

2025 Operations, Maintenance, and Monitoring Annual Report South Park Landfill Settlement Area SPPD (CenterPoint)/City Area

Prepared for



**Seattle
Public
Utilities**

March 2026

ParametriX

In Association with



2025 Operations, Maintenance, and Monitoring Annual Report South Park Landfill Settlement Area SPPD (CenterPoint)/City Area

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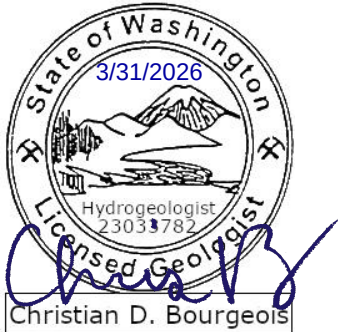
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Prepared by HWA Geosciences
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March 2026.

Certification

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.



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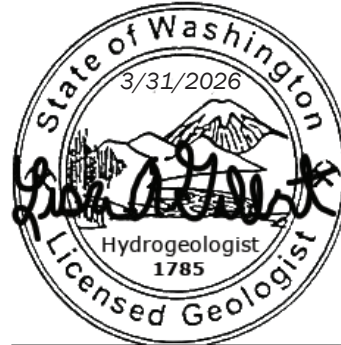


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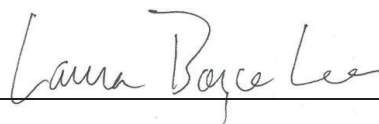
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Acronyms and Abbreviations

µg/L	micrograms per liter
AO	Agreed Order
CAP	Cleanup Action Plan
City	City of Seattle
COC	chemical of concern
CPOC	conditional point of compliance
CPSP	CenterPoint South Park LLC
County	King County
CUL	cleanup level
DCE	dichloroethene (<i>cis</i> -1,2-DCE is measured for the compliance monitoring)
Ecology	Washington State Department of Ecology
Edge of Refuse	The approximate boundary of the area where solid waste was placed as part of South Park Landfill operations.
EPA	U.S. Environmental Protection Agency
ft	foot/feet
Full Circle	Full Circle, LLC Full Circle
GEM	Landtec GEM5000 portable gas analyzer
HHW	household hazardous waste
IA	Interim Action
IAWP	Interim Action Work Plan
KIP	Kenyon Industrial Park
Landfill Property Boundary	The boundary of the parcels located partially or entirely within the Edge of Refuse
LEL	lower explosive limit
LFG	landfill gas
LFGCCS	landfill gas collection and control system
mg/L	milligrams per liter
MTCA	Model Toxics Control Act
NAVD 88	North American Vertical Datum of 1988
OMMP	Operations, Maintenance, and Monitoring Plan
PHSKC	Public Health – Seattle & King County
PLP	potentially liable parties
ppmv	parts per million by volume

Acronyms and Abbreviations (continued)

PSE	Puget Sound Energy
PVC	polyvinyl chloride
redox	oxidation-reduction (potential)
RI/FS	Remedial Investigation/Feasibility Study
ROW	right-of-way
SDOT	Seattle Department of Transportation
SEM	Landtec SEM5000 portable methane detector
Settlement Area	The parcels and rights-of-way covered under the 2019 Consent Decree. This includes the portion of the Site comprised of the CenterPoint South Park, LLC-owned parcel (3224049005) and the City of Seattle-owned parcels (7328400005 and 3224049110), and the adjacent City of Seattle and Washington State rights-of-way located within the Edge of Refuse. Also referred to in the draft interim amended CAP (Ecology 2023) as the “SPPD/City Area.”
Site	Referred to as the South Park Landfill and is generally located at 8100 and 8200 2 nd Avenue South, Seattle and defined by the extent of contamination caused by the release of hazardous substances.
SMI	Strategic Materials, Inc.
SPPD	South Park Property Development, LLC
SPU	Seattle Public Utilities
SR	State Route
SRDS	South Recycling and Disposal Station
VC	vinyl chloride
WAC	Washington Administrative Code

1. Introduction

The South Park Landfill (Site) is a former municipal solid waste landfill in the South Park neighborhood of Seattle, Washington, generally located at 8100 and 8200 2nd Avenue South, in Section 32 of Township 24 North, Range 4 East (Figure 1). Figure 2 shows the Site associated parcels and surrounding areas.

1.1 Background

The landfill includes several parcels that were initially added to the County tax rolls via foreclosure in the 1920s and were later purchased by the City of Seattle (City) and King County (County) in the 1950s. The City purchased the South Recycling and Disposal Station (SRDS) property from the County in 1951 and continued solid waste operations. The South Park Property Development, LLC (SPPD) property was leased for rubbish disposal from the County from 1958 through 1978 by the City. The SPPD property was purchased from the County in 2006.

The landfill received municipal, commercial, and industrial waste from the 1930s until 1966, when it was closed under the existing landfill closure laws at the time (Ecology and Environment, Inc. 1988; SPU 1997). During operation, much of the waste received at the landfill was burned on-site to reduce its volume (Floyd|Snider et al. 2021). The landfill is unlined with some of the waste buried below the water table. After closure, the City-owned portion was redeveloped into the SRDS which operated from 1966 through 2013. The SPPD parcel was predominantly used as a storage yard until it was redeveloped into its current configuration starting in 2014. Additional details are provided in Section 1.3, below.

Investigations of groundwater, surface water, soil, and landfill gas (LFG) began in the late 1980s. In February 2007, the landfill was added to the Washington State Department of Ecology (Ecology) Hazardous Sites List (Facility Site Identification No. 2180) based on concerns related to groundwater contamination and the presence of potentially flammable or explosive LFG.

1.2 Regulatory Status

In 2009, the City and SPPD as potentially liable parties (PLPs) entered into Agreed Order (AO) No. 6706 with the Ecology Toxics Cleanup Program. As defined in the AO, the Site is referred to as the South Park Landfill and is generally located at 8100 and 8200 2nd Avenue South and defined by the extent of contamination caused by the release of hazardous substances. The AO required the City and SPPD to conduct a Remedial Investigation /Feasibility Study (RI/FS) and to complete a preliminary draft Cleanup Action Plan (CAP) for the Site.

The AO was amended (First Amendment) in 2013 to include an Interim Action (IA) to be conducted primarily on the portion of the Site owned by SPPD (Farallon 2013) and was amended again in 2016 (Second Amendment) to include an IA to be conducted primarily on the portion of the Site owned by the City.

In 2017, Ecology began negotiating a Consent Decree with the PLPs. The Consent Decree was finalized in March 2019. An RI/FS was conducted (Floyd|Snider et al. 2021) and the CAP (Ecology 2018) was prepared and included as an attachment to the Consent Decree. The selected cleanup action described in the CAP fulfills the requirements of the Model Toxics Control Act (MTCA), Chapter 70.105D of the Revised Code of Washington, administered by Ecology under the MTCA Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code (WAC).

The CAP defined the Settlement Area as the portion of the Site within the Edge of Refuse that includes the SRDS property, owned by the City; the SPPD property, owned by CenterPoint South Park LLC (CPSP); and adjacent City and Washington State rights-of-way (ROWs). The Edge of Refuse as defined in the CAP refers to the approximate boundary of the area where solid waste was placed as part of South Park Landfill operations as interpreted in the RI/FS (Floyd | Snider et al. 2021). The Landfill Property Boundary is defined as the boundary of the parcels located partially or entirely within the Edge of Refuse. The other properties within the Edge of Refuse are the Kenyon Industrial Park (KIP) and the 7901 2nd Avenue South properties, which have negotiated separate AOs with Ecology, described further below.

The CAP is currently in the process of being amended (Ecology 2023) to address redevelopment plan modifications for the SRDS property. Until 2020, Seattle Public Utilities (SPU) planned to construct support facilities for the adjacent South Transfer Station (Figure 2) on the SRDS property in conjunction with implementation of the remedial action requirements. In 2020, SPU chose to reevaluate the best use of the SRDS property and decoupled the redevelopment elements from the remedial project. SPU will proceed with implementation of the required remedial action components defined in the CAP and will manage the SRDS property as a paved transfer station support facility with minor operational improvements for SPU activities.

The AO was amended again (Third Amendment) in August 2024 to replace the South Transfer Station Phase II IA Work Plan with the South Recycling and Disposal Station IA Work Plan. The IAs included construction of a landfill cap, installing LFG and surface water control systems, establishing groundwater and LFG monitoring, and implementing institutional controls.

Ecology has negotiated AOs with the other PLPs for the portions of the Site consisting of KIP (owned by Schnitzer Properties LLC; Parcel No. 3224049007 and AO No. DE 24040) and 7901 2nd Avenue S LLC (Parcel No. 3224049077 and AO No. DE 24039). Draft CAPs for these other portions of the Site have been prepared for public review (Ecology 2025a, 2025b).

Prepared on behalf of SPU, this report presents the results of the 2025 operations, maintenance, and monitoring for the Settlement Area that was conducted in accordance with the CAP (Ecology 2018). The required monitoring is described in the Post-Closure Operation, Maintenance, and Monitoring Plan (OMMP), presented as Appendix A of the CAP.

Coordination and preparation of this report are being performed for the Settlement Area under the 2019 Consent Decree with Ecology. The City and SPU designated Parametrix as the Site Coordinator for the long-term monitoring and reporting required under the CAP and the OMMP. Contact information for the responsible parties is presented in Table 1. Figures and tables are appended at the end of the report.

1.3 Settlement Area Properties and Remedy Components

The Settlement Area includes the SRDS and CPSP (formerly SPPD) properties and certain adjacent City and Washington State ROWs. The locations of the properties are shown in Figure 2. Brief descriptions of each property and the completed, or planned, remedy components are provided in the following sections.

1.3.1 South Recycling and Disposal Station Property

The SRDS property includes County tax parcel No. 7328400005, encompassing 10.55 acres. A portion of this property was purchased by SPU in 1951. Later in the 1950s, the City sold some

portions of the property to private individuals. Between 1965 and 1967, the City reacquired those portions of the property sold in the 1950s. Two additional strips of land defined by County tax parcel No. 3224049110, 60 feet (ft) on the west of the SRDS property and 30 ft on the south, were incorporated into the property in 2003 by City Ordinance 121306. This additional land is in the process of being recorded by the County and brings the area to approximately 11 acres.

A transfer station for municipal solid waste and recyclable materials operated from 1966 to 2013 on the SRDS property. In Spring 2013, SPU opened a new solid waste transfer station, South Transfer Station, to the north, across South Kenyon Street, and the transfer station on the SRDS property became inactive, except for limited support activities. SPU operates a household hazardous waste (HHW) collection site on the northernmost portion of the SRDS property near South Kenyon Street and 5th Avenue South.

The SRDS facility includes the main waste disposal building, a small maintenance facility, a scale house, two vehicle-fueling systems, and several additional small buildings used for offices and HHW collection. The offices and HHW collection are the only regularly occupied/active facilities. The majority of the facility is paved, except for some landscaped areas along the eastern edge of the property adjacent to 5th Avenue South, a landscaped strip along the south side of the property, a few landscape planter islands along the western side of the property, and other small areas in the interior of the property as shown in the aerial of Figure 2.

Under Amendment No. 2 of Agreed Order No. DE 6706, an IA was implemented for the SRDS property between 2015 and 2020, as detailed in an Interim Action Work Plan (IAWP; Herrera 2021). The IA included monitoring during maintenance activities, evaluation of a groundwater seep, and a supplemental groundwater investigation.

As required under the interim draft Amended CAP (2023), SPU will demolish existing structures; abandon inactive utilities; install asphalt, concrete, or geomembrane landfill cap systems; install LFG and surface water controls; implement institutional controls; and perform compliance monitoring. The LFG collection system will include horizontal (trench) collectors, conveyance piping, and vents to address areas covered by cap materials.

1.3.2 CenterPoint South Park LLC Property

The CPSP (former SPPD) property is County tax parcel No. 3224049005 and includes 21.0 acres of land purchased from the County in 2006. The property was purchased by CPSP in 2022. The property was previously purchased by the County in 1957 and leased to the City from 1958 to 1978 for municipal solid waste disposal. After disposal operations ended in 1966, additional unclassified fill was added, and the property was graded (but not paved) as part of landfill closure. The County later leased portions of the property to a variety of tenants from the mid-1980s through the late 1990s, primarily for truck and equipment storage. In 2008, the property was largely cleared of vegetation, and, in some areas, a layer of crushed concrete was added as ballast and the property was regraded.

In 2014 and 2015, the SPPD owner performed an IA for cleanup at the property in accordance with the 2013 Ecology-approved IAWP (Farallon 2013) under Amendment No. 1 of AO No. DE 6706. The IA was performed simultaneously with the redevelopment of the property. The property redevelopment included a modular building for employees and paved parking for employees and visitors. The IA work included regrading and capping the landfill surface, installing an engineered stormwater collection system, installing and operating an LFG control system, implementing institutional controls, and conducting monitoring.

1.4 Hydrogeologic Setting

South Park Landfill is located within the Lower Duwamish Valley, near the western valley wall, as shown in Figure 1. The landfill is at an elevation of approximately 15 to 30 ft above sea level. The southern portion (CPSP property) is generally at a higher elevation than the remainder of the landfill. The landfill has an overall shallow topographic gradient trending to the northeast towards the Duwamish Waterway. The Duwamish Waterway is approximately 1,700 to 2,000 ft northeast of the northeast landfill boundary.

The Duwamish Valley consists of a relatively thick sequence of historical channel, floodplain, and overbank alluvial deposits from the Duwamish River overlain by a relatively extensive layer of imported fill. The alluvial deposits range from 30 to 50 ft thick near the edge of the valley to more than 100 ft thick in the center of the valley (Hart Crowser 1998). Groundwater occurs throughout the alluvial deposits forming the Duwamish Valley Alluvial Aquifer. It is comprised of various zones of saturation and thickness occurring within the alluvial deposits. At the Settlement Area, there are three groundwater zones of interest; all are part of the upper portion of the Duwamish Valley Alluvial Aquifer system.

- The Perched Zone is a thin discontinuous layer of groundwater (mostly infiltrating rainwater) that exists above the Silt Overbank Deposit. In many places, the Perched Zone groundwater is in contact with solid waste and is conceptually equivalent to landfill leachate in those locations. The thickness of the Perched Zone may vary seasonally but is often only a few inches of water sitting on the hummocky surface of the Silt Overbank Deposit.
- The A-Zone of the Duwamish Valley Alluvial Aquifer is immediately beneath the Silt Overbank Deposit and is the critical zone where leachate (and perched water) can enter the groundwater system and move off-site. The A-Zone extends from the base of the Silt Overbank Deposit for approximately 15 to 20 ft (generally to -15 ft elevation North American Vertical Datum of 1988 [NAVD 88]).
- The B-Zone of the Duwamish Valley Alluvial Aquifer is the next deeper zone extending from approximately -15 ft elevation NAVD 88 to either the top of the estuarine/marine deposits or approximately -35 ft elevation NAVD 88, whichever is shallower.

The solid waste extends into the top of the A-Zone with the depth of waste extending down to approximately sea level (Floyd | Snider et al. 2021). The lower portion of solid waste is saturated (i.e., occurring below the local water table). Interpreted cross-sections are included in Figures 5.2 through 5.7 in Floyd | Snider et al. (2021).

1.5 Monitoring Program Overview

In accordance with the CAP, monitoring within the Settlement Area includes annual cap inspections, quarterly LFG perimeter probe monitoring, and quarterly sampling and analysis of groundwater monitoring wells upgradient and downgradient of the Settlement Area. Additional events may be triggered by LFG monitoring results at the perimeter probes or by unforeseen emergency or extreme weather conditions, as summarized in the following sections.

This monitoring program is in addition to the monitoring requirements of property owners in accordance with the CAP and OMMP. Monitoring by the property owners (SPU and CPSP) consists of continuous methane monitoring in on-site buildings as defined in the OMMP. The status of the 2025 monitoring is documented in the Annual Report Checklist presented in Appendix A.

1.5.1 Annual Monitoring

Cap inspections are conducted annually as described in Section 2. Maintenance forms are completed by the property owners to document repairs and re-inspections are conducted by the Site Coordinator. The 2025 annual cap inspection results are presented in Appendix B.

1.5.2 Quarterly Monitoring

Quarterly monitoring at LFG perimeter probes and sampling and analysis of groundwater from monitoring wells are described in Sections 3 and 4, respectively. In addition to quarterly LFG monitoring, continuously operating methane detection systems with alarms are required in occupied buildings within the Settlement Area. Provisions are also in place to initiate methane monitoring in off-site buildings if LFG concentrations detected at perimeter gas probes exceed regulatory limits.

1.5.3 Unforeseen Emergency or Extreme Weather Events

An unforeseen emergency or extreme weather event, such as an earthquake, fire, flood, or other natural or man-made disaster, will trigger a requirement for an immediate Settlement Area-wide inspection. Such unforeseen events could cause sudden differential settlement of the landfill contents and/or cap that could affect the integrity of the landfill cap and infrastructure, including LFG control systems, monitoring probes, and monitoring wells, which could potentially result in exposure to methane gas or affect safe operation of the LFG control system. The following criteria for unforeseen events would trigger an immediate Settlement Area-wide inspection:

- An earthquake along the Seattle Fault with a magnitude of 4.0 or greater.
- An earthquake within 100 miles of Seattle with a magnitude of 5.0 or greater.
- A major storm that produces greater than 3.0 inches of rainfall within a 24-hour period.
- Any fire that occurs on or below the cap.
- Any other damage in the Settlement Area observed by the property owners, facility workers, or the public, such as damage sustained by high winds, or facility or vehicular accident(s).

The monitoring program will document monitoring and inspection results, provide information on maintenance requirements, and document OMMP activities performed during the previous year.

2. Landfill Cap System

The CAP requires inspection and maintenance of the landfill cap, including pavement, roadways, surficial stormwater features, vegetated areas, buildings, and geomembrane/soil layers. These activities confirm that the cap remedy continues to perform as intended and protects human health and the environment.

The CAP requires a landfill cap over all areas within the Settlement Area that contain solid waste. The primary purpose of the cap is to prevent access to and exposure of solid waste and underlying soils. Secondary objectives include limiting stormwater infiltration and supporting the effective operation of the LFG control systems. The cap must be maintained to prevent contact with underlying waste, avoid short-circuiting of LFG controls, and prevent interference with stormwater management systems. The cap is not required to completely block stormwater infiltration. Existing and planned stormwater controls for each property are described below.

SRDS Property. Stormwater management at the SRDS property consists of paved surfaces, catch basins, and conveyance piping organized into two systems. One system collects stormwater and liquids that may have contacted solid waste and conveys them to the sanitary sewer. The second system collects stormwater runoff from the remainder of the property and discharges to the City's storm drain system in 2nd Avenue South, which connects to the State Route (SR) 509 storm drainage system and ultimately flows to wetlands west of SR 509. Roadside ditches and catch basins along South Kenyon Street and 5th Avenue South also connect to the City's storm drain system in 2nd Avenue South.

Under the draft Amended CAP, post-redevelopment stormwater will be collected across the SRDS property and treated using an above-grade stormwater treatment system that provides flow control and water quality mitigation. The system location, treatment media, sizing, and configuration remain under design.

CPSP Property. Stormwater on the CPSP property is managed through paved surfaces, catch basins, and conveyance via overland flow and piping to detention and treatment in one of two on-site bioswales. A small portion of runoff, including drainage from the access driveway off 5th Avenue South, falls outside the bioswale capture areas and discharges to catch basins within the public right-of-way.

2.1 Landfill Cap Inspection Methodology

Annual inspections consist of a visual survey of the accessible cap surface exterior to buildings, including drainage features and surface components of stormwater conveyance (i.e., catch basins, swales). Observations of cap damage, failure, deterioration, or disturbance are documented on the field inspection forms and geolocated photographs. The following types of observations are documented for specific areas of the landfill cap.

- Asphaltic Concrete (Location identifiers AC-):
 - Cracking
 - Uneven settlement or potholes
 - Pooling or ponding
 - Separating pavement from curbs, gutters, or catch basins

- Sloughing or crumbling of edge materials
- Erosion
- Other signs of cap damage, failure or disturbance
- Low Permeability Geomembrane (Location identifiers G-):
 - Erosion of cover soil
 - Exposed geotextile
 - Holes/signs of unauthorized digging
 - Exposed geomembrane
- Stormwater Management Facilities (Location identifiers SW-):
 - Signs of water infiltration below structure
 - Erosion of soil
 - Holes/signs of unauthorized digging
 - Invasive/deep-rooted plants

The condition will be documented in the Annual Cap Inspection Report along with a recommendation for repair or continued monitoring. Property owners shall coordinate proposed corrective actions with the Site Coordinator prior to implementation. The Site Coordinator shall conduct verification inspections during and/or after completion of corrective actions to confirm that maintenance and repairs are consistent with regulatory requirements.

The property owner shall document repairs and maintenance activities in Part 1 of Cap Inspection Form B (see Appendix B2-A for a blank sample). Following the verification inspection, the Site Coordinator shall document observations in Part 2 of the form.

The basis of determining the timeline for repairs comes from the OMMP. The OMMP has the following guidance for the timeline of maintenance/repairs:

1. If underlying material (such as geomembrane) is exposed, corrective action shall occur within 60 days. These areas are of highest concern due to the potential compromise of the landfill cap and need to be further inspected, repaired, and restored in accordance with the approved 2013 IAWP of the Agreed Order.
2. If minor cracks or ponding do not expose underlying materials and the problem does not appear to be getting worse the issue shall be reinspected in 6 months.
3. If underlying material is not exposed but is worsening or the issue needs to be elevated to a repair before it worsens, the corrective action shall occur within the calendar year.

2.2 Landfill Cap Inspection and Maintenance Events

In accordance with the Cap Inspection Work Plan (Parametrix 2020), Parametrix completed the annual inspection on May 2, 2025 and a mid-year landfill cap reinspection on October 24, 2025. Maintenance and repairs conducted by the property owners were documented and inspections were conducted by the Site Coordinator.

2.2.1 May 2025 Annual Landfill Cap Inspection

The 2025 annual landfill cap inspection was conducted on May 2, 2025. Previously identified concerns that remained in the same general or worse condition were retained in the current list of concerns. The findings of the inspection are presented in the technical memorandum included as Appendix B1-A (Appendix B) and are summarized below.

2.2.1.1 SRDS Property

The SRDS parcel was inspected in its entirety and was observed to be in generally good condition, consistent with observations from the previous inspection. In addition, locations of concern identified for repair or reinspection during the October 2024 cap inspection were revisited during the May 2025 inspection.

Due to the planned redevelopment of the SRDS property, temporary pavement restoration was not recommended, with the exception of location SRDS AC-5.

2.2.1.2 CPSP Property

The CPSP parcel was inspected in its entirety and was observed to be in generally good condition, mostly consistent with observations from the previous inspection. Locations of concern identified during the October 2024 cap inspection were also revisited during the May 2025 inspection.

The paved areas were generally in good condition. Ponding will continue to be monitored as deepening depressions could indicate settlement or potential asphaltic concrete cap damage. The cap will also be monitored for excessive vegetation growth in asphalt cracks, which can disrupt the pavement and surface. Vegetation should be removed and the affected areas sealed to repair the cap and prevent regrowth. Required maintenance was recommended at several locations (AC-3, AC-13, AC-21, and AC-23).

Vegetated slopes were uniform and generally in good condition, with some erosion observed at the parcel's southwest corner (G-15). The primary ongoing concerns include exposed geomembrane (G-6, G-7, G-8, G-16), invasive plant growth, and vegetation growing through asphalt surfaces. Although some vegetation was cut back, the asphalt in affected areas was not sealed, and the root-related damage remains unaddressed.

The two stormwater catch basins (SW-3 and SW-4) require removal of accumulated debris and replacement of the felt inserts. The efficiency of drainage could not be evaluated because of dry weather conditions during the inspection. These locations will require ongoing maintenance.

2.2.1.3 Right-of-Way

The ROW was observed in its entirety during the May 2025 annual cap inspection. Four locations previously identified during the October 2024 cap inspection (AC-1, AC-2, AC-3, and AC-4) were revisited to assess the status of previously noted conditions and repairs.

Several holes at ROW AC-1, AC-2, and AC-4 had been patched. These locations continue to exhibit deep and large potholes, and in some areas the potholes have increased in size and depth. A new area of potholes was identified (AC-5). The major pothole previously identified at AC-3 has been repaired.

2.2.2 October 2025 Mid-Year Landfill Cap Reinspection

The Site Coordinator conducted a mid-year reinspection on October 24, 2025 and reinspected locations identified in the May 2025 annual inspection. The findings are presented in a technical memorandum included as Appendix B1-B (Appendix B) and are summarized below.

2.2.2.1 SRDS Property

The SRDS parcel remained in generally good condition, consistent with conditions observed during the May 2025 inspection. This mid-year reinspection focused on locations previously flagged for repair or follow-up. The Site Coordinator re-evaluated those areas to assess current conditions.

Because redevelopment of the property is planned, temporary pavement restoration is not recommended, with the exception of location SRDS AC-5.

The Site Coordinator also re-evaluated AC-22 following correspondence with SPU's Senior Environmental Analyst. The Analyst requested additional review due to the increased size of the pothole, its location near the entrance and exit, and its potential to retain water. Observations indicate that standing water has contributed to alligator cracking, pavement deterioration, and surface expansion. Following a subsequent site visit, the Site Coordinator recommends that a contractor repair AC-22 concurrently with repairs at SRDS AC-5.

2.2.2.2 CPSP Property

The CPSP parcel remained in generally good condition, consistent with conditions observed during the May 2025 inspection. This mid-year reinspection focused on re-evaluating locations previously flagged for repair or follow-up evaluation.

Several maintenance actions and repairs were completed since the May 2025 inspection. Required maintenance was completed at several locations (AC-3, AC-13, and AC-23). Required maintenance related to holes near the fence at AC-21 remains outstanding.

Some erosion continued to be observed at G-15 in the parcel's southwest corner. The primary ongoing concerns include exposed geomembrane at G-6, G-7, and G-16. Maintenance at catch basins SW-3 and SW-4 was conducted, including debris removal and replacement of the felt inserts. These locations will require ongoing maintenance.

2.2.2.3 Right-of-Way

This mid-year inspection focused on re-evaluating ROW locations identified as areas of concern during the May 2025 inspection. In May 2025, continued deterioration of the asphalt concrete was observed at locations AC-1, AC-2, AC-4, and AC-5.

By October 2025, maintenance crews had patched the potholes at all four locations. Based on the follow-up site visit the Site Coordinator updated the stats of these locations to resolved. These areas will continue to be monitored during future inspections.

2.2.3 Landfill Cap Maintenance Completed

Appendix B2-A includes example forms used for documenting landfill cap maintenance. Appendix B2-B includes Cap Maintenance Forms documenting maintenance completed during this reporting period.

The property owner completes Part 1 (Maintenance), and the Site Coordinator completes Part 2 (Observation/Review of Maintenance).

2.2.3.1 SRDS Property

No maintenance or repairs to the landfill cap were completed on the SRDS property during this reporting period.

2.2.3.2 CPSP Property

Cap maintenance and repair activities completed during the reporting period are summarized below:

- December 10, 2024: Catchment Solutions, on behalf of CPSP, repaired two open pipes in a landscaped slope at location G-1. The Site Coordinator re-inspected this repair and documented it in the May 2025 Cap Inspection Report.
- January 29, 2025: Secoma Fence, on behalf of CPSP, installed gate posts for two 25-ft-wide barrier gates at each end of the private drive and repaired the asphalt surrounding the posts with cement. The Site Coordinator re-inspected this work and documented it in the May 2025 Cap Inspection Report.
- June 6 through 20, 2025: Compass Plumbing, on behalf of CPSP, performed emergency maintenance to repair a main water line break along approximately 100 ft of piping.
- August 7, 2025: following the May cap inspection, Catchment Solutions performed maintenance at the locations listed below. The property owner documented each activity on a Cap Maintenance Form. The Site Coordinator re-inspected the repairs and documented them in the October 2025 Cap Inspection Report.
 - AC-3: Capped pipe.
 - AC-13: Cut back blackberries, removed sediment to restore stormwater flow to the north swale, and swept the remainder of the north lot.
 - AC-23: Removed sediment, repatched and sealed asphalt and patched a pothole to the south.
 - SW-3 and SW-4: Removed sediment around basin inlet and replaced catch basin insert.

2.2.3.3 Rights-of-Way

In May 2025, continued areas of concern were observed in the asphalt concrete locations AC-1, AC-2, AC-4, and AC-5. During the October 2025 re-inspection, the Site Coordinator observed that these areas had been patched and restored to good condition by the Seattle Department of Transportation (SDOT).

In accordance with the CAP, routine street maintenance within the ROW does not require completion of maintenance reports.

2.2.4 Unforeseen Emergency or Extreme Weather Events

2.2.4.1 SRDS Property – Glass Cullet Incident

Several years ago, SPU subleased a small portion of the southeast corner of the SRDS property to SMI for temporary storage of clean glass cullet. Because Public Health – Seattle & King County

(PHSKC) requires notification of operational changes, SPU notified PHSKC of the temporary use. SMI stacked ecology blocks along the southern property boundary to contain the glass cullet within two designated storage areas.

In December 2024, the stacked ecology blocks failed in one of the designated areas, resulting in several blocks falling onto an unpaved portion of the landfill cap and allowing glass to spill into the adjacent swale. The incident also damaged a utility pole and a section of the southern fence. Crews stabilized the leaning utility pole with bracing and repaired the damaged fence.

As an initial response, a vactor truck removed spilled glass from the swale and surrounding unpaved areas. Crews characterized and disposed of the recovered glass and soil in accordance with applicable requirements. In January 2025, SMI completed removal of the remaining glass stockpiles from the SRDS property. Cleanup of residual glass cullet, ecology block fragments, and associated debris was completed prior to the third quarter of 2025.

Following these activities, the Site Coordinator conducted inspections to verify that material loading, the ecology block failure, and subsequent cleanup efforts did not damage the integrity of the landfill cap.

2.2.4.2 Other Emergency or Extreme Weather Events

No unforeseen emergency conditions or extreme weather events occurred at the Settlement Area during 2025 that required additional landfill cap inspection.

2.3 Activities Planned for the Next One-Year Period

The Site Coordinator will conduct a comprehensive annual landfill cap inspection in Spring 2026. The annual inspection will include evaluation of the entire cap system, reinspection of previously identified areas of concern, review of completed maintenance activities, and identification of any new areas requiring attention. Previously identified areas of concern will be evaluated as part of this comprehensive inspection. See Appendices B1-A and B1-B for additional details.

In accordance with the CAP, the Site Coordinator will conduct a targeted mid-year reinspection in Fall 2026 to evaluate minor conditions previously identified during the annual inspection. The purpose of this reinspection is to determine whether conditions have worsened, exposed underlying materials, or require corrective action.

2.3.1 SRDS Property

The reports summarizing the annual landfill cap inspection and subsequent mid-year reinspection conducted in May and October 2025, respectively, are presented in Appendices B1-A and B1-B. Pavement restoration is needed in the areas of concern identified in the 2025 Mid-Year Landfill Cap Inspection Report. Additional work may be required if new areas of concern are identified during the 2026 cap inspection.

2.3.2 CPSP Property

The reports summarizing the annual landfill cap inspection and subsequent mid-year reinspection conducted in May and October 2025, respectively, are presented in Appendices B1-A and B1-B. Several areas of concern identified during these inspections were repaired during this reporting period. Additional repairs remain outstanding and will require completion and inspection in 2026.

Additional work may be required if new areas of concern are identified during the 2026 cap inspection.

2.3.3 Rights-of-Way

The reports summarizing the annual landfill cap inspection and subsequent mid-year reinspection conducted in May and October 2025, respectively, are presented in Appendices B1-A and B1-B. SDOT repaired the areas of concern during this reporting period. These areas will continue to be monitored during the 2026 inspections.

3. Landfill Gas System

The LFG control system consists of property-specific components designed to operate independently while functioning together to control LFG across the Settlement Area. Brief descriptions of each property's existing or planned LFG control systems are provided below with the LFG monitoring discussed in the following sections.

- **SRDS Property.** The buildings that are currently on the property are either naturally ventilated or are elevated and skirted with porous siding; both are appropriate methods of LFG mitigation. As part of the draft Amended CAP, SPU will install an LFG control system at the SRDS property, intended to be operated passively, with an option to convert to active operation if necessary. The final design for the LFG system at the SRDS property will be described in an Engineering Design Report, which will be finalized in the second quarter of 2026. This system will also influence the ROW associated with 5th Avenue South adjacent to this property.
- **CPSP Property.** An active LFG control system was installed at the CPSP property as part of the IA development in 2014 and 2015 (Farallon 2013). The LFG system was designed to protect buildings on the CPSP property and to control gas migration along the southern, western, and eastern perimeter of the Settlement Area. The system consists of a network of vertical gas collection wells and horizontal gas collection trenches. LFG is extracted under an applied vacuum and discharged out of a vent stack in the surface component equipment enclosure, which is located on the northwest portion of the CPSP property. It is operated by the CPSP property owner in accordance with an Ecology-approved LFG Collection and Control System OMMP (Farallon 2016).

The perimeter gas probe network for the Settlement Area includes 21 probes installed at 17 locations (Figure 3), including four supplemental shallow probes installed in 2025 at locations where existing gas probes have typically been blocked by water. Installation of the supplemental shallow gas probes occurred in late July through August of 2025 and is described in Section 3.2.2.

3.1 Landfill Gas Monitoring Methodology

The LFG monitoring includes quarterly monitoring of perimeter probes; continuous monitoring of on-site buildings using methane detectors and alarms conducted by individual property owners; and off-site building monitoring, if necessary (see conditions in the flow chart for LFG triggers and contingent actions presented in Appendix C1). The primary goal of perimeter probe monitoring is to evaluate potential lateral off-site LFG migration, and the primary goal of building monitoring is to protect human health.

The Site Coordinator conducted the perimeter gas probe monitoring from the second quarter of 2020 through the second quarter of 2022. SPU assumed responsibility for monitoring in the third quarter of 2022. Procedures for perimeter gas probe monitoring are presented in the OMMP. (Ecology 2018).

3.1.1 Gas Probe Monitoring

A Landtec GEM 5000 portable gas analyzer (GEM) is used to measure barometric pressure at the beginning and end of each monitoring event, as well as static pressure and LFG concentrations in each gas probe. The barometric pressure status (rising, falling, steady) is recorded.

At each probe, static pressure is measured prior to purging, and then one probe volume is purged prior to recording concentrations of methane, carbon dioxide, and oxygen. The purge time using the GEM is calculated for each probe based on its construction. The LFG meter is connected to LFG probes using Teflon tubing and a rubber stopper placed into probes without a valve. Teflon, silicone, and polyethylene tubing are utilized to connect to the LFG meter.

Four of the LFG probes (GP-11, GP-13, GP-15, and GP-32) often exhibit water levels above their screens, blocking LFG from entering the probes. If the probe is observed through field observations to be blocked by water during the purging process (e.g., high differential pressures, water entering GEM tubing), purging is discontinued, the probe is noted to be blocked, and this information is entered directly into the GEM. Afterward, the corresponding supplemental shallow probe is monitored using the same procedures. All the data are downloaded from the GEM and submitted to the Site Coordinator.

3.1.2 Landfill Gas Triggers and Contingency Actions

The flow charts for the LFG triggers and contingency actions are presented in Appendix C1. Methane concentrations in soil at the Edge of Refuse must not exceed 5% by volume, which is the lower explosive limit (LEL) for methane, or contingent actions are triggered. The threshold criteria that would trigger additional off-site building monitoring is 1.25% by volume (25% of the LEL) for all probes other than GP-27 and GP-29. The criterion for additional off-site building monitoring at probes GP-27 and GP-29 is 5% by volume, since methane concentrations of up to 5% by volume have been shown to be protective.

3.2 Landfill Gas Monitoring Activities and Results

3.2.1 Perimeter Gas Probe Monitoring

Quarterly perimeter gas probe monitoring events were conducted in January, April, July, and October 2025. The results are summarized in Table 2 and included on the gas probe monitoring field forms presented in Appendix C2. Four gas probes (GP-11, GP-13, GP-15, and GP-32) were observed to be blocked (screened zones completely saturated) during one or more sampling events so that the presence of LFG in the shallow subsurface could not be monitored. These locations are on the west (GP-11 and GP-13) and south (GP-15 and GP-32) sides of the Settlement Area. Between the third and fourth quarter 2025 monitoring events, supplemental shallow gas probes were installed at these locations as described in Section 3.2.2.1.

During the fourth quarter 2025 monitoring event, GP-32S, one of the new supplemental gas probes, was measured above the regulatory action level of 5% methane by volume (LEL), triggering contingency actions specified in the CAP. Monitoring results for GP-32S and required contingency actions are described in Sections 3.2.2.2 and 3.2.2.3.

Except for shallow gas probe GP-32S, none of the methane concentrations measured during quarterly monitoring events exceeded 5% by volume or the threshold criterion of 1.25% by volume that would trigger additional off-site building monitoring.

3.2.2 Shallow Gas Probe Supplemental Network

3.2.2.1 Installation

Supplemental shallow gas probes GP-11S, GP-13S, GP-15S, and GP-32S were installed adjacent to existing probes GP-11, GP-13, GP-15, and GP-32, respectively, between July 28 and August 1, 2025. The purpose of the supplemental gas probes is to allow for monitoring at probe locations that are typically blocked by shallow groundwater. Installation was completed in accordance with a work plan approved by Ecology (Parametrix 2023). Installation locations were generally within approximately 5 ft of the existing probes. Installation of the supplemental gas probes and monitoring procedures for the probes are detailed in a Technical Memorandum (Parametrix 2026; Appendix C3).

Monitoring Results

The shallow supplemental gas probe network was monitored for the first time on October 28, 2025. Methane concentrations at GP-32S, a newly installed supplemental gas probe, exceeded the regulatory action level of 5% methane by volume LEL. Methane was measured at a concentration of 66.4% by volume.

In accordance with the CAP, required trigger actions were implemented, including agency notification, initiation of daily probe monitoring, and indoor ambient air monitoring at the adjacent building. Within 24 hours, the Site Coordinator notified the PLPs, Ecology, and PHSKC of the methane exceedance.

GP-32S was the only supplemental probe with methane concentrations exceeding the regulatory LFG trigger levels.

3.2.2.2 Additional Activities Responding to GP-32S Exceedance

Daily Monitoring

SPU initiated daily monitoring of GP-32S, except on Saturdays when the associated tenant within the Frank Lenci Corporation parcel is closed and the site is inaccessible. Methane concentrations have remained above 60% (Appendix C4). A technical memorandum evaluating the methane exceedance and providing recommendations was submitted to Ecology on December 1, 2025 (Parametrix 2025a).

Beginning on December 11, 2025, heavy rainfall caused the groundwater table to rise above the screened interval of the probe, preventing collection of representative LFG measurements. Ecology approved a temporary reduction in monitoring frequency from daily to weekly while the probe remained submerged.

Surface Emission and Indoor Air Monitoring

In accordance with the CAP, off-site building monitoring is required when methane concentrations in nearby probes exceed regulatory trigger levels. (Figure A.2.6 of the CAP). For off-site buildings, methane concentrations must not exceed 100 parts per million by volume (ppmv). If concentrations are below 100 ppmv, results are documented and routine monitoring resumes. Concentrations between 100 ppmv and 12,500 ppmv (1.25% by volume) would require additional evaluation and implementation of protective measures. During 2025, all measured concentrations were well below the contingent action level of 100 ppmv for off-site buildings.

Frank Lenci Corporation

The property manager of the Frank Lenci Corporation building was notified of the methane exceedance and surface emission and indoor air monitoring were conducted. SPU also advised that installation of indoor methane alarms would be prudent given the building's proximity to the landfill.

The initial monitoring was conducted on October 29, 2025, using a calibrated Landtec SEM5000 portable methane detector (SEM). The SEM was used to screen the asphalt parking lot, the building exterior, and interior areas of the northwest, northeast, and southeast portions of the building. The data are presented in Appendix C5.

Indoor methane concentrations ranged from 2 to 3.5 ppmv, generally consistent with typical background concentrations of 2 to 2.5 ppmv. The highest concentration recorded during this event was approximately 5 ppmv in the parking lot near the northwest corner of the building. The highest indoor measurement was 3.5 ppmv, along the western exterior wall of the northwest tenant space, occupied by Full Circle, LLC (Full Circle). These results demonstrate that indoor air conditions remained protective during the period when methane concentrations at GP-32S measured up to 65.4% by volume.

At the request of Full Circle, ambient air monitoring was repeated on November 7, 2025. Methane concentrations ranged from 0 to 8.3 ppmv across the Frank Lenci Corporation parcel, with an average of approximately 2.7 ppmv. The areas monitored included interior and exterior areas of the northwest, northeast, southeast, and southcentral portions of the building. The interior of the southwest portion of the building was not accessible during this event.

The highest methane concentrations (7 to 8.3 ppmv) were briefly observed along the northern boundary of the northwest tenant space. When the area was resurveyed shortly thereafter, methane concentrations returned to background levels of approximately 2 to 3 ppmv.

All measured concentrations were well below the contingent action level of 100 ppmv for off-site buildings. Although indoor methane concentrations have not approached this threshold during any monitoring event, indoor air monitoring was conducted weekly as a precautionary measure at the tenant's request. Monitoring frequency was reduced to monthly beginning in January 2026 based on consistently low methane concentrations.

Other Investigations

Puget Sound Energy (PSE) and SPU completed investigations in October and November 2025. Laboratory analyses were completed to confirm methane concentrations and evaluate potential sources. PSE confirmed that the methane was not associated with its natural gas distribution system, based on the absence of ethane, a tracer compound used in their system. Farallon confirmed that the CPSP gas extraction system was operating normally, including the eight extraction points nearest GP-32S functioning as designed.

SPU measured methane in temporary barholes: small diameter holes drilled into the ground using a bar. Barholes just south of Sullivan Street showed no detectable methane. Barholes located approximately 15 ft farther south, near the northern edge of the asphalt parking lot within the Frank Lenci Corporation parcel, measured methane concentrations up to 46% by volume.

These findings suggest that waste beneath the parcel may be forming a trapped LFG pocket that is accumulating below the asphalt surface that slowly releases to the north.

3.2.2.3 Summary and Conclusions

Based on the completed investigations, methane detected at GP-32S appears to originate from waste located beneath the parcel, outside the influence of existing LFG extraction system and beyond the defined Settlement Area. The nearest gas extraction wells are located approximately 165 to 300 ft away.

LFG appears to be accumulating below the asphalt parking lot of the Frank Lenci Corporation parcel, with some methane venting through the vegetated strip north of the parking lot at concentrations ranging from 3 to 50% by volume.

A previous evaluation by Environmental Associates (2017) documented waste at the location of GP-32/GP-32S comprising primarily of wood chips with minor amounts of glass and brick debris. That evaluation concluded this waste, in combination with artificial fill present in the explored area, was determined to present a very low risk to the public/environment. Current findings are consistent with the presence of waste materials in this area.

3.2.3 Building Monitoring

Building monitoring is required for occupied on-site buildings unless the construction demonstrates effective LFG mitigation. Off-site building monitoring is required only if triggered by conditions in perimeter gas probes.

3.2.3.1 On-Site

All occupied buildings within the Settlement Area (on-site buildings) are required to have continuous (i.e., operate 24 hours per day, 7 days per week) methane detectors with alarms, except the current SRDS buildings which are naturally ventilated or elevated. Methane concentrations inside buildings and structures within the Landfill Property Boundary must not exceed 1.25% by volume, or 25% of the LEL. Meters in buildings should be set with a low alarm warning at 10% of the LEL and a high alarm at 25% of the LEL. Quarterly inspections of these alarms are required by individual property owners in accordance with the manufacturer's recommendations to ensure proper operation and protection of human health.

SRDS Property

Continuous monitoring is not required until the property is redeveloped, will include standard enclosed buildings, and the installation of a new LFG system.

CPSP Property

Quarterly inspection of the methane alarms in the on-site buildings was not conducted in the first through third quarters of 2025 because the buildings were vacant. The previously vacant on-site buildings were replaced with one office trailer in September 2025. Two indoor methane monitors were installed in the new building on October 30, 2025 and were inspected during the quarterly operation and maintenance visit conducted in December 2025. The CPSP property owner did not report any incidences of methane detections inside on-site buildings or structures during 2025. Inspection checklists are included in Appendix C6.

3.2.3.2 Off-Site

Off-site building monitoring is required to be conducted by the CPSP and SRDS individual property owners when triggered by methane conditions measured in nearby perimeter probes, as indicated in

the flow charts for LFG triggers and contingent actions presented in Appendix C1. Methane concentrations inside buildings and structures outside the Landfill Property Boundary must not exceed 100 ppmv, equivalent to 0.01% by volume or 0.2 % of the LEL. These criteria are typically measured in the buildings/structures with either handheld or mounted equipment. Procedures for off-site building monitoring are detailed in the OMMP.

3.2.4 Maintenance Activities Completed

During installation of the shallow supplemental gas probes, the concrete surface collar at gas probe GP-28 was repaired by chipping out the deteriorated concrete using a jackhammer and installing a new concrete collar. The repaired collar restored surface integrity and probe protection.

3.2.5 Operational Activities Completed

3.2.5.1 CPSP Property

- Conducted quarterly operation and maintenance of the LFG collection and control system (LFGCCS).
- Conducted ongoing remote monitoring of the CPSP property LFGCCS blowers.
- Installed two indoor methane monitors in the new building on October 30, 2025, and were inspected during the December 2025 quarterly operation and maintenance visit.

3.3 Activities Planned for the Next One-Year Period

3.3.1 Landfill Gas Monitoring

Quarterly perimeter probe monitoring by SPU personnel is planned for January, April, July, and October 2026. Based on the results of the monitoring and additional investigations conducted at supplemental shallow gas probe GP-32S, the following recommendations are currently being discussed with PHSKC:

- Ecology and the PLPs should discuss removal of GP-32/GP-32S from the compliance monitoring network, as these probes are located above waste and do not meet the CAP criteria for a perimeter compliance probe. As part of this discussion, an evaluation should be conducted to determine an appropriate replacement compliance monitoring location. The selected location should be consistent with the criteria for a perimeter probe and monitoring objectives defined in the CAP. The evaluation should consider either:
 - Designating an existing probe not currently used for compliance monitoring, provided it meets perimeter probe criteria, or
 - Installation of a new probe aligned with the GP-32 transect that is located outside the waste footprint and off private property.
- Coordinate a meeting between Ecology, PHSKC, and the property owner/property managers of the Frank Lenci Corporation parcel to discuss the implications of the findings of these and previous investigation findings. Waste is present below the parcel and has been confirmed to be generating LFG at concentrations above the LEL.

During this meeting, PHSKC should describe the applicable requirements of King County Code Title 10 (King County 2025), including provisions for abandoned landfill sites (10.09.040),

methane monitoring (10.09.050), and construction standards for methane control (10.09.060), as these are regulatory requirements under their authority. These requirements may not have been recognized at the time the building was constructed in 1980.

SPU and the Site Coordinator can provide their interpretation of the findings based on the current understanding of site conditions and existing documents (e.g., CAP, RI/FS), but determinations regarding regulatory consequences or required follow-up actions rest with Ecology and PHSKC. One potential corrective measure identified in the CAP (Ecology 2018) is the installation of methane detectors with alarms.

Monitoring records for on-site buildings will be provided by property owners on the form presented in Appendix C5.

3.3.2 Gas Probe Maintenance

Additional future maintenance may be necessary at the following locations:

- There is asphalt erosion near gas probe GP-31. The roadway margin near the probe appears to be actively eroding due to heavy truck traffic. The condition of the probe will continue to be monitored to determine when actions are necessary to restore the asphalt near the probe.

4. Groundwater Monitoring System

Long-term groundwater monitoring is being conducted to evaluate the effectiveness of cleanup actions at the Settlement Area on groundwater quality. The CAP requires long-term groundwater monitoring to continue until groundwater chemicals of concern (COCs) are in compliance at the conditional point of compliance (CPOC), which has been established at, or near, the downgradient Edge of Refuse.

There are 14 groundwater monitoring wells included in the long-term groundwater monitoring program for the Settlement Area at the locations shown on Figure 4. In addition to the CPOC wells, the monitoring well network also includes wells used to monitor upgradient groundwater conditions (MW-12, MW-14, and MW-29) and wells used to monitor downgradient groundwater conditions adjacent to the former Glitsa American, Inc. property (MW-30 and MW-31). All wells are completed in native material except MW-18, which is completed in refuse, and MW-32 and MW-33, which are completed beneath ref. Table 3 provides a summary of the well depths, screen intervals, type of pump, top of casing, and well completion elevations.

The monitoring wells are completed primarily in one of three groundwater zones (Perched Zone, A-Zone, or B-Zone), all of which are part of the Duwamish Valley Alluvial Aquifer. There are four well pairs downgradient of the Settlement Area that are screened in two different zones: Perched Zone/A-Zone (MW-30/MW-31) and A- and B-Zones (MW-27/MW-8, MW-25/MW-10, and MW-26/MW-24).

The monitoring program includes assessing current groundwater concentrations and monitoring trends to confirm that vinyl chloride (VC), *cis*-1,2-dichloroethene (DCE), benzene, arsenic, iron, and manganese concentrations continue to decrease over time and in a reasonable restoration timeframe. In accordance with the CAP, dissolved arsenic analysis in CPOC wells (MW-08, MW-10, MW-12, MW-18, MW-24, MW-25, MW-26, MW-27, MW-32 and MW-33) was discontinued beginning in the second quarter of 2023 because concentrations remained in compliance with the cleanup level (CUL) for 2 years. Additionally, analysis for benzene at well MW-25 was discontinued beginning in the third quarter of 2023 because concentrations remained in compliance for 2 years.

4.1 Groundwater Monitoring Methodology

Quarterly groundwater monitoring includes measuring groundwater levels and sampling groundwater at the 14 monitoring wells and analyzing the samples for Site-specific COCs. The Site Coordinator conducted the monitoring from the second quarter of 2020 through the first quarter of 2025. SPU assumed responsibility for the monitoring in the second quarter of 2025.

4.1.1 Water Level Measurement

During each quarterly monitoring event, approximately time-synchronous groundwater levels are measured with a precision of 0.01 ft using an electric water level indicator. Groundwater level measurements are made relative to the surveyed top of the polyvinyl chloride (PVC) well casing or other defined measuring point at the wellhead, typically the northernmost portion of the PVC casing.

4.1.2 Sampling and Analysis

Groundwater samples are collected according to procedures outlined in the OMMP, using either a dedicated bladder pump and Teflon tubing or a peristaltic pump with disposable low-density polyethylene and silicon tubing. Details on which type of pump is used at each well are included in

Table 3. The monitoring wells are purged using low-flow sampling procedures while field parameters (temperature, pH, specific conductivity, dissolved oxygen, and oxidation-reduction potential [redox]) are measured to determine stabilization using a calibrated multiparameter probe with a flow-through cell. Turbidity is also measured in the field using a separate turbidity meter outside of the flow through cell.

Long-term groundwater monitoring includes analyzing samples for VC, iron, and manganese (groundwater COCs that have exceeded CULs at the CPOC); and cis-1,2-DCE, the precursor for VC. Benzene was previously analyzed in samples from well MW-25 to track a localized plume that appears to originate upgradient of the Settlement Area; and arsenic was previously analyzed in samples from wells MW-08, MW-10, MW-12, MW-18, MW-24, MW-25, MW-26, MW-27, MW-32, and MW-33. Analysis of benzene and dissolved arsenic was discontinued prior to the third and second quarters of 2023, respectively.

Groundwater samples are analyzed using the following methods:

- cis-1,2-DCE: U.S. Environmental Protection Agency (EPA) Method 8260D
- VC: EPA Method 8260D-SIM
- Iron and manganese: EPA Method 6020B

4.1.3 Groundwater Contingency Triggers and Actions

The Site-specific CULs for groundwater at the Settlement Area as stated in the CAP, which are based on the protection of groundwater as a potential drinking water source, are as follows:

- VC: 0.29 micrograms per liter (µg/L)
- Iron (total): 27 milligrams per liter (mg/L) (A-Zone); 31 mg/L (B-Zone)
- Manganese (total): 2.2 mg/L
- cis-1,2-DCE: 16 µg/L
- Benzene: 5.0 µg/L
- Arsenic (dissolved) 5.0 µg/L (background; note that MW-27 is not a CPOC well for arsenic).

Trigger conditions and contingency actions for VC are described in Section 4.1.3.1. Required actions for iron and manganese are described in Sections 4.1.3.2.

4.1.3.1 Vinyl Chloride

In accordance with the CAP, either or both of the following two conditions will trigger contingent actions based on monitoring in the existing compliance monitoring well network:

- **Condition 1.** Condition 1 (the concentration trigger) is based on groundwater concentrations. If concentrations in any downgradient well exceed 1.45 µg/L (five times the CUL) for two consecutive sampling events, a contingent response is triggered. This trigger is not applied to MW-30 and MW-31, whose concentrations are affected by a non-landfill source in addition to the landfill.
- **Condition 2.** Condition 2 (the trend trigger) is based on a statistically significant increase in groundwater concentrations over time in the monitoring wells. The trend identification uses the nonparametric Mann-Kendall method and is applied to downgradient wells where the

concentration of VC is greater than the CUL. The trend analysis includes MW-31 (which is screened in the alluvial aquifer) but not MW-30 (which is screened in the Silt Overbank Deposit).

4.1.3.2 Iron and Manganese

In accordance with the CAP, if the concentrations are stable or decreasing, no further action is required beyond monitoring. Once a dataset of eight quarterly events has been collected during long-term monitoring, Ecology may approve a decreased frequency of monitoring for iron and manganese. If the concentrations are increasing, the Subject PLPs will meet with Ecology to discuss next actions. Ecology will determine if further active remediation is needed and if this will require reopening the consent decree due to remedy failure.

4.2 Groundwater Monitoring Activities and Results

4.2.1 Long-Term Groundwater Monitoring

Quarterly long-term monitoring events were conducted in February, April, August, and November 2025. The measured groundwater levels, calculated gradients, interpreted flow directions, and groundwater quality results are presented in this section of the report.

4.2.1.1 Gradients and Flow Direction

Groundwater elevations calculated based on depth to groundwater measured in each well and the surveyed casing elevations are summarized in Table 4.

Horizontal Gradients

Groundwater gradient maps were prepared using data from all the A-Zone wells plus MW-18, as the A- and B-Zones are not separate aquifers or even hydraulically separated by any low permeability layers. Figures 5, 6, 7, and 8 show the interpreted gradients. The groundwater flow direction is generally to the east and northeast, toward the Lower Duwamish Waterway, with gradients ranging from 0.0083 to 0.0097 ft/ft in the northern region (calculated between MW-12 and MW-32) and 0.0089 to 0.0095 ft/ft in the southern region (calculated between MW-14 and MW-18). This is consistent with historical observations.

Vertical Gradients

Vertical groundwater gradients were calculated based on water level measurements collected in downgradient pairs completed in the Perched Zone/A-Zone of the Duwamish Valley Alluvial Aquifer (MW-30/MW-31) and the A- and B-Zones of the Duwamish Valley Alluvial Aquifer (MW-27/MW-8, MW-25/MW-10, and MW-26/MW-24). These data are presented in Table 5.

Boring logs show that the wells are mostly completed in the same alluvial aquifer, with some in the upper portions (A-Zone) and some in the lower (B-Zone), and no significant aquitards or low permeability layers in between the two zones. Vertical gradients measured in most of the well pairs during most of the sampling events were essentially neutral or within measurement error. Downward gradients were observed in well pair MW-30/MW-31 and are consistent with data presented in the RI indicating that the Silt Overbank Deposit is likely acting as a low permeability aquitard in this area.

Flow Velocity

Based on estimates of horizontal hydraulic conductivity and porosity determined in the RI/FS (Floyd | Snider et al. 2021) and the gradients measured in 2025, estimated horizontal groundwater flow velocities in the Duwamish Valley Alluvial Aquifer in the northern and southern regions of the Settlement Area are summarized in Table 6.

The two regions were identified in the RI/FS as having differing groundwater flow directions, soil types, and hydraulic conductivity estimates. The northern region of the Settlement Area exhibits a northeasterly groundwater flow direction and slightly higher hydraulic conductivities. The southern region of the Settlement Area has an easterly groundwater flow direction and slightly lower hydraulic conductivities due to siltier soils. The hydraulic conductivity values estimated for the current evaluation are similar to or exceed those estimated during the RI/FS, reflecting steeper hydraulic gradients measured and interpreted during present analysis.

The following formula was used to calculate groundwater flow velocities:

$V = K_i / n_e$, where:

V = groundwater velocity (ft/day)

K = hydraulic conductivity (ft/day)

i = hydraulic gradient (ft/ft)

n_e = effective porosity (dimensionless)

Based on the observed gradients of 0.0083 to 0.0097 ft/ft in the northern region of the Settlement Area and 0.0089 to 0.0095 ft/ft in the southern region, the calculated flow velocity ranged from 4.61 to 7.74 ft/day in the northern region and 1.38 to 3.21 ft/day in the southern region of the Settlement Area.

4.2.1.2 Groundwater Quality Results

Groundwater samples were analyzed by Analytical Resources, Inc. in Tukwila, Washington. The quarterly groundwater quality data are summarized in Table 7. Field data sheets for each quarterly event are presented in Appendix D3. Laboratory reports and data validation memoranda are presented in Appendix D4 and D5, respectively.

The following is a summary of CUL exceedances in CPOC wells during 2025 monitoring events:

- VC concentrations exceeded the CUL of 0.29 µg/L in A-Zone wells MW-25 (1Q, 3Q, and 4Q), and MW-32 (1Q duplicate), and B-Zone well MW-10 (2Q). VC concentrations in non-CPOC well MW-31 also exceeded the CUL (1Q, 2Q, 3Q, and 4Q); this well is considered in the trend trigger evaluation.
- Total iron concentrations exceeded the CUL of 27 mg/L in A-Zone wells MW-25 (1Q, 2Q, 3Q and 4Q); and the CUL of 31 mg/L in B-Zone well MW-10 (1Q and 3Q).
- Total manganese concentrations exceeded the CUL of 2.2 mg/L in A-Zone well MW-25 (1Q, 3Q, and 4Q) and B-Zone well MW-10 (2Q).
- There were no concentrations of cis-1,2-DCE exceeding the CUL of 16 µg/L.

Time-series plots for all COCs, showing data for all historical events and post-Consent Decree sampling events organized separately for the A-/Perched Zone and the B-Zone, are presented in Appendix D1. Time-series plots show CULs for all COCs and the concentration trigger value for VC (1.45 µg/L).

Vinyl Chloride Trigger Evaluation and Trend Analyses

In 2025, VC concentrations exceeded the CUL in CPOC downgradient A-Zone wells MW-25 and MW-32 (duplicate sample analysis) and in downgradient B-zone well MW-10 during at least one quarter, but none of the concentrations exceeded the concentration trigger value. VC concentrations in non-CPOC well MW-31 also exceeded the CUL (1Q, 2Q, 3Q, and 4Q); this well is considered in the trend trigger evaluation.

Time-series plots of all historical data presented in Appendix D1 show apparent overall stable or decreasing trends for VC over the history of monitoring. Historic data coverage prior to 2020 for each well is summarized below.

- 1999-2014: MW-8, MW-10, MW-12, MW-14, MW-18, MW-24
- 2006-2014: MW-25, MW-26, MW-27
- 2013-2014: MW-29
- 2011-2014: MW-30, MW-31, MW-32, MW-33

Mann-Kendall trend analyses for the VC post-Consent Decree data (second quarter 2020 through fourth quarter 2025) were conducted using the Excel-based program ProUCL (EPA 2022). The Mann-Kendall trend plots, calculations, and a summary of the approach used is provided in Appendix D2, and the results are summarized in Table 8. Note that trends are required to include MW-31 but not MW-30, even though these wells are not CPOC wells.

Mann-Kendall trend analyses conducted for wells with VC concentrations exceeding the CUL identified statistically significant increasing trends meeting the criteria for a contingency trigger at CPOC well MW-10 in 2Q25 and non-CPOC well MW-31 in all four quarters (Table 8). Consistent with the CAP, a VC contingency trigger assessment was prepared (Parametrix 2025b) to assess whether observed conditions warrant further action, as discussed in Section 4.2.2 below.

Iron and Manganese Trend Analysis

Time-series plots for iron and manganese are presented in Appendix D1. Historic data coverage prior to 2020 for each well is summarized below.

- 1999-2003; 2011-2014: MW-08, MW-10, MW-12, MW-14, MW-18, MW-24
- 2006; 2011-2014: MW-25, MW-26, MW-27
- 2013-2014: MW-29, MW-30, MW-31, MW-32, MW-33

The time-series plots show generally stable or decreasing trends over the history of monitoring since 1999.

Mann-Kendall trend analyses for the iron and manganese post-Consent Decree data (second quarter 2020 through fourth quarter 2025) were conducted using the Excel-based program ProUCL (EPA 2022). The Mann-Kendall trend plots, calculations, and a summary of the approach used are provided in Appendix D2, and the results are summarized in Tables 9 and 10.

The trend analyses indicated statistically significant increasing trends in the post-Consent Decree data for iron and manganese in downgradient well MW-31 (A-Zone) and manganese in upgradient

well MW-14. Therefore, in accordance with the CAP, it is recommended that analyses for iron and manganese be continued during 2026.

4.2.2 Vinyl Chloride Trigger Response

A VC contingency trigger assessment was prepared (Parametrix 2025b) addressing data through the fourth quarter of 2025 to evaluate whether the observed conditions warrant further action. The approach, results, and conclusions are summarized in Sections 4.2.2.1 through 4.2.2.3.

4.2.2.1 Approach

An assessment was performed to evaluate the cause and source of the increasing trends of VC and to evaluate whether they represent transient or new conditions. Consistent with the CAP, further evaluation focused on MW-10, a CPOC well, and MW-31, which is not designated as a CPOC well but is subject to trend evaluation requirements.

Since VC is the degradation product of reductive dechlorination, this assessment compared VC, cis-1,2-DCE, and the combined molar-equivalent concentrations of VC and cis-1,2-DCE (VC + cis-1,2-DCE) from wells MW-10 and MW 31 where statistically significant increases were confirmed in the quarterly analysis. Results from nearby monitoring wells MW-25, MW-32, and MW-33 were also included in the analysis, per the MW-31 trend trigger response requirements of the CAP. Although not specified in the CAP, results from well MW 30 were also considered due to the well's close proximity to MW-31. These comparisons were used to evaluate whether the observed VC trends are attributable to the Settlement Area, reflect natural attenuation of cis-1,2-DCE to VC, or are related to other contributing influences, such as off-site sources (e.g., former Glitsa Property).

Statistical evaluations of trends in VC, cis-1,2-DCE, and the combined VC + cis-1,2-DCE in data through 4Q25 were conducted using ProUCL (EPA 2022), following methods described in EPA's *Unified Guidance for Statistical Analysis of Groundwater Monitoring Data* (EPA 2009). The Mann-Kendall test was applied at the 95% confidence level for each analyte (VC, cis-1,2-DCE, and VC + cis-1,2-DCE).

4.2.2.2 Results

MW-10

At MW-10, VC concentrations exceeded the CUL during 2Q25 and exhibited an increasing trend over the monitoring period; however, concentrations have declined from the 2Q25 peak. Cis-1,2-DCE exhibited a decreasing trend over the same period, and when evaluated together, the combined molar concentration of VC and cis-1,2-DCE showed an overall decrease. These results indicate that groundwater conditions at MW-10 are undergoing natural attenuation through reductive dechlorination. In this process, cis-1,2-DCE biodegrades to VC, resulting in a minor increase in VC concurrent with an overall reduction in total chlorinated-ethene mass (represented by VC + cis-1,2-DCE). These findings indicate that the conditions associated with the trend trigger at MW-10 reflect ongoing attenuation processes within the B-zone of the aquifer and do not represent a new release or substantive change in groundwater quality.

MW-31

At MW-31, VC, cis-1,2-DCE, and VC + cis-1,2-DCE exhibited increasing trends. To evaluate whether these increases could be attributable to the Settlement Area, this assessment considered monitoring data from adjacent A-zone wells MW-25, MW-32, MW-33, as well as MW-30, which is screened in the perched aquifer. Among these wells, MW-25, MW-32, and MW-30 exhibited stable or decreasing

trends in VC and combined VC + cis-1,2-DCE concentrations. MW-33 exhibited an increasing trend in VC; however, cis-1,2-DCE has not been detected at this location, and VC concentrations remain below the CUL.

The 2025 VC concentrations at MW-31 were also compared to groundwater fate and transport modeling completed for the RI/FS. The model predicted steady-state VC concentrations attributable to the landfill at MW-31 of 0.25 µg/L or less. In contrast, the highest VC concentration measured at MW-31 in 2025 (0.987 µg/L) substantially exceeds the modeled steady-state concentration.

These results indicate that groundwater conditions at MW-31 differ from those observed in nearby Settlement Area monitoring wells, and that modeled concentrations from Settlement Area sources do not account for the VC concentrations measured at this location.

4.2.2.3 Conclusions

Based on statistical analyses and supporting evaluation, both wells exhibit increasing trends in VC; however, the data indicate that the underlying causes and implications differ between the two locations. Results from MW-10 are consistent with ongoing natural attenuation processes within the B-zone aquifer. In contrast, increasing VC concentrations at MW-31 reflect influences that are not attributable to the Settlement Area.

4.2.3 Monitoring Well Maintenance Completed

During field activities, seven partially buried (imbedded) 55-gallon steel drums were removed. These drums were historically used for temporary storage of purge water generated during groundwater monitoring and were associated with an abandoned purge-water management system.

Additionally, the locking lid for MW-27 was rewelded to ensure well security.

4.2.4 Unforeseen Emergency or Extreme Weather Events

No unforeseen emergency or extreme weather events were identified at the Settlement Area during 2025 that triggered an inspection of the groundwater monitoring wells.

4.3 Activities Planned for the Next One-Year Period

4.3.1 Groundwater Monitoring

Quarterly groundwater monitoring is planned during February, April, August, and November 2026. Based on the results of the VC trigger assessment, the following recommendations regarding ongoing monitoring have been provided to Ecology:

- Trigger evaluation framework: Continue to identify VC contingency trigger conditions on a quarterly basis in accordance with the CAP. Previously identified trigger conditions will be documented and evaluated through a comprehensive annual trigger assessment that summarizes quarterly trigger occurrences and associated evaluations for inclusion in the annual groundwater monitoring report.
- New trigger conditions: If a new VC trigger condition is identified at a CPOC monitoring well other than MW-10, a written evaluation will be completed in accordance with the CAP requirements and timelines to assess the cause, significance, and potential implications of the trigger.

- MW-10: Continue conducting groundwater monitoring at MW-10 in accordance with the CAP. Given the evidence of natural attenuation at this location, including decreasing trends in cis-1,2-DCE and combined VC + cis-1,2-DCE concentrations, evaluate VC trend trigger occurrences at MW-10 as part of the annual comprehensive assessment, rather than through separate quarter-specific evaluations.
- MW-31: Discontinue evaluating MW-31 for VC trigger conditions under the CAP. Available evidence indicates that VC concentrations and trends at this location are not attributable to the Settlement Area, and that continued application of quarterly trend trigger evaluations would be expected to repeatedly identify Condition 2 triggers without providing additional insight into Settlement Area-related groundwater conditions. Groundwater monitoring at MW-31 will continue in accordance with the CAP, and statistical trend analyses for sampled analytes, including VC, will continue to be performed and documented on an annual basis.

Implementation of these recommendations would maintain compliance with CAP trigger identification requirements while focusing detailed evaluations on conditions that are meaningful for assessing Settlement Area-related groundwater quality.

4.3.2 Monitoring Well Maintenance

- The bladder pump from MW-10 will be replaced to facilitate future groundwater monitoring. The well is currently sampled with a peristaltic pump.
- Additional discharge and air lines may be replaced with Teflon lined and polyethylene tubing depending upon field observations.

5. Conclusions and Recommendations

The 2025 activities at the Settlement Area were completed in accordance with the CAP. No unforeseen emergency or extreme weather events occurred during 2025 at the Settlement Area that triggered additional monitoring requirements.

5.1 Landfill Cap

The 2025 Annual Landfill Cap Inspection conducted on May 2, 2025 evaluated the condition of the entire landfill cap system and identified areas requiring additional monitoring, maintenance, or repair. A targeted Mid-Year Landfill Cap Reinspection was conducted on October 24, 2025 to reassess previously identified conditions in accordance with the CAP.

SRDS, CPSP, and SDOT completed several of the recommended repairs during 2025, which were subsequently observed and documented by the Site Coordinator. Additional maintenance is required and will be addressed as part of ongoing cap management. The Site Coordinator will conduct the next comprehensive annual landfill cap inspection in Spring 2026.

5.2 Landfill Gas

Supplemental shallow gas probes were installed in 2025 adjacent to probes with screened intervals that are typically blocked by groundwater (GP-11, GP-13, GP-15, and GP-32). Methane concentrations greater than 5% by volume were detected in GP-32S in October of 2025. In accordance with the CAP, agency notifications were completed and increased monitoring and additional assessment activities were implemented (Parametrix 2025a).

Based on the completed investigations, methane detected at GP-32S appears to be associated with waste located beneath the Frank Lenci Corporation parcel, outside the influence of the existing LFG extraction system and beyond the defined Settlement Area. Monitoring and evaluation indicate that conditions remain protective of adjacent buildings and do not adversely affect overall landfill cap integrity, groundwater conditions, or overall gas control system performance.

LFG monitoring conducted throughout 2025 indicates that LFG within the Settlement Area is being effectively controlled and that offsite migration has not occurred above regulatory thresholds. The exceedance identified at supplemental shallow gas probe GP-32S was addressed in accordance with the CAP, and recommendations were provided to Ecology and PHSKC in a Technical Memorandum dated December 1, 2025 (see Section 3.3.1).

5.3 Groundwater

5.3.1 Gradients and Flow Direction

The groundwater flow direction observed in 2025 groundwater monitoring continued to be toward the east and northeast and generally consistent with historical measurements. Based on the measured gradients, the calculated flow velocity ranged from 4.61 to 7.74 ft/day in the northern region and 1.38 to 3.21 ft/day in the southern region of the Settlement Area.

Comparison of water levels in the shallow and deep wells continue to show slightly downward vertical gradients (water levels are higher in the shallower wells) most predominant in the MW-30/MW-31 well pair off the Settlement Area to the northeast.

5.3.2 Water Quality

The following CPOC wells had at least one COC concentration that exceeded the CUL during 2025:

- VC: downgradient wells MW-25 and MW-32 (1Q duplicate) (A-Zone) and MW-10 (B-Zone)
- Iron: downgradient wells MW-25 (A-Zone) and MW-10 (B-Zone)
- Manganese: downgradient wells MW-25 (A-Zone) and MW-10 (B-Zone)

None of the 2025 VC groundwater monitoring results exceeded the concentration trigger (concentration greater than 1.45 µg/L for two consecutive sampling events). However, statistically significant increasing trends in the post-Consent Decree data were observed in two downgradient wells that had VC concentrations above the CUL (MW-10 and MW-31). A VC contingency trigger assessment was prepared (Parametrix 2025b) addressing data through the fourth quarter of 2025 to evaluate whether the observed conditions warrant further action. The data indicate that the underlying causes and implications differ between the two locations. Results from MW-10 are consistent with ongoing natural attenuation processes within the B-zone aquifer. In contrast, increasing VC concentrations at MW-31 reflect influences that are not attributable to the Settlement Area.

Based on the results of the VC trigger assessment, recommendations regarding ongoing monitoring have been provided to Ecology (see Section 4.3.1). Implementation of these recommendations would maintain compliance with CAP trigger identification requirements while focusing detailed evaluations on conditions relevant to Settlement Area groundwater quality assessment.

Since statistically significant upward trends during the post-Consent Decree period were observed for iron and manganese in some wells (iron in well MW-31 and manganese in wells MW-14 and MW-31), monitoring for iron and manganese will continue in 2026 in accordance with the CAP. Trends in iron and manganese will be reevaluated after the fourth quarter 2026 event to assess whether potential future reductions in monitoring frequency can be recommended.

6. References

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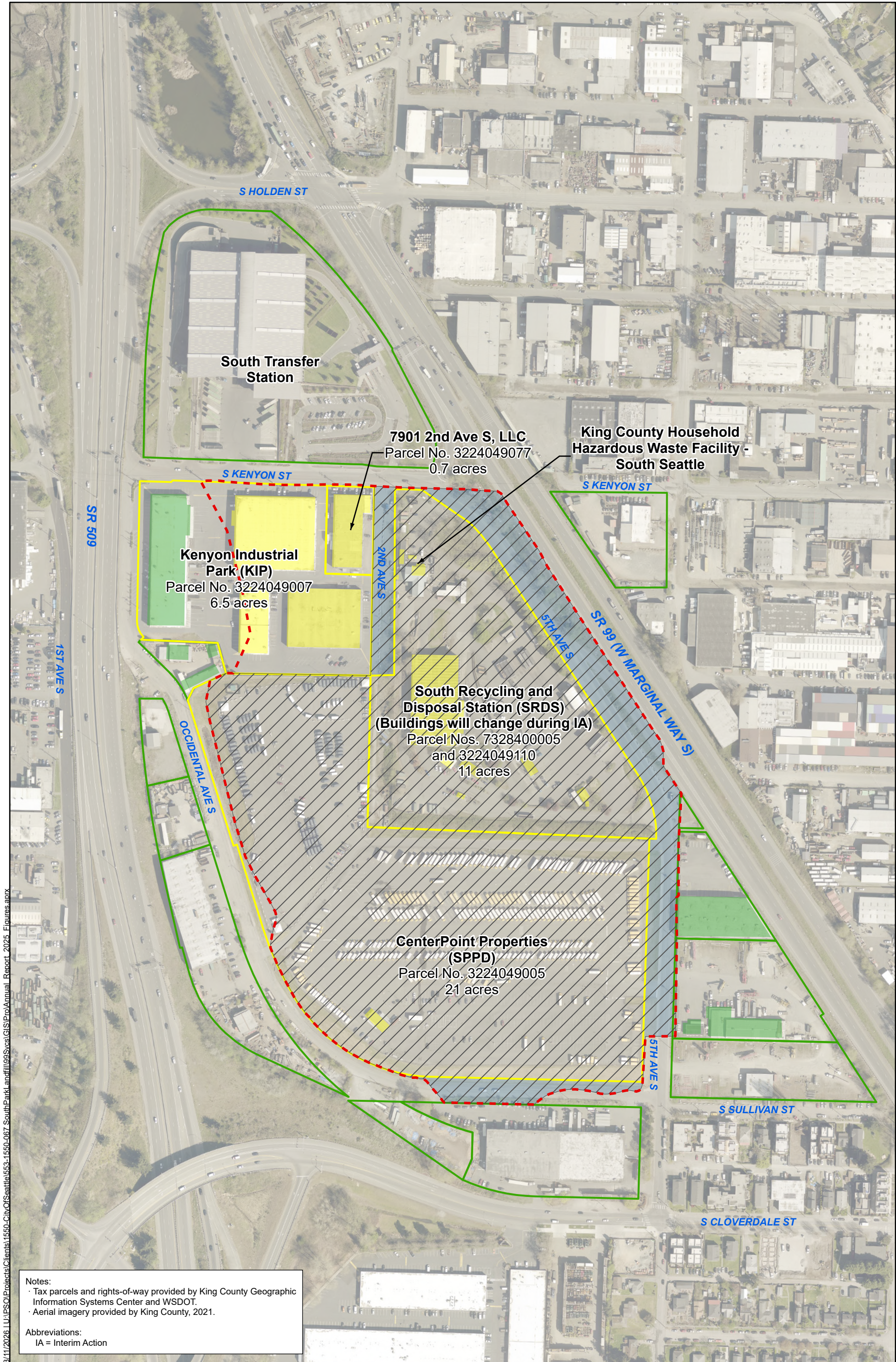
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SPU (Seattle Public Utilities). 1997. Letter of Transmittal from Philip Woodhouse, SPU to Deborah Lambert, P.E., WHPacific, re: Package of Materials on South Park Landfill. April 28, 1997.

Figures





Notes:
· Tax parcels and rights-of-way provided by King County Geographic Information Systems Center and WSDOT.
· Aerial imagery provided by King County, 2021.

Abbreviations:
IA = Interim Action

Source: Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.

Parametrix



0 125 250 500 Feet

Figure 2
Site Parcel Map
with Rights-of-Way
South Park Landfill

Legend

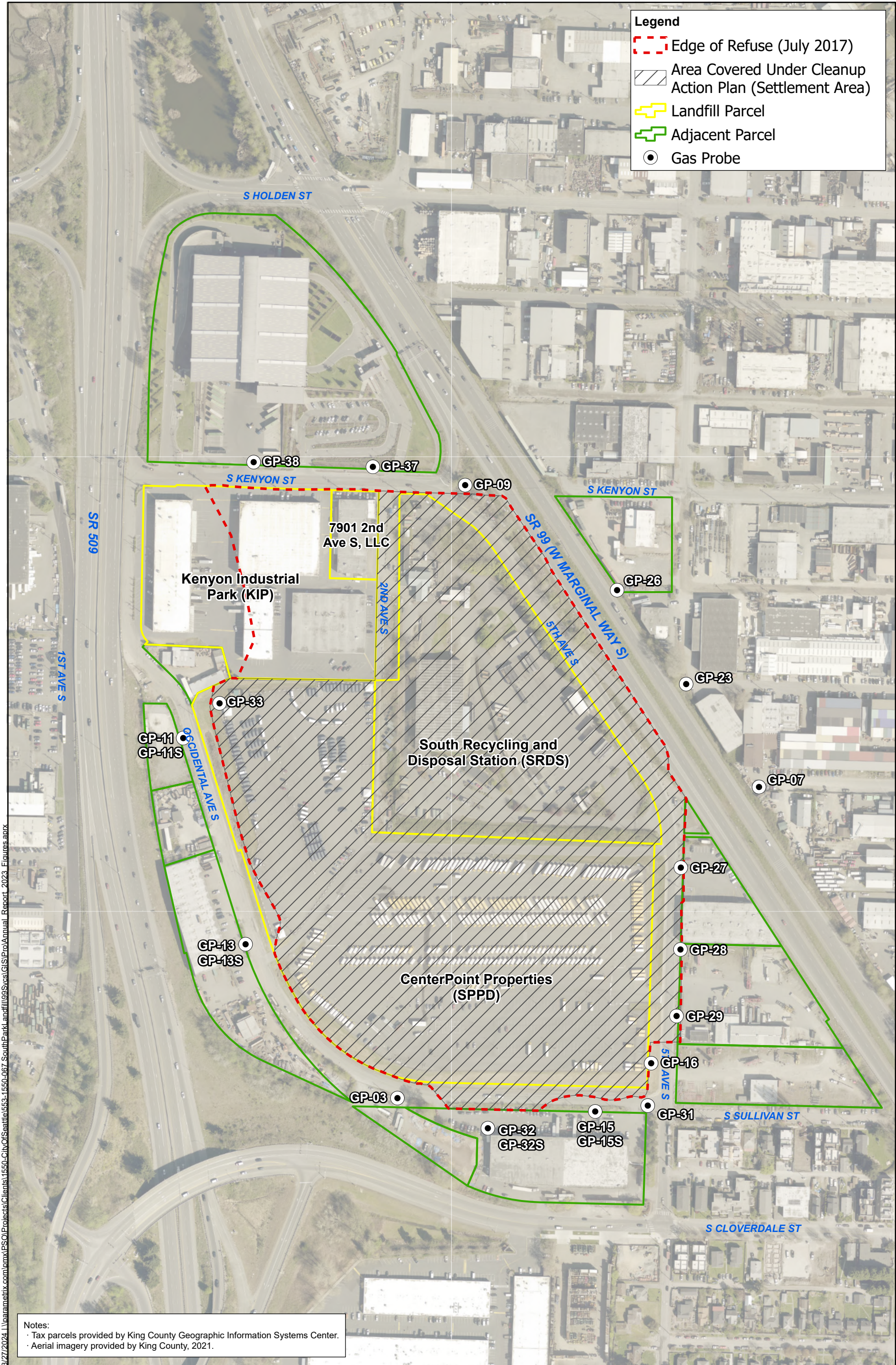
Edge of Refuse (July 2017)

Area Covered Under Cleanup Action Plan (Settlement Area)

Landfill Parcel

Adjacent Parcel

Gas Probe



Source: Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.

Parametrix

0125250500

Feet

Figure 3
Perimeter Gas Probe Network
South Park Landfill

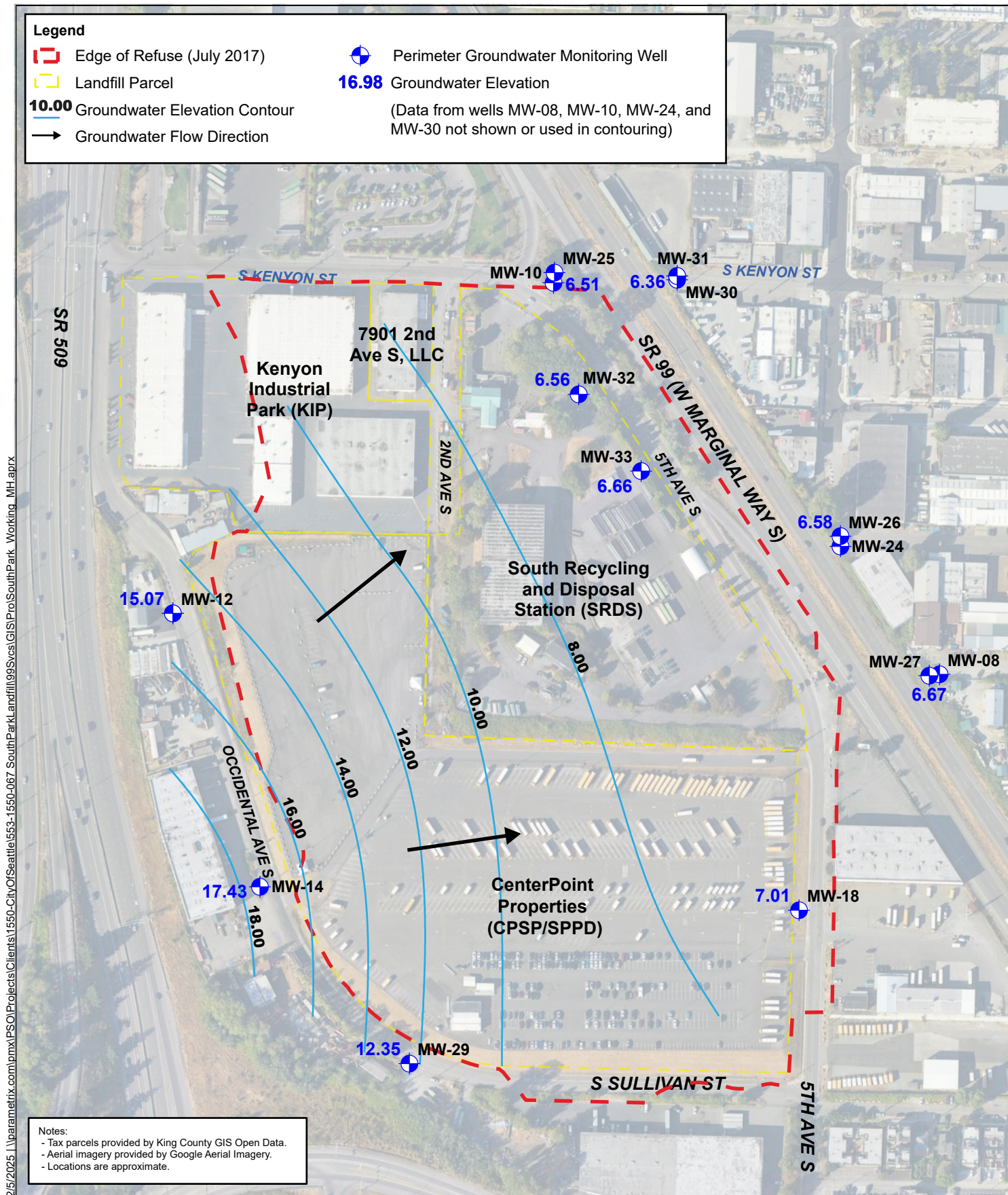


Source: Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.

Parametrix



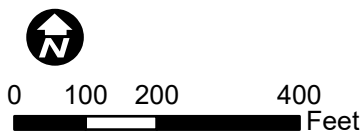
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Feet

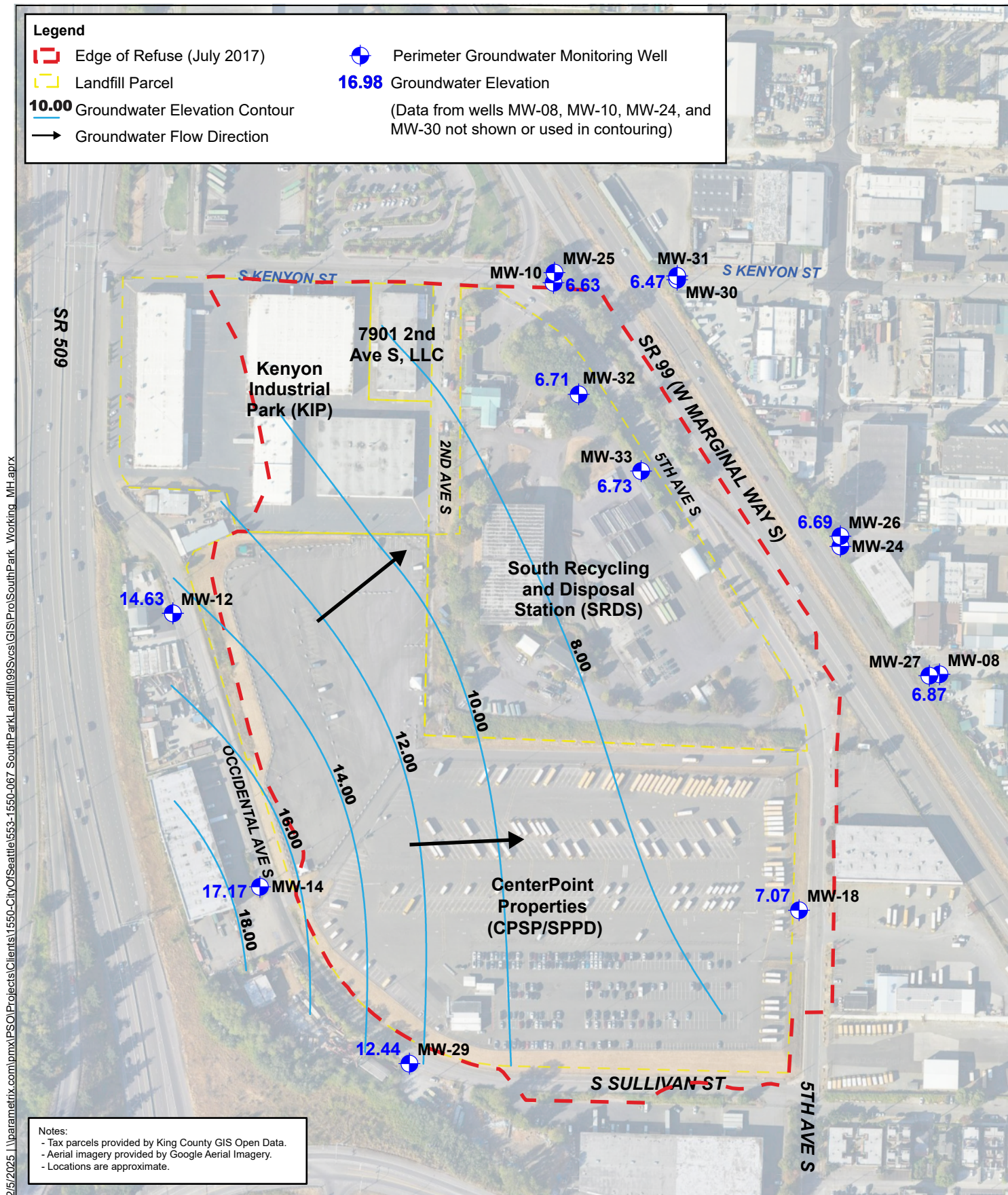


Source: City of Seattle, King County, Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.

Parametrix

Figure 5
Potentiometric Surface Map
February 3, 2025
South Park Landfill

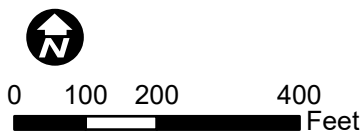




Source: City of Seattle, King County, Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.

Parametrix

Figure 6
Potentiometric Surface Map
April 28, 2025
South Park Landfill



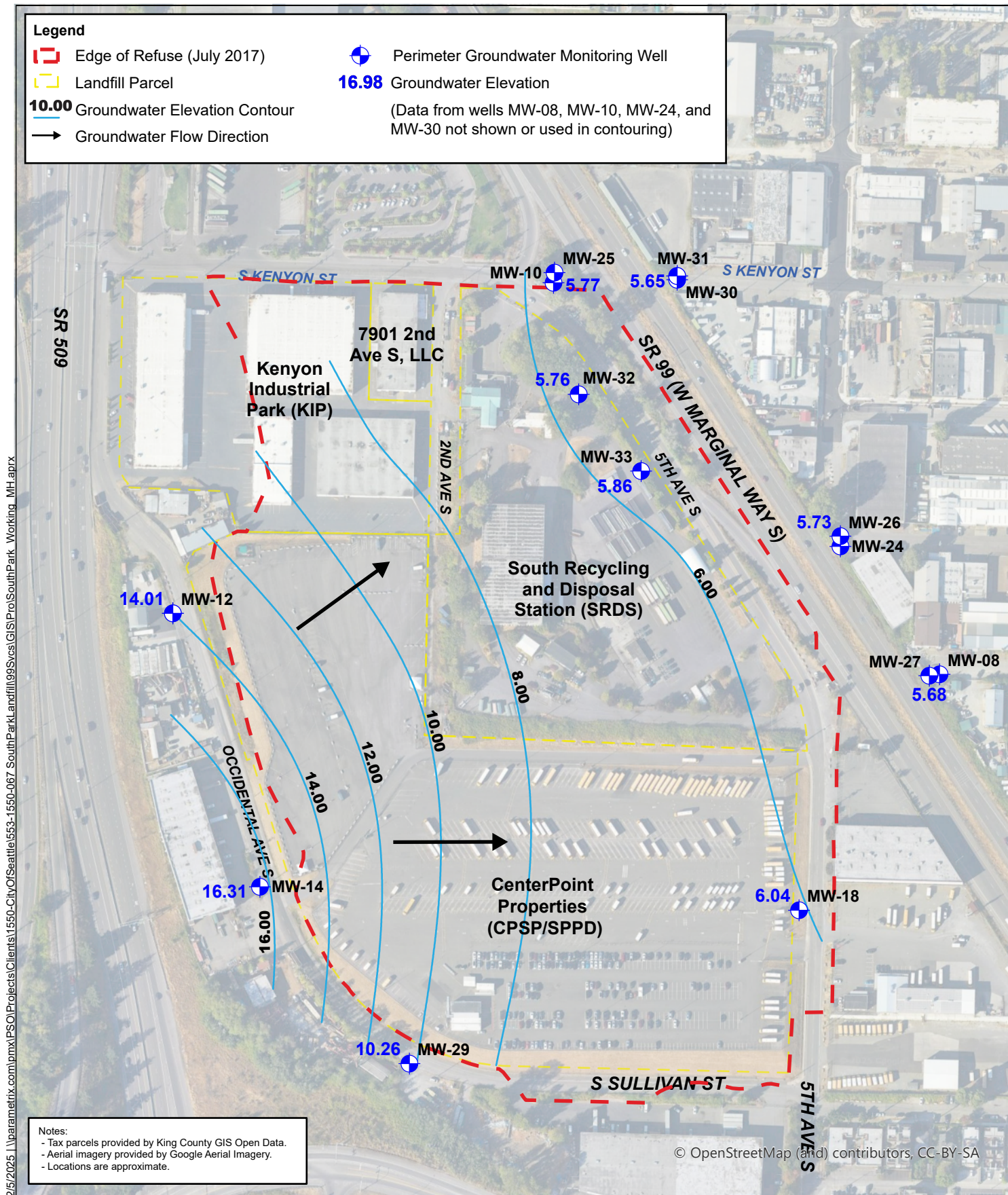
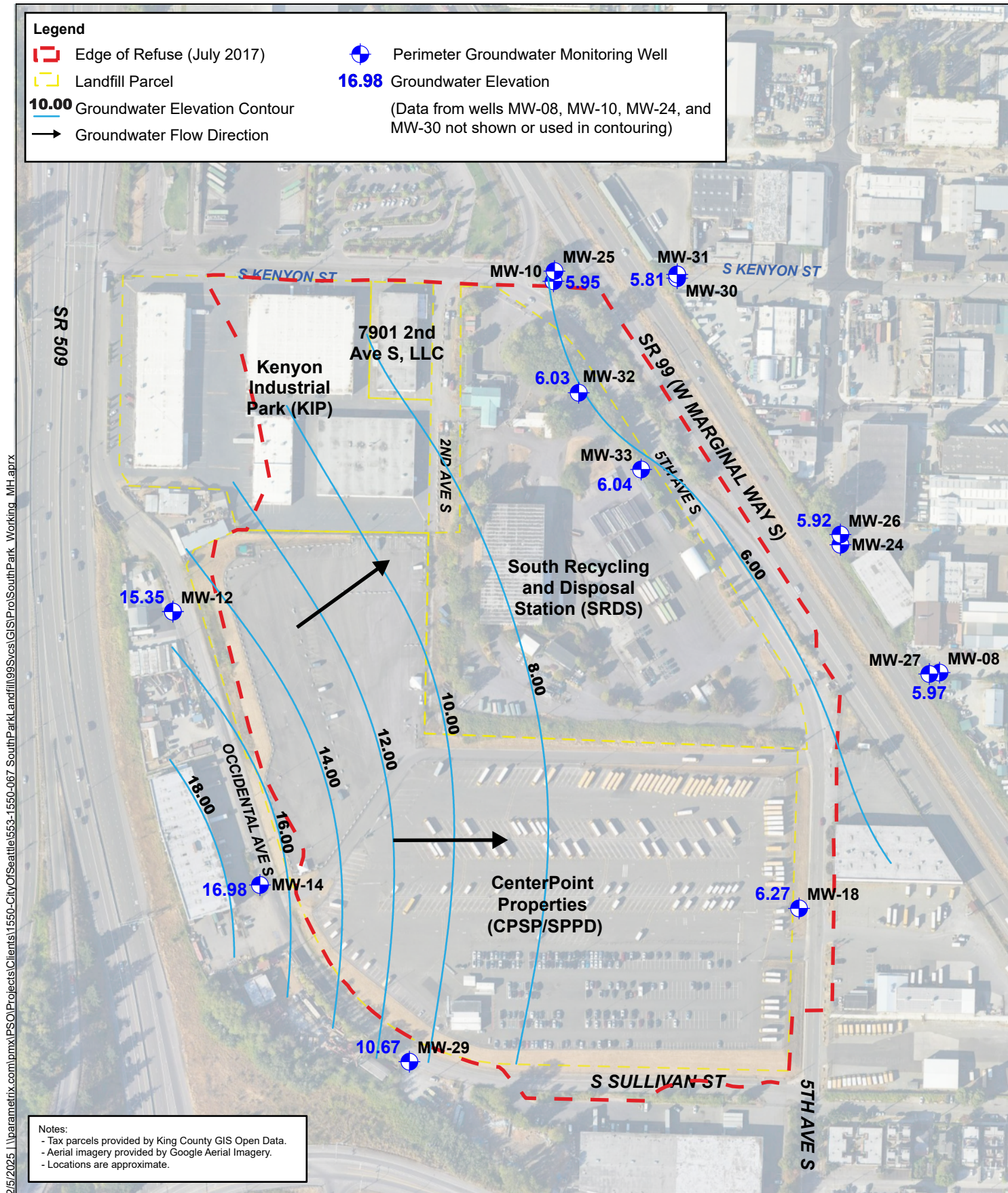


Figure 7
Potentiometric Surface Map
August 4, 2025
South Park Landfill

Parametrix



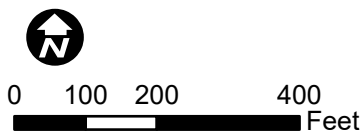
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 Feet



Source: City of Seattle, King County, Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.

Parametrix

Figure 8
Potentiometric Surface Map
November 3, 2025
South Park Landfill



Tables

Table 1. Project Contact Information, South Park Landfill

Contact	Title	Affiliation	Phone Number (s)	Mailing Address	Email Address
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Primary contacts in **bold**

Table 2. Methane in Perimeter Gas Probes, 2025, South Park Landfill

Gas Probe	Probe Diameter (ft)	Screened Interval (ft btoc)	Purge Volume (cc) ¹	Purge Duration (min) Purge rate = 550 ml/min	Date Monitored	Time of Measurement	Pressure (in W.C.)	CH ₄ (% Volume)	CO ₂ (% Volume)	O ₂ (% Volume)
GP-03	0.063	6.73 to 8.63	725	1.32	1/28/2025	9:44	-0.15	0.0	5.1	12.4
					4/24/2025	11:04	0.02	0.0	4.3	13.4
					7/29/2025	10:23	0.04	0.0	8.5	8.5
					10/28/2025	10:28	0.02	0.0	5.6	14.7
GP-07	0.063	5.75 to 6.25	519	0.94	1/28/2025	8:42	-0.15	0.0	1.7	20.3
					4/24/2025	8:48	0.01	0.0	1.8	19.3
					7/29/2025	9:20	-0.04	0.0	3.0	17.7
					10/28/2025	12:26	-0.02	0.0	2.2	18.7
GP-09	0.063	6.62 to 10.62	899	1.63	1/28/2025	10:40	-0.16	0.0	6.6	13.3
					4/24/2025	9:28	0.01	0.0	6.0	14.0
					7/29/2025	10:05	-0.02	0.0	5.0	16.2
					10/28/2025	12:16	-0.02	0.0	4.1	17.6
GP-11	0.167	6.23 to 6.73	4,632	8.42	1/28/2025	9:39	-0.17	0.00	1.90	19.30
					4/24/2025	11:00	0.50	0.0	0.7	20.1
					7/29/2025	10:17	0.87	0.0	0.5	20.2
					10/28/2025	10:05	0.01	0.0	1.5	21.1
GP-11S	0.014	1.00-2.00	825	1.5	10/28/2025	10:08	0.01	0.0	1.2	19.9
GP-13	0.167	4.91 to 5.41	4,014	7.29	1/28/2025	10:58	--	--	--	--
					4/24/2025	11:26	--	--	--	--
					7/29/2025	10:54	--	--	--	--
					10/28/2025	10:16	--	--	--	--
GP-13S	0.014	1.00-2.00	825	1.5	10/28/2025	10:19	-0.01	0.0	2.2	19.9
GP-15	0.167	6.62 to 8.62	5,558	10.11	1/28/2025	11:14	--	--	--	--
					4/24/2025	11:12	--	--	--	--
					7/29/2025	10:40	--	--	--	--
					10/28/2025	11:09	3.41	0.0	6.8	10.1
GP-15S	0.014	0.79 to 1.79	825	1.5	10/28/2025	11:19	-0.01	0.0	2.4	18.6
GP-16	0.167	6.60 to 9	5,867	10.67	1/28/2025	10:11	-0.13	0.0	8.8	9.5
					4/24/2025	9:56	0.02	0.0	9.3	8.4
					7/29/2025	9:40	0.01	0.0	13.9	5.0
					10/28/2025	11:44	0.01	0.0	11.1	7.7
GP-23	0.167	6.05 to 7.05	4,940	8.98	1/28/2025	8:36	-0.17	0.0	5.9	16
					4/24/2025	9:01	0.02	0.0	8.5	11.7
					7/29/2025	9:14	-0.01	0.0	8.8	12.6
					10/28/2025	12:40	0.00	0.0	7.0	14.7
GP-26	0.063	4.62 to 9.62	868	1.57	1/28/2025	11:27	0.04	0.0	1.8	18.3
					4/24/2025	10:43	0.33	0.0	2.0	18.2
					7/29/2025	8:22	0.00	0.0	2.0	19.3
					10/28/2025	9:13	-0.02	0.0	1.9	19.5
GP-27	0.063	8.57 to 13.57	1,216	2.21	1/28/2025	10:32	-0.14	0.0	9.3	0.8
					4/24/2025	10:22	0.06	0.0	8.2	0.6
					7/29/2025	9:59	-0.02	0.1	12.3	0
					10/28/2025	12:05	0.02	0.2	14.1	0.1
GP-28	0.063	6.59 to 11.59	1,042	1.89	1/28/2025	10:25	-0.15	0.0	0.2	20.2
					4/24/2025	10:12	0.05	0.0	0.2	20.8
					7/29/2025	9:52	0.01	0.0	0.1	20.0
					10/28/2025	11:57	-3.49	0.0	0.1	21.1
GP-29	0.063	4.62 to 9.62	868	1.57	1/28/2025	10:18	-0.15	0.0	14.0	0.2
					4/24/2025	9:42	0.01	0.0	14.0	0.7
					7/29/2025	9:46	-0.01	0.0	17.1	0.0
					10/28/2025	11:51	-0.04	0.0	15.4	0.0
GP-31	0.063	4.64 to 9.64	868	1.57	1/28/2025	9:55	-0.15	0.0	5.1	11.3
					4/24/2025	10:04	0.06	0.0	3.5	9.9
					7/29/2025	10:28	0.02	0.0	10.3	9.5
					10/28/2025	11:30	-0.01	0.0	8.4	6.9
GP-32	0.063	4.72 to 9.72	868	1.57	1/28/2025	11:07	--	--	--	--
					4/24/2025	11:19	-0.03	0.0	0.0	20.8
					7/29/2025	10:33	--	--	--	--
					10/28/2025	10:34	--	--	--	--
GP-32S	0.014	1.29 to 2.29	825	1.5	10/28/2025	10:39	0.00	66.4	16.7	0.0
GP-33	0.063	8.2 to 13.2	1,165	2.12	1/28/2025	8:59	-0.18	0.0	1.0	20.5
					4/24/2025	8:06	0.00	0.0	0.7	19.2
					7/29/2025	8:34	0.05	0.0	2.8	16.5
					10/28/2025	9:28	-0.03	0.0	2.6	18.0

Table 2. Methane in Perimeter Gas Probes, 2025, South Park Landfill

Gas Probe	Probe Diameter (ft)	Screened Interval (ft btoc)	Purge Volume (cc) ¹	Purge Duration (min) Purge rate = 550 ml/min	Date Monitored	Time of Measurement	Pressure (in W.C.)	CH ₄ (% Volume)	CO ₂ (% Volume)	O ₂ (% Volume)
GP-37	0.063	2.8 to 7.8	868	1.57	1/28/2025	9:16	-0.19	0.0	9.0	5.1
					4/24/2025	9:11	0.00	0.0	8.6	6.1
					7/29/2025	8:47	0.06	0.0	10.6	10.0
					10/28/2025	9:44	0.00	0.0	9.0	12.1
GP-38	0.063	3.8 to 8.8	882	1.6	1/28/2025	9:26	-0.14	0.0	11.9	4.8
					4/24/2025	9:21	0.01	0.0	13.4	3.1
					7/29/2025	8:55	-0.03	0.0	18.8	2.1
					10/28/2025	9:51	0.01	0.0	15.7	3.9

Notes:
¹ Purge volume assumes no water present within the probe screen
-- No measurement, screen blocked by water

Abbreviations:
ft feet
cc cubic centimeter
W.C. Water Column
CH₄ Methane
CO₂ Carbon Dioxide
O₂ Oxygen

Table 3. Groundwater Monitoring Well Information, South Park Landfill

Well ID	Latitude (NAD 83) ¹	Longitude (NAD 83) ¹	Well Information from RI ²											Pump Information	
			WASPN North (ft NAD 83)	WASPN East (ft NAD 83)	Ground Elevation (ft NAVD 88)	Casing Elevation (ft NAVD 88)	Stickup (ft)	Total Well Depth (ft bgs)	Screen Top (ft bgs)	Screen Bottom (ft bgs)	Screen Top Elevation (ft NAVD 88)	Screen Bottom Elevation (ft NAVD 88)	Aquifer	Pump Type	Target Intake or Top of Pump ³ (ft bgs)
MW-08	47.529801	-122.3273	196834.57	1271362.27	12.88	14.76	1.88	45.6	35.6	45.6	-22.72	-32.72	B-Zone	Bladder	40
MW-10	47.531977	-122.3306	197659.19	1270559.83	17.7	19.35	1.65	45	35	45	-17.3	-27.3	B-Zone	Peristaltic	40
MW-12	47.530062	-122.3337	196964.43	1269792.64	19.11	20.63	1.52	15.3	10	15	9.11	4.11	A-Zone	Bladder	12.5
MW-14	47.528523	-122.3329	196399.9	1269963.70	19.05	19.85	0.8	21.8	11.5	21.5	7.55	-2.45	A-Zone	Bladder	16.5
MW-18	47.528449	-122.3284	196350.26	1271077.67	20.78	22.03	1.25	40.4	30	40	-9.22	-19.22	B-Zone	Bladder	35
MW-24	47.530515	-122.3281	197110.02	1271165.6	13.57	15.13	1.56	45.3	35	45	-21.43	-31.43	B-Zone	Bladder	40
MW-25	47.532033	-122.3305	197657.49	1270566.75	17.3	20.09	2.79	27	22	27	-4.7	-9.7	A-Zone	Bladder	24.5
MW-26	47.53057	-122.3281	197121.60	1271164.4	13.55	15.94	2.39	25	15	25	-1.45	-11.45	A-Zone	Bladder	20
MW-27	47.529792	-122.3273	196835.06	1271357.64	12.72	14.76	2.04	20	10	20	2.72	-7.28	A-Zone	Bladder	15
MW-29	47.527537	-122.3316	196034.29	1270270.91	19.45	19.16	-0.29	30	20	30	-0.55	-10.55	A-Zone	Peristaltic	25
MW-30	47.532014	-122.3295	197655.77	1270826.64	17.6	17.07	-0.53	13	8	13	9.6	4.6	Perched	Peristaltic	10.5
MW-31	47.532027	-122.3295	197660.37	1270825.71	17.58	17.12	-0.46	23	18	23	-0.42	-5.42	A-Zone	Bladder	20.5
MW-32	47.531347	-122.3303	197416.52	1270622.16	17.51	17.07	-0.44	24	19	24	-1.49	-6.49	A-Zone	Peristaltic	21.5
MW-33	47.53092	-122.3298	197257.91	1270751.02	17.81	17.34	-0.47	25	20	25	-2.19	-7.19	A-Zone	Peristaltic	22.5

Notes:

- ¹ Converted from Washington State plane data.
- ² Well information sourced from the RI Table 5.4 (Floyd Snider, 2017).
- ³ Pump intake placed at the midpoint of the screen interval.

Abbreviations:

- NAD 83 = North American Datum of 1983
- NAVD 88 = North American Vertical Datum of 1988
- ft = feet
- bgs = below ground surface
- btoc = below top of casing
- WASPN = Washington State Plane North - 4601

Table 4. Groundwater Elevation Summary, 2025, South Park Landfill

Well ID	TOC (ft NAVD 88)	Depth to Water (ft)				Groundwater Elevation (ft NAVD 88)			
		2/3/25	4/28/25	8/4/25	11/3/25	2/3/25	4/28/25	8/4/25	11/3/25
Perched Zone									
MW-30	17.07	9.85	9.69	10.86	10.84	7.22	7.38	6.21	6.23
Shallow / A-Zone wells									
MW-12	20.63	5.56	6.00	6.62	5.28	15.07	14.63	14.01	15.35
MW-14	19.85	2.42	2.68	3.54	2.87	17.43	17.17	16.31	16.98
MW-25	20.09	13.58	13.46	14.32	14.14	6.51	6.63	5.77	5.95
MW-26	15.94	9.36	9.25	10.21	10.02	6.58	6.69	5.73	5.92
MW-27	14.76	8.09	7.89	9.08	8.79	6.67	6.87	5.68	5.97
MW-29	19.16	6.81	6.72	8.90	8.49	12.35	12.44	10.26	10.67
MW-31	17.12	10.76	10.65	11.47	11.31	6.36	6.47	5.65	5.81
MW-32	17.07	10.51	10.36	11.31	11.04	6.56	6.71	5.76	6.03
MW-33	17.34	10.68	10.61	11.48	11.30	6.66	6.73	5.86	6.04
Deep / B-Zone wells									
MW-08	14.76	8.06	7.95	8.52	8.84	6.70	6.81	6.24	5.92
MW-10	19.35	12.80	12.77	13.59	13.39	6.55	6.58	5.76	5.96
MW-18	22.03	15.02	14.96	15.99	15.76	7.01	7.07	6.04	6.27
MW-24	15.13	9.60	8.49	9.47	9.25	5.53	6.64	5.66	5.88

Abbreviations:

TOC = Top of casing

ft = feet

NAVD 88 = North American Vertical Datum of 1988

Table 5. Groundwater Vertical Gradients, 2025, South Park Landfill

Well Pairs	Zone	Groundwater Elevation (ft NAVD 88)				Mid-screen Elevation (ft NAVD 88)	Mid-screen Elevation Difference (ft)	Vertical gradient (ft/ft)			
		2/3/25	4/28/25	8/4/25	11/3/25			2/3/25	4/28/25	8/4/25	11/3/25
MW-26	Shallow	6.58	6.69	5.73	5.92	-6.45	19.98	0.0526	0.0025	0.0035	0.0020
MW-24	Deep	5.53	6.64	5.66	5.88	-26.43					
MW-27	Shallow	6.67	6.87	5.68	5.97	-2.28	25.44	-0.0012	0.0024	-0.0220	0.0020
MW-08	Deep	6.70	6.81	6.24	5.92	-27.72					
MW-25	Shallow	6.51	6.63	5.77	5.95	-7.2	15.1	-0.0026	0.0033	0.0007	-0.0007
MW-10	Deep	6.55	6.58	5.76	5.96	-22.3					
MW-30	Perched	7.22	7.38	6.21	6.23	7.1	10.02	0.0858	0.0908	0.0559	0.0419
MW-31	Shallow	6.36	6.47	5.65	5.81	-2.92					

Notes: Positive vertical gradient represents downward hydraulic flow
Negative vertical gradient represents upward hydraulic flow

Abbreviations:

ft = feet

NAVD 88 = North American Vertical Datum of 1988

Table 6. Groundwater Flow Velocity, South Park Landfill

Region	Horizontal Hydraulic Conductivity¹ (ft/day)	2025 Horizontal Hydraulic Gradient (ft/ft)	Effective Porosity¹	Horizontal Groundwater Velocity (ft/day)
Northern Region ²	145 to 167	0.0083 to 0.0097	0.21 to 0.26	4.61 to 7.74
Southern Region ³	40 to 71	0.0089 to 0.0095	0.21 to 0.26	1.38 to 3.21

Notes:

- ¹ Hydraulic Conductivity and Effective Porosity as determined from the RI-FS (Floyd Snider, 2017).
- ² Horizontal gradients for the northern region are calculated between A-Zone wells MW-12 and MW-32.
- ³ Horizontal gradients for the southern region are calculated between A-Zone well MW-14 and B-Zone well MW-18.

Table 7. Groundwater Quality Data Summary, 2024, South Park Landfill

			Upgradient Wells												Downgradient Wells							
			A-Zone												Perched Zone				A-Zone			
			MW-12	MW-12	MW-12	MW-12	MW-14	MW-14	MW-14	MW-14	MW-29	MW-29	MW-29	MW-29	MW-30 ¹	MW-30 ¹	MW-30 ¹	MW-30 ¹	MW-25	MW-25	MW-25	MW-25
Parameter	Units	Cleanup Level	2/3/25	4/30/25	8/4/25	11/4/25	2/4/25	4/30/25	8/4/25	11/4/25	2/5/25	4/30/25	8/6/25	11/5/25	2/4/25	4/29/25	8/6/25	11/4/25	2/5/25	4/29/25	8/5/25	11/5/25
Field Parameters																						
Temperature	C		10.9	12.5	16.4	15.4	13.4	13.4	16.9	15.8	10.7	11.9	14.1	12.8	11.3	12.1	16.3	15.2	12.9	14.1	14.9	14.2
Dissolved Oxygen	mg/L		0.50	0.32	0.45	1.04	0.20	0.10	4.71	0.18	0.21	0.09	0.10	0.11	1.22	0.39	0.10	0.19	0.22	0.10	0.09	0.14
Specific Conductivity	µS/cm		499.0	480.0	511.0	441.3	531.0	479.0	610.0	599.0	761.0	809.0	823.0	699.0	384.5	433.6	510.0	482.7	1209.0	1165.0	1181.0	1154.0
pH	units		6.16	6.39	6.32	6.19	6.65	6.75	6.78	6.76	6.73	6.82	6.84	6.73	6.09	6.25	6.41	6.40	6.59	6.61	6.66	6.67
Redox	mv		146.1	51.3	38.7	119.8	-43.6	-33.9	-37.7	-48.8	-75.3	-102.9	-100.2	-79.9	54.8	67.7	-2.3	-26.4	-73.2	-94.5	-79.9	-86.9
Turbidity	NTU		0.40	1.62	1.47	1.89	3.49	2.19	1.97	9.73	0.99	1.36	1.67	1.39	2.49	1.32	1.37	2.46	0.76	2.24	4.87	1.28
Metals																						
Iron, Total	mg/L	27 A-Zone 31 B-Zone	0.360 U --	3.01 --	2.93 --	0.372 --	3.13 --	3.51 --	4.67 --	3.39 --	20.2 --	20.8 --	21,1 --	16.6 --	0.948 --	1.39 --	3.97 --	6.72 --	39.8 --	29.2 --	33.5 --	27.3 --
Manganese, Total	mg/L	2.2	0.0292	0.251	0.190	0.0305	0.840	0.876	1.03	0.873	0.626	0.632	0.634	0.509	0.0425	0.0419	0.121	0.135	3.24	1.94	2.81	2.56
Volatile Organic Compounds																						
Vinyl Chloride	µg/L	0.29	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0537	0.0918	0.109	0.0382	0.102	0.0367	0.335	0.215	0.340	0.186	0.433	0.408
Cis-1,2-Dichloroethene	µg/L	16	0.20 U	0.27	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.24	0.24	0.64	0.27	0.20 U	0.88	0.22	0.38

Table 7. Groundwater Quality Data Summary, 2024, South Park Landfill

			Downgradient Wells (cont.)																			
			A-Zone (cont.)																			
			MW-26	MW-61 (MW-26 Dup)	MW-26	MW-26	MW-61 (MW-26 Dup)	MW-26	MW-27	MW-27	MW-27	MW-27	MW-31 ¹	MW-31 ¹	MW-31 ¹	MW-31 ¹	MW-32 ³	MW-60 (MW-32 Dup)	MW-32 ³	MW-32 ³	MW-60 (MW-32 Dup)	MW-32 ³
Parameter	Units	Cleanup Level	2/4/25	2/4/25	4/29/25	8/6/25	8/6/25	11/5/25	2/3/25	4/28/25	8/5/25	11/4/25	2/4/25	4/29/25	8/6/25	11/4/25	2/5/25	2/5/25	4/28/25	8/4/25	8/4/25	11/3/25
Field Parameters																						
Temperature	C		12.1	--	12.6	13.6	--	13.3	11.3	11.8	14.8	13.5	13.5	13.8	16.4	14.4	12.8	--	14.0	14.8	--	13.8
Dissolved Oxygen	mg/L		0.35	--	0.37	0.93	--	0.18	0.29	0.11	0.22	0.17	0.24	0.12	0.24	0.13	0.25	--	0.10	0.14	--	0.11
Specific Conductivity	µS/cm		212.1	--	232.7	276.2	--	329.7	449.1	437.0	604.0	589.0	513.0	508.0	517.0	511.0	870.0	--	844.0	846.0	--	827.0
pH	units		6.03	--	6.31	6.23	--	6.11	6.37	6.66	6.65	6.44	6.35	6.49	6.48	6.43	6.75	--	6.87	6.85	--	6.67
Redox	mv		29.2	--	29.0	1.0	--	39.1	-62.7	-64.4	-72.2	-44.7	-54.3	-54.8	-46.2	-64.3	-104.7	--	-85.6	-109.0	--	-93.1
Turbidity	NTU		1.88	--	1.85	4.55	--	3.30	7.64	7.82	11.40	3.04	3.76	3.29	19.40	6.58	3.67	--	2.33	4.67	--	8.56
Metals																						
Iron, Total	mg/L	27 A-Zone 31 B-Zone	4.26	4.73	4.17	7.35	7.34	8.35	13.0	10.8	19.6	19.5	19.4	18.3	19.6	17.8	14.3 J	13.1	11.8	13.1	12.8	12.3
			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese, Total	mg/L	2.2	0.0605	0.0690	0.0566	0.0895	0.0916	0.120	0.434	0.385	0.528	0.543	0.847	0.835	0.831	0.757	1.30	1.23	1.29	1.19	1.16	1.09
Volatile Organic Compounds																						
Vinyl Chloride	µg/L	0.29	0.0819	0.0942	0.0203	0.0200 U	0.0204	0.0263	0.0827	0.0891	0.0808	0.0473	0.790	0.987	0.835	0.586	0.285	0.305	0.288	0.234	0.234	0.217
Cis-1,2-Dichloroethene	µg/L	16	0.32	0.28	0.40	0.25	0.26	0.20 U	0.21	0.20 U	0.20 U	0.20 U	0.33	0.44	0.30	0.26	0.40	0.43	0.41	0.32	0.33	0.42

Table 7. Groundwater Quality Data Summary, 2024, South Park Landfill

			Downgradient Wells (cont.)																		
			A-Zone (cont.)					B-Zone													
			MW-33 ³	MW-33 ³	MW-33 ³	MW-33 ³	MW-60 (MW-33 Dup)	MW-08	MW-08	MW-08	MW-08	MW-61 (MW-08 Dup)	MW-10	MW-10	MW-10	MW-10	MW-18 ²	MW-18 ²	MW-60 (MW-18 Dup)	MW-18 ²	MW-18 ²
Parameter	Units	Cleanup Level	2/5/25	4/28/25	8/4/25	11/3/25	11/3/25	2/3/25	4/28/25	8/5/25	11/4/25	11/4/25	2/5/25	4/29/25	8/5/25	11/5/25	2/5/25	4/30/25	4/30/25	8/5/25	11/3/25
Field Parameters																					
Temperature	C		13.7	15.4	15.9	15.0	--	11.4	12.4	13.6	13.1	--	13.0	14.2	15.3	14.2	12.3	14.7	--	16.4	14.2
Dissolved Oxygen	mg/L		0.24	0.48	0.13	0.19	--	0.23	0.11	0.16	0.17	--	0.22	0.14	0.25	0.10	0.31	0.09	--	0.09	0.23
Specific Conductivity	µS/cm		1370.0	1285.0	1309.0	122.5	--	1265.0	1298.0	1050.0	883.0	--	1491.0	1452.0	1450.0	1513.0	541.0	579.0	--	609.0	583.0
pH	units		6.76	6.88	6.85	6.69	--	6.68	6.82	6.79	6.71	--	6.83	6.84	6.82	6.85	6.72	6.86	--	6.85	6.63
Redox	mv		-105.6	-122.7	-127.5	-110.1	--	-98.5	-100.9	-97.1	-72.9	--	-111.8	-120.8	-59.6	-113.7	-64.9	-88.6	--	-73.4	-74.9
Turbidity	NTU		1.98	1.75	2.23	4.00	--	1.02	1.33	3.83	1.35	--	2.11	2.07	2.85	0.68	1.17	2.89	--	4.33	1.62
Metals																					
Iron, Total	mg/L	27 A-Zone	18.6	14.4	16.5	14.1	13.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		31 B-Zone	--	--	--	--	--	14.4	11.8	13.6	13.0	12.7	34.4	30.9	36.4	28.9	12.9	13.7	14.9	14.9	13.5
Manganese, Total	mg/L	2.2	1.92	1.69	1.66	1.50	1.45	0.953	0.906	0.836	0.711	0.699	2.00	2.72	2.17	2.03	0.734	0.717 J+	0.777 J+	0.714	0.657
Volatile Organic Compounds																					
Vinyl Chloride	µg/L	0.29	0.148	0.187	0.187	0.173	0.180	0.0603	0.0758	0.0592	0.0425	0.0394	0.199	0.375	0.256	0.242	0.0200 U	0.0200 U	0.0200 U	0.0406	0.0430
Cis-1,2-Dichloroethene	µg/L	16	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.58	0.24	0.61	0.88	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U

Table 7. Groundwater Quality Data Summary, 2024, South Park Landfill

			Downgradient Wells (cont.)					Trip Blanks										
			B-Zone (cont.)															
			MW-24	MW-24	MW-61 (MW-24 Dup)	MW-24	MW-24	MW-80	MW-81	MW-80	MW-81	MW-82	MW-80	MW-81	MW-82	MW-80	MW-81	MW-82
Parameter	Units	Cleanup Level	2/4/25	4/29/25	4/29/25	8/6/25	11/5/25	2/4/25	2/5/25	4/28/25	4/29/25	4/30/25	8/4/25	8/5/25	8/6/25	11/3/25	11/4/25	11/5/25
Field Parameters																		
Temperature	C		11.9	12.5	--	13.4	13.2	--	--	--	--	--	--	--	--	--	--	--
Dissolved Oxygen	mg/L		0.21	0.24	--	0.08	0.10	--	--	--	--	--	--	--	--	--	--	--
Specific Conductivity	µS/cm		1044.0	979.0	--	1000.0	1011.0	--	--	--	--	--	--	--	--	--	--	--
pH	units		6.64	6.77	--	6.69	6.55	--	--	--	--	--	--	--	--	--	--	--
Redox	mv		-100.2	-99.0	--	-75.9	-52.3	--	--	--	--	--	--	--	--	--	--	--
Turbidity	NTU		5.93	3.22	--	3.98	0.26	--	--	--	--	--	--	--	--	--	--	--
Metals																		
Iron, Total	mg/L	27 A-Zone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		31 B-Zone	26.6	19.4	19.1	22.3	21.8	--	--	--	--	--	--	--	--	--	--	--
Manganese, Total	mg/L	2.2	1.67	1.41 J+	1.42 J+	1.44	1.32	--	--	--	--	--	--	--	--	--	--	--
Volatile Organic Compounds																		
Vinyl Chloride	µg/L	0.29	0.0313	0.0260	0.0266	0.0524	0.0402	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Cis-1,2-Dichloroethene	µg/L	16	0.20 U	0.20 U	0.20 U	0.20 U	0.20	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U

Notes:

- ¹ MW 30 and MW-31 monitor the former Glitsa property and are not CPOC wells.
- ² MW-31 is not a CPOC well, but is considered in vinyl chloride trigger condition 2 (the trend trigger).
- ³ MW 18 is completed in refuse along the downgradient edge of the Landfill; MW 32 and MW 33 are completed beneath refuse along the downgradient edge.

 = Exceeds cleanup level for CPOC wells

-- = Not analyzed

U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.

UU = The analyte was not detected above a detection limit that may be inaccurate or imprecise.

J+ = The result is an estimated quantity, but the result may be biased high.

Abbreviations:

µg/L Micrograms per liter

mg/L Milligrams per liter

µS/cm Microsiemens per centimeter

NTU Nephelometric Turbidity unit

CPOC Conditional point of compliance

Table 8. Summary of Vinyl Chloride Trend Analyses, South Park Landfill

Well ID	# Samples	# ND's	% ND's	MK S Value ¹	Significance Level ²	Trend ²
Upgradient Wells						
A-Zone						
MW-12	23	23	100	NA	NA	NA
MW-14	23	23	100	NA	NA	NA
MW-29	23	12	52.17	111	0.0018	increasing*
Downgradient Wells						
A-Zone						
MW-25	21	0	0	-56	0.0490	decreasing
MW-26	23	7	30.43	-7	0.4370	no trend
MW-27	23	3	13.04	31	0.2141	no trend
MW-31³	23	0	0	139	0.0001	increasing
MW-32⁴	23	0	0	-57	0.0696	no trend
MW-33	23	0	0	129	0.0004	increasing
B-Zone						
MW-08	23	2	8.70	-60	0.0595	no trend
MW-10	21	0	0	86	0.0050	increasing
MW-18	23	6	26.09	-58	0.0660	no trend
MW-24	23	1	4.35	18	0.3267	no trend

Notes:

Trend analyses include all post-Consent Decree data (Second Quarter 2020 through Fourth Quarter 2025)

ND = Non-detected value

All ND's were replaced with estimated values using the ROS (Regression on Order Statistics) method.

NA = Not applicable

* Because of limited data, more than 50% ND's, the trend may not be meaningful.

Bold = Downgradient well where the vinyl chloride concentration is greater than the CUL

¹ The Mann-Kendall test statistic, S, is based on pair-wise differences between each concentration and all earlier concentrations. A positive S value indicates an increasing trend, a zero value indicates no trend, and a negative value indicates a decreasing trend. The null hypothesis for this test is no trend. For a positive S value, the alternative hypothesis is an increasing trend. For a negative S value, the alternative hypothesis is a decreasing trend.

² Significance of the Mann-Kendall test statistic, S, is a function of the magnitude of S and the number of concentrations, with a larger positive or negative value of S and a greater number of concentrations leading to a higher statistical significance. An increasing or decreasing trend is considered statistically significant if the significance level is less than 0.05 (the confidence level is greater than 0.95); otherwise, no trend is indicated. Value provided is the tabulated p-value reported by ProUCL.

³ MW-31 is not a CPOC well, but is considered in vinyl chloride trigger condition 2 (the trend trigger).

⁴ The 1Q25 VC result for well MW-32 was slightly below the CUL; however, the duplicate sample collected at MW-32 was above the CUL.

Table 9. Summary of Total Iron Trend Analyses, South Park Landfill

Well ID	# Samples	# ND's	% ND's	MK S Value ¹	Significance Level ²	Trend ²
Upgradient Wells						
A-Zone						
MW-12	23	4	17.39	30	0.2218	no trend
MW-14	23	0	0	-43	0.1337	no trend
MW-29	23	0	0	-4	0.4684	no trend
Downgradient Wells						
Perched Zone						
MW-30	23	0	0	19	0.3173	no trend
A-Zone						
MW-25	21	0	0	45	0.0980	no trend
MW-26	23	0	0	-13	0.3757	no trend
MW-27	23	0	0	49	0.1025	no trend
MW-31	23	0	0	143	0.0001	increasing
MW-32	23	0	0	29	0.2296	no trend
MW-33	23	0	0	21	0.2985	no trend
B-Zone						
MW-08	23	0	0	-63	0.0506	no trend
MW-10	21	0	0	-28	0.2074	no trend
MW-18	23	0	0	-121	0.0008	decreasing
MW-24	23	0	0	50	0.0977	no trend

Notes:

Trend analyses include all post-Consent Decree data (Second Quarter 2020 through Fourth Quarter 2025)

ND = Non-detected value

All ND's were replaced with estimated values using the ROS (Regression on Order Statistics) method.

¹ The Mann-Kendall test statistic, S, is based on pair-wise differences between each concentration and all earlier concentrations. A positive S value indicates an increasing trend, a zero value indicates no trend, and a negative value indicates a decreasing trend. The null hypothesis for this test is no trend. For a positive S value, the alternative hypothesis is an increasing trend. For a negative S value, the alternative hypothesis is a decreasing trend.

² Significance of the Mann-Kendall test statistic, S, is a function of the magnitude of S and the number of concentrations, with a larger positive or negative value of S and a greater number of concentrations leading to a higher statistical significance. An increasing or decreasing trend is considered statistically significant if the significance level is less than 0.05 (the confidence level is greater than 0.95); otherwise, no trend is indicated. Value provided is the tabulated p-value reported by ProUCL.

Table 10. Summary of Total Manganese Trend Analyses, South Park Landfill

Well ID	# Samples	# ND's	% ND's	MK S Value ¹	Significance Level ²	Trend ²
Upgradient Wells						
A-Zone						
MW-12	23	0	0	19	0.3173	no trend
MW-14	23	0	0	170	0.0000	increasing
MW-29	23	0	0	-19	0.3173	no trend
Downgradient Wells						
Perched Zone						
MW-30	23	0	0	-13	0.3756	no trend
A-Zone						
MW-25	21	0	0	44	0.0980	no trend
MW-26	23	0	0	-46	0.1172	no trend
MW-27	23	0	0	-4	0.4684	no trend
MW-31	23	0	0	161	0.0000	increasing
MW-32	23	0	0	-147	0.0001	decreasing
MW-33	23	0	0	-12	0.3857	no trend
B-Zone						
MW-08	23	0	0	-126	0.0005	decreasing
MW-10	21	0	0	-73	0.0150	decreasing
MW-18	23	0	0	-181	0.0000	decreasing
MW-24	23	0	0	29	0.2298	no trend

Notes:

Trend analyses include all post-Consent Decree data (Second Quarter 2020 through Fourth Quarter 2025)

ND = Non-detected value

¹ The Mann-Kendall test statistic, S, is based on pair-wise differences between each concentration and all earlier concentrations. A positive S value indicates an increasing trend, a zero value indicates no trend, and a negative value indicates a decreasing trend. The null hypothesis for this test is no trend. For a positive S value, the alternative hypothesis is an increasing trend. For a negative S value, the alternative hypothesis is a decreasing trend.

² Significance of the Mann-Kendall test statistic, S, is a function of the magnitude of S and the number of concentrations, with a larger positive or negative value of S and a greater number of concentrations leading to a higher statistical significance. An increasing or decreasing trend is considered statistically significant if the significance level is less than 0.05 (the confidence level is greater than 0.95); otherwise, no trend is indicated. Value provided is the tabulated p-value reported by ProUCL.

Appendix A

Annual Report Checklist

SOUTH PARK LANDFILL ANNUAL REPORT CHECKLIST

DUE TO ECOLOGY March 31 of each calendar year (includes January 1 through December 31 of the previous year)

1. Landfill Cap Inspections and Maintenance

	Type of Activity	Date Completed	Form Completed	Comments
☒	Annual	May 2, 2025	☒	Annual inspection
☒	Maintenance	December 10, 2024	☒	CenterPoint. Capped open pipes at location G-1. The form will be completed after Coordinator inspected repair in 2025.
		January 29, 2025	☒	CenterPoint. Installed gate posts for two 25-ft-wide barrier gates at each end of the private drive and repaired the asphalt surrounding the posts with cement.
		May 7, 2025	☒	CenterPoint. Performed maintenance at AC-3 (capped pipe), AC-13 (cut back blackberries, restored stormwater flow), AC-23 (repatched asphalt), SW-3 and SW-4 (removed sediment and replaced catch basin insert)
		June 6 through 20, 2025	☒	CenterPoint. Capped open pipes at performed emergency maintenance to repair a main water line break.
		Date unknown	☒	SDOT repaired cracks and potholes at locations ROW AC-1, AC-2, AC- 4, and AC-5.
☒	Reinspection	October 24, 2025	☒	Mid-year reinspection

2. Quarterly LFG Perimeter Probe Monitoring

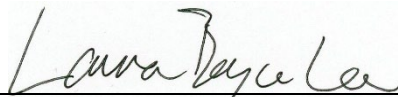
		Date Completed	Field Forms	Comments
☒	Q1	January 28, 2025	☒	
☒	Q2	April 24, 2025	☒	
☒	Q3	July 29, 2025	☒	
☒	Q4	October 28, 2025	☒	

3. Owner-reported Quarterly Inspection of On-site Building Methane Detectors and Alarms

		Date Completed	
		SPPD	SRDS
☐	Q1	Not performed, building are unoccupied	Not required until redevelopment
☐	Q2	Not performed, building are unoccupied	
☐	Q3	Not performed, building are unoccupied	
☒	Q4	December 5, 2025	
Off-site building monitoring conducted? ☒ Yes ☐ No Frank Lenci Corporation parcel adjacent to GP-32S			

4. Quarterly Groundwater Monitoring

		Date Completed	Field Forms	Uploaded into EIM
☒	Q1	February 3 through 5, 2025	☒	☐
☒	Q2	April 28 through 30, 2025	☒	☐
☒	Q3	August 4 through 6, 2025	☒	☐
☒	Q4	November 3 through 5, 2025	☒	☐



Site Coordinator Signature

March 31, 2026

Date

Source: South Park Landfill Final Cleanup Action Plan.
 Appendix A Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.
 Prepared by Washington State Department of Ecology 2018.

Appendix B

Landfill Cap Inspection and Maintenance

Appendix B1

Cap Inspections

Appendix B1-A

May 2025 Annual Inspection

DATE: September 10, 2025
TO: Mark Jusayan, Seattle Public Utilities
Ashley Piatek, CenterPoint Properties
FROM: Laura Lee and Alexander Leshner, EIT
SUBJECT: South Park Landfill 2025 Annual Landfill Cap Inspection
CC: Ryan Gardiner, Washington State Department of Ecology
PROJECT NUMBER: 553-1550-067
PROJECT NAME: South Park Landfill Site Coordinator

Introduction

This technical memorandum summarizes the findings of the May 2025 annual landfill cap inspection at the South Park Landfill in Seattle, Washington. The inspection fulfills the requirements of the Cleanup Action Plan (CAP), which is a component of the Consent Decree signed on March 26, 2019.

The primary objectives of this inspection were to

- Reinspect issues identified during the October 2024 mid-year inspection and document their condition.
- Identify any additional areas needing maintenance or repair.
- Provide documentation of any maintenance or repairs.

The City of Seattle (the City) and Seattle Public Utilities (SPU) have designated Parametrix as the Site Coordinator to perform the long-term monitoring and reporting required under the CAP and the Post-Closure Operation, Maintenance, and Monitoring Plan (OMMP).

The 2025 annual inspection was conducted on May 2, 2025, by Parametrix staff from approximately 8:30 a.m. to 1 p.m. PDT. During the inspection, weather conditions were sunny with a high temperature of approximately 66 °F.

The cap inspection is divided into three distinct properties:

- South Recycling and Disposal Station (SRDS) parcel.
- CenterPoint South Park, LLC (CPSP) parcel.
- The City right-of-way (ROW).

The SRDS and CPSP parcels are part of the Consent Decree Settlement Area (CDSA) with distinct property owners. Figure 1 presents the CAP-defined property boundaries and the approximate landfill refuse extent, which extends beneath two additional properties that are not currently included in the CDSA.

Each distinct property had locations of concern that are described in inspection checklists in Tables 1 through 3. Photographs with GPS data were taken using a smartphone. Each location has a unique identifier that corresponds to the numbered locations of concern provided in Figure 1 and is included in Tables 1 through 3. Cap Inspection Form A includes a checklist identifying the types and



properties of inspection, observed conditions, and potential repair needs for each of the distinct properties. Copies of completed Form A are included in Attachment A.

Maintenance and repair timelines shown in Tables 1 through 3 are based on the OMMP as follows:

1. If underlying material (such as geomembrane) is exposed, corrective action shall occur within 60 days.
2. If minor cracks or ponding do not expose underlying materials and the problem does not appear to be getting worse, the issue shall be reinspected in 6 months.
3. If the underlying material is not exposed but is worsening, or the issue needs to be elevated to a repair before it worsens, the corrective action shall occur within the calendar year.

Corrective actions by property owners should be coordinated with the Site Coordinator before implementation. The Site Coordinator will conduct verification inspections during or after repairs to confirm whether they align with regulatory intent.

The Cap Maintenance Forms are included in Attachment B. The property owner should complete Part 1 to document repairs or maintenance. The Site Coordinator will complete Part 2 to record observations.

The Site Coordinator shall conduct a cap reinspection in the third quarter of 2025. This reinspection will focus on areas previously identified as concerns that did not require immediate repairs during the May 2025 inspection. The purpose of this follow-up is to assess whether these conditions have worsened and now require maintenance or repair actions.

SRDS Parcel

The SRDS parcel was observed to be in generally good condition, consistent with observations from the previous inspection. Locations of concern identified for repair or reinspection during the October 2024 cap inspection were reinspected during the May 2025 inspection.

Due to the planned redevelopment of the SRDS property, temporary pavement restoration is not recommended at this time, except at locations SRDS AC-5 and AC-22, as described in Table 1.

Table 1 provides details for each identified location of concern, including the issue description, the status of any repairs completed or changes in condition since the last inspection, recommended maintenance or repair actions, and the proposed timeline for completion.

Figure 1 shows the SRDS CAP boundary and marks the numbered locations of concern that correspond to entries in Table 1.

A completed Form A for the SRDS parcel is included in Attachment A-1.

CPSP Parcel

The CPSP parcel was observed to be in generally good condition, mostly consistent with observations from the previous inspection. Locations of concern identified for repair or reinspection during the October 2024 cap inspection were reinspected during the May 2025 inspection.

Asphalt Concrete Conditions

The paved areas are in good condition, although ponding will continue to be monitored as deepening depressions could indicate settlement or potential asphaltic concrete cap damage.

The cap is also being monitored for locations with excessive plant growth in asphalt cracks that disrupt the pavement and surface. The roots of the plants can cause minor cracks to expand, as shown in the photos at several locations of concern provided in Table 2. The asphalt needs to be sealed once the vegetation has been removed to repair the cap and prevent the plant from growing back.

Low-Permeability Geomembrane

Vegetated slopes are uniform and generally in good condition, with some erosion observed at the parcel's southwest corner (see Table 2 for details). The primary ongoing concerns include exposed geomembrane, invasive plant growth, and vegetation growing through asphalt. While some vegetation was cut back, the asphalt in affected areas was not sealed, and the root-related damage remains unaddressed.

Stormwater Management Facilities

The two stormwater catch basins (SW-3 and SW-4) appear to require clearing of accumulated debris and replacement of the felt inserts. The efficiency of drainage could not be assessed due to dry weather during the inspection. These locations require continual maintenance.

Table 2 provides details for each identified location of concern, including the issue description, the status of any repairs completed or changes in condition since the last inspection, recommended maintenance or repair actions, and the proposed timeline for completion.

Figure 1 shows the CPSP CAP boundary and marks the numbered locations of concern that correspond to entries in Table 2.

A completed Form A for the CPSP parcel is included in Attachment A-2.

Right-of-Way

The Site Coordinator identified four locations of concern in the ROW during the October 2024 cap inspection. These areas were reinspected in May 2025 to assess the status of previously noted conditions and repairs.

Locations of concern ROW AC-1 and AC-2 represent larger sections of roadway—not individual potholes or cracks—due to the extent of damage in those areas. Several holes in ROW AC-1, AC-2, and AC-4 were patched; however, there are still locations with deep and large potholes, with some becoming larger and deeper. The major pothole identified at AC-3 was repaired.

Table 3 provides details for each identified location of concern, including the issue description, the status of any repairs completed or changes in condition since the last inspection, recommended maintenance or repair actions, and the proposed timeline for completion.

Figure 1 shows the ROW CAP boundary and marks the numbered locations of concern that correspond to entries in Table 3.

A completed Form A for the ROW parcels is included in Attachment A-3.

Figures

Figure 1. Landfill Cap Inspection May 2025 Site Plan with Locations of Concern, South Park Landfill

Tables

Table 1. Status of Identified Locations of Concern on the South Park Landfill SRDS Property, May 2, 2025 Inspection

Table 2. Status of Identified Locations of Concern on the South Park Landfill CPSP Property, May 2, 2025 Inspection

Table 3. Status of Identified Locations of Concern in the South Park Landfill Right-of-Way, May 2, 2025 Inspection

Attachments

- A May 2025 Cap Inspection Checklists
 - A-1 SRDS Cap Inspection Checklist
 - A-2 CPSP Cap Inspection Checklist
 - A-3 ROW Cap Inspection Checklist
- B Maintenance Forms
 - B-1 CPSP Maintenance Form

Figures

Figure 1

Landfill Cap Inspection May 2025
Site Plan with Locations of
Concern, South Park Landfill



Figure 1
Landfill Cap Inspection- May 2025
Site Plan With Locations for Repair
South Park Landfill
Seattle, WA

Tables



Table 1

Status of Identified Locations of
Concern on the South Park
Landfill SRDS Property,
May 2, 2025 Inspection

Table 1. Status of Identified Locations of Concern on the South Park Landfill SRDS Property, May 2, 2025, Inspection

SRDS	Description	October 2024 Inspection		May 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
Asphalt Concrete								
AC-5	Cracking, divots and ponding	Area has potholes and divots with ponding.	No actions taken	No significant changes observed	The area has potholes and divots with ponding, primarily under the container. The asphalt appears to be corroded, though the original source contributing to this condition is uncertain. Recommendations: 1. Perform maintenance to repair the damaged asphalt area. 2. Document maintenance using Cap Maintenance Form B. 3. If the container is identified as the source of corrosion, consider moving the container to prevent further degradation or recurrence.	December 2025	SRDS	
AC-22	Cracking and rut in asphalt	Cracks and ruts in pavement. Patch rut in asphalt and seal to prevent further degradation.	New location, no action taken	Revised determination	Cracks and ruts do not fully penetrate the asphalt cap surface. It appears that some maintenance may have been performed since the October 2024 reinspection. No further maintenance is needed currently. The Site Coordinator will continue monitoring every 6 months. If maintenance was performed, SRDS needs to submit a completed Cap Maintenance Form B to the Site Coordinator.	N/A	N/A	

N/A = Not Applicable

Table 2

Status of Identified Locations of
Concern on the South Park
Landfill CPSP Property,
May 2, 2025 Inspection

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, May 2, 2025, Inspection

CPSP Location	Description	October 2024 Inspection		May 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
Asphalt Concrete								
AC-3	Uncapped pipe	Pipe remains uncapped. Put cap on pipe.	Past Due	No significant changes observed	The pipe was not capped. Previous recommended actions remain.	Past Due	CenterPoint	
AC-13	Blackberry shrubs growth and stagnated water behind the concrete blocks	Blackberries continue to grow. Sediment blocking flow from the swale causing up to 4" of ponding water. Remove blackberry shrubs and clear pathways to allow proper water flow into the storm drains. Sediment buildup with oil sheen was observed. Blackberries have grown back. Regular maintenance is recommended.	Plants were cut back. The maintenance form was submitted.	Improved	No sediment build up and sheen, but blackberry growth observed. Regular maintenance of blackberries is recommended.	December 2025	CenterPoint	

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, May 2, 2025, Inspection

CPSP Location	Description	October 2024 Inspection		May 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
AC-20	Minor cracks	Increased plant growth in the crack. Follow-up reinspection	No actions taken or required	Revised determination	Determined not to be a significant issue impacting the cap.	N/A	N/A	
AC-21	Holes near fence allowing growth of plants & ponding presence	Plant has been mostly removed. Seal pavement where the plant was growing.	Plant was cut back. Maintenance form was submitted.	No significant changes observed	Previous recommendations remain. Continue to inspect to see if the plant continues to grow and disrupt the asphalt.	Past Due	CenterPoint	
								

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, May 2, 2025, Inspection

CPSP Location	Description	October 2024 Inspection		May 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
AC-22	Unsealed pavement after plant removal	Part of the plant was removed but has since regrown. Remove the plant and seal the pavement.	No actions taken or maintenance forms received	Revised Assessment	Post is not sealed, but there is no indication that this is potentially impacting the cap.	N/A	N/A	
AC-23	Separation of pavement from storm drain	Most of the plant next to the storm drain has been removed but the roots are still there, and the cap penetration was not sealed. Plant roots had pushed up the pavement. Repair and seal pavement.	No actions taken	No significant changes observed	Previous recommendations remain.	Past Due	CenterPoint	

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, May 2, 2025, Inspection

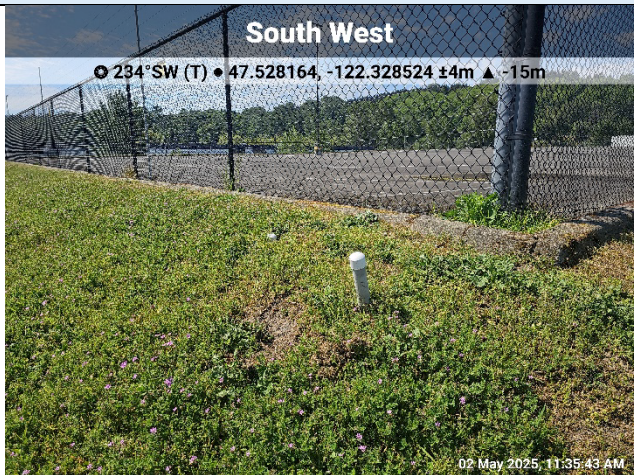
CPSP Location	Description	October 2024 Inspection		May 2025 Inspection				
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	Photographs
Low-Permeability Geomembrane								
G-1	An open pipe present	Need investigation of this open pipe and action should be taken to cap it, if it does not have any purpose.	Action Not Yet Completed	Resolved	Pipe is now capped.	N/A	N/A	
G-4	Blackberry shrubs growth in the area and poor vegetation	Blackberries have mostly been removed, no new grass is growing, but there is evidence of an attempt to reseed (small holes in the ground). Re-establish appropriate vegetation. Submit maintenance form.	Blackberries removed and evidence of seeding.	Resolved/reassessed	No significant blackberry bush growth observed in area.	N/A	N/A	N/A
G-6	Geomembrane exposed in this area	Geomembrane is still exposed. Locations with exposed geomembrane are of the highest concern due to the potential compromise of the landfill cap. The configuration of the geomembrane and cover at the interface of the parking area does not appear to be in accordance with Figure 5 of the Interim Action Work Plan (IAWP). The geomembrane appears to be directly below the asphalt with no drainage layer or surfacing layer in between. Along with Site Coordinator, prepare a plan to reestablish cover over the geomembrane. Most likely, the area should be exposed, and the geomembrane tested for damage before repairs are made. The crest of slope should then be provided cover to the maximum extent possible considering the existing asphalt and curb configuration. Geomembrane still exposed. Previous recommendations remain.	Action Not Yet Completed.	No significant changes observed	Geomembrane remains exposed. Previous recommendations remain.	Past Due	CenterPoint	

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, May 2, 2025, Inspection

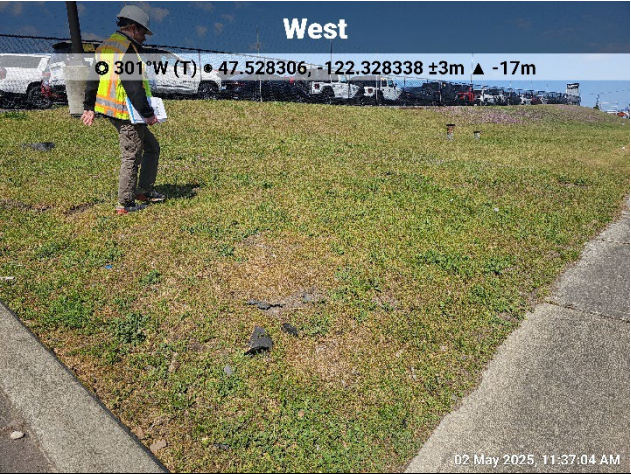
CPSP Location	Description	October 2024 Inspection		May 2025 Inspection				
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	Photographs
G-7	Exposed and damaged geomembrane at the parking area interface	Maintenance forms were received, however geomembrane still exposed. See G-6 for recommended action.	Action not yet completed.	No significant changes observed	Geomembrane is still exposed. This issue is observed in various pockets along the fence down to the sidewalk. Previous recommendations remain.	Past Due	CenterPoint	NO PHOTO
G-8	Exposed geomembrane around utility access hole	Work with Site Coordinator to prepare a plan to re-establish cover over the geomembrane. The geomembrane should be carefully exposed so as to not damage the geomembrane and inspected to determine if it is excess material or part of the cover. Make repairs as necessary and install adequate cover soil in accordance with the IAWP.	No documentation of actions taken.	No significant changes observed	Geomembrane is still exposed. Previous recommendations remain.	Past Due	CenterPoint	
G-15	Erosion and rilling on the bank.	N/A	N/A	New Point	Geomembrane is not exposed, but clear evidence of erosion and rilling on the bank at the southwest corner of the CPSP property. Further erosion could lead to exposure and damage to the membrane. Recommend reestablishing the dirt and grass on the hillside.	December 2025	CenterPoint	

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, May 2, 2025, Inspection

CPSP Location	Description	October 2024 Inspection		May 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
G-16	Geomembrane exposed in this area	N/A	N/A	New Point	The geomembrane is exposed at the edges of the hillside. Recommend reestablishing the dirt and grass on the hillside.	12/1/2025	CenterPoint	
Stormwater Management Facilities								
SW-3	Catch basin clogged	The catch basin inlet was partially obstructed. Remove the obstruction.	Some debris was removed. No maintenance form was submitted.	No significant changes observed	Previous recommendations remain, and sediment is observed, but there is no pooling due to dry conditions. Recommend replacing the fabric filter. This will likely be an area of continuous maintenance.	Ongoing	CenterPoint	
SW-4	Catch basin clogged	The catch basin inlet was obstructed with sediment buildup and plant growth. Remove the obstruction and vegetation.	Action not yet completed.	No significant changes observed	Previous recommendations remain, and sediment is observed, but no pooling due to dry conditions. Recommend replacing the fabric filter.	Ongoing	CenterPoint	

Notes: N/A = Not applicable

Table 3

Status of Identified Locations of
Concern in the South Park
Landfill Right-of-Way,
May 2, 2025 Inspection

Table 3. Status of Identified Locations of Concern on the South Park Landfill Right-of-Way Property, May 2, 2025, Inspection

ROW Location	Description	October 2024 Inspection		May 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
Asphalt Concrete								
AC-1	Asphalt cracks and ruts	Part of the pothole was repaired but there is still a significant size hole in the asphalt and cracking.	Partial Asphalt Patching.	Same	Partial asphalt patching observed, but deep holes remain. Repair/repatching should be coordinated with SDOT. Reported on the SDOT Find It, Fix It app.	December 2025	SDOT	
AC-2	Asphalt open cracking	Cracks got extended and holes are deeper. Some of the holes are close to penetrating the cap. Repatching should be coordinated with SDOT.	No action taken	Improved	Previous pothole and some deep cracks were patched; however, several cracks are deeper and need repair. Repair/repatching should be coordinated with SDOT. Reported on the SDOT Find It, Fix It app.	December 2025	SDOT	

Table 3. Status of Identified Locations of Concern on the South Park Landfill Right-of-Way Property, May 2, 2025, Inspection

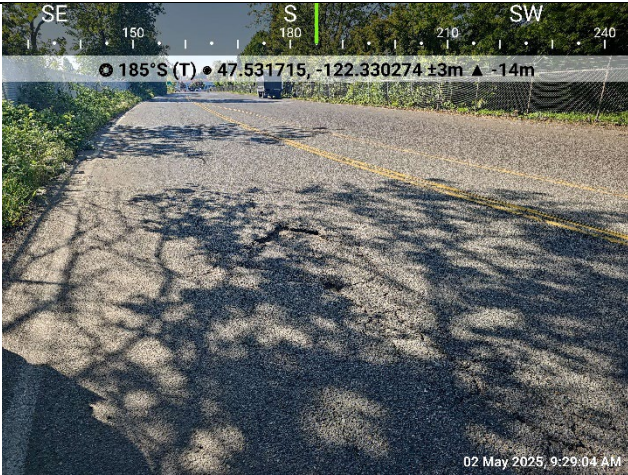
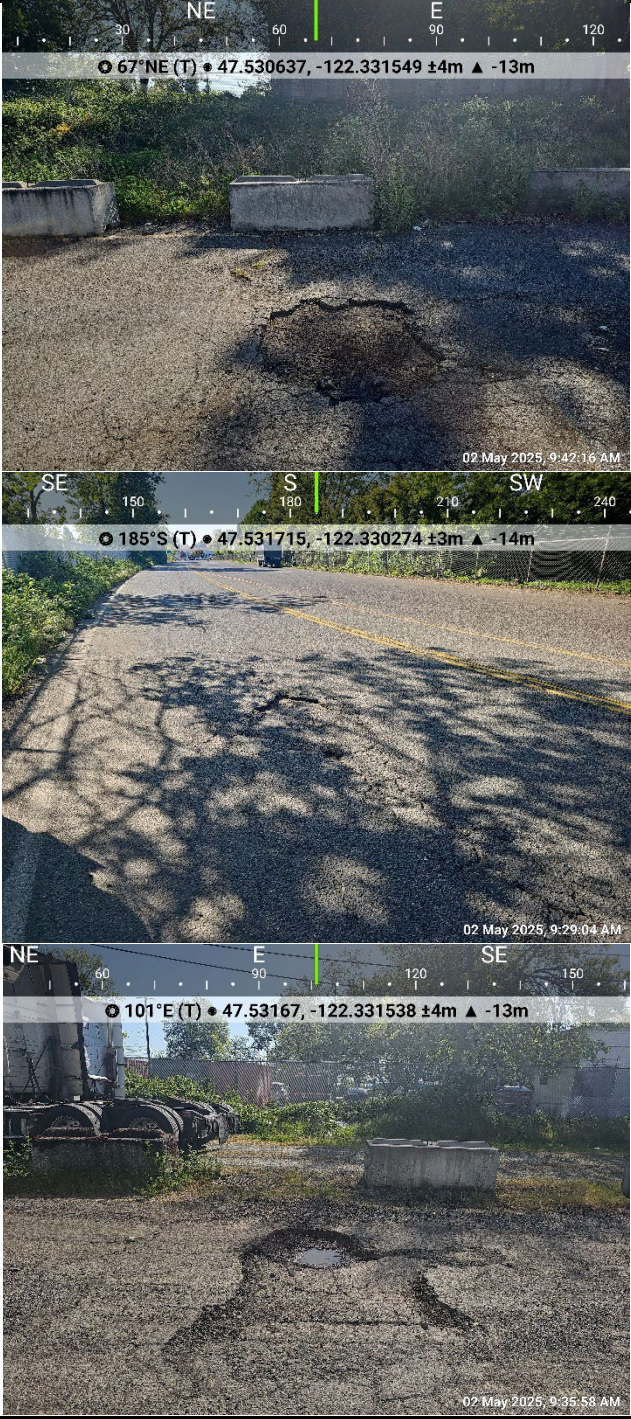
ROW Location	Description	October 2024 Inspection		May 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
AC-3	Potholes alongside of street in the gravel	Pothole appears to be getting worse and should be patched to prevent further erosion.	Site Coordinator reported on SDOT Find It, Fix It; repairs were not made	Improved	Major pothole is addressed.	N/A	N/A	
AC-4	Asphalt cracks, pothole, and ruts in the middle of roadway.	Previous pothole patched.	Repaired	Worse	Pothole present, several asphalt cracks and ruts have worsened, and require repair. Repair/repatching should be coordinated with SDOT. Reported on the SDOT Find It, Fix It app.	December 2025	SDOT	

Table 3. Status of Identified Locations of Concern on the South Park Landfill Right-of-Way Property, May 2, 2025, Inspection

ROW Location	Description	October 2024 Inspection		May 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
AC-5	Deep potholes, depressions, puddles.	Not applicable	Not Applicable	New Point	Multiple potholes present for the length of the alley. Repair/repatching should be coordinated with SDOT. Reported on the SDOT Find It, Fix It app.	December 2025	SDOT	

Notes: N/A = Not applicable

Attachment A

Cap Inspection Checklists

Attachment A-1

SRDS Cap Inspection Checklist

SOUTH PARK LANDFILL CAP INSPECTION FORM A

Date: May 2, 2025 Inspector(s): Alexander Leshner, Chris Bourgeois	Parcel Owner: ☒ SRDS ☐ CPSP ☐ Right-of-Way																
Type of Inspection: ☒ Annual ☐ Reinspection ☐ Non-Routine Reason:																	
Last Rain Event before Inspection: Daily precipitation observations from King County Hamm Creek Rain Station (HAU2). Source: https://green2.kingcounty.gov/hydrology/DataDownload.aspx?G_ID=1517&Parameter=Precipitation																	
<table style="margin: auto; border-collapse: collapse;"> <tr> <td></td> <td>4/25/2025</td> <td>4/26/2025</td> <td>4/27/2025</td> <td>4/28/2025</td> <td>4/29/2025</td> <td>4/30/2025</td> <td>5/1/2025</td> </tr> <tr> <td>Precipitation (in)</td> <td>0</td> <td>0</td> <td>0</td> <td>0.04</td> <td>0.1</td> <td>0</td> <td>0</td> </tr> </table>			4/25/2025	4/26/2025	4/27/2025	4/28/2025	4/29/2025	4/30/2025	5/1/2025	Precipitation (in)	0	0	0	0.04	0.1	0	0
	4/25/2025	4/26/2025	4/27/2025	4/28/2025	4/29/2025	4/30/2025	5/1/2025										
Precipitation (in)	0	0	0	0.04	0.1	0	0										

VISUAL INSPECTION CHECKLIST

Asphalt Concrete				
	Yes	No	Needs Repair	If yes, describe:
Minor cracking	☒	☐	☐	There were multiple locations with minor cracks observed that do not currently need repair.
Open cracks/ruts	☒	☐	☐	Cracks and ruts do not fully penetrate the asphalt cap surface. Parametrix will continue to monitor, but no need for repairs at this time.
Differential settlement	☐	☒	☐	
Potholes	☒	☐	☒	AC-5 needs repair
Pooling or ponding	☐	☒	☐	There was very little to no ponding observed. The antecedent weather was dry.
Separation of pavement from curbs, gutters, or catch basins	☐	☒	☐	
Sloughing or crumbling of edge materials	☐	☒	☐	
Erosion	☐	☒	☐	
Other signs of cap damage, failure, or disturbance	☐	☒	☐	
Recommended Maintenance or Repair Type/Location: See Table 1 for details and recommended actions.				

VISUAL INSPECTION CHECKLIST (continued)

Low-Permeability Geomembrane				
	Yes	No	Needs Repair	If yes, describe:
Erosion of cover soil	☐	☒	☐	
Exposed geotextile	☐	☒	☐	
Holes/signs of unauthorized digging	☐	☒	☐	
Poor vegetative cover	☐	☒	☐	
Exposed geomembrane	☐	☒	☐	
Recommended Maintenance or Repair Type/Location:				

Stormwater Management Facilities				
	Yes	No	Needs Repair	If yes, describe:
Signs of water infiltration below structures	☐	☒	☐	
Erosion of soil	☐	☒	☐	
Exposed geotextile membrane	☐	☒	☐	
Holes/signs of unauthorized digging	☐	☒	☐	
Invasive/deep-rooted plants	☐	☒	☐	
Poor vegetative cover	☐	☒	☐	
Incorrect drainage path or not draining	☐	☒	☐	
Recommended Maintenance or Repair Type/Location:				

Attach necessary documentation such as photographs, sketches, and additional notes.

See Figure 1 and Table 1

Attachment A-2

CPSP Inspection Checklist

SOUTH PARK LANDFILL CAP INSPECTION FORM A

Date: May 2, 2025 Inspector(s): Alexander Leshner, Chris Bourgeois	Parcel Owner: ☐ SRDS ☒ CPSP ☐ Right-of-Way																
Type of Inspection: ☒ Annual ☐ Reinspection ☐ Non-Routine Reason:																	
Last Rain Event before Inspection: Daily precipitation observations from King County Hamm Creek Rain Station (HAU2). Source: https://green2.kingcounty.gov/hydrology/DataDownload.aspx?G_ID=1517&Parameter=Precipitation																	
<table style="margin: auto; border-collapse: collapse;"> <tr> <td></td> <td>4/25/2025</td> <td>4/26/2025</td> <td>4/27/2025</td> <td>4/28/2025</td> <td>4/29/2025</td> <td>4/30/2025</td> <td>5/1/2025</td> </tr> <tr> <td>Precipitation (in)</td> <td>0</td> <td>0</td> <td>0</td> <td>0.04</td> <td>0.1</td> <td>0</td> <td>0</td> </tr> </table>			4/25/2025	4/26/2025	4/27/2025	4/28/2025	4/29/2025	4/30/2025	5/1/2025	Precipitation (in)	0	0	0	0.04	0.1	0	0
	4/25/2025	4/26/2025	4/27/2025	4/28/2025	4/29/2025	4/30/2025	5/1/2025										
Precipitation (in)	0	0	0	0.04	0.1	0	0										

VISUAL INSPECTION CHECKLIST

Asphalt Concrete				
	Yes	No	Needs Repair	If yes, describe:
Minor cracking	☒	☐	☐	There were multiple locations with minor cracks observed that do not currently need repair.
Open cracks/ruts	☒	☐	☒	Location CPSP AC-21 needs repairs
Differential settlement	☐	☒	☐	
Potholes	☐	☒	☐	
Pooling or ponding	☒	☐	☐	Ponding is located along the road between SRDS and CPSP despite limited rainfall in the days before. Not in need of repairs because no observable impact but will continue to monitor.
Separation of pavement from curbs, gutters, or catch basins	☒	☐	☐	CPSP AC-23 needs repair
Sloughing or crumbling of edge materials	☐	☒	☐	
Erosion	☒	☐	☒	CPSP G-13 needs repair. Erosion and rilling on bank. See Table 2 for details.
Other signs of cap damage, failure, or disturbance	☒	☐	☒	Locations CPSP AC-3 and AC-13 need attention.
Recommended Maintenance or Repair Type/Location: See Table 2 for details and recommended actions.				

VISUAL INSPECTION CHECKLIST (continued)

Low-Permeability Geomembrane				
	Yes	No	Needs Repair	If yes, describe:
Erosion of cover soil	☒	☐	☒	Location CPSP G-15, erosion was identified on the hill at the southwest corner of the property. Erosion with clear signs of rilling that could lead to exposure or impact cap in the future.
Exposed geotextile	☒	☐	☒	Locations CPSP G-6, G-7, G-8, and G-16 need repair
Holes/signs of unauthorized digging	☐	☒	☐	
Poor vegetative cover	☐	☒	☐	
Exposed geomembrane	☒	☐	☒	Locations CPSP G-6, G-7, G-8, and G-16 need repair
Soil Sloughing	☐	☒	☐	
Recommended Maintenance or Repair Type/Location: See Table 2 for details and recommended actions.				

Stormwater Management Facilities				
	Yes	No	Needs Repair	If yes, describe:
Signs of water infiltration below structures	☐	☒	☐	
Erosion of soil	☐	☒	☐	
Exposed geotextile membrane	☐	☒	☐	
Holes/signs of unauthorized digging	☐	☒	☐	
Invasive/deep-rooted plants	☐	☒	☐	
Poor vegetative cover	☐	☒	☐	
Incorrect drainage path or not draining	☒	☐	☒	Locations CPSP SW-3 and SW-4 need repair/replacement of insert filter.
Recommended Maintenance or Repair Type/Location: See Table 2 for details and recommended actions.				

Attach necessary documentation such as photographs, sketches, and additional notes.

See Figure 1 and Table 2

Attachment A-3

ROW Cap Inspection Checklist

SOUTH PARK LANDFILL CAP INSPECTION FORM A

Date: May 2, 2025 Inspector(s): Alexander Leshner, Chris Bourgeois		Parcel Owner: ☐ SRDS ☐ CPSP ☒ Right-of-Way						
Type of Inspection: ☒ Annual ☐ Reinspection ☐ Non-Routine Reason:								
Last Rain Event before Inspection:		Daily precipitation observations from King County Hamm Creek Rain Station (HAU2). Source: https://green2.kingcounty.gov/hydrology/DataDownload.aspx?G_ID=1517&Parameter=Precipitation						
		4/25/2025	4/26/2025	4/27/2025	4/28/2025	4/29/2025	4/30/2025	5/1/2025
Precipitation (in)		0	0	0	0.04	0.1	0	0

VISUAL INSPECTION CHECKLIST

Asphalt Concrete				
	Yes	No	Needs Repair	If yes, describe:
Minor cracking	☒	☐	☐	Locations ROW AC-1
Open cracks/ruts	☒	☐	☒	Locations ROW AC-1, AC-2, and AC-4
Differential settlement	☐	☒	☐	
Potholes	☒	☐	☒	Locations ROW AC-1 and AC-5
Pooling or ponding	☐	☒	☐	
Separation of pavement from curbs, gutters, or catch basins	☐	☒	☐	
Sloughing or crumbling of edge materials	☐	☒	☐	
Erosion	☐	☒	☐	
Other signs of cap damage, failure, or disturbance	☐	☒	☐	
Recommended Maintenance or Repair Type/Location: See Table 3 for details and recommended actions.				

VISUAL INSPECTION CHECKLIST (continued)

Low-Permeability Geomembrane				
	Yes	No	Needs Repair	If yes, describe:
Erosion of cover soil	☐	☐	☐	Not applicable to ROW
Exposed geotextile	☐	☐	☐	Not applicable to ROW
Holes/signs of unauthorized digging	☐	☐	☐	Not applicable to ROW
Poor vegetative cover	☐	☐	☐	Not applicable to ROW
Exposed geomembrane	☐	☐	☐	Not applicable to ROW
Recommended Maintenance or Repair Type/Location:				

Stormwater Management Facilities				
	Yes	No	Needs Repair	If yes, describe:
Signs of water infiltration below structures	☐	☐	☐	Not applicable to ROW
Erosion of soil	☐	☐	☐	Not applicable to ROW
Exposed geotextile membrane	☐	☐	☐	Not applicable to ROW
Holes/signs of unauthorized digging	☐	☐	☐	Not applicable to ROW
Invasive/deep-rooted plants	☐	☐	☐	Not applicable to ROW
Poor vegetative cover	☐	☐	☐	Not applicable to ROW
Incorrect drainage path or not draining	☐	☐	☐	Not applicable to ROW
Recommended Maintenance or Repair Type/Location:				

Attach necessary documentation such as photographs, sketches, and additional notes.

See Figure 1 and Table 3

Attachment B

Maintenance Forms

Attachment B-1

CPSP Maintenance Form

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

Parcel Owner: ☐ SRDS

Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)

Date of Repair/ Maintenance: 5/13/2024

Repaired by: Catchment Solutions
Reason for Maintenance:

Remove blackberry and other invasive species overgrowth

Describe Maintenance Location (attach sketch and photos):

AC-13, AC-21, G-4

Describe Maintenance or Repair Performed (attach photos and documentation as necessary):

Remove blackberry bushes and other invasive species throughout the site and along fence lines.

Is the maintenance activity complete?

☒ Yes

☐ No

If no, explain:



Property Owner Signature

Date 5/13/2024

All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.

Part 2: Observation/Review of Maintenance (Completed by Site Coordinator)

Date of Observation/Review: October 4, 2024

Inspector(s): Amber Bailey

Observation Notes (attach photos):

AC-13: Sediment buildup with oil sheen was observed. Blackberries have grown back. Regular maintenance is recommended.



AC-21: Seal pavement where the plants have grown back.



G-4: Blackberries have grown back. Regular maintenance is recommended.



Amber Bailey		1/2/2025
Site Coordinator/Inspector Signature		Date

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

Parcel Owner: ☐ SRDS
 ☐ CenterPoint (former SPPD)
 ☒ ROW

Owner Contact: _____

Part 1: Maintenance (Completed by Property Owner)

Under the Cleanup Action Plan, routine street maintenance does not require Ecology notification or maintenance reports.

Part 2: Observation/Review of Maintenance (Completed by Site Coordinator)

Date of Observation/Review: 3/15/24

Inspector(s): Chris Bourgeois

Observation Notes (attach photos):

Road patches

ROW AC-4. Complete. Large and smaller potholes patched with asphalt.





Chris VB

Site Coordinator/Inspector Signature

3/28/24

Date

Appendix B1-B

October 2025 Mid-Year
Inspection

DATE: December 30, 2025
TO: Mark Jusayan, Seattle Public Utilities
Ashley Piatek, CenterPoint Properties
FROM: Laura Lee and Alexander Leshner, PE
SUBJECT: South Park Landfill 2025 Mid-Year Landfill Cap Inspection
CC: Ryan Gardiner, Washington State Department of Ecology
PROJECT NUMBER: 553-1550-067
PROJECT NAME: South Park Landfill Site Coordinator

Introduction

This technical memorandum summarizes the findings of the October 2025 mid-year landfill cap inspection at the South Park Landfill in Seattle, Washington. The inspection fulfills the requirements of the Cleanup Action Plan (CAP) under the Consent Decree signed on March 26, 2019.

The primary objectives of this mid-year inspection were to:

- Reinspect issues identified for follow-up during the May 2025 annual inspection and document their current condition.
- Provide documentation of any maintenance or repairs, whether reported or observed in the field.

The City of Seattle (City) and Seattle Public Utilities (SPU) designated Parametrix as the Site Coordinator to perform the long-term monitoring and reporting as required by the CAP and the Post-Closure Operation, Maintenance, and Monitoring Plan (OMMP).

Inspection Overview

The 2025 mid-year inspection was conducted by Parametrix on October 24, 2025, from approximately 8:30 a.m. to 10:00 a.m. PDT. Weather conditions were overcast with light rain, and the high temperature was approximately 56 °F. The rainfall provided useful contrast to the warm, dry-weather conditions observed during the May 2025 annual inspection.

The inspection was divided into three distinct properties:

- South Recycling and Disposal Station (SRDS) parcel.
- CenterPoint South Park, LLC (CPSP) parcel.
- City right-of-way (ROW).

The SRDS and CPSP parcels lie within the Consent Decree Settlement Area (CDSA) and have separate property owners. Figure 1 shows the CAP-defined property boundaries and the approximate extent of landfill refuse, which also extends beneath two properties outside the CDSA.

Each property includes locations of concern, documented in Cap Inspection Checklist Form A and detailed in Tables 1 through 3. GPS-tagged photographs were collected using a smartphone. Each location has a unique identifier that corresponds to the numbered points shown in Figure 1 and in



Tables 1 through 3. Cap Inspection Form A summarizes inspection types, observed conditions, and repair needs for each property. Completed forms are included in Attachment A.

Maintenance and repair timelines shown in Tables 1 through 3 are based on the OMMP as follows:

1. If underlying material (such as geomembrane) is exposed, corrective action shall occur within 60 days.
2. If minor cracks or ponding do not expose underlying materials and the problem does not appear to be getting worse, the issue shall be reinspected in 6 months.
3. If the underlying material is not exposed but is worsening, or the issue needs to be elevated to a repair before it worsens, the corrective action shall occur within the calendar year.

The mid-year inspection evaluates the status of annual inspection findings and documents corrective actions completed by each property owner. The Site Coordinator reviews each issue and documents corrective action status during or after repairs to confirm alignment with regulatory intent.

Cap Maintenance Form B should be completed for all repairs or maintenance completed by property owners. Part 1 is completed by the property owner to document maintenance or repairs. Part 2 is completed by the Site Coordinate to document observations. Completed Cap Maintenance Forms are included in Attachment B.

The next cap inspection is scheduled for the second quarter of 2026.

SRDS Parcel

The SRDS parcel remains in generally good condition, consistent with the May 2025 inspection. All locations flagged for repair or follow-up were re-evaluated. Given the planned redevelopment of the property, temporary pavement restoration is not recommended at this time, except at location SRDS AC-5, as noted in Table 1.

Table 1 summarizes each location of concern, issue descriptions, repair status or changes since the last inspection, recommended actions, and the proposed completion timeline. Figure 1 shows the SRDS CAP boundary and each numbered location referenced in Table 1. A completed Cap Inspection Checklist Form A for the SRDS parcel is provided in Attachment A-1.

CPSP Parcel

The CPSP parcel also remains in generally good condition, consistent with the May 2025 inspection. All previously flagged locations for repair or follow-up were re-evaluated. Several maintenance actions or repairs were completed since the May 2025 inspection.

Asphalt Concrete Conditions

The paved areas are in good condition. Ponding areas continue to be monitored as worsening depressions may indicate settlement or potential cap damage. Areas with vegetation growing through asphalt cracks are also monitored, since root intrusion can lead to widening cracks and disrupt the surface. After removing vegetation, the asphalt requires sealing to restore the cap and prevent regrowth.

Maintenance and repair activities include the following:

- AC-3: Pipe capped

- AC-13: Blackberries removed
- AC-23: Storm drain repaired and perimeter sealed)

See Table 2 for details.

Low-Permeability Geomembrane

Vegetated slopes are generally in good condition and uniform. Some erosion was observed at the parcel's southwest corner. The exposed geomembrane around the perimeter remains the primary ongoing concern.

Stormwater Management Facilities

Maintenance at catch basins SW-3 and SW-4 included debris removal and replacement of the felt inserts. These improvements resulted in noticeably improved drainage. These locations require ongoing maintenance.

Table 2 summarizes each location of concern, including the issue descriptions, repair status or condition changes since the last inspection, recommended actions, and the proposed completion timeline. Figure 1 shows the CPSP CAP boundary and numbered location referenced in Table 2. A completed Cap Inspection Checklist Form A for the CPSP parcel appears in Attachment A-2, and maintenance activities are documented in Cap Maintenance Form B (see Attachment B-1)

Right-of-Way

The Site Coordinator identified four locations of concern in the ROW during the May 2025 inspection and re-evaluated each location in October 2025. Locations ROW AC-1, AC-2, and AC-5 cover larger roadway sections due to the extent of damage. ROW AC-4 consists of a smaller cluster of potholes. All four locations had potholes patched since the last inspection. Observed impacts are less significant than in May, and all ROW locations are now considered resolved.

Table 3 summarizes each location of concern, including the issue description, repair status or changes since the last inspection, recommended actions, and the proposed completion timeline. Figure 1 shows the ROW CAP boundary and numbered location referenced in Table 3. A completed Cap Inspection Checklist Form A for the ROW parcels appears in Attachment A-3.

Per the CAP, routine street maintenance in the ROW does not require notification to Ecology or completion of maintenance reports.

Figures

Figure 1. Landfill Cap Inspection October 2025 Site Plan with Locations of Concern, South Park Landfill

Tables

Table 1. Status of Identified Locations of Concern on the South Park Landfill SRDS Property, October 24, 2025 Inspection

Table 2. Status of Identified Locations of Concern on the South Park Landfill CPSP Property, October 24, 2025 Inspection

Table 3. Status of Identified Locations of Concern in the South Park Landfill Right-of-Way, October 24, 2025 Inspection

Attachments

- A October 2025 Cap Inspection Checklists
 - A-1 SRDS Cap Inspection Checklist
 - A-2 CPSP Cap Inspection Checklist
 - A-3 ROW Cap Inspection Checklist
- B Maintenance Forms
 - B-1 CPSP Maintenance Forms

Figures

Figure 1

Landfill Cap Inspection October
2025 Site Plan with Locations of
Concern, South Park Landfill



Drafted by: Jacob Grav 11/21/2025 11:41:50 AM PSOI Projects\GIS\GIS\CityOfSeattle\553-1550-067 South Park Landfill\GIS\ProAnnual_Report_2024_CAP_Inspection.aprx

Source: City of Seattle, King County, Google Maps, Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.
All locations shown are approximate.

Parametrix



Figure 1
Landfill Mid-Year Cap Inspection - October 2025
Site Plan With Locations for Repair
South Park Landfill
Seattle, WA

Tables

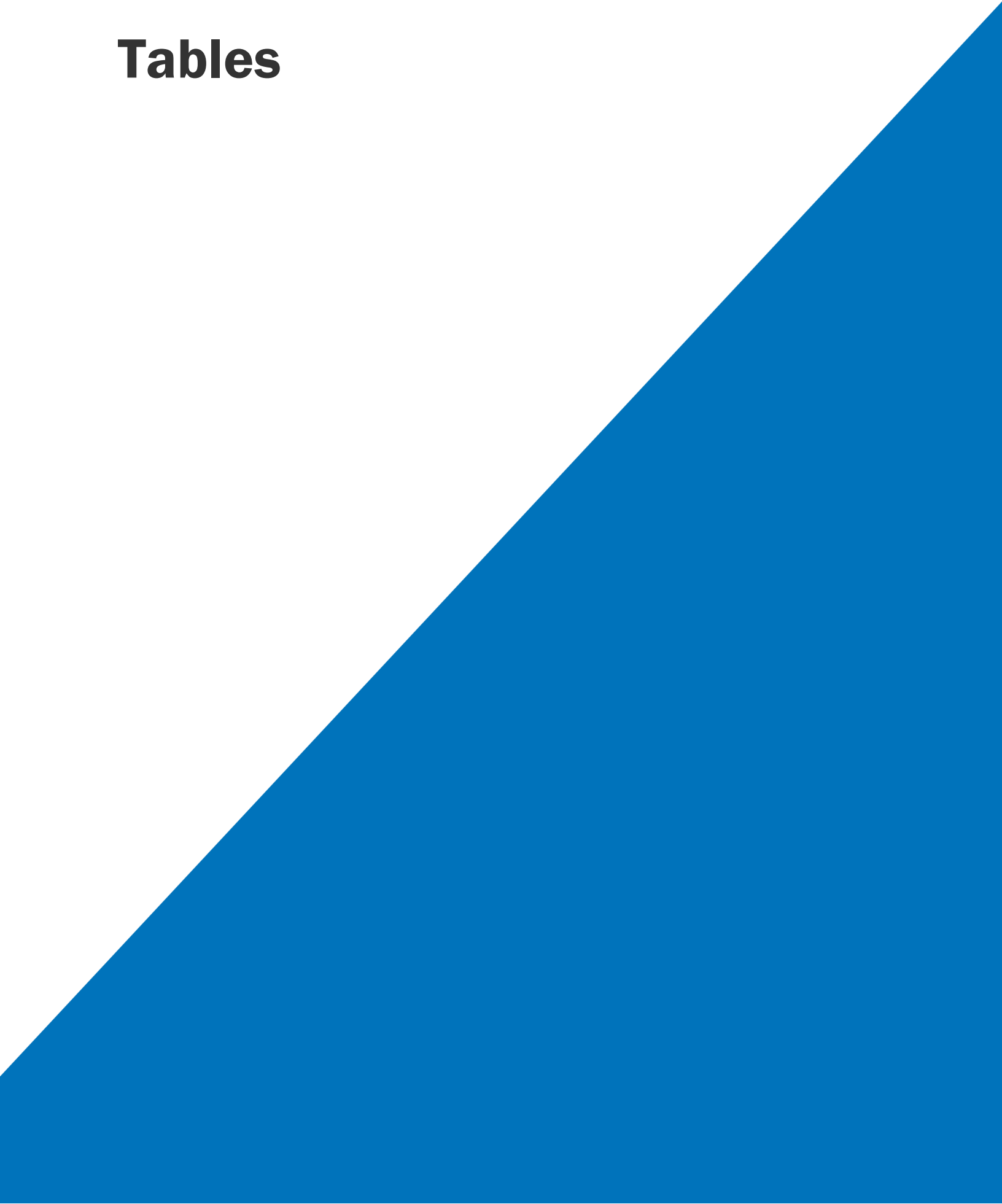


Table 1

Status of Identified Locations of
Concern on the South Park
Landfill SRDS Property,
October 24, 2025 Inspection

Table 1. Status of Identified Locations of Concern on the South Park Landfill SRDS Property, October 24, 2025, Inspection

SRDS	Description	May 2025 Inspection		October 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
Asphalt Concrete								
AC-5	Cracking, divots and ponding	The area has potholes and divots with ponding, primarily under the container. The asphalt appears to be corroded, though the original source contributing to this condition is uncertain. Recommendations: 1. Perform maintenance to repair the damaged asphalt area. 2. Document maintenance using Cap Maintenance Form B. If the container is identified as the source of corrosion, consider moving the container to prevent further degradation or recurrence. Area has potholes and divots with ponding.	It appears that evidence of corrosive activity was cleaned. The trailer was moved slightly to the north, so it is not on top of the impacted area.	Slightly improved	The area has potholes and divots with ponding. Recommendations: 1. Perform maintenance to repair the damaged asphalt area. 2. Document maintenance using Cap Maintenance Form B.	December 2025	SRDS	

Table 2

Status of Identified Locations of
Concern on the South Park
Landfill CPSP Property,
October 2024, 2025 Inspection

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, October 24, 2025, Inspection

CPSP Location	Description	May 2025 Inspection		October 2025 Inspection				
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	Photographs
Asphalt Concrete								
AC-3	Uncapped pipe	Pipe remains uncapped. Put cap on pipe.	Past Due	Resolved	The pipe was capped.	N/A	N/A	
AC-13	Blackberry shrubs growth and stagnated water behind the concrete blocks	No sediment buildup and sheen, but blackberry growth observed. Regular maintenance of blackberries is recommended.	Plants were cut back. The maintenance form was submitted.	Resolved	Blackberry maintenance completed. Will continue to observe, but condition improved.	N/A	N/A	East Elevation 📍 274°W (T) • 47.530488, -122.332059 ±3m ▲ 6m (MSL) 

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, October 24, 2025, Inspection

CPSP Location	Description	May 2025 Inspection		October 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
AC-21	Holes near fence allowing growth of plants & ponding presence	Plant was mostly removed. Seal pavement where the plant was growing. Continue to inspect to see if the plant continues to grow and disrupt the asphalt.	None.	No significant changes observed	Previous recommendations remain. The plant appears to have further damaged the curb so unsure of subsurface impacts and potential cap disruption.	Past Due	CenterPoint	
AC-23	Separation of pavement from storm drain	Most of the plant next to the storm drain has been removed but the roots are still there, and the cap penetration was not sealed. Plant roots had pushed up the pavement. Repair and seal pavement.	Sediment, roots, and the stump were removed, and the lifted asphalt was replaced. The asphalt surrounding the catch basin was repatched and perimeter-sealed.	Resolved	Conditions improved. No issues observed though Ecology block obstructed some of the area.	N/A	N/A	

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, October 24, 2025, Inspection

CPSP Location	Description	May 2025 Inspection		October 2025 Inspection				
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	Photographs
Low-Permeability Geomembrane								
G-6	Geomembrane exposed in this area	Geomembrane is still exposed. Locations with exposed geomembrane are of the highest concern due to the potential compromise of the landfill cap. The configuration of the geomembrane and cover at the interface of the parking area does not appear to be in accordance with Figure 5 of the Interim Action Work Plan (IAWP). The geomembrane appears to be directly below the asphalt with no drainage layer or surfacing layer in between. Along with Site Coordinator, prepare a plan to reestablish cover over the geomembrane. Most likely, the area should be exposed, and the geomembrane tested for damage before repairs are made. The crest of slope should then be provided cover to the maximum extent possible considering the existing asphalt and curb configuration. Geomembrane still exposed. Previous recommendations remain.	Action Not Yet Completed.	Resolved	No exposed geomembrane observed though no resolution action documented. Will continue to monitor but condition status changed to resolved.	N/A	N/A	
G-7	Exposed and damaged geomembrane at the parking area interface	Geomembrane is still exposed. This issue is observed in various pockets along the fence down to the sidewalk. Previous recommendations remain.	Action not yet completed.	No significant changes observed	Geomembrane is still exposed. Previous recommendations remain.	Past Due	CenterPoint	

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, October 24, 2025, Inspection

CPSP Location	Description	May 2025 Inspection		October 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
G-8	Exposed geomembrane around utility access hole	Work with Site Coordinator to prepare a plan to re-establish cover over the geomembrane. The geomembrane should be carefully exposed to not damage the geomembrane and inspected to determine if it is excess material or part of the cover. Make repairs as necessary and install adequate cover soil in accordance with the IAWP.	No documentation of actions taken.	No significant changes observed	Geomembrane is still exposed. Previous recommendations remain.	Past Due	CenterPoint	
G-15	Erosion and rilling on the bank.	Geomembrane is not exposed, but clear evidence of erosion and rilling on the bank at the southwest corner of the CPSP property. Further erosion could lead to exposure and damage to the membrane. Recommend reestablishing the dirt and grass on the hillside.	Action not yet completed.	No significant changes observed	Clear evidence of erosion on slope. Previous recommendations remain.	December 2025	CenterPoint	
G-16	Geomembrane exposed in this area	The geomembrane is exposed at the edges of the hillside. Recommend reestablishing the dirt and grass on the hillside.	Action not yet completed.	Conditions slightly worsened	Geomembrane exposed at edges. Previous recommendations remain.	December 2025	CenterPoint	

Table 2. Status of Identified Locations of Concern on the CenterPoint South Park LLC (CPSP) Property, October 24, 2025, Inspection

CPSP Location	Description	May 2025 Inspection		October 2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
Stormwater Management Facilities								
SW-3	Catch basin clogged	The catch basin inlet was partially obstructed. Remove the obstruction. Sediment was observed, but no pooling due to dry conditions. Recommend replacing the fabric filter. This will likely be an area of continuous maintenance.	Sediment cleaned around basin inlet and catch basin insert replaced	Resolved	Catch basin cleaned and filter replaced. Will continue to monitor condition.	N/A	N/A	
SW-4	Catch basin clogged	Sediment is observed, but no pooling due to dry conditions. Recommend replacing the fabric filter. Remove the obstruction and vegetation.	Sediment cleaned around basin inlet and catch basin insert replaced	Resolved	Catch basin cleaned and filter replaced. Will continue to monitor condition.	N/A	N/A	

Notes: N/A = Not applicable

Table 3

Status of Identified Locations of
Concern in the South Park
Landfill Right-of-Way, October
24, 2025 Inspection

Table 3. Status of Identified Locations of Concern on the South Park Landfill Right-of-Way Property, October 24, 2025, Inspection

ROW Location	Description	May 2025 Inspection		October2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
Asphalt Concrete								
AC-1	Asphalt cracks and ruts	Part of the pothole was repaired but there is still a significant size hole in the asphalt and cracking. Repair/repatching should be coordinated with SDOT. Reported on the SDOT Find It, Fix It app.	Partial Asphalt Patching.	Resolved	Areas of concern were patched and repaired to good condition. Condition changed to resolved but will continue monitoring.	N/A	N/A	West Elevation 99°E (T) • 47.527444, -122.329989 ±3m ▲ 6m (MSL)
AC-2	Asphalt open cracking	Previous pothole and some deep cracks were patched; however, several cracks are deeper and need repair. Repair/repatching should be coordinated with SDOT. Reported on the SDOT Find It, Fix It app.	Partial Asphalt Patching.	Resolved	Areas of concern were patched and repaired to good condition. Condition changed to resolved but will continue monitoring.	N/A	N/A	North Elevation 181°S (T) • 47.528171, -122.328255 ±3m ▲ 7m (MSL)

Table 3. Status of Identified Locations of Concern on the South Park Landfill Right-of-Way Property, October 24, 2025, Inspection

ROW Location	Description	May 2025 Inspection		October2025 Inspection				Photographs
		Conditions Observed and Recommended Action	Action Taken	Condition Status	Conditions Observed and Recommended Action	Timeline for Repair and/or Reinspection	Recommended Action Assignment	
AC-4	Asphalt cracks, pothole, and ruts in the middle of roadway.	Pothole present, several asphalt cracks and ruts have worsened, and require repair. Repair/repatching should be coordinated with SDOT. Reported on the SDOT Find It, Fix It app.	Repaired, asphalt patch applied	Resolved	Areas of concern were patched and repaired to good condition. Condition changed to resolved but will continue monitoring.	N/A	N/A	
AC-5	Deep potholes, depressions, puddles.	Multiple potholes present for the length of the alley. Repair/repatching should be coordinated with SDOT. Reported on the SDOT Find It, Fix It app.	Repaired, asphalt patch applied at several locations	Resolved	Areas of concern were patched and repaired to good condition. Condition changed to resolved but will continue monitoring.	N/A	N/A	

Notes: N/A = Not applicable

Attachment A

Cap Inspection Checklists

Attachment A-1

SRDS Cap Inspection Checklist

SOUTH PARK LANDFILL CAP INSPECTION FORM A

Date: October 24, 2025 Inspector(s): Alexander Leshner, Chris Bourgeois	Parcel Owner: ☒ SRDS ☐ CPSP ☐ Right-of-Way																
Type of Inspection: ☐ Annual ☒ Reinspection ☐ Non-Routine Reason:																	
Last Rain Event before Inspection: Daily precipitation observations from King County Hamm Creek Rain Station (HAU2). Source: https://green2.kingcounty.gov/hydrology/DataDownload.aspx?G_ID=1517&Parameter=Precipitation																	
<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="border: none;">Date</th> <th style="border: none;">10/18</th> <th style="border: none;">10/19</th> <th style="border: none;">10/20</th> <th style="border: none;">10/21</th> <th style="border: none;">10/22</th> <th style="border: none;">10/23</th> <th style="border: none;">10/24</th> </tr> <tr> <td style="border: none;"><i>Precipitation (in)</i></td> <td style="border: none;">0.28</td> <td style="border: none;">0.13</td> <td style="border: none;">0.01</td> <td style="border: none;">0.00</td> <td style="border: none;">0.00</td> <td style="border: none;">0.00</td> <td style="border: none;">0.89</td> </tr> </table>		Date	10/18	10/19	10/20	10/21	10/22	10/23	10/24	<i>Precipitation (in)</i>	0.28	0.13	0.01	0.00	0.00	0.00	0.89
Date	10/18	10/19	10/20	10/21	10/22	10/23	10/24										
<i>Precipitation (in)</i>	0.28	0.13	0.01	0.00	0.00	0.00	0.89										

VISUAL INSPECTION CHECKLIST

Asphalt Concrete				
	Yes	No	Needs Repair	If yes, describe:
Minor cracking	☒	☐	☐	There were multiple locations with minor cracks observed that do not currently need repair.
Open cracks/ruts	☒	☐	☐	Cracks and ruts do not fully penetrate the asphalt cap surface. Parametrix will continue to monitor, but no need for repairs at this time.
Differential settlement	☐	☒	☐	
Potholes	☒	☐	☒	AC-5 needs repair
Pooling or ponding	☐	☒	☐	There was very little to no ponding observed. The antecedent weather was dry.
Separation of pavement from curbs, gutters, or catch basins	☐	☒	☐	
Sloughing or crumbling of edge materials	☐	☒	☐	
Erosion	☐	☒	☐	
Other signs of cap damage, failure, or disturbance	☐	☒	☐	
Recommended Maintenance or Repair Type/Location: See Table 1 for details and recommended actions.				

VISUAL INSPECTION CHECKLIST (continued)

Low-Permeability Geomembrane				
	Yes	No	Needs Repair	If yes, describe:
Erosion of cover soil	☐	☒	☐	
Exposed geotextile	☐	☒	☐	
Holes/signs of unauthorized digging	☐	☒	☐	
Poor vegetative cover	☐	☒	☐	
Exposed geomembrane	☐	☒	☐	
Recommended Maintenance or Repair Type/Location:				

Stormwater Management Facilities				
	Yes	No	Needs Repair	If yes, describe:
Signs of water infiltration below structures	☐	☒	☐	
Erosion of soil	☐	☒	☐	
Exposed geotextile membrane	☐	☒	☐	
Holes/signs of unauthorized digging	☐	☒	☐	
Invasive/deep-rooted plants	☐	☒	☐	
Poor vegetative cover	☐	☒	☐	
Incorrect drainage path or not draining	☐	☒	☐	
Recommended Maintenance or Repair Type/Location:				

Attach necessary documentation such as photographs, sketches, and additional notes.

See Figure 1 and Table 1

Attachment A-2

CPSP Inspection Checklist

SOUTH PARK LANDFILL CAP INSPECTION FORM A

Date: October 24, 2025 Inspector(s): Alexander Lesher, Chris Bourgeois	Parcel Owner: ☐ SRDS ☒ CPSP ☐ Right-of-Way							
Type of Inspection: ☐ Annual ☒ Reinspection ☐ Non-Routine Reason:								
Last Rain Event before Inspection:		Daily precipitation observations from King County Hamm Creek Rain Station (HAU2). Source: https://green2.kingcounty.gov/hydrology/DataDownload.aspx?G_ID=1517&Parameter=Precipitation						
	<i>Date</i>	10/18	10/19	10/20	10/21	10/22	10/23	10/24
	<i>Precipitation (in)</i>	0.28	0.13	0.01	0.00	0.00	0.00	0.89

VISUAL INSPECTION CHECKLIST

Asphalt Concrete				
	Yes	No	Needs Repair	If yes, describe:
Minor cracking	☒	☐	☐	There were multiple locations with minor cracks observed that do not currently need repair.
Open cracks/ruts	☒	☐	☒	Location CPSP AC-21 needs repairs
Differential settlement	☐	☒	☐	
Potholes	☐	☒	☐	
Pooling or ponding	☒	☐	☐	Some ponding around facility. Nothing critical observed.
Separation of pavement from curbs, gutters, or catch basins	☐	☒	☐	
Sloughing or crumbling of edge materials	☐	☒	☐	
Erosion	☐	☒	☐	
Other signs of cap damage, failure, or disturbance	☐	☒	☐	

Recommended Maintenance or Repair Type/Location:
See Table 2 for details and recommended actions.

VISUAL INSPECTION CHECKLIST (continued)

Low-Permeability Geomembrane			
	Yes	No	
Erosion of cover soil	☒	☐	☒ Needs Repair Location CPSP G-15, erosion was identified on the hill at the southwest corner of the property. Erosion with clear signs of rilling that could lead to exposure or impact cap in the future.
Exposed geotextile	☒	☐	☒ Needs Repair Locations CPSP G-7, G-8, and G-16 need repair
Holes/signs of unauthorized digging	☐	☒	☐ Needs Repair
Poor vegetative cover	☐	☒	☐ Needs Repair
Exposed geomembrane	☒	☐	☒ Needs Repair Locations CPSP G-7, G-8, and G-16 need repair
Soil Sloughing	☐	☒	☐ Needs Repair
Recommended Maintenance or Repair Type/Location: See Table 2 for details and recommended actions.			

Stormwater Management Facilities			
	Yes	No	
Signs of water infiltration below structures	☐	☒	☐ Needs Repair
Erosion of soil	☐	☒	☐ Needs Repair
Exposed geotextile membrane	☐	☒	☐ Needs Repair
Holes/signs of unauthorized digging	☐	☒	☐ Needs Repair
Invasive/deep-rooted plants	☐	☒	☐ Needs Repair
Poor vegetative cover	☐	☒	☐ Needs Repair
Incorrect drainage path or not draining	☐	☒	☐ Needs Repair
Recommended Maintenance or Repair Type/Location:			

Attach necessary documentation such as photographs, sketches, and additional notes.

See Figure 1 and Table 2

Attachment A-3

ROW Cap Inspection Checklist

SOUTH PARK LANDFILL CAP INSPECTION FORM A

Date: October 24, 2025 Inspector(s): Alexander Lesher, Chris Bourgeois	Parcel Owner: ☐ SRDS ☐ CPSP ☒ Right-of-Way																
Type of Inspection: ☐ Annual ☒ Reinspection ☐ Non-Routine Reason:																	
Last Rain Event before Inspection:	Daily precipitation observations from King County Hamm Creek Rain Station (HAU2). Source: https://green2.kingcounty.gov/hydrology/DataDownload.aspx?G_ID=1517&Parameter=Precipitation																
	<table border="1"> <thead> <tr> <th>Date</th> <th>10/18</th> <th>10/19</th> <th>10/20</th> <th>10/21</th> <th>10/22</th> <th>10/23</th> <th>10/24</th> </tr> </thead> <tbody> <tr> <td>Precipitation (in)</td> <td>0.28</td> <td>0.13</td> <td>0.01</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.89</td> </tr> </tbody> </table>	Date	10/18	10/19	10/20	10/21	10/22	10/23	10/24	Precipitation (in)	0.28	0.13	0.01	0.00	0.00	0.00	0.89
Date	10/18	10/19	10/20	10/21	10/22	10/23	10/24										
Precipitation (in)	0.28	0.13	0.01	0.00	0.00	0.00	0.89										

VISUAL INSPECTION CHECKLIST

Asphalt Concrete				
	Yes	No	Needs Repair	If yes, describe:
Minor cracking	☒	☐	☐	Locations ROW AC-1 and AC-4
Open cracks/ruts	☐	☒	☐	
Differential settlement	☐	☒	☐	
Potholes	☐	☒	☐	Locations ROW AC-1 and AC-5
Pooling or ponding	☐	☒	☐	
Separation of pavement from curbs, gutters, or catch basins	☐	☒	☐	
Sloughing or crumbling of edge materials	☐	☒	☐	
Erosion	☐	☒	☐	
Other signs of cap damage, failure, or disturbance	☐	☒	☐	
Recommended Maintenance or Repair Type/Location: See Table 3 for details.				

VISUAL INSPECTION CHECKLIST (continued)

Low-Permeability Geomembrane				
	Yes	No	Needs Repair	If yes, describe:
Erosion of cover soil	☐	☐	☐	Not applicable to ROW
Exposed geotextile	☐	☐	☐	Not applicable to ROW
Holes/signs of unauthorized digging	☐	☐	☐	Not applicable to ROW
Poor vegetative cover	☐	☐	☐	Not applicable to ROW
Exposed geomembrane	☐	☐	☐	Not applicable to ROW
Recommended Maintenance or Repair Type/Location:				

Stormwater Management Facilities				
	Yes	No	Needs Repair	If yes, describe:
Signs of water infiltration below structures	☐	☐	☐	Not applicable to ROW
Erosion of soil	☐	☐	☐	Not applicable to ROW
Exposed geotextile membrane	☐	☐	☐	Not applicable to ROW
Holes/signs of unauthorized digging	☐	☐	☐	Not applicable to ROW
Invasive/deep-rooted plants	☐	☐	☐	Not applicable to ROW
Poor vegetative cover	☐	☐	☐	Not applicable to ROW
Incorrect drainage path or not draining	☐	☐	☐	Not applicable to ROW
Recommended Maintenance or Repair Type/Location:				

Attach necessary documentation such as photographs, sketches, and additional notes.

See Figure 1 and Table 3

Attachment B

Maintenance Forms

Attachment B-1

CPSP Maintenance Forms

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 8/7/2025	Repaired by: Catchment Solutions
Reason for Maintenance: Address items on cap inspection report	
Describe Maintenance Location (attach sketch and photos): AC-3	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Pipe capped	
Is the maintenance activity complete? ☒ Yes ☐ No If no, explain:	
 8/7/25 Property Owner Signature Date	
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance

(Completed by Site Coordinator)

Date of Observation/Review:

10/24/2025

Inspector(s):

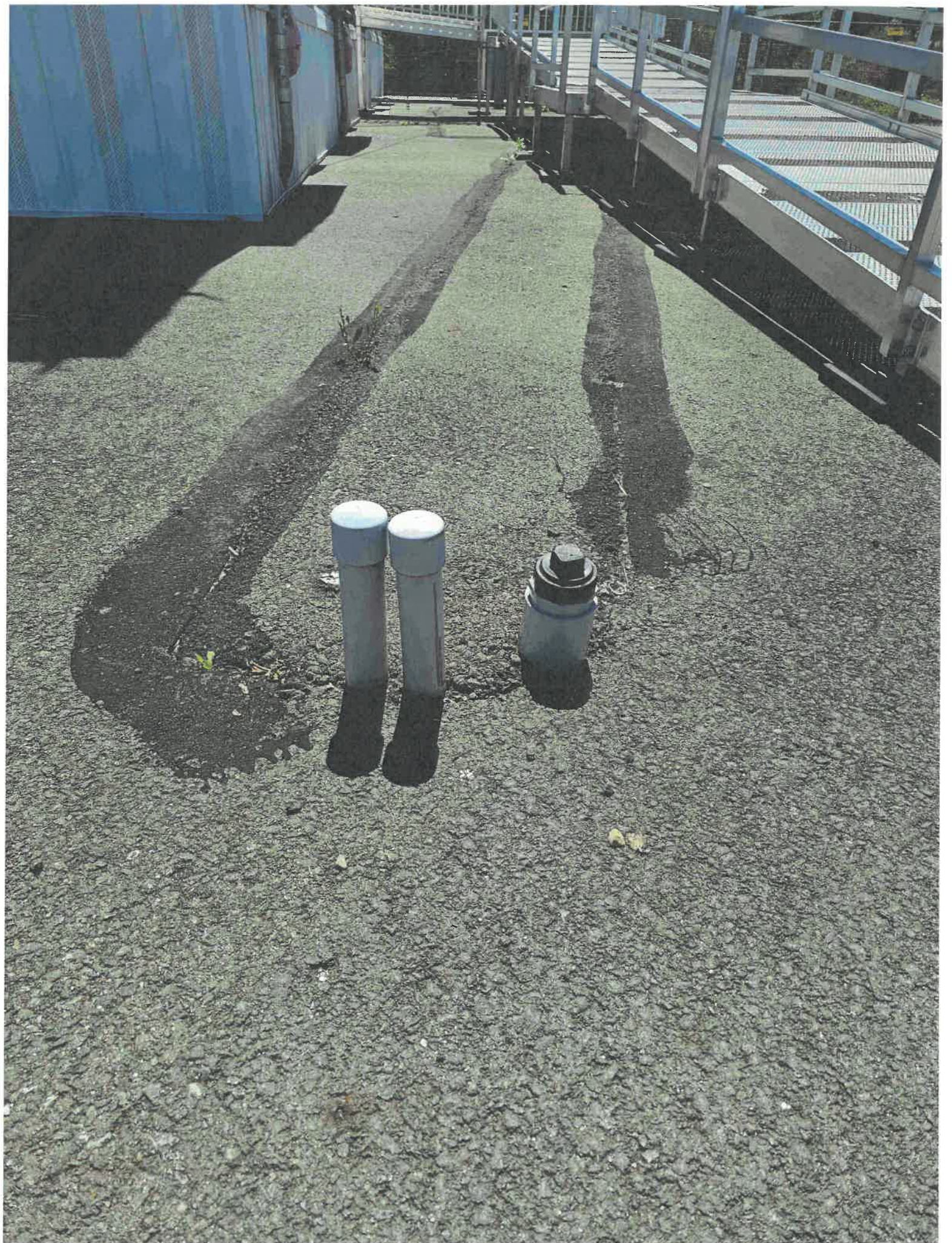
Alexander Lesher

Observation Notes (attach photos):

Completed

Site Coordinator/Inspector Signature

Date



SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

Parcel Owner: ☐ SRDS

Owner Contact: Andrea Hacker

☒ CenterPoint (former SPPD)

Part 1: Maintenance

(Completed by Property Owner)

Date of Repair/ Maintenance: 8/7/2025

Repaired by: Catchment Solutions

Reason for Maintenance:

Address items on cap inspection report

Describe Maintenance Location (attach sketch and photos):

AC-13

Describe Maintenance or Repair Performed (attach photos and documentation as necessary):

Blackberries were cut back, sediment accumulation removed to allow for stormwater flow into north swale. Remainder of north lot was swept as well.

Is the maintenance activity complete?

☒ Yes

☐ No

If no, explain:



Property Owner Signature

8/7/2025

Date

All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.

Part 2: Observation/Review of Maintenance

(Completed by Site Coordinator)

Date of Observation/Review: 10/24/2025

Inspector(s): Alexander Lesha

Observation Notes (attach photos):

Maintenance of overgrowth observed



Site Coordinator/Inspector Signature

10/24/2025

Date











SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 8/7/2025	Repaired by: Catchment Solutions
Reason for Maintenance: Address items on cap inspection report	
Describe Maintenance Location (attach sketch and photos): AC-23	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Sediment cleaned up around area, roots/stump removed. Lifted asphalt removed. Asphalt repatched and sealed around perimeter of catch basin. A pothole with open dirt was observed to the south of this area that was not included on the inspection report but was patched as part of this maintenance.	
Is the maintenance activity complete? ☒ Yes ☐ No If no, explain:	
 <u>8/7/2025</u> Property Owner Signature Date	
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance (Completed by Site Coordinator)	
Date of Observation/Review: 10/24/2025	Inspector(s): Alexander Leshen
Observation Notes (attach photos): Resolved - Ecology block next to catch basin	
 Site Coordinator/Inspector Signature	10/24/2025 Date









SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)

 Date of Repair/ Maintenance: 8/7/2025

 Repaired by: Catchment Solutions
Reason for Maintenance:

Address items on cap inspection report

Describe Maintenance Location (attach sketch and photos):

SW-3

Describe Maintenance or Repair Performed (attach photos and documentation as necessary):

Sediment cleaned around basin inlet and catch basin insert replaced

Is the maintenance activity complete?

☒ Yes

☐ No

If no, explain:



Property Owner Signature

8/7/2025

Date

All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.

Part 2: Observation/Review of Maintenance

(Completed by Site Coordinator)

Date of Observation/Review: 10/24/2025

Inspector(s): Alexander Leshar

Observation Notes (attach photos):

Filter Replaced, no pooling / sediment

Site Coordinator/Inspector Signature

Date

10/24/2025





SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: <u>8/7/2025</u>	Repaired by: <u>Catchment Solutions</u>
Reason for Maintenance: Address items on cap inspection report	
Describe Maintenance Location (attach sketch and photos): SW-4	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Sediment cleaned around basin inlet and catch basin insert replaced	
Is the maintenance activity complete? ☒ Yes ☐ No	
If no, explain:	
 Property Owner Signature	<u>8/7/2025</u> Date
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance

(Completed by Site Coordinator)

Date of Observation/Review:

10/24/2025

Inspector(s):

Alexander Lester

Observation Notes (attach photos):

Resolved



Site Coordinator/Inspector Signature

10/24/2025

Date





SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 1/29/2025	Repaired by: Secoma Fence
Reason for Maintenance: Installation of two 25' wide barrier gates at each end of private driveway	
Describe Maintenance Location (attach sketch and photos): Located on the east and west ends of the private drive	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Dig up to 4' in asphalt to install gate posts, repairs around posts filled with cement	
Is the maintenance activity complete? ☒ Yes ☐ No If no, explain:	
 03/06/2025	
Property Owner Signature	Date
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance

(Completed by Site Coordinator)

Date of Observation/Review:

10/24/2025

Inspector(s):

Alexander Leher

Observation Notes (attach photos):

Site Coordinator/Inspector Signature10/24/2025

Date

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 12/10/2024	Repaired by: Catchment Solutions
Reason for Maintenance: Open pipe in landscaping	
Describe Maintenance Location (attach sketch and photos): G-1	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Capped two open pipes in landscaping slope	
Is the maintenance activity complete? ☒ Yes ☐ No	
If no, explain:	
Property Owner Signature	Date
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance (Completed by Site Coordinator)	
Date of Observation/Review: 10/24/2025	Inspector(s): Alexander Lohr
Observation Notes (attach photos): Resolved previously	
 Site Coordinator/Inspector Signature	10/24/2025 Date

Appendix B2

Cap Maintenance Documentation

Appendix B2-A

Example Form

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

Parcel Owner: ☐ SRDS
☐ CenterPoint (former SPPD)
☐ ROW

Owner Contact: _____

Part 1: Maintenance (Completed by Property Owner)

Date of Repair/ Maintenance:

Repaired by:

Reason for Maintenance:

Describe Maintenance Location (attach sketch and photos):

Describe Maintenance or Repair Performed (attach photos and documentation as necessary):

Is the maintenance activity complete? ☐ Yes ☐ No

If no, explain:

Property Owner Signature

Date

All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.

Date of Observation/Review:

Inspector(s):

Observation Notes (attach photos):

Site Coordinator/Inspector Signature

Date

Appendix B2-B

Completed Forms

Appendix B2-B.1

SRDS

No Forms Available.

Appendix B2-B.2

CenterPoint (former SPPD)

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 12/10/2024	Repaired by: Catchment Solutions
Reason for Maintenance: Open pipe in landscaping	
Describe Maintenance Location (attach sketch and photos): G-1	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Capped two open pipes in landscaping slope	
Is the maintenance activity complete? ☒ Yes ☐ No If no, explain:	
Property Owner Signature	Date
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance**(Completed by Site Coordinator)****Date of Observation/Review:** 10/24/2025**Inspector(s):** Alexander Lohr**Observation Notes (attach photos):** Site Coordinator observed maintenance completed during May 2, 2025 annual inspection. Photograph taken and attached.

Resolved previously


Site Coordinator/Inspector Signature10/24/2025
Date

South West

☉ 234°SW (T) ☉ 47.528164, -122.328524 ±4m ▲ -15m

CP-G-1

02 May 2025, 11:35:43 AM

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 1/29/2025	Repaired by: Secoma Fence
Reason for Maintenance: Installation of two 25' wide barrier gates at each end of private driveway	
Describe Maintenance Location (attach sketch and photos): Located on the east and west ends of the private drive	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Dig up to 4' in asphalt to install gate posts, repairs around posts filled with cement	
Is the maintenance activity complete? ☒ Yes ☐ No If no, explain:	
 03/06/2025	
Property Owner Signature	Date
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance

(Completed by Site Coordinator)

Date of Observation/Review:

10/24/2025

Inspector(s):

Alexander Leher

Observation Notes (attach photos):

Photo provided. Maintenance completed, observed at all gate posts.

Site Coordinator/Inspector Signature

Date



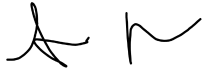
ANY VEHICLES OR IMPROPERLY
PARKED VEHICLES WILL BE
IMPOUNDED AT OWNER'S RISK & EXPENSE
**GARY WESTSIDE
TOWING, L.L.C.**
(704) 762-8881
2000 W. 10TH ST. WILMINGTON, NC 28403
TOWING SERVICE - 24 HOURS

PRIVATE
PROPERTY
**NO
THROUGH
TRAFFIC**

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

Parcel Owner: ☐ SRDS

Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 6/6-6/20/2025	Repaired by: Compass Plumbing
Reason for Maintenance: main water line break	
Describe Maintenance Location (attach sketch and photos): west end of private driveway between two lots	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Remove asphalt and replace 100' of pipe along the drive, asphalt will be repaired per cap specs	
Is the maintenance activity complete? ☐ Yes ☒ No If no, explain: This is an emergency repair and is in process	
 <u>06/04/2025</u> Property Owner Signature Date	
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Date of Observation/Review: October 24, 2025	Inspector(s): Alexander Matthew Leshner
---	--

See below

Date

Cap Maintenance Form B

SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 8/7/2025	Repaired by: Catchment Solutions
Reason for Maintenance: Address items on cap inspection report	
Describe Maintenance Location (attach sketch and photos): AC-3	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Pipe capped	
Is the maintenance activity complete? ☒ Yes ☐ No If no, explain:	
 8/7/25 Property Owner Signature Date	
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance

(Completed by Site Coordinator)

Date of Observation/Review:

10/24/2025

Inspector(s):

Alexander Lesher

Observation Notes (attach photos):

Completed Photo provided

Site Coordinator/Inspector Signature

Date

CP-AC-3



SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

Parcel Owner: ☐ SRDS

Owner Contact: Andrea Hacker

☒ CenterPoint (former SPPD)

Part 1: Maintenance

(Completed by Property Owner)

Date of Repair/ Maintenance: 8/7/2025

Repaired by: Catchment Solutions

Reason for Maintenance:

Address items on cap inspection report

Describe Maintenance Location (attach sketch and photos):

AC-13

Describe Maintenance or Repair Performed (attach photos and documentation as necessary):

Blackberries were cut back, sediment accumulation removed to allow for stormwater flow into north swale. Remainder of north lot was swept as well.

Is the maintenance activity complete?

☒ Yes

☐ No

If no, explain:



Property Owner Signature

8/7/2025

Date

All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.

Part 2: Observation/Review of Maintenance (Completed by Site Coordinator)	
Date of Observation/Review: 10/24/2025	Inspector(s): Alexander Lesha
Observation Notes (attach photos): Photo provided. Maintenance of overgrowth observed	
	10/24/2025
Site Coordinator/Inspector Signature	Date

CP-AC-13



CP-AC-13



CP-AC-13



CP-AC-13



CP-AC-13



SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: 8/7/2025	Repaired by: Catchment Solutions
Reason for Maintenance: Address items on cap inspection report	
Describe Maintenance Location (attach sketch and photos): AC-23	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Sediment cleaned up around area, roots/stump removed. Lifted asphalt removed. Asphalt repatched and sealed around perimeter of catch basin. A pothole with open dirt was observed to the south of this area that was not included on the inspection report but was patched as part of this maintenance.	
Is the maintenance activity complete? ☒ Yes ☐ No If no, explain:	
 <u>8/7/2025</u> Property Owner Signature Date	
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance (Completed by Site Coordinator)	
Date of Observation/Review: 10/24/2025	Inspector(s): Alexander Leshen
Observation Notes (attach photos): Photo provided Resolved - Ecology block next to catch basin	
	10/24/2025
Site Coordinator/Inspector Signature	Date

CP-AC-23



CP-AC-23



CP-AC-23

DO NOT
DRINK
FROM
THIS
WATER



CP-AC-23



SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)

 Date of Repair/ Maintenance: 8/7/2025

 Repaired by: Catchment Solutions
Reason for Maintenance:

Address items on cap inspection report

Describe Maintenance Location (attach sketch and photos):

SW-3

Describe Maintenance or Repair Performed (attach photos and documentation as necessary):

Sediment cleaned around basin inlet and catch basin insert replaced

Is the maintenance activity complete?

☒ Yes

☐ No

If no, explain:



Property Owner Signature

8/7/2025

Date

All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.

Part 2: Observation/Review of Maintenance

(Completed by Site Coordinator)

Date of Observation/Review:

10/24/2025

Inspector(s):

Alexander Leshar

Observation Notes (attach photos):

Photo provided

Filter Replaced, no pooling / sediment

Site Coordinator/Inspector Signature

Date

10/24/2025

CP-SW-3



CP-SW-3



SOUTH PARK LANDFILL CAP MAINTENANCE FORM B

 Parcel Owner: ☐ SRDS

 Owner Contact: Andrea Hacker
☒ CenterPoint (former SPPD)

Part 1: Maintenance (Completed by Property Owner)	
Date of Repair/ Maintenance: <u>8/7/2025</u>	Repaired by: <u>Catchment Solutions</u>
Reason for Maintenance: Address items on cap inspection report	
Describe Maintenance Location (attach sketch and photos): SW-4	
Describe Maintenance or Repair Performed (attach photos and documentation as necessary): Sediment cleaned around basin inlet and catch basin insert replaced	
Is the maintenance activity complete? ☒ Yes ☐ No	
If no, explain:	
 <u>8/7/2025</u> Property Owner Signature Date	
All maintenance and repair documentation must be provided to the Site Coordinator within 60 days of the completion of the maintenance/repair OR by March 1 if the activity is completed within 60 days prior to March 1.	

Part 2: Observation/Review of Maintenance (Completed by Site Coordinator)	
Date of Observation/Review: 10/24/2025	Inspector(s): Alexander Lester
Observation Notes (attach photos): Resolved Photo provided	
 Site Coordinator/Inspector Signature	10/24/2025 Date

CP-SW-4



CP-SW-4



Appendix B2-B.3

ROW

No Forms Available.

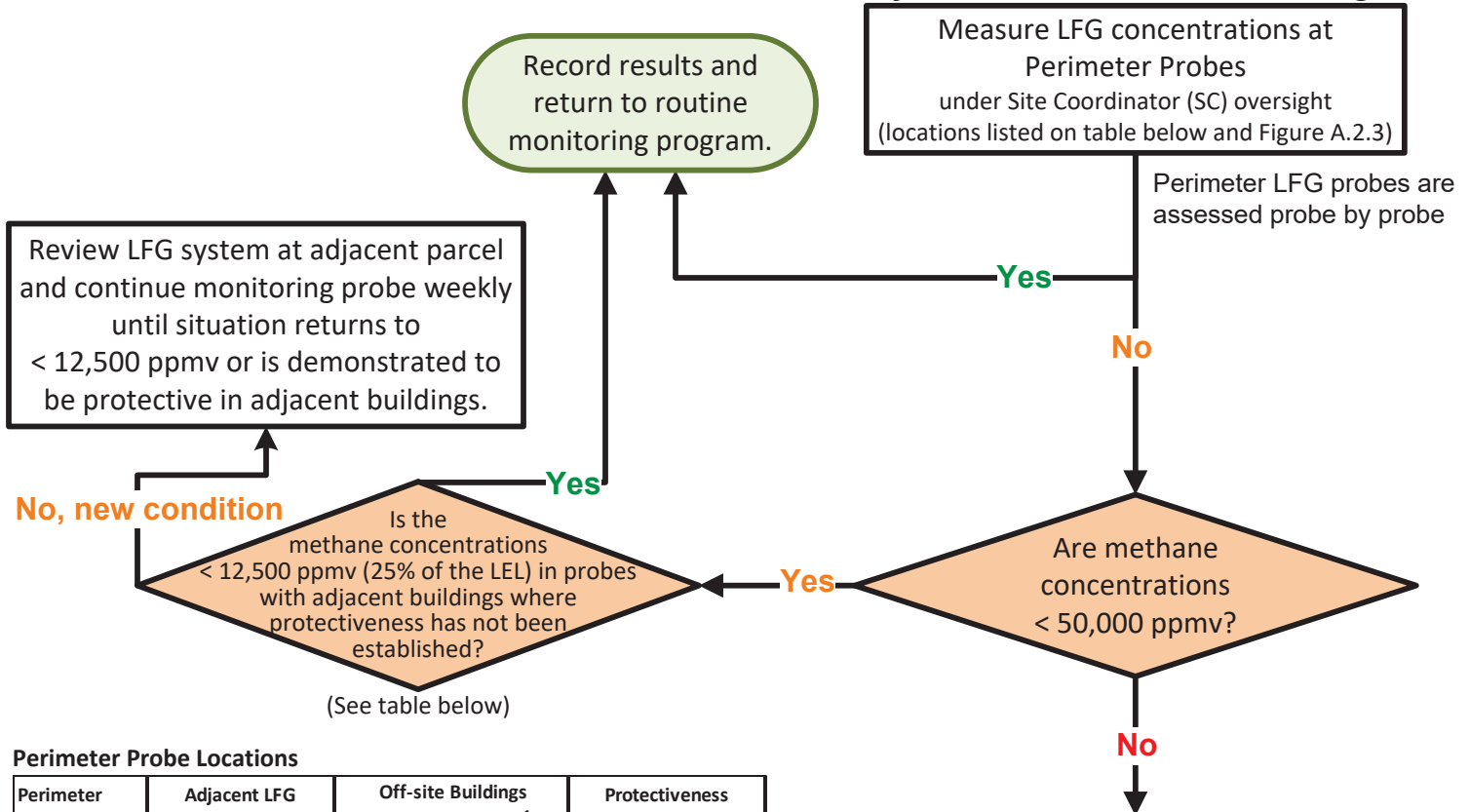
Appendix C

Landfill Gas Monitoring

Appendix C1

Flow Chart for Landfill Gas
Triggers and Contingent
Actions

START HERE
for Perimeter Probe Monitoring



Perimeter Probe Locations

Perimeter Probe	Adjacent LFG System	Off-site Buildings Adjacent to Probe ¹	Protectiveness Established
GP-03 ²	SPPD	No	NA
GP-07	SRDS/SPPD	Yes	No
GP-09	SRDS	No	NA
GP-11	SPPD	Yes	No
GP-13	SPPD	Yes	No
GP-15	SPPD	Yes	No
GP-16 ²	SPPD	No	NA
GP-23	SRDS	Yes	No
GP-26	SRDS	Yes	Yes
GP-27	SPPD	Yes	Yes
GP-28	SPPD	Yes	No
GP-29	SPPD	Yes	Yes
GP-31 ²	SPPD	Yes	No
GP-32 ²	SPPD	Yes	No
GP-33	SPPD	Yes	No
GP-37	SRDS	No	NA
GP-38	None	No	NA

Notes:

1 Adjacent off-site buildings within 100 feet of the Landfill Property Boundary or Edge of Refuse are shown on Figure A.2.2.

2 Due to shallow groundwater, these probes are only measured when the water table is low enough for the probes to function.

Abbreviations:

Ecology = Washington State Department of Ecology; LEL = Lower Explosive Limit; LFG = Landfill gas; OMMP = Operations, Maintenance, and Monitoring Plan; PLP = Potentially liable person; PM = Project manager; ppmv = parts per million by volume; SPPD = South Park Property Development, LLC; SRDS = South Recycling and Disposal Station

Contingent Action Triggered by Exceedance

1. SC notifies the Ecology PM, Public Health – Seattle & King County, and the rest of the PLP Group within 24 hours.
2. Parcel staff adjust adjacent LFG system to increase control on LFG, and (within 1 business day) begin DAILY monitoring at probe until control is established (using criteria above) then weekly for 4 weeks.
2. SC arranges monitoring of indoor air for LFG in any off-site buildings within 100 feet of the Landfill Property Boundary or Edge of Refuse (Figure A.2.2). Refer to Figure A.2.6 for triggers and actions based on indoor measurements.
3. SC notifies Ecology PM and Public Health – Seattle & King County of the actions taken and their effectiveness. If the adjustments to the adjacent gas system are not effective, then a plan must be prepared and submitted for approval.
4. SC reports exceedances and actions in Annual Report to Ecology.

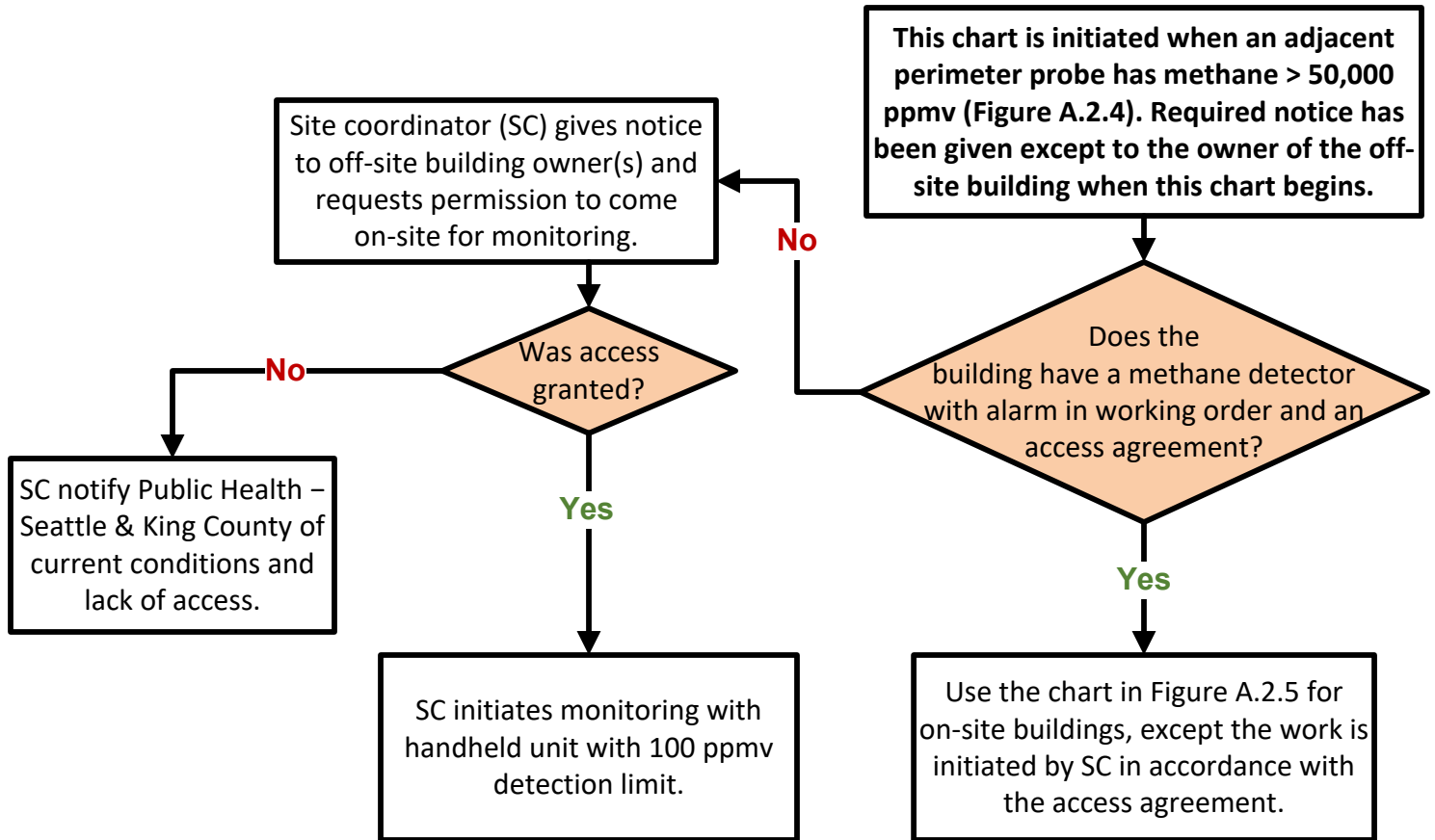
FLOYD | SNIDER
strategy ■ science ■ engineering



Amended SPPD/City Cleanup Action Plan
OMMP
South Park Landfill
Seattle, Washington

Attachment A.2: Landfill Gas Monitoring and Contingency Plan
Figure A.2.4
Flow Chart for Triggers and Contingent Actions for Perimeter Probe Monitoring

START HERE
for Off-Site Building Monitoring



< 100 ppmv Methane	100 ppmv to < 12,500 ppmv Methane		> 12,500 ppmv Methane
Record results and return to routine monitoring program.	100 ppmv to < 5,000 ppmv Methane	5,000 ppmv to 12,500 ppmv Methane	• Evacuate building • ID source or entry point
	• Monitor daily	• Evacuate building • ID source or entry point	
	Verify methane concentrations with second meter		
	Notifications and Reporting		
	• PLP Group • Ecology PM • Owner already notified • Public Health – Seattle & King County		
Potential Corrective Measures			
• Seal cracks • Install methane detector with alarm • Modify adjacent LFG system • Increase ventilation • Perform active collection			

Abbreviations: Ecology = Washington State Department of Ecology; LFG = Landfill gas; OMMP = Operations, Maintenance, and Monitoring Plan; PLP = Potentially liable person; PM = Project Manager; ppmv = Parts per million by volume

Appendix C2

Perimeter Probe Monitoring Field Forms

South Park Landfill
First Quarter 2025 Gas Probe Monitoring Data

Gas Probe	Date	Time	Rel. Press. inches H2O	CH4 %	CO2 %	O2 %	Balance %	Blocked (Y/N)	Baro. Press. inches Hg
SP00GP23	1/28/2025	8:36	-0.17	0.0	5.9	16.0	78.1	N	30.23
SP00GP07	1/28/2025	8:42	-0.15	0.0	1.7	20.3	78.0	N	30.24
SP00GP33	1/28/2025	8:59	-0.18	0.0	1.0	20.5	78.5	N	30.22
SP00GP37	1/28/2025	9:16	-0.19	0.0	9.0	5.1	85.9	N	30.22
SP00GP38	1/28/2025	9:26	-0.14	0.0	11.9	4.8	83.3	N	30.24
SP00GP11	1/28/2025	9:39	-0.17	0.0	1.9	19.3	78.8	N	30.24
SP00GP03	1/28/2025	9:44	-0.15	0.0	5.1	12.4	82.5	N	30.22
SP00GP31	1/28/2025	9:55	-0.15	0.0	5.1	11.3	83.6	N	30.22
SP00GP16	1/28/2025	10:11	-0.13	0.0	8.8	9.5	81.7	N	30.21
SP00GP29	1/28/2025	10:18	-0.15	0.0	14.0	0.2	85.8	N	30.21
SP00GP28	1/28/2025	10:25	-0.15	0.0	0.2	20.2	79.6	N	30.22
SP00GP27	1/28/2025	10:32	-0.14	0.0	9.3	0.8	89.9	N	30.23
SP00GP09	1/28/2025	10:40	-0.16	0.0	6.6	13.3	80.1	N	30.21
SP00GP13	1/28/2025	10:58	-8.76	0.0	3.2	12.1	84.7	Y	30.22
SP00GP32	1/28/2025	11:07	-0.02	0.0	0.2	18.0	81.8	Y	30.23
SP00GP15	1/28/2025	11:14	-21.91	0.8	3.9	1.5	93.8	Y	30.11
SP00GP26	1/28/2025	11:27	0.04	0.0	1.8	18.3	79.9	N	30.21

GEM™5000; G5 V1_15_12; LSGAM:6_0_20160627; {15109474416}

South Park Landfill
Second Quarter 2025 Gas Probe Monitoring Data

Gas Probe	Date	Time	Rel. Press. inches H2O	CH4 %	CO2 %	O2 %	Balance %	Blocked (Y/N)	Baro. Press. inches Hg
SP00GP33	4/24/2025	8:06	0.00	0.0	0.7	19.2	80.1	N	29.98
SP00GP07	4/24/2025	8:48	0.01	0.0	1.8	19.3	78.9	N	29.98
SP00GP23	4/24/2025	9:01	0.02	0.0	8.5	11.7	79.8	N	29.98
SP00GP37	4/24/2025	9:11	0.00	0.0	8.6	6.1	85.3	N	29.99
SP00GP38	4/24/2025	9:21	0.01	0.0	13.4	3.1	83.5	N	29.99
SP00GP09	4/24/2025	9:28	0.01	0.0	6.0	14.0	80.0	N	29.98
SP00GP29	4/24/2025	9:42	0.01	0.0	14.0	0.7	85.3	N	29.98
SP00GP16	4/24/2025	9:56	0.02	0.0	9.3	8.4	82.3	N	29.97
SP00GP31	4/24/2025	10:04	0.06	0.0	3.5	9.9	86.6	N	29.97
SP00GP28	4/24/2025	10:12	0.05	0.0	0.2	20.8	79.0	N	29.97
SP00GP27	4/24/2025	10:22	0.06	0.0	8.2	0.6	91.2	N	29.96
SP00GP26	4/24/2025	10:43	0.33	0.0	2.0	18.2	79.8	N	29.97
SP00GP11	4/24/2025	11:00	0.50	0.0	0.7	20.1	79.2	N	29.95
SP00GP03	4/24/2025	11:04	0.02	0.0	4.3	13.4	82.3	N	29.96
SP00GP15	4/24/2025	11:12	-20.93	0.0	4.4	3.9	91.7	Y	29.97
SP00GP32	4/24/2025	11:19	-0.03	0.0	0.0	20.8	79.2	N	29.96
SP00GP13	4/24/2025	11:26	-13.28	0.0	2.5	18.3	79.2	Y	29.96

GEM™5000; G5 V1_15_12; LSGAM:6_0_20160627; {15109474416}

South Park Landfill
Third Quarter 2025 Gas Probe Monitoring Data

Gas Probe	Date	Time	Rel. Press. inches H2O	CH4 %	CO2 %	O2 %	Balance %	Blocked (Y/N)	Baro. Press. inches Hg
SP00GP26	7/29/2025	8:22	0.00	0.0	2.0	19.3	78.7	N	30.10
SP00GP33	7/29/2025	8:34	0.05	0.0	2.8	16.5	80.7	N	30.10
SP00GP37	7/29/2025	8:47	0.06	0.0	10.6	10.0	79.4	N	30.10
SP00GP38	7/29/2025	8:55	-0.03	0.0	18.8	2.1	79.1	N	30.10
SP00GP23	7/29/2025	9:14	-0.01	0.0	8.8	12.6	78.6	N	30.11
SP00GP07	7/29/2025	9:20	-0.04	0.0	3.0	17.7	79.3	N	30.13
SP00GP16	7/29/2025	9:40	0.01	0.0	13.9	5.0	81.1	N	30.13
SP00GP29	7/29/2025	9:46	-0.01	0.0	17.1	0.0	82.9	N	30.12
SP00GP28	7/29/2025	9:52	0.01	0.0	0.1	20.0	79.9	N	30.12
SP00GP27	7/29/2025	9:59	-0.02	0.1	12.3	0.0	87.6	N	30.13
SP00GP09	7/29/2025	10:05	-0.02	0.0	5.0	16.2	78.8	N	30.11
SP00GP11	7/29/2025	10:17	0.87	0.0	0.5	20.2	79.3	N	30.12
SP00GP03	7/29/2025	10:23	0.04	0.0	8.5	8.5	83.0	N	30.11
SP00GP31	7/29/2025	10:28	0.02	0.0	10.3	9.5	80.2	N	30.12
SP00GP32	7/29/2025	10:33	-0.87	0.0	2.2	16.2	81.6	Y	30.14
SP00GP15	7/29/2025	10:40	-41.53	0.0	1.1	18.3	80.6	Y	30.12
SP00GP13	7/29/2025	10:54	-0.28	0.0	2.0	17.8	80.2	Y	30.11

GEM™5000; G5 V1_15_12; LSGAM:6_0_20160627; {24160130200}

South Park Landfill
Fourth Quarter 2025 Gas Probe Monitoring Data

Gas Probe	Date	Time	Rel. Press. inches H2O	CH4 %	CO2 %	O2 %	Balance %	Blocked (Y/N)	Baro. Press. inches Hg
SP00GP26	10/28/2025	9:13	-0.02	0.0	1.9	19.5	78.6	N	30.22
SP00GP33	10/28/2025	9:28	-0.03	0.0	2.6	18.0	79.4	N	30.23
SP00GP37	10/28/2025	9:44	0.00	0.0	9.0	12.1	78.9	N	30.22
SP00GP38	10/28/2025	9:51	0.01	0.0	15.7	3.9	80.4	N	30.22
SP00GP11	10/28/2025	10:05	0.01	0.0	1.5	21.1	77.4	N	30.23
SP0GP11S	10/28/2025	10:08	0.01	0.0	1.2	19.9	78.9	N	30.23
SP00GP13	10/28/2025	10:16	-14.21	0.0	4.9	12.9	82.2	Y	30.23
SP0GP13S	10/28/2025	10:19	-0.01	0.0	2.2	19.9	77.9	N	30.17
SP00GP03	10/28/2025	10:28	0.02	0.0	5.6	14.7	79.7	N	30.23
SP00GP32	10/28/2025	10:34	1.20	0.0	0.3	20.5	79.2	Y	30.24
SP0GP32S	10/28/2025	10:39	0.00	66.4	16.7	0.0	16.9	N	30.24
SP00GP15	10/28/2025	11:09	3.41	0.0	6.8	10.1	83.1	N	30.26
SP0GP15S	10/28/2025	11:19	-0.01	0.0	2.4	18.6	79.0	N	30.25
SP00GP31	10/28/2025	11:30	-0.01	0.0	8.4	6.9	84.7	N	30.24
SP00GP16	10/28/2025	11:44	0.01	0.0	11.1	7.7	81.2	N	30.25
SP00GP29	10/28/2025	11:51	-0.04	0.0	15.4	0.0	84.6	N	30.24
SP00GP28	10/28/2025	11:57	-3.49	0.0	0.1	21.1	78.8	N	30.25
SP00GP27	10/28/2025	12:05	0.02	0.2	14.1	0.1	85.6	N	30.25
SP00GP09	10/28/2025	12:16	-0.02	0.0	4.1	17.6	78.3	N	30.26
SP00GP07	10/28/2025	12:26	-0.02	0.0	2.2	18.7	79.1	N	30.25
SP00GP23	10/28/2025	12:40	0.00	0.0	7.0	14.7	78.3	N	30.25

GEM™5000; G5 V1_15_12; LSGAM:6_0_20160627; {23023021373}

Appendix C3

Supplemental Gas Probe Technical Memorandum

DATE: March 20, 2026

TO: Mark Jusayan, LG Solid Waste Capital Planning and Operations Support
Program Manager

FROM: Chris Bourgeois, LHG

SUBJECT: South Park Landfill Gas Monitoring Improvements and Maintenance

CC: Ryan Gardiner, Washington Department of Ecology
Jerome Cruz, King County Health Department
Shannon Straws, Min-Soon Yim, Seattle Public Utilities
Laura Lee, Mike Brady, LHG, Parametrix

PROJECT NUMBER: 553-1550-067

PROJECT NAME: South Park Landfill Coordinator

This technical memorandum documents the installation of four supplemental gas probes, removal of seven embedded inactive purge-water storage drums, and repair to the monuments at gas probe GP-28 and groundwater monitoring well MW-24 at the South Park Landfill (Landfill) in Seattle, Washington. The work was completed on behalf of Seattle Public Utilities (SPU) and other potential liable parties (PLPs) to support continued compliance with Agreed Order (AO) 6706, including landfill gas (LFG) monitoring requirements under the Cleanup Action Plan (CAP; Ecology 2018) and the Post-Closure Operations, Maintenance, and Monitoring Plan (OMMP). The activities also addressed potential public safety hazards and helped maintain the integrity of LFG and groundwater monitoring systems.

Introduction

Supplemental gas probes were installed to address persistent shallow groundwater conditions blocking four perimeter gas probes (GP-11, GP-13, GP-15, and GP-32). These conditions have limited the ability to evaluate shallow subsurface landfill gas during routine monitoring events.

This memorandum also documents ancillary field activities completed during the same mobilization, including removal of seven deteriorated purge water drums embedded in the ground, repair of a damaged LFG probe concrete monument collar, and repair of a groundwater monitoring well steel monument.

Background

Site Description

The South Park Landfill is a closed landfill located in Seattle, Washington (see Figure 1). The landfill is regulated by the Washington State Department of Ecology (Ecology) under an AO following the Model Toxics Control Act (MTCA), with SPU and CenterPoint Properties South Park, LLC (CPSP) as PLPs. Parametrix serves as the Site Coordinator on behalf of SPU and CPSP. The CAP describes the cleanup action selected by Ecology for the "Settlement Area," a portion of the landfill area comprising the two largest properties which overlie waste associated with the landfill, as well as certain adjacent City of Seattle and Washington State rights-of-way (Figure 2).



Long-term post-closure monitoring at the landfill includes quarterly monitoring of perimeter gas probes to evaluate methane concentrations and ensure protection of adjacent buildings.

Blocked Landfill Gas Probes

Four perimeter gas probes—GP-11, GP-13, GP-15, and GP-32—have been consistently impacted by high groundwater levels that limit their ability to monitor LFG. As documented in the South Park Landfill – Replacement Gas Probes Work Plan (Work Plan; Parametrix 2023), groundwater elevations at these locations are commonly within approximately 5 feet of ground surface, periodically submerging the screened intervals.

To address this condition, SPU authorized the installation of supplemental gas probes with shallower screened intervals. These supplemental probes are intended to be used only when the corresponding original probe is blocked by water. During routine monitoring events, field staff will continue to evaluate the original probe first and will monitor the supplemental probe only if the original probe is not accessible due to groundwater conditions. A formal description of procedures for monitoring LFG at the supplemental probe locations is included at the end of the technical memorandum.

Additional Site Issues

In addition to the work described in the Work Plan, SPU requested that several minor site maintenance items be addressed during mobilization of the drilling subcontractor.

These items included the following:

- Removal of partially embedded 55-gallon drums remaining from a prior groundwater monitoring program.
- Repair of the concrete monument collar at gas probe GP-28, located on the east side of the 5th Avenue South right-of-way, which had sustained minor surface damage during nearby construction activities.
- Repair of the stand-up monument at groundwater monitoring well MW-24, located in the South Southern Street right-of-way, where the lid had become detached and the monument could not be secured.

Gas Probe Field Activities

Field activities were conducted between July 28 and August 1, 2025, and included installation of four supplemental gas probes (GP-11S, GP-13S, GP-15S, and GP-32S), removal of abandoned embedded drums, and repair of a damaged concrete probe monument collar. All work was performed by Holt Services, Inc. (HOLT) of Edgewood, Washington, under direct contract with SPU. Work conducted within the public right-of-way was performed under City of Seattle Street Use Division Minor Utility permits (SUUTIL0021499, SUUTIL0021500, SUUTIL0021503, and SUUTIL0021497).

Supplemental Gas Probe Installation

Supplemental gas probes GP-11S, GP-13S, GP-15S, and GP-32S were installed adjacent to existing probes GP-11, GP-13, GP-15, and GP-32, respectively. Installation locations were generally within approximately 5 feet of the existing probes, consistent with the Work Plan.

The probes were installed by HOLT using an air knife and vactor truck operated by a licensed driller. A shallow excavation was advanced at each location using the air knife and vactor system. Excavations were completed through surface soils at GP-11S, GP-13S, and GP-15S. At GP-32S, which is located within a paved parking area, a jackhammer was used to penetrate the asphalt prior to excavation. Excavations ranged from approximately 32 to 39.5 inches below ground surface (bgs) and were typically 12 to 18 inches in diameter. Subsurface materials consisted primarily of fill; brick and concrete debris were encountered at GP-11S and GP-32S. No groundwater was encountered during excavation.

Landfill gas was monitored in the work area using a portable 5-gas meter during excavation and installation activities. Methane was not detected above the instrument alarm setting (10% of the lower explosive limit).

Each supplemental gas probe was constructed using 0.25-inch outer diameter (OD), 0.17-inch inner diameter (ID) low-density polyethylene (LDPE) tubing connected to a 12-inch stainless steel wire mesh soil vapor implant screen. The screen and tubing assembly was placed within the excavation, followed by placement of filter sand to a targeted height above the top of the screen, hydrated bentonite chips to form a seal, and concrete to complete the surface installation.

Surface completions varied slightly by location. At GP-11S, GP-13S, and GP-15S, above-ground monuments were installed using flush-mount style steel monuments with approximately 4 to 6 inches of riser above ground surface to reduce the potential for surface water intrusion. This approach deviated from the work plan because full steel monuments could not be used due to shallow completion depths.

At GP-32S, a flush-mount monument was installed level with the surrounding paved surface using neat cement, consistent with the Work Plan. Due to the sloped location adjacent to a drainage feature and the shallow completion depth of GP-15S (approximately 9.5 to 21 inches bgs), a 12-inch-diameter sonotube was used to support the monument, with neat cement placed between the sonotube and the monument casing.

A concrete bollard was installed at GP-13S to provide additional protection. Bollards were not installed at the other probe locations because the installations were either flush-mounted or otherwise protected by existing site features.

Copies of the supplemental gas probe construction logs, including Washington State Department of Ecology tag numbers, are provided in Appendix A. Supplemental probe completion details are summarized in Table 1, and photographs of the installation activities are included in the photo log provided in Appendix B.

Supplemental Gas Probe Construction Details

The supplemental gas probes were completed with shallow screened intervals designed to remain above typical groundwater elevations and allow monitoring of the near-surface vadose zone. As-built completion details for each probe are summarized in Table 1.

Table 1. Gas Probe Detail Summary

Supplemental Probe ID	Associated Probe	Screened Interval (feet bgs)	Filter Pack Interval (feet bgs)	Bentonite Seal (feet bgs)	Surface Completion (feet bgs)
GP-11S	GP-11	1.0 – 2.0	0.8 – 2.8	0.5 – 0.8	Above-ground
GP-13S	GP-13	1.0 – 2.0	0.9 – 2.7	0.6 – 0.9	Above-ground
GP-15S	GP-15	0.8 – 1.8	0.7 – 3.0	0.6 – 0.7	Above-ground

Supplemental Probe ID	Associated Probe	Screened Interval (feet bgs)	Filter Pack Interval (feet bgs)	Bentonite Seal (feet bgs)	Surface Completion (feet bgs)
GP-32S	GP-32	1.3 – 2.3	1.2 – 3.3	1.0 – 1.2	Flush-mount

Screened intervals ranged from approximately 0.8 to 2.3 feet below ground surface (bgs), with total completed depths ranging from approximately 2.7 to 3.3 feet bgs. Filter pack and bentonite seal intervals are summarized in Table 1.

Each supplemental probe consists of a stainless steel wire mesh soil vapor implant screen connected to a LDPE tubing riser with a labcock valve and protective surface monument. Construction logs for each probe, including Washington State Department of Ecology tag numbers, and detailed descriptions of soils at each location are provided in Appendix A.

Helium Shroud Leak Detection Testing

Helium shroud leak detection testing was conducted on October 27, 2025, using a Dielectric MGD-2002 Multi Gas Leak Detector, prior to incorporation of the supplemental gas probes into routine landfill gas monitoring.

Helium leak testing was successfully completed at GP-11S, GP-13S, and GP-15S, with no evidence of ambient air intrusion. At GP-32S, the helium shroud test did not yield acceptable results, with apparent helium detected during the test.

At the time of testing, it was initially suspected that moisture within the monument and ambient conditions may have influenced instrument performance. Subsequent LFG monitoring indicated that methane concentrations at GP-32S exceeded 60% by volume. According to the instrument manufacturer, the MGD-2002 may respond to methane, even at relatively low concentrations, resulting in false positive indications during helium testing (Radiodetection Ltd. 2018).

Additional lines of evidence support that the probe is properly installed and sealed from atmospheric intrusion. Surface emissions monitoring conducted within the open monument did not detect methane above background concentrations. In addition, the monument has been observed to retain standing water, indicating that the bentonite seal is intact and limiting air migration.

Based on instrument response characteristics and supporting field observations, the helium test results at GP-32S are considered unreliable due to methane interference. The available information does not indicate that the probe is compromised by leakage.

Subsequent monitoring following installation identified elevated methane concentrations at GP-32S, exceeding 60 percent by volume, along with groundwater levels rising above the screened interval, preventing collection of representative LFG measurements. Evaluation of the implications of these findings for compliance monitoring is provided in a separate memorandum.

Additional Field Activities

Embedded Drum Removal

Seven 55-gallon steel drums that were partially buried (embedded) at groundwater monitoring well locations were removed during field activities. Removal of the drums was not included in the Supplemental Gas Probe Work Plan but was completed at the request of SPU.

The drums were exhumed using the air knife and vactor truck. Little to no water was present in the drums at the time of removal. The drums were then hauled off site and disposed of by HOLT. Following removal, the excavations were backfilled with pea gravel.

GP-28 Concrete Collar Repair

The concrete monument collar at gas probe GP-28 was observed to be damaged. Repairs were completed by chipping out the deteriorated concrete using a jackhammer and installing a new concrete collar. The repaired collar restored surface integrity and probe protection.

MW-24 Monument Lid Repair

The monument lid at groundwater monitoring well MW-24 was repaired by welding at the hinge by HOLT. The repair successfully restored the ability to properly close and secure the monument.

Monitoring Procedures for Supplemental Gas Probes

Perimeter LFG monitoring is performed on a quarterly basis at 17 locations surrounding the Landfill in accordance with the CAP and OMMP. Supplemental gas probes will be monitored only when the associated primary probe is determined to be blocked by groundwater.

Monitoring of primary and supplemental probes will be conducted in accordance with the general procedures described in the OMMP, with the following additional procedures applicable to supplemental probe use:

- **Initial Probe Assessment.**
Attempt to monitor the primary probe (GP-11, GP-13, GP-15, or GP-32) using a calibrated landfill gas meter in accordance with OMMP procedures. Static pressure and gas concentrations will be measured prior to purging, where feasible.
- **Determination of Blocked Probe.**
A probe will be considered blocked if one or more of the following conditions are observed:
 - Water is drawn into the tubing during monitoring; or
 - Sustained negative pressure is observed (e.g., approximately -4 inches of water column or greater), indicating restricted gas flow.

If a probe is determined to be blocked, the monitoring equipment will be disconnected promptly to prevent damage to the instrument.

- **Supplemental Probe Monitoring.**
If the primary probe is determined to be blocked, the associated supplemental probe (GP-11S, GP-13S, GP-15S, or GP-32S) will be monitored. The supplemental probe will first be evaluated for the presence of water using the same criteria described above.
- **Purging and Measurement.**
If the supplemental probe is not blocked, the probe will be purged for a minimum of approximately 90 seconds, or until methane, carbon dioxide, and oxygen concentrations stabilize. Stabilization is defined as readings that vary by less than approximately 10% over three consecutive measurements.
- **Data Recording.**
Final stabilized concentrations of methane, carbon dioxide, oxygen, and other measured

parameters will be recorded along with the date, time, and probe identification. If a primary or supplemental probe is determined to be blocked, this condition will be documented on the field form, including the basis for the determination (e.g., water observed in tubing or sustained negative pressure). Monitoring results will be documented using field forms consistent with those included in the OMMP.

Conclusions

Four supplemental gas probes were successfully installed at South Park Landfill to address persistent groundwater interference in existing perimeter probes. These probes provide a reliable alternative for shallow landfill gas monitoring when original probes are inaccessible due to high water levels.

Based on construction observations, leak testing, and subsequent monitoring, the supplemental gas probes are generally suitable for use in routine landfill gas monitoring in accordance with the OMMP. GP-32S has exhibited elevated methane concentrations during subsequent monitoring events. Groundwater levels at this location have also been observed to rise above the screened interval, which may limit the ability to collect representative landfill gas measurements during periods of high groundwater. Evaluation of this location for long-term compliance monitoring is being addressed separately.

Additional maintenance activities were completed, including removal of abandoned embedded drums and repair of the GP-28 concrete collar and MW-24 standup monument lid.

References

- Ecology (Washington Department of Ecology). 2018. South Park Landfill Final Cleanup Action Plan. Appendix A Landfill Post-Closure Operations, Maintenance, and Monitoring Plan. Washington State Department of Ecology Toxics Cleanup Program. Olympia, WA.
- Floyd | Snider, Aspect Consulting LLC, BHC Consultants, and Herrera Environmental Consultants, Inc. 2021. Remedial Investigation/Feasibility Study Revised Final. Prepared for City of Seattle and South Park Property Development, LLC. Original version dated 2017. February 2021.
- Parametrix. 2023. South Park Landfill – Replacement Gas Probes Work Plan. Prepared for Seattle Public Utilities by Parametrix, Seattle, Washington. November 2023.
- Radiodetection Ltd. 2018. Model MGD-2002 Multi Gas Leak Detector Instruction Manual (IB-417 Rev. J, Part No. 84671).

Figures

- Figure 1 – Site Vicinity Map
- Figure 2 – Perimeter Probe Network

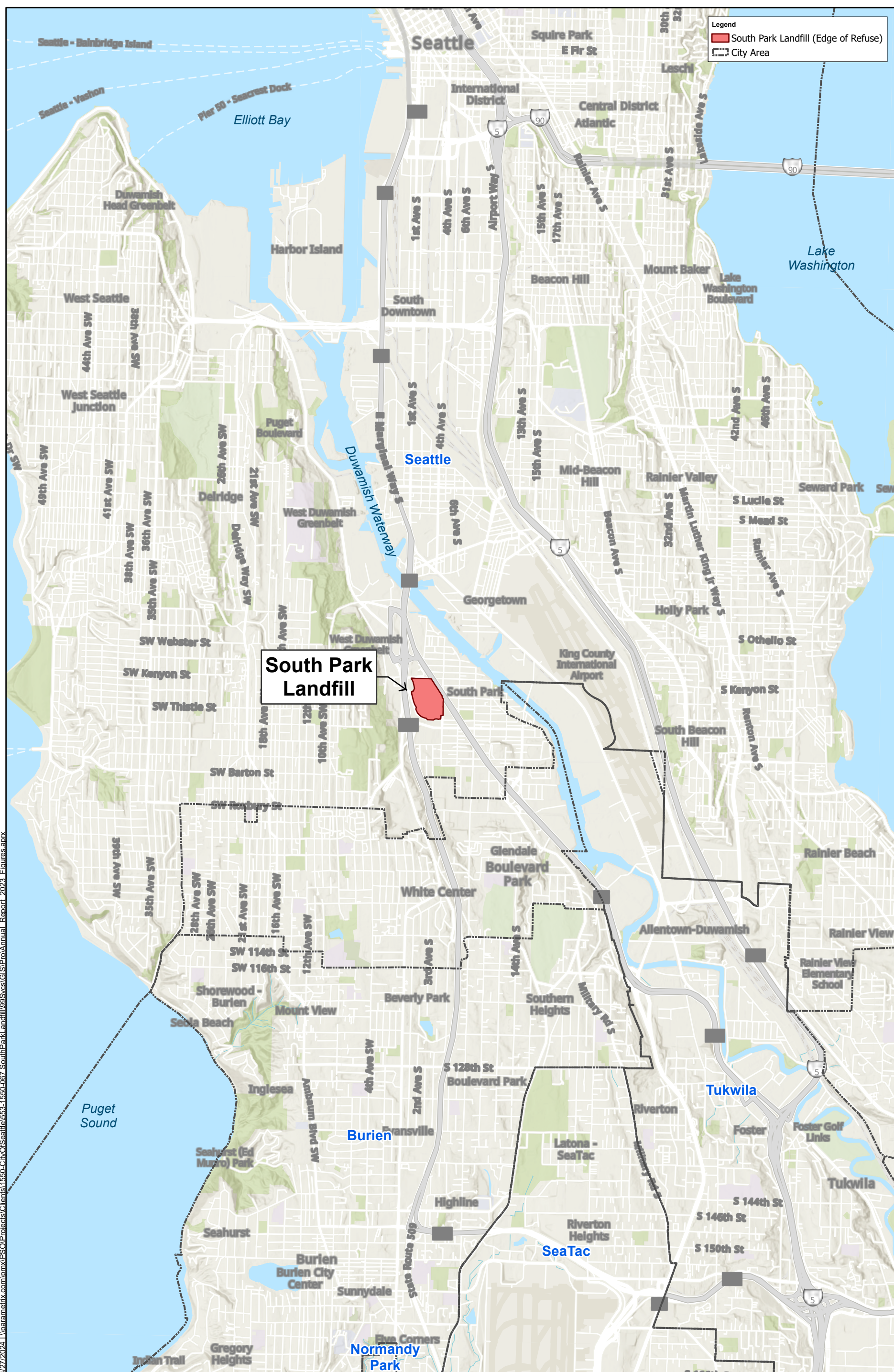
Tables

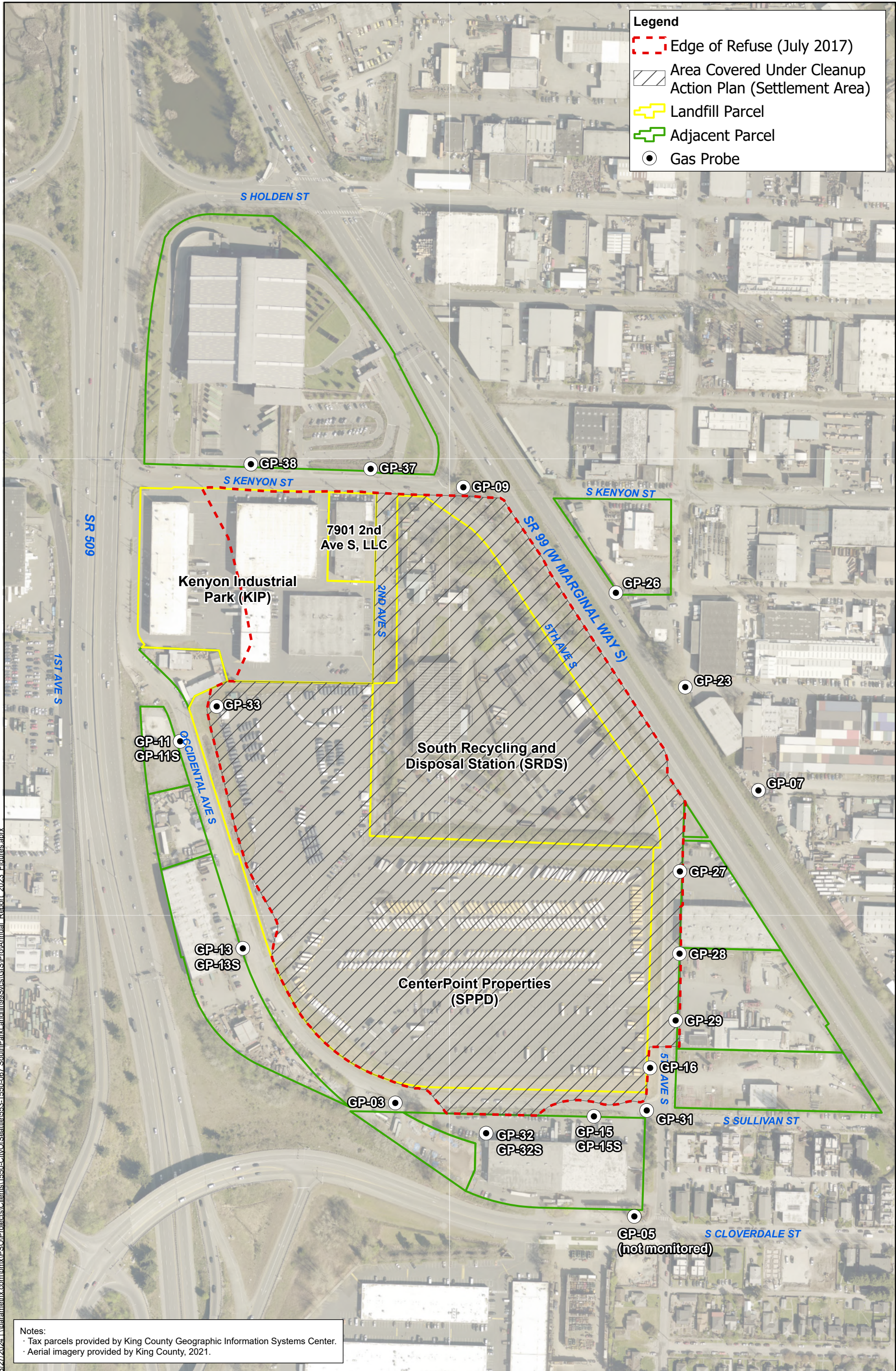
- Table 1 – Gas Probe Detail Summary

Attachments

- A – Gas Probe Logs
- B – Photo Log

Figures





3/27/2024, 1:10pm Parametrix.com\omx\PSO\Projects\Clients\1550-CityOfSeattle\553-1550-067-SouthParkLandfill\99Svcs\GIS\ProAnnualReport_2023_Figures.aprx

Notes:
• Tax parcels provided by King County Geographic Information Systems Center.
• Aerial imagery provided by King County, 2021.

Source: Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.

Parametrix



0 125 250 500 Feet

Figure 2
Perimeter Gas Probe Network
South Park Landfill

Attachment A

Gas Probe Logs

UTM :	Drill Rig : Vactor / Air Knife	Job Number : 553-1550-067
Latitude :	Driller Supplier : Holt Services	Client : Seattle Public Utilities
Longitude :	Logged By : Chris Bourgeois, LHG	Project : South Park Landfill
Ground Elevation :	Reviewed By : Michael Brady, LHG	Location : 424 S. Cloverdale Street
Total Depth : 3.0 ft BGS	Date : August 1, 2025	Loc Comment : Planter south of S. Sullivan Street

Construction	Depth (ft)	USCS Graphic Log	USCS	Material Description	PID (ppm)
					PID
			(fill)	FILL: Organic brown silty sand and sandy silt with roots	Soil cores not returned for screening, removed via air knife/vactor.
				Bottom of Excavation Terminated at 3 feet bgs. No water present within the bottom of the vactor excavation at time of completion.	

Notes:

Installed via air knife and vactor.

Multi-Rae 5-gas meter used for Health and Safety, elevated methane was not detected in the work area during installation.

UTM :	Drill Rig : Vactor / Air Knife	Job Number : 553-1550-067
Latitude :	Driller Supplier : Holt Services	Client : Seattle Public Utilities
Longitude :	Logged By : Chris Bourgeois, LHG	Project : South Park Landfill
Ground Elevation :	Reviewed By : Michael Brady, LHG	Location : 432 S. Cloverdale Street
Total Depth : 3.3 ft BGS	Date : August 1, 2025	Loc Comment : Parking lot north of building, 2-3 feet west of GP-32

Construction	Depth (ft)	USCS Graphic Log	USCS	Material Description	PID (ppm)
					PID
Flush Monument			Asp	Asphalt.	Soil cores not returned for screening, removed via air knife/vactor.
Valve 1/4" OD polyethylene			(fill)	FILL: Gray sand, medium sand and gravel, some minor brick, dry to moist.	
Cement			(fill)	FILL: Brick, red colored brick debris, minor silt and sand.	
Bentonite	1.0		(fill)	FILL: Gray sand, fine to medium sand with gravel and small cobbles, minor silt, moist.	
0.375" OD Wire mesh screen	2.0				
Silica Sand Pack	3.0			No water present within the bottom of the vactor excavation at time of completion.	
	4.0			Bottom of Excavation Terminated at 3.3 feet bgs.	

Notes:

Installed via air knife and vactor.

Multi-Rae 5-gas meter used for Health and Safety, elevated methane was not detected in the work area during installation.

Attachment B

Photo Log

PHOTO GALLERY

Job Name: South Park Landfill Supplemental Gas Probes

Job Number/Phase (Task) Mo/Yr: 553-1550-067 03.00 July/August 2025



Excavation for supplemental gas probe GP-11S using vector truck and air knife.



Completed supplemental gas probe GP-11S with flush-mount monument set slightly above ground surface.



Installation of GP-13S. Wire mesh screen and LDPE tubing lowered into excavation, filter pack sand being placed above and below screened interval.



Completed supplemental probe GP-13S and installed protective bollard.



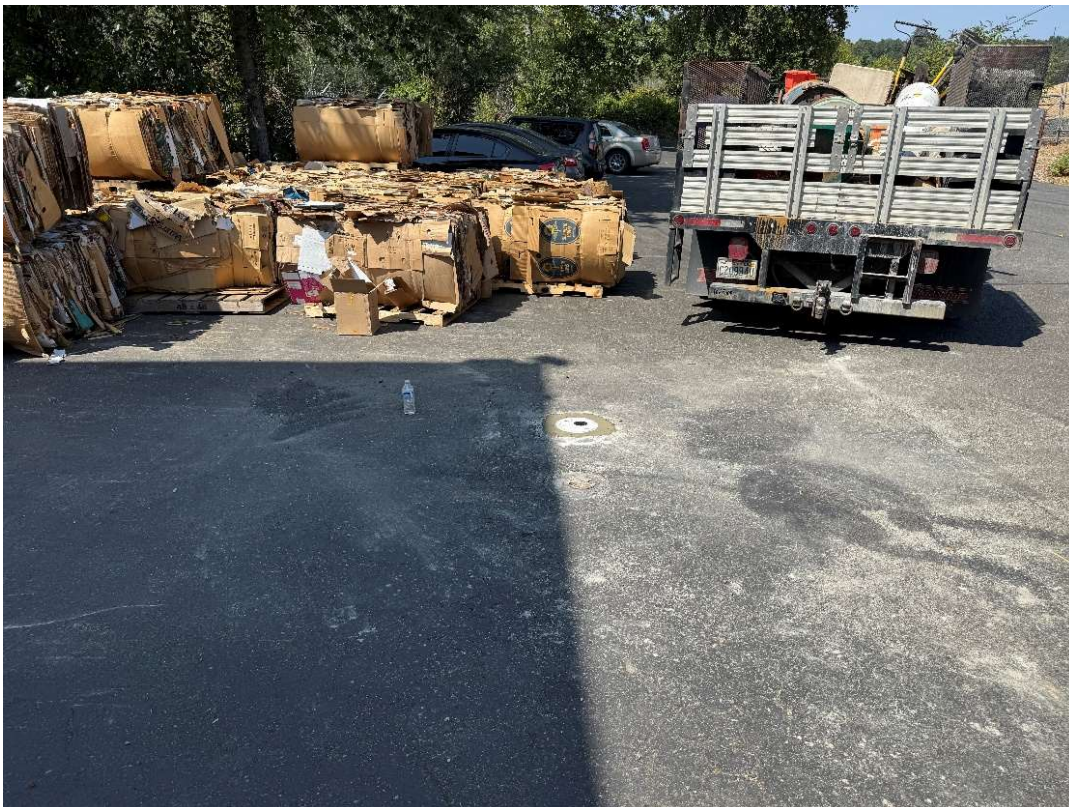
Excavation for supplemental gas probe GP-15S using vactor truck and air knife near GP-15 and drainage feature.



Completed supplemental probe GP-15S with sonotube, installed 1 to 2 inches above paved surface.



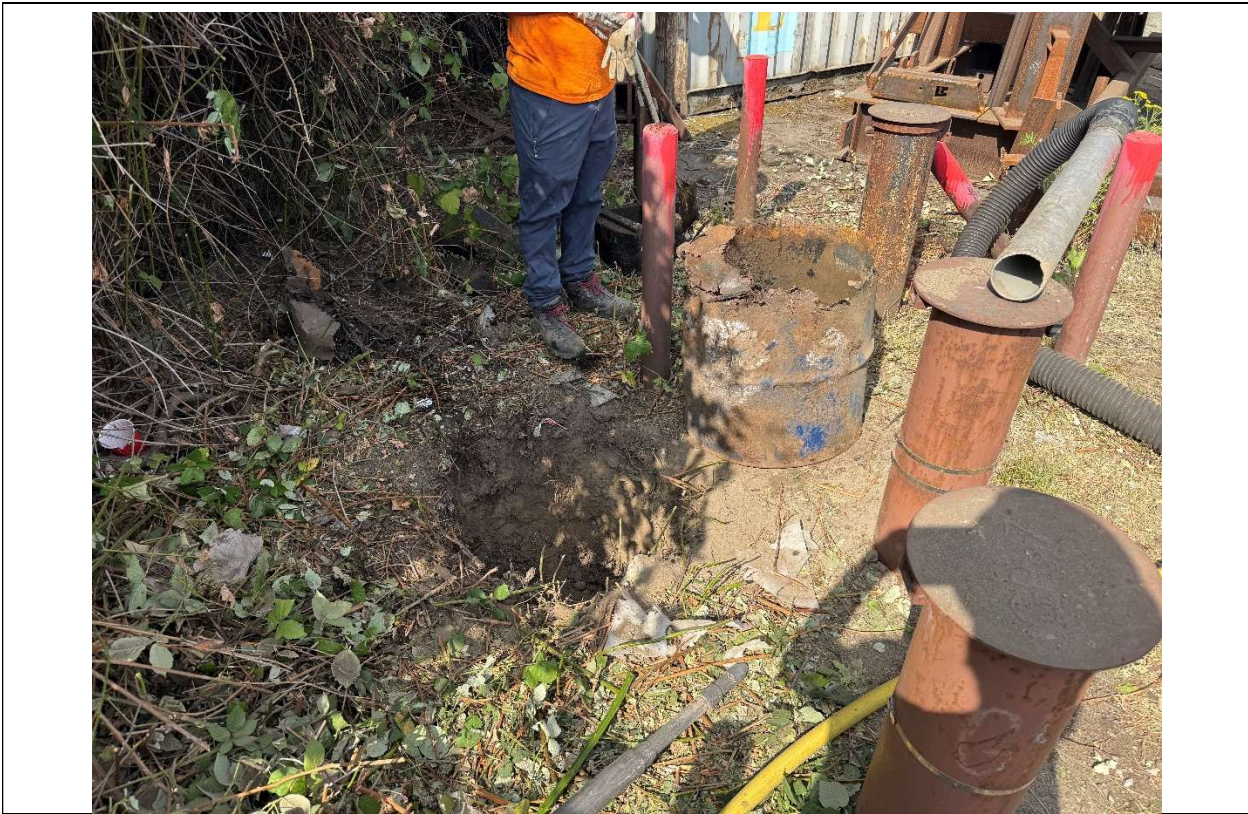
Installation of hydrated bentonite seal at GP-32S.



Completed supplemental probe GP-15S with flush-mount monument.



Removal of embedded and sheared drum at MW-24 location using air knife and vector truck.



Drum removal at MW-24 location. MW-24 lid, pre-repair also in image, located behind and to the right of drum.



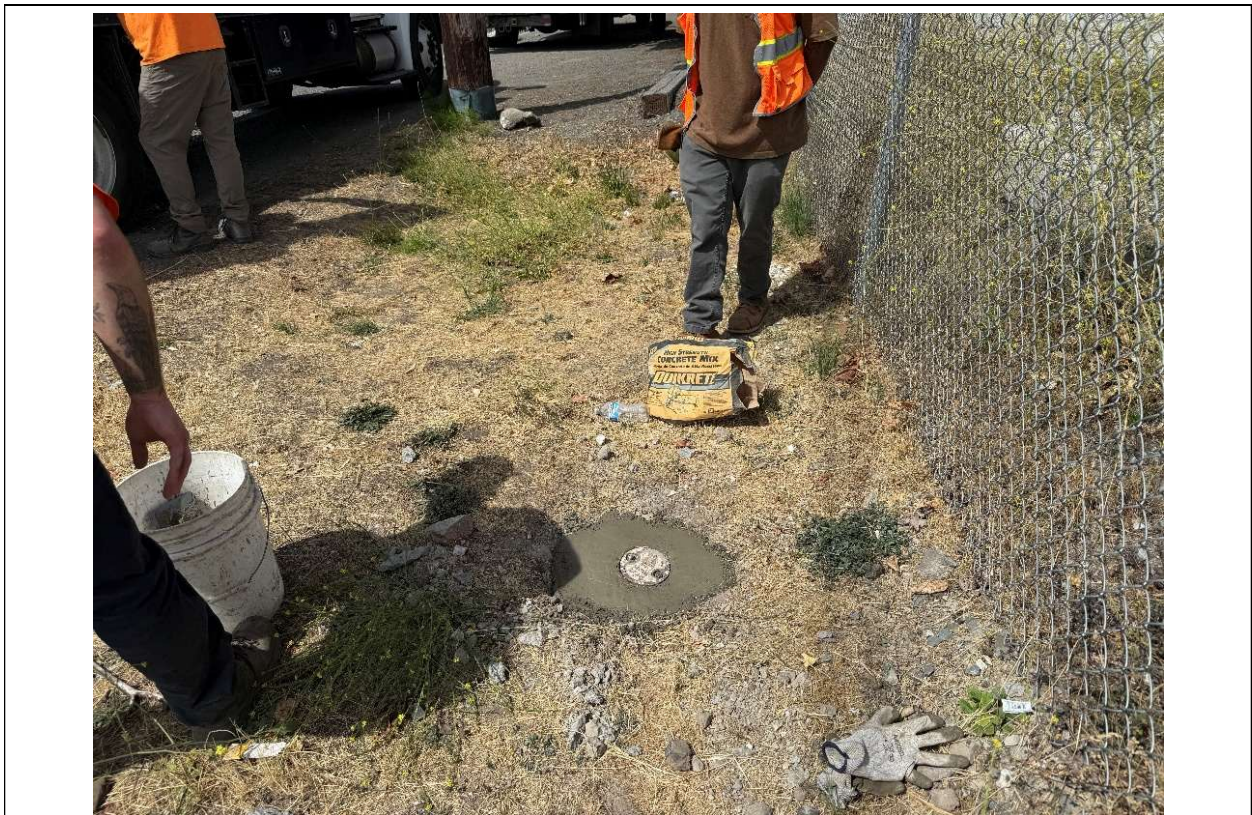
Pea gravel backfill of embedded drum depression.



Lid hinge weld repaired, and repainted MW-24 monument.



GP-28 monument prior to repairs.



Repaired monument at GP-28.



Helium leak detection testing at GP-15S.



Landtec SEM5000 reading methane emissions at GP-32S monument. Methane concentrations at or below background measurements of 3.0 parts per million.

Appendix C4

GP-32S Monitoring Data

Table C4. Gas Probe GP-32S Monitoring Results, Landfill Gas Trigger Response, South Park Landfill

Date	Time	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Static Pressure (Inches of water column)	Barometric Pressure (Inches of mercury)	Blocked?	Comment
10/28/2025	10:39	66.4	16.7	0.0	0.00	30.20	FALSE	90 Second purge
10/29/2025	10:46	66.6	16.6	0.0	0.00	30.45	FALSE	60 Second Purge
10/30/2025	9:32	65.4	16.5	0.1	0.02	30.28	FALSE	60 Second Purge
10/31/2025	10:42	64.9	16.8	0.0	0.03	30.05	FALSE	60 Second Purge
11/2/2025	13:02	65.4	16.7	0.0	0.00	30.45	FALSE	60 Second Purge
11/3/2025	8:36	67.4	16.9	0.1	-0.06	29.98	FALSE	80 Second purge
11/4/2025	8:05	67.0	16.6	0.1	0.00	30.01	FALSE	60 Second Purge
11/5/2025	8:03	68.2	16.9	0.1	0.03	29.49	FALSE	60 Second Purge
11/6/2025	12:34	67.1	16.7	0.1	0.35	29.83	FALSE	60 Second Purge
11/7/2025	9:16	67.2	16.9	0.1	-0.05	30.21	FALSE	60 Second Purge
11/9/2025	8:11	69.0	16.5	0.0	0.00	30.17	FALSE	90 Second purge
11/10/2025	10:13	69.3	16.6	0.1	-0.01	30.25	FALSE	60 Second Purge
11/11/2025	10:26	70.0	17.0	0.0	-0.08	30.25	FALSE	90 Second purge
11/12/2025	9:35	70.0	17.5	0.0	0.04	29.88	FALSE	60 Second Purge
11/13/2025	12:25	70.2	17.9	0.0	0.17	29.6	FALSE	60 Second Purge
11/14/2025	8:37	70.8	17.5	0.0	0.46	29.78	FALSE	60 Second Purge
11/16/2025	13:32	71.4	18.5	0.0	0.21	29.58	FALSE	60 Second Purge
11/17/2025	8:49	71.5	18.4	0.0	-0.02	29.84	FALSE	60 Second Purge
11/18/2025	9:47	71.4	17.9	0.0	-0.06	30.15	FALSE	60 Second Purge
11/19/2025	9:11	72.1	17.2	0.0	0.02	30.04	FALSE	60 Second Purge
11/20/2025	10:06	72.7	17.1	0.0	-0.02	30.08	FALSE	60 Second Purge
11/21/2025	9:06	72.0	16.8	0.0	-0.01	30.28	FALSE	60 Second Purge
11/23/2025	13:14	72.4	17.4	0.0	0.15	30.1	FALSE	60 Second Purge
11/24/2025	11:41	73.9	17.0	0.0	-0.17	30.38	FALSE	60 Second Purge
11/25/2025	9:49	74.0	16.8	0.0	-0.11	30.28	FALSE	60 Second Purge
11/26/2025	9:21	74.4	16.5	0.0	-0.14	30.28	FALSE	60 Second Purge
11/28/2025	11:36	76.6	17.0	0.0	-0.60	30.20	FALSE	60 Second Purge
11/30/2025	10:55	77.4	16.6	0.0	-0.27	30.32	FALSE	60 Second Purge
12/1/2025	10:40	75.6	16.2	0.0	-0.16	30.31	FALSE	60 Second Purge
12/2/2025	11:14	75.5	16.0	0.0	-0.11	30.26	FALSE	60 Second Purge
12/3/2025	12:37	74.8	15.5	0.0	0.01	30.36	FALSE	60 Second Purge
12/4/2025	10:49	74.4	15.7	0.0	0.15	30.29	FALSE	60 Second Purge
12/5/2025	11:23	74.4	15.7	0.0	0.50	29.80	FALSE	60 Second Purge
12/7/2025	07:47	75.7	16.1	0.0	0.16	29.88	FALSE	60 Second Purge
12/8/2025	08:58	75.7	16.5	0.0	0.21	29.98	FALSE	60 Second Purge
12/10/2025	09:36	75.9	16.3	0.0	-0.87	29.91	FALSE	60 Second Purge
12/11/2025	10:10	74.2	16.7	0.0	0.00	30.22	FALSE	60 Second Purge
12/12/2025	10:45	70.8	16.6	0.0	-0.03	30.20	TRUE	Blocked by water, 60 seconds
12/14/2025	09:15	0.0	0.2	21.5	-1.91	30.00	TRUE	Blocked with water, 3 seconds
12/29/2025	10:28	13.3	14.4	2.4	0.02	30.63	TRUE	Probe valve open on arrival. Blocked at 240 seconds
1/5/2026	09:01	34.0	15.1	0.3	-2.07	29.94	TRUE	Blocked with water @ 20 seconds
1/12/2026	10:34	0.2	0.1	20.9	0.45	30.41	TRUE	Blocked by water immediately
1/20/2026	10:35	9.5	1.7	21.0	-1.45	30.30	TRUE	Blocked by water at 10 seconds
1/26/2026	08:57	10.8	4.8	14.1	-0.08	30.26	FALSE	225 sec purge. 22% CH4 peak at 30 seconds
1/27/2026	09:57	17.7	10.1	8.1	0.18	30.12	FALSE	220 second purge
1/29/2026	09:52	10.7	12.6	0.4	-2.90	30.30	TRUE	Blocked with water within 20 seconds
2/2/2026	08:05	0.0	0.1	20.9	0.05	30.27	TRUE	Blocked with water within 3 seconds
2/9/2026	11:15	0.0	0.1	21.5	-1.85	30.35	TRUE	Blocked with water within 3 seconds
2/17/2026	09:09	67.1	12.8	0.0	11.23	29.45	FALSE	70 Second Purge, no blockage
2/18/2026	11:08	67.9	12.6	0.0	0.62	29.72	FALSE	60 Second purge, no block
2/19/2026	09:02	67.3	13.2	0.0	1.29	29.88	FALSE	70 Second purge
2/20/2026	08:57	61.4	13.1	0.0	0.16	30.01	FALSE	70 Second purge
2/22/2026	11:40	53.2	12.9	0.0	0.11	30.08	FALSE	70 Second purge
2/23/2026	09:36	0.6	0.7	20.1	-0.95	30.15	TRUE	Blocked with water within 5 seconds

Appendix C5

Surface Emission and Indoor
Air Monitoring Data

Table C-5. Indoor & Outdoor Methane Monitoring at Full Circle Tenant of Frank Lenci Property, South Park Landfill

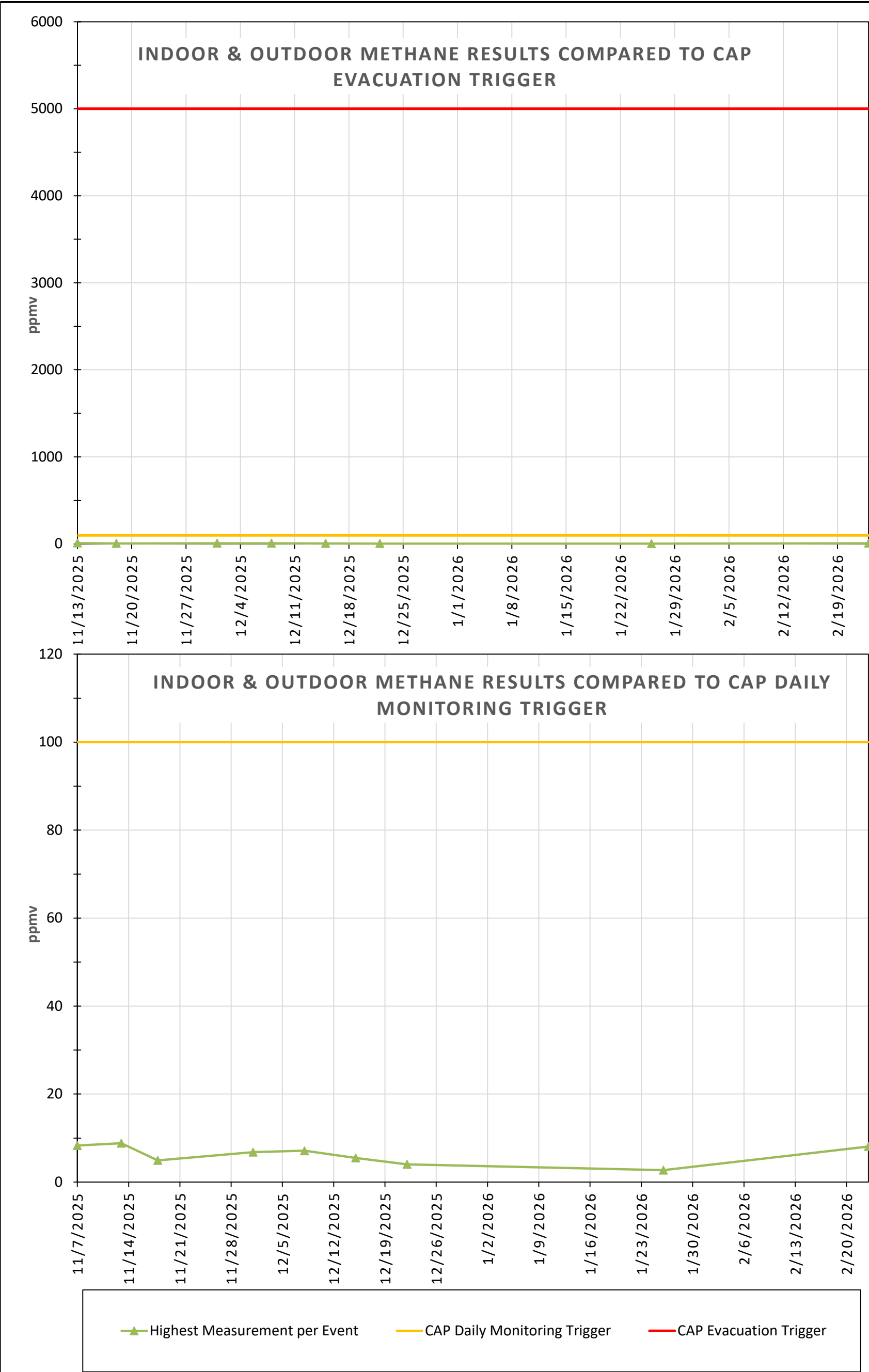
Survey Date	Minimum (ppmv)	Mean (ppmv)	Std. Deviation (ppmv)	Maximum (ppmv)
11/7/2025	0.0	2.67	1.97	8.3
11/13/2025	2.1	4.76	2.37	8.8
11/18/2025	2.3	3.24	0.64	4.9
12/1/2025	0.0	2.40	1.72	6.8
12/8/2025	0.0	2.48	1.53	7.1 [†]
12/15/2025	2.9	4.21	0.65	5.5
12/22/2025	2.4	2.57	0.20	4.0
1/26/2026	2.0	2.11	0.10	2.7
2/23/2026	1.9	2.08	0.27	8.1

Notes:

ppmv parts per million by volume

† Elevated methane was briefly detected at a concentration of 29.3 ppmv near a storm drain in the Full Circle parking lot on 12/8/2025. Elevated methane was not detected during subsequent measurements at this location on 12/8/2025, or subsequent monitoring events.

Note: Total measurements collected during each events ranged from 101 to 647, based on varying extents of outdoor areas monitored.



ParametriX

Indoor & Outdoor Methane Monitoring Results
Full Circle Tenant of Frank Lenci Property
South Park Landfill

Note:

Elevated methane was briefly detected at a concentration of 29.3 ppmv near a storm drain in the Full Circle parking lot on 12/8/2025. Elevated methane was not detected during subsequent measurements at this location on 12/8/2025, or subsequent monitoring events.

CAP

Cleanup Action Plan for South Park Landfill (2018)

Appendix C6

On-Site Building Monitoring Forms

SOUTH PARK LANDFILL
SPPD ON-SITE BUILDING
METHANE ALARM INSPECTION CHECKLIST

Building Location: _____

Make and Model of Detector: _____

Monthly Check		
Press test button and confirm indicator light is illuminated.		
Pass	Date	Initials
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		

Quarterly Test		
Direct gas from unlighted butane lighter into the detector through one of the vent holes and hold for several seconds. Confirm that red light and alarm activated.		
Pass	Date	Initials
☐		
☐		
☐		
☐		

SOUTH PARK LANDFILL
SPPD ON-SITE BUILDING
METHANE ALARM INSPECTION CHECKLIST

Building Location: NW corner

Make and Model of Detector: YC302 Pro+

Monthly Check		
Press test button and confirm indicator light is illuminated.		
Pass	Date	Initials
☒	12/5/25	JV
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		

Quarterly Test		
Direct gas from unlighted butane lighter into the detector through one of the vent holes and hold for several seconds. Confirm that red light and alarm activated.		
Pass	Date	Initials
☒	12/5/25	JV
☐		
☐		
☐		

SOUTH PARK LANDFILL
SPPD ON-SITE BUILDING
METHANE ALARM INSPECTION CHECKLIST

Building Location: SE Corner

Make and Model of Detector: YC 302 Pot

Monthly Check		
Press test button and confirm indicator light is illuminated.		
Pass	Date	Initials
☒	12/5/25	JV
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		
☐		

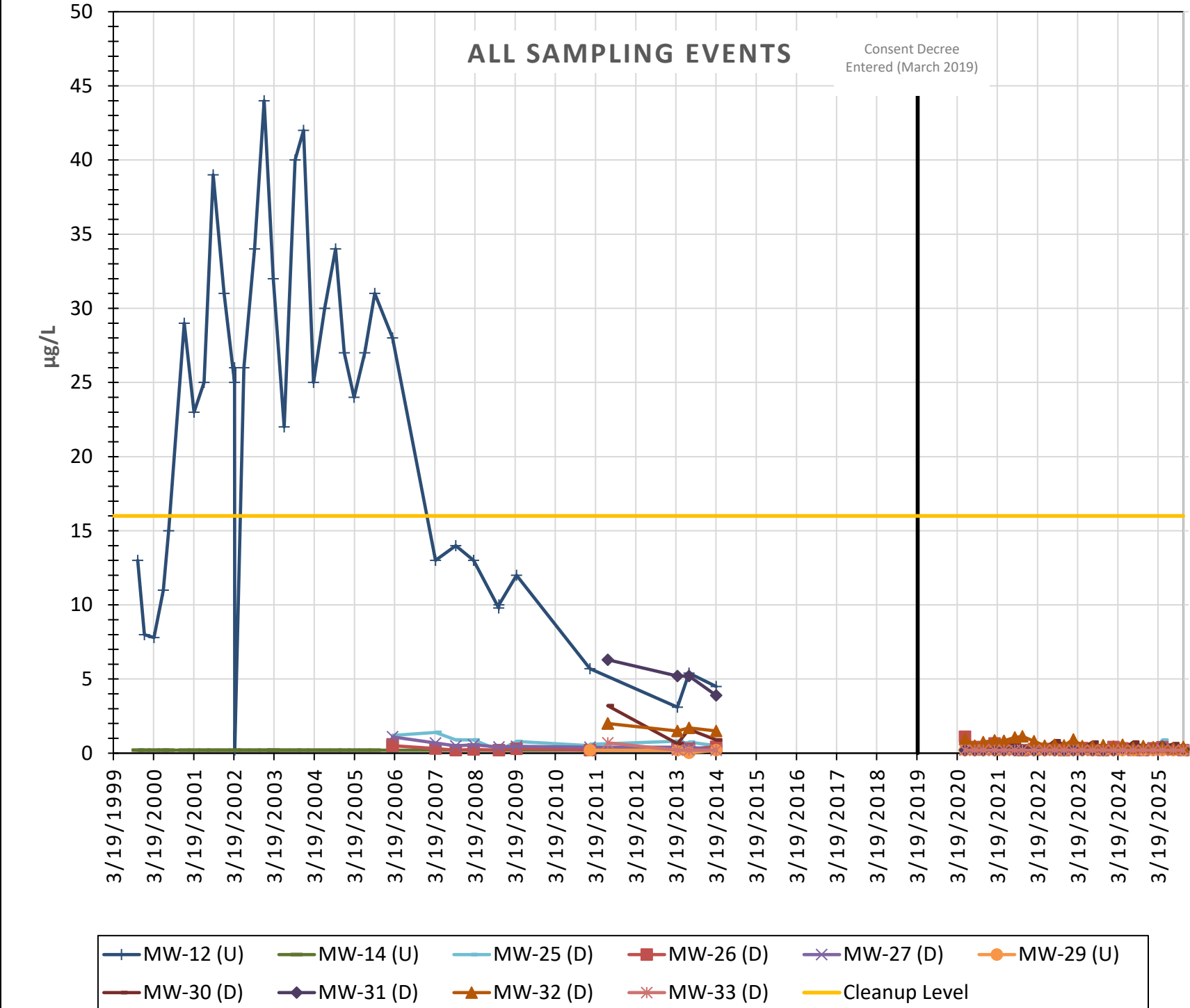
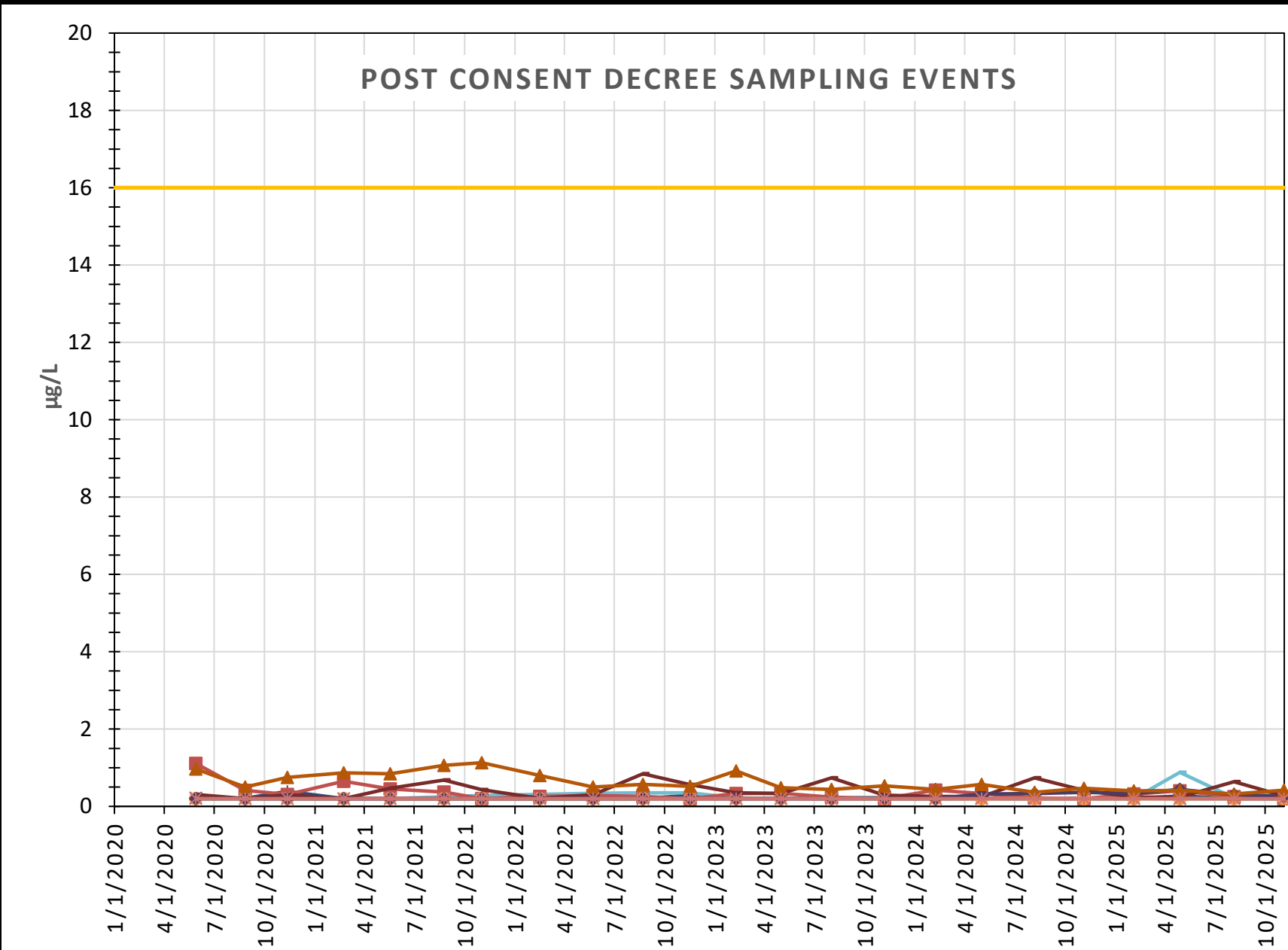
Quarterly Test		
Direct gas from unlighted butane lighter into the detector through one of the vent holes and hold for several seconds. Confirm that red light and alarm activated.		
Pass	Date	Initials
☒	12/5/25	JV
☐		
☐		
☐		

Appendix D

Groundwater Monitoring

Appendix D1

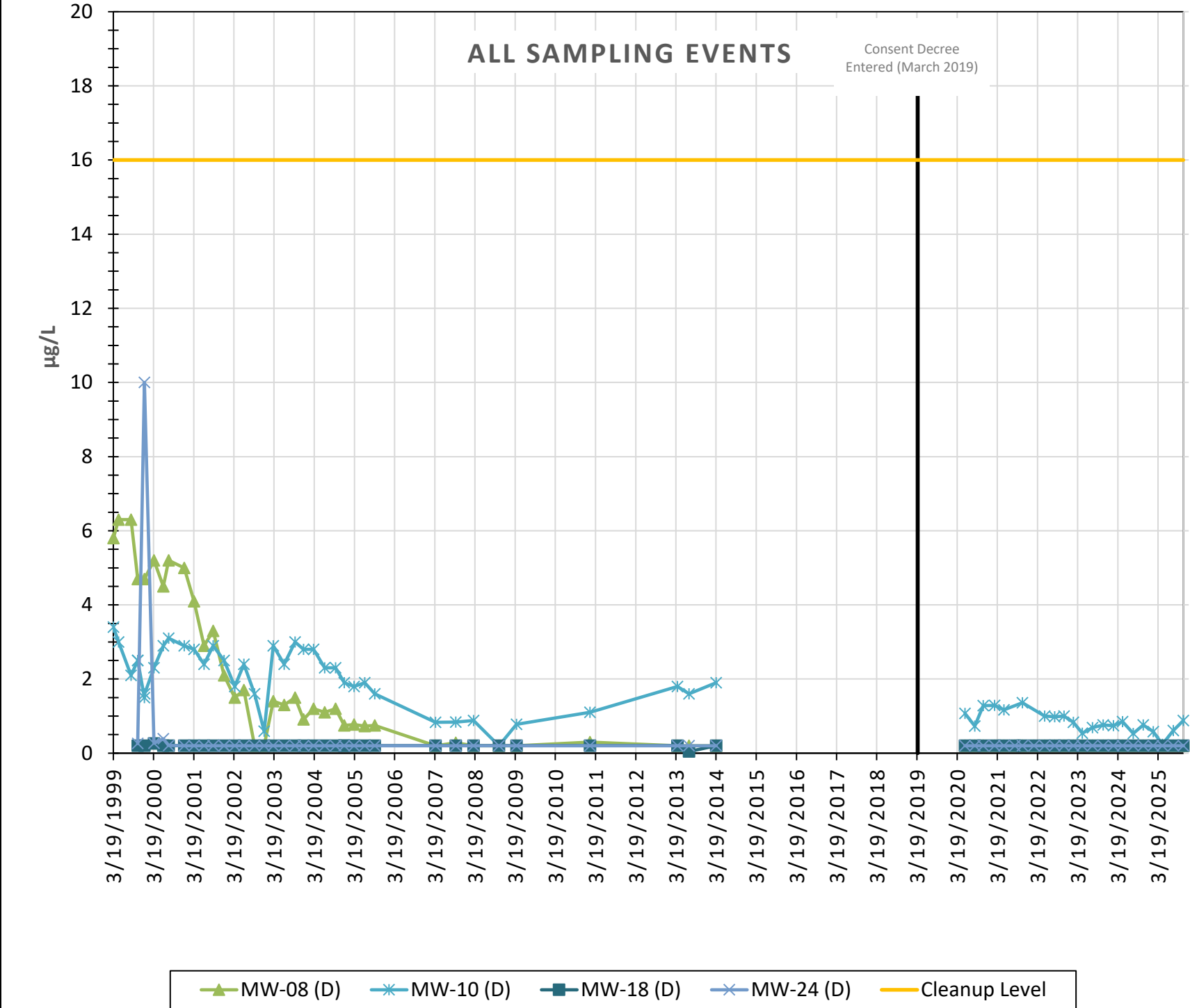
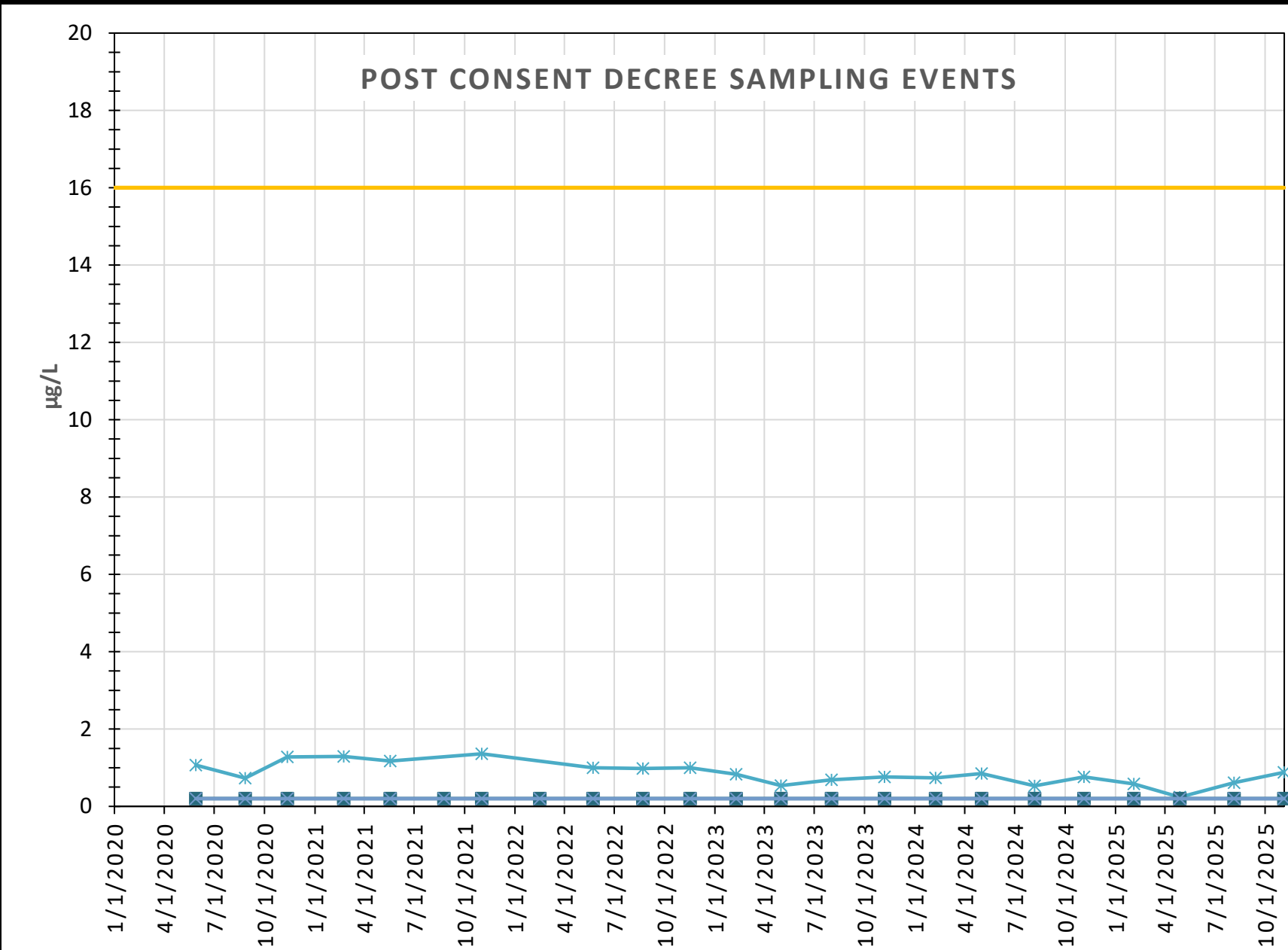
Time-Series Plots

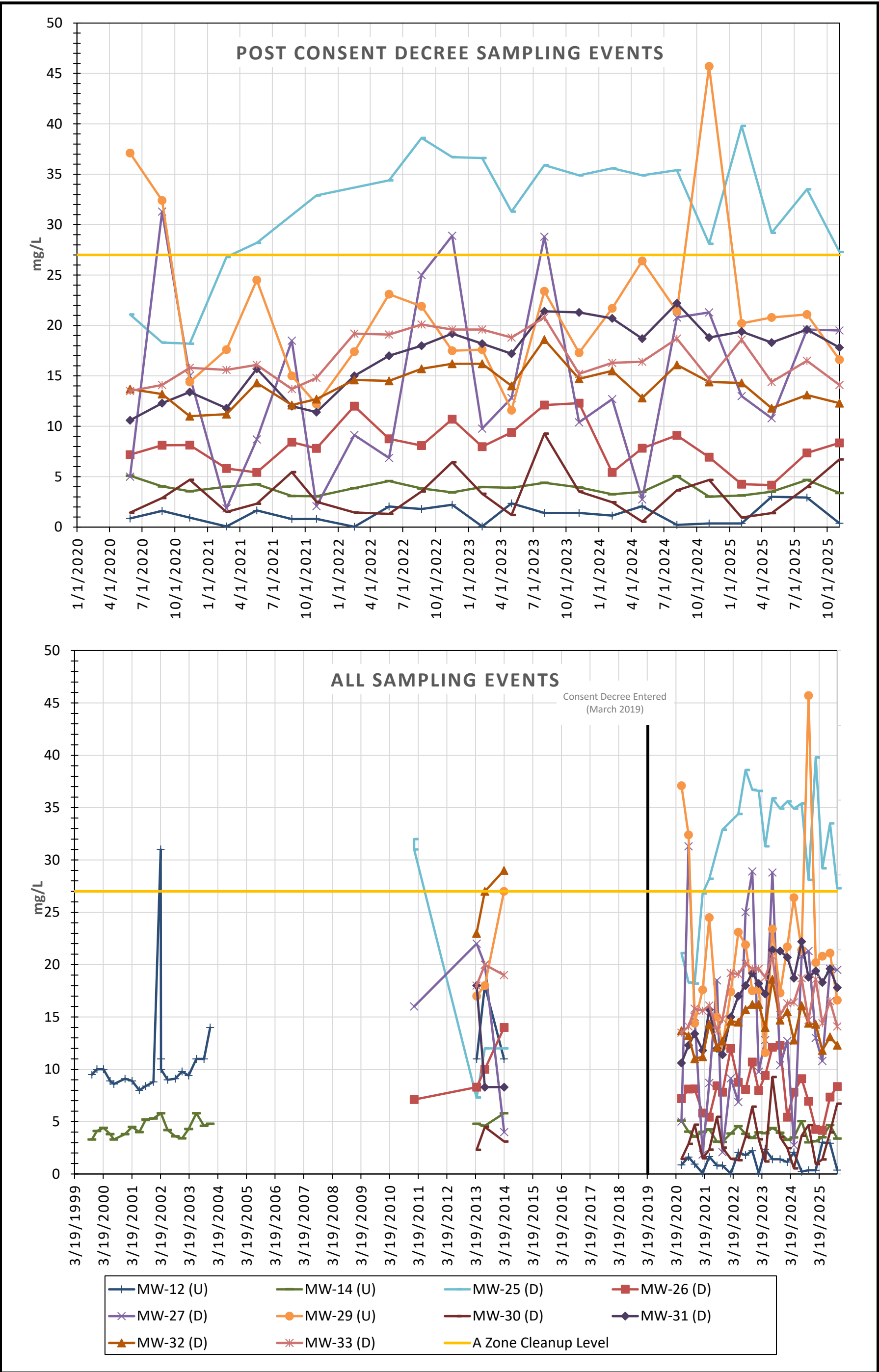


Parametrix

D = Downgradient
U = Upgradient

Cis-1,2-Dichloroethene Concentrations
A-Zone CPOC Wells
South Park Landfill

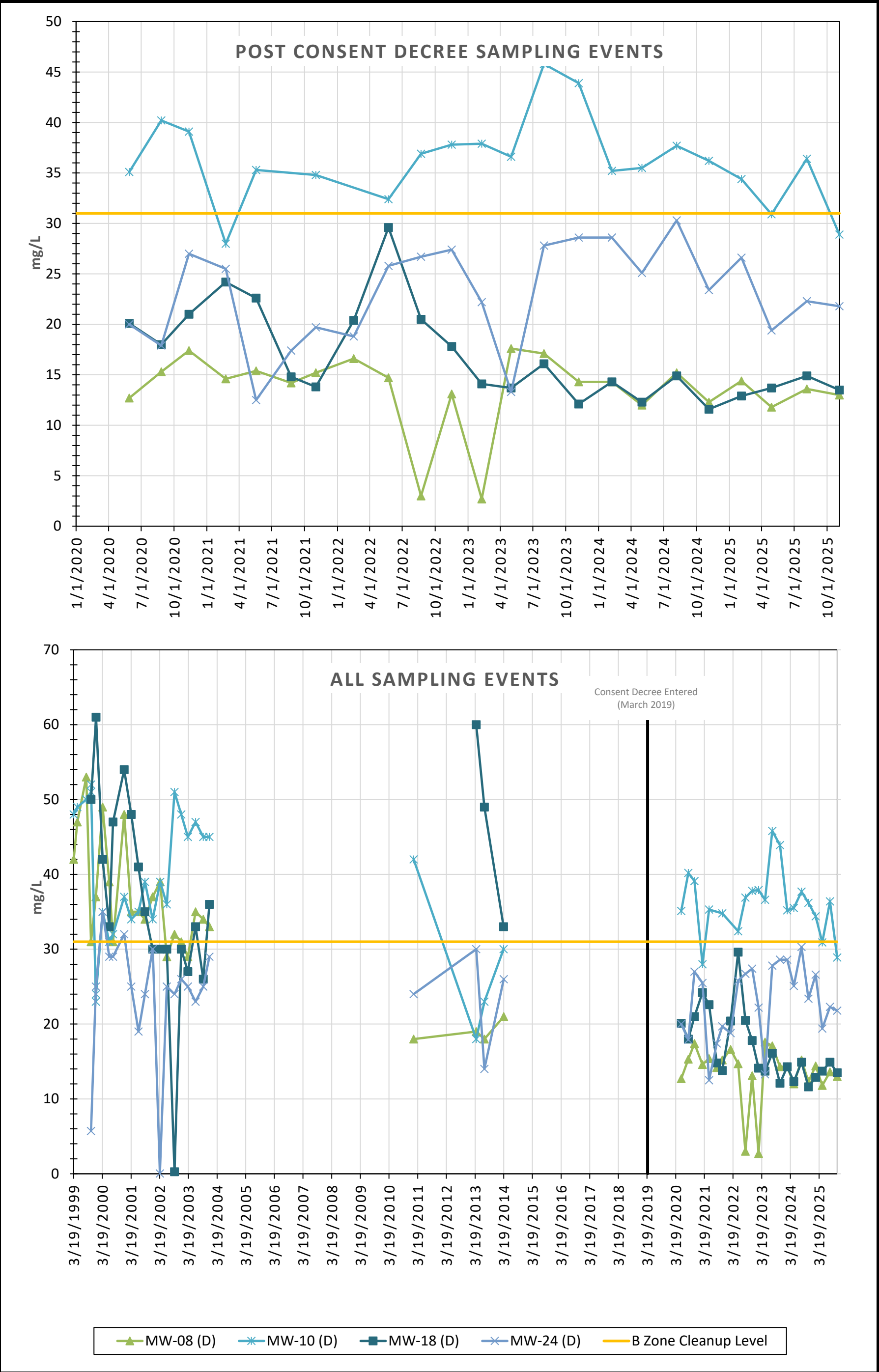




Parametrix

D = Downgradient
U = Upgradient

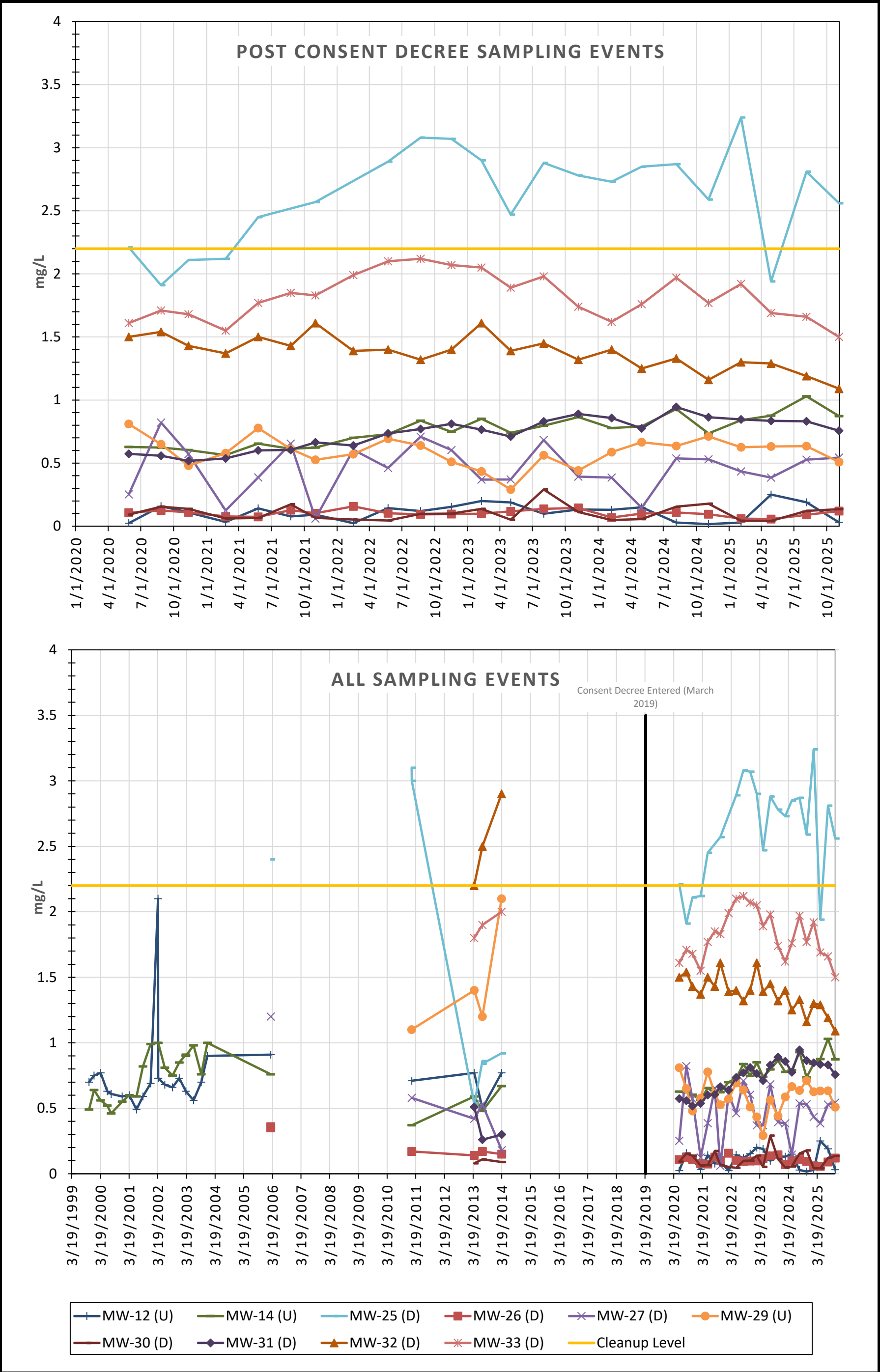
Total Iron Concentrations
A-Zone CPOC Wells
South Park Landfill

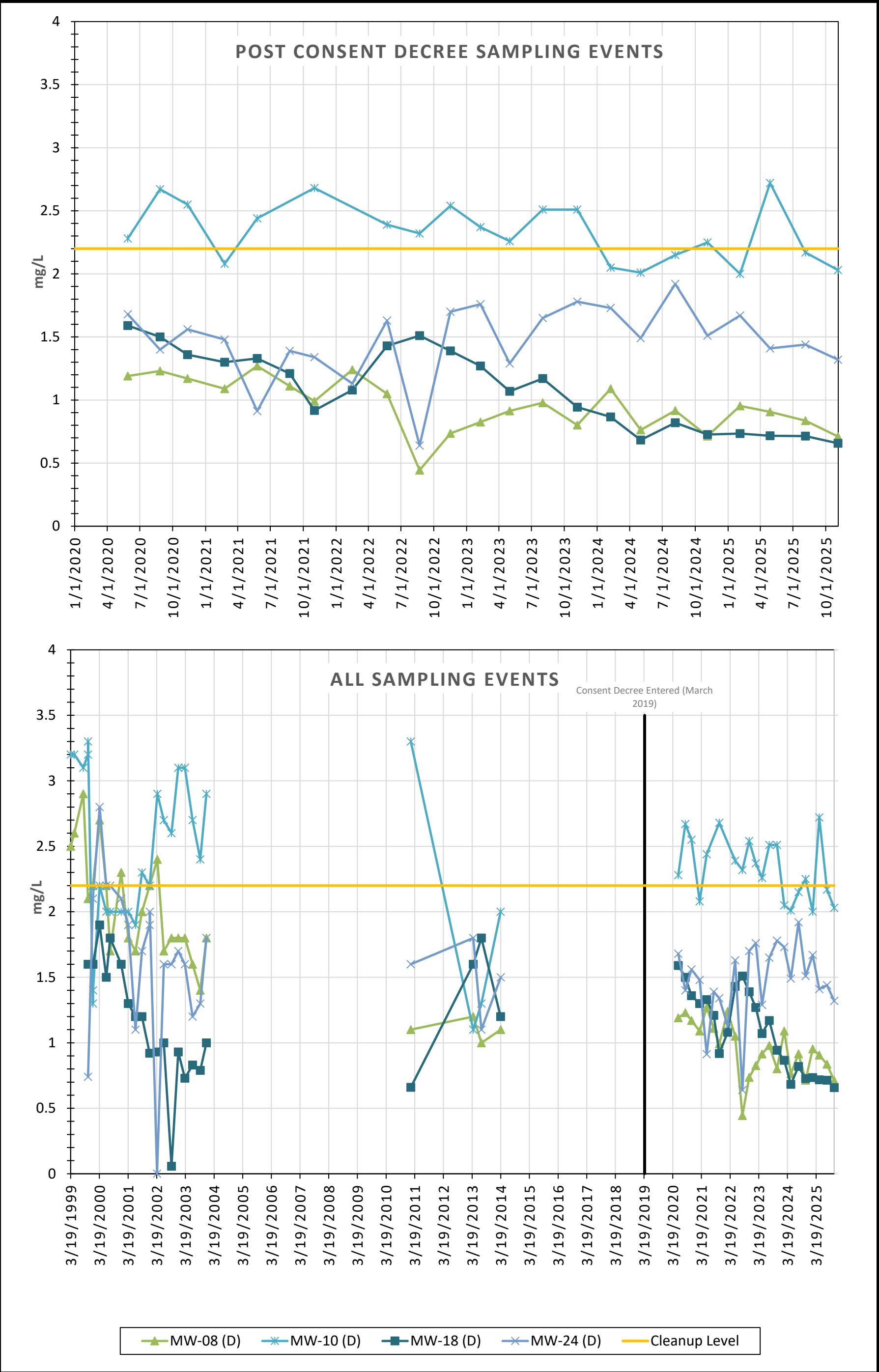


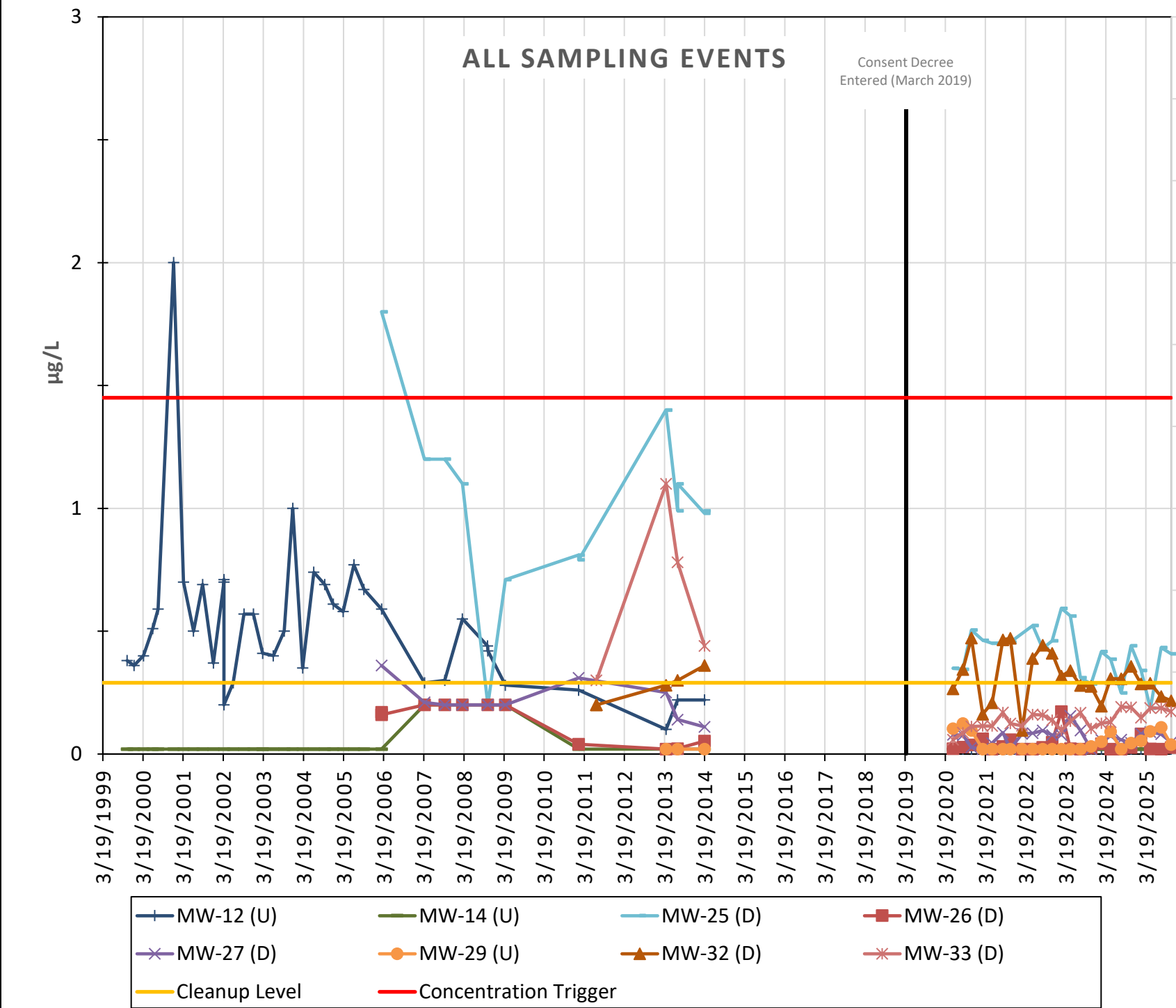
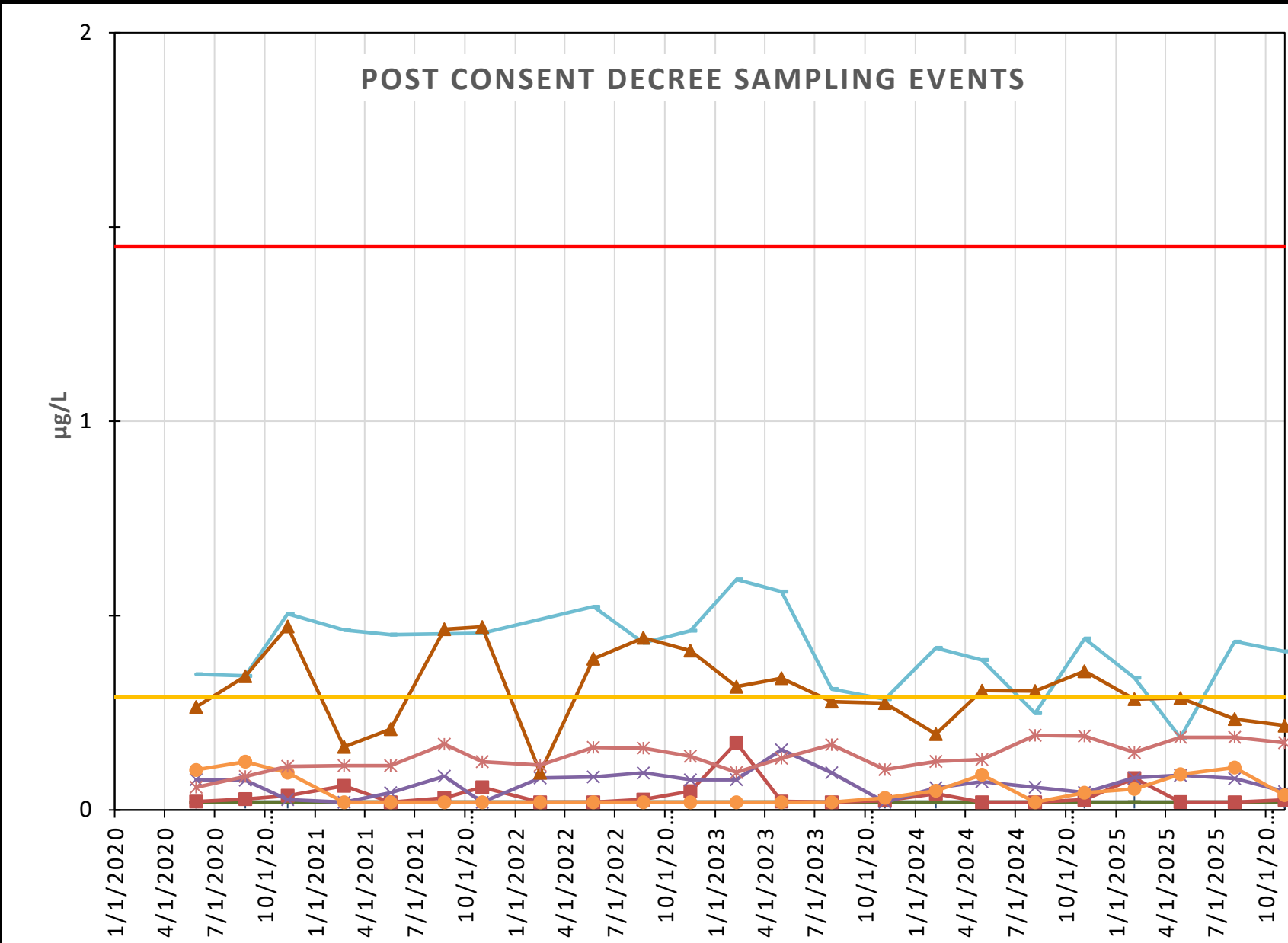
Parametrix

Total Iron Concentrations
B-Zone CPWC Wells
South Park Landfill

D = Downgradient
U = Upgradient



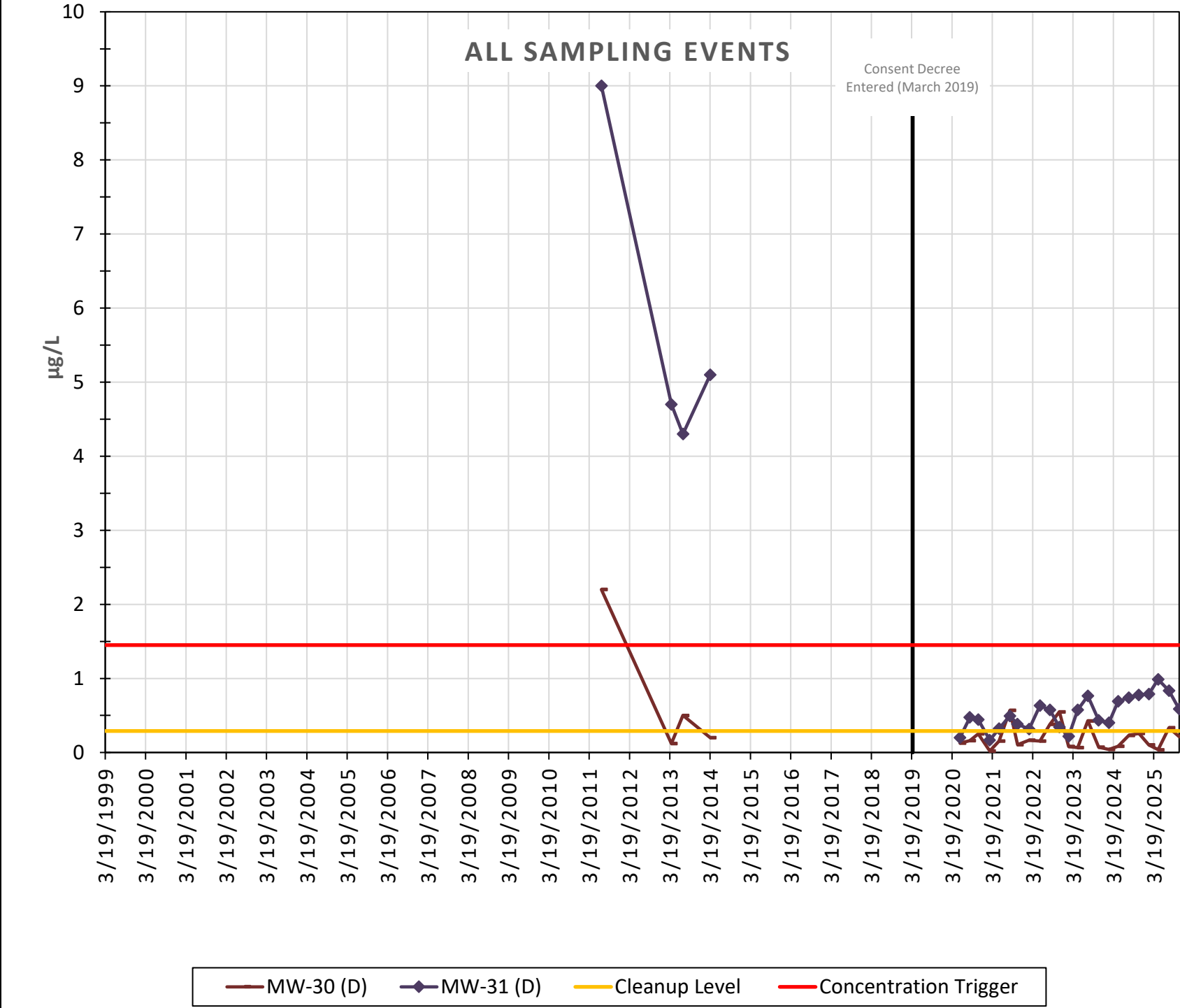
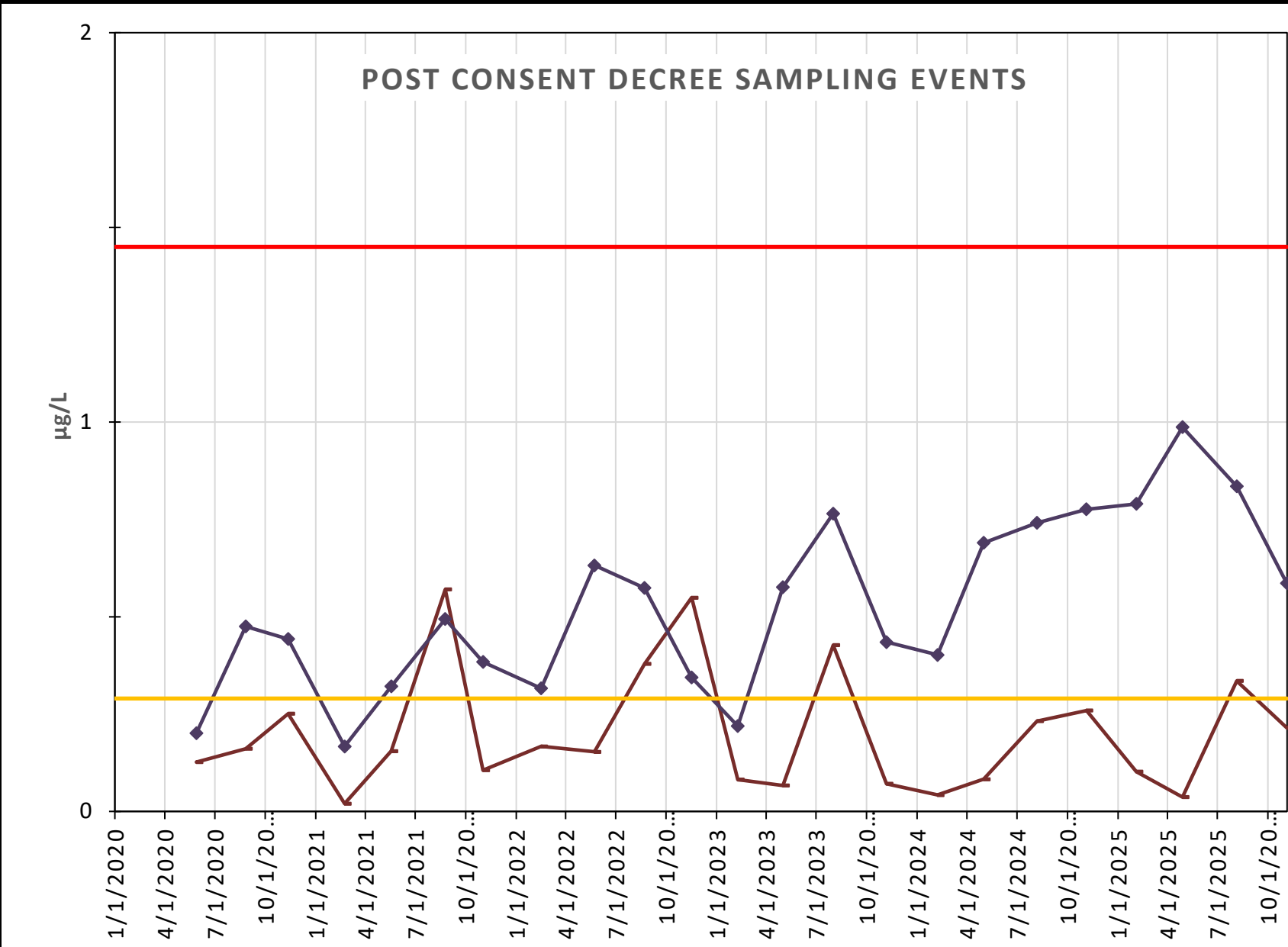




Parametrix

D = Downgradient
U = Upgradient

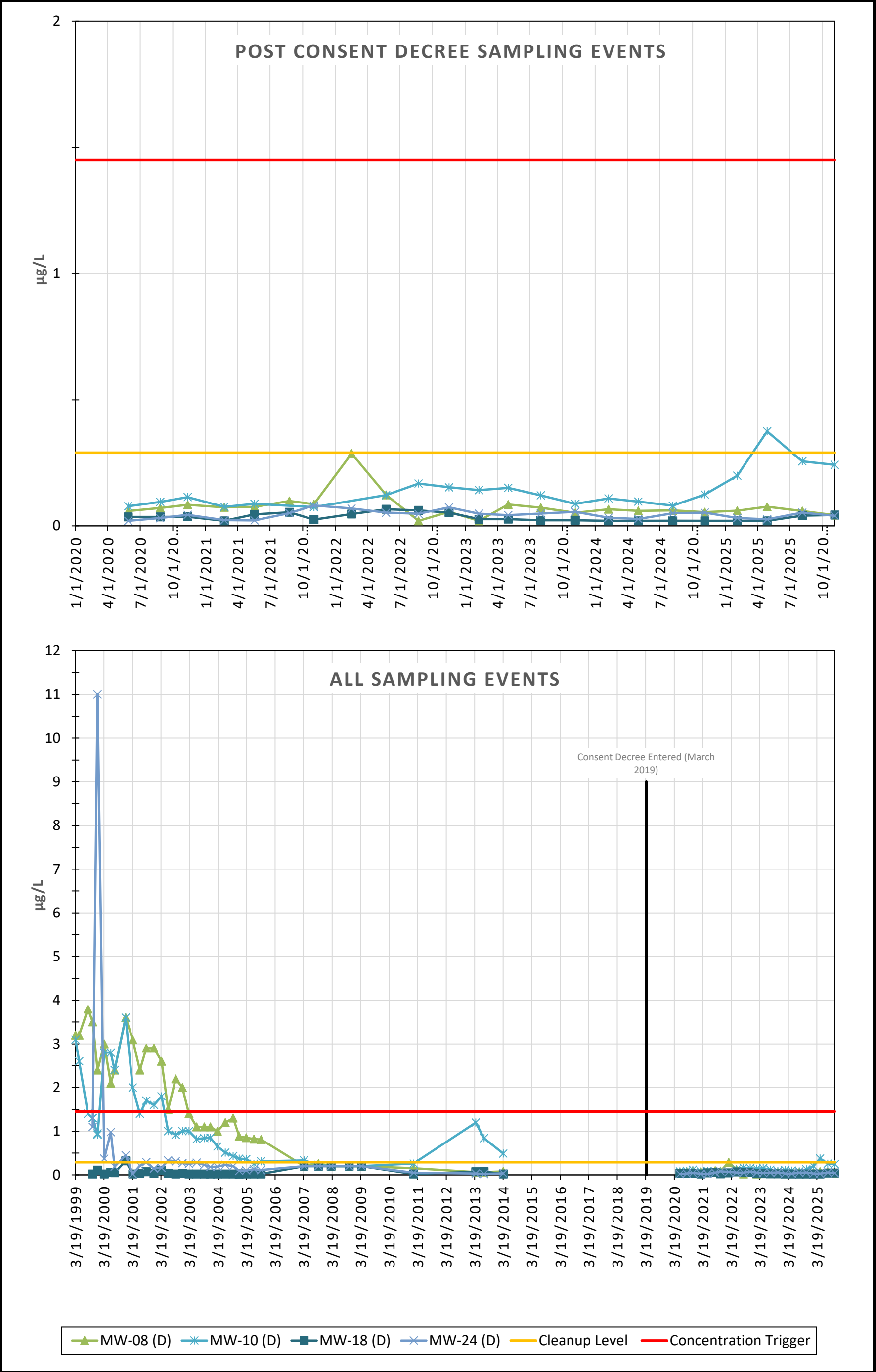
**Vinyl Chloride Concentrations
A-Zone CPOC Wells
South Park Landfill**



Parametrix

D = Downgradient
U = Upgradient

**Vinyl Chloride Concentrations
A-Zone Non-CPOC Wells
South Park Landfill**



Parametrix

**Vinyl Chloride Concentrations
B-Zone CPOC Wells
South Park Landfill**

D = Downgradient
U = Upgradient

Appendix D2

Trend Analyses

APPENDIX D2

Trend Analyses

Per the CAP, the Mann-Kendall test was used to statistically evaluate groundwater quality trends for vinyl chloride ($\mu\text{g/L}$), total iron (mg/L), and total manganese (mg/L) using monitoring data collected in 2020 through 2025. The Mann-Kendall test is a nonparametric trend evaluation procedure that can be used when there are missing values or when the data do not conform to any particular distribution. The Mann-Kendall test only uses directional differences (positive, zero, negative) of the data rather than the measured values. In statistical terms, the Mann-Kendall test is a nonparametric test for zero slope of the linear regression of time-ordered data versus time (Gilbert 1987). For the Mann-Kendall test, the null hypothesis (H_0) is no trend (i.e., the observations are randomly ordered in time), which is tested against the alternative hypothesis (H_A) of an increasing or decreasing monotonic trend.

An assumption underlying the Mann-Kendall test is that the time-ordered data are monotonic (Salmi et al. 2002); that is, the successive values in the data set consistently increase or decrease, but not necessarily in a linear manner, and they display no seasonal or other cycle. If the data are not monotonic, then the statistical power of the Mann-Kendall trend test is reduced. One example of non-monotonic data is precipitation, which can vary seasonally as well as by larger time intervals (e.g., years or decades). Statistical power is the strength of a test to identify an actual release of contaminated groundwater or difference from a compliance standard (EPA 2009). In the case of the Mann-Kendall test, statistical power is the strength to correctly identify an increasing or decreasing trend in a set of time-ordered data.

The Mann-Kendall test computes an S statistic based on pair-wise differences between each time-ordered value and all earlier values. A positive S value indicates an increasing trend, zero indicates no trend, and a negative value indicates a decreasing trend. The magnitude of S does not indicate the slope of the trend; instead, large positive values of S indicate that measurements taken later in time tend to be larger than those taken earlier. Similarly, large negative values of S indicate that measurements taken later in time tend to be smaller than those taken earlier (Gilbert 1987).

Significance of the Mann-Kendall test S statistic is a function of the magnitude of S and the number of measurements, with a larger positive or negative value of S and a greater number of measurements leading to a higher statistical significance (Gilbert 1987).

To evaluate trends in the monitoring data using the Mann-Kendall test, the EPA (2022) program ProUCL (version 5.2.0) was used. Per the CAP and Washington Department of Ecology guidance (Ecology 2005), groundwater monitoring data were evaluated at a 95 percent confidence level (5 percent significance level). That is, a trend was considered statistically significant if the confidence level was greater than 95 percent (the significance level was less than 5 percent).

Table 1 lists the percent non-detects by chemical for each of the 14 wells evaluated. For data sets with non-detect, or “censored”, results, per the *Ecology Guidance for Monitoring at Landfills and Other Facilities* (Ecology 2018), the censored data were handled as follows:

- ProUCL guidance (EPA 2022) states that the substitution of half detection limits for censored values is not recommended, as the bias cannot be quantified with certainty. Because the Mann-Kendall test is a nonparametric test, it was not necessary to substitute censored values with half detection limits for wells with fewer than 15 percent non-detects. The Mann-

Kendall test only uses directional differences (positive, zero, negative), which are not affected by use of detection limits or half detection limits for censored values.

- For all wells, censored values were replaced with estimated values using the ROS method prior to statistical analysis. The ROS method fits a regression line to the uncensored data, then assigns values from that line below the detection limit to estimate concentrations for the censored observations. The uncensored values are then combined with the estimated censored values for further statistical analysis.
- Wells with more than 50 percent but less than 90 percent non-detects for a specific chemical were analyzed using the Mann-Kendall test; however, the results should be interpreted with caution, as significance of the analysis may be diminished due the large number of censored data. Statistical evaluations are typically not performed on data sets with more than 50 percent non-detects because meaningful trends are difficult to determine due to the large number of censored values.

For wells with more than 90 percent non-detects (indicating only one or no detected values), Mann-Kendall tests were not run (see Table 1). No vinyl chloride, total iron, or total manganese values from any wells were detected at an order of magnitude higher than all other results (see time-series plot in Appendix D1) or means (per Ecology 2018), so no statistical outliers were suggested in the data.

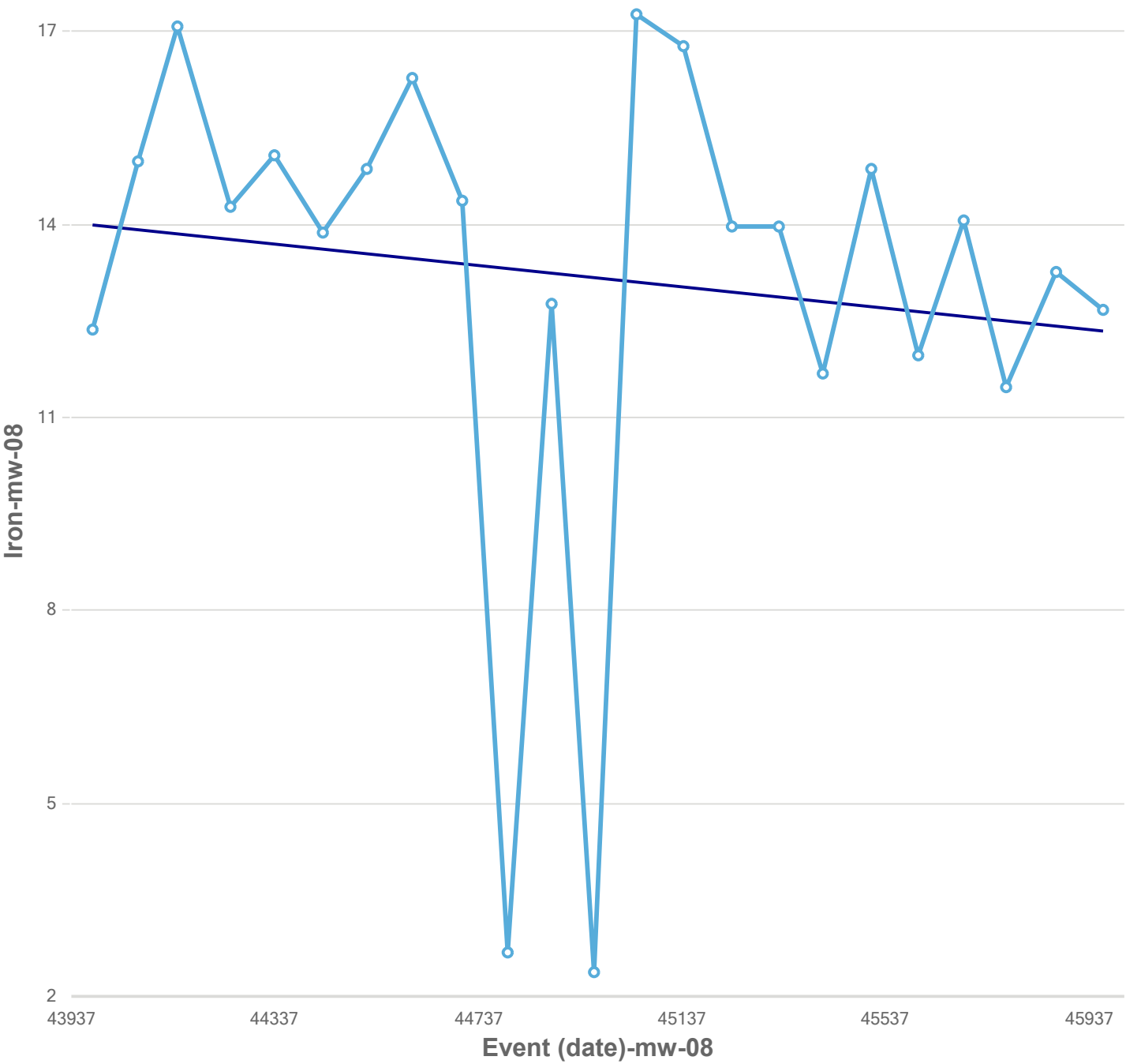
REFERENCES

- Ecology (Washington State Department of Ecology). 2005. Implementation Guidance for the Ground Water Quality Standards. Washington State Department of Ecology Publication #96-02. Olympia, WA.
- Ecology. (Washington State Department of Ecology). 2018. Guidance for Monitoring at Landfills and Other Facilities Regulated Under Chapters 173-304, 173-306, 173-350, and 173-351 WAC, Revised December 2018. Washington State Department of Ecology Publication no. 12-07-072.
- EPA (U.S. Environmental Protection Agency). 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance. EPA 530/R-09-007. March 2009. U.S. Environmental Protection Agency Office of Resource and Recovery. Washington, D.C.
- EPA (U.S. Environmental Protection Agency). 2022. ProUCL Version 5.2.0 Technical Guide: Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations. April 2022. Prepared by Neptune and Company, Inc., Lakewood, CO. Prepared for U.S. Environmental Protection Agency Office of Research and Development. Washington, D.C.
- Gilbert, R.O. 1987. Statistical Methods for Environmental Pollution Monitoring. John Wiley & Sons, Inc. New York, NY. 320 pages.

Table 1. Summary of Data Sets Used for Trend Tests

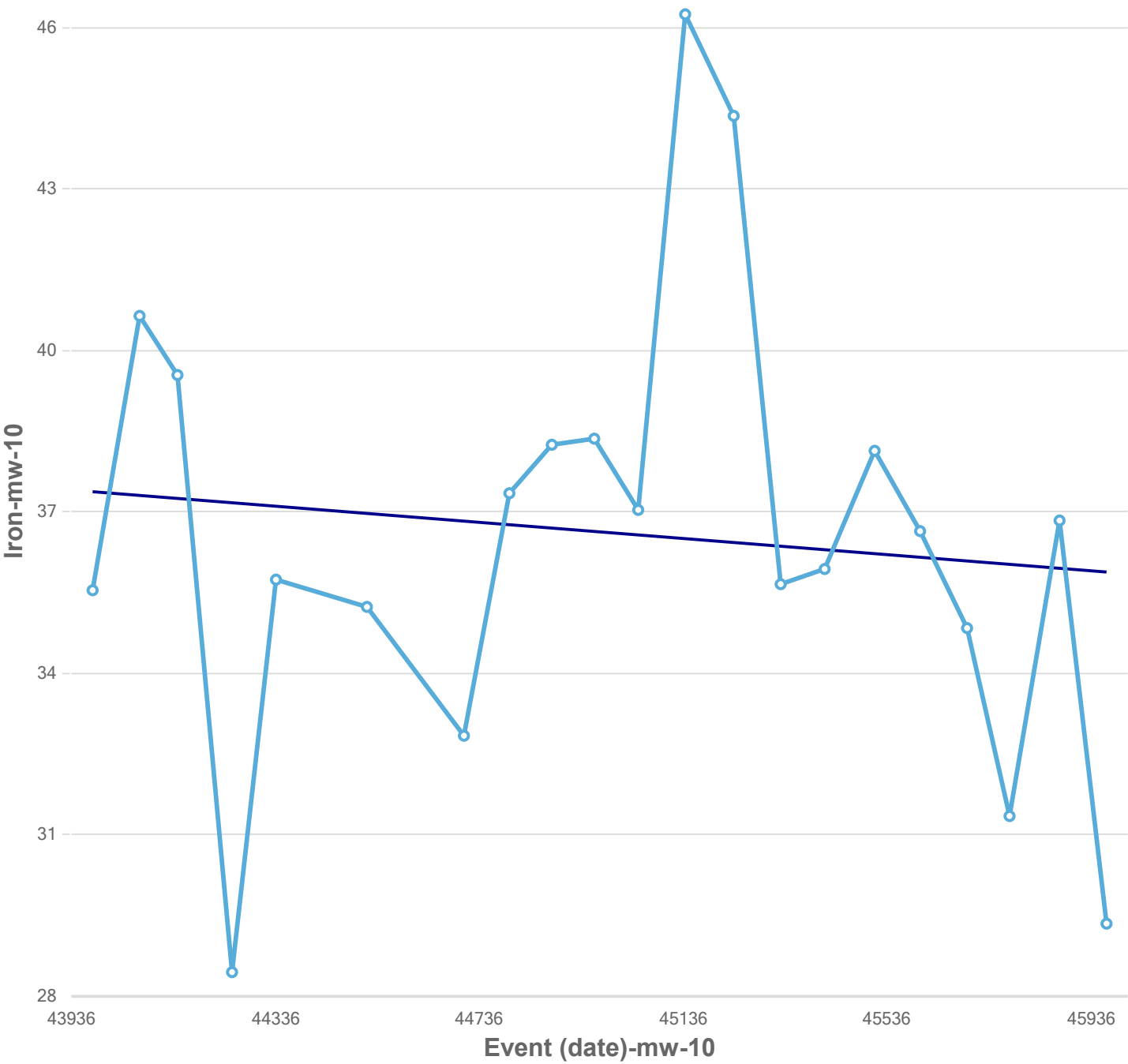
Well	Vinyl Chloride				Total Iron				Total Manganese			
	Sample Size	Number of Detects	Number of Non-detects	Percent of Non-detects	Sample Size	Number of Detects	Number of Non-detects	Percent of Non-detects	Sample Size	Number of Detects	Number of Non-detects	Percent of Non-detects
MW-08	23	21	2	8.70	23	23	0	0	23	19	0	0
MW-10	21	21	0	0	21	21	0	0	21	17	0	0
MW-12	23	0	23	100	23	19	4	17.39	23	19	0	0
MW-14	23	0	23	100	23	23	0	0	23	19	0	0
MW-18	23	17	6	26.09	23	23	0	0	23	19	0	0
MW-24	23	22	1	4.35	23	23	0	0	23	19	0	0
MW-25	21	21	0	0	21	21	0	0	21	17	0	0
MW-26	23	16	7	30.43	23	23	0	0	23	19	0	0
MW-27	23	20	3	13.04	23	23	0	0	23	19	0	0
MW-29	23	11	12	52.17	23	23	0	0	23	19	0	0
MW-30	23	22	1	4.35	23	23	0	0	23	19	0	0
MW-31	23	23	0	0	23	23	0	0	23	19	0	0
MW-32	23	23	0	0	23	23	0	0	23	19	0	0
MW-33	23	23	0	0	23	23	0	0	23	19	0	0

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8374
Standardized Value of S	-1.6386
M-K Test Value (S)	-63
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0506
OLS Regression Line (Blue)	
OLS Regression Slope	-0.0008
OLS Regression Intercept	51.2853
Insufficient statistical evidence of a significant trend at the specified level of significance.	

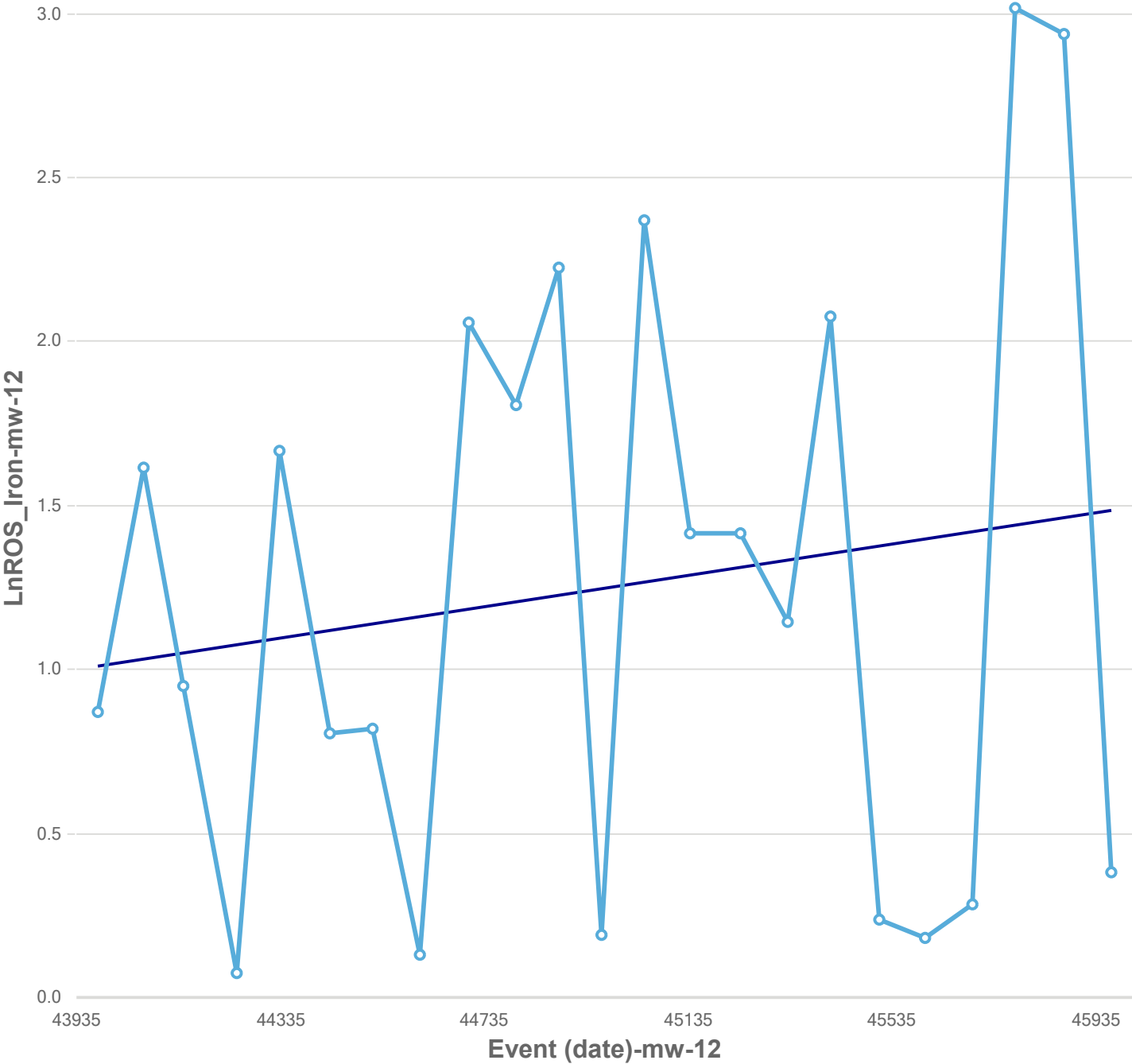
Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	21
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	33.1160
Standardized Value of S	-0.8153
M-K Test Value (S)	-28
Tabulated p-value	0.2100
Approximate p-value	0.2074
OLS Regression Line (Blue)	
OLS Regression Slope	-0.0007
OLS Regression Intercept	69.8609

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test

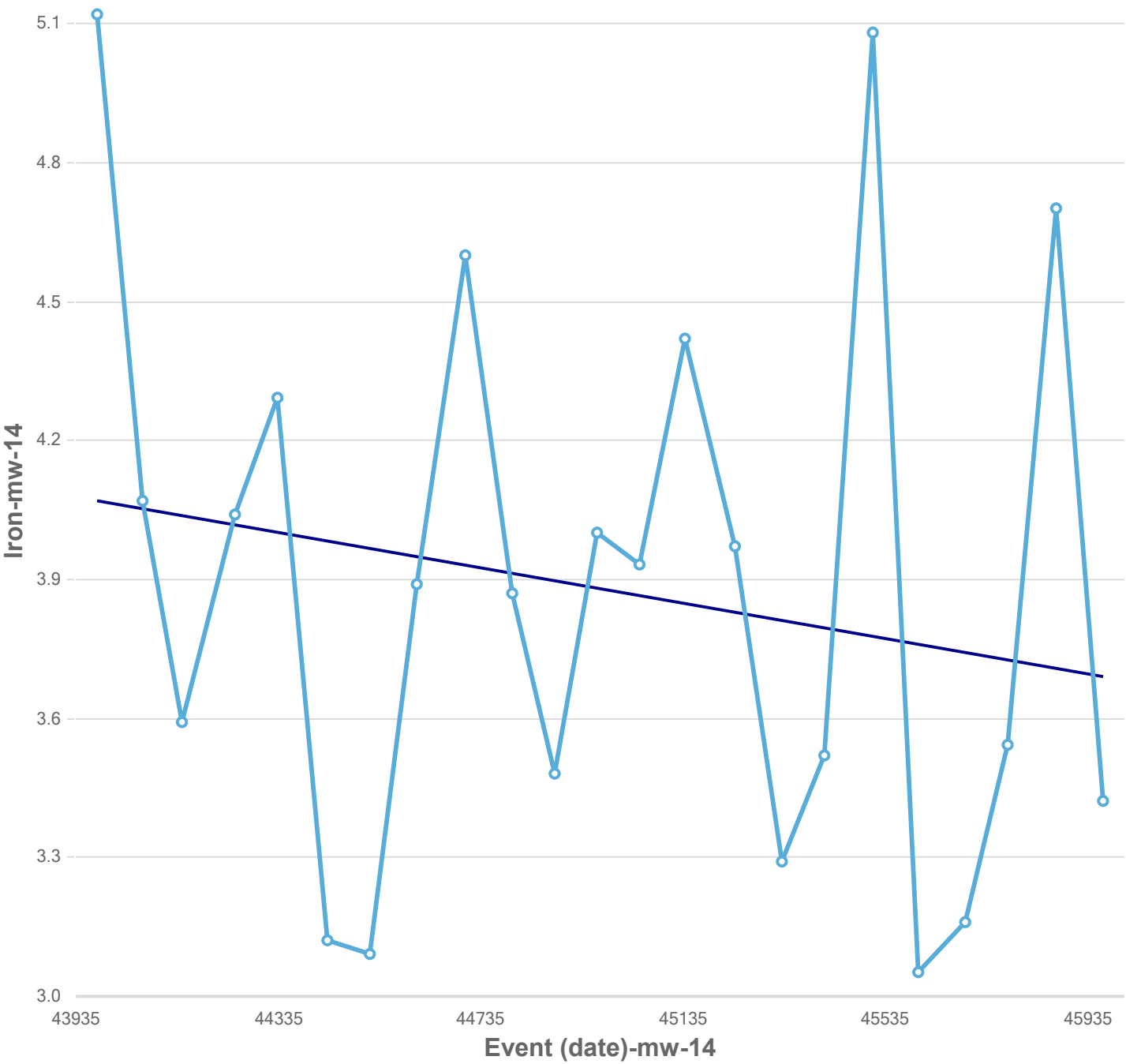


Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	0.7662
M-K Test Value (S)	30
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.2218

OLS Regression Line (Blue)	
OLS Regression Slope	0.0002
OLS Regression Intercept	-9.5499

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

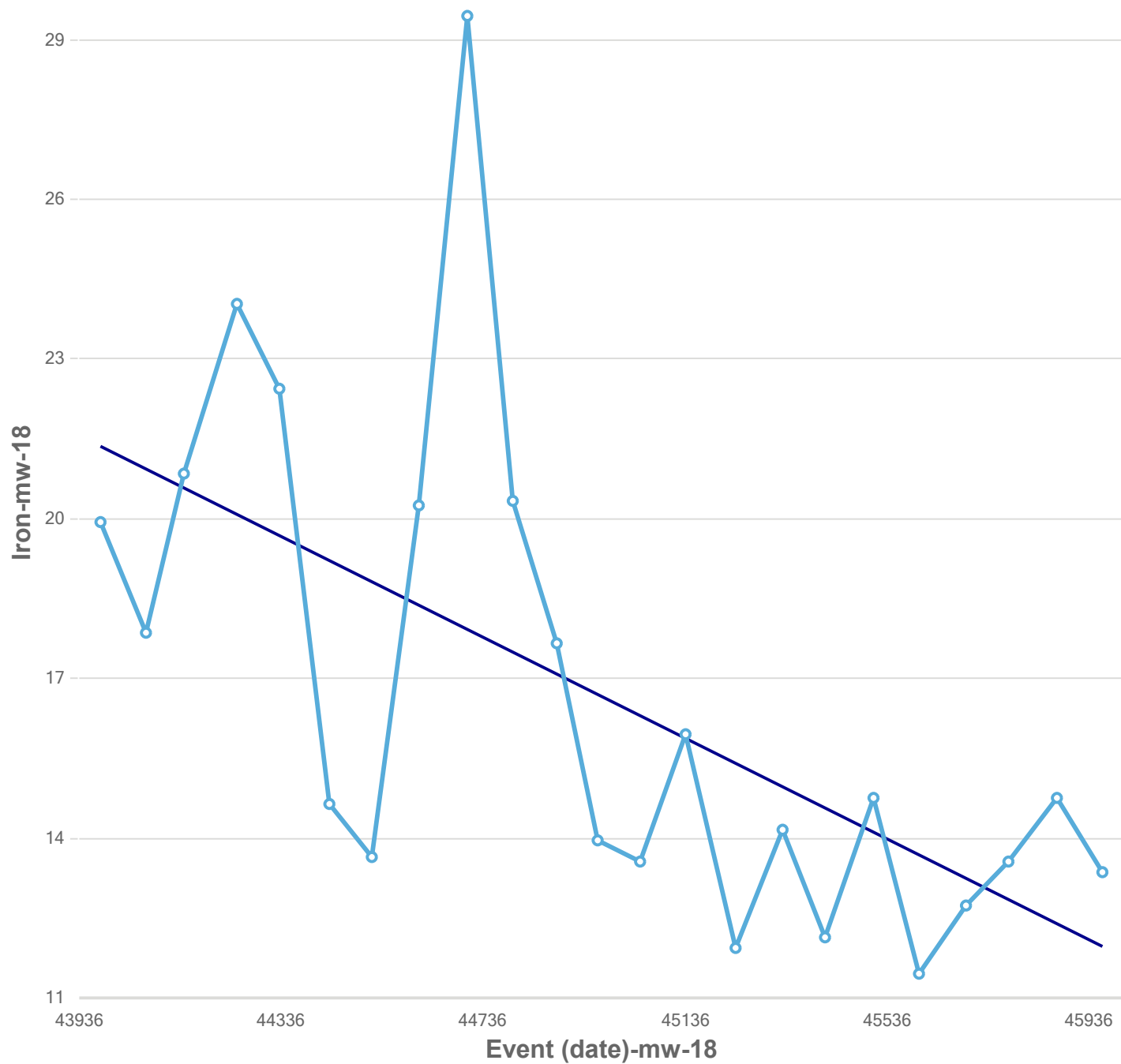
Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	-1.1092
M-K Test Value (S)	-43
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.1337
OLS Regression Line (Blue)	
OLS Regression Slope	-0.0002
OLS Regression Intercept	12.4070

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

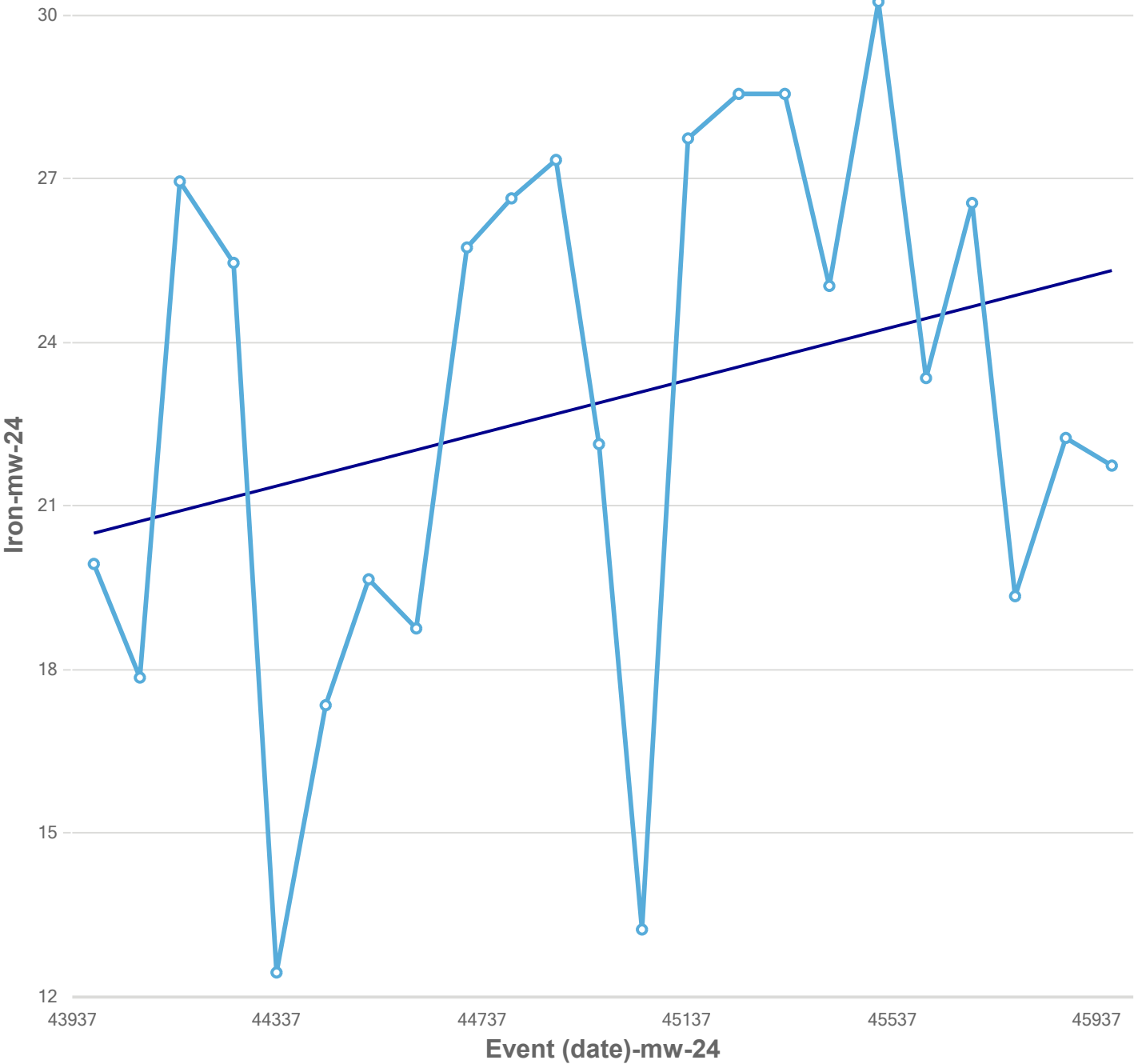
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8374
Standardized Value of S	-3.1715
M-K Test Value (S)	-121
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0008

OLS Regression Line (Blue)

OLS Regression Slope	-0.0047
OLS Regression Intercept	229.4803

Statistically significant evidence
of a decreasing trend at the
specified level of significance.

Mann-Kendall Trend Test

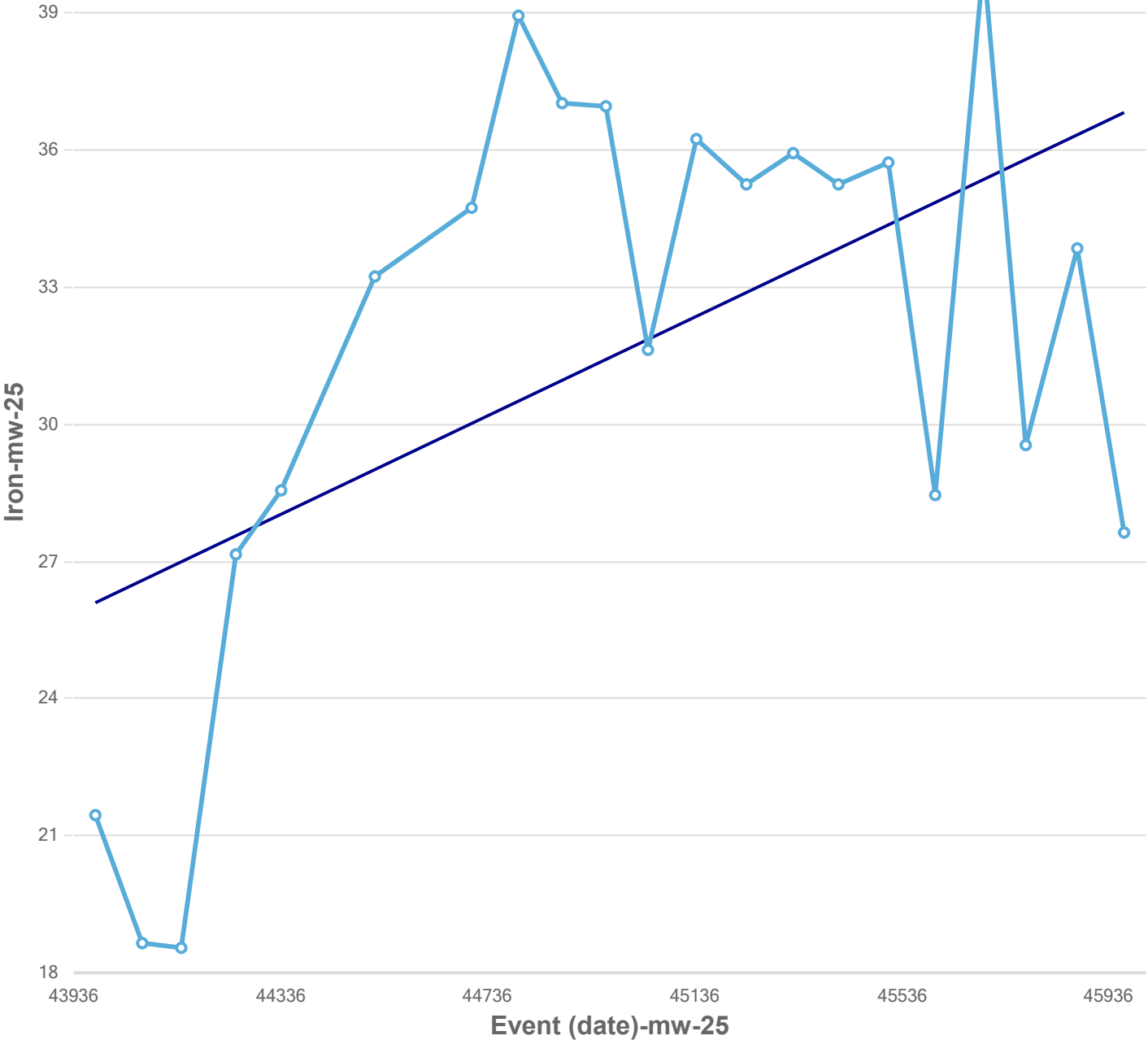


Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	1.2946
M-K Test Value (S)	50
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0977

OLS Regression Line (Blue)	
OLS Regression Slope	0.0024
OLS Regression Intercept	-85.9549

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



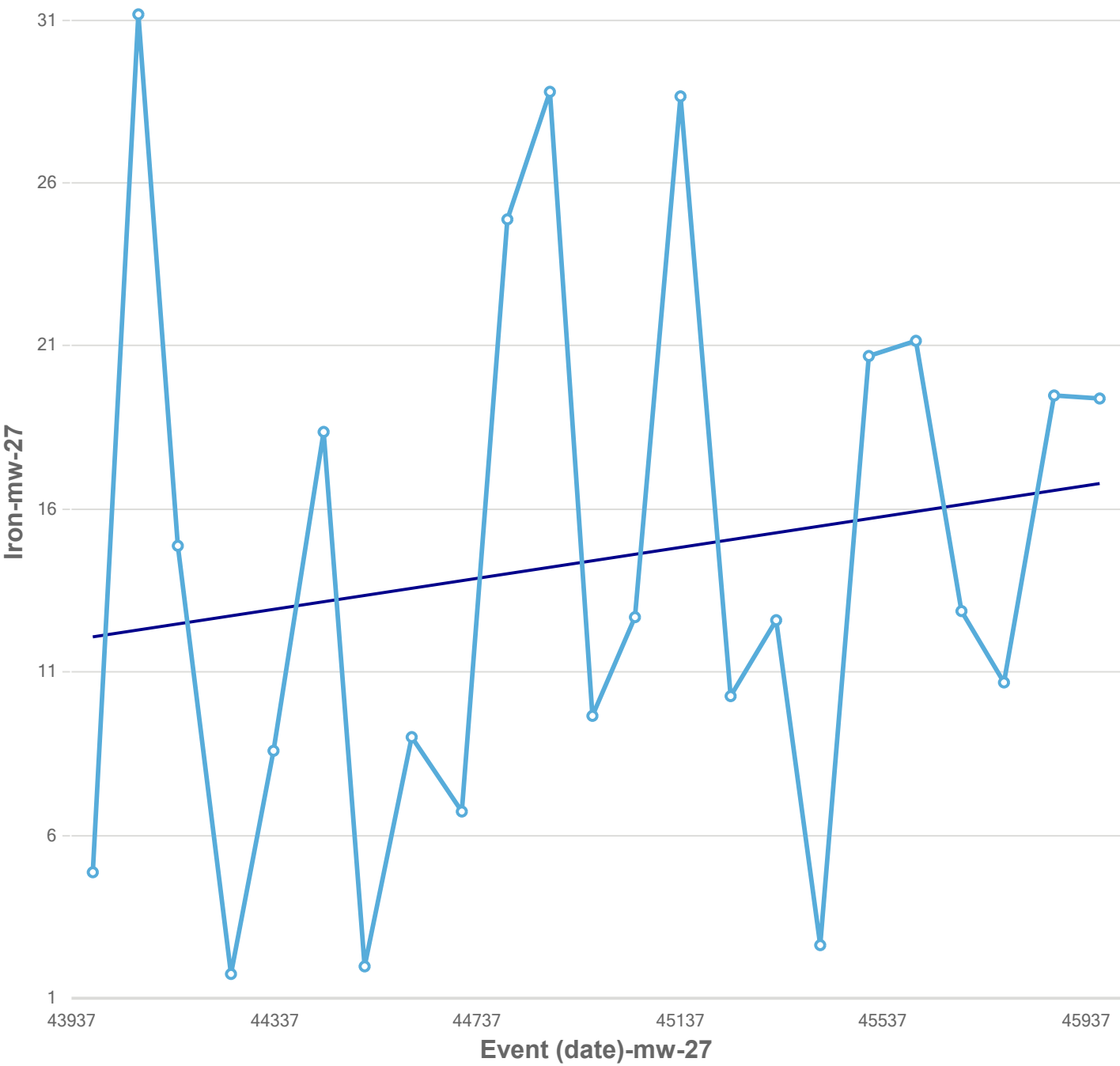
Mann-Kendall Trend Analysis	
n	21
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	33.1009
Standardized Value of S	1.3293
M-K Test Value (S)	45
Tabulated p-value	0.0980
Approximate p-value	0.0919
OLS Regression Line (Blue)	
OLS Regression Slope	0.0054
OLS Regression Intercept	-211.7660
Insufficient statistical evidence of a significant trend at the specified level of significance.	

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	-0.3169
M-K Test Value (S)	-13
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.3757
OLS Regression Line (Blue)	
OLS Regression Slope	-0.0004
OLS Regression Intercept	26.7576
Insufficient statistical evidence of a significant trend at the specified level of significance.	

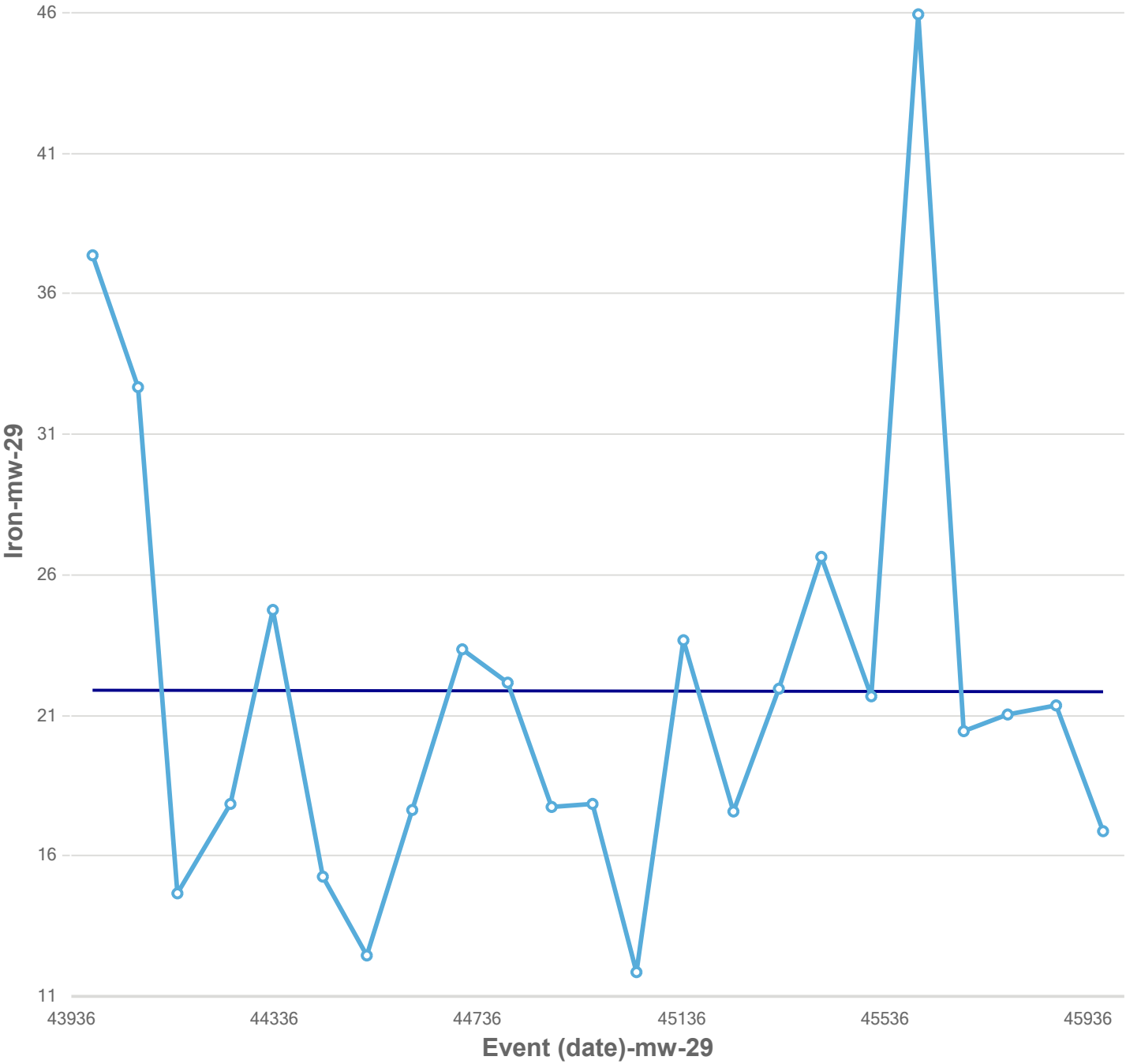
Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	1.2677
M-K Test Value (S)	49
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.1025
OLS Regression Line (Blue)	
OLS Regression Slope	0.0024
OLS Regression Intercept	-92.2662

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test

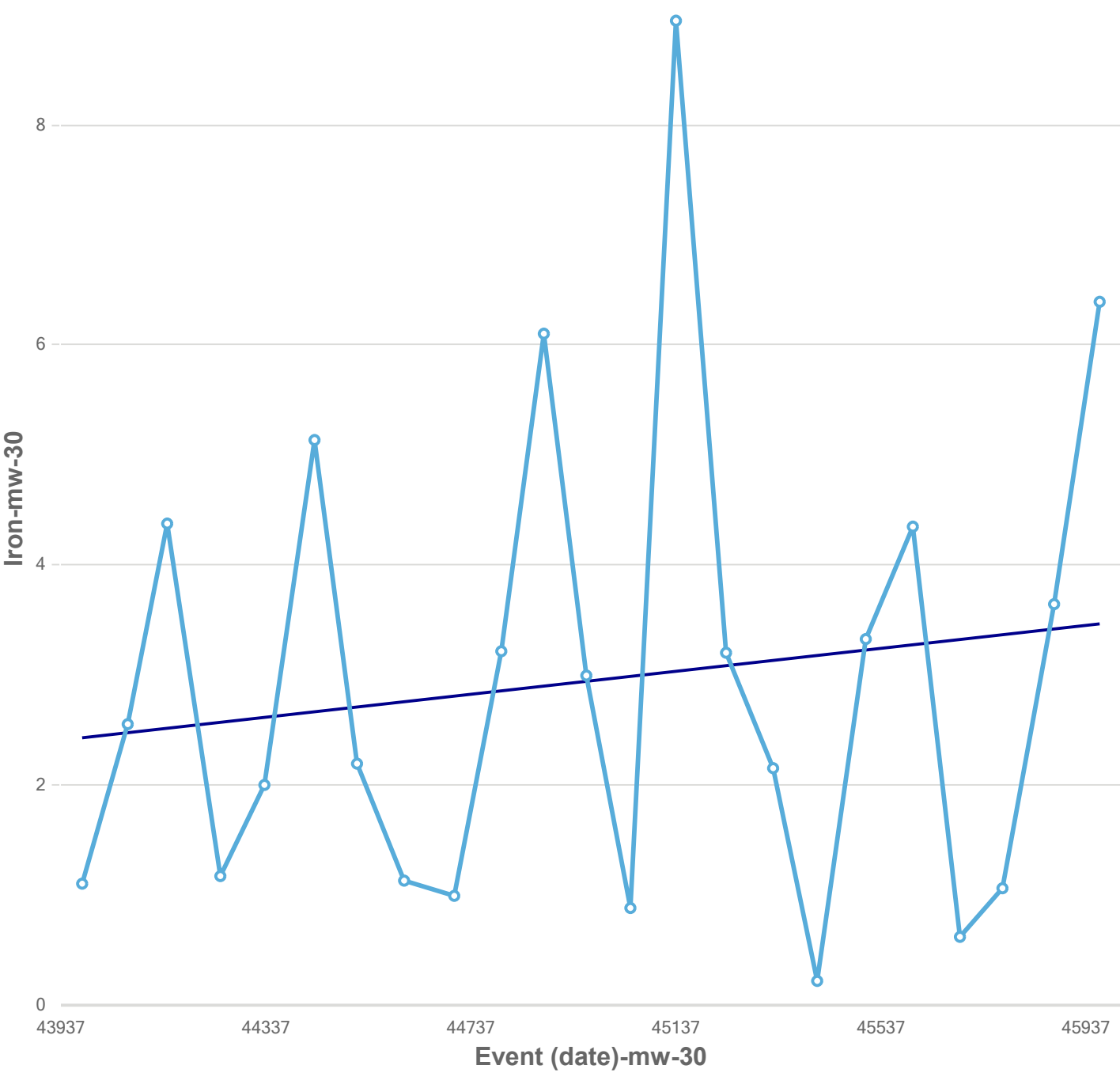


Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	-0.0793
M-K Test Value (S)	-4
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.4684

OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	23.3894

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test

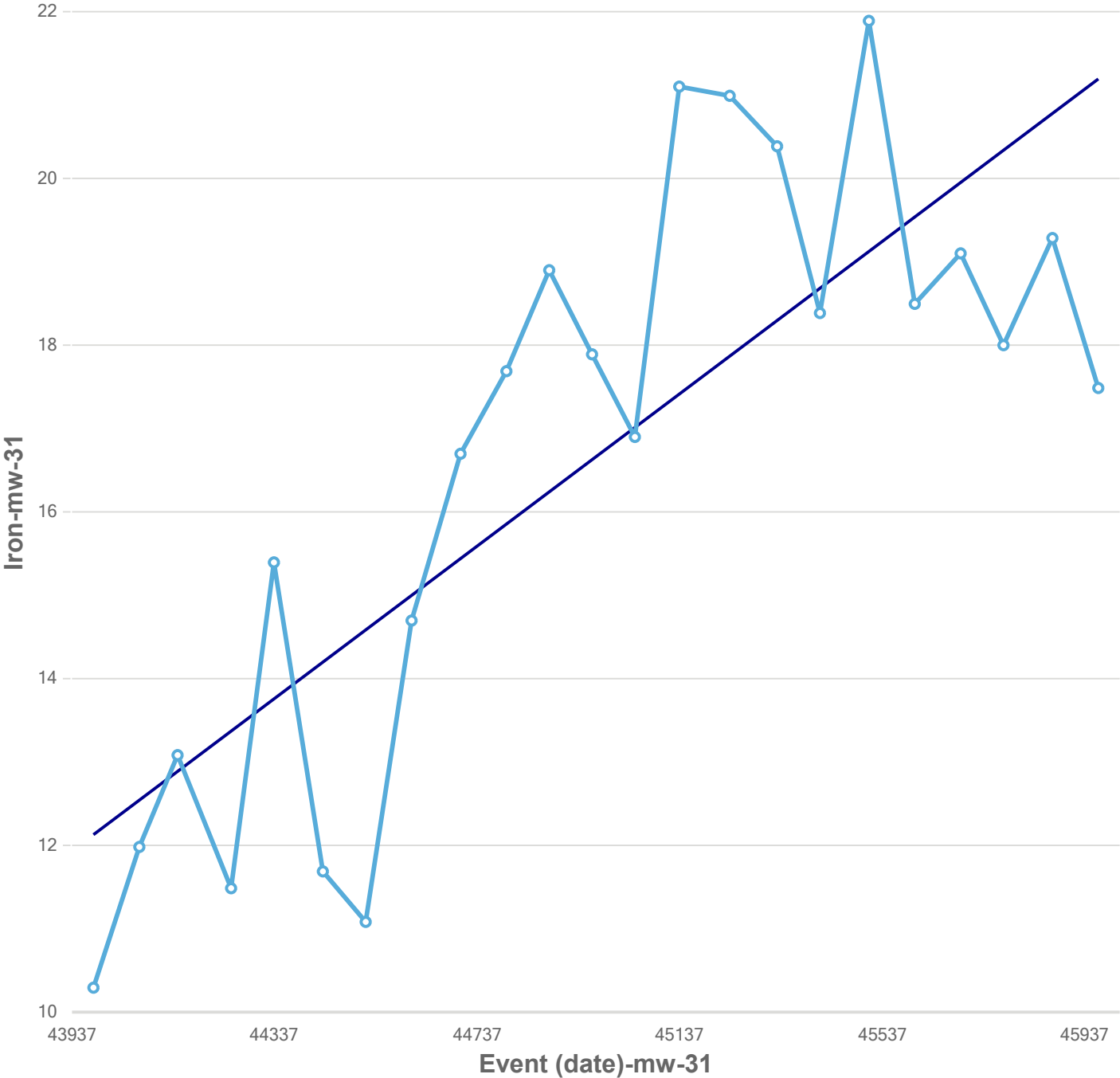


Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	0.4754
M-K Test Value (S)	19
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.3173

OLS Regression Line (Blue)	
OLS Regression Slope	0.0005
OLS Regression Intercept	-20.0394

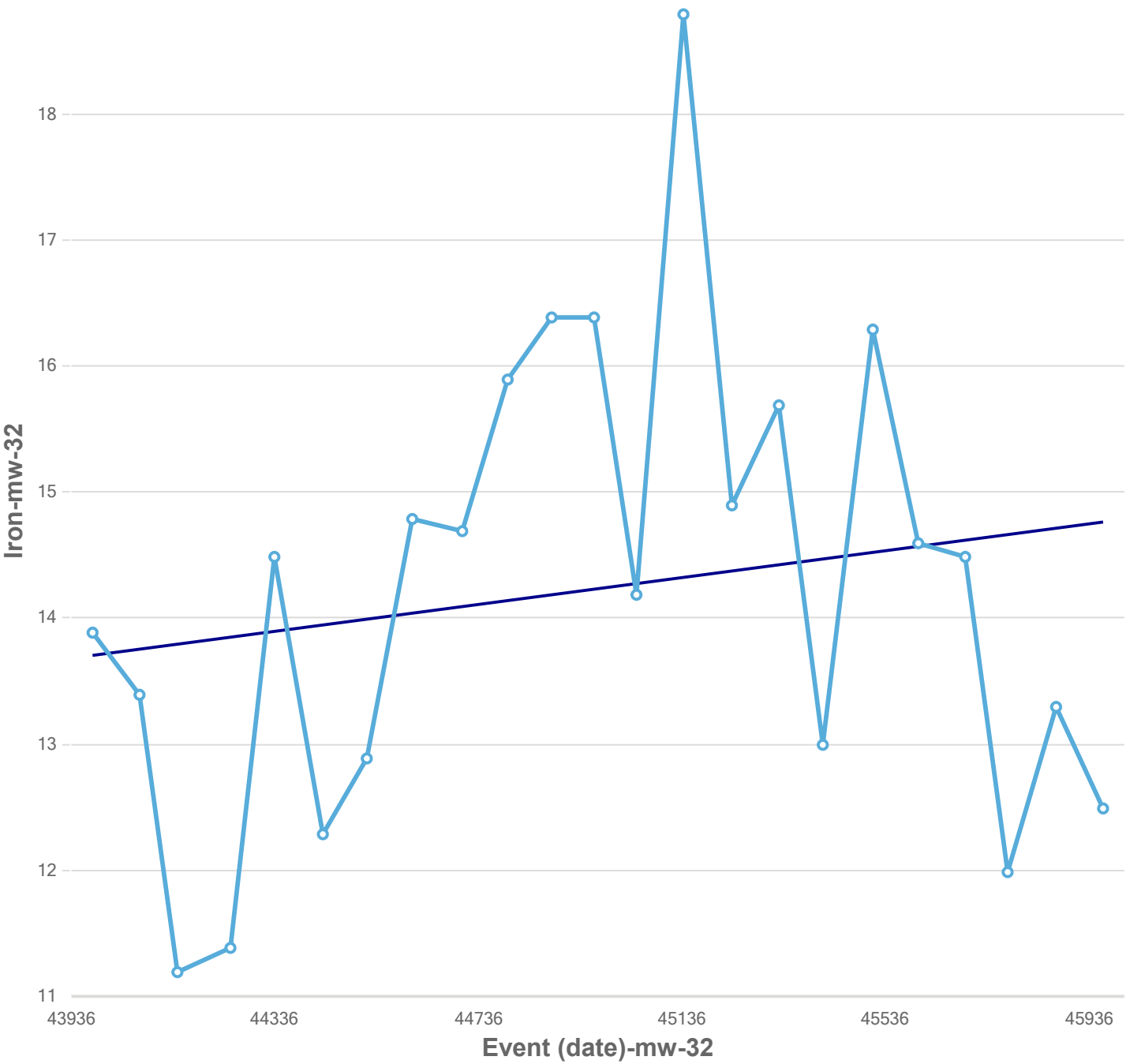
Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	3.7503
M-K Test Value (S)	143
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0001
OLS Regression Line (Blue)	
OLS Regression Slope	0.0046
OLS Regression Intercept	-188.2070
Statistically significant evidence of an increasing trend at the specified level of significance.	

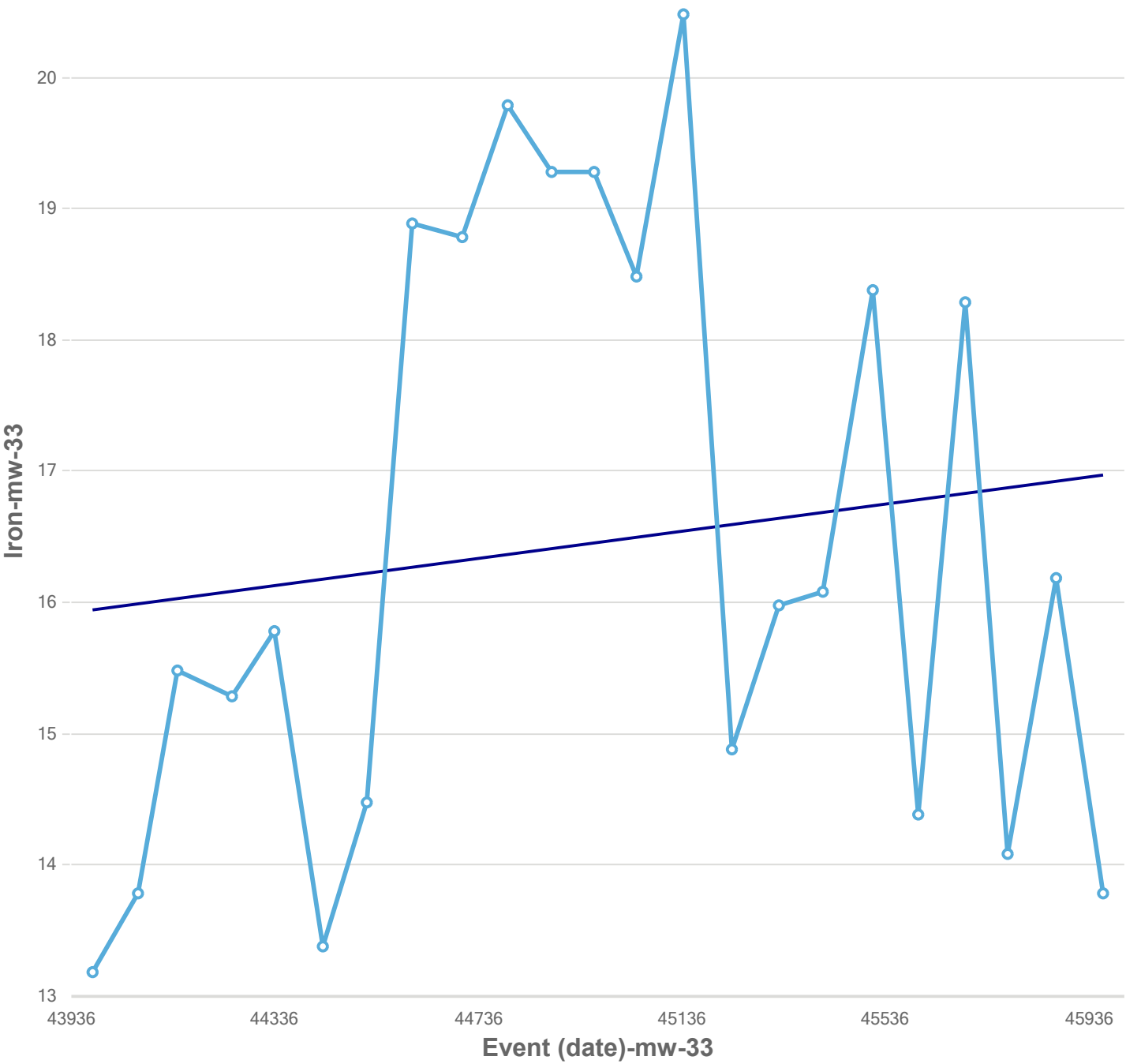
Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8374
Standardized Value of S	0.7400
M-K Test Value (S)	29
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.2296
OLS Regression Line (Blue)	
OLS Regression Slope	0.0005
OLS Regression Intercept	-9.8488

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

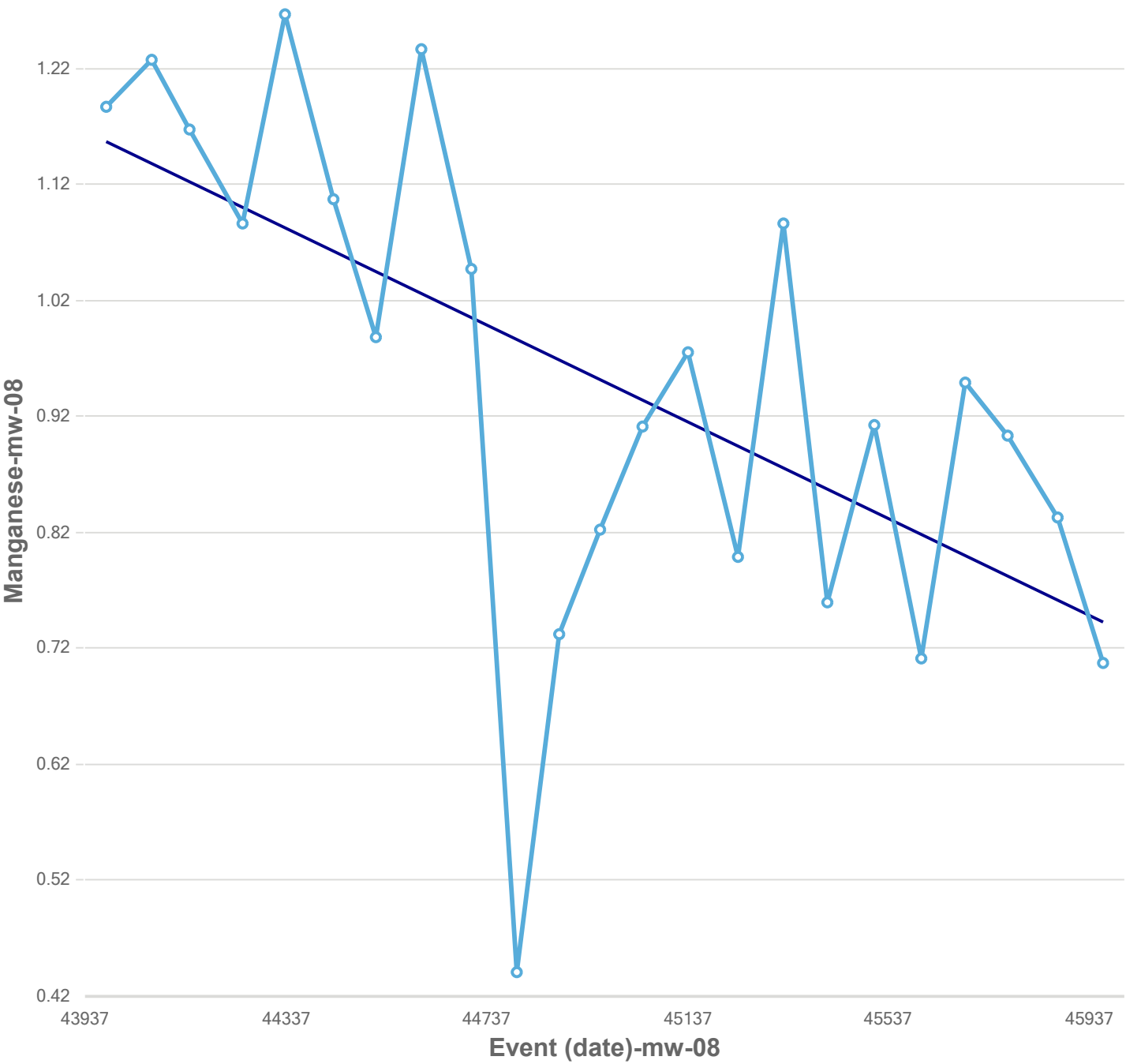
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8374
Standardized Value of S	0.5286
M-K Test Value (S)	21
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.2985

OLS Regression Line (Blue)

OLS Regression Slope	0.0005
OLS Regression Intercept	-6.4400

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test

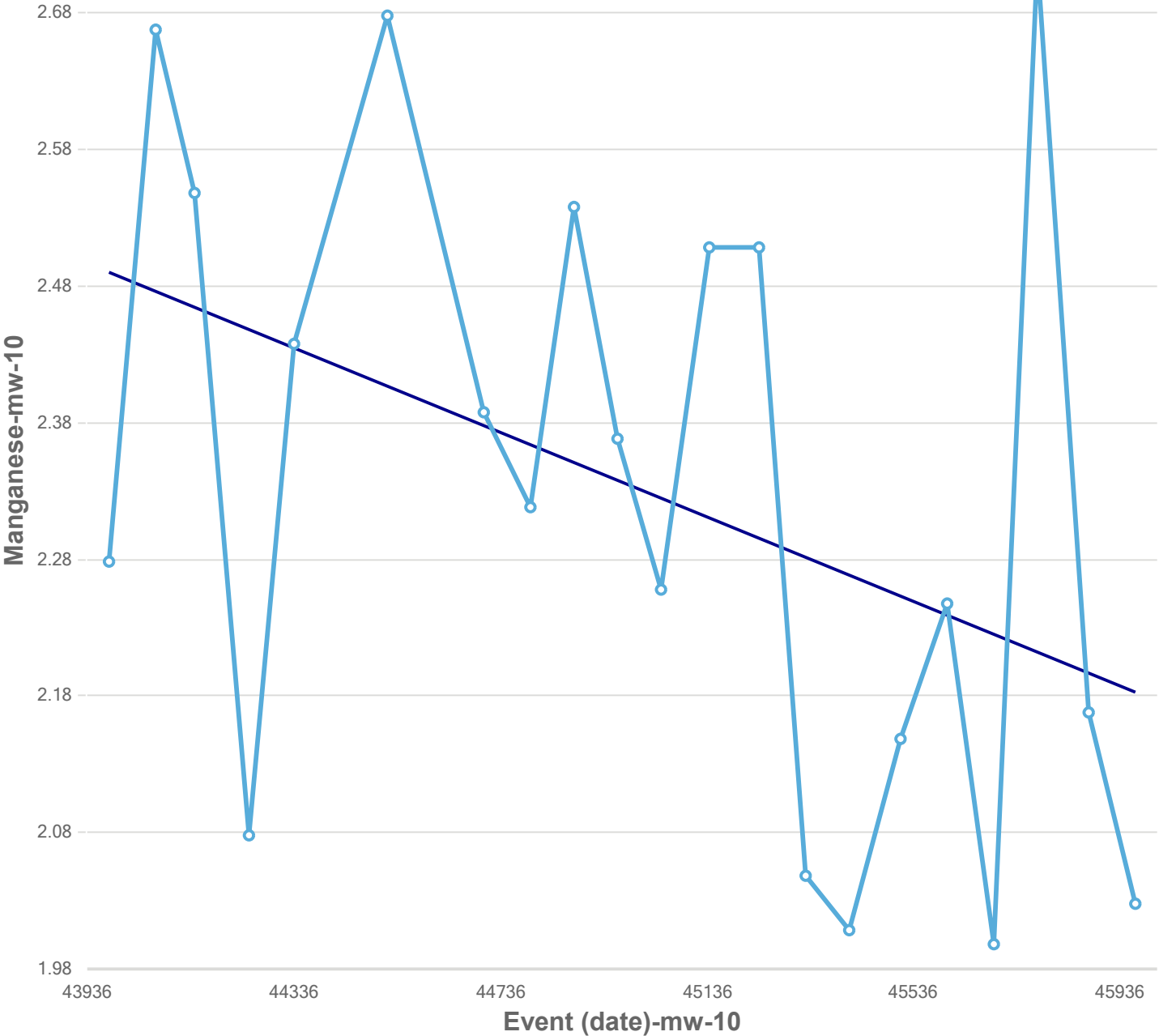


Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	-3.3025
M-K Test Value (S)	-126
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0005

OLS Regression Line (Blue)	
OLS Regression Slope	-0.0002
OLS Regression Intercept	10.3322

Statistically significant evidence of a decreasing trend at the specified level of significance.

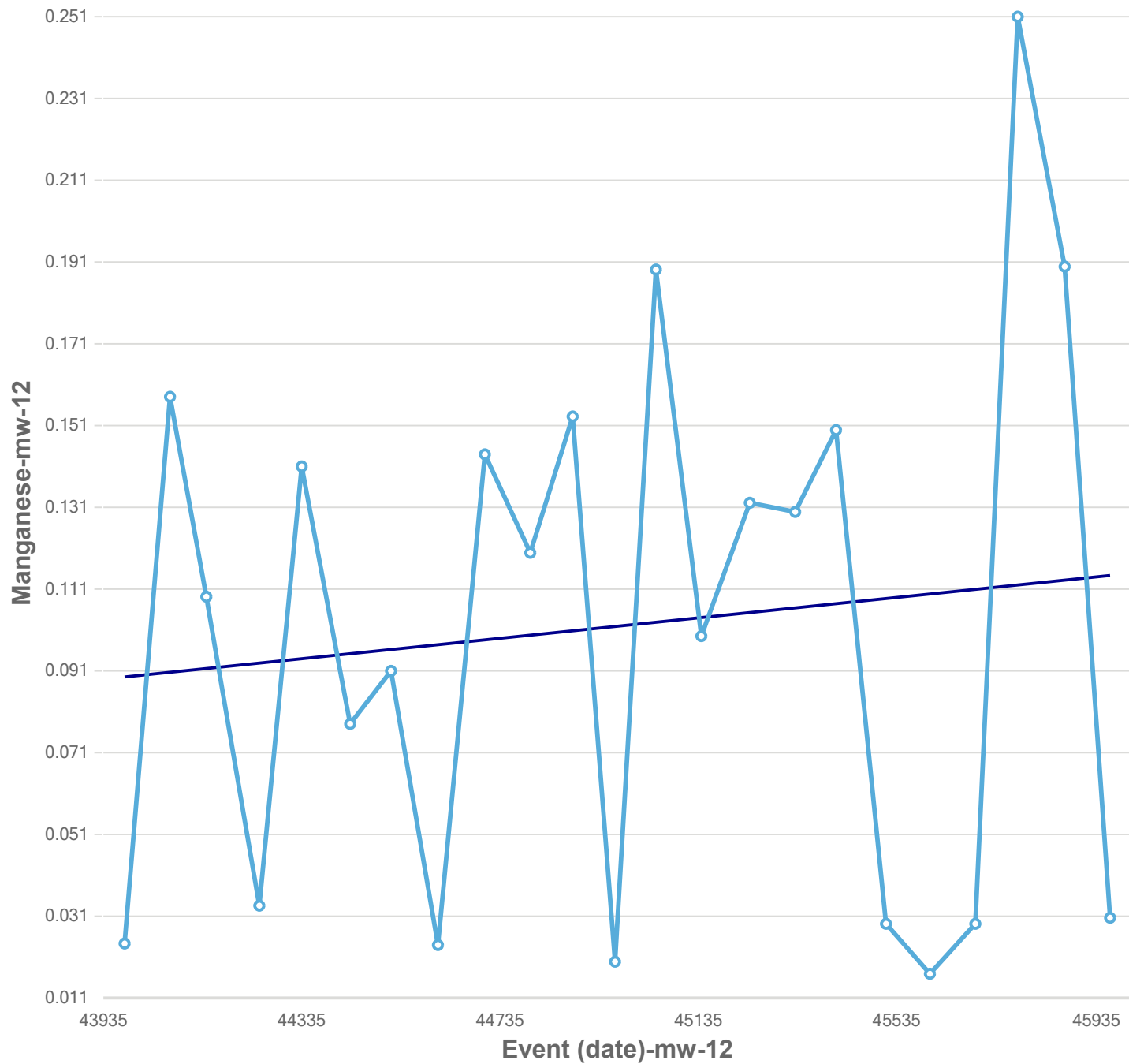
Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	21
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	33.1009
Standardized Value of S	-2.1752
M-K Test Value (S)	-73
Tabulated p-value	0.0150
Approximate p-value	0.0148
OLS Regression Line (Blue)	
OLS Regression Slope	-0.0002
OLS Regression Intercept	9.3129

Statistically significant evidence of a decreasing trend at the specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

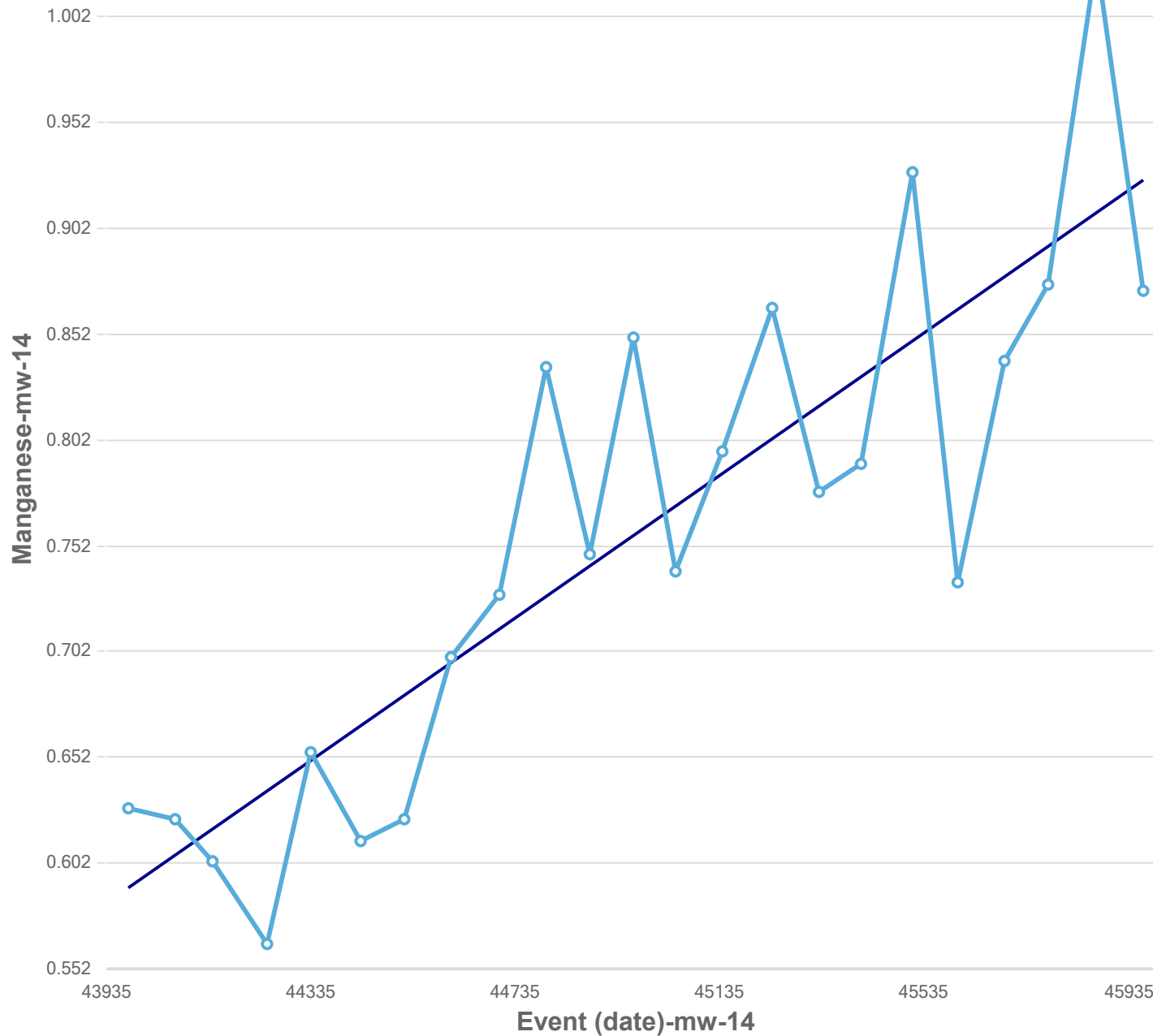
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	0.4754
M-K Test Value (S)	19
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.3173

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	-0.4549

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

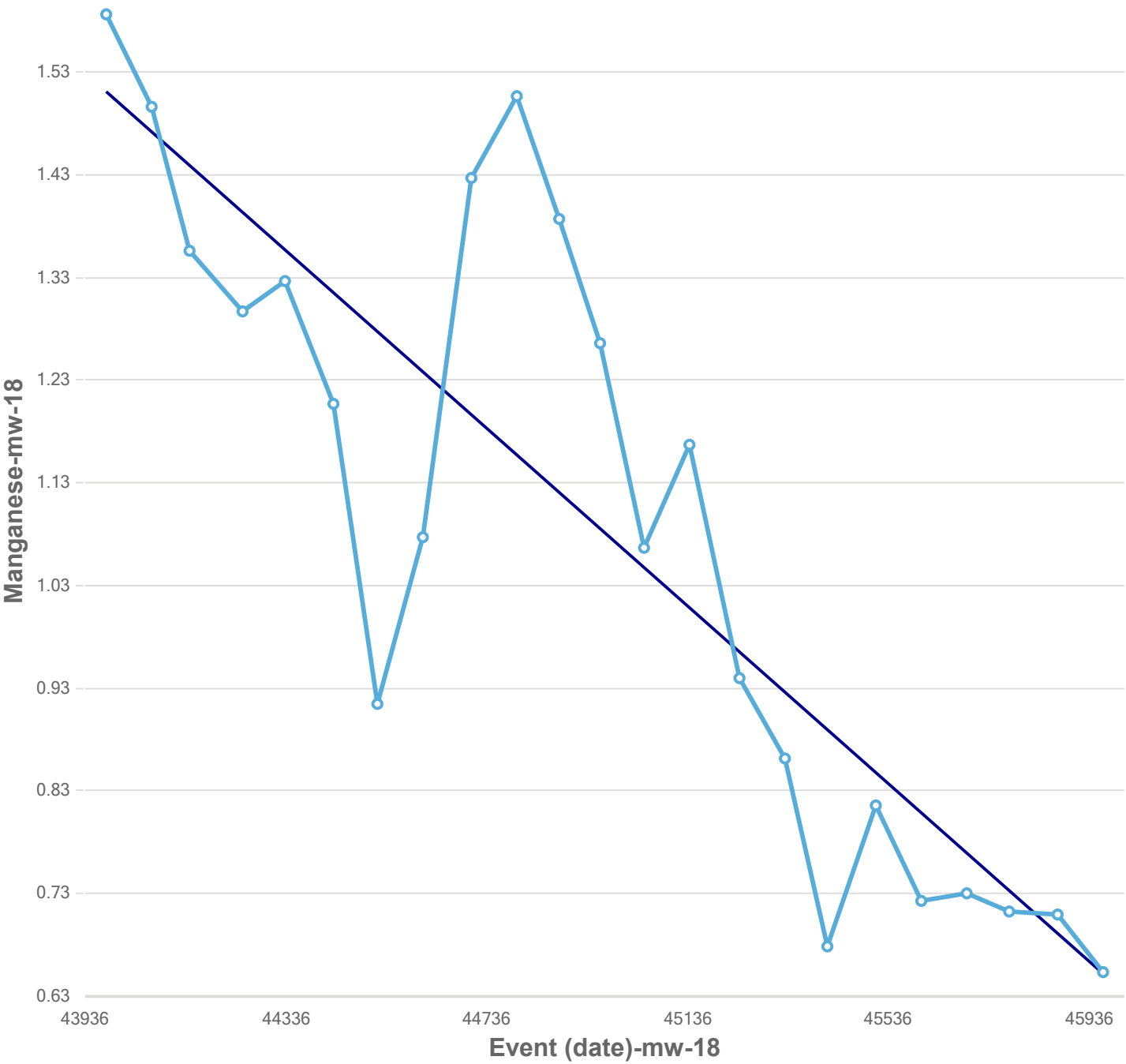
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	4.4649
M-K Test Value (S)	170
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0002
OLS Regression Intercept	-6.8101

Statistically significant evidence
of an increasing trend at the
specified level of significance.

Mann-Kendall Trend Test

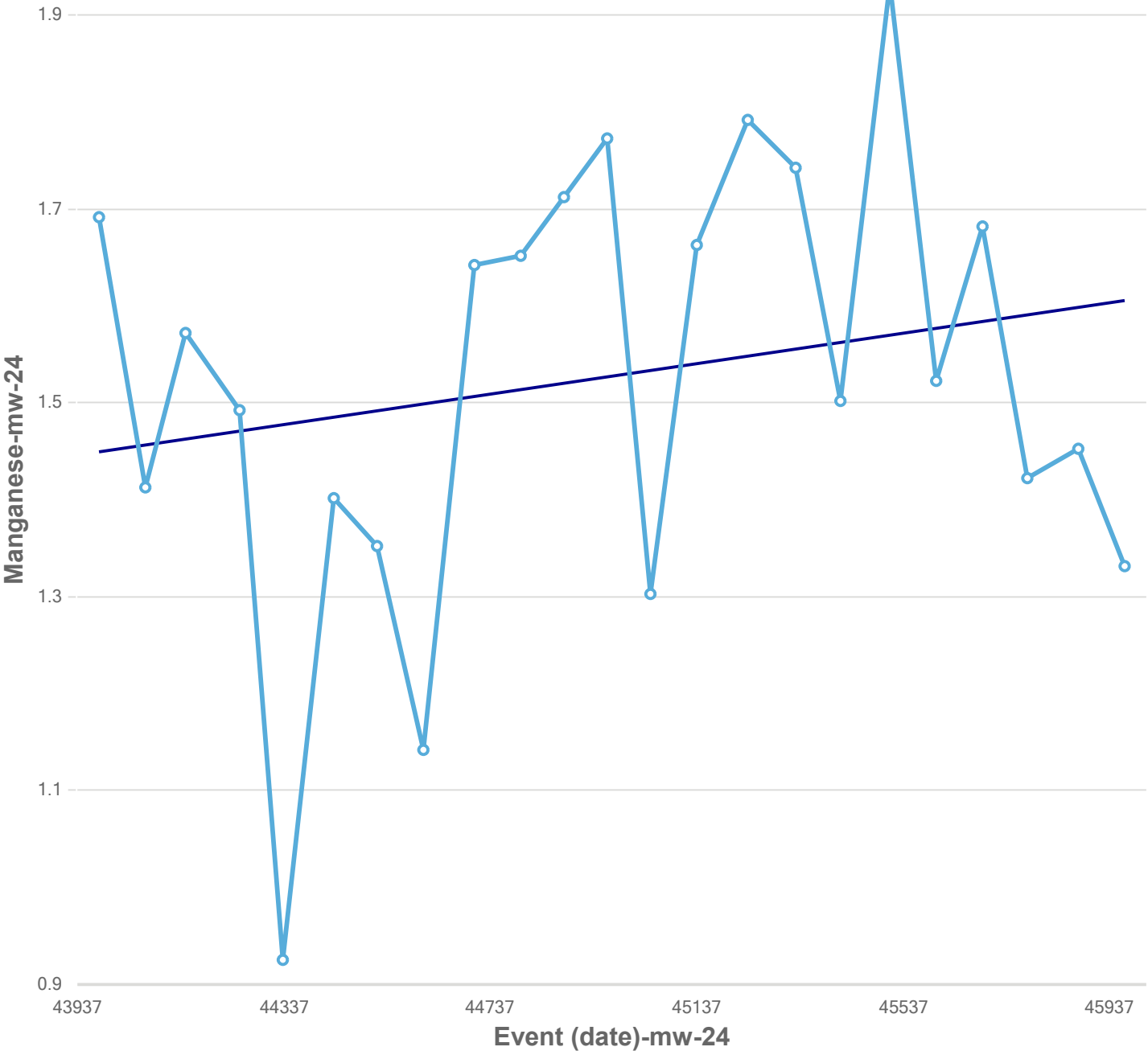


Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	-4.7539
M-K Test Value (S)	-181
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)	
OLS Regression Slope	-0.0004
OLS Regression Intercept	20.5155

Statistically significant evidence of a decreasing trend at the specified level of significance.

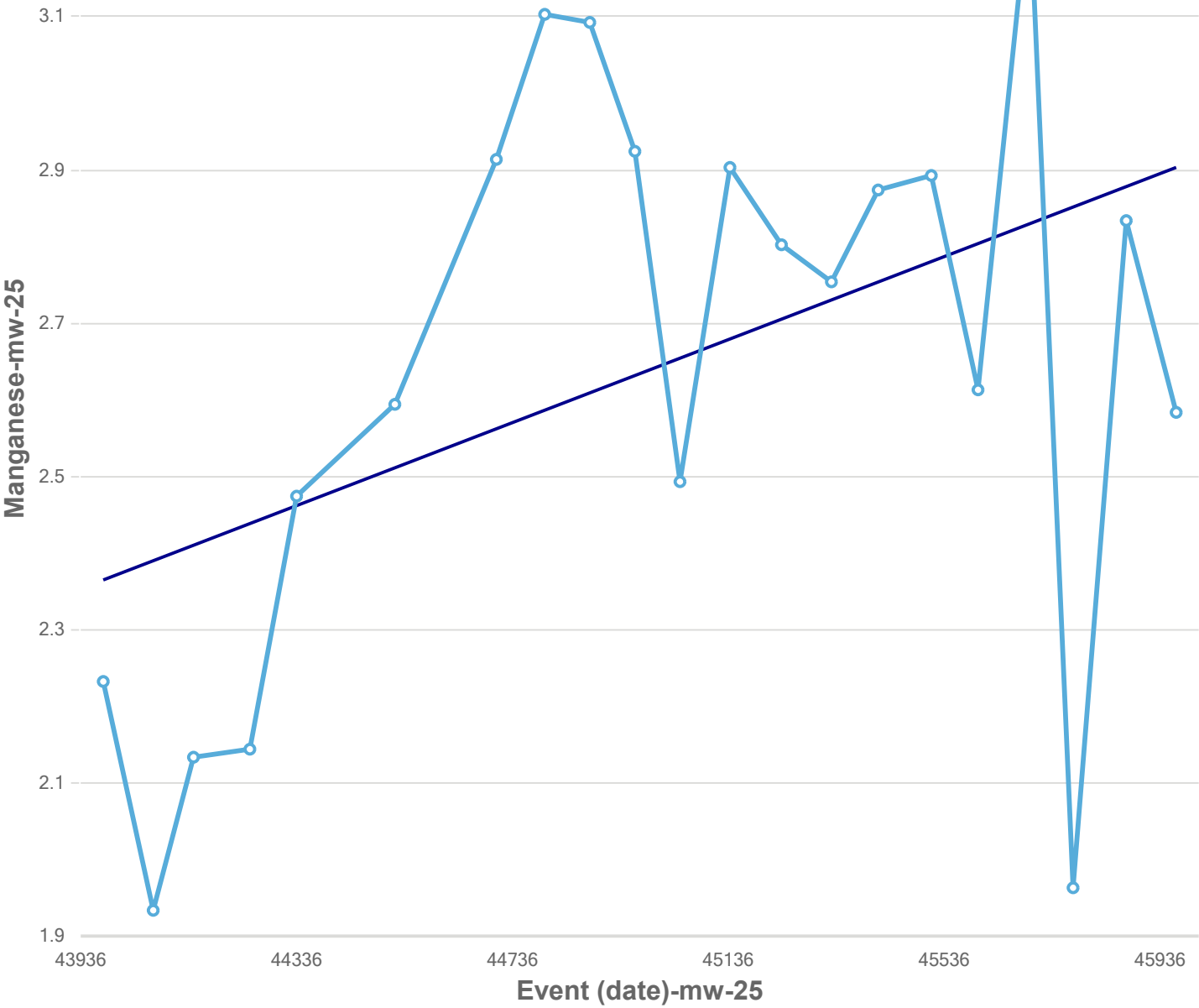
Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	0.7395
M-K Test Value (S)	29
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.2298
OLS Regression Line (Blue)	
OLS Regression Slope	0.0001
OLS Regression Intercept	-2.0298

Insufficient statistical evidence of a significant trend at the specified level of significance.

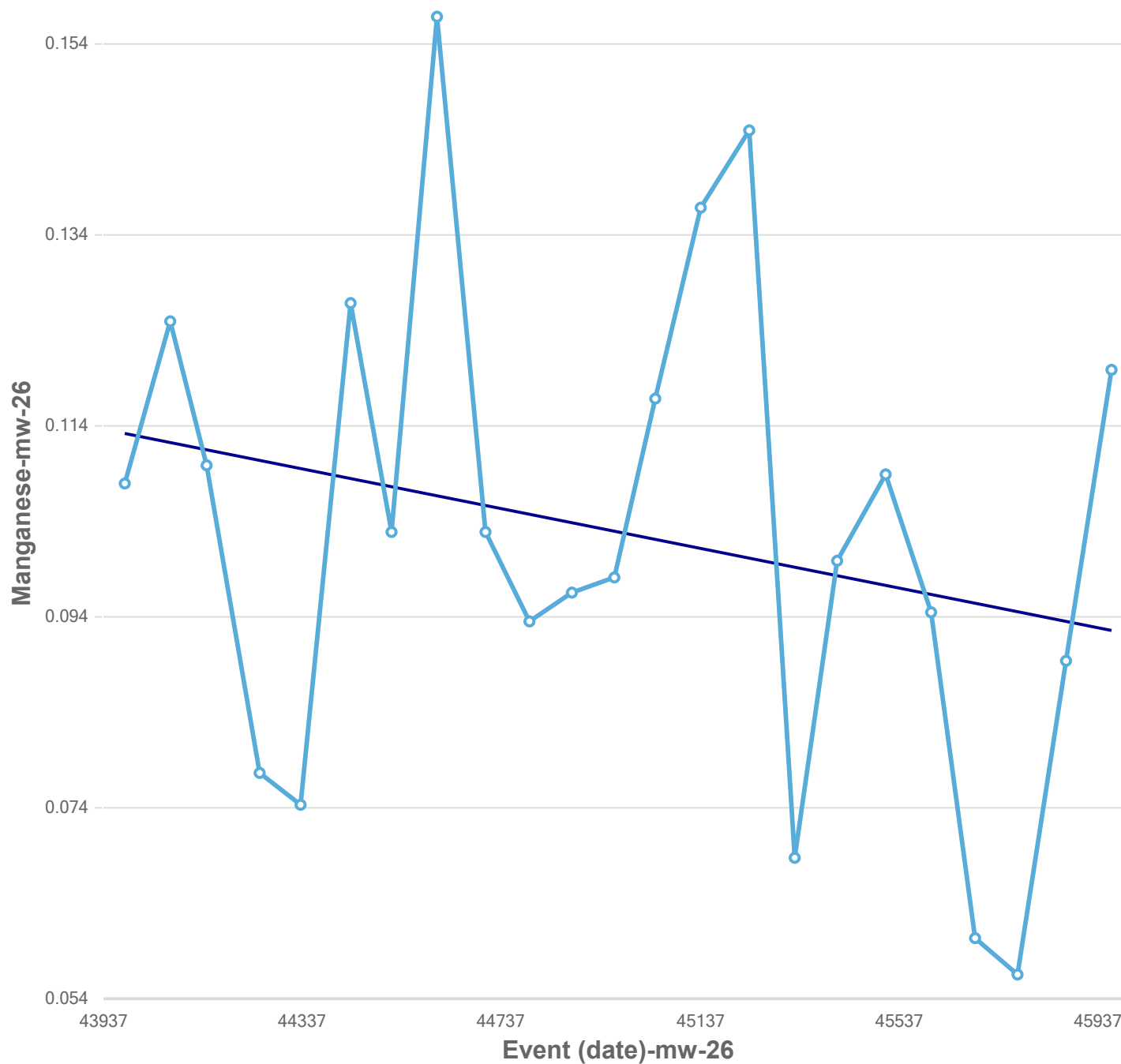
Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	21
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	33.1160
Standardized Value of S	1.2985
M-K Test Value (S)	44
Tabulated p-value	0.0980
Approximate p-value	0.0971
OLS Regression Line (Blue)	
OLS Regression Slope	0.0003
OLS Regression Intercept	-9.5733

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

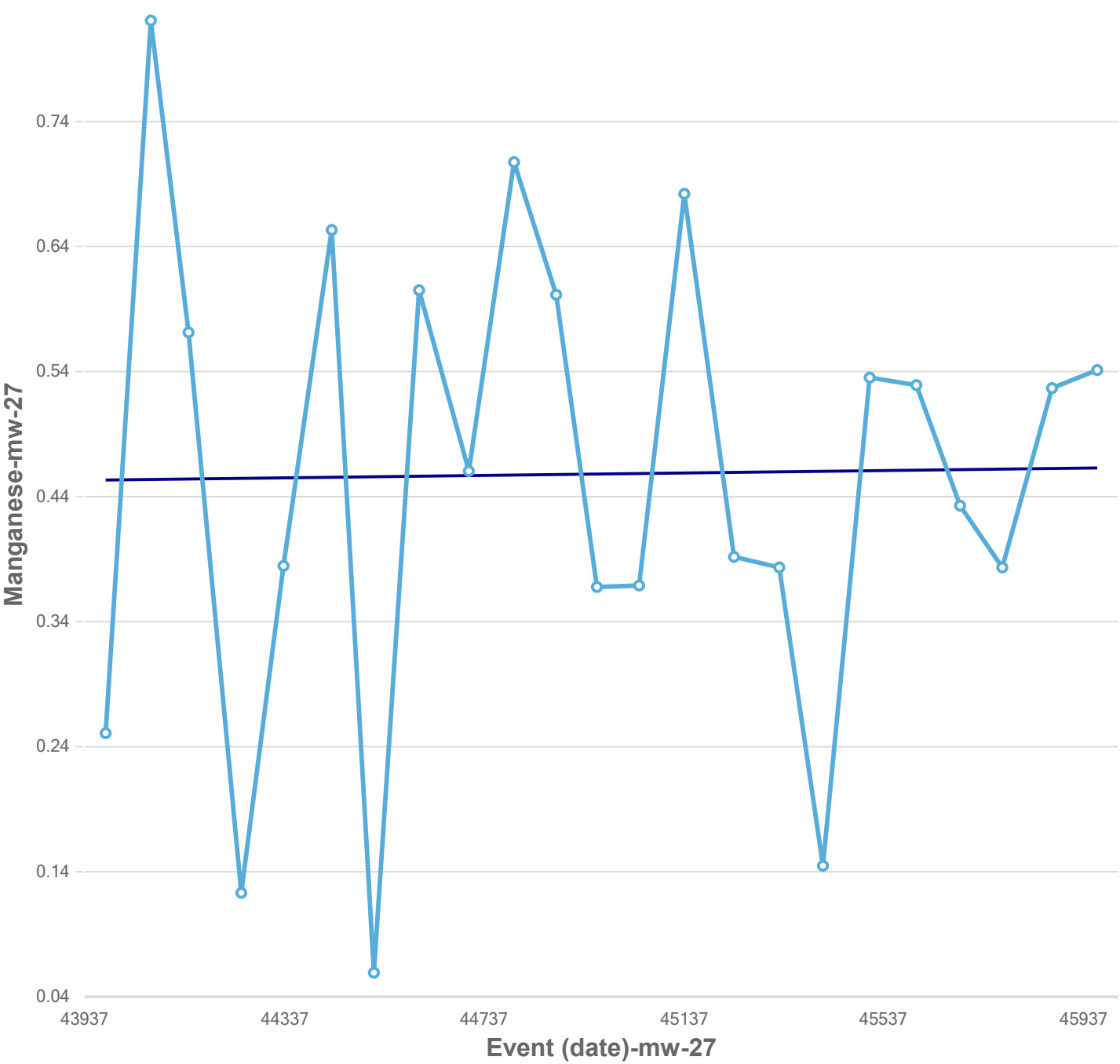
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	-1.1889
M-K Test Value (S)	-46
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.1172

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	0.5702

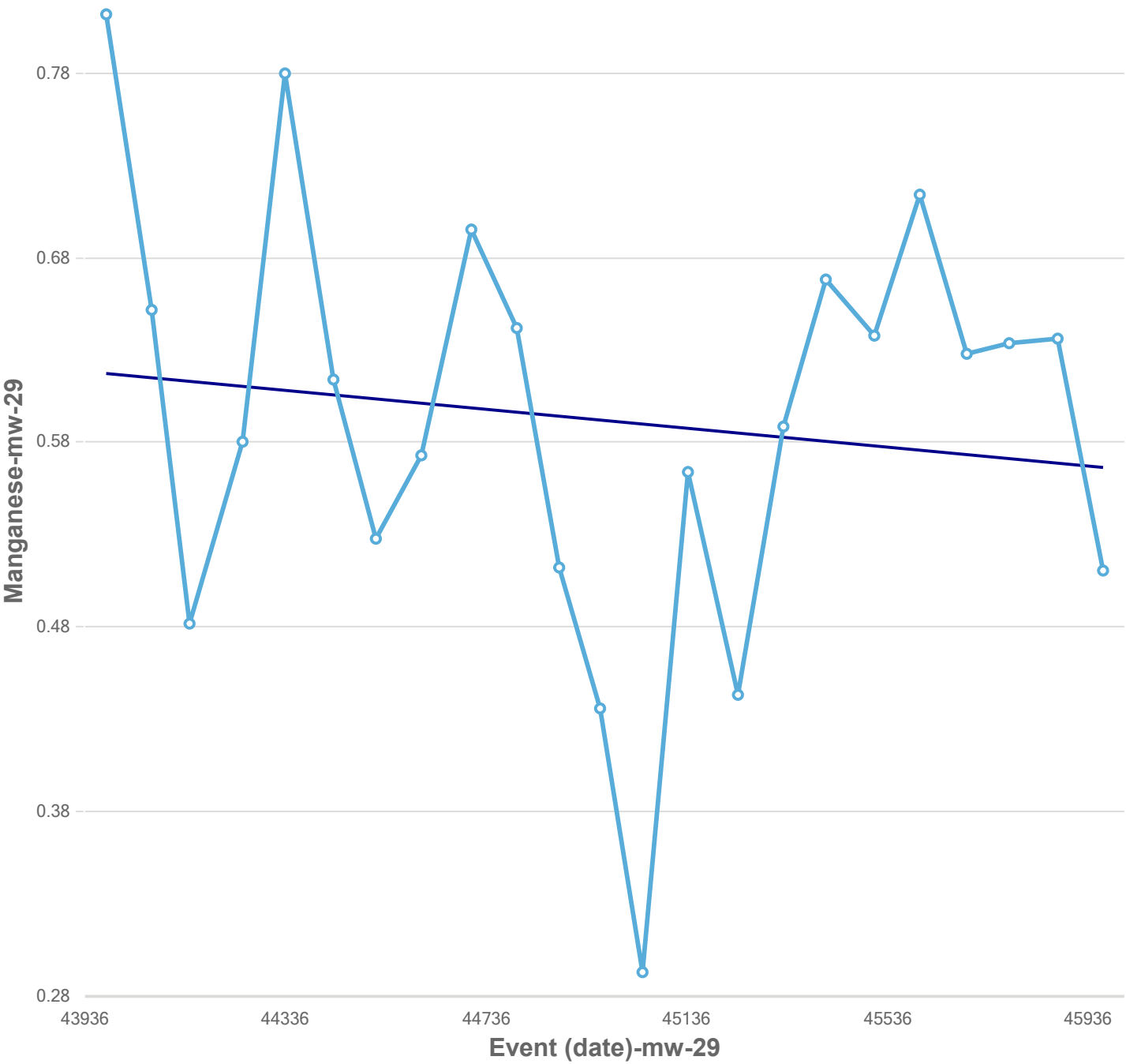
Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



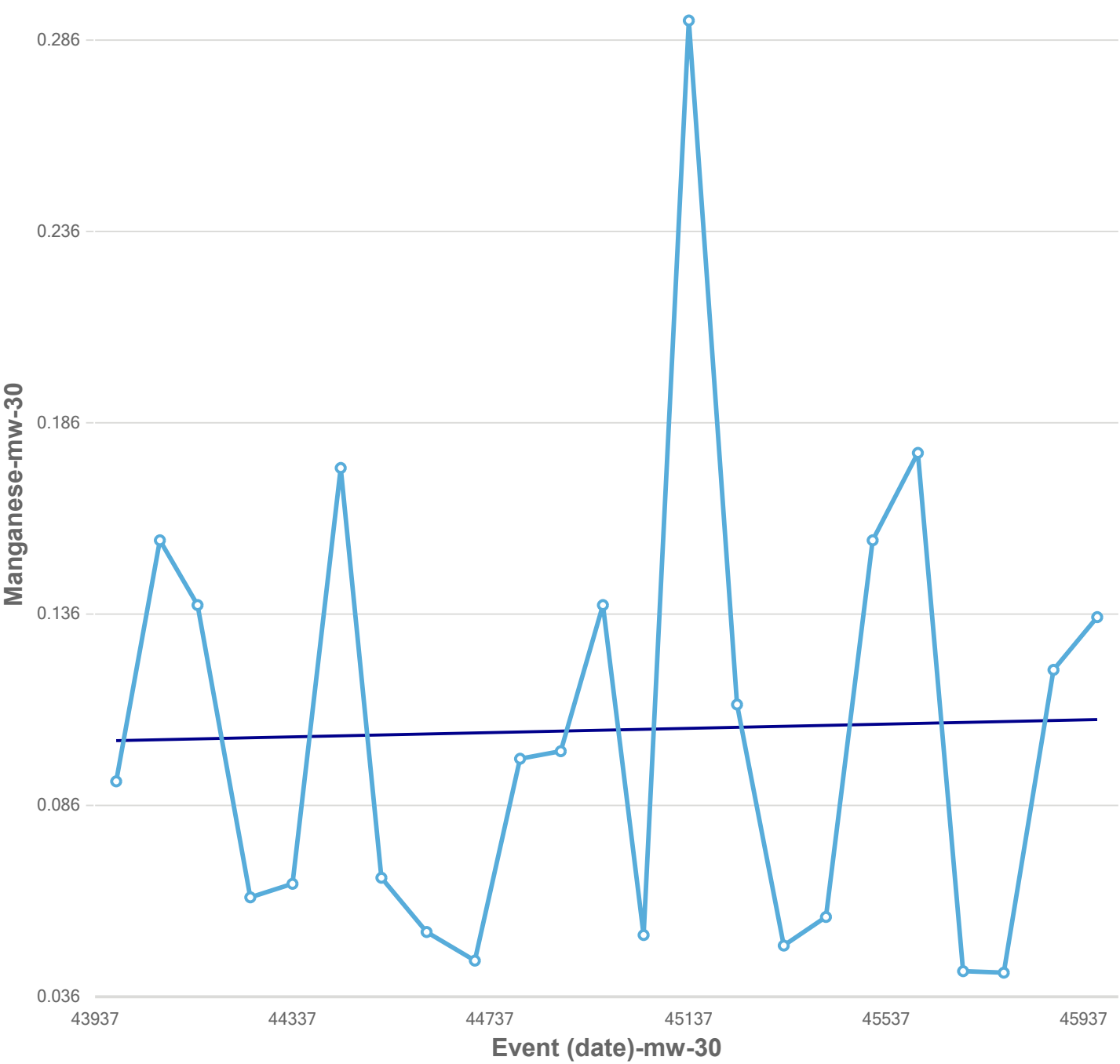
Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	-0.0793
M-K Test Value (S)	-4
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.4684
OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	0.2412
Insufficient statistical evidence of a significant trend at the specified level of significance.	

Mann-Kendall Trend Test



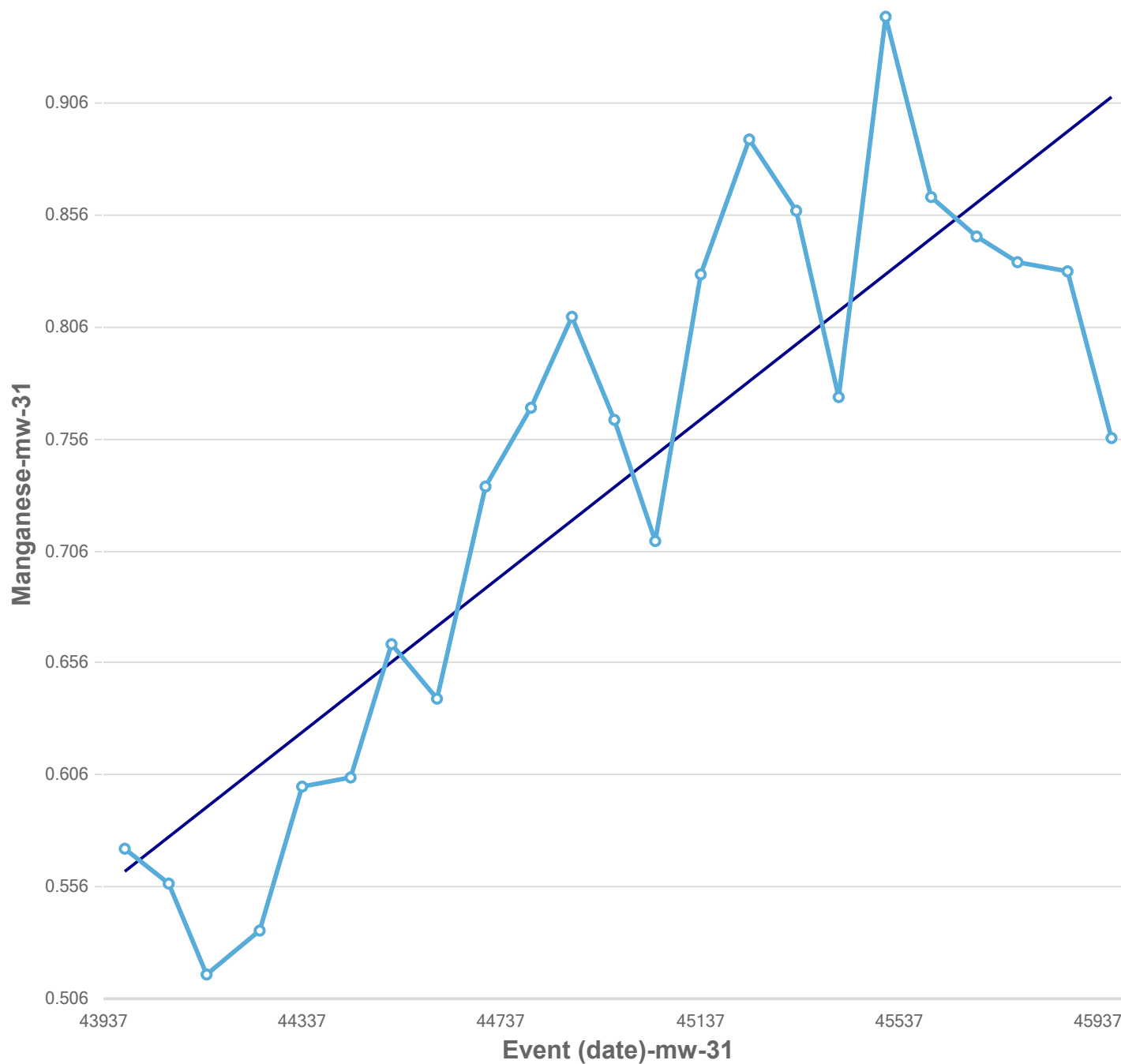
Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	-0.4754
M-K Test Value (S)	-19
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.3173
OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	1.7412
Insufficient statistical evidence of a significant trend at the specified level of significance.	

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8374
Standardized Value of S	-0.3171
M-K Test Value (S)	-13
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.3756
OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	-0.0175
Insufficient statistical evidence of a significant trend at the specified level of significance.	

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

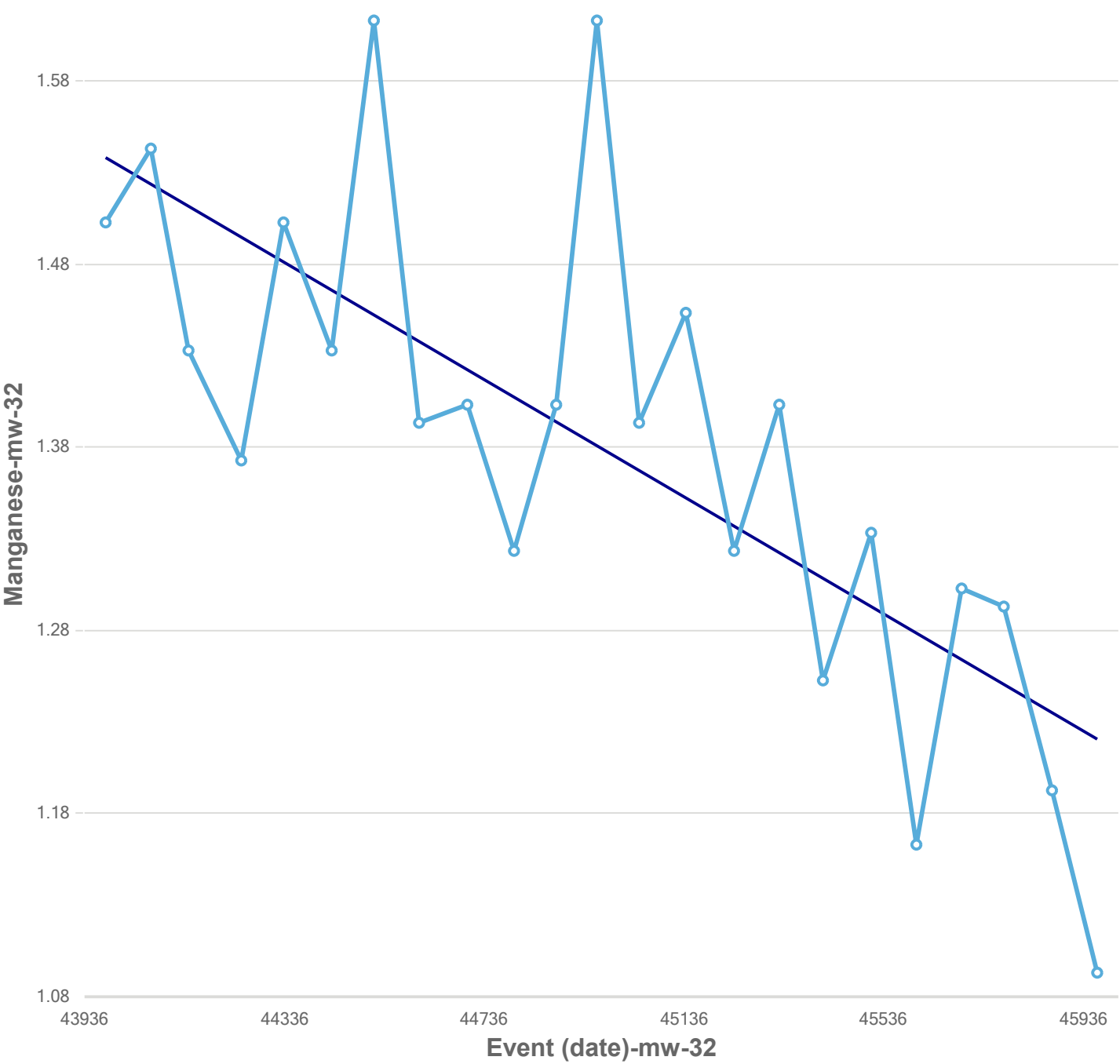
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	4.2257
M-K Test Value (S)	161
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0000

OLS Regression Line (Blue)

OLS Regression Slope	0.0002
OLS Regression Intercept	-7.0930

Statistically significant evidence
of an increasing trend at the
specified level of significance.

Mann-Kendall Trend Test

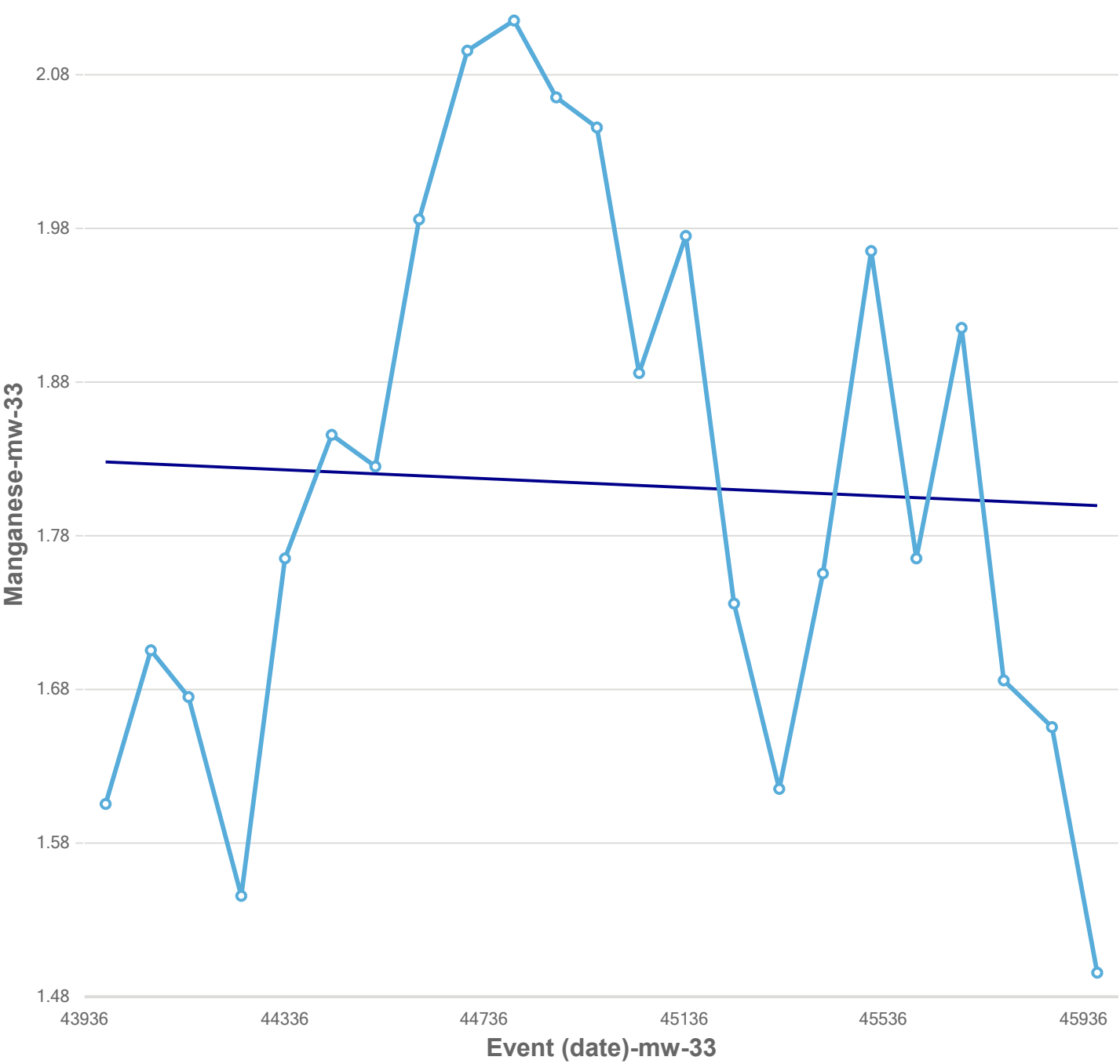


Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.7492
Standardized Value of S	-3.8676
M-K Test Value (S)	-147
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0001

OLS Regression Line (Blue)	
OLS Regression Slope	-0.0002
OLS Regression Intercept	8.5706

Statistically significant evidence of a decreasing trend at the specified level of significance.

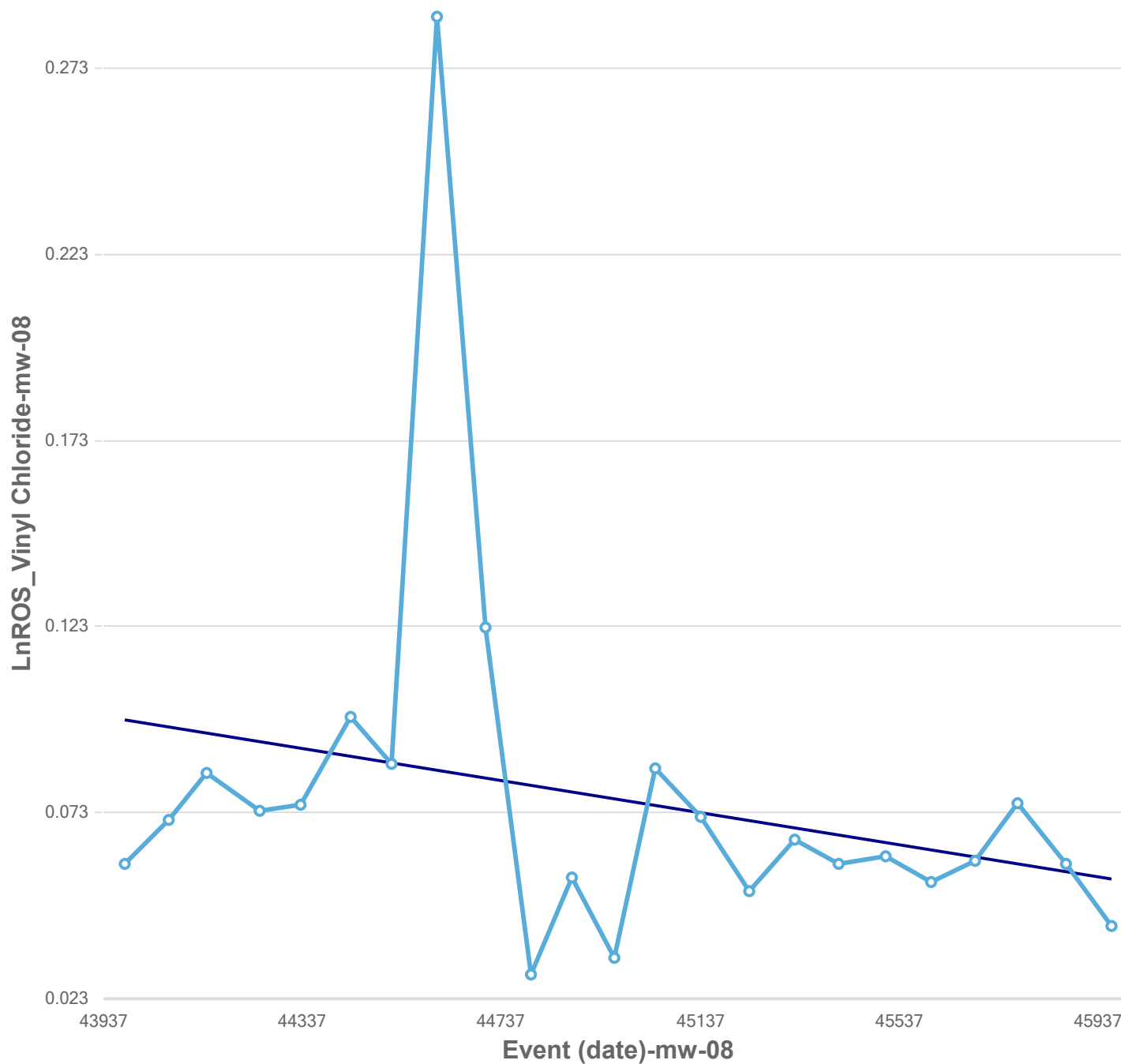
Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	-0.2906
M-K Test Value (S)	-12
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.3857
OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	2.4592

Insufficient statistical evidence of a significant trend at the specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

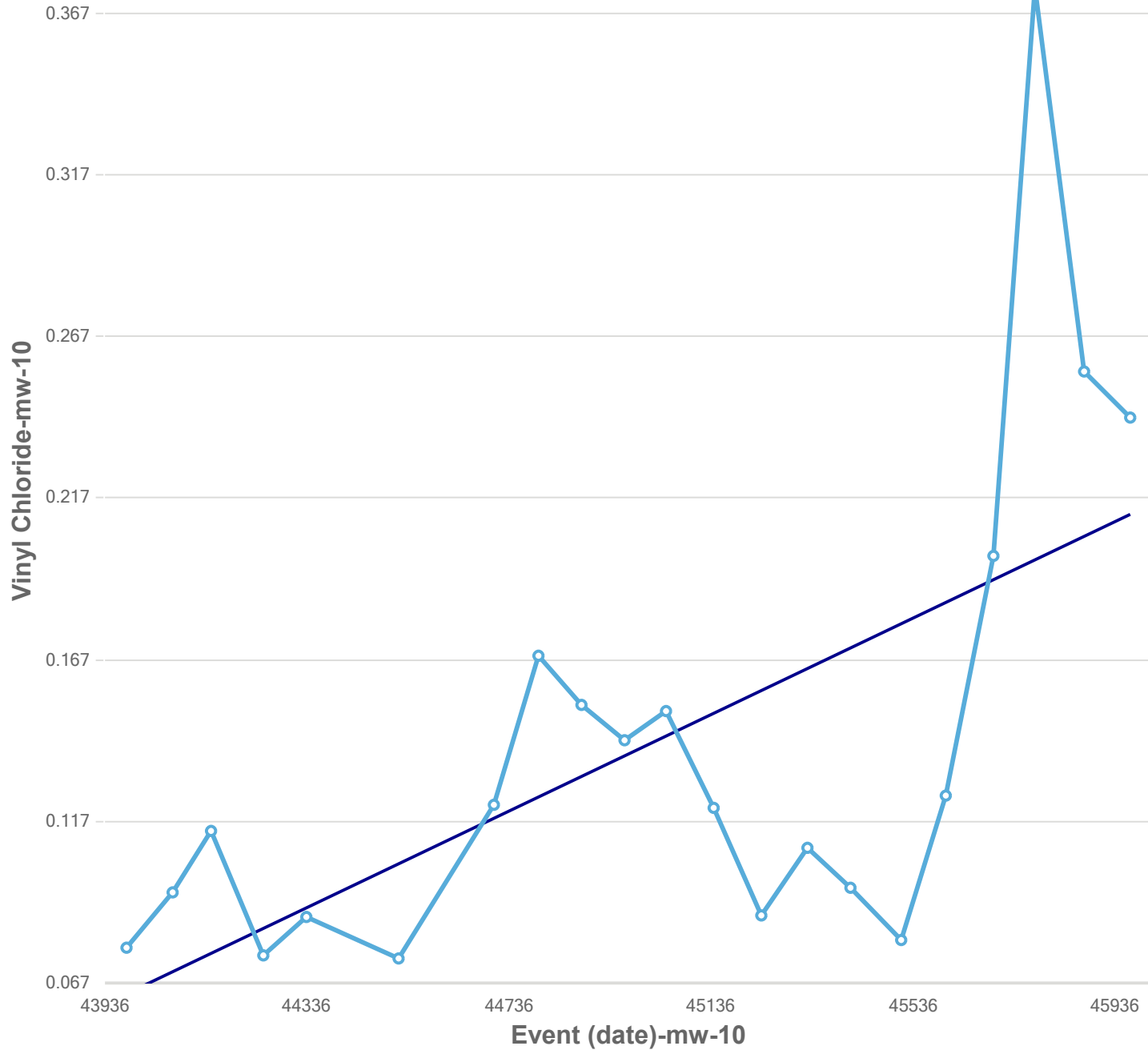
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	-1.5588
M-K Test Value (S)	-60
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0595

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1.0481

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

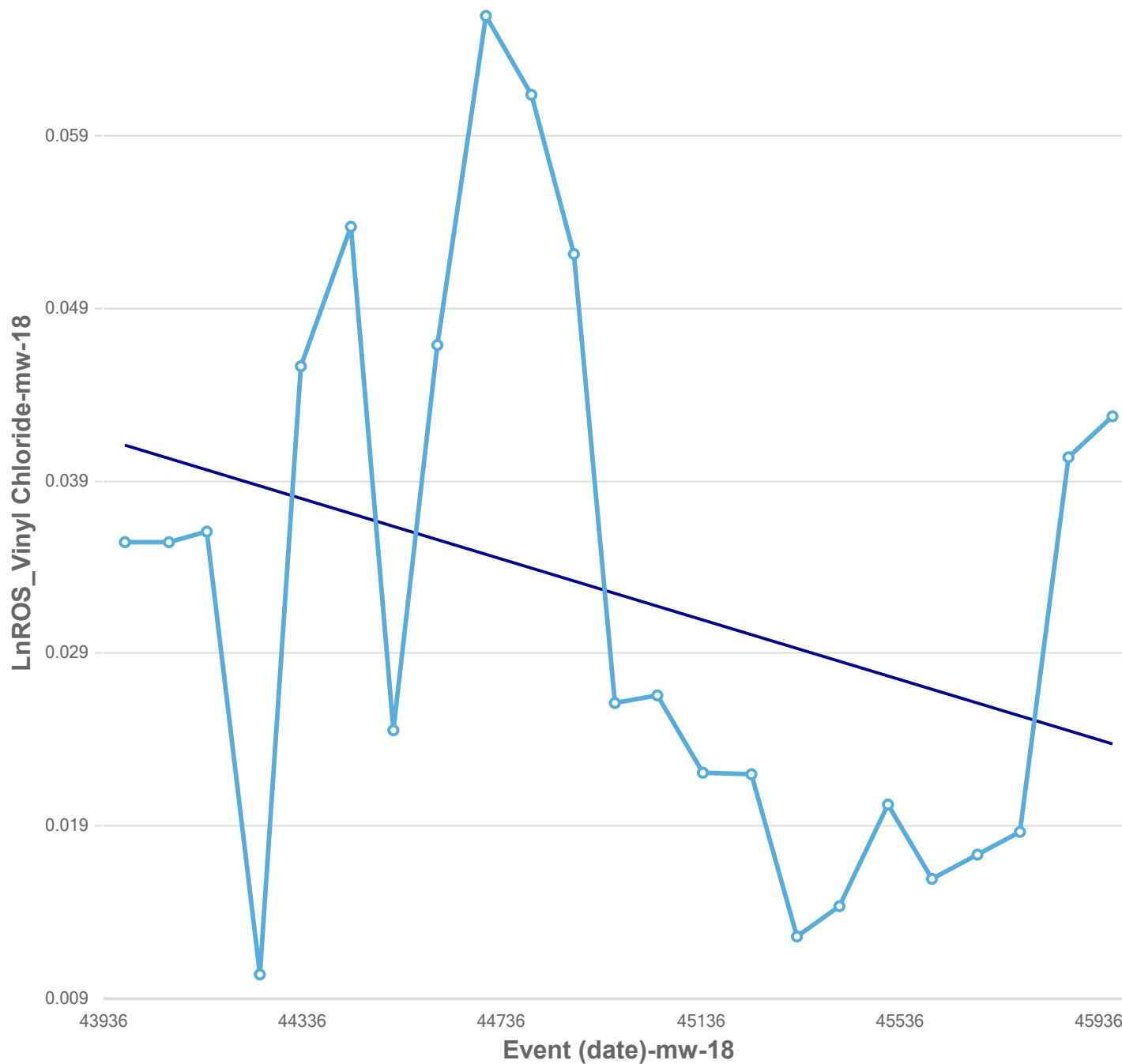
n	21
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	33.1160
Standardized Value of S	2.5667
M-K Test Value (S)	86
Tabulated p-value	0.0050
Approximate p-value	0.0051

OLS Regression Line (Blue)

OLS Regression Slope	0.0001
OLS Regression Intercept	-3.2234

Statistically significant evidence
of an increasing trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

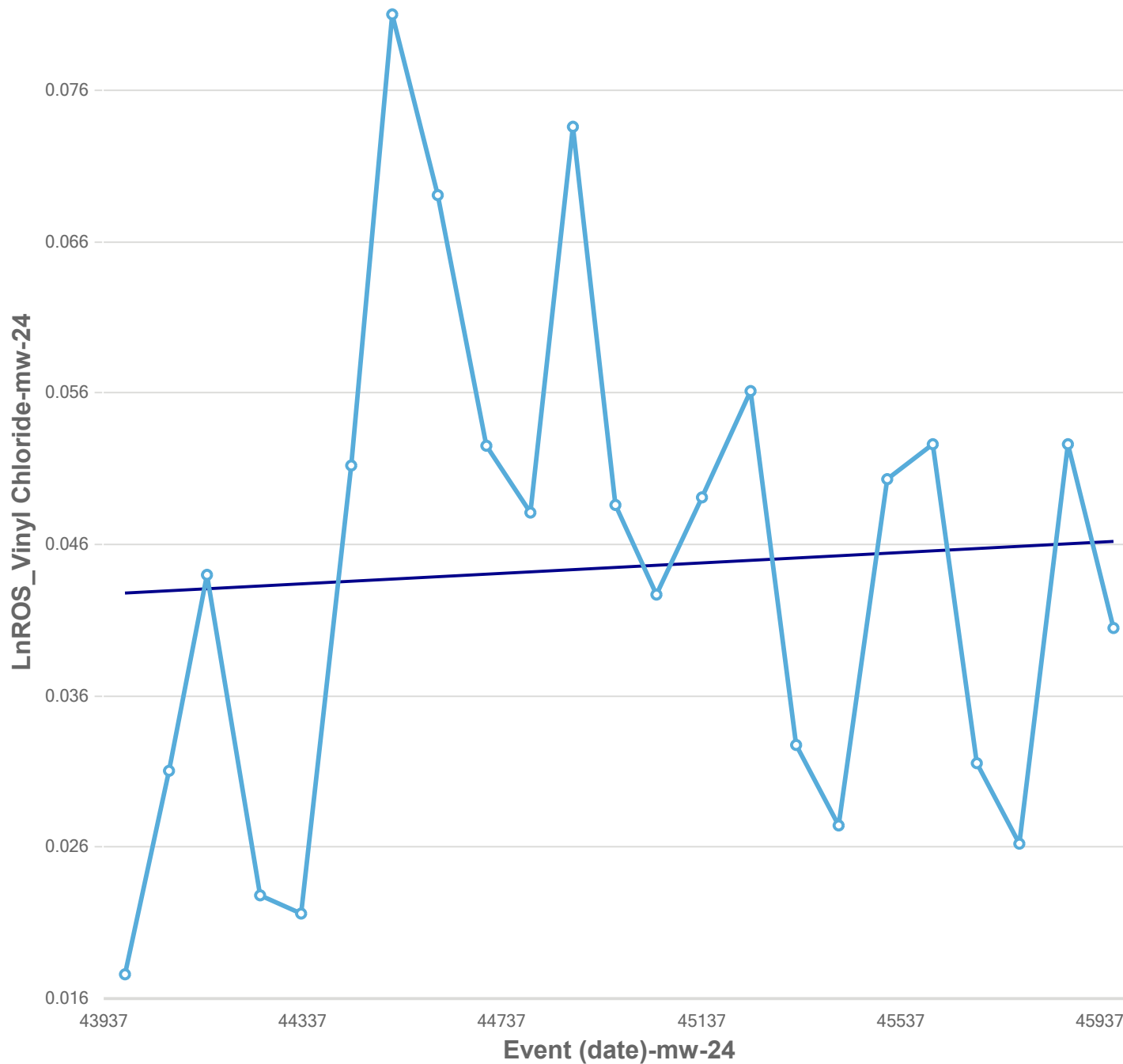
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	-1.5059
M-K Test Value (S)	-58
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0660

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	0.4247

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

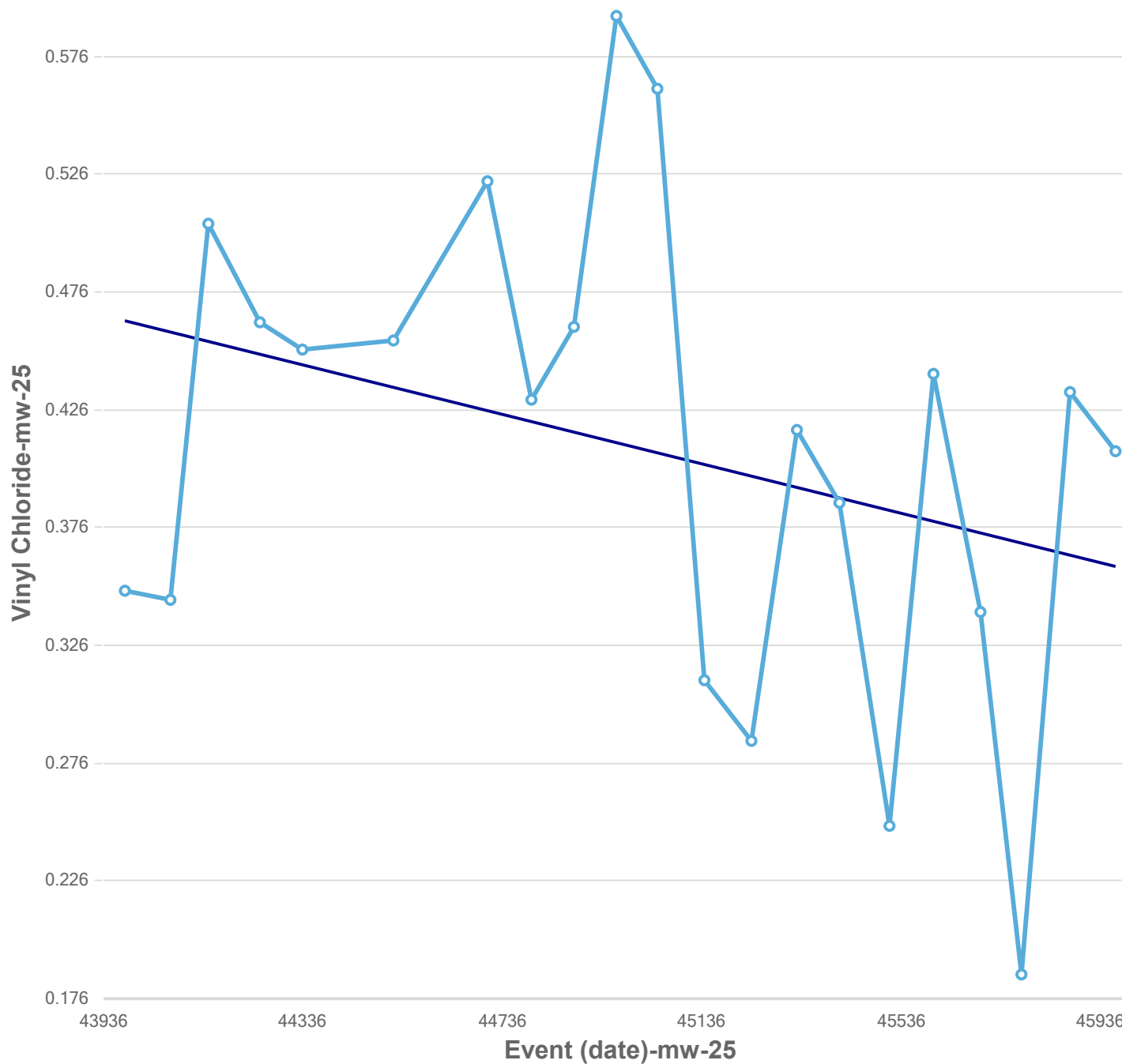
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8506
Standardized Value of S	0.4491
M-K Test Value (S)	18
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.3267

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	-0.0338

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

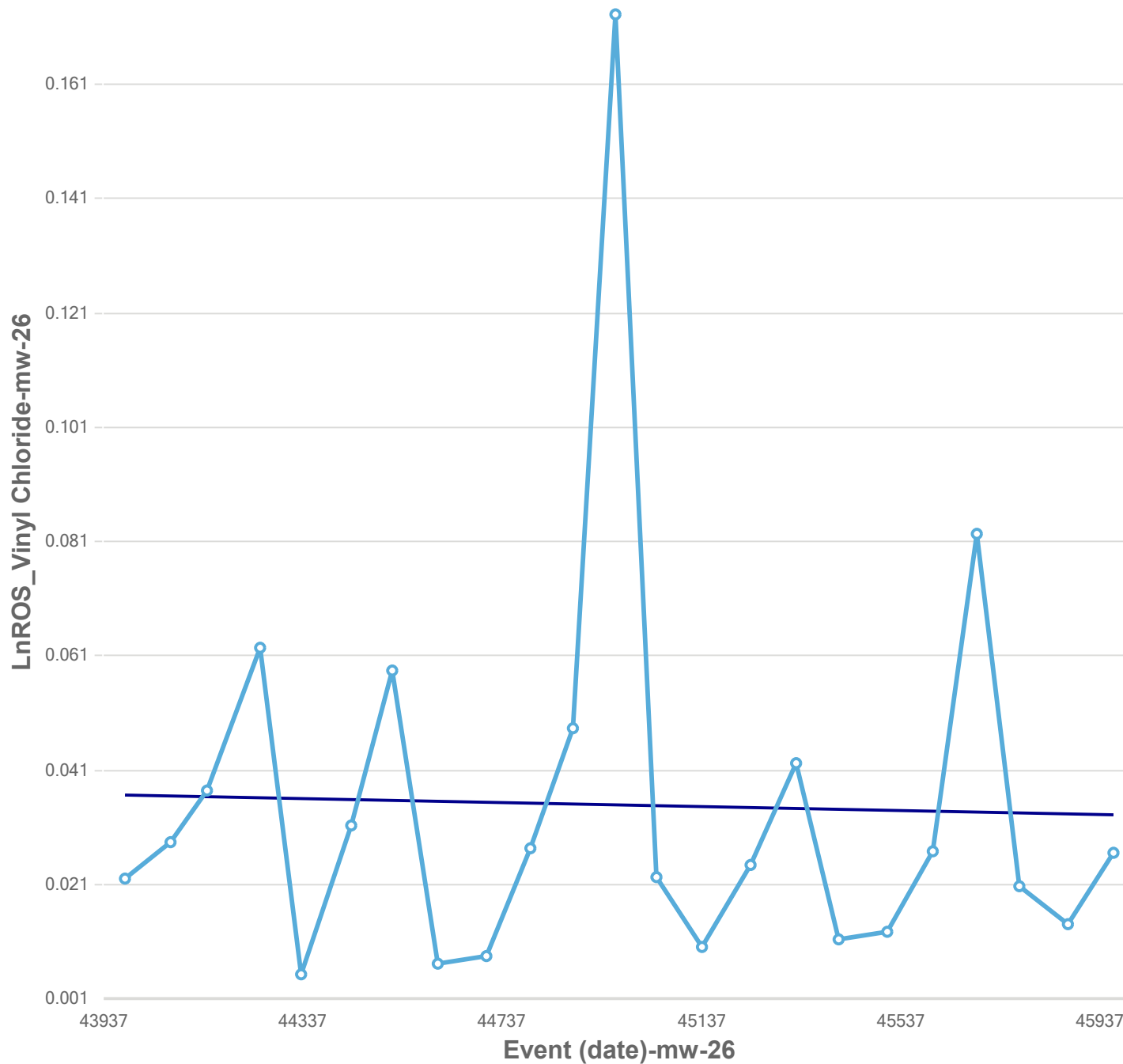
n	21
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	33.1160
Standardized Value of S	-1.6608
M-K Test Value (S)	-56
Tabulated p-value	0.0490
Approximate p-value	0.0484

OLS Regression Line (Blue)

OLS Regression Slope	-0.0001
OLS Regression Intercept	2.7769

Statistically significant evidence
of a decreasing trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

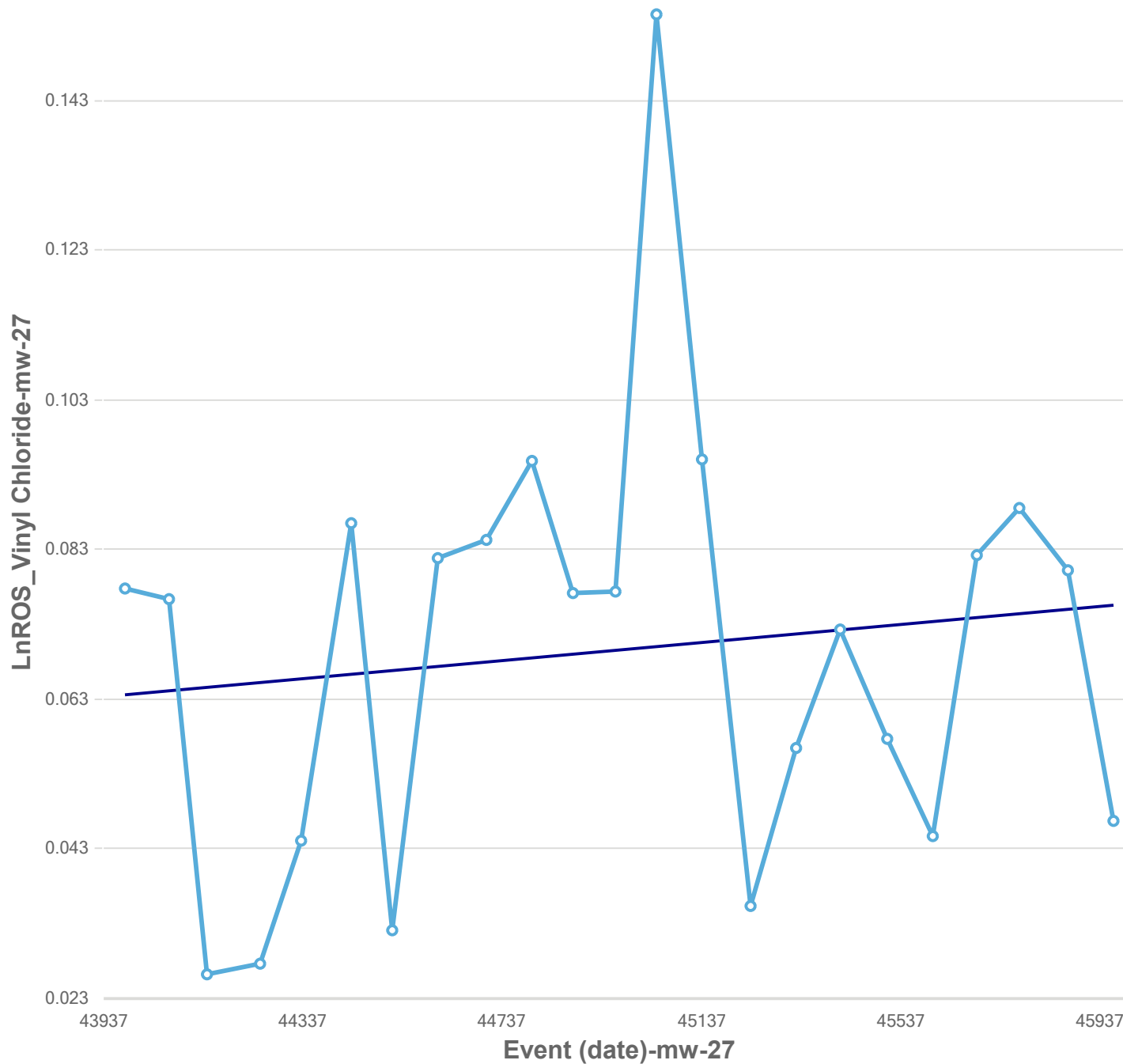
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	-0.1585
M-K Test Value (S)	-7
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.4370

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	0.1100

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

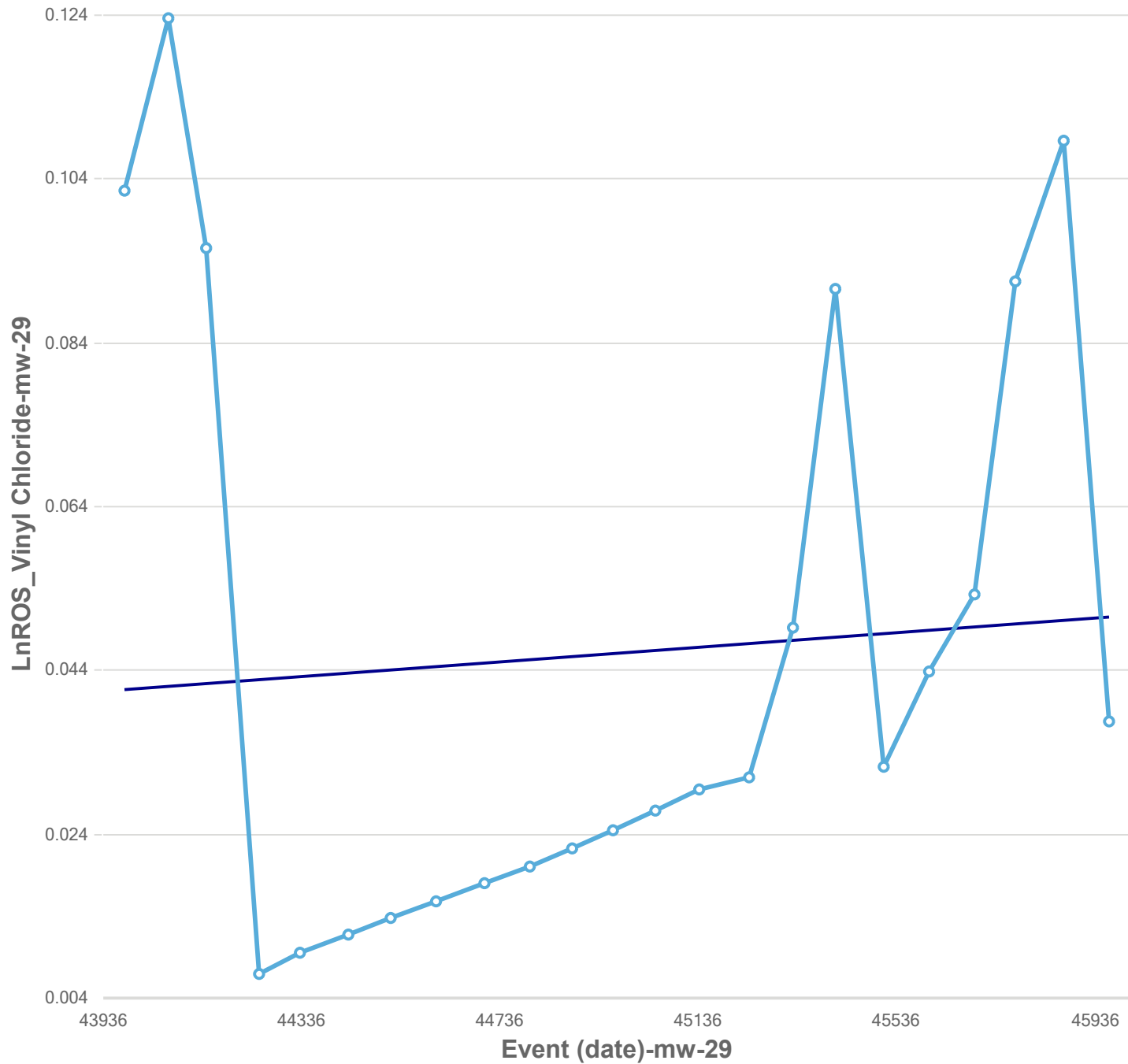
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	0.7923
M-K Test Value (S)	31
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.2141

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	-0.2034

Insufficient statistical evidence
of a significant trend at the
specified level of significance.

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis

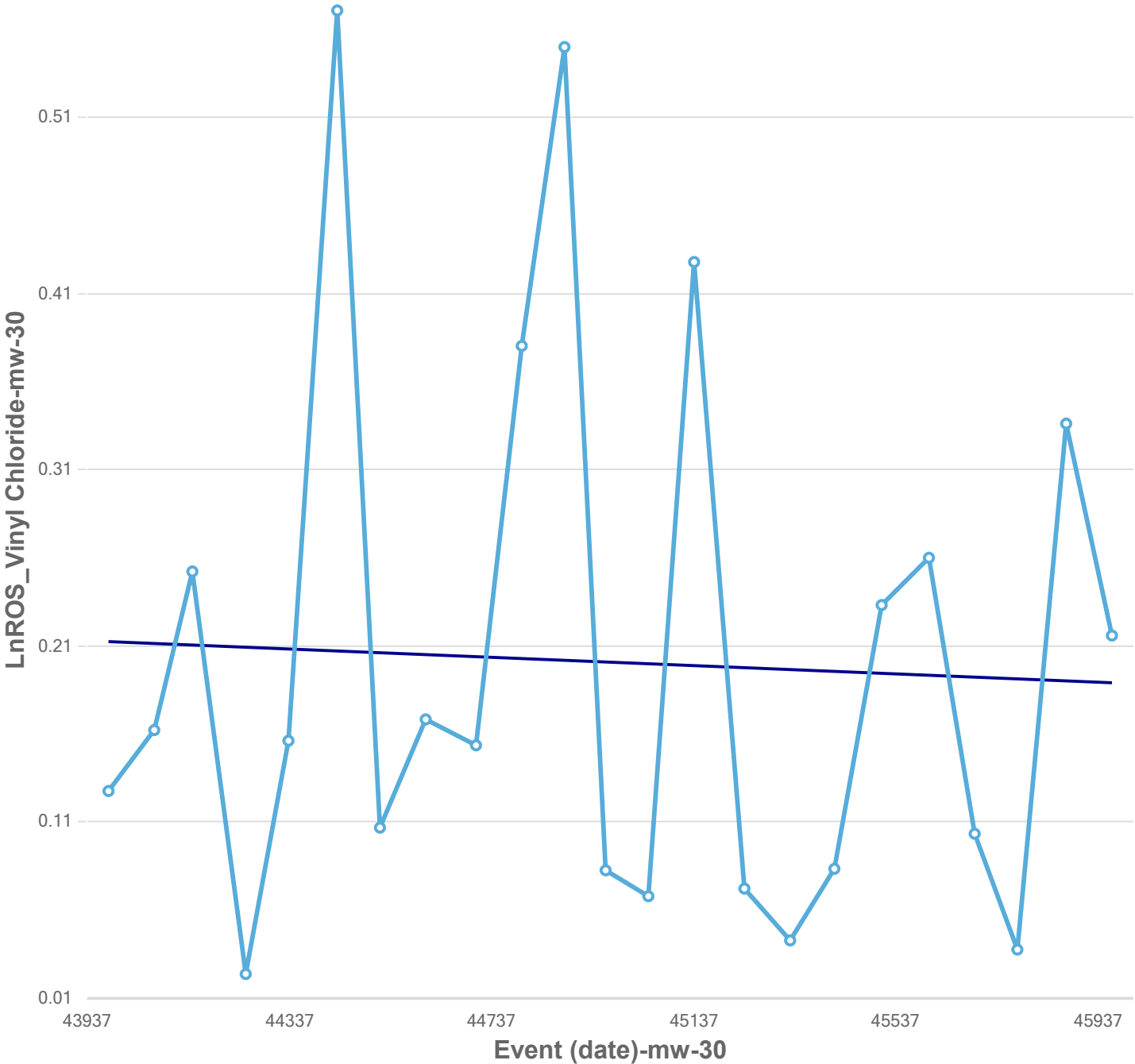
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	2.9052
M-K Test Value (S)	111
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0018

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	-0.1544

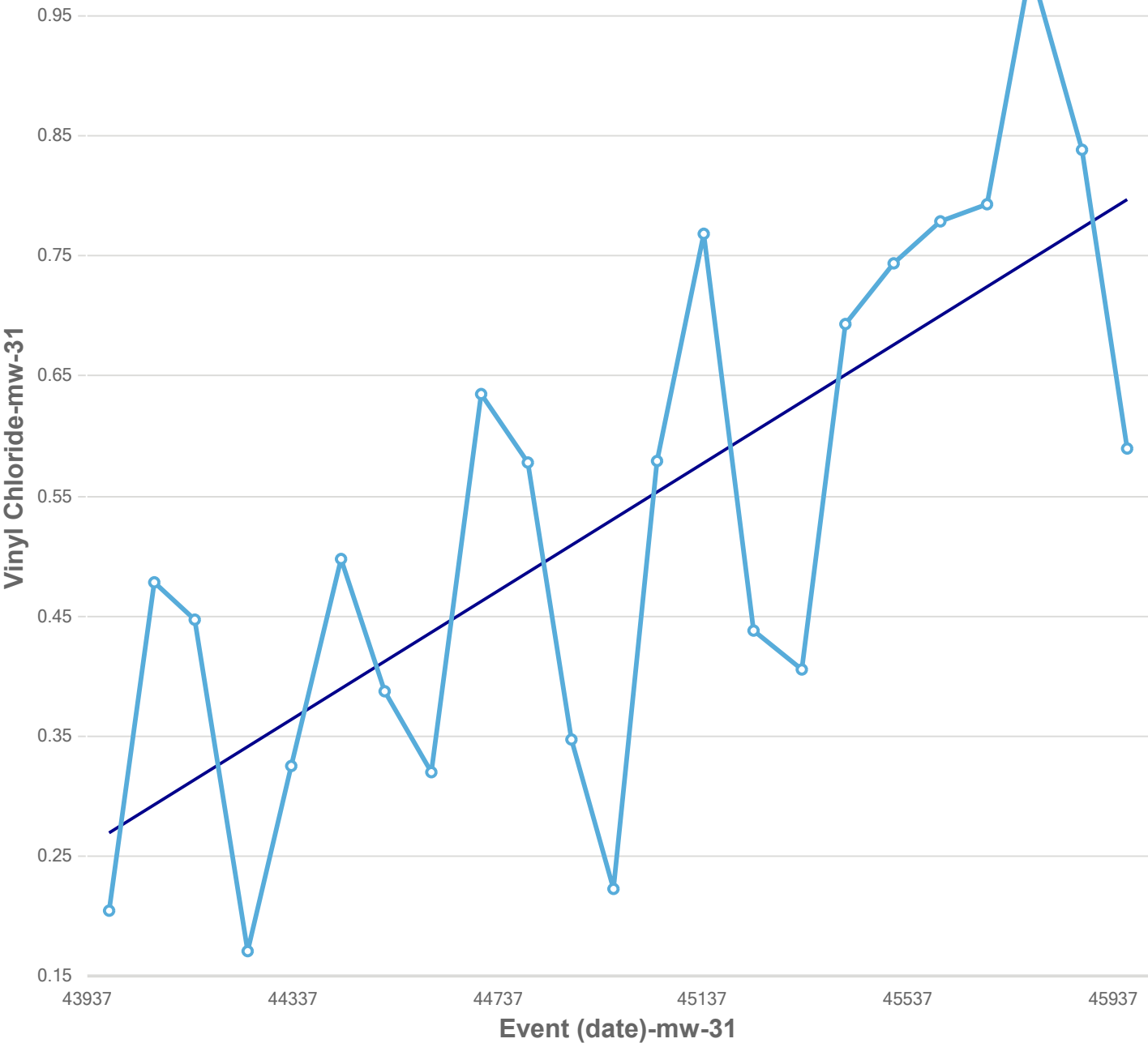
Statistically significant evidence
of an increasing trend at the
specified level of significance.

Mann-Kendall Trend Test



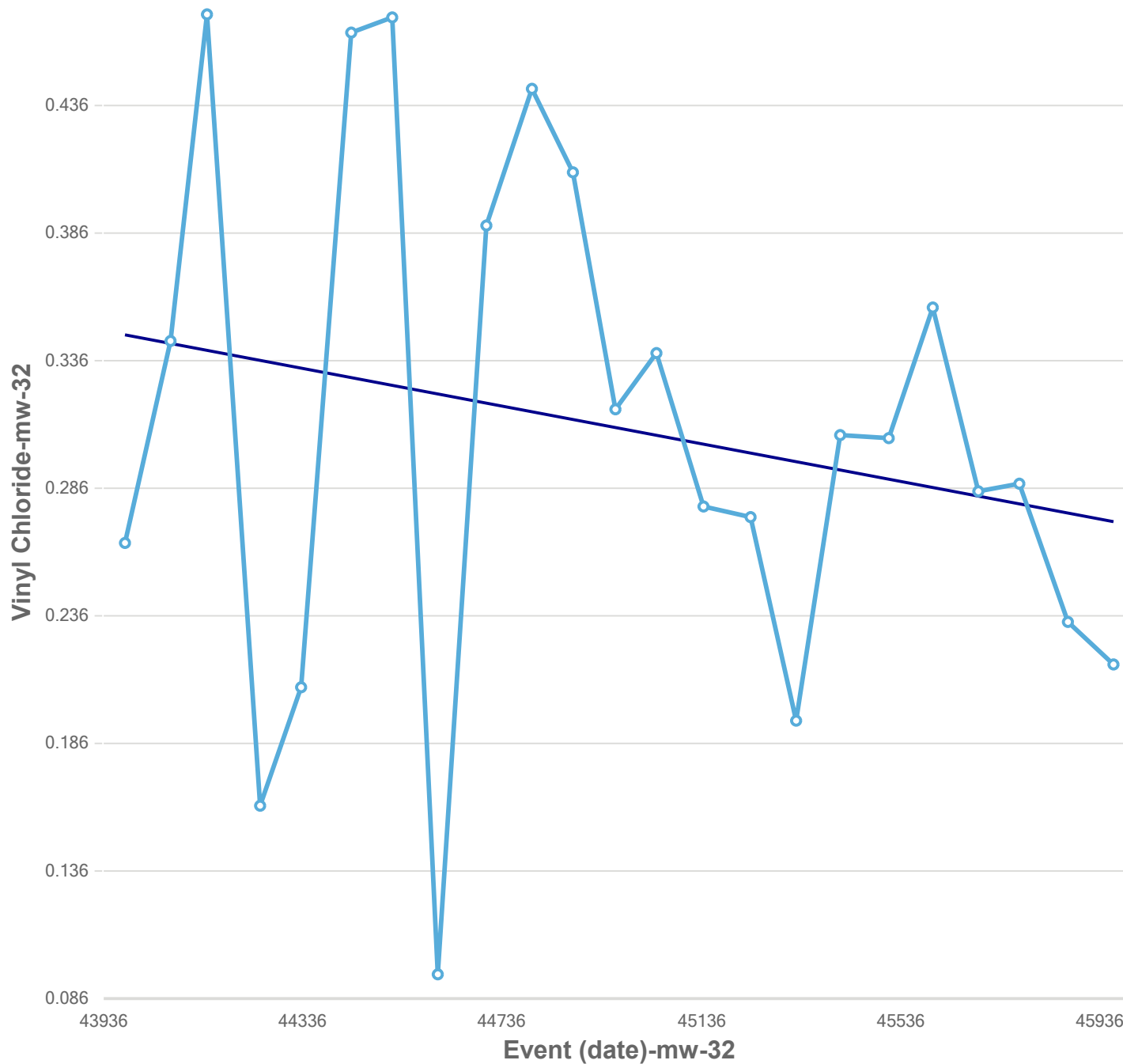
Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	-0.2641
M-K Test Value (S)	-11
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.3958
OLS Regression Line (Blue)	
OLS Regression Slope	0.0000
OLS Regression Intercept	0.7351
Insufficient statistical evidence of a significant trend at the specified level of significance.	

Mann-Kendall Trend Test



Mann-Kendall Trend Analysis	
n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	3.6446
M-K Test Value (S)	139
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0001
OLS Regression Line (Blue)	
OLS Regression Slope	0.0003
OLS Regression Intercept	-11.4293
Statistically significant evidence of an increasing trend at the specified level of significance.	

Mann-Kendall Trend Test



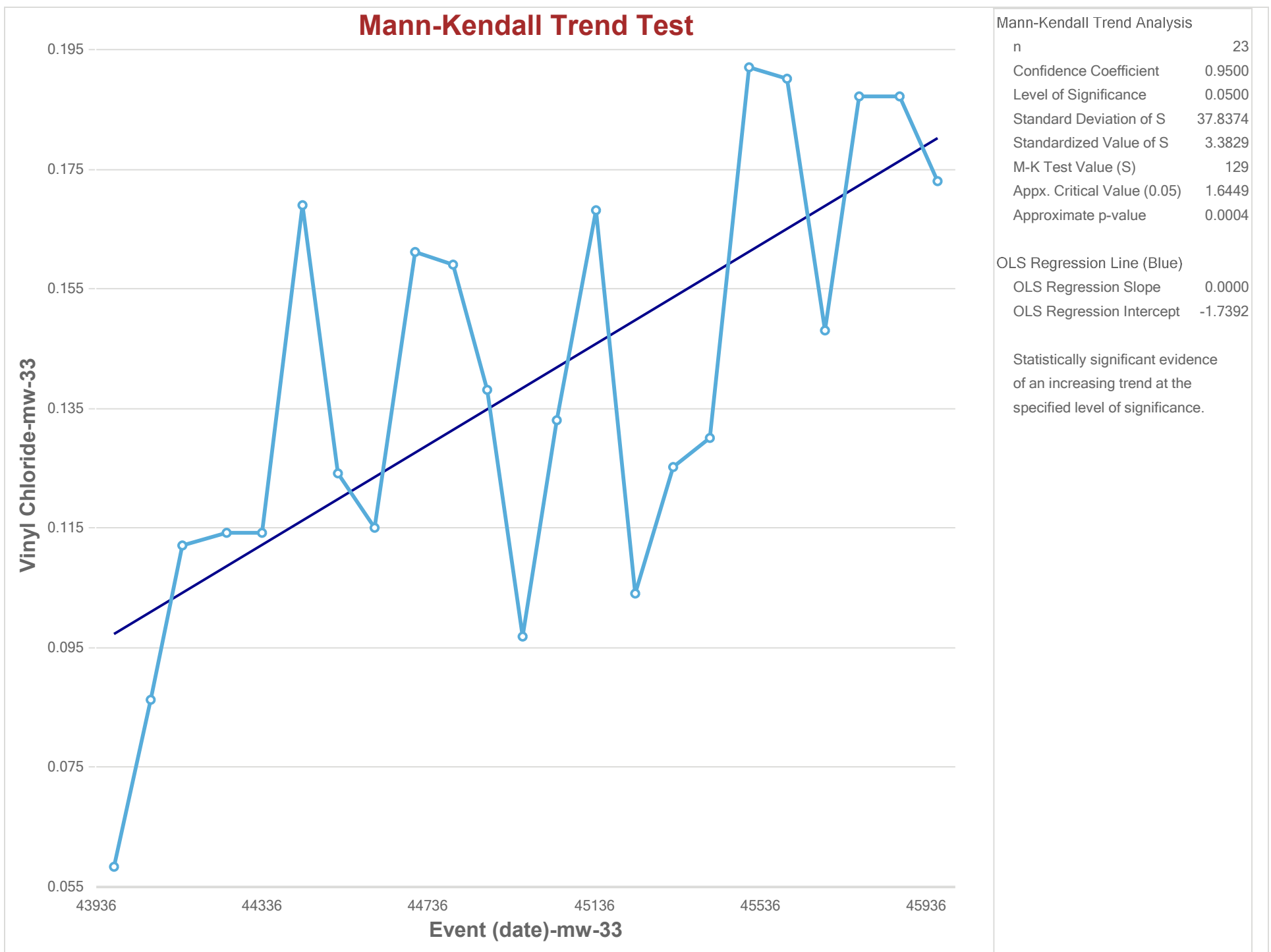
Mann-Kendall Trend Analysis

n	23
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	37.8638
Standardized Value of S	-1.4790
M-K Test Value (S)	-57
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0696

OLS Regression Line (Blue)

OLS Regression Slope	0.0000
OLS Regression Intercept	1.9725

Insufficient statistical evidence
of a significant trend at the
specified level of significance.



Appendix D3

Groundwater Monitoring Well Data and Field Forms

Water Level Measurement Field Report

DATE <u>2/3/2025</u>		JOB NO. 553-1550-067	
PROJECT: South Park Landfill		CLIENT: Seattle Public Utilities	
LOCATION: Seattle, WA			
WEATHER	TEMP <u>OVERCAST</u> <u>32</u> ° at <u>8:00</u> AM <u>~38</u> ° at <u>1005</u> PM AM		
PRESENT AT SITE <u>AURIE F., CHRIS B., SPU: Tyler, Dunham, Wilson</u>			

THE FOLLOWING WAS NOTED:

WELL NUMBER	Time	Measured Depth to Water (ft from TOC or SG level)	Total Measured Well Depth (ft from TOC)	Measuring Point	Total Well Depth (ft bgs)	Screen Interval (ft bgs)	SU (ft)
MW-12	803	5.56	—	TOC	15.3	10-15	1.52
MW-14	811	2.42	—	TOC	21.8	11.5-21.5	0.8
MW-29	823	6.81	—	TOC	30	20-30	-0.29
MW-18	833	15.02	—	TOC	40.4	30-40	1.25
MW-25	840 ⁹⁰⁶	10.58 ^{13.58}	—	TOC	27	22-27	2.79
MW-32	849	10.51	—	TOC	24	19-24	-0.44
MW-33	840	10.68	—	TOC	25	20-25	-0.47
MW-26	954	9.36	—	TOC	25	15-25	2.39
MW-27	1004	8.09	—	TOC	20	10-20	2.04
MW-10	904	12.80	—	TOC	45	35-45	1.65
MW-24	955	9.60	—	TOC	45.3	35-45	1.56
MW-08	1002	8.06	—	TOC	45.6	35.5 - 45.5	1.88
MW-30	922	9.85	—	TOC	13	8-13	-0.53
MW-31	918	10.76	—	TOC	23	18-23	-0.46

Comments:

* MW-29 allowed to equilibrate for ~5 minutes
~~22.5 ft and 22.5 ft corrected to 22.5 ft.~~

TOC – top of PVC casing

SG – staff gauge

SIGNED: Chris B.

* MW-32 manometer test flooded, waited 5 min → WL did not change

South Park Landfill

South Park Landfill

Well ID: MW-10

Samplers: Chris Bourgeois

Well Casing/Diameter: PVC/2 in

Purge Water Disposal Method: O/WS

Pump Intake Depth: 40.0 ft

End Purge Time: 1205

Sampling Data

Sample ID: SPL-GW-MW10-0225 Time Collected: 12:10 Weather: 37°F, Cloudy

Sample Description (Color, Turbidity, Odor, Other): No color, small particulates, no odor

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID: _____

MS/MSD Collected: ☐ Yes ☒ No

South Park Landfill

Date: 2/4/25

Samplers: Chris Bourgeois

Well Casing/Diameter: PVC/2 in

Purge Water Disposal Method: O/WS

Pump Intake Depth: 16.5 ft

End Purge Time: 1215

Sampling Data

Time Collected: 1220

Weather: clear/sunny cold

Sample Description (Color, Turbidity, Odor, Other): some turbidity (flaky, orange)

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☐ Yes ☒ No

If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

WATER IS BROWN IN BUCKET.

South Park Landfill

Well ID: MW-25

Samplers: Chris Bourgeois

Well Casing/Diameter: PVC/2 in

Purge Water Disposal Method: O/WS

Pump Intake Depth: 24.5 ft

End Purge Time: 12:50

Sampling Data

Weather: 37°F cloudy

Sample Description (Color, Turbidity, Odor, Other): No color, small particulates, no odor

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

South Park Landfill

Date: 2/5/25

Samplers: Chris Bourgeois

Well Casing/Diameter: PVC/2 in

6.61

O/WS

Pump Intake Depth: 25.0 ft

13:20

End Purge Time:

14:02

Sampling Data

Time Collected: 14:05

Weather: Shower, 37°F

Sample Description (Color, Turbidity, Odor, Other): No color, small particulate, no odor

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☐ Yes ☒ No

If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.: 553-1550-067

Date:

2/4/25

Well ID: MW-30

Sampling Organization: Parametrix

Samplers: Chris Bourgeois

Purge Data Screened Interval (ft bgs): 8.0-13.0

Well Casing/Diameter: PVC/2 in

Initial Depth of Water (Ft below TOC): 9.86

Purge Water Disposal Method: O/WS

Purge Device peristaltic pump

Pump Intake Depth: 10.5 ft

Begin Purge Time: 12:54

End Purge Time: 14:07

Time	Depth to Water (feet below MP)	Pump Setting	Purge Rate ^{ml/min}	Cum. Vol. Purged	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
13:00	10.07	N 60%	250		11.5	1.61	441.2	6.23	20.4	54.1	V. SL. CLOUDY, BROWN
13:05		ON DIA	260		11.4	1.02	410.0	6.17	42.9	50.7	N/O
13:10	10.03	"			11.5	0.95	398.6	6.14	47.4	40.9	
13:15	10.03	"		1.4 GAL	11.5	0.94	393.3	6.14	47.7	34.9	" "
13:20	10.03	"			11.5	0.94	392.6	6.14	48.6	23.3	" "
13:25	10.03	"	270		11.5	0.99	391.5	6.14	49.5	14.5	CLEAR
13:30	10.03	"	"		11.4	1.00	392.0	6.13	50.1	10.2	" "
13:35	10.03	"	"	2.75 GAL	11.4	1.02	391.5	6.12	51.3	7.51	" "
13:40	10.03	"	"		11.3	1.08	387.6	6.12	51.2	6.92	
13:45	10.04	"	"	3.25	11.3	1.08	388.4	6.12	51.5	6.67	
13:50	10.04	"	"	3.75	11.2	1.14	387.2	6.11	51.9	5.94	
13:55	10.04	"	"		11.2	1.15	384.4	6.11	52.8	3.71	
14:00	10.04	"	"		11.3	1.17	384.8	6.13	52.2	2.86	
14:05	10.04	"	"	4.75	11.3	1.22	384.5	6.09	54.8	2.49	

Stabilization Criteria

3%

10%, or 3<0.5

3%

± 0.1

± 10 mv

10% or 3<5 NTU

Sampling Data

Sample ID: SPL-GW_MW30-0225

Time Collected: 14:10

Weather: Clear, 33 F°

Sample Description (Color, Turbidity, Odor, Other): CLEAR, N/S

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID: _____MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

SL. BROWN WATER IN BUCKET.

South Park Landfill

Date: 2/4/25

Well ID: MW-31

Samplers: Chris Bourgeois

Well Casing/Diameter: PVC/2 inPurge Water Disposal Method: O/WS

Pump Intake Depth: 20.5ft

End Purge Time: 1507

Sampling Data

Time Collected: 15:10

Weather: Cloudy, 43°F

Sample Description (Color, Turbidity, Odor, Other): V. SL. PARTICULATE, V. SL. SULF. ODOR

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

SL. BROWN WATER IN BUCKET.

South Park Landfill

Date: 2/5/25

Samplers: Chris Bourgeois

End Purge Time: 900

Stabilization Criteria	3%	10% , or 3<0.5	3%	± 0.1	± 10 mv	10% or 3 <5 NTU
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Time Collected: 900

Weather: light snow

Sample Description (Color, Turbidity, Odor, Other): few orange flakes

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☒ Yes ☐ No

If yes, ID: SPL-GW_MW60-0225

8 9.30

MS/MSD Collected: ☒ Yes ☐ No

Parametrix

South Park Landfill

Date: 2/5/25

Samplers: Chris Bourgeois

Well Casing/Diameter: PVC/2 in

10.69

Pump Intake Depth: 22.5ft

931

End Purge Time:

955

Sampling Data

Time Collected: 1000

Weather: overcast + 12

Sample Description (Color, Turbidity, Odor, Other): small orange flecks, yellow color

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☐ Yes ☒ No

If yes, ID:

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

Water Level Measurement Field Report

DATE:	04/28/2025	JOB NO. 553-1550-067			
PROJECT: South Park Landfill		CLIENT: Seattle Public Utilities			
LOCATION: Seattle, WA					
WEATHER	TEMP	49	° at	8:08	AM
Cloudy		54	° at	10:15	PM
PRESENT AT SITE	T. Steimel	D. Favill	W. Yu	Chris Bourgeois - Parametrix	

THE FOLLOWING WAS NOTED:

WELL NUMBER	Time	Measured Depth to Water (ft from TOC or SG level)	Total Measured Well Depth (ft from TOC)	Measuring Point	Total Well Depth (ft bgs)	Screen Interval (ft bgs)	SU (ft)
MW-12	9:06	6		TOC	15.3	10 - 15	1.52
MW-14	8:09	2.68		TOC	21.8	11.5 - 21.5	0.8
MW-29	8:30	6.72		TOC	30	20 - 30	-0.29
MW-18	8:43	14.96		TOC	40.4	30 - 40	1.25
MW-25	8:53	13.46		TOC	27	22 - 27	2.79
MW-32	9:29	10.36		TOC	24	19 - 24	-0.44
MW-33	9:16	10.61		TOC	25	20 - 25	-0.47
MW-26	10:06	9.25		TOC	25	15 - 25	2.39
MW-27	10:18	7.89		TOC	20	10 - 20	2.04
MW-10	8:55	12.77		TOC	45	35 - 45	1.65
MW-24	10:03	8.49		TOC	45.3	35 - 45	1.56
MW-08	1013	7.95		TOC	45.6	35.5 – 45.5	1.88
MW-30	9:52	9.69		TOC	13	8 - 13	-0.53
MW-31	9:54	10.65		TOC	23	18 - 23	-0.46

Comments:

TOC – top of PVC casing SG – staff gauge

SIGNED: _____

South Park Landfill

Well ID:	MW-08
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Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	40 ft
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End Purge Time:	12:35
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South Park Landfill

Well ID:	MW-10
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Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	40 ft
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End Purge Time: 13:15

**10% or
3<5 NTU**

Weather: Cloudy

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

If yes, ID: _____

South Park Landfill

Well ID:	MW-12
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Samplers: Tyler Steimel, Duncan Favill, Wilson Yu

Purge Water Disposal Method: O/WS

Pump Intake Depth:	12.5 ft
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End Purge Time:

**10% or
3<5 NTU**

Weather: Cloudy

clear , no odor

If yes, ID:

☐ Yes ☒ No

South Park Landfill

Well ID: MW-14

Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	16.6 ft
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End Purge Time:	11:40
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Stabilization Criteria	3%	10% or 3<0.5 PPM	3%	± 0.1	± 10 mv	10% or 3<5 NTU
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Weather: Cloudy

MS/MSD Collected: ☐ Yes ☒ No

South Park Landfill

Well ID:	MW-18
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Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	35 ft
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End Purge Time: 10:30

Sampling Data

Weather: Partly Cloud

Sample Description (Color, Turbidity, Odor, Other):	clear, no odor
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Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

If yes, ID: SPL-GW-MW60-0525

MS/MSD Collected: ☒ Yes ☐ No

Additional Information/Comments

South Park Landfill

Well ID: MW-24

Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	40 ft
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End Purge Time: 8:45

[illegible]

Sampling Data

Weather: Lt. Rain

Sample Description (Color, Turbidity, Odor, Other):	Clear, colorless, no particulates
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Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☒ Yes ☐ No If yes, ID: SPL-GW-MW61-0525

MS/MSD Collected: ☒ Yes ☐ No

Additional Information/Comments

South Park Landfill

Well ID: MW-25

Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	24.5 ft
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End Purge Time: 14:05

Pump stopped pumping immediately. Increase pressure to "re-prime" the pump

South Park Landfill

Well ID: MW-26

Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	20 ft
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End Purge Time: 9:50

**10% or
3<5 NTU**

Weather: Lt. Rain

MS/MSD Collected: ☐ Yes ☒ No

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.:	553-1550-067	Date:	04/28/2025	Well ID:	MW-27
Sampling Organization:	SPU	Samplers:	Tyler Steimel	Duncan Favill	Wilson Yu

Purge Data	Screened Interval (ft bgs):	10 - 20	Well Casing/Diameter:	PVC/2 in
	Initial Depth of Water (Ft below TOC):	7.91	Purge Water Disposal Method:	O/WS
	Purge Device:	Dedicated bladder pump	Pump Intake Depth:	15 ft
	Begin Purge Time:	10:35	End Purge Time:	11:50

Time	Depth to Water (feet below MP)	Pump Setting (PSI)	Purge Rate (ml/Min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
10:40	7.91	15	280	3.00	11.5	0.85	304.0	6.59	64.5	1100.00	brown, no odor
10:45	7.91	15	280	5.00	11.6	0.41	340.9	6.58	17.1	867.00	brown, no odor
10:50	7.91	15	280	7.00	11.6	0.22	389.0	6.68	-20.1	354.00	
10:55	7.91	15	280	8.00	11.7	0.22	399.4	6.64	-29.3	81.10	
11:00	7.91	15	280	9.50	11.7	0.24	408.4	6.64	-37.0	30.30	
11:05	7.91	15	280	11.00	11.7	0.18	414.9	6.64	-43.4	21.40	
11:10	7.91	15	280	13.00	11.8	0.15	419.0	6.64	-47.5	18.70	
11:15	7.92	15	280	14.00	11.8	0.13	420.8	6.63	-51.0	16.30	
11:20	7.92	15	280	15.50	11.8	0.13	423.4	6.66	-53.6	14.20	
11:25	7.92	15	280	17.00	11.8	0.19	426.8	6.68	-57.0	11.70	
11:30	7.92	15	280	18.50	11.8	0.14	430.6	6.66	-58.8	10.60	
11:35	7.92	15	280	20.00	11.8	0.13	431.5	6.66	-60.5	8.67	
11:40	7.92	15	280	21.50	11.8	0.13	433.8	6.65	-61.7	8.00	
11:45	7.92	15	280	23.00	11.8	0.11	434.8	6.65	-63.1	7.29	
Stabilization Criteria					3%	10% or 3<0.5 PPM	3%	± 0.1	± 10 mv	10% or 3<5 NTU	

Sampling Data					
Sample ID:	SPL-GW-MW27-0525	Time Collected:	12:00	Weather:	Cloudy
Sample Description (Color, Turbidity, Odor, Other):	no odor				
Sample Analyses:	cis-1,2-DCE, vinyl chloride, total iron, total manganese				
Duplicate Sample Collected:	☐ Yes	☒ No	If yes, ID: _____		
MS/MSD Collected:	☐ Yes	☒ No			

Additional Information/Comments

South Park Landfill

Purge Data	Screened Interval (ft bgs):	10 - 20	Well Casing/Diameter:	PVC/2 in
	Initial Depth of Water (Ft below TOC):		Purge Water Disposal Method:	O/WS
	Purge Device:	Dedicated bladder pump	Pump Intake Depth:	15 ft
	Begin Purge Time:	10:35	End Purge Time:	11:50

[illegible]

Sample ID: SPL-GW-MW27-0525 Time Collected: 12:00 Weather: Cloudy

Sample Description (Color, Turbidity, Odor, Other): no odor

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected: ☐ Yes ☒ No If yes, ID: _____

MS/MSD Collected: ☐ Yes ☒ No

Additional Information/Comments

GROUNDWATER SAMPLE COLLECTION FORM

South Park Landfill

Project No.:553-1550-067

Date:04/30/2025

Well ID:MW-29

Sampling Organization:SPU

Samplers:Tyler Steimel, Duncan Favill, Wilson Yu

Purge Data

Screened Interval (ft bgs):20 - 30

Well Casing/Diameter:PVC/2 in

Initial Depth of Water (Ft below TOC):6.67

Purge Water Disposal Method:O/WS

Purge Device:Peristaltic pump

Pump Intake Depth:25 ft

Begin Purge Time:8:15

End Purge Time:9:15

Time	Depth to Water (feet below MP)	Pump Setting (Ticks)	Purge Rate (ml/Min)	Cum. Vol. Purged (L)	Temp (°C)	DO (mg/L)	Specific Conductivity (µS/cm)	pH (units)	ORP (mv)	Turbidity (NTU)	Comments
8:20	8.12	2	300	1.50	11.8	0.21	1006.0	6.71	-85.5	21.20	
8:25	7.91	1.75	220	3.00	11.8	0.30	987.0	6.71	-89.2	17.20	clear w/ white particulates
8:30	7.84	1.75	220	4.25	11.8	0.81	943.0	6.67	-75.9	11.20	
8:35	7.86	1.75	220	5.50	11.8	0.73	931.0	6.73	-71.0	5.08	
8:40	7.91	1.75	220	6.75	11.8	0.54	923.0	6.75	-73.6	4.05	
8:45	7.94	1.75	220	8.00	11.8	0.38	912.0	6.75	-78.9	3.17	small white particulates
8:50	7.98	1.75	220	9.25	11.9	0.21	890.0	6.78	-86.6	2.16	
8:55	8.01	1.75	220	10.50	11.9	0.13	867.0	6.79	-92.8	1.85	
9:00	8.04	1.75	220	11.75	11.9	0.11	848.0	6.80	-96.5	1.61	
9:05	8.05	1.75	220	13.00	11.9	0.10	832.0	6.81	-99.3	1.86	
9:10	8.07	1.75	220	14.25	11.9	0.10	816.0	6.81	-101.3	1.59	
9:15	8.09	1.75	220	15.50	11.9	0.09	809.0	6.82	-102.9	1.36	
Stabilization Criteria					3%	10% or 3<0.5 PPM	3%	± 0.1	± 10 mv	10% or 3<5 NTU	

Sampling Data

Sample ID:SPL-GW-MW29-0525

Time Collected:9:20

Weather:Cloudy

Sample Description (Color, Turbidity, Odor, Other):

clear , no odor with small white particulates

Sample Analyses:

cis-1,2-DCE, vinyl chloride, total iron, total manganese

Duplicate Sample Collected:

☐ Yes

☒ No

If yes, ID:

MS/MSD Collected:

☐ Yes

☒ No

Additional Information/Comments

Water level dropped during initial pumping, reduced pump flow to help manage drawdown levels

South Park Landfill

Well ID: MW-30

Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	10.5 ft
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End Purge Time: 11:15

Stabilization Criteria	3%	10% or 3<0.5 PPM	3%	± 0.1	± 10 mv	10% or 3<5 NTU
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Time Collected:	11:20	Weather:	Lt. Rain
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MS/MSD Collected: ☐ Yes ☒ No

South Park Landfill

Well ID:	MW-31
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Samplers:	Tyler Steimel	,	Duncan Favill	,	Wilson Yu
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Purge Water Disposal Method: O/WS

Pump Intake Depth:	20.5 ft
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End Purge Time: 12:10

Stabilization Criteria	3%	10% or 3<0.5 PPM	3%	± 0.1	± 10 mv	10% or 3<5 NTU
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MS/MSD Collected: ☐ Yes ☒ No

South Park Landfill

Well ID: MW-32

Samplers: Tyler Steimel, Duncan Favill, Wilson Yu

Purge Water Disposal Method: O/WS

Pump Intake Depth:	21.5 ft
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End Purge Time: 14:45

**10% or
3<5 NTU**

Weather: Cloudy

If yes, ID:

Additional Information/Comments

South Park Landfill

Well ID: MW-33

Samplers: Tyler Steimel, Duncan Favill, Wilson Yu

Purge Water Disposal Method: O/WS

Pump Intake Depth:	22.5 ft
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End Purge Time: 13:45

Stabilization Criteria	3%	10% or 3<0.5 PPM	3%	± 0.1	± 10 mv	10% or 3<5 NTU
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Time Collected: 13:50 Weather: Cloudy

Sample Analyses: cis-1,2-DCE, vinyl chloride, total iron, total manganese

MS/MSD Collected: ☐ Yes ☒ No

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:		Turn-around Requested:		Date: 04/28/2025											
ARI Client Company:		Phone: (206) 233-2629		Page: 1 of 1											
City of Seattle/ Seattle Public Utilities				No. of Coolers: 1											
Client Contact: Shannon Straws, Laura Lee(lblee@parametrix.com)				Cooler Temps:											
Client Project Name: South Park Landfill - Groundwater Sampling				Analysis Requested											
Client Project #: 553-1550-067		Samplers: T. Steimel D. Favill W. Yu		cis-1,2-DCE											
Sample ID		Date	Time	Matrix	No. Containers	Vinyl Chloride	Total FE, MN					Mark for MS/MSD			
SPL-GW-MMW27-0525	4/28/2025	12:00		Water	7								3	3	1
SPL-GW-MMW08-0525	4/28/2025	12:40		Water	7								3	3	1
SPL-GW-MMW32-0525	4/28/2025	14:50		Water	7								3	3	1
SPL-GW-MMW33-0525	4/28/2025	13:50		Water	7								3	3	1
SPL-GW-MMW80-0525	4/28/2025	-		Water	2	1	1								
Comments/Special Instructions															
Relinquished by: (Signature) <i>[Signature]</i>				Received by: (Signature) <i>[Signature]</i>				Relinquished by: (Signature)				Received by: (Signature)			
Printed Name: Wilson Yu				Printed Name: Roman				Printed Name:				Printed Name:			
Company: SPU/K-H landfill				Company: AP LLC				Company:				Company:			
Date & Time: 4/28/2025				Date & Time: 04/28/2025 1525				Date & Time:				Date & Time:			



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment s

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:		Turn-around Requested:		Date:		04/29/2025	
ARI Client Company:		Phone:		Page:		1 of 1	
City of Seattle/ Seattle Public Utilities		(206) 233-2629		No. of Coolers:		Cooler Temps:	
Client Contact:		Shannon Straws, Laura Lee(lblee@parametrix.com)		Analysis Requested		Notes/Comments	
Client Project Name:		South Park Landfill - Groundwater Sampling		Client Project #:		553-1550-067	
Sample ID		Date	Time	Matrix	No. Containers	cis-1,2-DCE	Vinyl Chloride
SPL-GW-MMW24-0525	4/29/2025	8:50	Water	13	6	6	1
SPL-GW-MMW61-0525	4/29/2025	9:20	Water	7	3	3	1
SPL-GW-MMW26-0525	4/29/2025	9:55	Water	7	3	3	1
SPL-GW-MMW30-0525	4/29/2025	11:20	Water	7	3	3	1
SPL-GW-MMW31-0525	4/29/2025	12:15	Water	7	3	3	1
SPL-GW-MMW10-0525	4/29/2025	13:20	Water	7	3	3	1
SPL-GW-MMW25-0525	4/29/2025	14:10	Water	7	3	3	1
SPL-GW-MMW81-0525	4/29/2025		Water	2	1	1	
Comments/Special Instructions		Relinquished by:		Received by:		Relinquished by:	
(Signature)		(Signature)		(Signature)		(Signature)	
Printed Name:		Printed Name:		Printed Name:		Printed Name:	
Wilson Yu		Chris Ober		Chris Ober		Chris Ober	
Company:		Company:		Company:		Company:	
SPU/K-H landfill		SPU/K-H landfill		SPU/K-H landfill		SPU/K-H landfill	
Date & Time:		Date & Time:		Date & Time:		Date & Time:	
4/29/2025 14:44		4/29/2025 14:44		4/29/2025 14:44		4/29/2025 14:44	



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Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment s

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:		Turn-around Requested:		Page: 1 of 1			
ARI Client Company: City of Seattle Public Utilities		Phone: 206-233-2629		Date: 4/30/25			
Client Contact: Shannon Straws/Laura Lee (lblee@parametrix.com)				Ice Present?			
Client Project Name: South Park Landfill - Groundwater Sampling				No. of Coolers:			
Client Project #: 553-1550-067		Samples: TS, DCE, WY		Cooler Temps:			
Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested		Notes/Comments
SPL-GW-MW29-0525	4/30/25	0920	Water	7	Cis-1,2 DCE		
SPL-GW-MW18-0525	4/30/25	1035	Water	13	Vinyl Chloride		
SPL-GW-MW18-0525	4/30/25	1105	Water	7	Total FE, MN		MS/MSD
SPL-GW-MW14-0525	4/30/25	1145	Water	7			
SPL-GW-MW12-0525	4/30/25	1255	Water	7			
SPL-GW-MW82-0525	4/30/25		Water	2			
Comments/Special Instructions		Relinquished by: (Signature) WILSON YU		Received by: (Signature) John Conditine		Relinquished by: (Signature)	
		Printed Name:		Printed Name:		Received by: (Signature)	
		Company:		Company:		Printed Name:	
		Date & Time:		Date & Time:		Company:	
		4/30/25 / 13:45		4/30/25 13:40		Date & Time:	



Analytical Resources, LLC
Analytical Chemists and Consultants
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Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Water Level Measurement Field Report

DATE:	08/04/2025	JOB NO. 553-1550-067			
PROJECT: South Park Landfill		CLIENT: Seattle Public Utilities			
LOCATION: Seattle, WA					
WEATHER	TEMP	60	° at	8:10	AM
Cloudy		64	° at	9:40	PM
PRESENT AT SITE	T. Steimel	W. Yu	D. Favill		

THE FOLLOWING WAS NOTED:

WELL NUMBER	Time	Measured Depth to Water (ft from TOC or SG level)	Total Measured Well Depth (ft from TOC)	Measuring Point	Total Well Depth (ft bgs)	Screen Interval (ft bgs)	SU (ft)
MW-12	9:40	6.62		TOC	15.3	10 - 15	1.52
MW-14	9:34	3.54		TOC	21.8	11.5 - 21.5	0.8
MW-29	9:28	8.9		TOC	30	20 - 30	-0.29
MW-18	9:15	15.99		TOC	40.4	30 - 40	1.25
MW-25	8:45	14.32		TOC	27	22 - 27	2.79
MW-32	9:08	11.31		TOC	24	19 - 24	-0.44
MW-33	9:01	11.48		TOC	25	20 - 25	-0.47
MW-26	8:21	10.21		TOC	25	15 - 25	2.39
MW-27	8:13	9.08		TOC	20	10 - 20	2.04
MW-10	8:48	13.59		TOC	45	35 - 45	1.65
MW-24	8:20	9.47		TOC	45.3	35 - 45	1.56
MW-08	8:11	8.52		TOC	45.6	35.5 – 45.5	1.88
MW-30	8:35	10.86		TOC	13	8 - 13	-0.53
MW-31	8:32	11.47		TOC	23	18 - 23	-0.46

Comments:

TOC – top of PVC casing SG – staff gauge

SIGNED: _____

Rust-colored buildup inside of well

Additional Information/Comments	

[illegible]

Voa vial on turbidity meter swapped at the 11:35 sample due to sample vial staining. Turbidity readings improved after swapping the vial

Updated Pump Intake Depth from 10.5 ft. to 12.0 ft due to water level readings and well drawdown encountered during pumping.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:		Turn-around Requested:			Date:				08/04/2025				
ARI Client Company:		Phone:			Page:				1 of 1				
City of Seattle/ Seattle Public Utilities		(206) 233-2629			No. of Coolers:				Cooler Temps:				
Client Contact:					Shannon Straws, Laura Lee(Lblee@parametrix.com)								
Client Project Name:					Analysis Requested								Notes/Comments
South Park Landfill - Groundwater Sampling					cis-1,2-DCE	Vinyl Chloride	Total FE, MN						Mark for MS/MSD
Client Project #:		Samplers:											
553-1550-067		T. Steimel W. Yu D. Favill											
Sample ID	Date	Time	Matrix	No. Containers									
SPL-GW-MW33-0825	8/4/2025	10:25	Water	7	3	3	1						
SPL-GW-MW32-0825	8/4/2025	11:30	Water	13	6	6	1						MS/MSD
SPL-GW-MW60-0825	8/4/2025	12:00	Water	7	3	3	1						
SPL-GW-MW12-0825	8/4/2025	13:10	Water	7	3	3	1						
SPL-GW-MW14-0825	8/4/2025	14:05	Water	7	3	3	1						
SPL-GW-MW80-0825	8/4/2025	-	Water	2	1	1							
Comments/Special Instructions					Relinquished by:		Received by:		Relinquished by:		Received by:		
					(Signature) <i>[Signature]</i>		(Signature) <i>[Signature]</i>		(Signature)		(Signature)		
					Printed Name:		Printed Name:		Printed Name:		Printed Name:		
					Duncan Favill		Sydni Acevedo						
					Company:		Company:		Company:		Company:		
					SPU/K-H landfill		AR LLC						
					Date & Time:		Date & Time:		Date & Time:		Date & Time:		
					8/4/2025 14:41		8/4/25 1441						



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ARI Assigned Number:		Turn-around Requested:			Date: 08/05/2025				 Analytical Resources, Incorporated Analytical Chemists and Consultants 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6201 (fax)				
ARI Client Company: City of Seattle/ Seattle Public Utilities		Phone: (206) 233-2629			Page: 1 of 1								
Client Contact: Shannon Straws, Laura Lee(Lblee@parametrix.com)					No. of Coolers: 1 Cooler Temps: 5.6°C								
Client Project Name: South Park Landfill - Groundwater Sampling					Analysis Requested								Notes/Comments
Client Project #: 553-1550-067		Samplers: T. Steimel W. Yu D. Favill			cis-1,2-DCE	Vinyl Chloride	Total FE, MN						Mark for MS/MSD
Sample ID	Date	Time	Matrix	No. Containers									
SPL-GW-MW27-0825	8/5/2025	9:45	Water	7	3	3	1						
SPL-GW-MW08-0825	8/5/2025	10:45	Water	7	3	3	1						
SPL-GW-MW10-0825	8/5/2025	12:00	Water	7	3	3	1						
SPL-GW-MW25-0825	8/5/2025	12:45	Water	7	3	3	1						
SPL-GW-MW18-0825	8/5/2025	13:50	Water	7	3	3	1						
SPL-GW-MW81-0825	8/5/2025	-	Water	2	1	1							
Comments/Special Instructions		Relinquished by: (Signature) <i>[Signature]</i>			Received by: (Signature) <i>[Signature]</i>			Relinquished by: (Signature)			Received by: (Signature)		
		Printed Name: Duncan Favill			Printed Name: Matthew Ranner			Printed Name:			Printed Name:		
		Company: SPU/K-H landfill			Company: ARLLC			Company:			Company:		
		Date & Time: 8/5/2025 14:27			Date & Time: 08/05/25 1427			Date & Time:			Date & Time:		

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Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment s

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:		Turn-around Requested:		Date: 08/06/2025		 Analytical Resources, Incorporated Analytical Chemists and Consultants 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6201 (fax)							
ARI Client Company: City of Seattle/ Seattle Public Utilities		Phone: (206) 233-2629		Page: 1 of 1									
Client Contact: Shannon Straws, Laura Lee(Lblee@parametrix.com)				No. of Coolers: 1 Cooler Temps: 28°									
Client Project Name: South Park Landfill - Groundwater Sampling				Analysis Requested						Notes/Comments			
Client Project #: 553-1550-067		Samplers: T. Steimel W. Yu D. Favill		cis-1,2-DCE		Vinyl Chloride		Total FE, MN				Mark for MS/MSD	
Sample ID		Date		Time		Matrix		No. Containers					
SPL-GW-MW26-0825		8/6/2025		9:25		Water		13		6		6	
SPL-GW-MW61-0825		8/6/2025		9:55		Water		7		3		3	
SPL-GW-MW24-0825		8/6/2025		10:25		Water		7		3		3	
SPL-GW-MW29-0825		8/6/2025		12:00		Water		7		3		3	
SPL-GW-MW31-0825		8/6/2025		13:35		Water		7		3		3	
SPL-GW-MW30-0825		8/6/2025		14:20		Water		7		3		3	
SPL-GW-MW82-0825		8/6/2025		-		Water		2		1		1	
Comments/Special Instructions		Relinquished by: (Signature) 		Received by: (Signature) 		Relinquished by: (Signature)		Received by: (Signature)					
		Printed Name: Duncan Favill		Printed Name: Roman		Printed Name:		Printed Name:					
		Company: SPU/K-H landfill		Company: ARLLC		Company:		Company:					
		Date & Time: 8/6/2025 15:08		Date & Time: 08/06/25 1508		Date & Time:		Date & Time:					

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Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment s

Water Level Measurement Field Report

DATE:	11/03/2025	JOB NO. 553-1550-067			
PROJECT: South Park Landfill		CLIENT: Seattle Public Utilities			
LOCATION: Seattle, WA					
WEATHER	TEMP	47	° at	8:48	AM
Cloudy		48	° at	10:18	PM
PRESENT AT SITE	T. Steimel	D. Favill	W. Yu		

THE FOLLOWING WAS NOTED:

WELL NUMBER	Time	Measured Depth to Water (ft from TOC or SG level)	Total Measured Well Depth (ft from TOC)	Measuring Point	Total Well Depth (ft bgs)	Screen Interval (ft bgs)	SU (ft)
MW-12	9:20	5.28		TOC	15.3	10 - 15	1.52
MW-14	9:26	2.87		TOC	21.8	11.5 - 21.5	0.8
MW-29	9:36	8.49		TOC	30	20 - 30	-0.29
MW-18	9:41	15.76		TOC	40.4	30 - 40	1.25
MW-25	9:11	14.14		TOC	27	22 - 27	2.79
MW-32	9:00	11.04		TOC	24	19 - 24	-0.44
MW-33	8:56	11.30		TOC	25	20 - 25	-0.47
MW-26	10:06	10.02		TOC	25	15 - 25	2.39
MW-27	10:13	8.79		TOC	20	10 - 20	2.04
MW-10	9:09	13.39		TOC	45	35 - 45	1.65
MW-24	10:04	9.25		TOC	45.3	35 - 45	1.56
MW-08	10:11	8.84		TOC	45.6	35.5 – 45.5	1.88
MW-30	9:56	10.84		TOC	13	8 - 13	-0.53
MW-31	9:54	11.31		TOC	23	18 - 23	-0.46

Comments:

TOC – top of PVC casing SG – staff gauge

SIGNED: _____

Well drawdown occurred after first 5 minutes of pump (almost 1 foot). Reduced pumping rate to stabilize depth to water.

[illegible]

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment s

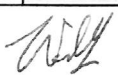
Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:		Turn-around Requested:		Date:		11/04/2025		 Analytical Resources, Incorporated Analytical Chemists and Consultants 4611 South 134th Place, Suite 100 Tukwila, WA 98168 206-695-6200 206-695-6201 (fax)		
ARI Client Company:		Phone:		Page:		1 of 1				
City of Seattle/ Seattle Public Utilities		(206) 233-2629								
Client Contact:				No. of Coolers:		Cooler Temps:				
Shannon Straws, Laura Lee(Lblee@parametrix.com)						5-9°C				
Client Project Name:				Analysis Requested						Notes/Comments
South Park Landfill - Groundwater Sampling										
Client Project #:		Samplers:		cis-1,2-DCE		Vinyl Chloride		Total FE, MN		Mark for MS/MSD
553-1550-067		T. Steimel D. Favill W. Yu								
Sample ID	Date	Time	Matrix	No. Containers						
SPL-GW-MW14-1125	11/4/2025	8:55	Water	7	3	3	1			
SPL-GW-MW12-1125	11/4/2025	10:00	Water	7	3	3	1			
SPL-GW-MW31-1125	11/4/2025	11:30	Water	7	3	3	1			
SPL-GW-MW30-1125	11/4/2025	12:15	Water	7	3	3	1			
SPL-GW-MW08-1125	11/4/2025	13:20	Water	13	6	6	1			MS/MSD
SPL-GW-MW61-1125	11/4/2025	13:50	Water	7	3	3	1			
SPL-GW-MW27-1125	11/4/2025	14:20	Water	7	3	3	1			
SPL-GW-MW81-1125	11/4/2025		Water	2	1	1				
Comments/Special Instructions		Relinquished by:		Received by:		Relinquished by:		Received by:		
		(Signature)		(Signature)		(Signature)		(Signature)		
		Printed Name:		Printed Name:		Printed Name:		Printed Name:		
		Wilson Yu		Sarah Specter						
Company:		Company:		Company:		Company:		Company:		
SPU/K-H landfill		ARLLC								
Date & Time:		Date & Time:		Date & Time:		Date & Time:		Date & Time:		
11/4/2025 14:56		11/4/2025 14:56								

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:		Turn-around Requested:		Date: 11/05/2025	
ARI Client Company: City of Seattle/ Seattle Public Utilities		Phone: (206) 233-2629		Page: 1 of 1	
Client Contact: Shannon Straws, Laura Lee(Lblee@parametrix.com)				No. of Coolers: 1 Cooler Temps: 4.5°	
Client Project Name: South Park Landfill - Groundwater Sampling				Analysis Requested	
Client Project #: 553-1550-067		Samplers: T. Steimel D. Favill W. Yu		cis-1,2-DCE	Vinyl Chloride
Sample ID		Date			
Time		Matrix		Total FE, MN	
No. Containers					
SPL-GW-MW25-1125	11/5/2025	9:05	Water	7	3
SPL-GW-MW10-1125	11/5/2025	9:55	Water	7	3
SPL-GW-MW29-1125	11/5/2025	11:00	Water	7	3
SPL-GW-MW24-1125	11/5/2025	12:40	Water	7	3
SPL-GW-MW26-1125	11/5/2025	13:50	Water	7	3
SPL-GW-MW82-1125	11/5/2025		Water	2	1
Comments/Special Instructions				Relinquished by: (Signature) 	
				Received by: (Signature) 	
				Relinquished by: (Signature)	
				Received by: (Signature)	
Printed Name: Wilson Yu				Printed Name: Roxan	
Company: SPU/K-H landfill				Company: ARUC	
Date & Time: 11/5/2025 14:30				Date & Time: 11/05/25 1430	



Analytical Resources, Incorporated
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Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment s

Appendix D4

Laboratory Reports
(contained in Volume II)

Appendix D5

Data Validation Memoranda

First Quarter 2025 Groundwater Sampling Event South Park Landfill Data Validation Report

Prepared for



**Seattle
Public
Utilities**

April 2025

ParametriX

First Quarter 2025 Groundwater Sampling Event South Park Landfill Data Validation Report

Prepared for

Seattle Public Utilities

700 Fifth Avenue, Suite 4900
Seattle, WA 98124-4018

Prepared by

Parametrix

719 2nd Avenue, Suite 200
Seattle, WA 98104
T. 206.394.3700 F. 1.206.649.6353
www.parametrix.com

April 2025 | 553-1550-067 (05.00)

Citation

Parametrix. 2025. First Quarter 2025 Groundwater Sampling
Event South Park Landfill Data Validation Report.
Prepared for Seattle Public Utilities
by Parametrix, Seattle, Washington.
April 2025.

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APPENDICES

- A Data Qualifier Definitions and Criteria Tables
- B Field Duplicate Analysis
- C Qualified Data Summary Table

Acronyms and Abbreviations

CRQL	Contract Reporting Quantitation Limit
EPA	U.S. Environmental Protection Agency
LCS	Laboratory control standard
LCSD	Laboratory control standard duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
RPD	Relative percent difference
QC	Quality control
VOC	Volatile organic compound

1. Project Narrative

1.1 Overview of Data Validation

This report summarizes the results of the Compliance Screening performed on the groundwater and field quality control (QC) sample data for the South Park Landfill First Quarter 2025 Groundwater Monitoring Event. A complete list of samples is provided below (Table 1-1).

Table 1-1. Project Sample Index

Sample ID	Lab ID	Sample Location	8260D	8260D-SIM	6020B Total Fe, Mn
SPL-GW-MW12-0225	25B0077-01	MW-12	X	X	X
SPL-GW-MW14-0225	25B0077-02	MW-14	X	X	X
SPL-GW-MW80-0225	25B0077-03	TRIP BLANK	X	X	
SPL-GW-MW30-0225	25B0077-04	MW-30	X	X	X
SPL-GW-MW24-0225	25B0077-05	MW-24	X	X	X
SPL-GW-MW26-0225	25B0077-06	MW-26	X	X	X
SPL-GW-MW08-0225	25B0077-07	MW-08	X	X	X
SPL-GW-MW27-0225	25B0077-08	MW-27	X	X	X
SPL-GW-MW61-0225	25B0077-09	MW-26 DUP	X	X	X
SPL-GW-MW29-0225	25B0085-01	MW-29	X	X	X
SPL-GW-MW18-0225	25B0085-02	MW-18	X	X	X
SPL-GW-MW32-0225	25B0085-03	MW-32	X	X	X
SPL-GW-MW10-0225	25B0085-05	MW-10	X	X	X
SPL-GW-MW60-0225	25B0085-06	MW-32 DUP	X	X	X
SPL-GW-MW25-0225	25B0085-07	MW-25	X	X	X
SPL-GW-MW31-0225	25B0085-08	MW-31	X	X	X
SPL-GW-MW81-0225	25B0085-09	TRIP BLANK	X	X	

Groundwater samples were collected on February 3 through 5, 2025 and submitted to Analytical Resources, LLC (ARI) located in Tukwila, Washington for chemical analyses. The chemical analyses were performed under ARI Work Order 25B0077. The analytical methods include the following:

- Cis-1,2-DCE—U.S. Environmental Protection Agency (EPA) Method SW8260D
- Vinyl chloride—EPA Method 8260D-SIM
- Select metals (total iron and manganese) - EPA Method 6020B

The data were reviewed using guidance and QC criteria documented in the analytical methods, U.S. Environmental Protection Agency (EPA) *National Functional Guidelines for Inorganic Data Review* (EPA 2020a), *National Functional Guidelines for Organic Data Review* (EPA 2020b), EPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009), and the *South Park Landfill Operations, Maintenance and Monitoring Plan* (OMMP; Appendix A of the South Park Landfill Cleanup Action Plan [Ecology 2021]).

In accordance with the OMMP, to generate data of sufficient quality, the following approach for groundwater samples will be followed:

- Field and laboratory QC samples (field replicates, trip blanks, and temperature blanks) will be used for assessing data quality.
- Laboratory QA will be implemented and maintained as described in the accredited laboratory's Quality Assurance Plan (ARI 2020a) and Standard Operating Procedures (ARI 2016, 2017, 2020b, 2020c) and in Table 3 (from OMMP and presented in Appendix B).
- Data summary packages will be generated, and the documentation provided will be sufficient to perform a Level I data quality review.

The goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. When compounds are analyzed at multiple dilutions, select results will be assigned a Do Not Report (DNR) qualification as a more appropriate result is reported from another dilution. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

The data were evaluated in accordance with EPA guidance (EPA 2020a, 2020b, and 2009) at a Stage 2A level. Data qualifier definitions, reasons, and simplified validation criteria based on the EPA guidance are included as Appendix A. Analysis of field duplicates are presented in Appendix B. Qualified data are summarized in Appendix C.

Field Duplicates

Two field duplicate samples were analyzed. Sample SPL-GW-MW61-0225 is a duplicate of SPL-GW-MW26-0225. Sample SPL-GW-MW60-0225 is a duplicate of SPL-GW-MW32-0225.

Appendix B presents the calculated Relative Percent Differences (RPDs) for field duplicate samples. $RPDs = \text{difference} / \text{average} = ((X1-X2) / (X1+X2)/2) \times 100$, where X1 is the sample and X2 is the duplicate sample concentration. RPD is a measure of analytical precision. Precision is a measure of the variability in the results of replicate measurements due to random error.

Trip Blanks

Two trip blanks were analyzed for selected VOCs (SPL-GW-MW80-0225 and SPL-GW-MW81—0225) in ARI Work Orders 25B0077 and 25B0085.

Sample Temperature

Although no temperature blanks were prepared, the laboratory measured both cooler interior temperatures on receipt. The temperature for the coolers was 5.2 degrees C and 2.3 degrees C, indicating adequate temperature control for sample preservation.

Hold Times

All method-defined hold times for all samples were met prior to extraction and analysis.

VOC Sample Integrity

The laboratory reported that all VOA vials submitted were free of air bubbles. Therefore, no data were qualified based on VOC integrity issues.

2. Data Validation Report cis-1,2-DCE by EPA Method SW8260D

This section documents the review of VOC analytical data for groundwater and field QC samples and the associated laboratory QC samples.

2.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

2.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation	Surrogate recoveries
Extraction and analysis holding times	Target analyte list
Blank contamination (method and trip)	Reporting limits and reported results
Laboratory control sample (LCS) and LCS duplicate (LCSD)	Field Duplicates
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) ¹	

QC requirement findings further discussed in following sections (if required):

¹ Quality control results are discussed below.

Appendix A presents data validation criteria tables for organic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

2.2.1 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with sample 25B0077-06 (SPL-GW-MW26-0225) in cis-1,2-DCE batch BNB0131. The MS/MSD RPDs were within control limits.

Sample specific QC was performed in association with sample 25B0085-03 (SPL-GW-MW32-0225) in cis-1,2-DCE batch BNB0131. The percent recoveries in cis-1,2-Dichloroethene for the MS and MSD were out of control low. Therefore, the cis-1,2-DCE result for sample 25B0085-03 has been flagged J as an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

2.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

3. Data Validation Report Vinyl Chloride by EPA Method 8260D-SIM

This section documents the review of vinyl chloride analytical data for groundwater and field QC samples and the associated laboratory QC samples.

3.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

3.1.1 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with samples 25B0077-06 (SPL-GW-MW26-0225) and 25B0085-03 (SPL-GW-MW32-0225) in Vinyl Chloride batch BNB0094. The MS/MSD RPDs were within control limits for batch BNB0094.

3.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation	Surrogate recoveries
Extraction and analysis holding times	Target analyte list
Blank contamination (method and trip)	Reporting limits and reported results
Laboratory control sample (LCS) and LCS duplicate (LCSD)	Field duplicates ¹
Matrix Spike (MS) and Matrix Spike Duplicate (MSD)	

Notes:

¹ Quality control results are discussed below. QC requirement findings further discussed in following sections (if required):

Appendix A presents data validation criteria tables for organic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

3.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

4. Data Validation Report Select Metals by EPA Method 6020B

This section documents the review of metals (total iron and manganese) analytical data for groundwater and field QC samples and the associated laboratory QC samples.

4.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

4.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation	Laboratory Duplicate
Extraction and analysis holding times	Target analyte list
Blank contamination (method)	Reporting limits and reported results
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) ¹	Field duplicates
Laboratory Control Sample (LCS)	

Notes:

QC requirement findings further discussed in following sections (if required):

¹ Quality control results are discussed below, but no data were qualified.

Some of the metals data were the result of a dilution and were flagged with “D” qualifier by the laboratory. The “D” qualifiers were removed from the final data table.

Appendix A presents data validation criteria tables for inorganic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

4.2.1 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with sample 25B0077-06 (SPL-GW-MW26-0225) in batch BNB0159. The MS/MSD RPDs were within advisory control limits for batch BNB0159.

Sample specific QC was performed in association with sample 25B0085-03 (GW-MW32-0225) in batch BNB0295. The percent recovery in Iron for the MSD was out of control low in batch BNB0295. A J qualifier has been added, indicating an estimated value.

The percent recovery in manganese was out of control high in the MS and out of control low in the MSD in batch BNB0295. The lab noted that the natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible. No data were qualified because the spike was less than 25 percent of the sample value.

4.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, with the exception of 1,2-DCE and Iron in sample SPL-GW-MW32-0225 as demonstrated by MS percent recovery values. Precision was acceptable, as demonstrated by the LCS/laboratory duplicate RPDs.

All data, as reported by the laboratory, are acceptable for use.

5. References

- ARI. 2016. Standard Operating Procedure, Metals Analysis – Nexlon ICP-MS, SOP 545S, Version 001, Revision Date 2/8/2016.
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Appendix A

Data Qualifier Definitions and Criteria Tables

DATA VALIDATION QUALIFIER CODES

National Functional Guidelines (EPA 2020)

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

- U The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- NJ The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value represents the approximate concentration (for organics).
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
- * Flagged value is not within established control limits.
- HC The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible.

**Validation Guidelines for Volatile Analysis by GC/MS
(Based on EPA 2020b; ARI 2020a)**

Validation QC Element	Acceptance Criteria	Action
Cooler Temperature	Cooler temperature: $\leq 6^{\circ}\text{C}$ HCl to $\text{pH} \leq 2$	If $>6^{\circ}\text{C}$ Qualify J if detected, UJ if not detected ¹
Hold Time	14 days preserved 7 Days: unpreserved (for aromatics)	Detects: J; Non-detects: J if hold times exceeded
Method Blank	One per batch <CRQL	If blank <CRQL: - If sample result <CRQL, qualify U report at CRQL - If sample result $\geq$ CRQL, use professional judgement
		If blank $\geq$ CRQL: - If sample result <CRQL, qualify U and report at CRQL - If sample result $\geq$ but < blank result, qualify U and report at sample result - If sample result $\geq$ CRQL and $\geq 2\times$ blank results, report sample result and J+ qualify or no qualification
Trip Blank	Frequency as per project QAPP <CRQL	Same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned
MS/MSD (recovery)	One per batch Use method acceptance criteria	Qualify original sample only unless other QC indicates systematic problems: For detects: - J if $\%R < 20\%$, or $20\% < \%R < \text{Lower limit}$, or $\%R$ or $\text{RPD} > \text{Upper limit}$ For non-detects: - R if $\%R < 20\%$, UJ if $20\% < \%R < \text{Lower limit}$
MS/MSD (RPD)	One per batch Use method acceptance criteria	For detects: J in original sample if $\text{RPD} > \text{Upper limit}$
LCS	One per lab batch	If not performed at specified frequency or concentration or % R not specified: use professional judgment For detects: $\%R < \text{Lower Limit}$, qualify J-; $\%R > \text{Upper Limit}$, qualify J+ For non-detects: $\%R < \text{Lower Limit}$, qualify results R; If $\%R \geq \text{Lower Limit}$, No qualification
LCS/LCSD (if required)	One set per batch of 20 samples $\text{RPD} < 30\%$	Qualify sample results J/UJ

Validation Guidelines for Volatile Analysis by GC/MS
(Based on EPA 2020b; ARI 2020a), continued

Validation QC Element	Acceptance Criteria	Action
Surrogates	Added to all samples Within method control limits	Not added or not at specified concentration, use professional judgement. For detects: ▪ %R < Expanded Lower Limit (10%), qualify results J- ▪ Expanded Lower Limit $\leq$ %R < specified Lower Limit, qualify results J- ▪ %R > specified Upper Limit, qualify results J+ For non-detects: ▪ %R < Expanded lower limit (10%), qualify results R ▪ Expanded Lower Limit $\leq$ %R < specified Lower Limit, qualify results UJ
Field Duplicates	QAPP limits RPD <35% OR in the project-specific SOP. Limits may not apply when sample and dup concentrations are less than 5x QL or limit in the QAPP	J/UJ in original only

¹Updated in First Quarter 2025

**Validation Guidelines for Metals Analysis by ICP-MS
(Based on EPA 2020a; ARI 2020a)**

Validation QC Element	Acceptance Criteria	Action
Cooler Temperature and Preservation	Cooler temperature: $\leq 6^{\circ}\text{C}$ Nitric Acid to pH < 2 For Dissolved Metals: 0.45um filter & preserve after filtration	Professional Judgment—no qualification based on cooler temperature outliers J/UJ if pH preservation requirements are not met
Holding Time	180 days from date sampled	For detects: samples received with pH ≥ 2 and pH not adjusted, or technical holding >180 days, qualify J- For non-detects: pH ≥ 2 and pH not adjusted, or technical holding >180 days, qualify R
Method Blank	One per batch <CRQL	If blank <CRQL: - Sample Detect <QL: Report at QL and qualify U - Sample $\geq$ QL: J+ or no qualification If blank result $\leq$ (-MDL) but > (-QL): - Sample Detect: qualify J- or no qualification - Sample Non-detect: qualify UJ If blank result $\geq$ CRQL: - Sample Detect < CRQL: Report at QL and qualify U - Sample result $\geq$ CRQL but <10 x the Blank results: Report at Blank Result and qualify J+ or R ≥ 10x Blank results, no qualification If blank result $\leq$ (-QL): - Sample Detect < CRQL or $\geq$ CRQL but <10x CRQL, qualify J- - Sample Non-detect qualify UJ - Sample result ≥ 10x QL, no qualification
Laboratory Control Sample (LCS)	One per matrix per batch Blank Spike: %R within 70%-130%	For detects: - If %R < 40% or 40-69%, J- - If %R 70-130%, no qualification - If %R 131-151%, J+ - If %R >150%, R For non-detects: - If %R <40%, R - If %R 40-69%, UJ - If %R >70%, no qualification

**Validation Guidelines for Metals Analysis by GC/MS
(Based on EPA 2020a; ARI 2020a), continued**

Validation QC Element	Acceptance Criteria	Action
Matrix Spike	One per matrix per batch %R 75-125% for samples where results do not exceed 4x spike level. If $\geq 4x$ the spike added, report unqualified.	For detects: ▪ J- if %R <30 to 74% ▪ J+ if %R >125% ▪ No qualification if %R 75-125% For Non-detects: ▪ R if %R <30%, ▪ UJ if %R <75% or ▪ No qualification if %R 75 to >125
Laboratory Duplicate	One per matrix per batch RPD <20% for samples $\geq 5x$ CRQL OR CRQL if sample results <5x CRQL	If results $\geq 5x$ CRQL and RPD >20% OR if results <5x CRQL and absolute difference >CRQL, ▪ J if detect, ▪ UJ if non-detect
Field Duplicate	For results > 5x RL: RPD < 20% For results < 5x RL: Diff < RL	J/UJ in original sample only

Appendix B

Field Duplicate Analysis

Data Validation		South Park Landfill								
QA/QC completed by:	Waverly Shaufler			4/14/2025						
ARI Work Order		25B0077, 25B0085								
Sample numbers:		SPL-GW-MW26-0225; SPL-GW-MW61-0225								
Sample Date:		2/4/2025, 2/5/2025								
Groundwater		sample	duplicate	avg	diff	rpd	=/<35%	MW-26 RL	MW-61 RL	w/in 5x RL?
units = ug/L		MW-26	MW-61							
cis-1,2-DCE	ug/L	0.32	0.28	0.3	0.04	13	y	0.20	0.20	
Vinyl chloride	ug/L	0.0819	0.0942	0.08805	-0.01	14	y	0.0200	0.0200	
units = ug/L		MW-32	MW-60					MW-32 RL	MW-60 RL	
cis-1,2-DCE	ug/L	0.40	0.43	0.415	-0.03	7	y	0.20	0.20	
Vinyl chloride	ug/L	0.285	0.305	0.295	-0.02	7	y	0.0200	0.0200	
Groundwater		sample	duplicate	avg	diff	rpd	=/<20%	MW-26 RL	MW-61 RL	w/in RL?
units = mg/L		MW-26	MW-61							
Iron	mg/L	4.26	4.73	4.495	-0.47	10	y	0.360	1.800	
Manganese	mg/L	0.0605	0.0690	0.06475	-0.01	13	y	0.0100	0.0500	
units = mg/L		MW-32	MW-60					MW-32 RL	MW-60 RL	
Iron	mg/L	14.3	13.1	13.7	1.20	9	y	0.720	0.350	
Manganese	mg/L	1.30	1.23	1.265	0.07	6	y	0.0200	0.0100	
Comments:										
Calculated duplicate sample RPD = difference / average = ((X1-X2) / (X1+X2)/2)*100										
< = Analyte not detected at laboratory's reporting limit										

Appendix C

Qualified Data Summary Table

Table C-1. Qualified Data Summary Table First Quarter 2025 Groundwater Sampling Event

Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qualifier	DV Qualifier	Final Qualifier
SPL-GW-MW32-0225	25B0085-03	EPA 8260D	cis-1,2-Dichloroethene	0.40	ug/L			J
SPL-GW-MW32-0225	25JB0085-03	EPA 6020B	Iron	14.3	mg/L			J

Qualifiers:
J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

Second Quarter 2025 Groundwater Sampling Event South Park Landfill Data Validation Report

Prepared for



**Seattle
Public
Utilities**

June 2025

ParametriX

Second Quarter 2025 Groundwater Sampling Event South Park Landfill Data Validation Report

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APPENDICES

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- B Field Duplicate Analysis
- C Qualified Data Summary Table

Acronyms and Abbreviations

CRQL	Contract Reporting Quantitation Limit
EPA	U.S. Environmental Protection Agency
LCS	Laboratory control standard
LCSD	Laboratory control standard duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
RPD	Relative percent difference
QC	Quality control
VOC	Volatile organic compound

1. Project Narrative

1.1 Overview of Data Validation

This report summarizes the results of the Compliance Screening performed on the groundwater and field quality control (QC) sample data for the South Park Landfill Second Quarter 2025 Groundwater Monitoring Event. A complete list of samples is provided below (Table 1-1).

Table 1-1. Project Sample Index

Sample ID	Lab ID	Sample Location	8260D	8260D-SIM	6020B Total Fe, Mn
SPL-GW-MW27-0525	25D0606-01	MW-27	X	X	X
SPL-GW-MW08-0525	25D0606-02	MW-08	X	X	X
SPL-GW-MW32-0525	25D0606-03	MW-32	X	X	X
SPL-GW-MW33-0525	25D0606-04	MW-33	X	X	X
SPL-GW-MW80-0525	25D0606-05	TRIP BLANK	X	X	
SPL-GW-MW24-0525	25D0648-01	MW-24	X	X	X
SPL-GW-MW61-0525	25D0648-02	MW-24 DUP	X	X	X
SPL-GW-MW26-0525	25D0648-03	MW-26	X	X	X
SPL-GW-MW30-0525	25D0648-04	MW-30	X	X	X
SPL-GW-MW31-0525	25D0648-05	MW-31	X	X	X
SPL-GW-MW10-0525	25D0648-06	MW-10	X	X	X
SPL-GW-MW25-0525	25D0648-07	MW-25	X	X	X
SPL-GW-MW81-0525	25D0648-08	TRIP BLANK	X	X	
SPL-GW-MW29-0525	25D0654-01	MW-29	X	X	X
SPL-GW-MW18-0525	25D0654-02	MW-18	X	X	X
SPL-GW-MW60-0525	25D0654-03	MW-18 DUP	X	X	X
SPL-GW-MW14-0525	25D0654-04	MW-14	X	X	X
SPL-GW-MW12-0525	25D0654-05	MW-12	X	X	X
SPL-GW-MW82-0525	25D0654-06	TRIP BLANK	X	X	

Groundwater samples were collected on April 28 through 30, 2025 and submitted to Analytical Resources, LLC (ARI) located in Tukwila, Washington for chemical analyses. The chemical analyses were performed under ARI Work Orders 25D0606, 25D0648, and 25D0654. The analytical methods include the following:

- Cis-1,2-DCE—U.S. Environmental Protection Agency (EPA) Method SW8260D
- Vinyl chloride—EPA Method 8260D-SIM
- Select metals (total iron and manganese) - EPA Method 6020B

The data were reviewed using guidance and QC criteria documented in the analytical methods, U.S. Environmental Protection Agency (EPA) *National Functional Guidelines for Inorganic Data Review* (EPA 2020a), *National Functional Guidelines for Organic Data Review* (EPA 2020b), EPA *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA

2009), and the *South Park Landfill Operations, Maintenance and Monitoring Plan* (OMMP; Appendix A of the South Park Landfill Cleanup Action Plan [Ecology 2021]).

In accordance with the OMMP, to generate data of sufficient quality, the following approach for groundwater samples will be followed:

- Field and laboratory QC samples (field replicates, trip blanks, and temperature blanks) will be used for assessing data quality.
- Laboratory QA will be implemented and maintained as described in the accredited laboratory's Quality Assurance Plan (ARI 2020a) and Standard Operating Procedures (ARI 2016, 2017, 2020b, 2020c) and in Table 3 (from OMMP and presented in Appendix B).
- Data summary packages will be generated, and the documentation provided will be sufficient to perform a Level I data quality review.

The goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. When compounds are analyzed at multiple dilutions, select results will be assigned a Do Not Report (DNR) qualification as a more appropriate result is reported from another dilution. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

The data were evaluated in accordance with EPA guidance (EPA 2020a, 2020b, and 2009) at a Stage 2A level. Data qualifier definitions, reasons, and simplified validation criteria based on the EPA guidance are included as Appendix A. Analysis of field duplicates are presented in Appendix B. Qualified data are summarized in Appendix C.

Field Duplicates

Two field duplicate samples were analyzed. Sample SPL-GW-MW61-0525 is a duplicate of SPL-GW-MW24-0525. Sample SPL-GW-MW60-0525 is a duplicate of SPL-GW-MW18-0525.

Appendix B presents the calculated Relative Percent Differences (RPDs) for field duplicate samples. $RPDs = \text{difference} / \text{average} = ((X1-X2) / (X1+X2)/2) \times 100$, where X1 is the sample and X2 is the duplicate sample concentration. RPD is a measure of analytical precision. Precision is a measure of the variability in the results of replicate measurements due to random error.

Trip Blanks

Three trip blanks were analyzed for selected VOCs (SPL-GW-MW80-0525, SPL-GW-MW81-0525, and SPL-GW-MW82-0525) in ARI Work Orders 25D0606, 25D0648, and 25D0654.

Sample Temperature

Although no temperature blanks were prepared, the laboratory measured the cooler interior temperatures on receipt. The temperatures for the coolers were 4.4, 1.0, and 4.9 degrees C, indicating adequate temperature control for sample preservation.

Hold Times

All method-defined hold times for all samples were met prior to extraction and analysis.

VOC Sample Integrity

The laboratory reported that all VOA vials submitted were free of air bubbles, except for one vial. On work order 25D0606, container ID 25D0606-01 B, sample SPL-GW-MW27-0525, the laboratory reported bubbles. The other two vials for that sample were submitted free of air bubbles. Therefore, no data were qualified based on VOC integrity issues.

2. Data Validation Report cis-1,2-DCE by EPA Method SW8260D

This section documents the review of VOC analytical data for groundwater and field QC samples and the associated laboratory QC samples.

2.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes, and all anomalies were discussed in the case narrative.

2.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation	Surrogate recoveries
Extraction and analysis holding times	Target analyte list
Blank contamination (method and trip)	Reporting limits and reported results
Laboratory control sample (LCS) and LCS duplicate (LCSD)	Field Duplicates
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) ¹	

QC requirement findings further discussed in following sections (if required):

¹ Quality control results are discussed below.

Appendix A presents data validation criteria tables for organic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

2.2.1 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with sample 25D0648-01 (SPL-GW-MW24-0525) in cis-1,2-DCE batch BNE0060. The MS/MSD RPDs were within control limits.

Sample specific QC was performed in association with sample 25D0654-02 (SPL-GW-MW18-0525) in cis-1,2-DCE batch BNE0060. The MS/MSD RPDs were within control limits.

2.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

3. Data Validation Report Vinyl Chloride by EPA Method 8260D-SIM

This section documents the review of vinyl chloride analytical data for groundwater and field QC samples and the associated laboratory QC samples.

3.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes, and all anomalies were discussed in the case narrative.

3.1.1 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with samples 25D0648-01 (SPL-GW-MW24-0525) and 25D0654-02 (SPL-GW-MW18-0525) in Vinyl Chloride batch BNE0051. The MS/MSD RPDs were within control limits.

3.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation	Surrogate recoveries
Extraction and analysis holding times	Target analyte list
Blank contamination (method and trip)	Reporting limits and reported results
Laboratory control sample (LCS) and LCS duplicate (LCSD)	Field duplicates ¹
Matrix Spike (MS) and Matrix Spike Duplicate (MSD)	

Notes:

¹ Quality control results are discussed below. QC requirement findings further discussed in following sections (if required):

Appendix A presents data validation criteria tables for organic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

3.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

4. Data Validation Report Select Metals by EPA Method 6020B

This section documents the review of metals (total iron and manganese) analytical data for groundwater and field QC samples and the associated laboratory QC samples.

4.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes, and all anomalies were discussed in the case narrative.

4.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation	Laboratory Duplicate
Extraction and analysis holding times	Target analyte list
Blank contamination (method)	Reporting limits and reported results
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) ¹	Field duplicates
Laboratory Control Sample (LCS)	

Notes:

QC requirement findings further discussed in following sections (if required):

¹ Quality control results are discussed below, but no data were qualified.

Some of the metals data were the result of a dilution and were flagged with “D” qualifier by the laboratory. The “D” qualifiers were removed from the final data table.

Appendix A presents data validation criteria tables for inorganic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

4.2.1 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with sample 25D0648-01RE1 (SPL-GW-MW24-0525) in batch BNE0253. The MSD RPD was out of control high. Therefore, the Manganese results for sample 25D0648-01RE1 (SPL-GW-MW24-0525) and its duplicate SPL-GW-MW-61-0525) have been flagged J+ as an estimated quantity that may be biased high.

Sample specific QC was performed in association with sample 25D0654-02RE1 (SPL-GW-MW18-0525) in batch BNE0255. The percent recovery in Manganese for the MS was out of control high. Therefore, the Manganese result for sample 25D0654-02RE1 (SPL-GW-MW-18-0525) and its duplicate SPL-GW-MW60-0525) have been flagged J+ as an estimated quantity that may be biased high. The associated numerical value is the approximate concentration of the analyte in the sample.

4.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

5. References

- ARI. 2016. Standard Operating Procedure, Metals Analysis – Nexlon ICP-MS, SOP 545S, Version 001, Revision Date 2/8/2016.
- ARI (Analytical Resources Inc.). 2017. Standard Operating Procedure, Metals Analysis – Nexlon ICP-MS with Universal Cell Technology, SOP 543S, Version 003.3, Revision Date 2/23/2017.
- ARI. 2020a. Quality Assurance Plan. Revision 17.0. 6/11/2020.
- ARI. 2020b. Standard Operating Procedure, Volatile Organic Analysis SOP 700S, Version 022, Revision Date 2/12/2020.
- ARI. 2020c. Standard Operating Procedure, Volatile Organic Analysis Selected Ion Mass Spectrometry, SOP 703S, Version 13, Revision Date 2/12/2020.
- Ecology. 2021. Draft South Park Landfill Final Cleanup Action Plan: Appendix A Landfill Post-Closure Operations, Maintenance, and Monitoring Plan, Amended 2021. Washington State Department of Ecology Toxics Cleanup Program. Olympia, WA.
- EPA (U.S. Environmental Protection Agency). 2002. Guidance on Environmental Data Verification and Data Validation. EPA QA/G-8. EPA240R-02/004.
- EPA. 2009. Guidance for Labeling Externally Validated Laboratory Analytical data for Superfund Use. EPA 540-R-08-005. January 13, 2009.
- EPA. 2020a. National Functional Guidelines for Inorganic Superfund Data Review. EPA 540R- 2017-001. November.
- EPA. 2020b. National Functional Guidelines for Organic Superfund Data Review. EPA 542-R-20-006. November.

Appendix A

Data Qualifier Definitions and Criteria Tables

DATA VALIDATION QUALIFIER CODES

National Functional Guidelines (EPA 2020)

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

- U The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- NJ The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value represents the approximate concentration (for organics).
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
- * Flagged value is not within established control limits.
- HC The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible.

**Validation Guidelines for Volatile Analysis by GC/MS
(Based on EPA 2020b; ARI 2020a)**

Validation QC Element	Acceptance Criteria	Action
Cooler Temperature	Cooler temperature: $\leq 6^{\circ}\text{C}$ HCl to $\text{pH} \leq 2$	If $>6^{\circ}\text{C}$ Qualify J if detected, UJ if not detected ¹
Hold Time	14 days preserved 7 Days: unpreserved (for aromatics)	Detects: J; Non-detects: J if hold times exceeded
Method Blank	One per batch <CRQL	If blank <CRQL: - If sample result <CRQL, qualify U report at CRQL - If sample result $\geq$ CRQL, use professional judgement
		If blank $\geq$ CRQL: - If sample result <CRQL, qualify U and report at CRQL - If sample result $\geq$ but < blank result, qualify U and report at sample result - If sample result $\geq$ CRQL and $\geq 2\times$ blank results, report sample result and J+ qualify or no qualification
Trip Blank	Frequency as per project QAPP <CRQL	Same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned
MS/MSD (recovery)	One per batch Use method acceptance criteria	Qualify original sample only unless other QC indicates systematic problems: For detects: - J if $\%R < 20\%$, or $20\% < \%R < \text{Lower limit}$, or $\%R$ or $\text{RPD} > \text{Upper limit}$ For non-detects: - R if $\%R < 20\%$, UJ if $20\% < \%R < \text{Lower limit}$
MS/MSD (RPD)	One per batch Use method acceptance criteria	For detects: J in original sample if $\text{RPD} > \text{Upper limit}$
LCS	One per lab batch	If not performed at specified frequency or concentration or $\%R$ not specified: use professional judgment For detects: $\%R < \text{Lower Limit}$, qualify J-; $\%R > \text{Upper Limit}$, qualify J+ For non-detects: $\%R <$, qualify results R; If $\%R \geq$ No qualification
LCS/LCSD (if required)	One set per batch of 20 samples $\text{RPD} < 30\%$	Qualify sample results J/UJ

**Validation Guidelines for Volatile Analysis by GC/MS
(Based on EPA 2020b; ARI 2020a), continued**

Validation QC Element	Acceptance Criteria	Action
Surrogates	Added to all samples Within method control limits	Not added or not at specified concentration, use professional judgement. For detects: ▪ %R < Expanded Lower Limit (10%), qualify results J- ▪ Expanded Lower Limit $\leq$ %R < specified Lower Limit, qualify results J- ▪ %R > specified Upper Limit, qualify results J+ For non-detects: ▪ %R < Expanded lower limit (10%), qualify results R ▪ Expanded Lower Limit $\leq$ %R < specified Lower Limit, qualify results UJ
Field Duplicates	QAPP limits RPD <35% OR in the project-specific SOP. Limits may not apply when sample and dup concentrations are less than 5x QL or limit in the QAPP	J/UJ in original only

¹Updated in First Quarter 2025

**Validation Guidelines for Metals Analysis by ICP-MS
(Based on EPA 2020a; ARI 2020a)**

Validation QC Element	Acceptance Criteria	Action
Cooler Temperature and Preservation	Cooler temperature: $\leq 6^{\circ}\text{C}$ Nitric Acid to pH < 2 For Dissolved Metals: 0.45um filter & preserve after filtration	Professional Judgment—no qualification based on cooler temperature outliers J/UJ if pH preservation requirements are not met
Holding Time	180 days from date sampled	For detects: samples received with pH ≥ 2 and pH not adjusted, or technical holding >180 days, qualify J- For non-detects: pH ≥ 2 and pH not adjusted, or technical holding >180 days, qualify R
Method Blank	One per batch <CRQL	If blank <CRQL: - Sample Detect <QL: Report at QL and qualify U - Sample $\geq$ QL: J+ or no qualification If blank result $\leq$ (-MDL) but > (-QL): - Sample Detect: qualify J- or no qualification - Sample Non-detect: qualify UJ If blank result $\geq$ CRQL: - Sample Detect < CRQL: Report at QL and qualify U - Sample result $\geq$ CRQL but <10 x the Blank results: Report at Blank Result and qualify J+ or R ≥ 10x Blank results, no qualification If blank result $\leq$ (-QL): - Sample Detect < CRQL or $\geq$ CRQL but <10x CRQL, qualify J- - Sample Non-detect qualify UJ - Sample result ≥ 10x QL, no qualification
Laboratory Control Sample (LCS)	One per matrix per batch Blank Spike: %R within 70%-130%	For detects: - If %R < 40% or 40-69%, J- - If %R 70-130%, no qualification - If %R 131-151%, J+ - If %R >150%, R For non-detects: - If %R <40%, R - If %R 40-69%, UJ - If %R >70%, no qualification

**Validation Guidelines for Metals Analysis by GC/MS
(Based on EPA 2020a; ARI 2020a), continued**

Validation QC Element	Acceptance Criteria	Action
Matrix Spike	One per matrix per batch %R 75-125% for samples where results do not exceed 4x spike level. If $\geq 4x$ the spike added, report unqualified.	For detects: ▪ J- if %R <30 to 74% ▪ J+ if %R >125% ▪ No qualification if %R 75-125% For Non-detects: ▪ R if %R <30%, ▪ UJ if %R <75% or ▪ No qualification if %R 75 to >125
Laboratory Duplicate	One per matrix per batch RPD <20% for samples $\geq 5x$ CRQL OR CQRL if sample results <5x CRQL	If results $\geq 5x$ CRQL and RPD >20% OR if results <5x CRQL and absolute difference >CRQL, ▪ J if detect, ▪ UJ if non-detect
Field Duplicate	For results > 5x RL: RPD < 20% For results < 5x RL: Diff < RL	J/UJ in original sample only

Appendix B

Field Duplicate Analysis

Data Validation

QA/QC completed by: Brandon Cresencia

South Park Landfill
6/24/2025

ARI Work Order 25D0606, 25D0648,
25D0654
SPL-GW-MW24-0525,
SPL-GW-MW-61-0525,
SPL-GW-MW18-0525,
SPL-GW-MW-60-0525
Sample numbers:
Sample Date: 4/29/2025, 4/30/2025

Groundwater		sample	duplicate	avg	diff	rp	rd	=/<35%	MW-24 RL	MW-61 RL	w/in 5x RL?
units = ug/L		MW-24	MW-61								
cis-1,2-DCE	ug/L	<0.20	<0.20	NA	NA	NA			0.20	0.20	y
Vinyl chloride	ug/L	0.0260	0.0266	0.0263	-0.0006	2	y		0.0200	0.0200	
units = ug/L		MW-18	MW-60						MW-18 RL	MW-60 RL	
cis-1,2-DCE	ug/L	<0.20	<0.20	NA	NA	NA			0.20	0.20	y
Vinyl chloride	ug/L	<0.0200	<0.0200	NA	NA	NA			0.0200	0.0200	y
Groundwater		sample	duplicate	avg	diff	rp	rd	=/<20%	MW-24 RL	MW-61 RL	w/in RL?
units = mg/L		MW-24	MW-61								
Iron	mg/L	19.4	19.1	19.25	0.30	2	y		1.80	0.0720	
Manganese	mg/L	1.41	1.42	1.415	-0.01	1	y		0.0500	0.0200	
units = mg/L		MW-18	MW-60						MW-18 RL	MW-60 RL	
Iron	mg/L	13.7	14.9	14.3	-1.2	8	y		0.720	0.720	
Manganese	mg/L	0.717	0.777	0.747	-0.060	8	y		0.0200	0.0200	

Comments:

Calculated duplicate sample RPD = difference / average = ((X1-X2) / (X1+X2)/2)*100

< = Analyte not detected at laboratory's reporting limit

Appendix C

Qualified Data Summary Table

Table C-1. Qualified Data Summary Table Second Quarter 2025 Groundwater Sampling Event

Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qualifier	DV Qualifier	Final Qualifier
SPL-GW-MW24-0525	25D0648-01RE1	EPA 6020B	Manganese	1.41	mg/L		J+	J+
SPL-GW-MW61-0525	25D0648-02RE1	EPA 6020B	Manganese	1.42	mg/L		J+	J+
SPL-GW-MW18-0525	25D0654-02RE1	EPA 6020B	Manganese	0.717	mg/L		J+	J+
SPL-GW-MW60-0525	25D0654-03RE1	EPA 6020B	Manganese	0.777	mg/L		J+	J+

Qualifiers:

J+ The result is an estimated quantity, but the result may be biased high. The associated numerical value is the approximate concentration of the analyte in the sample.

Third Quarter 2025 Groundwater Sampling Event South Park Landfill Data Validation Report

Prepared for



**Seattle
Public
Utilities**

September 2025

ParametriX



GEO SCIENCES INC.
DBE/MWBE

Third Quarter 2025 Groundwater Sampling Event South Park Landfill Data Validation Report

Prepared for

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Event South Park Landfill Data Validation Report.
Prepared for Seattle Public Utilities
by Parametrix, Seattle, Washington
and HWA, Bothell, Washington.
September 2025.

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APPENDICES

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- B Field Duplicate Analysis
- C Qualified Data Summary Table

Acronyms and Abbreviations

CRQL	Contract Reporting Quantitation Limit
EPA	U.S. Environmental Protection Agency
LCS	Laboratory control standard
LCSD	Laboratory control standard duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
RPD	Relative percent difference
QC	Quality control
VOC	Volatile organic compound

1. Project Narrative

1.1 Overview of Data Validation

This report summarizes the results of the Compliance Screening performed on the groundwater and field quality control (QC) sample data for the South Park Landfill Third Quarter 2025 Groundwater Monitoring Event. A complete list of samples is provided below (Table 1-1).

Table 1-1. Project Sample Index

Sample ID	Lab ID	Sample Location	8260D	8260D-SIM	6020B Total Fe, Mn
SPL-GW-MW33-0825	25H0041-01	MW-33	X	X	X
SPL-GW-MW32-0825	25H0041-02	MW-32	X	X	X
SPL-GW-MW60-0825	25H0041-03	MW-32 DUP	X	X	X
SPL-GW-MW12-0825	25H0041-04	MW-12	X	X	X
SPL-GW-MW14-0825	25H0041-05	MW-14	X	X	X
SPL-GW-MW80-0825	25H0041-06	TRIP BLANK	X	X	
SPL-GW-MW27-0825	25H0059-01	MW-27	X	X	X
SPL-GW-MW08-0825	25H0059-02	MW-08	X	X	X
SPL-GW-MW10-0825	25H0059-03	MW-10	X	X	X
SPL-GW-MW25-0825	25H0059-04	MW-25	X	X	X
SPL-GW-MW18-0825	25H0059-05	MW-18	X	X	X
SPL-GW-MW81-0825	25H0059-06	TRIP BLANK	X	X	
SPL-GW-MW26-0825	25H0088-01	MW-26	X	X	X
SPL-GW-MW61-0825	25H0088-02	MW-26 DUP	X	X	X
SPL-GW-MW24-0825	25H0088-03	MW-24	X	X	X
SPL-GW-MW29-0825	25H0088-04	MW-29	X	X	X
SPL-GW-MW31-0825	25H0088-05	MW-31	X	X	X
SPL-GW-MW30-0825	25H0088-06	MW-30	X	X	X
SPL-GW-MW82-0825	24H0088-07	TRIP BLANK	X	X	

Groundwater samples were collected on August 4, 5 and 6, 2025 and submitted to Analytical Resources, LLC (ARI) located in Tukwila, Washington for chemical analyses. The chemical analyses were performed under ARI Work Orders 25H0041, 25H0059, and 25H0088. The analytical methods include the following:

- Cis-1,2-DCE—U.S. Environmental Protection Agency (EPA) Method SW8260D
- Vinyl chloride—EPA Method 8260D-SIM
- Select metals (total iron and manganese) - EPA Method 6020B

The data were reviewed using guidance and QC criteria documented in the analytical methods, U.S. Environmental Protection Agency (EPA) *National Functional Guidelines for Inorganic Data Review* (EPA 2020a), *National Functional Guidelines for Organic Data Review* (EPA 2020b), *EPA Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*

(EPA 2009), and the *South Park Landfill Operations, Maintenance and Monitoring Plan* (OMMP; Appendix A of the South Park Landfill Cleanup Action Plan [Ecology 2021]).

In accordance with the OMMP, to generate data of sufficient quality, the following approach for groundwater samples will be followed:

- Field and laboratory QC samples (field replicates, trip blanks, and temperature blanks) will be used for assessing data quality.
- Laboratory QA will be implemented and maintained as described in the accredited laboratory's Quality Assurance Plan (ARI 2020a) and Standard Operating Procedures (ARI 2016, 2017, 2020b, 2020c) and in Table 3 (from OMMP and presented in Appendix B).
- Data summary packages will be generated, and the documentation provided will be sufficient to perform a Level I data quality review.

The goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. When compounds are analyzed at multiple dilutions, select results will be assigned a Do Not Report (DNR) qualification as a more appropriate result is reported from another dilution. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

The data were evaluated in accordance with EPA guidance (EPA 2020a, 2020b, and 2009) at a Stage 2A level. Data qualifier definitions, reasons, and validation criteria are included as Appendix A. Analysis of field duplicates are presented in Appendix B. Qualified data are summarized in Appendix C.

Field Duplicates

Two field duplicate samples were analyzed. Sample SPL-GW-MW60-0825 is a duplicate of SPL-GW-MW32-0825. Sample SPL-GW-MW61-0825 is a duplicate of SPL-GW-MW26-0825.

Appendix B presents the calculated Relative Percent Differences (RPDs) for field duplicate samples. $RPDs = \text{difference} / \text{average} = ((X1-X2) / (X1+X2)/2) \times 100$, where X1 is the sample and X2 is the duplicate sample concentration. RPD is a measure of analytical precision. Precision is a measure of the variability in the results of replicate measurements due to random error.

Trip Blanks

Three trip blanks were analyzed for selected VOCs (SPL-GW-MW80-0825, SPL-GW-MW81-0825, and SPL-GW-MW82-0825) in ARI Work Orders 25H0041, 25H0059, and 25H0088.

Sample Temperature

Although no temperature blanks were prepared, the laboratory measured the cooler interior temperatures on receipt. Temperatures were 10.6 degrees C for batch 25H0041, suggesting inadequate time to cool between sampling and delivery, and 2.8 and 5.6 degrees C for batch 25H0088 and 25H0059, indicating adequate temperature control for sample preservation.

Hold Times

All method-defined hold times for all samples were met prior to extraction and analysis.

VOC Sample Integrity

The laboratory reported that all VOA vials submitted were free of air bubbles. Therefore, no data were qualified based on VOC integrity issues.

2. Data Validation Report cis-1,2-DCE by EPA Method SW8260D

This section documents the review of VOC analytical data for groundwater and field QC samples and the associated laboratory QC samples.

2.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

2.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation ¹	Surrogate recoveries
Extraction and analysis holding times	Target analyte list
Blank contamination (method and trip)	Reporting limits and reported results
Laboratory control sample (LCS) and LCS duplicate (LCSD)	Field Duplicates
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) ¹	

QC requirement findings further discussed in following sections (if required):

¹ Quality control results are discussed below.

Appendix A presents data validation criteria tables for organic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

2.2.1 Cooler Temperature and Preservation

The cooler temperature for batch 25H0041 was above 6 degrees C at 10.6 degrees C. However, the last sample collected was at 14:05 and the samples were submitted to the laboratory at 14:41. Based on EPA (2020b), if samples are delivered to the laboratory the same day they are collected, sample temperatures may not have equilibrated to the specified temperature, and the samples will be considered to have been received in acceptable condition.

2.2.2 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with samples 25H0041-02 and 25H0088-01 (and SPL-GW-MW32-0825 and SPL-GW-MW26-0825) in batches BNH0063 and BNH0109, respectively. The duplicate and MS/MSD RPDs were within control limits.

2.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

3. Data Validation Report Vinyl Chloride by EPA Method 8260D-SIM

This section documents the review of vinyl chloride analytical data for groundwater and field QC samples and the associated laboratory QC samples.

3.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

3.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation ¹	Surrogate recoveries
Extraction and analysis holding times	Target analyte list
Blank contamination (method and trip)	Reporting limits and reported results
Laboratory control sample (LCS) and LCS duplicate (LCSD)	Field duplicates ¹
Matrix Spike (MS) and Matrix Spike Duplicate (MSD)	

Notes:

¹ Quality control results are discussed below. QC requirement findings further discussed in following sections (if required):

Appendix A presents data validation criteria tables for organic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

3.2.1 Cooler Temperature and Preservation

The cooler temperature for batch 25H0041 was above 6 degrees C at 10.6 degrees C. However, the last sample collected was at 14:05 and the samples were submitted to the laboratory at 14:41. Based on EPA (2020b), if samples are delivered to the laboratory the same day they are collected, sample temperatures may not have equilibrated to the specified temperature, and the samples will be considered to have been received in acceptable condition.

3.2.2 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with samples 250041-02 and 25H0088-01 (SPL-GW-MW32-0825 and SPL-GW-MW26-0825) in batches BNH0059 and BNH0109, respectively. The MS percent recoveries and MS/MSD RPDs reported were within advisory control limits.

3.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

4. Data Validation Report Select Metals by EPA Method 6020B

This section documents the review of metals (total iron and manganese) analytical data for groundwater and field QC samples and the associated laboratory QC samples.

4.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

4.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation	Laboratory Duplicate
Extraction and analysis holding times	Target analyte list
Blank contamination (method)	Reporting limits and reported results
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) ¹	Field duplicates
Laboratory Control Sample (LCS)	

Notes:

QC requirement findings further discussed in following sections (if required):

¹ Quality control results are discussed below, but no data were qualified.

Some of the metals data were the result of a dilution and were flagged with “D” qualifier by the laboratory. The “D” qualifiers were removed from the final data table.

Appendix A presents data validation criteria tables for inorganic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

4.2.1 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with samples 250041-02 (Manganese only), 25H0059-01 (MS only), and 25H0088-01 (SPL-GW-MW32-0825, SPL-GW-MW27-0825, and SPL-GW-MW26-0825) in batches BNH0184, BNH0287, and BNH0367, respectively. The MS percent recoveries and MS/MSD RPDs reported were within advisory control limits, except percent recovery for total iron and total manganese which were out of control low in the MS for batch BNH0287. Additionally, percent recovery for total manganese was out of control high in the MS and low for the MSD for batch BNH0184. However, in both cases, the natural concentration of the spiked analyte was four times greater when compared to the concentration spiked, therefore no data were qualified.

4.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by MS percent recovery values. Precision was acceptable, as demonstrated by the LCS/laboratory duplicate RPDs.

All data, as reported by the laboratory, are acceptable for use.

5. References

- ARI. 2016. Standard Operating Procedure, Metals Analysis – Nexlon ICP-MS, SOP 545S, Version 001, Revision Date 2/8/2016.
- ARI (Analytical Resources Inc.). 2017. Standard Operating Procedure, Metals Analysis – Nexlon ICP-MS with Universal Cell Technology, SOP 543S, Version 003.3, Revision Date 2/23/2017.
- ARI. 2020a. Quality Assurance Plan. Revision 17.0. 6/11/2020.
- ARI. 2020b. Standard Operating Procedure, Volatile Organic Analysis SOP 700S, Version 022, Revision Date 2/12/2020.
- ARI. 2020c. Standard Operating Procedure, Volatile Organic Analysis Selected Ion Mass Spectrometry, SOP 703S, Version 13, Revision Date 2/12/2020.
- Ecology. 2021. Draft South Park Landfill Final Cleanup Action Plan: Appendix A Landfill Post-Closure Operations, Maintenance, and Monitoring Plan, Amended 2021. Washington State Department of Ecology Toxics Cleanup Program. Olympia, WA.
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- EPA. 2020a. National Functional Guidelines for Inorganic Superfund Data Review. EPA 540R- 2017-001. November.
- EPA. 2020b. National Functional Guidelines for Organic Superfund Data Review. EPA 542-R-20-006. November.

Appendix A

Data Qualifier Definitions and Criteria Tables

DATA VALIDATION QUALIFIER CODES

National Functional Guidelines (EPA 2020)

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

- U The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- NJ The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value represents the approximate concentration (for organics).
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

Validation Guidelines for Volatile Analysis by GC/MS
(Based on EPA 2020b; ARI 2020a)

Validation QC Element	Acceptance Criteria	Action
Cooler Temperature	Cooler temperature: $\leq 6^{\circ}\text{C}$ HCl to pH ≤ 2	Qualify J if detected, UJ if not detected ¹ However, if samples are delivered to the laboratory the same day they are collected, sample temperatures may not have equilibrated to the specified temperature and should be considered to have been received in acceptable condition.
Hold Time	14 days preserved 7 Days: unpreserved (for aromatics)	Detects: J; Non-detects: J if hold times exceeded
Method Blank	One per batch <CRQL	If blank <CRQL: - If sample result <CRQL, qualify U report at CRQL - If sample result $\geq$ CRQL, use professional judgement
		If blank $\geq$ CRQL: - If sample result <CRQL, qualify U and report at CRQL - If sample result $\geq$ but < blank result, qualify U and report at sample result - If sample result $\geq$ CRQL and $\geq 2\times$ blank results, report sample result and J+ qualify or no qualification
Trip Blank	Frequency as per project QAPP <CRQL	Same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned
MS/MSD (recovery)	One per batch Use method acceptance criteria	Qualify original sample only unless other QC indicates systematic problems: For detects: - J if %R <20%, or $20\% < \%R < \text{Lower limit}$, or %R or RPD >Upper limit For non-detects: - R if %R <20%, UJ if $20\% < \%R < \text{Lower limit}$
MS/MSD (RPD)	One per batch Use method acceptance criteria	For detects: J in original sample if RPD >Upper limit
LCS	One per lab batch	If not performed at specified frequency or concentration or % R not specified: use professional judgment For detects: %R < Lower Limit, qualify J+; %R > Upper Limit, qualify J+- For non-detects: %R <, qualify results R; If %R $\geq$ No qualification
LCS/LCSD (if required)	One set per batch of 20 samples RPD < 30%	Qualify sample results J/UJ

Validation Guidelines for Volatile Analysis by GC/MS
(Based on EPA 2020b; ARI 2020a), continued

Validation QC Element	Acceptance Criteria	Action
Surrogates	Added to all samples Within method control limits	Not added or not at specified concentration, use professional judgement. For detects: ▪ %R < Expanded Lower Limit (10%), qualify results J- ▪ Expanded Lower Limit $\leq$ %R < specified Lower Limit, qualify results J- ▪ %R > specified Upper Limit, qualify results J+ For non-detects: ▪ %R < Expanded lower limit (10%), qualify results R ▪ Expanded Lower Limit $\leq$ %R < specified Lower Limit, qualify results UJ
Field Duplicates	QAPP limits RPD <35% OR in the project-specific SOP. Limits may not apply when sample and dup concentrations are less than 5x QL or limit in the QAPP	J/UJ in original only

¹Updated in First Quarter 2025

Validation Guidelines for Metals Analysis by ICP-MS
(Based on EPA 2020a; ARI 2020a)

Validation QC Element	Acceptance Criteria	Action
Cooler Temperature and Preservation	Cooler temperature: $\leq 6^{\circ}\text{C}$ Nitric Acid to pH < 2 For Dissolved Metals: 0.45um filter & preserve after filtration	Professional Judgment—no qualification based on cooler temperature outliers J/UJ if pH preservation requirements are not met
Holding Time	180 days from date sampled	For detects: samples received with pH ≥ 2 and pH not adjusted, or technical holding >180 days, qualify J- For non-detects: pH ≥ 2 and pH not adjusted, or technical holding >180 days, qualify R
Method Blank	One per batch <CRQL	If blank <CRQL: - Sample Detect <QL: Report at QL and qualify U - Sample $\geq$ QL: J+ or no qualification If blank result $\leq$ (-MDL) but > (-QL): - Sample Detect: qualify J- or no qualification - Sample Non-detect: qualify UJ If blank result $\geq$ CRQL: - Sample Detect < CRQL: Report at QL and qualify U - Sample result $\geq$ CRQL but <10 x the Blank results: Report at Blank Result and qualify J+ or R ≥ 10x Blank results, no qualification If blank result $\leq$ (-QL): - Sample Detect < CRQL or $\geq$ CRQL but <10x CRQL, qualify J- - Sample Non-detect qualify UJ - Sample result ≥ 10x QL, no qualification
Laboratory Control Sample (LCS)	One per matrix per batch Blank Spike: %R within 70%-130%	For detects: - If %R < 40% or 40-69%, J- - If %R 70-130%, no qualification - If %R 131-151%, J+ - If %R >150%, R For non-detects: - If %R <40%, R - If %R 40-69%, UJ - If %R >70%, no qualification

Validation Guidelines for Metals Analysis by GC/MS
(Based on EPA 2020a; ARI 2020a), continued

Validation QC Element	Acceptance Criteria	Action
Matrix Spike	One per matrix per batch %R 75-125% for samples where results do not exceed 4x spike level. If ≥ 4 x the spike added, report unqualified.	For detects: - J- if %R <30 to 74% - J+ if %R >125% - No qualification if %R 75-125% For Non-detects: - R if %R <30%, - UJ if %R <75% or - No qualification if %R 75 to >125
Laboratory Duplicate	One per matrix per batch RPD <20% for samples ≥ 5 x CRQL OR CQRL if sample results <5x CRQL	If results ≥ 5 x CRQL and RPD >20% OR if results <5x CRQL and absolute difference >CRQL, - J if detect, - UJ if non-detect
Field Duplicate	For results > 5x RL: RPD < 20% For results < 5x RL: Diff < RL	J/UJ in original sample only

Appendix B

Field Duplicate Analysis

Data Validation

South Park Landfill

QA/QC completed by: Brandon Cresencia

8/28/2025

ARI Work Order: 25H0088
Sample numbers: SPL-GW-MW26-0825; SPL-GW-MW61-0825
Sample Date: 8/6/25

Groundwater		sample	duplicate	avg	diff	RPD	=/≤35%	RL	w/in 5x RL?
units = ug/L		MW-26	MW-61						
cis-1,2-DCE	ug/L	0.25	0.26	0.255	-0.01	4	y	0.20	
Vinyl chloride	ug/L	<0.0200	0.0204	0.0204	NA	NA		0.0200	y
Groundwater		sample	duplicate	avg	diff	RPD	=/≤20%	RL	w/in RL?
Iron	mg/L	7.35	7.34	7.345	0.01	0	y	0.720/0.360	
Manganese	mg/L	0.0895	0.0916	0.09055	-0.0021	2	y	0.0200/0.00500	

Comments:

Calculated duplicate sample RPD = difference / average = $((X1-X2) / (X1+X2)/2) * 100$

< = Analyte not detected at laboratory's reporting limit

Data Validation

QA/QC completed by:

South Park Landfill

8/28/2025

ARI Work Order

25H0041

Sample numbers:

SPL-GW-MW32-0825; SPL-GW-MW60-0825

Sample Date:

8/4/25

Groundwater		sample	duplicate	avg	diff	RPD	=/<35%	RL	w/in 5x RL?
units = ug/L		MW-32	MW-60						
cis-1,2-DCE	ug/L	0.32	0.33	0.325	-0.01	3	y	0.20	
Vinyl chloride	ug/L	0.234	0.234	0.234	0.00	0	y	0.0200	
Groundwater		sample	duplicate	avg	diff	RPD	=/<20%	RL	w/in RL?
Iron	mg/L	13.1	12.8	12.95	0.30	2	y	0.720	
Manganese	mg/L	1.19	1.16	1.175	0.03	3	y	0.0200	

Comments:

Calculated duplicate sample RPD = difference / average = ((X1-X2) / (X1+X2)/2)*100

< = Analyte not detected at laboratory's reporting limit

Appendix C

Qualified Data Summary Table

Table C.1. Qualified Data Summary Table Third Quarter 2025 Groundwater Sampling Event

Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qualifier	DV Qualifier	Final Qualifier
No Samples Qualified								

Fourth Quarter 2025 Groundwater Sampling Event South Park Landfill Data Validation Report

Prepared for



**Seattle
Public
Utilities**

February 2026

ParametriX



GEO SCIENCES INC.
DBE/MWBE

Fourth Quarter 2025 Groundwater Sampling Event South Park Landfill Data Validation Report

Prepared for

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February 2026 | 553-1500-067

Citation

Parametrix. 2026. Fourth Quarter 2025 Groundwater
Sampling Event South Park Landfill Data Validation Report.
Prepared for Seattle Public Utilities
by Parametrix, Seattle, Washington
and HWA, Bothell, Washington.
February 2026.

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APPENDICES

- A Data Qualifier Definitions and Criteria Tables
- B Field Duplicate Analysis
- C Qualified Data Summary Table

Acronyms and Abbreviations

CRQL	Contract Reporting Quantitation Limit
EPA	U.S. Environmental Protection Agency
LCS	Laboratory control standard
LCSD	Laboratory control standard duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
RPD	Relative percent difference
QC	Quality control
VOC	Volatile organic compound

1. Project Narrative

1.1 Overview of Data Validation

This report summarizes the results of the Compliance Screening performed on the groundwater and field quality control (QC) sample data for the South Park Landfill Fourth Quarter 2025 Groundwater Monitoring Event. A complete list of samples is provided below (Table 1-1).

Table 1-1. Project Sample Index

Sample ID	Lab ID	Sample Location	8260D	8260D-SIM	6020B Total Fe, Mn
SPL-GW-MW18-1125	25K0051-01	MW-18	X	X	X
SPL-GW-MW33-1125	25K0051-02	MW-33	X	X	X
SPL-GW-MW60-1125	25K0051-03	MW-33 DUP	X	X	X
SPL-GW-MW32-1125	25K0051-04	MW-32	X	X	X
SPL-GW-MW80-1125	25K0051-05	TRIP BLANK	X	X	
SPL-GW-MW14-1125	25K0094-01	MW-14	X	X	X
SPL-GW-MW12-1125	25K0094-02	MW-12	X	X	X
SPL-GW-MW31-1125	25K0094-03	MW-31	X	X	X
SPL-GW-MW30-1125	25K0094-04	MW-30	X	X	X
SPL-GW-MW08-1125	25K0094-05	MW-08	X	X	X
SPL-GW-MW61-1125	25K0094-06	MW-08 DUP	X	X	X
SPL-GW-MW27-1125	25K0094-07	MW-27	X	X	X
SPL-GW-MW81-1125	25K0094-08	TRIP BLANK	X	X	
SPL-GW-MW25-1125	25K0097-01	MW-25	X	X	X
SPL-GW-MW10-1125	25K0097-02	MW-10	X	X	X
SPL-GW-MW29-1125	25K0097-03	MW-29	X	X	X
SPL-GW-MW24-1125	25K0097-04	MW-24	X	X	X
SPL-GW-MW26-1125	25K0097-05	MW-26	X	X	X
SPL-GW-MW82-1125	25K0097-06	TRIP BLANK	X	X	

Groundwater samples were collected on November 3, 4 and 5, 2025 and submitted to Analytical Resources, LLC (ARI) located in Tukwila, Washington for chemical analyses. The chemical analyses were performed under ARI Work Orders 25K0051, 25K0094, and 25K0097. The analytical methods include the following:

- Cis-1,2-DCE—U.S. Environmental Protection Agency (EPA) Method SW8260D
- Vinyl chloride—EPA Method 8260D-SIM
- Select metals (total iron and manganese) - EPA Method 6020B

The data were reviewed using guidance and QC criteria documented in the analytical methods, U.S. Environmental Protection Agency (EPA) *National Functional Guidelines for Inorganic Data Review* (EPA 2020a), *National Functional Guidelines for Organic Data Review* (EPA 2020b), *EPA Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*

(EPA 2009), and the *South Park Landfill Operations, Maintenance and Monitoring Plan* (OMMP; Appendix A of the South Park Landfill Cleanup Action Plan [Ecology 2021]).

In accordance with the OMMP, to generate data of sufficient quality, the following approach for groundwater samples will be followed:

- Field and laboratory QC samples (field replicates, trip blanks, and temperature blanks) will be used for assessing data quality.
- Laboratory QA will be implemented and maintained as described in the accredited laboratory's Quality Assurance Plan (ARI 2020a) and Standard Operating Procedures (ARI 2016, 2017, 2020b, 2020c) and in Table 3 (from OMMP and presented in Appendix B).
- Data summary packages will be generated, and the documentation provided will be sufficient to perform a Level I data quality review.

The goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes, but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R, the data are to be rejected and should not be used for any site evaluation purposes. When compounds are analyzed at multiple dilutions, select results will be assigned a Do Not Report (DNR) qualification as a more appropriate result is reported from another dilution. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

The data were evaluated in accordance with EPA guidance (EPA 2020a, 2020b, and 2009) at a Stage 2A level. Data qualifier definitions, reasons, and validation criteria are included as Appendix A. Analysis of field duplicates are presented in Appendix B. Qualified data are summarized in Appendix C.

Field Duplicates

Two field duplicate samples were analyzed. Sample SPL-GW-MW60-1125 is a duplicate of SPL-GW-MW33-1125. Sample SPL-GW-MW61-1125 is a duplicate of SPL-GW-MW08-1125.

Appendix B presents the calculated Relative Percent Differences (RPDs) for field duplicate samples. $RPDs = \text{difference} / \text{average} = ((X1-X2) / (X1+X2)/2) \times 100$, where X1 is the sample and X2 is the duplicate sample concentration. RPD is a measure of analytical precision. Precision is a measure of the variability in the results of replicate measurements due to random error.

Trip Blanks

Three trip blanks (SPL-GW-MW80-1125, SPL-GW-MW81-1125, and SPL-GW-MW82-1125) were analyzed for selected VOCs in ARI Work Orders 25K0051, 25K0094, and 25K0097.

Sample Temperature

Although no temperature blanks were prepared, the laboratory measured the cooler interior temperatures on receipt. Temperatures were 5.1, 5.9 and 4.5 degrees C for batch 25K0051, 25K0094 and 25K0097, indicating adequate temperature control for sample preservation.

Hold Times

All method-defined hold times for all samples were met prior to extraction and analysis.

VOC Sample Integrity

The laboratory reported that all VOA vials submitted were free of air bubbles. Therefore, no data were qualified based on VOC integrity issues.

2. Data Validation Report cis-1,2-DCE by EPA Method SW8260D

This section documents the review of VOC analytical data for groundwater and field QC samples and the associated laboratory QC samples.

2.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

2.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation ¹	Surrogate recoveries
Extraction and analysis holding times	Target analyte list
Blank contamination (method and trip)	Reporting limits and reported results
Laboratory control sample (LCS) and LCS duplicate (LCSD)	Field Duplicates
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) ¹	

QC requirement findings further discussed in following sections (if required):

¹ Quality control results are discussed below.

Appendix A presents data validation criteria tables for organic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

2.2.1 Cooler Temperature and Preservation

The cooler temperatures were within the acceptable range of 0 to 6 degrees C. The temperature of the coolers for batches 25K0051, 25K0094, and 25K0097 were 5.1, 5.9, and 4.5 degrees C. All samples are considered to be received in acceptable condition.

2.2.2 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with samples 25K0051-02 and 25K0094-05 (SPL-GW-MW33-1125 and SPL-GW-MW08-1125) in batches BNK0049 and BNK0125, respectively. The duplicate and MS/MSD RPDs were within control limits.

2.2.3 Surrogate Recoveries

The surrogate recoveries for samples SPL-GW-MW-29-1125 and SPL-GW-MW-82-1125 in 25K0097 were slightly above the control limit range. Since the results were not-detected, no data were qualified.

2.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

3. Data Validation Report Vinyl Chloride by EPA Method 8260D-SIM

This section documents the review of vinyl chloride analytical data for groundwater and field QC samples and the associated laboratory QC samples.

3.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

3.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation ¹	Surrogate recoveries
Extraction and analysis holding times	Target analyte list
Blank contamination (method and trip)	Reporting limits and reported results
Laboratory control sample (LCS) and LCS duplicate (LCSD)	Field duplicates ¹
Matrix Spike (MS) and Matrix Spike Duplicate (MSD)	

Notes:

¹ Quality control results are discussed below. QC requirement findings further discussed in following sections (if required):

Appendix A presents data validation criteria tables for organic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

3.2.1 Cooler Temperature and Preservation

The cooler temperatures were within the acceptable range of 0 to 6 degrees C. The temperature of the coolers for batches 25K0051, 25K0094, and 25K0097 were 5.1, 5.9, and 4.5 degrees C. All samples are considered to be received in acceptable condition.

3.2.2 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with samples 25K0051-02 and 25K0094-05 (and SPL-GW-MW33-1125 and SPL-GW-MW08-1125) in batch BNK0111. The duplicate and MS/MSD RPDs were within control limits.

3.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by the sample surrogate, LCS, and LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD RPD.

All data, as reported by the laboratory, are acceptable for use.

4. Data Validation Report Select Metals by EPA Method 6020B

This section documents the review of metals (total iron and manganese) analytical data for groundwater and field QC samples and the associated laboratory QC samples.

4.1 Data Package Completeness

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

4.2 Technical Data Validation

The QC requirements that were reviewed are listed below.

QC Requirements

Cooler temperature and preservation	Laboratory Duplicate
Extraction and analysis holding times	Target analyte list
Blank contamination (method)	Reporting limits and reported results
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) ¹	Field duplicates
Laboratory Control Sample (LCS)	

Notes:

QC requirement findings further discussed in following sections (if required):

¹ Quality control results are discussed below, but no data were qualified.

Some of the metals data were the result of a dilution and were flagged with “D” qualifier by the laboratory. The “D” qualifiers were removed from the final data table.

Appendix A presents data validation criteria tables for inorganic compound analysis. QC requirements that were met without exception are not discussed below. QC requirements that required further evaluation and/or had exceptions to the validation criteria are discussed below.

4.2.1 Matrix Spike and Matrix Spike Duplicate

Sample specific QC was performed in association with samples 25K0051-02 and 25K0094-05 (SPL-GW-MW33-1125 and SPL-GW-MW08-1125) in batches BNK0175 and BNK0196, respectively. The MS percent recoveries and MS/MSD RPDs reported were within advisory control limits.

4.3 Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical method. Accuracy was acceptable, as demonstrated by MS percent recovery values. Precision was acceptable, as demonstrated by the LCS/laboratory duplicate RPDs.

All data, as reported by the laboratory, are acceptable for use.

5. References

- ARI. 2016. Standard Operating Procedure, Metals Analysis – Nexlon ICP-MS, SOP 545S, Version 001, Revision Date 2/8/2016.
- ARI (Analytical Resources Inc.). 2017. Standard Operating Procedure, Metals Analysis – Nexlon ICP-MS with Universal Cell Technology, SOP 543S, Version 003.3, Revision Date 2/23/2017.
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- ARI. 2020b. Standard Operating Procedure, Volatile Organic Analysis SOP 700S, Version 022, Revision Date 2/12/2020.
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- EPA. 2020a. National Functional Guidelines for Inorganic Superfund Data Review. EPA 540R- 2017-001. November.
- EPA. 2020b. National Functional Guidelines for Organic Superfund Data Review. EPA 542-R-20-006. November.

Appendix A

Data Qualifier Definitions and Criteria Tables

DATA VALIDATION QUALIFIER CODES

National Functional Guidelines (EPA 2020)

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

- U The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- NJ The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value represents the approximate concentration (for organics).
- UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

**Validation Guidelines for Volatile Analysis by GC/MS
(Based on EPA 2020b; ARI 2020a)**

Validation QC Element	Acceptance Criteria	Action
Cooler Temperature	Cooler temperature: $\leq 6^{\circ}\text{C}$ HCl to $\text{pH} \leq 2$	Qualify J if detected, UJ if not detected ¹ However, if samples are delivered to the laboratory the same day they are collected, sample temperatures may not have equilibrated to the specified temperature and should be considered to have been received in acceptable condition.
Hold Time	14 days preserved 7 Days: unpreserved (for aromatics)	Detects: J; Non-detects: J if hold times exceeded
Method Blank	One per batch <CRQL	If blank <CRQL: - If sample result <CRQL, qualify U report at CRQL - If sample result $\geq$ CRQL, use professional judgement
		If blank $\geq$ CRQL: - If sample result <CRQL, qualify U and report at CRQL - If sample result $\geq$ but < blank result, qualify U and report at sample result - If sample result $\geq$ CRQL and $\geq 2\times$ blank results, report sample result and J+ qualify or no qualification
Trip Blank	Frequency as per project QAPP <CRQL	Same as method blank for positive results remaining in trip blank after method blank qualifiers are assigned
MS/MSD (recovery)	One per batch Use method acceptance criteria	Qualify original sample only unless other QC indicates systematic problems: For detects: - J if $\%R < 20\%$, or $20\% < \%R < \text{Lower limit}$, or $\%R$ or $\text{RPD} > \text{Upper limit}$ For non-detects: - R if $\%R < 20\%$, UJ if $20\% < \%R < \text{Lower limit}$
MS/MSD (RPD)	One per batch Use method acceptance criteria	For detects: J in original sample if $\text{RPD} > \text{Upper limit}$
LCS	One per lab batch	If not performed at specified frequency or concentration or $\%R$ not specified: use professional judgment For detects: $\%R < \text{Lower Limit}$, qualify J+; $\%R > \text{Upper Limit}$, qualify J+- For non-detects: $\%R <$, qualify results R; If $\%R \geq$ No qualification
LCS/LCSD (if required)	One set per batch of 20 samples $\text{RPD} < 30\%$	Qualify sample results J/UJ

Validation Guidelines for Volatile Analysis by GC/MS
(Based on EPA 2020b; ARI 2020a), continued

Validation QC Element	Acceptance Criteria	Action
Surrogates	Added to all samples Within method control limits	Not added or not at specified concentration, use professional judgement. For detects: ▪ %R < Expanded Lower Limit (10%), qualify results J- ▪ Expanded Lower Limit $\leq$ %R < specified Lower Limit, qualify results J- ▪ %R > specified Upper Limit, qualify results J+ For non-detects: ▪ %R < Expanded lower limit (10%), qualify results R ▪ Expanded Lower Limit $\leq$ %R < specified Lower Limit, qualify results UJ
Field Duplicates	QAPP limits RPD < 35% OR in the project-specific SOP. Limits may not apply when sample and dup concentrations are less than 5x QL or limit in the QAPP	J/UJ in original only

¹Updated in First Quarter 2025

**Validation Guidelines for Metals Analysis by ICP-MS
(Based on EPA 2020a; ARI 2020a)**

Validation QC Element	Acceptance Criteria	Action
Cooler Temperature and Preservation	Cooler temperature: $\leq 6^{\circ}\text{C}$ Nitric Acid to pH < 2 For Dissolved Metals: 0.45um filter & preserve after filtration	Professional Judgment—no qualification based on cooler temperature outliers J/UJ if pH preservation requirements are not met
Holding Time	180 days from date sampled	For detects: samples received with pH ≥ 2 and pH not adjusted, or technical holding >180 days, qualify J- For non-detects: pH ≥ 2 and pH not adjusted, or technical holding >180 days, qualify R
Method Blank	One per batch <CRQL	If blank <CRQL: - Sample Detect <QL: Report at QL and qualify U - Sample $\geq$ QL: J+ or no qualification If blank result $\leq$ (-MDL) but > (-QL): - Sample Detect: qualify J- or no qualification - Sample Non-detect: qualify UJ If blank result $\geq$ CRQL: - Sample Detect < CRQL: Report at QL and qualify U - Sample result $\geq$ CRQL but <10 x the Blank results: Report at Blank Result and qualify J+ or R ≥ 10x Blank results, no qualification If blank result $\leq$ (-QL): - Sample Detect < CRQL or $\geq$ CRQL but <10x CRQL, qualify J- - Sample Non-detect qualify UJ - Sample result ≥ 10x QL, no qualification
Laboratory Control Sample (LCS)	One per matrix per batch Blank Spike: %R within 70%-130%	For detects: - If %R < 40% or 40-69%, J- - If %R 70-130%, no qualification - If %R 131-151%, J+ - If %R >150%, R For non-detects: - If %R <40%, R - If %R 40-69%, UJ - If %R >70%, no qualification

**Validation Guidelines for Metals Analysis by GC/MS
(Based on EPA 2020a; ARI 2020a), continued**

Validation QC Element	Acceptance Criteria	Action
Matrix Spike	One per matrix per batch %R 75-125% for samples where results do not exceed 4x spike level. If ≥ 4 x the spike added, report unqualified.	For detects: - J- if %R <30 to 74% - J+ if %R >125% - No qualification if %R 75-125% For Non-detects: - R if %R <30%, - UJ if %R <75% or - No qualification if %R 75 to >125
Laboratory Duplicate	One per matrix per batch RPD <20% for samples ≥ 5 x CRQL OR CQRL if sample results <5x CRQL	If results ≥ 5 x CRQL and RPD >20% OR if results <5x CRQL and absolute difference >CRQL, - J if detect, - UJ if non-detect
Field Duplicate	For results > 5x RL: RPD < 20% For results < 5x RL: Diff < RL	J/UJ in original sample only

Appendix B

Field Duplicate Analysis

Data Validation

QA/QC completed by: Brandon Cresencia

South Park Landfill

12/4/2025

ARI Work Order: 25K0094
Sample numbers: SPL-GW-MW08-1125; SPL-GW-MW61-1125
Sample Date: 11/4/25

Groundwater		sample	duplicate	avg	diff	rp	rd	=/≤35%	RL	w/in 5x RL?
units = ug/L		MW-08	MW-61							
cis-1,2-DCE	ug/L	<0.20	<0.20	NA	NA	NA		y	0.20	
Vinyl chloride	ug/L	0.0425	0.0394	0.04095	0.0031	8		y	0.0200	
Groundwater		sample	duplicate	avg	diff	rp	rd	=/≤20%	RL	w/in RL?
Iron	mg/L	13.0	12.7	12.85	0.30	2		y	0.360	
Manganese	mg/L	0.7110	0.699	0.705	0.0120	2		y	0.0100	

Comments:

Calculated duplicate sample RPD = difference / average = ((X1-X2) / (X1+X2)/2)*100
< = Analyte not detected at laboratory's reporting limit

Data Validation

South Park Landfill

QA/QC completed by: Brandon Cresencia

12/4/2025

ARI Work Order 25K0051

Sample numbers: SPL-GW-MW33-1125; SPL-GW-MW60-1125

Sample Date: 11/3/25

Groundwater		sample	duplicate	avg	diff	RPD	=/<35%	RL	w/in 5x RL?
units = ug/L		MW-33	MW-60						
cis-1,2-DCE	ug/L	<0.20	<0.20	NA	NA	NA	y	0.20	
Vinyl chloride	ug/L	0.173	0.180	0.1765	-0.01	4	y	0.0200	
Groundwater		sample	duplicate	avg	diff	RPD	=/<20%	RL	w/in RL?
Iron	mg/L	14.1	13.5	13.8	0.60	4	y	0.720/1.80	
								0.0500/	
Manganese	mg/L	1.50	1.45	1.475	0.05	3	y	0.0200	

Comments:

Calculated duplicate sample RPD = difference / average = ((X1-X2) / (X1+X2)/2)*100

< = Analyte not detected at laboratory's reporting limit

Appendix C

Qualified Data Summary Table

Table C.1. Qualified Data Summary Table Fourth Quarter 2025 Groundwater Sampling Event

Sample ID	Lab ID	Method	Analyte	Result	Units	Lab Qualifier	DV Qualifier	Final Qualifier
No Samples Qualified								