CHEHALIS POWER PLANT TRANSFORMER SPILLS GROUNDWATER MONITORING REPORT - FEBRUARY 2025

1813 BISHOP ROAD CHEHALIS, WASHINGTON

FACILITY SITE ID NO. 3336951 CLEANUP SITE ID NO. 11776 VCP NO. SW1246

Prepared for:

PACIFICORP

Rocky Mountain Power
Chehalis Power Plant
1813 Bishop Road
Chehalis, Washington 98532

May 6, 2025

Hill West Environmental

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Chehalis Power Plant Transformer Spills
Groundwater Monitoring Report – February 2025
1813 Bishop Road, Chehalis, Washington
Facility Site ID No. 3336951, Cleanup Site ID No. 11776, VCP No. SW1246

The material and data in this report were prepared under the supervision and direction of the undersigned.

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1 INTRODUCTION

PacifiCorp retained A&M Engineering and Environmental Services, Inc. (A&M) a member of the Hill West Environmental, LLC (Hill West) Team to prepare this Chehalis Power Plant Transformer Spills Groundwater Monitoring Report – February 2025 (Report) to present the results of groundwater monitoring related to mineral oil releases from transformers at the PacifiCorp Chehalis Power Plant (the Site) located at 1813 Bishop Road in Chehalis, Lewis County, Washington (Figures 1).

The project is being completed under the oversight of the State of Washington Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). The Site has been assigned by Ecology VCP Identification No. SW1246.

Prior Site investigations and remedial actions have been completed for soil and groundwater at the Site for the 2011 and 2013 Non-Polychlorinated Biphenyl (*Non-PCB*) mineral oil spills related to two electrical transformers. Those investigation and remedial actions have included: excavation and disposal of contaminated soil, soil borings to collect soil samples and construct groundwater monitoring wells, quarterly groundwater monitoring, and water sampling from electrical vaults located near the release areas.

In July 2016, PacifiCorp submitted a cleanup action completion report (PacifiCorp, 2016) to Ecology requesting a No Further Action (NFA) determination for the mineral oil releases. On June 26, 2017, Ecology issued an Opinion Letter (Ecology, 2017) to PacifiCorp declining an NFA determination due to data gaps in the assessment data. On March 8, 2023, the Chehalis Power Plant Transformer Spills Additional Site Characterization Work Plan (Work Plan) (A&M, 2023) was submitted to Ecology and an Opinion Letter was requested related to the work plan meeting the requirements for additional Site characterization.

On November 30, 2023, Ecology issued an Opinion Letter (Ecology, 2023b) to PacifiCorp commenting on the March 8, 2023 work plan. Ecology requested the use of per- and poly-fluoroalkyls (PFAS) be investigated and included in the assessment of soil and groundwater, if the use aqueous film forming foam (AFFF), which contained PFAS, was used to suppress the transformer fire in January 2011. Lewis County Fire District (LCFD) #6, who responded to the fire, has indicated that AFFF with PFAS was not historically used by LCFD #6. The January 20, 2011 fire incident report and a letter from LCFD #6 certifying that LCFD #6's has not used AFFF with PFAS, including during the January 20, 2011 fire at the Site were provided to Ecology in a revised Work Plan, dated May 22, 2024 (A&M, 2024a), and further information related to the type of AFFF used by

LCFD #6 during 2011 was also provided to Ecology electronically on June 20, 2024 (A&M, 2024b). On June 25, 2024, Ecology indicated in an email that they would *remove the 'suspected' PFAS in soil and groundwater designation from the Site description* (Ecology, 2024a).

In June 2024, the Ecology-approved revised Work Plan (A&M, 2024a) was implemented and the results presented in the Chehalis Power Plant Transformer Spills, Additional Site Characterization Report (A&M, 2024c), dated August 16, 2024. On December 4, 2024, Ecology issued an Opinion Letter (Ecology, 2024b) that concluded that the nature and extent of the mineral oil in soil and groundwater was defined. However, in the letter Ecology also reversed their prior opinion and requested that groundwater be investigated for PFAS with the collection of groundwater samples from monitoring wells MW-1 and MW-2R.

This Report has been prepared to present the results of groundwater monitoring conducted in February 2025 for the facility to assess groundwater for PFAS in wells MW-1 and MW-2R.

1.1 Report Organization

This Report is organized into the following sections:

- Section 1 (Introduction) presents the purpose of the Report;
- Section 2 (Background) presents a description of the Site and background information regarding the Site, and summarizes the results of previous Site investigations and remedial actions;
- Section 3 (Groundwater Monitoring) presents information regarding the completion of the groundwater monitoring event;
- Section 4 (Investigation Results) presents the groundwater flow direction and gradient, and laboratory analytical results for the groundwater samples collected; and
- Section 5 (Findings and Conclusions) summarizes the findings of the groundwater monitoring event and presents conclusions based on those assessment data.

2 BACKGROUND

This section describes background information regarding the PacifiCorp Chehalis Power Plant and the 2011 and 2013 mineral oil spills at the facility. Descriptions of the Site, background information regarding the Site, and summaries of the results of Site investigations and remedial action are presented below.

2.1 Site Description

The Site is located at 1813 Bishop Road in Chehalis, Washington in the southeast quarter of the southwest quarter of Section 10, Township 13 North, Range 2 West of the Willamette Meridian (Figure 1) at an elevation of approximately 240 feet above mean sea level. The Site is approximately 20-acres in area and is currently a power plant facility including two combustion turbines, one steam turbine, electrical transformers, heat recovery steam generators, air emissions control equipment, exhaust gas stacks, air-cooled steam condenser, water treatment equipment, and operations and maintenance building (Figure 2). The facility also includes two (2) inactive 1.7-million-gallon fuel oil storage tanks located in lined earthen containment which were closed in May 2013. The eastern storage tank was recommissioned as a raw water storage tank in June 2018.

The generator step-up (GSU) transformers located on the northwest portion of the property (Figure 3) convert the generated electrical power to high voltage for transmission at the Bonneville Power Authority (BPA) substation located adjacent to the Site. The electrical transformers at the power plant use mineral oil as a dielectric fluid. The transformers are certified as *Non-PCB*, as is standard for transformers manufactured after the 1970s. The mineral oil in GSU#1 was tested after the failure in 2011 to confirm no PCBs were present.

Storm water collected from the Site is directed by storm water ditches and underground pipes to a retention pond located southwest of the GSU transformers (Figure 2). Storm water is discharged from the retention pond to a waterway to a nearby drainage under an Ecology Industrial Storm Water General NPDES Permit.

2.2 Surrounding Properties

The Site is located 3-miles south of Chehalis, Washington and the area consists mostly of farms, small pockets of light industrial areas, rural homes, and a few housing subdivisions. There are several roadways near the Site, the closest being Bishop Road. Interstate

Highway 5 is ¼-mile southwest of the Site and Jackson Highway is ½-mile northeast of the Site.

The electrical substation property adjoining the power plant on the west side is owned by BPA and was constructed for the Site to transport power generated by the power plant to the BPA high voltage electrical transmission line less than 1-mile west of the Site. The fenced substation is surrounded by Site property on three sides (Figure 2).

Other properties adjoining the Site include:

- East of the Site is an open agricultural field;
- South of the Site is a transportation terminal operated by Armellini Logistics, a vacant commercial property, and a farm, incorporating a residence, garage, shop, barns and several acres of open pasture;
- West of the Site is the headquarters for Zelus Shoe Insoles, a mobile structures manufacturing facility operated by Pacific Mobile Structures, and a natural waterway and wetland adjoining the power plant storm water waterway; and
- North of the Site is a Fred Meyer retail distribution transportation warehouse and paved parking lot.

2.3 Land Use History

According to KTA Associates, Inc.'s (KTA) *Cleanup Action Report* (KTA, 2016), the Chehalis Power Plant was originally developed by independent power companies who purchased the property in the mid-1990s and began permitting for a power plant. Construction was delayed several years for siting and environmental permitting. Construction began in May 2001, was commissioned in August 2003, and the power plant began operation in October 2003. Tractebel, a Belgium consultancy and engineering services in the energy, water, nuclear, and infrastructure sectors company, which in 2003 merged with Société Générale de Belgique (SUEZ), developed and operated the power plant. PacifiCorp purchased the power plant in 2008. Prior to construction, the power plant property was an agricultural field.

2.4 Geology and Hydrogeology

Site geology and hydrogeology are presented in the following section. The information was provided in KTA's *Cleanup Action Report* (KTA, 2016) dated June 2016.

2.4.1 Site Geology

A geotechnical subsurface investigation was conducted by URS Corporation (URS) in 2000 for the construction of the power plant. The URS *Geotechnical Data Report*

Subsurface Investigation (URS, 2000) indicates the surficial geology beneath the Site consists of late glacial sand and gravel deposits from the Hayden Creek Drift. Silt and clay deposits underlie the surface soil to a depth of 100 to 200 feet in the area of the Site.

The overall soil-type distribution at the Site consists of a low permeability silt and clay layer underlain by 45 to 50 feet of water-bearing sand and gravel, underlain by a silt and clay aquitard. These soil types are consistent with regional geologic mapping (Weigle and Foxworthy, 1962) and a regional study for the Chehalis Generation Facility (Dames and Moore, 1994). These regional studies classify the upper 50 feet of soil in the area of the site as recent alluvium and glaciofluvial sediments. The aquitard found at approximately 50 feet below grade surface (bgs) is widespread and is often described as blue-gray, clayey silt, reported to be more than 100 feet thick (Dames and Moore, 1994).

2.4.2 Site Hydrogeology

The Site is located in the Chehalis River Valley, in the northwest-southeast Newaukum River drainage that flows northwest to the Chehalis River. The area around the Site is a relatively flat bench of level soils used for agriculture. In general, the surface, and likely groundwater flow, is southwest from the foothills in the northeast to the river at the bottom of the drainage valley to the southwest.

The power plant yard areas are graded level with a layer of gravel in the transformer area. Surface water at the Site flows to storm water ditches along the roadway encircling the Site which collects and directs storm water to a retention pond. The pond outfall flows west in a gravel waterway (under an Industrial Storm Water permit) to Berwick Creek. Berwick Creek flows from east to west, under Bishop Road and Interstate Highway 5, to Dillenbaugh Creek, which then flows into the Newaukum River.

Regional investigations conducted by others (Dames and Moore, 1994) have categorized the shallow aquifer in the area as unconfined or semi-confined. However, the shallow aquifer appears to exhibit the characteristics of a confined or semi-confined aquifer, primarily due to the low permeably silt cap immediately above the aquifer (KTA, 2016).

The field exploration for the URS *Geotechnical Data Report Subsurface Investigation* (URS, 2000) was conducted in August 2000. At that time, the groundwater elevation was found to be 15 to 20 feet bgs. During the groundwater investigation in May 2011, the groundwater elevation was found to be 5 to 14 feet bgs. Groundwater measurements collected during groundwater monitoring events conducted from April 2015 to March 2016, in June 2024, and February 2025 indicated the groundwater level varied between 3.40 and 7.39 feet bgs with a consistent southwest groundwater flow direction.

2.5 Site Investigation and Remedial Actions – 2011 through 2015

Site investigation related to the mineral oil spills and the subsequent remedial actions are presented in the following section. The information was summarized in KTA's *Cleanup Action Report* (KTA, 2016) dated June 2016. Groundwater elevation data and soil and groundwater analytical results and groundwater monitoring culvert and electrical vault analytical results were summarized in Tables 1 through 4 of the *Chehalis Power Plant Transformer Spills, Additional Site Characterization Work Plan (Revised)* (A&M, 2024c).

2.5.1 2011 GSU#1 Transformer Failure and Oil Release

On January 20, 2011, transformer GSU#1 failed with an explosion and fire. *Non-PCB* mineral oil in the transformer sprayed onto the transformer containment structure and to the soil outside the containment. Fire suppression fluids overflowed the containment and flowed into adjacent storm water ditches resulting in some oily water reaching the storm water pond (Figure 3).

Cowlitz Clean Sweep (CCS) of Longview, Washington was retained for emergency spill response and completed spill cleanup, followed by sampling of the soil and water from the storm water ditches, storm water pond, and the area around transformer GSU#1. The contaminated soil and gravel in the ditches and pond were removed by CCS and replaced with clean material. At the same time, the west side of the transformer containment was excavated for a larger foundation and containment structure for the replacement transformer. The storm water ditch west of transformer GSU#1 was replaced with a culvert, and the new concrete containment structure was constructed. The area around transformer GSU#1 affected by the mineral oil sprayed during the transformer explosion release was remediated by excavating contaminated soil and gravel. Clean fill was deposited in the excavated area and compacted (PacifiCorp, 2012).

Laboratory analytical results for confirmation soil samples indicated three (3) locations with reported concentrations exceeding the Ecology Model Toxics Cleanup Act (MTCA) Method A cleanup level (CUL) for mineral oil (4,000 milligrams per kilogram [mg/kg]). Two (2) of the locations, the ditch and pond bank, were further excavated to meet the CUL. The third location (Sample #D8, 28,100 mg/kg) was collected at 20-inches bgs within the storm water ditch west of transformer GSU#1, which was not accessible for excavation and re-sampling due to the new transformer foundation containment extension (KTA, 2016).

2.5.2 2011 Site Investigation

In May 2011, KTA's subcontractor TEC, Inc. completed a site investigation that included groundwater assessment to determine whether impacts from the transformer GSU#1 mineral oil release were present (TEC, 2011). Six (6) direct-push soil borings were

advanced to collect soil samples and groundwater samples from temporary monitoring wells. Four (4) temporary monitoring wells were placed downgradient of the transformer, one (1) up gradient of the transformer, and one (1) directly west of the transformer (Figure 3).

Soil boring field screening observed a limited oil sheen only in borehole GW-4. Subsurface soil samples were collected from the gravel/clay soil interface at three locations (SG-1, SG-2, and SG-3). Mineral oil was reported in only one soil sample, SG-1, at a concentration of 160 mg/kg, the location nearest to transformer GSU#1. Mineral oil was only reported in the groundwater sample collected from temporary groundwater well GW-4, located within the transformer explosion spray area and nearest to transformer GSU#1, at a concentration of 1,100 microgram per liter (µg/L), above the Ecology MTCA Method A CUL of 500 µg/L.

2.5.3 2013 GSU#3 Transformer Failure and Oil Release

On November 22, 2013, transformer GSU#3 experienced an explosive failure and subsequent fire similar to transformer GSU#1, which resulted in a release of *non-PCB* mineral oil around the transformer and into the storm water system. Fire suppression water filled the concrete transformer containment and overflowed to the surrounding soil and gravel across the gravel road to nearby storm water ditches impacting the storm water pond, but not the outfall, as storm water was not being discharged due to the dry weather.

Oil and water from the transformer containment flowed south and north to the storm water ditch, east towards the turbine building, and west across the road to storm water ditches. The ditches to the south and west flow into the pond through underground culverts (Figure 3). Due to cold dry weather, the extent of the contamination was simple to observe and contain (CCS, 2013).

CCS of Longview, Washington provided spill response and cleanup. Mineral oil and contaminated water were removed from the pond, ditches, and transformer containment and stored in tanks on-Site, treated, and then discharged to the sanitary sewer. After the transformer was replaced, CCS excavated oil-contaminated gravel and soil around the transformer containment, storm water ditches, and pond banks. The soil was removed to a depth below the contamination level or to the compacted clay soil layer approximately 4 to 5 feet bgs. The excavations were backfilled, and the excavated gravel and soil were stored on-Site pending off-Site disposal.

CCS conducted confirmation soil sampling of the underlying soil before replacement of the excavated gravel and soil. Samples were collected throughout the extent of excavation. Mineral oil was only reported in two (2) soil samples at concentrations of 128 mg/kg and 76.9 mg/kg, below the Ecology MTCA Method A CUL of 4,000 mg/kg (PacifiCorp, 2016).

At the conclusion of soil excavation during cleanup activities in January 2014, an oil sheen was observed on the perched groundwater layer approximately 5-feet bgs. CCS installed

an open, vertical, slotted culvert on the south side of the containment for the transformer, near the location where most of the oil/water flowed over the containment wall (Figure 3). The culvert was installed to a depth just below the bottom of the perched groundwater layer. Power plant staff inspected the groundwater in the following months of 2014. Minimal oil droplets were observed as the groundwater level declined in the spring until groundwater was no longer present at the bottom of the culvert (5-feet bgs). When the groundwater level rose in the fall of 2014, initially a few droplets of oil were observed, but were not observed following that time (PacifiCorp, 2016).

2.5.4 2013 Site Investigation

In October 2013, KTA's subcontractor Cardno (formerly TEC, Inc) advanced three (3) direct-push soil borings up to 30 feet bgs to collect soil samples and to construct, develop, and sample three (3) groundwater monitoring wells at the Site. Groundwater monitoring wells were installed in the shallow water bearing zone at two of the three locations. Monitoring well MW-1 was located adjacent to soil sample D8 which was collected under the transformer containment structure, the soil boring for proposed monitoring well MW-2 was located near soil boring GW-4, and monitoring well MW-3 was located downgradient from the transformer in a location outside the spill contamination area to triangulate groundwater level and flow direction (Figure 3). Only two of the groundwater monitoring wells were installed. This was due to encountering utilities during the construction of MW-2 (Cardno, 2014).

Mineral oil was not reported at, or above the laboratory reporting limit (RL) in the three (3) soil samples collected from the soil/groundwater interface. Mineral oil was reported in the groundwater sample collected from the soil boring for MW-2 at a concentration of 380 µg/L, below the Ecology MTCA Method A cleanup level of 500 µg/L (Cardno, 2016).

2.5.5 Groundwater Investigation 2015/2016

From March 2015 through March 2016, KTA along with their subcontractors Cardno and Clear Water Services (CWS) conducted groundwater investigation that included an assessment of potential impacts to subsurface soil and shallow groundwater within certain Site areas previously exposed to mineral oil releases in 2013 at the power plant. The assessment consisted of advancing three (3) hollow-stem soil borings from 26.5 to 31.5 feet bgs to collected soil samples and to construct and develop three (3) groundwater monitoring wells at the Site, and completion of four (4) consecutive groundwater monitoring events.

2.5.5.1 Monitoring Well Installation

In April 2015, groundwater monitoring wells MW-4, MW-5, and MW-6 were installed in the shallow water bearing zone at three (3) locations (Cardno, 2015a). Monitoring well MW-4 was located south-southeast of the extent of soil contamination from the transformer

GSU#3 release, monitoring well MW-5 was located at the northeast corner of the storm water pond, and monitoring well MW-6 was located west of the extent of soil contamination from the transformer GSU#3 release (Figure 3). Soil samples were collected at a depth of 4 to 6 feet bgs from each soil boring.

Diesel range organics (DRO), mineral oil, and residual range organics (RRO) were not reported above Ecology MTCA Method A cleanup levels (CULs) in the three (3) soil samples.

The groundwater monitoring wells were surveyed relative to a random 100-foot elevation located at the southwest corner of GSU No. 1.

2.5.5.2 Groundwater Monitoring

Groundwater monitoring was conducted on a quarterly basis in April, July, and December 2015 and March 2016 to assess groundwater quality and determine groundwater flow direction and gradient (Cardno, 2015b and 2015c, and CWS, 2016a and CWS, 2016b).

During each monitoring event, prior to sample collection, each monitoring well was opened and allowed to equilibrate to the current ambient air pressure and an electronic interface probe was used to check for the presence/thickness of any accumulated free-phase hydrocarbons (FPH) and to measure depth to groundwater. Groundwater samples were collected from each monitoring well using low-flow sampling techniques. Groundwater samples were analyzed for DRO, mineral oil, and RRO.

DRO, mineral oil, and RRO were not reported at, or above their respective laboratory RLs in all groundwater samples collected during the four (4) quarterly groundwater monitoring events.

Relative groundwater elevations and flow direction data collected during the quarterly groundwater monitoring events indicated a general flow direction to the southwest with a calculated groundwater gradient of approximately 0.01 feet/foot.

2.5.6 2015 Electrical Vault Water Sampling

During a Site visit in March 2015, it was noted that the electrical utility vaults in the areas adjacent to transformers GSU#1 and GSU#3, and areas in between, were at least partially filled with inflowing storm water infiltration and groundwater that filled the utility trenches leading to these vaults. The system of electrical vaults is equipped with submersible pumps to remove the in-flow water and are connected to piping that discharges to the main storm water drainage ditches running along the western boundary of the GSUs. Though plant operators had not observed oil discharged into the ditches or storm water pond, it was concluded that the pumping from the vaults could be a potential mechanism for removal of any residual groundwater oil contamination since the oil spill cleanup. A decision was made to collect and analyze water samples from select vaults (Cardno, 2015a).

On April 7, 2015, electrical utility vaults EMHC-001, EMHM-002, EMHC-002, EMHM-003, and EMHC-003 (Figure 5) were inspected to assess for the presence of an oil sheen and the collection of water samples. A possible oil sheen was noted in vaults EMHC-001, EMHM-003, and EMHC-003 (Figure 5). Water samples were collected from vaults EMHC-001, EMHC-002, EMHM-003, and EMHC-003 and analyzed for DRO, mineral oil, and RRO.

DRO and mineral oil were reported above their Ecology MTCA Method A CULs (500 µg/L) in the sample collected from electrical vault EMHC-001 located southeast of transformer GSU#1. RRO was not reported above the Ecology MTCA Method A CUL in the sample. In the remaining samples, DRO, mineral oil, and RRO were either not reported at, or above their respective laboratory RLs or reported below their Ecology MTCA Method A CULs.

2.6 Additional Site Investigation – June 2024

Additional Site investigation was completed for the Site from June 9 through 11, 2024. The Site investigation included: direct-push soil borings to collect soil samples and to install groundwater monitoring well MW-2R, collection of groundwater samples from the groundwater monitoring culvert and electrical utility vaults, and completion of a groundwater monitoring event for all existing monitoring wells and the new monitoring wells. An updated Terrestrial Ecological Evaluation (TEE) was also completed for the Site. All work was completed consistently with that proposed in the *Chehalis Power Plant Transformer Spills, Additional Site Characterization Work Plan (Revised)* (A&M, 2024c).

The findings and conclusions of the Site investigation results are provided in the following sections.

2.6.1.1 Soil Assessment and Groundwater Monitoring Well Installation

On June 9, 2024, two (2) direct-push soil borings were advanced to assess the immediate vicinity of former soil borings GW-4 and SB-2, installation of groundwater monitoring well MW-2R, and to assess soil in the immediate vicinity of former soil boring D8 and the extent of vertical contamination.

Soil boring MW-2R was advanced to 22.0 feet bgs where refusal was met, and the direct-push boring was terminated. Soil samples were collected from the boring at 10 feet bgs, the groundwater/soil interface, and at 20 feet bgs. A groundwater monitoring well was installed using PVC blank casing from the ground surface to the top of the screened interval, consisting of 10-feet of 2-inch diameter pre-packed 0.020-inch slotted PVC casing set from 3 to 13 feet bgs, and was completed with a flush-mount, traffic-rated well box monument.

The new monitoring well and five (5) existing monitoring wells' top of casing and top of box elevation, as well as the State Plane northerly and easterly location were surveyed by a Washington licensed Washington Land Surveyor.

Laboratory analytical results indicated DRO were not reported at or above the laboratory RL in the soil samples collected from soil boring MW-2R and soil boring SB-1, oil range organics (ORO) were reported at an estimated concentration of 10.9 mg/kg, below the Ecology MTCA Method A CUL of 2,000 mg/kg in the soil sample collected at 1.6 feet bgs from soil boring SB-1.

2.6.1.2 Groundwater Assessment

From June 9 through 11, 2024, groundwater samples were collected from the groundwater monitoring culvert and four (4) electrical utility vaults, and a groundwater monitoring event was complete for the six (6) groundwater monitoring wells. The results of the groundwater assessment were as follows:

- Analytical results for the sample collected from the Groundwater Monitoring Culvert indicated DRO were reported at an estimated concentration of 230 micrograms per liter (µg/L), below the Ecology MTCA Method A CUL of 500 µg/L and that ORO were not reported at or above the laboratory RL.

- Analytical results for the samples collected from the Electrical Utility Vaults indicated DRO and ORO were not reported at or above the laboratory RL.

- Analytical results for the samples collected from the groundwater monitoring wells indicated DRO were reported at an estimated concentration of 270 µg/L, below the Ecology MTCA Method A CUL of 500 µg/L in the sample collected from MW-2R and was not reported at or above the laboratory RL in the remaining groundwater samples collected from the monitoring wells.

  ORO were not reported at or above the laboratory RL in the groundwater samples collected from the monitoring wells.

- During the groundwater monitoring event in June 2024, shallow groundwater flow direction at the Site was observed to be predominantly to the southwest with a calculated horizontal gradient of less than 0.01 ft/ft. The observed groundwater flow direction and horizontal gradient was generally consistent with that observed in previous monitoring events.

2.6.1.3 Terrestrial Ecological Evaluation

An updated TEE was completed for the Site. A determination was made that because all soil contamination above Ecology MTCA Method A was located beneath a concrete containment area that surrounds GSU#1, that the Site meets exclusion criteria WAC-173-340-7491(1)(b).

2.6.1.4 Conclusions

The assessment report stated that based on the additional soil and assessment data and prior assessment data the following was concluded:

- Soil was compliant with Ecology MTCA Method A CULs except for soil in the vicinity of soil sample D-8 located approximately 1.5 feet bgs beneath the current concrete containment area for GSU#1 and is well within the property boundary;
- Groundwater quality was compliant with Ecology MTCA Method A CULs and the contaminant plume is defined to the property boundary; and
- The updated TEE determined that the Site meets exclusion criteria; and remaining soil contamination does not pose an unacceptable risk to human health or the environment under current land use and conditions.

3 GROUNDWATER MONITORING

On February 19, 2025, a groundwater monitoring event was completed for the Site to assess groundwater for PFAS in MW-1 and MW-2R. The groundwater assessment was completed to address Ecology's request for PFAS assessment in the December 2024 Opinion Letter (Ecology, 2024b). Groundwater monitoring was completed in accordance with protocols outlined in Ecology's *Guidance for Investigating and Remediating PFAS Contamination in Washington State* (Ecology, 2023). The following sections present the field activities associated with the groundwater monitoring event.

3.1 Pre-Field Activities

A Site-specific health and safety plan (HASP) was prepared in accordance with Occupational Safety & Health Administration (OSHA) CFR 1910.120. The HASP included a chemical and physical hazard evaluation, an operations plan, safety equipment and procedures, and emergency procedures.

3.2 Groundwater Monitoring

To assess PFAS in groundwater, a groundwater monitoring event was completed in February 2025. Groundwater monitoring wells MW-1, MW-2R, MW-3, MW-4, MW-5, and MW-6 were included in the monitoring event, with sample collection from monitoring wells MW-1 and MW-2R.

3.2.1 Groundwater Sampling

On February 19, 2025, a groundwater monitoring event was completed for the Site. Depth-to-water measurements were collected from monitoring wells MW-1, MW-2R, MW-3, MW-4, MW-5, and MW-6 using a decontaminated electronic water probe. Depth-to-water readings were measured to the nearest 0.01-foot from the north side of the top of each well casing. The measurements were recorded in field notes and on groundwater monitoring field sampling data sheets (FSDSs).

Groundwater samples were collected from MW-1 and MW-2R utilizing the USEPA's *Standard Operating Procedure for Low-Stress (Low Flow)/Minimal Drawdown Ground-Water Sample Collection* (USEPA, 2021). Prior to sampling, depth-to-water measurements were used to determine the static water level in each well (3.40 to 4.90 feet bgs). A peristaltic pump with new, disposable tubing was placed in the well so that the

pump or tubing intake was located at approximately the mid-point of the screened interval. The well was purged at a flow rate of approximately 0.5 liters per minute, or slower if drawdown in the well was observed to exceed 0.3 feet from the static level. During purging, field parameters including: pH, conductivity, temperature, oxygen reduction potential (ORP), turbidity, and dissolved oxygen (DO) were measured. Groundwater samples were collected after at least three sequential field parameter readings stabilized to within the limits specified in the USEPA procedure. Field sampling data were recorded on FSDSs and are provided in Appendix A. For quality assurance/quality control (QA/QC) purposes a duplicate sample was collected from monitoring well MW-1.

The groundwater samples were placed directly into laboratory-supplied glassware with as little disturbance as possible, labeled with a unique identification, and shipped in an iced cooler using standard A&M COC procedure to an Ecology accredited laboratory for analysis.

3.2.1.1 Laboratory Analyses

All groundwater samples were submitted to Eurofins Spokane of Spokane, Washington, an Ecology accredited laboratory for analysis of the PFAS perfluorobutanoic acid (PFBA), perfluorohexanoic acid (PFHxA), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorodecanoic acid (PFDA), perfllluorobutanesulfonic acis (PFBS), perfluorohexanesulfonic acid (PFHxS), perfluorooctanesulfonic acid (PFOS), and hexafluoropropylene oxide dimer acid (HFPO-DA) by USEPA Method 1633.

4 MONITORING RESULTS

The following sections present the results of the February 2025 groundwater monitoring event. The observed flow direction and gradient based on groundwater elevation monitoring data and the laboratory analytical results for the groundwater samples collected during the event are presented.

4.1 Groundwater Elevation Monitoring

A&M collected depth-to-groundwater measurements from monitoring wells MW-1, MW-2R, MW-3, MW-4, MW-5, and MW-6 on February 19, 2025 to determine groundwater elevations at the Site (Table 1). Based on the measurements collected during the monitoring event, a groundwater elevation contour map was generated for the shallow groundwater bearing zone (Figure 4). During the February 2025 groundwater monitoring event, shallow groundwater flow direction at the Site was observed to be predominantly to the southwest with a calculated horizontal gradient of less than 0.01 feet per foot (ft/ft). The observed groundwater flow direction and horizontal gradient was consistent with that observed in previous monitoring events.

4.2 Groundwater Assessment Analytical Results

The analytical results for the groundwater samples collected on February 19, 2025 during the groundwater monitoring event from groundwater monitoring wells MW-1 and MW-2R are summarized below and presented in Table 2 with comparisons to Ecology Cleanup Levels and Risk Assessment Calculation (CLARC) Method B Potable Groundwater CUL. Select analytical results are presented on Figure 5. A copy of the laboratory analytical report is provided in Appendix B.

Laboratory analytical results for the groundwater samples indicate the following:

- PFBA was reported above the laboratory RL, in the groundwater samples collected from groundwater monitoring wells MW-1 and MW-2R at concentrations of 0.010 µg/L, 0.011 µg/L (duplicate sample), and 0.0065 µg/L, respectively, below the Ecology CLARC Method B Potable Groundwater CUL of 8.00 µg/L.

- PFHxA was reported above the laboratory RL, in the groundwater samples collected from groundwater monitoring wells MW-1 and MW-2R at concentrations of

0.0041 µg/L, 0.0042 µg/L (duplicate sample), and 0.0023 µg/L, respectively, below the Ecology CLARC Method B Potable Groundwater CUL of 8.00 µg/L.

- PFOA was reported above the laboratory RL, in the groundwater samples collected from groundwater monitoring wells MW-1 and MW-2R at concentrations of 0.0028 µg/L, 0.0029 µg/L (duplicate sample), and 0.0022 µg/L, respectively, below the Ecology CLARC Method B Potable Groundwater CUL of 0.004 µg/L.

- All other PFAS were not reported at or above laboratory RLs in the groundwater samples collected.

5 FINDINGS AND CONCLUSIONS

On February 19, 2025, a groundwater monitoring event was completed for the Site to assess groundwater for PFAS in MW-1 and MW-2R. The groundwater assessment was completed to address Ecology's request in the December 2024 Opinion Letter (Ecology, 2024b). A summary of the findings and conclusions based on the groundwater monitoring results are provided in the following sections.

5.1 Summary of Findings

On February 19, 2025, a groundwater monitoring event was completed for the six (6) Site groundwater monitoring wells event, with sample collection from monitoring wells MW-1 and MW-2R. The results of the groundwater monitoring are as follows:

- During the February 2025 groundwater monitoring event, shallow groundwater flow direction at the Site was observed to be predominantly to the southwest with a calculated horizontal gradient of less than 0.01 ft/ft. The observed groundwater flow direction and horizontal gradient was consistent with that observed in previous monitoring events.

- PFBA was reported in the groundwater samples collected from groundwater monitoring wells MW-1 and MW-2R at concentrations of 0.010 µg/L, 0.011 µg/L (duplicate sample), and 0.0065 µg/L, respectively, below the Ecology CLARC Method B Potable Groundwater CUL of 8.00 µg/L.

- PFHxA was reported in the groundwater samples collected from groundwater monitoring wells MW-1 and MW-2R at concentrations of 0.0041 µg/L, 0.0042 µg/L (duplicate sample), and 0.0023 µg/L, respectively, below the Ecology CLARC Method B Potable Groundwater CUL of 8.00 µg/L.

- PFOA was reported in the groundwater samples collected from groundwater monitoring wells MW-1 and MW-2R at concentrations of 0.0028 µg/L, 0.0029 µg/L (duplicate sample), and 0.0022 µg/L, respectively, below the Ecology CLARC Method B Potable Groundwater CUL of 0.004 µg/L.

- All other PFAS were not reported at or above laboratory RLs in the groundwater samples collected.

5.2 Conclusions

Based on the groundwater monitoring data the following can be concluded:

- The observed groundwater flow direction and horizontal gradient was generally consistent with that observed in previous monitoring events.
- The PFAS PFBA, PFHxA, and PFOA were reported in the groundwater samples collected from MW-1 and MW-2A. All reported concentrations were reported below Ecology CLARC Method B Potable Groundwater CULs and do not pose a risk to groundwater quality.
- Soil and groundwater in the source of the release is compliant with CULs and does not require any further remedial action.

A&M on behalf of PacifiCorp requests Ecology issue a No Further Action determination for the mineral oil release.

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LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

The purpose of a geologic/hydrogeologic study is to reasonably characterize existing site conditions based on the geology/hydrogeology of the area. In performing such a study, it is understood that a balance must be struck between a reasonable inquiry into the site conditions and an exhaustive analysis of each conceivable environmental characteristic. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to describe all geologic/hydrogeologic conditions of interest at a given site. If conditions have not been identified during the study, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

We are unable to report on or accurately predict events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces. We assume no responsibility for conditions we were not authorized to evaluate, or conditions not generally recognized as predictable when services were performed.

Geologic/hydrogeologic conditions may exist at the site that cannot be identified solely by visual observation. Where subsurface exploratory work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.

TABLES

Table 1
Groundwater Elevation Summary

Well Number/ TOC Elevation	Date	DTW (feet bgs)	DTP (feet bgs)	Product Thickness (feet)	Groundwater Elevation (feet)
MW-1					
97.76	04/15/15	4.27	--	0.00	93.49
	07/08/15	5.22	--	0.00	92.54
	12/16/15	4.31	--	0.00	93.45
	03/22/16	3.53	--	0.00	94.23
240.59	06/09/24	4.20	--	0.00	236.39
	02/19/25	4.00	--	0.00	236.59
MW-2R					
240.34	06/10/24	3.95	--	0.00	236.39
	02/19/25	3.40		0.00	236.94
MW-3					
97.57	04/15/15	5.03	--	0.00	92.54
	07/08/15	5.27	5.26	0.01	92.31
	12/16/15	4.21	--	0.00	93.36
	03/22/16	3.98	--	0.00	93.59
240.40	06/09/24	4.26	--	0.00	236.14
	02/19/25	3.94	--	0.00	236.46
MW-4					
97.64	04/15/15	4.90	--	0.00	92.74
	07/08/15	6.70	--	0.00	90.94
	12/16/15	4.34	--	0.00	93.30
	03/22/16	3.77	--	0.00	93.87
240.42	06/09/24	5.19	--	0.00	235.23
	02/19/25	4.62	--	0.00	235.80
MW-5					
97.08	04/15/15	4.98	--	0.00	92.10
	07/08/15	6.70	--	0.00	90.38
	12/16/15	4.80	--	0.00	92.28
	03/22/16	4.02	--	0.00	93.06
239.94	06/09/24	5.35	--	0.00	234.59
	02/19/25	4.70	--	0.00	235.24
MW-6					
96.18	04/15/15	5.07	--	0.00	91.11
	07/08/15	7.39	--	0.00	88.79
	12/16/15	5.38	--	0.00	90.80
	03/22/16	4.30	--	0.00	91.88
239.01	06/09/24	5.46	--	0.00	233.55
	02/19/25	4.90	--	0.00	234.11

Notes:

TOC - Top of casing

SWL - Static water level

DTW - Depth to water

DTP - Depth to product

Wells initially surveyed relative to the southwest corner of GSU-1 containment wall in April 2015.

Wells resurveyed to NAVD 88 on June 10, 2024 following installation of well MW-2R.

Table 2
Summary of Monitoring Well Groundwater Analytical Results

			Ecology Method NWTPH-Dx			Per- and Polyfluoroalkyl Substances (PFAS) USEPA Method 1633								
Well ID	**Sample ID**	**Sample Date**	**DRO (µg/L)**	**ORO (µg/L)**	**Mineral Oil (µg/L)**	**PFBA (µg/L)**	**PFHxA (µg/L)**	**PFOA (µg/L)**	**PFNA (µg/L)**	**PFDA (µg/L)**	**PFBS (µg/L)**	**PFHxS (µg/L)**	**PFOS (µg/L)**	**HFPO-DA (µg/L)**
MW-1	MW-1	04/15/15	120	<200	<200	--	--	--	--	--	--	--	--	--
	MW-1	07/08/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	Dup-GW	07/08/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-1	12/16/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-1	03/22/16	<100	<200	<200	--	--	--	--	--	--	--	--	--
	DUP-GW	03/22/16	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-1	06/10/24	<150	<240	NA	--	--	--	--	--	--	--	--	--
	MW-1	02/19/25	--	--	--	0.010	0.0041	0.0028	<0.0018	<0.0018	<0.0018	<0.0018	<0.0018	<0.0014
duplicate	MW-A	02/19/25	--	--	--	0.011	0.0042	0.0029	<0.0018	<0.0018	<0.0018	<0.0018	<0.0018	<0.0013
MW-2R	MW-2R	06/11/24	270 J	<300	--	--	--	--	--	--	--	--	--	--
	MW-2R	02/19/25	--	--	--	0.0065	0.0023	0.0022	<0.0018	<0.0018	<0.0018	<0.0018	<0.0018	<0.0013
MW-3	MW-3	04/15/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-3	07/08/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-3	12/16/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-3	03/22/16	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-3	06/10/24	<140	<230	--	--	--	--	--	--	--	--	--	--
	MW-3	02/19/25	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	MW-4	04/15/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	Dup-GW	04/15/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-4	07/08/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-4	12/16/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-4	03/22/16	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-4	06/10/24	<170	<280	--	--	--	--	--	--	--	--	--	--
	MW-4	02/19/25	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	MW-5	04/15/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-5	07/08/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-5	12/16/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	Dup-GW	12/16/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-5	03/22/16	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-5	06/10/24	<140	<230	--	--	--	--	--	--	--	--	--	--
	MW-5	02/19/25	--	--	--	--	--	--	--	--	--	--	--	--

Table 2
Summary of Monitoring Well Groundwater Analytical Results

			Ecology Method NWTPH-Dx			Per- and Polyfluoroalkyl Substances (PFAS) USEPA Method 1633								
Well ID	**Sample ID**	**Sample Date**	**DRO (µg/L)**	**ORO (µg/L)**	**Mineral Oil (µg/L)**	**PFBA (µg/L)**	**PFHxA (µg/L)**	**PFOA (µg/L)**	**PFNA (µg/L)**	**PFDA (µg/L)**	**PFBS (µg/L)**	**PFHxS (µg/L)**	**PFOS (µg/L)**	**HFPO-DA (µg/L)**
MW-6	MW-6	04/15/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-6	07/08/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-6	12/16/15	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-6	03/22/16	<100	<200	<200	--	--	--	--	--	--	--	--	--
	MW-6	06/10/24	<140	<230	--	--	--	--	--	--	--	--	--	--
	MW-6	02/19/25	--	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels [a]			500	500	500	--	--	--	--	--	--	--	--	--
CLARC - Method B Potable Groundwater [b]			--	--	--	8.00	8.00	0.004	0.01	0.00032	4.80	0.01	0.004	0.01

Notes:

USEPA - United States Environmental Protection Agency

Ecology - Washington State Department of Ecology

µg/L - Micrograms per liter

< - Not reported at, or above, the indicated laboratory reporting limit.

-- - Not analyzed.

Shaded value indicates analyte reported above the laboratory reporting limit.

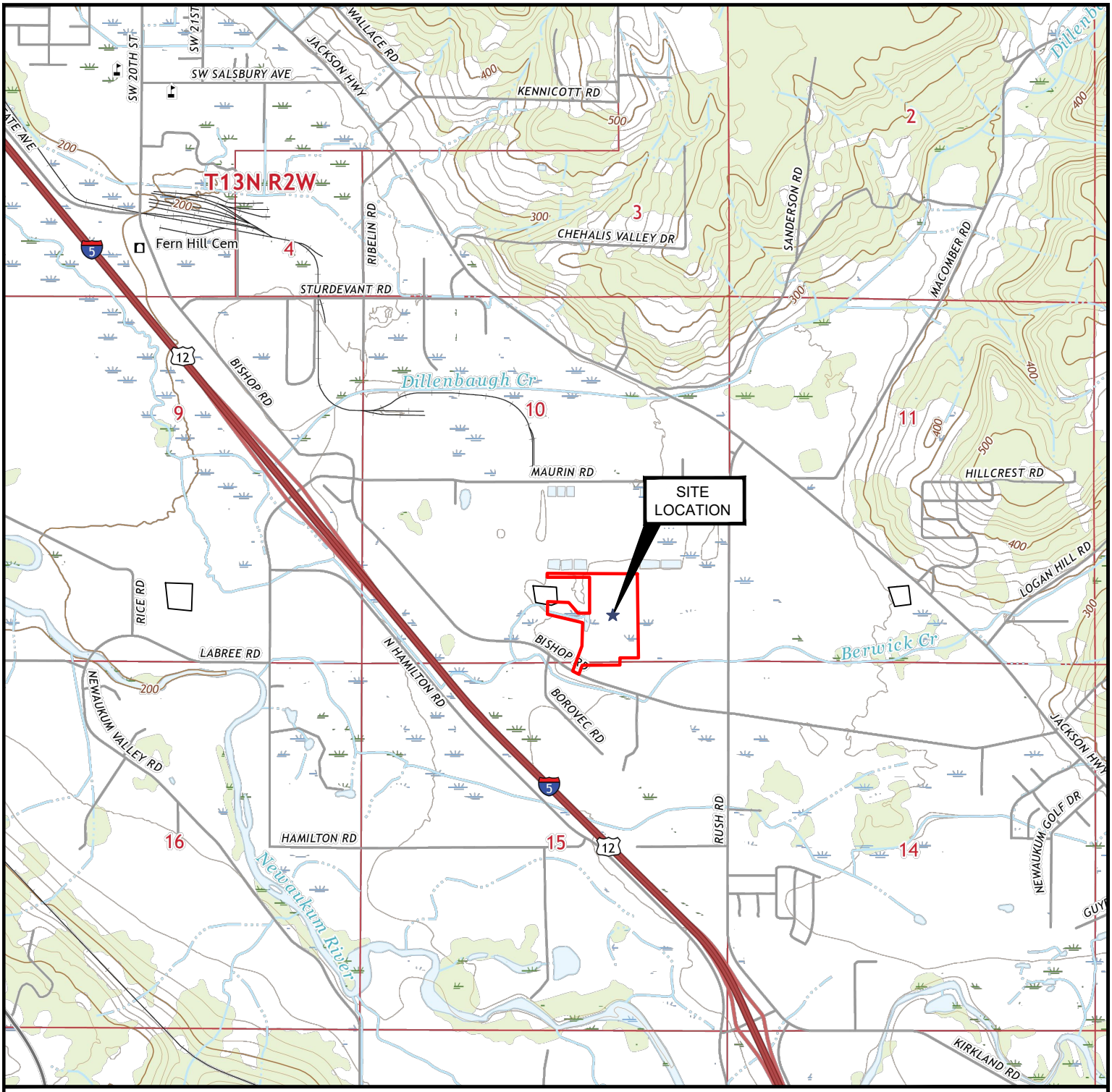
Concentrations exceeding Model Toxics Control Act (MTCA) Method A cleanup levels are **bolded**.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

[a] MTCA Method A Groundwater Cleanup Levels for Unrestricted Land Uses are referenced from the February 12, 2001. *Washington Department of Ecology Model Toxics Control Act Cleanup Regulation Chapter 173-340,* Table 720-1.

[b] Ecology Cleanup Levels and Risk Calculation (CLARC) Master Table, January 2025.

FIGURES



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, CENTRALIA, WASHINGTON AND NAPAVINE, WASHINGTON (2020)

Scale: 1"=2,000

N

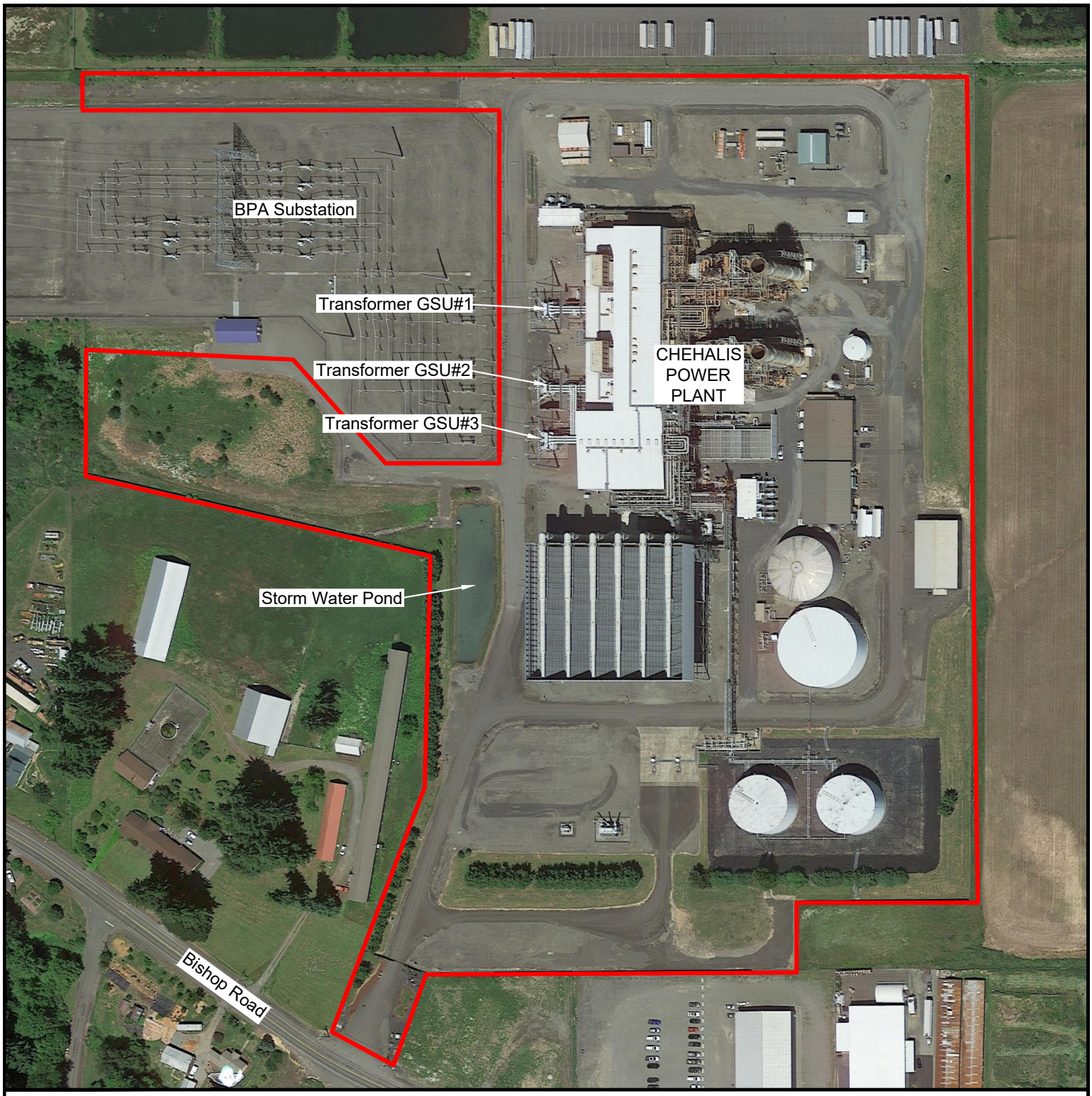
0 1,000 2,000 4,000

A & M Engineering and Environmental Services, Inc.
Consulting - Design - Construction - Remediation

SITE LOCATION MAP
CHEHALIS POWER PLANT

PACIFICORP
1813 BISHOP ROAD, CHEHALIS, WASHINGTON

SCALE:	DATE:	FIGURE NO.
AS SHOWN	3/6/25	1
APPROVED BY:	DRAWN BY:	PROJECT NO.
DJL	SRM	2064-0052



SOURCE: GOOGLE EARTH (2021)

LEGEND

Approximate Site Boundary

N

Scale: 1"=200'

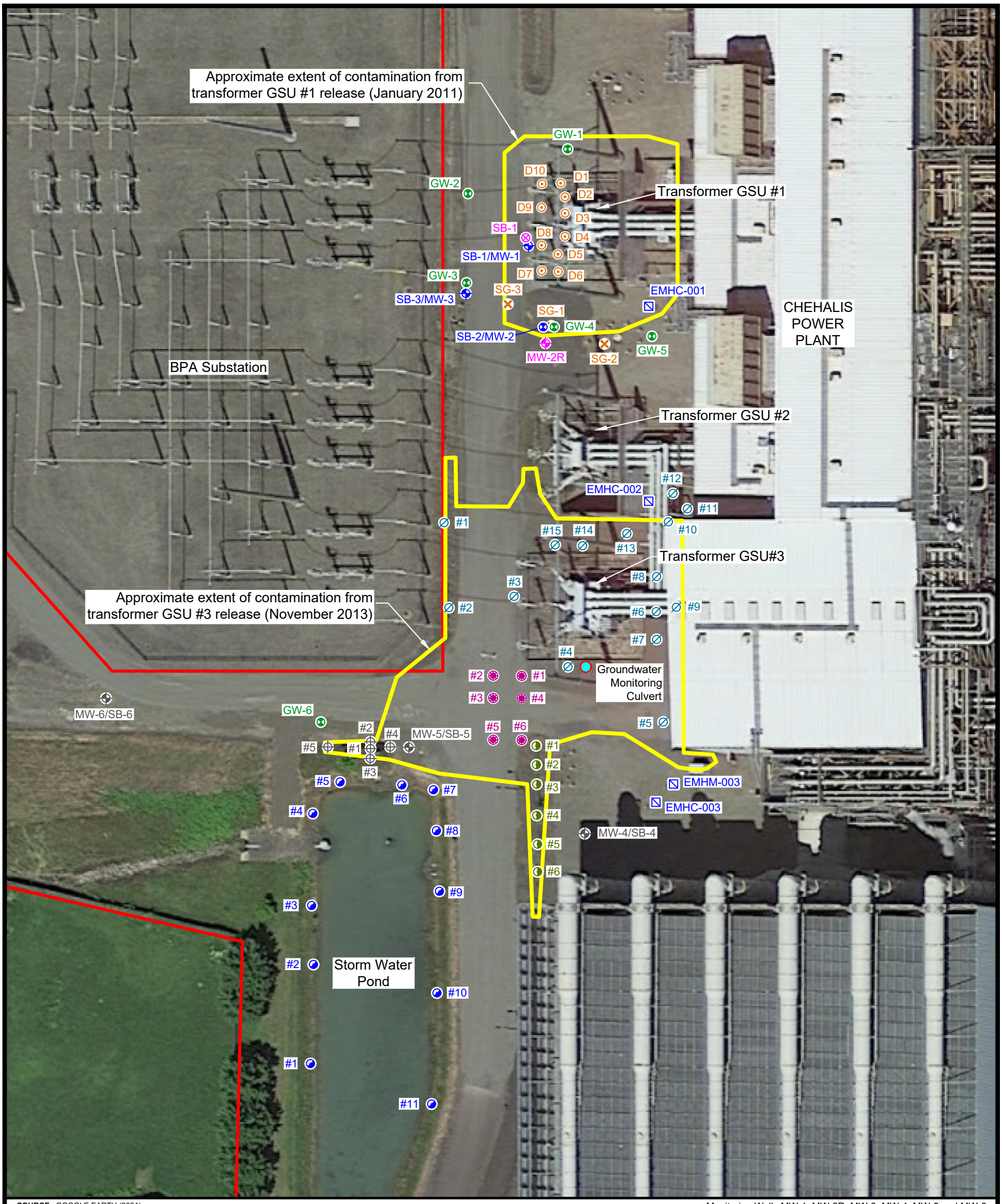
0 100 200 400

A & M Engineering and Environmental Services, Inc.
Consulting - Design - Construction - Remediation

FACILITY MAP
CHEHALIS POWER PLANT

PACIFICORP
1813 BISHOP ROAD, CHEHALIS, WASHINGTON

SCALE:	DATE:	FIGURE NO.
AS SHOWN	3/6/25	2
APPROVED BY:	DRAWN BY:	PROJECT NO.
DJL	SRM	2064-0052



SOURCE: GOOGLE EARTH (2021)

Monitoring Wells MW-1, MW-2R, MW-3, MW-4, MW-5 and MW-6 were Surveyed by Foresight Surveying, Inc. on 6/10/24

LEGEND

- MW-2R — Soil Boring (June 2024)
- SB-1 — Soil Boring (June 2024)
- SB-4/MW-4 — Soil Boring (April 2015)
- SB-3/MW-3 — Soil Boring (October 2013)
- SG-1 — GSU #3 Area Soil Sample (December 2013)
- GW-1 — Temporary Well (May 2011)
- D1 — GSU #1 Area Soil Sample (May 2011)
- EMHC-001 — Electrical Vault
- Groundwater Monitoring Culvert (January 2014)
- #1 — GSU #3 Area Soil Sample (December 2013)
- #1 — Pond Area Soil Sample (December 2013)
- #1 — Ditch Line Soil Sample (December 2013)
- #1 — Roadway Soil Sample (December 2013)
- #1 — North Pond Ditch Soil Sample (December 2013)
- Approximate Property Boundary

N

Scale: 1"=50'

0 25 50 100

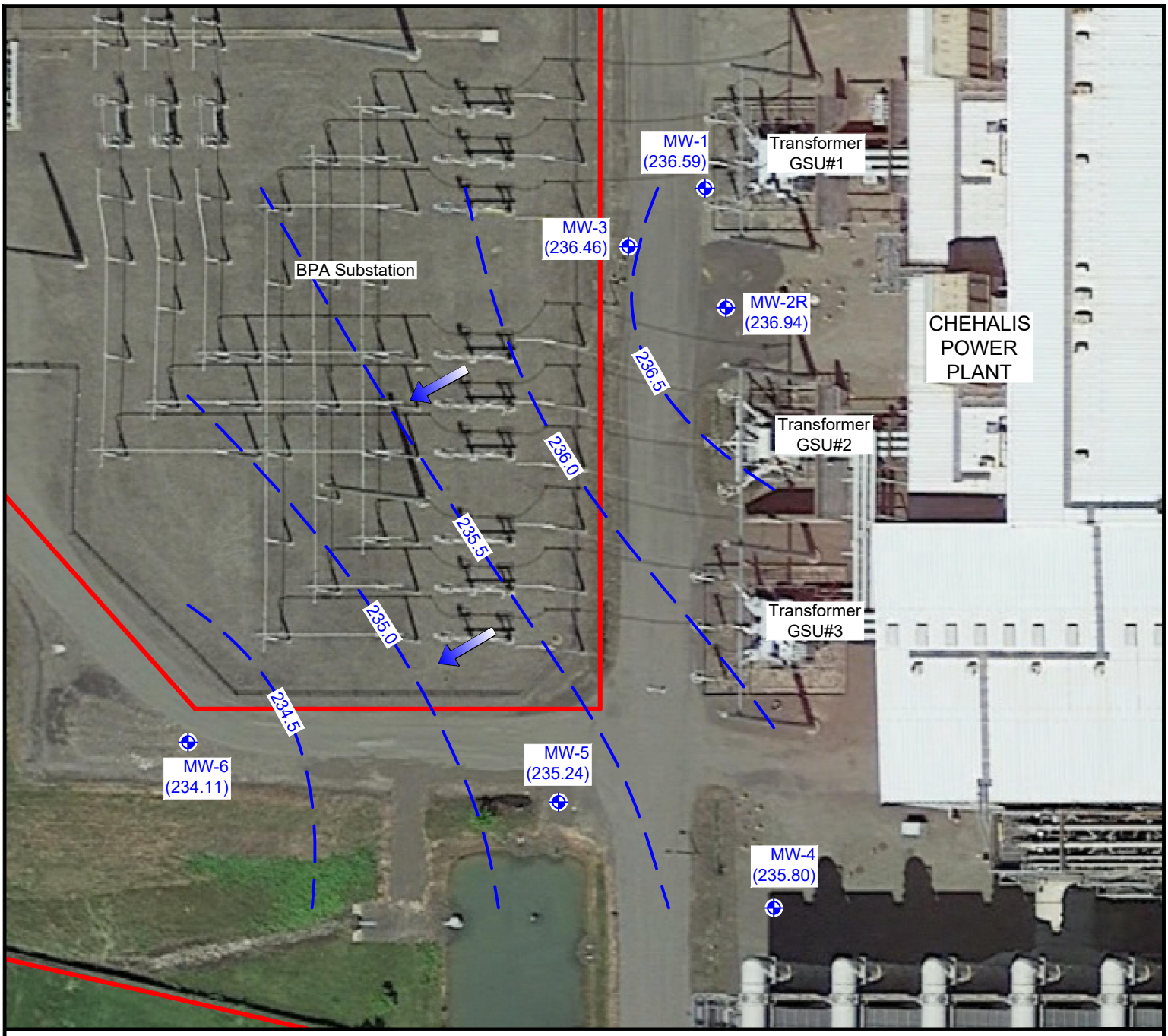
A & M Engineering and Environmental Services, Inc.
Consulting - Design - Construction - Remediation

SITE DETAIL MAP
CHEHALIS POWER PLANT

PACIFICORP
1813 BISHOP ROAD, CHEHALIS, WASHINGTON

SCALE:	DATE:	FIGURE NO.
AS SHOWN	3/6/25	3
APPROVED BY:	DRAWN BY:	PROJECT NO.
DJL	SRM	2064-0052

f3_SiteDetailMap_r1



SOURCE: GOOGLE EARTH (2021)

Monitoring Wells MW-1, MW-2R, MW-3, MW-4, MW-5 and MW-6 were Surveyed by Foresight Surveying, Inc. on 6/10/24

LEGEND

- 236.0 — Groundwater Elevation Contour (Feet Above MSL)
- (234.11) — Groundwater Elevation (Feet Above MSL)
- MW-2R — Monitoring Well
- Approximate Shallow Groundwater Flow Direction

N

Scale: 1"=60'

0 30 60 120

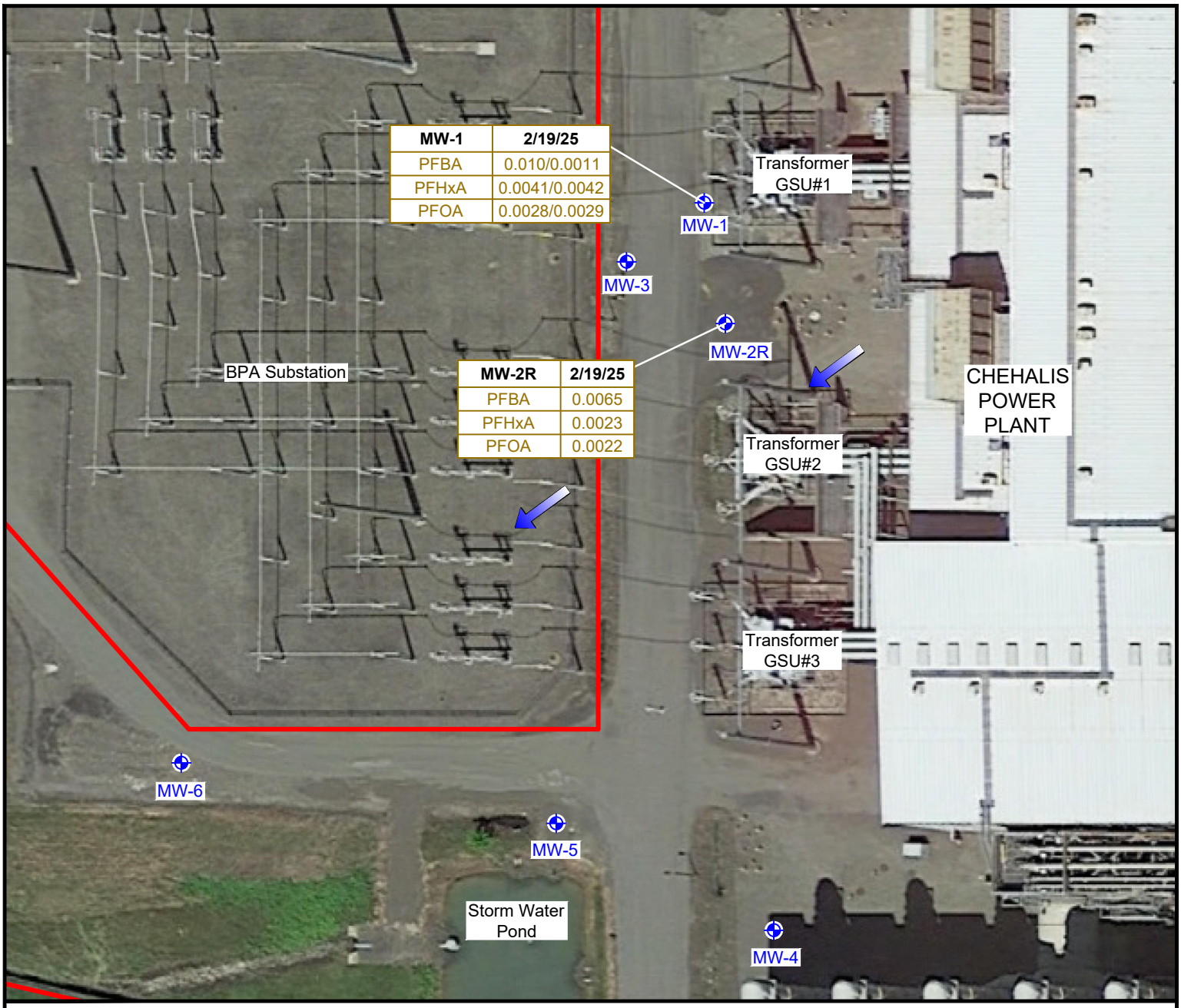
A & M Engineering and Environmental Services, Inc.
Consulting - Design - Construction - Remediation

GROUNDWATER CONTOUR MAP (FEBRUARY 19, 2025)
CHEHALIS POWER PLANT

PACIFICORP
1813 BISHOP ROAD, CHEHALIS, WASHINGTON

SCALE:	DATE:	FIGURE NO.
AS SHOWN	3/6/25	4
APPROVED BY:	DRAWN BY:	PROJECT NO.
DJL	SRM	2064-0052

f4_GW Contour 2025_0219_r1



SOURCE: GOOGLE EARTH (2021)

Monitoring Wells MW-1, MW-2R, MW-3, MW-4, MW-5 and MW-6 were Surveyed by Foresight Surveying, Inc. on 6/10/24

LEGEND

PFBA	Perfluorobutanoic Acid	0.010/0.0011	Primary and Duplicate Sample Results
PFHxA	Perfluorohexanoic Acid	<	Results Less than the Laboratory Reporting Limit
PFOA	Perfluorooctanoic Acid	←	Approximate Shallow Groundwater Flow Direction
MW-2R	Monitoring Well		

N

Scale: 1"=60'

0 30 60 120

Analytical Results are in Micrograms per Liter (µg/L)

A & M Engineering and Environmental Services, Inc.
Consulting - Design - Construction - Remediation

GROUNDWATER ANALYTICAL RESULTS
CHEHALIS POWER PLANT

PACIFICORP
1813 BISHOP ROAD, CHEHALIS, WASHINGTON

SCALE:	DATE:	FIGURE NO.
AS SHOWN	3/6/25	5
APPROVED BY:	DRAWN BY:	PROJECT NO.
DJL	SRM	2064-0052

f5_GW Analytical 2025_0219_r1

APPENDIX A -
FIELD SAMPLING DATA SHEETS

FIELD SAMPLING DATA SHEET
LOW-FLOW GROUNDWATER SAMPLING

DUPLICATE

PROJECT NAME: Chehalis Power Plant

WELL ID: MW-1

SITE ADDRESS: 1813 Bishop Road, Chehalis, WA

LABEL CODE: MW-01 (11:15)

DUPLICATE ID: MW-A (11:00)

Wind From	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy
Weather	Sunny		Cloudy		Rain		_____?		Temperature:	45 °F	____°C

WELL DATA

Date	Time	Casing Diameter	DT-Product	DT-Water	Product Thickness
2/19/25		2	--	4.00	--

PUMP/INTAKE DEPTH (ft btoc): 12

WATER QUALITY DATA

Time	DTW (ft)	Liters	PH	Temp (°C)	DO (mg/L)	Spec. Cond. (S/m)	Redox (mV)	Turb (NTU)
1058	4.35	0.5	7.35	12.0	6.63	244	433	0.63
1102	4.63	0.9	7.07	12.0	6.25	240	430	0.65
1106	4.89	1.3	6.55	12.0	6.23	233	427	0.60
1110	5.10	1.7	6.56	12.0	6.20	232	425	0.61

GROUNDWATER SAMPLE DATA

Sample Date: 2/19/25

Sample Time: 11:15 DUP 11:00

Bottle Type	√	Amount & Volume		Preservative	Filter	
White Poly	√	3	125 ml	None	NA	
Amber Glass			1 liter	HCL	NA	
Amber Glass			250 ml	HCL	NA	
Total Bottles		3	(x) 2			

Notes: VERY SLOW RECOVERY, PUMP RATE 0.1 GPM.
DUPLICATE SAMPLE MW-A, 11:00

Sampled By: Steve McCray

Signature: Steve McCray

FIELD SAMPLING DATA SHEET
LOW-FLOW GROUNDWATER SAMPLING

PROJECT NAME: Chehalis Power Plant WELL ID: MW-2R

SITE ADDRESS: 1813 Bishop Road, Chehalis, WA LABEL CODE: MW-2R

DUPLICATE ID:

Wind From	N	NE	E	SE	S	SW	W	NW	Light	Medium	Heavy
Weather	Sunny		Cloudy		Rain		?		Temperature:	45 °F	°C

WELL DATA

Date	Time	Casing Diameter	DT-Product	DT-Water	Product Thickness
2/19/25		2	--	3.40	--

PUMP/INTAKE DEPTH (ft btoc): 8

WATER QUALITY DATA

Time	DTW (ft)	Liters	PH	Temp (°C)	DO (mg/L)	Spec. Cond. (S/m)	Redox (mV)	Turb (NTU)
1130	3.61	0.5	7.30	10.3	7.89	145	333	3.88
1134	3.80	0.9	6.98	10.4	7.82	142	333	3.84
1138	4.00	1.3	6.97	10.4	7.65	139	334	3.75
1142	4.15	1.7	6.97	10.4	7.64	139	334	3.81

GROUNDWATER SAMPLE DATA

Sample Date: 2/19/25

Sample Time: 1145

Bottle Type	√	Amount & Volume		Preservative	Filter	
White Poly	√	3	125 ml	None	NA	
Amber Glass			1 liter	HCL	NA	
Amber Glass			250 ml	HCL	NA	
Total Bottles		3				

Notes: Slow Recovery pump rate 0.1 LPM (slowest)

Sampled By: Steve McCray Signature: Steve McCray

CHEHALIS POWER PLANT
2064-0052

2-19-25

0820 A+M ONSITE. CHECK IN (2025 ORIENTATION)
COLLECT DTW

MW-1 = 4.00
MW-2R = 3.40
MW-3 = 3.94
MW-4 = 4.62
MW-5 = 4.70
MW-6 = 4.90

CALIBRATE METERS
PH, ORP, COND, DO, TURB.

1050 SAMPLE MW-1 & MW-2R
DUPLICATE @ MW-1 = MW-A

1345 A+M OFFSITE

- TOOK SAFETY ORIENTATION TEST
- SAFETY WALK w JEREMY & ANDREW ULRICH

APPENDIX B -
LABORATORY ANALYTICAL REPORTS

eurofins | Environment Testing

1 2 3 4 5 6 7 8 9 10 11 12 13

ANALYTICAL REPORT

PREPARED FOR

Attn: Daniel Landry
A & M Engineering and Environmental Services Inc
1176 West 7th Avenue
Eugene, Oregon 97402

Generated 3/4/2025 10:58:24 AM

JOB DESCRIPTION

Chehalis Power Plant

JOB NUMBER

590-29549-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

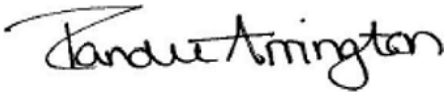
See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



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3/4/2025 10:58:24 AM

Authorized for release by
Randee Arrington, Business Unit Manager
Randee.Arrington@et.eurofinsus.com
(509)924-9200

Table of Contents

Job ID: 590-29549-1 Eurofins Spokane

Job Narrative
590-29549-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 2/21/2025 11:21 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.5°C.

PFAS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Sample Summary

Client: A & M Engineering and Environmental Services Inc
Job ID: 590-29549-1
Project/Site: Chehalis Power Plant

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-29549-1	MW-1	Water	02/19/25 11:15	02/21/25 11:21
590-29549-2	MW-2R	Water	02/19/25 11:45	02/21/25 11:21
590-29549-3	MW-A	Water	02/19/25 11:00	02/21/25 11:21

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: A & M Engineering and Environmental Services Inc
Job ID: 590-29549-1
Project/Site: Chehalis Power Plant

Client Sample ID: MW-1
Lab Sample ID: 590-29549-1
Date Collected: 02/19/25 11:15
Matrix: Water
Date Received: 02/21/25 11:21

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**10**		3.6		ng/L		02/27/25 06:04	03/01/25 03:22	1
Perfluorohexanoic acid (PFHxA)	**4.1**		1.8		ng/L		02/27/25 06:04	03/01/25 03:22	1
Perfluorooctanoic acid (PFOA)	**2.8**		1.8		ng/L		02/27/25 06:04	03/01/25 03:22	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:22	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.4		ng/L		02/27/25 06:04	03/01/25 03:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*89.2*		*5 - 130*	*02/27/25 06:04*	*03/01/25 03:22*	*1*
13C5 PFHxA	*97.4*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:22*	*1*
13C8 PFOA	*95.2*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:22*	*1*
13C9 PFNA	*88.8*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:22*	*1*
13C6 PFDA	*91.5*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:22*	*1*
13C3 PFBS	*69.4*		*40 - 135*	*02/27/25 06:04*	*03/01/25 03:22*	*1*
13C3 PFHxS	*78.9*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:22*	*1*
13C8 PFOS	*85.2*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:22*	*1*
13C3 HFPO-DA	*95.1*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:22*	*1*

Client Sample ID: MW-2R
Lab Sample ID: 590-29549-2
Date Collected: 02/19/25 11:45
Matrix: Water
Date Received: 02/21/25 11:21

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**6.5**		3.5		ng/L		02/27/25 06:04	03/01/25 03:38	1
Perfluorohexanoic acid (PFHxA)	**2.3**		1.8		ng/L		02/27/25 06:04	03/01/25 03:38	1
Perfluorooctanoic acid (PFOA)	**2.2**		1.8		ng/L		02/27/25 06:04	03/01/25 03:38	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:38	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.3		ng/L		02/27/25 06:04	03/01/25 03:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95.1*		*5 - 130*	*02/27/25 06:04*	*03/01/25 03:38*	*1*
13C5 PFHxA	*86.8*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:38*	*1*
13C8 PFOA	*92.0*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:38*	*1*
13C9 PFNA	*90.2*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:38*	*1*
13C6 PFDA	*94.1*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:38*	*1*
13C3 PFBS	*68.7*		*40 - 135*	*02/27/25 06:04*	*03/01/25 03:38*	*1*
13C3 PFHxS	*85.0*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:38*	*1*
13C8 PFOS	*93.9*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:38*	*1*
13C3 HFPO-DA	*101*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:38*	*1*

Client: A & M Engineering and Environmental Services Inc
Job ID: 590-29549-1
Project/Site: Chehalis Power Plant

Client Sample ID: MW-A
Lab Sample ID: 590-29549-3
Date Collected: 02/19/25 11:00
Matrix: Water
Date Received: 02/21/25 11:21

Method: EPA 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**11**		3.6		ng/L		02/27/25 06:04	03/01/25 03:55	1
Perfluorohexanoic acid (PFHxA)	**4.2**		1.8		ng/L		02/27/25 06:04	03/01/25 03:55	1
Perfluorooctanoic acid (PFOA)	**2.9**		1.8		ng/L		02/27/25 06:04	03/01/25 03:55	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:55	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		02/27/25 06:04	03/01/25 03:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.3		ng/L		02/27/25 06:04	03/01/25 03:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93.3*		*5 - 130*	*02/27/25 06:04*	*03/01/25 03:55*	*1*
13C5 PFHxA	*90.4*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:55*	*1*
13C8 PFOA	*92.2*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:55*	*1*
13C9 PFNA	*95.5*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:55*	*1*
13C6 PFDA	*96.8*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:55*	*1*
13C3 PFBS	*75.1*		*40 - 135*	*02/27/25 06:04*	*03/01/25 03:55*	*1*
13C3 PFHxS	*83.1*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:55*	*1*
13C8 PFOS	*87.9*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:55*	*1*
13C3 HFPO-DA	*96.5*		*40 - 130*	*02/27/25 06:04*	*03/01/25 03:55*	*1*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-836126/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 836648
Prep Batch: 836126

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.0		ng/L		02/27/25 06:04	03/01/25 02:16	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		02/27/25 06:04	03/01/25 02:16	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		02/27/25 06:04	03/01/25 02:16	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		02/27/25 06:04	03/01/25 02:16	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		02/27/25 06:04	03/01/25 02:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		02/27/25 06:04	03/01/25 02:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		02/27/25 06:04	03/01/25 02:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		02/27/25 06:04	03/01/25 02:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.5		ng/L		02/27/25 06:04	03/01/25 02:16	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98.3*		*5 - 130*	*02/27/25 06:04*	*03/01/25 02:16*	*1*
13C5 PFHxA	*94.0*		*40 - 130*	*02/27/25 06:04*	*03/01/25 02:16*	*1*
13C8 PFOA	*101*		*40 - 130*	*02/27/25 06:04*	*03/01/25 02:16*	*1*
13C9 PFNA	*91.0*		*40 - 130*	*02/27/25 06:04*	*03/01/25 02:16*	*1*
13C6 PFDA	*91.9*		*40 - 130*	*02/27/25 06:04*	*03/01/25 02:16*	*1*
13C3 PFBS	*83.7*		*40 - 135*	*02/27/25 06:04*	*03/01/25 02:16*	*1*
13C3 PFHxS	*84.1*		*40 - 130*	*02/27/25 06:04*	*03/01/25 02:16*	*1*
13C8 PFOS	*86.2*		*40 - 130*	*02/27/25 06:04*	*03/01/25 02:16*	*1*
13C3 HFPO-DA	*102*		*40 - 130*	*02/27/25 06:04*	*03/01/25 02:16*	*1*

Lab Sample ID: LCS 320-836126/3-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 836648
Prep Batch: 836126

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	78.3		ng/L		98	70 - 140
Perfluorohexanoic acid (PFHxA)	40.0	38.2		ng/L		96	70 - 145
Perfluorooctanoic acid (PFOA)	40.0	40.5		ng/L		101	70 - 150
Perfluorononanoic acid (PFNA)	40.0	40.9		ng/L		102	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	44.8		ng/L		112	70 - 140
Perfluorobutanesulfonic acid (PFBS)	35.5	31.2		ng/L		88	60 - 145
Perfluorohexanesulfonic acid (PFHxS)	36.5	33.6		ng/L		92	65 - 145
Perfluorooctanesulfonic acid (PFOS)	37.2	33.7		ng/L		90	55 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	29.5		ng/L		98	70 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*101*		*5 - 130*
13C5 PFHxA	*98.4*		*40 - 130*
13C8 PFOA	*95.4*		*40 - 130*
13C9 PFNA	*93.0*		*40 - 130*
13C6 PFDA	*96.2*		*40 - 130*
13C3 PFBS	*86.3*		*40 - 135*
13C3 PFHxS	*86.7*		*40 - 130*
13C8 PFOS	*88.8*		*40 - 130*

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-836126/3-A
Matrix: Water
Analysis Batch: 836648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 836126

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	106		40 - 130

Lab Sample ID: LCSD 320-836126/4-A
Matrix: Water
Analysis Batch: 836648

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 836126

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			80.0	79.7		ng/L		100	70 - 140	2	30
Perfluorohexanoic acid (PFHxA)			40.0	39.5		ng/L		99	70 - 145	3	30
Perfluorooctanoic acid (PFOA)			40.0	43.7		ng/L		109	70 - 150	8	30
Perfluorononanoic acid (PFNA)			40.0	40.5		ng/L		101	70 - 150	1	30
Perfluorodecanoic acid (PFDA)			40.0	45.7		ng/L		114	70 - 140	2	30
Perfluorobutanesulfonic acid (PFBS)			35.5	31.7		ng/L		89	60 - 145	2	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	34.2		ng/L		94	65 - 145	2	30
Perfluorooctanesulfonic acid (PFOS)			37.2	33.5		ng/L		90	55 - 150	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	28.9		ng/L		96	70 - 140	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFBA	99.9		5 - 130
13C5 PFHxA	102		40 - 130
13C8 PFOA	91.3		40 - 130
13C9 PFNA	95.4		40 - 130
13C6 PFDA	90.8		40 - 130
13C3 PFBS	79.9		40 - 135
13C3 PFHxS	85.1		40 - 130
13C8 PFOS	88.9		40 - 130
13C3 HFPO-DA	111		40 - 130

Lab Sample ID: LLCS 320-836126/2-A
Matrix: Water
Analysis Batch: 836648

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 836126

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)			8.00	7.37		ng/L		92	70 - 140
Perfluorohexanoic acid (PFHxA)			4.00	4.08		ng/L		102	70 - 145
Perfluorooctanoic acid (PFOA)			4.00	4.09		ng/L		102	70 - 150
Perfluorononanoic acid (PFNA)			4.00	3.83		ng/L		96	70 - 150
Perfluorodecanoic acid (PFDA)			4.00	4.54		ng/L		113	70 - 140
Perfluorobutanesulfonic acid (PFBS)			3.55	3.30		ng/L		93	60 - 145
Perfluorohexanesulfonic acid (PFHxS)			3.65	3.25		ng/L		89	65 - 145
Perfluorooctanesulfonic acid (PFOS)			3.72	3.44		ng/L		92	55 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			3.00	2.67		ng/L		89	70 - 140

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C4 PFBA	106		5 - 130
13C5 PFHxA	101		40 - 130
13C8 PFOA	102		40 - 130
13C9 PFNA	105		40 - 130
13C6 PFDA	94.9		40 - 130
13C3 PFBS	88.3		40 - 135
13C3 PFHxS	93.3		40 - 130
13C8 PFOS	96.9		40 - 130
13C3 HFPO-DA	119		40 - 130

Lab Chronicle

Client: A & M Engineering and Environmental Services Inc
Job ID: 590-29549-1
Project/Site: Chehalis Power Plant

Client Sample ID: MW-1
Lab Sample ID: 590-29549-1
Date Collected: 02/19/25 11:15
Matrix: Water
Date Received: 02/21/25 11:21

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			138.3 mL	5.0 mL	836126	02/27/25 06:04	GAT	EET SAC
Total/NA	Analysis	1633		1			836648	03/01/25 03:22	K1S	EET SAC

Client Sample ID: MW-2R
Lab Sample ID: 590-29549-2
Date Collected: 02/19/25 11:45
Matrix: Water
Date Received: 02/21/25 11:21

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			142.3 mL	5.0 mL	836126	02/27/25 06:04	GAT	EET SAC
Total/NA	Analysis	1633		1			836648	03/01/25 03:38	K1S	EET SAC

Client Sample ID: MW-A
Lab Sample ID: 590-29549-3
Date Collected: 02/19/25 11:00
Matrix: Water
Date Received: 02/21/25 11:21

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			140.4 mL	5.0 mL	836126	02/27/25 06:04	GAT	EET SAC
Total/NA	Analysis	1633		1			836648	03/01/25 03:55	K1S	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: A & M Engineering and Environmental Services Inc
Job ID: 590-29549-1
Project/Site: Chehalis Power Plant

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-25
Arkansas DEQ	State	88-0691	05-18-25
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-25
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-26
Illinois	NELAP	200060	03-31-25
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Minnesota	NELAP	2749448	12-31-25
Nevada	State	CA00044	07-31-25
New Hampshire	NELAP	2997	04-19-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-25
Ohio	State	41252	01-29-26
Oregon	NELAP	4040	01-29-26
Texas	NELAP	T104704399-23-17	05-31-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-25
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-26
Virginia	NELAP	460278	03-14-25
Washington	State	C581	05-05-25
West Virginia (DW)	State	9930C	01-31-26
Wisconsin	State	998204680	08-31-25
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: A & M Engineering and Environmental Services Inc
Job ID: 590-29549-1
Project/Site: Chehalis Power Plant

Method	Method Description	Protocol	Laboratory
1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: Steve McCurry	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-12172-3284 1
Client Contact: Daniel Landry	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: WA	Page: Page 1 of 1
Company: A & M Engineering and Environmental Services Inc	PWSID:	Analysis Requested		Job #: 2064-0052
Address: 1176 West 7th Avenue	Due Date Requested:			Preservation Codes: N None
City: Eugene	TAT Requested (days): 10			
State, Zip: OR, 97402	Compliance Project: Δ Yes Δ No			
Phone: 541-743-2600(Tel)	PO #: Purchase Order not required			
Email: dlandry@aandmengineering.com	WO #:			Other:
Project Name: CHEHALIS POWER PLANT	Project #: 59003476			
Site: CHEHALIS, WA	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633_Final Custom List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
MW-1	2-19-25	1115	G	Water			X		
MW-2R	↓	1145	↓	Water			X		
~~MW-3~~ MW-A	↓	11.00	↓	Water			X		
				Water					
				Water					
				Water					
				Water					
				Water					

590-29549 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV Other (specify)

Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Steve McCurry	2-20-25 0900	A+M			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 2/21/25 1121	Company EECSPO

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.

Cooler Temperature(s) °C and Other Remarks: 2.1, 7.5 COR IR006

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Arrington, Randee E	Carrier Tracking No(s): N/A	COC No: 590-10573.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: Randee.Arrington@et.eurofinsus com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): N/A		Job #: 590-29549-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 3/6/2025			Preservation Codes:
City: West Sacramento	TAT Requested (days): N/A			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #: N/A			
Email: NA	WO #: N/A			
Project Name: Chehalis Power Plant	Project #: 59003476			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1633_Final/1633_SPE_125 Custom List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-1 (590-29549-1)	2/19/25	11 15 Pacific	G	Water			X	3	
MW-2R (590-29549-2)	2/19/25	11.45 Pacific	G	Water			X	3	
MW-A (590-29549-3)	2/19/25	11 00 Pacific	G	Water			X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	2/24/25 1518	EELSPO		2/25/25 935	EEL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No. 691730	Cooler Temperature(s) °C and Other Remarks: 3.2

Ver: 10/10/2024

3/4/2025

Login Sample Receipt Checklist

Client: A & M Engineering and Environmental Services Inc

Job Number: 590-29549-1

Login Number: 29549

List Source: Eurofins Spokane

List Number: 1

Creator: Morris, Mackenzie 1

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: A & M Engineering and Environmental Services Inc

Job Number: 590-29549-1

Login Number: 29549
List Number: 2
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 02/25/25 12:07 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2691730
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: A & M Engineering and Environmental Services Inc
Job ID: 590-29549-1
Project/Site: Chehalis Power Plant

Method: 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	13C5PHA	C8PFOA	C9PFNA	C6PFDA	C3PFBS	C3PFHS	C8PFOS
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-135)	(40-130)	(40-130)
590-29549-1	MW-1	89.2	97.4	95.2	88.8	91.5	69.4	78.9	85.2
590-29549-2	MW-2R	95.1	86.8	92.0	90.2	94.1	68.7	85.0	93.9
590-29549-3	MW-A	93.3	90.4	92.2	95.5	96.8	75.1	83.1	87.9
LCS 320-836126/3-A	Lab Control Sample	101	98.4	95.4	93.0	96.2	86.3	86.7	88.8
LCSD 320-836126/4-A	Lab Control Sample Dup	99.9	102	91.3	95.4	90.8	79.9	85.1	88.9
LLCS 320-836126/2-A	Lab Control Sample	106	101	102	105	94.9	88.3	93.3	96.9
MB 320-836126/1-A	Method Blank	98.3	94.0	101	91.0	91.9	83.7	84.1	86.2

		Percent Isotope Dilution Recovery (Acceptance Limits)
		HFPODA
Lab Sample ID	Client Sample ID	(40-130)
590-29549-1	MW-1	95.1
590-29549-2	MW-2R	101
590-29549-3	MW-A	96.5
LCS 320-836126/3-A	Lab Control Sample	106
LCSD 320-836126/4-A	Lab Control Sample Dup	111
LLCS 320-836126/2-A	Lab Control Sample	119
MB 320-836126/1-A	Method Blank	102

Surrogate Legend

PFBA = 13C4 PFBA
13C5PHA = 13C5 PFHxA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
HFPODA = 13C3 HFPO-DA