISTR from April 24 through December 31, 2024. Mass removal for ISTR operations is also estimated by TRS using additional monitoring data and is reported separately in accordance with the Post-Excavation EDR.
- Biweekly SV-BRTO sampling data presented in Table 9 is used to calculate the rolling 12-month total VOC mass (TVOC Mass), hydrochloric acid (HCl), and hazardous air pollutant (HAP) emissions rates for the RTO. Consistent with the monthly progress reports, Table 10 provides a summary of calculated TVOC Mass, HCl, and HAP emissions rates for RTO operations in 2024. The emissions rates for the RTO remained below the permitted limits established under the SVE Approval Order and the ISTR Approval Order.

- Figure 12 illustrates the calculated cumulative mass removed from Zone A for treatment by the RTO during SVE system operations and ISTR vapor recovered since the start of SVE operations in May 1997, presented graphically from October 2020 through December 2024.

4.3 Zone A Landfill Subsurface Monitoring

Subsurface monitoring of Zone A is limited to thermocouple arrays VB-24 and TC-10, as presented on Figure 6. Vacuum monitoring of Zone A is conducted by TRS and is reported separately in accordance with the Post-Excavation EDR.

Maximum weekly temperatures for all thermocouples monitored are summarized in Table 11. Consistent with past data processing, artificial or erroneous data are omitted when they are associated with hour-to-hour variations that are not reasonable (e.g., large temperature increases or decreases) and artificial spikes in temperature that are associated with connection or disconnection of a datalogger to the thermocouple connector, which is consistent with the expectations of the manufacturer. Temperature measurements collected during 2024 are illustrated in Figures 13 and 14, which show a trend of increasing temperatures during the final weeks of 2024 at the 25-foot depth interval for both locations. Thermocouple data will continue to be monitored and included in monthly MSW progress reports to Ecology.

4.4 RTO System Maintenance, Repair, and Shutdown Reporting

Several planned and unplanned shutdowns of the RTO system occurred during 2024. Planned shutdowns occurred: 1) to transition from SVE to ISTR operations; 2) to transition between the ISTR blower and the backup SVE blower; 3) to conduct miscellaneous equipment maintenance, and; 4) to support miscellaneous maintenance of the ISTR system by TRS. Unplanned shutdowns in 2024 were related to removal of condensate from the RTO poppet valve chambers, ISTR condenser maintenance, and poppet valve malfunction and repair.

Planned and unplanned RTO shutdowns were previously reported to Ecology in the corresponding monthly progress reports and in the *2024 Annual Report: Regenerative Thermal Oxidizer Performance Monitoring*. Table 12 provides a detailed operational log of these planned and unplanned shutdowns for 2024.

4.5 Groundwater Quality Trends

VOC data presented in previous quarterly and annual reports, and data from the Phase I Additional Interim Action (AIA) investigation reported in the 2008 and 2009 Annual Reports, illustrate that groundwater quality associated with Zone A is closely linked to extraction of soil vapor and contaminant mass at Zone A. Execution of Phase 1 of ISTR in the southern portion of Zone A was the primary remedial activity conducted at the Site during 2024. In recent years, the only Site CUL exceedance reported was seasonal concentration of PCE at MSW well 4R. As discussed in previous sections, the Site groundwater monitoring data includes exceedances of both Site CULs and MTCA Method B values for nine VOCs and two metals. The following discussion outlines the changes in water quality at specific wells during 2024 based on analytical results of groundwater monitoring samples. As discussed in section 3.3.2.1 for Zone A wells, arsenic concentrations exceed the MTCA Method B values but are consistent with established background groundwater concentrations and historical results. Arsenic is therefore not discussed further in this analysis of groundwater quality trends. Refer to Table 4 for a summary of VOC detections and exceedances and Table 7 for a summary of metals detections and exceedances.

- Zone A well NVM-01, located at the southwestern corner of Zone A and immediately downgradient, was the first well to report a compound exceedance of PCE in July. Nine VOCs with exceedances from subsequent monitoring events include 1,1-dichloroethene, benzene, chloroform, cis-1,2-dichloroethene, m- & p-xylenes, PCE, toluene, TCE, and vinyl chloride. Maximum VOC concentrations at NVM-01 generally occurred in November 2024, with most compounds showing reduced

concentrations in December. In addition to VOCs, manganese exceeded the MTCA Method B value in December, which was the only non-VOC exceedance during 2024 across the Site, excluding arsenic as discussed previously.

In addition to exceedances at NVM-01, an additional 10 VOCs, 1 SVOC, and 1 herbicide were detected at levels below the respective Site CUL or MTCA Method B values.

- Zone A well MW-47S, located north of NVM-01 and also immediately downgradient of Zone A, first reported exceedances for five VOCs from the September monitoring event: 1,1-dichloroethene, benzene, PCE, TCE, and vinyl chloride. Similar to NVM-01, maximum concentrations were noted in November, except for benzene which continued to increase in December.

In addition to exceedances at MW-47S, an additional 10 VOCs were detected at levels below the respective Site CUL or MTCA Method B values.

- Zone A well MW-48S was a contingency well located south of Zone A adjacent to the Basin Disposal Inc. (BDI) transfer station that was added to the monitoring program beginning in October following receipt of the September groundwater data. MW-48S had one exceedance of PCE in October, with two additional VOCs detected below their Site CULs. December data for MW-48S shows all non-detect values.
- Zone A well MW-49S, located west of Zone A and west of the fenced SVE/RTO equipment area, reported PCE exceedances in November and December, with two additional VOCs detected below their Site CULs.
- Zone A well MW-12S is located southwest and downgradient of Zone A and NVM-01, on the west side of Dietrich Road. Two exceedances were first reported in October for PCE and TCE, following by additional exceedances for 1,1-dichloroethene and benzene in November. Maximum concentrations for each of these VOCs occurred in December. Note that prior to October, MW-12S was only monitored semiannually, so data from July or September is not available.

In addition to exceedances at MW-12S, an additional five VOCs were detected at levels below the respective Site CUL or MTCA Method B values.

- Property boundary well MW-10S is located further downgradient along a line connecting NVM-01 and MW-12S, along the Site's southern boundary. One exceedance for PCE was first reported in October and results have remained generally stable through December. An additional two VOCs were detected at levels below their Site CULs.
- Off-property downgradient well MW-29S is located within the Simplot property, on the north side of the Simplot production facility. Two exceedances were first reported in October for PCE and TCE, with concentrations trending down through December, including a December TCE concentration that was below the Site CUL. One additional VOC was detected at a level below its Site CUL.
- MSW well 4R continued to report a seasonal exceedance of PCE in September and October data. December data confirmed that levels had reduced below the Site CUL, which is consistent with previous reporting years. Two additional VOCs were detected at a level below their Site CULs.

5 WASTE MANAGEMENT

Table 13 summarizes the waste generated from SVE and RTO system operations that was disposed of or treated off site during 2024. Attachment B contains analytical data, shipping manifests, and other documentation for materials transported off site during the second half of 2024. Waste documentation for January through June 2024 was included in the 2024 Semiannual Report.

5.1 Waste Handling

There were three waste shipments from routine site operations during 2024, which are outlined below and summarized in Table 13.

- Approximately 2,400 gallons of SVE condensate were shipped off site by Northern Environmental to PRS Group in Tacoma, Washington, on February 9, 2024. This was the final remaining condensate generated from SVE system operations prior to transition to ISTR vapor recovery. The condensate was characterized from the condensate sample collected May 15, 2023, and profiled as nonhazardous and non-dangerous waste. Laboratory data from the characterization sample was included in the 2023 Annual Report and the disposal receipt was included in the 2024 Semiannual Report.
- Approximately 1,000 gallons of purge water generated during groundwater monitoring events were transported off site to the City of Pasco Commercial Avenue/Kahlotus Highway Sanitary Sewer Lift Station for treatment at the City of Pasco Wastewater Treatment Plant on August 27, 2024, with approval and oversight from the City of Pasco. In accordance with City of Pasco requirements, the purge water was sampled for VOCs, biochemical oxygen demand (BOD), total suspended solids (TSS) and metals on July 30, 2024, and was characterized as nonhazardous, non-dangerous waste. The City of Pasco verified the purge water pH level and provided oversight during the discharge event.
- Following replacement of one drum of vapor phase granular activated carbon (GAC) for the RTO system, one 55-gallon drum of spent GAC was hauled off site on August 30, 2024, by Pacific Coast Carbon for reactivation. The spent GAC was characterized from a sample collected on July 18, 2024, to verify suitability for reactivation.

6 ZONES C/D AND E COVER PERFORMANCE MONITORING

Monitoring of the Zones C/D and E cover systems during 2024 was conducted in accordance with the following Ecology approved document:

- *Operations and Maintenance Manual for Industrial Waste Areas: Zones C/D and E - Final Draft*, dated November 11, 2020, and approved by Ecology on November 17, 2020

Monthly visual inspections are performed to monitor the condition of the Zones C/D and E IWA covers, detention and evaporation basins, and perimeter fencing. The surface of each cover is checked for vehicle traffic, burrowing, erosion, vegetation health, and settlement. Each monthly inspection is recorded on an inspection checklist. The monthly inspection checklists include assessment of human, animal, and natural disturbances. Disturbances under evaluation or requiring repairs are noted on the checklist. Monthly inspection checklists for Zones C/D, and E for 2024 are provided in Attachment C. The results of the inspections indicate no change in conditions and no repair or maintenance is needed on any of the IWA caps.

Inspection of institutional controls, including fencing at Zones A, C/D, and E and signage around these zones, is included as part of the monthly cap inspections. The monthly checklists for 2024 are also provided in Attachment C.

7 INSTITUTIONAL CONTROLS

Institutional controls for the Site are presented in:

- *Pasco Landfill Site Updated Institutional Controls Plan – Revision 1*, dated October 7, 2013

Institutional controls at the Site include gates restricting access to the landfill; fencing around the perimeter of Zones A, B, C/D, and E; and informational signage posted around the Site. As discussed above, perimeter fencing is inspected monthly. Informational signage is monitored during the monthly inspections as well as during operations and maintenance activities. Fence Inspection Checklists are included in Attachment C.

Other institutional controls for the Site include City of Pasco Ordinance No. 3469 and Municipal Code Section 16.06.040, and Franklin County Ordinance No. 2-99 and Code Chapter 17.56. Both City of Pasco and Franklin County ordinances prohibit installation of new drinking water wells within the GPA. As part of the control measures, the City of Pasco and Franklin County are responsible for monitoring and controlling building and development permits within the GPA.

The annual well survey is a component of the institutional controls. A summary of the well survey provided by the City of Pasco “2024 – East Pasco Plume Area – Well Location Survey,” is included in Attachment D. Franklin County has discontinued issuing an annual institutional control report.

8 SUMMARY

The primary findings and conclusions from the groundwater monitoring and the interim action operations and maintenance in 2024 are summarized as follows:

- Groundwater quality downgradient of Zone A changed in 2024. Detections of VOCs at levels above Site CULs for PCE were first reported in July groundwater data and have been subsequently expanded to nine VOCs across five Zone A wells, one property boundary well, and one off-property downgradient well. Only PCE and TCE have been confirmed to exceed the Site CUL at an off-property location, MW-29S, and contaminant trends indicate stable or improving results. The majority of the Site CUL exceedances continue to be located in wells immediately adjacent to and downgradient from Zone A: NVM-01, MW-47S, and MW-12S.
- The covers at Zones C/D and E have been effective in protecting groundwater quality in these areas, as evidenced by the geomembrane testing and monitored groundwater quality in Zone C/D and E wells.
- The RTO has been effective in treating vapors recovered during ISTR operations within Zone A. Approximately 10,039 pounds of total VOCs removed from Zone A were treated by the RTO during ISTR in 2024. RTO removal rates for SVE operations in January were previously reported in the 2024 Semiannual Report.
- The RTO operated in full compliance with the specified destruction efficiency and other requirements in the SVE Approval Order and ISTR Approval Order throughout 2024.

9 REFERENCES

Anchor QEA, AMEC Foster Wheeler, and Environmental Partners, Inc. (EPI). (2017, August 31). *Draft Final Focused Feasibility Study – Pasco Landfill National Priorities List Site*.

Ecology (Washington State Department of Ecology). (2017, May 2). *Approval Order #16AQ-E031*.

Washington State Department of Ecology (Ecology). (2022, January). *Natural Background Groundwater Arsenic Concentrations in Washington State, Publication No. 14-09-044*.

IWAG Group III. (2013, October). *Pasco Landfill Site Updated Institutional Controls Plan – Revision 1. 7*.

Montrose Air Quality Services, LLC. (2024, September 9). *Source Test Report for Phase 1 2024 Compliance Testing Regenerative Thermal Oxidizer (RTO)*.

PBS (PBS Engineering and Environmental Inc.). (2017, December 13). *Operation and Maintenance Manual Soil Vapor Extraction System and Regenerative Thermal Oxidizer Volume 2: RTO System O&M Manual (2017 Installation)*.

PBS. (2020, April 16). *Zone A Removal Action Supplemental Groundwater Monitoring Plan*.

PBS. (2020, August 19). *Final Zone A Removal Action Engineering Design Report (EDR)*, including Appendices A, B, D, E, and F.

PBS. (2020, November 11). *Final Operations and Maintenance Manual for Industrial Waste Areas: Zones C/D and E*.

PBS. (2020, December 15). *Site-Wide Groundwater Compliance Monitoring Plan*.

PBS. (2021, October 28). *Final Soil Vapor Extraction System Operations and Maintenance Manual – 2021 Revision*.

PBS. (2024, September 16). *2024 Semiannual Report*.

PBS. (2025, January 31). *2024 Annual Report: Regenerative Thermal Oxidizer Performance Monitoring*.

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Table 2
 Sitewide Groundwater Elevation Data
 2024 Annual Report
 Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well	January Q1	March Supplemental	April Semiannual/Q2	June Supplemental	July Q3	September Supplemental	October Semiannual/Q4	November 3-week	December Supplemental/3-week	Range
4R	357.27	357.93	358.25	357.15	356.14	357.7	355.58	-	356.2	2.67
MW-10S	-	-	352.21	-	-	-	350.5	350.63	350.87	1.71
MW-11S	-	-	351.97	-	-	-	350.32	350.55	351.72	1.65
MW-12S	-	-	353.11	-	-	-	351.25	351.41	351.66	1.86
MW-13S	352.62	353.12	353.40	352.47	351.87	352.68	351.57	-	351.85	1.83
MW-15S	-	-	353.75	-	-	-	351.79	-	-	1.96
MW-16S	358.81	359.52	359.80	358.52	358.01	357.26	356.94	-	357.7	2.86
MW-17SR	354.72	355.23	355.56	354.63	356.74	353.6	353.32	-	353.88	3.42
MW-18S	-	-	355.92	-	-	-	353.62	-	-	2.30
MW-19S	-	-	358.00	-	-	-	355.3	-	-	2.70
MW-20S	-	-	360.64	-	-	-	357.48	-	-	3.16
MW-22S	-	-	353.88	-	-	-	351.88	-	-	2.00
MW-23S	358.70	359.31	359.59	359.29	357.57	358.78	357.06	-	357.72	2.53
MW-24S	-	-	352.86	-	-	-	351.03	-	-	1.83
MW-27SR	-	-	358.72	-	-	-	355.92	-	-	2.80
MW-29S	-	-	350.67	-	-	-	349.21	349.38	349.51	1.46
MW-31S	-	-	350.43	-	-	-	349.14	349.35	349.45	1.29
MW-37S	-	-	348.26	-	-	-	347.56	347.66	347.78	0.70
MW-38S	-	-	348.45	-	-	-	347.39	347.54	347.94	1.06
MW-42S	-	-	347.72	-	-	-	346.81	-	-	0.91
MW-43S	-	-	347.82	-	-	-	346.91	-	-	0.91
MW-45S	-	-	348.15	-	-	-	347.19	-	-	0.96
MW-46S	-	-	349.72	-	-	-	348.4	348.65	348.77	1.32
MW-47I	-	353.04	353.27	352.47	-	351.65	351.37	351.65	351.89	1.90
MW-47S	352.52	353.01	354.27	349.98	348.78	351.63	351.4	351.55	351.93	5.49
MW-48S	-	-	-	-	-	-	354.36	354.58	354.86	0.50
MW-49S	-	-	354.43	-	-	-	349.94	351.13	351.38	4.49
MW-50S	352.78	353.26	367.56*	357.72	351.97	353.3	351.66	-	352.13	6.06
MW-51S	-	-	352.24	-	-	-	350.62	-	-	1.62
MW-54I	-	-	346.59	-	-	-	345.89	-	-	0.70
MW-55S	-	-	357.61	-	-	-	355.04	-	-	2.57
MW-56S	354.81	355.26	355.58	354.72	353.97	353.68	353.42	-	353.94	2.16
MW-57S	352.70	353.11	354.44	352.50	351.93	351.73	351.89	352.04	351.947	2.71
MW-58S	352.71	353.19	353.42	352.56	351.86	351.79	351.53	363.03	352.381	11.50
MW-59S	-	-	356.77	-	-	-	354.33	-	-	2.44
MW-60S	-	-	358.53	-	-	-	355.84	-	-	2.69
MW-61S	357.55	358.25	358.54	364.26	356.5	356.48	355.82	-	356.554	8.44
MW-62S	360.00	360.83	361.12	359.76	358.74	358.3	358.02	-	358.824	3.10
MW-63S	361.38	362.24	362.52	361.03	359.73	359	358.62	-	359.706	3.90
NVM-01	352.49	352.94	353.26	353.77	351.79	351.64	351.39	351.57	351.78	2.38

Notes:

- = Groundwater elevation not measured.

Elevations measured in feet.

Vertical Datum is NAVD 1988.

*Data for MW-50S deviates from historical trends and was excluded from contour generation.

Table 3
Well Stabilization Parameters
2024 Annual Report
Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH	Specific Conductivity (mS/m)	Temperature (°C)	Turbidity (NTU)
Municipal Solid Waste (MSW) Landfill Wells	4R	23-Jan-24	6.35	124.6	7.50	80.5	16.9	0.29
		5-Mar-24	6.87	143.2	7.49	77.7	16.9	0.12
		24-Apr-24	6.17	120.4	7.34	76.7	17.7	0.24
		11-Jun-24	5.14	90.1	7.37	66.3	18.5	0.09
		29-Jul-24	5.55	87.7	7.20	77.7	18.4	0.36
		10-Sep-24	4.24	142.9	7.55	81.2	19.0	0.77
		23-Oct-24	4.20	113.7	8.16	74.8	17.0	0.44
		10-Dec-24	1.71	206.8	6.91	66.8	16.6	0.51
	MW-16S	23-Jan-24	5.22	145.2	7.56	75.6	16.9	0.26
		5-Mar-24	5.09	105.4	7.57	73.6	17.0	0.14
		24-Apr-24	4.45	111.2	7.21	65.7	18.1	0.21
		12-Jun-24	5.35	117.4	7.16	58.4	17.8	0.16
		30-Jul-24	6.53	108.5	7.22	64.5	18.3	0.45
		10-Sep-24	5.23	131.3	7.71	65.6	18.5	0.70
		23-Oct-24	5.55	107.0	8.39	65.2	17.0	0.39
		10-Dec-24	1.66	181.2	7.14	61.4	16.5	0.00
	MW-17SR	23-Jan-24	6.60	181.5	7.83	71.7	17.3	0.27
		5-Mar-24	7.25	148.7	7.82	66.7	17.3	0.13
		24-Apr-24	6.65	117.6	7.71	61.0	18.1	0.24
		11-Jun-24	6.61	109.0	7.75	54.7	18.3	0.00
		29-Jul-24	7.25	87.2	7.60	63.7	17.8	0.31
		10-Sep-24	6.15	139.9	8.08	64.2	18.2	0.85
		23-Oct-24	6.21	110.2	8.67	60.4	17.0	0.40
		10-Dec-24	1.56	206.6	7.35	53.8	17.4	0.46
	MW-23S	23-Jan-24	5.95	99.8	7.61	75.4	17.1	0.29
		5-Mar-24	7.48	87.7	7.70	65.3	17.0	0.15
		24-Apr-24	6.45	82.0	7.54	65.1	17.6	0.25
		12-Jun-24	6.25	201.7	7.53	55.8	17.5	0.00
		30-Jul-24	6.44	182.2	7.45	65.9	17.9	0.35
		10-Sep-24	6.06	149.1	7.86	66.3	18.4	0.75
		23-Oct-24	5.52	73.1	8.49	63.9	16.9	0.46
		10-Dec-24	1.55	160.0	7.17	60.1	16.6	0.18
	MW-61S	23-Jan-24	6.32	30.1	7.79	69.7	17.1	0.28
		5-Mar-24	6.55	16.3	7.83	65.7	17.2	0.16
		24-Apr-24	6.23	22.3	7.71	62.8	18.2	0.31
		11-Jun-24	5.77	29.7	7.69	56.7	18.6	0.02
		29-Jul-24	6.96	25.0	7.58	64.3	18.2	0.42
		10-Sep-24	6.36	54.8	8.07	58.8	18.7	0.65
		23-Oct-24	6.06	49.6	8.66	60.8	17.1	0.58
		10-Dec-24	1.47	190.8	7.34	55.7	16.8	0.00
	MW-62S	23-Jan-24	6.45	149.0	7.88	70.1	16.2	0.29
		5-Mar-24	7.14	107.0	7.91	63.6	16.6	0.15
		24-Apr-24	6.63	105.1	7.75	63.3	18.0	0.31
		12-Jun-24	6.85	138.4	7.85	51.8	17.8	0.00
		30-Jul-24	7.49	117.8	7.72	63.9	17.7	0.46
		10-Sep-24	4.80	143.8	8.02	64.0	19.6	0.48
		23-Oct-24	5.79	107.4	8.67	60.8	17.0	0.91
		10-Dec-24	1.41	176.0	7.41	55.6	16.3	0.25
MW-63S	23-Jan-24	7.28	133.9	7.89	69.4	15.9	0.24	
	5-Mar-24	7.12	96.6	7.92	65.1	16.4	0.15	
	24-Apr-24	7.26	103.9	7.80	62.4	17.5	0.26	
	12-Jun-24	8.18	159.0	7.79	49.3	16.8	0.00	
	10-Sep-24	6.28	139.0	8.17	62.7	17.9	0.68	
	23-Oct-24	6.43	105.4	8.75	59.9	16.6	1.04	
		10-Dec-24	1.33	174.6	7.43	54.8	16.1	0.00

Table 3
Well Stabilization Parameters
2024 Annual Report
Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH	Specific Conductivity (mS/m)	Temperature (°C)	Turbidity (NTU)
Upgradient Wells	MW-20S	25-Apr-24	7.16	69.6	7.77	61.5	18.1	0.39
		23-Oct-24	6.63	77.8	8.76	60.5	17.1	1.39
Zone A Wells	MW-12S	23-Apr-24	5.07	92.7	7.66	69.1	18.6	0.28
		22-Oct-24	2.64	131.1	8.11	71.7	18.1	1.21
		18-Nov-24	2.98	144.7	8.3	20.3	18.3	0
		9-Dec-24	2.76	165.4	7.21	68.7	18.5	0.00
		22-Jan-24	6.46	74.8	7.79	72.0	17.6	0.29
	MW-13S	5-Mar-24	7.05	152.7	7.77	67.7	17.8	0.13
		23-Apr-24	6.95	48.2	7.68	63.4	18.6	0.46
		10-Jun-24	7.52	120.6	7.73	50.0	19.6	0.05
		29-Jul-24	7.76	133.7	7.51	57.6	19.5	0.42
		10-Sep-24	6.16	142.5	8.04	139.7	18.8	0.28
		22-Oct-24	6.14	44.3	8.19	62.3	17.7	1.13
		9-Dec-24	1.40	99.8	7.28	57.0	16.9	0.49
		4-Mar-24	7.19	113.3	7.84	67.7	16.7	0.22
	MW-47I	23-Apr-24	6.87	102.5	7.72	64.8	17.6	0.25
		10-Jun-24	6.26	116.4	7.80	55.3	18.7	0.01
		23-Oct-24	6.61	64.2	8.70	60.3	16.8	0.46
		18-Nov-24	1.35	151.0	8.50	17.0	16.0	0.00
		9-Dec-24	1.40	118.5	7.34	56.5	16.6	0.58
	MW-47S	23-Jan-24	1.83	159.6	7.64	87.9	18.2	0.63
		4-Mar-24	2.36	96.9	7.66	81.9	18.5	0.55
		23-Apr-24	2.00	91.8	7.53	78.3	19.2	0.98
		10-Jun-24	1.87	85.9	7.72	67.1	19.6	0.64
		23-Oct-24	0.57	87.0	8.12	112.2	18.4	2.27
		18-Nov-24	3.41	161.2	7.90	30.1	18.1	1.49
	MW-48S	9-Dec-24	3.19	93.9	6.75	10.3	18.9	0.71
		23-Oct-24	5.52	147.7	8.12	63.8	18.5	2.33
		18-Nov-24	1.46	148.0	8.50	17.0	17.0	0.81
	MW-49S	9-Dec-24	2.06	49.7	7.29	58.4	17.9	8.40
		23-Apr-24	1.14	107.9	7.33	73.8	17.7	0.37
		22-Oct-24	3.31	104.9	7.83	67.4	17.9	0.97
		18-Nov-24	2.83	167.2	8.13	19.4	16.5	0.30
	MW-50S	9-Dec-24	2.70	157.0	6.96	66.3	17.1	0.00
		23-Jan-24	3.09	134.8	7.34	97.8	18.5	0.29
		4-Mar-24	3.66	97.3	7.34	94.3	19.4	0.19
		23-Apr-24	3.39	101.1	7.21	99.6	20.3	0.35
		10-Jun-24	3.43	88.3	7.28	88.0	20.3	0.13
29-Jul-24		1.78	69.5	7.18	109.4	20.5	0.74	
10-Sep-24		3.24	113.2	7.56	80.7	20.8	0.23	
23-Oct-24		3.67	89.8	8.17	75.7	18.7	0.76	
MW-56S	9-Dec-24	2.19	134.9	6.85	71.5	18.5	0.30	
	22-Jan-24	6.04	122.2	7.78	70.7	19.7	0.43	
	4-Mar-24	4.82	177.2	7.81	65.8	19.7	0.17	
	23-Apr-24	6.63	93.7	7.72	62.9	21.3	0.29	
	11-Jun-24	6.10	69.8	7.79	51.9	21.1	0.25	
	29-Jul-24	7.02	88.1	7.69	64.8	21.5	0.54	
	10-Sep-24	6.03	128.1	8.12	64.5	20.9	1.05	
	23-Oct-24	6.23	129.1	8.82	60.0	20.0	0.48	
9-Dec-24	1.04	151.3	7.35	55.4	19.5	0.00		

Table 3
Well Stabilization Parameters
2024 Annual Report
Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH	Specific Conductivity (mS/m)	Temperature (°C)	Turbidity (NTU)
Zone A Wells	MW-57S	22-Jan-24	6.19	185.3	7.79	72.3	17.2	0.24
		4-Mar-24	7.07	134.8	7.81	67.0	17.1	0.18
		23-Apr-24	6.68	123.8	7.68	66.7	18.3	0.27
		11-Jun-24	6.37	154.0	7.75	55.4	18.6	0.00
		29-Jul-24	7.45	98.9	7.63	65.7	18.7	0.36
		10-Sep-24	5.90	167.5	7.99	66.5	18.4	0.70
		22-Oct-24	5.90	109.9	8.12	62.2	14.8	1.26
		18-Nov-24	1.37	173.0	8.40	17.0	16.3	0.01
	9-Dec-24	1.27	165.2	7.30	57.0	17.4	0.00	
	MW-58S	22-Jan-24	6.15	149.2	7.71	75.1	17.5	0.84
		4-Mar-24	6.94	109.5	7.76	69.2	18.0	0.33
		23-Apr-24	6.75	105.1	7.65	69.2	18.9	0.47
		11-Jun-24	5.70	137.7	7.69	58.6	18.7	0.00
		29-Jul-24	6.99	89.9	7.52	80.0	18.7	0.59
		10-Sep-24	6.32	159.8	7.99	67.4	18.5	0.23
		22-Oct-24	6.17	89.6	8.14	63.9	17.9	0.54
		18-Nov-24	1.33	165.3	8.40	17.3	16.8	0.11
	9-Dec-24	1.25	140.2	7.23	56.9	16.1	0.74	
	NVM-01	22-Jan-24	1.02	79.0	7.66	84.4	18.5	0.48
		4-Mar-24	1.33	126.0	7.63	81.7	19.0	0.25
		23-Apr-24	2.02	76.2	7.50	79.9	19.6	0.27
		10-Jun-24	5.62	80.2	7.81	51.8	18.9	0.13
		29-Jul-24	2.75	58.9	7.45	79.8	20.3	1.94
		10-Sep-24	0.85	131.0	7.90	81.8	20.3	6.65
23-Oct-24		0.33	51.6	8.29	103.1	19.0	7.87	
18-Nov-24		3.72	59.9	6.77	30.4	18.5	0.78	
9-Dec-24	3.21	20.0	6.70	12.3	19.6	0.40		
Zone C/D Wells	MW-55S	25-Apr-24	7.28	83.5	7.74	60.5	18.1	0.19
		24-Oct-24	11.15	23.5	8.05	118.2	17.2	0.88
	MW-59S	23-Apr-24	6.81	100.1	7.76	64.1	18.6	0.22
		24-Oct-24	12.37	101.8	8.15	117.2	17.1	0.79
Zone E Wells	MW-27SR	25-Apr-24	7.00	92.9	7.73	64.6	18.8	0.30
		24-Oct-24	10.70	63.6	8.09	118.2	17.1	0.56
	MW-60S	23-Apr-24	5.51	72.7	7.45	67.9	20.9	0.71
		24-Oct-24	13.51	20.9	7.73	127.3	17.7	4.69
Sentinel Wells	MW-15S	23-Apr-24	5.10	174.4	7.21	79.8	17.8	0.86
		23-Oct-24	5.02	105.3	8.05	84.4	17.5	8.46
	MW-18S	24-Apr-24	6.78	147.1	7.75	62.7	18.1	0.23
		21-Oct-24	6.69	78.6	8.74	60.8	17.2	0.61
	MW-19S	24-Apr-24	8.91	98.6	7.39	79.7	18.1	0.31
		23-Oct-24	7.74	74.6	8.34	72.9	17.5	0.54
Property Boundary Wells	MW-10S	23-Apr-24	6.85	71.6	7.72	65.5	18.7	0.32
		22-Oct-24	5.69	114.8	8.22	64.6	18.4	1.15
		18-Nov-24	1.62	115.4	8.46	18.1	18.6	0.80
		10-Dec-24	1.61	129.9	7.32	60.0	17.9	0.06
	MW-11S	23-Apr-24	7.19	73.9	7.66	68.9	18.3	0.53
		22-Oct-24	5.67	90.1	8.18	65.1	18.3	2.83
		18-Nov-24	1.28	125.4	8.40	17.8	17.8	0.52
	9-Dec-24	1.23	143.9	7.29	59.5	17.7	0.00	
	MW-22S	24-Apr-24	6.56	118.8	7.68	63.8	18.2	0.25
		22-Oct-24	5.68	108.2	8.18	62.4	17.4	0.56
	MW-24S	23-Apr-24	6.87	132.3	7.55	71.1	17.8	0.51
		22-Oct-24	5.69	103.9	8.07	66.2	17.4	0.62
	MW-51S	23-Apr-24	6.74	109.5	7.70	58.4	17.7	0.30
		22-Oct-24	5.71	102.6	8.23	61.6	18.0	0.61

Table 3
Well Stabilization Parameters
2024 Annual Report
Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	pH	Specific Conductivity (mS/m)	Temperature (°C)	Turbidity (NTU)
Off-Property Downgradient Wells	MW-29S	25-Apr-24	5.15	1.1	7.49	67.5	19.5	0.99
		24-Oct-24	16.01	12.7	7.95	125.4	18.8	2.57
		18-Nov-24	1.69	119.8	8.40	18.2	18.5	0.85
		9-Dec-24	1.89	143.7	7.22	59.0	18.3	0.05
	MW-31S	25-Apr-24	7.01	104.1	7.64	62.9	18.5	0.24
		24-Oct-24	12.43	44.7	7.94	123.5	17.5	0.62
		18-Nov-24	1.28	128.8	8.40	17.4	17.3	0.50
		9-Dec-24	1.19	153.0	7.23	58.1	17.4	0.00
	MW-37S	24-Apr-24	7.21	105.0	7.61	67.3	18.8	0.35
		24-Oct-24	11.10	37.4	7.93	124.2	17.4	1.03
		18-Nov-24	1.12	136.1	8.40	17.5	18.4	0.53
		9-Dec-24	1.12	154.5	7.22	58.5	17.6	0.23
	MW-38S	25-Apr-24	8.47	92.5	7.70	71.9	18.4	0.51
		24-Oct-24	8.48	24.6	8.00	131.7	17.6	0.70
		18-Nov-24	0.95	145.7	8.40	18.3	17.8	0.47
		9-Dec-24	0.89	161.7	7.29	59.8	16.4	0.06
	MW-42S	24-Apr-24	8.20	90.1	7.60	65.3	18.6	0.55
		24-Oct-24	5.15	27.6	7.94	125.4	17.7	0.59
	MW-43S	25-Apr-24	6.69	137.8	7.68	69.4	19.2	0.29
		24-Oct-24	11.38	38.3	7.96	137.2	18.1	0.46
MW-45S	25-Apr-24	6.77	122.3	7.61	72.2	19.0	0.55	
	24-Oct-24	12.35	37.7	7.89	134.4	18.3	2.52	
MW-46S	24-Apr-24	6.95	109.9	7.59	70.7	18.2	0.30	
	24-Oct-24	12.09	34.9	7.92	129.1	17.4	0.58	
	18-Nov-24	1.31	150.8	8.40	18.1	16.9	0.72	
	9-Dec-24	1.14	159.9	7.21	60.9	17.4	-0.43	
MW-54I	25-Apr-24	6.52	189.3	7.65	70.7	17.4	0.27	
	24-Oct-24	13.59	50.4	7.97	137.4	17.2	0.40	
Private Off-Property Wells	Bradley	26-Apr-24	5.85	214.7	7.38	82.1	16.2	0.40
		25-Oct-24	19.78	181.3	7.02	149.9	15.7	0.38
	Hand	26-Apr-24	6.19	183.1	7.57	75.2	16.6	0.24
		25-Oct-24	16.92	241.1	7.10	145.1	16.2	0.42
	West	26-Apr-24	5.67	182.2	8.22	49.8	14.1	14.50
		25-Oct-24	32.13	245.5	7.81	95.6	14.2	24.37

Notes:

mg/L = milligrams per liter

mS/m = millisiemens per meter

mV = millivolts

NTU = nephelometric turbidity units

°C = degree Celsius

- = YSI Dissolved Oxygen Probe malfunction, no data collected.

Table 4
 Volatile Organic Compounds Detected in Groundwater
 2024 Annual Report
 Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	1,1-Dichloro ethane	1,1-Dichloro ethene	1,2,3-Trichloro propane	1,2,4-Trimethyl benzene	1,2-Dichloro benzene	1,2-Dichloro ethane	1,3,5-Trimethyl benzene	4-Methyl-2-Pentanone	Benzene	Chloro benzene	Chloroform	cis-1,2-Dichloro ethene	Ethyl benzene	Isopropyl benzene	m- & p-Xylenes	n-Propyl benzene	o-Xylene	Styrene	Tetra chloroethene (PCE)	Toluene	Tri chloroethene (TCE)	Vinyl Chloride
2019 Clean-up Levels			7.68	0.057				0.38			1.2			12							0.69	157	2.5	0.053
MTCA Method B Value			7.7 c 1,600 nc	400 nc	0.00146 c 32 nc	80 nc	720 nc	0.48 c 48 nc	80 nc	640 nc	0.80 c 32 nc	160 nc	1.4 c 80 nc	16 nc	800 nc	800 nc	1,600 nc	800 nc	1,600 nc	1,600 nc	21 c 48 nc	640 nc	0.54 c 4 nc	0.03 c 24 nc
2020 Approved Reporting Limits			2	0.02	0.02	2	2	0.02	2	10	0.028	2	1	2	2	2	4	2	2	1.46	0.2	2	0.0534	0.020
Upgradient Wells	MW-20S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
Zone A Wells	MW-12S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.097	<0.020 U
		October	<2.0 U	0.021	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	0.035	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	8.3	<2.0 U	8.6	<0.020 U
		November	<2.0 U	0.065	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	110	<2.0 U	<1.0 U	3.5	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	13	2.2	25	0.049
	MW-13S	December	<2.0 U	0.091	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	140	<2.0 U	<1.0 U	2.3	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	18	2.5	28	0.076
		January	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		March	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	0.029	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		June	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	0.054	<0.020 U
	MW-47S	July	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		September	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		January	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.14	<2.0 U	0.14	<0.020 U
		March	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	0.13	<0.020 U
		April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.030 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.30	<2.0 U	0.39	<0.020 U
	MW-47S	June	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.18	<2.0 U	0.15	<0.020 U
		July	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.27	<2.0 U	0.82	<0.020 U
		September	<2.0 U	0.17	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	140	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	26	<2.0 U	33	<1.4 U	24	7.8	17	0.32
		October	<2.0 U	0.21	<0.020 U	5.6	<2.0 U	<0.020 U	31	<10 U	480	3.2	<1.0 U	<2.0 U	<2.0 U	13	<4.0 U	2.6	34	<1.4 U	38	12	38	0.35
		November	<2.0 U	0.18	<0.020 U	4.8	<2.0 U	<0.020 U	23	<10 U	1100	6.2	<1.0 U	6.6	<2.0 U	29	<4.0 U	3.0	11	<1.4 U	39	9.6	38	0.44
	MW-47I	December	<2.0 U	0.16	<0.020 U	6.7	4.7	<0.020 U	38	<10 U	1700	11	<1.0 U	8.9	<2.0 U	35	<4.0 U	<2.0 U	5.2	<1.4 U	15	2.3	26	0.15
		March	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.13	<0.020 U
		June	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		September	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.37	<2.0 U	1.0	<0.020 U
	MW-48S	October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.39	<2.0 U	0.85	<0.020 U
		November	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.25 CCV001	<2.0 U	0.59	<0.020 U
		December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.39	<0.020 U
MW-49S	October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.11	<0.020 U	
	November	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	0.44	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	1.3 CCV001	<2.0 U	0.63	<0.020 U	
	December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	0.3	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	1.7	<2.0 U	0.84	<0.020 U	
MW-50S	January	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.25	<2.0 U	0.32	<0.020 U	
	March	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.1	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.20	<2.0 U	0.38	<0.020 U	
	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U	
	June	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.27	<2.0 U	0.29	<0.020 U	
	July	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.27	<0.020 U	
	September	<2.0 U	<0.020 U</																					

Table 4
 Volatile Organic Compounds Detected in Groundwater
 2024 Annual Report
 Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	1,1-Dichloro ethane	1,1-Dichloro ethene	1,2,3-Trichloro propane	1,2,4-Trimethyl benzene	1,2-Dichloro benzene	1,2-Dichloro ethane	1,3,5-Trimethyl benzene	4-Methyl-2-Pentanone	Benzene	Chloro benzene	Chloroform	cis-1,2-Dichloro ethene	Ethyl benzene	Isopropyl benzene	m- & p-Xylenes	n-Propyl benzene	o-Xylene	Styrene	Tetra chloroethene (PCE)	Toluene	Tri chloroethene (TCE)	Vinyl Chloride
2019 Clean-up Levels			7.68	0.057				0.38			1.2			12							0.69	157	2.5	0.053
MTCA Method B Value			7.7 c 1,600 nc	400 nc	0.00146 c 32 nc	80 nc	720 nc	0.48 c 48 nc	80 nc	640 nc	0.80 c 32 nc	160 nc	1.4 c 80 nc	16 nc	800 nc	800 nc	1,600 nc	800 nc	1,600 nc	1,600 nc	21 c 48 nc	640 nc	0.54 c 4 nc	0.03 c 24 nc
2020 Approved Reporting Limits			2	0.02	0.02	2	2	0.02	2	10	0.028	2	1	2	2	2	4	2	2	1.46	0.2	2	0.0534	0.020
Zone A Wells	MW-57S	January	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		March	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		June	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		July	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		September	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.27	<2.0 U	0.12	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.51	<2.0 U	0.20	<0.020 U
	November	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.32	<2.0 U	0.17	<0.020 U	
	December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	0.23	<2.0 U	0.14	<0.020 U	
	MW-58S	January	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	0.082	<0.020 U
		March	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	0.087	<0.020 U
		April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.063	<0.020 U
		June	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	0.060	<0.020 U
		July	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.13	<0.020 U
		September	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	0.067	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.057	<0.020 U
	November	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.094	<0.020 U	
	December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.12	<0.020 U	
	NVM-01	January	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	0.069	<0.020 U
		March	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	0.080	<0.020 U
		April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		June	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.11 U	<2.0 U	<0.053 U	<0.020 U
		July	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	1.4	<2.0 U	1.8	<0.020 U
		September	<2.0 U	0.074	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	270	<2.0 U	3.4	6.3	360	27	1900	10	980	<1.4 U	17	8.2	39	0.074
October		3.1	0.64	<0.020 U	12	<2.0 U	<0.020 U	24	<10 U	3200	<2.0 U	3.4	6.3	360	27	1900	10	980	<1.4 U	190	1000	200	0.52	
November	4.9	0.91	<0.020 U	22	<2.0 U	<0.020 U	36	67	4200	56	1.2	33	400	58	1900	26	1500	33	170 CCV002	230	200	0.64		
December	4.2	0.75	<0.020 U	2.6	<2.0 U	<0.020 U	31	49	3400	63	1.9	50	200	61	380	18	480	<1.4 U	150	72	160	0.36		
Zone C/D Wells	MW-55S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
	MW-59S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
Zone E Wells	MW-275R	October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
	MW-60S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.24	<0.020 U
Sentinel Wells	MW-15S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.14	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	0.25	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.23	<0.020 U
	MW-18S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	0.13	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0

Table 4
 Volatile Organic Compounds Detected in Groundwater
 2024 Annual Report
 Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	1,1-Dichloro ethane	1,1-Dichloro ethene	1,2,3-Trichloro propane	1,2,4-Trimethyl benzene	1,2-Dichloro benzene	1,2-Dichloro ethane	1,3,5-Trimethyl benzene	4-Methyl-2-Pentanone	Benzene	Chloro benzene	Chloroform	cis-1,2-Dichloro ethene	Ethyl benzene	Isopropyl benzene	m- & p-Xylenes	n-Propyl benzene	o-Xylene	Styrene	Tetra chloroethene (PCE)	Toluene	Tri chloroethene (TCE)	Vinyl Chloride
2019 Clean-up Levels			7.68	0.057				0.38			1.2			12							0.69	157	2.5	0.053
MTCA Method B Value			7.7 c 1,600 nc	400 nc	0.00146 c 32 nc	80 nc	720 nc	0.48 c 48 nc	80 nc	640 nc	0.80 c 32 nc	160 nc	1.4 c 80 nc	16 nc	800 nc	800 nc	1,600 nc	800 nc	1,600 nc	1,600 nc	21 c 48 nc	640 nc	0.54 c 4 nc	0.03 c 24 nc
2020 Approved Reporting Limits			2	0.02	0.02	2	2	0.02	2	10	0.028	2	1	2	2	2	4	2	2	1.46	0.2	2	0.0534	0.020
Off-Property Downgradient Wells	MW-29S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.13	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	2.0	<2.0 U	3.5	<0.020 U
		December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	0.057	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	1.6	<2.0 U	2.9
	MW-31S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.087	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.091	<0.020 U
		December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.064	<0.020 U
	MW-37S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.056	<0.020 U
		December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.068	<0.020 U
	MW-38S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.030 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.30	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.23	<0.020 U
		December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.21	<0.020 U
	MW-42S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
	MW-43S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.12	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.10	<0.020 U
	MW-45S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
	MW-46S	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		December	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
	MW-54I	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.025 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.12	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.11	<0.020 U
	Private Off-Property Wells	Bradley	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U
October			<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
Hand		April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
		October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	<0.053 U	<0.020 U
West	April	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.098	<0.020 U	
	October	<2.0 U	<0.020 U	<0.020 U	<2.0 U	<2.0 U	<0.020 U	<2.0 U	<10 U	<0.028 U	<2.0 U	<1.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<1.4 U	<0.20 U	<2.0 U	0.25	<0.020 U	

Notes:
 Units are in micrograms per liter (µg/L).
 U = Analyte not detected above indicated reporting limit.
 UJ = Analyte was not detected above the sample quantitation limit, and the reported quantitation limit was an estimated value.
 CCV001 = CCV recovery above limits; results may be biased high
 CCV002 = CCV recovery below limits; results may be biased low
 0.5c/560nc = MTCA B cancer (c) and non-cancer (nc) values.
Bold text indicates detections above approved reporting limit.
 Red shading indicates an exceedance of the CUL.
 Orange shading indicates an exceedance of a MTCA value when no CUL is established.

Table 5
Semi-Volatile Organic Compounds Detected in Groundwater
2024 Annual Report
Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	1-Methyl naphthalene	4-Chloroaniline	4-Nitroaniline	Aniline	Benzyl Alcohol	N-Nitrosodimethylamine	Pyridine
MTCA Method B Value			1.5c/560nc	0.22 c / 32 nc	64 nc	7.7 c / 56 nc	800 nc	0.00086 c / 0.064 nc	8 nc
2020 Approved Reporting Limits			0.020	2	2.26	5	2	2	5
Zone A Wells	MW-47S	January	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		March	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		April	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		June	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		July	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		September	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		October	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		December	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
	MW-48S	October	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		December	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
	MW-50S	January	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		March	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		April	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		June	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		July	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		September	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		October	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		December	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
	MW-56S	January	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		March	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		April	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		June	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		July	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		September	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		October	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		December	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
	MW-57S	January	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		March	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		April	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		June	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		July	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		September	<0.020 U	19	2.4	13	6.9	5.1	14
		October	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		December	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
	MW-58S	January	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		March	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		April	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		June	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		July	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U
		September	<0.020 U	19	3.7	12	8.1	6.1	15
October		<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	
December		<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	
NVM-01	March	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	
	June	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	
	September	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	
	December	0.039	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	< 2.0 U	
Sentinel Wells	MW-19S	April*	-	-	-	-	-	-	
		October	<0.020 U	< 2.0 U	< 2.2 U	< 5.0 U	< 2.0 U	< 2.0 U	

Notes:

Units are in micrograms per liter (µg/L).

U = Analyte not detected above indicated reporting limit.

0.5c/560nc = MTCA B cancer (c) and non-cancer (nc) values.

Bold text indicates detections above approved reporting limit.

* MW-19S was inadvertently excluded from SVOC analysis and results are not available for April 2024.

Table 6
Herbicides Detected in Groundwater
2024 Annual Report
Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	MCPA
MTCA Method B Value			8 nc
2020 Approved Reporting Limits			0.040
Zone A Wells	MW-47S	March	<0.040 U
		June	<0.040 U
		September	<0.040 U
		December	<0.040 U
	MW-48S	December	<0.040 U
	MW-50S	March	<0.040 U
		June	<0.040 U
		September	<0.040 U
		December	<0.040 U
	MW-56S	March	<0.040 U
		April	<0.040 U
		June	<0.040 U
		September	<0.040 U
		October	<0.040 U
		December	<0.080 U
	MW-57S	March	<0.040 U
		April	<0.040 U
		June	<0.040 U
		September	<0.040 U
		October	<0.040 U
		December	<0.080 U
	MW-58S	March	<0.040 U
		April	<0.040 U
		June	<0.040 U
		September	<0.040 U
		October	<0.040 U
		December	<0.080 U
	NVM-01	March	<0.040 U
		June	<0.040 U
		September	<0.040 U
		December	0.82

Notes:

Units are in micrograms per liter (µg/L).

U = Analyte not detected above indicated reporting limit.

0.5c/560nc = MTCA B cancer (c) and non-cancer (nc) values.

Bold text indicates detections above approved reporting limit.

Table 7
TAL Metals, Chromium, and Mercury in Groundwater
2024 Annual Report
Pasco Landfill NPL Site, Pasco, WA

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	Aluminum	Antimony	Arsenic*	Barium	Beryllium	Cadmium	Total Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
2019 Clean-up Level																					
MCTA Method B Value			16,000 nc	6 nc	0.06 c 4.80 nc	3,200 nc	32 nc	8 nc	100	640 nc	11,000 nc		750 nc		320 nc	80 nc	80 nc	0.16 nc	80 nc	4,800 nc	
MCTA Method A Value												15		2	2	4	1	0.2	2	2.5	
2020 Approved Reporting Limits			50	1	0.2	1	1	1	2	2	50	1	2	0.2	2	4	1	0.2	2	2.5	
Municipal Solid Waste (MSW) Landfill Wells	4R	April	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	
		October	-	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-
	MW-16S	April	-	-	-	-	-	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-
		October	-	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-
	MW-61S	April	-	-	-	-	-	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-
		October	-	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	-	-	-	-
	MW-62S	April	-	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-
		October	-	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-
	MW-63S	April	-	-	-	-	-	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-
		October	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-	-	-	-	-
Upgradient Wells	MW-20S	April	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	-	-	-	
		October	-	-	-	-	-	-	-	3.1	-	-	-	-	-	-	-	-	-	-	-
Zone A Wells	MW-47S	March	9.7	0.15	1.3	140	<0.020 U	<0.020 U	0.83	0.62	<50 U	0.040	170	<0.20 U	1.3	<1.0 U	<0.020 U	<0.020 U	5.0	<2.0 U	
		April	-	-	-	-	-	-	0.87	-	-	-	-	-	-	-	-	-	-	-	-
		June	8.2	0.12	1.0	150	<0.020 U	<0.020 U	0.77	0.60	22	0.023	180	<0.20 U	1.2	<1.0 U	<0.020 U	<0.020 U	3.7	<2.0 U	
		September	8.4	0.13	0.77	190	<0.020 U	<0.020 U	0.54	0.58	36	0.032	250	<0.20 U	1.2	<1.0 U	<0.020 U	<0.020 U	3.2	<2.0 U	
		October	-	-	-	-	-	-	0.68	-	-	-	-	-	-	-	-	-	-	-	-
	MW-48S	December	4.1	0.11	0.91	230	<0.020 U	<0.020 U	0.77	0.56	26	0.077	490	<0.20 U	2.0	<1.0 U	<0.020 U	0.024	3.6	2.1	
		October	-	-	-	-	-	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-
	MW-50S	December	55	0.19	4.4	79	<0.020 U	<0.020 U	4.8	1.4	130	0.26	110	<0.20 U	3.6	<1.0 U	<0.020 U	<0.020 U	22	4.3	
		March	7.9	0.15	1.1	120	<0.020 U	<0.020 U	1.4	0.58	<50 U	0.036	100	<0.20 U	1.6	<1.0 U	<0.020 U	<0.020 U	3.5	2.9	
		April	-	-	-	-	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	-
		June	<4.0 U	0.16	1.2	140	<0.020 U	<0.020 U	1.1	0.66	5.6	<0.020 U	120	<0.20 U	1.6	<1.0 U	<0.020 U	<0.020 U	3.6	<2.0 U	
		September	<4.0 U	0.18	1.2	110	<0.020 U	<0.020 U	0.96	0.56	6.4	<0.020 U	41	<0.20 U	1.0	<1.0 U	<0.020 U	<0.020 U	3.7	<2.0 U	
	MW-56S	October	-	-	-	-	-	-	0.92	-	-	-	-	-	-	-	-	-	-	-	-
		December	9.0	0.15	1.2	100	<0.020 U	<0.020 U	1.7	0.59	28	0.069	77	<0.20 U	1.6	<1.0 U	<0.020 U	<0.020 U	3.7	3.5	
		March	5.6	0.11	4.9	68	<0.020 U	<0.020 U	1.8	0.62	<50 U	<0.020 U	0.63	<0.20 U	1.2	<1.0 U	<0.020 U	<0.020 U	17	<2.0 U	
		April	-	-	-	-	-	-	2.2	-	-	-	-	-	-	-	-	-	-	-	-
		June	14	0.10	5.0	64	<0.020 U	<0.020 U	5.4	0.64	36	<0.020 U	1.0	<0.20 U	2.7	<1.0 U	<0.020 U	<0.020 U	16	<2.0 U	
	MW-57S	September	<4.0 U	0.092	4.9	65	<0.020 U	<0.020 U	1.1	0.52	6.8	<0.020 U	<0.20 U	<0.20 U	0.54	<1.0 U	<0.020 U	<0.020 U	17	<2.0 U	
		October	-	-	-	-	-	-	5.3	-	-	-	-	-	-	-	-	-	-	-	-
		December	7.6	0.11	5.0	62	<0.020 U	<0.020 U	2.4	0.97	15	<0.020 U	0.88	<0.20 U	1.4	<1.0 U	<0.020 U	<0.020 U	17	<2.0 U	
		March	4.7	0.18	4.9	88	<0.020 U	<0.020 U	1.5	1.9	<50 U	<0.020 U	0.48	<0.20 U	1.0	<1.0 U	<0.020 U	<0.020 U	17	<2.0 U	
		June	4.8	0.13	4.7	84	<0.020 U	<0.020 U	1.2	1.2	3.3	<0.020 U	0.34	<0.20 U	0.81	<1.0 U	<0.020 U	<0.020 U	16	<2.0 U	
	MW-58S	September	4.3	0.12	4.3	81	<0.020 U	<0.020 U	1.1	1.6	12	<0.020 U	<0.20 U	<0.20 U	0.73	<1.0 U	<0.020 U	<0.020 U	15	<2.0 U	
		December	4.1	0.12	4.6	76	<0.020 U	<0.020 U	1.0	1.3	4.3	<0.020 U	<0.20 U	<0.20 U	0.77	<1.0 U	<0.020 U	<0.020 U	16	<2.0 U	
		March	6.8	0.10	4.4	80	<0.020 U	<0.020 U	17 J	0.76	<50 U	<0.020 U	0.43	<0.20 U	2.4	<1.0 U	<0.020 U	<0.020 U	16	<2.0 U	
		June	4.9	0.11	4.3	80	<0.020 U	<0.020 U	3.3	0.47	12	0.024	<0.20 U	<0.20 U	1.0	<1.0 U	<0.020 U	<0.020 U	15	<2.0 U	
		September	5.4	0.093	4.1	79	<0.020 U	<0.020 U	1.0	0.46	6.3	<0.020 U	<0.20 U	<0.20 U	0.69	<1.0 U	<0.020 U	<0.020 U	14	<2.0 U	
	NVM-01	December	4.1	0.092	4.4	73	<0.020 U	<0.020 U	2.1	0.46	6.9	<0.020 U	0.26	<0.20 U	1.3	<1.0 U	<0.020 U	<0.020 U	15	<2.0 U	
		March	14	0.12	1.3	120	<0.020 U	<0.020 U	1.6	0.85	<50 U	0.047	29	<0.20 U	2.6	<1.0 U	<0.020 U	<0.020 U	7.2	5.7	
		June	6.6	0.09	4.1	98	<0.020 U	<0.020 U	1.6	0.21	15	<0.020 U	0.68	<0.20 U	1.1	<1.0 U	<0.020 U	<0.020 U	14	<2.0 U	
	September	15	0.083	1.2	120	<0.020 U	<0.020 U	0.80	0.79	25	0.046	63	<0.20 U	2.0	<1.0 U	<0.020 U	0.026	6.6	7.9		
	December	20	0.14	2.7	280	<0.020 U	0.026	1.9	3.6	460	0.091	800	<0.20 U	12	<1.0 U	0.032	0.040	2.9	17		

Table 7
 TAL Metals, Chromium, and Mercury in Groundwater
 2024 Annual Report
 Pasco Landfill NPL Site, Pasco, WA

Well Group	Well	Date	Aluminum	Antimony	Arsenic*	Barium	Beryllium	Cadmium	Total Chromium	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
2019 Clean-up Level			100																		
MTCA Method B Value			16,000 nc	6 nc	0.06 c 4.80 nc	3,200 nc	32 nc	8 nc		640 nc	11,000 nc			750 nc		320 nc	80 nc	80 nc	0.16 nc	80 nc	4,800 nc
MCTA Method A Value												15		2							
2020 Approved Reporting Limits			50	1	0.2	1	1	1	2	2	50	1	2	0.2	2	4	1	0.2	2	2.5	
Zone C/D Wells	MW-55S	April	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	-	-	-	-	
		October	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	
Zone E Wells	MW-27SR	April	-	-	-	-	-	-	22	-	-	-	-	<0.20 U	-	-	-	-	-	-	
		October	-	-	-	-	-	-	1.7	-	-	-	-	<0.20 U	-	-	-	-	-	-	
	MW-60S	April	-	-	-	-	-	-	11	-	-	-	-	<0.20 U	-	-	-	-	-	-	
		October	-	-	-	-	-	-	3.7	-	-	-	-	<0.20 U	-	-	-	-	-	-	
Sentinel Wells	MW-19S	April	-	-	-	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	
		October	-	-	-	-	-	-	5.0	-	-	-	-	-	-	-	-	-	-	-	
Property Boundary Wells	MW-22S	April	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	
		October	-	-	-	-	-	-	0.91	-	-	-	-	-	-	-	-	-	-	-	

Notes:
 Units are in micrograms per liter (µg/L).
 *Statewide groundwater background for arsenic is 5.5 µg/L (Natural Background Groundwater Arsenic Concentrations in Washington State, dated January 2022)
 - = Compound not analyzed.
 U = Analyte not detected above indicated reporting limit.
 J = Field duplicate relative percent difference value was outside advisory criteria.
 0.5c/560nc = MTCA B cancer (c) and non-cancer (nc) values.
Bold text indicates above approved reporting limit.
 Orange shading indicates an exceedance of a MTCA value (or background level for arsenic) when no CUL is established.

Table 8
 Landfill Parameters in Groundwater
 2024 Annual Report
 Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Well Group	Well	Date	Ammonia (mg/L)	Alkalinity as CaCO ₃ (mg/L)	Bicarbonate as CaCO ₃ (mg/L)	Carbonate as CaCO ₃ (mg/L)	Hydroxide as CaCO ₃ (mg/L)	Total Organic Carbon (mg/L)	Total Dissolved Solids (µg/L)	Chloride (µg/L)	Nitrate as Nitrogen (µg/L)	Sulfate (µg/L)	Calcium (µg/L)	Iron (µg/L)	Magnesium (µg/L)	Manganese (µg/L)	Potassium (µg/L)	Sodium (µg/L)
MTCA Method B Value											26,000			11,000		750		
2020 Approved Reporting Limits			0.050	9.0	9.0	9.0	9.0	0.50	5000	92	150	260	50	20	20	1.0	200	200
Municipal Solid Waste (MSW) Landfill Wells	4R	April	<0.050 U	270	270	<9.0 U	<9.0 U	1.4	460,000	28,000	10,000	57,000	85,000	<21 U*	27,000	<1.1 U*	9,600	38,000
		October	<0.050 U	290	290	<9.0 U	<9.0 U	1.4	490,000	27,000	9,300	57,000	90,000	<21 U*	27,000	<1.1 U*	8,300	36,000
	MW-16S	April	<0.050 U	240	240	<9.0 U	<9.0 U	1.3	430,000	23,000	9,000	54,000	72,000	<21 U*	27,000	<1.1 U*	8,200	34,000
		October	<0.050 U	250	250	<9.0 U	<9.0 U	1.1	400,000	23,000	9,200	55,000	68,000	<21 U*	27,000	1.2	7,500	34,000
	MW-17SR	April	<0.050 U	200	200	<9.0 U	<9.0 U	1.2	370,000	22,000	11,000	53,000	63,000	<21 U*	26,000	<1.1 U*	7,000	34,000
		October	<0.050 U	200	200	<9.0 U	<9.0 U	1.4	350,000	23,000	10,000	53,000	52,000	<21 U*	25,000	<1.1 U*	6,900	32,000
	MW-23S	April	<0.050 U	230	230	<9.0 U	<9.0 U	1.3	400,000	22,000	11,000	54,000	68,000	<21 U*	26,000	<1.1 U*	7,600	34,000
		October	<0.050 U	220	220	<9.0 U	<9.0 U	1.2	400,000	23,000	9,500	54,000	66,000	<21 U*	26,000	<1.1 U*	7,300	33,000
	MW-61S	April	<0.050 U	200	200	<9.0 U	<9.0 U	1.3	390,000	20,000	10,000	51,000	62,000	34	25,000	2.2	7,100	33,000
		October	<0.050 U	210	210	<9.0 U	<9.0 U	1.4	380,000	22,000	9,900	53,000	60,000	32	25,000	2.0	7,000	32,000
	MW-62S	April	<0.050 U	200	200	<9.0 U	<9.0 U	1.2	300,000	21,000	11,000	52,000	62,000	<21 U*	26,000	<1.1 U*	7,200	33,000
		October	<0.050 U	200	200	<9.0 U	<9.0 U	1.3	390,000	22,000	10,000	53,000	59,000	<21 U*	25,000	<1.1 U*	7,000	32,000
	MW-63S	April	<0.050 U	200	200	<9.0 U	<9.0 U	1.2	350,000	21,000	11,000	53,000	60,000	<21 U*	26,000	<1.1 U*	7,100	33,000
		October	<0.050 U	200	200	<9.0 U	<9.0 U	1.3	370,000	22,000	10,000	53,000	58,000	<21 U*	25,000	<1.1 U*	6,900	32,000
Sentinel Wells	MW-19S	April	<0.050 U	210	210	<9.0 U	<9.0 U	1.5	530,000	72,000	12,000	60,000	86,000	22	26,000	<1.1 U*	12,000	49,000
		October	<0.050 U	200	200	<9.0 U	<9.0 U	1.2	420,000	51,000	11,000	59,000	71,000	<21 U*	23,000	<1.1 U*	11,000	48,000

Notes:

mg/L = milligrams per liter

µg/L = micrograms per liter

U = Analyte not detected above indicated reporting limit.

J+ = Result was affected by detections in calibration blanks.

* = Reporting limit exceeds the 2020 approved reporting limit.

Bold text indicates detections above approved reporting limit.

Table 9
VOC Analytical Data and RTO Removal Rates
Detected Compounds Only (in µg/L)
2024 Annual Report
Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Sample Location	Date	Toluene	2-butanone (MEK)	m,p-Xylene	o-Xylene	Acetone	4-Methyl-2-pentanone (MIBK)	Methylene chloride	Ethanol	Trichloroethene	Ethyl benzene	Tetra chloro ethene	1,1-Dichloroethane	1,2,4-Trimethyl benzene	1,2-Dichloro ethane	1,3,5-Trimethyl benzene	2-Hexanone (MBK)	n-propyl benzene	Isopropyl benzene (Cumene)	cis-1,2-Dichloro ethene
SV-BRTO	2-Jan-24	76	4.3	110	45	4.9	17	<0.62 U	<0.20 U	3.8	35	3.6	<0.20 U	22	<0.20 U	13	<1.0 U	6.9	3.4	<0.20 U
	16-Jan-24	63	3.5	90	36	4.9	14	<0.50 U	<0.20 U	2.2	28	2.4	<0.20 U	12	<0.20 U	7.4	<1.0 U	3.7	1.9	<0.20 U
	24-Apr-24	120	13 J	210	72	15	33	6.9 J	<0.20 U	3.4	61	6.4	<0.20 U	45	<0.20 U	28	<1.0 U	17	7.5	0.21
	6-May-24	36	5.4	77	30	13	8.2	8.7 J	33	0.88	23	1.4	<0.20 U	18	0.14	12	<1.0 U	7.0	3.0	0.059
	20-May-24	62	5.7	89	35	20	8.9	<1.5 UJ	<20 U	2.6	29	2.9	<0.20 U	19	<0.20 U	14	<1.0 U	7.1	4.3	<0.20 U
	5-Jun-24	320	29	730	150	69	76	<6.2 U	26	9.3	120	19	0.30	110	<0.20 U	71	2.4	38	15	0.27
	19-Jun-24	78	14	200	78	49	24	2.6	35	2.7	61	4.6	0.26	51	<0.20 U	32	1.4	11	5.9	0.23
	1-Jul-24	54	31	400	130	120	49	<2.1 U	98	3.2	94	4	0.43	120	<0.20 U	74	2.0	40	14.0	0.31
	16-Jul-24	41	17	170	76	69	16	<0.5 U	57	1.8	47	2.1	<0.20 U	94	<0.20 U	53	1.4	25	9.3	<0.20 U
	29-Jul-24	20	12	75	33	49	15	<2.4 U	73	1.5	21	1.2	<0.20 U	48	<0.20 U	27	1.1	7.5	3.2	<0.20 U
	12-Aug-24	68	12	140	52	59	14	<0.5 U	60	2.6	45	2.6	<0.20 U	86	<0.20 U	43	1.4	20	7.7	0.38
	26-Aug-24	50	12	69	26	46	14	<2.3 U	46	1.9	28	2.3	<0.20 U	48	<0.20 U	24	1.2	13	6.6	<0.20 U
	9-Sep-24	63	13	67	26	56	10	2	51	1.7	28	1.3	<0.20 U	29	<0.20 U	12	1.1	4.5	3.5	<0.20 U
	23-Sep-24	78	13	78	30	79	10	<5.5 U	40	1.9	35	1.3	<0.20 U	15	<0.20 U	8	1.5	3.3	3.8	<0.20 U
	7-Oct-24	130	38	150	56	110	28	<0.50 U	140	4.7	60	2.5	<0.20 U	25	<0.20 U	10	<1.0 U	5.6	5.1	<0.20 U
	21-Oct-24	120	20	260	95	58	39	<0.50 U	98	5	87	5.8	<0.20 U	45	<0.20 U	24	<1.0 U	11	6.7	0.23
	4-Nov-24	142	201	217	78	<5 U	155	<0.75 U		6.35	80.6	8.98	<0.5 U	59.6	2.3	24	9.5	30.7	14.8	<0.5 U
19-Nov-24	94	26	210	86	80	28	<2.3 U	84	2.6	74	4.4	<0.20 U	66	<0.20 U	39	2.2	24	11.0	<0.20 U	
2-Dec-24	59	34	260	110	120	33	<3.2 U	99	1.4	82	3.3	<0.20 U	61	<0.20 U	40	3.0	28	9.9	<0.20 U	
17-Dec-24	34	26	87	46	100	25	<1.5 U	92	1.1	24	0.78	<0.20 U	58	<0.20 U	33	1.7	9	4.0	<0.20 U	
VEW- 06H	2-Jan-24	<0.20 U	<1.0 U	<0.4 U	<0.20 U	<2.5 U	<1.0 U	<0.50 U	<20 U	<0.20 U	<0.20 U	0.43	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<1.0 U	<0.20 U	<0.20 U	<0.20 U
	16-Jan-24	<0.20 U	<1.0 U	<0.4 U	<0.20 U	<2.5 U	<1.0 U	<0.50 U	<20 U	<0.20 U	<0.20 U	0.25	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<1.0 U	<0.20 U	<0.20 U	<0.20 U
VEW- 07H	2-Jan-24	83	4.3	120	48	4.7	18	<0.50 U	<0.20 U	3.6	39	3.6	<0.20 U	23	<0.20 U	13	<1.0 U	7.4	3.6	<0.20 U
	16-Jan-24	65	3.6	95	39	5.0	13	<0.50 U	<0.20 U	2.1	30	2.4	<0.20 U	12	<0.20 U	7.8	<1.0 U	4.0	2.0	<0.20 U

Table 9
VOC Analytical Data and RTO Removal Rates
Detected Compounds Only (in µg/L)
2024 Annual Report
Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Sample Location	Date	Chloro ethane	Benzene	Tertiary butyl alcohol	Chlorom ethane	Chloroform	1,2-Dichloro benzene	Dichloro difluoro methane (CFC-12)	n-butyl benzene	Naphthalene	Vinyl Chloride	p-Isopropyl toluene	Chloro benzene	Carbon Disulfide	1,4-Dichloro benzene	Sec-butyl benzene	1,2,4-Trichlorob enzene	Tert-butyl benzene	Total VOCs Detected in µg/L [X]	Total Flow Rate (scfm) [Y]	Removal Rate (lbs/day) from Total
SV-BRTO	2-Jan-24	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	2.0	<0.20 U	1.0	0.39	<0.020 U	0.53	<0.20 U	<0.20 U	0.21	0.58	<0.20 U	<0.20 U	350	505	16
	16-Jan-24	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	1.1	<0.20 U	0.42	<0.32 U	<0.020 U	0.23	<0.20 U	<0.20 U	<0.20 U	0.30	<0.20 U	<0.20 U	271	511	12
	24-Apr-24	2.5	2.1	<0.20 U	3.8	<0.20 U	<0.20 U	<0.20 U	2.0	<0.20 U	<0.020 U	1.4	<0.20 U	<0.20 U	<0.20 U	1.6	<0.20 U	<0.20 U	685	715	44
	6-May-24	1.6	10	<0.20 U	<0.20 U	<0.20 U	0.61	0.51 J	0.81	0.47 J	0.14 J	0.57	0.29	2.4	<0.20 U	0.71	<0.20 U	<0.20 U	262	803	19
	20-May-24	1.5	24	<0.20 U	<0.20 U	1.2	0.86	<0.20 U	0.70	0.25	0.15	0.69	0.46	<0.20 U	<0.20 U	0.71	<0.20 U	<0.20 U	330	623	18
	5-Jun-24	0.59	25	<0.20 U	<0.20 U	<0.20 U	21	<0.20 U	5.6	0.38	0.067	4.2	1.6	<0.20 U	2.3	4.6	<0.20 U	<0.20 U	1851	588	98
	19-Jun-24	0.49	20	<0.20 U	<0.20 U	0.33	14	<0.20 U	1.1	0.57	0.052	0.85	0.55	<0.20 U	0.96	0.89	<0.20 U	<0.20 U	690	502	31
	1-Jul-24	1.00	8	1.1	0.9	<0.20 U	15	<0.20 U	4.7	0.34	<0.020 U	3.6	0.49	<0.20 U	1.2	3.70	<0.20 U	<0.20 U	1274	363	42
	16-Jul-24	0.84	21	<0.20 U	<0.20 U	1.20	15	<0.20 U	3.6	0.48	0.022	2.8	1	<0.20 U	1.1	2.60	<0.20 U	<0.20 U	729	495	32
	29-Jul-24	1.10	5	0.8	0.8	0.23	10	<0.20 U	1.4	0.67	<0.02 U	1.1	0.27	0.26	0.68	1.00	<0.20 U	<0.20 U	411	529	20
	12-Aug-24	1.30	35	<0.20 U	<0.20 U	<0.40 U	20	<0.20 U	7.3	0.29	<0.02 U	5.5	0.77	0.24	2.4	4.20	<0.20 U	<0.20 U	691	659	41
	26-Aug-24	1.10	38	<0.20 U	<0.20 U	<0.20 U	11	<0.20 U	4.6	0.72	<0.02 U	3.4	0.28	<0.20 U	0.86	2.60	<0.20 U	<0.20 U	451	502	20
	9-Sep-24	0.88	44	<0.20 U	<0.20 U	<0.20 U	6	<0.20 U	1.2	0.83	<0.020 U	0.95	1	<0.20 U	0.51	0.70	<0.20 U	<0.20 U	425	464	18
	23-Sep-24	1.20	73	<0.20 U	<0.20 U	<0.47 U	3	<0.20 U	0.7	0.78	0.023	0.63	1.4	0.22	0.33	0.40	<0.20 U	<0.20 U	480	371	16
	7-Oct-24	4.90	73	<0.20 U	1.3	0.31	7	<0.20 U	0.7	1.10	0.080	0.9	3.2	0.48	0.65	0.57	0.2	0.31	859	522	40
	21-Oct-24	2.60	70	<0.20 U	<0.20 U	<0.64 U	10	<0.20 U	0.9	1.20	0.050	1	2.4	0.39	1	0.88	0.4	0.23	965	730	63
	4-Nov-24	1.45	46	57.5	<0.75 U	<0.5 U	14	<0.5 U	5.7	<1.25 U	<0.2 U	0.593	2.39	0.698	1.42	2.99	<7.5 U	0.622	1163	610	64
19-Nov-24	1.30	15	<0.20 U	1.2	0.67	17	<0.20 U	3.2	1.30	<0.020 U	2.7	1.5	0.55	2.1	2.40	0.66	0.44	881	721	57	
2-Dec-24	1.20	5	<0.20 U	1.2	<1.2 U	6	<0.20 U	1.0	0.28	<0.020 U	1.3	1.1	0.45	0.67	1.50	<0.20 U	<0.20 U	964	822	71	
17-Dec-24	1.20	3	<0.20 U	1.1	<1.5 U	7	<0.20 U	0.5	0.53	<0.020 U	0.73	0.49	0.26	0.69	0.74	<0.20 U	<0.20 U	558	725	36	
VEW- 06H	2-Jan-24	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	0.37	<0.20 U	<0.20 U	<0.020 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	0.80	94	0.01
	16-Jan-24	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	0.35	<0.20 U	<0.20 U	<0.020 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	0.60	102	0.01
VEW- 07H	2-Jan-24	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	1.9	<0.20 U	1.0	0.35	<0.20 U	0.55	<0.20 U	<0.20 U	0.20	0.63	<0.20 U	<0.20 U	376	412	14
	16-Jan-24	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	1.0	<0.20 U	0.50	<0.33 U	<0.20 U	0.26	<0.20 U	<0.20 U	<0.20 U	0.34	<0.20 U	<0.20 U	283	410	10

Notes:
lbs = pounds; µg/L = micrograms per liter; scfm = standard cubic feet per minute; SVE = soil vapor extraction
U = Compound not detected above the reporting limit; J /UJ = Compound concentration estimated
Removal Rate in lbs/day = (X)µg/L x 28.32 l/ft³ x (Y)ft³/min x 0.002205 lbs/gm / 1,000,0000 µg/gm x 1440 min/day.

Table 10
 TVOC Mass, HCl, and HAP Emission Rates for Anguil RTO
 2024 Annual Report

PERIOD: 01/01/2024-12/31/2024

Pasco Landfill NPL Site

Date	VEW-06H TVOC Mass (lbs/day)	VEW-07H TVOC Mass (lbs/day)	Sum of H Wells TVOC Mass (lbs/day)	SV-BRTO TVOC Mass (lbs/day)	Average Monthly TVOC Mass (lbs)	12-Month TVOC Mass (tons)	12-Month Total HCl Mass (tons)	12-Month Total HAP Mass (tons)
2-Jan-24	0.01	23	23	-	627	3.7	0.2	0.3
16-Jan-24	0.00	17	17	-				
2-Feb-24					0	3.3	0.2	0.2
16-Feb-24								
2-Mar-24					0	2.9	0.2	0.3
16-Mar-24								
2-Apr-24					511	2.7	0.2	0.2
24-Apr-24				73				
6-May-24				31	953	3.0	0.2	0.2
20-May-24				31				
5-Jun-24				162	3,201	4.3	0.3	0.3
19-Jun-24				52				
1-Jul-24				69	1,594	4.8	0.3	0.4
16-Jul-24				53				
29-Jul-24				32				
12-Aug-24				66	1,539	5.4	0.3	0.4
26-Aug-24				33				
9-Sep-24				29	836	5.6	0.3	0.4
23-Sep-24				26				
7-Oct-24				67	2,573	6.4	0.4	0.5
21-Oct-24				105				
4-Nov-24				105	3,086	7.7	0.5	0.6
19-Nov-24				94				
2-Dec-24				118	2,767	8.8	0.5	0.7
17-Dec-24				60				
Emission Limit from Approval Order Condition 2.b. (in tons per 12 months):							10	25

Notes:

HCl Mass = Hydrochloric acid (HCl) mass = TVOC Mass x 0.059

HAP Mass = Hazardous Air Pollutant (HAP) mass = TVOC Mass x 0.734 x 0.02 + HCl Mass

lbs = pounds

RTO = regenerative thermal oxidizer

TVOC Mass = Total volatile organic compound (TVOC) mass = 1.67 x Mass of 26 target analytes

Horizontal wells were disconnected from the RTO pending ISTR treatment in January 2024.

= Blank/grey cells indicates no sample collected

Table 11
 Temperature Monitoring at Zone A Thermocouples
 2024 Annual Report
 Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Sample Location	3-Jan-24	9-Jan-24	16-Jan-24	23-Jan-24	30-Jan-24	5-Feb-24	14-Feb-24	20-Feb-24	28-Feb-24	5-Mar-24	11-Mar-24	18-Mar-24	26-Mar-24	2-Apr-24	8-Apr-24	15-Apr-24	23-Apr-24	30-Apr-24	6-May-24	13-May-24	20-May-24	27-May-24	3-Jun-24	9-Jun-24	16-Jun-24	21-Jun-24	25-Jun-24	1-Jul-24
VB24-4	65	60	59	54	55	55	56	55	57	57	58	60	61	64	64	67	67	69	70	74	75	77	79	81	81	80	85	86
VB24-11	99	97	96	95	95	95	95	94	95	94	94	94	94	93	93	92	92	92	92	92	92	92	92	92	92	92	93	93
VB24-18	111	111	111	110	110	110	110	109	109	109	108	108	108	107	106	106	106	105	105	105	105	104	104	104	104	103	103	103
VB24-25	116	116	116	115	115	115	115	114	114	114	114	113	113	113	112	112	112	112	111	111	111	111	110	110	110	110	109	109
VB24-39	104	103	103	102	103	103	104	102	103	103	103	103	103	103	103	103	103											
TC10-4	59	55	54	51	49	49	52	52	53	54	54	56	60	61	63	65	68	70	71	72	77	78	79	80	83	83	85	87
TC10-11	99	96	95	94	94	93	93	92	92	92	91	91	91	90	90	90	90	90	90	90	90	90	91	91	91	91	92	92
TC10-18	111	111	111	110	110	110	110	110	110	109	109	109	108	108	107	107	107	106	106	105	105	105	104	104	104	104	104	103
TC10-25	118	118	118	118	118	117	117	116	116	115	115	115	115	114	114	113	113	113	112	112	112	112	111	111	111	110	110	110
TC10-32	112	111	111	111	111	112	112	111	112	112	112	112	112	112	112	111	111	111	111	111	111	110	110	110	110	110	110	109
TC10-39	105	105	105	104	105	105	105	104	105	105	105	105	105	105	105	105	104	105	105	105	105	104	104	104	104	104	104	104

Table 11
 Temperature Monitoring at Zone A Thermocouples
 2024 Annual Report
 Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Sample Location	8-Jul-24	15-Jul-24	22-Jul-24	29-Jul-24	5-Aug-24	12-Aug-24	19-Aug-24	26-Aug-24	5-Sep-24	12-Sep-24	19-Sep-24	26-Sep-24	3-Oct-24	10-Oct-24	17-Oct-24	24-Oct-24	31-Oct-24	7-Nov-24	14-Nov-24	21-Nov-24	28-Nov-24	5-Dec-24	15-Dec-24	22-Dec-24	29-Dec-24	Maximum Temperature	
VB24-4	90	92	94	94	96	96	96	96	96	95	92	95	92	92	90	90	90	88	82	78	76	75	65	64	62	96	
VB24-11	93	93	94	94	94	95	95	95	96	96	96	97	97	97	97	97	98	98	98	97	97	99	94	94	93	99	
VB24-18	103	103	103	103	102	102	102	102	102	102	101	102	102	102	102	102	102	102	102	105	105	105	105	102	102	103	111
VB24-25	109	109	109	109	108	108	108	108	108	107	106	107	106	106	106	106	106	107	107	107	107	108	105	106	107	116	
VB24-39																										104	
TC10-4	90	93	95	96	96	96	96	96	96	92	91	92	91	89	87	86	83	81	79	75	72	69	59	57	56	96	
TC10-11	92	93	93	94	95	95	96	96	97	97	97	98	98	98	98	98	98	98	98	97	97	97	94	93	92	99	
TC10-18	103	103	103	103	103	103	103	103	103	102	102	102	102	102	102	102	103	103	103	103	103	103	102	102	102	111	
TC10-25	110	110	110	110	109	109	108	108	108	107	107	107	107	107	106	106	106	106	106	106	106	108	106	107	109	118	
TC10-32	109	109	109	109	109	109	108	108	108	107	107	107	107	107	106	106	107	107	107	106	106	106	103	103	104	112	
TC10-39	104	104	104	103	103	103	103	103	103	102	102	102	102	102	101	101	102	102	102	101	101	102	99	99	99	105	

Notes:

Temperatures in each column are the maximum for the weeks ending with that date and are in degrees Fahrenheit (°F).

Location name indicates thermocouple array number followed by depth in feet (i.e. TC1-14 is in array 1 at depth 14).

In coordination with Ecology, monitoring of VB24-32 was stopped on May 10, 2021.

VB24-39 recorded erroneous values between April 22 and April 23, 2024. The battery was replaced in the datalogger on April 23, 2024 but erroneous values continued and data is no longer included in the table.

Table 12
 Summary of 2024 RTO System Shutdowns and Restarts
 2024 Annual Report
 Pasco Landfill NPL Site

PERIOD: 01/01/2024-12/31/2024

Start Date	End Date	Duration (hours)	Reason for Shutdown
22-Jan-24 09:15	24-Apr-24 13:45	2237	Transition from SVE to ISTR operations (not included in annual total)
09-Jun-24 15:30	11-Jun-24 07:30	40	Condensate removal from poppet valve chambers
26-Sep-24 11:00	26-Sep-24 11:45	0.8	Preparations to use SVE blower for VR operations
01-Oct-24 13:15	01-Oct-24 16:45	3.5	Transition from VR blower to SVE blower
03-Oct-24 18:30	04-Oct-24 15:30	21.0	System troubleshooting following blower transition
05-Oct-24 14:45	05-Oct-24 17:15	2.5	
06-Oct-24 16:15	06-Oct-24 22:15	6.0	
07-Oct-24 13:45	07-Oct-24 14:00	0.3	
15-Oct-24 06:15	15-Oct-24 10:15	4.0	Installation of refurbished VR blower
17-Oct-24 10:00	17-Oct-24 18:00	8.0	RTO burnout
23-Oct-24 06:45	23-Oct-24 07:30	0.8	ISTR blower maintenance
03-Dec-24 21:45	04-Dec-24 06:00	8.3	Standalone deep VR well R34 activation
10-Dec-24 09:00	10-Dec-24 10:30	1.5	ISTR condenser maintenance
14-Dec-24 19:15	15-Dec-24 08:15	13.0	Poppet valve malfunction
15-Dec-24 16:45	15-Dec-24 21:15	4.5	Poppet valve maintenance
18-Dec-24 07:30	18-Dec-24 13:00	5.5	Connection of standalone deep VR wells
Total		119	

Notes:

- ISTR = in-situ thermal remediation
- RTO = regenerative thermal oxidizer
- SVE = soil vapor extraction
- VR = vapor recovery

Table 13
 Off-Site Waste Disposal
 2024 Annual Report
 Pasco Landfill NPL Site

Period: 01/01/2024–12/31/2024

Waste	Shipment Quantity	Units	Disposal or Treatment Facility	Disposal Date	Designation
Condensate	2,400	Gallons	PRS Group, Tacoma, WA	9-Feb-24	Nonhazardous
Purge Water	1,000	Gallons	City of Pasco Wastewater Treatment Plant	27-Aug-24	Nonhazardous
Spent Granular Activated Carbon	55	Gallons	Pacific Coast Carbon	30-Aug-24	Nonhazardous

Total waste disposed of during 2024:

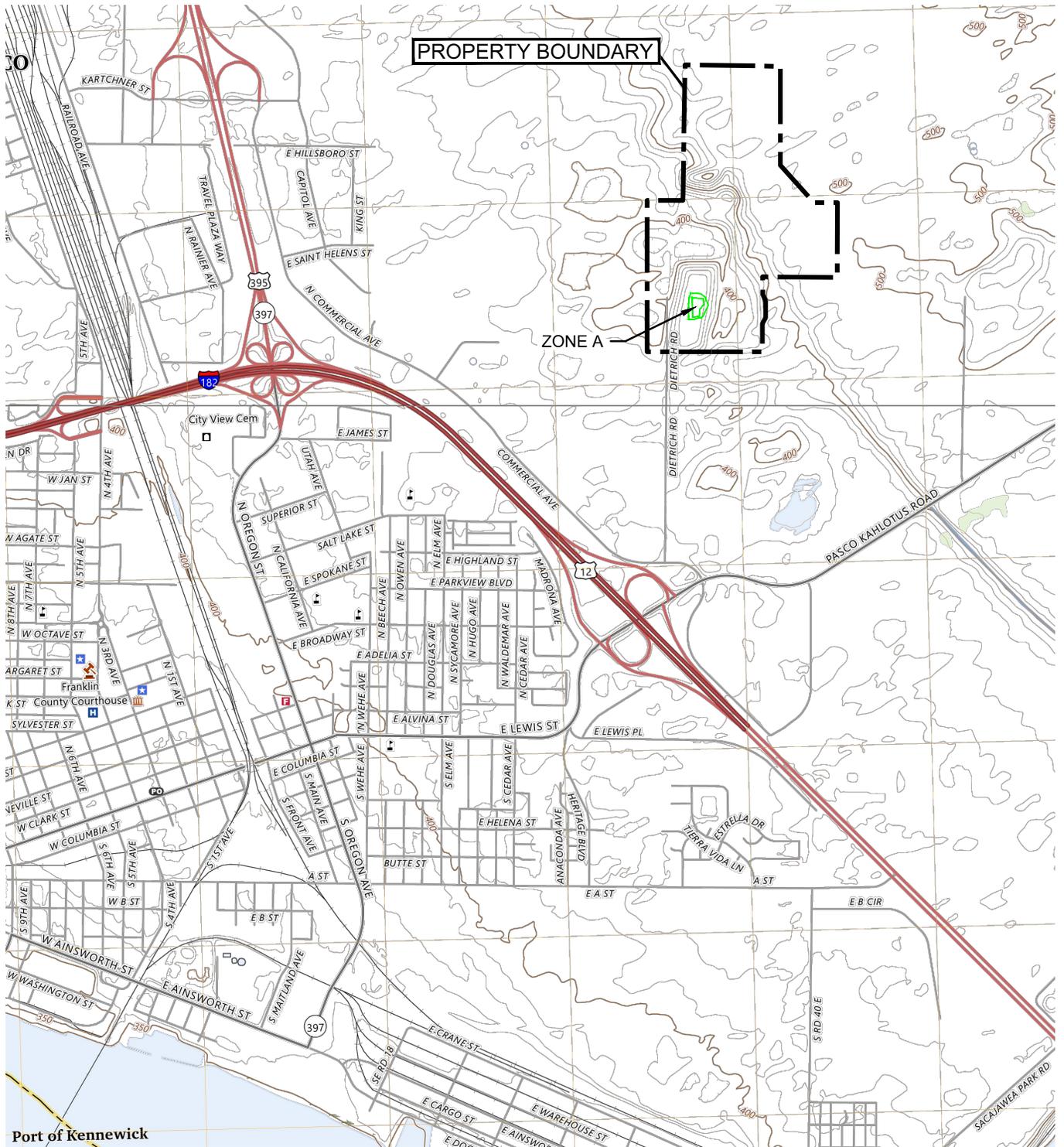
2,400 gallons of SVE condensate, characterized as non-regulated waste, were treated and disposed by PRS Group in Tacoma, Washington.

1,000 gallons of non-regulated purge water from groundwater monitoring was transported to the City of Pasco Wastewater Treatment Plant for treatment and disposal.

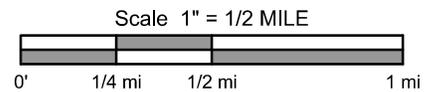
1, 55-gallon drum of spent vapor-phase granular activated carbon (GAC) was hauled off site by Pacific Coast Carbon for reactivation.

Figures

- Figure 1. Site Location Map
- Figure 2. Pasco Landfill NPL Site Property
- Figure 3. Groundwater Monitoring Locations
- Figure 4. Shallow Groundwater Elevations – April 2024
- Figure 5. Shallow Groundwater Elevations – October 2024
- Figure 6. Zone A Monitoring Locations
- Figure 7a. Benzene Contaminant Distribution Map – October 2024
- Figure 7b. Benzene Contaminant Distribution Map – December 2024
- Figure 8a. PCE Contaminant Distribution Map – October 2024
- Figure 8b. PCE Contaminant Distribution Map – December 2024
- Figure 9a. TCE Contaminant Distribution Map – October 2024
- Figure 9b. TCE Contaminant Distribution Map – December 2024
- Figure 10. RTO System Airflow
- Figure 11. RTO System Removal Rates (in lbs/day)
- Figure 12. Cumulative Mass Removed by Zone A Vapor Recovery (in lbs) Since May 8, 1997
- Figure 13. Temperature by Depth – TC10
- Figure 14. Temperature by Depth – VB24



SOURCES: USGS PASCO, WA QUADRANGLE 2023, USGS GLADE, WA QUADRANGLE 2023.

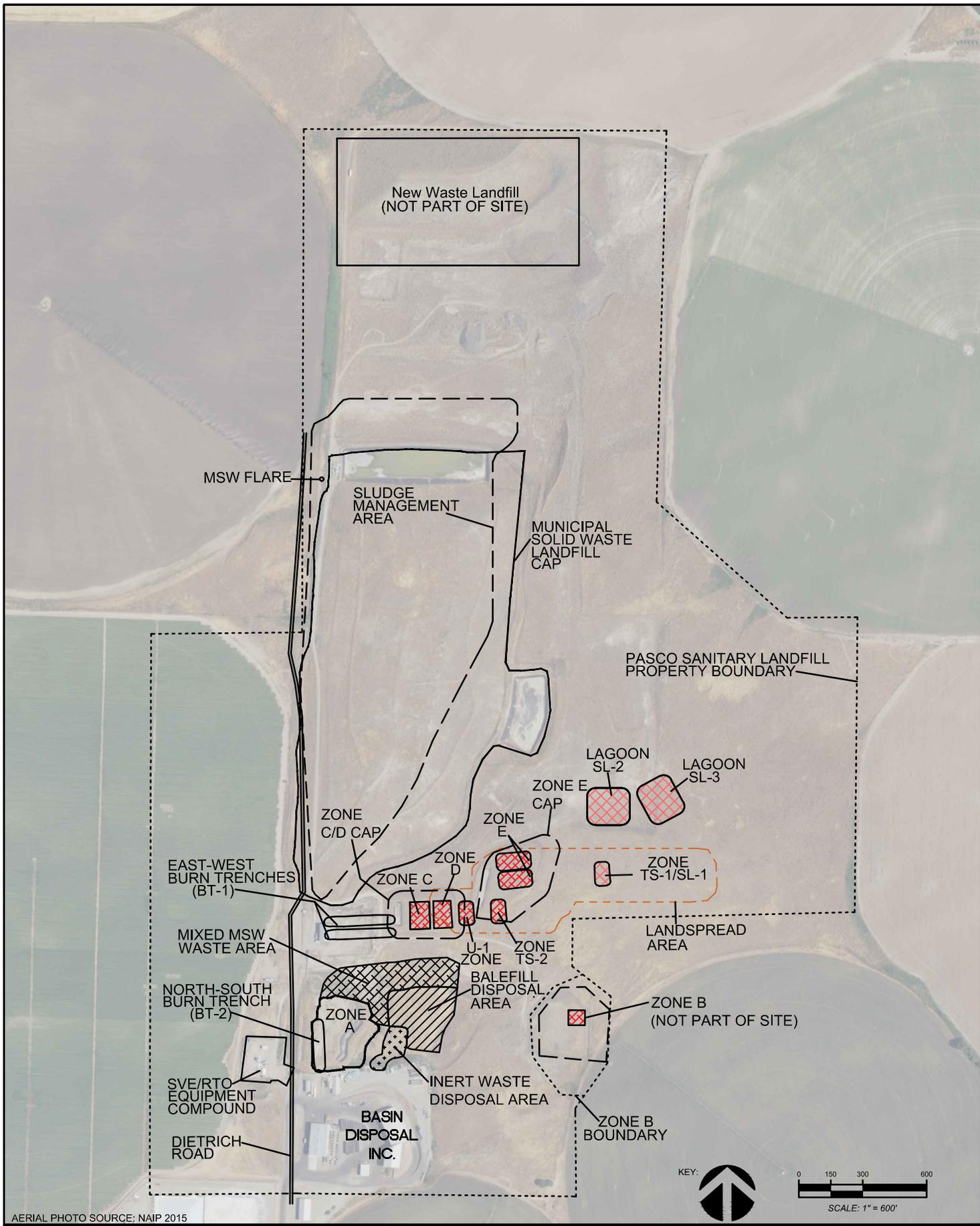


PREPARED FOR: IWAG GROUP III



SITE LOCATION MAP
 PASCO LANDFILL NPL SITE
 PASCO, WASHINGTON

MARCH 2025
64180
FIGURE
1



AERIAL PHOTO SOURCE: NAIP 2015



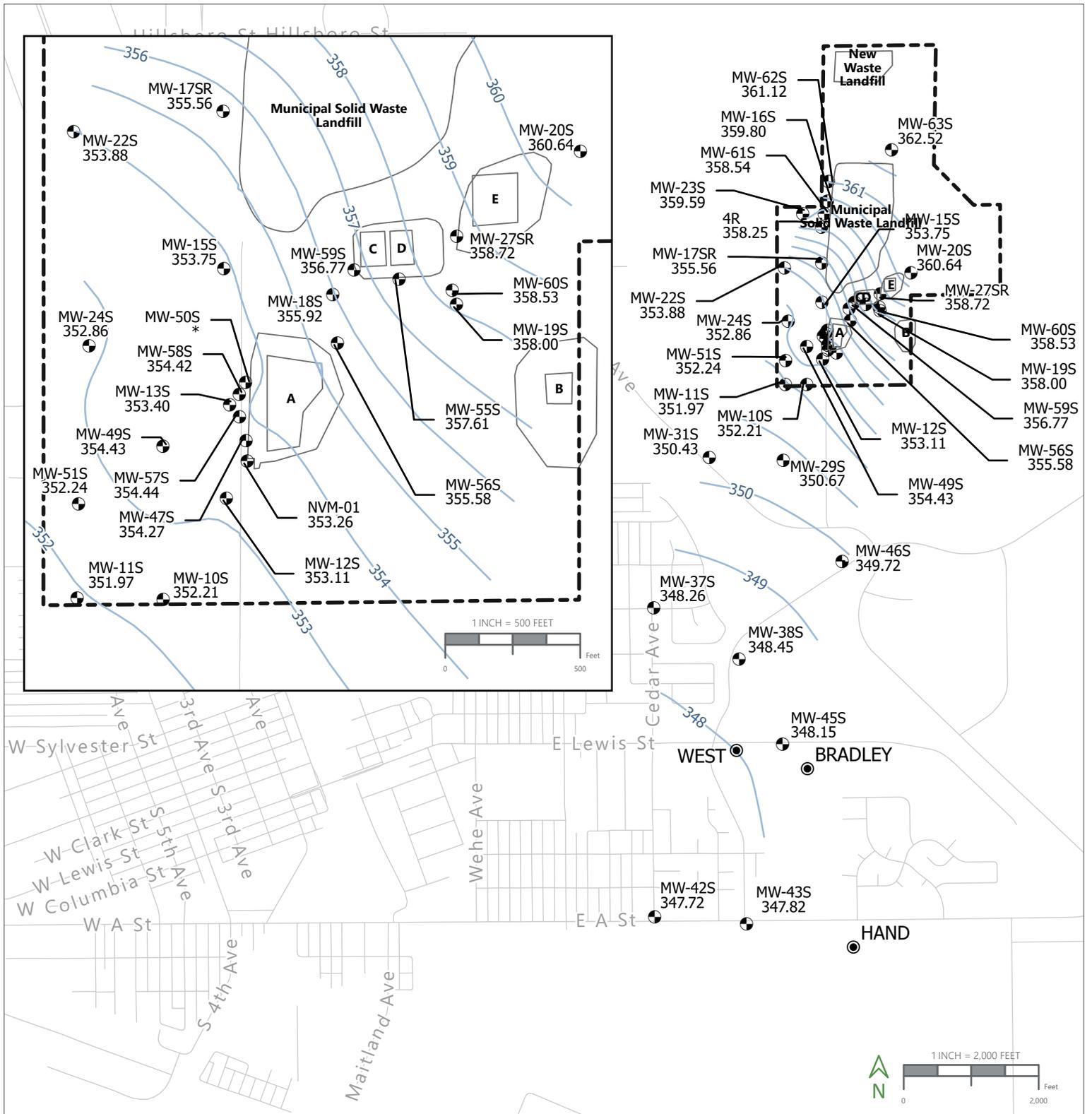
PBS Engineering and Environmental Inc.
 400 Bradley Blvd, Ste 300
 Richland, WA 99352
 509.942.1600
 pbsusa.com

PASCO LANDFILL NPL SITE PROPERTY

PROJECT: 64180

DATE: MARCH 2025

FIGURE: **2**



Shallow Groundwater Elevations - April 2024

Pasco Land Fill NPL Site, Pasco, Washington

Date: March 2025 | Project: 64180.025

Figure 4

Pasco Landfill Property Boundary

Water Elevation Contour

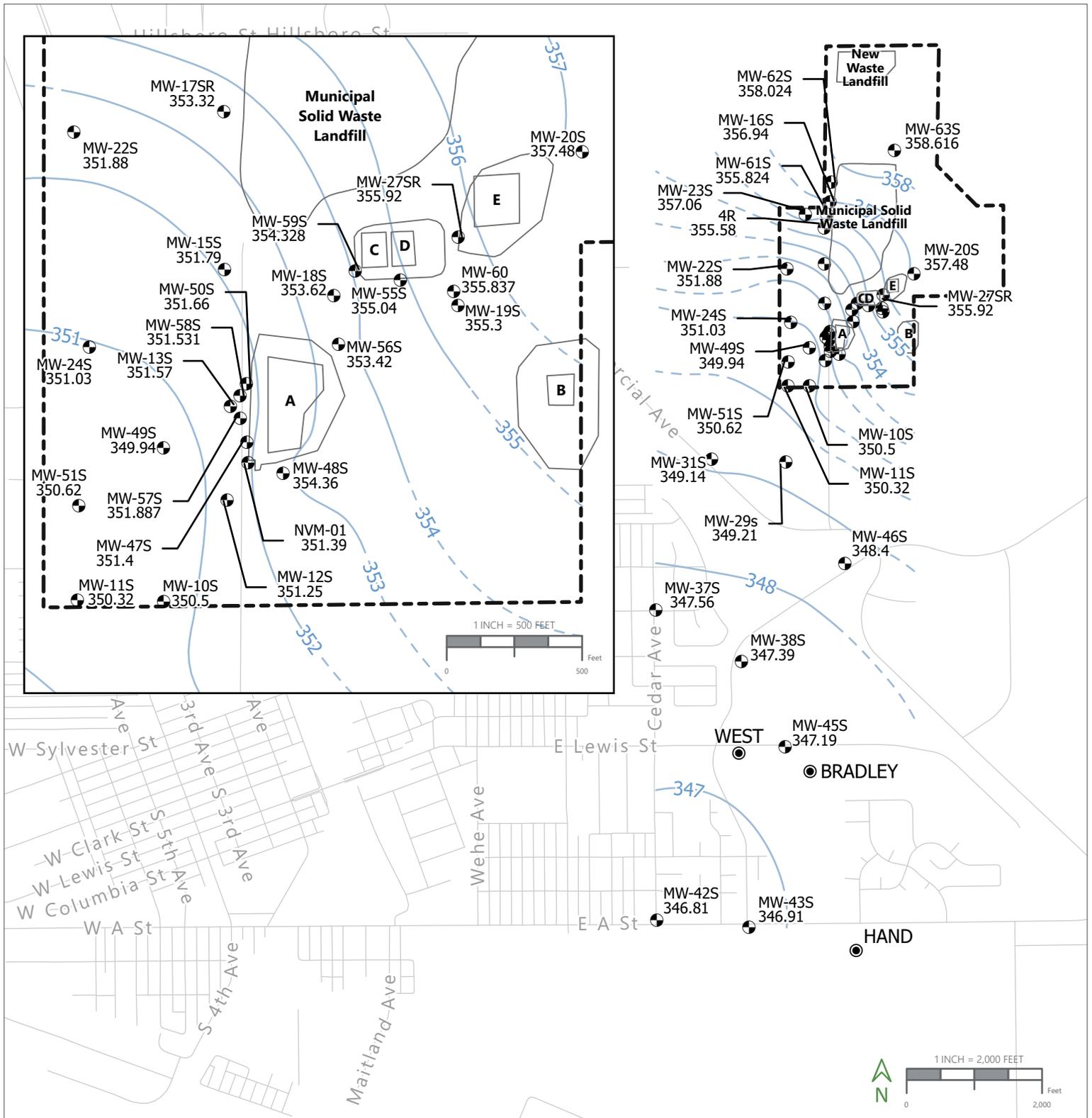
Shallow Aquifer Monitoring Well with Water Elevation in Feet

Residential Well (Elevation not Measured)

* DATA FOR MW-50S DEVIATES FROM HISTORICAL TRENDS AND WAS EXCLUDED FROM CONTOUR GENERATION

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Shallow Groundwater Elevations - October 2024

Pasco Land Fill NPL Site, Pasco, Washington

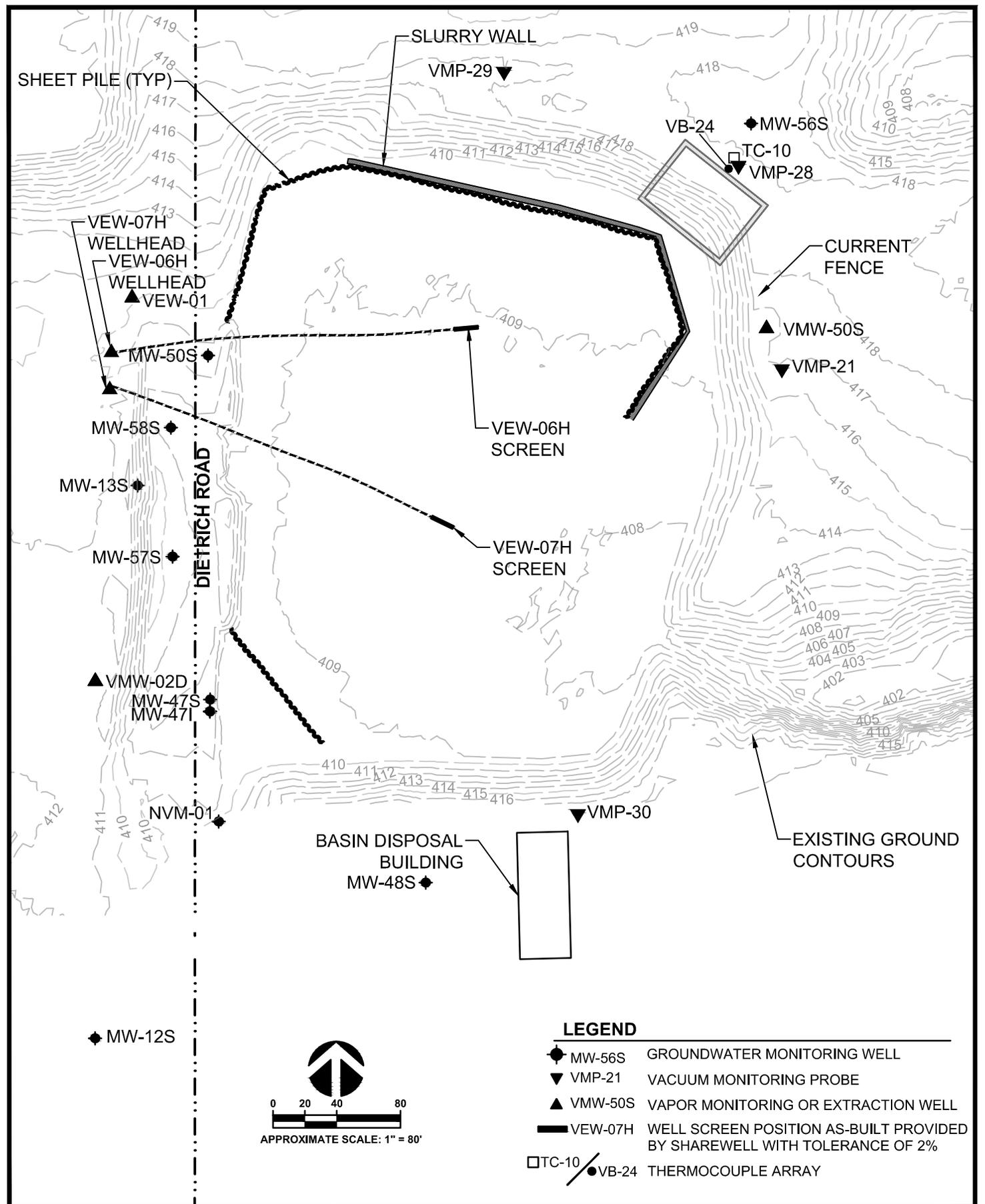
Date: March 2025 | Project: 64180.025

Figure 5

- ▭ Pasco Landfill Property Boundary
- Water Elevation Contour
- - - Inferred Water Elevation Contour
- Shallow Aquifer Monitoring Well with Water Elevation in Feet
- Residential Well (Elevation not Measured)

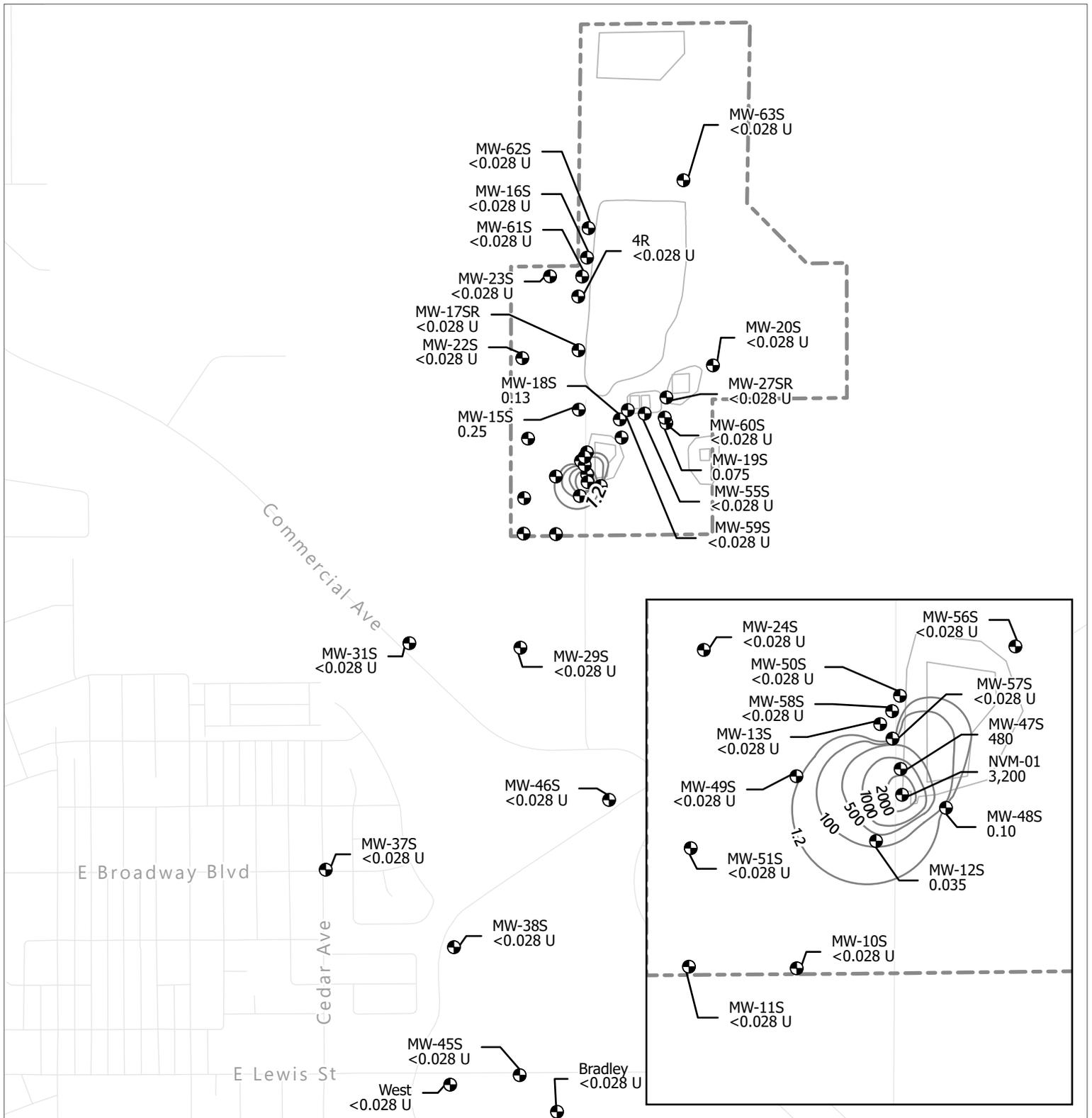


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ZONE A MONITORING LOCATIONS
PASCO LANDFILL NPL SITE
PASCO, WASHINGTON

MARCH 2025
 64180
FIGURE
6



Benzene Contaminant Distribution Map – October 2024

Pasco Land Fill NPL Site, Pasco, Washington

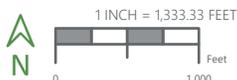
Date: March 2025 | Project: 64180.025

Figure: 7a

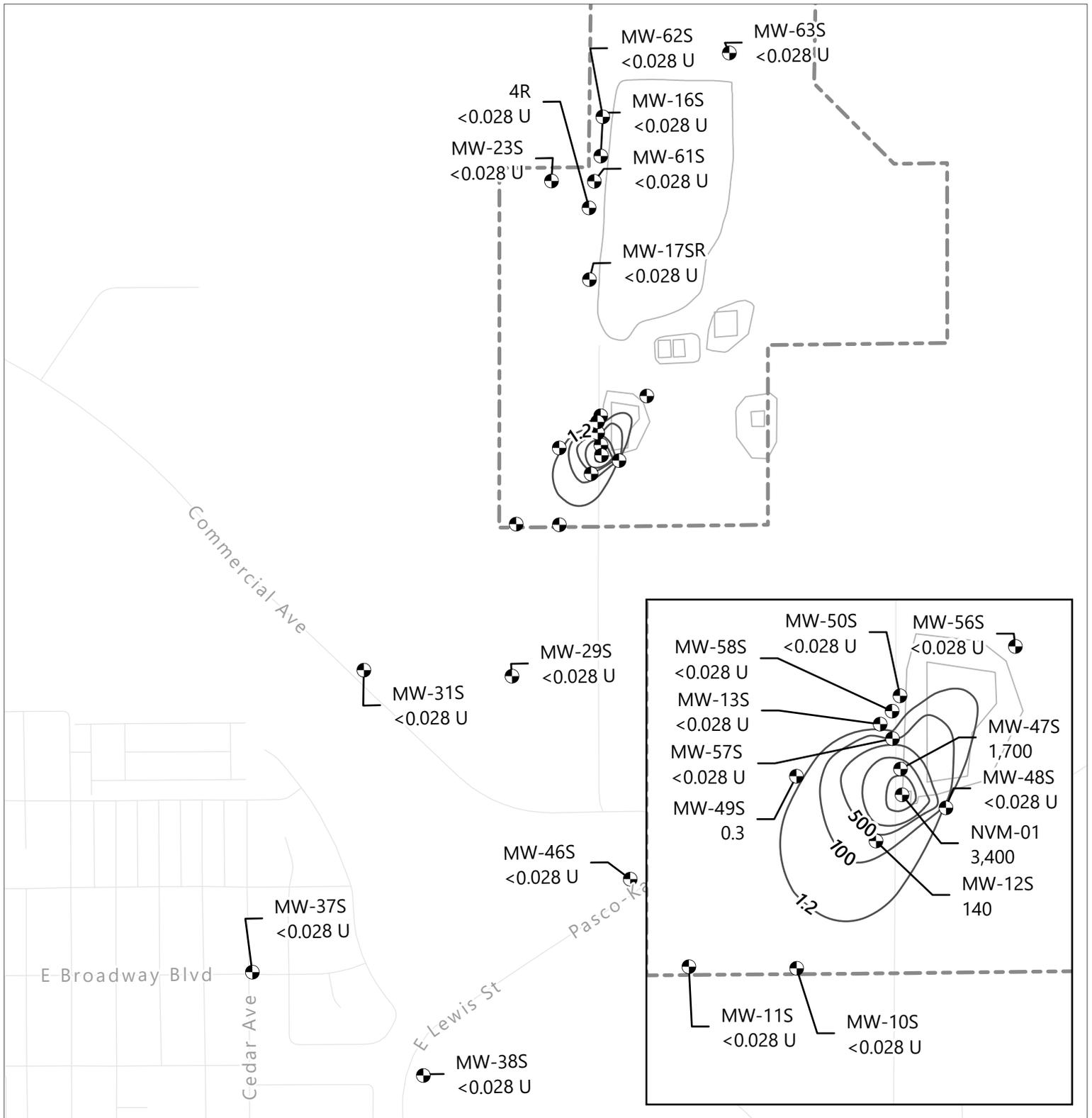
Pasco Landfill Property Boundary

Monitoring Well

Benzene Concentration Contour



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Benzene Contaminant Distribution Map – December 2024

Pasco Land Fill NPL Site, Pasco, Washington

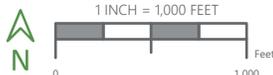
Date: March 2025 | Project: 64180.025

Figure: 7b

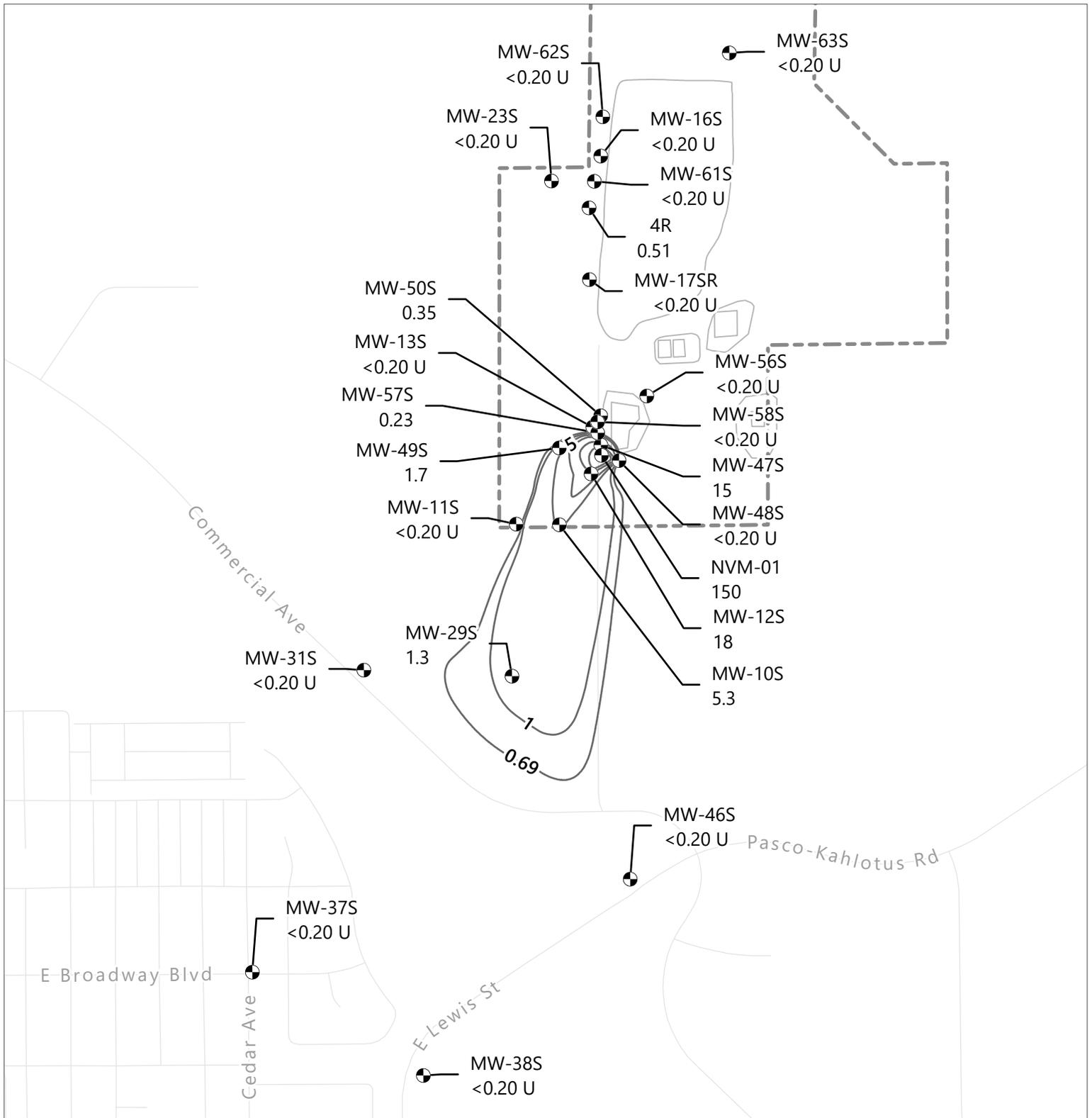
Pasco Landfill Property Boundary

Monitoring Well

Benzene Concentration Contour



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PCE Contaminant Distribution Map – December 2024

Pasco Land Fill NPL Site, Pasco, Washington

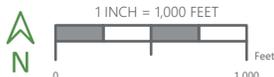
Date: March 2025 | Project: 64180.025

Figure: 8b

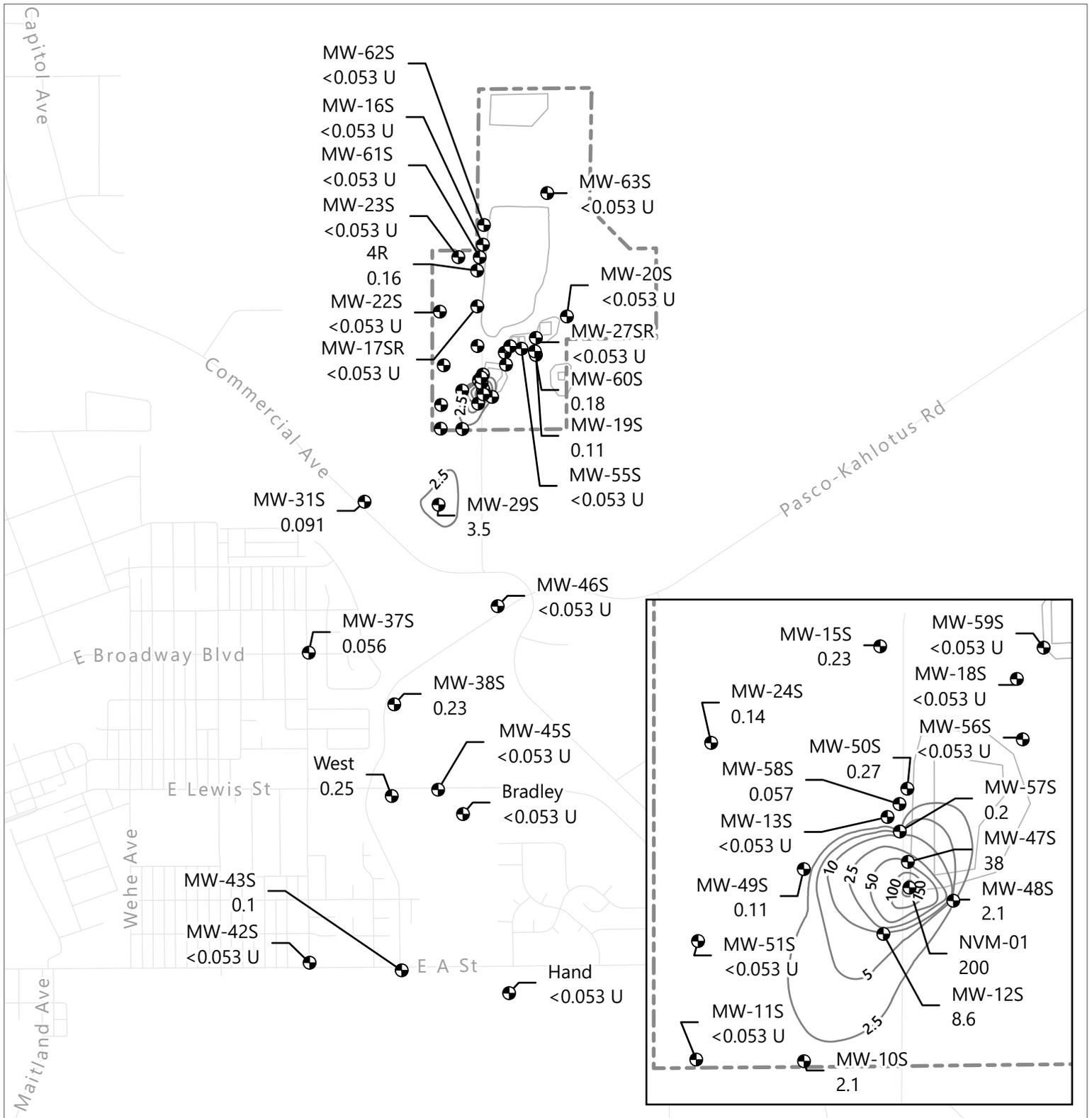
Pasco Landfill Property Boundary

Monitoring Well

PCE Concentration Contour



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TCE Contaminant Distribution Map – October 2024

Pasco Land Fill NPL Site, Pasco, Washington

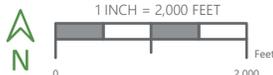
Date: March 2025 | Project: 64180.025

Figure: 9a

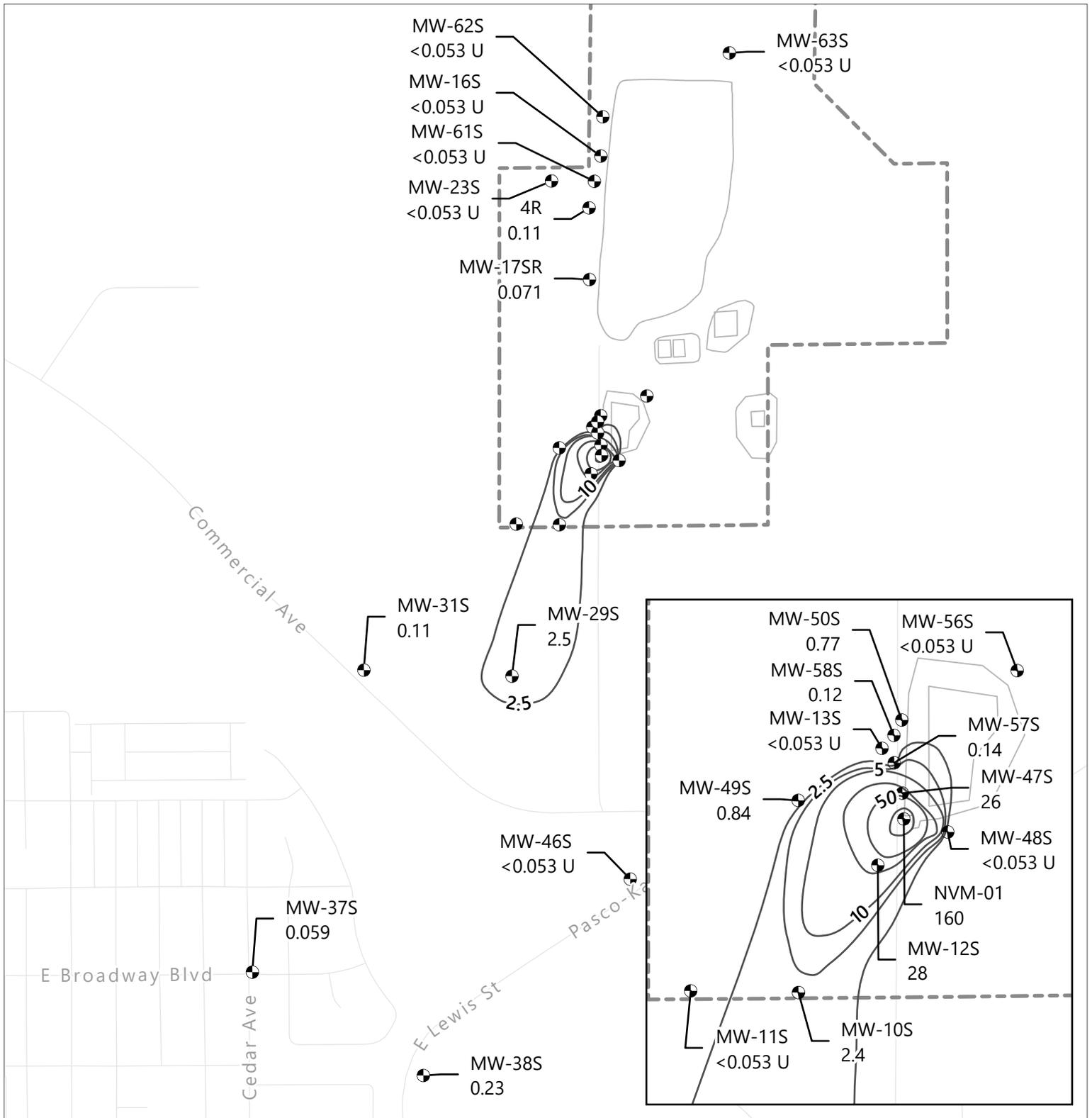
Pasco Landfill Property Boundary

Monitoring Well

TCE Concentration Contour



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TCE Contaminant Distribution Map – December 2024

Pasco Land Fill NPL Site, Pasco, Washington

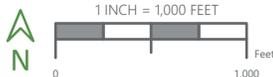
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Figure: 9b

Pasco Landfill Property Boundary

Monitoring Well

TCE Concentration Contour



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Figure 10
RTO System Airflow 2024 Annual Report
Pasco Landfill NPL Site, Pasco, WA

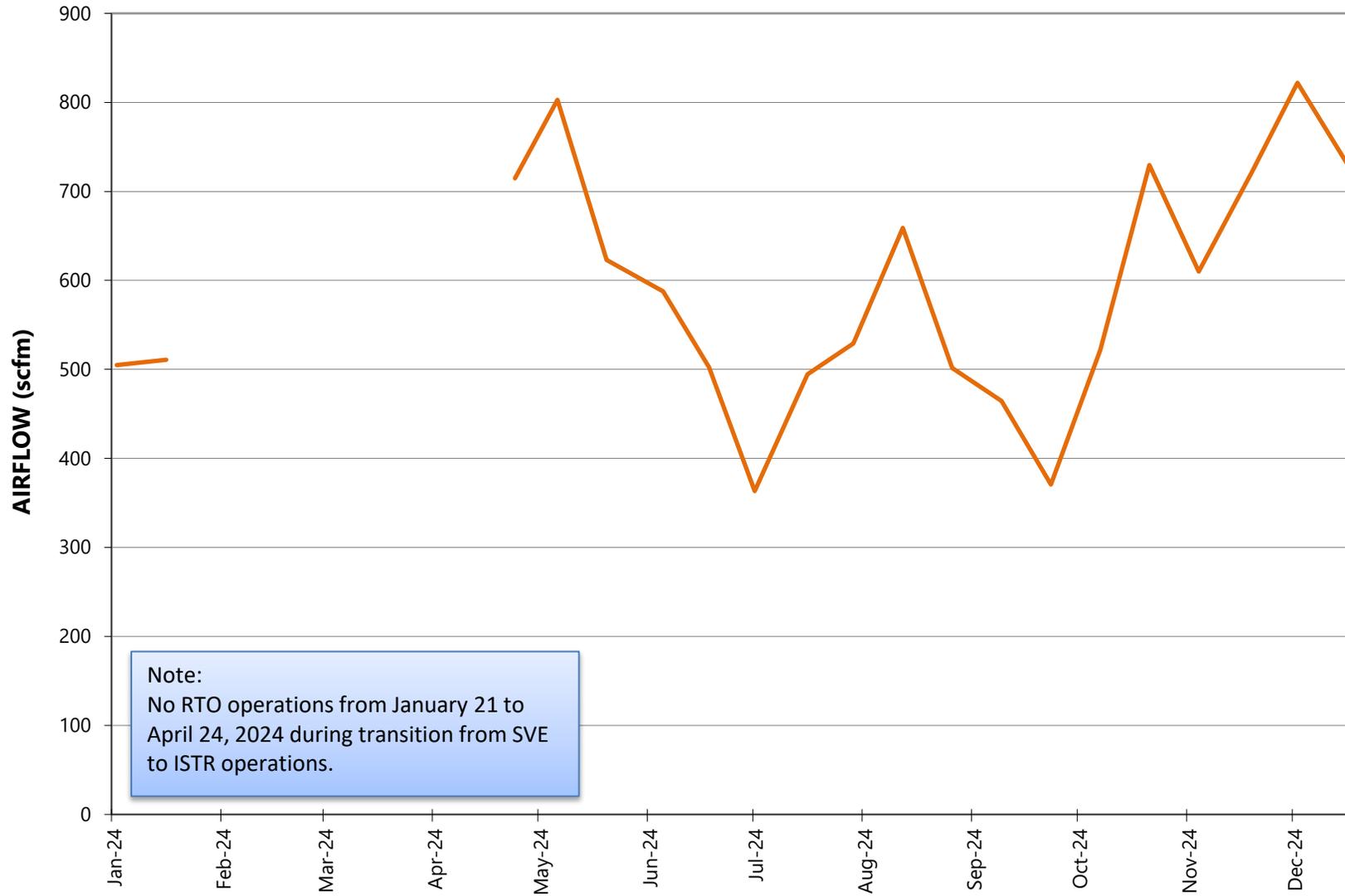


Figure 11
RTO System Removal Rates (in lbs/day)
2024 Annual Report
Pasco Landfill NPL Site, Pasco, WA

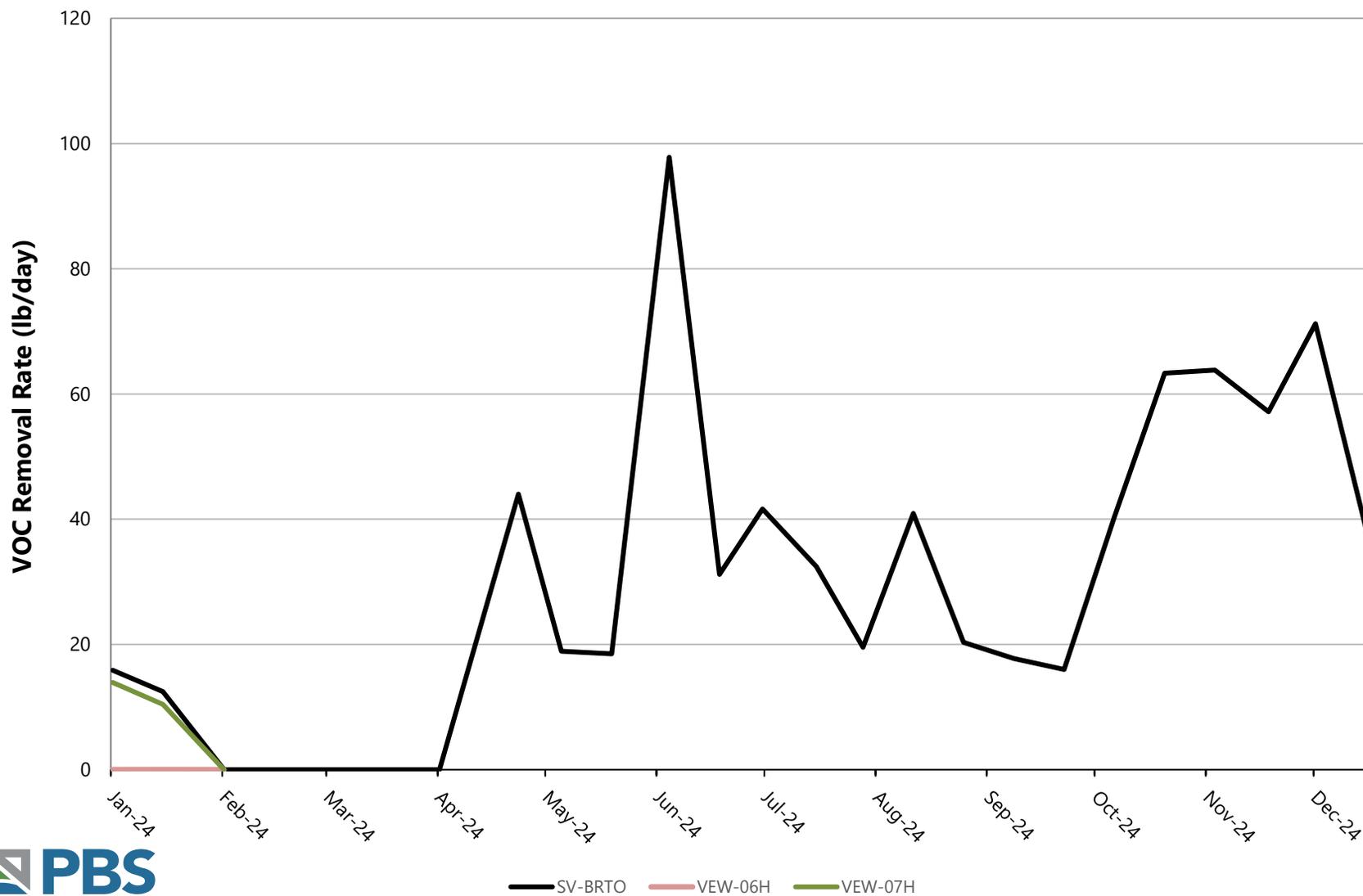


Figure 12
 Cumulative Mass Removed by Zone A Vapor Recovery (in lbs) Since May 8, 1997
 2024 Annual Report
 Pasco Landfill NPL Site, Pasco, WA

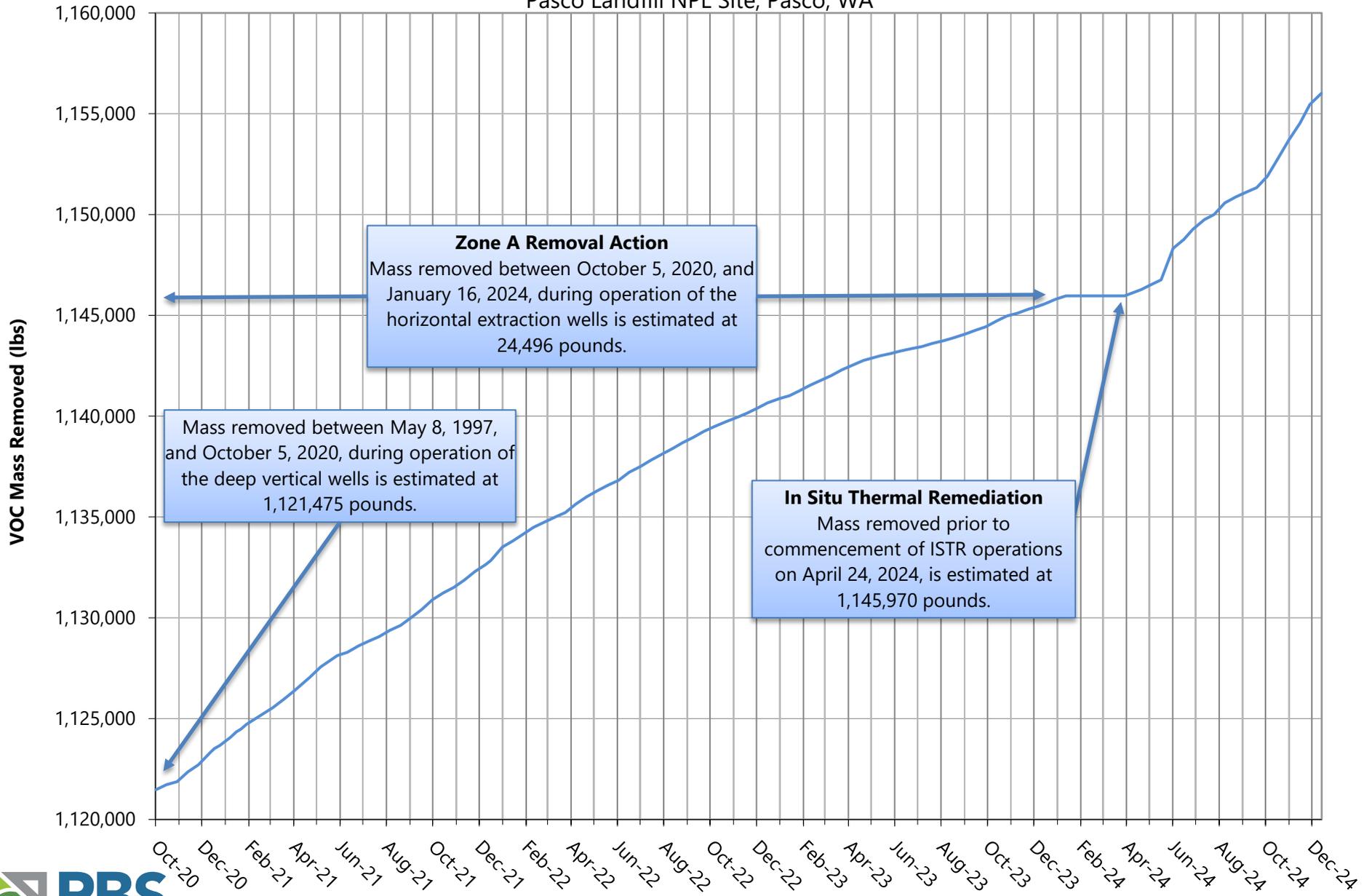


Figure 13
Temperature by Depth - TC10
2024 Annual Report
Pasco Landfill NPL Site, Pasco, WA

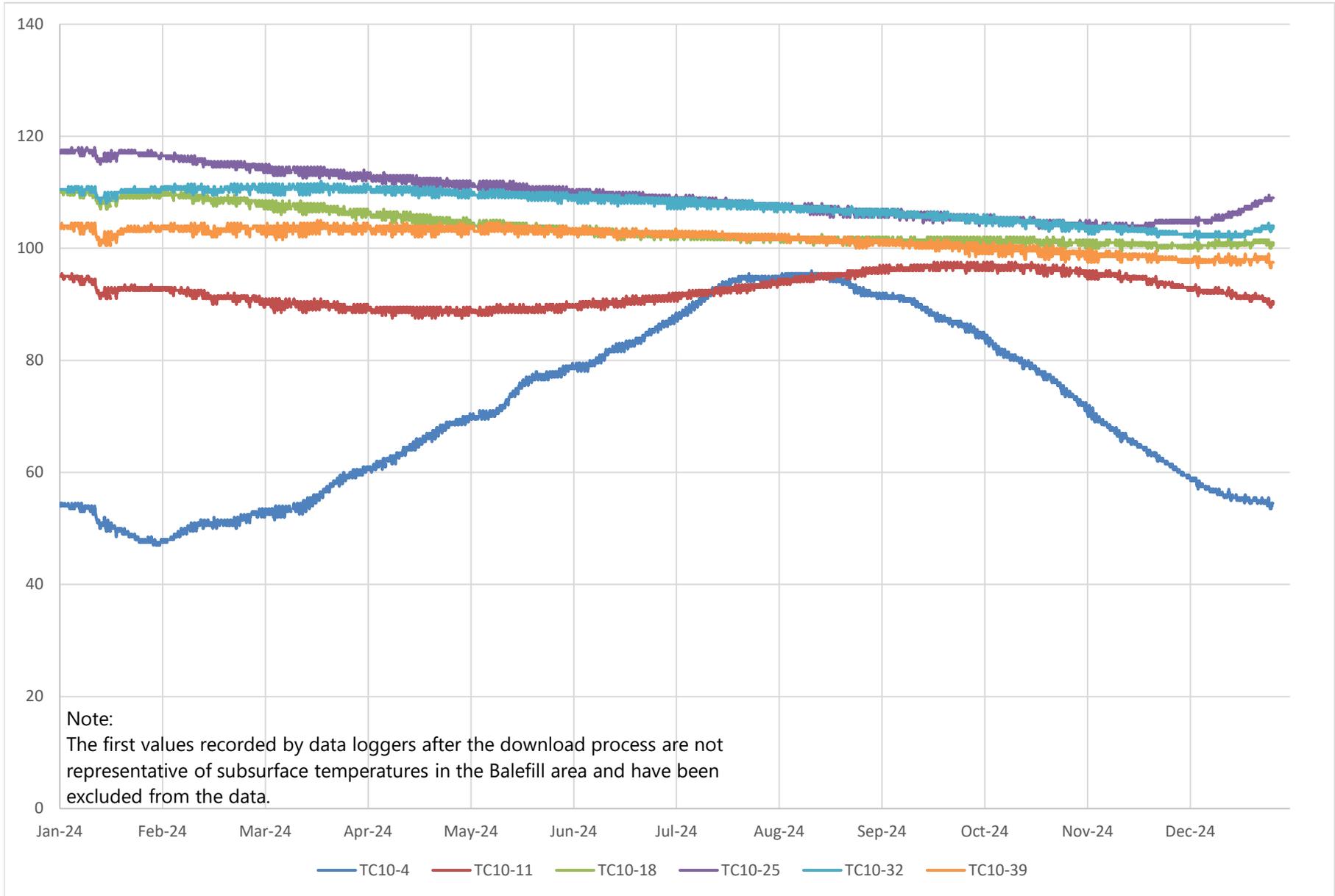
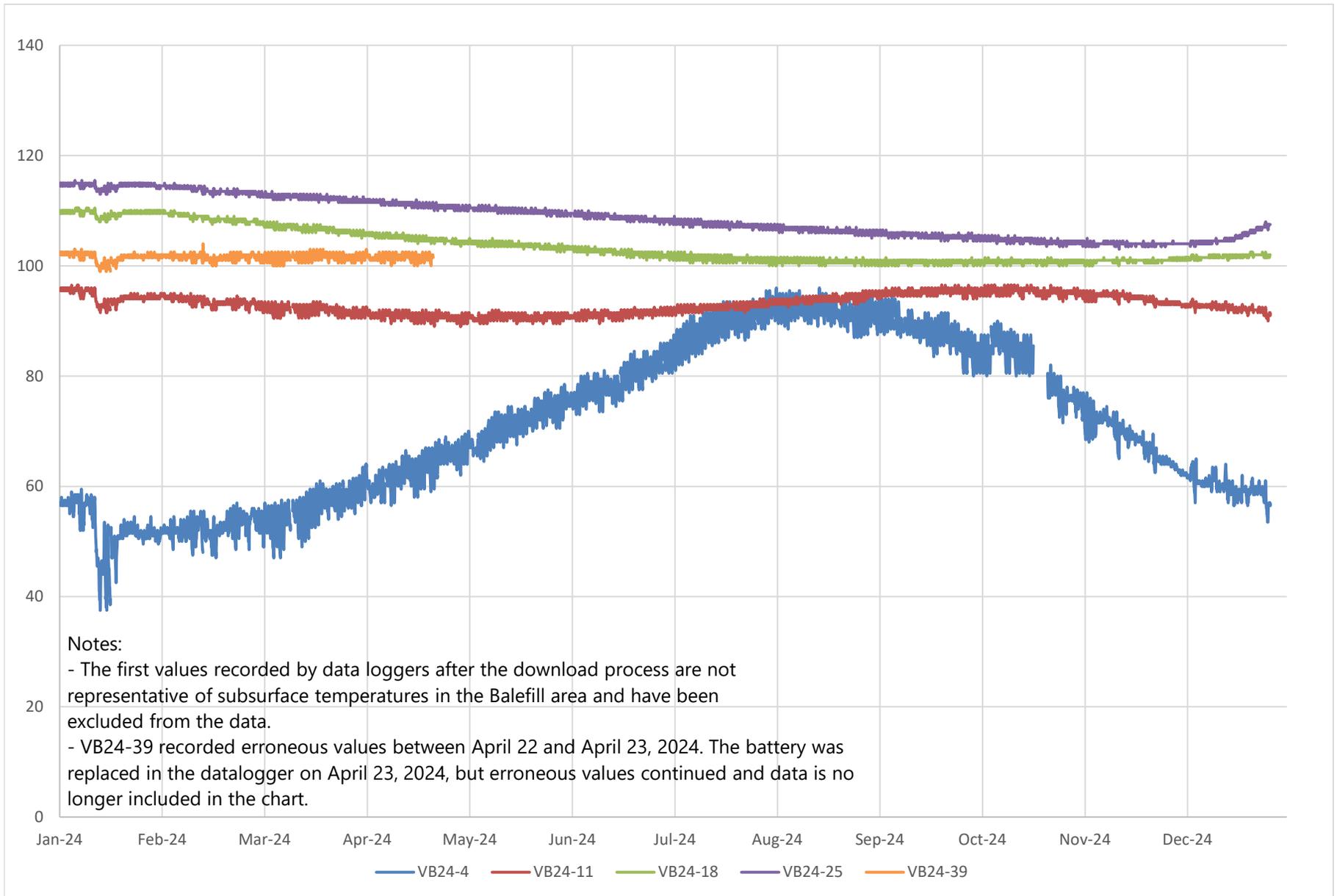


Figure 14
Temperature by Depth - VB24
2024 Annual Report
Pasco Landfill NPL Site, Pasco, WA



Attachment A

Data Validation Reports

Data Validation Report, Pasco Sanitary Landfill Groundwater Monitoring, June 2024 Sampling

Data Validation Report, Pasco Sanitary Landfill Groundwater Monitoring, July 2024 Sampling

Data Validation Report, Pasco Sanitary Landfill Groundwater Monitoring, September 2024 Sampling

Data Validation Report, Pasco Sanitary Landfill Groundwater Monitoring, October 2024 Sampling

Data Validation Report, Pasco Sanitary Landfill Groundwater Monitoring, November 2024 Sampling

Data Validation Report

Pasco Landfill NPL Site Zone A Removal Groundwater Monitoring

June 2024 Supplemental Sampling

Laboratory SDG Number: EV24060116

Prepared for:

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c/o PBS Engineering and Environmental
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Richland, WA 99352

Prepared by:

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October 31, 2024

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Acronyms

%D	percent difference
%D_f	percent drift
%R	percent recovery
%RSD	percent relative standard deviation
%RSE	percent relative standard error
ALS-Everett	ALS Laboratory Group, Everett, Washington
ALS-Kelso	ALS Laboratory Group, Kelso, Washington
BFB	bromofluorobenzene
CCB	continuing calibration blank
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
CMP	Site-Wide Compliance Groundwater Monitoring Plan (PBS, 2020)
COC	chain-of-custody
CVAAS	cold vapor atomic absorption spectrometry
DQO	data quality objective
DFTPP	decafluorotriphenylphosphine
EDD	electronic data deliverable
EPA	U.S. Environmental Protection Agency
GMP	Zone A Removal Action Supplemental Groundwater Monitoring Plan (PBS, 2020)
ICAL	initial calibration
ICB	initial calibration blank
ICP/AEOS	inductively coupled plasma/atomic emission optical spectrometry
ICP/MS	inductively coupled plasma/mass spectrometry
ICS	interference check sample
ICV	initial calibration verification
IDL	instrument detection limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LLCV	low level continuing calibration verification
LLOQ	lower limit of quantitation
µg/L	micrograms per liter

MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
ND	not detected
PAL	Matrix/Pacific Agricultural Laboratory
QA/QC	quality assurance/quality control
RF	response factor
RL	reporting limit
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
SOP	standard operating procedures
SVOCs	semi-volatile organic compounds
VOCs	volatile organic compounds

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data associated with the 17 water samples collected in June 2024 for the referenced project. The validation procedures followed the requirements specified in the following documents, as applicable:

- United States Environmental Protection Agency (USEPA) *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-66. EPA-540-R-20-006
- *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005

A Stage 2B (as defined in EPA 2009) validation was performed based on the summaries of sample and quality control (QC) analytical results submitted by the laboratories. The numerical quality assurance and quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the analytical methods, the *Site-Wide Groundwater Compliance Monitoring Plan* ([CMP], PBS 2020), and the performance-based control limits established by the laboratories (laboratory control limits). In addition, data were validated against the requirements specified in the *Zone A Removal Action Supplemental Groundwater Monitoring Plan* ([GMP], PBS 2020). The frequency of QC analyses was evaluated according to the CMP and the analytical methods. Sample specific method detection limits and reporting limits were evaluated against the reporting limits listed on Table 2 of the GMP. Raw data were not reviewed herein unless necessary for clarification purposes.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Field duplicate results were compared to those of the parent sample and data qualified based on the advisory criteria and presented in **Section III**. Qualified data along with proper data qualifiers, qualification reasons, and qualifier definitions are presented in **Section IV - Data Validation Summary**.

A data quality objective assessment summarizing the overall precision, accuracy, representativeness, comparability, completeness, and sensitivity of data collected in this sampling event was prepared and included in **Section V – Data Quality Objective Assessment**. Any additional laboratory submittals requested during the validation are transferred to PBS Engineering and Environmental, Inc. in Richland, Washington along with this report.

As part of the validation, the electronic data deliverables (EDDs) were verified against the hardcopy report. Data qualifiers, qualification reasons, and any required corrections identified *via* this validation have been added to the EDDs and submitted along with this report. Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	ALS Laboratory Sample ID	Sampling Date	Matrix	Analysis				
				VOCs	SVOCs	P-Pest. Herb.	C-Pest. PCBs	Metals
PLF-MW13S-0624	EV24060116-01	06/10/24	Water	X				
PLF-NVM01-0624	EV24060116-02	06/10/24	Water	X	X	X	X	X
PLF-MW47I-0624	EV24060116-03	06/10/24	Water	X				
PLF-MW47S-0624	EV24060116-04	06/10/24	Water	X	X	X	X	X
PLF-MW50S-0624	EV24060116-05	06/10/24	Water	X	X	X	X	X
PLF-MW57S-0624	EV24060116-06	06/11/24	Water	X	X	X	X	X
PLF-MW58S-0624	EV24060116-07	06/11/24	Water	X	X	X	X	X
PLF-DUP1-0624	EV24060116-08	06/11/24	Water	X	X	X	X	X
PLF-MW56S-0624	EV24060116-09	06/11/24	Water	X	X	X	C-Pest.	X
PLF-MW61S-0624	EV24060116-10	06/11/24	Water	X				
PLF-4R-0624	EV24060116-11	06/11/24	Water	X				
PLF-MW17SR-0624	EV24060116-12	06/11/24	Water	X				
PLF-MW23S-0624	EV24060116-13	06/12/24	Water	X				
PLF-MW63S-0624	EV24060116-14	06/12/24	Water	X				
PLF-MW62S-0624	EV24060116-15	06/12/24	Water	X				
PLF-MW16S-0624	EV24060116-16	06/12/24	Water	X				
PLF-TripBlank-0624	EV24060116-17	06/12/24	Water	X				
PLF-MW56S-0624	EV24060116-18	06/12/24	Water				PCBs	

Notes:

X: The analysis was requested and performed on the sample.

VOCs: Volatile organic compounds

SVOCs: Semi-volatile organic compounds

Herb: Chlorophenoxy herbicides and pentachlorophenol (PCP)

P-Pest: Organophosphorous pesticides

C-Pest: Organochlorine pesticides

PCBs: Polychlorinated biphenyls (Aroclors)

Metals: Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, manganese, magnesium, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Laboratory
Volatile organic compounds (VOCs)	SW846 Method 8260D - SIM ^(A)	ALS Laboratory Group (ALS) Everett, Washington
Semi-volatile organic compounds (SVOCs)	SW846 Methods 8270E full scan and SIM ^(B)	
Organochlorine Pesticides	SW846 Method 8081B	
Metals	EPA Method 200.8	ALS Laboratory Group (ALS) Kelso, Washington
Mercury	EPA Method 245.1	
PCB Aroclors (Low Level)	SW846 Method 8082A	
Organophosphorous Pesticides	SW846 Method 8141B	Matrix/Pacific Agricultural Laboratory (Matrix/PAL) Portland, Oregon
Chlorophenoxy Herbicides	SW846 Method 8151A	

Notes:

SW846 – USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, December 1996.

Metals – Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, silver, thallium, vanadium, zinc, aluminum, calcium, iron, magnesium, potassium, and sodium.

EPA Methods - USEPA Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983 Revision.

^(A) – Selective ion monitoring (SIM) technique was performed for target compounds to achieve lower detection limits.

^(B) – SIM technique was performed for selected SVOCs to achieve lower detection limits.

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. The samples were received properly preserved and consistent with the accompanying chain-of-custody (COC) documentation.

2. Volatile Organic Compounds ([VOCs]; SW846 Methods 8260D - Full Scan and SIM)

2.1 Holding Time

Water samples should be analyzed within 14 days of collection. All samples were analyzed within the required holding time.

2.2 GC/MS Instrument Performance Check

Bromofluorobenzene (BFB) tuning analyses were performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit, coefficient of determination (r^2) ≥ 0.99 for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the percent difference (%D) or percent drift ($\%D_f$) values for all target and surrogate compounds should be within $\pm 30\%$. The initial calibration met the requirements.

2.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D or $\%D_f$ values be within $\pm 20\%$, and (3) the internal standards in the calibration verification standard changes by a factor of two (-50% to + 100%) from that in the mid-point standard level of the most recent initial calibration sequence. Calibration verification analyses met the frequency criteria. The %D and $\%D_f$ values either met the criteria or the outliers had no effects on associated data (*e.g.*, bias-high %D value for a compound that was not detected in associated samples).

The laboratory did not perform a lower limit of quantitation (LLOQ) as stated in Section 9.9 of the Method. The ICAL standards nearest to the reporting limits (RLs) were evaluated in lieu of the LLOQs. The recovery of lowest ICAL standard for benzene was outside $\pm 20\%$ of the LCS control criteria (50 – 150%).

2.5 Blanks

Method Blanks: Method blanks were analyzed at the required frequency. Target compounds were not detected at or above the reporting limits (RLs) in the method blanks.

Trip Blank: One trip blank, sample PLF-TripBlank-0624, was submitted with the sample shipment for VOCs analyses. Target analytes were not detected or above the RLs in this trip blank, except that chloroform was detected at 3.3 $\mu\text{g}/\text{L}$. Chloroform was not detected in any of the filed samples at or above their RLs. No data qualifying action was required.

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses, named as blank spike and blank spike duplicate by the laboratory, were performed as required. The percent recovery (%R) and relative percent difference (RPD) values were either within the laboratory control limits or the outliers had no adverse effects on data usability (*e.g.*, biased-high %R or RPD value for a non-detected compound).

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0624 as requested. All %R and RPD values were either within the laboratory control limits or the outliers had no adverse effects on data usability (*e.g.*, biased-high %R or RPD value for a non-detected compound).

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 -minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

2.10 Field Duplicates

Samples PLF-MW58S-0624 and PLF-DUP1-0624 were field duplicates submitted for VOCs analyses. The RPD (or concentration difference values) and data qualification for detected target analytes are presented in **Section III**.

2.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP and CMP were achieved.

2.12 Overall Assessment of VOCs Data Usability

VOCs data are acceptable for use, based on the information submitted by the laboratory.

3. Semi-volatile Organic Compounds ([SVOCs]; SW846 Method 8270E – Full Scan and SIM)

3.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

3.2 GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) tuning analyses were performed at the required frequency. Relative abundance for all required ions met the method requirements.

3.3 Initial Calibration

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit, coefficient of determination (r^2) ≥ 0.99 for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the percent difference (%D) or percent drift (%D_f) values for all target and surrogate compounds should be within $\pm 30\%$. The ICAL met the requirements.

3.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D of %D_f values be within ±20%, and (3) the internal standards in the calibration verification standard changes by a factor of two (-50% to + 100%) from that in the mid-point standard level of the most recent initial calibration sequence. Calibration verification analyses met the frequency criteria. The %D and %D_f values either met the criteria or the outliers had no effects on associated data (e.g., bias-high %D value for a compound that was not detected in associated samples), except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
F17003.D 6/17/24, 3:36 pm	2,4-Dinitrophenol	21.3%	±20%	Low	PLF-NVM01-0624 PLF-MW47S-0624 PLF-MW50S-0624 PLF-MW57S-0624 PLF-MW58S-0624 PLF-DUP1-0624 PLF-MW56S-0624	UJ

The laboratory did not perform an LLOQ as stated in Section 9.9 of the Method. The ICAL standards nearest to the RLs were evaluated in lieu of the LLOQs. The recovery of the lowest ICAL standards was acceptable, except that recovery for selected SVOCs analyzed with SW8270E-SIM biased high. These compounds were not detected in any of the filed samples; the high-bias recovery had no effects on data quality. No data qualifying action was required.

3.5 Method Blanks

Method blanks were analyzed at the required frequency. No target compounds were detected at or above the RLs in the method blank.

3.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The %R and RPD values either met the criteria or the outliers had no effects on associated data (e.g., bias-high %R or RPD value for a compound that was not detected in associated samples).

3.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate %R values met the control limits, except that the %R value (48%) for Nitrobenzene-d5 was less than the lower control limit (53-125%) in sample PLF-DUP1-0624. %R values for all other surrogate spikes in this sample were within the control limit. No data qualifying action was taken in this case.

3.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0624 as requested. All %R and RPD values either met the criteria or the outliers had no effects on associated data (e.g., bias-high %R or RPD value for a compound that was not detected in associated samples).

3.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 -minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

3.10 Field Duplicates

Samples PLF-MW58S-0624 and PLF-DUP1-0624 were field duplicates submitted for SVOCs analyses. Target compounds were not detected in either samples at or above their RLs. The field precision met the project requirement.

3.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP and CMP were achieved.

3.12 Overall Assessment of SVOCs Data Usability

Naphthalene, 1,2-dichlorobenzene, 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene results for samples analyzed with both methods SW8260D and SW8270E should be reported from the SW8260D analyses in favor of the lower detection limits and/or higher concentrations (for naphthalene only). Results from the SW8270E analyses were qualified (DNR) and rejected.

Pentachlorophenol results should be reported from the SW8151A analyses for the lower detection limits; the results reported from SW8270E-SIM were to be rejected and qualified (DNR).

Data qualified in these respects are summarized in **Section IV -1**. SVOCs data are acceptable for use as qualified, based on the information submitted by the laboratory.

4. Chlorophenoxy Herbicides (SW846 Method 8151A)

4.1 Holding Times

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

4.2 GC/MS-MS Instrument Performance Check

According to the laboratory standard operation procedure, tuning analyses were not necessary since the method was modified using the GC/MS-MS techniques (rather than the method stated GC/MS technique). Data were not qualified on this basis.

4.3 Initial Calibration (ICAL)

The method and laboratory criteria require that (1) if linear average RFs is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for the compound, (2) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) be ≥ 0.99 , (3) if six-point non-linear (quadratic) curve is chosen for quantitation, the RSE be $\leq 20\%$, and (4) a second source standard be analyzed immediately after the analysis of last calibration standard and the %D values be within $\pm 30\%$. ICAL met the requirements.

4.4 Calibration Verification

The method criteria require that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, and (2) the %D value be within $\pm 20\%$. Calibration verification analysis was performed as required. The %D values met the criteria.

4.5 Method Blank

A method blank was prepared and analyzed with samples as required by the method. Target compounds were not detected at or above RLs in the method blank.

4.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. All %R and RPD values met the laboratory control criteria.

4.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. The surrogate %R values met the laboratory control criteria.

4.8 Matrix Spike (MS) and MS Duplicate (MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0624. All %R and RPD values were within the laboratory control limits.

4.9 Field Duplicates

Samples PLF-MW58S-0624 and PLF-DUP1-0624 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

4.10 Laboratory Reporting Limits

Target compounds specified for the project were analyzed for and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

4.11 Overall Assessment of Chlorophenoxy Herbicides Data Usability

Chlorophenoxy herbicides data are acceptable for use, based on the information submitted by the laboratory.

5. Organophosphorous Pesticides (SW846 Method 8141B)

5.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. Samples were extracted and analyzed within the holding times.

5.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed for each target analyte and surrogate compounds, (2) the %RSD of calibration factors (CFs) must be $\leq 20\%$ for target analytes and surrogate compounds, and (3) if dual column analysis is chosen, both columns should meet the requirements.

A second source standard (ICV) should be analyzed immediately after the last initial calibration standard; the %D values for target and surrogate compounds should meet the method requirements. The initial calibration met the criteria.

5.3 Continuing Calibration Verification (CCVs)

CCV analyses should be performed for each 12-hour analysis sequence prior to sample analyses, and the %D be within $\pm 20\%$. Calibration verifications were performed at the required frequency. The %D values either met the criteria or the outliers had no adverse effects on data quality and usability (*e.g.*, biased-high recovery for a compound that was not detected in associated samples), except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
CCV2 6/20/2024, 14:44	Disulfoton	27.8%	±20%	Low	PLF-NVM01-0624 PLF-MW47S-0624 PLF-MW50S-0624 PLF-MW57S-0624 PLF-MW58S-0624 PLF-DUP1-0624 PLF-MW56S-0624	UJ

5.4 Method Blank

A method blank was prepared and analyzed as required. No target compounds were detected at or above the RLs in the method blank.

5.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

5.6 Matrix Spike (MS)/MS Duplicate (MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0624. All %R and RPD values were within the laboratory control limits, except for the following:

Parent Sample ID	Analyte	MS %R	MSD %R	Control Limit (%)	RPD	Affected Sample	Data Qualifier
PLF-MW58S-0624	Demeton	51%	47%	60-140%	4%	PLF-MW58S-0624 PLF-DUP1-0624	UJ

Note: The criteria for RPD is ≤20%.

5.7 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD, namely blank spike sample and blank spike sample duplicate, analyses were performed as required by the method. All %R and RPD values were within the laboratory control limits, except for the following:

LCS/LCSD ID	Analyte	LCS %R	LCSD %R	Control Limit (%)	RPD	Affected Sample	Data Qualifier
24F1702-BS1 24F1702-BSD1	Demeton	40%	39%	60-140%	1%	PLF-NVM01-0624 PLF-MW47S-0624 PLF-MW50S-0624 PLF-MW57S-0624 PLF-MW58S-0624 PLF-DUP1-0624 PLF-MW56S-0624	UJ

Note: The criteria for RPD is $\leq 20\%$.

5.8 Field Duplicates

Samples PLF-MW58S-0624 and PLF-DUP1-0624 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

5.9 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

5.10 Overall Assessment of Organophosphorous Pesticides Data Usability

Organophosphorous pesticides data are acceptable for use as qualified, based on the information submitted by the laboratory.

6. Organochlorine Pesticides by GC/ECD (EPA Method SW8081B)

6.1 Holding Times

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. Samples were extracted and analyzed within the holding times.

6.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed for each target analyte and surrogate compounds, (2) the %RSD of calibration factors (CFs) must be $\leq 20\%$ for target analytes and surrogate compounds, and (3) if dual column analysis is chosen, both columns should meet the requirements.

A second source standard (ICV) should be analyzed immediately after the last initial calibration standard; the %D values for target and surrogate compounds should meet the method requirements. The initial calibration met the criteria.

6.3 Continuing Calibration Verification (CCV)

CCV analyses should be performed for each 12-hour analysis sequence prior to sample analyses and at the end of the sequence. The %D values should be within $\pm 20\%$. Calibration verifications were performed at the required frequency. All %D values met the control criteria.

6.4 DDT and Endrin Breakdown

DDT and endrin degradation check was analyzed at the required frequency to measure percent breakdown of 4,4'-DDT and endrin. The percent breakdown values met the method control limit (*i.e.*, ≤15%) for all degradation check analyses.

6.5 Method Blank

Method blanks were prepared and analyzed as required. No target compounds were detected at or above the RLs in the method blank.

6.6 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

6.7 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0624 as required. All %R and RPD values were within the control limits.

6.8 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The %R and RPD values met the laboratory control criteria for all target analytes.

6.9 Method Reporting Limits

Target compounds specified for the project were analyzed for and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

6.10 Field Duplicates

Samples PLF-MW58S-0624 and PLF-DUP1-0624 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

6.11 Overall Assessment of Organochlorine Pesticides Data Usability

Organochlorine pesticides data are of known quality and acceptable for use as qualified, based on the information submitted by the laboratory.

7. PCB Aroclors by GC/ECD (EPA Method SW8082A)

7.1 Holding Times

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. Samples were extracted and analyzed within the holding times.

7.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using the mixture of Aroclor 1016 and 1260, (2) a single-point calibration be performed for the other five Aroclors to establish calibration factors (CFs) and for Aroclor pattern recognition, (3) at least 3 peaks (preferably 5 peaks) must be chosen for each Aroclor for characterization, (4) the %RSD values of Aroclor 1016 and 1260 CFs must be $\leq 20\%$, and (5) if dual column analysis is chosen, both columns should meet the requirements.

A second source standard (ICV) should be analyzed immediately after the last initial calibration standard; the %D values for target and surrogate compounds should meet the method requirements. The initial calibrations met the requirements.

7.3 Calibration Verification

CCV analyses should be performed for each 12-hour analysis sequence prior to sample analyses, and the %D be within $\pm 20\%$. Calibration verifications were performed at the required frequency. All %D values met the control criteria, except the %D value for one of the CCVs on the front column was greater than 20% (biased high) for Aroclor 1232. PCB Aroclor 1232 was not detected in any of the field samples; the anomaly had no effect on data quality. No data qualifying action was taken.

7.4 Method Blanks

Method blanks were prepared and analyzed as required. PCB Aroclors were not detected at or above one-half the RLs in the method blanks.

7.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the project control limits.

7.6 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0624 as required. All %R and RPD values were either within the laboratory control limits or the %R outliers had no adverse effects on data usability (*e.g.*, biased-high %R values for a non-detected compound).

7.7 Laboratory Control Sample (LCS)

LCS analyses were performed as required by the method. The LCS %R values were within the project control limits.

7.8 Method Reporting Limits

Target compounds specified for the project were analyzed for and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

7.9 Field Duplicates

Samples PLF-MW58S-0624 and PLF-DUP1-0624 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

7.10 Overall Assessment of PCB Aroclors Data Usability

PCB Aroclor data are of known quality and acceptable for use based on the information submitted by the laboratory.

8. Total Metals by ICP/MS and CVAAS (EPA Methods 200.8 and 245.1)

8.1 Holding Times

Water samples should be analyzed within 180 days for ICP/MS metals and 28 days for mercury. Samples were analyzed within the required holding times.

8.2 ICP/MS Tuning

Instrument tuning was performed at the required frequency. The stability check (%RSD <5%), mass calibration (mass difference <0.1 AMU), and resolution check (peak width <0.9 AMU at 10% peak height) met the method criteria.

8.3 Initial Calibration (ICAL)

The ICP/MS method requires that (1) a blank and at least four calibration standards be used in establishing the analytical curve, (2) the average of replicate exposures be reported for all standards, QC, and sample analyses, and (3) the linearity of the calibration curve should meet the criteria of correlation coefficient ≥ 0.995 . The laboratory chose to use one-point calibration (a blank and a linear range standard) to establish the ICAL. The correlation coefficient criteria was not applicable.

For mercury, the methods require that (1) a blank and five calibration standards be employed to establish the analytical curve, and (2) the linearity of the calibration curve should meet the criteria of correlation coefficient ≥ 0.995 . The associated initial calibrations met the method requirements.

A check standard containing target analytes at the reporting limit levels (low-level CCV) was analyzed at the beginning of each analytical run. The results were within the method criteria of 70-130% or the associated results were greater than the 2x MRLs.

8.4 Initial and Continuing Calibration Verification (ICV and CCV)

Initial calibration verifications (ICVs) and continuing calibration verifications (CCVs) were analyzed at the required frequency. The %R values met the control criteria (90 – 110% for metals, 80 – 120% for mercury).

8.5 Blanks

Calibration Blanks: Initial calibration blanks (ICBs) and continuing calibration blanks (CCBs) were analyzed at required frequency. Target analytes were either not detected in ICBs/CCBs at or above the MDLs, or at levels <MRLs and had no significant effects (sample results were > 10x the calibration blank detection) on associated sample results.

Negative detections found in ICB and selected CCBs at levels where their absolute values were between those of MDLs and RLs were evaluated and determined to have no significant effects on sample results.

Method Blanks: Method blanks were prepared and analyzed as required. Target analytes were not detected in the method blanks at or above the RLs, except that magnesium was detected at 61 $\mu\text{g/L}$ in method blank KQ2409176-01. Magnesium results in all field samples were greater than 5 times the level found in this method blank. No data qualifying action was required.

8.6 Laboratory Control Sample (LCS)

LCS analyses were performed as required by the method. LCS %R values were within the project control limits.

8.7 Matrix Spike (MS)

MS analyses were performed on sample PLF-MW58S-0624 as requested. The %R values were within the laboratory control limits.

8.8 Laboratory Duplicate Analysis

Laboratory duplicate analyses were performed on sample PFL-MW58S-0624 as requested. The RPD values were within the laboratory control limits for sample results greater than 5x the MRLs.

8.9 Internal Standards

At least three internal standards were added to all field and QC samples for ICP/MS analyses. All percent relative intensity values were within the method criteria (70-130% of those for the associated calibration blank).

8.10 Method Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

8.11 Field Duplicates

Samples PLF-MW58S-0624 and PLF-DUP1-0624 were field duplicates submitted for metals analyses. The RPD (or concentration difference values) and data qualification for detected target analytes are presented in **Section III**.

8.12 Overall Assessment of Metals Data Usability

Metals data are of known quality and acceptable for use, based on the information submitted by the laboratory.

III. FIELD DUPLICATE SUMMARY

Field duplicate RPD is indicative of field and laboratory precision and sample homogeneity in combination. The Functional Guidelines or GMP do not specify criteria for field duplicate evaluation. An advisory criterion of 35 percent was applied to evaluating the RPD values of field duplicate results $\geq 5 \times \text{RL}$. For results $< 5 \times \text{RL}$, an advisory criterion of $2 \times \text{RL}$ was applied to evaluating the concentration differences. Field duplicate results and data qualification are presented as follows:

Detected Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualification
			MW58S	DUP1			
Aluminum	µg/L	4	4.9	7.6		2.7	
Antimony	µg/L	0.05	0.11	0.11		0	
Arsenic	µg/L	0.5	4.3	4.3	0%		
Barium	µg/L	0.05	80	83	4%		
Beryllium	µg/L	0.02	ND	ND		0	
Cadmium	µg/L	0.02	ND	ND		0	
Calcium	µg/L	50	78000	76000	3%		
Chromium	µg/L	0.2	3.3	3.4	3%		
Cobalt	µg/L	0.02	0.071	0.066		0.005	
Copper	µg/L	0.1	0.47	0.48		0.01	
Iron	µg/L	2	12	10	18%		
Lead	µg/L	0.02	0.024	0.02		0.004	
Magnesium	µg/L	20	24000	24000	0%		
Manganese	µg/L	0.2	ND	ND			
Nickel	µg/L	0.2	1	0.95		0.05	
Potassium	µg/L	200	8000	8000	0%		
Selenium	µg/L	1	ND	ND		0	
Silver	µg/L	0.02	ND	ND		0	
Sodium	µg/L	200	33000	32000	3%		
Thallium	µg/L	0.02	ND	ND		0	
Vanadium	µg/L	0.2	15	15	0%		
Zinc	µg/L	2	ND	ND		0	
Mercury	µg/L	0.2	ND	ND		0	
Trichloroethene	µg/L	0.053	0.06	0.069		0.009	
SVOCs	µg/L	-	ND	ND		0	
Phosphorous Pesticides	µg/L	-	ND	ND		0	
Herbicides	µg/L	-	ND	ND		0	
Organochlorine Pesticides	µg/L	-	ND	ND		0	
PCB Aroclors	µg/L	-	ND	ND		0	

Notes:

ND – Not detected at or above the reporting limit
 RL – Reporting limit
 RPD – Relative percent difference
 µg/L – microgram per liter

IV. DATA VALIDATION SUMMARY

1. Data Qualification

Sample ID	Analyte	Data Qualifier	Reason	Report Section
PLF-NVM01-0624 PLF-MW47S-0624 PLF-MW50S-0624 PLF-MW57S-0624 PLF-MW58S-0624 PLF-DUP1-0624 PLF-MW56S-0624	2,4-Dinitrophenol	UJ	CCV %D value biased low.	Section II, 3.4
PLF-NVM01-0624 PLF-MW47S-0624 PLF-MW50S-0624 PLF-MW57S-0624 PLF-MW58S-0624 PLF-DUP1-0624 PLF-MW56S-0624	1,2-Dichlorobenzene 1,4-Dichlorobenzene 1,2,4-Trichlorobenzene Naphthalene (Reported from SW8270E Full Scan)	DNR	Report from SW8260D analysis in favor of the lower detection limit.	Section II, 3.12
PLF-NVM01-0624 PLF-MW47S-0624 PLF-MW50S-0624 PLF-MW57S-0624 PLF-MW58S-0624 PLF-DUP1-0624 PLF-MW56S-0624	Pentachlorophenol (Reported from SW8270E-SIM)	DNR	Report from SW8151A analysis in favor of the lower detection limit.	Section II, 3.12
PLF-NVM01-0624 PLF-MW47S-0624 PLF-MW50S-0624 PLF-MW57S-0624 PLF-MW58S-0624 PLF-DUP1-0624 PLF-MW56S-0624	Disulfoton (Reported from SW8141A)	UJ	CCV %D value biased low.	Section II, 5.3
PLF-MW58S-0624 PLF-DUP1-0624	Demeton (Reported from SW8141A)	UJ	MS and MSD %R values were less than the lower control limit.	Section II, 5.6
PLF-NVM01-0624 PLF-MW47S-0624 PLF-MW50S-0624 PLF-MW57S-0624 PLF-MW58S-0624 PLF-DUP1-0624 PLF-MW56S-0624	Demeton (Reported from SW8141A)	UJ	LCS and LCSD %R values were less than the lower control limit.	Section II, 5.7

Notes:

%D – Percent difference

%R – Percent recovery

CCV – Continuing calibration verification

LCL – Lower control limit

LCS – Laboratory control sample, namely blank spike, as defined by the laboratory.

LCSD – LCS duplicate, namely blank spike duplicate, as defined by the laboratory.
MS – Matrix spike
MSD – MS duplicate
RPD – Relative percent difference

2. Data Qualifier Definition

Data Qualifier	Definition
DNR	The result for this analyte should be reported from an alternative analysis for optimal result.
J	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.
UJ	The analyte was detected above the reported quantitation limit, and the reported quantitation limit was an estimated value.

V. DATA QUALITY OBJECTIVE ASSESSMENT

The quality of the data collected in this sampling event is assessed against the data quality objectives (DQOs) defined in the GMP. The assessment evaluates whether the DQOs were achieved in various QC elements - precision, accuracy, representativeness, comparability, and completeness, as presented below.

1. Precision

Precision is defined as the degree of mutual agreement among independent measurements as the result of repeated application of the same process under similar conditions. Analytical precision is evaluated via the relative percent difference (RPD) values of LCS/LCSD, MS/MSD, and duplicate sample (inorganic only) analyses. The RPD values of field duplicate analyses are used to evaluate the analytical and field precision in conjunction with sample homogeneity.

The precision of VOCs, SVOCs, chlorophenoxy herbicides, organophosphorous pesticides, organochlorine pesticides, PCB Aroclors, and metals analyses met the project DQOs.

2. Accuracy

Accuracy is a statistical measurement of correctness and includes components of random and system errors. Accuracy is defined as the degree of agreement between a measurement and the known reference. Analytical accuracy is evaluated via the percent recovery (%R) for inorganic analyses or percent difference (%D) and percent drift (%D_f) for organic analyses values of initial and continuing calibration (ICV and CCV), surrogate spikes (organic analyses only), MS, MSD, LCS, LCSD, and internal standards (as applicable for the analytical methods) in conjunction with method blank and field blank results. Method and field blanks identify the type and magnitude of effects contributed to the system error through field and/or laboratory procedures. Sample conditions and sample preparation/analysis timing can affect accuracy of sample results as well. Potential analyte loss can occur if samples were not well preserved or prepared/analyzed significantly past the required holding time and affect the accuracy of sample results.

The accuracy of VOCs, SVOCs, chlorophenoxy herbicides, organophosphorous pesticides, organochlorine pesticides, PCB Aroclors, and metals analyses met the project DQOs, except for the following:

2.1 Organophosphorous Pesticides - CCV

The %D value for Disulfoton in the closing CCV biased low and this compound was not detected in any of the field samples. Disulfoton results for all samples were qualified (UJ) as estimated.

2.2 Organophosphorous Pesticides – LCS and LCSD

The %R values for Demeton in the LCS and LCSD were less than the lower control limits, and this compound was not detected in any of the field samples. Demeton results for all samples were qualified (UJ) as estimated.

2.3 Organophosphorous Pesticides – MS and MSD

The %R values for Demeton in the MS and MSD analyses performed on sample PLF-MW58S-0624 were less than the lower control limits, and this compound was not detected in the un-spiked sample. Demeton results for sample PLF-MW58S-0624 and its field duplicate, PLF-DUP1-0624, were qualified (UJ) as estimated.

3. Representativeness

Representativeness is the level of confidence that the analytical data reflects the actual field condition. Representativeness is evaluated via the integrity of the samples during the course from collection through preparation/analysis at the laboratory. The evaluation of associated method and field blanks also assists in identifying artifacts that may skew the representativeness of the samples.

No anomalies were identified in the procedures of sample preservation, handling, preparation, and analyses. Sample preparation and analyses were all performed within the required holding times. The laboratory and field blanks were either free of contaminants or at levels that had no significant effects on sample results. VOCs, SVOCs, chlorophenoxy herbicides, organophosphorous pesticides, organochlorine pesticides, PCB Aroclors, and metals data are assumed representative.

4. Comparability

Comparability is the confidence with which one data set can be compared to another data set. Using standard methods throughout the data generation processes ensures the comparability of data generated in separated sampling events.

Data collected in this sampling event are assumed comparable because standard methods were used for sample preparation and analyses, and the methods were consistent with those specified in the GMP.

4.1 VOCs

Selective ion monitoring (SIM) technique was applied to the analyses of full list VOCs, as opposed to only compounds requiring lower detection limits in all previous sampling events. The reporting limits remained the same as those specified in the GMP. No significant deviations of results from the previous sampling events were observed.

5. Completeness

Completeness is a ratio of the number of valid data to the expected number of data that can be obtained under normal conditions for a given sampling event. Valid data are sample results determined acceptable for use. Rejected results are considered un-useable and thus invalid. In cases where data were rejected in favor of those obtained from a separate valid analysis, the rejection does not affect the completeness.

The overall completeness of this sampling event is 100 percent. The overall completeness for this sampling event met the 95 percent completeness goal of the GMP.

6. Sensitivity

Sensitivity depicts the level of ability an analytical system (i.e., sample preparation and instrumental analysis) of detecting a target component in a given sample matrix with a defined level of confidence. Factors affecting the sensitivity of an analytical system include analytical system background (e.g., laboratory artifact or method blank contamination), sample matrix (e.g., mass spectrometry ion ratio change, co-elution of peaks, or baseline elevation) and instrument instability.

To evaluate if the analytical sensitivity achieved the project expectation, sample specific RLs were compared against the RL goals set forth in the QAPP (Zone A wells), GMP and the revisions. In addition, sample results were compared to detections of target analytes in method blanks, trip blanks, and calibration blanks to identify potential effects of laboratory and field background on sensitivity.

The sensitivity associated with the analyses of all samples was attained to the project goals in this sampling event.

VI. REFERENCES

- United States Environmental Protection Agency (USEPA). 2020a. *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-66. EPA-540-R-20-006.
- USEPA. 2020b. *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005.
- USEPA. 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, January 13, 2009, EPA 540-R-08-005.
- USEPA. 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition, December 1996.
- USEPA. 1983. *Methods for Chemical Analysis of Water and Wastes*, EPA-600/4-79-020, March 1983 and updates.
- American Public Health Association APHA). 1995. *Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, 20th Edition, 1995.
- PBS Engineering and Environmental, Inc. 2020. *Site-Wide Compliance Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. December 15, 2020.
- PBS Engineering and Environmental, Inc. & Floyd | Snyder. 2020. *Zone A Removal Action Supplemental Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. & Floyd | Snyder. February 28, 2020.

Data Validation Report

Pasco Sanitary Landfill Groundwater Monitoring July 2024 Sampling

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Acronyms

%D	percent difference
%D_f	percent drift
%R	percent recovery
%RSD	percent relative standard deviation
ALS-Everett	ALS Laboratory Group, Everett, Washington
BFB	bromofluorobenzene
CCB	continuing calibration blank
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
CMP	Site-Wide Compliance Groundwater Monitoring Plan (PBS, 2020)
COC	chain-of-custody
DQO	data quality objective
DFTPP	decafluorotriphenylphosphine
EPA	U.S. Environmental Protection Agency
GC/MS	gas chromatography/mass spectrometer
GMP	Zone A Removal Action Supplemental Groundwater Monitoring Plan (PBS, 2020)
ICAL	initial calibration
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LLOQ	lower limit of quantitation
µg/L	micrograms per liter
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
ND	not detected
PAHs	polycyclic aromatic hydrocarbons
QA/QC	quality assurance/quality control
RF	response factor
RL	reporting limit

RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
SOP	standard operating procedures
SVOCs	semi-volatile organic compounds
VOCs	volatile organic compounds

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data associated with the 16 water samples collected on July 29 and 30, 2024 for the referenced project. The validation procedures followed the requirements specified in the following document, as applicable:

- United States Environmental Protection Agency (USEPA) *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-66. EPA-540-R-20-006.

A Stage 2B (as defined in EPA 2009) validation was performed based on the summaries of sample and quality control (QC) analytical results submitted by the laboratories. The numerical quality assurance and quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the analytical methods, the *Site-Wide Groundwater Compliance Monitoring Plan* ([CMP], PBS 2020), and the performance-based control limits established by the laboratories (laboratory control limits). In addition, data were validated against the requirements specified in the *Zone A Removal Action Supplemental Groundwater Monitoring Plan* ([GMP], PBS 2020). The frequency of QC analyses was evaluated according to the CMP and the analytical methods. Sample specific method detection limits and reporting limits were evaluated against the reporting limits listed on Table 2 of the GMP. Raw data were not reviewed herein unless necessary for clarification purposes.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Field duplicate results were compared to those of the parent sample and data qualified based on the advisory criteria and presented in **Section III**. Qualified data along with proper data qualifiers, qualification reasons, and qualifier definitions are presented in **Section IV - Data Validation Summary**.

A data quality objective assessment summarizing the overall precision, accuracy, representativeness, comparability, completeness, and sensitivity of data collected in this sampling event was prepared and included in **Section V – Data Quality Objective Assessment**. Any additional laboratory submittals requested during the validation are transferred to PBS Engineering and Environmental, Inc. in Richland, Washington along with this report.

As part of the validation, the electronic data deliverables (EDDs) were verified against the hardcopy report. Data qualifiers, qualification reasons, and any required corrections identified *via* this validation have been added to the EDDs and submitted along with this report. Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	ALS Laboratory Sample ID	Sampling Date	Matrix	Analysis	
				VOCs	SVOCs
PLF-MW13S-0724	EV24070202-01	07/29/24	Water	X	
PLF-MW56S-0724	EV24070202-02	07/29/24	Water	X	X
PLF-MW58S-0724	EV24070202-03	07/29/24	Water	X	X
PLF-MW57S-0724	EV24070202-04	07/29/24	Water	X	X
PLF-NVM01-0724	EV24070202-05	07/29/24	Water	X	
PLF-DUP1-0724	EV24070202-06	07/29/24	Water	X	X
PLF-MW47S-0724	EV24070202-07	07/29/24	Water	X	X
PLF-MW50S-0724	EV24070202-08	07/29/24	Water	X	X
PLF-MW17SR-0724	EV24070202-09	07/29/24	Water	X	
PLF-MW4R-0724	EV24070202-10	07/29/24	Water	X	
PLF-MW61S-0724	EV24070202-11	07/29/24	Water	X	
PLF-MW23S-0724	EV24070202-12	07/30/24	Water	X	
PLF-MW63S-0724	EV24070202-13	07/30/24	Water	X	
PLF-MW62S-0724	EV24070202-14	07/30/24	Water	X	
PLF-MW16S-0724	EV24070202-15	07/30/24	Water	X	
PLF-TripBlank-0724	EV24070202-16	07/30/24	Water	X	

Notes:

X – The analysis was requested and performed on the sample.

VOCs – Volatile organic compounds

SVOCs – Semi-volatile organic compounds

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Laboratory
Volatile organic compounds (VOCs)	SW846 Method 8260D - SIM ^(A)	ALS Laboratory Group (ALS) Everett, Washington
Semi-volatile organic compounds (SVOCs)	SW846 Methods 3510C/8270E full scan and SIM ^(B)	

Notes:

SW846 - USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, December 1996 & Updates.

^(A) – Selective ion monitoring (SIM) technique was performed for target compounds to achieve lower detection limits.

^(B) – SIM technique was performed for selected SVOCs to achieve lower detection limits.

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. The samples were received properly preserved and consistent with the accompanying chain-of-custody (COC) documentation.

2. Volatile Organic Compounds ([VOCs]; SW846 Method 8260D–SIM)

2.1 Holding Time

Water samples should be analyzed within 14 days of collection. All samples were analyzed within the required holding time.

2.2 GC/MS Instrument Performance Check

Bromofluorobenzene (BFB) tuning analyses were performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, at least five calibration standards are applied to establish the curve and the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit (at least six calibration standards are required), or correlation coefficient (r) ≥ 0.995 for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the %D or %D_f values for all target and surrogate compounds should be within $\pm 30\%$. The initial calibration met the requirements.

2.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D or %D_f values be within $\pm 20\%$, (3) compound RFs are \geq the minimum RF specified in Method 8260D, Table 4, and (4) the internal standards in the calibration verification standard changes by a factor of two (-50% to + 100%) from that in the mid-point standard level of the most recent initial calibration sequence. Calibration verification analyses met the frequency criteria. The %D and %D_f values either met the criteria or the outliers had no effects on associated data (*e.g.*, bias-high %D value for a compound that was not detected in associated samples), except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
H0526.D 8/5/24, 10:45 pm	Acetone	24.4%	±20%	Low	PLF-MW61S-0724 PLF-MW23S-0724 PLF-MW63S-0724 PLF-MW62S-0724 PLF-MW16S-0724	UJ

Note that the laboratory did not perform a lower limit of quantitation (LLOQ) as stated in Section 9.9 of the Method. The ICAL standards nearest to the reporting limits (RLs) were evaluated in lieu of the LLOQ. The recovery of lowest ICAL standards were either within ±20% of the respective LCS control criteria or biased high where the compounds were not detected at or above their RLs.

2.5 Blanks

Method Blank: A method blank was analyzed at the required frequency. Target compounds were not detected at or above the RLs in the method blank.

Trip Blanks: One trip blank was submitted with the sample shipment for VOCs analyses. Target compounds were not detected at or above the RLs in the trip blank.

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses, named as blank spike and blank spike duplicate by the laboratory, were performed as required. The %R and relative percent difference (RPD) values were either within the laboratory control limits or the %R outliers had no adverse effects on data usability (*e.g.*, biased-high %R or RPD values for a non-detected compound).

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0724 as requested. All %R and RPD values were either within the laboratory control limits or the %R outliers had no adverse effects on data usability (*e.g.*, biased-high %R or RPD values for a non-detected compound).

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 -minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

2.10 Field Duplicates

Samples PLF-MW58S-0724 and Duplicate PLF-DUP1-0724 were field duplicates submitted for VOCs analysis. The RPD (or concentration difference values) and data qualification for detected target compounds are presented in **Section III**.

2.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed for and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the CMP and GMP were achieved.

2.12 Overall Assessment of VOCs Data Usability

VOCs data are acceptable for use as qualified, based on the information submitted by the laboratory.

3. Semi-volatile Organic Compounds ([SVOCs]; SW846 Method 8270E – Full Scan and SIM)

3.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

3.2 GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) tuning analyses were performed at the required frequency. Relative abundance for all required ions met the method requirements.

3.3 Initial Calibration

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, at least five calibration standards are applied to establish the curve and the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit (at least

six calibration standards are required), or correlation coefficient ($r \geq 0.995$ for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the %D or %D_f values for all target and surrogate compounds should be within $\pm 30\%$.

In some cases where the second source %D or %D_f values did not meet the criteria, those of the associated calibration verification were within the criteria. No data qualifying action was necessary.

3.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D values be within $\pm 20\%$, (3) compound RFs are \geq the minimum RF specified in Method 8270E, Table 4, and (4) the internal standards in the calibration verification standard changes by a factor of two (-50% to $+100\%$) from that in the mid-point standard level of the most recent initial calibration sequence. Calibration verification analyses met the requirements, except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
H13049.D 8/14/24, 10:24 am	Anthracene	21.0%	$\pm 20\%$	Low	PLF-MW56S-0724 PLF-MW58S-0724 PLF-MW57S-0724 PLF-DUP1-0724 PLF-MW47S-0724 PLF-MW50S-0724	UJ

Note that the laboratory did not perform a LLOQ as stated in Section 9.9 of the Method. The ICAL standards nearest to the RLs were evaluated in lieu of the LLOQ. The recovery of lowest ICAL standards were either within $\pm 20\%$ of the respective LCS control criteria or biased high where the compounds were not detected at or above their RLs.

3.5 Method Blank

A method blank was analyzed at the required frequency. No target compounds were detected at or above the RLs in the method blank.

3.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The %R and RPD values either met the laboratory control criteria or the %R and RPD outliers had no adverse effects on data quality and usability (*e.g.*, biased high %R or RPD value for a compound that was not detected in associated samples), except for the following:

Batch ID	Analyte	LCS %R	LCSD %R	Control Limit (%)	RPD	Affected Sample	Data Qualifier
216532	Pyridine Aniline	31.0% 29.5%	6.72% 17.4%	20-150% 20-150%	129% 52%	PLF-MW56S-0724 PLF-MW58S-0724 PLF-MW57S-0724 PLF-DUP1-0724 PLF-MW47S-0724 PLF-MW50S-0724	UJ

Note: The criteria for RPD is $\leq 30\%$ for both compounds.

3.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate %R values met the criteria, except that the %R values (19.7% and 28.9%) for 2-Fluorophenol in sample PLF-MW47S-0724 and PLF-MW50S-0724 respectively were less than the lower control limit (29-105%). %D values for other surrogate spikes in both samples were all within the control limits. No data qualifying action was required.

3.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0724 as requested. All %R and RPD values were within the laboratory control limits.

3.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 -minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

3.10 Field Duplicates

Samples PLF-MW58S-0724 and Duplicate PLF-DUP1-0724 were field duplicates submitted for SVOCs analyses. Target analytes were not detected at or above their RLs in both samples. The filed precision met the advisory criteria.

3.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed for and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the CMP and GMP were achieved.

3.12 Overall Assessment of SVOCs Data Usability

1,2-Dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trichlorobenzene, and naphthalene results for samples analyzed with both methods SW8260D and SW8270E should be reported from the SW8260D analyses in favor of the lower detection limits. Results from the SW8270E analyses were qualified (DNR) and rejected.

SVOCs data are acceptable for use as qualified, based on the information submitted by the laboratory.

III. FIELD DUPLICATE SUMMARY

Field duplicate RPD is indicative of field and laboratory precision and sample homogeneity in combination. The Functional Guidelines or OMM do not specify criteria for field duplicate evaluation. An advisory criterion of 35 percent was applied to evaluating the RPD values of field duplicate results $\geq 5xRL$. For results $< 5xRL$, an advisory criterion of $2xRL$ was applied to evaluating the concentration differences. The RPD (or concentration difference) values and data qualification for detected compounds in field duplicate pairs are presented as follows:

Detected Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualification
			MW58S	DUP1			
Trichloroethene	µg/L	0.053	0.13	0.12		0.01	
SVOCs	µg/L	0.02 - 10	ND	ND		0	

Notes:

ND – Not detected at or above the method detection limit (MDL)

RL – Reporting limit

RPD – Relative percent difference

µg/L – microgram per liter

SVOCs – Semi-volatile organic compounds reported from EPA 8270E and EPA 8270E-SIM analyses.

IV. DATA VALIDATION SUMMARY

1. Data Qualification

Sample ID	Analyte	Data Qualifier	Reason	Report Section
PLF-MW61S-0724 PLF-MW23S-0724 PLF-MW63S-0724 PLF-MW62S-0724 PLF-MW16S-0724	Acetone	UJ	The CCV %D value biased low.	Section II, 2.4
PLF-MW56S-0724 PLF-MW58S-0724 PLF-MW57S-0724 PLF-DUP1-0724 PLF-MW47S-0724 PLF-MW50S-0724	Anthracene	UJ	The CCV %D value biased low.	Section II, 3.4
PLF-MW56S-0724 PLF-MW58S-0724 PLF-MW57S-0724 PLF-DUP1-0724 PLF-MW47S-0724 PLF-MW50S-0724	Pyridine Aniline	UJ	The LCS and/or LCSD %R value was less than the lower control limit.	Section II, 3.6
PLF-MW56S-0724 PLF-MW58S-0724 PLF-MW57S-0724 PLF-DUP1-0724 PLF-MW47S-0724 PLF-MW50S-0724	1,2-Dichlorobenzene 1,4-Dichlorobenzene 1,2,4-Trichlorobenzene Naphthalene (SW8270E Full Scan)	DNR	Report from SW8260D analysis in favor of the lower detection limit.	Section II, 3.12

Notes:

%D – Percent difference

%R – Percent recovery

CCV – Continuing calibration verification

LCS – Laboratory control sample, namely blank spike, as defined by the laboratory.

LCSD – LCS duplicate, namely blank spike duplicate, as defined by the laboratory.

2. Data Qualifier Definition

Data Qualifier	Definition
DNR	The result for this analyte should be reported from an alternative analysis for optimal result.
UJ	The analyte was not detected above the sample quantitation limit, and the reported quantitation limit was an estimated value.

V. DATA QUALITY OBJECTIVE ASSESSMENT

The quality of the data collected in this sampling event is assessed against the data quality objectives (DQOs) defined in the CMP and GMP. The assessment evaluates whether the DQOs were achieved in various QC elements - precision, accuracy, representativeness, comparability, and completeness, as presented below.

1. Precision

Precision is defined as the degree of mutual agreement among independent measurements as the result of repeated application of the same process under similar conditions. Analytical precision is evaluated via the relative percent difference (RPD) values of LCS/LCSD, MS/MSD, and duplicate sample (inorganic only) analyses. The RPD values of field duplicate analyses are used to evaluate the analytical and field precision in conjunction with sample homogeneity.

The precision of VOCs and SVOCs analyses met the project DQOs.

2. Accuracy

Accuracy is a statistical measurement of correctness and includes components of random and system errors. Accuracy is defined as the degree of agreement between a measurement and the known reference. Analytical accuracy is evaluated via the percent recovery (%R) for inorganic analyses or percent difference (%D) and percent drift (%D_f) for organic analyses values of initial and continuing calibration (ICV and CCV), surrogate spikes (organic analyses only), MS, MSD, LCS, LCSD, and internal standards (as applicable for the analytical methods) in conjunction with method blank and field blank results. Method and field blanks identify the type and magnitude of effects contributed to the system error through field and/or laboratory procedures.

The accuracy of VOCs and SVOCs analyses met the DQOs of the OMM, except for the following:

2.1 VOCs (SW8260D Full Scan) - CCV

The %D value for acetone in one of the CCVs biased low. Acetone was not detected in the five associated samples; acetone results for these samples were qualified (UJ) as estimated.

2.2 SVOCs (SW8270E-SIM) - CCV

The %D value for anthracene in the CCV biased low. Anthracene was not detected in the six associated samples; anthracene results for these samples were qualified (UJ) as estimated.

2.3 SVOCs (SW8270E-SIM) – LCS/LCSD

The %R values for pyridine and aniline in LCS and/or LCSD were less than the lower control limits, indicating a potential low bias of the associated sample results. Pyridine and aniline were not detected in the six associated samples; the results were qualified (UJ) as estimated.

3. Representativeness

Representativeness is the level of confidence that the analytical data reflect the actual field condition. Representativeness is evaluated via the integrity of the samples during the course from collection through preparation/analysis at the laboratory. The evaluation of associated method and field blanks also assists in identifying artifacts that may skew the representativeness of the samples.

No anomalies were identified in the procedures of sample preservation, handling, preparation, and analyses. Sample preparation and analyses were all performed within the required holding times. The laboratory and field blanks were either free of contaminants or at levels that had no significant effects on sample results. The VOCs and SVOCs data are assumed representative.

4. Comparability

Comparability is the confidence with which one data set can be compared to another data set. Using standard methods throughout the data generation processes ensures the comparability of data generated in separated sampling events.

Data collected in this sampling event are assumed comparable because standard methods were used for sample preparation and analyses, and the methods were consistent with those specified in the OMM.

4.1 VOCs

Selective ion monitoring (SIM) technique was applied to the analyses of full list VOCs, as opposed to only compounds requiring lower detection limits in all previous sampling events. The reporting limits remained the same as those specified in the CMP and GMP. No significant deviations of results from the previous sampling events were observed.

5. Completeness

Completeness is a ratio of the number of valid data to the expected number of data that can be obtained under normal conditions for a given sampling event. Valid data are sample results determined acceptable for use. Rejected results are considered un-useable and thus invalid. In cases where data were rejected in favor of those obtained from a separate valid analysis, the rejection does not affect the completeness.

The completeness of this sampling event is 99.6 percent for all analyses. The overall completeness for this sampling event met the 95 percent completeness goal of the GMP.

6. Sensitivity

Sensitivity depicts the level of ability an analytical system (i.e., sample preparation and instrumental analysis) of detecting a target component in a given sample matrix with a defined level of confidence. Factors affecting the sensitivity of an analytical system including analytical system background (e.g., laboratory artifact or method blank contamination), sample matrix (e.g., mass spectrometry ion ratio change, co-elution of peaks, or baseline elevation) and instrument instability.

To evaluate if the analytical sensitivity achieved the project expectation, sample specific RLs were compared against the RL goals set forth in the CMP and GMP. In addition, sample results were compared to detections of target analytes in method blanks, trip blanks, and calibration blanks to identify potential effects of laboratory and field background on sensitivity.

The sensitivity associated with the analyses of all samples was attained to the project goals in this sampling event.

VI. REFERENCES

- USEPA. 2020. *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005.
- USEPA. 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, January 13, 2009, EPA 540-R-08-005.
- USEPA. 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition, December 1996.
- PBS Engineering and Environmental, Inc. 2020. *Site-Wide Compliance Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. December 15, 2020.
- PBS Engineering and Environmental, Inc. & Floyd | Snyder. 2020. *Zone A Removal Action Supplemental Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. & Floyd | Snyder. February 28, 2020.

Data Validation Report

Pasco Landfill NPL Site
Zone A Removal Groundwater Monitoring
September 2024 Supplemental Sampling

Laboratory SDG Number: EV24090078

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Acronyms

%D	percent difference
%D_f	percent drift
%R	percent recovery
%RSD	percent relative standard deviation
%RSE	percent relative standard error
ALS-Everett	ALS Laboratory Group, Everett, Washington
ALS-Kelso	ALS Laboratory Group, Kelso, Washington
BFB	bromofluorobenzene
CCB	continuing calibration blank
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
CMP	Site-Wide Compliance Groundwater Monitoring Plan (PBS, 2020)
COC	chain-of-custody
CVAAS	cold vapor atomic absorption spectrometry
DQO	data quality objective
DFTPP	decafluorotriphenylphosphine
EDD	electronic data deliverable
EPA	U.S. Environmental Protection Agency
GMP	Zone A Removal Action Supplemental Groundwater Monitoring Plan (PBS, 2020)
ICAL	initial calibration
ICB	initial calibration blank
ICP/AEOS	inductively coupled plasma/atomic emission optical spectrometry
ICP/MS	inductively coupled plasma/mass spectrometry
ICS	interference check sample
ICV	initial calibration verification
IDL	instrument detection limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LLCV	low level continuing calibration verification
LLOQ	lower limit of quantitation
µg/L	micrograms per liter

MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
ND	not detected
PAL	Matrix/Pacific Agricultural Laboratory
QA/QC	quality assurance/quality control
RF	response factor
RL	reporting limit
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
SOP	standard operating procedures
SVOCs	semi-volatile organic compounds
VOCs	volatile organic compounds

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data associated with the 17 water samples collected in September 2024 for the referenced project. The validation procedures followed the requirements specified in the following documents, as applicable:

- United States Environmental Protection Agency (USEPA) *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-66. EPA-540-R-20-006
- *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005

A Stage 2B (as defined in EPA 2009) validation was performed based on the summaries of sample and quality control (QC) analytical results submitted by the laboratories. The numerical quality assurance and quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the analytical methods, the *Site-Wide Groundwater Compliance Monitoring Plan* ([CMP], PBS 2020), and the performance-based control limits established by the laboratories (laboratory control limits). In addition, data were validated against the requirements specified in the *Zone A Removal Action Supplemental Groundwater Monitoring Plan* ([GMP], PBS 2020). The frequency of QC analyses was evaluated according to the CMP and the analytical methods. Sample specific method detection limits and reporting limits were evaluated against the reporting limits listed on Table 2 of the GMP. Raw data were not reviewed herein unless necessary for clarification purposes.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Field duplicate results were compared to those of the parent sample and data qualified based on the advisory criteria and presented in **Section III**. Qualified data along with proper data qualifiers, qualification reasons, and qualifier definitions are presented in **Section IV - Data Validation Summary**.

A data quality objective assessment summarizing the overall precision, accuracy, representativeness, comparability, completeness, and sensitivity of data collected in this sampling event was prepared and included in **Section V – Data Quality Objective Assessment**. Any additional laboratory submittals requested during the validation are transferred to PBS Engineering and Environmental, Inc. in Richland, Washington along with this report.

As part of the validation, the electronic data deliverables (EDDs) were verified against the hardcopy report. Data qualifiers, qualification reasons, and any required corrections identified *via* this validation have been added to the EDDs and submitted along with this report. Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	ALS Laboratory Sample ID	Sampling Date	Matrix	Analysis				
				VOCs	SVOCs	P-Pest. Herb.	C-Pest. PCBs	Metals
PLF-MW13S-0924	EV24090078-01	9/10/24	Water	X				
PLF-MW47I-0924	EV24090078-02	9/10/24	Water	X				
PLF-MW47S-0924	EV24090078-03	9/10/24	Water	X	X	X	X	X
PLF-MW50S-0924	EV24090078-04	9/10/24	Water	X	X	X	X	X
PLF-MW56S-0924	EV24090078-05	9/10/24	Water	X	X	X	X	X
PLF-MW57S-0924	EV24090078-06	9/10/24	Water	X	X	X	X	X
PLF-MW58S-0924	EV24090078-07	9/10/24	Water	X	X	X	X	X
PLF-NVM01-0924	EV24090078-08	9/10/24	Water	X	X	X	X	X
PLF-4R-0924	EV24090078-09	9/10/24	Water	X				
PLF-MW16S-0924	EV24090078-10	9/10/24	Water	X				
PLF-MW17SR-0924	EV24090078-11	9/10/24	Water	X				
PLF-MW23S-0924	EV24090078-12	9/10/24	Water	X				
PLF-MW61S-0924	EV24090078-13	9/10/24	Water	X				
PLF-MW62S-0924	EV24090078-14	9/10/24	Water	X				
PLF-MW63S-0924	EV24090078-15	9/10/24	Water	X				
PLF-DUP1-0924	EV24090078-16	9/10/24	Water	X	X	X	X	X
PLF-TripBlank-0924	EV24090078-17	9/10/24	Water	X				

Notes:

X: The analysis was requested and performed on the sample.

VOCs: Volatile organic compounds

SVOCs: Semi-volatile organic compounds

Herb: Chlorophenoxy herbicides and pentachlorophenol (PCP)

P-Pest: Organophosphorous pesticides

C-Pest: Organochlorine pesticides

PCBs: Polychlorinated biphenyls (Aroclors)

Metals: Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, manganese, magnesium, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Laboratory
Volatile organic compounds (VOCs)	SW846 Method 8260D - SIM ^(A)	ALS Laboratory Group (ALS) Everett, Washington
Semi-volatile organic compounds (SVOCs)	SW846 Methods 8270E full scan and SIM ^(B)	
Organochlorine Pesticides	SW846 Method 8081B	
Metals	EPA Method 200.8	ALS Laboratory Group (ALS) Kelso, Washington
Mercury	EPA Method 245.1	
PCB Aroclors (Low Level)	SW846 Method 8082A	
Organophosphorous Pesticides	SW846 Method 8141B	Matrix/Pacific Agricultural Laboratory (Matrix/PAL) Portland, Oregon
Chlorophenoxy Herbicides	SW846 Method 8151A	

Notes:

SW846 – USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, December 1996.

Metals – Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, silver, thallium, vanadium, zinc, aluminum, calcium, iron, magnesium, potassium, and sodium.

EPA Methods - USEPA Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983 Revision.

^(A) – Selective ion monitoring (SIM) technique was performed for target compounds to achieve lower detection limits.

^(B) – SIM technique was performed for selected SVOCs to achieve lower detection limits.

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. The samples were received properly preserved and consistent with the accompanying chain-of-custody (COC) documentation.

2. Volatile Organic Compounds ([VOCs]; SW846 Methods 8260D - Full Scan and SIM)

2.1 Holding Time

Water samples should be analyzed within 14 days of collection. All samples were analyzed within the required holding time.

2.2 GC/MS Instrument Performance Check

Bromofluorobenzene (BFB) tuning analyses were performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit, coefficient of determination (r^2) ≥ 0.99 for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the percent difference (%D) or percent drift ($\%D_f$) values for all target and surrogate compounds should be within $\pm 30\%$. The initial calibration met the requirements.

2.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D or $\%D_f$ values be within $\pm 20\%$, and (3) the internal standards in the calibration verification standard changes by a factor of two (-50% to + 100%) from that in the mid-point standard level of the most recent initial calibration sequence. Calibration verification analyses met the frequency criteria. The %D and $\%D_f$ values either met the criteria or the outliers had no effects on associated data (*e.g.*, bias-high %D value for a compound that was not detected in associated samples), except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
I1419.D 9/14/24, 6:06 pm	Acetone	24.2%	±20%	Low	PLF-MW13S-0924 PLF-MW47I-0924 PLF-MW47S-0924 PLF-MW56S-0924 PLF-MW57S-0924 PLF-MW58S-0924 PLF-NVM01-0924 PLF-MW17SR-0924 PLF-TripBlank-0924	UJ
I1441.D 9/15/24, 5:44 am	Acetone 2-Butanone Chloroform	48.7% 22.1% 30.4%	±20%	Low	PLF-MW50S-0924 PLF-4R-0924 PLF-MW16S-0924 PLF-MW23S-0924 PLF-MW61S-0924 PLF-MW62S-0924 PLF-MW63S-0924 PLF-DUP1-0924	UJ

The laboratory did not perform a lower limit of quantitation (LLOQ) as stated in Section 9.9 of the Method. The ICAL standards nearest to the reporting limits (RLs) were evaluated in lieu of the LLOQs. The recovery of lowest ICAL standard for benzene was outside ±20% of the LCS control criteria (50 – 150%).

2.5 Blanks

Method Blanks: Method blanks were analyzed at the required frequency. Target compounds were not detected at or above the reporting limits (RLs) in the method blanks.

Trip Blank: One trip blank, sample PLF-TripBlank-0924, was submitted with the sample shipment for VOCs analyses. Target analytes were not detected or above the RLs in this trip blank.

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses, named as blank spike and blank spike duplicate by the laboratory, were performed as required. The percent recovery (%R) and relative percent difference (RPD) values were either within the laboratory control limits or the outliers had no adverse effects on data usability (*e.g.*, biased-high %R or RPD value for a non-detected compound).

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0924 as requested. All %R and RPD values were either within the laboratory control limits or the outliers had no adverse effects on data usability (*e.g.*, biased-high %R or RPD value for a non-detected compound).

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 -minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

2.10 Field Duplicates

Samples PLF-MW58S-0924 and PLF-DUP1-0924 were field duplicates submitted for VOCs analyses. The RPD (or concentration difference values) and data qualification for detected target analytes are presented in **Section III**.

2.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP and CMP were achieved.

2.12 Overall Assessment of VOCs Data Usability

VOCs data are acceptable for use, based on the information submitted by the laboratory.

3. Semi-volatile Organic Compounds ([SVOCs]; SW846 Method 8270E – Full Scan and SIM)

3.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

3.2 GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) tuning analyses were performed at the required frequency. Relative abundance for all required ions met the method requirements.

3.3 Initial Calibration

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit, coefficient of determination (r^2) ≥ 0.99 for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the percent difference (%D) or percent drift (%D_f) values for all target and surrogate compounds should be within $\pm 30\%$. The ICAL met the requirements.

3.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D of %D_f values be within $\pm 20\%$, and (3) the internal standards in the calibration verification standard changes by a factor of two (-50% to $+ 100\%$) from that in the mid-point standard level of the most recent initial calibration sequence. Calibration verification analyses met the frequency criteria. The %D and %D_f values either met the criteria or the outliers had no effects on associated data (*e.g.*, bias-high %D value for a compound that was not detected in associated samples).

The laboratory did not perform an LLOQ as stated in Section 9.9 of the Method. The ICAL standards nearest to the RLs were evaluated in lieu of the LLOQs. The recovery of the lowest ICAL standards was acceptable, except that recovery for selected SVOCs analyzed with SW8270E-SIM biased high. These compounds were not detected in any of the filed samples; the high-bias recovery had no effects on data quality. No data qualifying action was required.

3.5 Method Blanks

Method blanks were analyzed at the required frequency. No target compounds were detected at or above the RLs in the method blank.

3.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The %R and RPD values either met the criteria or the outliers had no effects on associated data (*e.g.*, bias-high %R or RPD value for a compound that was not detected in associated samples).

3.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate %R values met the control limits, except that the %R values for 2-Fluorophenol (28.2%) and *p*-Terphenyl-d14 (52%) were less than the lower control limits (29% and 58% respectively) in sample PLF-NVM01-

0924. %R values for all other surrogate spikes in each of the acid and basic/neutral fractions were within the control limits in this sample. No data qualifying action was taken in this case.

3.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0924 as requested. All %R and RPD values either met the criteria or the outliers had no effects on associated data (e.g., bias-high %R or RPD value for a compound that was not detected in associated samples), except for the following:

Parent Sample ID	Analyte	MS %R	MSD %R	Control Limit (%)	RPD	Affected Sample	Data Qualifier
PLF-MW58S-0924	Pyridine	-32.3%	-32.3%	20-150%	0%	PLF-MW58S-0924 PLF-DUP1-0924	J- UJ
PLF-MW58S-0924	N-Nitrosodimethylamine	12.5%	12.6%	20-150%	1%	PLF-MW58S-0924 PLF-DUP1-0924	J- UJ
PLF-MW58S-0924	4-Chloroaniline	-37.7%	-37.5%	20-150%	1%	PLF-MW58S-0924 PLF-DUP1-0924	J- UJ

Note: The criteria for RPD is $\leq 20\%$.

3.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 -minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

3.10 Field Duplicates

Samples PLF-MW58S-0924 and PLF-DUP1-0924 were field duplicates submitted for SVOCs analyses. Target compounds were not detected in either samples at or above their RLs. The field precision met the project requirement.

3.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP and CMP were achieved.

3.12 Overall Assessment of SVOCs Data Usability

Naphthalene, 1,2-dichlorobenzene, 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene results for samples analyzed with both methods SW8260D and SW8270E should be reported from the SW8260D analyses in favor of the lower detection limits and/or higher concentrations (for naphthalene only). Results from the SW8270E analyses were qualified (DNR) and rejected.

Pentachlorophenol results should be reported from the SW8151A analyses for the lower detection limits; the results reported from SW8270E-SIM were to be rejected and qualified (DNR).

Data qualified in these respects are summarized in **Section IV -1**. SVOCs data are acceptable for use as qualified, based on the information submitted by the laboratory.

4. Chlorophenoxy Herbicides (SW846 Method 8151A)

4.1 Holding Times

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

4.2 GC/MS-MS Instrument Performance Check

According to the laboratory standard operation procedure, tuning analyses were not necessary since the method was modified using the GC/MS-MS techniques (rather than the method stated GC/MS technique). Data were not qualified on this basis.

4.3 Initial Calibration (ICAL)

The method and laboratory criteria require that (1) if linear average RFs is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for the compound, (2) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) be ≥ 0.99 , (3) if six-point non-linear (quadratic) curve is chosen for quantitation, the RSE be $\leq 20\%$, and (4) a second source standard be analyzed immediately after the analysis of last calibration standard and the %D values be within $\pm 30\%$. ICAL met the requirements.

4.4 Calibration Verification

The method criteria require that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, and (2) the %D value be within $\pm 20\%$. Calibration verification analysis was performed as required. The %D values met the criteria, except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
CCV1	Dinoseb	78.2%	80-120%	Low	PLF-MW47S-0924 PLF-MW50S-0924 PLF-MW56S-0924 PLF-MW57S-0924 PLF-MW58S-0924 PLF-NVM01-0924 PLF-DUP1-0924	UJ

4.5 Method Blank

A method blank was prepared and analyzed with samples as required by the method. Target compounds were not detected at or above RLs in the method blank.

4.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. All %R and RPD values met the laboratory control criteria.

4.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. The surrogate %R values met the laboratory control criteria.

4.8 Matrix Spike (MS) and MS Duplicate (MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0924. All %R and RPD values were within the laboratory control limits, except for the following:

Parent Sample ID	Analyte	MS %R	MSD %R	Control Limit (%)	RPD	Affected Sample	Data Qualifier
PLF-MW58S-0924	Dicamba	65%	56%	60-140%	7%	PLF-MW58S-0924 PLF-DUP1-0924	UJ

Note: The criteria for RPD is $\leq 20\%$.

4.9 Field Duplicates

Samples PLF-MW58S-0924 and PLF-DUP1-0924 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

4.10 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

4.11 Overall Assessment of Chlorophenoxy Herbicides Data Usability

Chlorophenoxy herbicides data are acceptable for use, based on the information submitted by the laboratory.

5. Organophosphorous Pesticides (SW846 Method 8141B)

5.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. Samples were extracted and analyzed within the holding times.

5.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed for each target analyte and surrogate compounds, (2) the %RSD of calibration factors (CFs) must be $\leq 20\%$ for target analytes and surrogate compounds, and (3) if dual column analysis is chosen, both columns should meet the requirements.

A second source standard (ICV) should be analyzed immediately after the last initial calibration standard; the %D values for target and surrogate compounds should meet the method requirements. The initial calibration met the criteria.

5.3 Continuing Calibration Verification (CCVs)

CCV analyses should be performed for each 12-hour analysis sequence prior to sample analyses, and the %D be within $\pm 20\%$. Calibration verifications were performed at the required frequency. The %D values either met the criteria or the outliers had no adverse effects on data quality and usability (*e.g.*, biased-high recovery for a compound that was not detected in associated samples).

5.4 Method Blank

A method blank was prepared and analyzed as required. No target compounds were detected at or above the RLs in the method blank.

5.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

5.6 Matrix Spike (MS)/MS Duplicate (MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0924. All %R and RPD values were within the laboratory control limits.

5.7 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD, namely blank spike sample and blank spike sample duplicate, analyses were performed as required by the method. All %R and RPD values were within the laboratory control limits.

5.8 Field Duplicates

Samples PLF-MW58S-0924 and PLF-DUP1-0924 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

5.9 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

5.10 Overall Assessment of Organophosphorous Pesticides Data Usability

Organophosphorous pesticides data are acceptable for use as qualified, based on the information submitted by the laboratory.

6. Organochlorine Pesticides by GC/ECD (EPA Method SW8081B)

6.1 Holding Times

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. Samples were extracted and analyzed within the holding times.

6.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed for each target analyte and surrogate compounds, (2) the %RSD of calibration factors (CFs) must be $\leq 20\%$ for target analytes and surrogate compounds, and (3) if dual column analysis is chosen, both columns should meet the requirements.

A second source standard (ICV) should be analyzed immediately after the last initial calibration standard; the %D values for target and surrogate compounds should meet the method requirements. The initial calibration met the criteria.

6.3 Continuing Calibration Verification (CCV)

CCV analyses should be performed for each 12-hour analysis sequence prior to sample analyses and at the end of the sequence. The %D values should be within $\pm 20\%$. Calibration verifications were performed at the required frequency. All %D values met the control criteria.

6.4 DDT and Endrin Breakdown

DDT and endrin degradation check was analyzed at the required frequency to measure percent breakdown of 4,4'-DDT and endrin. The percent breakdown values met the method control limit (*i.e.*, $\leq 15\%$) for all degradation check analyses.

6.5 Method Blank

Method blanks were prepared and analyzed as required. No target compounds were detected at or above the RLs in the method blank.

6.6 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

6.7 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0924 as requested. All %R and RPD values either met the criteria or the outliers had no effects on associated data (*e.g.*, bias-high %R or RPD value for a compound that was not detected in associated samples).

6.8 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The %R and RPD values met the laboratory control criteria for all target analytes.

6.9 Method Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

6.10 Field Duplicates

Samples PLF-MW58S-0924 and PLF-DUP1-0924 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

6.11 Overall Assessment of Organochlorine Pesticides Data Usability

Organochlorine pesticides data are of known quality and acceptable for use as qualified, based on the information submitted by the laboratory.

7. PCB Aroclors by GC/ECD (EPA Method SW8082A)

7.1 Holding Times

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. Samples were extracted and analyzed within the holding times.

7.2 Initial Calibration

The method requires that (1) a minimum of 5-point calibration be performed using the mixture of Aroclor 1016 and 1260, (2) a single-point calibration be performed for the other five Aroclors to establish calibration factors (CFs) and for Aroclor pattern recognition, (3) at least 3 peaks (preferably 5 peaks) must be chosen for each Aroclor for characterization, (4) the %RSD values of Aroclor 1016 and 1260 CFs must be $\leq 20\%$, and (5) if dual column analysis is chosen, both columns should meet the requirements.

A second source standard (ICV) should be analyzed immediately after the last initial calibration standard; the %D values for target and surrogate compounds should meet the method requirements, except that the %D value for Aroclor 1232 was less than 20% (biased low) on the secondary column; the %D value was within the criteria. The initial calibrations met the requirements. No data qualifying action was taken.

7.3 Calibration Verification

CCV analyses should be performed for each 12-hour analysis sequence prior to sample analyses, and the %D be within $\pm 20\%$. Calibration verifications were performed at the required frequency. All %D values met the control criteria. No data qualifying action was taken.

7.4 Method Blanks

Method blanks were prepared and analyzed as required. PCB Aroclors were not detected at or above one-half the RLs in the method blanks.

7.5 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate spike %R values were within the project control limits.

7.6 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW58S-0924 as required. All %R and RPD values were either within the laboratory control limits or the %R outliers had no adverse effects on data usability (*e.g.*, biased-high %R values for a non-detected compound).

7.7 Laboratory Control Sample (LCS)

LCS analyses were performed as required by the method. The LCS %R values were within the project control limits.

7.8 Method Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

7.9 Field Duplicates

Samples PLF-MW58S-0924 and PLF-DUP1-0924 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

7.10 Overall Assessment of PCB Aroclors Data Usability

PCB Aroclor data are of known quality and acceptable for use based on the information submitted by the laboratory.

8. Total Metals by ICP/MS and CVAAS (EPA Methods 200.8 and 245.1)

8.1 Holding Times

Water samples should be analyzed within 180 days for ICP/MS metals and 28 days for mercury. Samples were analyzed within the required holding times.

8.2 ICP/MS Tuning

Instrument tuning was performed at the required frequency. The stability check (%RSD <5%), mass calibration (mass difference <0.1 AMU), and resolution check (peak width <0.9 AMU at 10% peak height) met the method criteria.

8.3 Initial Calibration (ICAL)

The ICP/MS method requires that (1) a blank and at least four calibration standards be used in establishing the analytical curve, (2) the average of replicate exposures be reported for all standards, QC, and sample analyses, and (3) the linearity of the calibration curve should meet the criteria of correlation coefficient ≥ 0.995 . The laboratory chose to use one-point calibration (a blank and a linear range standard) to establish the ICAL. The correlation coefficient criteria was not applicable.

For mercury, the methods require that (1) a blank and five calibration standards be employed to establish the analytical curve, and (2) the linearity of the calibration curve should meet the criteria of correlation coefficient ≥ 0.995 . The associated initial calibrations met the method requirements.

A check standard containing target analytes at the reporting limit levels (low-level CCV) was analyzed at the beginning of each analytical run. The results were within the method criteria of 70-130% or the associated results were greater than the 2x MRLs.

8.4 Initial and Continuing Calibration Verification (ICV and CCV)

Initial calibration verifications (ICVs) and continuing calibration verifications (CCVs) were analyzed at the required frequency. The %R values met the control criteria (90 – 110% for metals, 80 – 120% for mercury).

8.5 Blanks

Calibration Blanks: Initial calibration blanks (ICBs) and continuing calibration blanks (CCBs) were analyzed at required frequency. Target analytes were either not detected in ICBs/CCBs at or above the MDLs, or at levels <MRLs and had no significant effects (sample results were > 10x the calibration blank detection) on associated sample results.

Negative detections found in ICB and selected CCBs at levels where their absolute values were between those of MDLs and RLs were evaluated and determined to have no significant effects on sample results.

Method Blanks: Method blanks were prepared and analyzed as required. Target analytes were not detected in the method blanks at or above the RLs.

8.6 Laboratory Control Sample (LCS)

LCS analyses were performed as required by the method. LCS %R values were within the project control limits.

8.7 Matrix Spike (MS)

MS analyses were performed on sample PLF-MW58S-0924 as requested. The %R values were within the laboratory control limits.

8.8 Laboratory Duplicate Analysis

Laboratory duplicate analyses were performed on sample PFL-MW58S-0924 as requested. The RPD values were within the laboratory control limits for sample results greater than 5x the MRLs, except for the following:

Sample ID	Analyte	RPD	Control Limit	Affected Sample	Data Qualifier
PLF-MW58S-0924	Chromium	31%	≤20%	PLF-MW58S-0924 PLF-DUP1-0924	J

8.9 Internal Standards

At least three internal standards were added to all field and QC samples for ICP/MS analyses. All percent relative intensity values were within the method criteria (70-130% of those for the associated calibration blank).

8.10 Method Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

8.11 Field Duplicates

Samples PLF-MW58S-0924 and PLF-DUP1-0924 were field duplicates submitted for metals analyses. The RPD (or concentration difference values) and data qualification for detected target analytes are presented in **Section III**.

8.12 Overall Assessment of Metals Data Usability

Metals data are of known quality and acceptable for use, based on the information submitted by the laboratory.

III. FIELD DUPLICATE SUMMARY

The Functional Guidelines or GMP do not specify criteria for field duplicate evaluation. An advisory criterion of 35 percent was applied to evaluating the RPD values of field duplicate results $\geq 5xRL$. For results $< 5xRL$, an advisory criterion of $2xRL$ was applied to evaluating the concentration differences. Field duplicate results and data qualification are presented as follows:

Detected Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualification
			MW58S	DUP1			
Aluminum	µg/L	4	5.4	5.7		0.3	
Antimony	µg/L	0.05	0.093	0.11		0.017	
Arsenic	µg/L	0.5	4.1	4	0%		
Barium	µg/L	0.05	79	80	1%		
Beryllium	µg/L	0.02	ND	ND		0	
Cadmium	µg/L	0.02	ND	ND		0	
Calcium	µg/L	50	69000	69000	0%		
Chromium	µg/L	0.2	1	1	0%		
Cobalt	µg/L	0.04	0.13	0.2		0.07	
Copper	µg/L	0.1	0.46	0.46		0	
Iron	µg/L	2	6.3	6.9		0.6	
Lead	µg/L	0.02	ND	ND		0	
Magnesium	µg/L	20	24000	24000	0%		
Manganese	µg/L	0.2	ND	0.31		0.31	
Nickel	µg/L	0.2	0.69	0.65		0.04	
Potassium	µg/L	200	7700	7800	1%		
Selenium	µg/L	1	ND	ND		0	
Silver	µg/L	0.02	ND	ND		0	
Sodium	µg/L	200	32000	32000	0%		
Thallium	µg/L	0.02	ND	ND		0	
Vanadium	µg/L	0.2	14	15	7%		
Zinc	µg/L	2	ND	ND		0	
Mercury	µg/L	0.2	ND	ND		0	
Trichloroethene	µg/L	0.053	0.067	0.059		0.008	
4-Chloroaniline	µg/L	2	19	ND		19	J/UJ
4-Nitroaniline	µg/L	2.2	3.7	ND		3.7	
Aniline	µg/L	5	12	ND		12	J/UJ
Benzyl Alcohol	µg/L	2	8.1	ND		8.1	J/UJ
N-Nitrosodimethylamine	µg/L	2	6.1	ND		6.1	J/UJ
Pyridine	µg/L	2	15	ND		15	J/UJ
Phosphorous Pesticides	µg/L	-	ND	ND		0	
Herbicides	µg/L	-	ND	ND		0	

Detected Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualification
Organochlorine Pesticides	µg/L	-	ND	ND		0	
PCB Aroclors	µg/L	-	ND	ND		0	

Notes:

ND – Not detected at or above the reporting limit

RL – Reporting limit

RPD – Relative percent difference

µg/L – microgram per liter

IV. DATA VALIDATION SUMMARY

1. Data Qualification

Sample ID	Analyte	Data Qualifier	Reason	Report Section
PLF-MW13S-0924 PLF-MW47I-0924 PLF-MW47S-0924 PLF-MW56S-0924 PLF-MW57S-0924 PLF-MW58S-0924 PLF-NVM01-0924 PLF-MW17SR-0924 PLF-TripBlank-0924	Acetone	UJ	CCV %D value biased low.	Section II, 2.4
PLF-MW50S-0924 PLF-4R-0924 PLF-MW16S-0924 PLF-MW23S-0924 PLF-MW61S-0924 PLF-MW62S-0924 PLF-MW63S-0924 PLF-DUP1-0924	Acetone 2-Butanone Chloroform	UJ	CCV %D value biased low.	Section II, 2.4
PLF-MW58S-0924 PLF-DUP1-0924	4-Chloroaniline N-Nitrosodimethylamine Pyridine (Reported from SW8270E)	J-/UJ	MS and/or MSD %R value was less than the lower control limit.	Section II, 3.8
PLF-MW47S-0924 PLF-MW50S-0924 PLF-MW56S-0924 PLF-MW57S-0924 PLF-MW58S-0924 PLF-NVM01-0924 PLF-DUP1-0924	1,2-Dichlorobenzene 1,4-Dichlorobenzene 1,2,4-Trichlorobenzene Naphthalene (Reported from SW8270E)	DNR	Report from SW8260D analysis in favor of the lower detection limit.	Section II, 3.12
PLF-MW47S-0924 PLF-DUP1-0924	Pentachlorophenol (Reported from SW8270E-SIM)	DNR	Report from SW8151A analysis in favor of the lower detection limit.	Section II, 3.12
PLF-MW47S-0924 PLF-MW50S-0924 PLF-MW56S-0924 PLF-MW57S-0924 PLF-MW58S-0924 PLF-NVM01-0924 PLF-DUP1-0924	Dinoseb (Reported from SW8151A)	UJ	CCV %D value biased low.	Section II, 4.4
PLF-MW58S-0924 PLF-DUP1-0924	Dicamba (Reported from SW8151A)	UJ	MSD %R value was less than the lower control limit.	Section II, 4.8

Sample ID	Analyte	Data Qualifier	Reason	Report Section
PLF-MW58S-0924 PLF-DUP1-0924	Chromium (Reported from EPA 200.8)	UJ	Laboratory duplicate analysis RDP value was outside the criteria.	Section II, 8.8
PLF-MW58S-0924 PLF-DUP1-0924	4-Chloroaniline Aniline Benzyl Alcohol N-Nitrosodimethylamine Pyridine (Reported from SW8270E)	J/UJ	Field duplicate result did not meet the advisory criteria.	Section III

Notes:

%D – Percent difference
 %R – Percent recovery
 CCV – Continuing calibration verification
 MS – Matrix spike
 MSD – MS duplicate
 RPD – Relative percent difference

2. Data Qualifier Definition

Data Qualifier	Definition
DNR	The result for this analyte should be reported from an alternative analysis for optimal result.
J	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.
J-	The analyte was detected above the reported quantitation limit, and the reported concentration was biased low.
UJ	The analyte was detected above the reported quantitation limit, and the reported quantitation limit was an estimated value.

V. DATA QUALITY OBJECTIVE ASSESSMENT

The quality of the data collected in this sampling event is assessed against the data quality objectives (DQOs) defined in the GMP. The assessment evaluates whether the DQOs were achieved in various QC elements - precision, accuracy, representativeness, comparability, and completeness, as presented below.

1. Precision

Precision is defined as the degree of mutual agreement among independent measurements as the result of repeated application of the same process under similar conditions. Analytical precision is evaluated via the relative percent difference (RPD) values of LCS/LCSD, MS/MSD, and duplicate sample (inorganic only) analyses. The RPD values of field duplicate analyses are used to evaluate the analytical and field precision in conjunction with sample homogeneity.

The precision of VOCs, SVOCs, chlorophenoxy herbicides, organophosphorous pesticides, organochlorine pesticides, PCB Aroclors, and metals analyses met the project DQOs, except for the following:

1.1 Chromium – Laboratory Duplicate Analysis

The chromium RPD value for the duplicate analyses performed on sample PLF-MW58S-0924 was outside the laboratory control criteria. The chromium results for sample PLF-MW58S-0924 and its field duplicate, PLF-DUP1-0924, were qualified (J) as estimated.

1.2 Field Duplicates

The field duplicate pair, samples PLF-MW58S-0924 and PLF-DUP1-0924, concentration difference values were outside the advisory criteria for 4-Chloroaniline, Aniline, Benzyl Alcohol, N-Nitrosodimethylamine, and Pyridine. Results were qualified (J) for detections and (UJ) for non-detects as estimated.

2. Accuracy

Accuracy is a statistical measurement of correctness and includes components of random and system errors. Accuracy is defined as the degree of agreement between a measurement and the known reference. Analytical accuracy is evaluated via the percent recovery (%R) for inorganic analyses or percent difference (%D) and percent drift (%D_f) for organic analyses values of initial and continuing calibration (ICV and CCV), surrogate spikes (organic analyses only), MS, MSD, LCS, LCSD, and internal standards (as applicable for the analytical methods) in conjunction with method blank and field blank results. Method and field blanks identify the type and magnitude of effects contributed to the system error through field and/or laboratory procedures. Sample conditions and sample preparation/analysis

timing can affect accuracy of sample results as well. Potential analyte loss can occur if samples were not well preserved or prepared/analyzed significantly past the required holding time and affect the accuracy of sample results.

The accuracy of VOCs, SVOCs, chlorophenoxy herbicides, organophosphorous pesticides, organochlorine pesticides, PCB Aroclors, and metals analyses met the project DQOs, except for the following:

2.1 VOCs - CCV

The %D value for acetone in one of the CCVs was biased low and this compound was not detected in the nine samples associated with this CCV. Acetone results for these samples were qualified (UJ) as estimated.

The %D values for acetone, 2-butanone, and chloroform in one of the CCVs were biased low and these compounds were not detected in the eight samples associated with this CCV. Acetone, 2-butanone, and chloroform results for these samples were qualified (UJ) as estimated.

2.2 SVOCs – MS and MSD

The %R values for 4-Chloroaniline, N-Nitrosodimethylamine, and Pyridine in the MS and MSD analyses performed on sample PLF-MW58S-0924 were less than the lower control limits. The results for these compounds in sample PLF-MW58S-0924 and its field duplicate, PLF-DUP1-0924, were qualified (J-) for detects and (UJ) for non-detects as estimated.

2.3 Chlorophenoxy Herbicides – CCV

The %D value for Dinoseb in one of the CCVs was biased low and this compound was not detected in the seven samples associated with this CCV. Dinoseb results for these samples were qualified (UJ) as estimated.

2.4 Chlorophenoxy Herbicides – MSD

The %R value for Dicamba in the MSD analysis performed on sample PLF-MW58S-0924 was less than the lower control limits, and this compound was not detected in the un-spiked sample. Dicamba results for sample PLF-MW58S-0924 and its field duplicate, PLF-DUP1-0924, were qualified (UJ) as estimated.

3. Representativeness

Representativeness is the level of confidence that the analytical data reflects the actual field condition. Representativeness is evaluated via the integrity of the samples during the course from

collection through preparation/analysis at the laboratory. The evaluation of associated method and field blanks also assists in identifying artifacts that may skew the representativeness of the samples.

No anomalies were identified in the procedures of sample preservation, handling, preparation, and analyses. Sample preparation and analyses were all performed within the required holding times. The laboratory and field blanks were either free of contaminants or at levels that had no significant effects on sample results. VOCs, SVOCs, chlorophenoxy herbicides, organophosphorous pesticides, organochlorine pesticides, PCB Aroclors, and metals data are assumed representative.

4. Comparability

Comparability is the confidence with which one data set can be compared to another data set. Using standard methods throughout the data generation processes ensures the comparability of data generated in separated sampling events.

Data collected in this sampling event are assumed comparable because standard methods were used for sample preparation and analyses, and the methods were consistent with those specified in the GMP.

4.1 VOCs

Selective ion monitoring (SIM) technique was applied to the analyses of full list VOCs, as opposed to only compounds requiring lower detection limits in all previous sampling events. The reporting limits remained the same as those specified in the GMP. No significant deviations of results from the previous sampling events were observed.

5. Completeness

Completeness is a ratio of the number of valid data to the expected number of data that can be obtained under normal conditions for a given sampling event. Valid data are sample results determined acceptable for use. Rejected results are considered un-useable and thus invalid. In cases where data were rejected in favor of those obtained from a separate valid analysis, the rejection does not affect the completeness.

The overall completeness of this sampling event is 100 percent. The overall completeness for this sampling event met the 95 percent completeness goal of the GMP.

6. Sensitivity

Sensitivity depicts the level of ability an analytical system (i.e., sample preparation and instrumental analysis) of detecting a target component in a given sample matrix with a defined level of confidence. Factors affecting the sensitivity of an analytical system include analytical system background (e.g.,

laboratory artifact or method blank contamination), sample matrix (e.g., mass spectrometry ion ratio change, co-elution of peaks, or baseline elevation) and instrument instability.

To evaluate if the analytical sensitivity achieved the project expectation, sample specific RLs were compared against the RL goals set forth in the QAPP (Zone A wells), GMP and the revisions. In addition, sample results were compared to detections of target analytes in method blanks, trip blanks, and calibration blanks to identify potential effects of laboratory and field background on sensitivity.

The sensitivity associated with the analyses of all samples was attained to the project goals in this sampling event.

VI. REFERENCES

- United States Environmental Protection Agency (USEPA). 2020a. *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-66. EPA-540-R-20-006.
- USEPA. 2020b. *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005.
- USEPA. 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, January 13, 2009, EPA 540-R-08-005.
- USEPA. 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition, December 1996.
- USEPA. 1983. *Methods for Chemical Analysis of Water and Wastes*, EPA-600/4-79-020, March 1983 and updates.
- American Public Health Association APHA). 1995. *Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, 20th Edition, 1995.
- PBS Engineering and Environmental, Inc. 2020. *Site-Wide Compliance Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. December 15, 2020.
- PBS Engineering and Environmental, Inc. & Floyd | Snyder. 2020. *Zone A Removal Action Supplemental Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. & Floyd | Snyder. February 28, 2020.

Data Validation Report

Pasco Sanitary Landfill Site-Wide Quarterly and Zone A Groundwater Monitoring October 2024 Sampling

Laboratory SDG Number: EV24100193

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Acronyms

%D	percent difference
%D_f	percent drift
%R	percent recovery
%RSD	percent relative standard deviation
ALS-Everett	ALS Laboratory Group, Everett, Washington
ALS-Kelso	ALS Laboratory Group, Kelso, Washington
BFB	bromofluorobenzene
CCB	continuing calibration blank
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
CMP	Site-Wide Compliance Groundwater Monitoring Plan (PBS, 2020)
COC	chain-of-custody
Cr	chromium
CVAA	cold vapor atomic absorption
DQO	data quality objective
DFTPP	decafluorotriphenylphosphine
EDD	electronic data deliverable
EPA	U.S. Environmental Protection Agency
GC/FID	gas chromatography/flame ionization detector
GC/MS	gas chromatography/mass spectrometer
GMP	Zone A Removal Action Supplemental Groundwater Monitoring Plan (PBS, 2020)
ICAL	initial calibration
ICB	initial calibration blank
ICP/AEOS	inductively coupled plasma/atomic emission optical spectrometry
ICP/MS	Inductively coupled plasma/mass spectrometer
ICS	interference check sample
ICV	initial calibration verification
IDL	instrument detection limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LLCV	low level continuing calibration verification

µg/L	micrograms per liter
mg/L	milligrams per liter
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
ND	not detected
PAHs	polycyclic aromatic hydrocarbons
PAL	Pacific Agricultural Laboratory/Matrix Sciences, Sherwood, Oregon
QA/QC	quality assurance/quality control
RF	response factor
RL	reporting limit
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
SOP	standard operating procedures
SRM	standard reference material
SVOCs	semi-volatile organic compounds
TDS	total dissolved solids
TOC	total organic carbon
VOCs	volatile organic compounds

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data associated with the 49 water samples collected in October 2024 for the referenced project. The validation procedures followed the requirements specified in the following documents, as applicable:

- United States Environmental Protection Agency (USEPA) *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-66. EPA-540-R-20-006
- *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005

A Stage 2B (as defined in EPA 2009) validation was performed based on the summaries of sample and quality control (QC) analytical results submitted by the laboratories. The numerical quality assurance and quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the analytical methods, the *Site-Wide Groundwater Compliance Monitoring Plan* ([CMP], PBS 2020), and the performance-based control limits established by the laboratories (laboratory control limits). In addition, data were validated against the requirements specified in the *Zone A Removal Action Supplemental Groundwater Monitoring Plan* ([GMP], PBS 2020). The frequency of QC analyses was evaluated according to the CMP and the analytical methods. Sample specific method detection limits and reporting limits were evaluated against the reporting limits listed on Table 2 of the GMP. Raw data were not reviewed herein unless necessary for clarification purposes.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Field duplicate results were compared to those of the parent sample and data qualified based on the advisory criteria and presented in **Section III**. Qualified data along with proper data qualifiers, qualification reasons, and qualifier definitions are presented in **Section IV - Data Validation Summary**.

A data quality objective assessment summarizing the overall precision, accuracy, representativeness, comparability, completeness, and sensitivity of data collected in this sampling event was prepared and included in **Section V – Data Quality Objective Assessment**. Any additional laboratory submittals requested during the validation are transferred to PBS Engineering and Environmental, Inc. in Richland, Washington along with this report.

As part of the validation, the electronic data deliverables (EDDs) were verified against the hardcopy report. Data qualifiers, qualification reasons, and any required corrections identified *via* this validation have been added to the EDDs and submitted along with this report. Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	ALS Laboratory Sample ID	Sampling Date	Matrix	Analysis				
				VOCs	SVOCs	Herb	Total Chromium	Metals Inorganic
PLF-MW63S-1024	EV24100193-01	10/23/24	Water	X			X	X
PLF-MW16S-1024	EV24100193-02	10/23/24	Water	X			X	X
PLF-4R-1024	EV24100193-03	10/23/24	Water	X			X	X
PLF-MW17SR-1024	EV24100193-04	10/23/24	Water	X				X
PLF-MW23S-1024	EV24100193-05	10/23/24	Water	X				X
PLF-MW61S-1024	EV24100193-06	10/23/24	Water	X			X	X
PLF-MW62S-1024	EV24100193-07	10/23/24	Water	X			X	X
PLF-DUP1-1024	EV24100193-08	10/23/24	Water	X			X	X
PLF-MW12S-1024	EV24100193-09	10/22/24	Water	X				
PLF-MW13S-1024	EV24100193-10	10/22/24	Water	X				
PLF-MW47S-1024	EV24100193-11	10/23/24	Water	X	X		X	
PLF-MW47I-1024	EV24100193-12	10/23/24	Water	X				
PLF-MW48S-1024	EV24100193-13	10/22/24	Water	X	X		X	
PLF-MW49S-1024	EV24100193-14	10/22/24	Water	X				
PLF-MW50S-1024	EV24100193-15	10/23/24	Water	X	X		X	
PLF-MW57S-1024	EV24100193-16	10/22/24	Water	X	X	X		
PLF-NVM01-1024	EV24100193-17	10/23/24	Water	X				
PLF-MW58S-1024	EV24100193-18	10/22/24	Water	X	X	X		
PLF-MW15S-1024	EV24100193-19	10/23/24	Water	X				
PLF-MW18S-1024	EV24100193-20	10/23/24	Water	X				
PLF-MW19S-1024	EV24100193-21	10/23/24	Water	X	X		X	X
PLF-MW56S-1024	EV24100193-22	10/23/24	Water	X	X	X	X	
PLF-MW22S-1024	EV24100193-23	10/22/24	Water	X			X	
PLF-MW24S-1024	EV24100193-24	10/22/24	Water	X				
PLF-MW51S-1024	EV24100193-25	10/22/24	Water	X				
PLF-MW11S-1024	EV24100193-26	10/22/24	Water	X				
PLF-MW10S-1024	EV24100193-27	10/22/24	Water	X				
PLF-DUP3-1024	EV24100193-28	10/22/24	Water	X				
PLF-MW20S-1024	EV24100193-29	10/23/24	Water	X			X	
PLF-DUP2-1024	EV24100193-30	10/22/24	Water	X	X	X		
PLF-TripBlank1-1024	EV24100193-31	10/23/24	Water	X				
PLF-MW60S-1024	EV24100193-32	10/24/24	Water	X			X	Hg
PLF-MW27SR-1024	EV24100193-33	10/24/24	Water	X				Hg

Field Sample ID	ALS Laboratory Sample ID	Sampling Date	Matrix	Analysis				
				VOCs	SVOCs	Herb	Total Chromium	Metals Inorganic
PLF-MW59S-1024	EV24100193-34	10/24/24	Water	X				
PLF-MW37S-1024	EV24100193-35	10/24/24	Water	X				
PLF-MW55S-1024	EV24100193-36	10/24/24	Water	X			X	
PLF-MW42S-1024	EV24100193-37	10/24/24	Water	X				
PLF-MW54I-1024	EV24100193-38	10/24/24	Water	X				
PLF-MW45S-1024	EV24100193-39	10/24/24	Water	X				
PLF-MW43S-1024	EV24100193-40	10/24/24	Water	X				
PLF-MW38S-1024	EV24100193-41	10/24/24	Water	X				
PLF-MW46S-1024	EV24100193-42	10/24/24	Water	X				
PLF-MW31S-1024	EV24100193-43	10/24/24	Water	X				
PLF-MW29S-1024	EV24100193-44	10/24/24	Water	X				
PLF-TripBlank2-1024	EV24100193-45	10/24/24	Water	X				
PLF-TripBlank3-1024	EV24100193-46	10/25/24	Water	X				
PLF-West-1024	EV24100193-47	10/25/24	Water	X				
PLF-Bradley-1024	EV24100193-48	10/25/24	Water	X				
PLF-Hand-1024	EV24100193-49	10/25/24	Water	X				

Notes:

X – The analysis was requested and performed on the sample.

VOCs – Volatile organic compounds

SVOCs – Semi-volatile organic compounds

Metals – Calcium, Iron, magnesium, manganese, potassium, and sodium analyzed with EPA Method 200.7.

Herb – Chlorophenoxy herbicides and pentachlorophenol (PCP)

Hg – Mercury

Inorganic – Alkalinity (total, carbonate, bicarbonate, & hydroxide), chloride, nitrate, sulfate, total organic carbon (TOC), total dissolved solids (TDS), and ammonia.

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Laboratory
Volatile organic compounds (VOCs)	SW846 Method 8260S - SIM ^(A)	ALS Laboratory Group (ALS) Everett, Washington
Semi-volatile organic compounds (SVOCs)	SW846 Methods 3510C/8270E full scan and SIM ^(B)	
Chromium	EPA Method 200.8	
Mercury	EPA Method 245.1	
Anions (chloride, nitrate, & sulfate)	EPA Method 300.0	
Total dissolved solids (TDS)	SM Method 2540C	
Calcium, iron, magnesium, manganese, potassium, sodium	EPA Method 200.7	ALS Kelso, Washington
Alkalinity (total, carbonate, bicarbonate, & hydroxide)	SM Method 2320B	
Total organic carbon (TOC)	SM Method 5310C	
Ammonia	SM Method 4500-NH3 G	
Chlorophenoxy herbicides & pentachlorophenol	SW846 Method 3535A/8151A	Matrix Sciences/Pacific Agricultural Laboratory (PAL) Sherwood, Oregon

Notes:

SW846 - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition, December 1996.

EPA Methods - *USEPA Methods for Chemical Analysis of Water and Wastes*, EPA-600/4-79-020, March 1983 Revision.

SM – *Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, 20th Edition, 1995.

^(A) – Selective ion monitoring (SIM) technique was performed for target compounds to achieve lower detection limits.

^(B) – SIM technique was performed for selected SVOCs to achieve lower detection limits.

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. The samples were received properly preserved and consistent with the accompanying chain-of-custody (COC) documentation.

2. Volatile Organic Compounds ([VOCs]; SW846 Method 8260D–SIM)

2.1 Holding Time

Water samples should be analyzed within 14 days of collection. All samples were analyzed within the required holding time.

2.2 GC/MS Instrument Performance Check

Bromofluorobenzene (BFB) tuning analyses were performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit, coefficient of determination (r^2) ≥ 0.99 for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the percent difference (%D) or percent drift ($\%D_f$) values for all target and surrogate compounds should be within $\pm 30\%$. The %D values for selected low-response compounds were outside the criteria; the analytical accuracy was evaluated against the calibration verification analysis immediately associated with samples. The initial calibration was considered acceptable.

2.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D or $\%D_f$ values be within $\pm 20\%$, and (3) the internal standards in the calibration verification standard changes by a factor of two (-50% to $+ 100\%$) from that in the mid-point standard level of the most recent initial calibration sequence. Calibration verification analyses met the frequency criteria. The %D and $\%D_f$ values either met the criteria or the outliers had no effects on associated data (*e.g.*, bias-high %D value for a compound that was not detected in associated samples), except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
J3103.D 10/31/24, 11:00	Tetrachloroethene	-21.4%	±20%	High	PLF-MW29S-1024	J+

The laboratory did not perform a lower limit of quantitation (LLOQ) as stated in Section 9.9 of the Method. The ICAL standards nearest to the reporting limits (RLs) were evaluated in lieu of the LLOQs. The recovery of lowest ICAL standard was within ±20% of the LCS control criteria.

2.5 Blanks

Method Blanks: Method blanks were analyzed at the required frequency. Target compounds were not detected at or above one-half the reporting limits (RLs) in the method blanks, except that methylene chloride was detected in method blank MB-103124W2 (Batch 220059) at 5 µg/L. Methylene chloride was not detected in field samples at or above the RLs; no data qualifying action was required.

Trip Blank: One trip blank was submitted with the sample shipment for VOCs analyses. Target compounds were not detected at or above the RLs in the trip blanks, except for the following:

Blank ID	Analyte	Detection in Blank (µg/L)	Affected Sample	Original Result (µg/L)	Qualified Result (µg/L)
PLF-TripBlank1-1024	Chloroform	1.6	PLF-NVM01-1024	3.4	J+
			PLF-MW19S-1024	2.0	J+
PLF-TripBlank3-1024	Chloroform	2.1	None	-	No action

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses, named as blank spike and blank spike duplicate by the laboratory, were performed as required. The %R and relative percent difference (RPD) values were either within the laboratory control limits or the %R outliers had no adverse effects on data usability (e.g., biased-high %R or RPD values for a non-detected compound).

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on the three project samples as requested. All %R and RPD values were either within the laboratory control limits or the %R or RPD outliers had no adverse effects on data usability (*e.g.*, biased-high %R values for a non-detected compound).

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 -minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

2.10 Field Duplicates

Three field duplicate pairs were collected and submitted for VOCs analyses. The RPD (or concentration difference values) and data qualification for detected target analytes are presented in **Section III**.

2.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP and CMP were achieved.

2.12 Overall Assessment of VOCs Data Usability

VOCs data are acceptable for use as qualified, based on the information submitted by the laboratory.

3. Semi-volatile Organic Compounds ([SVOCs]; SW846 Method 8270E – Full Scan and SIM)

3.1 Holding Time

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

3.2 GC/MS Instrument Performance Check

Decafluorotriphenylphosphine (DFTPP) tuning analyses were performed at the required frequency. Relative abundance for all required ions met the method requirements.

3.3 Initial Calibration

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit, coefficient of determination (r^2) ≥ 0.99 for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the percent difference (%D) or percent drift (%D_f) values for all target and surrogate compounds should be within $\pm 30\%$. In some cases where the second source %D or %D_f values did not meet the criteria, those of the associated calibration verification were within the criteria. The initial calibration was acceptable for use.

3.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D of %D_f values be within $\pm 20\%$, and (3) the internal standards in the calibration verification standard changes by a factor of two (-50% to $+ 100\%$) from that in the mid-point standard level of the most recent initial calibration sequence. Calibration verification analyses met the frequency criteria. The %D and %D_f values either met the criteria or the outliers had no effects on associated data (*e.g.*, bias-high %D value for a compound that was not detected in associated samples).

The laboratory did not perform an LLOQ as stated in Section 9.9 of the Method. The ICAL standards nearest to the RLs were evaluated in lieu of the LLOQs. The recovery of the lowest ICAL standards was acceptable, except that recovery for selected SVOCs analyzed with SW8270E-SIM biased high. These compounds were not detected in any of the filed samples; the high-bias recovery had no effects on data quality. No data qualifying action was required.

3.5 Method Blank

A method blank was analyzed at the required frequency. No target compounds were detected at or above the RLs in the method blank.

3.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The %R and RPD values met the laboratory control criteria.

3.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. For SW8270E full scan analyses, all surrogate spike %R values were within the control limits. For SW8270E-SIM analyses,

the %R values for surrogate spike, *p*-Terphenyl-d14, were biased low in most samples as noted by the laboratory. Data are qualified and summarized as follows:

Sample ID	Surrogate Spike	%R	Control Limit	Affected Compound	Data Qualifier
PLF-MW47S-1024	<i>p</i> -Terphenyl-d14	46.6%	58-132% ^(A)	All SVOCs reported from SW8270E-SIM	UJ
PLF-MW48S-1024		46.7%			
PLF-MW50S-1024		46.6%			
PLF-MW58S-1024		49.8%			
PLF-MW19S-1024		38.6%			
PLF-MW56S-1024		49.1%			
PLF-DUP2-1024		43.8%			

Note:

^(A) – This control criteria were based on that for SW8270E full scan provided by the laboratory; associated data were qualified as noted by the laboratory as low bias.

3.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW57S-1024 as requested. All %R and RPD values were within the laboratory control limits.

3.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ±0.5-minute window of the associated standard in all samples. All internal standard intensity met the method requirement of –50% to +100% of the associated standard.

3.10 Field Duplicates

Samples PLF-MW57S-1024 and PLF-DUP2-1024 were field duplicates submitted for SVOCs analyses. The RPD (or concentration difference values) and data qualification for detected target compounds are presented in **Section III**.

3.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP and CMP were achieved.

3.12 Overall Assessment of SVOCs Data Usability

Naphthalene, 1,2-dichlorobenzene, 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene results for samples analyzed with both methods SW8260D and SW8270E should be reported from the SW8260D analyses, in favor of the lower detection limits and/or higher concentrations (for naphthalene only). Results from the SW8270E analyses were qualified (DNR) and rejected.

Pentachlorophenol was to be reported from the SW8151A analyses for samples that were analyzed with this method in favor of the lower detection limits. Results for this compound reported from SW8270E-SIM were to be qualified (DNR) and rejected.

Data qualified in these respects are summarized in **Section IV -1**. SVOCs data are acceptable for use as qualified, based on the information submitted by the laboratory.

4. Chlorophenoxy Herbicides and PCP (SW846 Method 8151A)

4.1 Holding Times

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

4.2 GC/MS-MS Instrument Performance Check

According to the laboratory standard operation procedure, tuning analyses were not necessary since the method was modified using the GC/MS-MS techniques (rather than the method stated GC/MS technique). Data were not qualified on this basis.

4.3 Initial Calibration

The method and laboratory criteria require that (1) if linear average RFs is chosen as the quantitation option, the %RSD of RFs be $\leq 20\%$ for the compound, (2) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) be ≥ 0.99 , (3) if six-point non-linear (quadratic) curve is chosen for quantitation, the RSE be $\leq 20\%$, and (4) a second source standard be analyzed immediately after the analysis of last calibration standard and the %D values be within $\pm 30\%$. The initial calibration met the criteria.

4.4 Calibration Verification

The method criteria require that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, and (2) the %D value be within $\pm 20\%$. Calibration verification analysis was performed as required. The %D values either met the criteria or the outliers had no adverse effects on data quality and usability (*e.g.*, biased-high recovery for a compound that was not detected in associated samples).

4.5 Method Blank

A method blank was prepared and analyzed with samples as required by the method. Target compounds were not detected at or above the RLs in the method blank.

4.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The %R and RPD values met the laboratory control criteria.

4.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

4.8 Matrix Spike (MS) and MS Duplicate (MSD)

MS/MSD analyses were performed on samples PLF-MW57S-1024 as requested. The %R and RPD values met the laboratory control criteria.

4.9 Field Duplicates

Samples PLF-MW57S-1024 and PLF-DUP2-1024 were field duplicates submitted for organochlorine pesticides analyses. Target compounds were not detected at or above the reporting limits in both samples. The field precision met the project advisory criteria.

4.10 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

4.11 Overall Assessment of Chlorophenoxy Herbicides and PCP Data Usability

Chlorophenoxy herbicides and PCP data are acceptable for use, based on the information submitted by the laboratory.

5. Total Metals by ICP, ICP/MS and CVAAS (EPA Methods 200.7, 200.8, and 245.1)

5.1 Holding Times

Water samples should be analyzed within 180 days for ICP/AE and ICP/MS metals and 28 days for mercury. Samples were analyzed within the required holding times.

5.2 ICP/MS Tuning

Instrument tuning was performed at the required frequency. The stability check (%RSD <5%), mass calibration (mass difference <0.1 AMU), and resolution check (peak width <0.8 AMU at 10% peak height) met the method criteria.

5.3 Initial Calibration

The ICP/MS method requires that (1) a blank and at least four calibration standards be used in establishing the analytical curve, (2) the average of replicate exposures be reported for all standards, QC, and sample analyses, and (3) the linearity of the calibration curve should meet the criteria of correlation coefficient ≥ 0.995 .

For mercury, the methods require that (1) a blank and five calibration standards be employed to establish the analytical curve, and (2) the linearity of the calibration curve should meet the criteria of correlation coefficient ≥ 0.995 . The associated initial calibrations met the method requirements.

A check standard containing target analytes at the reporting limit levels was analyzed at the beginning of each analytical run. The results were within the method criteria of 70-130% or the associated results were greater than the 2x RLs.

5.4 Initial and Continuing Calibration Verification (ICV and CCV)

Initial calibration verifications (ICVs) and continuing calibration verifications (CCVs) were analyzed at the required frequency. The %R values met the control criteria (90 – 110% for metals, 80 – 120% for mercury).

5.5 Blanks

Calibration Blanks: Initial calibration blanks (ICBs) and continuing calibration blanks (CCBs) were analyzed at required frequency. Chromium was either not detected at or above the method detection limits (MDLs) or the associated sample results were all >10x the levels found in the ICB/CCB.

Negative detections found in ICB and selected CCBs at levels where their absolute values were between those of MDLs and MRLs were evaluated and determined to have no significant effects on sample results.

Method Blank: A method blank was prepared and analyzed as required. Chromium was not detected in the method blank at or above the RLs.

5.6 ICP Interference Check Sample (ICS)

The method requires that (1) an interelement interference check sample be analyzed at the beginning of each analytical run, and (2) the results should be within $\pm 20\%$ of the true value. ICP interference check sample analyses met the requirements.

5.7 Laboratory Control Sample (LCS)

LCS analyses were performed as required by the method. All LCS %R values were within the project control limits.

5.8 Matrix Spike (MS) and MS Duplicate (MSD)

MS analyses for ICP metals and MS/MSD analyses for chromium were performed on sample PLF-MW16S-1024 as requested. The %R and RPD values were within the laboratory control limits.

MS/MSD analyses for mercury were not performed on project samples because only two samples were submitted for mercury analysis.

5.9 Laboratory Duplicate Analysis

Laboratory duplicate analyses were performed on samples PLF-MW16S-1024 for ICP metals as requested. All RPD values were within the laboratory control limits.

5.10 Internal Standards

At least three internal standards were added to all field and QC samples for ICP/MS analyses. All percent relative intensity values were within the method criteria (80-120% of those for the associated calibration blank).

5.11 Method Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the GMP were achieved.

5.12 Field Duplicates

Samples PLF-MW16S-1024 and PLF-DUP1-1024 were field duplicates submitted for metals analyses. The RPD (or concentration difference values) and data qualification for detected target analytes are presented in **Section III**.

5.13 Overall Assessment of Metals Data Usability

Metals data are of known quality and acceptable for use, based on the information submitted by the laboratory.

6. Alkalinity, TOC, TDS, Anions, and Ammonia

6.1 Holding Times

The samples were analyzed within the required holding times of 48 hours for nitrate, seven days for total dissolved solids (TDS), 14 days for alkalinity; and 28 days for ammonia, chloride, sulfate, and total organic carbon (TOC). All analyses were performed within the required holding times.

6.2 Initial Calibration

Initial calibration (ICAL) is required for anions (nitrate, chloride, and sulfate by EPA Method 300.0), ammonia, and TOC analyses. The initial calibration correlation coefficients were ≥ 0.995 and met the method requirements for these parameters.

6.3 Initial and Continuing Calibration Verification

Initial calibration verification (ICV) and continuing calibration verification (CCV) analyses were performed at the required frequency for all inorganic constituents. All %R values were within the control limits (80-120% for anions; 90 – 110% for TOC and ammonia).

6.4 Blanks

Calibration Blanks: ICBs and CCBs were analyzed at the required frequency. Target analytes were either not detected at or above the RLs in ICBs and CCBs or detected at levels that had no adverse effects on sample results (*e.g.*, sample result was $>10x$ the concentration in the blank).

Method Blanks: Method blanks were analyzed at the required frequency. Target analytes were either not detected at or above the RLs in method blanks or detected at levels that had no adverse effects on sample results (*e.g.*, sample result was $>10x$ the concentration in the blank).

6.5 Laboratory Duplicate Analysis

Duplicate analyses were performed for alkalinity and TDS on sample PLF-MW16S-1024. All RPD or concentration difference values met the laboratory control criteria.

6.6 Matrix Spike (MS) and MS Duplicate (MSD)

MS and/or MSD analyses were performed for anions, TOC, and ammonia on sample PLF-MW16S-1024. All %R and RPD values were either within the laboratory control limits or the %R outliers had no adverse effects on data usability (e.g., biased-high %R values for a non-detected compound, or the analyte concentration in the parent sample was >4x the spiking level).

6.7 Laboratory Control Sample (LCS)

LCS analyses were performed for TDS, alkalinity, anions, TOC, and ammonia at the required frequency. All %R values were within the laboratory control limits.

6.8 Field Duplicates

Samples PLF-MW16S-1024 and PLF-DUP1-1024 were field duplicates submitted for inorganic constituent analyses. The RPD (or concentration difference values) and data qualification are presented in **Section III**.

6.9 Laboratory Reporting Limits

The reporting limits were supported with adequate ICAL concentrations and met the GMP goals for inorganic constituents.

6.10 Overall Assessment of Inorganic Constituent Data

Inorganic constituent data are of known quality and acceptable for use as qualified, based on the information submitted by the laboratory.

III. FIELD DUPLICATE SUMMARY

Field duplicate RPD is indicative of field and laboratory precision and sample homogeneity in combination. The Functional Guidelines or OMM do not specify criteria for field duplicate evaluation. An advisory criterion of 35 percent was applied to evaluating the RPD values of field duplicate results $\geq 5 \times \text{RL}$. For results $< 5 \times \text{RL}$, an advisory criterion of $2 \times \text{RL}$ was applied to evaluating the concentration differences. The RPD (or concentration difference) values and data qualification for detected compounds in field duplicate pairs are presented as follows:

Detected Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualification
			MW16S	DUP1			
Chromium	µg/L	0.59	1.3	0.96		0.34	
Chloride	µg/L	920	23000	22000	4%		
Nitrate (as N)	µg/L	340	9200	8900	3%		
Sulfate	µg/L	2600	55000	52000	6%		
Ammonia	mg/L	0.05	ND	ND		0	
Alkalinity, Total as CaCO ₃	mg/L	9	250	240	4%		
Bicarbonate as CaCO ₃	mg/L	9	250	240	4%		
Carbonate as CaCO ₃	mg/L	9	ND	ND		0	
Hydroxide as CaCO ₃	mg/L	9	ND	ND		0	
Total Dissolved Solids	µg/L	5000	400000	380000	5%		
Total Organic Carbon	mg/L	0.5	1.1	1.3		0.2	
Calcium	µg/L	21	68000	69000	1%		
Iron	µg/L	21	ND	ND		0	
Magnesium	µg/L	5.3	27000	28000	4%		
Manganese	µg/L	1.1	1.2	1.1		0.1	
Potassium	µg/L	210	7500	7600	1%		
Sodium	µg/L	210	34000	35000	3%		
VOCs	µg/L	-	ALL ND	ALL ND		0	
			MW57S	DUP2			
Trichloroethene	µg/L	0.053	0.51	0.46		0.05	
SVOCs	µg/L	-	All ND	All ND		0	
Herbicides	µg/L	-	All ND	All ND		0	
			MW10S	DUP3			
Tetrachloroethene	µg/L	0.2	5.7	5.5	4%	0.007	
Trichloroethene	µg/L	0.053	2.1	2	5%		

Notes:

ND – Not detected at or above the method detection limit (MDL).

RL – Reporting limit

RPD – Relative percent difference

µg/L – microgram per liter

mg/L – milligram per liter

IV. DATA VALIDATION SUMMARY

1. Data Qualification

Sample ID	Analyte	Data Qualifier	Reason	Report Section
PLF-MW29S-1024	Tetrachloroethene	J+	The CCV %D value biased high.	Section II, 2.4
PLF-NVM01-1024 PLF-MW19S-1024	Chloroform	J+	The analyte was detected in trip blank and the sample result was affected.	Section II, 2.5
PLF-MW47S-1024 PLF-MW48S-1024 PLF-MW50S-1024 PLF-MW58S-1024 PLF-MW19S-1024 PLF-MW56S-1024 PLF-DUP2-1024	All SVOCs reported from SW8270E-SIM	UJ	Surrogate spike recovery was biased low.	Section II, 3.7
PLF-MW47S-1024 PLF-MW48S-1024 PLF-MW50S-1024 PLF-MW57S-0424 PLF-MW58S-1024 PLF-MW19S-1024 PLF-MW56S-1024 PLF-DUP2-102424	1,2-Dichlorobenzene 1,4-Dichlorobenzene 1,2,4-Trichlorobenzene Naphthalene (Reported from SW8270E Full Scan)	DNR	Report from SW8260D analysis in favor of the lower detection limit.	Section II, 3.12
PLF-MW58S-1024 PLF-DUP21-1024 PLF-MW57S-1024 PLF-MW56S-1024	Pentachlorophenol (Reported from SW8270E-SIM)	DNR	Report from SW8151A analysis in favor of the lower detection limit.	Section II, 3.12

2. Data Qualifier Definition

Data Qualifier	Definition
DNR	The result for this analyte should be reported from an alternative analysis for optimal result.
J+	The analyte was detected above the reported quantitation limit, and the reported concentration was an biased-high estimated value.
R	The result was qualified as rejected and could not be fully used as intended.
U	The analyte was not detected at or above the reported value or quantitation limit.
UJ	The analyte is not detected above the sample quantitation limit, and the reported quantitation limit was an estimated value.

V. DATA QUALITY OBJECTIVE ASSESSMENT

The quality of the data collected in this sampling event is assessed against the data quality objectives (DQOs) defined in the OMM. The assessment evaluates whether the DQOs were achieved in various QC elements - precision, accuracy, representativeness, comparability, and completeness, as presented below.

1. Precision

Precision is defined as the degree of mutual agreement among independent measurements as the result of repeated application of the same process under similar conditions. Analytical precision is evaluated via the relative percent difference (RPD) values of LCS/LCSD, MS/MSD, and duplicate sample (inorganic only) analyses. The RPD values of field duplicate analyses are used to evaluate the analytical and field precision in conjunction with sample homogeneity.

The precision of VOCs, SVOCs, chlorophenoxy herbicides, metals, and conventional chemistry parameters analyses met the project DQOs.

2. Accuracy

Accuracy is a statistical measurement of correctness and includes components of random and system errors. Accuracy is defined as the degree of agreement between a measurement and the known reference. Analytical accuracy is evaluated via the percent recovery (%R) for inorganic analyses or percent difference (%D) and percent drift (%D_f) for organic analyses values of initial and continuing calibration (ICV and CCV), surrogate spikes (organic analyses only), MS, MSD, LCS, LCSD, and internal standards (as applicable for the analytical methods) in conjunction with method blank and field blank results. Method and field blanks identify the type and magnitude of effects contributed to the system error through field and/or laboratory procedures. Sample conditions and sample preparation/analysis timing can affect accuracy of sample results as well. Potential analyte loss can occur if samples were not well preserved or prepared/analyzed significantly past the required holding time and affect the accuracy of sample results.

The accuracy of VOCs, SVOCs, chlorophenoxy herbicides, organophosphorous pesticides, metals, and conventional chemistry parameters analyses met the project DQOs, except for the following:

2.1 CCV - VOCs

The %D value for tetrachloroethene in one of the CCVs biased high; tetrachloroethene was detected in one of the samples, PLF-MW29S-1024, associated with this CCV. The tetrachloroethene result in this sample was qualified (J+) as estimated and biased high.

2.2 Trip Blank – VOCs

Chloroform was detected in two of the three trip blanks associated with the VOC samples. Chloroform results for two of the samples were affected and their chloroform results were qualified (J+) as estimated and biased high.

2.3 Surrogate Spike Recovery – SVOCs (SW8270E-SIM)

For SW8270E-SIM analyses, the %R values for surrogate spike, *p*-Terphenyl-d14, were biased low in all but one sample as noted by the laboratory. SVOCs results for the seven samples reported from the SW8270E-SIM analyses were not detected at or above the RLs; these results were qualified (UJ) as estimated.

3. Representativeness

Representativeness is the level of confidence that the analytical data reflect the actual field condition. Representativeness is evaluated via the integrity of the samples during the course from collection through preparation/analysis at the laboratory. The evaluation of associated method and field blanks also assists in identifying artifacts that may skew the representativeness of the samples.

No anomalies were identified in the procedures of sample preservation, handling, preparation, and analyses. Sample preparation and analyses were all performed within the required holding times. The laboratory and field blanks were either free of contaminants or at levels that had no significant effects on sample results. VOCs, SVOCs, chlorophenoxy herbicides, organophosphorous pesticides, metals, and conventional chemistry parameters data are assumed representative.

4. Comparability

Comparability is the confidence with which one data set can be compared to another data set. Using standard methods throughout the data generation processes ensures the comparability of data generated in separated sampling events.

Data collected in this sampling event are assumed comparable because standard methods were used for sample preparation and analyses, and the methods were consistent with those specified in the OMM.

4.1 VOCs

Selective ion monitoring (SIM) technique was applied to the analyses of full list VOCs, as opposed to only compounds requiring lower detection limits in all previous sampling events. The reporting limits remained the same as those specified in the OMM. No significant deviations of results from the previous sampling events were observed.

5. Completeness

Completeness is a ratio of the number of valid data to the expected number of data that can be obtained under normal conditions for a given sampling event. Valid data are sample results determined acceptable for use. Rejected results are considered un-useable and thus invalid. In cases where data were rejected in favor of those obtained from a separate valid analysis, the rejection does not affect the completeness.

The overall completeness of this sampling event is 100 percent. The overall completeness for this sampling event met the 95 percent completeness goal of the OMM.

6. Sensitivity

Sensitivity depicts the level of ability an analytical system (i.e., sample preparation and instrumental analysis) of detecting a target component in a given sample matrix with a defined level of confidence. Factors affecting the sensitivity of an analytical system include analytical system background (e.g., laboratory artifact or method blank contamination), sample matrix (e.g., mass spectrometry ion ratio change, co-elution of peaks, or baseline elevation) and instrument instability.

To evaluate if the analytical sensitivity achieved the project expectation, sample specific RLs were compared against the RL goals set forth in the QAPP (Zone A wells), OMM and the revisions. In addition, sample results were compared to detections of target analytes in method blanks, trip blanks, and calibration blanks to identify potential effects of laboratory and field background on sensitivity.

The sensitivity associated with the analyses of all samples was attained to the project goals in this sampling event, except that chromium was detected at trace levels in the method blank and calibration blanks. Data were qualified as presented in Section 2.4 above.

VI. REFERENCES

- United States Environmental Protection Agency (USEPA). 2020a. *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-66. EPA-540-R-20-006.
- USEPA. 2020b. *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005.
- USEPA. 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, January 13, 2009, EPA 540-R-08-005.
- USEPA. 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition, December 1996.
- USEPA. 1983. *Methods for Chemical Analysis of Water and Wastes*, EPA-600/4-79-020, March 1983 and updates.
- American Public Health Association APHA). 1995. *Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, 20th Edition, 1995.
- PBS Engineering and Environmental, Inc. 2020. *Site-Wide Compliance Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. December 15, 2020.
- PBS Engineering and Environmental, Inc. & Floyd | Snyder. 2020. *Zone A Removal Action Supplemental Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. & Floyd | Snyder. February 28, 2020.

Data Validation Report

Pasco Sanitary Landfill Groundwater Monitoring November 2024 Supplemental Sampling

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Acronyms

%D	percent difference
%D_f	percent drift
%R	percent recovery
%RSD	percent relative standard deviation
ALS-Everett	ALS Laboratory Group, Everett, Washington
BFB	bromofluorobenzene
CCB	continuing calibration blank
CCV	continuing calibration verification
CF	calibration factor
CLP	U.S. EPA Contract Laboratory Program
CMP	Site-Wide Compliance Groundwater Monitoring Plan (PBS, 2020)
COC	chain-of-custody
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
GC/MS	gas chromatography/mass spectrometer
GMP	Zone A Removal Action Supplemental Groundwater Monitoring Plan (PBS, 2020)
ICAL	initial calibration
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LLOQ	lower limit of quantitation
µg/L	micrograms per liter
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
ND	not detected
QA/QC	quality assurance/quality control
RF	response factor
RL	reporting limit
RPD	relative percent difference
SDG	sample delivery group

SIM selective ion monitoring
SOP standard operating procedures
VOCs volatile organic compounds

I. INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data associated with the 17 water samples collected on November 18, 2024, for the referenced project. The validation procedures followed the requirements specified in the following document, as applicable:

- United States Environmental Protection Agency (USEPA) *Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-66. EPA-540-R-20-006.

A Stage 2B (as defined in EPA 2009) validation was performed based on the summaries of sample and quality control (QC) analytical results submitted by the laboratories. The numerical quality assurance and quality control (QA/QC) criteria applied to the validation were in accordance with those specified in the analytical methods, the *Site-Wide Groundwater Compliance Monitoring Plan* ([CMP], PBS 2020), and the performance-based control limits established by the laboratories (laboratory control limits). In addition, data were validated against the requirements specified in the *Zone A Removal Action Supplemental Groundwater Monitoring Plan* ([GMP], PBS 2020). The frequency of QC analyses was evaluated according to the CMP and the analytical methods. Sample specific method detection limits and reporting limits were evaluated against the reporting limits listed on Table 2 of the GMP. Raw data was not reviewed herein unless necessary for clarification purposes.

Validation findings are discussed in **Section II – Data Validation Findings**, pertinent to the QC parameters for each type of analysis. Field duplicate results were compared to those of the parent sample and data qualified based on the advisory criteria and presented in **Section III**. Qualified data along with proper data qualifiers, qualification reasons, and qualifier definitions are presented in **Section IV - Data Validation Summary**.

A data quality objective assessment summarizing the overall precision, accuracy, representativeness, comparability, completeness, and sensitivity of data collected in this sampling event was prepared and included in **Section V – Data Quality Objective Assessment**. Any additional laboratory submittals requested during the validation are transferred to PBS Engineering and Environmental, Inc. in Richland, Washington along with this report.

As part of the validation, the electronic data deliverables (EDDs) were verified against the hardcopy report. Data qualifiers, qualification reasons, and any required corrections identified *via* this validation have been added to the EDDs and submitted along with this report. Samples collected during this sampling event and the associated analyses are summarized below:

Field Sample ID	ALS Laboratory Sample ID	Sampling Date	Matrix	Analysis
				VOCs
PLF-NVM01-1124	EV24110122-01	11/18/24	Water	X
PLF-MW31S-1124	EV24110122-02	11/18/24	Water	X
PLF-MW29S-1124	EV24110122-03	11/18/24	Water	X
PLF-MW11S-1124	EV24110122-04	11/18/24	Water	X
PLF-MW10S-1124	EV24110122-05	11/18/24	Water	X
PLF-MW37S-1124	EV24110122-06	11/18/24	Water	X
PLF-MW38S-1124	EV24110122-07	11/18/24	Water	X
PLF-MW46S-1124	EV24110122-08	11/18/24	Water	X
PLF-MW48S-1124	EV24110122-09	11/18/24	Water	X
PLF-MW12S-1124	EV24110122-10	11/18/24	Water	X
PLF-MW47I-1124	EV24110122-11	11/18/24	Water	X
PLF-MW47S-1124	EV24110122-12	11/18/24	Water	X
PLF-MW49S-1124	EV24110122-13	11/18/24	Water	X
PLF-MW58S-1124	EV24110122-14	11/18/24	Water	X
PLF-MW57S-1124	EV24110122-15	11/18/24	Water	X
PLF-DUP1-1124	EV24110122-16	11/18/24	Water	X
PLF-DUP2-1124	EV24110122-17	11/18/24	Water	X
PLF-DUP3-1124	EV24110122-18	11/18/24	Water	X
PLF-TripBlank1-1124	EV24110122-19	11/18/24	Water	X

Notes:

1. Samples PLF-DUP1-1124, PLF-DUP2-1124, and PLF-DUP3-1124 were essentially one sample intended to be named as PLF-DUP1-1124. Each of the three VOA vials for this sample were mistakenly labeled as three dividual samples.
 X – The analysis was requested and performed on the sample.
 VOCs – Volatile organic compounds

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Laboratory
Volatile organic compounds (VOCs)	SW846 Method 8260D – full scan and SIM ^(A)	ALS Laboratory Group (ALS) Everett, Washington

Notes:

SW846 - USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Third Edition, December 1996 & Updates.

^(A) – Selective ion monitoring (SIM) technique was performed for selected target compounds to achieve lower detection limits.

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory. The samples were received properly preserved and consistent with the accompanying chain-of-custody (COC) documentation. The temperature of the cooler was measured at 6.8°C upon receipt at the laboratory slightly exceeded the criteria of 6°C. Samples were shipped to the laboratory via overnight delivery; the cooler temperature exceedance had no significant effects on data quality. No data qualifying action was taken in this case.

2. Volatile Organic Compounds ([VOCs]; SW846 Method 8260D–SIM)

2.1 Holding Time

Water samples should be analyzed within 14 days of collection. All samples were analyzed within the required holding time.

2.2 GC/MS Instrument Performance Check

Bromofluorobenzene (BFB) tuning analyses were performed at the required frequency. Relative abundance of all required ions met the method requirements.

2.3 Initial Calibration (ICAL)

The method requires that (1) if linear average response factors (RFs) is chosen as the quantitation option, at least five calibration standards are applied to establish the curve and the %RSD of RFs be $\leq 20\%$ for surrogates and target compounds, (2) for any compound with %RSD $> 20\%$, the calibration curve should meet the minimum correlation criteria (r^2) ≥ 0.99 for quadratic fit (at least six calibration standards are required), or correlation coefficient (r) ≥ 0.995 for linear regression, or relative standard error (RSE) $\leq 20\%$ if applicable, and (3) a second source standard (ICV) should be analyzed immediately after the initial calibration and the %D or %D_f values for all target and surrogate compounds should be within $\pm 30\%$. The initial calibration met the requirements.

2.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D or %D_f values be within $\pm 20\%$, (3) compound RFs are \geq the minimum RF specified in Method 8260D, Table 4, and (4) the internal standards in the calibration verification standard changes by a factor of two (-50% to $+ 100\%$) from that in the mid-point standard level of the most recent initial calibration

sequence. Calibration verification analyses met the frequency criteria. The %D and %D_f values either met the criteria or the outliers had no effects on associated data (e.g., bias-high %D value for a compound that was not detected in associated samples), except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
K2216.D 11/22/24, 3:55pm	Acetone	39.7%	±20%	Low	PLF-NVM01-1124 PLF-MW29S-1124 PLF-MW11S-1124 PLF-MW10S-1124 PLF-MW37S-1124 PLF-MW38S-1124 PLF-MW46S-1124 PLF-MW48S-1124 PLF-MW12S-1124 PLF-MW47S-112 PLF-TripBlank1-1124	UJ
K2239.D 11/23/24, 4:08pm	Acetone	44.5%	±20%	Low	PLF-MW58S-1124 PLF-MW57S-1124 PLF-DUP1-1124	UJ
K2403.D 11/24/24, 12:32pm	Tetrachloroethene	27.4%	±20%	Low	PLF-NVM01-1124	J-
K2425.D 11/25/24, 12:17am	Bromomethane Acetone Chloroform	36.7% 35.4% 23.5%	±20%	Low	PLF-MW31S-1124 PLF-MW47I-1124 PLF-MW49S-1124	UJ
K2425.D 11/25/24, 12:17am	Tetrachloroethene	-20.7%	±20%	High	PLF-MW47I-1124 PLF-MW49S-1124	J+

Note that the laboratory did not perform a lower limit of quantitation (LLOQ) as stated in Section 9.9 of the Method. The ICAL standards nearest to the reporting limits (RLs) were evaluated in lieu of the LLOQ. The recovery of lowest ICAL standards were either within ±20% of the respective LCS control criteria or biased high where the compounds were not detected at or above their RLs.

2.5 Blanks

Method Blank: A method blank was analyzed at the required frequency. Target compounds were not detected at or above the RLs in the method blank.

Trip Blanks: One trip blank was submitted with the sample shipment for VOCs analyses. Target compounds were not detected at or above the RLs in the trip blank.

2.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses, named as blank spike and blank spike duplicate by the laboratory, were performed as required. The %R and relative percent difference (RPD) values were within the laboratory control limits.

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All %R values were within the laboratory control limits.

2.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample PLF-MW11S-1124 as requested. All %R and RPD values were within the laboratory control limits.

2.9 Internal Standards

Proper internal standards were added to all samples. Internal standard retention times were within the ± 0.5 -minute window of the associated standard in all samples. All internal standard intensity met the method requirement of -50% to $+100\%$ of the associated standard.

2.10 Field Duplicates

Samples PLF-MW11S-1124 and Duplicate PLF-DUP1-1124 were field duplicates submitted for VOCs analysis. Target analytes were not detected at or above the RLs in both samples. The field precision met the project DQO.

2.11 Laboratory Reporting Limits

Target compounds specified for the project were analyzed and reported as required. Reporting limits were supported with proper initial calibration concentrations for all target compounds. The reporting limit goals specified in the CMP and GMP were achieved.

2.12 Overall Assessment of VOCs Data Usability

VOCs data are acceptable for use as qualified, based on the information submitted by the laboratory.

III. FIELD DUPLICATE SUMMARY

Field duplicate RPD is indicative of field and laboratory precision and sample homogeneity in combination. The Functional Guidelines or OMM do not specify criteria for field duplicate evaluation. An advisory criterion of 35 percent was applied to evaluating the RPD values of field duplicate results $\geq 5 \times \text{RL}$. For results $< 5 \times \text{RL}$, an advisory criterion of $2 \times \text{RL}$ was applied to evaluating the concentration differences. The RPD (or concentration difference) values and data qualification for detected compounds in field duplicate pairs are presented as follows:

Detected Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualification
			MW11S	DUP1			
VOCs	µg/L	-	All ND	All ND		0	

Notes:

- ND – Not detected at or above the method detection limit (MDL)
- RL – Reporting limit
- RPD – Relative percent difference
- µg/L – microgram per liter
- VOCs – Volatile organic compounds reported from EPA 8260D and EPA8260D-SIM analyses.

IV. DATA VALIDATION SUMMARY

1. Data Qualification

Sample ID	Analyte	Data Qualifier	Reason	Report Section
PLF-NVM01-1124 PLF-MW29S-1124 PLF-MW11S-1124 PLF-MW10S-1124 PLF-MW37S-1124 PLF-MW38S-1124 PLF-MW46S-1124 PLF-MW48S-1124 PLF-MW12S-1124 PLF-MW47S-112 PLF-TripBlank1-1124	Acetone	UJ	The CCV %D value biased low.	Section II, 2.4
PLF-MW58S-1124 PLF-MW57S-1124 PLF-DUP1-1124	Acetone	UJ	The CCV %D value biased low.	Section II, 2.4
PLF-NVM01-1124	Tetrachloroethene	J-	The CCV %D value biased low.	Section II, 2.4
PLF-MW31S-1124 PLF-MW47I-1124 PLF-MW49S-1124	Bromomethane Acetone Chloroform	UJ	The CCV %D value biased low.	Section II, 2.4
PLF-MW47I-1124 PLF-MW49S-1124	Tetrachloroethene	J+	The CCV %D value biased high.	Section II, 2.4

Notes:

%D – Percent difference

CCV – Continuing calibration verification

2. Data Qualifier Definition

Data Qualifier	Definition
DNR	The result for this analyte should be reported from an alternative analysis for optimal result.
UJ	The analyte was not detected above the sample quantitation limit, and the reported quantitation limit was an estimated value.
J+	The result was an estimated value and biased high.
J+	The result was an estimated value and biased low.

V. DATA QUALITY OBJECTIVE ASSESSMENT

The quality of the data collected in this sampling event is assessed against the data quality objectives (DQOs) defined in the CMP and GMP. The assessment evaluates whether the DQOs were achieved in various QC elements - precision, accuracy, representativeness, comparability, and completeness, as presented below.

1. Precision

Precision is defined as the degree of mutual agreement among independent measurements as the result of repeated application of the same process under similar conditions. Analytical precision is evaluated via the relative percent difference (RPD) values of LCS/LCSD, MS/MSD, and duplicate sample (inorganic only) analyses. The RPD values of field duplicate analyses are used to evaluate the analytical and field precision in conjunction with sample homogeneity.

The precision of VOCs analyses met the project DQOs.

2. Accuracy

Accuracy is a statistical measurement of correctness and includes components of random and system errors. Accuracy is defined as the degree of agreement between a measurement and the known reference. Analytical accuracy is evaluated via the percent recovery (%R) for inorganic analyses or percent difference (%D) and percent drift (%D_f) for organic analyses values of initial and continuing calibration (ICV and CCV), surrogate spikes (organic analyses only), MS, MSD, LCS, LCSD, and internal standards (as applicable for the analytical methods) in conjunction with method blank and field blank results. Method and field blanks identify the type and magnitude of effects contributed to the system error through field and/or laboratory procedures.

The accuracy of VOCs analyses met the DQOs of the OMM, except for the following:

2.1 VOCs (SW8260D Full Scan) - CCV

The %D values for acetone in all CCVs biased low. Acetone was not detected in any of the field samples; acetone results for all samples were qualified (UJ) as estimated.

The %D values for bromomethane and chloroform in one of the CCVs were biased low. These compounds were not detected in the associated samples; bromomethane and chloroform results for these samples were qualified (UJ) as estimated.

The %D value for tetrachloroethene in one of the CCVs was biased low. Tetrachloroethene was detected in the sample associated with this CCV. The result was qualified (J-) as estimated and biased low.

The %D value for tetrachloroethene in one of the CCVs was biased high. Tetrachloroethene was detected in the two samples associated with this CCV. The results were qualified (J+) as estimated and biased high.

3. Representativeness

Representativeness is the level of confidence that the analytical data reflect the actual field condition. Representativeness is evaluated via the integrity of the samples during the course from collection through preparation/analysis at the laboratory. The evaluation of associated method and field blanks also assists in identifying artifacts that may skew the representativeness of the samples.

No anomalies were identified in the procedures of sample preservation, handling, preparation, and analyses. Sample preparation and analyses were all performed within the required holding times. The laboratory and field blanks were either free of contaminants or at levels that had no significant effects on sample results. The VOCs and SVOCs data are assumed representative.

4. Comparability

Comparability is the confidence with which one data set can be compared to another data set. Using standard methods throughout the data generation processes ensures the comparability of data generated in separated sampling events.

Data collected in this sampling event are assumed comparable because standard methods were used for sample preparation and analyses, and the methods were consistent with those specified in the OMM.

4.1 VOCs

Selective ion monitoring (SIM) technique was applied to the analyses of full list VOCs, as opposed to only compounds requiring lower detection limits in all previous sampling events. The reporting limits remained the same as those specified in the CMP and GMP. No significant deviations of results from the previous sampling events were observed.

5. Completeness

Completeness is a ratio of the number of valid data to the expected number of data that can be obtained under normal conditions for a given sampling event. Valid data are sample results determined acceptable for use. Rejected results are considered un-useable and thus invalid. In cases where data were rejected in favor of those obtained from a separate valid analysis, the rejection does not affect the completeness.

The completeness of this sampling event is 99.6 percent for all analyses. The overall completeness for this sampling event met the 95 percent completeness goal of the GMP.

6. Sensitivity

Sensitivity depicts the level of ability an analytical system (i.e., sample preparation and instrumental analysis) of detecting a target component in a given sample matrix with a defined level of confidence. Factors affecting the sensitivity of an analytical system including analytical system background (e.g., laboratory artifact or method blank contamination), sample matrix (e.g., mass spectrometry ion ratio change, co-elution of peaks, or baseline elevation) and instrument instability.

To evaluate if the analytical sensitivity achieved the project expectation, sample specific RLs were compared against the RL goals set forth in the CMP and GMP. In addition, sample results were compared to detections of target analytes in method blanks, trip blanks, and calibration blanks to identify potential effects of laboratory and field background on sensitivity.

The sensitivity associated with the analyses of all samples was attained to the project goals in this sampling event.

VI. REFERENCES

- USEPA. 2020. *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005.
- USEPA. 2009. *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*, January 13, 2009, EPA 540-R-08-005.
- USEPA. 1996. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition, December 1996.
- PBS Engineering and Environmental, Inc. 2020. *Site-Wide Compliance Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. December 15, 2020.
- PBS Engineering and Environmental, Inc. & Floyd | Snyder. 2020. *Zone A Removal Action Supplemental Groundwater Monitoring Plan. Pasco Landfill NPL Site. Pasco, Washington*. PBS Engineering and Environmental Inc. & Floyd | Snyder. February 28, 2020.

Attachment B

Waste Disposal Documentation



HAULED WASTE MANIFEST FORM

Instructions: Please write legibly. Complete each section, ensuring Waste Generator information is accurate. Sign and date the manifest before providing manifest to the City of Pasco staff for review and delivery of hauled waste.

Transporter and Vehicle Information:

Company Name: PBS
 Vehicle Make: Toyota Model: Tundra License No: B64534K

Waste Generator #1:

Name: IWAG III Phone: _____
 Address: ~~400 Bradley Blvd, Suite 106~~ Time pumped: _____
 Date pumped: _____ Gallons pumped: _____
 Size of Tank: _____
 Check one: Domestic Grease Interceptor Industrial Other: _____

1st load
↓
ph 7.04
ph 7.81
↑
2nd Load

Waste Generator #2: Bill to

Name: PBS Phone: 509 554-1247
 Address: 400 Bradley Blvd, Suite 106 Time pumped: 0800 + 0845
 Date pumped: 08/27/24 Gallons pumped: 1000
 Size of Tank: 500
 Check one: Domestic Grease Interceptor Industrial Other: _____

I certify under penalty of law that this manifest was prepared by me or under my direction or supervision. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that the wastes covered by this manifest are not hazardous as defined at 40 CFR Part 261. I further certify that all discharges made to the POTW are being made in accordance and in compliance with requirements specified in Pasco Municipal Code 13.70 and any issued permit.

Printed Name: Eric Jensen Signature of Transporter: [Signature] Date/Time: 08/27/24 / 0800

FOR OFFICIAL USE ONLY:

Total gallons dumped: 1,000 Location of dump: Kahlotus Lift Station
 Name of Staff: Baeb Neylon Signature of Staff: [Signature]



August 13, 2024

Mr. Lance Moen
PBS Engineering & Environmental
400 Bradley Blvd, Suite 106
Richland, WA 99352

Dear Mr. Moen,

On July 31st, 1 sample was received by our laboratory and assigned our laboratory project number EV24070203. The project was identified as your 64180.024.0003.001 Pasco Landfill. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rob Greer
Laboratory Director



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	8/13/2024
CLIENT CONTACT:	Lance Moen	ALS JOB#:	EV24070203
CLIENT PROJECT:	64180.024.0003.001 Pasco Landfill	ALS SAMPLE#:	EV24070203-01
CLIENT SAMPLE ID	PLF-Purge-073024	DATE RECEIVED:	07/31/2024
		COLLECTION DATE:	7/30/2024 11:25:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING	DILUTION	UNITS	ANALYSIS	ANALYSIS
			LIMITS	FACTOR		DATE	BY
Dichlorodifluoromethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Chloromethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Vinyl Chloride	EPA-8260	U	0.20	1	UG/L	08/02/2024	DLC
Bromomethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Chloroethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Carbon Tetrachloride	EPA-8260	U	0.34	1	UG/L	08/02/2024	DLC
Trichlorofluoromethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Ethanol	EPA-8260	U	710	1	UG/L	08/02/2024	DLC
Carbon Disulfide	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Acetone	EPA-8260	U	25	1	UG/L	08/02/2024	DLC
1,1-Dichloroethene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Methylene Chloride	EPA-8260	U, MB03	5.0	1	UG/L	08/02/2024	DLC
Acrylonitrile	EPA-8260	U	10	1	UG/L	08/02/2024	DLC
Methyl T-Butyl Ether	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Diisopropyl Ether	EPA-8260	U	3.5	1	UG/L	08/02/2024	DLC
Ethyl T-Butyl Ether	EPA-8260	U	4.1	1	UG/L	08/02/2024	DLC
1,1-Dichloroethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
2-Butanone	EPA-8260	U	10	1	UG/L	08/02/2024	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
2,2-Dichloropropane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Bromochloromethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Chloroform	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,1,1-Trichloroethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,1-Dichloropropene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,2-Dichloroethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Benzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Trichloroethene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
tert-Amyl Methyl Ether	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
tert-Butanol	EPA-8260	U	13	1	UG/L	08/02/2024	DLC
1,2-Dichloropropane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Dibromomethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Bromodichloromethane	EPA-8260	U	0.71	1	UG/L	08/02/2024	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
4-Methyl-2-Pentanone	EPA-8260	U	10	1	UG/L	08/02/2024	DLC
Toluene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,1,2-Trichloroethane	EPA-8260	U	0.77	1	UG/L	08/02/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	8/13/2024
CLIENT CONTACT:	Lance Moen	ALS JOB#:	EV24070203
CLIENT PROJECT:	64180.024.0003.001 Pasco Landfill	ALS SAMPLE#:	EV24070203-01
CLIENT SAMPLE ID	PLF-Purge-073024	DATE RECEIVED:	07/31/2024
		COLLECTION DATE:	7/30/2024 11:25:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING	DILUTION	UNITS	ANALYSIS	ANALYSIS
			LIMITS	FACTOR		DATE	BY
2-Hexanone	EPA-8260	U	10	1	UG/L	08/02/2024	DLC
1,3-Dichloropropane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Tetrachloroethylene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Dibromochloromethane	EPA-8260	U	0.52	1	UG/L	08/02/2024	DLC
1,2-Dibromoethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Chlorobenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	1.7	1	UG/L	08/02/2024	DLC
Ethylbenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
m,p-Xylene	EPA-8260	U	4.0	1	UG/L	08/02/2024	DLC
Styrene	EPA-8260	U	1.5	1	UG/L	08/02/2024	DLC
o-Xylene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Bromoform	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Isopropylbenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,2,3-Trichloropropane	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Bromobenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
N-Propyl Benzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
2-Chlorotoluene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,3,5-Trimethylbenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
4-Chlorotoluene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
T-Butyl Benzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,2,4-Trimethylbenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
S-Butyl Benzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
P-Isopropyltoluene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,3-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,4-Dichlorobenzene	EPA-8260	U	1.8	1	UG/L	08/02/2024	DLC
N-Butylbenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,2-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	10	1	UG/L	08/02/2024	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Hexachlorobutadiene	EPA-8260	U	0.56	1	UG/L	08/02/2024	DLC
Naphthalene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	2.0	1	UG/L	08/02/2024	DLC
Soluble Biochemical Oxygen Demand (BOD) (Dissolved)	SM5210B	U	5.0	1	MG/L	07/31/2024	MJC
Total Suspended Solids	SM2540D	U	25	1	MG/L	08/06/2024	MNC
Mercury	EPA-245.1	U	0.20	1	UG/L	08/01/2024	RAL
Chromium	EPA-200.8	U	2.0	1	UG/L	08/09/2024	EBS
Copper	EPA-200.8	U	2.0	1	UG/L	08/09/2024	EBS

CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	8/13/2024
CLIENT CONTACT:	Lance Moen	ALS JOB#:	EV24070203
CLIENT PROJECT:	64180.024.0003.001 Pasco Landfill	ALS SAMPLE#:	EV24070203-01
CLIENT SAMPLE ID	PLF-Purge-073024	DATE RECEIVED:	07/31/2024
		COLLECTION DATE:	7/30/2024 11:25:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Lead	EPA-200.8	U	1.0	1	UG/L	08/09/2024	EBS
Molybdenum	EPA-200.8	4.2	1.0	1	UG/L	08/09/2024	EBS
Nickel	EPA-200.8	2.2	2.0	1	UG/L	08/09/2024	EBS
Zinc	EPA-200.8	2.5	2.5	1	UG/L	08/09/2024	EBS

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	EPA-8260	96.1	08/02/2024	DLC
Toluene-d8	EPA-8260	101	08/02/2024	DLC
4-Bromofluorobenzene	EPA-8260	101	08/02/2024	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

MB03 - The concentration in the Method Blank was greater than the quantitation limit. All samples in the batch were non-detect; therefore, no qualification is needed for this analyte:



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

DATE: 8/13/2024
 ALS SDG#: EV24070203
 WDOE ACCREDITATION: C601

CLIENT CONTACT: Lance Moen
 CLIENT PROJECT: 64180.024.0003.001 Pasco Landfill

LABORATORY BLANK RESULTS

MB-080224W - Batch 215729 - Water by EPA-8260

ANALYTE	METHOD	RESULTS	UNITS	REPORTING	ANALYSIS	ANALYSIS
				LIMITS	DATE	BY
Dichlorodifluoromethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Chloromethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Vinyl Chloride	EPA-8260	U	UG/L	0.20	08/02/2024	DLC
Bromomethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Chloroethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Carbon Tetrachloride	EPA-8260	U	UG/L	0.34	08/02/2024	DLC
Trichlorofluoromethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Ethanol	EPA-8260	U	UG/L	710	08/02/2024	DLC
Carbon Disulfide	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Acetone	EPA-8260	U	UG/L	25	08/02/2024	DLC
1,1-Dichloroethene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Methylene Chloride	EPA-8260	U	UG/L	5.0	08/02/2024	DLC
Acrylonitrile	EPA-8260	U	UG/L	10	08/02/2024	DLC
Methyl T-Butyl Ether	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Diisopropyl Ether	EPA-8260	U	UG/L	3.5	08/02/2024	DLC
Ethyl T-Butyl Ether	EPA-8260	U	UG/L	4.1	08/02/2024	DLC
1,1-Dichloroethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
2-Butanone	EPA-8260	U	UG/L	10	08/02/2024	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
2,2-Dichloropropane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Bromochloromethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Chloroform	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,1,1-Trichloroethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,1-Dichloropropene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,2-Dichloroethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Benzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Trichloroethene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
tert-Amyl Methyl Ether	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
tert-Butanol	EPA-8260	U	UG/L	13	08/02/2024	DLC
1,2-Dichloropropane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Dibromomethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Bromodichloromethane	EPA-8260	U	UG/L	0.71	08/02/2024	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
4-Methyl-2-Pentanone	EPA-8260	U	UG/L	10	08/02/2024	DLC
Toluene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,1,2-Trichloroethane	EPA-8260	U	UG/L	0.77	08/02/2024	DLC
2-Hexanone	EPA-8260	U	UG/L	10	08/02/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	8/13/2024
CLIENT CONTACT:	Lance Moen	ALS SDG#:	EV24070203
CLIENT PROJECT:	64180.024.0003.001 Pasco Landfill	WDOE ACCREDITATION:	C601

LABORATORY BLANK RESULTS

MB-080224W - Batch 215729 - Water by EPA-8260

1,3-Dichloropropane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Tetrachloroethylene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Dibromochloromethane	EPA-8260	U	UG/L	0.52	08/02/2024	DLC
1,2-Dibromoethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Chlorobenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	UG/L	1.7	08/02/2024	DLC
Ethylbenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
m,p-Xylene	EPA-8260	U	UG/L	4.0	08/02/2024	DLC
Styrene	EPA-8260	U	UG/L	1.5	08/02/2024	DLC
o-Xylene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Bromoform	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Isopropylbenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,2,3-Trichloropropane	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Bromobenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
N-Propyl Benzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
2-Chlorotoluene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,3,5-Trimethylbenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
4-Chlorotoluene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
T-Butyl Benzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,2,4-Trimethylbenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
S-Butyl Benzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
P-Isopropyltoluene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,3-Dichlorobenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,4-Dichlorobenzene	EPA-8260	U	UG/L	1.8	08/02/2024	DLC
N-Butylbenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,2-Dichlorobenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	UG/L	10	08/02/2024	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
Hexachlorobutadiene	EPA-8260	U	UG/L	0.56	08/02/2024	DLC
Naphthalene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	UG/L	2.0	08/02/2024	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

MBLK-R473857 - Batch R473857 - Water by SM5210B

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Soluble Biochemical Oxygen Demand (BOD) (Dissolved)	SM5210B	U	MG/L	5.0	07/31/2024	MJC

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	8/13/2024
CLIENT CONTACT:	Lance Moen	ALS SDG#:	EV24070203
CLIENT PROJECT:	64180.024.0003.001 Pasco Landfill	WDOE ACCREDITATION:	C601

LABORATORY BLANK RESULTS

MBLK-R473854 - Batch R473854 - Water by SM2540D

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Total Suspended Solids	SM2540D	U	MG/L	25	08/06/2024	MNC

U - Analyte analyzed for but not detected at level above reporting limit.

MBLK-R473609 - Batch R473609 - Water by EPA-245.1

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-245.1	U	UG/L	0.20	08/01/2024	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-080624W - Batch 215962 - Water by EPA-200.8

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Chromium	EPA-200.8	U	UG/L	2.0	08/09/2024	EBS
Copper	EPA-200.8	U	UG/L	2.0	08/09/2024	EBS
Lead	EPA-200.8	U	UG/L	1.0	08/09/2024	EBS
Molybdenum	EPA-200.8	U	UG/L	1.0	08/09/2024	EBS
Nickel	EPA-200.8	U	UG/L	2.0	08/09/2024	EBS
Zinc	EPA-200.8	U	UG/L	2.5	08/09/2024	EBS

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	8/13/2024
CLIENT CONTACT:	Lance Moen	ALS SDG#:	EV24070203
CLIENT PROJECT:	64180.024.0003.001 Pasco Landfill	WDOE ACCREDITATION:	C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 215729 - Water by EPA-8260

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Dichlorodifluoromethane - BS	EPA-8260	107			50	150	08/02/2024	DLC
Dichlorodifluoromethane - BSD	EPA-8260	104	3		50	150	08/02/2024	DLC
Chloromethane - BS	EPA-8260	108			50	150	08/02/2024	DLC
Chloromethane - BSD	EPA-8260	106	1		50	150	08/02/2024	DLC
Vinyl Chloride - BS	EPA-8260	105			50	150	08/02/2024	DLC
Vinyl Chloride - BSD	EPA-8260	103	3		50	150	08/02/2024	DLC
Bromomethane - BS	EPA-8260	114			50	150	08/02/2024	DLC
Bromomethane - BSD	EPA-8260	116	1		50	150	08/02/2024	DLC
Chloroethane - BS	EPA-8260	101			50	150	08/02/2024	DLC
Chloroethane - BSD	EPA-8260	99.4	2		50	150	08/02/2024	DLC
Carbon Tetrachloride - BS	EPA-8260	106			50	150	08/02/2024	DLC
Carbon Tetrachloride - BSD	EPA-8260	104	2		50	150	08/02/2024	DLC
Trichlorofluoromethane - BS	EPA-8260	107			50	150	08/02/2024	DLC
Trichlorofluoromethane - BSD	EPA-8260	104	3		50	150	08/02/2024	DLC
Ethanol - BS	EPA-8260	104			50	150	08/02/2024	DLC
Ethanol - BSD	EPA-8260	105	1		50	150	08/02/2024	DLC
Carbon Disulfide - BS	EPA-8260	99.2			50	150	08/02/2024	DLC
Carbon Disulfide - BSD	EPA-8260	96.7	3		50	150	08/02/2024	DLC
Acetone - BS	EPA-8260	167		LCS03	50	150	08/02/2024	DLC
Acetone - BSD	EPA-8260	185	10	LCS03	50	150	08/02/2024	DLC
1,1-Dichloroethene - BS	EPA-8260	106			72.5	136	08/02/2024	DLC
1,1-Dichloroethene - BSD	EPA-8260	103	3		72.5	136	08/02/2024	DLC
Methylene Chloride - BS	EPA-8260	117			50	150	08/02/2024	DLC
Methylene Chloride - BSD	EPA-8260	116	2	MB03	50	150	08/02/2024	DLC
Acrylonitrile - BS	EPA-8260	106			50	150	08/02/2024	DLC
Acrylonitrile - BSD	EPA-8260	104	2		50	150	08/02/2024	DLC
Methyl T-Butyl Ether - BS	EPA-8260	101			50	150	08/02/2024	DLC
Methyl T-Butyl Ether - BSD	EPA-8260	102	1		50	150	08/02/2024	DLC
Trans-1,2-Dichloroethene - BS	EPA-8260	102			50	150	08/02/2024	DLC
Trans-1,2-Dichloroethene - BSD	EPA-8260	101	2		50	150	08/02/2024	DLC
Diisopropyl Ether - BS	EPA-8260	81.6			50	150	08/02/2024	DLC
Diisopropyl Ether - BSD	EPA-8260	81.5	0		50	150	08/02/2024	DLC
Ethyl T-Butyl Ether - BS	EPA-8260	80.8			50	150	08/02/2024	DLC
Ethyl T-Butyl Ether - BSD	EPA-8260	80.6	0		50	150	08/02/2024	DLC
1,1-Dichloroethane - BS	EPA-8260	100			50	150	08/02/2024	DLC
1,1-Dichloroethane - BSD	EPA-8260	99.0	1		50	150	08/02/2024	DLC
2-Butanone - BS	EPA-8260	150		LCS03	50	150	08/02/2024	DLC
2-Butanone - BSD	EPA-8260	160	6	LCS03	50	150	08/02/2024	DLC
Cis-1,2-Dichloroethene - BS	EPA-8260	100			50	150	08/02/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
CLIENT PROJECT: 64180.024.0003.001 Pasco Landfill

DATE: 8/13/2024
ALS SDG#: EV24070203
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Cis-1,2-Dichloroethene - BSD	EPA-8260	99.6	0		50	150	08/02/2024	DLC
2,2-Dichloropropane - BS	EPA-8260	109			50	150	08/02/2024	DLC
2,2-Dichloropropane - BSD	EPA-8260	107	2		50	150	08/02/2024	DLC
Bromochloromethane - BS	EPA-8260	102			50	150	08/02/2024	DLC
Bromochloromethane - BSD	EPA-8260	102	0		50	150	08/02/2024	DLC
Chloroform - BS	EPA-8260	101			50	150	08/02/2024	DLC
Chloroform - BSD	EPA-8260	100	1		50	150	08/02/2024	DLC
1,1,1-Trichloroethane - BS	EPA-8260	102			50	150	08/02/2024	DLC
1,1,1-Trichloroethane - BSD	EPA-8260	100	2		50	150	08/02/2024	DLC
1,1-Dichloropropene - BS	EPA-8260	104			50	150	08/02/2024	DLC
1,1-Dichloropropene - BSD	EPA-8260	102	2		50	150	08/02/2024	DLC
1,2-Dichloroethane - BS	EPA-8260	104			50	150	08/02/2024	DLC
1,2-Dichloroethane - BSD	EPA-8260	105	1		50	150	08/02/2024	DLC
Benzene - BS	EPA-8260	101			74.7	143	08/02/2024	DLC
Benzene - BSD	EPA-8260	100	0		74.7	143	08/02/2024	DLC
Trichloroethene - BS	EPA-8260	103			74.4	141	08/02/2024	DLC
Trichloroethene - BSD	EPA-8260	102	0		74.4	141	08/02/2024	DLC
tert-Amyl Methyl Ether - BS	EPA-8260	102			50	150	08/02/2024	DLC
tert-Amyl Methyl Ether - BSD	EPA-8260	103	1		50	150	08/02/2024	DLC
tert-Butanol - BS	EPA-8260	103			50	150	08/02/2024	DLC
tert-Butanol - BSD	EPA-8260	104	1		50	150	08/02/2024	DLC
1,2-Dichloropropane - BS	EPA-8260	102			50	150	08/02/2024	DLC
1,2-Dichloropropane - BSD	EPA-8260	102	0		50	150	08/02/2024	DLC
Dibromomethane - BS	EPA-8260	101			50	150	08/02/2024	DLC
Dibromomethane - BSD	EPA-8260	103	2		50	150	08/02/2024	DLC
Bromodichloromethane - BS	EPA-8260	104			50	150	08/02/2024	DLC
Bromodichloromethane - BSD	EPA-8260	104	0		50	150	08/02/2024	DLC
Trans-1,3-Dichloropropene - BS	EPA-8260	107			50	150	08/02/2024	DLC
Trans-1,3-Dichloropropene - BSD	EPA-8260	108	0		50	150	08/02/2024	DLC
4-Methyl-2-Pentanone - BS	EPA-8260	99.7			50	150	08/02/2024	DLC
4-Methyl-2-Pentanone - BSD	EPA-8260	101	2		50	150	08/02/2024	DLC
Toluene - BS	EPA-8260	99.9			71.7	139	08/02/2024	DLC
Toluene - BSD	EPA-8260	99.8	0		71.7	139	08/02/2024	DLC
Cis-1,3-Dichloropropene - BS	EPA-8260	106			50	150	08/02/2024	DLC
Cis-1,3-Dichloropropene - BSD	EPA-8260	107	1		50	150	08/02/2024	DLC
1,1,2-Trichloroethane - BS	EPA-8260	101			50	150	08/02/2024	DLC
1,1,2-Trichloroethane - BSD	EPA-8260	102	1		50	150	08/02/2024	DLC
2-Hexanone - BS	EPA-8260	112			50	150	08/02/2024	DLC
2-Hexanone - BSD	EPA-8260	119	6		50	150	08/02/2024	DLC
1,3-Dichloropropane - BS	EPA-8260	101			50	150	08/02/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
CLIENT PROJECT: 64180.024.0003.001 Pasco Landfill

DATE: 8/13/2024
ALS SDG#: EV24070203
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
1,3-Dichloropropane - BSD	EPA-8260	101	0		50	150	08/02/2024	DLC
Tetrachloroethylene - BS	EPA-8260	110			50	150	08/02/2024	DLC
Tetrachloroethylene - BSD	EPA-8260	120	9		50	150	08/02/2024	DLC
Dibromochloromethane - BS	EPA-8260	104			50	150	08/02/2024	DLC
Dibromochloromethane - BSD	EPA-8260	106	1		50	150	08/02/2024	DLC
1,2-Dibromoethane - BS	EPA-8260	102			50	150	08/02/2024	DLC
1,2-Dibromoethane - BSD	EPA-8260	104	1		50	150	08/02/2024	DLC
Chlorobenzene - BS	EPA-8260	101			73	131	08/02/2024	DLC
Chlorobenzene - BSD	EPA-8260	101	1		73	131	08/02/2024	DLC
1,1,1,2-Tetrachloroethane - BS	EPA-8260	103			50	150	08/02/2024	DLC
1,1,1,2-Tetrachloroethane - BSD	EPA-8260	103	0		50	150	08/02/2024	DLC
Ethylbenzene - BS	EPA-8260	103			50	150	08/02/2024	DLC
Ethylbenzene - BSD	EPA-8260	102	1		50	150	08/02/2024	DLC
m,p-Xylene - BS	EPA-8260	103			50	150	08/02/2024	DLC
m,p-Xylene - BSD	EPA-8260	102	1		50	150	08/02/2024	DLC
Styrene - BS	EPA-8260	106			50	150	08/02/2024	DLC
Styrene - BSD	EPA-8260	106	0		50	150	08/02/2024	DLC
o-Xylene - BS	EPA-8260	102			50	150	08/02/2024	DLC
o-Xylene - BSD	EPA-8260	102	1		50	150	08/02/2024	DLC
Bromoform - BS	EPA-8260	99.0			50	150	08/02/2024	DLC
Bromoform - BSD	EPA-8260	100	1		50	150	08/02/2024	DLC
Isopropylbenzene - BS	EPA-8260	104			50	150	08/02/2024	DLC
Isopropylbenzene - BSD	EPA-8260	103	2		50	150	08/02/2024	DLC
1,1,2,2-Tetrachloroethane - BS	EPA-8260	103			50	150	08/02/2024	DLC
1,1,2,2-Tetrachloroethane - BSD	EPA-8260	104	1		50	150	08/02/2024	DLC
1,2,3-Trichloropropane - BS	EPA-8260	101			50	150	08/02/2024	DLC
1,2,3-Trichloropropane - BSD	EPA-8260	103	2		50	150	08/02/2024	DLC
Bromobenzene - BS	EPA-8260	103			50	150	08/02/2024	DLC
Bromobenzene - BSD	EPA-8260	103	0		50	150	08/02/2024	DLC
N-Propyl Benzene - BS	EPA-8260	107			50	150	08/02/2024	DLC
N-Propyl Benzene - BSD	EPA-8260	106	1		50	150	08/02/2024	DLC
2-Chlorotoluene - BS	EPA-8260	105			50	150	08/02/2024	DLC
2-Chlorotoluene - BSD	EPA-8260	104	0		50	150	08/02/2024	DLC
1,3,5-Trimethylbenzene - BS	EPA-8260	105			50	150	08/02/2024	DLC
1,3,5-Trimethylbenzene - BSD	EPA-8260	105	0		50	150	08/02/2024	DLC
4-Chlorotoluene - BS	EPA-8260	106			50	150	08/02/2024	DLC
4-Chlorotoluene - BSD	EPA-8260	105	0		50	150	08/02/2024	DLC
T-Butyl Benzene - BS	EPA-8260	110			50	150	08/02/2024	DLC
T-Butyl Benzene - BSD	EPA-8260	109	1		50	150	08/02/2024	DLC
1,2,4-Trimethylbenzene - BS	EPA-8260	105			50	150	08/02/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	8/13/2024
CLIENT CONTACT:	Lance Moen	ALS SDG#:	EV24070203
CLIENT PROJECT:	64180.024.0003.001 Pasco Landfill	WDOE ACCREDITATION:	C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
1,2,4-Trimethylbenzene - BSD	EPA-8260	104	1		50	150	08/02/2024	DLC
S-Butyl Benzene - BS	EPA-8260	107			50	150	08/02/2024	DLC
S-Butyl Benzene - BSD	EPA-8260	105	2		50	150	08/02/2024	DLC
P-Isopropyltoluene - BS	EPA-8260	110			50	150	08/02/2024	DLC
P-Isopropyltoluene - BSD	EPA-8260	108	2		50	150	08/02/2024	DLC
1,3-Dichlorobenzene - BS	EPA-8260	105			50	150	08/02/2024	DLC
1,3-Dichlorobenzene - BSD	EPA-8260	106	1		50	150	08/02/2024	DLC
1,4-Dichlorobenzene - BS	EPA-8260	105			50	150	08/02/2024	DLC
1,4-Dichlorobenzene - BSD	EPA-8260	105	0		50	150	08/02/2024	DLC
N-Butylbenzene - BS	EPA-8260	111			50	150	08/02/2024	DLC
N-Butylbenzene - BSD	EPA-8260	110	1		50	150	08/02/2024	DLC
1,2-Dichlorobenzene - BS	EPA-8260	103			50	150	08/02/2024	DLC
1,2-Dichlorobenzene - BSD	EPA-8260	105	2		50	150	08/02/2024	DLC
1,2-Dibromo 3-Chloropropane - BS	EPA-8260	101			50	150	08/02/2024	DLC
1,2-Dibromo 3-Chloropropane - BSD	EPA-8260	106	4		50	150	08/02/2024	DLC
1,2,4-Trichlorobenzene - BS	EPA-8260	106			50	150	08/02/2024	DLC
1,2,4-Trichlorobenzene - BSD	EPA-8260	114	7		50	150	08/02/2024	DLC
Hexachlorobutadiene - BS	EPA-8260	107			50	150	08/02/2024	DLC
Hexachlorobutadiene - BSD	EPA-8260	107	0		50	150	08/02/2024	DLC
Naphthalene - BS	EPA-8260	88.4			50	150	08/02/2024	DLC
Naphthalene - BSD	EPA-8260	103	15		50	150	08/02/2024	DLC
1,2,3-Trichlorobenzene - BS	EPA-8260	119			50	150	08/02/2024	DLC
1,2,3-Trichlorobenzene - BSD	EPA-8260	135	12		50	150	08/02/2024	DLC

LCS03 - The LCS and/or LCSD recovery was above the upper control limit. All sample results in the batch were non-detect. No qualification is required for this analyte.

MB03 - The concentration in the Method Blank was greater than the quantitation limit. All samples in the batch were non-detect; therefore, no qualification is needed for this analyte:

ALS Test Batch ID: R473857 - Water by SM5210B

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Soluble Biochemical Oxygen Demand (BOD) (Dissolved) - BS	SM5210B	83.8		LCS01	85	115	07/31/2024	MJC
Soluble Biochemical Oxygen Demand (BOD) (Dissolved) - BSD	SM5210B	158	5	LCS01	80	120	07/31/2024	MJC

LCS01 - The LCS and/or LCSD recovery was below the lower control limit. The sample results may be biased low for this analyte.

ALS Test Batch ID: R473854 - Water by SM2540D

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Total Suspended Solids - BS	SM2540D	94.0			85	115	08/06/2024	MNC



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	8/13/2024
CLIENT CONTACT:	Lance Moen	ALS SDG#:	EV24070203
CLIENT PROJECT:	64180.024.0003.001 Pasco Landfill	WDOE ACCREDITATION:	C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: R473609 - Water by EPA-245.1

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Mercury - BS	EPA-245.1	99.0			80.6	118	08/01/2024	RAL
Mercury - BSD	EPA-245.1	101	2		80.6	118	08/01/2024	RAL

ALS Test Batch ID: 215962 - Water by EPA-200.8

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Chromium - BS	EPA-200.8	99.9			88.3	110.2	08/09/2024	EBS
Chromium - BSD	EPA-200.8	97.6	2		88.3	110.2	08/09/2024	EBS
Copper - BS	EPA-200.8	101			85.4	109	08/09/2024	EBS
Copper - BSD	EPA-200.8	101	1		85.4	109	08/09/2024	EBS
Lead - BS	EPA-200.8	101			87.5	107	08/09/2024	EBS
Lead - BSD	EPA-200.8	99.4	2		87.5	107	08/09/2024	EBS
Molybdenum - BS	EPA-200.8	101			90.3	113	08/09/2024	EBS
Molybdenum - BSD	EPA-200.8	102	1		90.3	113	08/09/2024	EBS
Nickel - BS	EPA-200.8	103			85.4	109	08/09/2024	EBS
Nickel - BSD	EPA-200.8	102	1		85.4	109	08/09/2024	EBS
Zinc - BS	EPA-200.8	103			88.2	111	08/09/2024	EBS
Zinc - BSD	EPA-200.8	103	1		88.2	111	08/09/2024	EBS

APPROVED BY

Rob Greer
Laboratory Director

ALS ENVIRONMENTAL

Sample Receiving Checklist

Client: PWS Engineering & Environmental ALS Job#: EV 21070203

Project: 64180.024.0003.001 Paces Landfill

Login Date: 7/31/24 Login Time: 1020 Login By: JF

Type of Shipping Container: Cooler Box Other

Shipped via: FedEx Ground UPS Courier Hand Delivered ALS Courier
FedEx Express FRONTIER overnight

	Yes	No	N/A
Were custody seals on outside of shipping container? If yes, how many? <u>1</u> Where? <u>front</u> Custody seal date: <u>7/20/24</u> Seal name: <u>custody seal</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was Chain of Custody properly filled out (ink, signed, dated, etc.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottles have labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottle labels and tags agree with Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottles arrive in good condition (unbroken, etc.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was sufficient amount of sample sent for the tests indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was correct preservation added to samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subcontract test containers added to Subcontract Bin?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wetchem test containers marked with required Tests?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Short hold time test containers delivered to analysts?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were VOA vials checked for absence of air bubbles? Bubbles present in sample #: <u>sample A has 1, B has 2</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5035A kits received?
Low Kits: _____ # High Kits: _____

5035A kits returned?
Low Kits: _____ # High Kits: _____

Temperature of cooler upon receipt: 9.5 °C On ice?

Explain any discrepancies: _____

Was client contacted? _____ Who was called? _____ By whom? _____ Date: _____

Outcome of call: _____



Activated Carbon Products & Services

PO Box 1346 – Ridgefield, WA 98642

Phone: (360) 727-3775

Email: Info@PacificCoastCarbon.com

Date: 08/23/2024

Pasco Landfill NPL Site
1901 Dietrich Road
Pasco, WA 99301
Attn: Lance Moen
503-935-5516

RE: Pasco Landfill NPL Site Spent Carbon Profile Approval

Congratulations, your recent Spent Carbon Profile submittal has been approved. You are now one of Pacific Coast & Biosphere Carbon's valued customers and can now access our turn-key carbon service and equipment portfolio any time it is necessary.

Your Profile approval number is **V-24103**, with expiration occurring on **08/23/2026**. A spent carbon recertification form (attached) may be completed to extend your profile approval every 2 years. If at any time your process, species of contaminants or contaminant concentration change which would require a change in handling of the spent carbon, a revised profile and representative analytical must be resubmitted to Pacific Coast Carbon for review and approval.

All spent carbon shipment must be accompanied by proper paperwork (bill of lading, manifest etc.) which clearly states your profile approval number and expiration date.

Upon receipt of your spent carbon at the Pacific Coast / Biosphere Carbon facility, samples of the spent carbon will be pulled and reviewed to verify the spent carbon matches your approved spent carbon profile form. Should the spent carbon meet your profile specifications, your spent carbon will be offloaded and reactivated for beneficial reuse. Should your spent carbon be outside the parameters of your spent carbon profile approval, Pacific Coast / Biosphere Carbon may at its discretion and upon notification to the generator refuse shipment of spent carbon returning the shipment to the generating address with all expenses being billed to the generator on record.

Pacific Coast Carbon and Biosphere Carbon are turn-key carbon service and equipment suppliers with a robust line of products, equipment and services offered to our valued clients. We look forward to working with you for years to come. Please feel free to contact us with any activated carbon services, equipment or product needs you may have.

Sincerely,

Alex Peru

Alex Peru
President

BIENNIAL SPENT CARBON MANAGEMENT CERTIFICATION

I, _____ (please print or type name of authorized agent), being duly informed and knowledgeable, do hereby certify for and on behalf of _____ (please print or type customer name) ("Customer"), that the following information, as set forth in this "Annual Spent Carbon Management Certification," is true, correct and complete to the best of my knowledge, information and belief:

1. Pacific Coast Carbon / Biosphere Carbon has previously reactivated, for Customer, carbon material onto which various chemical constituents have been adsorbed ("Spent Carbon").
2. The Customer has either:
 - (i) tendered Spent Carbon to PCC for the purpose of obtaining waste characterization testing from which the attached analytical report and Spent Carbon Profile Form ("Report") was generated, which is incorporated by reference as if set forth in its entirety; or
 - (ii) tendered an analytical report and Spent Carbon Profile Form ("Report") derived pursuant to all applicable Federal, State and local laws, rules and regulations, setting forth the physical and chemical characteristics of the Customer's Spent Carbon which is attached hereto and incorporated by reference as if set forth in its entirety.
3. The physical and chemical characteristics set forth in the Report accurately reflect the physical and chemical characteristics of Customer's Spent Carbon.
4. Customer is not aware of any analysis, data or other information which would indicate that the physical and chemical characteristics of Customer's Spent Carbon is not substantially identical to the physical and chemical characteristics set forth in the Report.
5. The process or operation by which Customer's Spent Carbon is generated is substantially identical to the process or operation by which the Spent Carbon to which the Report refers was generated.
6. Customer is presently aware of no set of circumstances which would cause the information set forth in the foregoing Paragraphs 1 through 5, inclusive, to be or become inaccurate, untrue, incorrect or incomplete within one calendar year of the date hereof, and Customer will, upon becoming aware of any such set of circumstances, immediately advise PCC thereof in writing.

Pacific Coast Carbon Approval No: V-24103

(Signature)

Site Name: Pasco Landfill NPL Site

(Please Type or Print)

Site ID No: WAD 991281874

Title: _____
(Please Type or Print)

Company Name: Pasco Landfill NPL Site

Date: _____

Address: _____

Analysis Date: _____

SCPF Date: 08-23-2024

Contact: _____



Tel:(360)949-9181

email:info@pac-coastcarbon.com

SPENT CARBON PROFILE FORM

SCPF Approval No.: V-24103

(for internal use only)

A. Generator Information

1. Generating Facility: Pasco Landfill NPL Site (ID Number WAD 991281874)

2. Site Address: Kahlotus Road & Hwy 12
Pasco, WA 99301

Mailing Address: 1901 Deitrich Road
Pasco, WA 99301

3. Generator Representative: Lance Moen Title: Sr. Env. Engineer, IWAG Agent
Phone No.: (503) 935 - 5516 Fax No.: () -

B. Spent Carbon Identification

1. Describe the carbon treatment system and detail the source of, or process which created the contaminants that are on this carbon (examples: system filtering ground water from leaking gasoline UST; air filtration of emission from widget manufacturing process, etc.):
The 55-gallon drum carbon canister was used to purge the soil vapor extracted during thermal remediation from the process lines of our Regenerative-Thermal-Oxidizer.

2. Treatment System:
a. Total carbon by volume or weight: approx. 55 gallons
b. No. of filters: 1 55-gal drum c. Flow Rate: 48 () GPM () CFM
d. Service duration between carbon changeouts: 1 Total days
13.5 Hours per day
e. Spent carbon quantity generated: 458 Pounds (dry) per (wk,mo,yr)

3. Type of Carbon: (coal, coconut, etc.) coal U.S. Mesh Size:

4. Shipping Container Type: 55-gal drum

5. Spent Carbon Color: Black pH:

6. Foreign Material Present (rocks, dirt, etc.) () yes () no
If yes, describe:

- 7. Attach a chemical analysis of the influent stream or spent carbon. Also list organic contaminants and concentrations in () Influent Stream, or on (✓) Spent Carbon below.

<u>Chemical Component</u>	<u>Concentration (ppm/ppb)</u>
Chloromethane	270 ppb
Methylene Chloride	420 ppb

- 8. Does the () Influent Stream or (✓) Spent Carbon Contain:

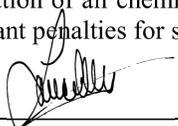
Metals ()yes (✓)no; PCBs ()yes (✓)no; Radioactives ()yes (✓)no; Dioxins ()yes (✓)no
 - If any item above is "yes", attach analysis.

C. Spent Carbon Regulatory Characterization

- 1. Is the spent carbon a regulated Federal RCRA waste per 40 CFR, Part 261? () - yes, (✓) - no
 Waste Codes: _____
- 2. Is the spent carbon a regulated waste per your State's regulations? () - yes, (✓) - no
 Waste Codes: _____

GENERATOR CERTIFICATION

I certify under penalty of law that: I am the spent carbon waste Generator or am the Generator's expressly Authorized Agent; and that the submitted information is true, accurate and complete to the best of my knowledge; and that all known or suspected chemical contaminants and potential hazards have been disclosed; and that I, hereinafter referred to as "Generator", agree to defend and hold harmless Pacific Coast Carbon, LLC. from all liabilities, claims, losses and obligations and all potential liabilities, claims, losses and obligations whether known or unknown on the date of this Agreement, arising out of, resulting from, or relating to either (i) misrepresentation of material facts, whether intentional or unintentional, or (ii) any violation by the Generator of any statute, ordinance, or regulation, or (iii) any other governmental requirement relating to the manifesting and certification of and other information relating to the physical and chemical characteristics of any materials provided, including regulatory certifications required in the generation, treatment, storage, transportation, management or disposal of any materials provided to Pacific Coast Carbon, LLC. or its subcontractors; and that the Generator acknowledges that Pacific Coast Carbon, LLC. must rely on the Generator certification of all chemical and physical characteristics of hazardous substances; and that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



 Signature of Generator or Generator's Authorized Agent

8 August 2024

 Date

Lance A. Moen, PE

 Name (type or print)

Sr. Environmental Engineer, IWAG Agent

 Title (type or print)



July 29, 2024

Mr. Lance Moen
PBS Engineering & Environmental
400 Bradley Blvd, Suite 106
Richland, WA 99352

Dear Mr. Moen,

On July 19th, 2 samples were received by our laboratory and assigned our laboratory project number EV24070131. The project was identified as your Pasco Lanfill 64180.024.0003.001. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rob Greer
Laboratory Director



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
 CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001
 CLIENT SAMPLE ID: RTO-GAC-71824

DATE: 7/29/2024
 ALS JOB#: EV24070131
 ALS SAMPLE#: EV24070131-01
 DATE RECEIVED: 07/19/2024
 COLLECTION DATE: 7/18/2024 10:30:00 AM
 WDOE ACCREDITATION: C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING	DILUTION	UNITS	ANALYSIS	ANALYSIS
			LIMITS	FACTOR		DATE	BY
Dichlorodifluoromethane	SW-846 8260D	U	140	1	UG/KG	07/25/2024	DLC
Chloromethane	SW-846 8260D	270	86	1	UG/KG	07/25/2024	DLC
Vinyl Chloride	SW-846 8260D	U	10	1	UG/KG	07/25/2024	DLC
Bromomethane	SW-846 8260D	U	72	1	UG/KG	07/25/2024	DLC
Chloroethane	SW-846 8260D	U	86	1	UG/KG	07/25/2024	DLC
Carbon Tetrachloride	SW-846 8260D	U	91	1	UG/KG	07/25/2024	DLC
Trichlorofluoromethane	SW-846 8260D	U	76	1	UG/KG	07/25/2024	DLC
Ethanol	SW-846 8260D	U	910	1	UG/KG	07/25/2024	DLC
Carbon Disulfide	SW-846 8260D	U	88	1	UG/KG	07/25/2024	DLC
Acetone	SW-846 8260D	U	170	1	UG/KG	07/25/2024	DLC
1,1-Dichloroethene	SW-846 8260D	U	10	1	UG/KG	07/25/2024	DLC
Methylene Chloride	SW-846 8260D	420	180	1	UG/KG	07/25/2024	DLC
Acrylonitrile	SW-846 8260D	U	92	1	UG/KG	07/25/2024	DLC
Methyl tert-butyl ether	SW-846 8260D	U	89	1	UG/KG	07/25/2024	DLC
trans-1,2-Dichloroethene	SW-846 8260D	U	86	1	UG/KG	07/25/2024	DLC
Isopropyl Ether	SW-846 8260D	U	30	1	UG/KG	07/25/2024	DLC
Ethyl tert-butyl ether	SW-846 8260D	U	14	1	UG/KG	07/25/2024	DLC
1,1-Dichloroethane	SW-846 8260D	U	87	1	UG/KG	07/25/2024	DLC
Methyl Ethyl Ketone	SW-846 8260D	U	130	1	UG/KG	07/25/2024	DLC
cis-1,2-Dichloroethene	SW-846 8260D	U	93	1	UG/KG	07/25/2024	DLC
2,2-Dichloropropane	SW-846 8260D	U	89	1	UG/KG	07/25/2024	DLC
Bromochloromethane	SW-846 8260D	U	150	1	UG/KG	07/25/2024	DLC
Chloroform	SW-846 8260D	U	89	1	UG/KG	07/25/2024	DLC
1,1,1-Trichloroethane	SW-846 8260D	U	80	1	UG/KG	07/25/2024	DLC
1,1-Dichloropropene	SW-846 8260D	U	80	1	UG/KG	07/25/2024	DLC
1,2-Dichloroethane	SW-846 8260D	U	10	1	UG/KG	07/25/2024	DLC
Benzene	SW-846 8260D	U	5.0	1	UG/KG	07/25/2024	DLC
Trichloroethene	SW-846 8260D	U	10	1	UG/KG	07/25/2024	DLC
tert-Amyl methyl ether	SW-846 8260D	U	260	1	UG/KG	07/25/2024	DLC
tert-Butyl Alcohol	SW-846 8260D	U	10	1	UG/KG	07/25/2024	DLC
1,2-Dichloropropane	SW-846 8260D	U	80	1	UG/KG	07/25/2024	DLC
Dibromomethane	SW-846 8260D	U	100	1	UG/KG	07/25/2024	DLC
Bromodichloromethane	SW-846 8260D	U	90	1	UG/KG	07/25/2024	DLC
trans-1,3-Dichloropropene	SW-846 8260D	U	95	1	UG/KG	07/25/2024	DLC
4-Methyl-2-pentanone	SW-846 8260D	U	88	1	UG/KG	07/25/2024	DLC
Toluene	SW-846 8260D	U	92	1	UG/KG	07/25/2024	DLC
cis-1,3-Dichloropropene	SW-846 8260D	U	92	1	UG/KG	07/25/2024	DLC
1,1,2-Trichloroethane	SW-846 8260D	U	95	1	UG/KG	07/25/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	7/29/2024
CLIENT CONTACT:	Lance Moen	ALS JOB#:	EV24070131
CLIENT PROJECT:	Pasco Lanfill 64180.024.0003.001	ALS SAMPLE#:	EV24070131-01
CLIENT SAMPLE ID	RTO-GAC-71824	DATE RECEIVED:	07/19/2024
		COLLECTION DATE:	7/18/2024 10:30:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS	ANALYSIS
						DATE	BY
2-Hexanone	SW-846 8260D	U	62	1	UG/KG	07/25/2024	DLC
1,3-Dichloropropane	SW-846 8260D	U	93	1	UG/KG	07/25/2024	DLC
Tetrachloroethene	SW-846 8260D	U	10	1	UG/KG	07/25/2024	DLC
Dibromochloromethane	SW-846 8260D	U	140	1	UG/KG	07/25/2024	DLC
1,2-Dibromoethane	SW-846 8260D	U	5.0	1	UG/KG	07/25/2024	DLC
Chlorobenzene	SW-846 8260D	U	95	1	UG/KG	07/25/2024	DLC
1,1,1,2-Tetrachloroethane	SW-846 8260D	U	74	1	UG/KG	07/25/2024	DLC
Ethylbenzene	SW-846 8260D	U	94	1	UG/KG	07/25/2024	DLC
m-&p-Xylenes	SW-846 8260D	U	170	1	UG/KG	07/25/2024	DLC
Styrene	SW-846 8260D	U	72	1	UG/KG	07/25/2024	DLC
o-Xylene	SW-846 8260D	U	81	1	UG/KG	07/25/2024	DLC
Bromoform	SW-846 8260D	U	100	1	UG/KG	07/25/2024	DLC
Isopropylbenzene	SW-846 8260D	U	78	1	UG/KG	07/25/2024	DLC
1,1,2,2-Tetrachloroethane	SW-846 8260D	U	99	1	UG/KG	07/25/2024	DLC
1,2,3-Trichloropropane	SW-846 8260D	U	100	1	UG/KG	07/25/2024	DLC
Bromobenzene	SW-846 8260D	U	99	1	UG/KG	07/25/2024	DLC
n-Propylbenzene	SW-846 8260D	U	95	1	UG/KG	07/25/2024	DLC
2-Chlorotoluene	SW-846 8260D	U	99	1	UG/KG	07/25/2024	DLC
1,3,5-Trimethylbenzene	SW-846 8260D	U	71	1	UG/KG	07/25/2024	DLC
4-Chlorotoluene	SW-846 8260D	U	140	1	UG/KG	07/25/2024	DLC
tert-Butylbenzene	SW-846 8260D	U	92	1	UG/KG	07/25/2024	DLC
1,2,4-Trimethylbenzene	SW-846 8260D	U	77	1	UG/KG	07/25/2024	DLC
sec-Butylbenzene	SW-846 8260D	U	84	1	UG/KG	07/25/2024	DLC
4-Isopropyltoluene	SW-846 8260D	U	69	1	UG/KG	07/25/2024	DLC
1,3-Dichlorobenzene	SW-846 8260D	U	100	1	UG/KG	07/25/2024	DLC
1,4-Dichlorobenzene	SW-846 8260D	U	93	1	UG/KG	07/25/2024	DLC
n-Butylbenzene	SW-846 8260D	U	74	1	UG/KG	07/25/2024	DLC
1,2-Dichlorobenzene	SW-846 8260D	U	100	1	UG/KG	07/25/2024	DLC
1,2-Dibromo-3-chloropropane	SW-846 8260D	U	120	1	UG/KG	07/25/2024	DLC
1,2,4-Trichlorobenzene	SW-846 8260D	U	88	1	UG/KG	07/25/2024	DLC
Hexachlorobutadiene	SW-846 8260D	U	100	1	UG/KG	07/25/2024	DLC
Naphthalene	SW-846 8260D	U	99	1	UG/KG	07/25/2024	DLC
1,2,3-Trichlorobenzene	SW-846 8260D	U	94	1	UG/KG	07/25/2024	DLC
Vinyl Chloride (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
Carbon Tetrachloride (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
1,1-Dichloroethene (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
Methyl Ethyl Ketone (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
Chloroform (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
1,2-Dichloroethane (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC

CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	7/29/2024
CLIENT CONTACT:	Lance Moen	ALS JOB#:	EV24070131
CLIENT PROJECT:	Pasco Lanfill 64180.024.0003.001	ALS SAMPLE#:	EV24070131-01
CLIENT SAMPLE ID	RTO-GAC-71824	DATE RECEIVED:	07/19/2024
		COLLECTION DATE:	7/18/2024 10:30:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Benzene (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
Trichloroethene (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
Tetrachloroethene (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
Chlorobenzene (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC
1,4-Dichlorobenzene (ZHE)	SW-846 8260D/1311	U	0.0050	1	MG/L	07/25/2024	DLC

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	SW-846 8260D	102	07/25/2024	DLC
Toluene-d8	SW-846 8260D	100	07/25/2024	DLC
4-Bromofluorobenzene	SW-846 8260D	101	07/25/2024	DLC
1,2-Dichloroethane-d4 (ZHE)	SW-846 8260D/1311	103	07/25/2024	DLC
Toluene-d8 (ZHE)	SW-846 8260D/1311	104	07/25/2024	DLC
4-Bromofluorobenzene (ZHE)	SW-846 8260D/1311	98.5	07/25/2024	DLC

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	7/29/2024
CLIENT CONTACT:	Lance Moen	ALS JOB#:	EV24070131
CLIENT PROJECT:	Pasco Lanfill 64180.024.0003.001	ALS SAMPLE#:	EV24070131-02
CLIENT SAMPLE ID	TB-71824	DATE RECEIVED:	07/19/2024
		COLLECTION DATE:	7/18/2024 8:00:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS	ANALYSIS
						DATE	BY
Dichlorodifluoromethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Chloromethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Vinyl Chloride	SW-846 8260D	U	0.20	1	UG/L	07/25/2024	DLC
Bromomethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Chloroethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Carbon Tetrachloride	SW-846 8260D	U	0.34	1	UG/L	07/25/2024	DLC
Trichlorofluoromethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Ethanol	SW-846 8260D	U	710	1	UG/L	07/25/2024	DLC
Carbon Disulfide	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Acetone	SW-846 8260D	U	25	1	UG/L	07/25/2024	DLC
1,1-Dichloroethene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Methylene Chloride	SW-846 8260D	U	5.0	1	UG/L	07/25/2024	DLC
Acrylonitrile	SW-846 8260D	U	10	1	UG/L	07/25/2024	DLC
Methyl tert-butyl ether	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
trans-1,2-Dichloroethene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Isopropyl Ether	SW-846 8260D	U	3.5	1	UG/L	07/25/2024	DLC
Ethyl tert-butyl ether	SW-846 8260D	U	4.1	1	UG/L	07/25/2024	DLC
1,1-Dichloroethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Methyl Ethyl Ketone	SW-846 8260D	U	10	1	UG/L	07/25/2024	DLC
cis-1,2-Dichloroethene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
2,2-Dichloropropane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Bromochloromethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Chloroform	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,1,1-Trichloroethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,1-Dichloropropene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,2-Dichloroethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Benzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Trichloroethene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
tert-Amyl methyl ether	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
tert-Butyl Alcohol	SW-846 8260D	U	13	1	UG/L	07/25/2024	DLC
1,2-Dichloropropane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Dibromomethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Bromodichloromethane	SW-846 8260D	U	0.71	1	UG/L	07/25/2024	DLC
trans-1,3-Dichloropropene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
4-Methyl-2-pentanone	SW-846 8260D	U	10	1	UG/L	07/25/2024	DLC
Toluene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
cis-1,3-Dichloropropene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,1,2-Trichloroethane	SW-846 8260D	U	0.77	1	UG/L	07/25/2024	DLC
2-Hexanone	SW-846 8260D	U	10	1	UG/L	07/25/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	7/29/2024
CLIENT CONTACT:	Lance Moen	ALS JOB#:	EV24070131
CLIENT PROJECT:	Pasco Lanfill 64180.024.0003.001	ALS SAMPLE#:	EV24070131-02
CLIENT SAMPLE ID	TB-71824	DATE RECEIVED:	07/19/2024
		COLLECTION DATE:	7/18/2024 8:00:00 AM
		WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
1,3-Dichloropropane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Tetrachloroethene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Dibromochloromethane	SW-846 8260D	U	0.52	1	UG/L	07/25/2024	DLC
1,2-Dibromoethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Chlorobenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,1,1,2-Tetrachloroethane	SW-846 8260D	U	1.7	1	UG/L	07/25/2024	DLC
Ethylbenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
m-&p-Xylenes	SW-846 8260D	U	4.0	1	UG/L	07/25/2024	DLC
Styrene	SW-846 8260D	U	1.5	1	UG/L	07/25/2024	DLC
o-Xylene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Bromoform	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Isopropylbenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,1,2,2-Tetrachloroethane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,2,3-Trichloropropane	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Bromobenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
n-Propylbenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
2-Chlorotoluene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,3,5-Trimethylbenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
4-Chlorotoluene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
tert-Butylbenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,2,4-Trimethylbenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
sec-Butylbenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
4-Isopropyltoluene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,3-Dichlorobenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,4-Dichlorobenzene	SW-846 8260D	U	1.8	1	UG/L	07/25/2024	DLC
n-Butylbenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,2-Dichlorobenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,2-Dibromo-3-chloropropane	SW-846 8260D	U	10	1	UG/L	07/25/2024	DLC
1,2,4-Trichlorobenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
Hexachlorobutadiene	SW-846 8260D	U	0.56	1	UG/L	07/25/2024	DLC
Naphthalene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC
1,2,3-Trichlorobenzene	SW-846 8260D	U	2.0	1	UG/L	07/25/2024	DLC

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	SW-846 8260D	105	07/25/2024	DLC
Toluene-d8	SW-846 8260D	100	07/25/2024	DLC
4-Bromofluorobenzene	SW-846 8260D	102	07/25/2024	DLC

U - Analyte analyzed for but not detected at level above reporting limit.



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
 CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001

DATE: 7/29/2024
 ALS SDG#: EV24070131
 WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-072424S - Batch 215294 - Soil by SW-846 8260D

ANALYTE	METHOD	RESULTS	UNITS	REPORTING	ANALYSIS	ANALYSIS
				LIMITS	DATE	BY
Dichlorodifluoromethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Chloromethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Vinyl Chloride	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Bromomethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Chloroethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Carbon Tetrachloride	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Trichlorofluoromethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Ethanol	SW-846 8260D	U	UG/KG	52	07/24/2024	DLC
Carbon Disulfide	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Acetone	SW-846 8260D	U	UG/KG	50	07/24/2024	DLC
1,1-Dichloroethene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Methylene Chloride	SW-846 8260D	U	UG/KG	20	07/24/2024	DLC
Acrylonitrile	SW-846 8260D	U	UG/KG	50	07/24/2024	DLC
Methyl tert-butyl ether	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
trans-1,2-Dichloroethene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Isopropyl Ether	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Ethyl tert-butyl ether	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,1-Dichloroethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Methyl Ethyl Ketone	SW-846 8260D	U	UG/KG	50	07/24/2024	DLC
cis-1,2-Dichloroethene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
2,2-Dichloropropane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Bromochloromethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Chloroform	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,1,1-Trichloroethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,1-Dichloropropene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,2-Dichloroethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Benzene	SW-846 8260D	U	UG/KG	5.0	07/24/2024	DLC
Trichloroethene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
tert-Amyl methyl ether	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
tert-Butyl Alcohol	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,2-Dichloropropane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Dibromomethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Bromodichloromethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
trans-1,3-Dichloropropene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
4-Methyl-2-pentanone	SW-846 8260D	U	UG/KG	50	07/24/2024	DLC
Toluene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
cis-1,3-Dichloropropene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,1,2-Trichloroethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
2-Hexanone	SW-846 8260D	U	UG/KG	50	07/24/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
 CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001

DATE: 7/29/2024
 ALS SDG#: EV24070131
 WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-072424S - Batch 215294 - Soil by SW-846 8260D

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
1,3-Dichloropropane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Tetrachloroethene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Dibromochloromethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,2-Dibromoethane	SW-846 8260D	U	UG/KG	5.0	07/24/2024	DLC
Chlorobenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,1,1,2-Tetrachloroethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Ethylbenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
m-&p-Xylenes	SW-846 8260D	U	UG/KG	20	07/24/2024	DLC
Styrene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
o-Xylene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Bromoform	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Isopropylbenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,1,2,2-Tetrachloroethane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,2,3-Trichloropropane	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Bromobenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
n-Propylbenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
2-Chlorotoluene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,3,5-Trimethylbenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
4-Chlorotoluene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
tert-Butylbenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,2,4-Trimethylbenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
sec-Butylbenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
4-Isopropyltoluene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,3-Dichlorobenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,4-Dichlorobenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
n-Butylbenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,2-Dichlorobenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,2-Dibromo-3-chloropropane	SW-846 8260D	U	UG/KG	50	07/24/2024	DLC
1,2,4-Trichlorobenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Hexachlorobutadiene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
Naphthalene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC
1,2,3-Trichlorobenzene	SW-846 8260D	U	UG/KG	10	07/24/2024	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

MB-072524W - Batch 215305 - Water by SW-846 8260D

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Chloromethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Vinyl Chloride	SW-846 8260D	U	UG/L	0.20	07/25/2024	DLC
Bromomethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
 CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001

DATE: 7/29/2024
 ALS SDG#: EV24070131
 WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-072524W - Batch 215305 - Water by SW-846 8260D

Chloroethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Carbon Tetrachloride	SW-846 8260D	U	UG/L	0.34	07/25/2024	DLC
Trichlorofluoromethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Ethanol	SW-846 8260D	U	UG/L	710	07/25/2024	DLC
Carbon Disulfide	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Acetone	SW-846 8260D	U	UG/L	25	07/25/2024	DLC
1,1-Dichloroethene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Methylene Chloride	SW-846 8260D	U	UG/L	5.0	07/25/2024	DLC
Acrylonitrile	SW-846 8260D	U	UG/L	10	07/25/2024	DLC
Methyl tert-butyl ether	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
trans-1,2-Dichloroethene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Isopropyl Ether	SW-846 8260D	U	UG/L	3.5	07/25/2024	DLC
Ethyl tert-butyl ether	SW-846 8260D	U	UG/L	4.1	07/25/2024	DLC
1,1-Dichloroethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Methyl Ethyl Ketone	SW-846 8260D	U	UG/L	10	07/25/2024	DLC
cis-1,2-Dichloroethene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
2,2-Dichloropropane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Bromochloromethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Chloroform	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,1,1-Trichloroethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,1-Dichloropropene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,2-Dichloroethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Benzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Trichloroethene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
tert-Amyl methyl ether	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
tert-Butyl Alcohol	SW-846 8260D	U	UG/L	13	07/25/2024	DLC
1,2-Dichloropropane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Dibromomethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Bromodichloromethane	SW-846 8260D	U	UG/L	0.71	07/25/2024	DLC
trans-1,3-Dichloropropene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
4-Methyl-2-pentanone	SW-846 8260D	U	UG/L	10	07/25/2024	DLC
Toluene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
cis-1,3-Dichloropropene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,1,2-Trichloroethane	SW-846 8260D	U	UG/L	0.77	07/25/2024	DLC
2-Hexanone	SW-846 8260D	U	UG/L	10	07/25/2024	DLC
1,3-Dichloropropane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Tetrachloroethene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Dibromochloromethane	SW-846 8260D	U	UG/L	0.52	07/25/2024	DLC
1,2-Dibromoethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Chlorobenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,1,1,2-Tetrachloroethane	SW-846 8260D	U	UG/L	1.7	07/25/2024	DLC



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DATE: 7/29/2024
 ALS SDG#: EV24070131
 WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-072524W - Batch 215305 - Water by SW-846 8260D

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Ethylbenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
m-&p-Xylenes	SW-846 8260D	U	UG/L	4.0	07/25/2024	DLC
Styrene	SW-846 8260D	U	UG/L	1.5	07/25/2024	DLC
o-Xylene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Bromoform	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Isopropylbenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,1,2,2-Tetrachloroethane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,2,3-Trichloropropane	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Bromobenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
n-Propylbenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
2-Chlorotoluene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,3,5-Trimethylbenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
4-Chlorotoluene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
tert-Butylbenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,2,4-Trimethylbenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
sec-Butylbenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
4-Isopropyltoluene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,3-Dichlorobenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,4-Dichlorobenzene	SW-846 8260D	U	UG/L	1.8	07/25/2024	DLC
n-Butylbenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,2-Dichlorobenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,2-Dibromo-3-chloropropane	SW-846 8260D	U	UG/L	10	07/25/2024	DLC
1,2,4-Trichlorobenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
Hexachlorobutadiene	SW-846 8260D	U	UG/L	0.56	07/25/2024	DLC
Naphthalene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC
1,2,3-Trichlorobenzene	SW-846 8260D	U	UG/L	2.0	07/25/2024	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

MBLK-R473129 - Batch R473129 - TCLP Extract by SW-846 8260D

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Vinyl Chloride	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
Carbon Tetrachloride	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
1,1-Dichloroethene	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
Methyl Ethyl Ketone	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
Chloroform	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
1,2-Dichloroethane	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
Benzene	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
Trichloroethene	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
Tetrachloroethene	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
Chlorobenzene	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC



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CLIENT CONTACT: Lance Moen
CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001

LABORATORY BLANK RESULTS

MBLK-R473129 - Batch R473129 - TCLP Extract by SW-846 8260D

1,4-Dichlorobenzene	SW-846 8260D	U	MG/L	0.0050	07/25/2024	DLC
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U - Analyte analyzed for but not detected at level above reporting limit.



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 ALS SDG#: EV24070131
 WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 215294 - Soil by SW-846 8260D

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Dichlorodifluoromethane - BS	SW-846 8260D	105			50	150	07/24/2024	DLC
Dichlorodifluoromethane - BSD	SW-846 8260D	106	2		50	150	07/24/2024	DLC
Chloromethane - BS	SW-846 8260D	97.7			50	150	07/24/2024	DLC
Chloromethane - BSD	SW-846 8260D	98.9	1		50	150	07/24/2024	DLC
Vinyl Chloride - BS	SW-846 8260D	99.0			50	150	07/24/2024	DLC
Vinyl Chloride - BSD	SW-846 8260D	99.4	0		50	150	07/24/2024	DLC
Bromomethane - BS	SW-846 8260D	114			50	150	07/24/2024	DLC
Bromomethane - BSD	SW-846 8260D	119	4		50	150	07/24/2024	DLC
Chloroethane - BS	SW-846 8260D	98.4			50	150	07/24/2024	DLC
Chloroethane - BSD	SW-846 8260D	98.9	0		50	150	07/24/2024	DLC
Carbon Tetrachloride - BS	SW-846 8260D	115			50	150	07/24/2024	DLC
Carbon Tetrachloride - BSD	SW-846 8260D	115	0		50	150	07/24/2024	DLC
Trichlorofluoromethane - BS	SW-846 8260D	106			50	150	07/24/2024	DLC
Trichlorofluoromethane - BSD	SW-846 8260D	106	0		50	150	07/24/2024	DLC
Ethanol - BS	SW-846 8260D	116			50	150	07/24/2024	DLC
Ethanol - BSD	SW-846 8260D	117	2		50	150	07/24/2024	DLC
Carbon Disulfide - BS	SW-846 8260D	97.9			50	150	07/24/2024	DLC
Carbon Disulfide - BSD	SW-846 8260D	97.7	0		50	150	07/24/2024	DLC
Acetone - BS	SW-846 8260D	88.4			50	150	07/24/2024	DLC
Acetone - BSD	SW-846 8260D	88.1	0		50	150	07/24/2024	DLC
1,1-Dichloroethene - BS	SW-846 8260D	102			70	130	07/24/2024	DLC
1,1-Dichloroethene - BSD	SW-846 8260D	102	0		70	130	07/24/2024	DLC
Methylene Chloride - BS	SW-846 8260D	106			50	150	07/24/2024	DLC
Methylene Chloride - BSD	SW-846 8260D	108	2		50	150	07/24/2024	DLC
Acrylonitrile - BS	SW-846 8260D	107			50	150	07/24/2024	DLC
Acrylonitrile - BSD	SW-846 8260D	107	0		50	150	07/24/2024	DLC
Methyl tert-butyl ether - BS	SW-846 8260D	110			50	150	07/24/2024	DLC
Methyl tert-butyl ether - BSD	SW-846 8260D	110	0		50	150	07/24/2024	DLC
trans-1,2-Dichloroethene - BS	SW-846 8260D	100			50	150	07/24/2024	DLC
trans-1,2-Dichloroethene - BSD	SW-846 8260D	100	0		50	150	07/24/2024	DLC
Isopropyl Ether - BS	SW-846 8260D	110			50	150	07/24/2024	DLC
Isopropyl Ether - BSD	SW-846 8260D	111	1		50	150	07/24/2024	DLC
Ethyl tert-butyl ether - BS	SW-846 8260D	112			50	150	07/24/2024	DLC
Ethyl tert-butyl ether - BSD	SW-846 8260D	113	1		50	150	07/24/2024	DLC
1,1-Dichloroethane - BS	SW-846 8260D	104			50	150	07/24/2024	DLC
1,1-Dichloroethane - BSD	SW-846 8260D	104	0		50	150	07/24/2024	DLC
Methyl Ethyl Ketone - BS	SW-846 8260D	99.5			50	150	07/24/2024	DLC
Methyl Ethyl Ketone - BSD	SW-846 8260D	100	1		50	150	07/24/2024	DLC
cis-1,2-Dichloroethene - BS	SW-846 8260D	103			50	150	07/24/2024	DLC



CERTIFICATE OF ANALYSIS

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DATE: 7/29/2024
 ALS SDG#: EV24070131
 WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
cis-1,2-Dichloroethene - BSD	SW-846 8260D	103	0		50	150	07/24/2024	DLC
2,2-Dichloropropane - BS	SW-846 8260D	98.4			50	150	07/24/2024	DLC
2,2-Dichloropropane - BSD	SW-846 8260D	96.8	2		50	150	07/24/2024	DLC
Bromochloromethane - BS	SW-846 8260D	104			50	150	07/24/2024	DLC
Bromochloromethane - BSD	SW-846 8260D	104	0		50	150	07/24/2024	DLC
Chloroform - BS	SW-846 8260D	99.5			50	150	07/24/2024	DLC
Chloroform - BSD	SW-846 8260D	101	2		50	150	07/24/2024	DLC
1,1,1-Trichloroethane - BS	SW-846 8260D	103			50	150	07/24/2024	DLC
1,1,1-Trichloroethane - BSD	SW-846 8260D	104	1		50	150	07/24/2024	DLC
1,1-Dichloropropene - BS	SW-846 8260D	101			50	150	07/24/2024	DLC
1,1-Dichloropropene - BSD	SW-846 8260D	101	0		50	150	07/24/2024	DLC
1,2-Dichloroethane - BS	SW-846 8260D	103			50	150	07/24/2024	DLC
1,2-Dichloroethane - BSD	SW-846 8260D	104	1		50	150	07/24/2024	DLC
Benzene - BS	SW-846 8260D	103			75	138	07/24/2024	DLC
Benzene - BSD	SW-846 8260D	104	0		75	138	07/24/2024	DLC
Trichloroethene - BS	SW-846 8260D	98.4			75	136	07/24/2024	DLC
Trichloroethene - BSD	SW-846 8260D	99.0	1		75	136	07/24/2024	DLC
tert-Amyl methyl ether - BS	SW-846 8260D	109			50	150	07/24/2024	DLC
tert-Amyl methyl ether - BSD	SW-846 8260D	111	1		50	150	07/24/2024	DLC
tert-Butyl Alcohol - BS	SW-846 8260D	110			50	150	07/24/2024	DLC
tert-Butyl Alcohol - BSD	SW-846 8260D	112	2		50	150	07/24/2024	DLC
1,2-Dichloropropane - BS	SW-846 8260D	103			50	150	07/24/2024	DLC
1,2-Dichloropropane - BSD	SW-846 8260D	103	1		50	150	07/24/2024	DLC
Dibromomethane - BS	SW-846 8260D	109			50	150	07/24/2024	DLC
Dibromomethane - BSD	SW-846 8260D	109	0		50	150	07/24/2024	DLC
Bromodichloromethane - BS	SW-846 8260D	108			50	150	07/24/2024	DLC
Bromodichloromethane - BSD	SW-846 8260D	109	1		50	150	07/24/2024	DLC
trans-1,3-Dichloropropene - BS	SW-846 8260D	107			50	150	07/24/2024	DLC
trans-1,3-Dichloropropene - BSD	SW-846 8260D	108	1		50	150	07/24/2024	DLC
4-Methyl-2-pentanone - BS	SW-846 8260D	111			50	150	07/24/2024	DLC
4-Methyl-2-pentanone - BSD	SW-846 8260D	113	2		50	150	07/24/2024	DLC
Toluene - BS	SW-846 8260D	103			71.6	122.1	07/24/2024	DLC
Toluene - BSD	SW-846 8260D	104	1		71.6	122.1	07/24/2024	DLC
cis-1,3-Dichloropropene - BS	SW-846 8260D	108			50	150	07/24/2024	DLC
cis-1,3-Dichloropropene - BSD	SW-846 8260D	109	0		50	150	07/24/2024	DLC
1,1,2-Trichloroethane - BS	SW-846 8260D	106			50	150	07/24/2024	DLC
1,1,2-Trichloroethane - BSD	SW-846 8260D	108	2		50	150	07/24/2024	DLC
2-Hexanone - BS	SW-846 8260D	108			50	150	07/24/2024	DLC
2-Hexanone - BSD	SW-846 8260D	113	4		50	150	07/24/2024	DLC
1,3-Dichloropropane - BS	SW-846 8260D	107			50	150	07/24/2024	DLC



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 WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
1,3-Dichloropropane - BSD	SW-846 8260D	108	1		50	150	07/24/2024	DLC
Tetrachloroethene - BS	SW-846 8260D	103			50	150	07/24/2024	DLC
Tetrachloroethene - BSD	SW-846 8260D	102	2		50	150	07/24/2024	DLC
Dibromochloromethane - BS	SW-846 8260D	110			50	150	07/24/2024	DLC
Dibromochloromethane - BSD	SW-846 8260D	112	1		50	150	07/24/2024	DLC
1,2-Dibromoethane - BS	SW-846 8260D	108			50	150	07/24/2024	DLC
1,2-Dibromoethane - BSD	SW-846 8260D	109	1		50	150	07/24/2024	DLC
Chlorobenzene - BS	SW-846 8260D	104			79	128	07/24/2024	DLC
Chlorobenzene - BSD	SW-846 8260D	105	1		79	128	07/24/2024	DLC
1,1,1,2-Tetrachloroethane - BS	SW-846 8260D	107			50	150	07/24/2024	DLC
1,1,1,2-Tetrachloroethane - BSD	SW-846 8260D	108	0		50	150	07/24/2024	DLC
Ethylbenzene - BS	SW-846 8260D	103			50	150	07/24/2024	DLC
Ethylbenzene - BSD	SW-846 8260D	104	1		50	150	07/24/2024	DLC
m-&p-Xylenes - BS	SW-846 8260D	100			50	150	07/24/2024	DLC
m-&p-Xylenes - BSD	SW-846 8260D	102	1		50	150	07/24/2024	DLC
Styrene - BS	SW-846 8260D	106			50	150	07/24/2024	DLC
Styrene - BSD	SW-846 8260D	109	2		50	150	07/24/2024	DLC
o-Xylene - BS	SW-846 8260D	104			50	150	07/24/2024	DLC
o-Xylene - BSD	SW-846 8260D	105	2		50	150	07/24/2024	DLC
Bromoform - BS	SW-846 8260D	98.0			50	150	07/24/2024	DLC
Bromoform - BSD	SW-846 8260D	100	2		50	150	07/24/2024	DLC
Isopropylbenzene - BS	SW-846 8260D	103			50	150	07/24/2024	DLC
Isopropylbenzene - BSD	SW-846 8260D	104	1		50	150	07/24/2024	DLC
1,1,2,2-Tetrachloroethane - BS	SW-846 8260D	110			50	150	07/24/2024	DLC
1,1,2,2-Tetrachloroethane - BSD	SW-846 8260D	112	2		50	150	07/24/2024	DLC
1,2,3-Trichloropropane - BS	SW-846 8260D	108			50	150	07/24/2024	DLC
1,2,3-Trichloropropane - BSD	SW-846 8260D	110	2		50	150	07/24/2024	DLC
Bromobenzene - BS	SW-846 8260D	107			50	150	07/24/2024	DLC
Bromobenzene - BSD	SW-846 8260D	106	1		50	150	07/24/2024	DLC
n-Propylbenzene - BS	SW-846 8260D	104			50	150	07/24/2024	DLC
n-Propylbenzene - BSD	SW-846 8260D	105	1		50	150	07/24/2024	DLC
2-Chlorotoluene - BS	SW-846 8260D	104			50	150	07/24/2024	DLC
2-Chlorotoluene - BSD	SW-846 8260D	105	1		50	150	07/24/2024	DLC
1,3,5-Trimethylbenzene - BS	SW-846 8260D	103			50	150	07/24/2024	DLC
1,3,5-Trimethylbenzene - BSD	SW-846 8260D	104	1		50	150	07/24/2024	DLC
4-Chlorotoluene - BS	SW-846 8260D	104			50	150	07/24/2024	DLC
4-Chlorotoluene - BSD	SW-846 8260D	105	1		50	150	07/24/2024	DLC
tert-Butylbenzene - BS	SW-846 8260D	108			50	150	07/24/2024	DLC
tert-Butylbenzene - BSD	SW-846 8260D	109	1		50	150	07/24/2024	DLC
1,2,4-Trimethylbenzene - BS	SW-846 8260D	101			50	150	07/24/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
 CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001

DATE: 7/29/2024
 ALS SDG#: EV24070131
 WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
1,2,4-Trimethylbenzene - BSD	SW-846 8260D	103	2		50	150	07/24/2024	DLC
sec-Butylbenzene - BS	SW-846 8260D	101			50	150	07/24/2024	DLC
sec-Butylbenzene - BSD	SW-846 8260D	103	1		50	150	07/24/2024	DLC
4-Isopropyltoluene - BS	SW-846 8260D	102			50	150	07/24/2024	DLC
4-Isopropyltoluene - BSD	SW-846 8260D	103	1		50	150	07/24/2024	DLC
1,3-Dichlorobenzene - BS	SW-846 8260D	102			50	150	07/24/2024	DLC
1,3-Dichlorobenzene - BSD	SW-846 8260D	103	0		50	150	07/24/2024	DLC
1,4-Dichlorobenzene - BS	SW-846 8260D	102			50	150	07/24/2024	DLC
1,4-Dichlorobenzene - BSD	SW-846 8260D	102	0		50	150	07/24/2024	DLC
n-Butylbenzene - BS	SW-846 8260D	85.5			50	150	07/24/2024	DLC
n-Butylbenzene - BSD	SW-846 8260D	86.4	1		50	150	07/24/2024	DLC
1,2-Dichlorobenzene - BS	SW-846 8260D	103			50	150	07/24/2024	DLC
1,2-Dichlorobenzene - BSD	SW-846 8260D	105	2		50	150	07/24/2024	DLC
1,2-Dibromo-3-chloropropane - BS	SW-846 8260D	108			50	150	07/24/2024	DLC
1,2-Dibromo-3-chloropropane - BSD	SW-846 8260D	117	7		50	150	07/24/2024	DLC
1,2,4-Trichlorobenzene - BS	SW-846 8260D	84.3			50	150	07/24/2024	DLC
1,2,4-Trichlorobenzene - BSD	SW-846 8260D	94.1	11		50	150	07/24/2024	DLC
Hexachlorobutadiene - BS	SW-846 8260D	85.4			50	150	07/24/2024	DLC
Hexachlorobutadiene - BSD	SW-846 8260D	90.0	5		50	150	07/24/2024	DLC
Naphthalene - BS	SW-846 8260D	87.7			50	150	07/24/2024	DLC
Naphthalene - BSD	SW-846 8260D	105	18		50	150	07/24/2024	DLC
1,2,3-Trichlorobenzene - BS	SW-846 8260D	92.9			50	150	07/24/2024	DLC
1,2,3-Trichlorobenzene - BSD	SW-846 8260D	107	14		50	150	07/24/2024	DLC

ALS Test Batch ID: 215305 - Water by SW-846 8260D

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Dichlorodifluoromethane - BS	SW-846 8260D	109			50	150	07/25/2024	DLC
Dichlorodifluoromethane - BSD	SW-846 8260D	98.6	10		50	150	07/25/2024	DLC
Chloromethane - BS	SW-846 8260D	119			50	150	07/25/2024	DLC
Chloromethane - BSD	SW-846 8260D	103	15		50	150	07/25/2024	DLC
Vinyl Chloride - BS	SW-846 8260D	101			50	150	07/25/2024	DLC
Vinyl Chloride - BSD	SW-846 8260D	91.5	10		50	150	07/25/2024	DLC
Bromomethane - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
Bromomethane - BSD	SW-846 8260D	104	1		50	150	07/25/2024	DLC
Chloroethane - BS	SW-846 8260D	100			50	150	07/25/2024	DLC
Chloroethane - BSD	SW-846 8260D	91.3	9		50	150	07/25/2024	DLC
Carbon Tetrachloride - BS	SW-846 8260D	123			50	150	07/25/2024	DLC
Carbon Tetrachloride - BSD	SW-846 8260D	112	9		50	150	07/25/2024	DLC
Trichlorofluoromethane - BS	SW-846 8260D	111			50	150	07/25/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001

DATE: 7/29/2024
ALS SDG#: EV24070131
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Trichlorofluoromethane - BSD	SW-846 8260D	101	10		50	150	07/25/2024	DLC
Ethanol - BS	SW-846 8260D	117			50	150	07/25/2024	DLC
Ethanol - BSD	SW-846 8260D	104	12		50	150	07/25/2024	DLC
Carbon Disulfide - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
Carbon Disulfide - BSD	SW-846 8260D	94.9	10		50	150	07/25/2024	DLC
Acetone - BS	SW-846 8260D	136			50	150	07/25/2024	DLC
Acetone - BSD	SW-846 8260D	152	11	SQ3	50	150	07/25/2024	DLC
1,1-Dichloroethene - BS	SW-846 8260D	105			72.5	136	07/25/2024	DLC
1,1-Dichloroethene - BSD	SW-846 8260D	95.9	9		72.5	136	07/25/2024	DLC
Methylene Chloride - BS	SW-846 8260D	114			50	150	07/25/2024	DLC
Methylene Chloride - BSD	SW-846 8260D	103	10		50	150	07/25/2024	DLC
Acrylonitrile - BS	SW-846 8260D	111			50	150	07/25/2024	DLC
Acrylonitrile - BSD	SW-846 8260D	99.8	10		50	150	07/25/2024	DLC
Methyl tert-butyl ether - BS	SW-846 8260D	108			50	150	07/25/2024	DLC
Methyl tert-butyl ether - BSD	SW-846 8260D	99.2	9		50	150	07/25/2024	DLC
trans-1,2-Dichloroethene - BS	SW-846 8260D	103			50	150	07/25/2024	DLC
trans-1,2-Dichloroethene - BSD	SW-846 8260D	94.5	9		50	150	07/25/2024	DLC
Isopropyl Ether - BS	SW-846 8260D	88.1			50	150	07/25/2024	DLC
Isopropyl Ether - BSD	SW-846 8260D	81.5	8		50	150	07/25/2024	DLC
Ethyl tert-butyl ether - BS	SW-846 8260D	89.1			50	150	07/25/2024	DLC
Ethyl tert-butyl ether - BSD	SW-846 8260D	82.5	8		50	150	07/25/2024	DLC
1,1-Dichloroethane - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
1,1-Dichloroethane - BSD	SW-846 8260D	96.7	8		50	150	07/25/2024	DLC
Methyl Ethyl Ketone - BS	SW-846 8260D	124			50	150	07/25/2024	DLC
Methyl Ethyl Ketone - BSD	SW-846 8260D	126	1		50	150	07/25/2024	DLC
cis-1,2-Dichloroethene - BS	SW-846 8260D	103			50	150	07/25/2024	DLC
cis-1,2-Dichloroethene - BSD	SW-846 8260D	95.4	8		50	150	07/25/2024	DLC
2,2-Dichloropropane - BS	SW-846 8260D	114			50	150	07/25/2024	DLC
2,2-Dichloropropane - BSD	SW-846 8260D	103	10		50	150	07/25/2024	DLC
Bromochloromethane - BS	SW-846 8260D	103			50	150	07/25/2024	DLC
Bromochloromethane - BSD	SW-846 8260D	95.4	7		50	150	07/25/2024	DLC
Chloroform - BS	SW-846 8260D	89.9			50	150	07/25/2024	DLC
Chloroform - BSD	SW-846 8260D	83.1	8		50	150	07/25/2024	DLC
1,1,1-Trichloroethane - BS	SW-846 8260D	107			50	150	07/25/2024	DLC
1,1,1-Trichloroethane - BSD	SW-846 8260D	97.7	9		50	150	07/25/2024	DLC
1,1-Dichloropropene - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
1,1-Dichloropropene - BSD	SW-846 8260D	96.4	9		50	150	07/25/2024	DLC
1,2-Dichloroethane - BS	SW-846 8260D	100			50	150	07/25/2024	DLC
1,2-Dichloroethane - BSD	SW-846 8260D	93.4	7		50	150	07/25/2024	DLC
Benzene - BS	SW-846 8260D	102			74.7	143	07/25/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001

DATE: 7/29/2024
ALS SDG#: EV24070131
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
Benzene - BSD	SW-846 8260D	95.1	7		74.7	143	07/25/2024	DLC
Trichloroethene - BS	SW-846 8260D	98.8			74.4	141	07/25/2024	DLC
Trichloroethene - BSD	SW-846 8260D	91.7	8		74.4	141	07/25/2024	DLC
tert-Amyl methyl ether - BS	SW-846 8260D	107			50	150	07/25/2024	DLC
tert-Amyl methyl ether - BSD	SW-846 8260D	99.2	7		50	150	07/25/2024	DLC
tert-Butyl Alcohol - BS	SW-846 8260D	109			50	150	07/25/2024	DLC
tert-Butyl Alcohol - BSD	SW-846 8260D	97.2	11		50	150	07/25/2024	DLC
1,2-Dichloropropane - BS	SW-846 8260D	100			50	150	07/25/2024	DLC
1,2-Dichloropropane - BSD	SW-846 8260D	94.1	6		50	150	07/25/2024	DLC
Dibromomethane - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
Dibromomethane - BSD	SW-846 8260D	97.1	8		50	150	07/25/2024	DLC
Bromodichloromethane - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
Bromodichloromethane - BSD	SW-846 8260D	98.6	6		50	150	07/25/2024	DLC
trans-1,3-Dichloropropene - BS	SW-846 8260D	108			50	150	07/25/2024	DLC
trans-1,3-Dichloropropene - BSD	SW-846 8260D	101	7		50	150	07/25/2024	DLC
4-Methyl-2-pentanone - BS	SW-846 8260D	110			50	150	07/25/2024	DLC
4-Methyl-2-pentanone - BSD	SW-846 8260D	99.9	10		50	150	07/25/2024	DLC
Toluene - BS	SW-846 8260D	103			71.7	139	07/25/2024	DLC
Toluene - BSD	SW-846 8260D	95.2	8		71.7	139	07/25/2024	DLC
cis-1,3-Dichloropropene - BS	SW-846 8260D	109			50	150	07/25/2024	DLC
cis-1,3-Dichloropropene - BSD	SW-846 8260D	101	7		50	150	07/25/2024	DLC
1,1,2-Trichloroethane - BS	SW-846 8260D	104			50	150	07/25/2024	DLC
1,1,2-Trichloroethane - BSD	SW-846 8260D	97.9	6		50	150	07/25/2024	DLC
2-Hexanone - BS	SW-846 8260D	121			50	150	07/25/2024	DLC
2-Hexanone - BSD	SW-846 8260D	122	1		50	150	07/25/2024	DLC
1,3-Dichloropropane - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
1,3-Dichloropropane - BSD	SW-846 8260D	97.9	7		50	150	07/25/2024	DLC
Tetrachloroethene - BS	SW-846 8260D	104			50	150	07/25/2024	DLC
Tetrachloroethene - BSD	SW-846 8260D	105	1		50	150	07/25/2024	DLC
Dibromochloromethane - BS	SW-846 8260D	106			50	150	07/25/2024	DLC
Dibromochloromethane - BSD	SW-846 8260D	98.6	8		50	150	07/25/2024	DLC
1,2-Dibromoethane - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
1,2-Dibromoethane - BSD	SW-846 8260D	97.2	7		50	150	07/25/2024	DLC
Chlorobenzene - BS	SW-846 8260D	103			73	131	07/25/2024	DLC
Chlorobenzene - BSD	SW-846 8260D	96.9	6		73	131	07/25/2024	DLC
1,1,1,2-Tetrachloroethane - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
1,1,1,2-Tetrachloroethane - BSD	SW-846 8260D	98.0	7		50	150	07/25/2024	DLC
Ethylbenzene - BS	SW-846 8260D	104			50	150	07/25/2024	DLC
Ethylbenzene - BSD	SW-846 8260D	96.4	8		50	150	07/25/2024	DLC
m-&p-Xylenes - BS	SW-846 8260D	103			50	150	07/25/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT: PBS Engineering & Environmental
 400 Bradley Blvd, Suite 106
 Richland, WA 99352

CLIENT CONTACT: Lance Moen
 CLIENT PROJECT: Pasco Lanfill 64180.024.0003.001

DATE: 7/29/2024
 ALS SDG#: EV24070131
 WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
m-&p-Xylenes - BSD	SW-846 8260D	95.7	7		50	150	07/25/2024	DLC
Styrene - BS	SW-846 8260D	107			50	150	07/25/2024	DLC
Styrene - BSD	SW-846 8260D	99.4	7		50	150	07/25/2024	DLC
o-Xylene - BS	SW-846 8260D	105			50	150	07/25/2024	DLC
o-Xylene - BSD	SW-846 8260D	97.0	8		50	150	07/25/2024	DLC
Bromoform - BS	SW-846 8260D	95.3			50	150	07/25/2024	DLC
Bromoform - BSD	SW-846 8260D	88.0	8		50	150	07/25/2024	DLC
Isopropylbenzene - BS	SW-846 8260D	106			50	150	07/25/2024	DLC
Isopropylbenzene - BSD	SW-846 8260D	98.5	8		50	150	07/25/2024	DLC
1,1,2,2-Tetrachloroethane - BS	SW-846 8260D	111			50	150	07/25/2024	DLC
1,1,2,2-Tetrachloroethane - BSD	SW-846 8260D	102	9		50	150	07/25/2024	DLC
1,2,3-Trichloropropane - BS	SW-846 8260D	108			50	150	07/25/2024	DLC
1,2,3-Trichloropropane - BSD	SW-846 8260D	99.4	8		50	150	07/25/2024	DLC
Bromobenzene - BS	SW-846 8260D	107			50	150	07/25/2024	DLC
Bromobenzene - BSD	SW-846 8260D	99.5	7		50	150	07/25/2024	DLC
n-Propylbenzene - BS	SW-846 8260D	113			50	150	07/25/2024	DLC
n-Propylbenzene - BSD	SW-846 8260D	104	8		50	150	07/25/2024	DLC
2-Chlorotoluene - BS	SW-846 8260D	110			50	150	07/25/2024	DLC
2-Chlorotoluene - BSD	SW-846 8260D	102	7		50	150	07/25/2024	DLC
1,3,5-Trimethylbenzene - BS	SW-846 8260D	110			50	150	07/25/2024	DLC
1,3,5-Trimethylbenzene - BSD	SW-846 8260D	102	8		50	150	07/25/2024	DLC
4-Chlorotoluene - BS	SW-846 8260D	111			50	150	07/25/2024	DLC
4-Chlorotoluene - BSD	SW-846 8260D	103	7		50	150	07/25/2024	DLC
tert-Butylbenzene - BS	SW-846 8260D	114			50	150	07/25/2024	DLC
tert-Butylbenzene - BSD	SW-846 8260D	105	8		50	150	07/25/2024	DLC
1,2,4-Trimethylbenzene - BS	SW-846 8260D	108			50	150	07/25/2024	DLC
1,2,4-Trimethylbenzene - BSD	SW-846 8260D	101	7		50	150	07/25/2024	DLC
sec-Butylbenzene - BS	SW-846 8260D	110			50	150	07/25/2024	DLC
sec-Butylbenzene - BSD	SW-846 8260D	102	7		50	150	07/25/2024	DLC
4-Isopropyltoluene - BS	SW-846 8260D	113			50	150	07/25/2024	DLC
4-Isopropyltoluene - BSD	SW-846 8260D	105	7		50	150	07/25/2024	DLC
1,3-Dichlorobenzene - BS	SW-846 8260D	108			50	150	07/25/2024	DLC
1,3-Dichlorobenzene - BSD	SW-846 8260D	101	6		50	150	07/25/2024	DLC
1,4-Dichlorobenzene - BS	SW-846 8260D	108			50	150	07/25/2024	DLC
1,4-Dichlorobenzene - BSD	SW-846 8260D	102	6		50	150	07/25/2024	DLC
n-Butylbenzene - BS	SW-846 8260D	98.6			50	150	07/25/2024	DLC
n-Butylbenzene - BSD	SW-846 8260D	90.9	8		50	150	07/25/2024	DLC
1,2-Dichlorobenzene - BS	SW-846 8260D	106			50	150	07/25/2024	DLC
1,2-Dichlorobenzene - BSD	SW-846 8260D	99.8	6		50	150	07/25/2024	DLC
1,2-Dibromo-3-chloropropane - BS	SW-846 8260D	108			50	150	07/25/2024	DLC



CERTIFICATE OF ANALYSIS

CLIENT:	PBS Engineering & Environmental 400 Bradley Blvd, Suite 106 Richland, WA 99352	DATE:	7/29/2024
CLIENT CONTACT:	Lance Moen	ALS SDG#:	EV24070131
CLIENT PROJECT:	Pasco Lanfill 64180.024.0003.001	WDOE ACCREDITATION:	C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
1,2-Dibromo-3-chloropropane - BSD	SW-846 8260D	101	7		50	150	07/25/2024	DLC
1,2,4-Trichlorobenzene - BS	SW-846 8260D	81.9			50	150	07/25/2024	DLC
1,2,4-Trichlorobenzene - BSD	SW-846 8260D	80.1	2		50	150	07/25/2024	DLC
Hexachlorobutadiene - BS	SW-846 8260D	89.0			50	150	07/25/2024	DLC
Hexachlorobutadiene - BSD	SW-846 8260D	85.3	4		50	150	07/25/2024	DLC
Naphthalene - BS	SW-846 8260D	74.6			50	150	07/25/2024	DLC
Naphthalene - BSD	SW-846 8260D	74.2	1		50	150	07/25/2024	DLC
1,2,3-Trichlorobenzene - BS	SW-846 8260D	82.3			50	150	07/25/2024	DLC
1,2,3-Trichlorobenzene - BSD	SW-846 8260D	83.4	1		50	150	07/25/2024	DLC

SQ3 - Spike outside of control limits due to sporadic marginal failure. All other spikes in extraction fraction within control limits. No corrective action taken.

ALS Test Batch ID: R473129 - TCLP Extract by SW-846 8260D

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS		ANALYSIS DATE	ANALYSIS BY
					MIN	MAX		
1,1-Dichloroethene - BS	SW-846 8260D	96.6			80.2	139	07/25/2024	DLC
1,1-Dichloroethene - BSD	SW-846 8260D	95.2	1		80.2	139	07/25/2024	DLC
Benzene - BS	SW-846 8260D	92.1			79.2	138	07/25/2024	DLC
Benzene - BSD	SW-846 8260D	91.7	0		79.2	138	07/25/2024	DLC
Trichloroethene - BS	SW-846 8260D	88.0			80	134	07/25/2024	DLC
Trichloroethene - BSD	SW-846 8260D	87.4	1		80	134	07/25/2024	DLC
Chlorobenzene - BS	SW-846 8260D	101			78	130	07/25/2024	DLC
Chlorobenzene - BSD	SW-846 8260D	101	0		78	130	07/25/2024	DLC

APPROVED BY

Rob Greer
Laboratory Director

ALS ENVIRONMENTAL

Sample Receiving Checklist

Client: PBS Engineering ALS Job#: EV24070131

Project: Pasco Landfill 64180.024.0003.001

Login Date: 7/19/24 Login Time: _____ Login By: AV

Type of Shipping Container: Cooler Box _____ Other _____

Shipped via: FedEx Ground _____ UPS _____ Courier _____ Hand Delivered _____ ALS Courier _____
FedEx Express

Priority overnight

Yes

No

N/A

Were custody seals on outside of shipping container?

If yes, how many? 1 Where? Front

Custody seal date: 7/18/24 Seal name: CUSTODY seal

Was Chain of Custody properly filled out (ink, signed, dated, etc.)?

Did all bottles have labels?

Did all bottle labels and tags agree with Chain of Custody?

Were samples received within hold time?

Did all bottles arrive in good condition (unbroken, etc.)?

Was sufficient amount of sample sent for the tests indicated?

Was correct preservation added to samples?

Subcontract test containers added to Subcontract Bin?

Wetchem test containers marked with required Tests?

Short hold time test containers delivered to analysts?

Were VOA vials checked for absence of air bubbles?

Bubbles present in sample #: None

AV

5035A kits received?

Low Kits: 1

High Kits: _____

5035A kits returned?

Low Kits: _____

High Kits: _____

Temperature of cooler upon receipt: 8.2°C

On ice?

Explain any discrepancies:

Was client contacted? _____

Who was called? _____

By whom? _____

Date: _____

Outcome of call:



Activated Carbon Products & Services

PO Box 1346 – Ridgefield, WA 98642 Phone: (360) 727-3775 Email: Info@PacificCoastCarbon.com

Sept 26th, 2024
Attn: Lance Moen
Pasco Landfill NPL Site
1901 Dietrich Road
Paco, WA 99301

This letter certifies the following non hazardous spent carbon received by Pacific Coast Carbon was reactivated in accordance with 40 CFR Part 265 and part 61 regulations:

Generators Mailing Address

Pasco Landfill NPL Site
1901 Dietrich Road
Pasco, WA 99301

Generator Site Address

Pasco Landfill NPL site
Kahlotus Road & Hwy 12
Pasco, WA 99301

Profile Number: V-24103

Shipping Documentation number: 24433 dated 08/30/2024

Date of Receipt: 08-30-2024

Qty Container & Type: 1 SD (CVS200 – Sealed for transport)

Reactivation Date: 09/26/2024

Under civil and criminal penalties of law for false and or fraudulent statements or representations, I verify the information contained above is accurate, true and complete. As to the identified sections(s) of this certificate for which I cannot personally verify accuracy and truth, I certify as the company official and having company authority and responsibility for the persons who, acting under my direct instructions, made the verification that this information is accurate, true and complete.

Pacific Coast Carbon
Sincerely,

Alex Peru

Alex Peru
President

Attachment C

Monthly IWA Performance Monitoring Checklists

Zone A Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 1, 2024	January 01/18/24						February 02/27/24						March 03/26/2024					
	<i>Weather: Cloudy, 19° f, wind NW 13, Pressure 30.10</i>						<i>Weather: Clear, 41° f, wind SW 7, Pressure 30.10</i>						<i>Weather: Clear, 61° f, wind SW 13, Pressure 29.95</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x						x						x				
Foot Traffic Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Consumption of Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Wind Erosion		x						x						x				
Stormwater Erosion		x						x						x				
Settlement		x						x						x				
Sparse Vegetation		x						x						x				
Distressed Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Under construction						Under construction						Under construction					

Zone A Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 2, 2024	April 04/27/24						May 05/30/24						June 06/25/24						
	Weather: Clear, 64° f, wind SW 18, Pressure 29.93						Weather: Clear, 72° f, Wind SE 7, Pressure 30.22						Weather: Clear, 82° f, wind NW5, Pressure 29.97						
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?			
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	
Vehicle Rutting		x						x						x					
Foot Traffic Disturbance		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Animal-Made Disturbance																			
Burrowing		x						x						x					
Consumption of Vegetation		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Natural Disturbance																			
Wind Erosion		x						x						x					
Stormwater Erosion		x						x						x					
Settlement		x						x						x					
Sparse Vegetation		x						x						x					
Distressed Vegetation		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						
	Under construction						Under construction						Under construction						

Zone A Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 3, 2024	July 07/22/24						August 08/26/24						September 09/26/24					
	<i>Weather: Clear, 91° f, wind SE 6, Pressure 29.82</i>						<i>Weather: Clear, 81° f, wind calm, Pressure 30.14</i>						<i>Weather: Clear, 70° f, wind S 12, Pressure 30.04</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x						x						x				
Foot Traffic Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Consumption of Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Wind Erosion		x						x						x				
Stormwater Erosion		x						x						x				
Settlement		x						x						x				
Sparse Vegetation		x						x						x				
Distressed Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Under construction						Under construction						Under construction					

Zone A Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 4, 2024	October 10/27/24						November 12/02/24						December 12/18/24						
	Weather: Cloudy, 59° f, wind SW 24 G 30, Pressure 30.52						Weather: Cloudy, 37° f, wind E 3, Pressure 30.52						Weather: Clear, 55° f, wind SW 22, G33, Pressure 30.52						
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?			
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	
Vehicle Rutting		x						x						x					
Foot Traffic Disturbance		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Animal-Made Disturbance																			
Burrowing		x						x						x					
Consumption of Vegetation		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Natural Disturbance																			
Wind Erosion		x						x						x					
Stormwater Erosion		x						x						x					
Settlement		x						x						x					
Sparse Vegetation		x						x						x					
Distressed Vegetation		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						
	Under construction						Under construction						Under Construction						

Zone C/D Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 1, 2024	<i>January 01/18/24</i>						<i>February 02/27/24</i>						<i>March 03/26/2024</i>					
	<i>Weather: Cloudy, 19° f, wind NW 13, Pressure 30.10</i>						<i>Weather: Clear, 41° f, wind SW 7, Pressure 30.10</i>						<i>Weather: Clear, 61° f, wind SW 13, Pressure 29.95</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x					x						x					
Foot Traffic Disturbance		x					x						x					
Other (Define in Inspection Report)		x					x						x					
Animal-Made Disturbance																		
Burrowing		x					x						x					
Consumption of Vegetation		x					x						x					
Other (Define in Inspection Report)		x					x						x					
Natural Disturbance																		
Wind Erosion		x					x						x					
Stormwater Erosion		x					x						x					
Settlement		x					x						x					
Sparse Vegetation		x					x						x					
Distressed Vegetation		x					x						x					
Other (Define in Inspection Report)		x					x						x					
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					

Zone C/D Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 2, 2024	April 04/27/24						May 05/30/24						June 06/25/24					
	Weather: Clear, 64° f, wind SW 18, Pressure 29.93						Weather: Clear, 72° f, Wind SE 7, Pressure 30.22						Weather: Clear, 82° f, wind NW5, Pressure 29.97					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x						x						x				
Foot Traffic Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Consumption of Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Wind Erosion		x						x						x				
Stormwater Erosion		x						x						x				
Settlement		x						x						x				
Sparse Vegetation		x						x						x				
Distressed Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					

Zone C/D Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 3, 2024	July 07/22/24						August 08/26/24						September 09/26/24						
	<i>Weather: Clear, 91° f, wind SE 6, Pressure 29.82</i>						<i>Weather: Clear, 81° f, wind calm, Pressure 30.14</i>						<i>Weather: Clear, 70° f, wind S 12, Pressure 30.04</i>						
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?			
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	
Vehicle Rutting		x						x						x					
Foot Traffic Disturbance		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Animal-Made Disturbance																			
Burrowing		x						x						x					
Consumption of Vegetation		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Natural Disturbance																			
Wind Erosion		x						x						x					
Stormwater Erosion		x						x						x					
Settlement		x						x						x					
Sparse Vegetation		x						x						x					
Distressed Vegetation		x						x						x					
Other (Define in Inspection Report)		x						x						x					
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						

Zone C/D Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 4, 2024	October 10/27/24						November 12/02/24						December 12/18/24					
	<i>Weather: Cloudy, 59° f, wind SW 24 G 30, Pressur</i>						<i>Weather: Cloudy, 37° f, wind E 3, Pressure 30.52</i>						<i>Weather: Clear, 55° f, wind SW 22, G33, Pressure</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x						x						x				
Foot Traffic Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Consumption of Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Wind Erosion		x						x						x				
Stormwater Erosion		x						x						x				
Settlement		x						x						x				
Sparse Vegetation		x						x						x				
Distressed Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					

Zone E Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 1, 2024	January 01/18/24						February 02/27/24						March 03/26/2024					
	<i>Weather: Cloudy, 19° f, wind NW 13, Pressure 30.10</i>						<i>Weather: Clear, 41° f, wind SW 7, Pressure 30.10</i>						<i>Weather: Clear, 61° f, wind SW 13, Pressure 29.95</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x						x						x				
Foot Traffic Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Consumption of Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Wind Erosion		x						x						x				
Stormwater Erosion		x						x						x				
Settlement		x						x						x				
Sparse Vegetation		x						x						x				
Distressed Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					

Zone E Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 2, 2024	April 04/27/24						May 05/30/24						June 06/25/24					
	Weather: Clear, 64° f, wind SW 18, Pressure 29.93						Weather: Clear, 72° f, Wind SE 7, Pressure 30.22						Weather: Clear, 82° f, wind NW5, Pressure 29.97					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x						x						x				
Foot Traffic Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Consumption of Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Wind Erosion		x						x						x				
Stormwater Erosion		x						x						x				
Settlement		x						x						x				
Sparse Vegetation		x						x						x				
Distressed Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
													Star Thistle					

Zone E Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 3, 2024	July 07/22/24						August 08/26/24						September 09/26/24					
	<i>Weather: Clear, 91° f, wind SE 6, Pressure 29.82</i>						<i>Weather: Clear, 81° f, wind calm, Pressure 30.14</i>						<i>Weather: Clear, 70° f, wind S 12, Pressure 30.04</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x						x						x				
Foot Traffic Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Consumption of Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Wind Erosion		x						x						x				
Stormwater Erosion		x						x						x				
Settlement		x						x						x				
Sparse Vegetation		x						x						x				
Distressed Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Star Thistle on the berm above the basin						Star Thistle on the berm above the basin						Star Thistle on the berm above the basin					

Zone E Landfill Cover Inspection Checklist

Project Inspector Name: EJ

QUARTER 4, 2024	October 10/27/24						November 12/02/24						December 12/18/24					
	<i>Weather: Cloudy, 59° f, wind SW 24 G 30, Pressur</i>						<i>Weather: Cloudy, 37° f, wind E 3, Pressure 30.52</i>						<i>Weather: Clear, 55° f, wind SW 22, G33, Pressure</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Vehicle Rutting		x						x						x				
Foot Traffic Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Consumption of Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Wind Erosion		x						x						x				
Stormwater Erosion		x						x						x				
Settlement		x						x						x				
Sparse Vegetation		x						x						x				
Distressed Vegetation		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Star Thistle on the berm above the basin						Star Thistle on the berm above the basin						Star Thistle on the berm above the basin					

Zone C/D Detention/Evaporation Basin Inspection Checklist

Project Inspector Name: EJ

QUARTER 1, 2024	<i>January 01/18/24</i>						<i>February 02/27/24</i>						<i>March 03/26/2024</i>					
	<i>Weather: Cloudy, 19° f, wind NW 13, Pressure 30.10</i>						<i>Weather: Clear, 41° f, wind SW 7, Pressure 30.10</i>						<i>Weather: Clear, 61° f, wind SW 13, Pressure 29.95</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Liner Puncture		x						x						x				
Sediment/Water Level Staff Gauge Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Foot Traffic Damage to Liner		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Sediment Level Greater than 0.9 feet average		x						x						x				
Water Level Greater than 4.0 feet		x						x						x				
Anchor Trench Disturbed/Exposed/Pull Out		x						x						x				
Ballooning Liner	x				x		x				x		x				x	
Vegetation Growing in Sediment	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Depth of water is 12". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.						Depth of water is 11". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.						Depth of water is 15". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.					
	Some sediment in North drainage pipe.						Some sediment in North drainage pipe.						Some sediment in North drainage pipe.					
	Some vegetation growth in sediment.						Some vegetation growth in sediment.						Some vegetation growth in sediment.					

Zone C/D Detention/Evaporation Basin Inspection Checklist

Project Inspector Name: EJ

QUARTER 2, 2024	April 04/27/24						May 05/30/24						June 06/25/24																							
	Weather: Clear, 64° f, wind SW 18, Pressure 29.93												Weather: Clear, 72° f, Wind SE 7, Pressure 30.22												Weather: Clear, 82° f, wind NW5, Pressure 29.97											
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?																				
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA																		
Liner Puncture		x						x						x																						
Sediment/Water Level Staff Gauge Disturbance		x						x						x																						
Other (Define in Inspection Report)		x						x						x																						
Animal-Made Disturbance																																				
Burrowing		x						x						x																						
Foot Traffic Damage to Liner		x						x						x																						
Other (Define in Inspection Report)		x						x						x																						
Natural Disturbance																																				
Sediment Level Greater than 0.9 feet average		x						x						x																						
Water Level Greater than 4.0 feet		x						x						x																						
Anchor Trench Disturbed/Exposed/Pull Out		x						x						x																						
Ballooning Liner	x				x		x				x		x				x																			
Vegetation Growing in Sediment	x				x		x				x		x				x																			
Other (Define in Inspection Report)		x						x						x																						
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:																							
	Depth of water is 10". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.						Depth of water is 1". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.						Depth of water is 0". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.																							
	Some sediment in North drainage pipe.						Some sediment in North drainage pipe.						Some sediment in North drainage pipe.																							
	Some vegetation growth in sediment.						Some vegetation growth in sediment.						Some vegetation growth in sediment.																							

Zone C/D Detention/Evaporation Basin Inspection Checklist

Project Inspector Name: EJ

QUARTER 3, 2024	July 07/22/24						August 08/26/24						September 09/26/24					
	Weather: Clear, 91° f, wind SE 6, Pressure 29.82						Weather: Clear, 81° f, wind calm, Pressure 30.14						Weather: Clear, 70° f, wind S 12, Pressure 30.04					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Liner Puncture		x						x						x				
Sediment/Water Level Staff Gauge Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Foot Traffic Damage to Liner		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Sediment Level Greater than 0.9 feet average		x						x						x				
Water Level Greater than 4.0 feet		x						x						x				
Anchor Trench Disturbed/Exposed/Pull Out		x						x						x				
Ballooning Liner	x				x		x				x		x				x	
Vegetation Growing in Sediment	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Depth of water is 0". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.						Depth of water is 0". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.						Depth of water is 0". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.					
	Some sediment in North drainage pipe.						Some sediment in North drainage pipe.						Some sediment in North drainage pipe.					
	Some vegetation growth in sediment.						Some vegetation growth in sediment.						Some vegetation growth in sediment.					

Zone C/D Detention/Evaporation Basin Inspection Checklist

Project Inspector Name: EJ

QUARTER 4, 2024	October 10/27/24						November 12/02/24						December 12/18/24					
	<i>Weather: Cloudy, 59° f, wind SW 24 G 30, Pressur</i>						<i>Weather: Cloudy, 37° f, wind E 3, Pressure 30.52</i>						<i>Weather: Clear, 55° f, wind SW 22, G33, Pressure</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Liner Puncture		x						x						x				
Sediment/Water Level Staff Gauge Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Foot Traffic Damage to Liner		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Sediment Level Greater than 0.9 feet average		x						x						x				
Water Level Greater than 4.0 feet		x						x						x				
Anchor Trench Disturbed/Exposed/Pull Out		x						x						x				
Ballooning Liner	x				x		x				x		x				x	
Vegetation Growing in Sediment	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Depth of water is 0". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.						Depth of water is 8". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.						Depth of water is 10". The sediment depth is 0" to 6". Ave. is 3" on the bottom, 0" on the side walls.					
	Some sediment in North drainage pipe.						Some sediment in North drainage pipe.						Some sediment in North drainage pipe.					
	Some vegetation growth in sediment.						Some vegetation growth in sediment.						Some vegetation growth in sediment.					

Zone E Detention/Evaporation Basin Inspection Checklist

Project Inspector Name: EJ

QUARTER 1, 2024	<i>January 01/18/24</i>						<i>February 02/27/24</i>						<i>March 03/26/2024</i>					
	<i>Weather: Cloudy, 19° f, wind NW 13, Pressure 30.10</i>						<i>Weather: Clear, 41° f, wind SW 7, Pressure 30.10</i>						<i>Weather: Clear, 61° f, wind SW 13, Pressure 29.95</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Liner Puncture		x						x						x				
Sediment/Water Level Staff Gauge Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Foot Traffic Damage to Liner		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Sediment Level Greater than 0.9 feet average		x						x						x				
Water Level Greater than 4.0 feet		x						x						x				
Anchor Trench Disturbed/Exposed/Pull Out		x						x						x				
Ballooning Liner	x				x		x				x		x				x	
Vegetation Growing in Sediment	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Water Depth 10". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.						Water Depth 14". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.						Water Depth 12". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.					
	Vegetation is growing along the edge.						Vegetation is growing along the edge.						Vegetation is growing along the edge.					

Zone E Detention/Evaporation Basin Inspection Checklist

Project Inspector Name: EJ

QUARTER 2, 2024	April 04/27/24						May 05/30/24						June 06/25/24					
	Weather: Clear, 64° f, wind SW 18, Pressure 29.93						Weather: Clear, 72° f, Wind SE 7, Pressure 30.22						Weather: Clear, 82° f, wind NW5, Pressure 29.97					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Liner Puncture		x						x						x				
Sediment/Water Level Staff Gauge Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Foot Traffic Damage to Liner		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Sediment Level Greater than 0.9 feet average		x						x						x				
Water Level Greater than 4.0 feet		x						x						x				
Anchor Trench Disturbed/Exposed/Pull Out		x						x						x				
Ballooning Liner	x				x		x				x		x				x	
Vegetation Growing in Sediment	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Water Depth 7". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.						Water Depth 0". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.						Water Depth 0". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.					
	Vegetation is growing along the edge.						Vegetation is growing along the edge.						Vegetation is growing along the edge.					

Zone E Detention/Evaporation Basin Inspection Checklist

Project Inspector Name: EJ

QUARTER 3, 2024	July 07/22/24						August 08/26/24						September 09/26/24					
	Weather: Clear, 91° f, wind SE 6, Pressure 29.82						Weather: Clear, 81° f, wind calm, Pressure 30.14						Weather: Clear, 70° f, wind S 12, Pressure 30.04					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Liner Puncture		x						x						x				
Sediment/Water Level Staff Gauge Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Foot Traffic Damage to Liner		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Sediment Level Greater than 0.9 feet average		x						x						x				
Water Level Greater than 4.0 feet		x						x						x				
Anchor Trench Disturbed/Exposed/Pull Out		x						x						x				
Ballooning Liner	x				x		x				x		x				x	
Vegetation Growing in Sediment	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Water Depth 0". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.						Water Depth 0". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.						Water Depth 0". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.					
	Vegetation is growing along the edge.						Vegetation is growing along the edge.						Vegetation is growing along the edge.					

Zone E Detention/Evaporation Basin Inspection Checklist

Project Inspector Name: EJ

QUARTER 4, 2024	October 10/27/24						November 12/02/24						December 12/18/24					
	<i>Weather: Cloudy, 59° f, wind SW 24 G 30, Pressur</i>						<i>Weather: Cloudy, 37° f, wind E 3, Pressure 30.52</i>						<i>Weather: Clear, 55° f, wind SW 22, G33, Pressure</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Liner Puncture		x						x						x				
Sediment/Water Level Staff Gauge Disturbance		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing		x						x						x				
Foot Traffic Damage to Liner		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Sediment Level Greater than 0.9 feet average		x						x						x				
Water Level Greater than 4.0 feet		x						x						x				
Anchor Trench Disturbed/Exposed/Pull Out		x						x						x				
Ballooning Liner	x				x		x				x		x				x	
Vegetation Growing in Sediment	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Water Depth 0". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.						Water Depth 7". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.						Water Depth 8". Sediment is 0" to 5", Ave is 2" on the bottom, 0" on the side walls.					
	Vegetation is growing along the edge.						Vegetation is growing along the edge.						Vegetation is growing along the edge.					

Zone A Perimeter Fence Inspection Checklist

Project Inspector Name: EJ

QUARTER 1, 2024	<i>January 01/18/24</i>						<i>February 02/27/24</i>						<i>March 03/26/2024</i>					
	<i>Weather: Cloudy, 19° f, wind NW 13, Pressure 30.</i>						<i>Weather: Clear, 41° f, wind SW 7, Pressure 30.10</i>						<i>Weather: Clear, 61° f, wind SW 13, Pressure 29.95</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)		x						x						x				
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
							Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone A Perimeter Fence Inspection Checklist

Project Inspector Name: EJ

QUARTER 2, 2024	April 04/27/24						May 05/30/24						June 06/25/24					
	Weather: Clear, 64° f, wind SW 18, Pressure 29.93						Weather: Clear, 72° f, Wind SE 7, Pressure 30.22						Weather: Clear, 82° f, wind NW5, Pressure 29.97					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)		x						x						x				
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone A Perimeter Fence Inspection Checklist

Project Inspector Name: EJ

QUARTER 3, 2024	July 07/22/24						August 08/26/24						September 09/26/24					
	<i>Weather: Clear, 91° f, wind SE 6, Pressure 29.82</i>						<i>Weather: Clear, 81° f, wind calm, Pressure 30.14</i>						<i>Weather: Clear, 70° f, wind S 12, Pressure 30.04</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x		x				x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone A Perimeter Fence Inspection Checklist

Project Inspector Name: EJ

QUARTER 4, 2024	October 10/27/24						November 12/02/24						December 12/18/24					
	<i>Weather: Cloudy, 59° f, wind SW 24 G 30, Pressur</i>						<i>Weather: Cloudy, 37° f, wind E 3, Pressure 30.52</i>						<i>Weather: Clear, 55° f, wind SW 22, G33, Pressure</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x		x				x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone C/D Perimeter Fence Inspection Checklist

Project Inspector Name: EJJ

QUARTER 1, 2024	January 01/18/24						February 02/27/24						March 03/26/2024					
	<i>Weather: Cloudy, 19° f, wind NW 13, Pressure 30.</i>						<i>Weather: Clear, 41° f, wind SW 7, Pressure 30.10</i>						<i>Weather: Clear, 61° f, wind SW 13, Pressure 29.95</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence	x				x		x				x			x			x	
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x			x			x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone C/D Perimeter Fence Inspection Checklist

Project Inspector Name: EJ

QUARTER 2, 2024	April 04/27/24						May 05/30/24						June 06/25/24					
	Weather: Clear, 64° f, wind SW 18, Pressure 29.93						Weather: Clear, 72° f, Wind SE 7, Pressure 30.22						Weather: Clear, 82° f, wind NW5, Pressure 29.97					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x		x				x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone C/D Perimeter Fence Inspection Checklist

Project Inspector Name: EJ

QUARTER 3, 2024	July 07/22/24						August 08/26/24						September 09/26/24					
	<i>Weather: Clear, 91° f, wind SE 6, Pressure 29.82</i>						<i>Weather: Clear, 81° f, wind calm, Pressure 30.14</i>						<i>Weather: Clear, 70° f, wind S 12, Pressure 30.04</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x		x				x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone C/D Perimeter Fence Inspection Checklist

Project Inspector Name: EJ

QUARTER 4, 2024	October 10/27/24						November 12/02/24						December 12/18/24					
	<i>Weather: Cloudy, 59° f, wind SW 24 G 30, Pressur</i>						<i>Weather: Cloudy, 37° f, wind E 3, Pressure 30.52</i>						<i>Weather: Clear, 55° f, wind SW 22, G33, Pressure</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x		x				x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone E Perimeter Fence Inspection Checklist

Project Inspector Name: EJJ

QUARTER 1, 2024	January 01/18/24						February 02/27/24						March 03/26/2024					
	<i>Weather: Cloudy, 19° f, wind NW 13, Pressure 30.</i>						<i>Weather: Clear, 41° f, wind SW 7, Pressure 30.10</i>						<i>Weather: Clear, 61° f, wind SW 13, Pressure 29.95</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x		x				x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone E Perimeter Fence Inspection Checklist

Project Inspector Name: EJJ

QUARTER 2, 2024	April 04/27/24						May 05/30/24						June 06/25/24					
	Weather: Clear, 64° f, wind SW 18, Pressure 29.93						Weather: Clear, 72° f, Wind SE 7, Pressure 30.22						Weather: Clear, 82° f, wind NW5, Pressure 29.97					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence	x				x		x				x		x				x	
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x		x				x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone E Perimeter Fence Inspection Checklist

Project Inspector Name: EJJ

QUARTER 3, 2024	July 07/22/24						August 08/26/24						September 09/26/24					
	<i>Weather: Clear, 91° f, wind SE 6, Pressure 29.82</i>						<i>Weather: Clear, 81° f, wind calm, Pressure 30.14</i>						<i>Weather: Clear, 70° f, wind S 12, Pressure 30.04</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence	x				x		x				x			x			x	
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x			x			x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Zone E Perimeter Fence Inspection Checklist

Project Inspector Name: EJJ

QUARTER 4, 2024	October 10/27/24						November 12/02/24						December 12/18/24					
	<i>Weather: Cloudy, 59° f, wind SW 24 G 30, Pressur</i>						<i>Weather: Cloudy, 37° f, wind E 3, Pressure 30.52</i>						<i>Weather: Clear, 55° f, wind SW 22, G33, Pressure</i>					
	Disturbance?			Repair Required?			Disturbance?			Repair Required?			Disturbance?			Repair Required?		
Man-Made Disturbance	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA	Yes	No	New	Yes	No	NA
Fence Hit by Vehicle		x						x						x				
Fence Cut		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Animal-Made Disturbance																		
Burrowing under Fence	x				x		x				x			x			x	
Other (Define in Inspection Report)		x						x						x				
Natural Disturbance																		
Build Up of Blown Vegetation (Tumbleweed)	x				x		x				x			x			x	
Vegetation Growing on Fence		x						x						x				
Fence Leaning or Falling		x						x						x				
Other (Define in Inspection Report)		x						x						x				
Comments, Remarks, and Action Items:	Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:						Comments, Remarks, and Action Items:					
	Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.						Tumbleweeds along the fence inside and out.					

Attachment D

Annual Institutional Controls Reports

2024 – East Pasco Plume Area – Well Location Survey

MEMORANDUM

DATE: December 17th, 2024

TO: Adam Lincoln, City Manager

CC: Richa Sigdel, Deputy City Manager/ Interim Community & Economic Development Director

Craig Raymond, Deputy Community & Economic Development Director

Maria Serra, Public Works Director

Lance A. Moen, PE, Senior Environmental Engineer, PBS-USA

Taylor Gilmore, Project Scientist, PBS-USA

James Coleman, Environmental Health Specialist II, B-F Health District

FROM: Troy Hendren, C.B.O/CFM, Building Official/Fire Marshal

RE: 2024- East Pasco Plume Area-Well Location Survey

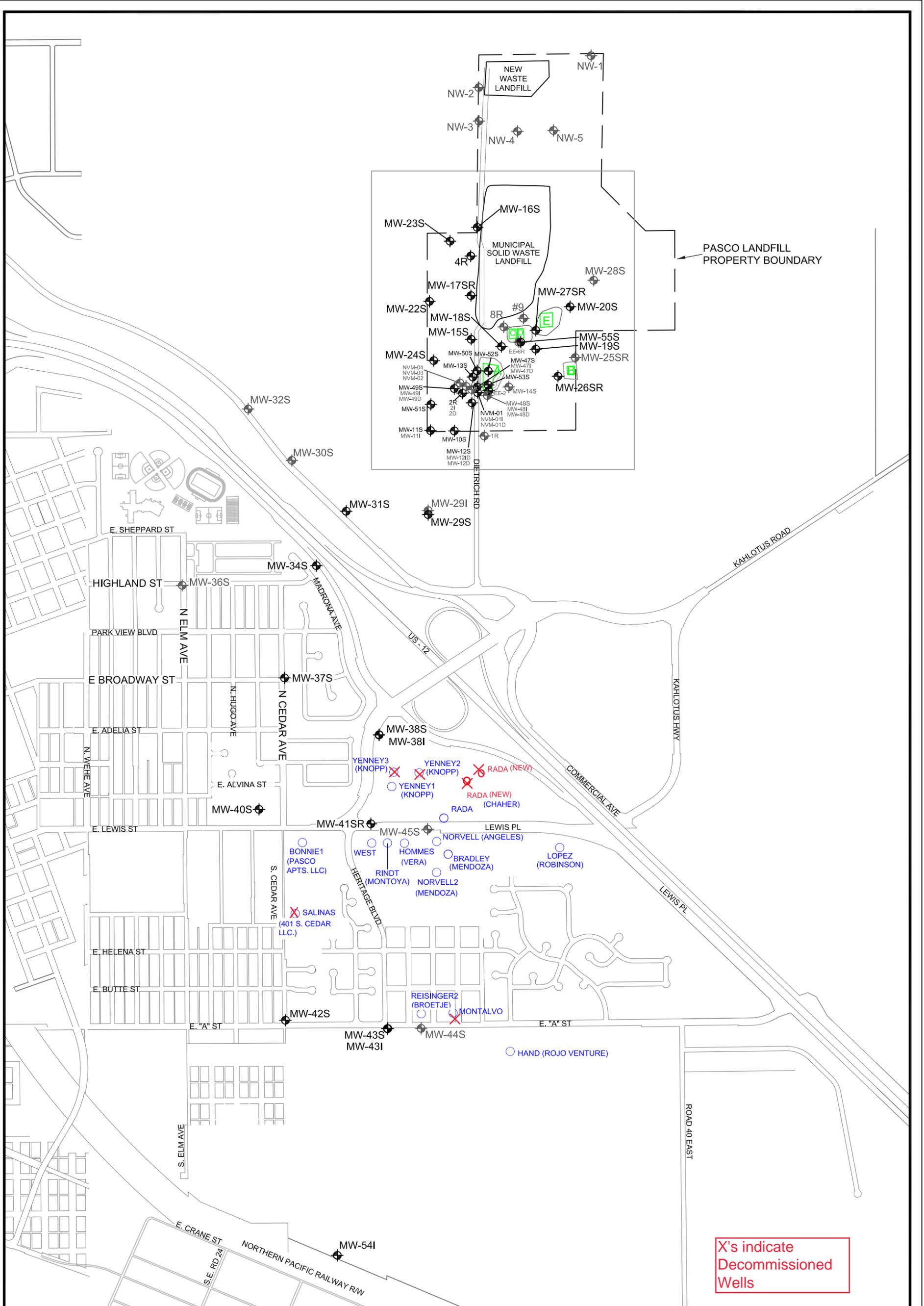
ATTACHMENTS: 1) Status chart 2) Monitoring Well Map 3) 2013 IWAG Memo

Please find the attached and revised status chart which provides the address, parcel number, property owner information, current water uses and status of monitored wells located within a section of East Pasco, inclusive of the area south of East “A” street, determined by the Department of Ecology to be effected by the subterranean plume of ground water contamination. The well names shown in the first column of the chart provided coincide with the names of the wells shown on the attached monitoring wells map, as prepared by the Environmental Partners, Inc.

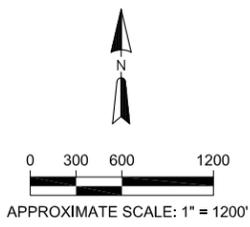
On Tuesday, December 17th, 2024, Lance A. Moen, PE - Senior Environmental Engineer with PBS Engineering, Taylor Gilmore, Project Scientist with PBS Engineering and I surveyed the target area to verify the exact locations of known Wells and locate any wells not previously known to the city. We also verified changes that have occurred since the previous 2023 survey such as the decommissioned of multiple wells, taking our Well count from 19 down to 9. The number of City water connections and the properties upon which they are located, and record owners of those properties have been updated in the attached chart. Change of ownership was updated along with additional information. As directed, we will continue performing an East Pasco Well Survey annually and provide you the updated Well status chart and monitoring Well map.

Please advise if you have any questions.

TH



X's indicate
Decommissioned
Wells



MW-12S GROUNDWATER MONITORING WELL

ept ENVIRONMENTAL PARTNERS INC
295 NE Gilman Boulevard, Suite 201
Issaquah, Washington 98027

PASCO LANDFILL SITE
MONITORING WELL NETWORK

PROJECT	03912.2
PREPARED FOR	IWAG GROUP III PASCO LANDFILL
LOCATION	1901 DIETRICH ROAD PASCO, WASHINGTON
DRAWN BY	MMM
REVIEWED BY	MMM
DATE	12/09/2013

Updated
12/07/2023

**OPERATIONAL WELLS/
DECEMBER-2024 EAST PASCO PLUME
IMPACT AREA**

NUMBER AND NAME OF WELLS	ADDRESS	PROPERTY OWNER(S)	CITY WATER? WELL WATER? STATUS?	CITY WATER ACCOUNT STATUS	CHANGE FROM 2023
1 WELL BONNIE 1	2508 E. LEWIS ST. TAX PARCEL # 113900057	HEIDI MOCTEZUMA 615 S. WALDEMAR AVE. PASCO, WA	CITY WATER AVAILABLE AND IN USE. WELL IS DISABLED	2 ACCTS. W/WATER 13 APARTMENTS RESIDENCES CONNECTED TO CITY WATER 7 OPEN ELECTRICAL ACCOUNTS AND 1 VACANT ACCOUNT	NO
1 WELL WEST	2400 E. LEWIS PL. TAX PARCEL # 113900011	LESTER & MARJORIE WEST 2400 E LEWIS ST. PASCO, WA 99301	CITY WATER AVAILABLE AND IN USE. WELL CAPABLE FOR IRRIGATION USE ONLY	4 ACCTS. W/ WATER 3 RENTALS AND 1 OWNER OCCUPIED HOME ALL CONNECTED TO CITY WATER 5 OPEN ELECTRICAL ACCOUNTS	NO
1 WELL RINDT	2500 E. LEWIS PL. TAX PARCEL # 113870135 Retired 113870134	JORGE NERI MACIAS 2500 E. LEWIS ST. PASCO, WA 99301	CITY WATER AVAILABLE AND IN USE. WELL APPEARS NOT TO BE IN USE	1 ACCT. W/WATER 1 SINGLE FAMILY HOME CONNECTED TO CITY WATER 1 OPEN ELECTRICAL ACCOUNT	NO
2 WELLS HOMME'S	2506 E. LEWIS PL. TAX PARCEL # 113870198	RAMON VERA (ETUX) PATRICIA SANCHEZ 2003 ROAD 80 PASCO, WA 99301	CITY WATER AVAILABLE AND IN USE. 1 ST WELL DISABLED 2 ND WELL IS IN USE	1 ACCT. W/ WATER 3 APARTMENTS AND 1 SINGLE FAMILY DWELLING CONNECTED TO CITY WATER 4 OPEN ELECTRICAL ACCOUNTS	NO
1 WELL NORVELL 	2700 E. LEWIS PL. TAX PARCEL # 113870170	DECOMMISSIONED 	CITY WATER AVAILABLE BUT NOT USED. WELL DOES NOT APPEAR TO BE IN USE.		YES

**OPERATIONAL WELLS/
DECEMBER-2024 EAST PASCO PLUME
IMPACT AREA**

NUMBER AND NAME OF WELLS	ADDRESS	PROPERTY OWNER(S)	CITY WATER? WELL WATER? STATUS?	CITY WATER ACCOUNT STATUS	CHANGE FROM 2023
1 WELL NORVELL #2	2750 E. LEWIS ST. TAX PARCEL # 113870223	MENDOZA INVESTMENT PROPERTIES LLC. 2750 E. LEWIS ST. PASCO, WA 99301	CITY WATER AVAILABLE AT STREET BUT NOT CONNECTED. WELL WAS DRILLED IN 2005 WITH DOE APPROVAL. NO APPROVAL BY CITY OF PASCO OR BFHD.	NO WATER ACCT. WELL IS THE ONLY WATER SOURCE ON THIS PROPERTY. SINGLE FAMILY DWELLING HAS BEEN REMOVED. WELL IS ACTIVE AND IN USE. 2 OPEN ELECTRICAL ACCOUNTS AND 1 VACANT ACCOUNT	NO
1 WELL BRADLEY	2904 E. LEWIS PL. TAX PARCEL # 113870018	RAMIRO & IRMA MENDOZA 4114 FINNHORSE LANE PASCO, WA 99301	CITY WATER AVAILABLE BUT NOT CONNECTED. WELL USED FOR ENTIRE PROPERTY	NO WATER ACCT. WELL IS THE ONLY WATER SOURCE FOR THIS PROPERTY. 1 OFFICE BATHROOM AND OUTDOOR HOSE BIBS CONNECTED TO WELL 1 OPEN ELECTRICAL ACCOUNT	NO
1 WELL LOPEZ (ROBINSON-FLEA MARKET) 	3620 E. LEWIS PL. TAX PARCEL # 113730044	DECOMMISSIONED 	CITY WATER AVAILABLE BUT NOT CONNECTED. WELL IS DISABLED AND HAS NO PUMP OR ELECTRICITY FOR 10+ YEARS		YES

**OPERATIONAL WELLS/
DECEMBER-2024 EAST PASCO PLUME
IMPACT AREA**

NUMBER AND NAME OF WELLS	ADDRESS	PROPERTY OWNER(S)	CITY WATER? WELL WATER? STATUS?	CITY WATER ACCOUNT STATUS	CHANGE FROM 2023
1 WELL RADA	2707 E. LEWIS PL. TAX PARCEL # 113780053	TR3 HOLDINGS, LLC 2707 E. LEWIS PL. PASCO, WA 99301	CITY WATER AVAILABLE AND CONNECTED. WELL REPORTED AS FAILED	ONE WATER ACCTS. WELL IS NOT ACTIVE NEW WATER SERVICE APPEARS TO ONLY SERVE 1 BUSINESS OFFICE 1 OPEN ELECTRICAL ACCOUNT	NO
CONT. RADA 	3004 E. GEORGE TAX PARCEL# 113780104		CITY WATER NOT AVAILABLE. ILLEGAL WELL DECOMMISSIONED		YES
CONT. RADA 	3012 E. GEORGE TAX PARCEL # 113780113		CITY WATER NOT AVAILABLE. ILLEGAL WELL DECOMMISSIONED		YES
1 WELL YENNEY #1 	900 N. AVERY AVE. TAX PARCEL # 113771021		CITY WATER AVAILABLE AND IN USE.		YES

OPERATIONAL WELLS/ DECEMBER-2024 EAST PASCO PLUME IMPACT AREA

NUMBER AND NAME OF WELLS	ADDRESS	PROPERTY OWNER(S)	CITY WATER? WELL WATER? STATUS?	CITY WATER ACCOUNT STATUS	CHANGE FROM 2023
1 WELL YENNEY #3 	900 ½ N. AVERY AVE. TAX PARCEL # 113780062	DECOMMISSIONED 	CITY WATER AVAILABLE AND IN USE. WELL DECOMMISSIONED		
1 WELL YENNEY #2 	3021 E. GEORGE ST. TAX PARCEL # 113780017	DECOMMISSIONED 	CITY WATER NOT AVAILABLE.		
1 WELL SALINAS 	407 S. CEDAR AVE. TAX PARCEL# 113900084	DECOMMISSIONED 	CITY WATER AVAILABLE AND CONNECTED.		
1 WELL REISINGER #1 	2805 E. "A" ST. TAX PARCEL # 113884147	DECOMMISSIONED 	CITY WATER AVAILABLE AND CONNECTED.		

**OPERATIONAL WELLS/
DECEMBER-2024 EAST PASCO PLUME
IMPACT AREA**

NUMBER AND NAME OF WELLS	ADDRESS	PROPERTY OWNER(S)	CITY WATER? WELL WATER? STATUS?	CITY WATER ACCOUNT STATUS	CHANGE FROM 2023
1 WELL REISINGER #2	"A" ST TAX PARCEL # 113883031	RALPH AND CHERYL BROETJI 233 APPLEBY LN PRESCOTT, WA 99348	CITY WATER CONNECTED BUT NOT IN USE. WELL APPEARS TO BE OPERATIONAL	1 WATER ACCT. NO DWELLING ONLY PUMP HOUSE. WELL MAY BE USED FOR IRRIGATION ONLY 1 VACANT ELECTRICAL ACCOUNT	NO
1 WELL MONTALVO 	2700 E. "A" ST. TAX PARCEL # 113882078	DECOMMISSIONED 	CITY WATER AVAILABLE AT STREET. WELL DECOMMISSIONED		
1 WELL HAND	3300 E. "A" ST. TAX PARCEL # 112530057	RONALD & ALICE HJALTALIN DBA ROJO VENTURE LLC 4520 WEST WERNETT PASCO, WA 99301	CITY WATER AVAILABLE AND IN USE. WELL IS OPERATIONAL	1 ACCT. W/ WATER. (FIRE LINE ONLY) 1 ILLEGAL Single Family Dwelling Unit CONNECTED TO CITY WATER. 4 OPEN ELECTRICAL ACCOUNTS	NO