Pare Project No. 94139.01

2018 ANNUAL GROUNDWATER MONITORING REPORT FOR THE TOWN OF TIVERTON MUNICIPAL SOLID WASTE LANDFILL TIVERTON, RHODE ISLAND

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1.0 INTRODUCTION

1.1 Overview

The Tiverton Municipal Sanitary Waste Landfill, also known as the Tiverton Town Landfill #2 (Landfill), has been operating at its present location off Main Road (Route 77) for over sixty years. Operations and monitoring are performed in accordance with the "Draft Operation Plan for the Town of Tiverton Solid Waste Landfill" and the "Draft Groundwater Monitoring Plan for the Town of Tiverton Solid Waste Landfill", both dated September 2017, and pending final DEM approval.

1.2 Purpose and Scope

This Report is intended to summarize the previous four (4) quarterly groundwater monitoring rounds at the Landfill for Year 2018, including identification of potential changes or patterns in the quality of groundwater in the immediate vicinity of the Landfill and any proposed revisions to the Groundwater Monitoring Plan. This Report will also serve as the December 2018 Quarterly Monitoring Report. Specifically, the following sections of this Report provide a discussion of general information pertaining to the Landfill, areas and quantities of landfilling during the Report period, the Landfill geologic and hydrogeologic setting, groundwater monitoring program, water quality test results, evaluation of results, summaries and tables, conclusions, and recommendations.

2.0 SITE DESCRIPTION

2.1 General

The Tiverton Landfill is located off of Main Road (Route 77) in Tiverton, Rhode Island. A Site Location Map of the vicinity is presented as Appendix A. The Landfill property encompasses approximately 125 acres, of which approximately 33 acres are permitted for solid waste landfilling activities. The remainder of the property is used for the collection and transfer of recyclables, records and equipment maintenance, runoff control, and a wooded buffer. Also located within the property boundaries is a public recreation area situated approximately one-quarter (¼) mile west of the active landfill, adjacent to Main Road. Landfill features are identified on Appendix B – Landfill Existing Site Plan.

The Town of Tiverton has been operating the Landfill for over 60 years. The Landfill was opened in 1952 and was originally used as an unregulated open burning dump. In 1977, the State instituted regulation of the Landfill by issuing the Town a permit to operate. In 1982, the State implemented the solid waste operating guidelines entitled, "Rules and Regulations of Solid Waste Management Facilities" and the Town received an Administrative Order to comply with Rule 10.12. As a result of this Order, the Town established a two hundred foot (200') buffer within the property boundary where no future landfilling could occur.

Prior to the 1982 guidelines, some landfilling occurred in what is now delineated as the southern buffer. In 1987, the Town purchased 6.3 acres along the southern property line from the abutting landowners. With this purchase, the Town was able to create a new buffer from where prior landfilling occurred in the southern section of the Landfill. Due to the swampy area in the southeastern corner of the Landfill, the Town increased the eastern buffer from 200 feet to 350 feet in June of 1993. In addition, a test pit evaluation program, performed by Pare in July 2005, indicated that historical trash filling in the northeast corner of the landform had occurred beyond what was believed to be the northern and eastern limits of the landfill, approximately 100 feet into the 200-foot buffer from the northern property line and approximately 80 feet into the 350-foot buffer from the eastern property line. The property to the north of the Site is conservation land, referred to as the Pardon Gray Preserve. The property to the east of the Site is a Town-owned right-of-way. The revised limits of historical trash filling were brought to the RIDEM's attention in the 2005 Operating License Renewal documents. The limits of historical trash filling, as they are known to date, are shown on the attached Existing Site Plan.

In 2018, the Town landfilled municipal solid waste (MSW), and non-salvageable bulky waste.

Recyclables, tires, and salvageable bulky wastes (i.e., white goods and scrap metal) are collected at the Landfill and transported by commercial haulers to appropriate facilities for reuse. A 2006 Town-wide Solid Waste Ordinance places restrictions on the amount of C&D debris that is accepted by the Town, and prohibits landfilling of solid waste generated by commercial users. In May 2011, the Town implemented a Pay-As-You-Throw (PAYT) program to reduce the amount of solid waste entering the Landfill. It appears as though the PAYT program has reduced the volume of trash coming to the Landfill based on the last several years of landfilling estimates.

The volume of waste generated and landfilled by the Town is evaluated semi-annually, after the completion of each height survey and review of the Town annual recycling records. Landfill height surveys are typically performed in January and July each year. Based on Town records, approximately 1,915 tons of materials were recycled during Year 2018.

In Year 2012, the Town consolidated their source-segregated recyclables into a "single stream" to be direct-hauled to the Rhode Island Resource Recovery Corporation (RIRRC). In 2018, this "single stream" consisted of paper, bottles, cans and rigid plastic for the year. Due to this change, Pare is unable to provide a break-down of the exact tonnage of recycled materials.

2.2 Semi-Annual Landfill Height Survey

Pare personnel visited the Landfill on July 31, 2018 and January 16, 2019 to perform semi-annual Landfill height surveys. The purpose of the height surveys is to document the area of the active portion of the Landfill that was filled during the previous year and to quantify the volume of trash disposed. The height surveys are also performed to ensure that the Town does not exceed the vertical limit permitted by the RIDEM. The results of both surveys are depicted on the 2018 End of Year Height Survey Plan in Appendix C. The approximate areas of the Landfill that were filled during 2018 are depicted on this Plan.

Based on the semi-annual height survey data, it is estimated that the Town landfilled approximately 14,500 cubic yards (cy) of municipal solid waste since the previous End-of-Year Landfill Height Survey performed in January 2018, including Daily Cover material. Assuming a compacted waste density of approximately 1,000 lbs./cy, this represents a waste landfilling rate of approximately 7,300tons for Year 2018. The landfilling rate for 2018 is higher than in 2017. The Landfill staff indicated the volume of Daily Cover material during landfilling operations increased in 2018, which may account for the increase in the landfilling rate during 2018.

As of the 2016 End of Year height survey, the Town has finished utilizing all available space in the area north of the landfill access road in the portion of the landfill known as the “hole to the north”. Landfilling has since transitioned back to the southern half of the landfill. In 2018, the Town completed the southern-most cell and has commenced filling the eastern end of the access road. The access road is the final portion of the landfill to be filled prior to permanent closure, consistent with the *Landfill Closure Final Grade Plan*, provided with the 2017 license application.

As of the 2018 End of Year height survey, the elevation of the Landfill, north of the access road, ranged from elevation 100.0 ± to 141.0 ± feet MSL (NGVD 29). The southern half of the Landfill remains the highest area of the Landfill, with elevations ranging from 146 to 158 feet. The permitted maximum height of the Landfill is 160 feet. The height of the landfill has not increased significantly in 2018 because the Town focused their filling on areas that were generally low, leaving the higher areas of the landfill relatively untouched.

3.0 SITE GEOLOGIC/HYDROGEOLOGIC SETTING

3.1 Regional Setting

The Landfill is located within the Narragansett till of eastern Rhode Island. The area is marked by low drumlinoid hills smoothed by glacial action. Glacial till deposits consist of an unsorted mixture of clay to boulder sized particles. The Narragansett till is generally dark gray to olive colored and is compact with a fine textured matrix. The till particles are derived from nearby sedimentary rocks: shale, sandstone, and conglomerate (Rector, 1981). As the Landfill is near the edge of the Narragansett till plain, the till may contain material derived from granite rocks (Rector, 1981, pp. 99 and 89).

Stratified outwash and fluvial deposits overlie some parts of the glacial till. These deposits are widespread throughout the state and are the result of meltwater from the retreating glacier of approximately 10,000 years ago. These meltwater deposits contain sand, gravel and silt forming kames, eskers, terraces and outwash plains, many of which have been commercially exploited (Rector, 1981).

The soils beneath and surrounding the Landfill tend to have moderate to moderately rapid permeability near the surface and slow to very slow permeability in the substratum due to the clay content of the underlying till from which the soils are derived. The United States Department of Agriculture, Soil Conservation Service (SCS) maps soils adjacent to the Landfill as the Newport Silt Loam and the Newport Very Stony Silt Loam, (Rector, 1981). Other SCS classified soils adjacent to the Landfill include the Stissing Silt Loam and the Quonset Gravelly Sandy Loam.

Pollock (1964) mapped the bedrock beneath the Landfill as Bulgarmarsh Granite. This unit is described as a pink to gray, coarse-grained quartz-feldspar-muscovite-chlorite granite that is generally foliated. A north-south trending unconformable contact with younger Pennsylvanian age sedimentary rocks lies approximately 500 feet west of the limit of the permitted Landfill. A northeast-southwest trending contact with the Pre-Cambrian Mica-Chlorite Schist unit lies approximately 1,500 feet to the southeast of the Landfill. Mapped outcrops of the Bulgarmarsh Granite are present at High Rock (Appendix A) approximately 600 feet east of the Landfill.

3.2 Site-Specific Geology

Information on Site-specific characteristics of the geologic deposits beneath the Landfill area was obtained by reviewing historical logs of borings previously drilled by others at ten locations in August 1981, September 1994, September 1996 and September 2001. Five (5) of the borings were former groundwater monitoring well locations (OW-1A, OW-2, OW-3, OW-5, and OW-9). Per the approval of the RIDEM, these groundwater monitoring wells, with the exception of OW-9, have been abandoned and replaced with new groundwater monitoring wells. As indicated on the logs the borings were advanced to final depths of between 11 and 27 feet.

The materials logged during these boring programs are consistent with the regional geology described above. Soils were reported to consist of fine to coarse sand with silt, fine to medium gravel and cobbles. A boulder was encountered in the boring for OW-5. Gray-brown till was encountered in the boring for OW-3. All borings encountered refusal at depths between 11 and 27 feet below grade. The boring log for OW-3 identified granite at a depth of 16 feet. It is unclear if the other borings encountered bedrock or boulders in till at the depth of refusal. The average thickness of the overburden is reported to be 20 feet in the Tiverton area (NUS, 1990).

New monitoring wells OW-12, OW-13, and OW-14 were installed in August 2006. Another new monitoring well, OW-15, was installed in August 2007. These new wells were added to the monitoring program to replace compliance wells OW-1A, OW-2, OW-3, and OW-5 when it was discovered that these wells were drilled within the footprint of the landfill. As indicated in the logs, which are provided in Pare's original well completion letters prepared for their installation, the borings were advanced to final depths ranging from approximately 10 to 16 feet.

The materials logged during these boring programs are consistent with the regional geology described above. Soils were reported to consist of silty sand with trace gravel, silty sand with trace organics, silty sand with gravel, and sandy soil. Bedrock was encountered at a depth of 10 feet in the boring for OW-14. Borings for OW-12, OW-13, and OW-15 did not encounter refusal.

The new bedrock monitoring well OW-16 was installed in October 2017. This well was installed in the vicinity of overburden well OW-7. These wells are downgradient of groundwater flow, giving a depiction of the groundwater quality migrating offsite. The top of granite bedrock was encountered at 10.5 feet below the ground surface, with groundwater first being observed at 17 feet below the ground surface. The total depth of the well is 42 feet.

3.3 Hydrogeology

During the last year, the depth of the groundwater table at the Site ranged from 2.2 to 16.8 feet below grade based on recorded groundwater elevations from sampling rounds conducted from March 2018 to December 2018. Based on the groundwater elevations and topographic information on the USGS Topographic Map - Tiverton, Rhode Island (dated 1949, photo revised 1970 and 1975), the inferred direction of shallow groundwater flow from the eastern portion (i.e., Landfill portion) of the Site is generally to the west toward the stream and wetland complex (refer to Appendix B). However, shallow groundwater flow from the extreme eastern end of the Site may be northeasterly and southeasterly toward the wetland and stream systems identified as Cedar Swamp Brook and Borden Brook. Actual flow directions may be somewhat impacted by Landfill operations at the eastern end of the Site.

Based on groundwater elevation data collected at the Site, the direction of shallow groundwater flow from the recreational field area (i.e. western end) of the Site appears to be easterly, toward the stream and wetland complex. Data is not available to evaluate groundwater flow patterns in bedrock underlying the Site. Groundwater elevation data collected from the background well and compliance wells for the 2018 quarterly monitoring periods are presented in Table 3A.

It should be noted that the RIDEM Rules and Regulations for Groundwater Quality classify groundwater beneath and in the immediate vicinity of the licensed Landfill portion of the Site as GC and GB. Groundwater classified as GC is defined by the RIDEM as, "…those areas which, because of present or past land use or hydrogeologic conditions, the Director has determined to be more suitable for certain waste disposal practices than for development as a drinking water supply." Specifically, groundwater beneath disposal sites, such as the Tiverton Landfill, is classified as GC. Groundwater classified as GB is defined by the RIDEM, "…as those groundwater resources designated by the Director which may not be suitable for public or private drinking water use without treatment due to known or presumed degradation."

3.4 Surface Water Drainage

Based upon topographic information obtained from the USGS Topographic Map, Tiverton, Rhode Island, 1949 as depicted on Appendix A and topographic contours depicted on the Landfill Existing Site Plan, the direction of surface water drainage from the eastern (i.e., Landfill portion) end of the Site and from the western end of the Site (recreation field area) is generally toward the on-Site wetland complex. This wetland complex is part of the southerly flowing Quaker Creek. Regionally, Quaker Creek flows south-southwest, discharges into Nonquit Pond, and ultimately to the Sakonnet River. However, runoff from the extreme northeastern corner of the Site appears to be northeasterly toward the wetland and stream systems identified as Cedar Swamp Brook and Borden Brook. These water bodies flow south and southwest, and merge with Quaker Creek to the south of the Site.

TABLE 3A

2018 GROUNDWATER ELEVATIONS

2018 ANNUAL GROUNDWATER MONITORING REPORT
TIVERTON MUNICIPAL SANITARY WASTE LANDFILL
TIVERTON, RHODE ISLAND

WELL	REFERENCE		**2018 GROUNDWATER ELEVATIONS**							
			3/28/2018		**6/7/2018**		**9/27/2018**		**12/6/2018**	
	TOP OF PVC PIPE (ft-MSL)	APPROX. GROUND SURFACE (ft-MSL)	DEPTH TO WATER* (feet)	GROUND-WATER ELEVATION (ft-MSL)	DEPTH TO WATER* (feet)	GROUND-WATER ELEVATION (ft-MSL)	DEPTH TO WATER* (feet)	GROUND-WATER ELEVATION (ft-MSL)	DEPTH TO WATER* (feet)	GROUND-WATER ELEVATION (ft-MSL)
OW-12	63.28	60.5	2.2	61.08	16.2	47.08	10.9	52.38	2.6	60.68
OW-13	50.14	46	3.8	46.34	14.5	35.64	4.1	46.04	3.9	46.24
OW-14	85.63	83.5	3.6	82.03	10.6	75.03	Dry	NOT TESTED	4.8	80.83
OW-15	77.07	74.5	7.2	69.87	16.8	60.27	9.5	67.57	7.2	69.87
OW-9	128.65	126.5	12.6	116.05	16.0	112.65	Dry	NOT TESTED	12.1	116.55

*Measured from top of PVC pipe

4.0 WATER QUALITY MONITORING PROGRAM

4.1 General

The Groundwater Monitoring Program for the Landfill consists of quarterly monitoring at seven (7) groundwater wells, designated OW-7, OW-12, OW-13, OW-14, OW-15, OW-16, and OW-9; the locations of these wells are shown on Appendix B, Landfill Existing Site Plan. The year 2018 was the first monitoring year in which OW-7 and OW-16 were included in the quarterly monitoring program. Monitoring wells OW-7 and OW-16 were first sampled at the request of the RIDEM in November 2017 and have since been incorporated into the regular quarterly monitoring program. Monitoring well completion details, including well depths, diameters and screened intervals are summarized on Table 4A, which follows this page. Sampling of the monitoring wells during the 2018 reporting period was performed by Pare personnel on March 28th, June 7th, September 27th and December 6th .

Based on the inferred direction of shallow groundwater flow beneath the Landfill portion of the Site, the monitoring wells are classified in the following categories:

- Background Well – OW-9
- Compliance Wells – OW-7, OW-12, OW-13, OW-14, OW-15, and OW-16

4.2 Sampling Procedures

Prior to the May 2002 monitoring round, the Town received verbal approval from the RIDEM to modify the approved groundwater purging and sampling method. Previously, a bailer method of purging and sampling was employed during monitoring events. Subsequent to approval by the RIDEM, the bailer method of purging and sampling was replaced by a low-flow purging and sampling technique that uses a variable speed peristaltic pump, fitted with Teflon-lined silicon tubing attached to polyethylene down-well tubing. Low-flow purging reduces the rate at which groundwater is evacuated from the monitoring well, as compared to conventional bailer methods. The use of low-flow purging has been shown to reduce colloid mobilization, thereby reducing the turbidity of samples. Lower turbidity means a reduction in colloid-transported contaminants such as metals, which can sorb to the colloid surface. In addition, this technique reduces the likelihood of purging a well dry before sampling. Finally, low-flow purging reduces the cascading effect that can occur as a well recharges, thereby reducing the volatilization of VOCs before sampling by conventional bailer methods.

TABLE 4A

SUMMARY OF WELL COMPLETION DETAILS

2018 ANNUAL GROUNDWATER MONITORING REPORT
TIVERTON MUNICIPAL SANITARY WASTE LANDFILL
TIVERTON, RHODE ISLAND

WELL I.D.	ELEVATION		WELL DIAMETER (inches)	TOTAL DEPTH OF WELL FROM TOP OF PVC PIPE (feet)	DEPTH TO TOP OF SCREEN (feet)	MONITORED ZONE	
	APPROX. TOP OF STEEL CASING (ft-MSL)	APPROX. GROUND SURFACE (ft-MSL)				SCREEN LENGTH (feet)	DATE INSTALLED OR REPAIRED
OW-9	129.1	125.5	2	14.2	5	8	9/19/96
OW-12	63.78	60.5	2	16.0	3	10	8/23/06
OW-13* (Repair)	49.39	46	2	14.4	4.5	8	6/26/09
OW-14	86.13	83.5	2	8.0	3	6	8/22/06
OW-15	76	74.5	2	8.5	3.5	10	8/21/07

Source: Groundwater Monitoring Plan for the Town of Tiverton Solid Waste Landfill. January 2003. Prepared by Pare Corporation.
* Well construction details after steel casing and PVC pipe for monitoring well OW-13 were slightly lowered by Town personnel in June 2009. Ground surface around well remained at original elevation.

The well purging and sampling procedure was further modified in 2005 to reduce the volume of water purged prior to collecting a sample. Previously, a minimum of three well volumes was purged from each well prior to sampling. Presently, the volume of water evacuated during purging is based on the stabilization of water quality field parameters, consisting of specific conductivity, pH, and temperature, in accordance with published EPA guidance on low-flow groundwater purging and sampling (Porfert and Sotolongo, 1996, rev. 2010). Each well is purged until water quality parameters have stabilized for three successive measurements. Stabilization is achieved when pH readings are within 0.1± pH unit, specific conductivity is within 3%±, and temperature is within 3%±. The stabilization of field parameters typically indicates that the stagnant water in the well has been sufficiently evacuated and that samples collected are representative of the groundwater aquifer. Regardless of the field parameters, no less than one well volume is purged from each well, to further ensure the stagnant water has been evacuated from the well. This procedure improves efficiency while ensuring that the samples are collected from the aquifer and not stagnant water inside the well.

The well sampling procedure was modified again in 2017 to reduce the turbidity in samples collected. The procedure was updated to include a 10-15 minute period for suspended solids to settle, before the sample is decanted and then stored in laboratory glassware with preservative. Additionally, during the March 2017 monitoring round, accumulated sediment in the wells at the Landfill was removed prior to sampling.

4.3 Analytical Parameters

The Appendix A (Detection Monitoring) parameters, as defined in Regulation No. 2 of the Rules and Regulations for Solid Waste Management Facilities (Solid Waste Regulations) plus mercury and tin, were analyzed during the March, June, September, and December monitoring rounds. The Appendix A parameters consist of metals and volatile organic compounds (VOCs), as listed in Table 4B. Mercury and tin, though not included in Appendix A of the Solid Waste Regulations, have historically been included for analysis. These parameters are routinely monitored at the background well and compliance wells each quarter.

Assessment Monitoring parameters (Appendix B of Regulation No. 2 of the Solid Waste Regulations) are a comprehensive list of parameters that include semi-volatile organic compounds, herbicides, pesticides, PCB’s, sulfate, phenols and cyanide that are in addition to the standard parameters for Detection Monitoring. Assessment monitoring is performed based on statistical analysis of data collected from detection monitoring, as described in subsequent sections of this document.

TABLE 4B

ANALYTICAL PARAMETERS
(DETECTION MONITORING)

2018 ANNUAL GROUNDWATER MONITORING REPORT
TIVERTON MUNICIPAL SANITARY WASTE LANDFILL
TIVERTON, RHODE ISLAND

Field Parameters

Depth to Water
pH
Specific Conductance
Temperature

Inorganic Constituents

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Lead
Mercury
Nickel
Selenium
Silver
Tin
Thallium
Vanadium
Zinc

Organic Constituents

Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform
Carbon disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Dibromochloro-methane
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
o-Dichlorobenzene
p-Dichlorobenzene
Trans-1, 4-Dichloro-2butene
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
Cis-1, 2-Dichloroethylene
Trans, -1,2- Dichloroethylene
1,2-Dichloropropane
Cis-1,3-Dichloropropene
Trans-1,3-Dichloropropene
Ethylbenzene
2-Hexanone
Methyl bromide
Methyl chloride
Methylene bromide
Methylene chloride
Methyl ethyl ketone
Methyl iodide
4-Methyl-2-pentanone
Methyl-*tert* Butyl Ether (MTBE)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Trichlorofluoro-methane
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

4.4 Statistical Analysis

Since the March 1999 monitoring round, the Tolerance Interval (TI) method has been employed per mandate of the RIDEM to compare inorganic analytic results from the background well with the results from the compliance wells. The TI method is one of several statistical methods identified in the January 1997 “Solid Waste Regulations” and has been approved for use at the Landfill by the RIDEM, per the RIDEM’s letter of June 10, 1999.

The intent of the TI method is to evaluate if there exists a statistically evident exceedance of an Appendix A parameter over background concentrations. If a contaminant is reported in groundwater sampled from a compliance well at a concentration that statistically exceeds that of the background concentration, it suggests that the presence of that contaminant is, at least in part, derived from landfilling activities. To perform the TI evaluation, Tolerance Limits (TLs) are constructed for each inorganic parameter from a minimum of eight (8) of the most recent monitoring rounds from the background well (refer to Appendix I – Tolerance Limit Calculation).

The Appendix A volatile organic compounds (VOCs) do not occur naturally, and therefore, are not anticipated to be present in the background well results data. For this reason, the TI method for the evaluation of the Compliance Well Appendix A VOC results is considered inappropriate. Previously, the approach for determining exceedances for VOCs in the Compliance Well results data was through comparison of the results data to the National Primary Drinking Water Standards (NPDWS) maximum contaminant levels[1] (MCL), where published. Other cited human health thresholds were used for comparison where MCLs have not been established.

As discussed in the May 2006 “Groundwater Monitoring Plan”, Pare has added the Shewhart-CUSUM Method as a supplemental statistical analysis method in addition to the TI Method. The purpose of the Shewhart-CUSUM Method is to evaluate contaminant trends in groundwater over a long period of time. In order to conduct the first round of the statistical analysis for compliance wells OW-12, OW-13, OW-14, and OW-15, Pare constructed Control Charts for each target constituent at each monitoring well, as outlined in the USEPA documents entitled “*Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Interim Final Guidance, April 1989*” and "*Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Addendum To Interim Final Guidance, July, 1992*". The Control Charts are based on the mean and standard deviation of the first eight (8) reported

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[1] Maximum Contaminant Level (MCL), defined as the highest level of a contaminant that is allowed in drinking water.

concentrations of the target constituent since the installation of the wells in August 2006, which is referred to as the baseline data (Standardized Mean). Pare has compiled enough data to construct the CUSUM baseline and to evaluate groundwater trends at the background well and at OW-12, OW-13, OW-14, and OW-15.

With the addition of the CUSUM statistical analysis, the triggering mechanism for Assessment Monitoring has been revised. In accordance with the May 2006 Groundwater Monitoring Plan, Assessment Monitoring is triggered if:

1. An inorganic parameter exceeds the upper Tolerance Limit in two consecutive rounds and that parameter exceeds one of the two Shewhart-CUSUM control limits in the latter monitoring round; or
2. An organic parameter exceeds one of the two Shewhart-CUSUM control limits.

4.5 Assessment Monitoring

In 2018, Assessment Monitoring was conducted during the June round at OW-13 due to an exceedance of barium during the March monitoring round. No (0) Appendix B parameters were reported in samples collected from OW-13. One (1) Appendix B parameter, sulfides, was reported above its respective detection limits in December 2017, as a result, Pare recommended that OW-14 be tested for sulfides in March 2018. Sulfides (0.04 mg/L) were detected in the samples collected from OW-14 in March 2018. Pare attempted to sample OW-14 in the September 2018 monitoring round to test for sulfides; however, a sample was unobtainable due to dry conditions. Pare sampled OW-14 for sulfides in December 2018. Sulfides were not detected in the samples collected at OW-14 during the December monitoring round. The EPA has no MCLs set for sulfides in groundwater. Water with dissolved hydrogen sulfide will smell musty or swampy around 0.5-1.0 mg/L, and Pare did not identify a noticeable smell emanating from the groundwater sample. Hydrogen sulfide gas can occur naturally in groundwater from plant materials rotting underground in anaerobic conditions. Hydrogen sulfide gas could also be resulting from gypsum buried at the Landfill. Pare does not recommend Assessment Monitoring for the March 2019 monitoring round. However, it is recommended that OW-14 be tested again for sulfides in the upcoming March 2019 monitoring round.

4.6 Laboratory Analytical Methods

Groundwater samples are transported to New England Testing Laboratory, Inc. of West Warwick, Rhode Island for chemical analyses. All samples are handled, stored, and manifested in accordance with the Groundwater Monitoring Plan for the Tiverton Landfill. The 2018 Detection Monitoring program was conducted for the parameters listed on Table 4B by the following methods:

• Volatile Organic Compounds (VOCs)	Method 8260 B
• Total Metals	
- Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Ni, Se, Ag, Tl, Sn, V, Zn	Method 6010 B
Tl	
Sn	
Method 7870 NE	
- Hg	Method 7470 A

The analytical methods for Appendix B parameters are provided below:

• Detection Monitoring (Appendix A) parameters, listed in Table 4B	
• Semi-Volatile Organic Compounds (SVOCs)	Method 8270 C
• Polychlorinated Biphenyls (PCBs)	Method 8082
• Herbicides	Method 8151A
• Pesticides	Method 8081 A
• Cyanide	Method 335.5
• Phenols	Method 420.1
• Sulfate	Method 375.4

5.0 GROUNDWATER QUALITY

5.1 Groundwater Results Data

The complete text of the March 2018, June 2018, and September 2018 quarterly monitoring reports, as previously presented to the RIDEM, are provided for reference in Appendix K of this Report. As stated in Section 1.2, this Report serves as the December 2018 Quarterly Monitoring Report in addition to summarizing groundwater quality observed throughout the year.

A tabular summary of the laboratory analytical results data for this Report period, by sample location, is provided on Tables 5A through 5H, which includes March 2018, June 2018, September 2018, and December 2018 quarterly monitoring data. A new bedrock well was installed south of the Landfill on October 5, 2017, after two days of drilling. A tabular summary of the laboratory analytical results data for OW-7 and OW-16 is provided in Appendix L of this Report. All values that are highlighted in gray represent statistically evident exceedances of Appendix A inorganic compounds relative to their Tolerance Limits. During 2018, there were forty-eight (48) reported TL exceedances for Appendix A metals. Analytical results for each well are further summarized in this section.

Note that groundwater was collected at OW-9 only in March 2018, June 2018, and December 2018 due to dry conditions during the September 2018 monitoring round. Groundwater was also not detected at OW-14 in September 2018 due to dry conditions. Groundwater was collected in every monitoring round at the other monitoring wells.

OW-9

Analytical results data from this well (i.e., background well) indicate consistent detection (i.e., at least two out of three monitoring rounds in this case, due to OW-9 being dry in the September 2018 monitoring round) of seven (7) target metals: barium, chromium, cobalt, lead, nickel, vanadium and zinc. Cadmium and copper were also reported above their respective method detection limits in at least one monitoring round throughout the year. No (0) metals were reported above their respective MCLs during the 2018 monitoring period.

No (0) VOCs were reported above their respective detection limits at OW-9 in the 2018 monitoring year. Refer to Table 5A for a yearly summary of detections at OW-9.

OW-7

Analytical results data for OW-7 indicate consistent detection (i.e., at least three out of four monitoring rounds) of five (5) target metals: barium, chromium, cobalt, nickel, and zinc. Antimony, arsenic, cadmium, copper, lead, selenium, thallium, and vanadium were also reported above their respective method detection limits at various times in at least one sampling round throughout the year. Additionally, one (1) metal, arsenic, was reported above its MCL on one (1) occasion in the 2018 monitoring period.

The analytical results also indicate consistent detection of one (1) VOC: MTBE. None of the reported VOC concentrations exceeded their cited human health threshold values. Refer to Table 5B for a yearly summary of detections at OW-7.

OW-12

Analytical results data for OW-12 indicate consistent detection of three (3) target metals: barium, nickel, and zinc. Antimony, arsenic, chromium, cobalt, copper, and vanadium were also reported above their respective method detection limits at various times in at least one sampling round throughout the year. Additionally, one (1) metal, arsenic, was reported above its MCL on one (1) occasion in the 2018 monitoring period.

No (0) VOCs were reported above their respective detection limits at OW-12 in the 2018 monitoring year. Refer to Table 5C for a yearly summary of detections at OW-12.

OW-13

Analytical results data for OW-13 indicate consistent detection of eight (8) target metals throughout the year: antimony, arsenic barium, cadmium, chromium, cobalt, nickel, and zinc. Lead, silver, thallium, and vanadium were also reported above their respective method detection limits at various times in at least one sampling round throughout the year. One (1) metal; arsenic; was reported above its MCL for a total of three (3) exceedances at OW-13 during the 2018 monitoring period.

The analytical results also indicate consistent detection of one (1) VOC: chlorobenzene. In addition, 1,4-dichlorobenzene and MTBE were reported above their respective method detection limits at various times in at least one sampling round throughout the year. None of the reported VOC concentrations exceeded their cited human health threshold values. Refer to Table 5D for a yearly summary of detections at OW-13.

OW-14

Analytical results data for OW-14 indicate consistent detection (i.e., at least two out of three monitoring rounds in this case, due to OW-14 being dry in the September 2018 monitoring round) of eight (8) target metals: barium, cadmium, chromium, cobalt, copper, nickel, vanadium and zinc. Antimony, arsenic, lead, and thallium were also reported above their respective method detection limits in at least one monitoring round throughout the year. Two (2) metals, arsenic and cadmium, were each reported above their respective MCLs for a total of three (3) exceedances at OW-14 during the 2018 monitoring period.

The analytical results also indicate consistent detection of four (4) VOCs: benzene, chlorobenzene, and 1,4 dichlorobenzene, and MTBE. No target VOCs were reported above their respective human health threshold values at OW-14. Refer to Table 5E for a yearly summary of detections at OW-14.

OW-15

Analytical results data for OW-15 indicate consistent detection of eight (8) target metals: arsenic, barium, cadmium, cobalt, lead, nickel, vanadium, and zinc. Antimony, was also reported above its respective method detection limits at various times throughout the year. Two (2) metals, arsenic and cadmium, were reported above their MCLs for a total of eight (8) exceedances at OW-15 during the 2018 monitoring period.

The analytical results indicate consistent detection of two (2) VOCs: chlorobenzene and MTBE. In addition, benzene and 1,4-dichlorobenzene were reported above their respective method detection limits at various times in at least one sampling round throughout the year. None of the reported concentrations exceeded their cited human health threshold values. Refer to Table 5F for a yearly summary of detections at OW-15.

OW-16

Analytical results data for OW-16 indicate consistent detection of six (6) target metals: barium, chromium, cobalt, nickel, selenium, and zinc. Antimony, arsenic, and thallium were also reported above their respective method detection limits at various times in at least one sampling round throughout the year. Additionally, one (1) metal, arsenic, was reported above its MCL on one (1) occasion in the 2018 monitoring period.

The analytical results also indicate consistent detection of one (1) VOC: MTBE. None of the reported VOC concentrations exceeded their cited human health threshold values. Refer to Table 5G for a yearly summary of detections at OW-16.

5.2 Groundwater Concentration Trends

This section provides a discussion of recent and historical groundwater concentration trends of monitoring parameters in the Background Well and Compliance Wells at the Landfill.

5.2.1 Appendix A Metals

Historical concentrations of detected Appendix A metals, since the inception of low-flow purging and sampling in May 2002, are presented graphically on the plots provided in Appendix F of this Report. Although Pare identified more TL exceedances than previous years, 2018 marked the first monitoring period in which OW-7 and OW-16 were also included in this analysis. Excluding the additional exceedances as a result of OW-7 and OW-16, Pare identified fewer TL exceedances of the Appendix A metals during 2018 than in the monitoring period for 2017. A total of thirty-five (35) TL exceedances of Appendix A metals occurred in 2018 at monitoring wells OW-12, OW-13, OW-14, and OW-15, four (4) less than in 2017 (39) at those same monitoring well locations. The TL exceedances indicate statistically elevated concentrations of target metals in the compliance wells over the background well. This is represented on the attached charts that show the results of monitoring of Appendix A parameters at each well since the inception of low flow purging and sampling.

It is important to note that the samples collected from OW-9, the background well, are generally more turbid than any other compliance well location. The groundwater at this location is known to be shallow, which can lead to the water column becoming turbid following its recharge. Increased turbidity can increase the number and concentration of metals reported in a sample due to laboratory interference and mobilization of adsorbed metals from colloid particles. Therefore, the number of metals and their respective concentrations may be artificially high as a result of increased turbidity in a sample.

5.2.2 Appendix A VOCs

As discussed in Section 5.1, several VOCs were reported in groundwater from the compliance wells in 2017. Each detected VOC concentration across the landfill was below its cited human health threshold value. All reported VOC compounds and ranges of reported concentrations in groundwater from the compliance wells for this reporting period are generally consistent with historical data.

5.2.3 CUSUM Analysis

The Shewhart-CUSUM statistical analysis is used to evaluate whether Assessment Monitoring should be performed at a well if a statistical deterioration in groundwater quality is suspected. The results of the CUSUM analysis for 2018 generally confirm Pare's opinion that there exists consistent low-level impact to groundwater beneath and downgradient of the Landfill as a result of landfilling activities. The following are results of the CUSUM analysis reported for 2018 at the background well and the compliance wells.

OW-9

No (0) CUSUM or standardized mean values crossed their thresholds at OW-9 in the 2018 monitoring period.

OW-12

Barium and nickel crossed their standardized mean thresholds in all four monitoring rounds in the 2018 monitoring period. Barium has been in exceedance of its CUSUM threshold since the December 2013 monitoring round. No (0) metals aside from barium and nickel exceeded both their CUSUM and standardized mean thresholds in the 2018 monitoring period. Despite these CUSUM threshold exceedances, Assessment monitoring was not performed at OW-12 in 2018 because these constituents did not exceed their TLs.

OW-13

In the March 2018 and December 2018 monitoring rounds, both barium and zinc crossed both their CUSUM and standardized mean value thresholds. No (0) metals exceeded their CUSUM or standardized mean thresholds at OW-13 during the June 2018 and September 2018 rounds.

OW-14

In the December 2018 monitoring round, antimony crossed both its CUSUM and standardized mean value thresholds. Chromium and lead exceeded both their respective CUSUM and standardized mean value thresholds in the March 2018 round. No (0) metals exceeded their CUSUM or standardized mean thresholds at OW-14 during the June 2018 round. OW-14 was unable to be sampled during the September 2018 round due to dry conditions.

OW-15

In the March 2018 monitoring round, lead crossed both its CUSUM and standardized mean threshold values. Cadmium crossed both its CUSUM and standardized mean threshold values in the June 2018 round. No (0) metals exceeded their CUSUM or standardized mean thresholds at OW-15 during the September 2018 and December 2018 rounds.

5.2.4 Summary of Assessment Monitoring

The need for Assessment Monitoring will be evaluated and coordinated with the RIDEM if the following conditions are met:

1. An inorganic parameter exceeds the upper Tolerance Limit in two consecutive rounds and that parameter exceeds one of the two Shewhart-CUSUM control limits in the latter monitoring round; or

2. An organic parameter exceeds one of the two Shewhart-CUSUM control limits. Analytical data will continue to be compared to US EPA Maximum Contaminant Levels (MCLs) or other health-based criteria for parameters that do not have MCLs assigned each monitoring round.

Pare performed Assessment Monitoring at OW-13 in the June 2018 monitoring round due to an exceedance of both the TL and the Shewhart-CUSUM threshold of barium in the March 2018 monitoring round. No (0) Appendix B parameters were reported in samples collected from OW-13.

One (1) Appendix B parameter, sulfides, was reported above its respective detection limits in December 2017, as a result, Pare recommended that OW-14 be tested for sulfides in March 2018. Sulfides (0.04 mg/L) were detected in the samples collected from OW-14 in March 2018. Pare attempted to sample OW-14 in the September 2018 monitoring round to test for sulfides; however, a sample was unobtainable due to dry conditions. Pare sampled OW-14 for sulfides in December 2018. Sulfides were not detected in the samples collected at OW-14 during this monitoring round. Pare does not recommend Assessment Monitoring for the March 2019 monitoring round. However, it is recommended that OW-14 be tested again for sulfides in the upcoming March 2019 monitoring round.

Although the CUSUM values have increased for a number of parameters, the concentrations of those parameters remain consistently below their human health thresholds. The Shewhart-CUSUM is an analysis utilized to evaluate trends in a data set, specifically measuring the impact of a deviation from the baseline data referenced above. When a parameter has historically been "non-detect", any detection of that parameter can result in a significant, albeit somewhat misleading, jump in CUSUM values. Any reported concentration above a parameter's detection limit is interpreted as a relatively large deviation from the artificially low baseline data, thereby causing a significant artificial increase in CUSUM values. It should also be noted that because of the nature of the CUSUM analysis, a greater spread in data (i.e., a greater difference in reported concentrations quarter over quarter) can cause an increase in CUSUM values.

MTBE Concentration Comparative Analysis

MTBE is given special attention based on past historical data and a generally increasing trend in reported concentrations at the Landfill. During the 2018 monitoring period, the CUSUM value for MTBE was above its threshold at OW13, OW-14, and OW-15. Reported MTBE concentrations at OW-15 have generally risen since September 2006, ranging from 0.0036 mg/L to 0.0122 mg/L, as depicted in the attached figure titled *Reported Concentrations of MTBE* in Appendix J of this Report. The figure compares the recent increases in reported MTBE concentrations at OW-15 to historical concentrations and drinking water advisories. The reported concentration of MTBE at OW-13 and OW-14 has varied significantly since 2006; however, over that period there does not appear to be a significant upward trend in MTBE concentrations. The CUSUM evaluation suggests that there is an upward trend in data; however, the average concentration has risen less than 0.001 mg/L over the last 12 years at OW-13 and OW-14.

Although MTBE has been consistently reported at OW-13, OW-14, and OW-15, MTBE has never been reported above its odor threshold (0.020 mg/L) or its taste threshold (0.040 mg/L) at the Landfill. The US EPA has not established a human health advisory concentration for MTBE. Because the elevated concentrations of MTBE has caused Assessment Monitoring to be triggered at OW-13, OW-14, and OW-15 at various times over the past five years, and no Appendix B parameters have been reported to a significant degree in any of the samples collected as a result, it is Pare's opinion that the mechanism that triggered Appendix B monitoring is an indication of a minor change in MTBE concentration in groundwater beneath the Landfill and not a deterioration in groundwater quality to a degree that suggests the presence of Appendix B parameters in higher-than-usual concentrations.

Future Assessment Monitoring

Pare performed Assessment Monitoring at OW-13 in the June 2018 monitoring round due to an exceedance of both the TL and the Shewhart-CUSUM threshold of barium in the March 2018 monitoring round. No (0) Appendix B parameters were reported in samples collected from OW-13.

One (1) Appendix B parameter, sulfides, was reported above its respective detection limits in December 2017 at OW-14, as a result, Pare recommended that OW-14 be tested for sulfides in March 2018. Sulfides (0.04 mg/L) were detected in the samples collected from OW-14 in March 2018. Pare attempted to sample OW-14 in the September 2018 monitoring round to test for sulfides; however, a sample was unobtainable due to dry conditions. Pare sampled OW-14 for sulfides in December 2018. Sulfides were not detected in the samples collected at OW-14 during this monitoring round. Pare does not recommend Assessment Monitoring for the March 2019 monitoring round. However, it is recommended that OW-14 be tested again for sulfides in the upcoming March 2019 monitoring round.

TABLE 5A
2018 SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A- CONSTITUENTS FOR DETECTION MONITORING

MONITORING WELL OW-9

Concentration (Expressed in the same units as Threshold Value)

Parameter	**Threshold Value**	DEC '18	SEP '18	JUN '18	MAR '18
Antimony	0.006 mg/l[1]	ND	NT	ND	ND
Arsenic	0.010 mg/l[1]	ND	NT	ND	ND
Barium	2 mg/l[1]	0.032	NT	0.0090	0.0130
Beryllium	0.004 mg/l[1]	ND	NT	ND	ND
Cadmium	0.005 mg/l[1]	ND	NT	ND	0.0020
Chromium	0.1 mg/l[1]	0.013	NT	0.003	0.0070
Cobalt	0.73 mg/l[5]	0.003	NT	ND	0.0010
Copper	1.3 mg/l[1]	0.008	NT	ND	ND
Lead	0.015 mg/l[1]	0.004	NT	0.001	0.0020
Mercury	0.002 mg/l[2]	ND	NT	ND	ND
Nickel	0.1 mg/l[1]	0.006	NT	0.001	0.0040
Selenium	0.05 mg/l[2,3]	ND	NT	ND	ND
Silver	0.1 mg/l[1]	ND	NT	ND	ND
Thallium	0.002 mg/l[5]	ND	NT	ND	ND
Tin	22 mg/l[5]	ND	NT	ND	ND
Vanadium	0.26 mg/l[2,3]	0.008	NT	ND	0.0020
Zinc	2 - 5 mg/l[1]	0.025	NT	0.0090	0.0190
Acetone	5500 μg/L[5]	ND	NT	ND	ND
Acrylonitrile	0.039 μg/L[5]	ND	NT	ND	ND
Benzene	5 μg/L[1]	ND	NT	ND	ND
Bromochloromethane	90 μg/L[2]	ND	NT	ND	ND
Bromodichloromethane (THM)	80 μg/L[1]	ND	NT	ND	ND
Bromoform	80 μg/L[1]	ND	NT	ND	ND
Carbon disulfide	1000 μg/L[5]	ND	NT	ND	ND
Carbon tetrachloride	5 μg/L[1]	ND	NT	ND	ND
Chlorobenzene	100 μg/L[1]	ND	NT	ND	ND
Chloroethane	4.6 μg/L[5]	ND	NT	ND	ND
Chloroform (THM)	80 μg/L[1]	ND	NT	ND	ND
Chlorodibromomethane (THM)	80 μg/L[1]	ND	NT	ND	ND
1,2-Dibromo-3-chloropropane (DB	0.2 μg/L[1]	ND	NT	ND	ND
1,2-Dibromoethane (EDB)	0.05 μg/L[1]	ND	NT	ND	ND
1,2-Dichlorobenzene	600 μg/L[1]	ND	NT	ND	ND
1,4-Dichlorobenzene	75 μg/L[1]	ND	NT	ND	ND
trans-1,4-Dichloro-2-butene	μg/L	ND	NT	ND	ND
1,1 -Dichloroethane	5 μg/L	ND	NT	ND	ND
1,2-Dichloroethane	5 μg/L[1]	ND	NT	ND	ND
1,1-Dichloroethylene	7 μg/L[1]	ND	NT	ND	ND
cis-1,2-Dichloroethene	70 μg/L[1]	ND	NT	ND	ND
trans-1,2-Dichloroethene	100 μg/L[1]	ND	NT	ND	ND
1,2-Dichloropropane	5 μg/L[1]	ND	NT	ND	ND
cis-1,3-Dichloropropene	μg/L	ND	NT	ND	ND
trans-1,3-Dichloropropene	μg/L	ND	NT	ND	ND
Ethylbenzene	700 μg/L[1]	ND	NT	ND	ND
Methyl butyl ketone(2-Hexanone)	160 μg/L[5]	ND	NT	ND	ND
Bromomethane	10 μg/L[2]	ND	NT	ND	ND
Chloromethane	30 μg/L[2]	ND	NT	ND	ND
Dibromomethane	61 μg/L[5]	ND	NT	ND	ND
Methylene chloride	5 μg/L[1]	ND	NT	ND	ND
Methyl ethyl ketone(2-Butanone)	4000 μg/L[2]	ND	NT	ND	ND
Methyl iodide	μg/L	ND	NT	ND	ND
4-Methyl-2-pentanone	μg/L	ND	NT	ND	ND
Styrene	100 μg/L[1]	ND	NT	ND	ND
1,1,1,2-Tetrachloroethane	70 μg/L[2]	ND	NT	ND	ND
1,1,2,2-Tetrachloroethane	0.3 μg/L[2]	ND	NT	ND	ND
Tetrachloroethylene(PCE)	5 μg/L[1]	ND	NT	ND	ND
Toluene	1000 μg/L[1]	ND	NT	ND	ND
1,1,1-Trichloroethane	200 μg/L[1]	ND	NT	ND	ND
1,1,2-Trichloroethane	5 μg/L[1]	ND	NT	ND	ND
Trichloroethylene(TCE)	5 μg/L[1]	ND	NT	ND	ND
Trichloroflouromethane	2000 μg/L[2]	ND	NT	ND	ND
1,2,3-Trichloropropane	40 μg/L[2]	ND	NT	ND	ND
Vinyl acetate	410 μg/L[5]	ND	NT	ND	ND
Vinyl chloride	2 μg/L[1]	ND	NT	ND	ND
Xylenes	10000 μg/L[1]	ND	NT	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40 μg/L[4]	ND	NT	ND	ND

Note: Analytical data reported since commencement of low flow purging and sampling.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 5B

2018 SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A- CONSTITUENTS FOR DETECTION MONITORING

MONITORING WELL OW-7

Concentration (Expressed in the same units as Threshold Value)

Parameter	**Threshold Value**	DEC '18	SEP '18	JUN '18	MAR '18
Antimony	0.006 mg/l[1]	0.0010	ND	ND	ND
Arsenic	0.010 mg/l[1]	ND	ND	0.0100	ND
Barium	2 mg/l[1]	0.04	0.0540	0.0280	0.0380
Beryllium	0.004 mg/l[1]	ND	ND	ND	ND
Cadmium	0.005 mg/l[1]	ND	0.0040	ND	ND
Chromium	0.1 mg/l[1]	0.004	0.0180	0.004	0.0050
Cobalt	0.73 mg/l[5]	0.02	0.0220	0.0150	0.0190
Copper	1.3 mg/l[1]	ND	0.0300	ND	ND
Lead	0.015 mg/l[1]	ND	0.0060	ND	ND
Mercury	0.002 mg/l[2]	ND	NT	ND	ND
Nickel	0.1 mg/l[1]	0.022	0.0320	0.018	0.0210
Selenium	0.05 mg/l[2,3]	0.005	ND	ND	0.0100
Silver	0.1 mg/l[1]	ND	ND	ND	ND
Thallium	0.002 mg/l[5]	0.0003	ND	ND	0.0003
Tin	22 mg/l[5]	ND	NT	ND	ND
Vanadium	0.26 mg/l[2,3]	ND	0.0160	ND	ND
Zinc	2 - 5 mg/l[1]	0.0180	0.0850	0.0140	0.0180
Acetone	5500 µg/L[5]	ND	ND	ND	ND
Acrylonitrile	0.039 µg/L[5]	ND	ND	ND	ND
Benzene	5 µg/L[1]	ND	ND	ND	ND
Bromochloromethane	90 µg/L[2]	ND	ND	ND	ND
Bromodichloromethane (THM)	80 µg/L[1]	ND	ND	ND	ND
Bromoform	80 µg/L[1]	ND	ND	ND	ND
Carbon disulfide	1000 µg/L[5]	ND	ND	ND	ND
Carbon tetrachloride	5 µg/L[1]	ND	ND	ND	ND
Chlorobenzene	100 µg/L[1]	ND	ND	ND	ND
Chloroethane	4.6 µg/L[5]	ND	ND	ND	ND
Chloroform (THM)	80 µg/L[1]	ND	ND	ND	ND
Chlorodibromomethane (THM)	80 µg/L[1]	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DB	0.2 µg/L[1]	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05 µg/L[1]	ND	ND	ND	ND
1,2-Dichlorobenzene	600 µg/L[1]	ND	ND	ND	ND
1,4-Dichlorobenzene	75 µg/L[1]	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene	µg/L	ND	ND	ND	ND
1,1 -Dichloroethane	5 µg/L	ND	ND	ND	ND
1,2-Dichloroethane	5 µg/L[1]	ND	ND	ND	ND
1,1-Dichloroethylene	7 µg/L[1]	ND	ND	ND	ND
cis-1,2-Dichloroethene	70 µg/L[1]	ND	ND	ND	ND
trans-1,2-Dichloroethene	100 µg/L[1]	ND	ND	ND	ND
1,2-Dichloropropane	5 µg/L[1]	ND	ND	ND	ND
cis-1,3-Dichloropropene	µg/L	ND	ND	ND	ND
trans-1,3-Dichloropropene	µg/L	ND	ND	ND	ND
Ethylbenzene	700 µg/L[1]	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160 µg/L[5]	ND	ND	ND	ND
Bromomethane	10 µg/L[2]	ND	ND	ND	ND
Chloromethane	30 µg/L[2]	ND	ND	ND	ND
Dibromomethane	61 µg/L[5]	ND	ND	ND	ND
Methylene chloride	5 µg/L[1]	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000 µg/L[2]	ND	ND	ND	ND
Methyl iodide	µg/L	ND	ND	ND	ND
4-Methyl-2-pentanone	µg/L	ND	ND	ND	ND
Styrene	100 µg/L[1]	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70 µg/L[2]	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3 µg/L[2]	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5 µg/L[1]	ND	ND	ND	ND
Toluene	1000 µg/L[1]	ND	ND	ND	ND
1,1,1-Trichloroethane	200 µg/L[1]	ND	ND	ND	ND
1,1,2-Trichloroethane	5 µg/L[1]	ND	ND	ND	ND
Trichloroethylene(TCE)	5 µg/L[1]	ND	ND	ND	ND
Trichloroflouromethane	2000 µg/L[2]	ND	ND	ND	ND
1,2,3-Trichloropropane	40 µg/L[2]	ND	ND	ND	ND
Vinyl acetate	410 µg/L[5]	ND	ND	ND	ND
Vinyl chloride	2 µg/L[1]	ND	ND	ND	ND
Xylenes	10000 µg/L[1]	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40 µg/L[4]	6.38	4.87	3.56	6.80

Note: Analytical data reported since commencement of low flow purging and sampling.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 5C

2018 SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A- CONSTITUENTS FOR DETECTION MONITORING

MONITORING WELL OW-12

Concentration (Expressed in Same units as Threshold Value)

Parameter	Threshold Value		DEC '18	SEP '18	JUN '18	MAR '18
Antimony	0.006	mg/L[1]	ND	ND	0.001	0.0250
Arsenic	0.010	mg/L[1]	ND	ND	0.01	ND
Barium	2	mg/L[1]	0.02	0.023	0.02	0.0410
Beryllium	0.004	mg/L[1]	ND	ND	ND	ND
Cadmium	0.005	mg/L[1]	ND	ND	ND	0.0010
Chromium	0.1	mg/L[1]	ND	0.002	ND	0.0040
Cobalt	0.73	mg/L[5]	ND	0.002	ND	0.0020
Copper	1.3	mg/L[1]	0.009	ND	ND	ND
Lead	0.015	mg/L[1]	ND	ND	ND	ND
Mercury	0.002	mg/L[1]	ND	NT	ND	ND
Nickel	0.1	mg/L[2]	0.024	0.025	0.025	0.0140
Selenium	0.05	mg/L[1]	ND	ND	ND	ND
Silver	0.1	mg/L[2,3]	ND	ND	ND	ND
Thallium	0.002	mg/L[1]	ND	ND	ND	ND
Tin	22	mg/L[5]	ND	NT	ND	ND
Vanadium	0.26	mg/L[5]	ND	0.001	ND	0.0040
Zinc	2 - 5	mg/L[2,3]	0.007	0.026	0.009	0.0220
Acetone	610	μg/L[5]	ND	ND	ND	ND
Acrylonitrile	0.039	μg/L[5]	ND	ND	ND	ND
Benzene	5	μg/L[1]	ND	ND	ND	ND
Bromochloromethane	80	μg/L[2]	ND	ND	ND	ND
Bromodichloromethane (THM)	90	μg/L[1]	ND	ND	ND	ND
Bromoform	80	μg/L[1]	ND	ND	ND	ND
Carbon disulfide	1000	μg/L[5]	ND	ND	ND	ND
Carbon tetrachloride	5	μg/L[1]	ND	ND	ND	ND
Chlorobenzene	100	μg/L[1]	ND	ND	ND	ND
Chloroethane	4.6	μg/L[5]	ND	ND	ND	ND
Chloroform	80	μg/L[1]	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	μg/L[1]	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DB	0.2	μg/L[1]	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	μg/L[1]	ND	ND	ND	ND
1,2-Dichlorobenzene	600	μg/L[1]	ND	ND	ND	ND
1,4-Dichlorobenzene	75	μg/L[1]	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene		μg/L	ND	ND	ND	ND
1,1 -Dichloroethane	5	μg/L	ND	ND	ND	ND
1,2-Dichloroethane		μg/L	ND	ND	ND	ND
1,1-Dichloroethylene	7	μg/L[1]	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	μg/L[1]	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	μg/L[1]	ND	ND	ND	ND
1,2-Dichloropropane	5	μg/L[1]	ND	ND	ND	ND
cis-1,3-Dichloropropene		μg/L	ND	ND	ND	ND
trans-1,3-Dichloropropene		μg/L	ND	ND	ND	ND
Ethylbenzene	700	μg/L[1]	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	μg/L[5]	ND	ND	ND	ND
Bromomethane	10	μg/L[2]	ND	ND	ND	ND
Chloromethane	30	μg/L[2]	ND	ND	ND	ND
Dibromomethane	61	μg/L[5]	ND	ND	ND	ND
Methylene chloride	5	μg/L[1]	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	μg/L[2]	ND	ND	ND	ND
Methyl iodide		μg/L	ND	ND	ND	ND
4-Methyl-2-pentanone		μg/L	ND	ND	ND	ND
Styrene	100	μg/L[1]	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	μg/L[2]	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	μg/L[2]	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	μg/L[1]	ND	ND	ND	ND
Toluene	1000	μg/L[1]	ND	ND	ND	ND
1,1,1-Trichloroethane	200	μg/L[1]	ND	ND	ND	ND
1,1,2-Trichloroethane	5	μg/L[1]	ND	ND	ND	ND
Trichloroethylene(TCE)	5	μg/L[1]	ND	ND	ND	ND
Trichloroflouromethane	2000	μg/L[2]	ND	ND	ND	ND
1,2,3-Trichloropropane	40	μg/L[2]	ND	ND	ND	ND
Vinyl acetate	410	μg/L[5]	ND	ND	ND	ND
Vinyl chloride	2	μg/L[1]	ND	ND	ND	ND
Xylenes	10000	μg/L[1]	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	μg/L[4]	ND	ND	ND	ND

Note: Analytical data reported since commencement of low flow purging and sampling.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was signifi higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

Note: Dichlorodifluoromethane is not an Appendix A VOC but was reported by the laboratory and has been included in this table.

TABLE 5D
2018 SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A- CONSTITUENTS FOR DETECTION MONITORING

MONITORING WELL OW-13

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		DEC '18	SEP '18	JUN '18	MAR '18
Antimony	0.006	mg/L[1]	0.0020	0.0020	0.002	ND
Arsenic	0.010	mg/L[1]	0.0100	0.0100	0.02	0.0070
Barium	2	mg/L[1]	0.1260	0.0890	0.089	0.1150
Beryllium	0.004	mg/L[1]	ND	ND	ND	ND
Cadmium	0.005	mg/L[1]	0.0040	0.0030	0.004	0.0040
Chromium	0.1	mg/L[1]	0.0020	0.0020	0.002	0.0020
Cobalt	0.73	mg/L[5]	0.0130	0.0100	0.011	0.0130
Copper	1.3	mg/L[1]	ND	ND	ND	ND
Lead	0.015	mg/L[1]	0.0020	ND	ND	0.0020
Mercury	0.002	mg/L[1]	ND	NT	ND	ND
Nickel	0.1	mg/L[2]	0.0140	0.0120	0.011	0.0120
Selenium	0.05	mg/L[1]	ND	ND	ND	ND
Silver	0.1	mg/L[2,]	0.0010	ND	ND	ND
Thallium	0.002	mg/L[1]	ND	ND	ND	0.0003
Tin	22	mg/L[5]	ND	NT	ND	ND
Vanadium	0.26	mg/L[5]	0.0080	0.0040	ND	ND
Zinc	2 - 5	mg/L[2,]	0.0190	0.0100	0.012	0.0170
Acetone	610	µg/L[5]	ND	ND	ND	ND
Acrylonitrile	0.039	µg/L[5]	ND	ND	ND	ND
Benzene	5	µg/L[1]	ND	ND	ND	ND
Bromochloromethane	80	µg/L[2]	ND	ND	ND	ND
Bromodichloromethane (THM)	90	µg/L[1]	ND	ND	ND	ND
Bromoform	80	µg/L[1]	ND	ND	ND	ND
Carbon disulfide	1000	µg/L[5]	ND	ND	ND	ND
Carbon tetrachloride	5	µg/L[1]	ND	ND	ND	ND
Chlorobenzene	100	µg/L[1]	6.19	ND	ND	5.40
Chloroethane	4.6	µg/L[5]	ND	ND	ND	ND
Chloroform	80	µg/L[1]	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	µg/L[1]	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DB	0.2	µg/L[1]	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	µg/L[1]	ND	ND	ND	ND
1,2-Dichlorobenzene	600	µg/L[1]	ND	ND	ND	ND
1,4-Dichlorobenzene	75	µg/L[1]	1.31	ND	ND	ND
trans-1,4-Dichloro-2-butene		µg/L	ND	ND	ND	ND
1,1 -Dichloroethane	5	µg/L	ND	ND	ND	ND
1,2-Dichloroethane		µg/L	ND	ND	ND	ND
1,1-Dichloroethylene	7	µg/L[1]	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	µg/L[1]	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	µg/L[1]	ND	ND	ND	ND
1,2-Dichloropropane	5	µg/L[1]	ND	ND	ND	ND
cis-1,3-Dichloropropene		µg/L	ND	ND	ND	ND
trans-1,3-Dichloropropene		µg/L	ND	ND	ND	ND
Ethylbenzene	700	µg/L[1]	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L[5]	ND	ND	ND	ND
Bromomethane	10	µg/L[2]	ND	ND	ND	ND
Chloromethane	30	µg/L[2]	ND	ND	ND	ND
Dibromomethane	61	µg/L[5]	ND	ND	ND	ND
Methylene chloride	5	µg/L[1]	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L[2]	ND	ND	ND	ND
Methyl iodide		µg/L	ND	ND	ND	ND
4-Methyl-2-pentanone		µg/L	ND	ND	ND	ND
Styrene	100	µg/L[1]	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	µg/L[2]	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L[2]	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	µg/L[1]	ND	ND	ND	ND
Toluene	1000	µg/L[1]	ND	ND	ND	ND
1,1,1-Trichloroethane	200	µg/L[1]	ND	ND	ND	ND
1,1,2-Trichloroethane	5	µg/L[1]	ND	ND	ND	ND
Trichloroethylene(TCE)	5	µg/L[1]	ND	ND	ND	ND
Trichloroflouromethane	2000	µg/L[2]	ND	ND	ND	ND
1,2,3-Trichloropropane	40	µg/L[2]	ND	ND	ND	ND
Vinyl acetate	410	µg/L[5]	ND	ND	ND	ND
Vinyl chloride	2	µg/L[1]	ND	ND	ND	ND
Xylenes	10000	µg/L[1]	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L[4]	3.99	ND	ND	ND

Note: Analytical data reported since commencement of low flow purging and smapling.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher t previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

Note: Dichlorodifluoromethane is not an Appendix A VOC but was reported by the laboratory and has been included in this table.

TABLE 5E

2018 SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A- CONSTITUENTS FOR DETECTION MONITORING

MONITORING WELL OW-14

Concentration (Expressed in the same units as Threshold Value)

Parameter	Threshold Value	DEC '18	SEP '18	JUN '18	MAR '18
Antimony	0.006 mg/L[1]	0.005	NT	ND	ND
Arsenic	0.010 mg/L[1]	ND	NT	0.01	ND
Barium	2 mg/L[1]	0.210	NT	0.155	0.2240
Beryllium	0.004 mg/L[1]	ND	NT	ND	ND
Cadmium	0.005 mg/L[1]	0.002	NT	0.006	0.0050
Chromium	0.1 mg/L[1]	ND	NT	0.001	0.0060
Cobalt	0.73 mg/L[5]	0.011	NT	0.006	0.0140
Copper	1.3 mg/L[1]	0.007	NT	ND	0.0090
Lead	0.015 mg/L[1]	ND	NT	ND	0.0060
Mercury	0.002 mg/L[1]	ND	NT	ND	ND
Nickel	0.1 mg/L[2]	0.019	NT	0.012	0.0220
Selenium	0.05 mg/L[1]	ND	NT	ND	ND
Silver	0.1 mg/L[2,	ND	NT	ND	ND
Thallium	0.002 mg/L[1]	ND	NT	ND	0.0003
Tin	22 mg/L[5]	ND	NT	ND	ND
Vanadium	0.26 mg/L[5]	0.004	NT	ND	0.0070
Zinc	2 - 5 mg/L[2,	0.014	NT	0.031	0.0480
Acetone	610 µg/L[5]	ND	NT	ND	ND
Acrylonitrile	0.039 µg/L[5]	ND	NT	ND	ND
Benzene	5 µg/L[1]	2.28	NT	2.77	ND
Bromochloromethane	80 µg/L[2]	ND	NT	ND	ND
Bromodichloromethane (THM)	90 µg/L[1]	ND	NT	ND	ND
Bromoform	80 µg/L[1]	ND	NT	ND	ND
Carbon disulfide	1000 µg/L[5]	ND	NT	ND	ND
Carbon tetrachloride	5 µg/L[1]	ND	NT	ND	ND
Chlorobenzene	100 µg/L[1]	11.38	NT	13.3	10.8
Chloroethane	4.6 µg/L[5]	ND	NT	ND	ND
Chloroform	80 µg/L[1]	ND	NT	ND	ND
Chlorodibromomethane (THM)	80 µg/L[1]	ND	NT	ND	ND
1,2-Dibromo-3-chloropropane (DB	0.2 µg/L[1]	ND	NT	ND	ND
1,2-Dibromoethane (EDB)	0.05 µg/L[1]	ND	NT	ND	ND
1,2-Dichlorobenzene	600 µg/L[1]	ND	NT	ND	ND
1,4-Dichlorobenzene	75 µg/L[1]	2.38	NT	2.62	ND
trans-1,4-Dichloro-2-butene	µg/L	ND	NT	ND	ND
1,1 -Dichloroethane	5 µg/L	ND	NT	ND	ND
1,2-Dichloroethane	µg/L	ND	NT	ND	ND
1,1-Dichloroethylene	7 µg/L[1]	ND	NT	ND	ND
cis-1,2-Dichloroethene	70 µg/L[1]	ND	NT	ND	ND
trans-1,2-Dichloroethene	100 µg/L[1]	ND	NT	ND	ND
1,2-Dichloropropane	5 µg/L[1]	ND	NT	ND	ND
cis-1,3-Dichloropropene	µg/L	ND	NT	ND	ND
trans-1,3-Dichloropropene	µg/L	ND	NT	ND	ND
Ethylbenzene	700 µg/L[1]	ND	NT	ND	ND
Methyl butyl ketone(2-Hexanone)	160 µg/L[5]	ND	NT	ND	ND
Bromomethane	10 µg/L[2]	ND	NT	ND	ND
Chloromethane	30 µg/L[2]	ND	NT	ND	ND
Dibromomethane	61 µg/L[5]	ND	NT	ND	ND
Methylene chloride	5 µg/L[1]	ND	NT	ND	ND
Methyl ethyl ketone(2-Butanone)	4000 µg/L[2]	ND	NT	ND	ND
Methyl iodide	µg/L	ND	NT	ND	ND
4-Methyl-2-pentanone	µg/L	ND	NT	ND	ND
Styrene	100 µg/L[1]	ND	NT	ND	ND
1,1,1,2-Tetrachloroethane	70 µg/L[2]	ND	NT	ND	ND
1,1,2,2-Tetrachloroethane	0.3 µg/L[2]	ND	NT	ND	ND
Tetrachloroethylene(PCE)	5 µg/L[1]	ND	NT	ND	ND
Toluene	1000 µg/L[1]	ND	NT	ND	ND
1,1,1-Trichloroethane	200 µg/L[1]	ND	NT	ND	ND
1,1,2-Trichloroethane	5 µg/L[1]	ND	NT	ND	ND
Trichloroethylene(TCE)	5 µg/L[1]	ND	NT	ND	ND
Trichloroflouromethane	2000 µg/L[2]	ND	NT	ND	ND
1,2,3-Trichloropropane	40 µg/L[2]	ND	NT	ND	ND
Vinyl acetate	410 µg/L[5]	ND	NT	ND	ND
Vinyl chloride	2 µg/L[1]	ND	NT	ND	ND
Xylenes	10000 µg/L[1]	ND	NT	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40 µg/L[4]	7.97	NT	6.23	9.4

Note: Analytical data reported since commencement of low flow purging and smapling.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was signif higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 5F
2018 SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A- CONSTITUENTS FOR DETECTION MONITORING

MONITORING WELL OW-15

Concentration (Expressed in the same units as Threshold Value)

Parameter	**Threshold Value**	DEC '18	SEP '18	JUN '18	MAR '18
Antimony	0.006 mg/L[1]	0.0040	0.0040	ND	ND
Arsenic	0.010 mg/L[1]	0.0200	0.0300	0.03	0.0200
Barium	2 mg/L[1]	0.2120	0.0840	0.096	0.1280
Beryllium	0.004 mg/L[1]	ND	ND	ND	ND
Cadmium	0.005 mg/L[1]	0.0080	0.0070	0.010	0.0090
Chromium	0.1 mg/L[1]	ND	ND	ND	ND
Cobalt	0.73 mg/L[5]	0.0080	0.0140	0.012	0.0100
Copper	1.3 mg/L[1]	ND	ND	ND	ND
Lead	0.015 mg/L[1]	0.0030	0.0020	ND	0.0020
Mercury	0.002 mg/L[1]	ND	NT	ND	ND
Nickel	0.1 mg/L[2]	0.0170	0.0290	0.023	0.0200
Selenium	0.05 mg/L[1]	ND	ND	ND	ND
Silver	0.1 mg/L[2,	ND	ND	ND	ND
Thallium	0.002 mg/L[1]	ND	ND	ND	ND
Tin	22 mg/L[5]	ND	NT	ND	ND
Vanadium	0.26 mg/L[5]	0.0150	0.0110	ND	0.0060
Zinc	2 - 5 mg/L[2,	0.0150	0.0150	0.032	0.0210
Acetone	610 µg/L[5]	ND	ND	ND	ND
Acrylonitrile	0.039 µg/L[5]	ND	ND	ND	ND
Benzene	5 µg/L[1]	1.76	ND	1.67	ND
Bromochloromethane	80 µg/L[2]	ND	ND	ND	ND
Bromodichloromethane (THM)	90 µg/L[1]	ND	ND	ND	ND
Bromoform	80 µg/L[1]	ND	ND	ND	ND
Carbon disulfide	1000 µg/L[5]	ND	ND	ND	ND
Carbon tetrachloride	5 µg/L[1]	ND	ND	ND	ND
Chlorobenzene	100 µg/L[1]	15.49	14.00	12.72	17
Chloroethane	4.6 µg/L[5]	ND	ND	ND	ND
Chloroform	80 µg/L[1]	ND	ND	ND	ND
Chlorodibromomethane (THM)	80 µg/L[1]	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DB	0.2 µg/L[1]	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05 µg/L[1]	ND	ND	ND	ND
1,2-Dichlorobenzene	600 µg/L[1]	ND	ND	ND	ND
1,4-Dichlorobenzene	75 µg/L[1]	3.06	ND	ND	ND
trans-1,4-Dichloro-2-butene	µg/L	ND	ND	ND	ND
1,1 -Dichloroethane	5 µg/L	ND	ND	ND	ND
1,2-Dichloroethane	µg/L	ND	ND	ND	ND
1,1-Dichloroethylene	7 µg/L[1]	ND	ND	ND	ND
cis-1,2-Dichloroethene	70 µg/L[1]	ND	ND	ND	ND
trans-1,2-Dichloroethene	100 µg/L[1]	ND	ND	ND	ND
1,2-Dichloropropane	5 µg/L[1]	ND	ND	ND	ND
cis-1,3-Dichloropropene	µg/L	ND	ND	ND	ND
trans-1,3-Dichloropropene	µg/L	ND	ND	ND	ND
Ethylbenzene	700 µg/L[1]	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160 µg/L[5]	ND	ND	ND	ND
Bromomethane	10 µg/L[2]	ND	ND	ND	ND
Chloromethane	30 µg/L[2]	ND	ND	ND	ND
Dibromomethane	61 µg/L[5]	ND	ND	ND	ND
Methylene chloride	5 µg/L[1]	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000 µg/L[2]	ND	ND	ND	ND
Methyl iodide	µg/L	ND	ND	ND	ND
4-Methyl-2-pentanone	µg/L	ND	ND	ND	ND
Styrene	100 µg/L[1]	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70 µg/L[2]	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3 µg/L[2]	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5 µg/L[1]	ND	ND	ND	ND
Toluene	1000 µg/L[1]	ND	ND	ND	ND
1,1,1-Trichloroethane	200 µg/L[1]	ND	ND	ND	ND
1,1,2-Trichloroethane	5 µg/L[1]	ND	ND	ND	ND
Trichloroethylene(TCE)	5 µg/L[1]	ND	ND	ND	ND
Trichloroflouromethane	2000 µg/L[2]	ND	ND	ND	ND
1,2,3-Trichloropropane	40 µg/L[2]	ND	ND	ND	ND
Vinyl acetate	410 µg/L[5]	ND	ND	ND	ND
Vinyl chloride	2 µg/L[1]	ND	ND	ND	ND
Xylenes	10000 µg/L[1]	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40 µg/L[4]	3.69	7.00	6.61	ND

Note: Analytical data reported since commencement of low flow purging and smapling.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 5G
2018 SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A- CONSTITUENTS FOR DETECTION MONITORING

MONITORING WELL OW-16

Concentration (Expressed in the same units as Threshold Value)

Parameter	Threshold Value		DEC '18	SEP '18	JUN '18	MAR '18
Antimony	0.006	mg/l^{1}	ND	ND	0.002	ND
Arsenic	0.010	mg/l^{1}	ND	ND	0.01	ND
Barium	2	mg/l^{1}	0.017	0.027	0.011	0.0190
Beryllium	0.004	mg/l^{1}	ND	ND	ND	ND
Cadmium	0.005	mg/l^{1}	ND	ND	ND	ND
Chromium	0.1	mg/l^{1}	0.003	0.003	0.004	0.0060
Cobalt	0.73	mg/l^{5}	0.006	0.004	0.002	0.0050
Copper	1.3	mg/l^{1}	ND	ND	ND	ND
Lead	0.015	mg/l^{1}	ND	ND	ND	ND
Mercury	0.002	mg/l^{2}	ND	NT	ND	ND
Nickel	0.1	mg/l^{1}	0.013	0.01	0.009	0.0100
Selenium	0.05	mg/l^{2,3}	0.009	0.003	ND	0.0100
Silver	0.1	mg/l^{1}	ND	ND	ND	ND
Thallium	0.002	mg/l^{5}	ND	ND	ND	0.0003
Tin	22	mg/l^{5}	ND	NT	ND	ND
Vanadium	0.26	mg/l^{2,3}	ND	ND	ND	ND
Zinc	2 - 5	mg/l^{1}	0.025	0.019	0.022	0.024
Acetone	5500	μg/L^{5}	ND	ND	ND	ND
Acrylonitrile	0.039	μg/L^{5}	ND	ND	ND	ND
Benzene	5	μg/L^{1}	ND	ND	ND	ND
Bromochloromethane	90	μg/L^{2}	ND	ND	ND	ND
Bromodichloromethane (THM)	80	μg/L^{1}	ND	ND	ND	ND
Bromoform	80	μg/L^{1}	ND	ND	ND	ND
Carbon disulfide	1000	μg/L^{5}	ND	ND	ND	ND
Carbon tetrachloride	5	μg/L^{1}	ND	ND	ND	ND
Chlorobenzene	100	μg/L^{1}	ND	ND	ND	ND
Chloroethane	4.6	μg/L^{5}	ND	ND	ND	ND
Chloroform (THM)	80	μg/L^{1}	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	μg/L^{1}	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DB	0.2	μg/L^{1}	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	μg/L^{1}	ND	ND	ND	ND
1,2-Dichlorobenzene	600	μg/L^{1}	ND	ND	ND	ND
1,4-Dichlorobenzene	75	μg/L^{1}	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene		μg/L	ND	ND	ND	ND
1,1 -Dichloroethane	5	μg/L	ND	ND	ND	ND
1,2-Dichloroethane	5	μg/L^{1}	ND	ND	ND	ND
1,1-Dichloroethylene	7	μg/L^{1}	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	μg/L^{1}	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	μg/L^{1}	ND	ND	ND	ND
1,2-Dichloropropane	5	μg/L^{1}	ND	ND	ND	ND
cis-1,3-Dichloropropene		μg/L	ND	ND	ND	ND
trans-1,3-Dichloropropene		μg/L	ND	ND	ND	ND
Ethylbenzene	700	μg/L^{1}	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	μg/L^{5}	ND	ND	ND	ND
Bromomethane	10	μg/L^{2}	ND	ND	ND	ND
Chloromethane	30	μg/L^{2}	ND	ND	ND	ND
Dibromomethane	61	μg/L^{5}	ND	ND	ND	ND
Methylene chloride	5	μg/L^{1}	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	μg/L^{2}	ND	ND	ND	ND
Methyl iodide		μg/L	ND	ND	ND	ND
4-Methyl-2-pentanone		μg/L	ND	ND	ND	ND
Styrene	100	μg/L^{1}	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	μg/L^{2}	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	μg/L^{2}	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	μg/L^{1}	ND	ND	ND	ND
Toluene	1000	μg/L^{1}	ND	ND	ND	ND
1,1,1-Trichloroethane	200	μg/L^{1}	ND	ND	ND	ND
1,1,2-Trichloroethane	5	μg/L^{1}	ND	ND	ND	ND
Trichloroethylene(TCE)	5	μg/L^{1}	ND	ND	ND	ND
Trichloroflouromethane	2000	μg/L^{2}	ND	ND	ND	ND
1,2,3-Trichloropropane	40	μg/L^{2}	ND	ND	ND	ND
Vinyl acetate	410	μg/L^{5}	ND	ND	ND	ND
Vinyl chloride	2	μg/L^{1}	ND	ND	ND	ND
Xylenes	10000	μg/L^{1}	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	μg/L^{4}	3.77	3.42	6.53	7.80

Note: Analytical data reported since commencement of low flow purging and sampling.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 5H
SUMMARY OF GROUNDWATER MONITORING RESULTS - TOLERANCE INTERVAL COMPARISON
DEC 2018 - SAMPLE ROUND
Concentration (units as specified for Threshold Value)

		OW-9				Background Well	Compliance wells					
		Tolerance Limit *		Threshold								
	Parameter	**TL=AVG+K*S**		**Value**		**OW-9**	**OW-7**	**OW-12**	**OW-13**	**OW-14**	**OW-15**	**OW-16**
METALS	Antimony	0.0290	mg/L	0.006	mg/L^{1}	ND	0.0010	ND	0.002	0.005	0.0040	ND
	Arsenic	0.0030	mg/L	0.010	mg/L^{1}	ND	ND	ND	0.01	ND	0.02	ND
	Barium	0.0564	mg/L	2	mg/L^{1}	0.0320	0.0400	0.02	0.126	0.21	0.212	0.0170
	Beryllium	0.0005	mg/L	0.004	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND
	Cadmium	0.3650	mg/L	0.005	mg/L^{1}	ND	ND	ND	0.004	0.0020	0.008	ND
	Chromium	0.0377	mg/L	0.1	mg/L^{1}	0.013	0.004	ND	0.002	ND	ND	0.0030
	Cobalt	0.0030	mg/L	0.73	mg/L^{5}	0.0030	0.020	ND	0.013	0.011	0.008	0.006
	Copper	0.0080	mg/L	1.3	mg/L^{1}	0.0080	ND	0.009	ND	0.007	ND	ND
	Lead	0.2245	mg/L	0.015	mg/L^{1}	0.004	ND	ND	0.002	ND	0.0030	ND
	Mercury	0.0001	mg/L	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND
	Nickel	0.0293	mg/L	0.1	mg/L^{2}	0.006	0.022	0.024	0.014	0.019	0.017	0.0130
	Selenium	0.0100	mg/L	0.05	mg/L^{1}	ND	0.0050	ND	ND	ND	ND	0.0090
	Silver	0.0005	mg/L	0.1	mg/L^{2,3}	ND	ND	ND	0.001	ND	ND	ND
	Thallium	0.0001	mg/L	0.002	mg/L^{1}	ND	0.0003	ND	ND	ND	ND	ND
	Tin	0.0010	mg/L	22	mg/L^{5}	ND	ND	ND	ND	ND	ND	ND
	Vanadium	0.0080	mg/L	0.26	mg/L^{5}	0.0080	ND	ND	0.008	0.004	0.0150	ND
	Zinc	13.7195	mg/L	2 - 5	mg/L^{2,3}	0.0250	0.0180	0.007	0.019	0.014	0.0150	0.0250
VOC'S	Acetone			610	µg/L^{5}							
	Acrylonitrile			0.039	µg/L^{5}							
	Benzene			5	µg/L^{1}							
	Bromochloromethane			80	µg/L^{2}							
	Bromodichloromethane (THM)			90	µg/L^{1}							
	Bromoform			80	µg/L^{1}							
	Carbon disulfide			1000	µg/L^{5}							
	Carbon tetrachloride			5	µg/L^{1}							
	Chlorobenzene			100	µg/L^{1}							
	Chloroethane			4.6	µg/L^{5}							
	Chloroform			80	µg/L^{1}							
	Chlorodibromomethane (THM)			80	µg/L^{1}							
	1,2-Dibromo-3-chloropropane (DBCP)			0.2	µg/L^{1}							
	1,2-Dibromoethane (EDB)			0.05	µg/L^{1}							
	1,2-Dichlorobenzene			600	µg/L^{1}							
	1,4-Dichlorobenzene			75	µg/L^{1}							
	trans-1,4-Dichloro-2-butene				µg/L							
	1,1 -Dichloroethane			5	µg/L							
	1,2-Dichloroethane			5	µg/L^{1}							
	1,1-Dichloroethylene			7	µg/L^{1}							
	cis-1,2-Dichloroethene			70	µg/L^{1}							
	trans-1,2-Dichloroethene			100	µg/L^{1}							
	1,2-Dichloropropane			5	µg/L^{1}							
	cis-1,3-Dichloropropene				µg/L							
	trans-1,3-Dichloropropene				µg/L							
	Ethylbenzene			700	µg/L^{1}							
	Methyl butyl ketone(2-Hexanone)			160	µg/L^{5}							
	Bromomethane			10	µg/L^{2}							
	Chloromethane			30	µg/L^{2}							
	Dibromomethane			61	µg/L^{5}							
	Methylene chloride			5	µg/L^{1}							
	Methyl ethyl ketone(2-Butanone)			4000	µg/L^{2}							
	Methyl iodide				µg/L							
	4-Methyl-2-pentanone				µg/L							
	Styrene			100	µg/L^{1}							
	1,1,1,2-Tetrachloroethane			70	µg/L^{2}							
	1,1,2,2-Tetrachloroethane			0.3	µg/L^{2}							
	Tetrachloroethylene(PCE)			5	µg/L^{1}							
	Toluene			1000	µg/L^{1}							
	1,1,1-Trichloroethane			200	µg/L^{1}							
	1,1,2-Trichloroethane			5	µg/L^{1}							
	Trichloroethylene(TCE)			5	µg/L^{1}							
	Trichloroflouromethane			2000	µg/L^{2}							
	1,2,3-Trichloropropane			40	µg/L^{2}							
	Vinyl acetate			410	µg/L^{5}							
	Vinyl chloride			2	µg/L^{1}							
	Xylenes			10000	µg/L^{1}							
	Methyl tert-butyl ether (MTBE)			20 - 40	µg/L^{4}							

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

" " = Exceedance of TL
ND = Not Detected

* Tolerance Limit (TL) constructed from background (upgradient) well data from OW-9.

6.0 CONCLUSIONS

The groundwater monitoring data obtained for the Landfill during this reporting period reflects generally consistent trends in the number and concentrations of target parameters detected relative to historical data. Recent and historical data still suggest a generally consistent low-level impact[2] to groundwater beneath and downgradient from the Landfill.

Compliance Monitoring

In 2018, there were a total of forty-eight (48) exceedances of Tolerance Limit (TL) thresholds at the compliance wells at the Landfill. The 2018 monitoring period was the first full year in which OW-7 and OW-16 were assessed for TL exceedances. Excluding Ow-7 and OW-16, the number of TL exceedances were generally consistent with past years. A total of seven (7) Appendix A metals; antimony, barium, cadmium, chromium, lead, nickel, and zinc exceeded their CUSUM thresholds at least once in the compliance wells during the 2018 monitoring period. A total of one (1) Appendix A VOC, MTBE, exceeded its CUSUM thresholds during the 2018 monitoring period.

Assessment Monitoring

In 2018 Pare performed Assessment Monitoring at the following times and locations:

- OW-14 in March 2018, triggered by a detection of the Appendix B parameter sulfides during the December 2017 monitoring round.
- OW-13, in June 2018, triggered by an exceedance of the Shewhart-CUSUM threshold of barium in March 2018.

No (0) appendix B parameters were detected in any samples collected from OW-14 in March 2018 or OW-13 in March 2018. In these two Assessment Monitoring rounds, sulfides were only detected in samples collected from OW-14 in March 2018. Pare attempted to sample OW-14 in the September 2018 monitoring round to test for sulfides; however, a sample was unobtainable due to dry conditions. Pare sampled OW-14 for sulfides in December 2018; however, sulfides were not detected. Pare does not recommend Assessment Monitoring for the March 2019 monitoring round. However, it is

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[2] The analytical data compiled from the routine quarterly groundwater monitoring represent low-level impacts in comparison to water quality thresholds published in the US EPA 2012 Edition of the Drinking Water Standards and Health Advisories.

recommended that OW-14 be tested again for sulfides in the upcoming March 2019 monitoring round.

Shewhart-CUSUM Analysis

During the March 2018 monitoring round, barium exceeded its Shewhart-CUSUM thresholds at OW-12 and OW-13. This CUSUM threshold exceedance of barium at OW-13 triggered Assessment Monitoring for the next round that a sample was able to be acquired. Chromium exceeded its thresholds at OW-14 and OW-15. Nickel and zinc also exceeded their thresholds at OW-12 and OW-13, respectively. During the June 2018 monitoring round, barium and nickel both exceeded their Shewhart-CUSUM thresholds at OW-12, and cadmium exceeded its thresholds at OW-15. During the September 2018 and December 2018 monitoring rounds, barium and nickel both exceeded their Shewhart-CUSUM thresholds at OW-12. Antimony also exceeded its CUSUM thresholds during the December 2018 monitoring round.

Barium at OW-12 has exceeded both of its Shewhart-CUSUM thresholds in each monitoring round since June 2014. Despite this, barium has not triggered Assessment Monitoring parameters at OW-12. Pare will continue to monitor barium trends at the Landfill in future monitoring rounds.

The Shewhart-CUSUM analysis provides a method for discerning trends in reported landfill concentrations over an extended period of time. The analysis compares recently reported concentrations to those reported during the first two years of monitoring at the sampling locations. Since Pare implemented the Shewhart-CUSUM control charts, several organic parameters have exhibited a gradual increase in CUSUM values over time. In most cases, specifically at OW-15, these increases in CUSUM values are consistent with a general rise in reported concentrations (i.e., a divergence from the baseline data in the CUSUM analysis) since September 2006. As an example, the trend and reported concentrations of MTBE are shown in the *Reported Concentrations of MTBE* figure. Although the reported concentrations for MTBE are generally rising at OW-15, it remains significantly below its established drinking water advisories.

7.0 RECOMMENDATIONS

The groundwater monitoring program, as currently constituted, appears to be generally adequate for the purposes of evaluating groundwater impact from the Landfill. The statistical analyses employed to review groundwater impacts appear to be sufficiently useful at distinguishing between background concentrations and landfill-derived contaminants, as well as increasing contaminant trends at individual wells. However, based on recent coordination with RI DEM and the recent stormwater sampling around the landfill, it is apparent that the groundwater monitoring program is not addressing direct surface water runoff from the landfill into surround surface water bodies. As such, and at the recommendation of the RI DEM, the groundwater monitoring program should be converted into a more general environmental monitoring program that includes groundwater monitoring and surface water monitoring.

It is also noted that observation wells OW-13, OW-14, and OW-15 are located in in or immediately adjacent to future stormwater management structures. As part of the landfill closure, new downgradient wells should be installed to replace these three existing wells.

Finally, after coordination with the RI DEM, it has been determined that an additional upgradient groundwater monitoring well should be installed and the existing well, OW-12, should be re-designated as an upgradient well. The data collected from OW-12 since its installation strongly suggests that it is in an upgradient position to the landfill. There have never been any bona fide VOC detections in the well and the concentrations of metals are similar to those of OW-9. By re-designating OW-12 as a background well and installing a new background well, there will be three background wells for the landfill, which should provide a more complete understanding of the quality of groundwater coming onto the property.

8.0 REFERENCES

State of Rhode Island and Providence Plantations, Department of Environmental Management, Office of Waste Management, Rules and Regulations for Composting Facilities and Solid Waste Management Facilities. Regulation DEM-OWM-SWO1-97.

NUS Corporation, 1990, Final Screening Site Inspection, Tiverton Town Landfill #2, Tiverton, Rhode Island.

Pollock, S.J., 1964, Bedrock Geology of the Tiverton Quadrangle, Rhode Island Massachusetts: Geological Survey Bulletin 1158-D.

Rector, D. D., 1981, Soil Survey of Rhode Island: U.S. Department of Agriculture, Soil Conservation Service, in cooperation with the Rhode Island Agricultural Experiment Station.

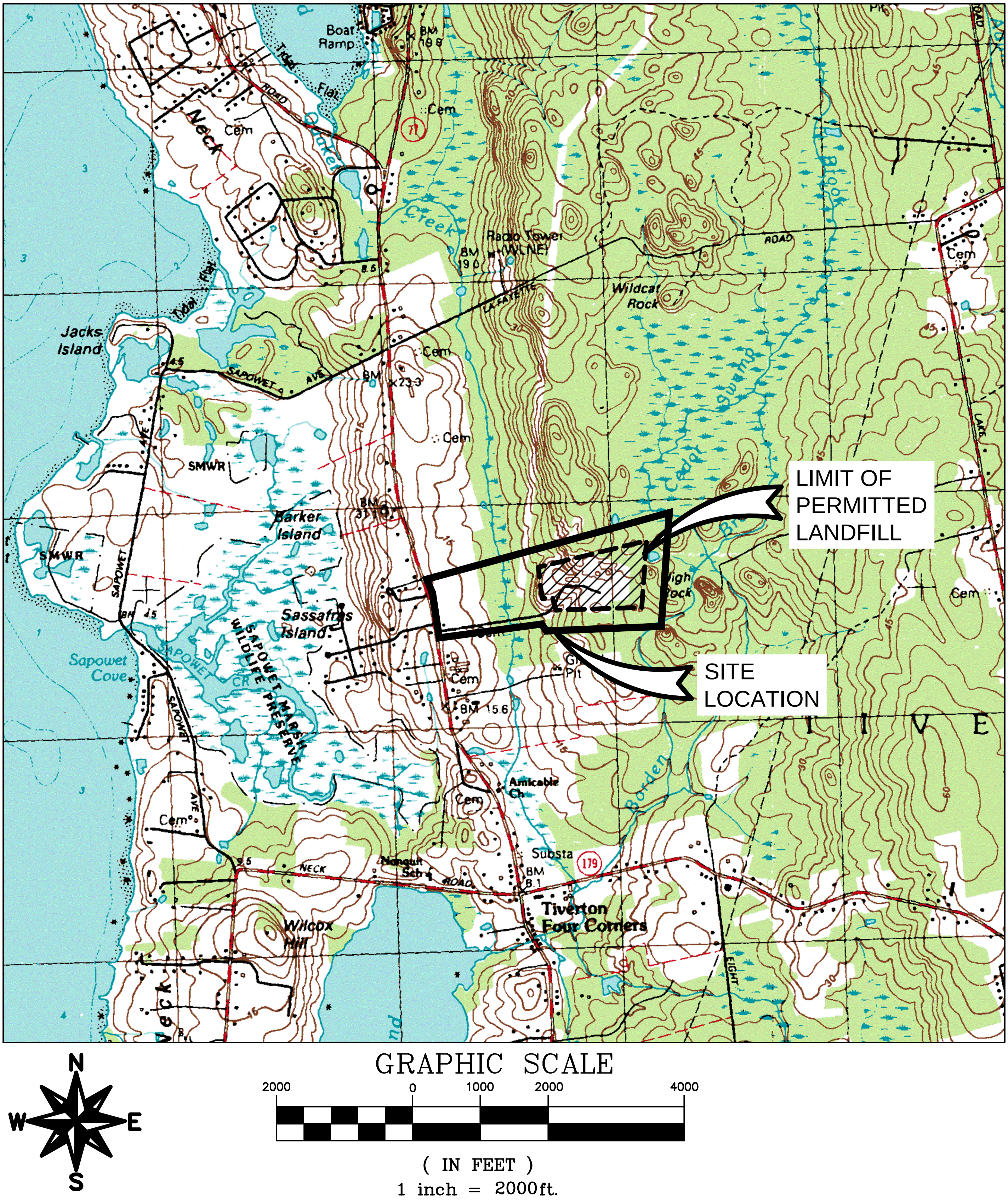
U.S. EPA, 1996 (Revised 2010), Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, EQASOP-GW 001

U.S. EPA, 1989, Statistical Analysis of Ground-Water Monitoring Data at RCRA (Resource Conservation and Recovery Act) Facilities, Interim Final Guidance, EPA/530/SW-89/026.

United States Geological Survey (USGS), 1949 (Photo revised 1970 and 1975), Tiverton Quadrangle Topographic Map.

APPENDIX A

Site Location Map



PARE CORPORATION
ENGINEERS - SCIENTISTS - PLANNERS
8 BLACKSTONE VALLEY PLACE
LINCOLN, RI 02865
401-334-4100

PROJECT NO. 94139.24

DATE: JANUARY 2019

APPENDIX A
SITE LOCATION MAP

TIVERTON MUNICIPAL SANITARY LANDFILL

TIVERTON

RHODE ISLAND

APPENDIX B

Landfill Existing Site Plan

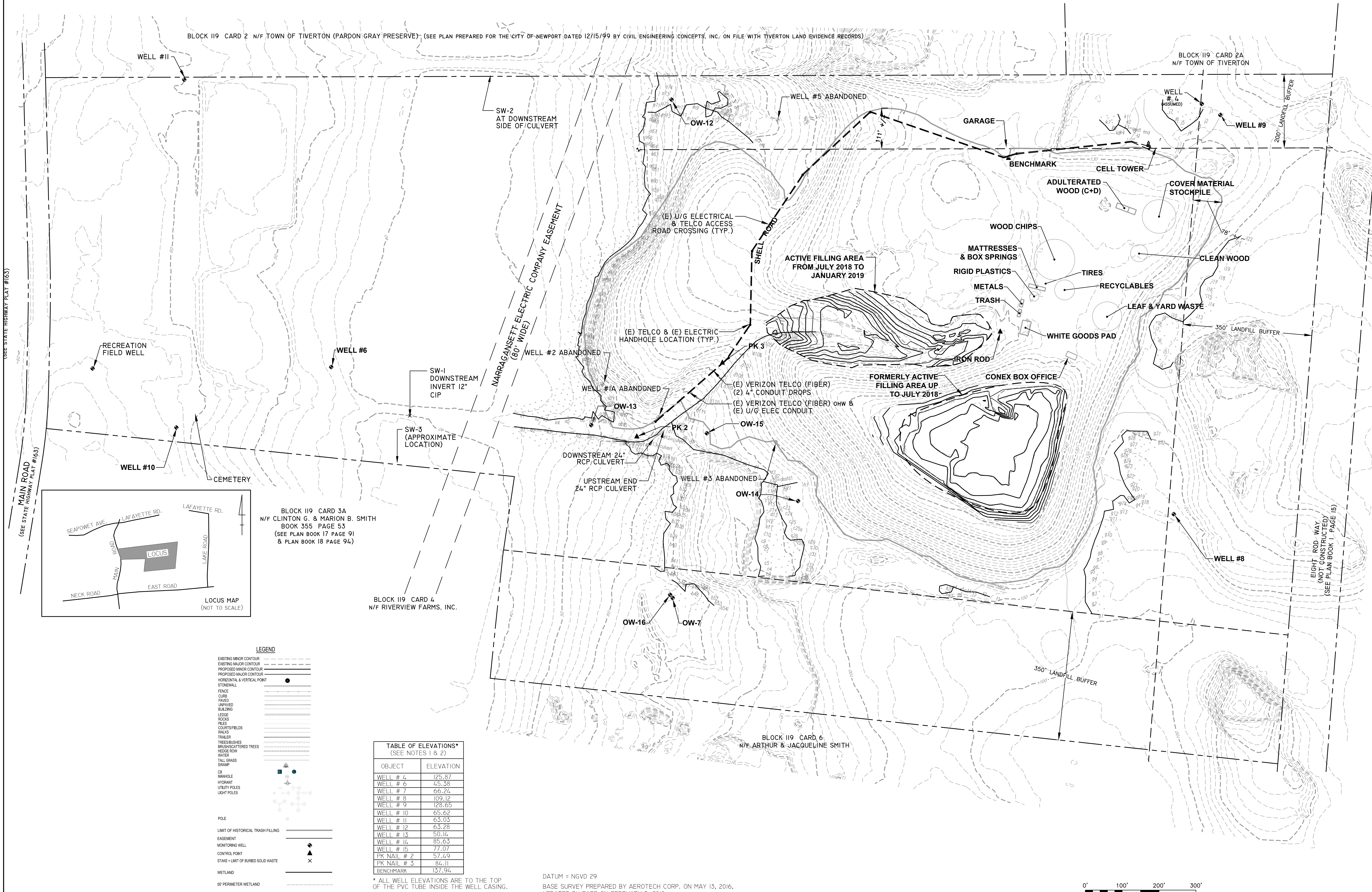


TABLE OF ELEVATIONS* (SEE NOTES 1 & 2)	
OBJECT	ELEVATION
WELL # 4	125.87
WELL # 6	45.38
WELL # 7	66.24
WELL # 8	109.12
WELL # 9	128.65
WELL # 10	65.62
WELL # 11	63.03
WELL # 12	63.28
WELL # 13	50.14
WELL # 14	85.63
WELL # 15	77.07
PK NAIL # 2	57.49
PK NAIL # 3	84.11
BENCHMARK	137.94

* ALL WELL ELEVATIONS ARE TO THE TOP OF THE PVC TUBE INSIDE THE WELL CASING.

DATUM = NGVD 29

BASE SURVEY PREPARED BY AEROTECH CORP. ON MAY 13, 2016, UPDATED BY PARE ON FEBRUARY 9, 2018.

0' 100' 200' 300'

1" = 100'

REV#	DESCRIPTION	BY	DATE

PROJ. MGR.: TPT
DESIGNED : BMB
DRAWN : TCJ
CHECKED : TPT
SCALE : 1"=100'
DATE : JANUARY 2019

TIVERTON LANDFILL
EXISTING SITE PLAN

TIVERTON RHODE ISLAND

PROJECT NO.
94139.01/024

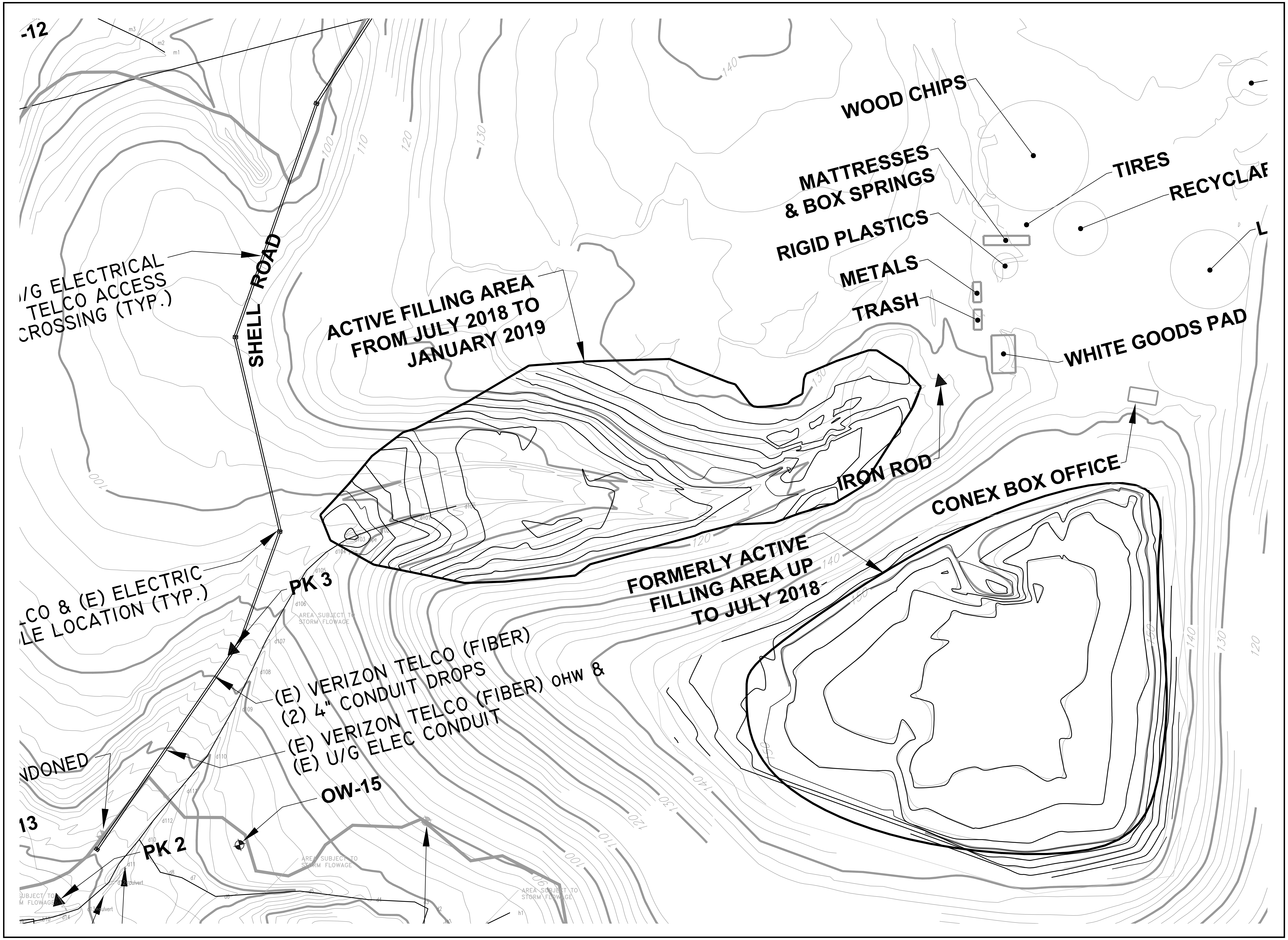
FIGURE NO.

EXC-1

SHEET 1 OF 1

APPENDIX C

2018 End of Year Height Survey Plan



PARE

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TIVERTON LANDFILL
SEMI-ANNUAL HEIGHT
SURVEY PLAN

TIVERTON

RHODE ISLAND

0.5" 0 1.0"
BAR SCALE

REVISIONS:

PROJECT NO.:	94139.24
DATE:	JANUARY 2019
SCALE:	1"=40'
DESIGNED BY:	TCJ/KNT
CHECKED BY:	TPT
DRAWN BY:	TCJ/KNT
APPROVED BY:	TPT

DRAWING TITLE:

JANUARY 2019
SEMI-ANNUAL
HEIGHT SURVEY PLAN

DRAWING NO.:

C-1

SHEET NO. 1 OF 1

APPENDIX D

December Laboratory Analytical Data Report

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 8L07027
Client Project: 94139 - Tiverton Landfill

Report Date: 13-December-2018

Prepared for:

Travis Johnson
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Total # of Pages: 30

Samples Submitted:

The samples listed below were submitted to New England Testing Laboratory on 12/07/18. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client’s designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 8L07027. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
8L07027-01	OW-7	Water	12/06/2018	12/07/2018
8L07027-02	OW-9	Water	12/06/2018	12/07/2018
8L07027-03	OW-12	Water	12/06/2018	12/07/2018
8L07027-04	OW-13	Water	12/06/2018	12/07/2018
8L07027-05	OW-14	Water	12/06/2018	12/07/2018
8L07027-06	OW-15	Water	12/06/2018	12/07/2018
8L07027-07	OW-16	Water	12/06/2018	12/07/2018

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

OW-12 (Lab Number: 8L07027-03)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-13 (Lab Number: 8L07027-04)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-14 (Lab Number: 8L07027-05)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C

Request for Analysis (continued)

OW-14 (Lab Number: 8L07027-05) (continued)

Analysis	**Method**
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Sulfide	SM4500-S-D
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-15 (Lab Number: 8L07027-06)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Request for Analysis (continued)

OW-16 (Lab Number: 8L07027-07)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-7 (Lab Number: 8L07027-01)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Request for Analysis (continued)

OW-9 (Lab Number: 8L07027-02)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Method References

Standard Methods for the Examination of Water and Wastewater, 20th Edition, APHA/ AWWA-WPCF, 1998

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

CASE NARRATIVE:

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria. Those compounds in italics were qualitatively screened via reconstructed ion chromatography and no detections were identified to the listed PQLs.

Wet Chemistry

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures

Sample: OW-14 Case Number: 8L07027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
18496-25-8	Sulfide	376.2	ND	0.01

ND = Not Detected

Sample: OW-7 Case Number: 8L07027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	0.001	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.040	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.004	0.001
7440-48-4	Cobalt	6010C	0.020	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.022	0.001
7782-49-2	Selenium	6010C	0.005	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	0.0003	0.0002
7440-62-2	Vanadium	6010C	ND	0.001
7440-66-6	Zinc	6010C	0.018	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-9 Case Number: 8L07027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.032	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.013	0.001
7440-48-4	Cobalt	6010C	0.003	0.001
7440-50-8	Copper	6010C	0.008	0.005
7439-92-1	Lead	6010C	0.004	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.006	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.008	0.001
7440-66-6	Zinc	6010C	0.025	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-12 Case Number: 8L07027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.020	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	ND	0.001
7440-50-8	Copper	6010C	0.009	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.024	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	ND	0.001
7440-66-6	Zinc	6010C	0.007	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-13 Case Number: 8L07027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	0.002	0.001
7440-38-2	Arsenic	6010C	0.01	0.002
7440-39-3	Barium	6010C	0.126	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.004	0.001
7440-47-3	Chromium	6010C	0.002	0.001
7440-48-4	Cobalt	6010C	0.013	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	0.002	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.014	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	0.001	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.008	0.001
7440-66-6	Zinc	6010C	0.019	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-14 Case Number: 8L07027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	0.005	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.210	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.002	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	0.011	0.001
7440-50-8	Copper	6010C	0.007	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.019	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.004	0.001
7440-66-6	Zinc	6010C	0.014	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-15 Case Number: 8L07027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	0.004	0.001
7440-38-2	Arsenic	6010C	0.02	0.002
7440-39-3	Barium	6010C	0.212	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.008	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	0.008	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	0.003	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.017	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.015	0.001
7440-66-6	Zinc	6010C	0.015	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-16 Case Number: 8L07027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.017	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.003	0.001
7440-48-4	Cobalt	6010C	0.006	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.013	0.001
7782-49-2	Selenium	6010C	0.009	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	ND	0.001
7440-66-6	Zinc	6010C	0.025	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-7 Case Number: 8L07027

Method: 8260C

CAS RN	**Common Name**	**Result, ppb**	**PQL (ppb)**
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-7 Case Number: 8L07027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	6.38	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	96.68	70-130
1,2-Dichloroethane d4	102.08	70-130
4 BFB	92.08	70-130

ND = Not Detected

Sample: OW-9 Case Number: 8L07027

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-9 Case Number: 8L07027
Method: 8260C

CAS RN	**Common Name**	**Result, ppb**	**PQL (ppb)**
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	91.84	70-130
1,2-Dichloroethane d4	98.30	70-130
4 BFB	91.54	70-130

ND = Not Detected

Sample: OW-12 Case Number: 8L07027

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-12 Case Number: 8L07027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	94.86	70-130
1,2-Dichloroethane d4	102.4	70-130
4 BFB	87.24	70-130

ND = Not Detected

Sample: OW-13 Case Number: 8L07027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	6.19	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-13 Case Number: 8L07027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	1.31	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	3.99	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	103.52	70-130
1,2-Dichloroethane d4	101.72	70-130
4 BFB	90.14	70-130

ND = Not Detected

Sample: OW-14 Case Number: 8L07027

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	2.28	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	11.38	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-14 Case Number: 8L07027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	2.38	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	7.97	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	97.84	70-130
1,2-Dichloroethane d4	98.62	70-130
4 BFB	91.02	70-130

ND = Not Detected

Sample: OW-15 Case Number: 8L07027

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	1.76	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	15.49	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-15 Case Number: 8L07027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	3.06	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	3.69	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	98.26	70-130
1,2-Dichloroethane d4	106.18	70-130
4 BFB	88.96	70-130

ND = Not Detected

Sample: OW-16 Case Number: 8L07027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-16 Case Number: 8L07027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	3.77	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	94.56	70-130
1,2-Dichloroethane d4	100.20	70-130
4 BFB	94.40	70-130

ND = Not Detected

NEW ENGLAND TESTING LABORA
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

8 L 0 7027 G

PROJ. NO. 94139.24

PROJECT NAME/LOCATION Tiverton Landfill

CLIENT Pare Corp.

REPORT TO: fjohnson@parecorp.com

INVOICE TO: Accounting

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** Appendix A Metals, Hg, Sn - pH<2	Appendix A VOCs - pH<2	Sulfides - pH>12				REMARKS
12/6			x	OW-7	X			3	HNO3, HCl	X	X					
				OW-9				3								
				OW-12				3								
				OW-13				3								
				OW-14				4	NaOH + Zinc			X				
				OW-15				3								
			↓	OW-16	↓			3	↓	↓	↓					

Sampled by: (Signature)	Date/Time		Received by: (Signature)	Date/Time
	12/6	5 PM	B Parker	12/7 11:10
Relinquished by: (Signature)	**Date/Time**		**Received by: (Signature)**	**Date/Time**
	12/7	11:10		
Relinquished by: (Signature)	**Date/Time**		**Received for Laboratory by: (Signature)**	**Date/Time**
B Parker	12/7	1500		12/18 1800

Laboratory Remarks:
Temp. received: 2
Cooled ☐

Special Instructions:
List Specific Detection
Limit Requirements:

Turnaround (Business Days)________

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

APPENDIX E

December Field Sampling Data Sheets

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24

DATE: 12/6/2018
WEATHER: Sunny 30s

WELL ID: OW-9

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	16	feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	0.5	gallons	PURGE RATE (GPM):	N/A
PURGER TYPE:	Peristaltic pump		ELAPSED TIME (MIN):	N/A

WATER LEVEL DATA

DEPTH:	12.1	feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing		DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	5.94	pH UNITS	5.94	pH UNITS
SPEC. COND:	0.078	mS/cm	0.075	mS/cm
TEMPERATURE:	10.3	°C	10.4	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.
Samples were collected at 3:30 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 12/6/2018
WEATHER: Sunny 30s

WELL ID: OW-7
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	11.8	feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	2.0	gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump		ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	0	feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing		DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.75	pH UNITS	6.76	pH UNITS
SPEC. COND:	0.779	mS/cm	0.803	mS/cm
TEMPERATURE:	10.7	^{o}C	10.7	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 1:00 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 12/6/2018
WEATHER: Sunny 30s

WELL ID: OW-12
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 16.2 feet
PURGE VOLUME (GAL): 2.40 gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): 0.1 +/-
ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 2.6 feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.5	pH UNITS	6.49	pH UNITS
SPEC. COND:	0.325	mS/cm	0.323	mS/cm
TEMPERATURE:	11.3	^{o}C	11.4	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 3:00 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 12/6/2018
WEATHER: Sunny 30s

WELL ID: OW-13
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 14.5 feet
PURGE VOLUME (GAL): 1.80 gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): 0.1 +/-
ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 3.9 feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.93	pH UNITS	6.93	pH UNITS
SPEC. COND:	1.064	mS/cm	1.054	mS/cm
TEMPERATURE:	10.3	^{o}C	10.4	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 4:15 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 12/6/2018
WEATHER: Sunny 30s

WELL ID: OW-14
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 10.6 feet
PURGE VOLUME (GAL): 0.9 gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): N/A
ELAPSED TIME (MIN): N/A

WATER LEVEL DATA

DEPTH: 4.8 feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.77	pH UNITS	6.77	pH UNITS
SPEC. COND:	1.274	mS/cm	1.287	mS/cm
TEMPERATURE:	10	°C	10.1	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of supernatant sampled after a 15-minute decanting period.

Samples were collected at 2:15 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 12/6/2018
WEATHER: Sunny 30s

WELL ID: OW-15
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	16.8 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1.6 gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	7.2 feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.94	pH UNITS	6.94	pH UNITS
SPEC. COND:	1.103	mS/cm	1.111	mS/cm
TEMPERATURE:	12.2	^{o}C	12.3	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 1:45 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24

DATE: 12/6/2018
WEATHER: Sunny 30s

WELL ID: OW-16

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 45.8 feet
PURGE VOLUME (GAL): 7.5 gallons
PURGER TYPE: Peristaltic pump

MEASURE POINT: Top of Casing
PURGE RATE (GPM): 0.3 +/-
ELAPSED TIME (MIN): 20 +/-

WATER LEVEL DATA

DEPTH: 0 feet
MEASURE POINT: Top of Casing

ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1	READING 2
pH:	6.82 pH UNITS	6.83 pH UNITS
SPEC. COND:	0.947 mS/cm	0.947 mS/cm
TEMPERATURE:	11.4 °C	11.4 °C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

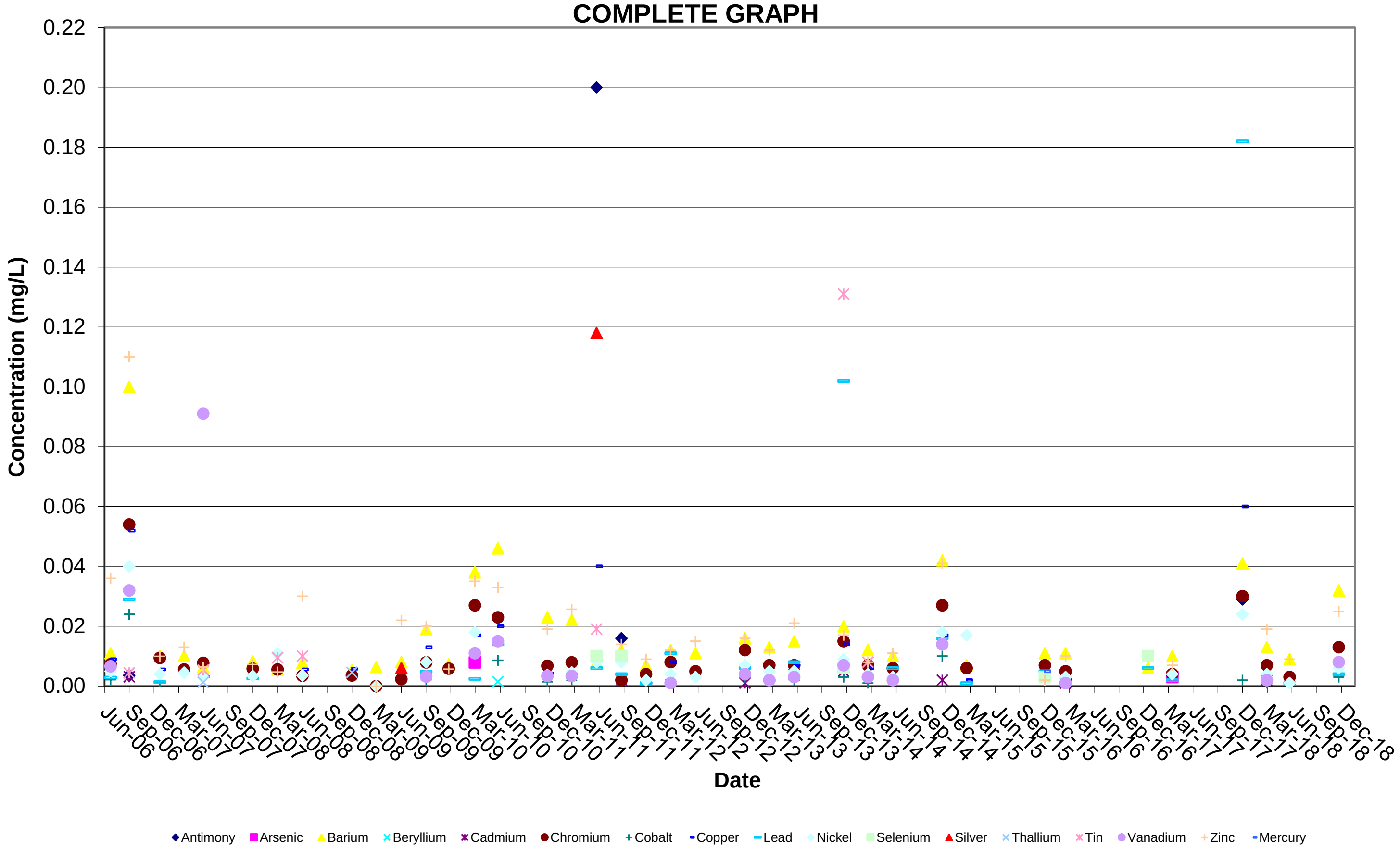
Samples were collected at 12:15 PM.

APPENDIX F

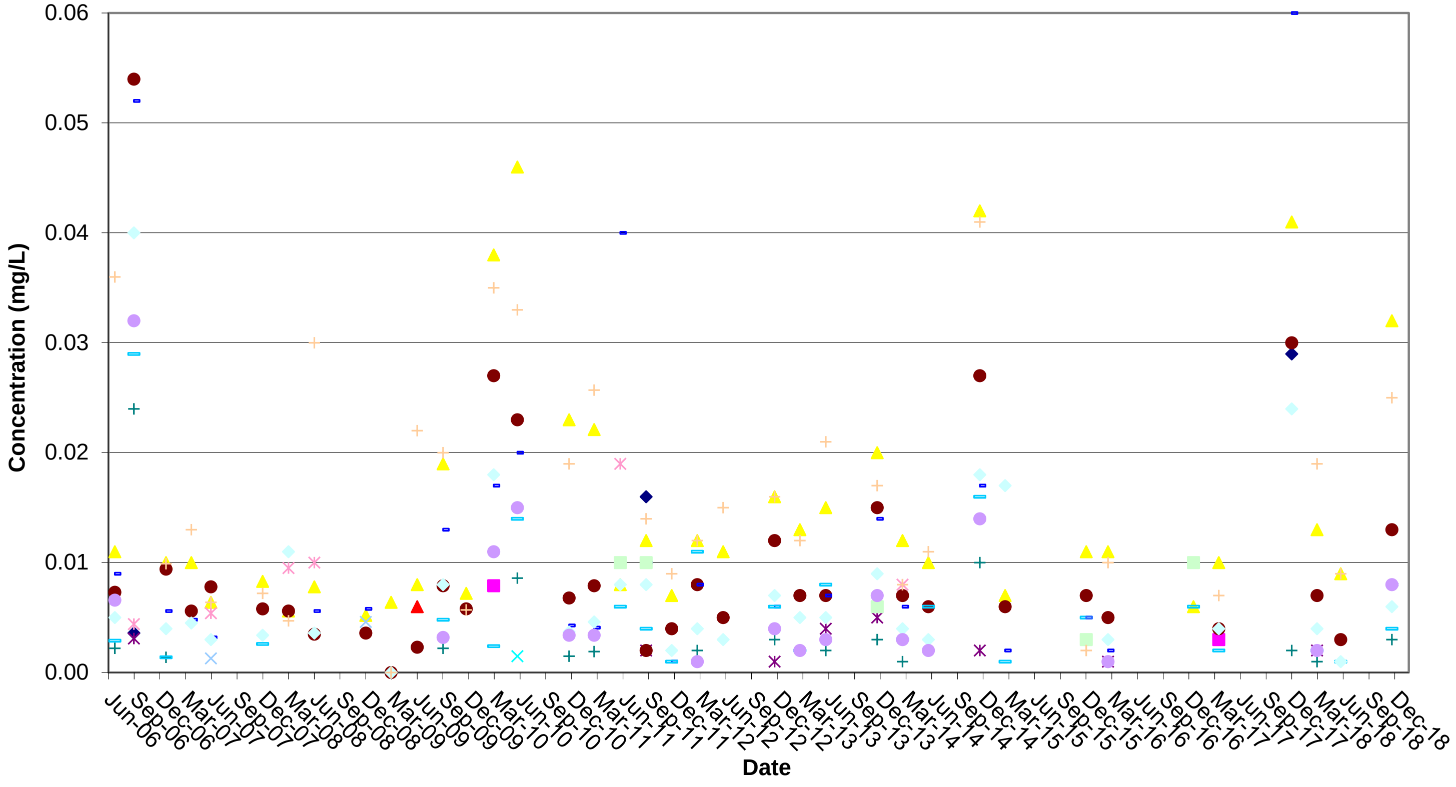
Historical Data Summary Plots

Detected Appendix A Metals in OW-9
Tiverton Landfill

COMPLETE GRAPH

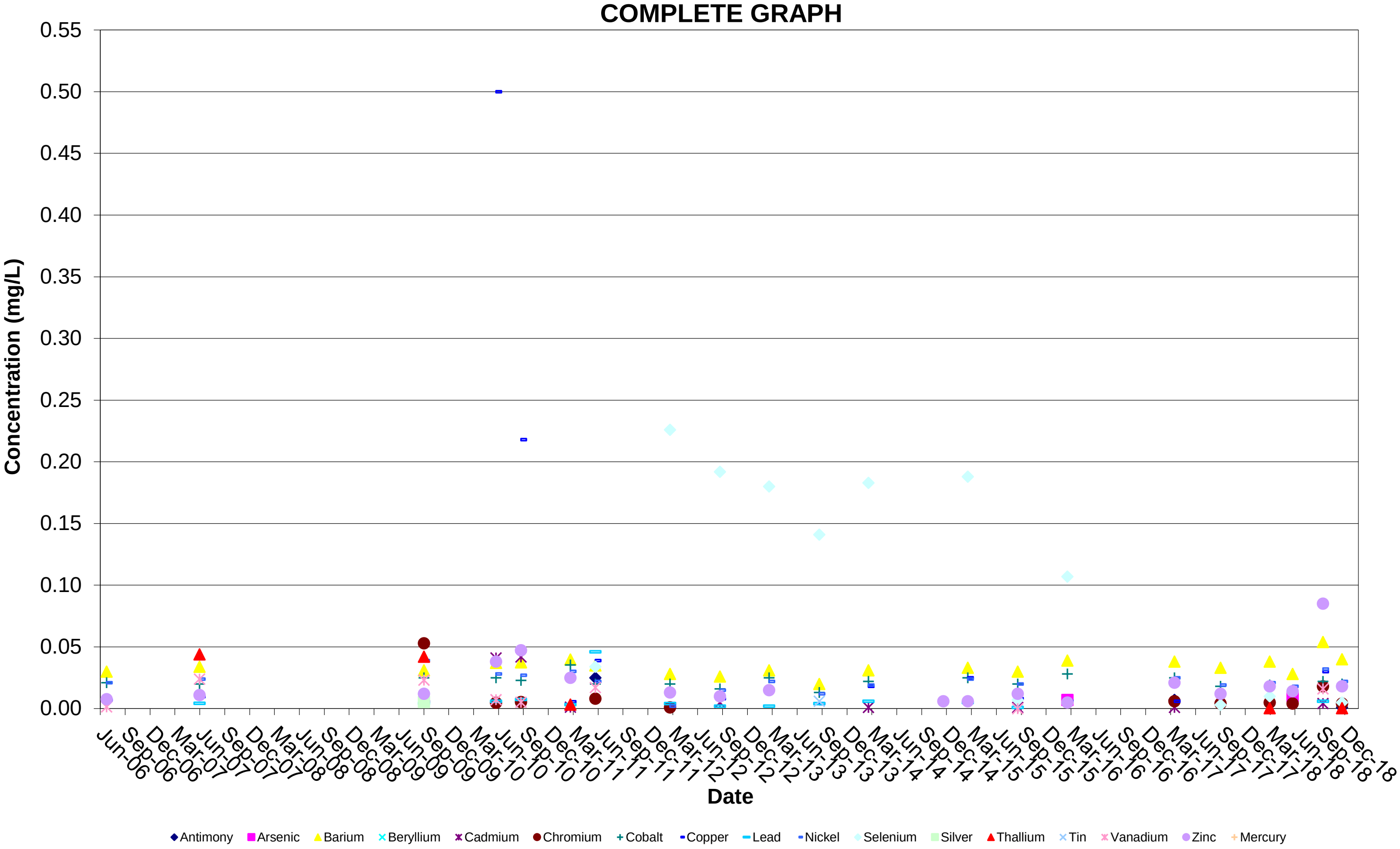


TRUNCATED GRAPH

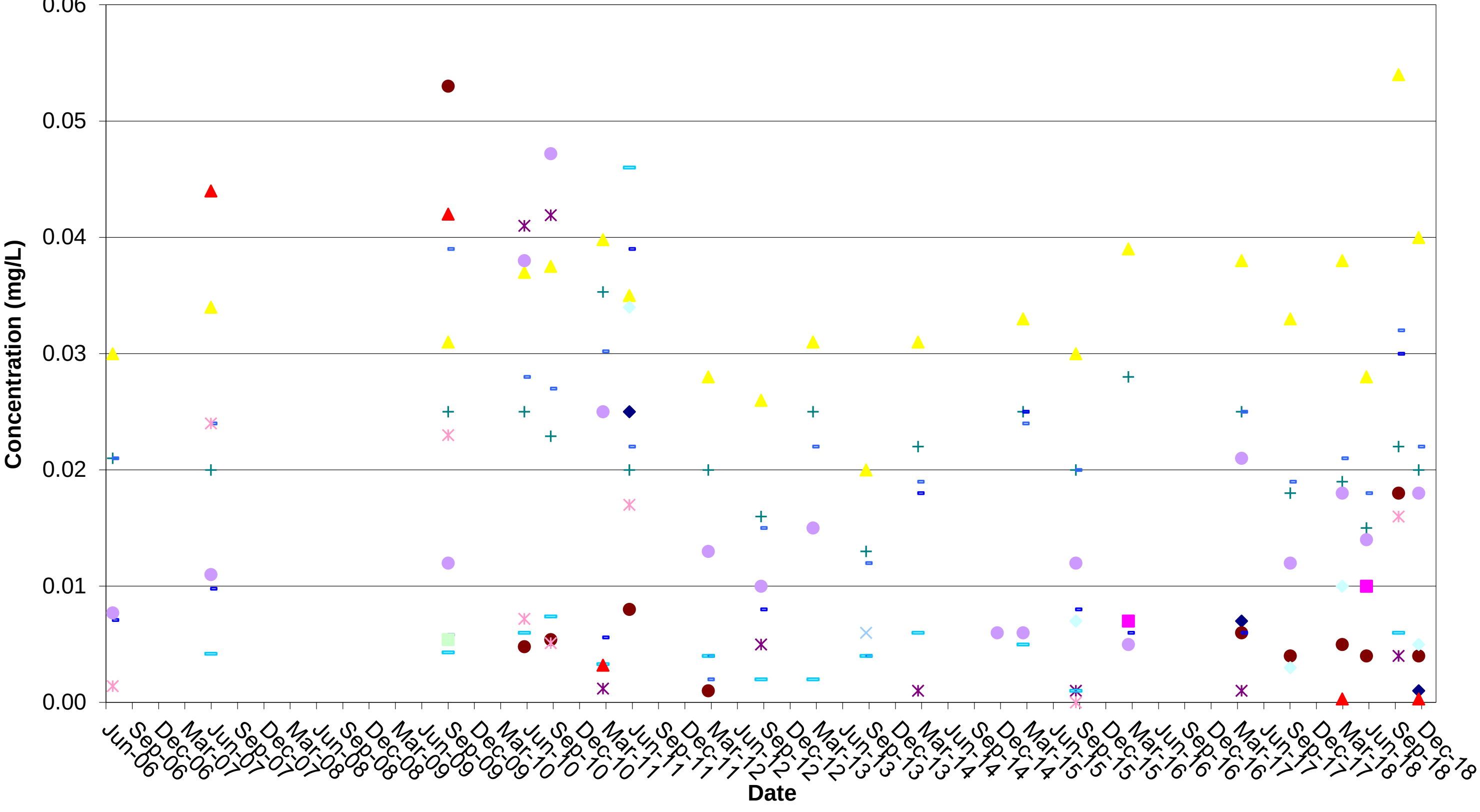


Detected Appendix A Metals in OW-7
Tiverton Landfill

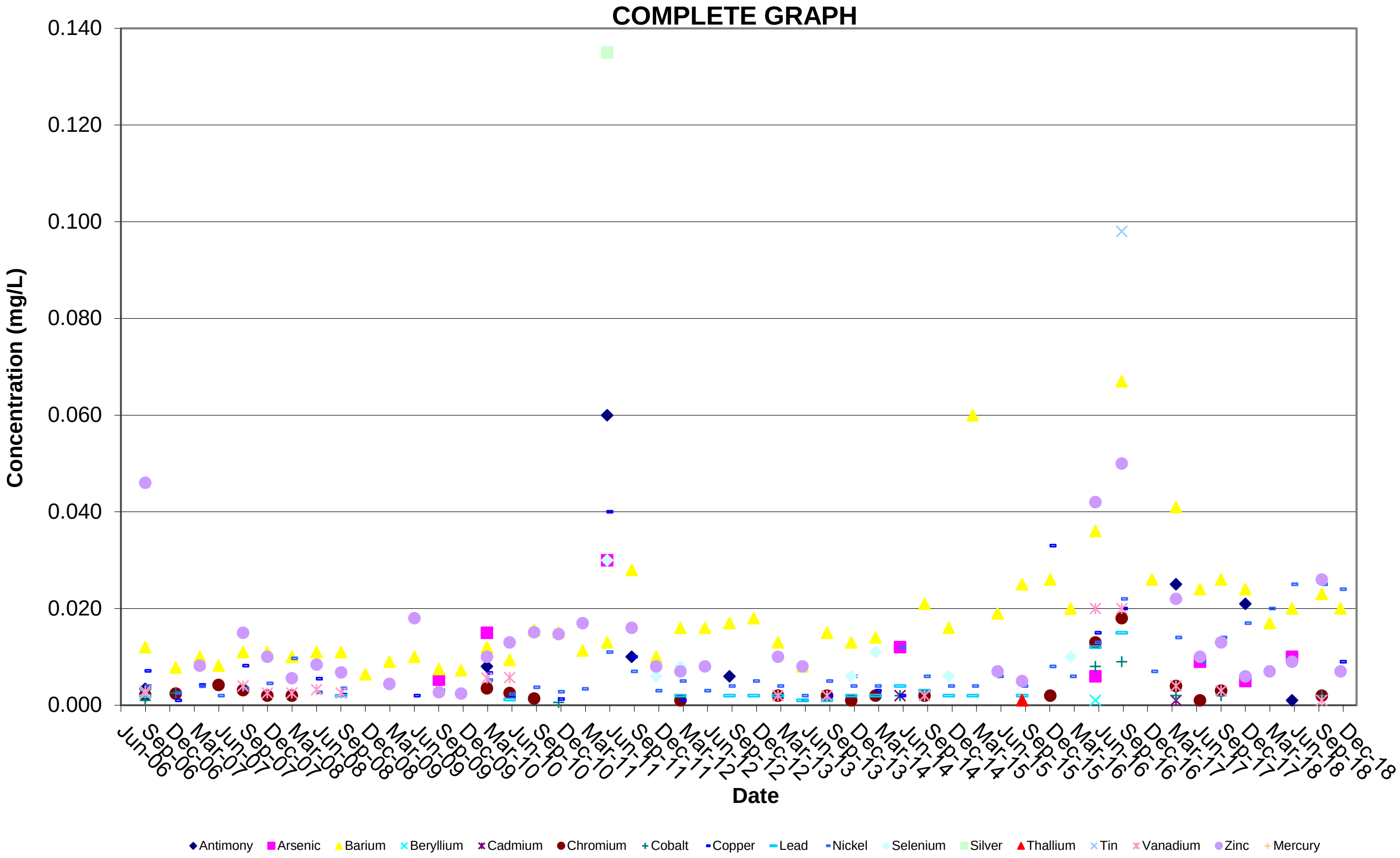
COMPLETE GRAPH

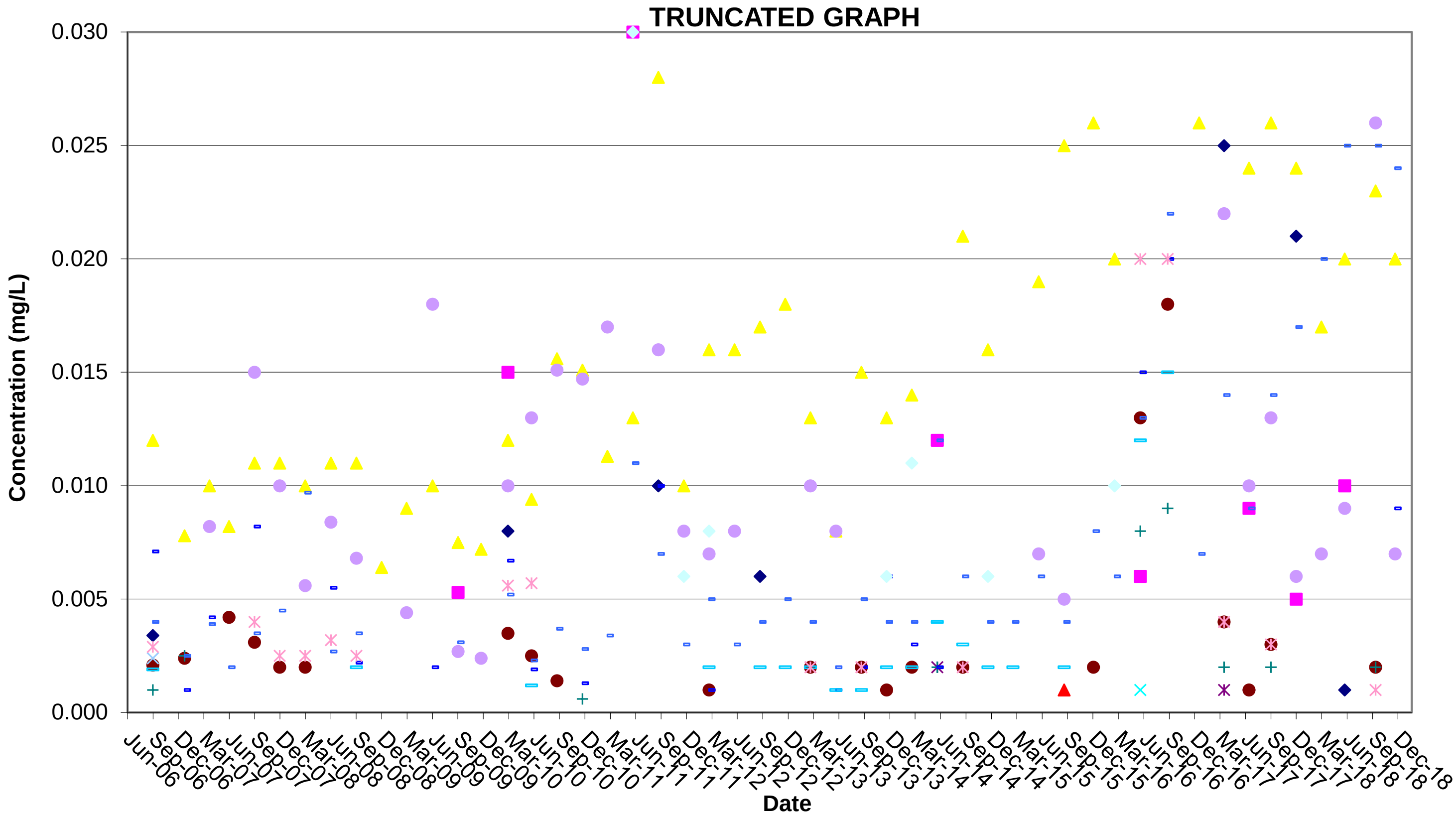


TRUNCATED GRAPH

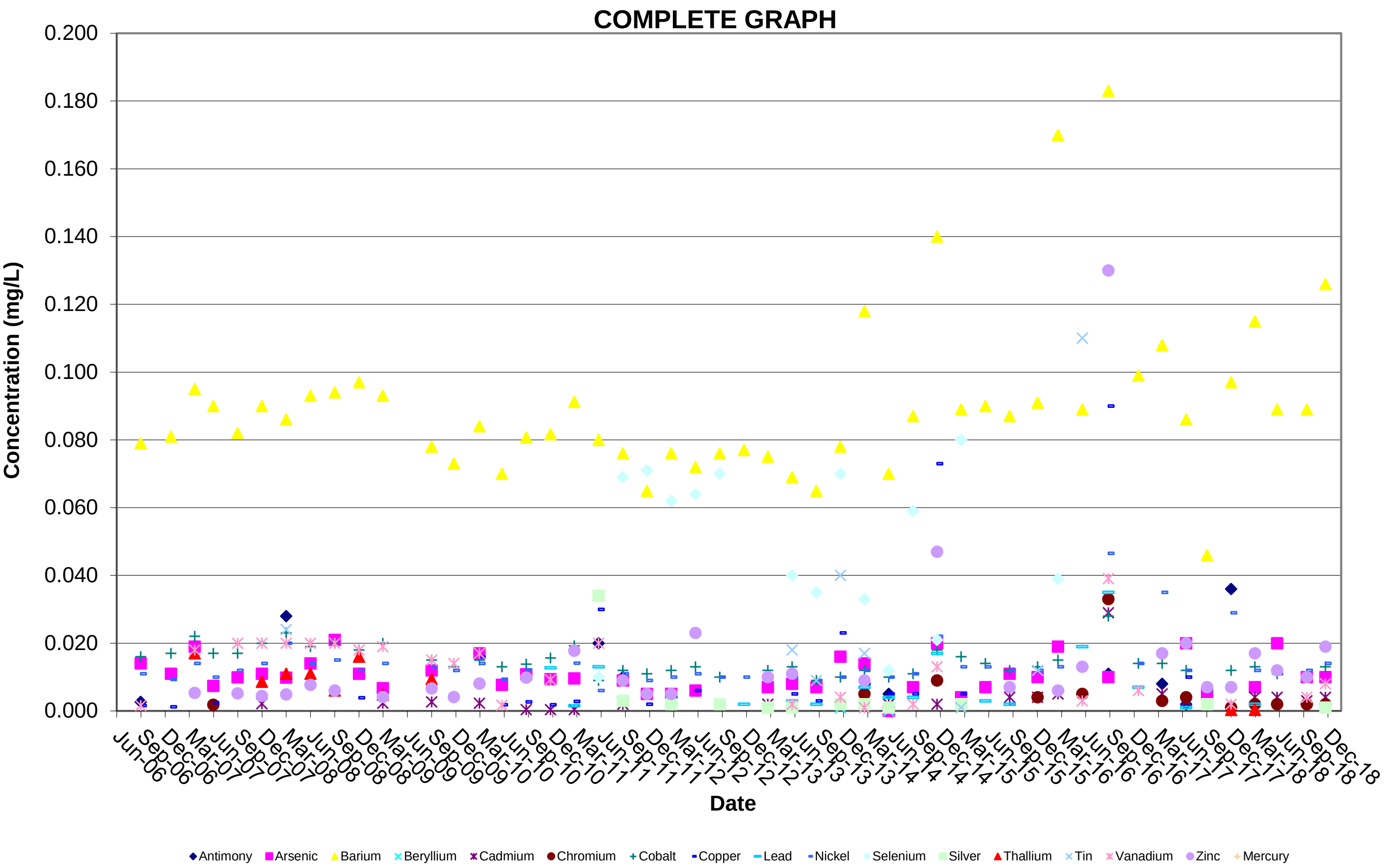


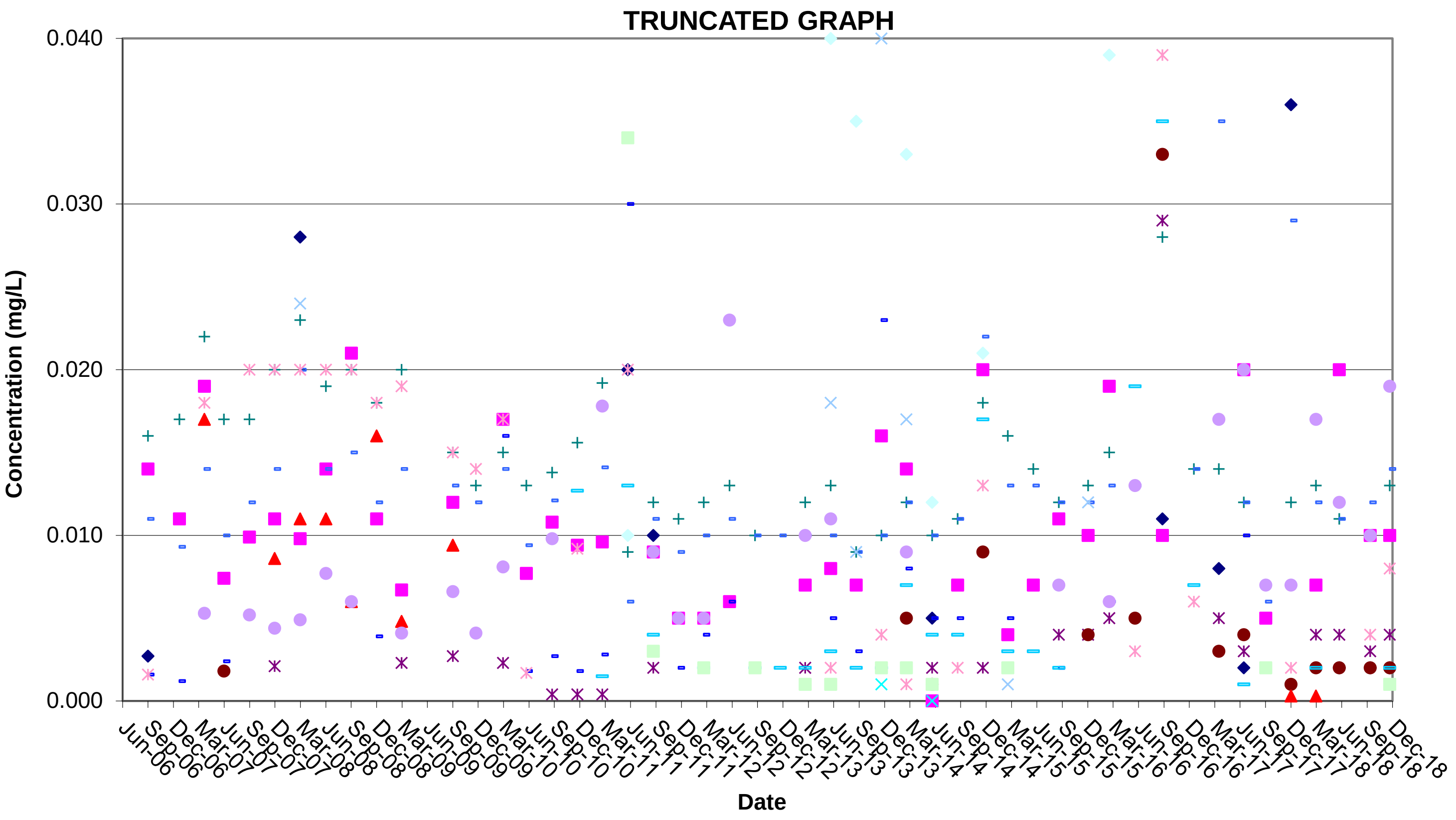
Detected Appendix A Metals in OW-12
Tiverton Landfill


COMPLETE GRAPH

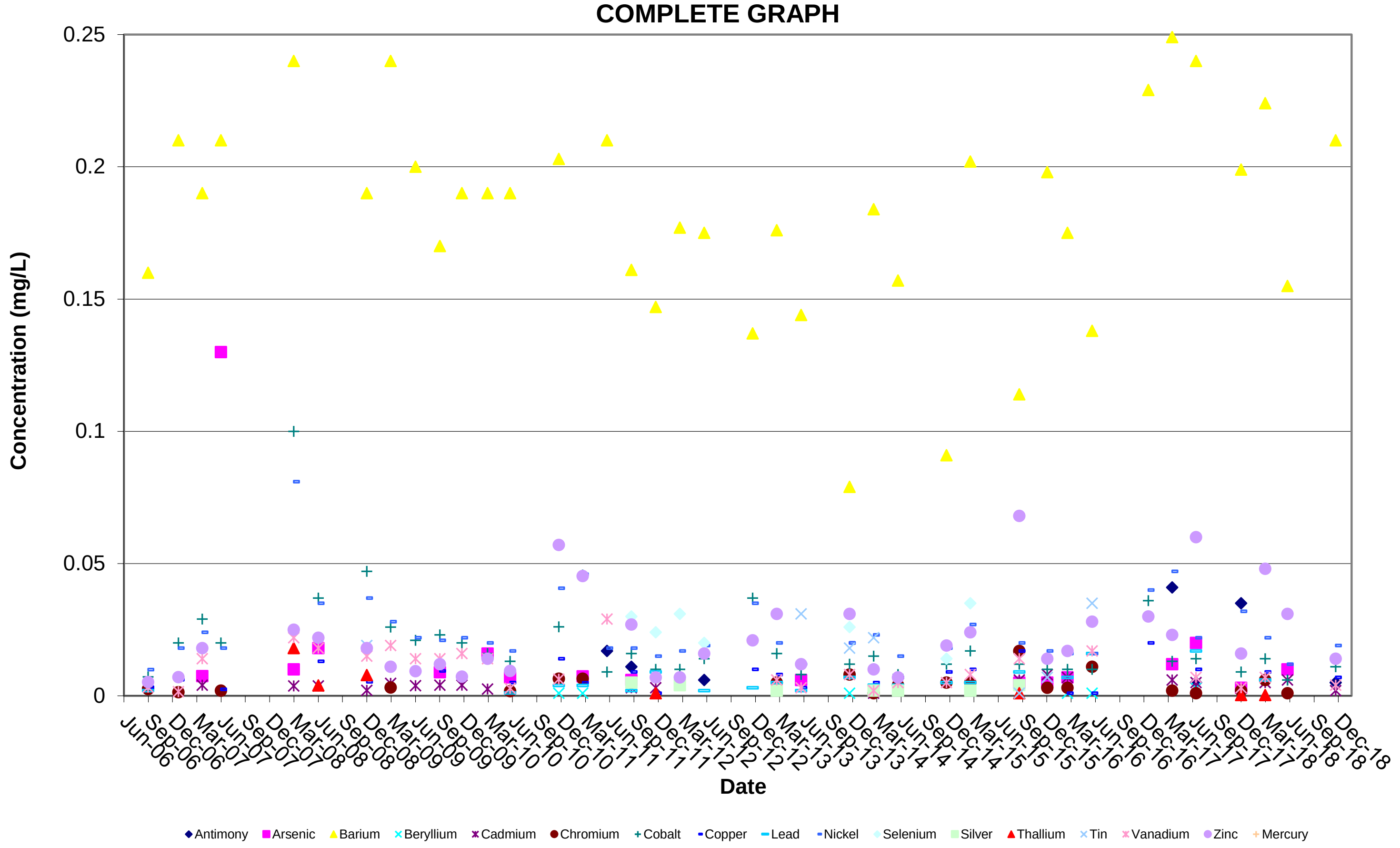

TRUNCATED GRAPH

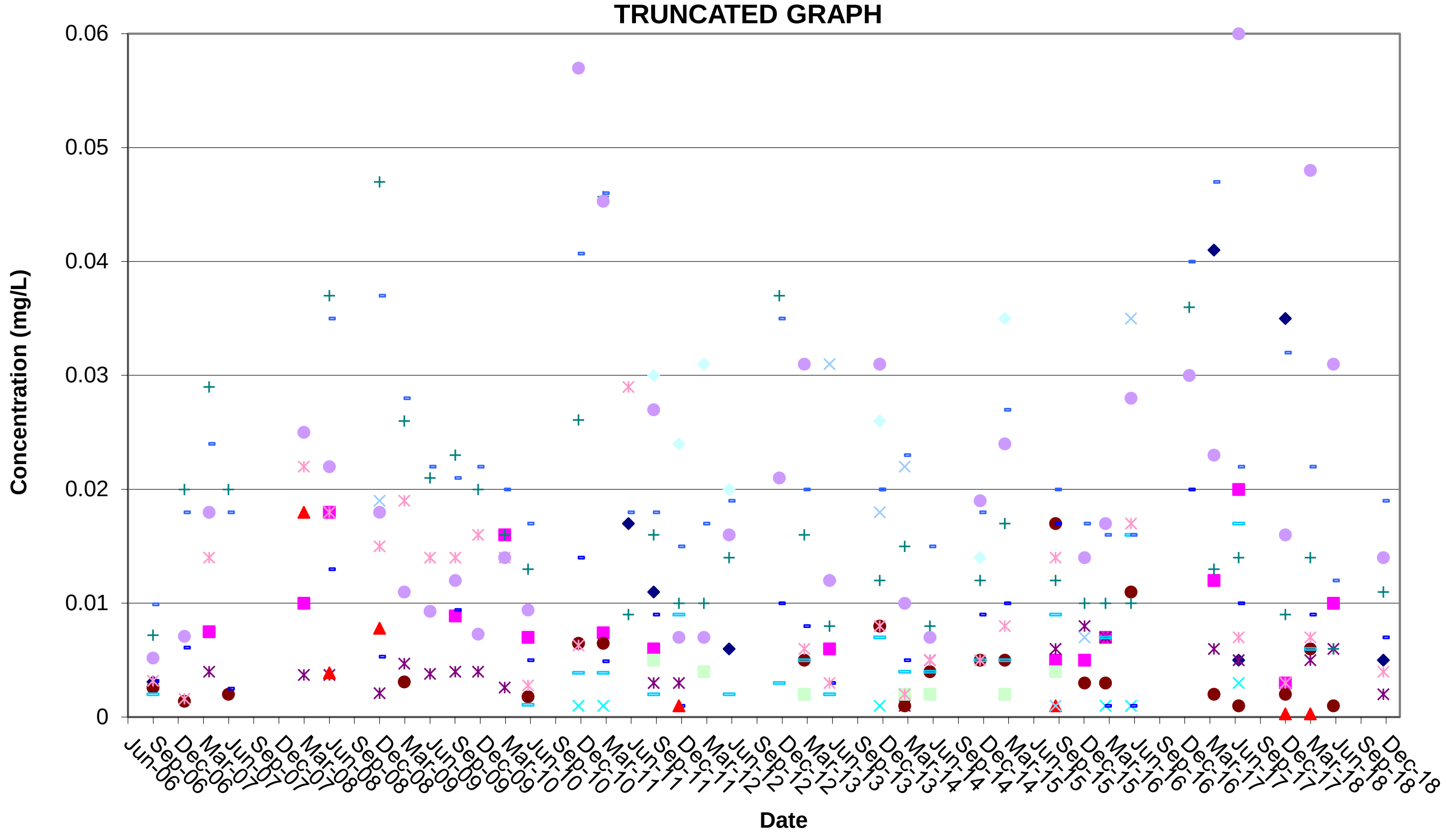
Detected Appendix A Metals in OW-13
Tiverton Landfill



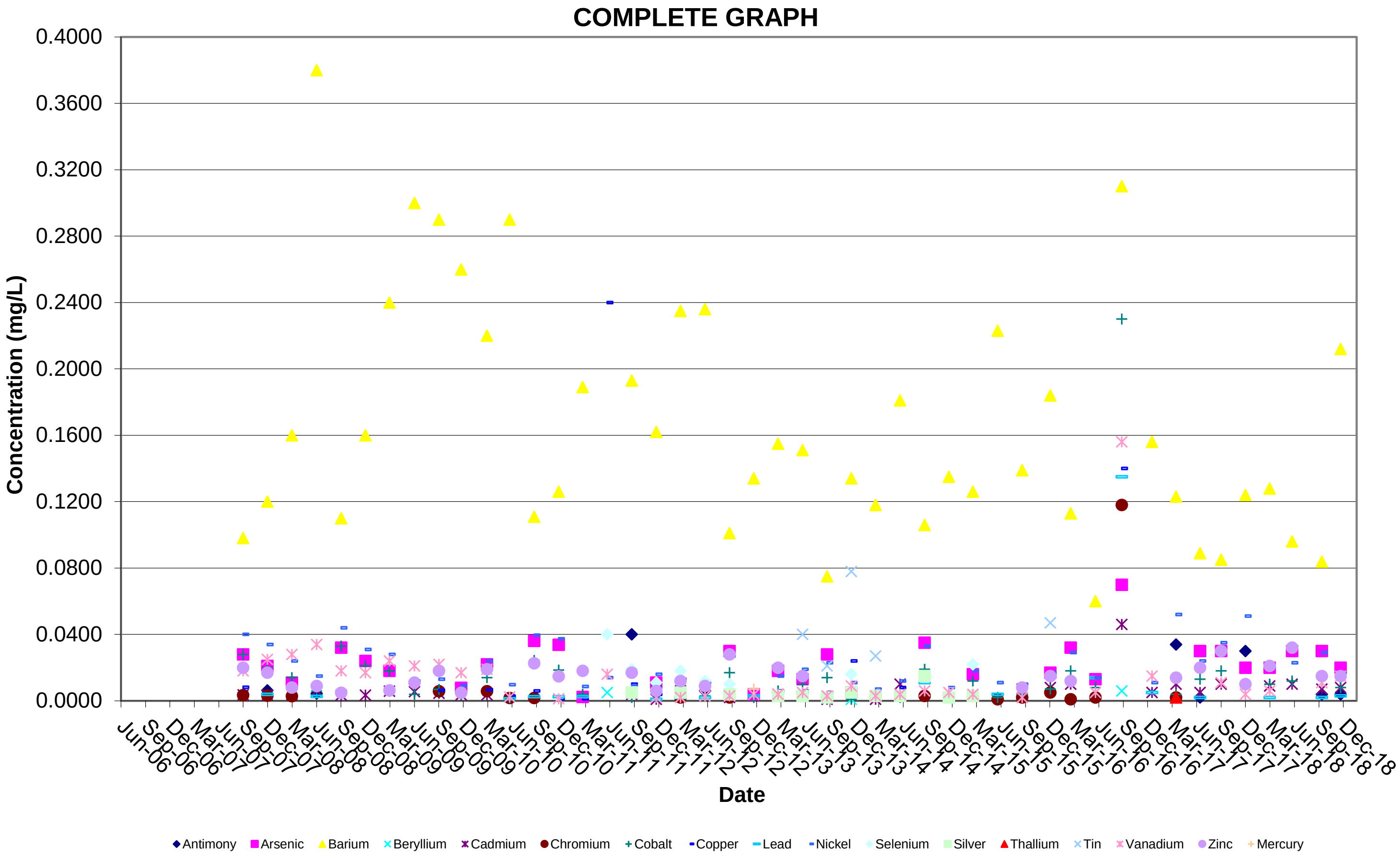


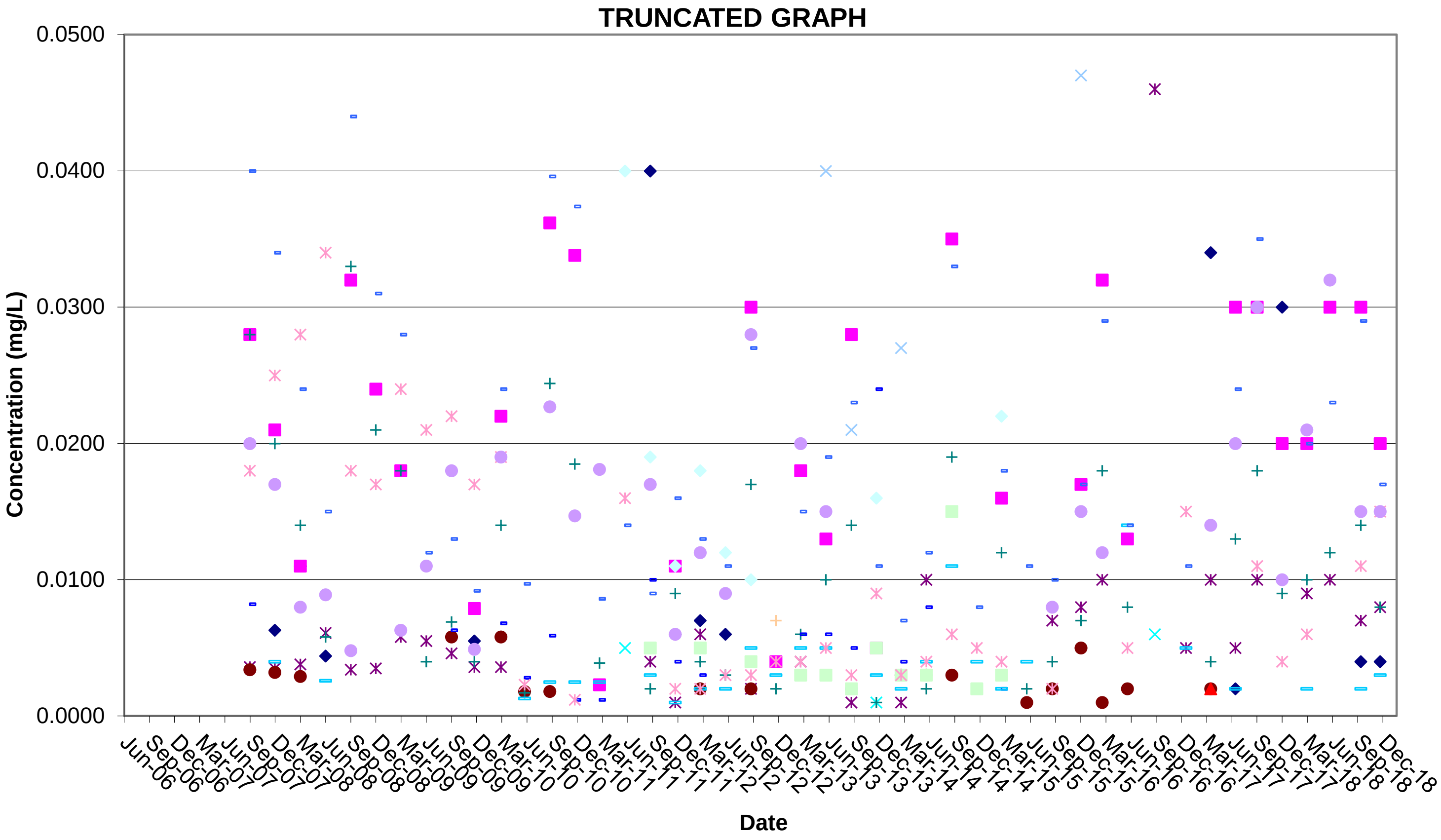
Detected Appendix A Metals in OW-14
Tiverton Landfill



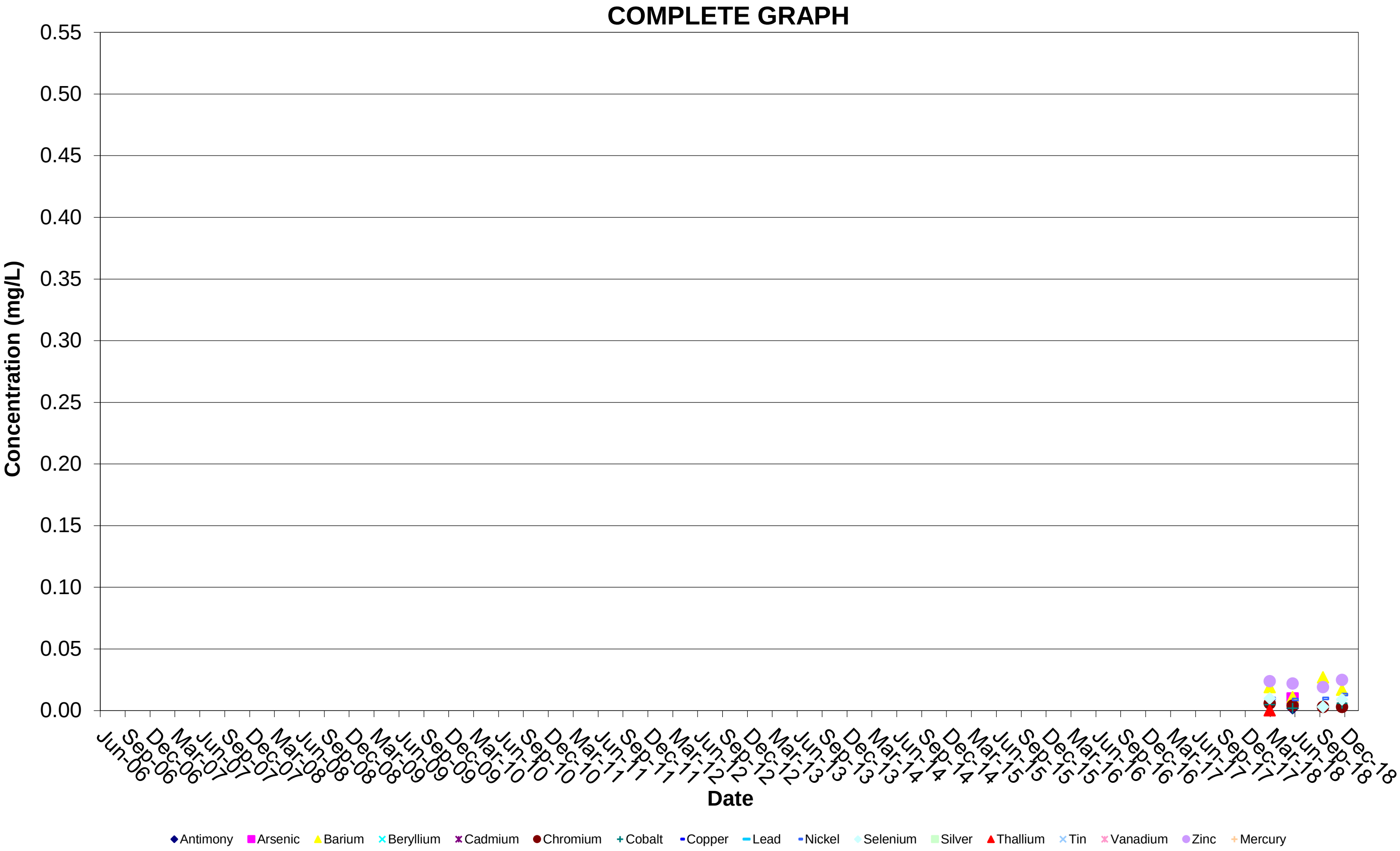


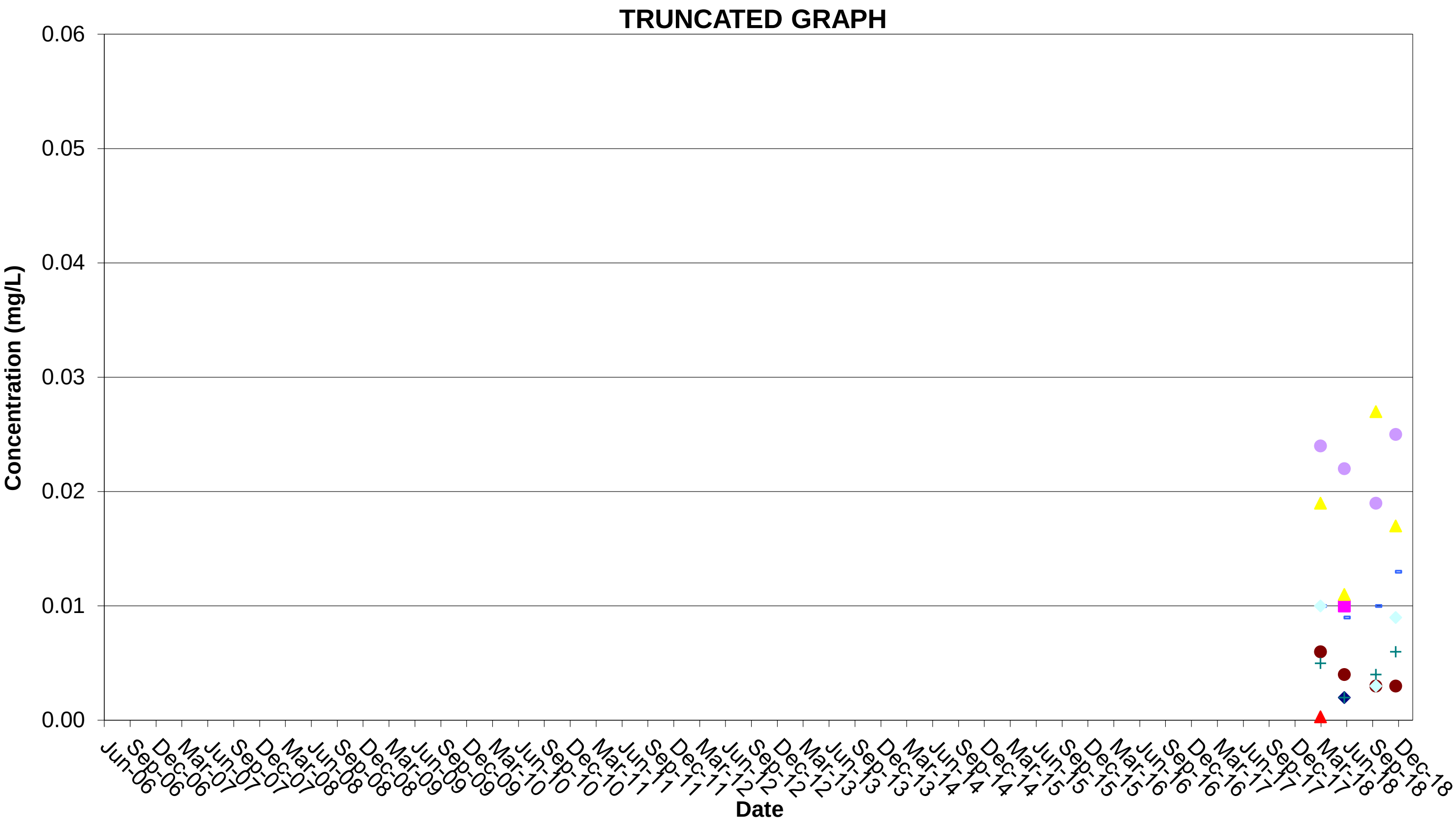
Detected Appendix A Metals in OW-15
Tiverton Landfill





Detected Appendix A Metals in OW-16
Tiverton Landfill


COMPLETE GRAPH


TRUNCATED GRAPH

APPENDIX G

Tolerance Interval Statistical Evaluation

TABLE 3
SUMMARY OF GROUNDWATER MONITORING RESULTS - TOLERANCE INTERVAL COMPARISON
DEC 2018 - SAMPLE ROUND

Concentration (units as specified for Threshold Value)

		OW-9				Background Well			Compliance wells			
	Parameter	**Tolerance Limit * TL=AVG+K*S**		**Threshold Value**		**OW-9**	**OW-7**	**OW-12**	**OW-13**	**OW-14**	**OW-15**	**OW-16**
METALS	Antimony	0.0290	mg/L	0.006	mg/L^{1}	ND	0.0010	ND	0.002	0.005	0.0040	ND
	Arsenic	0.0030	mg/L	0.010	mg/L^{1}	ND	ND	ND	0.01	ND	0.02	ND
	Barium	0.0564	mg/L	2	mg/L^{1}	0.0320	0.0400	0.02	0.126	0.21	0.212	0.0170
	Beryllium	0.0005	mg/L	0.004	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND
	Cadmium	0.3650	mg/L	0.005	mg/L^{1}	ND	ND	ND	0.004	0.0020	0.008	ND
	Chromium	0.0377	mg/L	0.1	mg/L^{1}	0.013	0.004	ND	0.002	ND	ND	0.0030
	Cobalt	0.0030	mg/L	0.73	mg/L^{5}	0.0030	0.020	ND	0.013	0.011	0.008	0.006
	Copper	0.0080	mg/L	1.3	mg/L^{1}	0.0080	ND	0.009	ND	0.007	ND	ND
	Lead	0.2245	mg/L	0.015	mg/L^{1}	0.004	ND	ND	0.002	ND	0.0030	ND
	Mercury	0.0001	mg/L	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND
	Nickel	0.0293	mg/L	0.1	mg/L^{2}	0.006	0.022	0.024	0.014	0.019	0.017	0.0130
	Selenium	0.0100	mg/L	0.05	mg/L^{1}	ND	0.0050	ND	ND	ND	ND	0.0090
	Silver	0.0005	mg/L	0.1	mg/L^{2,3}	ND	ND	ND	0.001	ND	ND	ND
	Thallium	0.0001	mg/L	0.002	mg/L^{1}	ND	0.0003	ND	ND	ND	ND	ND
	Tin	0.0010	mg/L	22	mg/L^{5}	ND	ND	ND	ND	ND	ND	ND
	Vanadium	0.0080	mg/L	0.26	mg/L^{5}	0.0080	ND	ND	0.008	0.004	0.0150	ND
	Zinc	13.7195	mg/L	2 - 5	mg/L^{2,3}	0.0250	0.0180	0.007	0.019	0.014	0.0150	0.0250
VOC'S	Acetone			610	µg/L^{5}							
	Acrylonitrile			0.039	µg/L^{5}							
	Benzene			5	µg/L^{1}							
	Bromochloromethane			80	µg/L^{2}							
	Bromodichloromethane (THM)			90	µg/L^{1}							
	Bromoform			80	µg/L^{1}							
	Carbon disulfide			1000	µg/L^{5}							
	Carbon tetrachloride			5	µg/L^{1}							
	Chlorobenzene			100	µg/L^{1}							
	Chloroethane			4.6	µg/L^{5}							
	Chloroform			80	µg/L^{1}							
	Chlorodibromomethane (THM)			80	µg/L^{1}							
	1,2-Dibromo-3-chloropropane (DBCP)			0.2	µg/L^{1}							
	1,2-Dibromoethane (EDB)			0.05	µg/L^{1}							
	1,2-Dichlorobenzene			600	µg/L^{1}							
	1,4-Dichlorobenzene			75	µg/L^{1}							
	trans-1,4-Dichloro-2-butene				µg/L							
	1,1 -Dichloroethane			5	µg/L							
	1,2-Dichloroethane			5	µg/L^{1}							
	1,1-Dichloroethylene			7	µg/L^{1}							
	cis-1,2-Dichloroethene			70	µg/L^{1}							
	trans-1,2-Dichloroethene			100	µg/L^{1}							
	1,2-Dichloropropane			5	µg/L^{1}							
	cis-1,3-Dichloropropene				µg/L							
	trans-1,3-Dichloropropene				µg/L							
	Ethylbenzene			700	µg/L^{1}							
	Methyl butyl ketone(2-Hexanone)			160	µg/L^{5}							
	Bromomethane			10	µg/L^{2}							
	Chloromethane			30	µg/L^{2}							
	Dibromomethane			61	µg/L^{5}							
	Methylene chloride			5	µg/L^{1}							
	Methyl ethyl ketone(2-Butanone)			4000	µg/L^{2}							
	Methyl iodide				µg/L							
	4-Methyl-2-pentanone				µg/L							
	Styrene			100	µg/L^{1}							
	1,1,1,2-Tetrachloroethane			70	µg/L^{2}							
	1,1,2,2-Tetrachloroethane			0.3	µg/L^{2}							
	Tetrachloroethylene(PCE)			5	µg/L^{1}							
	Toluene			1000	µg/L^{1}							
	1,1,1-Trichloroethane			200	µg/L^{1}							
	1,1,2-Trichloroethane			5	µg/L^{1}							
	Trichloroethylene(TCE)			5	µg/L^{1}							
	Trichloroflouromethane			2000	µg/L^{2}							
	1,2,3-Trichloropropane			40	µg/L^{2}							
	Vinyl acetate			410	µg/L^{5}							
	Vinyl chloride			2	µg/L^{1}							
	Xylenes			10000	µg/L^{1}							
	Methyl tert-butyl ether (MTBE)			20 - 40	µg/L^{4}							

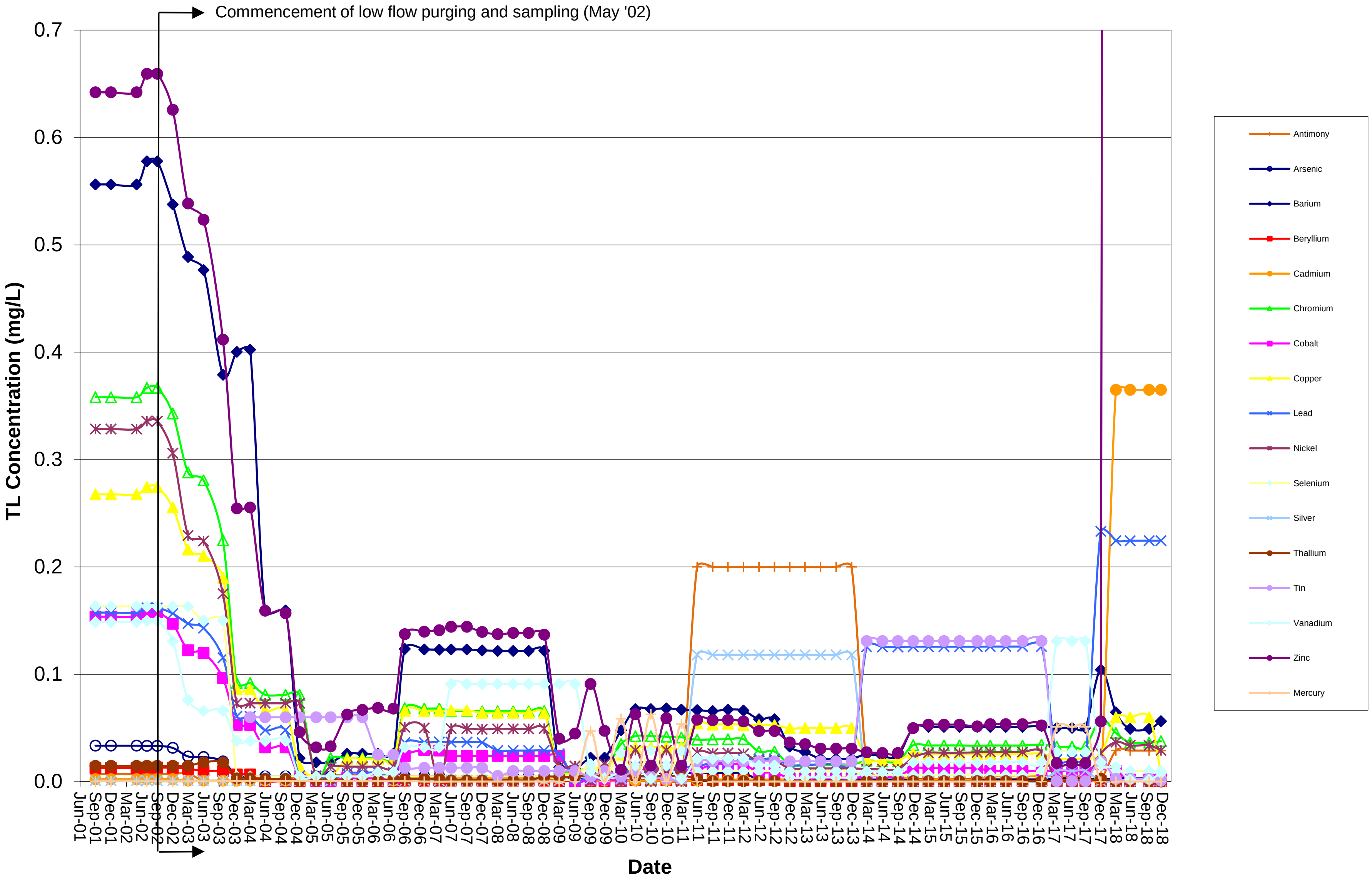
1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

"   " = Exceedance of TL
ND = Not Detected

* Tolerance Limit (TL) constructed from background (upgradient) well data from OW-9.

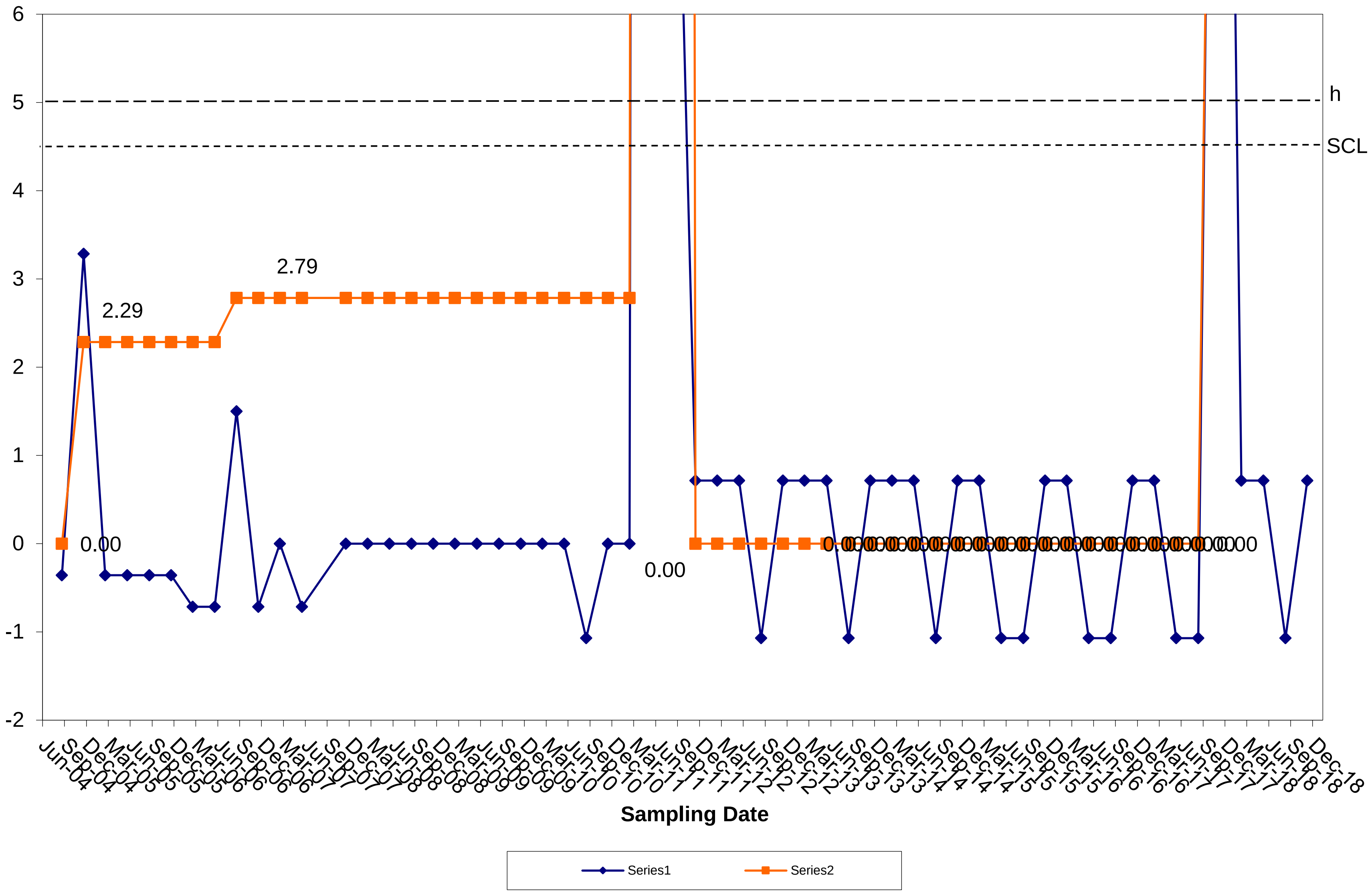
Historical Tolerance Limit Concentrations from Background Well
Tiverton Landfill Compliance Sampling



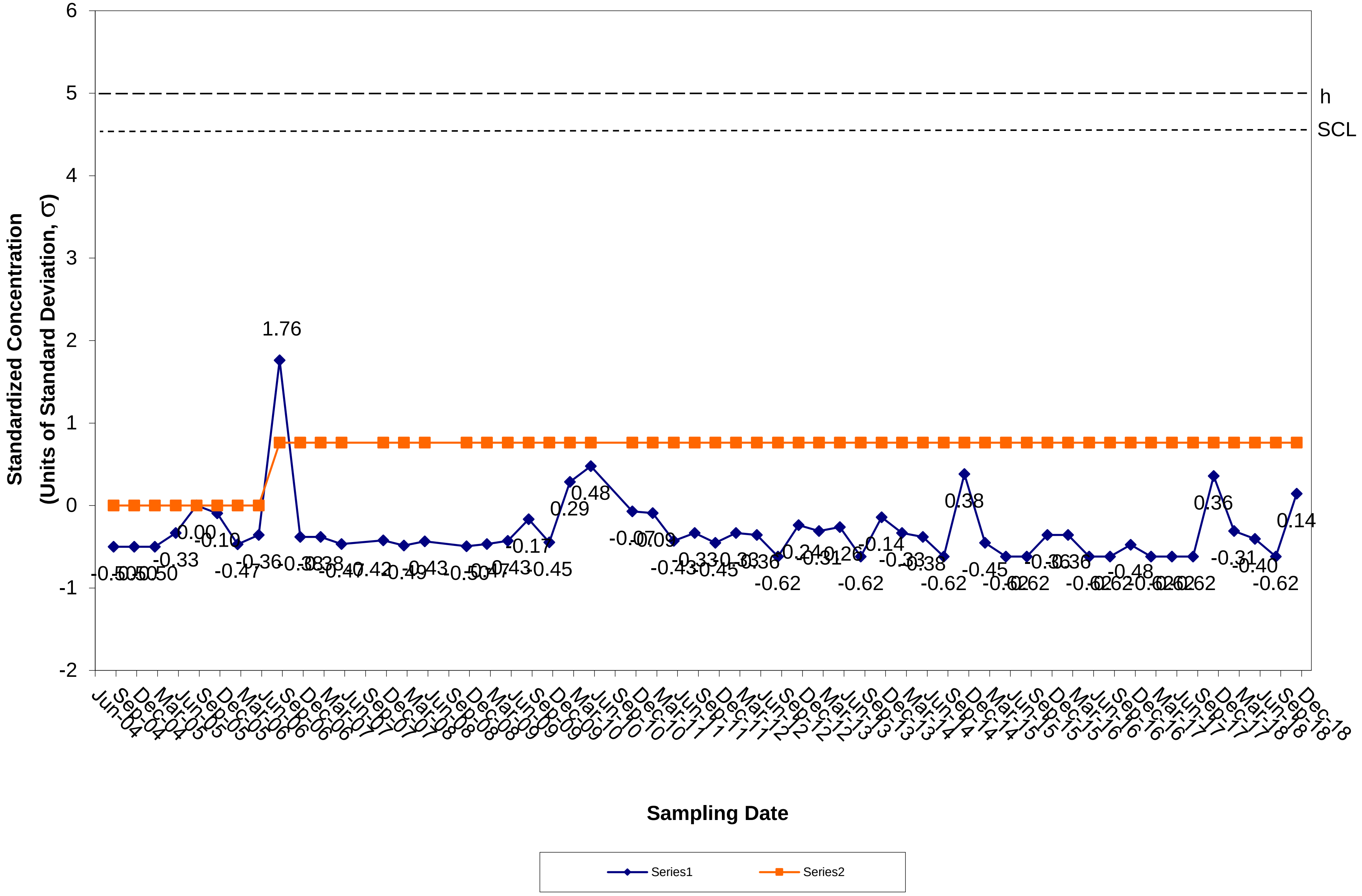
APPENDIX H

Cusum Method Statistical Evaluation

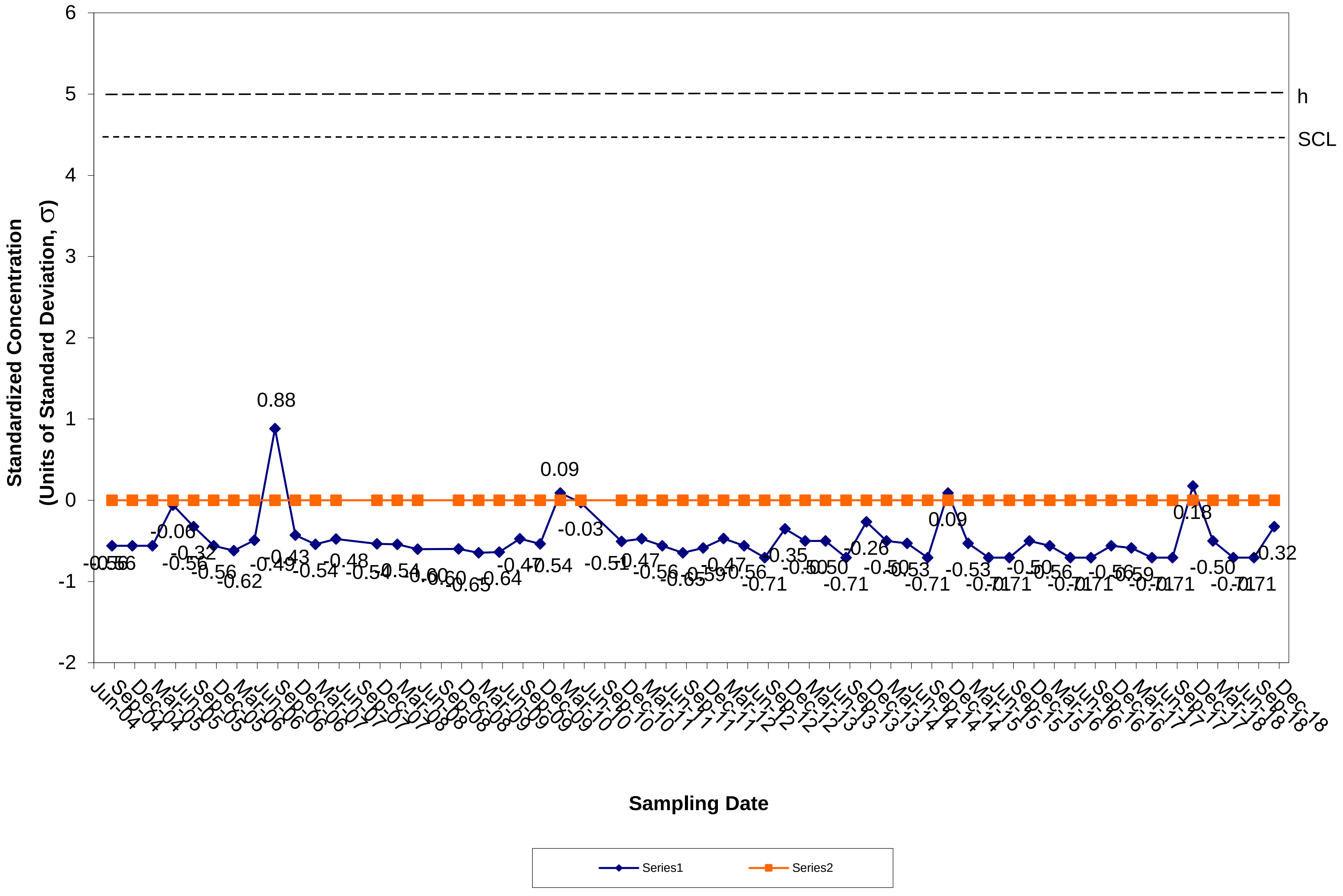
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Complaince Well OW-9



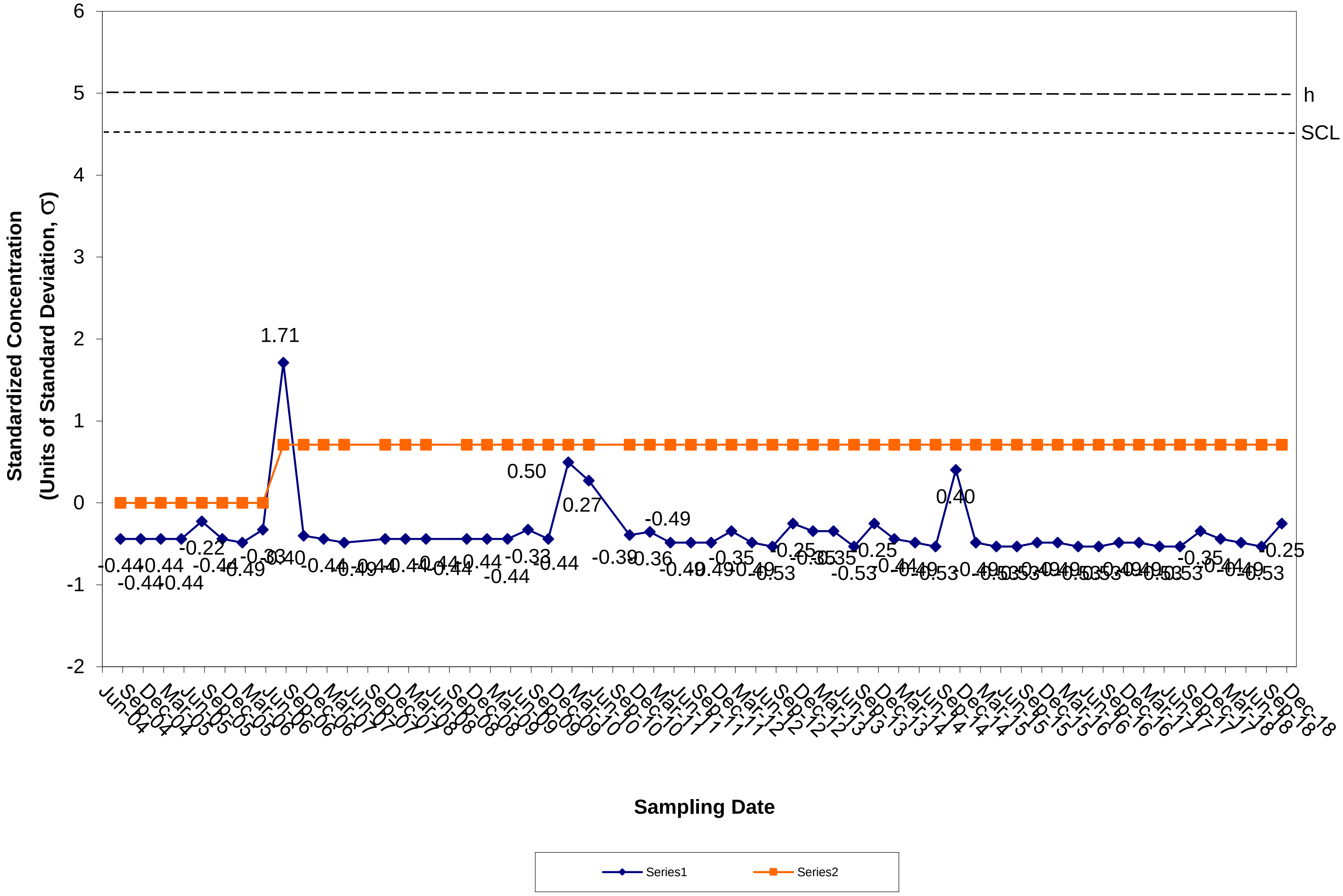
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Background Well OW-9



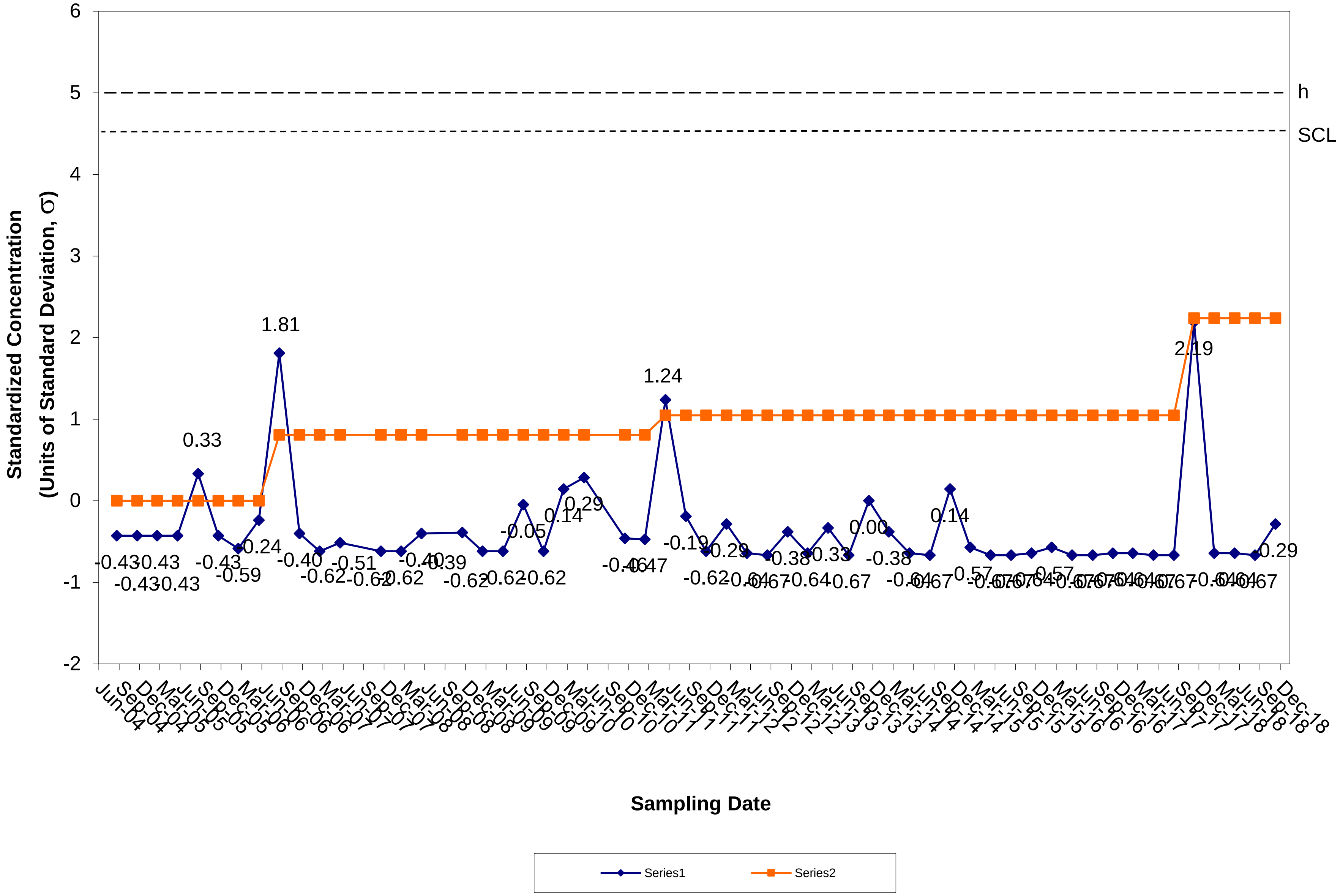
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Background Well OW-9



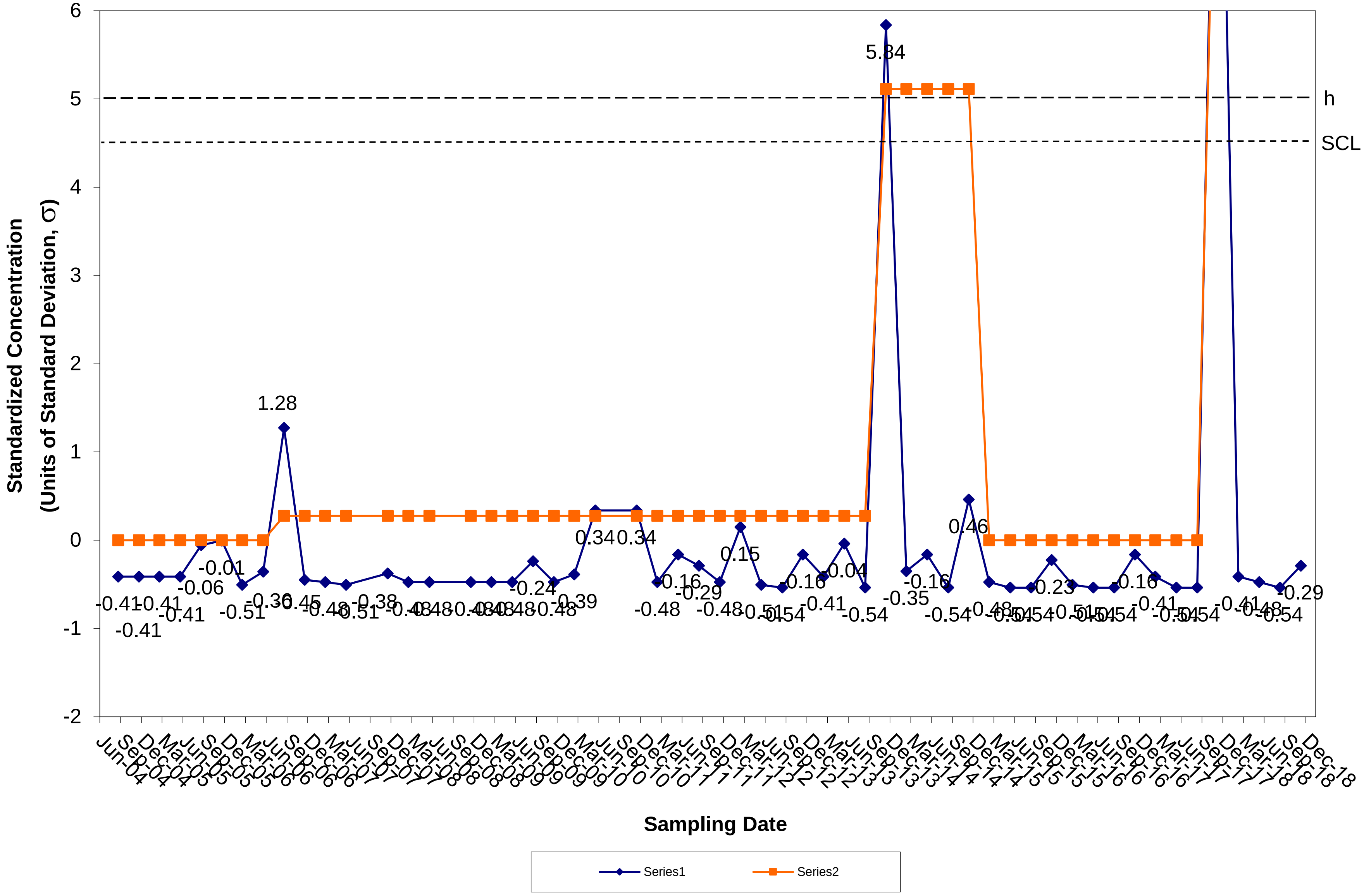
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Background Well OW-9



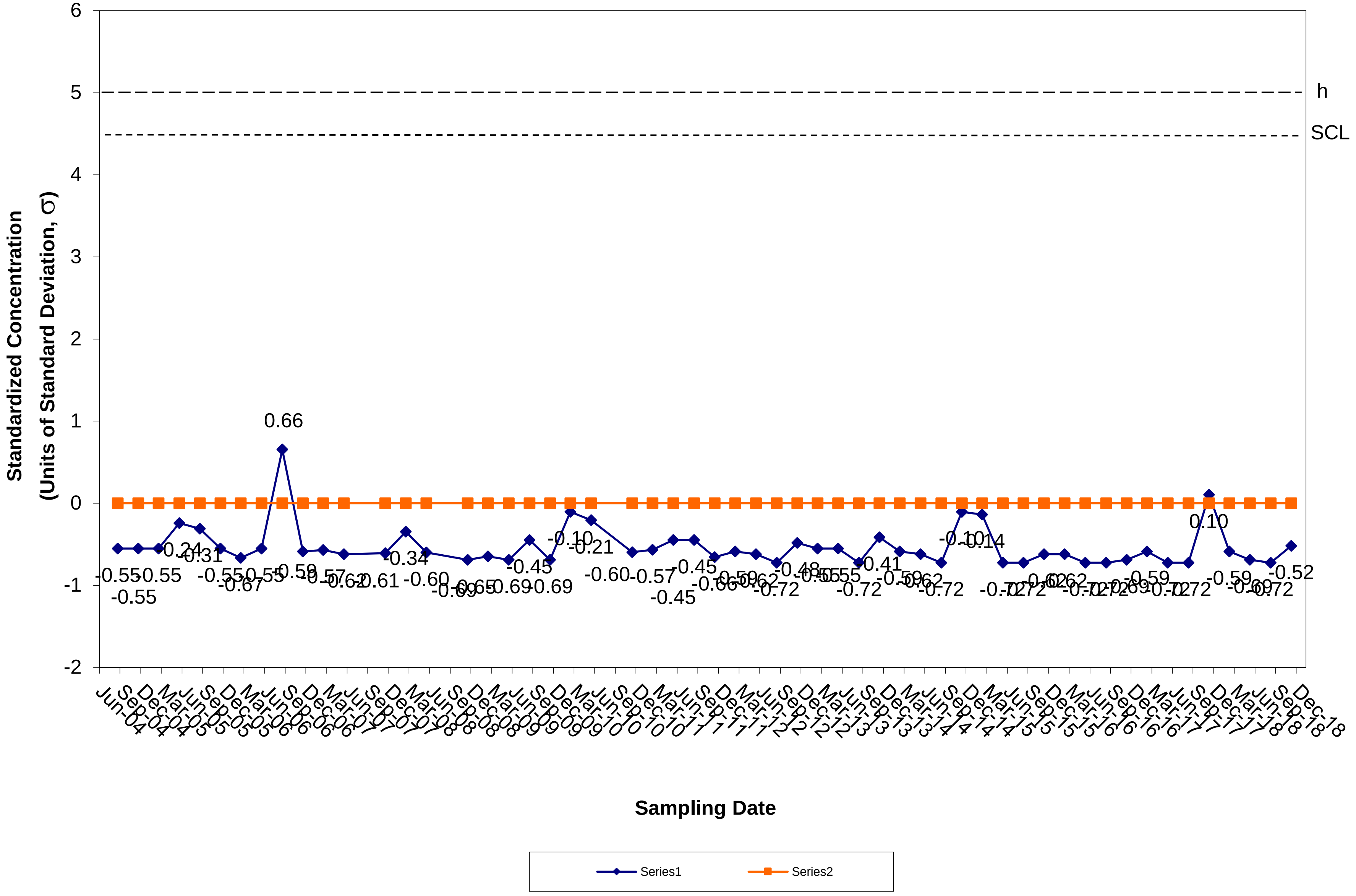
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Background Well OW-9



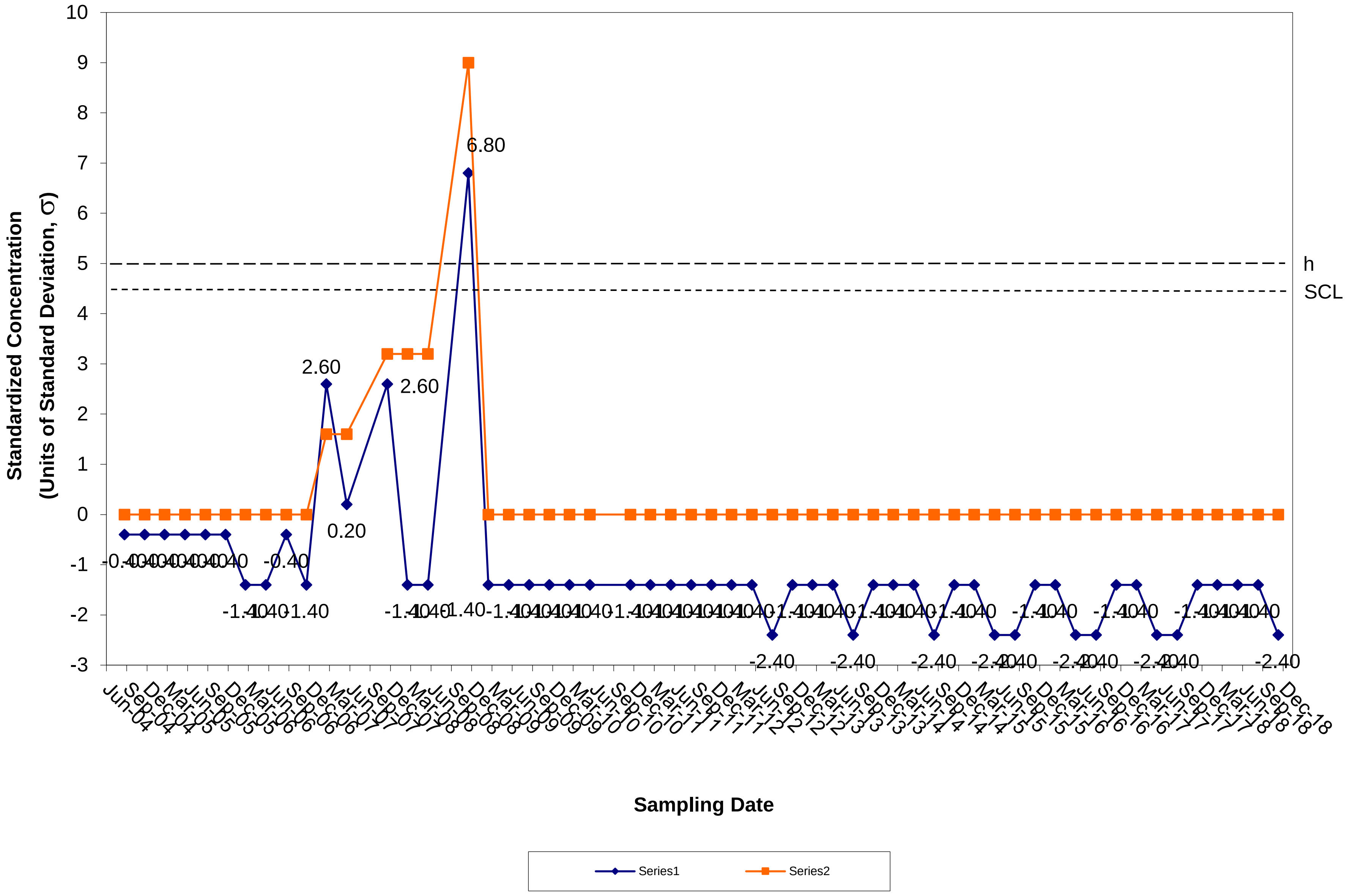
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Background Well OW-9



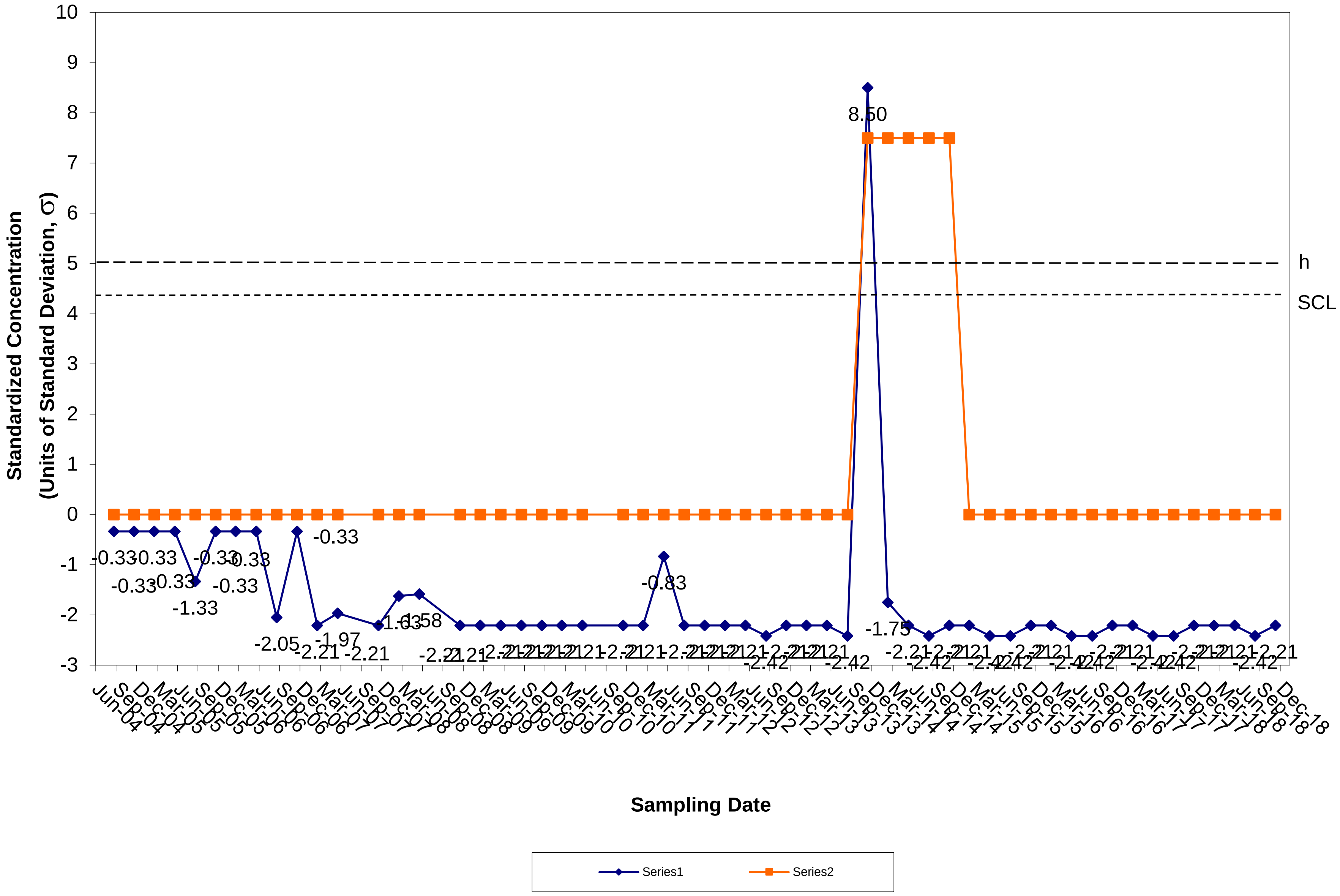
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Background Well OW-9



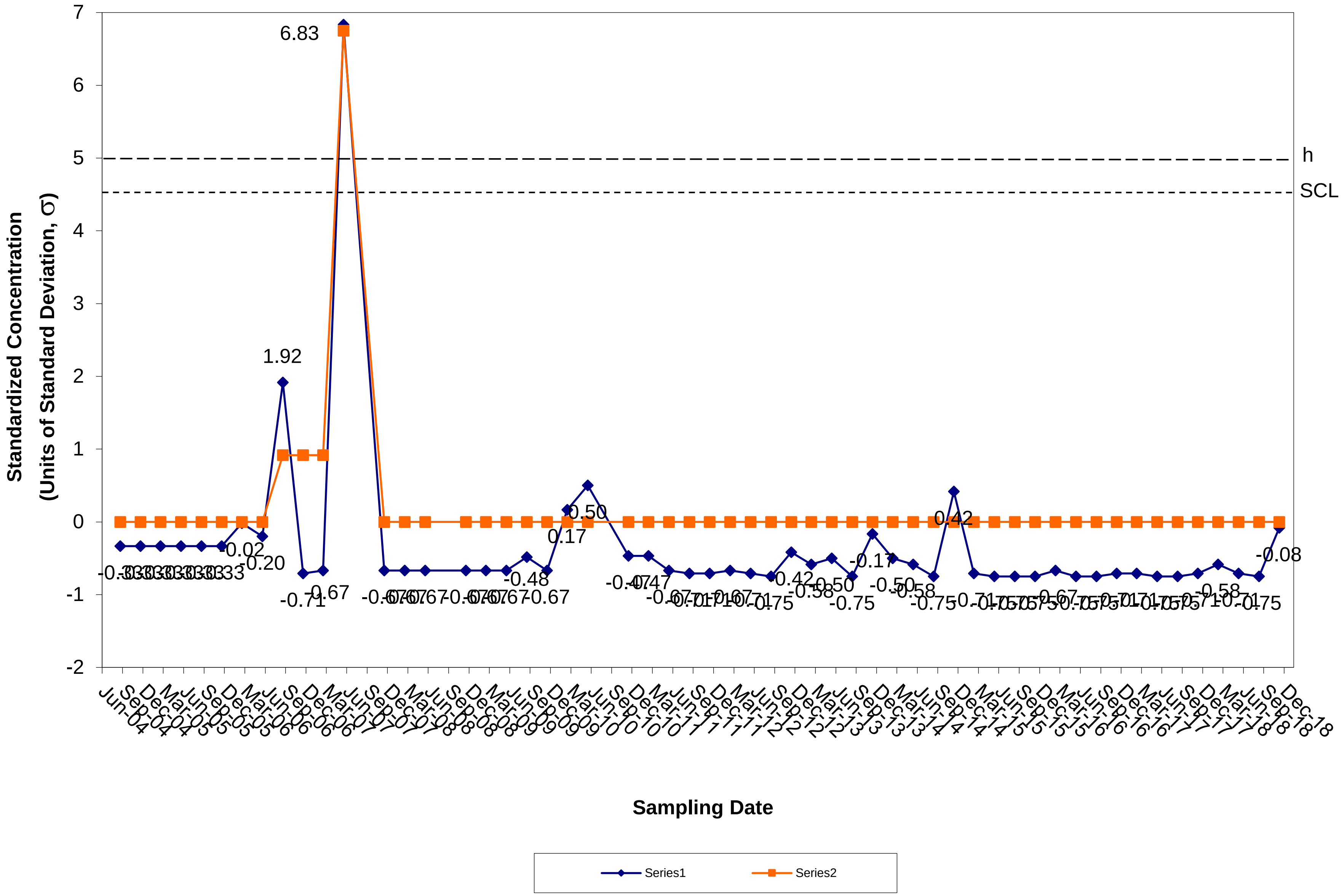
CUSUM Control Chart for Thallium
Tiverton Landfill Groundwater Background Well OW-9



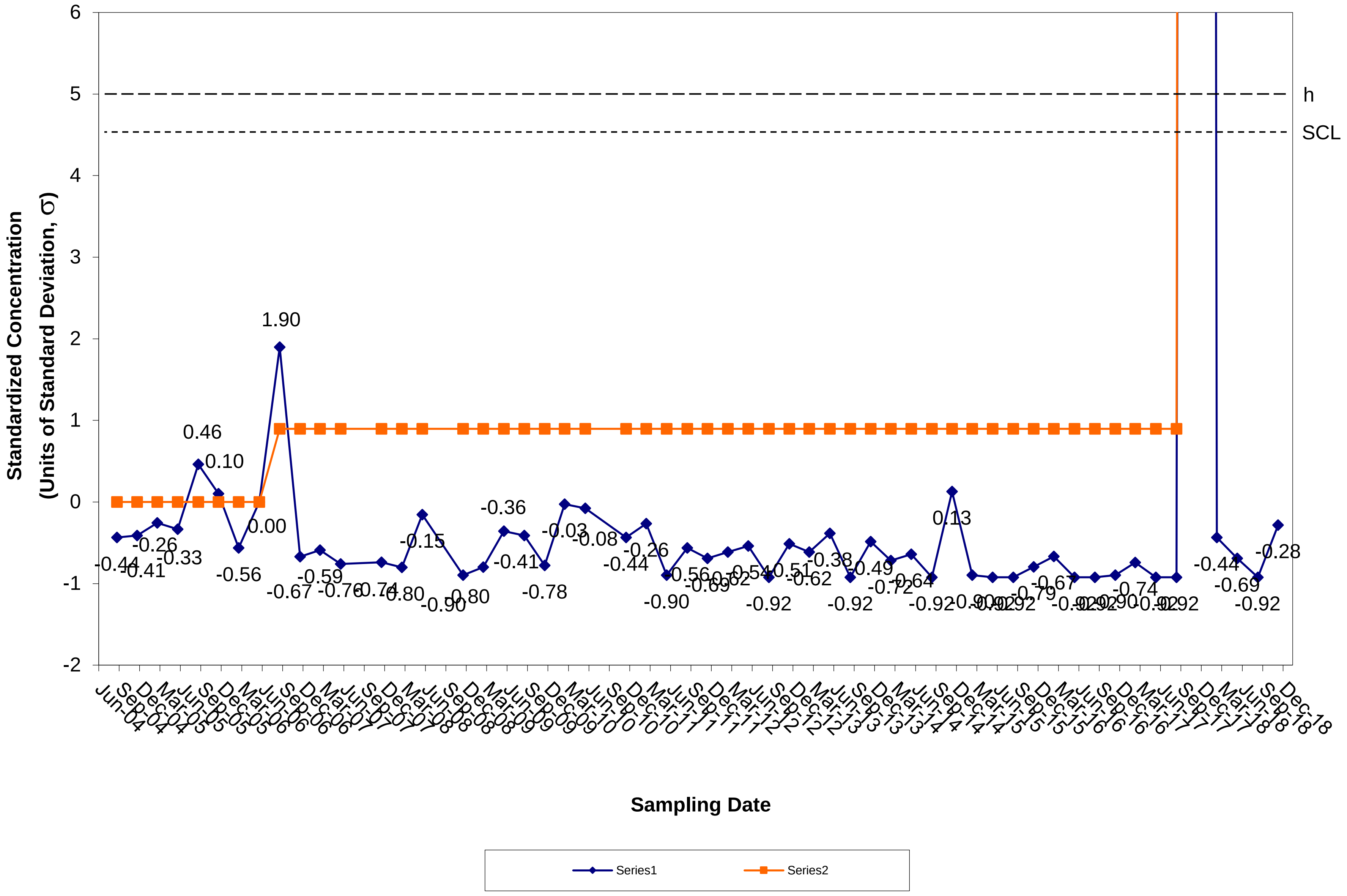
CUSUM Control Chart for Tin
Tiverton Landfill Groundwater Background Well OW-9



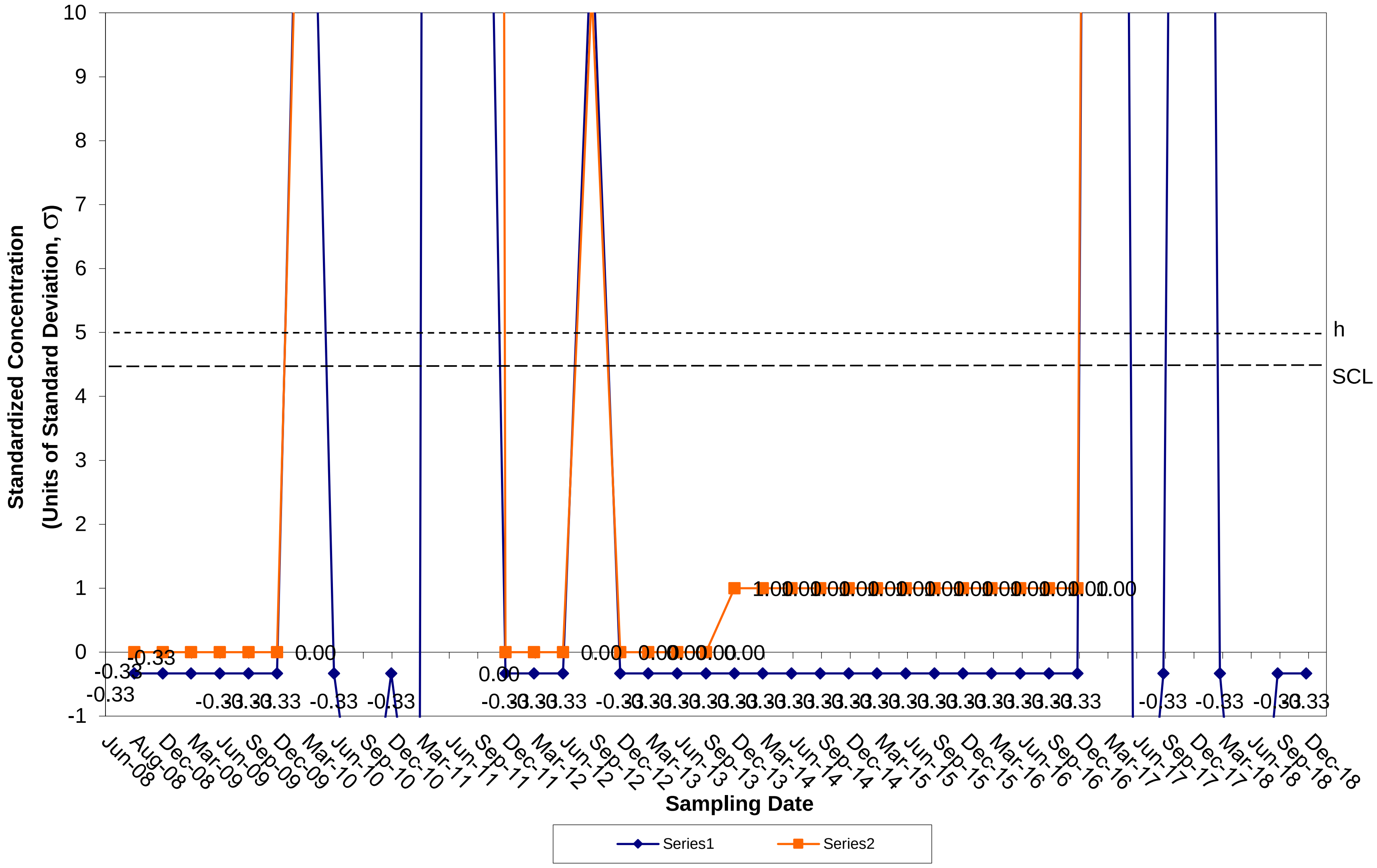
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Background Well OW-9



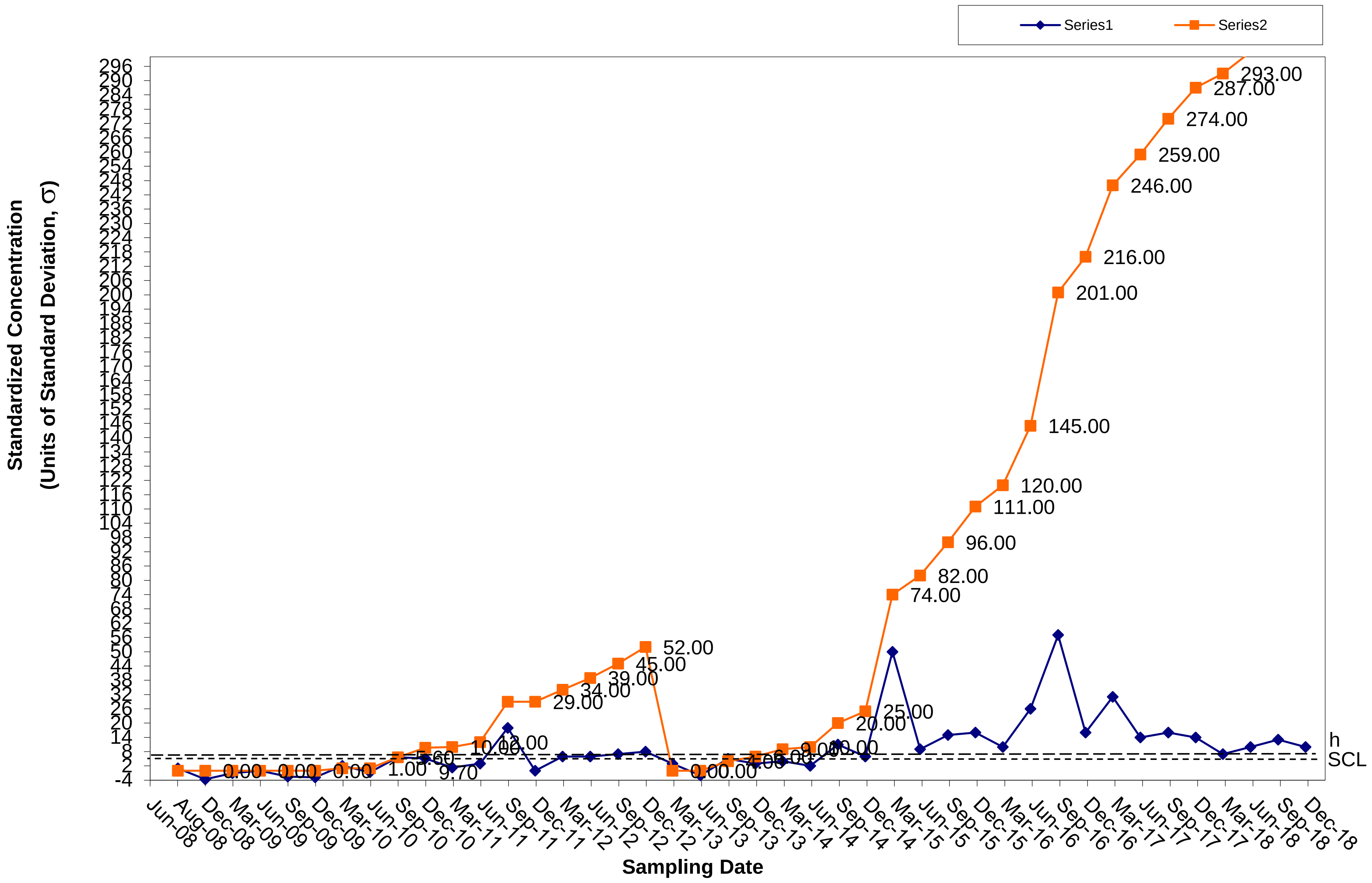
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Background Well OW-9



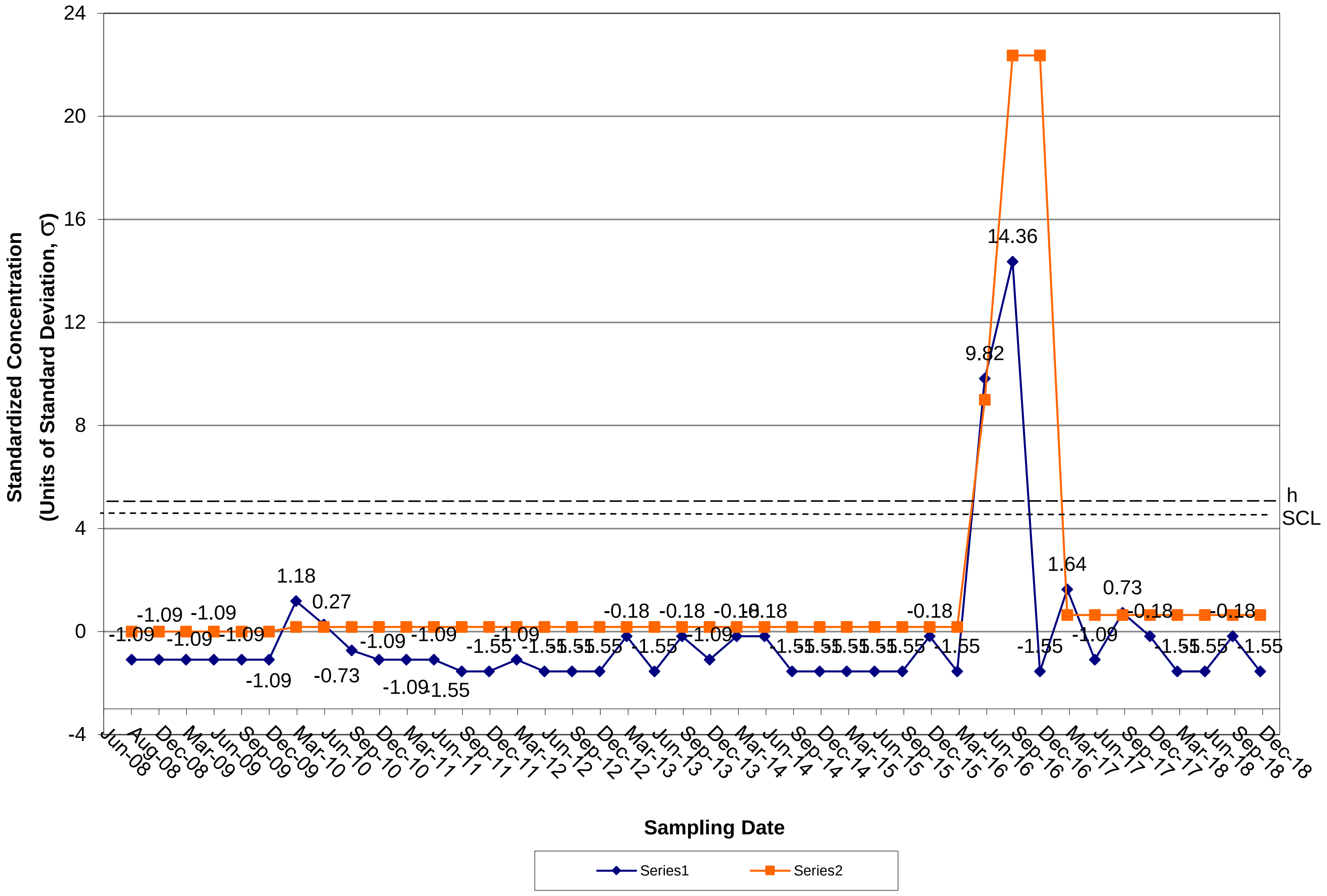
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-12



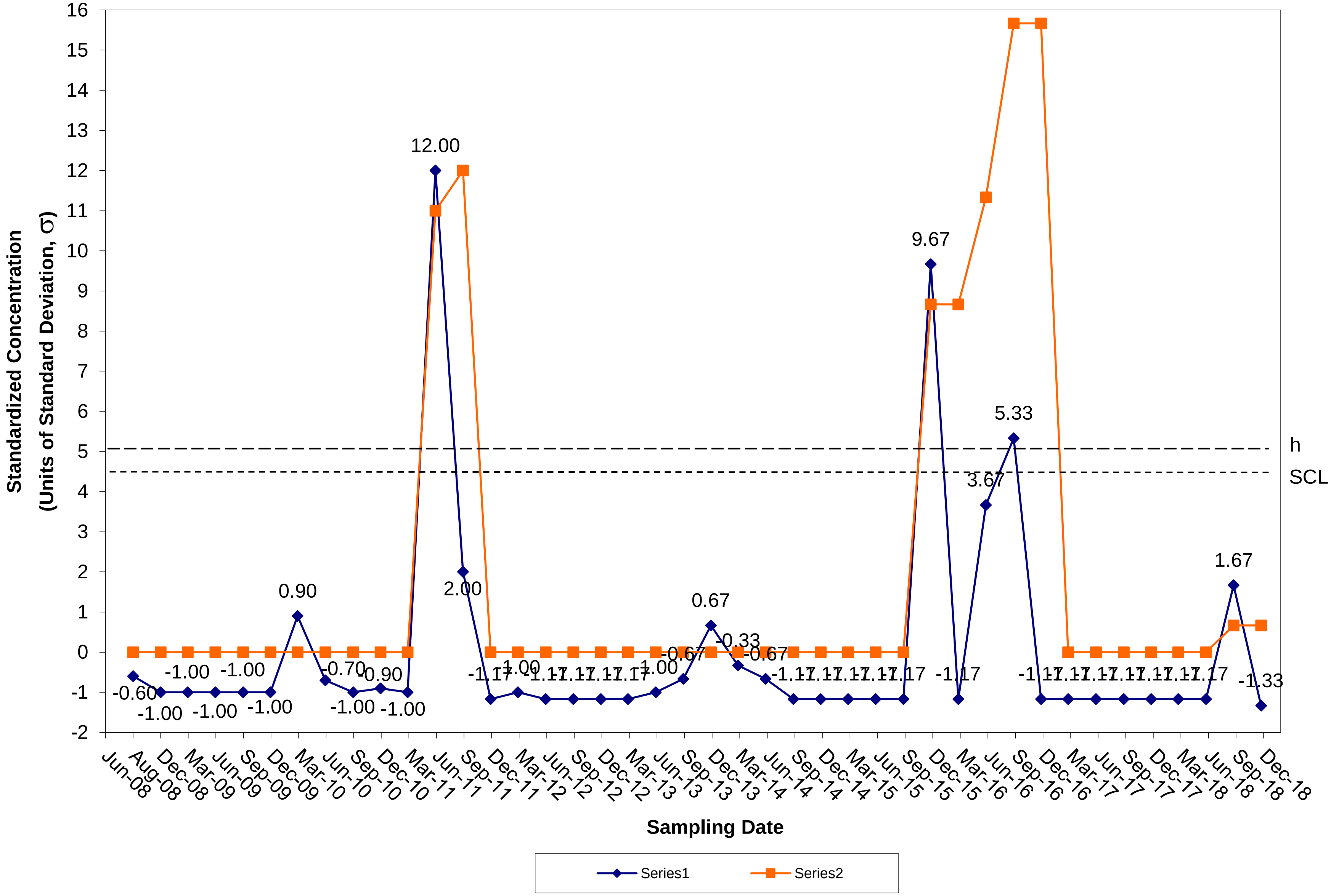
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-12



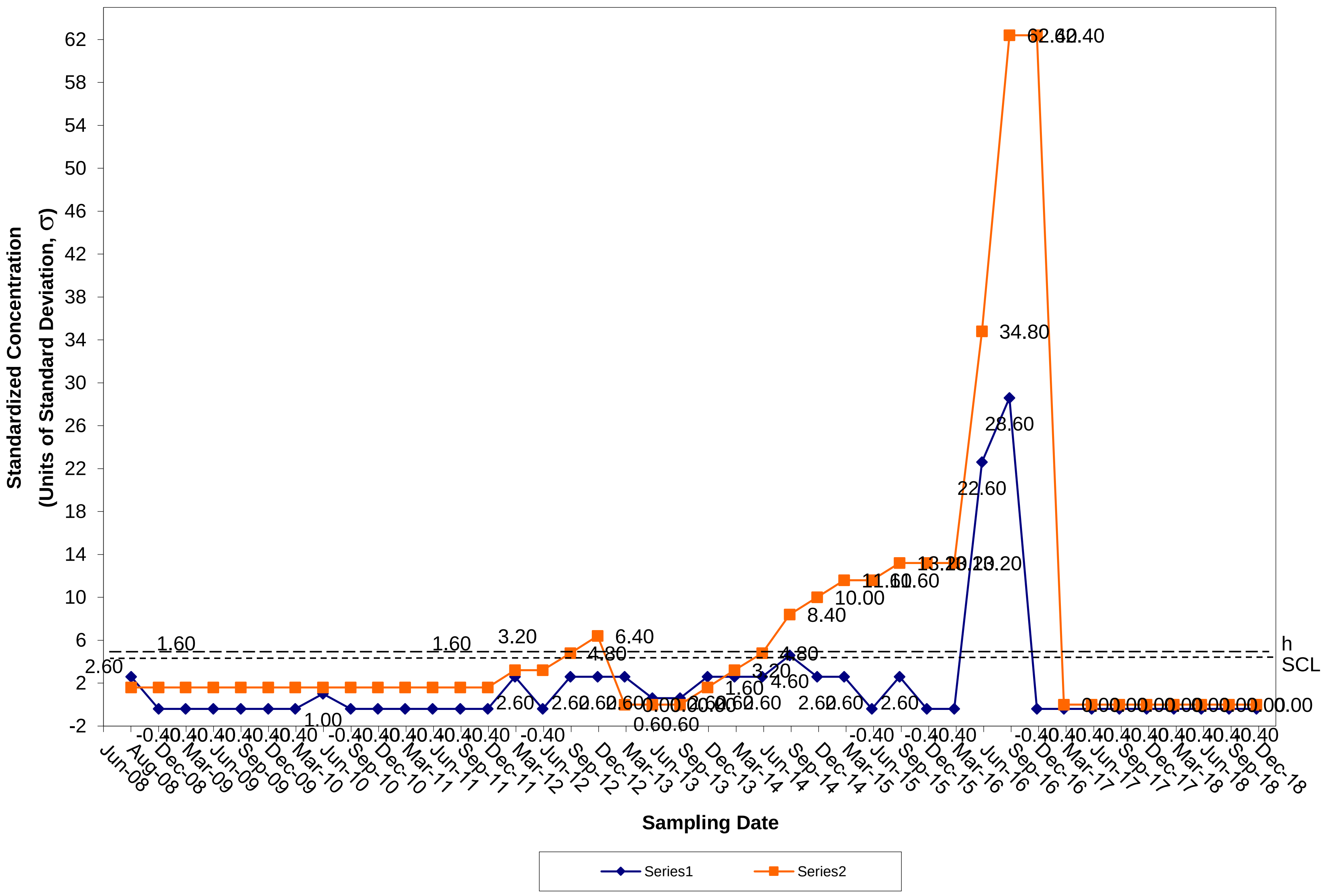
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-12



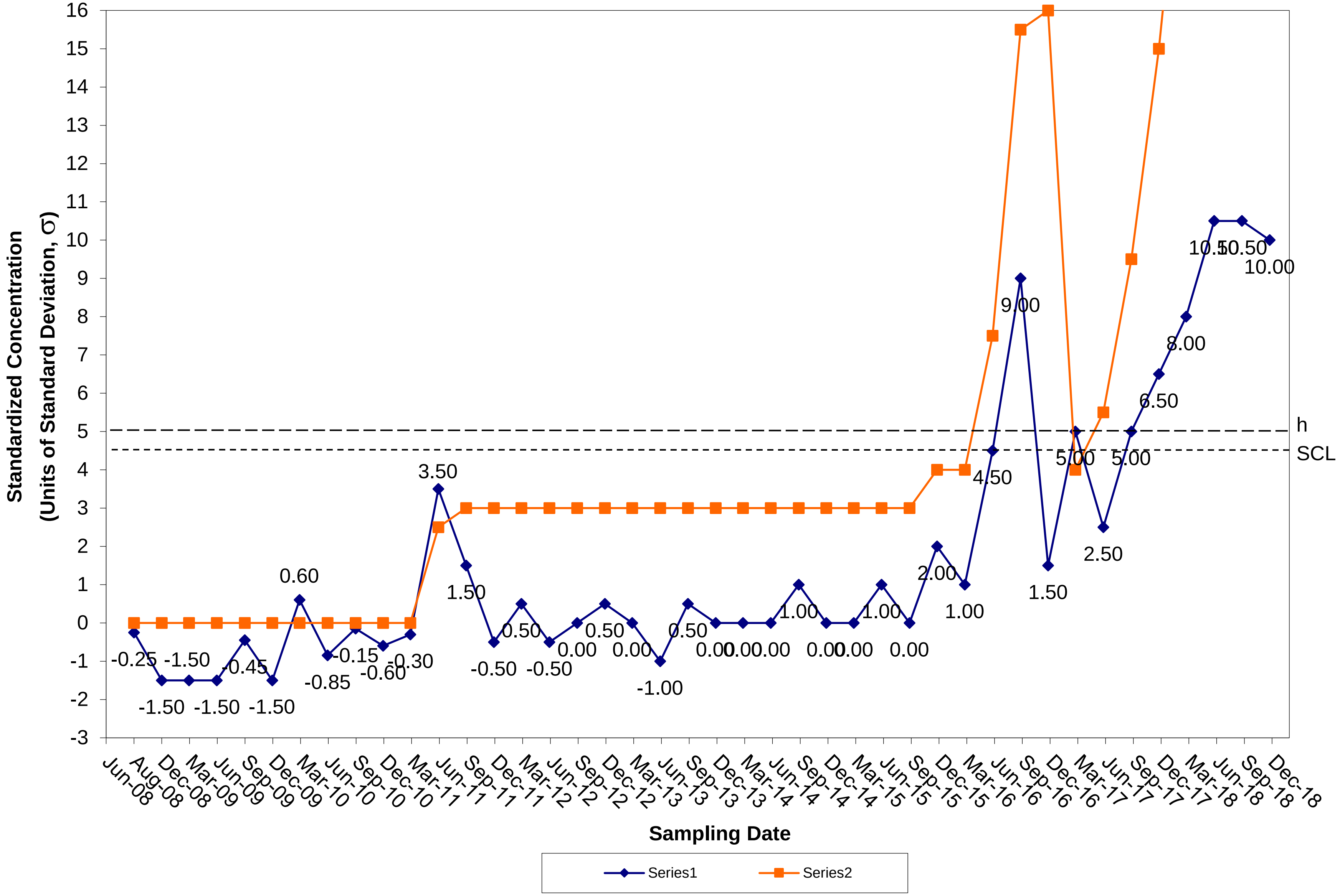
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Compliance Well OW-12



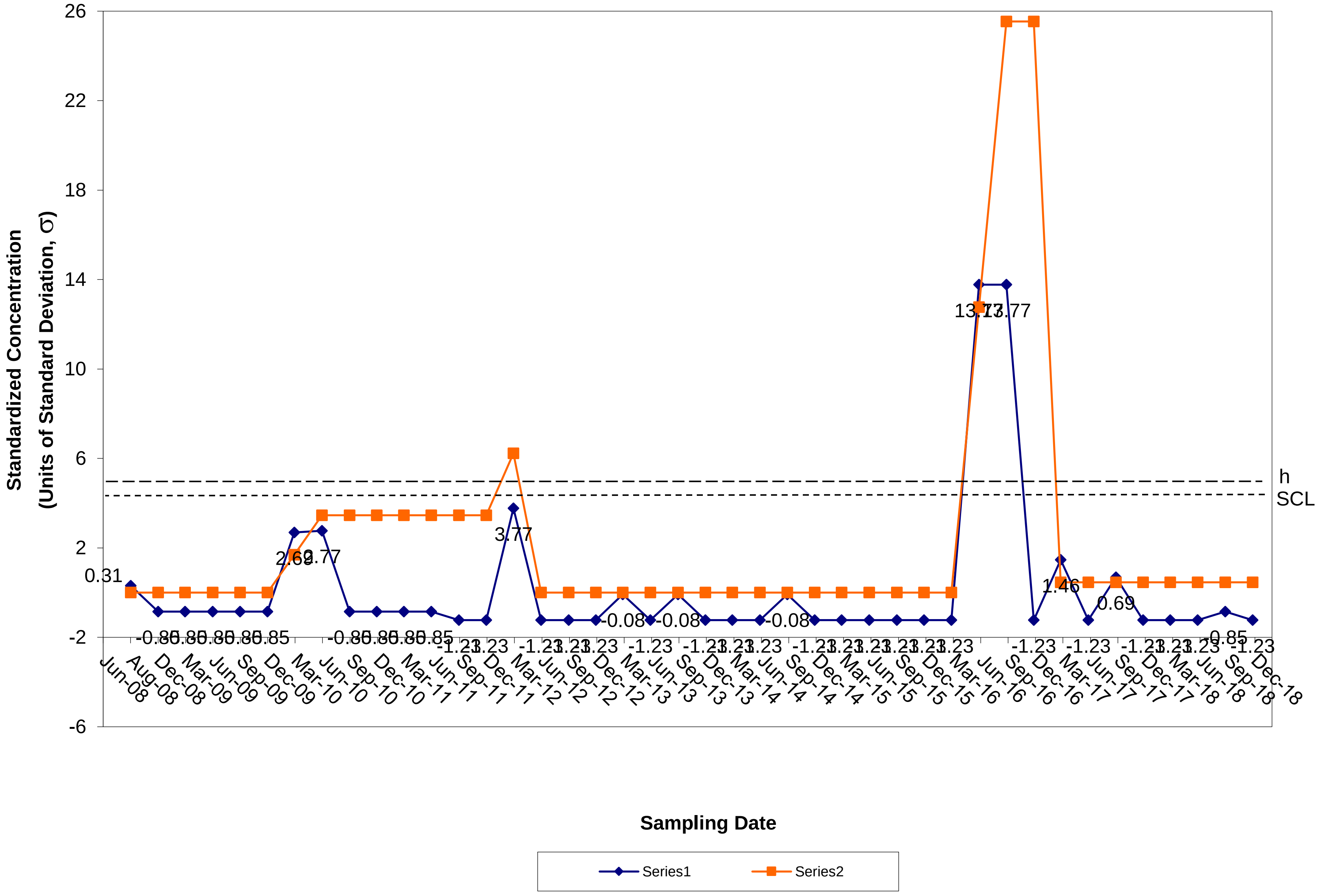
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-12



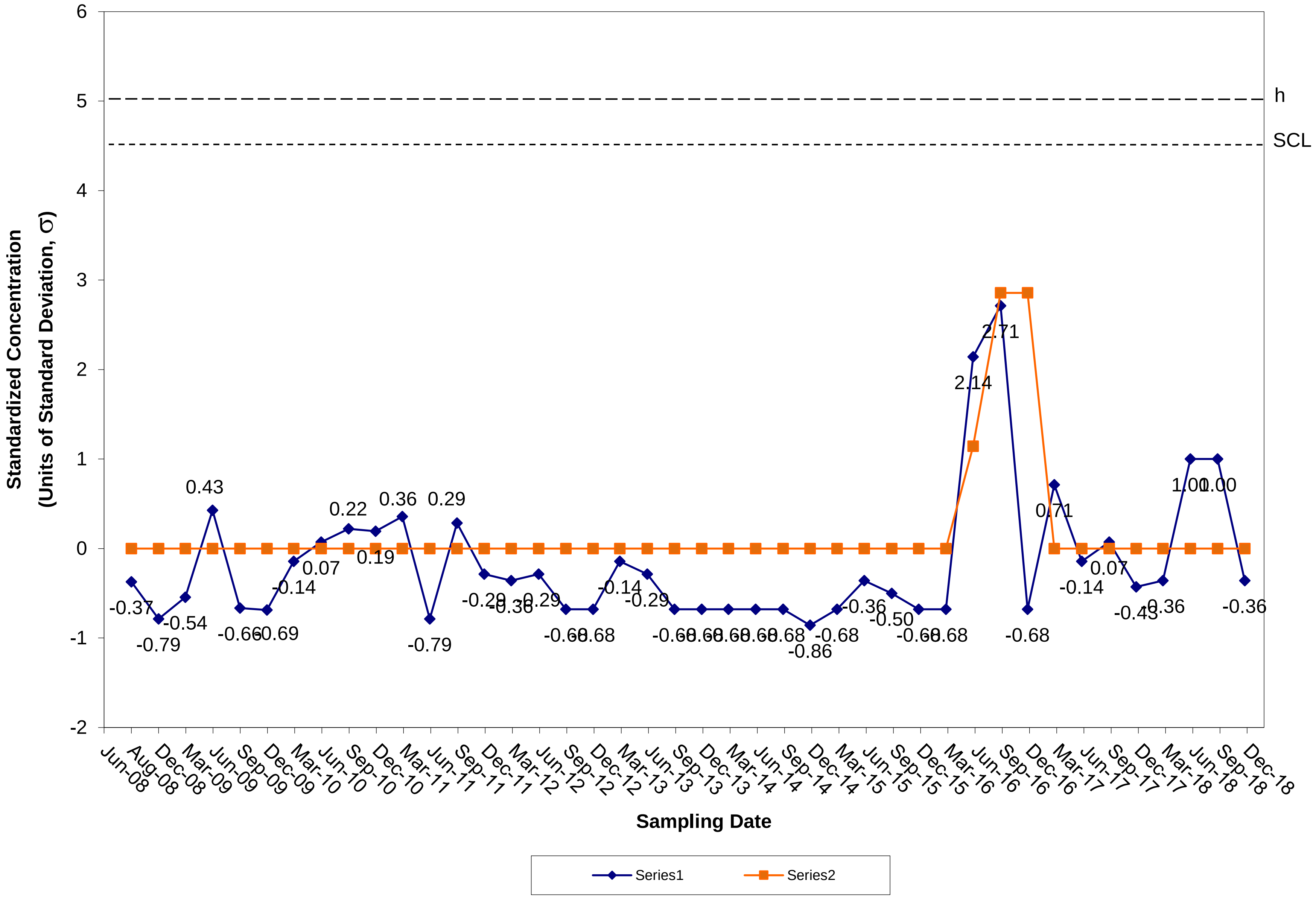
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-12

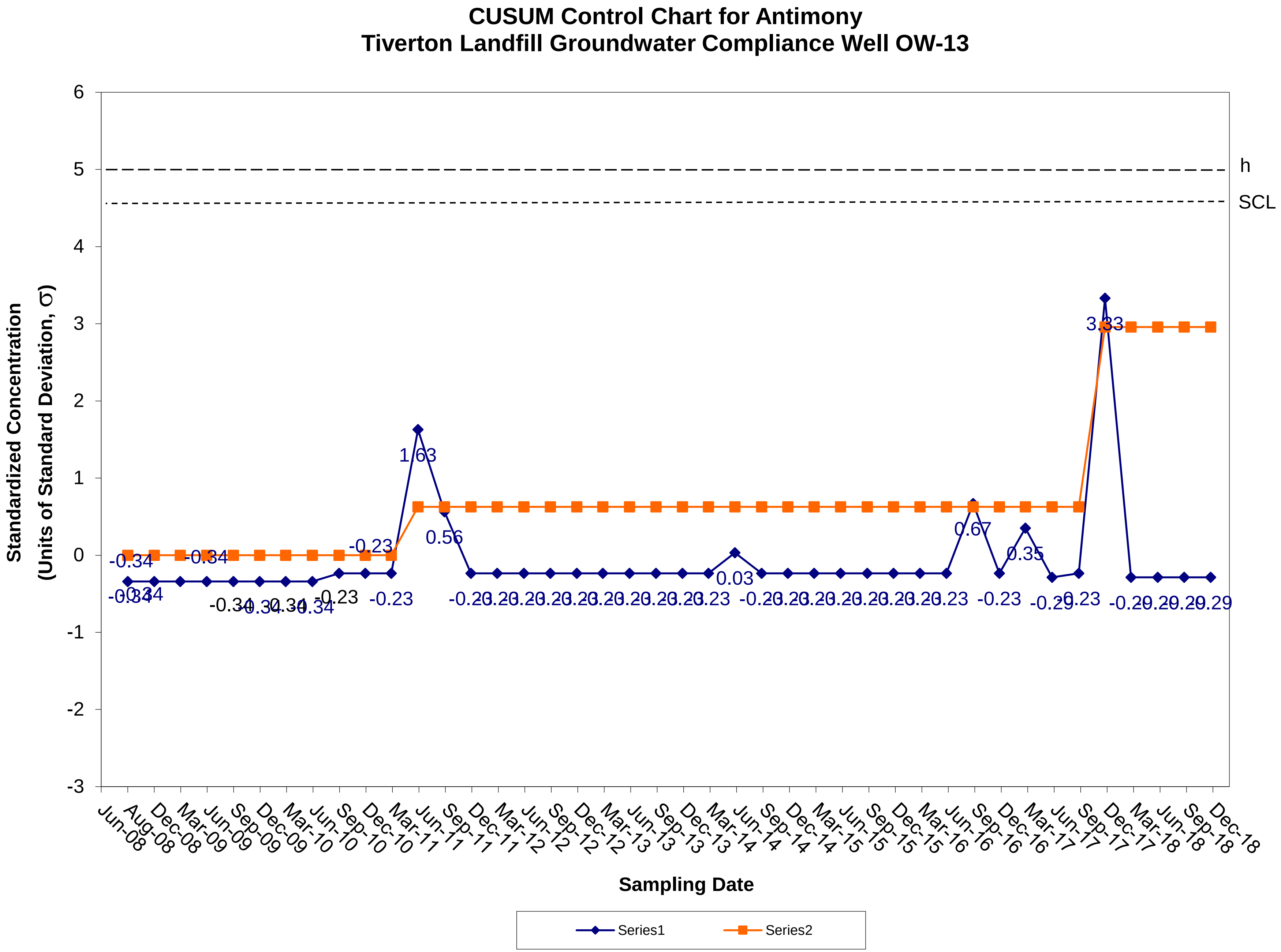


CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-12



CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-12




CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-13
Standardized Concentration (Units of Standard Deviation, σ)
Sampling Date
h
SCL
6
5
4
3
2
1
0
-1
-2
-3
Jun-08
Aug-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
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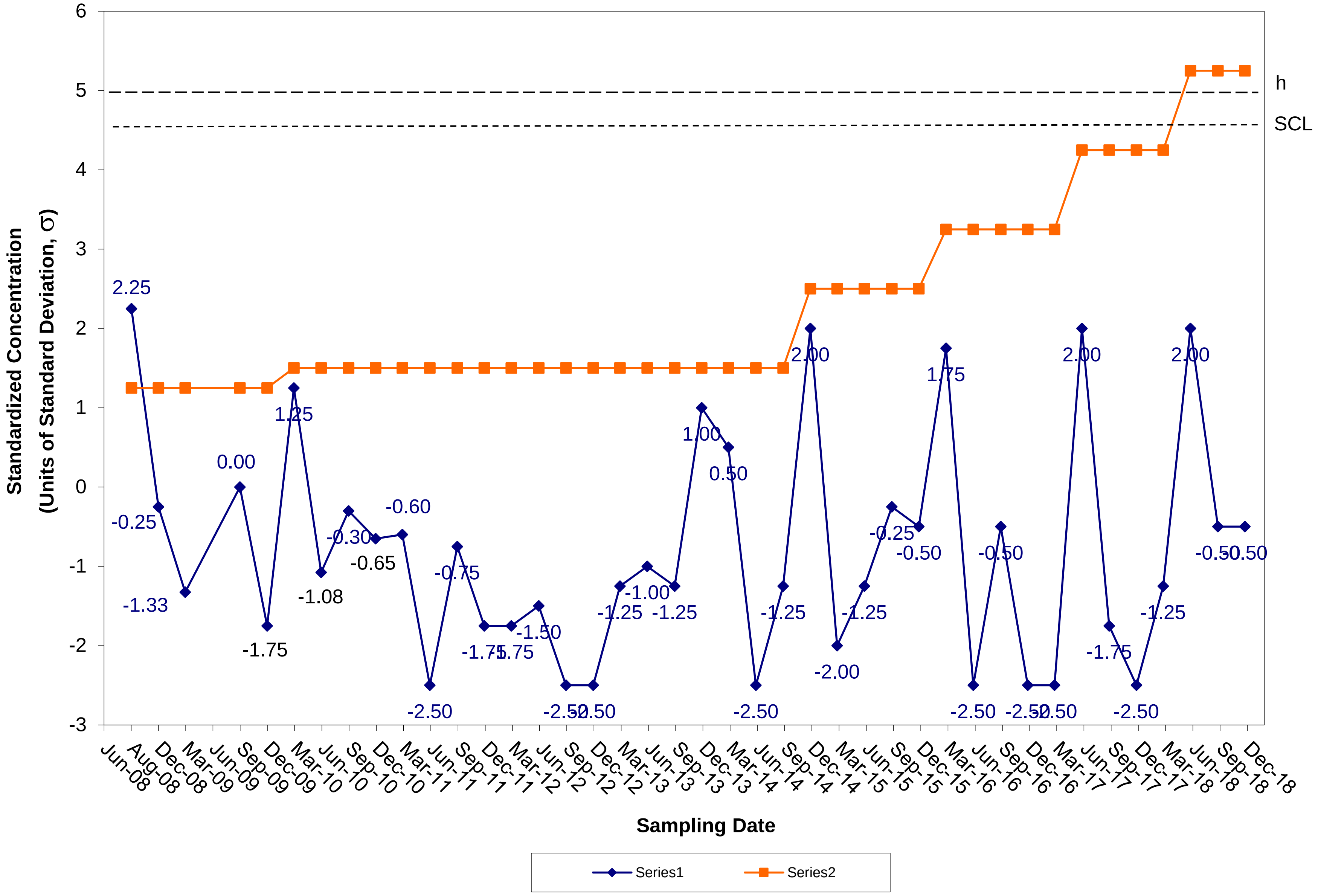
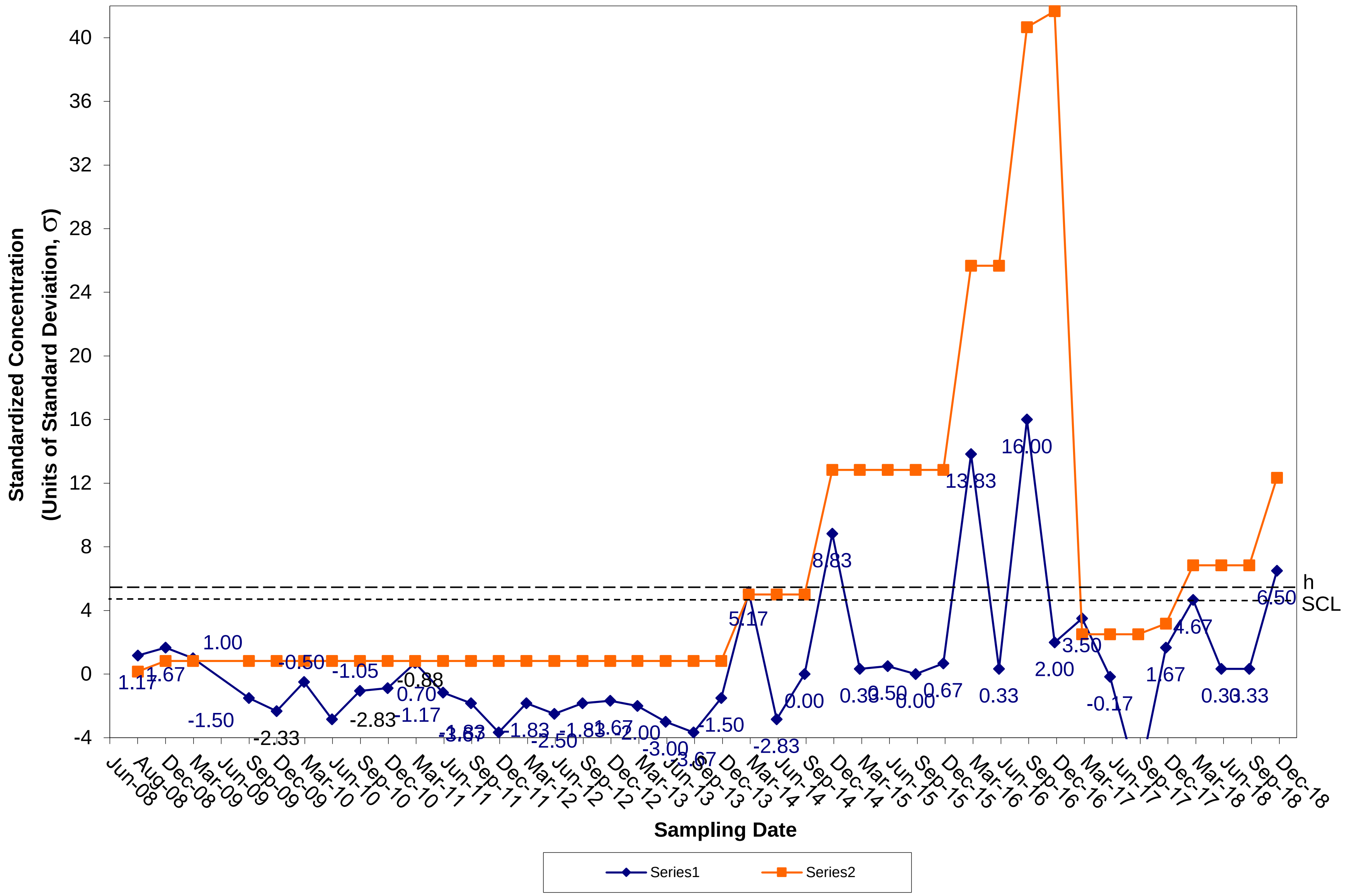
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Sep-18
Dec-18
-0.34
-0.34
-0.23
1.63
0.56
0.03
0.67
0.35
3.33
-0.23
-0.29
Series1
Series2

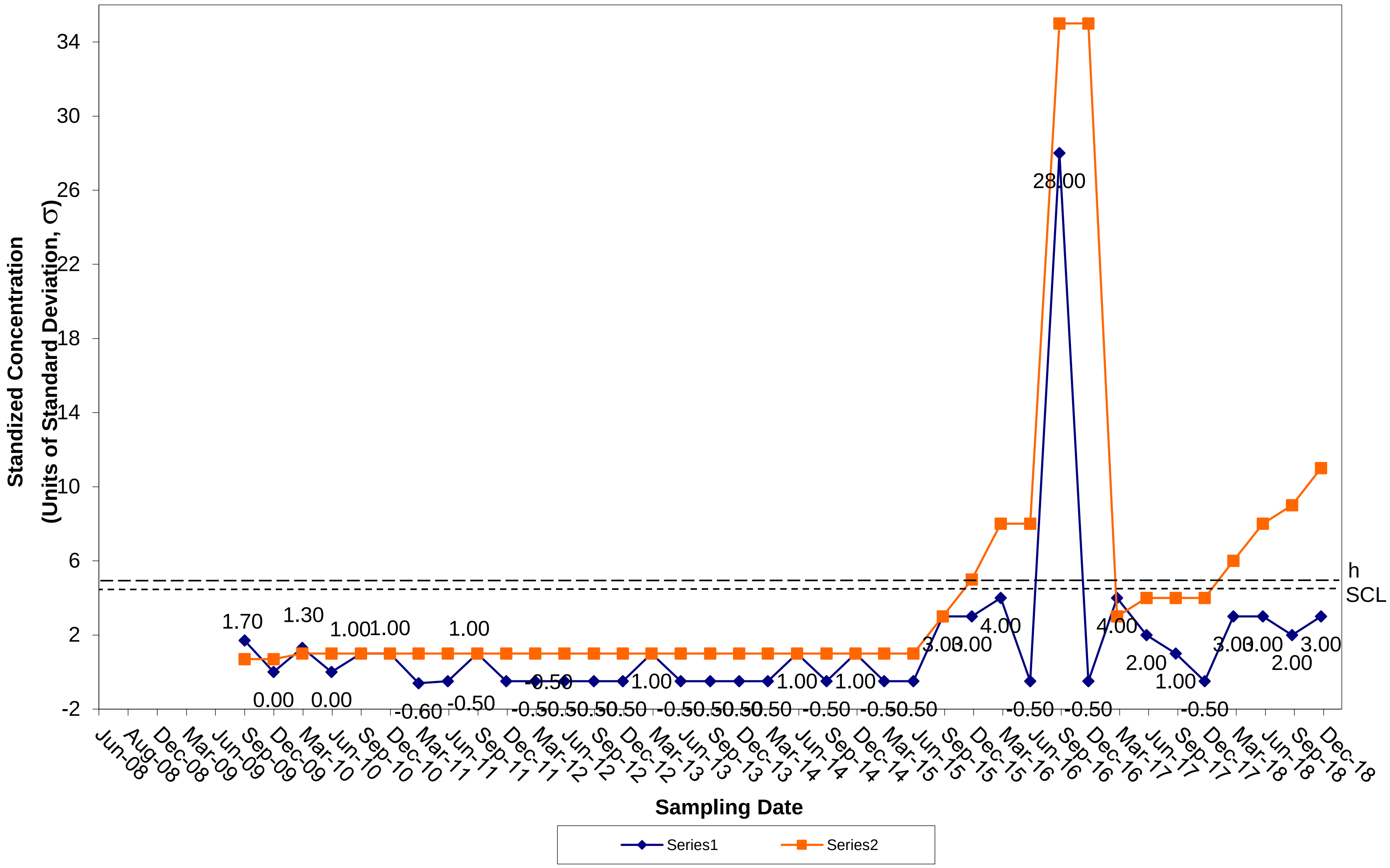
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-13



CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-13



CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Complaince Well OW-13



CUSUM Control Chart for Cobalt
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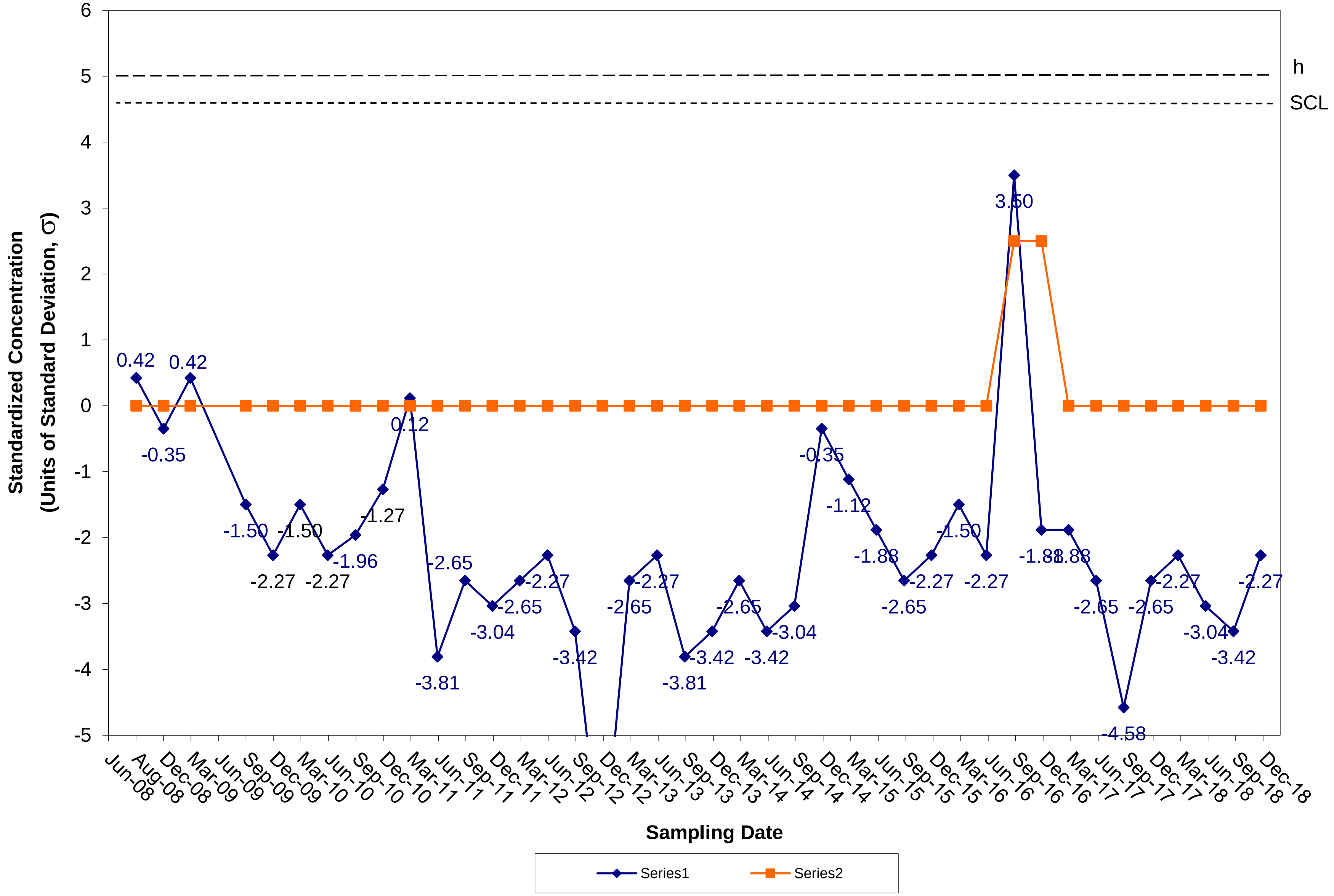

CUSUM Control Chart for Copper
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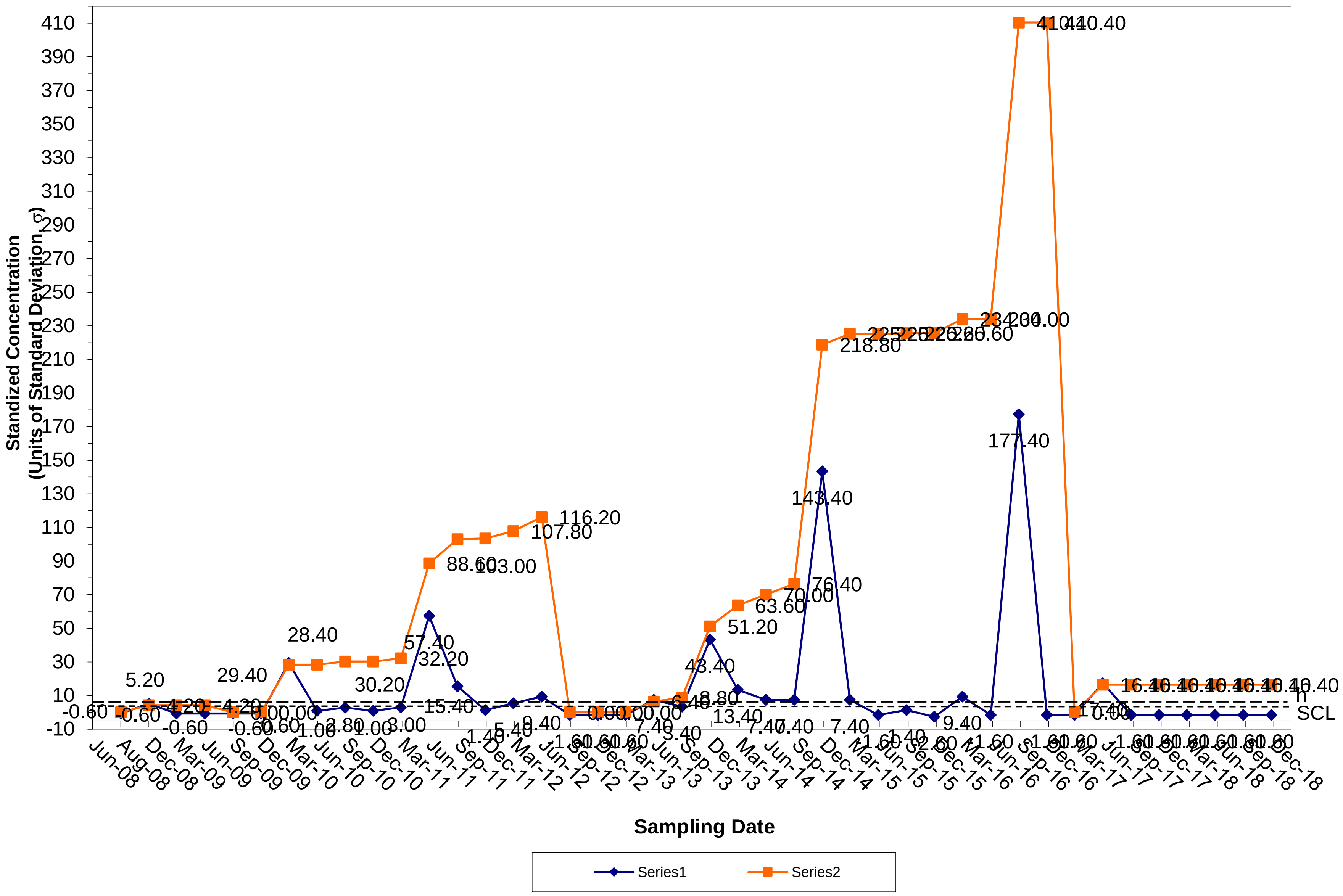
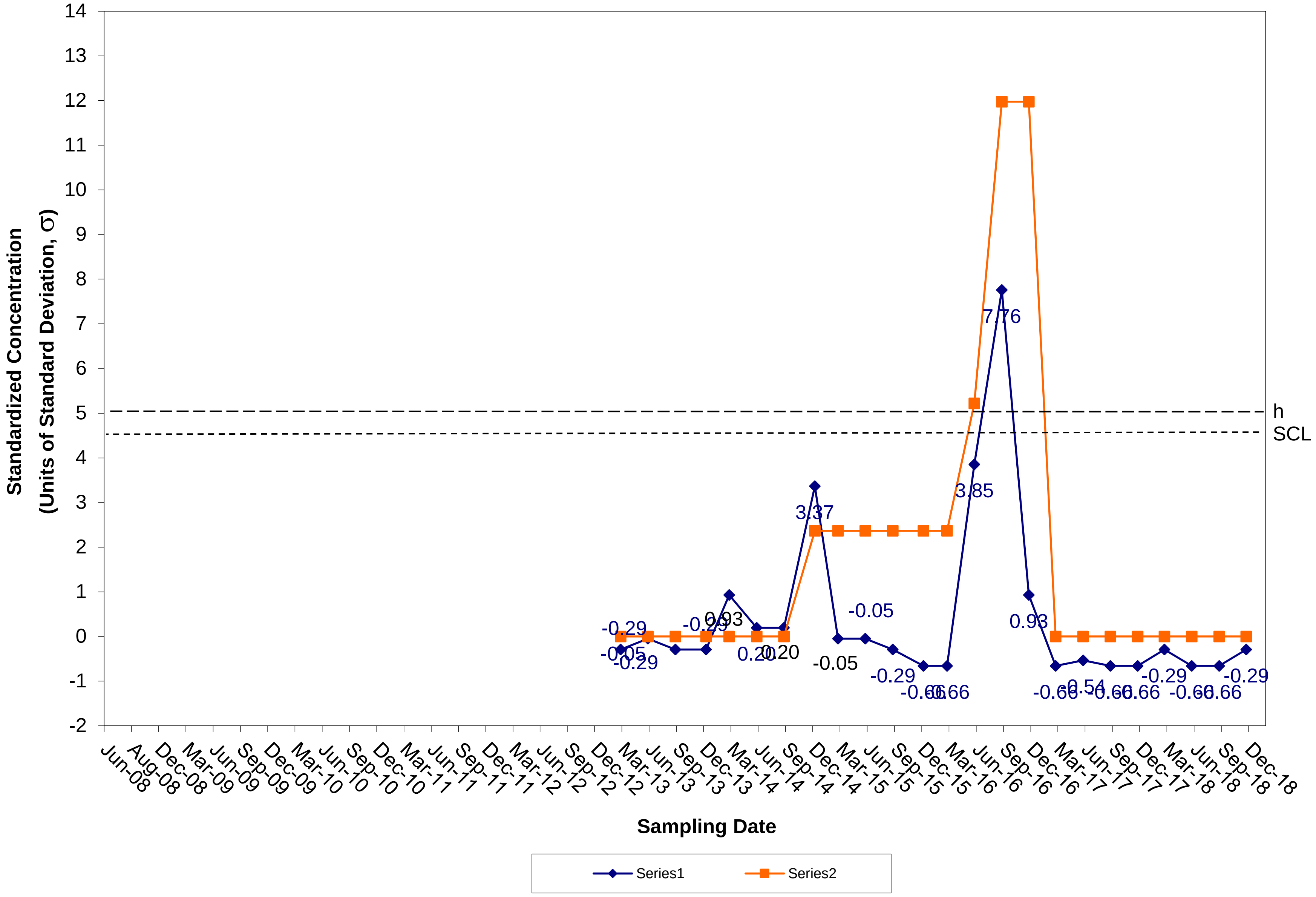
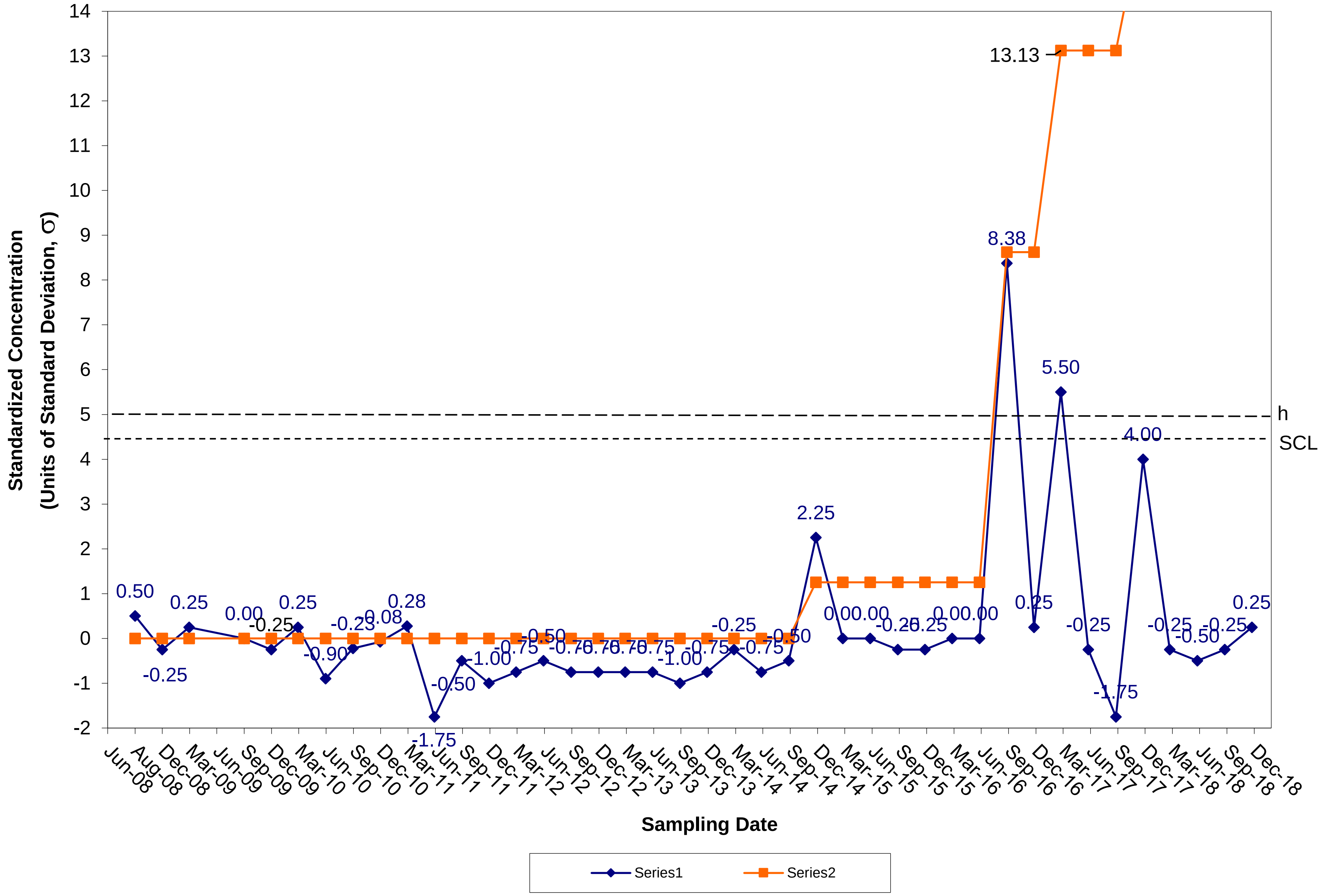


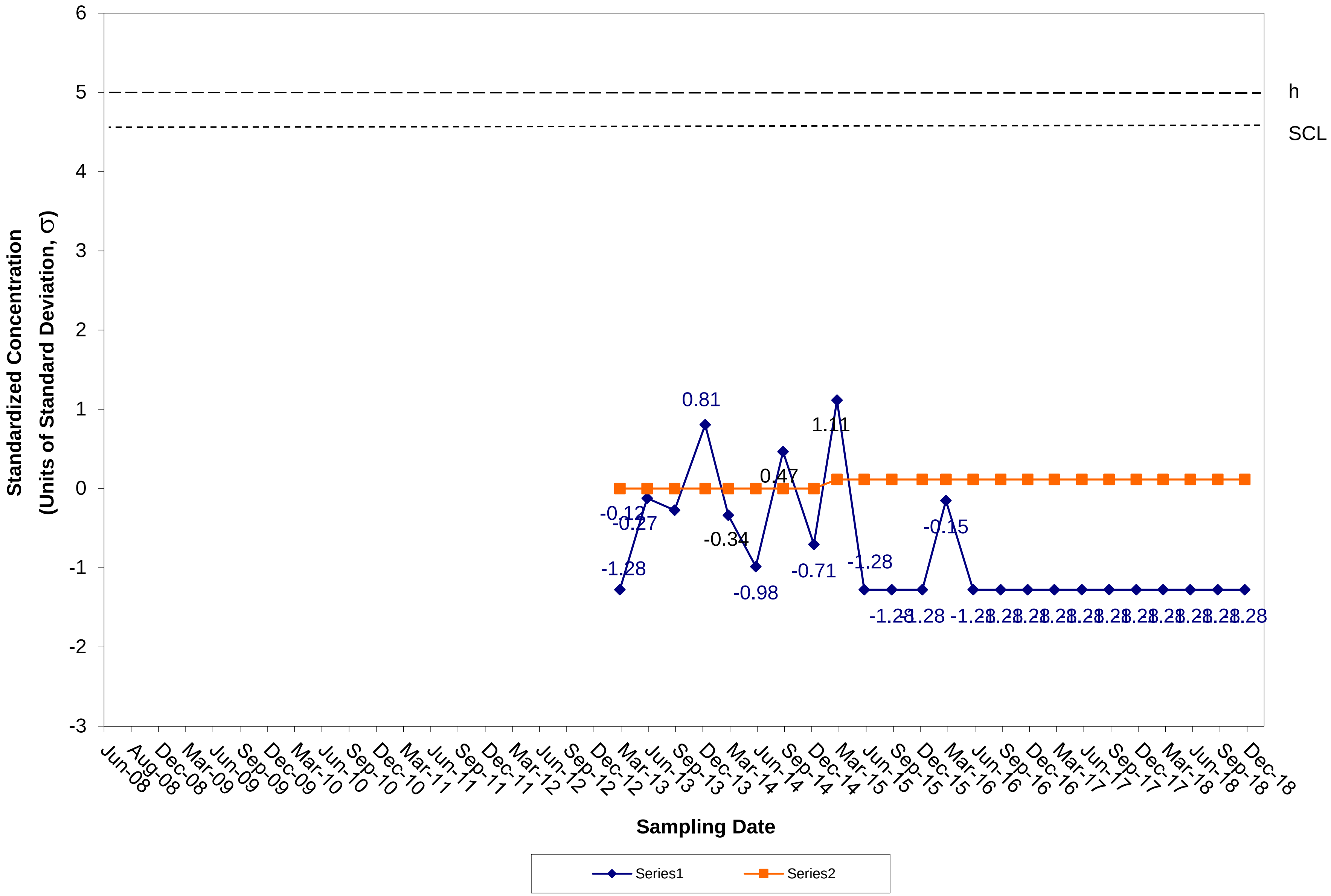
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-13



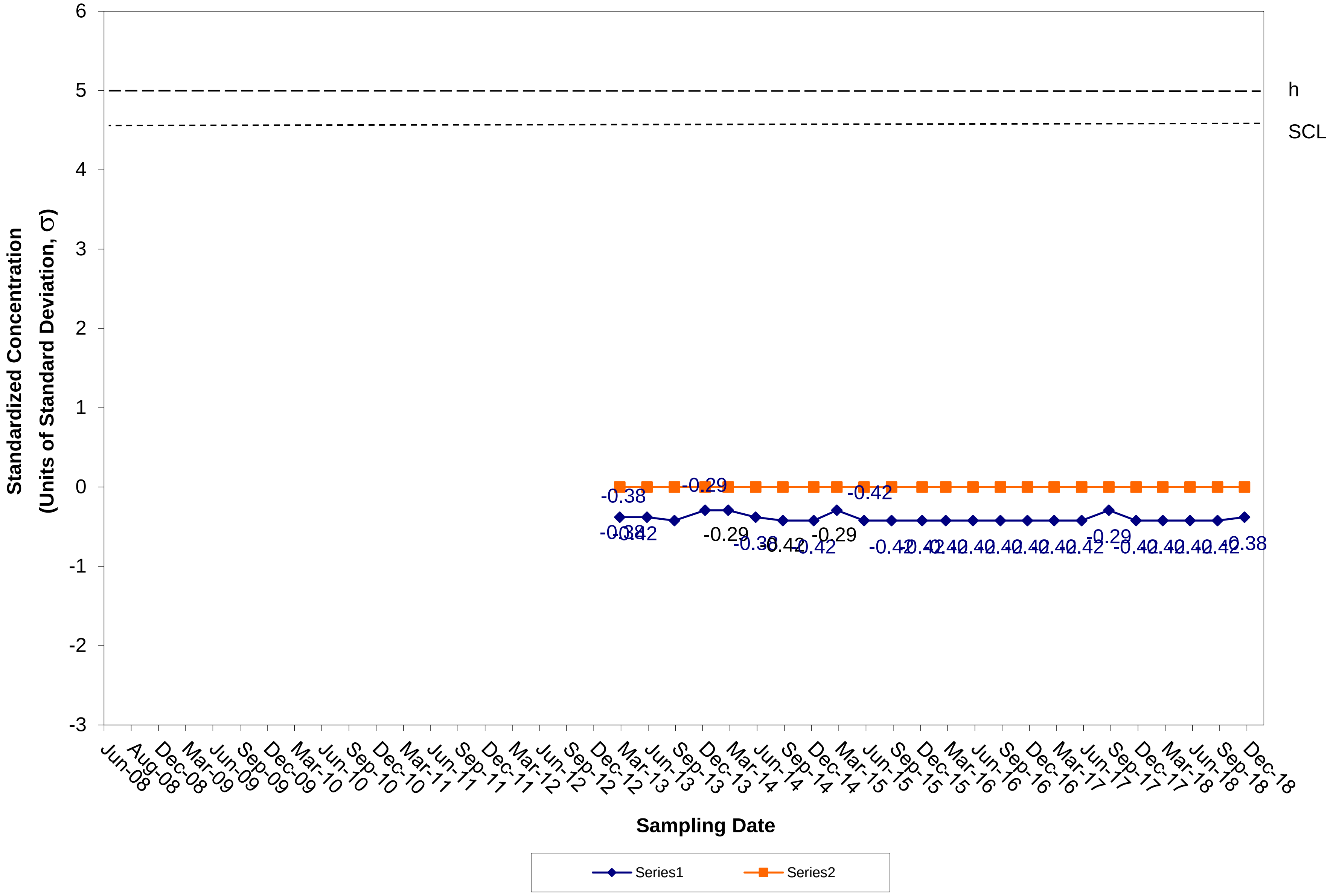
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-13



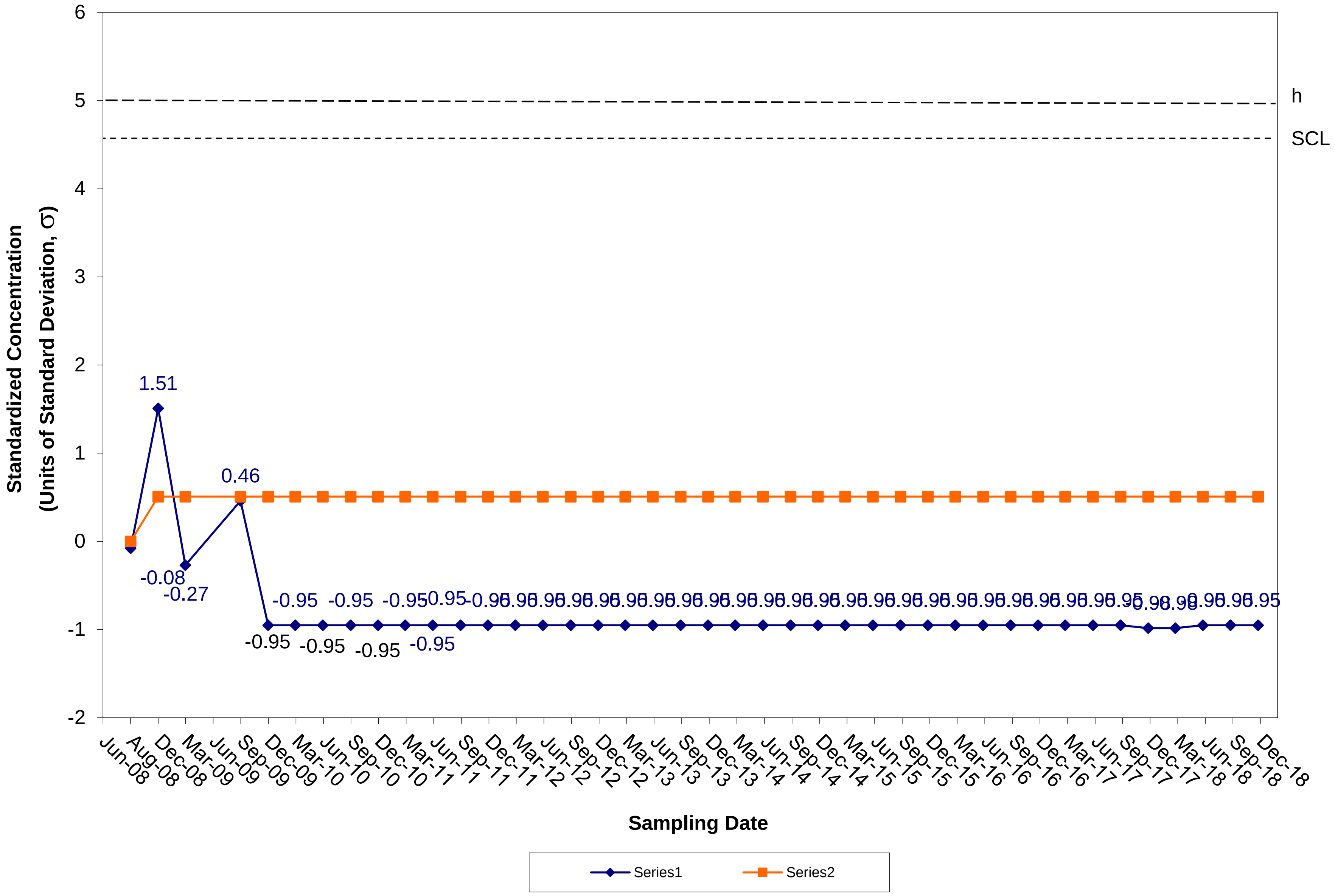
CUSUM Control Chart for Selenium
Tiverton Landfill Groundwater Compliance Well OW-13



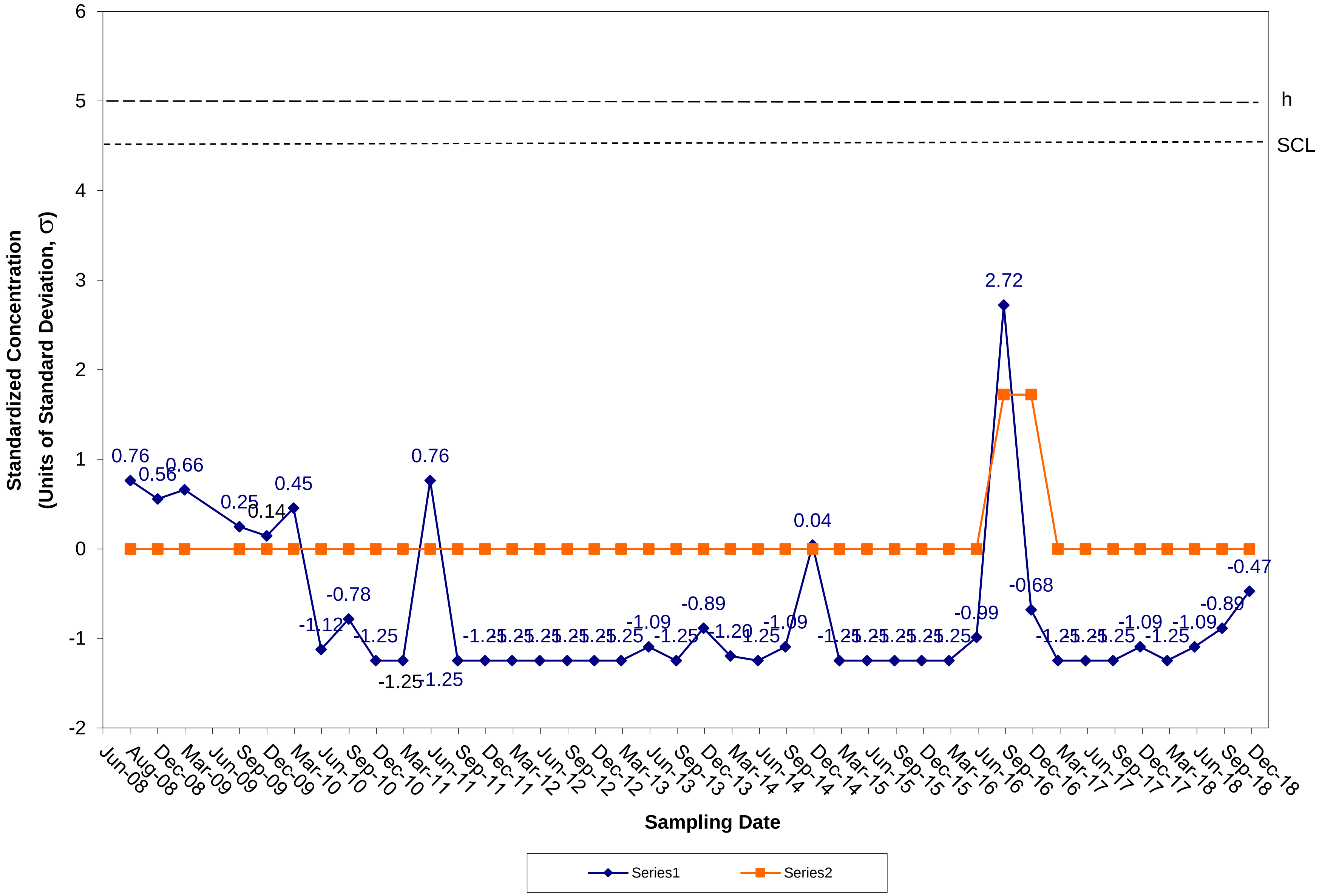
CUSUM Control Chart for Silver
Tiverton Landfill Groundwater Compliance Well OW-13



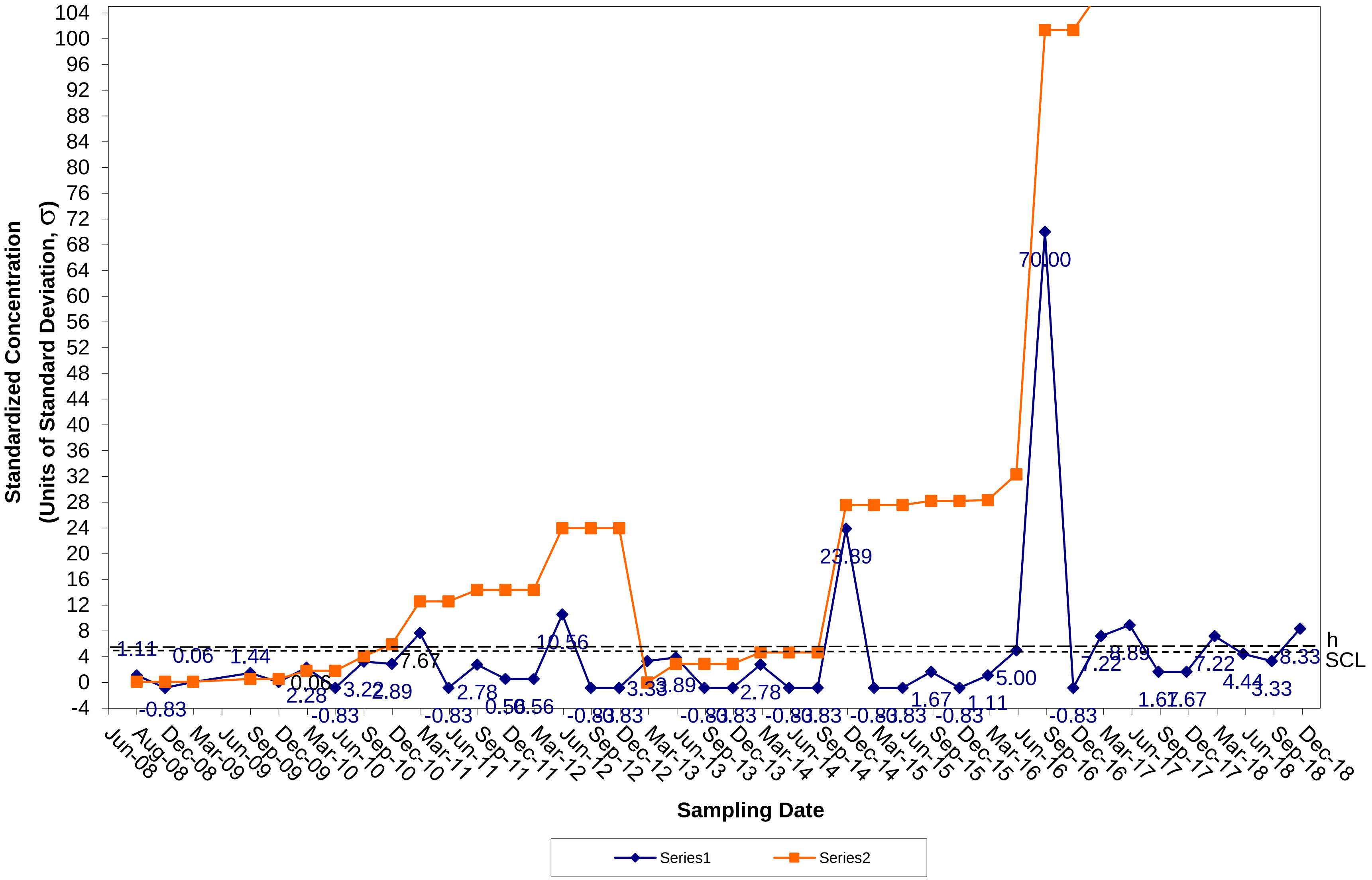
CUSUM Control Chart for Thallium
Tiverton Landfill Groundwater Compliance Well OW-13



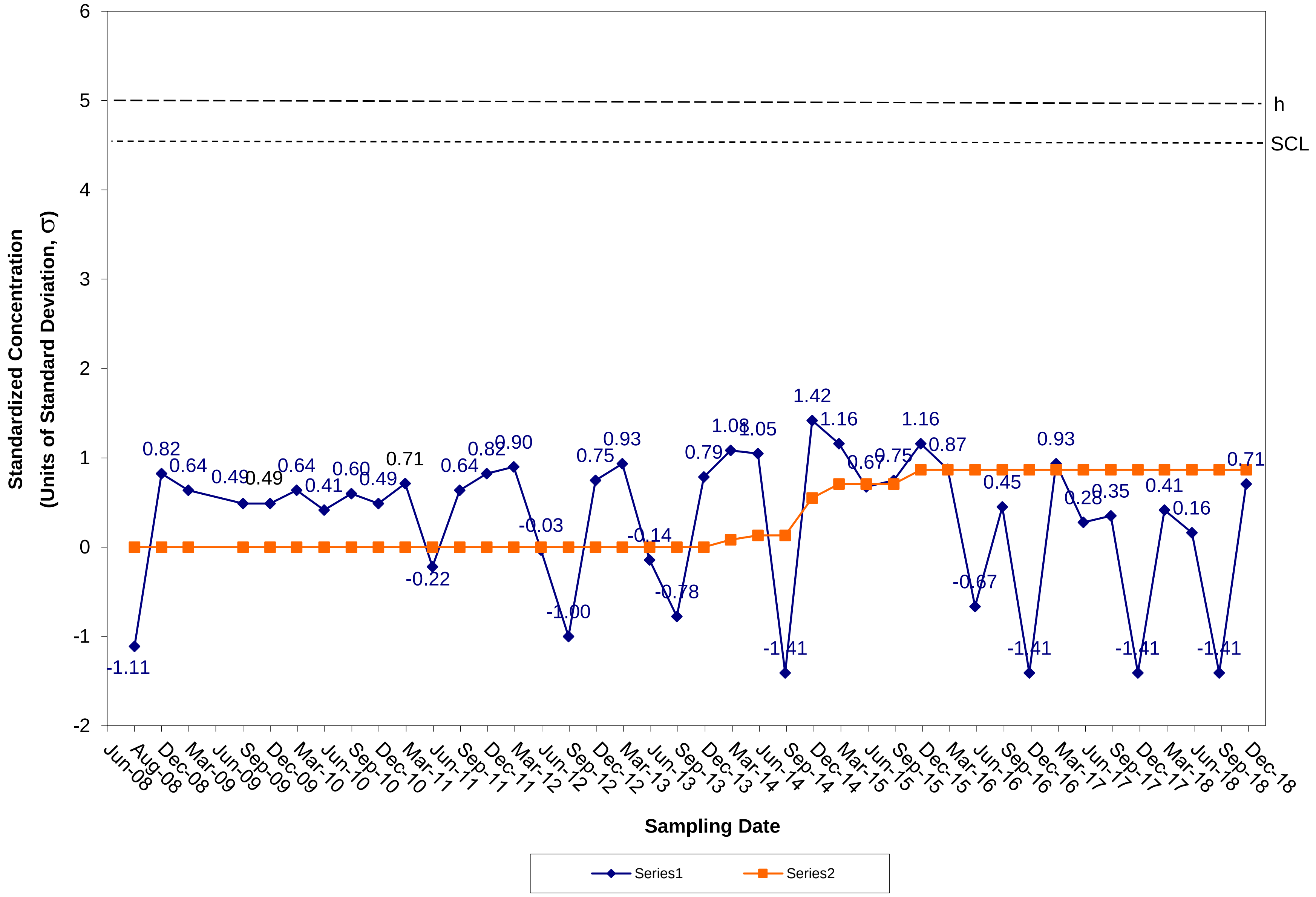
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-13



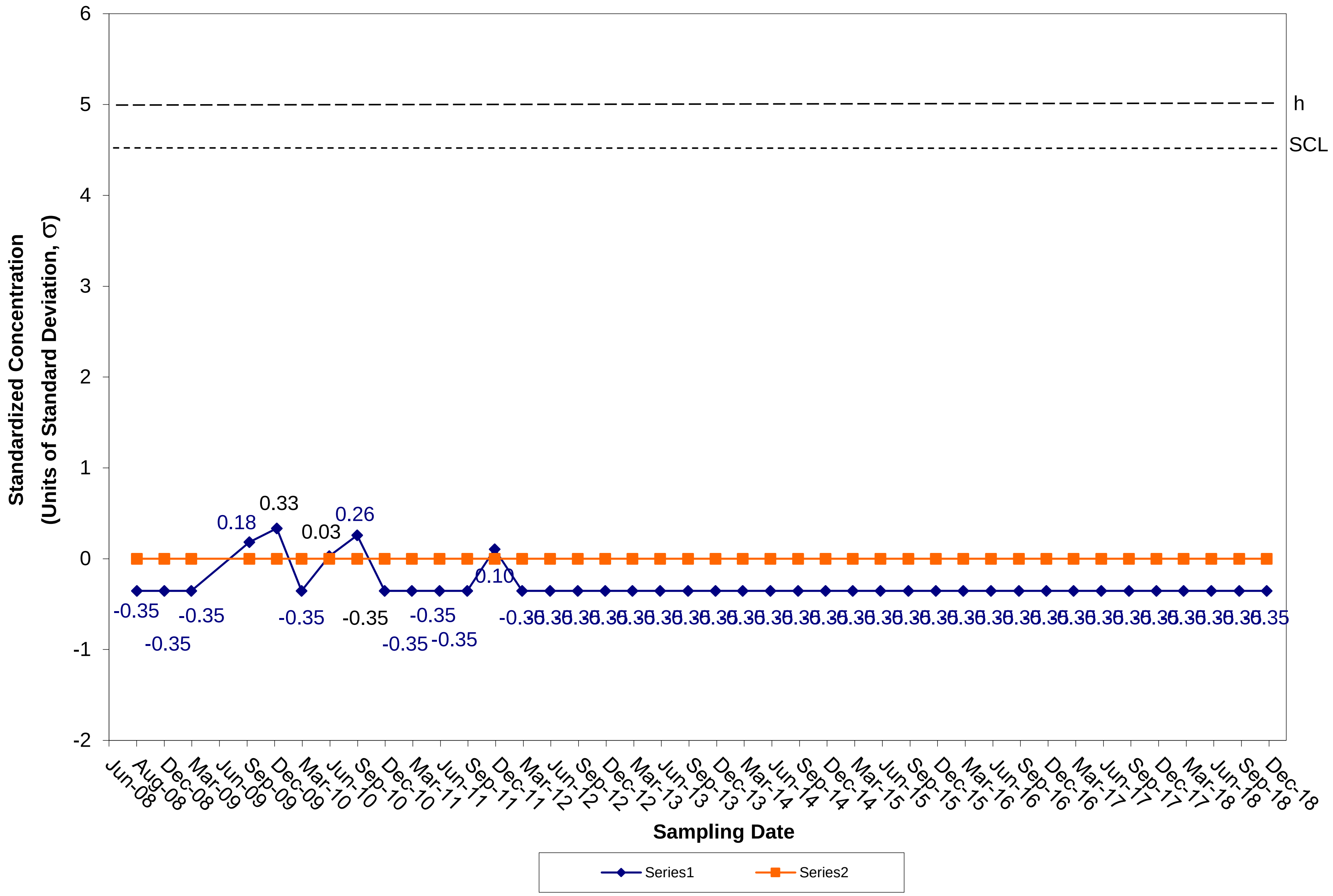
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-13



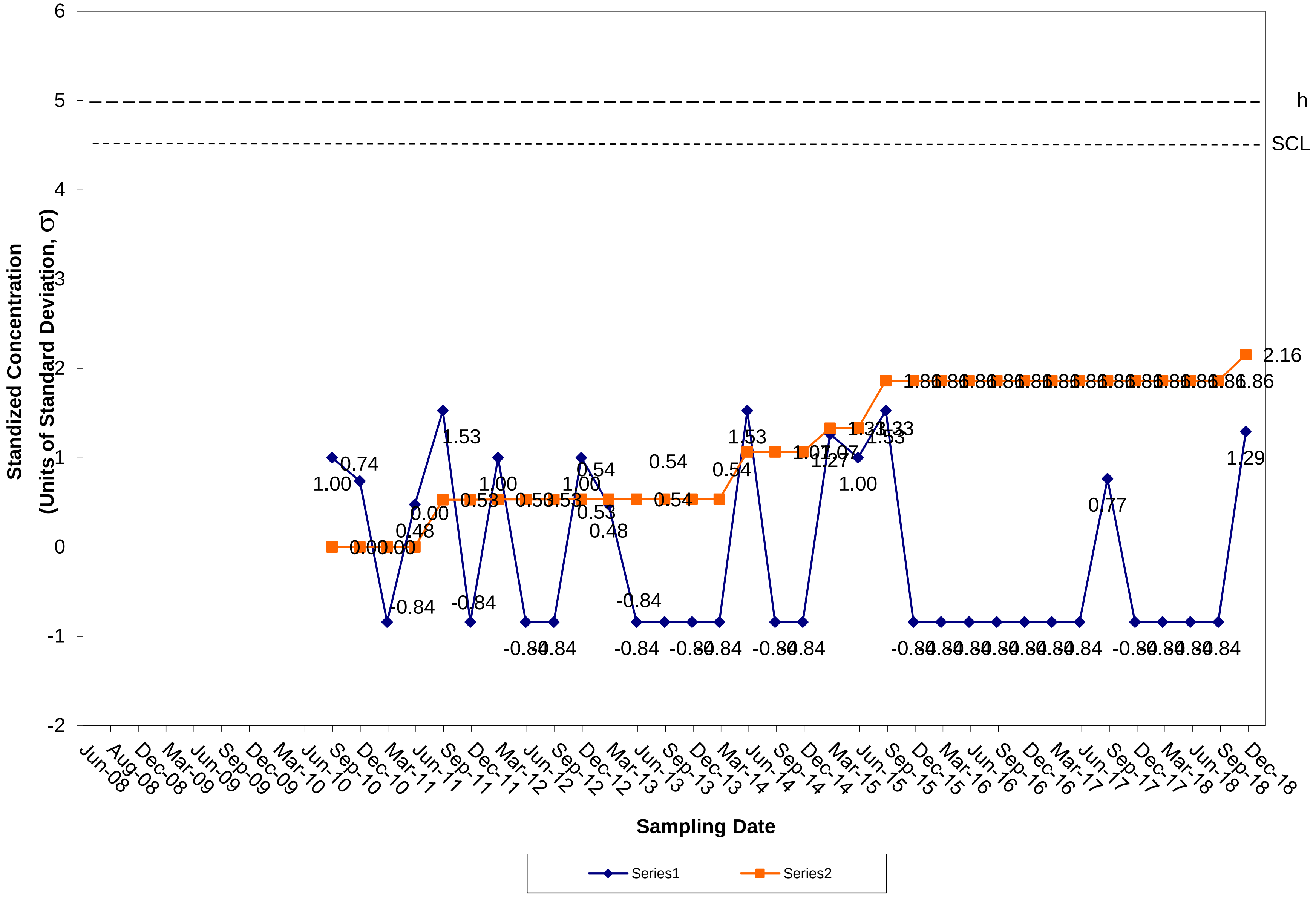
CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-13



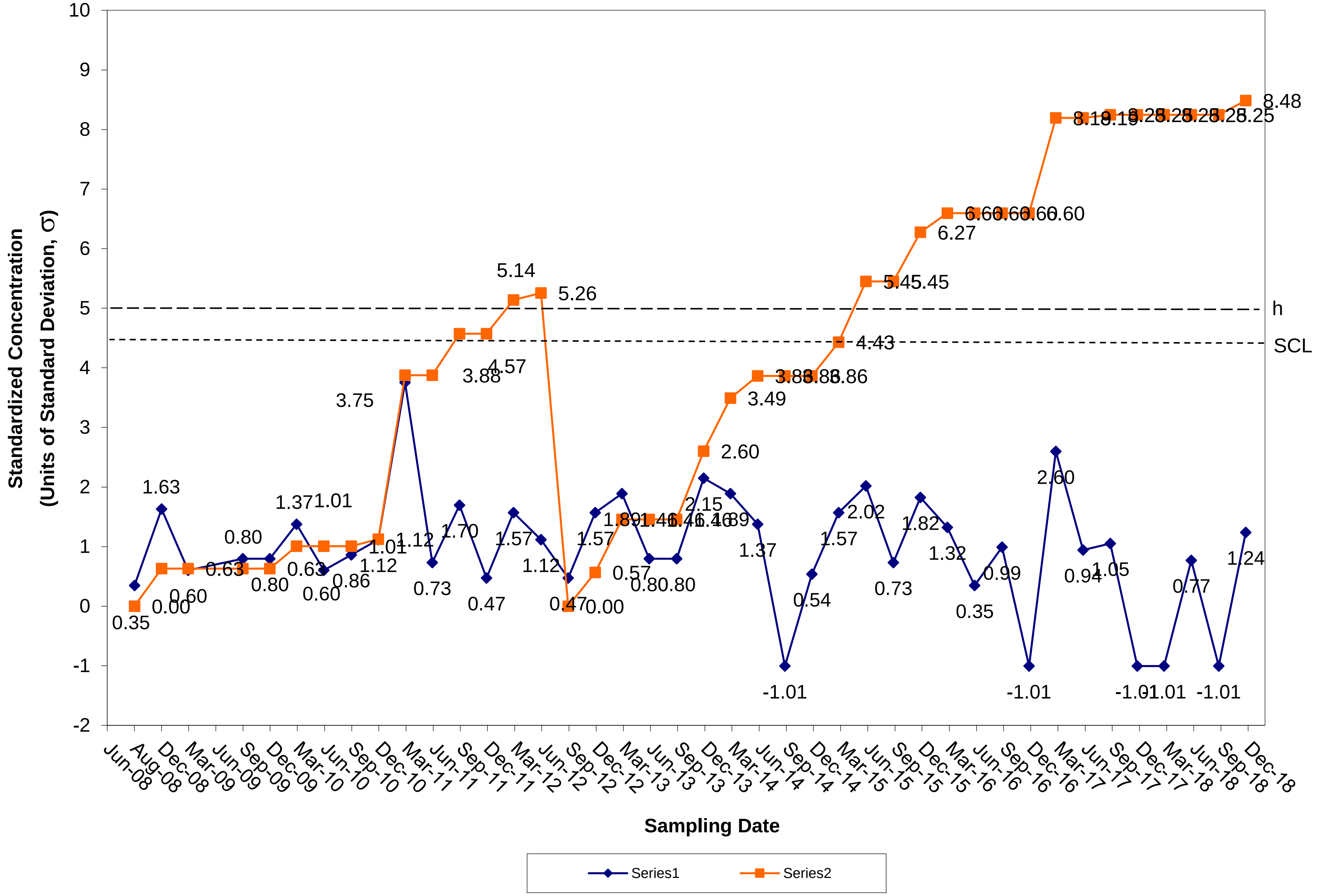
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Compliance Well OW-13



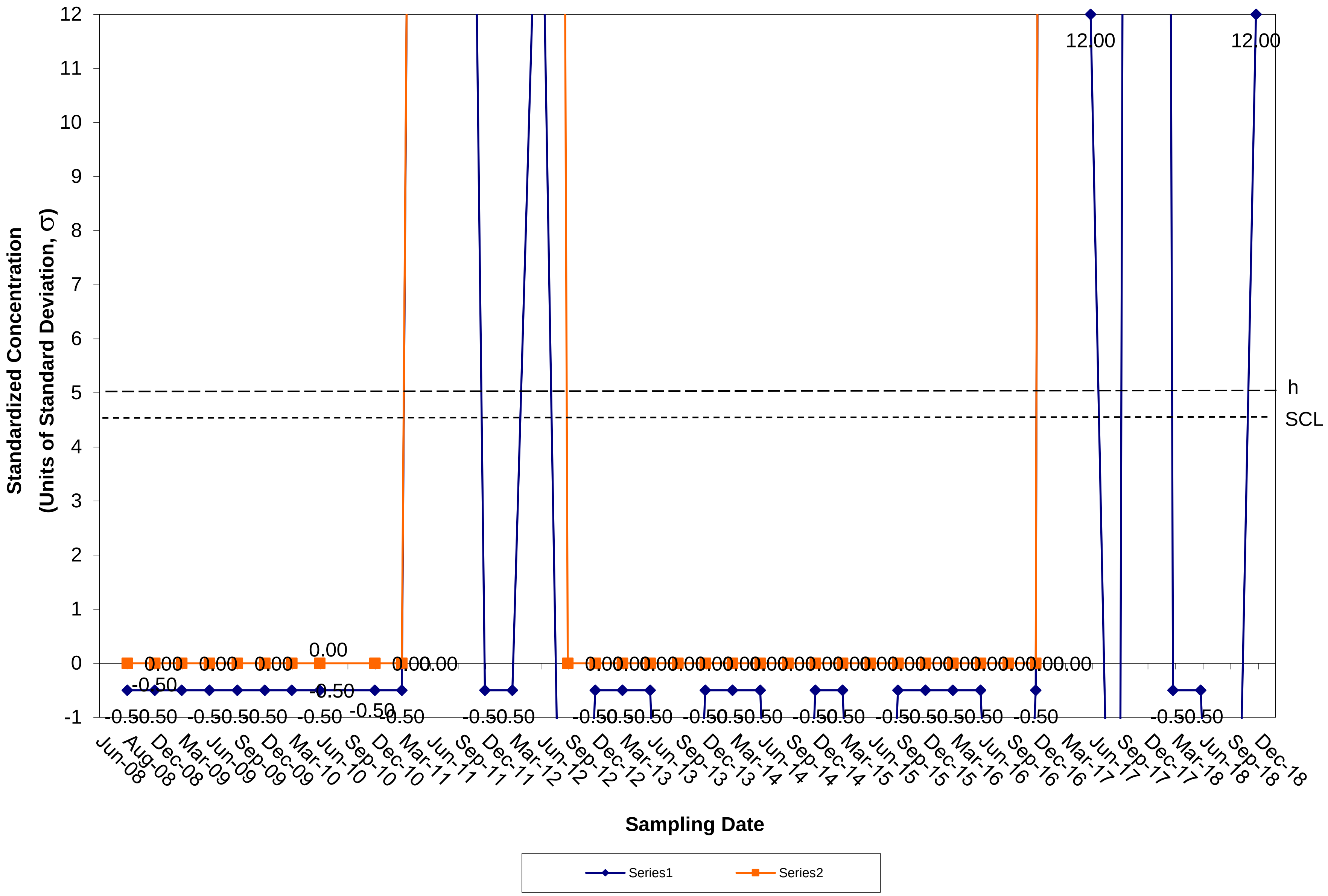
CUSUM Control Chart for 1,4-Dichlorobenzene - Adjusted Baseline
Tiverton Landfill Groundwater Complaince Well OW-13



CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-13



CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-14



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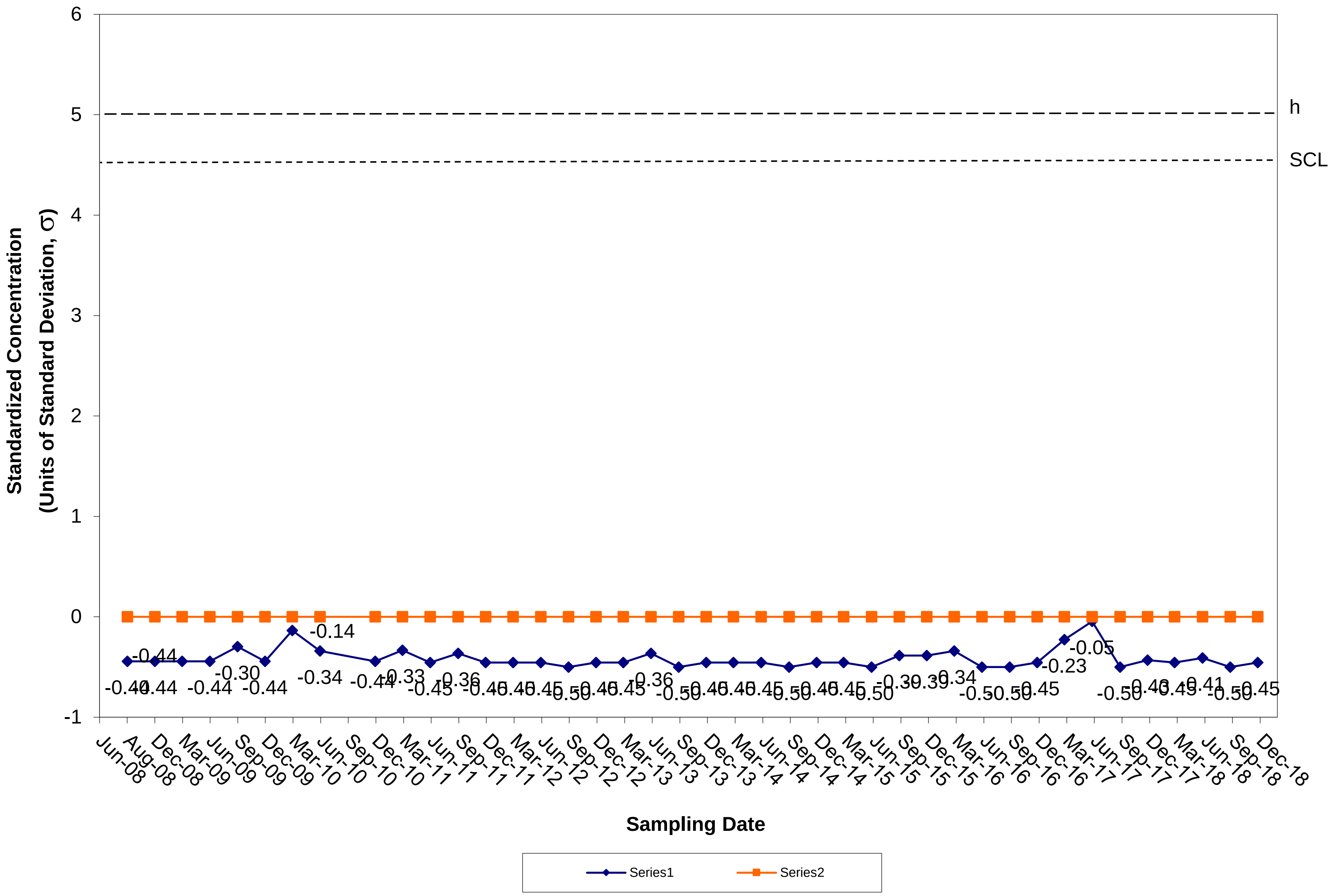
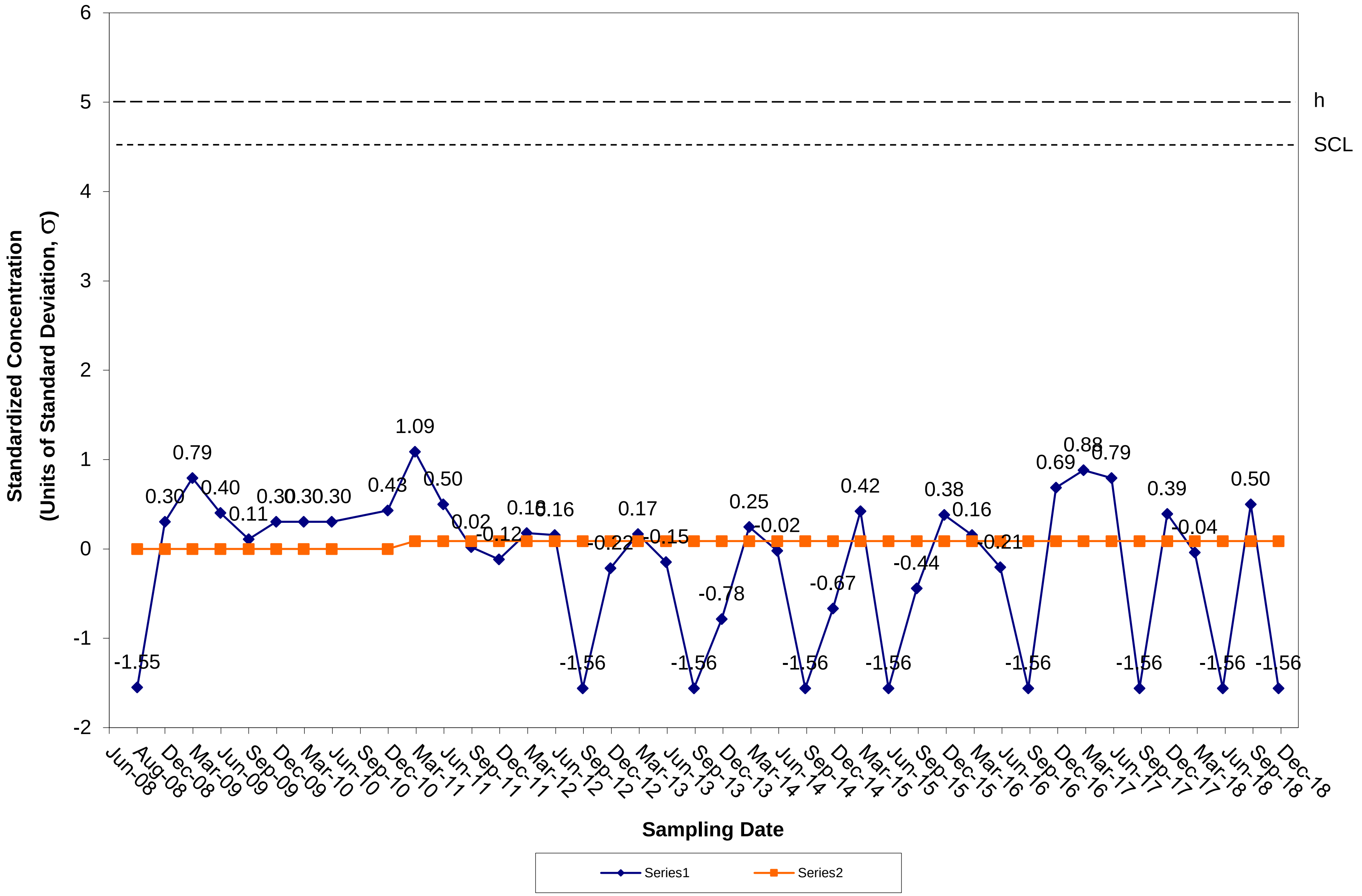
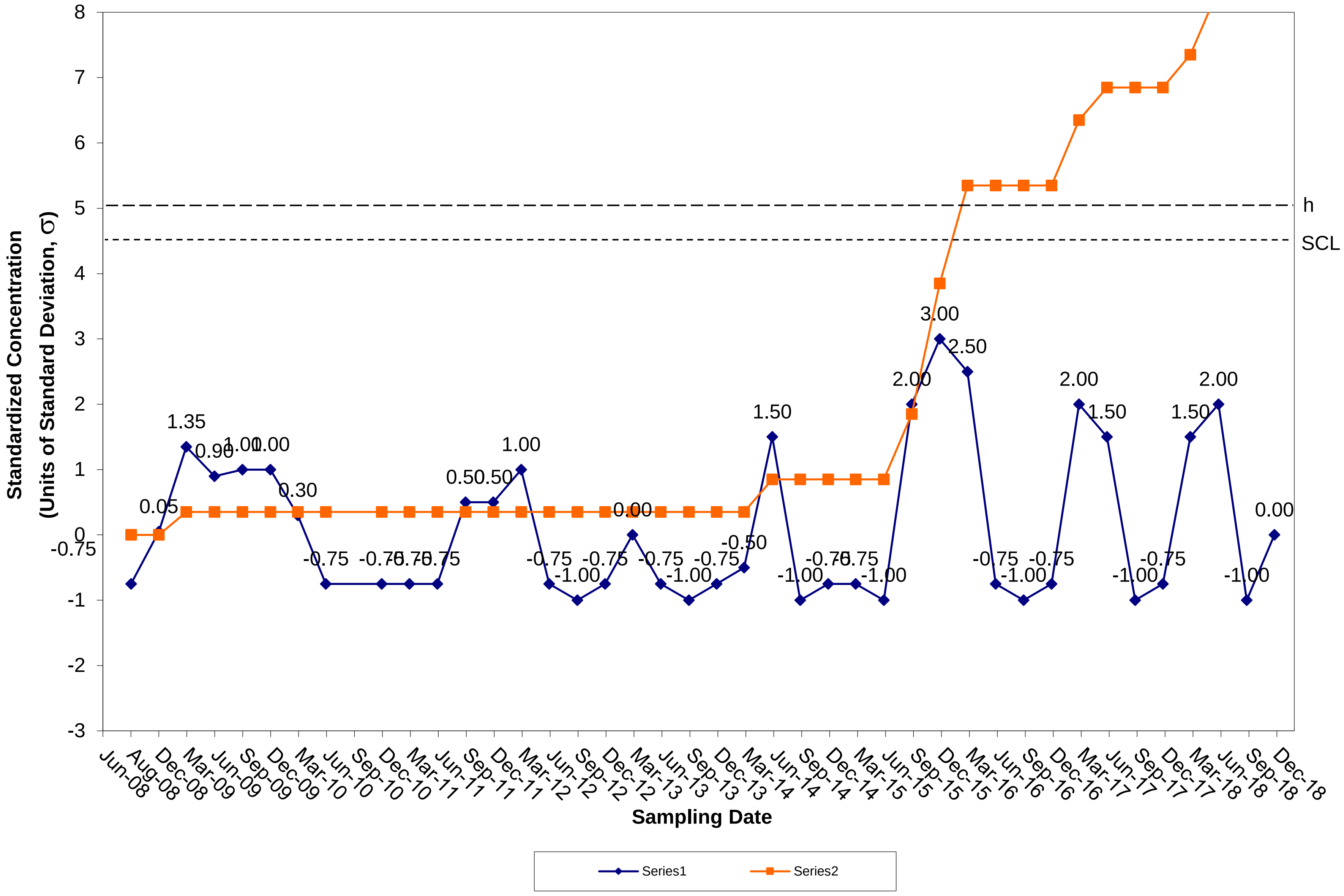
Tiverton Landfill Groundwater Compliance Well OW-14



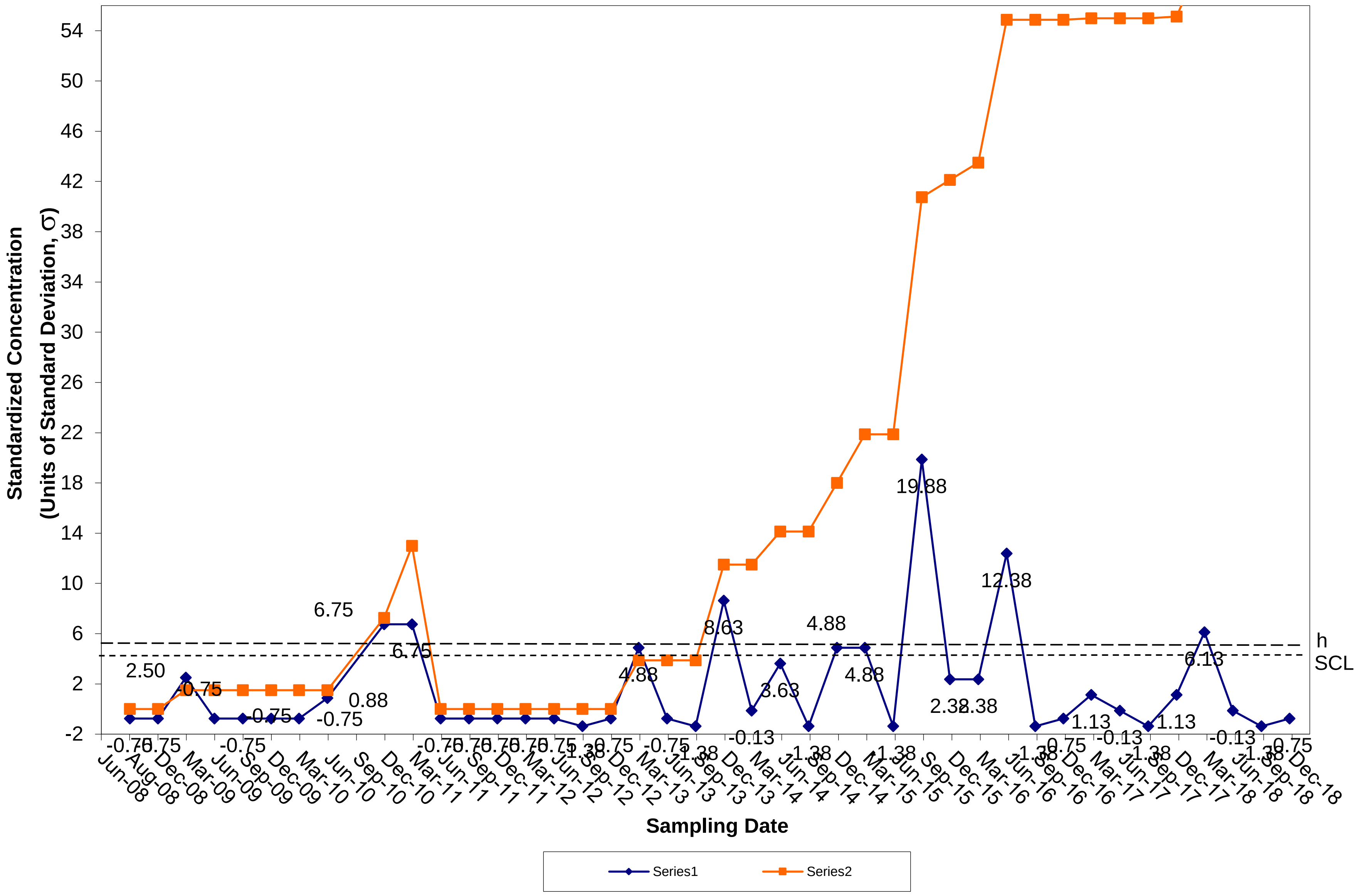
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-14



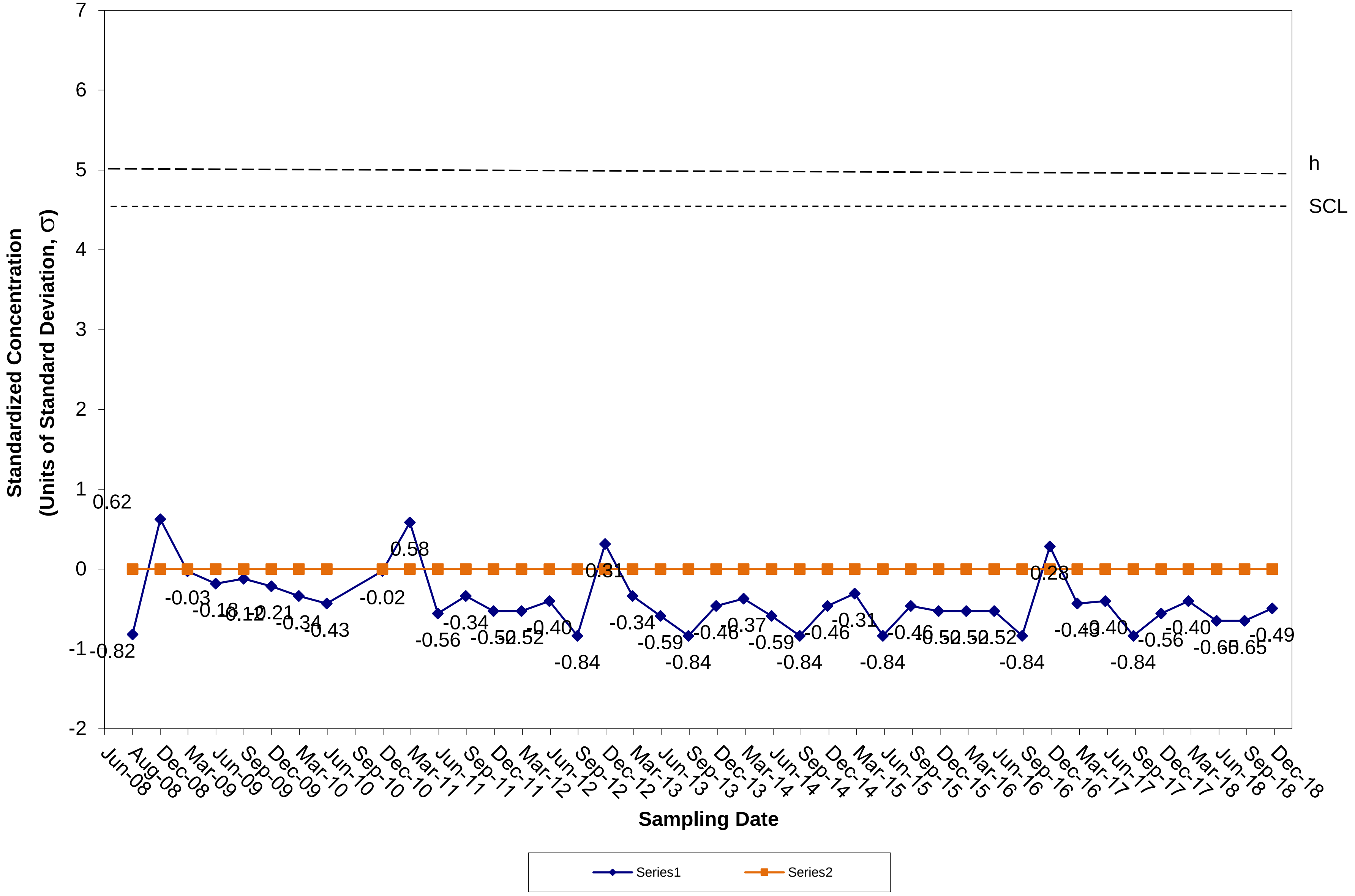
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Compliance Well OW-14



CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-14



CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-14



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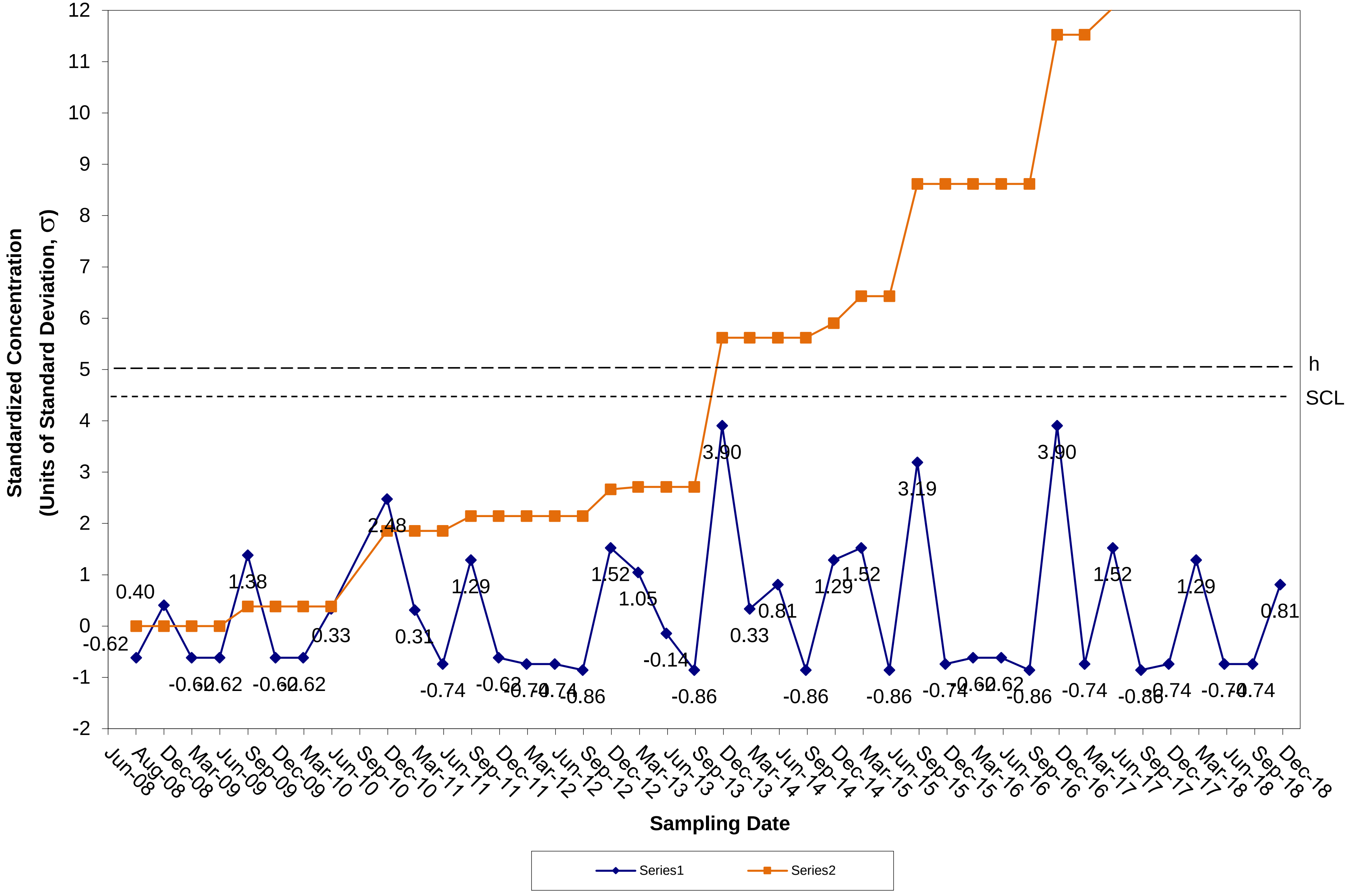
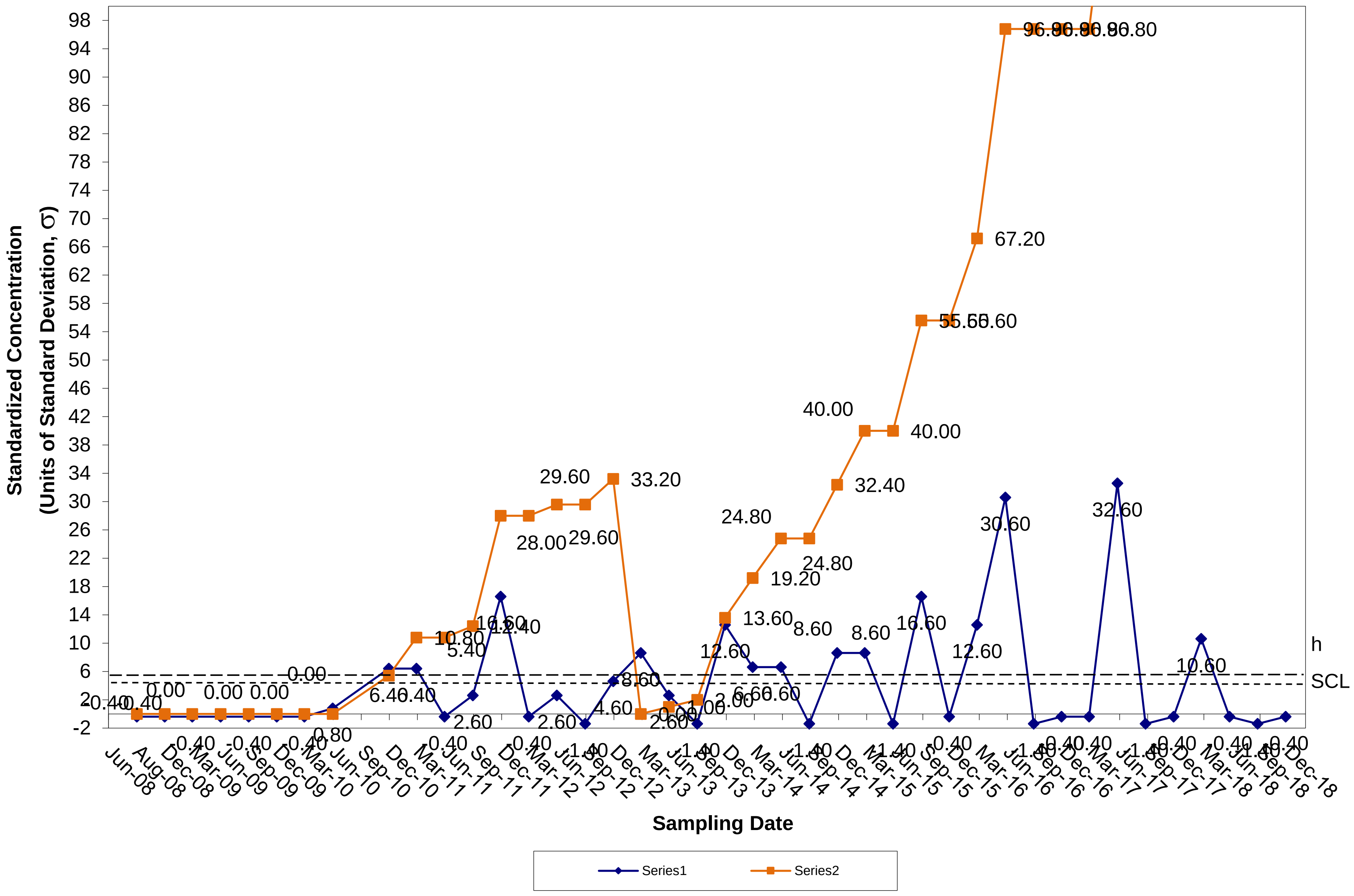
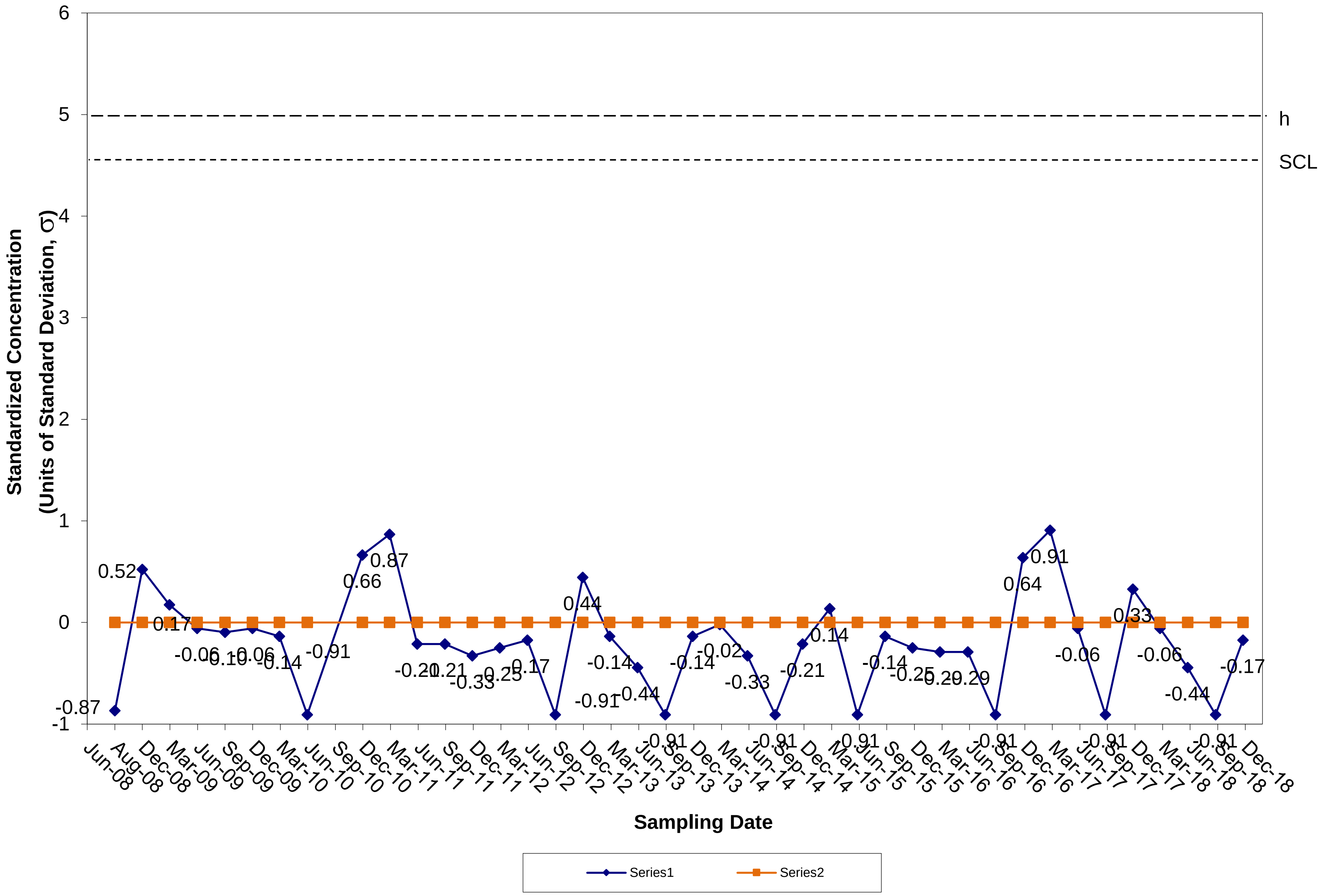
Tiverton Landfill Groundwater Compliance Well OW-14



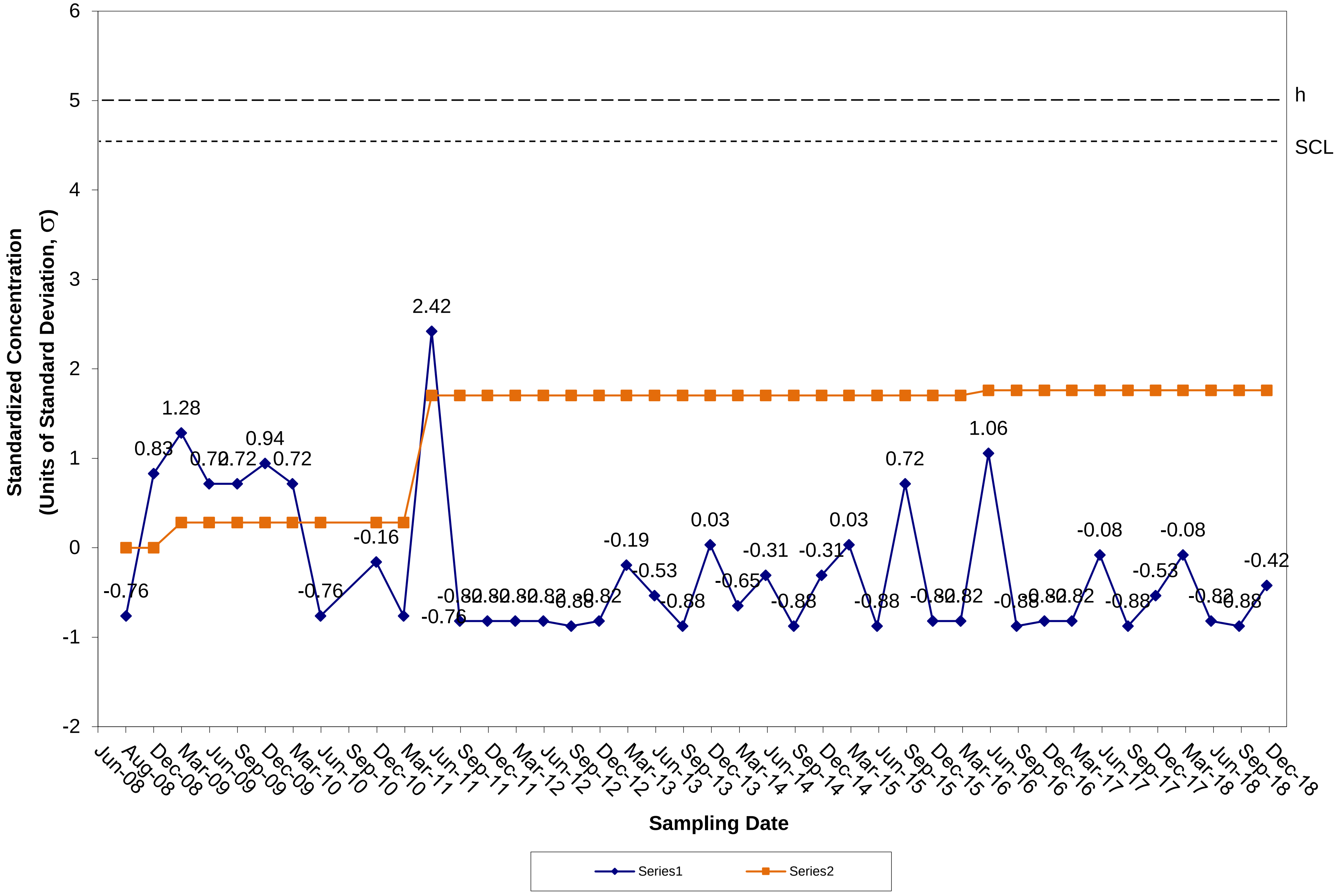
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-14



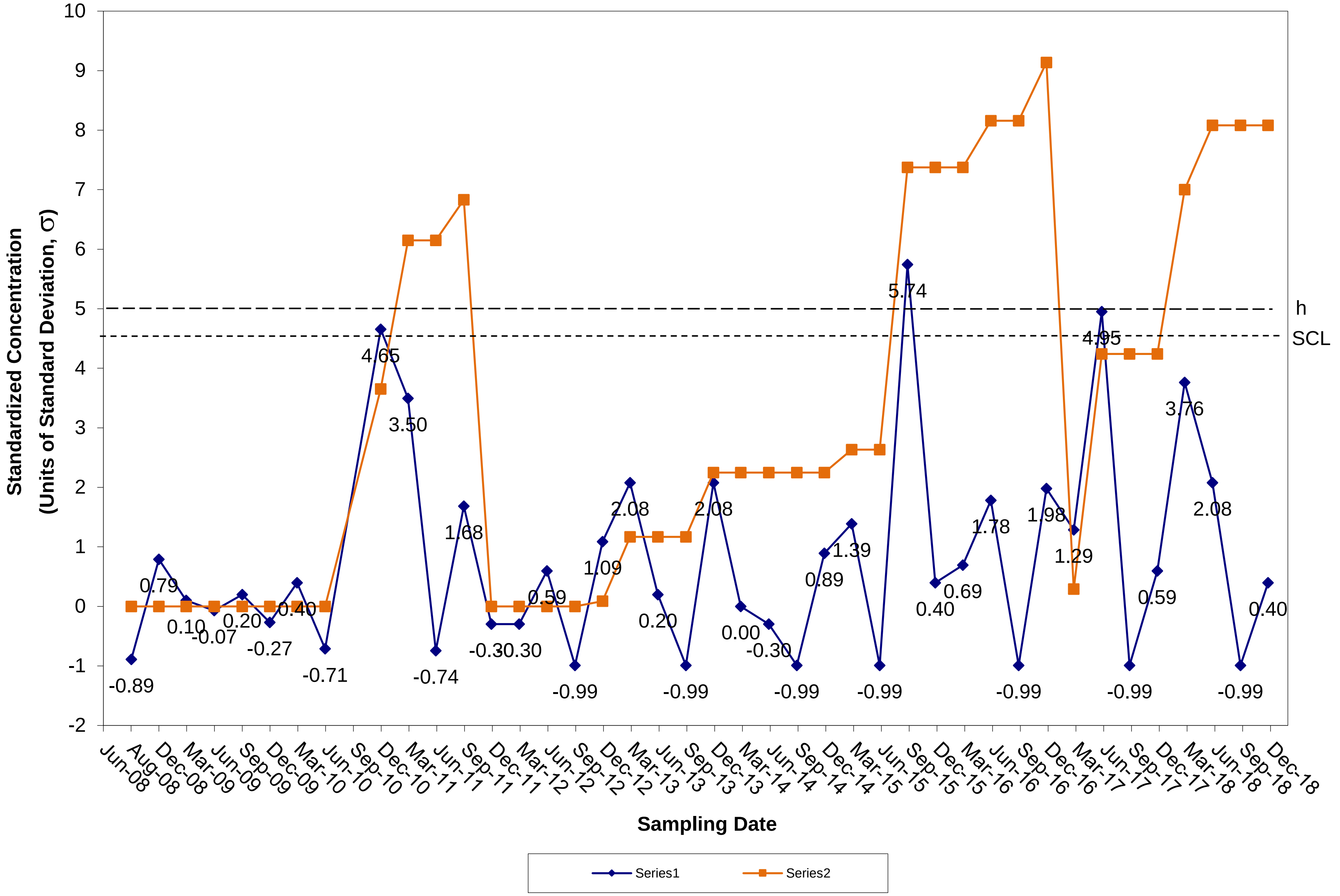
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-14



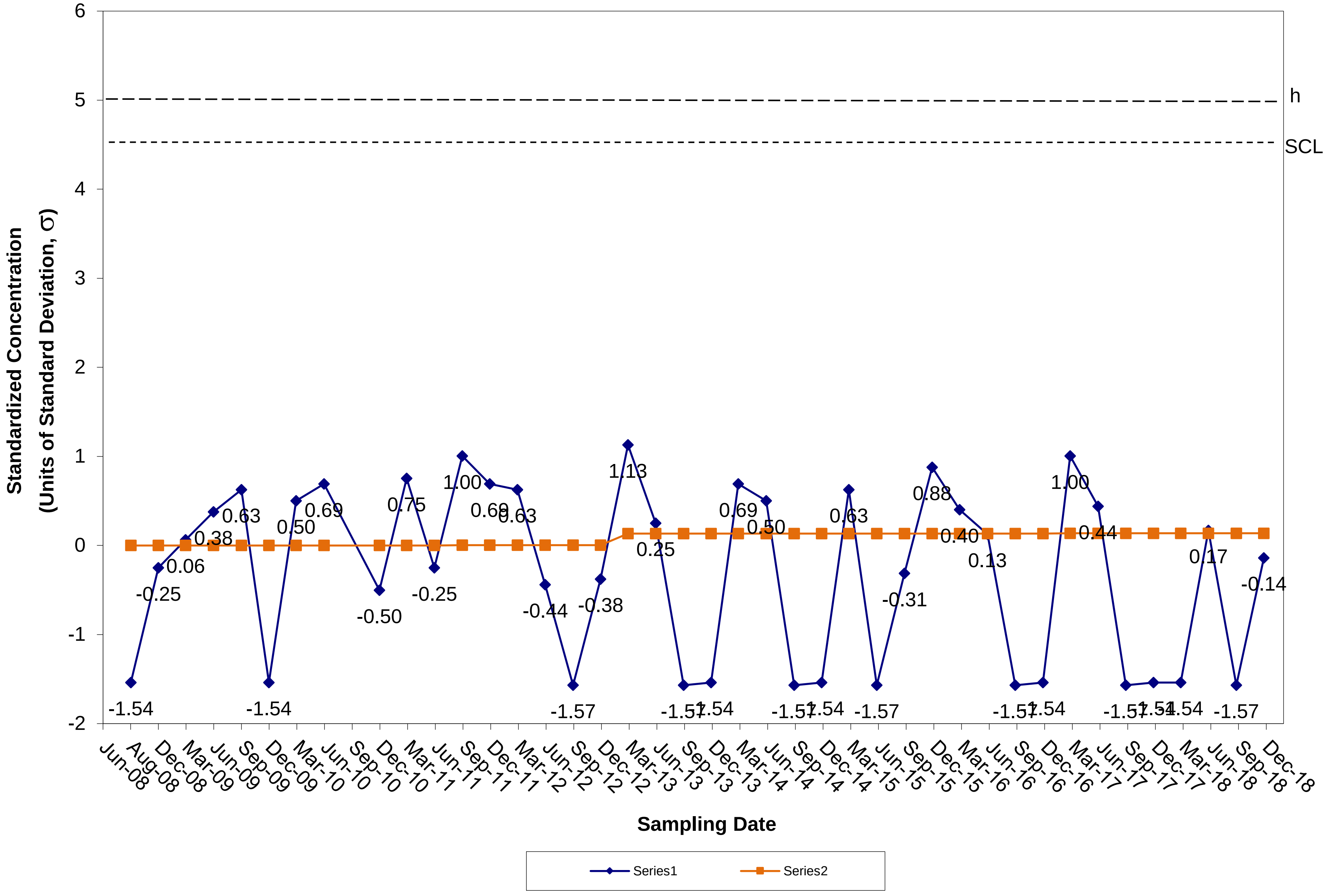
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-14



CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-14



CUSUM Control Chart for Benzene
Tiverton Landfill Groundwater Compliance Well OW-14



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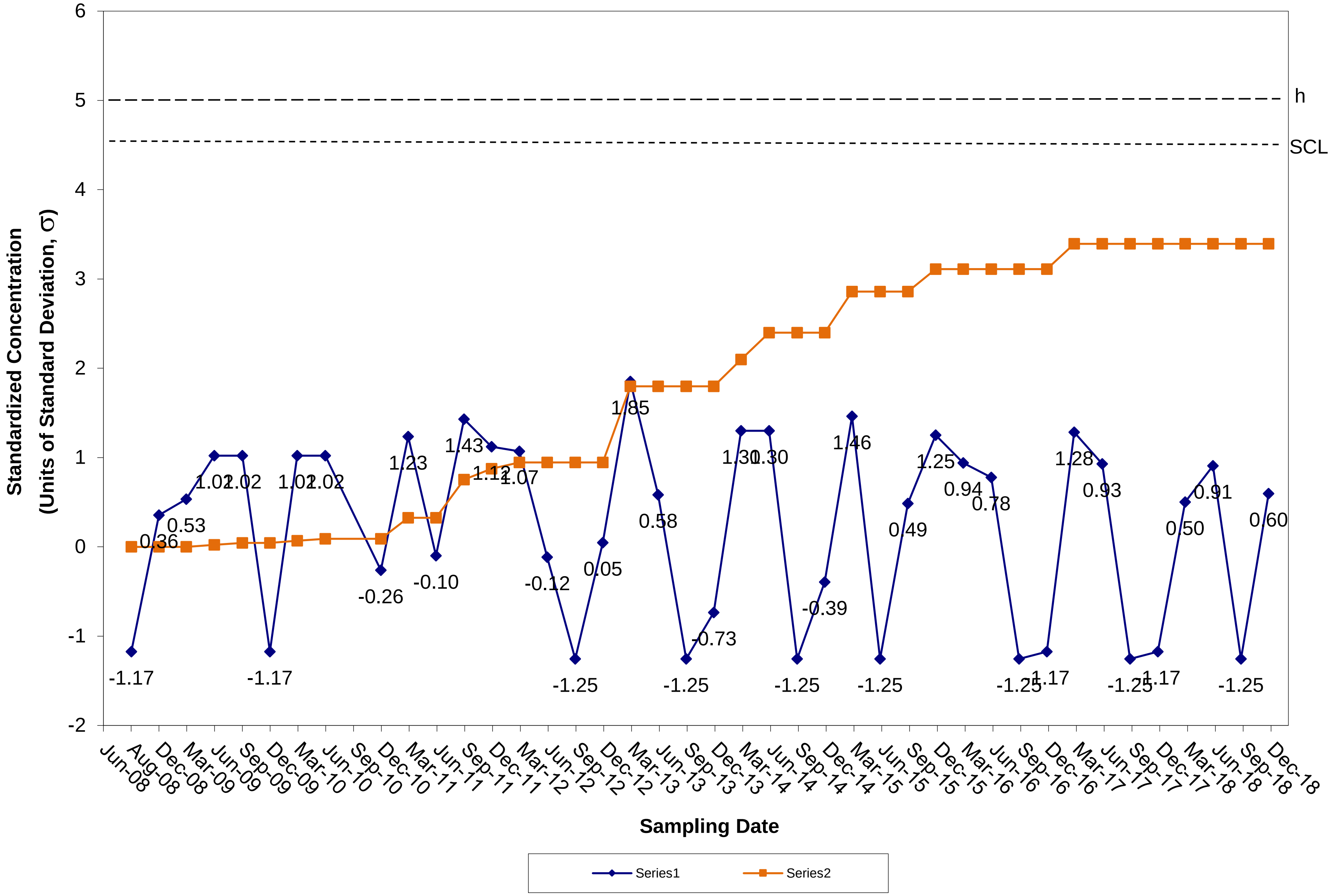
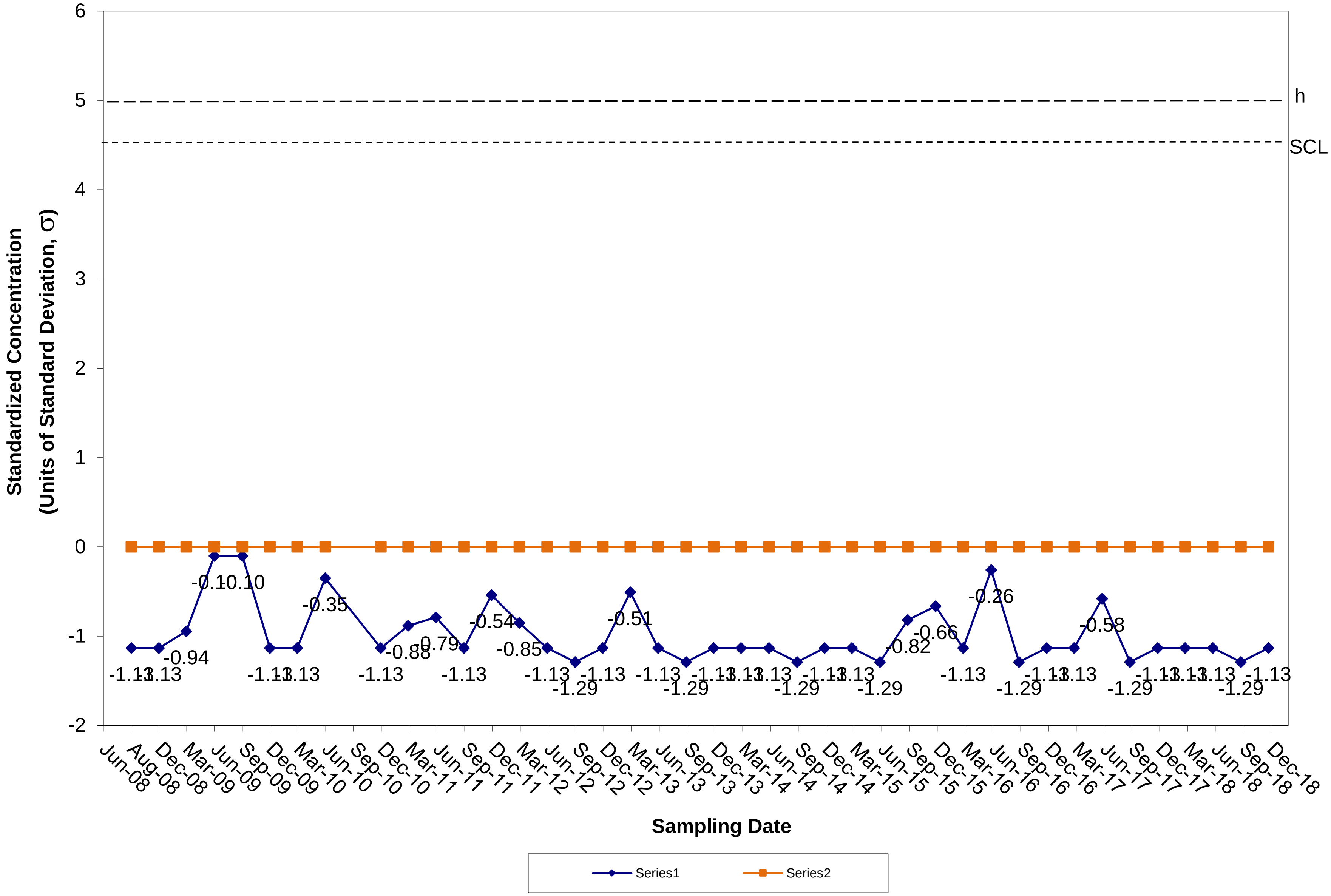
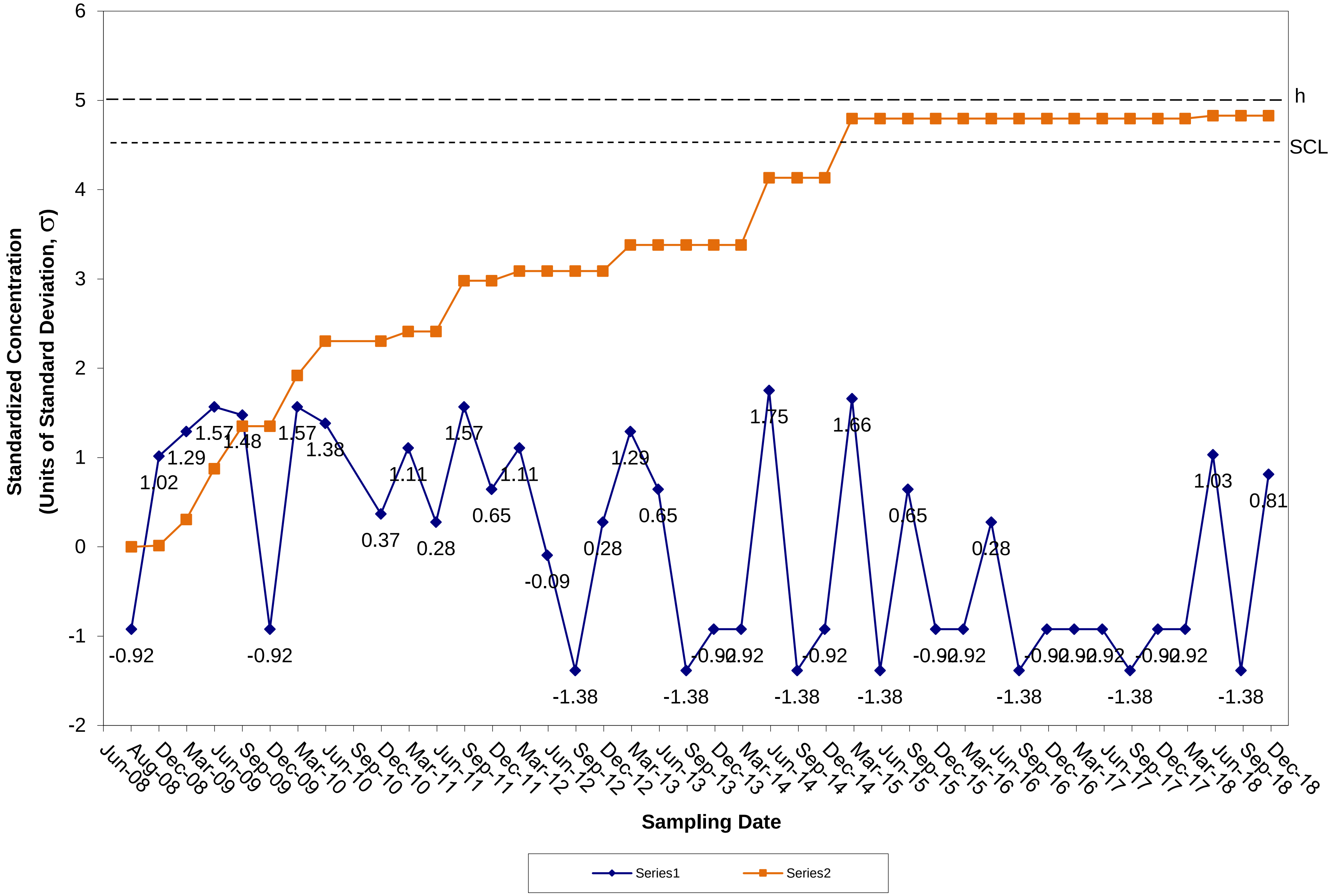
Tiverton Landfill Groundwater Compliance Well OW-14



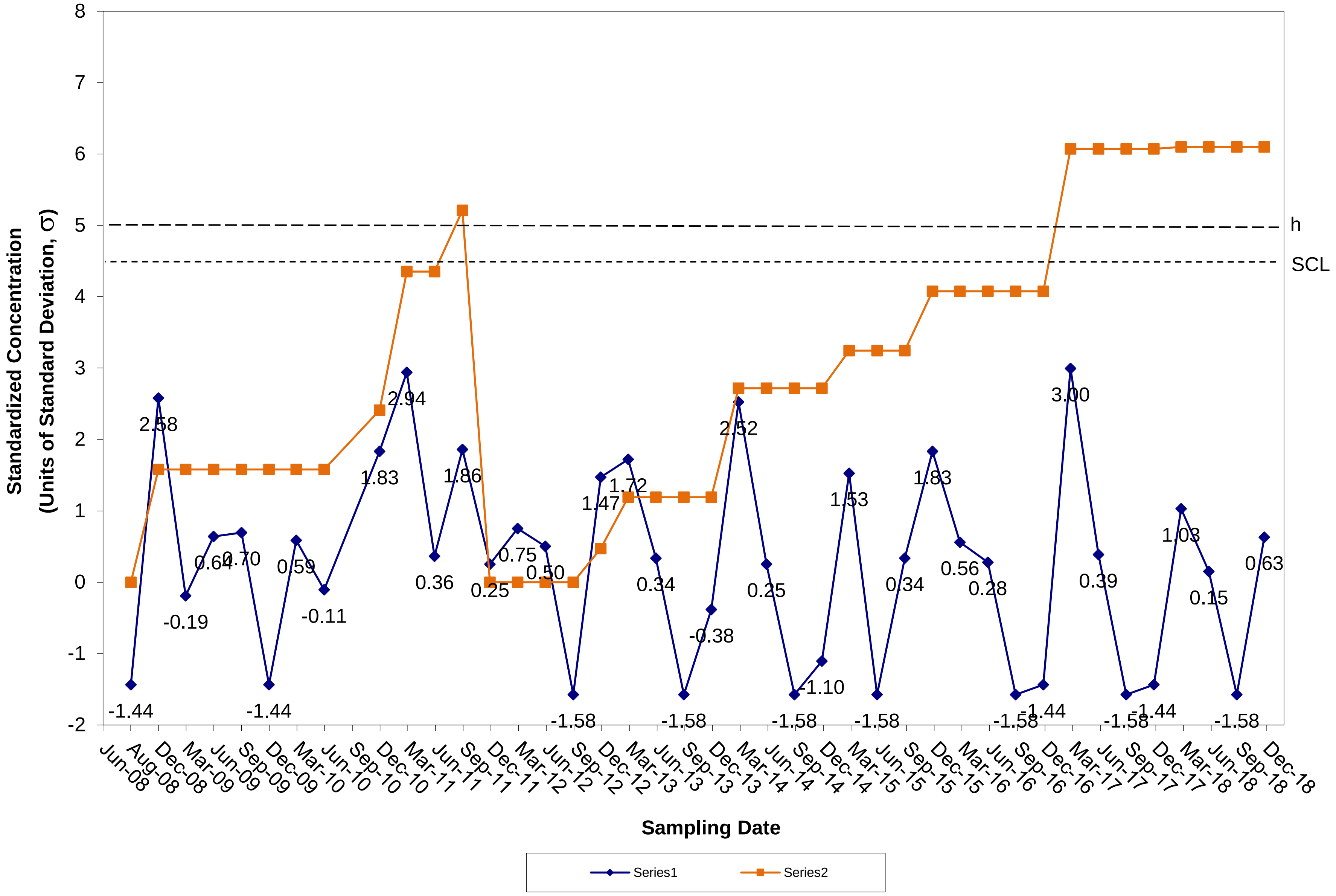
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Compliance Well OW-14



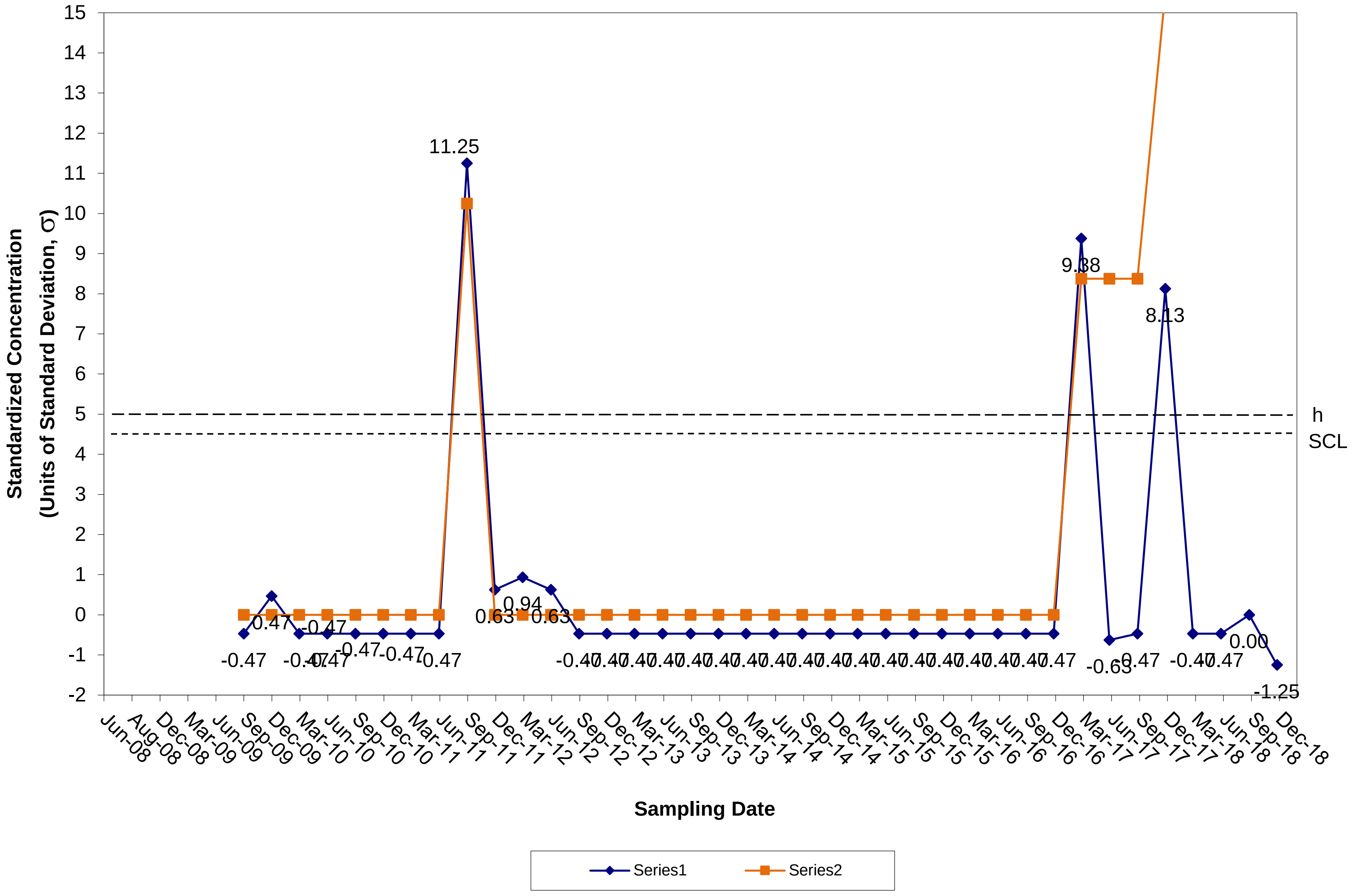
CUSUM Control Chart for 1,4-Dichlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-14



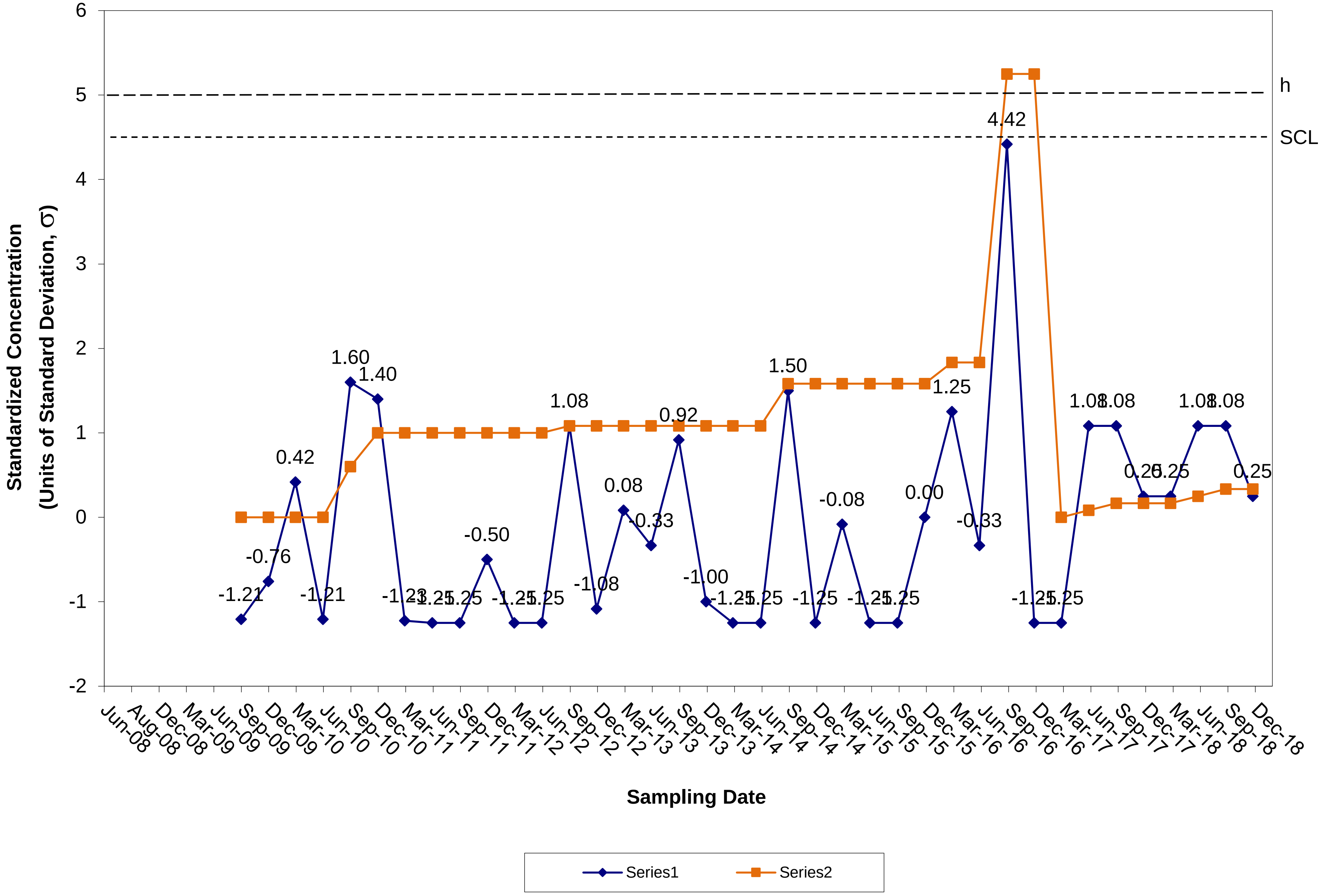
CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-14



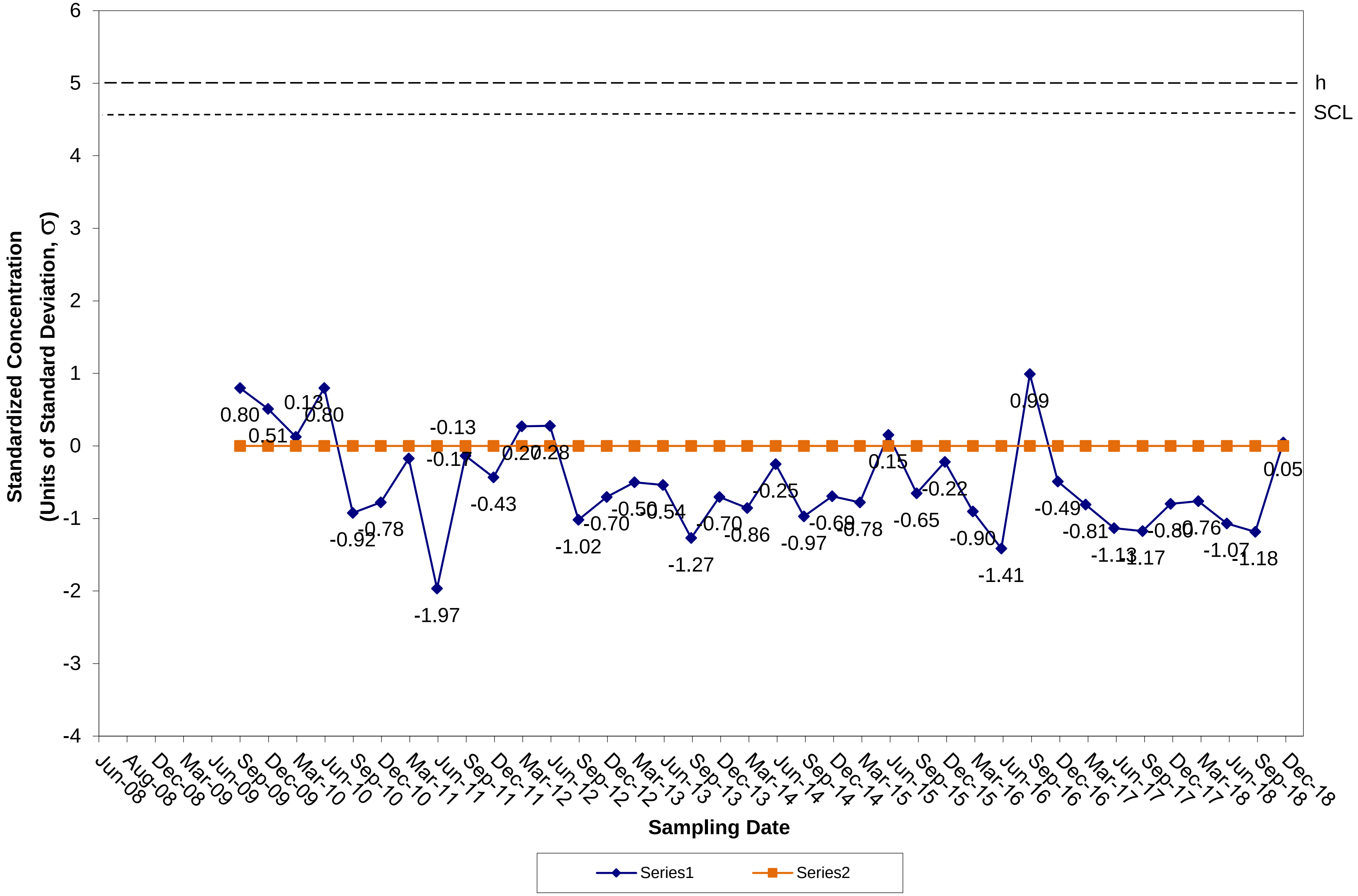
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-15



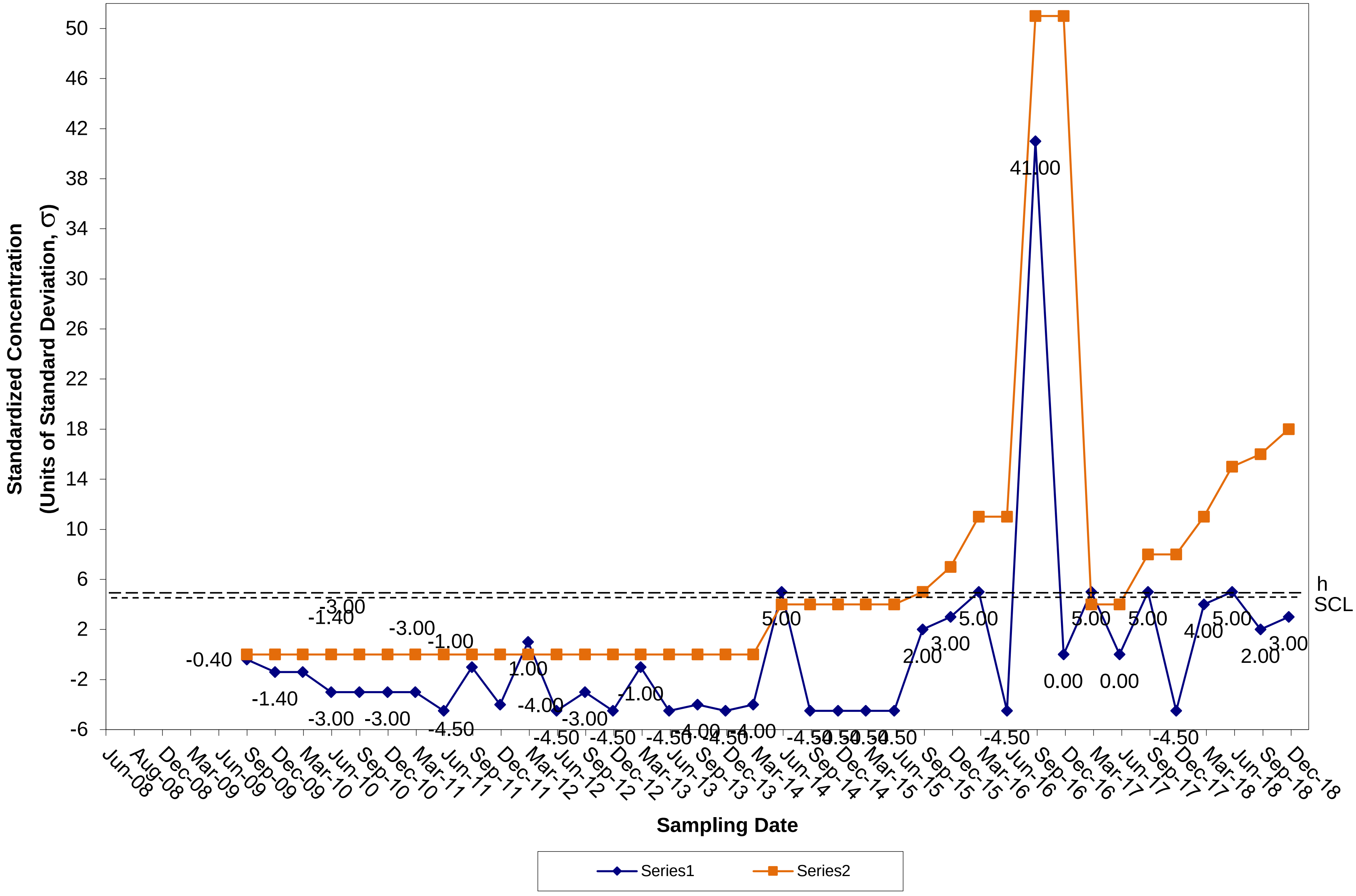
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-15



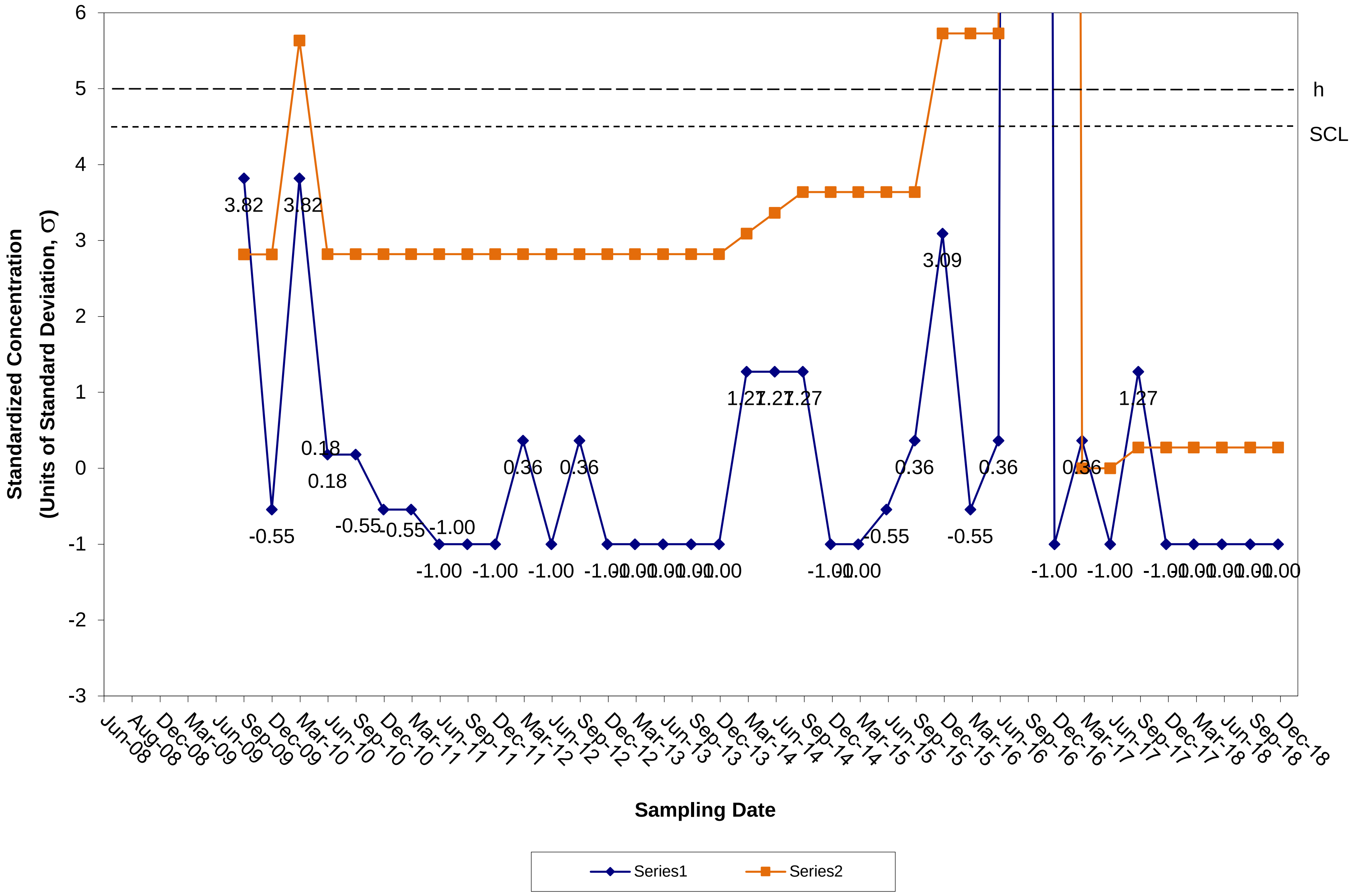
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-15



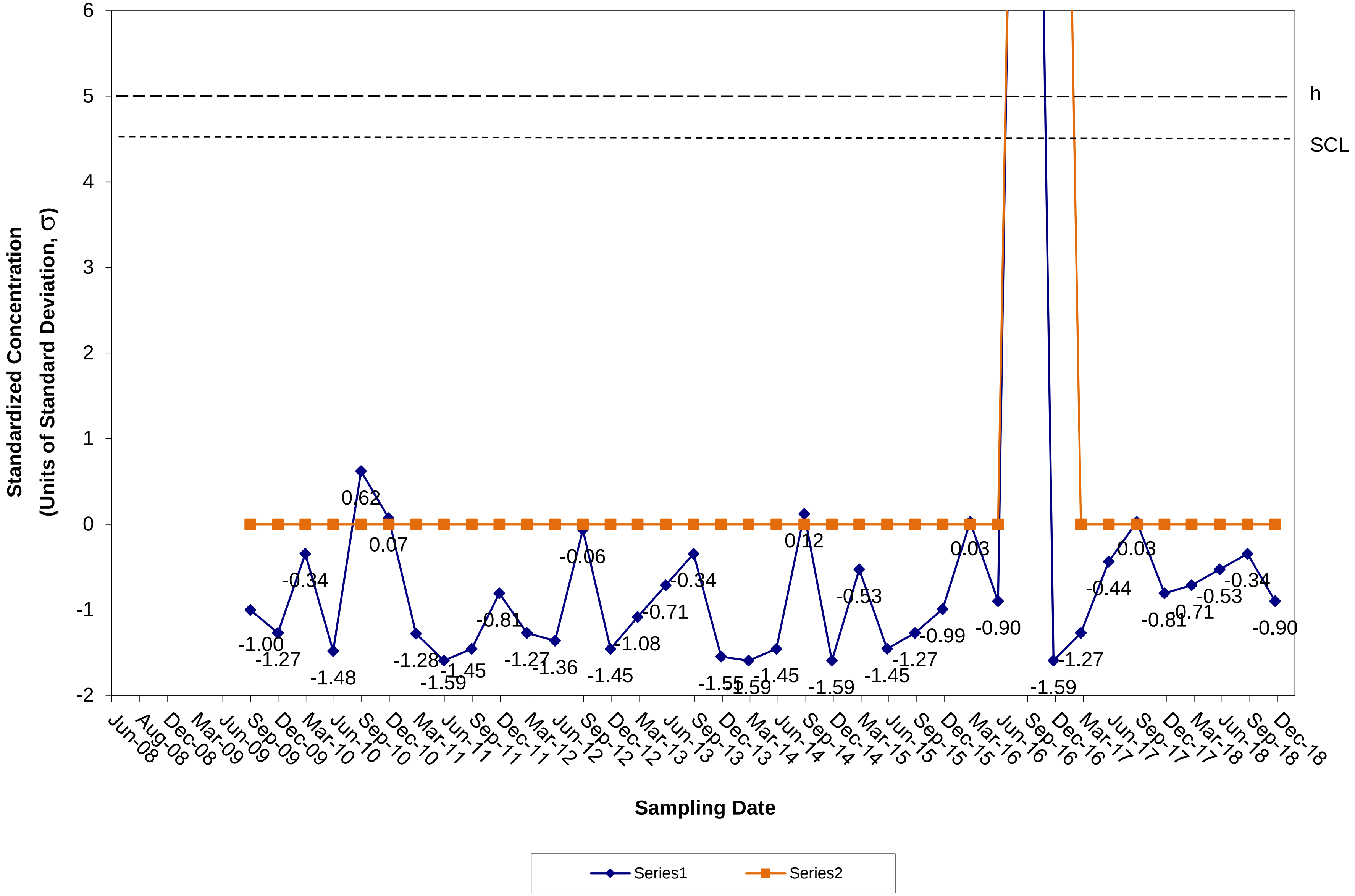
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Compliance Well OW-15



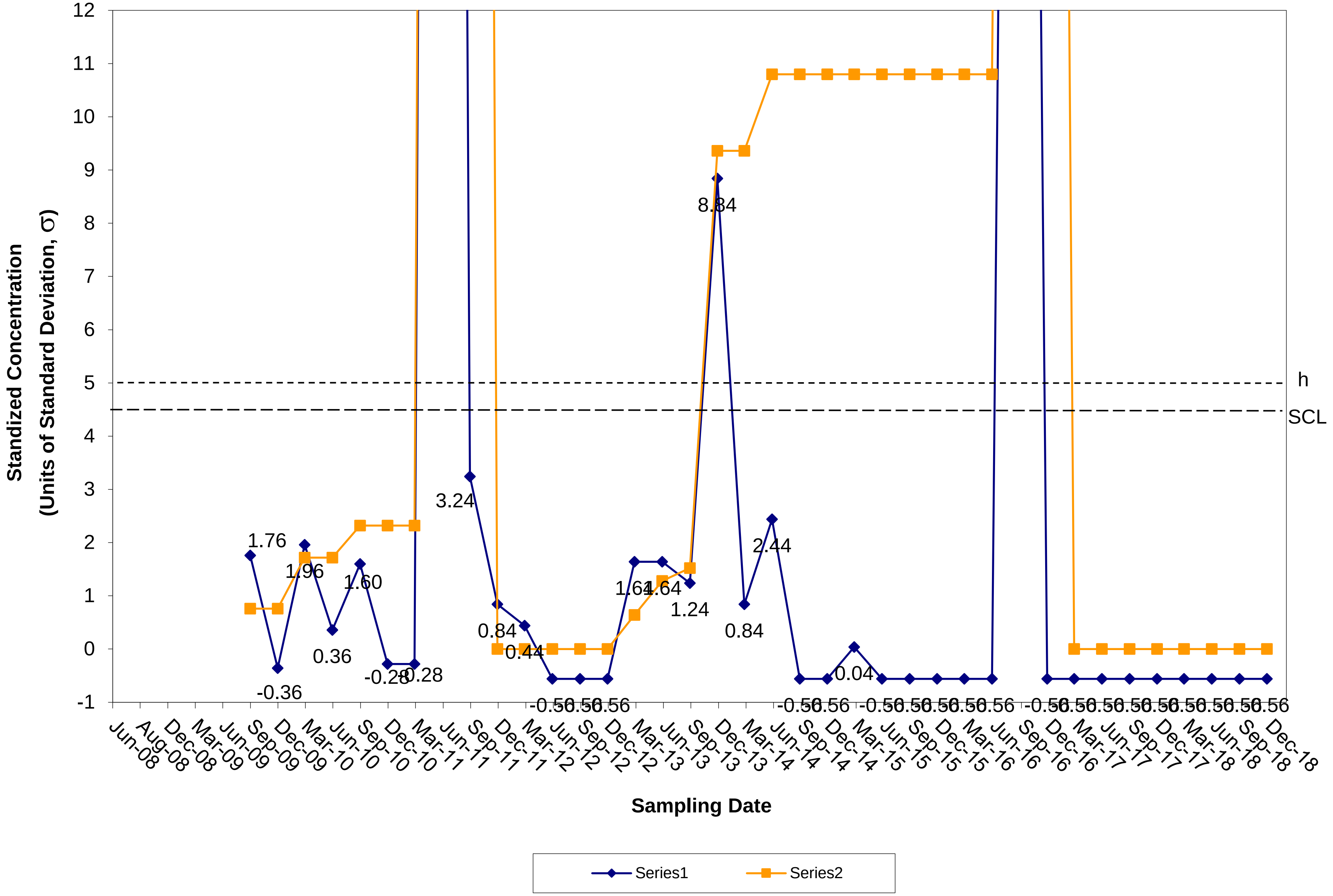
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-15



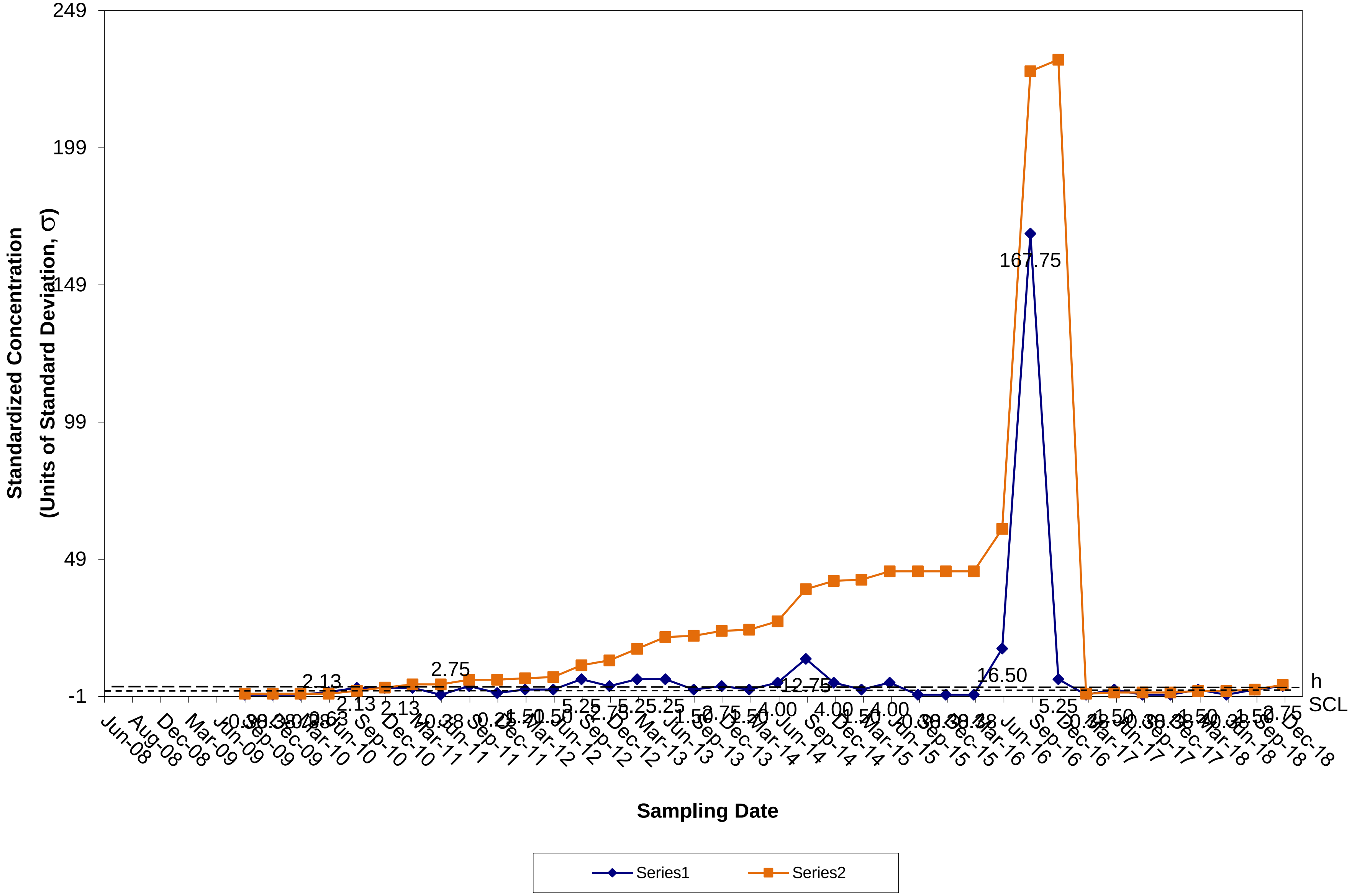
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-15



CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Complaince Well OW-15



CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-15



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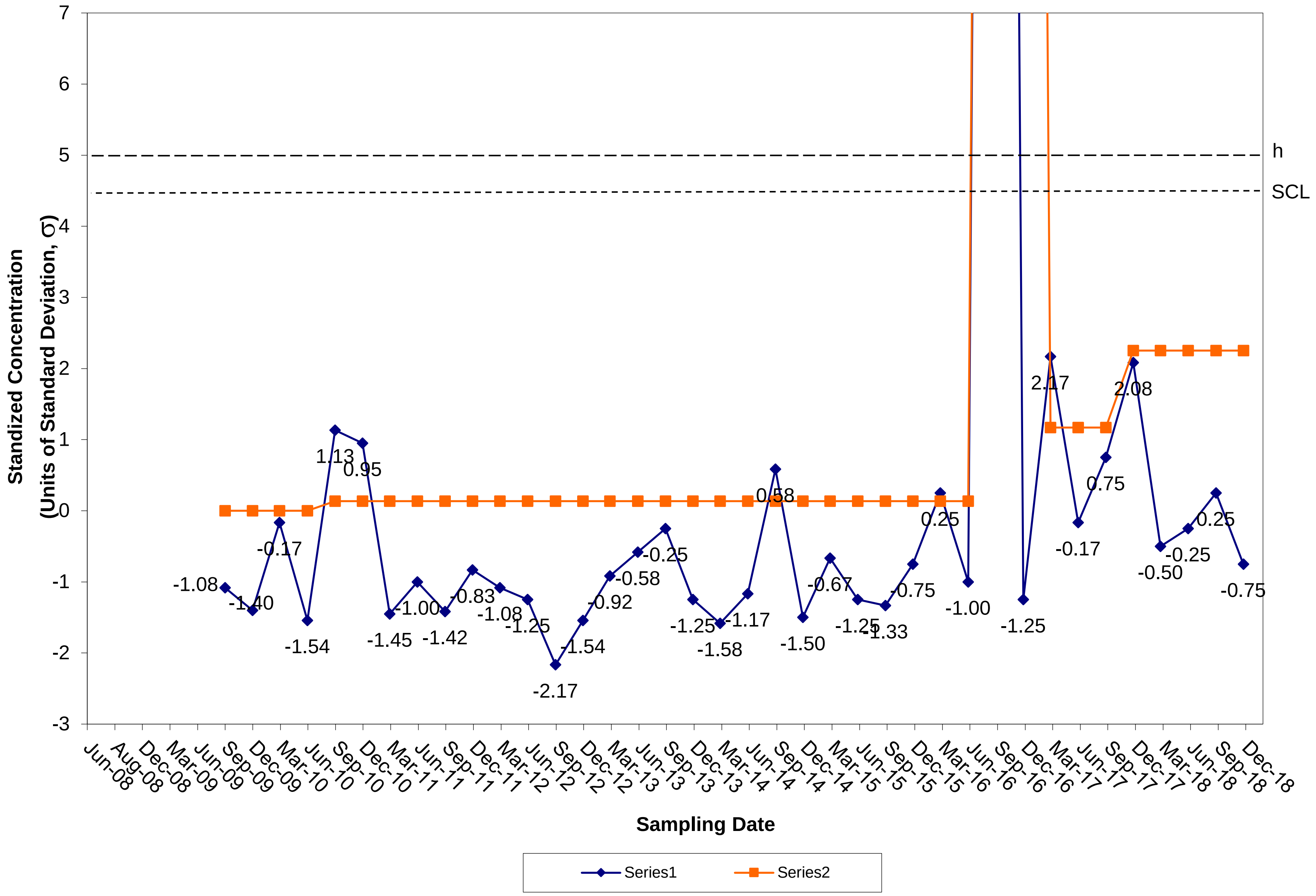
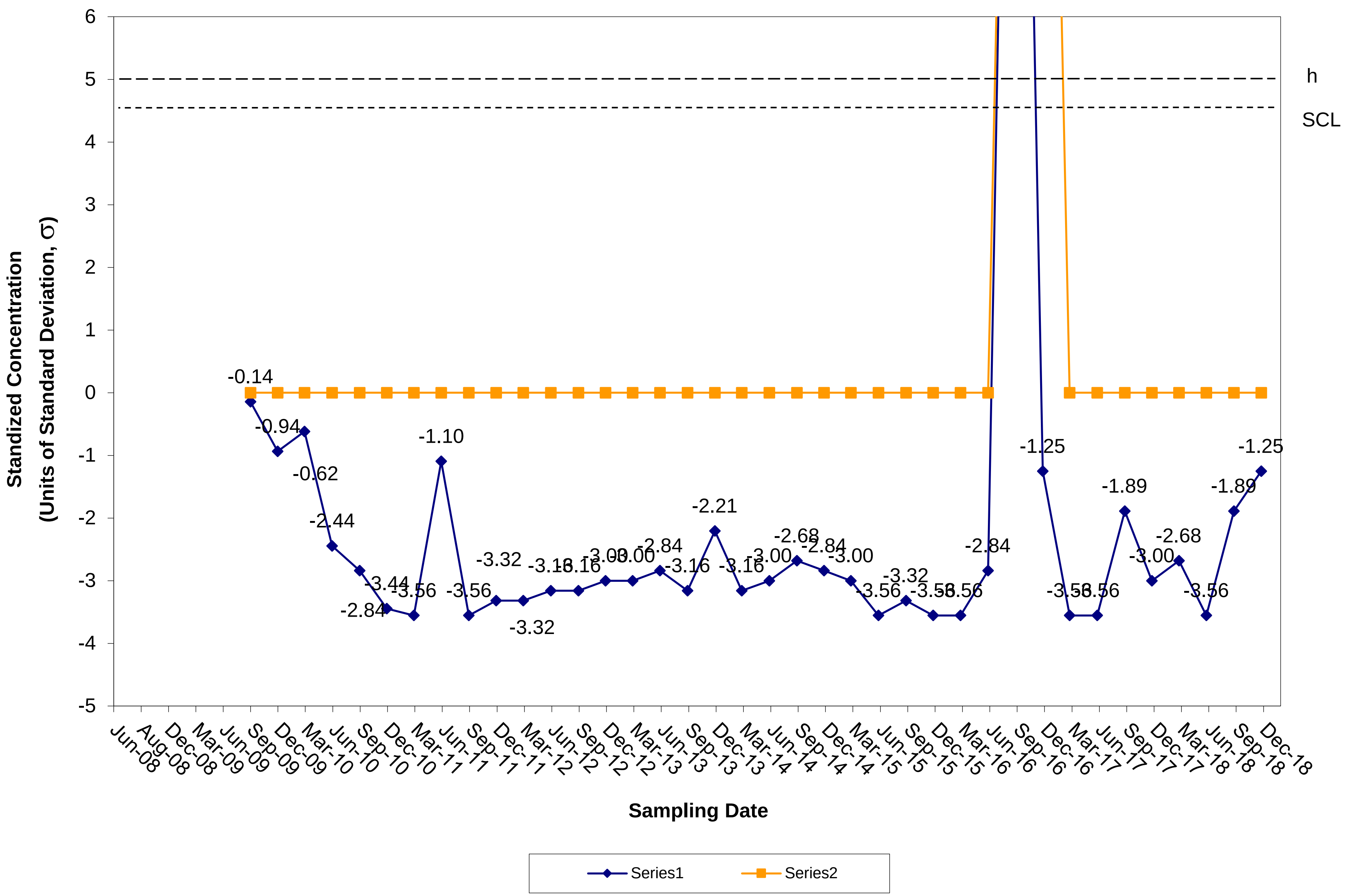
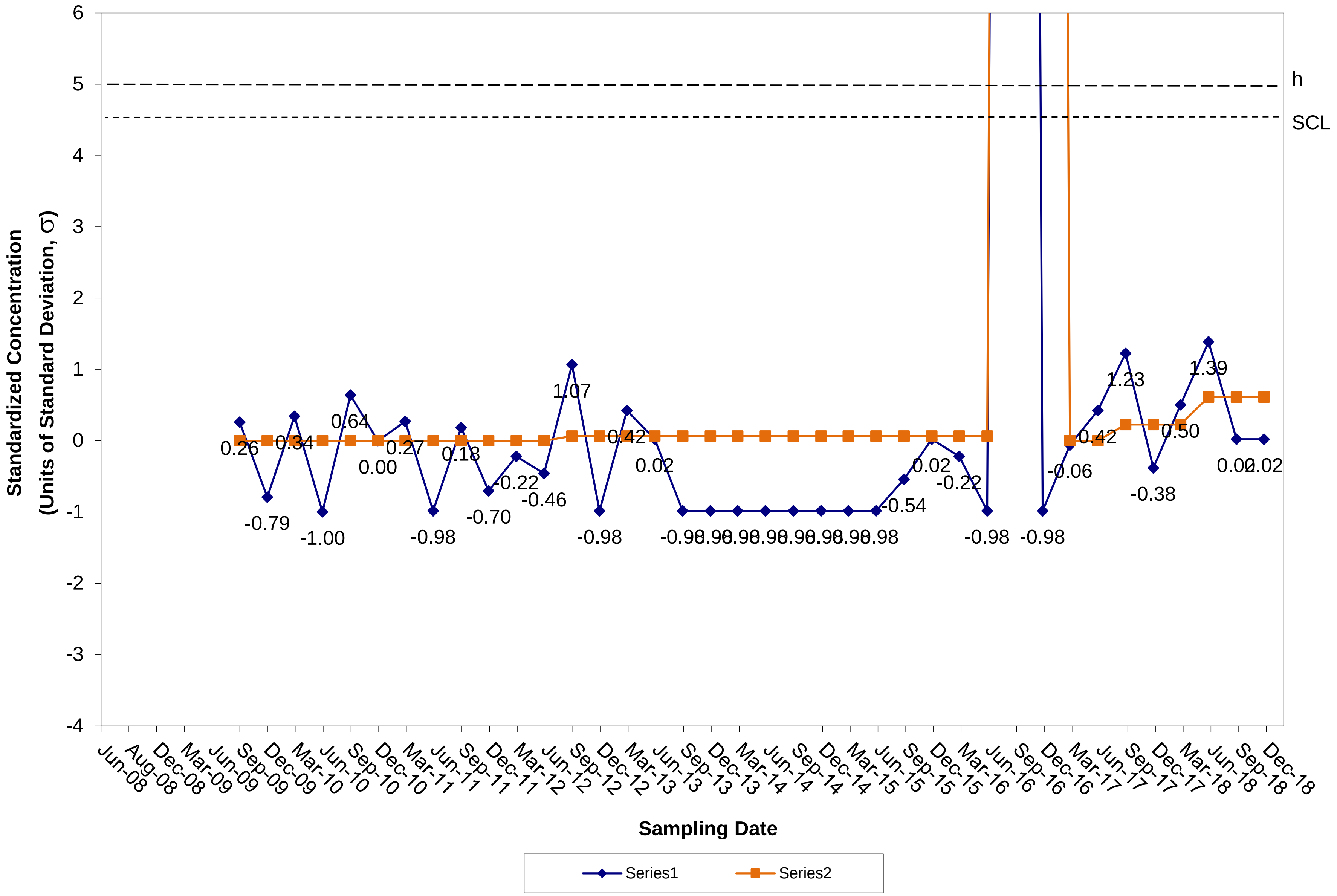


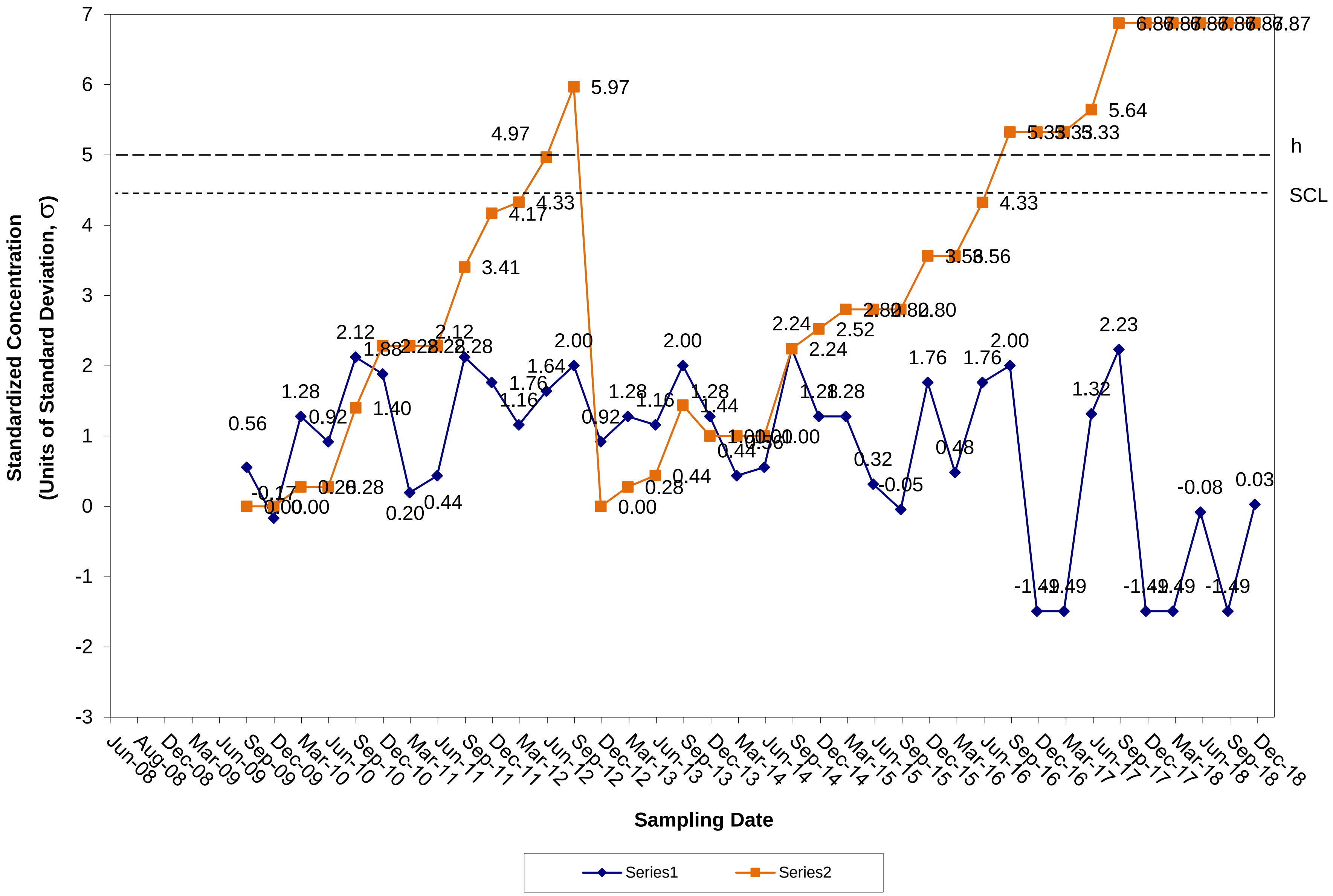
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Complaince Well OW-15



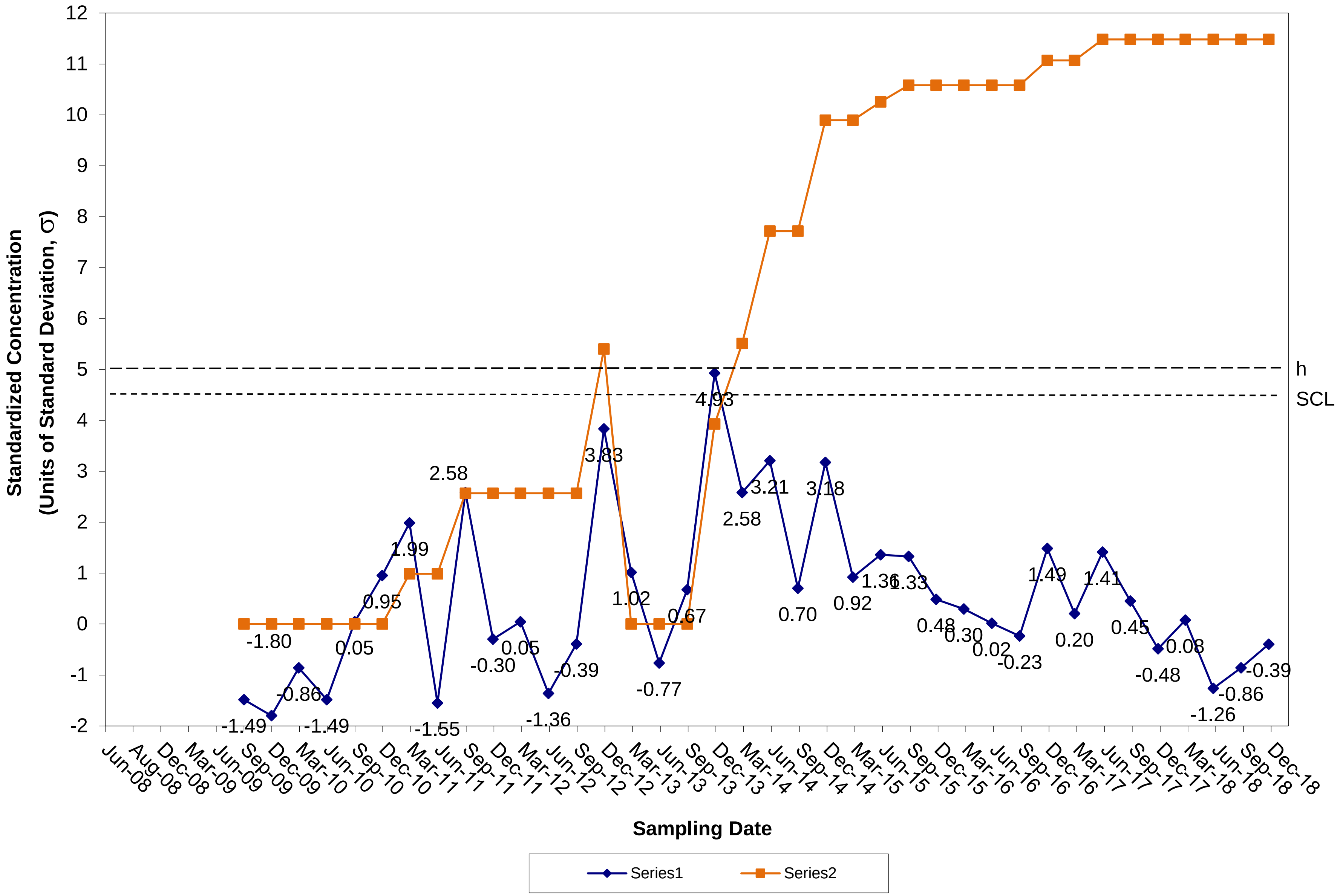
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-15



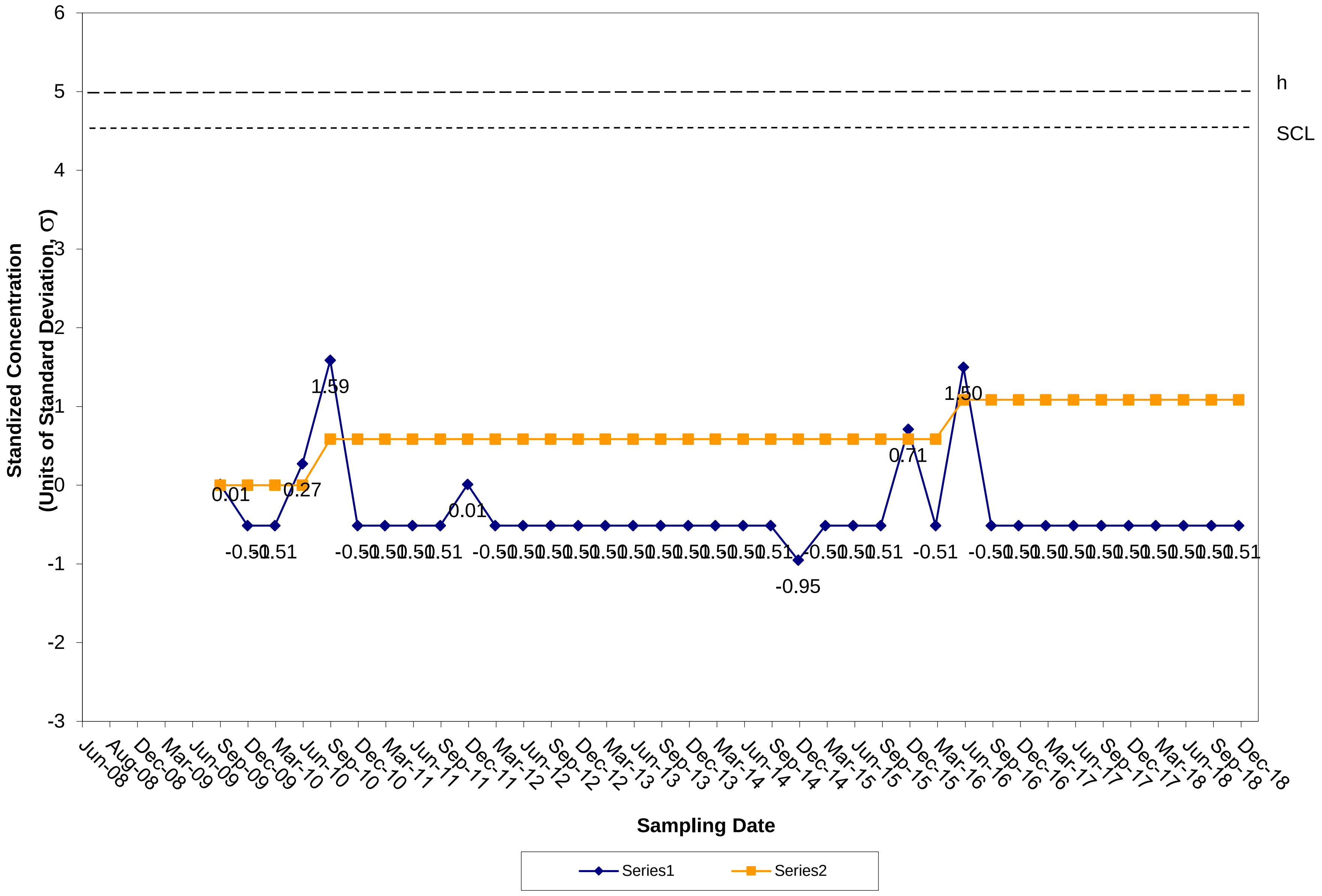
CUSUM Control Chart for Benzene
Tiverton Landfill Groundwater Compliance Well OW-15

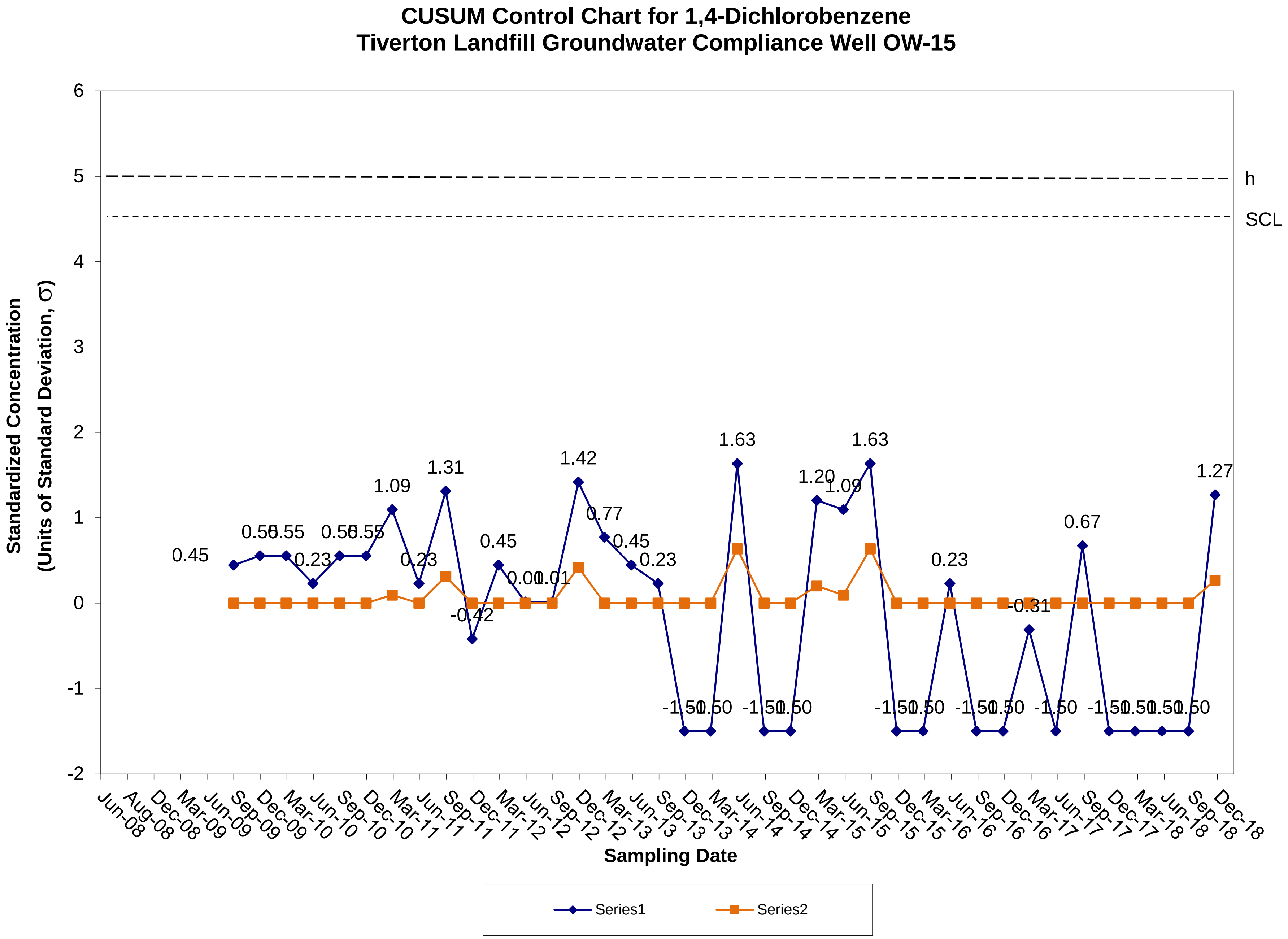


CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-15



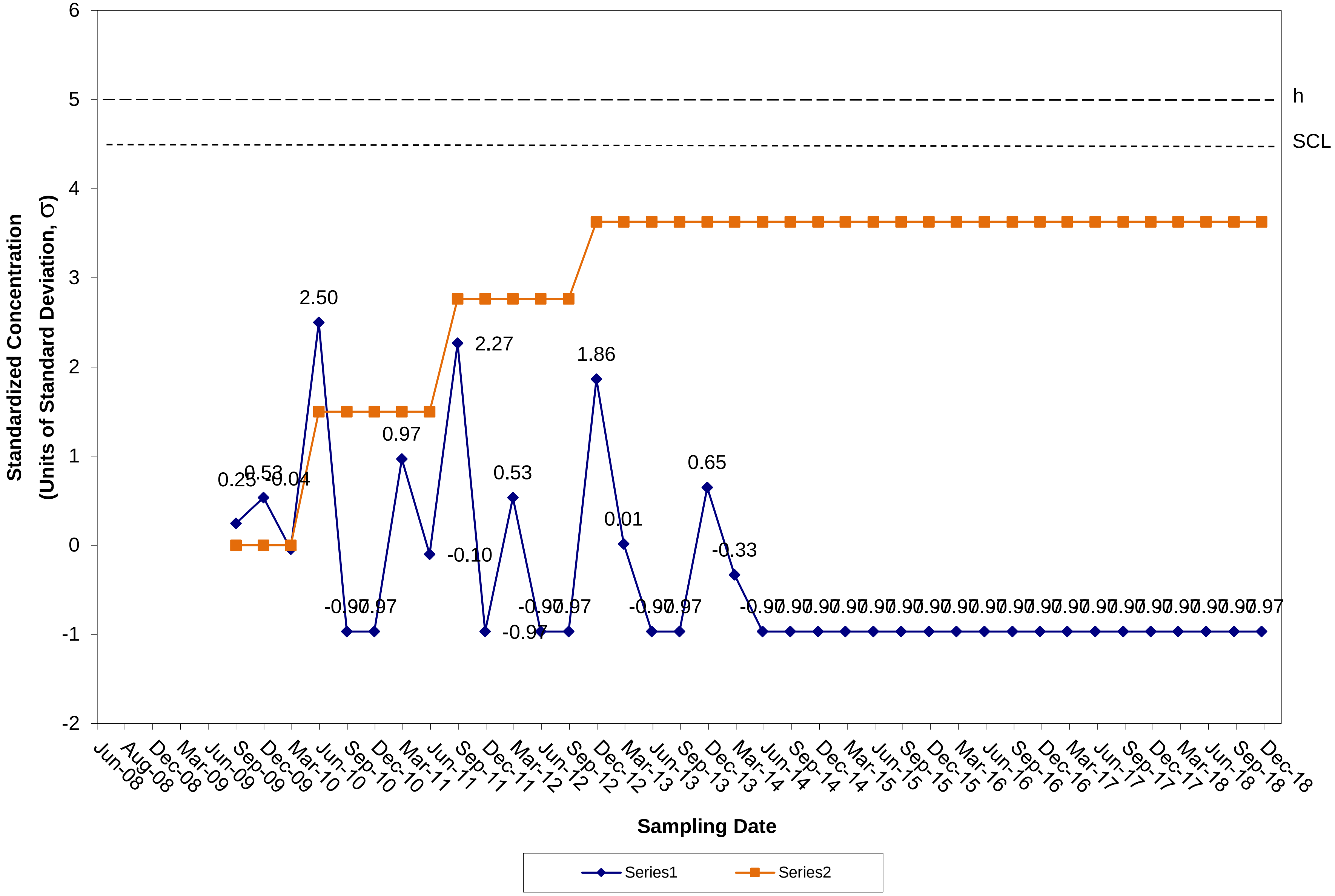
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Complaince Well OW-15



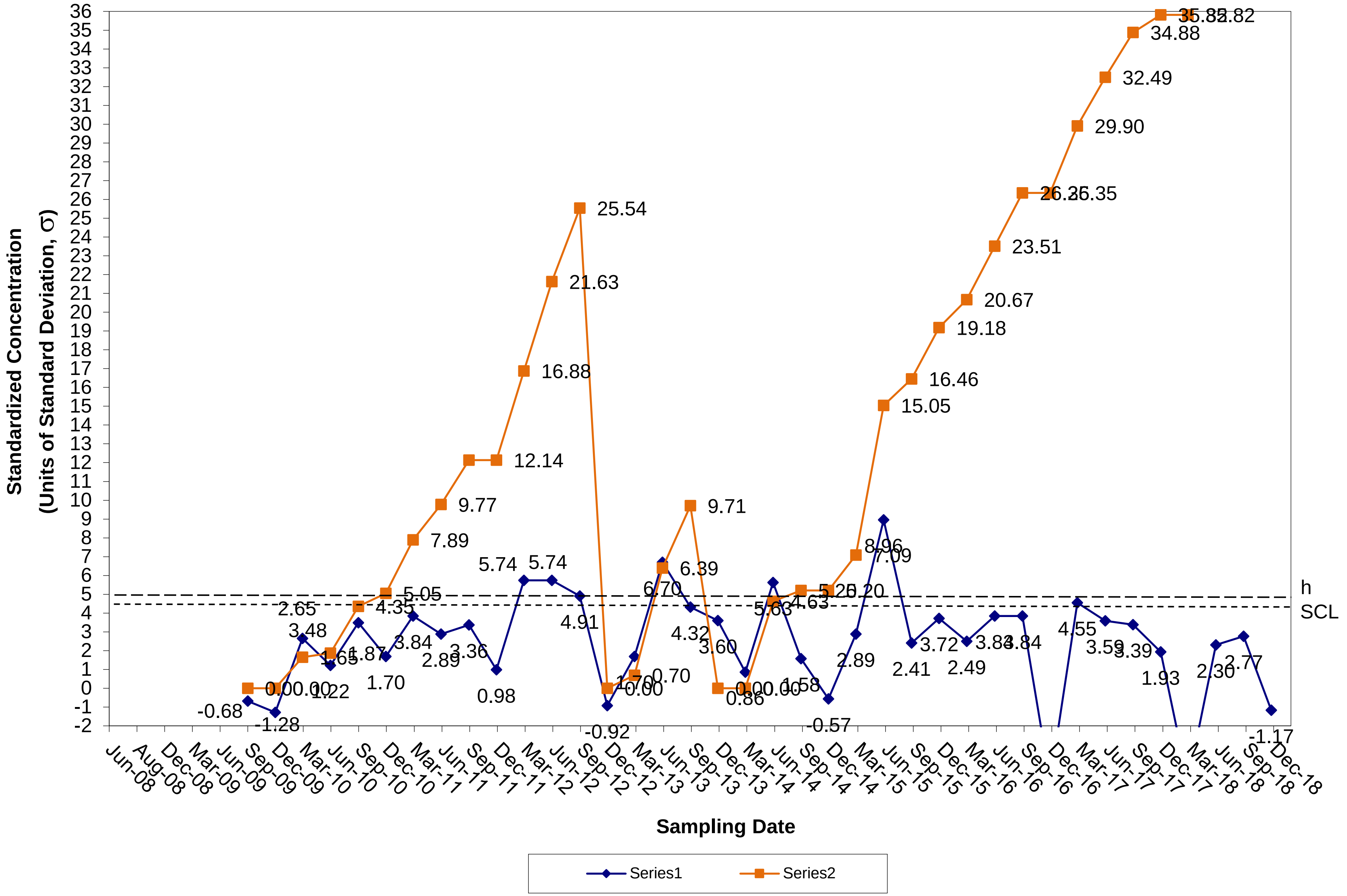


CUSUM Control Chart for 1,4-Dichlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-15

CUSUM Control Chart for Xylenes
Tiverton Landfill Groundwater Compliance Well OW-15



CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-15



APPENDIX I

Tolerance Limit Calculation

PARE
ENGINEERING CORPORATION

PAGE 1 OF 11

PROJECT TIVERTON LANDFILL PROJECT NO. 94139.01
SUBJECT TOLERANCE INTERVAL CALCULATION
COMPUTATIONS BY TPT DATE 01-22-04
CHECK BY DATE

OBJECTIVE: PROVIDE SAMPLE CALCULATION FOR STATISTICAL ANALYSIS OF TIVERTON LANDFILL GROUNDWATER MONITORING DATA VIA TOLERANCE LIMIT APPROACH

GIVEN: DATA SET SIZE IS 8 $(N = 8)$.

POPULATION OF DATA WE WILL PROVIDE FOR IS 95%. $(p = 0.95)$

PERCENT CONFIDENCE WE WILL CALCULATE IS 95%. $(\gamma = 0.95)$

CALCULATION: CALCULATE UPPER TOLERANCE LIMIT

$$Y_u = \bar{Y} + k_1 s$$

Y_u = UPPER TOLERANCE LIMIT
$\bar{Y}$ = MEAN VALUE OF DATA SET
K_1 = K FACTOR FOR ONE SIDED TOLERANCE LIMIT
s = STANDARD DEVIATION OF DATA SET

CALCULATE K FACTOR

$$K_1 = \frac{z_{(1-p)} + \sqrt{z^2_{(1-p)} - ab}}{a}$$

$z_{(1-p)}$ = 1.645 (REFER TO SECTION 1.3.6.7.1 - ATTACHED)

$$a = 1 - \frac{z^2_{(1-y)}}{2(N-1)}$$

$$b = z^2_{(1-p)} - \frac{z^2_{(1-y)}}{N}$$

$z_{(1-y)}$ = 1.645 (REFER TO SECTION 1.3.6.7.1 - ATTACHED)

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PROJECT Tiverton Landfill PROJECT NO. 94139.01
SUBJECT Tolerance Interval Calculation
COMPUTATIONS BY TPT DATE 01-22-04
CHECK BY DATE

CALCULATIONS:

CALCULATE a

$$a = 1 - \frac{z^2_{(1-\gamma)}}{2(N-1)}$$

$$= 1 - \frac{(1.645)^2}{2(8-1)} \qquad \underline{\underline{= 0.807}}$$

CALCULATE b

$$b = z^2_{(1-p)} - \frac{z^2_{(1-\gamma)}}{N}$$

$$= (1.645)^2 - \frac{(1.645^2)}{8} \qquad \underline{\underline{= 2.368}}$$

CALCULATE K_1

$$K_1 = \frac{z_{(1-p)} + \sqrt{z^2_{(1-p)} - ab}}{a}$$

$$= \frac{1.645 + \sqrt{1.645^2 - (0.807)(2.368)}}{0.807}$$

$$\underline{\underline{= 3.143}}$$

UPPER TOLERANCE LIMIT IS

$$Y_u = \bar{Y} + 3.143(s)$$

CALCULATE UPPER TOLERANCE LIMIT FOR ZINC DETECTED IN OW-9 FOR THE LAST 8 SAMPLING ROUNDS FOR WHICH DATA WAS COLLECTED.

PARE
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PAGE 3 OF 11

PROJECT TIVERTON LANDFILL PROJECT NO. 94139.01
SUBJECT TOLERANCE INTERVAL CALCULATION
COMPUTATIONS BY TPT DATE 01-22-04
CHECK BY DATE

CALCULATIONS: (CONT...)

$\bar{Y}$ = 0.0571 (REFER TO ATTACHED EXCEL SHEET)

s = 0.0628 (REFER TO ATTACHED EXCEL SHEET)

$Y_u = 0.0571 + 3.143(0.0628)$

$= \underline{\underline{0.254}}$

∴ 95% OF SAMPLES COLLECTED FROM OW-9 WILL HAVE A CONCENTRATION OF ZINC BELOW 0.254 mg/L WITH A 95% CERTAINTY

4|11

1.3.6.7.1. Cumulative Distribution Function of the Standard Normal Distribution

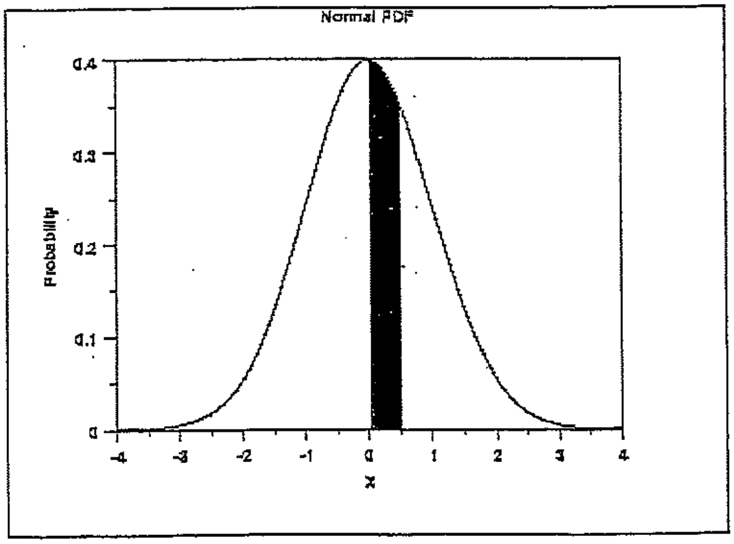
How to Use This Table

The table below contains the area under the standard normal curve from 0 to z. This can be used to compute the cumulative distribution function values for the standard normal distribution.

The table utilizes the symmetry of the normal distribution, so what in fact is given is

$$P[0 \leq x \leq |a|]$$

where a is the value of interest. This is demonstrated in the graph below for a = 0.5. The shaded area of the curve represents the probability that x is between 0 and a.



This can be clarified by a few simple examples.

1. What is the probability that x is less than or equal to 1.53? Look for 1.5 in the X column, go right to the 0.03 column to find the value 0.43699. Now add 0.5 (for the

probability less than zero) to obtain the final result of 0.93699.

2. What is the probability that x is less than or equal to -1.53? For negative values, use the relationship

   $$P[x \leq a] = 1 - P[x \leq |a|] \quad \text{for } x < 0$$

   From the first example, this gives 1 - 0.93699 = 0.06301.

3. What is the probability that x is between -1 and 0.5? Look up the values for 0.5 (0.5 + 0.19146 = 0.69146) and -1 (1 - (0.5 + 0.34134) = 0.15866). Then subtract the results (0.69146 - 0.15866) to obtain the result 0.5328.

To use this table with a non-standard normal distribution (either the location parameter is not 0 or the scale parameter is not 1), standardize your value by subtracting the mean and dividing the result by the standard deviation. Then look up the value for this standardized value.

A few particularly important numbers derived from the table below, specifically numbers that are commonly used in significance tests, are summarized in the following table:

p	0.001	0.005	0.010	0.025	0.050	0.100
Z_p	-3.090	-2.576	-2.326	-1.960	-1.645	-1.282

p	0.999	0.995	0.990	0.975	0.950	0.900
Z_p	+3.090	+2.576	+2.326	+1.960	+1.645	+1.282

These are critical values for the normal distribution.

Area under the Normal Curve from 0 to X

X	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.
0.0	0.00000	0.00399	0.00798	0.01197	0.01595	0.01994	0.02392	0.02790	0.03188	0.
0.1	0.03983	0.04380	0.04776	0.05172	0.05567	0.05962	0.06356	0.06749	0.07142	0.
0.2	0.07926	0.08317	0.08706	0.09095	0.09483	0.09871	0.10257	0.10642	0.11026	0.
0.3	0.11791	0.12172	0.12552	0.12930	0.13307	0.13683	0.14058	0.14431	0.14803	0.
0.4	0.15542	0.15910	0.16276	0.16640	0.17003	0.17364	0.17724	0.18082	0.18439	0.
0.5	0.19146	0.19497	0.19847	0.20194	0.20540	0.20884	0.21226	0.21566	0.21904	0.
0.6	0.22575	0.22907	0.23237	0.23565	0.23891	0.24215	0.24537	0.24857	0.25175	0.
0.7	0.25804	0.26115	0.26424	0.26730	0.27035	0.27337	0.27637	0.27935	0.28230	0.
0.8	0.28814	0.29103	0.29389	0.29673	0.29955	0.30234	0.30511	0.30785	0.31057	0.

0.9	0.31594	0.31859	0.32121	0.32381	0.32639	0.32894	0.33147	0.33398	0.33646	0.
1.0	0.34134	0.34375	0.34614	0.34849	0.35083	0.35314	0.35543	0.35769	0.35993	0.
1.1	0.36433	0.36650	0.36864	0.37076	0.37286	0.37493	0.37698	0.37900	0.38100	0.
1.2	0.38493	0.38686	0.38877	0.39065	0.39251	0.39435	0.39617	0.39796	0.39973	0.
1.3	0.40320	0.40490	0.40658	0.40824	0.40988	0.41149	0.41308	0.41466	0.41621	0.
1.4	0.41924	0.42073	0.42220	0.42364	0.42507	0.42647	0.42785	0.42922	0.43056	0.
1.5	0.43319	0.43448	0.43574	0.43699	0.43822	0.43943	0.44062	0.44179	0.44295	0.
1.6	0.44520	0.44630	0.44738	0.44845	0.44950	0.45053	0.45154	0.45254	0.45352	0.
1.7	0.45543	0.45637	0.45728	0.45818	0.45907	0.45994	0.46080	0.46164	0.46246	0.
1.8	0.46407	0.46485	0.46562	0.46638	0.46712	0.46784	0.46856	0.46926	0.46995	0.
1.9	0.47128	0.47193	0.47257	0.47320	0.47381	0.47441	0.47500	0.47558	0.47615	0.
2.0	0.47725	0.47778	0.47831	0.47882	0.47932	0.47982	0.48030	0.48077	0.48124	0.
2.1	0.48214	0.48257	0.48300	0.48341	0.48382	0.48422	0.48461	0.48500	0.48537	0.
2.2	0.48610	0.48645	0.48679	0.48713	0.48745	0.48778	0.48809	0.48840	0.48870	0.
2.3	0.48928	0.48956	0.48983	0.49010	0.49036	0.49061	0.49086	0.49111	0.49134	0.
2.4	0.49180	0.49202	0.49224	0.49245	0.49266	0.49286	0.49305	0.49324	0.49343	0.
2.5	0.49379	0.49396	0.49413	0.49430	0.49446	0.49461	0.49477	0.49492	0.49506	0.
2.6	0.49534	0.49547	0.49560	0.49573	0.49585	0.49598	0.49609	0.49621	0.49632	0.
2.7	0.49653	0.49664	0.49674	0.49683	0.49693	0.49702	0.49711	0.49720	0.49728	0.
2.8	0.49744	0.49752	0.49760	0.49767	0.49774	0.49781	0.49788	0.49795	0.49801	0.
2.9	0.49813	0.49819	0.49825	0.49831	0.49836	0.49841	0.49846	0.49851	0.49856	0.
3.0	0.49865	0.49869	0.49874	0.49878	0.49882	0.49886	0.49889	0.49893	0.49896	0.
3.1	0.49903	0.49906	0.49910	0.49913	0.49916	0.49918	0.49921	0.49924	0.49926	0.
3.2	0.49931	0.49934	0.49936	0.49938	0.49940	0.49942	0.49944	0.49946	0.49948	0.
3.3	0.49952	0.49953	0.49955	0.49957	0.49958	0.49960	0.49961	0.49962	0.49964	0.
3.4	0.49966	0.49968	0.49969	0.49970	0.49971	0.49972	0.49973	0.49974	0.49975	0.
3.5	0.49977	0.49978	0.49978	0.49979	0.49980	0.49981	0.49981	0.49982	0.49983	0.
3.6	0.49984	0.49985	0.49985	0.49986	0.49986	0.49987	0.49987	0.49988	0.49988	0.
3.7	0.49989	0.49990	0.49990	0.49990	0.49991	0.49991	0.49992	0.49992	0.49992	0.
3.8	0.49993	0.49993	0.49993	0.49994	0.49994	0.49994	0.49994	0.49995	0.49995	0.
3.9	0.49995	0.49995	0.49996	0.49996	0.49996	0.49996	0.49996	0.49996	0.49997	0.
4.0	0.49997	0.49997	0.49997	0.49997	0.49997	0.49997	0.49998	0.49998	0.49998	0.

NIST
SEMATECH
HOME TOOLS & AIDS SEARCH BACK NEXT

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7. Product and Process Comparisons
7.2. Comparisons based on data from one process
7.2.6. What intervals contain a fixed percentage of the population values?

7.2.6.3. Tolerance intervals for a normal distribution

Definition of a tolerance interval

A confidence interval covers a population parameter with a stated confidence, that is, a certain proportion of the time. There is also a way to cover a fixed proportion of the population with a stated confidence. Such an interval is called a *tolerance interval.* The endpoints of a tolerance interval are called *tolerance limits.* An application of tolerance intervals to manufacturing involves comparing specification limits prescribed by the client with tolerance limits that cover a specified proportion of the population.

Difference between confidence and tolerance intervals

Confidence limits are limits within which we expect a given population parameter, such as the mean, to lie. Statistical tolerance limits are limits within which we expect a stated proportion of the population to lie. Confidence intervals shrink towards zero as the sample size increases. Tolerance intervals tend towards a fixed value as the sample size increases.

Not related to engineering tolerances

Statistical tolerance intervals have a probabilistic interpretation. *Engineering tolerances* are specified outer limits of acceptability which are usually prescribed by a design engineer and do not necessarily reflect a characteristic of the actual measurements.

Three types of tolerance intervals

Three types of questions can be addressed by tolerance intervals. Question (1) leads to a two-sided interval; questions (2) and (3) lead to one-sided intervals.

1. What interval will contain p percent of the population measurements?
2. What interval guarantees that p percent of population measurements will not fall below a lower limit?
3. What interval guarantees that p percent of population measurements will not exceed an upper limit?

Tolerance intervals for measurements from a normal distribution

For the questions above, the corresponding tolerance intervals are defined by lower (L) and upper (U) tolerance limits which are computed from a series of measurements $Y_1, \ldots, Y_N$:

1. $Y_L = \bar{Y} - k_2 s; \quad Y_U = \bar{Y} + k_2 s$
2. $Y_L = \bar{Y} - k_1 s$

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3. $Y_U = \bar{Y} + k_1 s$ 90, 95, etc.

90, 80, 70, etc.

where the k factors are determined so that the intervals cover at least a proportion p of the population with confidence, γ.

Calculation of k factor for a two-sided tolerance limit for a normal distribution

If the data are from a normally distributed population, an approximate value for the factor as a function of p and γ for a two-sided tolerance interval (Howe, 1969) is

$$k_2 = \sqrt{\frac{(N-1)\left(1+\frac{1}{N}\right)z^2_{(1-p)/2}}{\chi^2_{\gamma,N-1}}}$$

where $\chi^2_{\gamma,N-1}$ is the critical value of the chi-square distribution with degrees of freedom, $N-1$, that is exceeded with probability γ

and $z_{(1-p)/2}$ is the critical value of the normal distribution which is exceeded with probability $(1-p)/2$.

Example of calculation

For example, suppose that we take a sample of $N = 43$ silicon wafers from a lot and measure their thicknesses in order to find tolerance limits within which a proportion $p = 0.90$ of the wafers in the lot fall with probability $\gamma = 0.99$.

Use of tables in calculating two-sided tolerance intervals

Values of the k factor as a function of p and γ are tabulated in some textbooks, such as Dixon and Massey (1969). To use the tables in this handbook, follow the steps outlined below:

1. Calculate $\alpha = (1-p)/2 = 0.05$
2. Go to the table of upper critical values of the normal distribution and under the column labeled 0.05 find $z_{(1-p)/2} = 1.645$.
3. Go to the table of lower critical values of the chi-square distribution and under the column labeled 0.99 in the row labeled degrees of freedom = 42, find $\chi^2_{\gamma,N-1} = 23.650$.
4. Calculate

this value must be squared.

$$k_2 = \sqrt{\frac{(N-1)\left(1+\frac{1}{N}\right)z^2_{(1-p)/2}}{\boxed{\chi^2_{\gamma,N-1}}}} = \sqrt{\frac{42\left(\frac{44}{43}\right)(1.645)^2}{23.650}} = 2.217$$

do not square this value, it is already squared in the table.

The tolerance limits are then computed from the sample mean, $\bar{Y}$, and standard deviation, s, according to case (1).

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Important note

The notation for the critical value of the chi-square distribution can be confusing. Values as tabulated are, in a sense, already squared; whereas the critical value for the normal distribution must be squared in the formula above.

Dataplot commands for calculating the k factor for a two-sided tolerance interval

The Dataplot commands are:

```
let n = 43
let nu = n - 1
let p = .90
let g = .99
let g1=1-g
let p1=(1+p)/2
let cg=chsppf(g1,nu)
let np=norppf(p1)
let k = nu*(1+1/n)*np**2
let k2 = (k/cg)**.5
```

and the output is:

```
THE COMPUTED VALUE OF THE CONSTANT K2 = 0.2217316E+01
```

Another note

The notation for tail probabilities in Dataplot is the converse of the notation used in this handbook. Therefore, in the example above it is necessary to specify the critical value for the chi-square distribution, say, as chsppf(1-.99, 42) and similarly for the critical value for the normal distribution.

Direct calculation of tolerance intervals using Dataplot

Dataplot also has an option for calculating tolerance intervals directly from the data. The commands for producing tolerance intervals from twenty-five measurements of resistivity from a quality control study at a confidence level of 99% are:

```
read 100ohm.dat cr wafer mo day h min op hum ...
                probe temp y sw df
tolerance y
```

Automatic output is given for several levels of coverage, and the tolerance interval for 90% coverage is shown below in bold:

```
 2-SIDED NORMAL TOLERANCE LIMITS: XBAR +- K*S

     NUMBER OF OBSERVATIONS     =      25
     SAMPLE MEAN                = 97.069832
     SAMPLE STANDARD DEVIATION = 0.26798090E-01

CONFIDENCE =     99.%
  COVERAGE (%)        LOWER LIMIT           UPPER LIMIT
```

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50.0	97.04242	97.09724
75.0	97.02308	97.11658
90.0	97.00299	97.13667
95.0	96.99020	97.14946
99.0	96.96522	97.17445
99.9	96.93625	97.20341

Calculation for a one-sided tolerance interval for a normal distribution

The calculation of an approximate k factor for one-sided tolerance intervals comes directly from the following set of formulas (Natrella, 1963):

$$k_1 = \frac{z_{(1-p)} + \sqrt{z_{1-p}^2 - ab}}{a}$$

$$a = 1 - \frac{z_{1-\gamma}^2}{2(N-1)}; \; b = z_{1-p}^2 - \frac{z_{1-\gamma}^2}{N}$$

where $z_{(1-p)}$ is the critical value from the normal distribution that is exceeded with probability $1-p$ and $z_{(1-\gamma)}$ is the critical value from the normal distribution that is exceeded with probability $1-\gamma$.

Dataplot commands for calculating the k factor for a one-sided tolerance interval

For the example above, it may also be of interest to guarantee with 0.99 probability (or 99% confidence) that 90% of the wafers have thicknesses less than an upper tolerance limit. This problem falls under case (3), and the Dataplot commands for calculating the factor for the one-sided tolerance interval are:

```
let n = 43
let p = .90
let g = .99
let nu = n-1
let zp = norppf(p)
let zg=norppf(g)
let a = 1 - ((zg**2)/(2*nu))
let b = zp**2 - (zg**2)/n
let k1 = (zp + (zp**2 - a*b)**.5)/a
```

and the output is:

```
THE COMPUTED VALUE OF THE CONSTANT A  =  0.9355727E+00
THE COMPUTED VALUE OF THE CONSTANT B  =  0.1516516E+01
THE COMPUTED VALUE OF THE CONSTANT K1 =  0.1875189E+01
```

The upper (one-sided) tolerance limit is therefore 97.07 + 1.8752*2.68 = 102.096.

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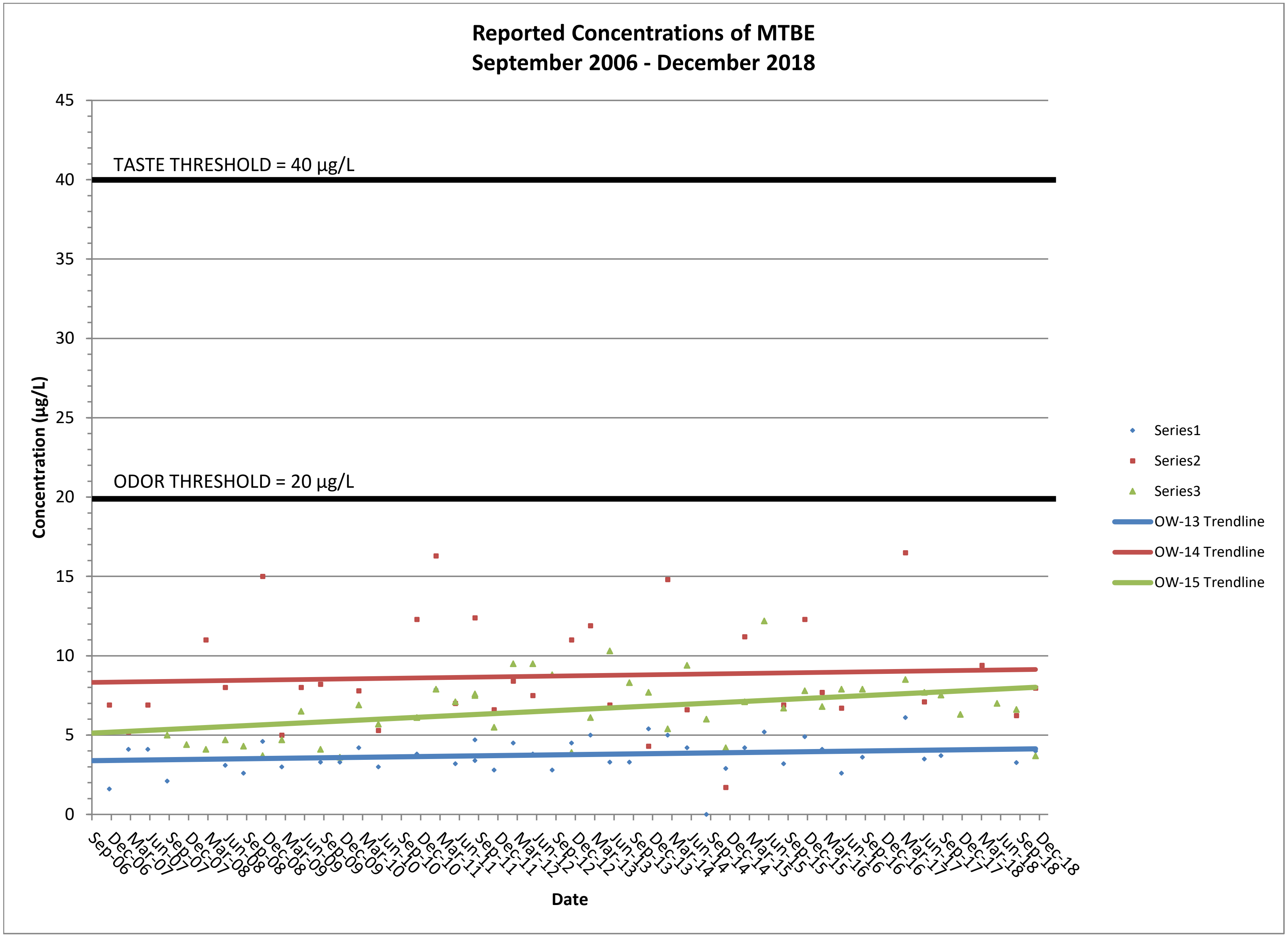
TABLE 3
BACKGROUND WELL HISTORICAL RESULTS
MONITORING WELL OW-9

Concentration (units as specified for MCL)

	Parameter	DEC '03	SEP '03	JUN '03	MAR '03	DEC'02*	JULY '02	MAR '01	DEC '00
METALS	Antimony	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.005*	*0.005*	*0.005*
	Arsenic	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
	Barium	0.012	0.018	0.013	0.022	0.13	*0.005*	0.31	0.035
	Beryllium	*0.0005*	*0.0005*	*0.0005*	*0.0005*	*0.0005*	*0.0005*	0.0068	*0.0005*
	Cadmium	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*
	Chromium	*0.005*	*0.005*	*0.005*	0.081	0.078	*0.005*	0.092	0.011
	Cobalt	*0.001*	*0.001*	*0.001*	0.0047	0.0320	0.0040	0.053	0.0065
	Copper	*0.005*	*0.005*	*0.005*	0.014	0.066	*0.005*	0.086	*0.005*
	Lead	*0.002*	*0.002*	0.0057	0.0052	0.048	*0.002*	0.061	0.010
	Nickel	*0.005*	*0.005*	*0.005*	0.073	0.064	*0.005*	0.070	0.013
	Selenium	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*	*0.005*
	Silver	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*
	Thallium	*0.001*	*0.001*	*0.001*	*0.001*	*0.001*	*0.0025*	*0.0025*	*0.003*
	Vanadium	*0.005*	*0.005*	*0.005*	*0.005*	0.038	*0.005*	0.011	*0.005*
	Zinc	0.018	0.027	0.021	0.04	0.13	*0.005*	0.18	0.036
	Mercury	*0.0001*	0.00072	*0.0001*	*0.0001*	*0.0001*	*0.0001*	*0.0001*	*0.0001*
	Zinc Average $_{(8)}$	0.057125							
	Zinc Standard Deviation $_{(8)}$	0.062802269							

APPENDIX J

Reported Concentrations of MTBE



Reported Concentrations of MTBE
September 2006 - December 2018
Concentration (µg/L)
45
40
35
30
25
20
15
10
5
0
TASTE THRESHOLD = 40 µg/L
ODOR THRESHOLD = 20 µg/L
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
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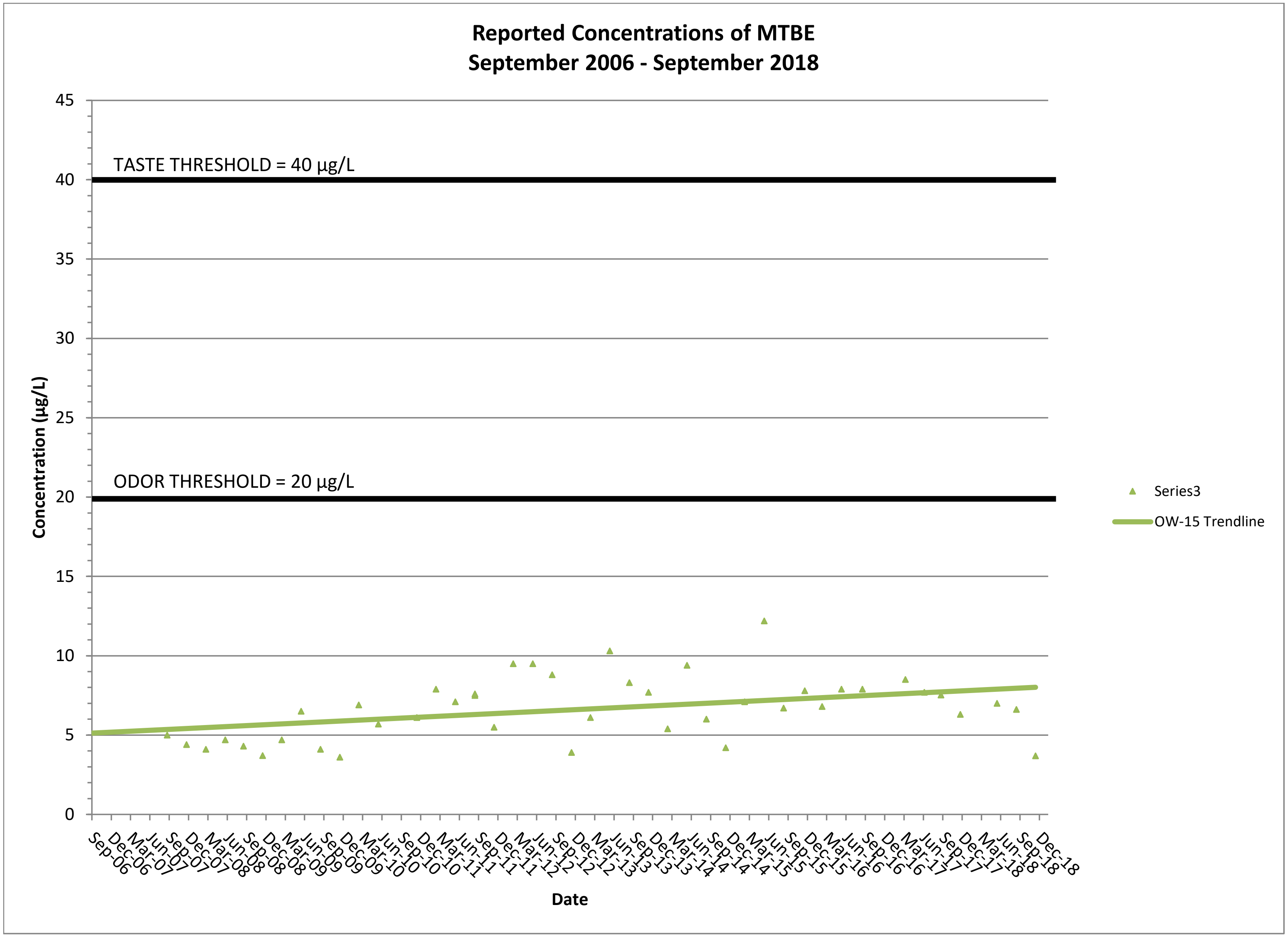
Sep-17
Dec-17
Mar-18
Jun-18
Sep-18
Dec-18
Date
Series1
Series2
Series3
OW-13 Trendline
OW-14 Trendline
OW-15 Trendline


Reported Concentrations of MTBE
September 2006 - September 2018
Concentration (µg/L)
45
40
35
30
25
20
15
10
5
0
TASTE THRESHOLD = 40 µg/L
ODOR THRESHOLD = 20 µg/L
Series3
OW-15 Trendline
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
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Sep-18
Dec-18
Date

APPENDIX K

Quarterly Monitoring Reports

Engineers | Scientists | Planners
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PARE
CORPORATION

May 31, 2018

Mr. Leo Hellested, P.E.
Office of Waste Management
Solid Waste Section
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908-5767

Attn: Mr. Robert Schmidt

Re: **Quarterly Monitoring Report**
1st Quarter (March) 2018, Groundwater Monitoring, Sampling, and Analysis
Tiverton Municipal Sanitary Landfill
Pare Project No. 94139.24

Dear Mr. Hellested:

Enclosed herewith are results of the statistical analysis of groundwater monitoring data for the first quarterly monitoring round of Year 2018 from the Tiverton Landfill (Landfill). Pare Corporation (Pare) has prepared this report on behalf of the Town of Tiverton (Town). In the 2017 Annual Groundwater Monitoring Report, Pare recommended that overburden well OW-7 and bedrock well OW-16 be included in the groundwater monitoring program. As such, Pare conducted the groundwater sampling on March 28, 2018 at the background well OW-9 and compliance wells OW-7, OW-12, OW-13, OW-14, OW-15, and OW-16.

Groundwater samples were analyzed by New England Testing Laboratory (NETLAB) of West Warwick, Rhode Island for the constituents listed in Appendix A (Detection Monitoring) of the State Solid Waste Regulations, plus the Appendix B metals mercury and tin, which are routinely included. Certified laboratory results data are enclosed and are summarized on attached Tables 1-3.

Groundwater field parameters consisting of temperature, pH, and specific conductivity were measured at each monitoring well, in accordance with the RIDEM-approved Groundwater Monitoring Plan for the Landfill. Field parameters were collected until three successive measurements stabilized within ± 3% for temperature, ± 0.1 standard unit for pH, and ± 3% for specific conductivity, in accordance with US EPA's Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures. Field parameters are documented on Field Sampling Data Sheets, which are enclosed.

Combustible gases are monitored at each well and at the top of the Landfill. Combustible gases were not detected at the Landfill in March 2018 and have never been detected at the Landfill in past quarterly monitoring rounds.

Recent sampling rounds have been during periods of dry conditions; as such, samples collected contained a high amount of silt and suspended particles. Reported concentrations of heavy metals were higher than usual, and the degree of suspended particles observed in the samples may have impacted heavy metal concentrations. Pare believes these results were an anomaly and not indicative of typical groundwater quality. Therefore, Pare updated the groundwater monitoring program in the 2016 Annual Groundwater Monitoring Report to include a 10-15 minute period for turbidity to settle, before the sample is decanted and then stored in laboratory glassware with preservative. Additionally, during the March 2017 monitoring round, accumulated sediment in the wells at the Landfill was removed prior to sampling.

HUMAN HEALTH THRESHOLD EVALUATION

Compliance Well OW-7 - Seven (7) target metals were reported in the groundwater sample collected from OW-7. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-7. One (1) target VOC, MTBE, was reported above laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-7.

Compliance Well OW-12 - Three (3) target metals were reported in the groundwater sample collected from OW-12. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-12. No (0) target VOCs were reported above laboratory detection limits at OW-12.

Compliance Well OW-13 - Nine (9) target metals were reported in the groundwater sample collected from OW-13. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-13. One (1) target VOC, chlorobenzene, was reported above laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-13.

Compliance Well OW-14 - Ten (10) target metals were reported in the groundwater sample collected from OW-14. One (1) reported metal, cadmium (0.005 mg/L) was reported at its MCL (0.005 mg/L). Two (2) target VOCs; chlorobenzene and MTBE; were reported above their laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-14.

Compliance Well OW-15 - Eight (8) target metals were reported in the groundwater sample collected from OW-15. Two (2) reported metals; arsenic (0.0200 mg/L) and cadmium (0.009 mg/L); exceeded their respective MCLs (0.01 mg/L and 0.005 mg/L, respectively). One (1) target VOC, chlorobenzene, was reported above its laboratory detection limit. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-15.

Compliance Well OW-16 (new bedrock well) - Seven (7) target metals were reported in the groundwater sample collected from OW-16. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-16. One (1) target VOC, MTBE, was reported above laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-16.

Background Well OW-9 - Eight (8) target metals were reported in the groundwater sample collected from OW-9. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-9. No (0) target VOCs were reported above laboratory detection limits at OW-9.

TOLERANCE INTERVAL STATISTICAL EVALUATION

The Tolerance Interval (TI) approach was used to develop Tolerance Limits (TLs) for each target inorganic constituent (i.e., metals) using the background well analytical results from the eight preceding rounds for which analytical results are available. The background well, OW-9, could not be sampled in several previous monitoring rounds including in the June 2016, September 2016, June 2017, and September 2017 monitoring rounds due to dry conditions. Therefore, analytical results of the eight most recent rounds in which samples could be collected were utilized to generate the TLs for this monitoring round, dating back to December 2014. The TI approach is considered inappropriate for analysis of organic constituents and was therefore not performed to evaluate the results of reported VOCs. Table 2 summarizes historical results data from OW-9 used in the calculation of the TLs.

Two (2) of the metals concentration reported in March 2018; arsenic and barium; exceeded the corresponding TLs calculated during this monitoring round in at least one compliance well. In total, there were five (5) TL exceedances of these metals in this monitoring round. The TLs and the corresponding compliance well data from this monitoring round are presented in Table 3. Each of these metals is routinely detected in groundwater beneath the landfill.

CUSUM METHOD STATISTICAL EVALUATION

The Shewhart-CUSUM Method, a supplemental statistical analysis method used in addition to the TI Method, was performed in accordance with the US EPA documents titled "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Interim Final Guidance, April 1989" and "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Addendum to Interim Final Guidance, July, 1992".

Barium and nickel at OW-12; barium and zinc at OW-13; chromium and lead at OW-14; and lead at OW-15; exceeded both of their Shewhart-CUSUM thresholds during the March 2018 monitoring round.

The dry conditions present during the September 2016 monitoring round were believed by Pare to have resulted in higher than usual suspended solids in samples collected, which are believed to have also resulted in atypical metals concentrations. As a result, the results of the Shewhart-CUSUM analysis for September 2016 were believed to be an anomaly. In many cases these deviations are outside of the statistical range expected. With the inception of the updated groundwater monitoring program, Pare has reset the Shewhart-CUSUM levels for several metals at multiple wells in order to have an accurate representation of cumulative statistical analysis of these constituents. The metals that have had their Shewhart-CUSUM thresholds reset include: chromium, lead, nickel, vanadium, and zinc at OW-12; barium, cadmium, cobalt, copper, lead, and vanadium at OW-13; zinc at OW-14; and arsenic, cadmium, chromium, cobalt, lead, nickel, vanadium, and zinc at OW-15. It should be noted that the reset of zinc at OW-14 is due to a statistical spike in the Shewhart-CUSUM limit during the September 2015 monitoring round (which was also sampled during dry conditions). These Shewhart-CUSUM parameters were reset prior to the March 2017 sampling round; therefore, data recorded from the March 2017 monitoring round is present in the analysis.

ASSESSMENT MONITORING

The Shewhart-CUSUM analysis is utilized, along with the Tolerance Limits, to identify when Assessment Monitoring should be performed.

Pare performed Assessment Monitoring at OW-14 in the December 2017 monitoring round due to an exceedance of the Shewhart-CUSUM threshold of antimony in the June 2017 monitoring period. This

Assessment Monitoring was delayed from September 2017 to December 2017 due to dry conditions in September, rendering a sample unattainable. One Appendix B parameter, sulfides (0.04 mg/L), was detected in the December 2017 monitoring round. In the 2017 Annual Groundwater Monitoring report, Pare recommended that groundwater samples from OW-14 in the March 2018 monitoring round be tested again for sulfides. Again, the Appendix B parameter sulfides (0.04 mg/L) was detected in the samples collected from OW-14 in March 2018.

MTBE ANALYSIS

Many of the most recent Assessment Monitoring rounds have been conducted due to MTBE concentrations in groundwater. Reported MTBE concentrations have generally risen since September 2006, as depicted in the attached figure titled Reported Concentrations of MTBE. The figure compares the recent increases in reported MTBE concentrations at OW-13, OW-14 and OW-15 to historical concentrations and drinking water advisories defined in the US EPA document titled “2011 Edition of the Drinking Water Standards and Health Advisories”. Although reported MTBE concentrations appear to be trending slowly upward, MTBE has never been reported above its odor threshold (0.020 mg/L) or its taste threshold (0.040 mg/L). The US EPA has not established a human health advisory concentration for MTBE.

Because the elevated concentrations of MTBE have recently triggered Assessment Monitoring at OW-13, OW-14, and OW-15, and that no Appendix B parameters were reported to a significant degree at these wells, it is Pare’s opinion that the increasing trend in MTBE concentrations beneath the Landfill is an isolated phenomenon and not the result of a significant change in groundwater quality beneath the Landfill.

Despite CUSUM values of MTBE at OW-13, OW-14, and OW-15 remaining above their threshold during the September 2017 monitoring round, Pare does not recommend assessment monitoring due to the aforementioned MTBE trend. The lack of Appendix B parameters in the past, in conjunction with the lack of Appendix B parameters at OW-13 and OW-15 during the December 2016 monitoring round, and the lack of Appendix B parameters at OW-14 during the June 2016 monitoring round, suggests that the presence of MTBE trend does not indicate an increased likelihood that Appendix B parameters would be present beneath the Landfill.

CONCLUSIONS AND RECOMMENDATIONS

Currently, the Landfill conducts Detection Monitoring for the parameters listed in Appendix A of the State Solid Waste Regulations, as well as mercury and tin. During this monitoring round, two (2) metals; arsenic and barium; exceeded their tolerance limits (TLs) in at least one well. Arsenic and barium also exceeded their TLs during the previous monitoring round at OW-15, and OW-13, OW-14, and OW-15, respectively. TL exceedances in two consecutive monitoring rounds is one of the criteria used to consider introducing Assessment Monitoring in subsequent monitoring rounds.

Pare recommends that Assessment Monitoring be performed in the June 2018 monitoring round due to criteria for Assessment Monitoring being met at compliance well OW-13 from the detection of barium. These criteria include constituents with two consecutive rounds with tolerance limit exceedances, and exceedances of both Shewhart-CUSUM threshold criteria.

During the 2016 and 2017 monitoring periods, a rising trend in detections of antimony at the compliance wells became apparent. Antimony was detected at the background well above its MCL during the December 2017 monitoring round. Previously, antimony had not been detected at the background well since the September 2011 monitoring round. The detection of antimony at compliance well OW-14 in the June 2017 monitoring round warranted Assessment Monitoring, which was performed in the December 2017 monitoring round. The Assessment Monitoring resulted in detection of one Appendix B parameter, sulfides (0.04 mg/L). However, antimony was not detected at any groundwater well during the December 2017 monitoring period. Analysis of the samples collected from OW-14 during the March 2018 monitoring round indicated another detection of sulfides (0.04 mg/L).

The EPA has no MCLs set for sulfides in groundwater. Water with dissolved hydrogen sulfide will smell musty or swampy around 0.5-1.0 mg/L, and Pare did not identify a noticeable smell emanating from the groundwater sample in either round during which the constituent was detected. Hydrogen sulfide gas can occur naturally in groundwater from plant materials rotting underground in anaerobic conditions. Hydrogen sulfide gas could also be resulting from gypsum buried at the Landfill. Pare recommends that sulfides be again tested for at OW-14 in the June 2018 monitoring round. Additionally, Pare recommends that the Town consider adding regular analysis of sulfides to the groundwater monitoring program.

Pare recommended that wells OW-7 and OW-16 be incorporated into the compliance monitoring regimen in the 2017 Annual Groundwater Monitoring Report. Despite OW-7 having several years of sampling data, the sampling rounds were selected on a rotating basis with wells OW-6 and OW-8 for alternate monitoring. Pare recommends that wells OW-7 and OW-16 be sampled for two years, or eight consecutive monitoring rounds, prior to initiating statistical analysis. The March 2018 monitoring period marks the first monitoring round that these wells are to be sampled consistently; therefore, it is estimated that statistical analysis for the bedrock and overburden wells will begin in the March 2020 monitoring round.

Samples have been unable to be collected at the background well OW-9 in recent monitoring rounds. Dating back to June 2016, four out of the last eight monitoring rounds have resulted in a dry well (although Pare was able to collect a sample in March 2018). The tolerance interval analysis is dependent on data collected from the background well; therefore, uncharacteristic TL exceedances may be a result of the lack of recent historical data from this well. Pare will be able to more accurately assess this potential changing trend in groundwater quality with more data collection from the background well.

Recent monitoring rounds also indicate there is an increasing trend of barium and cadmium in groundwater at the Landfill. However, Assessment Monitoring triggered by exceedances of barium and cadmium have resulted in no (0) detections of Appendix B parameters. In the next monitoring round, Pare recommends performing Assessment Monitoring at OW-13, and will monitor if there is a trend change in Appendix B parameters detected due to barium-triggered Assessment Monitoring. Pare will continue to evaluate antimony, barium, cadmium, and sulfides trends at the Landfill in subsequent monitoring rounds.

Should the RIDEM have any questions regarding this letter or the attached data, please feel free to contact the undersigned at (401) 334-4100, thank you.

Very truly yours,

Timothy P. Thies, P.E.
Vice President

TPT/TCJ/abv

Attachments

cc: Jay Lambert, Tiverton Landfill Subcommittee (w/encl.)
Jan Reitsma, Tiverton Town Administrator (w/encl.)
William Anderson, P.E., Tiverton Public Works Director (w/encl.)
Travis C. Johnson, Pare Corporation (w/o encl.)
George G. Palmisciano, P.E. Pare Corporation (w/o encl.)

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ATTACHMENT NO. 1
LABORATORY ANALYTICAL DATA REPORT

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 8C29032
Client Project: 94139 - Tiverton Landfill

Report Date: 05-April-2018

Prepared for:

Travis Johnson
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

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New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
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Total # of Pages: 29

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
8C29032-01	OW-7	Water	03/28/2018	03/29/2018
8C29032-02	OW-9	Water	03/28/2018	03/29/2018
8C29032-03	OW-12	Water	03/28/2018	03/29/2018
8C29032-04	OW-13	Water	03/28/2018	03/29/2018
8C29032-05	OW-14	Water	03/28/2018	03/29/2018
8C29032-06	OW-15	Water	03/28/2018	03/29/2018
8C29032-07	OW-16	Water	03/28/2018	03/29/2018

Request for Analysis

OW-12 (Lab Number: 8C29032-03)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-13 (Lab Number: 8C29032-04)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-14 (Lab Number: 8C29032-05)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C

OW-14 (Lab Number: 8C29032-05) (continued)

Analvsis	**Method**
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-15 (Lab Number: 8C29032-06)

Analvsis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-16 (Lab Number: 8C29032-07)

Analvsis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-7 (Lab Number: 8C29032-01)

Analvsis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-9 (Lab Number: 8C29032-02)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Case Narrative

CASE NARRATIVE:

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria. Those compounds in italics were qualitatively screened via reconstructed ion chromatography and no detections were identified to the listed PQLs.

Sample: OW-7 Case Number: 8C29032

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.038	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.005	0.001
7440-48-4	Cobalt	6010C	0.019	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.021	0.001
7782-49-2	Selenium	6010C	0.01	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	0.0003	0.0002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.018	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-9 Case Number: 8C29032

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.013	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.002	0.001
7440-47-3	Chromium	6010C	0.007	0.001
7440-48-4	Cobalt	6010C	0.001	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	0.002	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.004	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-62-2	Vanadium	7010	0.002	0.001
7440-66-6	Zinc	6010C	0.019	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-12 Case Number: 8C29032

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.017	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	ND	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.020	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.007	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-13 Case Number: 8C29032

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	0.007	0.002
7440-39-3	Barium	6010C	0.115	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.004	0.001
7440-47-3	Chromium	6010C	0.002	0.001
7440-48-4	Cobalt	6010C	0.013	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	0.002	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.012	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	0.0003	0.0002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.017	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-14 Case Number: 8C29032

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.224	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.005	0.001
7440-47-3	Chromium	6010C	0.006	0.001
7440-48-4	Cobalt	6010C	0.014	0.001
7440-50-8	Copper	6010C	0.009	0.005
7439-92-1	Lead	6010C	0.006	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.022	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	0.0003	0.0002
7440-62-2	Vanadium	7010	0.007	0.001
7440-66-6	Zinc	6010C	0.048	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-15 Case Number: 8C29032

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	0.02	0.002
7440-39-3	Barium	6010C	0.128	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.009	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	0.010	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	0.002	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.020	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-62-2	Vanadium	7010	0.006	0.001
7440-66-6	Zinc	6010C	0.021	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-16 Case Number: 8C29032

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.019	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.006	0.001
7440-48-4	Cobalt	6010C	0.005	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.010	0.001
7782-49-2	Selenium	6010C	0.01	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	0.0003	0.0002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.024	0.005
7440-34-5	Tin	6010C	ND	0.002

ND = Not Detected

Sample: OW-7 Case Number: 8C29032

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-7 Case Number: 8C29032
Method: 8260C

CAS RN	**Common Name**	**Result, ppb**	**PQL (ppb)**
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	6.8	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	99	70-130
1,2-Dichloroethane d4	101	70-130
4 BFB	98	70-130

ND = Not Detected

Sample: OW-9 Case Number: 8C29032
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-9 Case Number: 8C29032
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	99	70-130
1,2-Dichloroethane d4	102	70-130
4 BFB	98	70-130

ND = Not Detected

Sample: OW-12 Case Number: 8C29032

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-12 Case Number: 8C29032
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	99	70-130
1,2-Dichloroethane d4	99	70-130
4 BFB	97	70-130

ND = Not Detected

Sample: OW-13 Case Number: 8C29032

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0
71-55-6	1,1,1-Trichloroethane	ND	5.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0
79-00-5	1,1,2-Trichloroethane	ND	5.0
75-34-3	1,1-Dichloroethane	ND	5.0
75-35-4	1,1-Dichloroethylene	ND	5.0
563-58-6	1,1-Dichloropropene	ND	5.0
96-18-4	1,2,3-Trichloropropane	ND	5.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	5.0
106-93-4	1,2-Dibromoethane	ND	5.0
107-06-2	1,2-Dichloroethane	ND	5.0
78-87-5	1,2-Dichloropropane	ND	5.0
142-28-9	1,3-Dichloropropane	ND	5.0
594-20-7	2,2-Dichloropropane	ND	5.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	25.0
108-10-1	4-Methyl-2-pentanone	ND	25.0
67-64-1	Acetone	ND	25.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*25.0*
107-02-8	Acrolein	ND	25.0
107-13-1	Acrylonitrile	ND	25.0
107-05-1	*Allyl chloride*	*ND*	*25.0*
71-43-2	Benzene	ND	5.0
74-97-5	Bromochloromethane	ND	5.0
75-27-4	Bromodichloromethane	ND	5.0
75-25-2	Bromoform (Tribromomethane)	ND	5.0
75-15-0	Carbon disulfide	ND	25.0
56-23-5	Carbon tetrachloride	ND	5.0
108-90-7	Chlorobenzene	5.4	5.0
75-00-3	Chloroethane (Ethyl chloride)	ND	5.0
67-66-3	Chloroform (Trichloromethane)	ND	5.0
126-99-8	*Chloroprene*	*ND*	*25.0*
156-59-2	cis-1,2-Dichloroethylene	ND	5.0
10061-01-5	cis-1,3-Dichloropropene	ND	5.0
124-48-1	Dibromochloromethane	ND	5.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	5.0
97-63-2	*Ethyl methacrylate*	*ND*	*25.0*
100-41-4	Ethylbenzene	ND	5.0
78-83-1	*Isobutyl alcohol*	*ND*	*100*
465-73-6	*Isodrin*	*ND*	*25.0*
541-73-1	m-Dichlorobenzene	ND	5.0
126-98-7	*Methacrylonitrile*	*ND*	*50.0*
74-83-9	Methyl bromide (Bromomethane)	ND	5.0

Sample: OW-13 Case Number: 8C29032
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	5.0
78-93-3	Methyl ethyl ketone (MEK)	ND	25.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*25.0*
80-62-6	*Methyl methacrylate*	*ND*	*50.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	5.0
75-09-2	Methylene chloride (Dichloromethane)	ND	5.0
95-50-1	o-Dichlorobenzene	ND	5.0
106-46-7	p-Dichlorobenzene	ND	5.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*100*
100-42-5	Styrene	ND	5.0
127-18-4	Tetrachloroethylene	ND	5.0
1634-04-4	tert-Butylmethylether	ND	5.0
108-88-3	Toluene	ND	5.0
156-60-5	trans-1,2-Dichloroethylene	ND	5.0
10061-02-6	trans-1,3-Dichloropropene	ND	5.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*25.0*
79-01-6	Trichloroethylene	ND	5.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	5.0
108-05-4	*Vinyl acetate*	*ND*	*25.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	5.0
1330-20-7	Xylene (total)	ND	5.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	99	70-130
1,2-Dichloroethane d4	101	70-130
4 BFB	97	70-130

ND = Not Detected

Sample: OW-14 Case Number: 8C29032
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0
71-55-6	1,1,1-Trichloroethane	ND	5.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0
79-00-5	1,1,2-Trichloroethane	ND	5.0
75-34-3	1,1-Dichloroethane	ND	5.0
75-35-4	1,1-Dichloroethylene	ND	5.0
563-58-6	1,1-Dichloropropene	ND	5.0
96-18-4	1,2,3-Trichloropropane	ND	5.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	5.0
106-93-4	1,2-Dibromoethane	ND	5.0
107-06-2	1,2-Dichloroethane	ND	5.0
78-87-5	1,2-Dichloropropane	ND	5.0
142-28-9	1,3-Dichloropropane	ND	5.0
594-20-7	2,2-Dichloropropane	ND	5.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	25.0
108-10-1	4-Methyl-2-pentanone	ND	25.0
67-64-1	Acetone	ND	25.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*25.0*
107-02-8	Acrolein	ND	25.0
107-13-1	Acrylonitrile	ND	25.0
107-05-1	*Allyl chloride*	*ND*	*25.0*
71-43-2	Benzene	ND	5.0
74-97-5	Bromochloromethane	ND	5.0
75-27-4	Bromodichloromethane	ND	5.0
75-25-2	Bromoform (Tribromomethane)	ND	5.0
75-15-0	Carbon disulfide	ND	25.0
56-23-5	Carbon tetrachloride	ND	5.0
108-90-7	Chlorobenzene	10.8	5.0
75-00-3	Chloroethane (Ethyl chloride)	ND	5.0
67-66-3	Chloroform (Trichloromethane)	ND	5.0
126-99-8	*Chloroprene*	*ND*	*25.0*
156-59-2	cis-1,2-Dichloroethylene	ND	5.0
10061-01-5	cis-1,3-Dichloropropene	ND	5.0
124-48-1	Dibromochloromethane	ND	5.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	5.0
97-63-2	*Ethyl methacrylate*	*ND*	*25.0*
100-41-4	Ethylbenzene	ND	5.0
78-83-1	*Isobutyl alcohol*	*ND*	*100*
465-73-6	*Isodrin*	*ND*	*25.0*
541-73-1	m-Dichlorobenzene	ND	5.0
126-98-7	*Methacrylonitrile*	*ND*	*50.0*
74-83-9	Methyl bromide (Bromomethane)	ND	5.0

Sample: OW-14 Case Number: 8C29032
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	5.0
78-93-3	Methyl ethyl ketone (MEK)	ND	25.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*25.0*
80-62-6	*Methyl methacrylate*	*ND*	*50.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	5.0
75-09-2	Methylene chloride (Dichloromethane)	ND	5.0
95-50-1	o-Dichlorobenzene	ND	5.0
106-46-7	p-Dichlorobenzene	ND	5.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*100*
100-42-5	Styrene	ND	5.0
127-18-4	Tetrachloroethylene	ND	5.0
1634-04-4	tert-Butylmethylether	9.4	5.0
108-88-3	Toluene	ND	5.0
156-60-5	trans-1,2-Dichloroethylene	ND	5.0
10061-02-6	trans-1,3-Dichloropropene	ND	5.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*25.0*
79-01-6	Trichloroethylene	ND	5.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	5.0
108-05-4	*Vinyl acetate*	*ND*	*25.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	5.0
1330-20-7	Xylene (total)	ND	5.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	100	70-130
1,2-Dichloroethane d4	100	70-130
4 BFB	98	70-130

ND = Not Detected

Sample: OW-15 Case Number: 8C29032

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0
71-55-6	1,1,1-Trichloroethane	ND	5.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0
79-00-5	1,1,2-Trichloroethane	ND	5.0
75-34-3	1,1-Dichloroethane	ND	5.0
75-35-4	1,1-Dichloroethylene	ND	5.0
563-58-6	1,1-Dichloropropene	ND	5.0
96-18-4	1,2,3-Trichloropropane	ND	5.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	5.0
106-93-4	1,2-Dibromoethane	ND	5.0
107-06-2	1,2-Dichloroethane	ND	5.0
78-87-5	1,2-Dichloropropane	ND	5.0
142-28-9	1,3-Dichloropropane	ND	5.0
594-20-7	2,2-Dichloropropane	ND	5.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	25.0
108-10-1	4-Methyl-2-pentanone	ND	25.0
67-64-1	Acetone	ND	25.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*25.0*
107-02-8	Acrolein	ND	25.0
107-13-1	Acrylonitrile	ND	25.0
107-05-1	*Allyl chloride*	*ND*	*25.0*
71-43-2	Benzene	ND	5.0
74-97-5	Bromochloromethane	ND	5.0
75-27-4	Bromodichloromethane	ND	5.0
75-25-2	Bromoform (Tribromomethane)	ND	5.0
75-15-0	Carbon disulfide	ND	25.0
56-23-5	Carbon tetrachloride	ND	5.0
108-90-7	Chlorobenzene	17.0	5.0
75-00-3	Chloroethane (Ethyl chloride)	ND	5.0
67-66-3	Chloroform (Trichloromethane)	ND	5.0
126-99-8	*Chloroprene*	*ND*	*25.0*
156-59-2	cis-1,2-Dichloroethylene	ND	5.0
10061-01-5	cis-1,3-Dichloropropene	ND	5.0
124-48-1	Dibromochloromethane	ND	5.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	5.0
97-63-2	*Ethyl methacrylate*	*ND*	*25.0*
100-41-4	Ethylbenzene	ND	5.0
78-83-1	*Isobutyl alcohol*	*ND*	*100*
465-73-6	*Isodrin*	*ND*	*25.0*
541-73-1	m-Dichlorobenzene	ND	5.0
126-98-7	*Methacrylonitrile*	*ND*	*50.0*
74-83-9	Methyl bromide (Bromomethane)	ND	5.0

Sample: OW-15 Case Number: 8C29032
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	5.0
78-93-3	Methyl ethyl ketone (MEK)	ND	25.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*25.0*
80-62-6	*Methyl methacrylate*	*ND*	*50.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	5.0
75-09-2	Methylene chloride (Dichloromethane)	ND	5.0
95-50-1	o-Dichlorobenzene	ND	5.0
106-46-7	p-Dichlorobenzene	ND	5.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*100*
100-42-5	Styrene	ND	5.0
127-18-4	Tetrachloroethylene	ND	5.0
1634-04-4	tert-Butylmethylether	ND	5.0
108-88-3	Toluene	ND	5.0
156-60-5	trans-1,2-Dichloroethylene	ND	5.0
10061-02-6	trans-1,3-Dichloropropene	ND	5.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*25.0*
79-01-6	Trichloroethylene	ND	5.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	5.0
108-05-4	*Vinyl acetate*	*ND*	*25.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	5.0
1330-20-7	Xylene (total)	ND	5.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	99	70-130
1,2-Dichloroethane d4	97	70-130
4 BFB	99	70-130

ND = Not Detected

Sample: OW-16 Case Number: 8C29032
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0
71-55-6	1,1,1-Trichloroethane	ND	5.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0
79-00-5	1,1,2-Trichloroethane	ND	5.0
75-34-3	1,1-Dichloroethane	ND	5.0
75-35-4	1,1-Dichloroethylene	ND	5.0
563-58-6	1,1-Dichloropropene	ND	5.0
96-18-4	1,2,3-Trichloropropane	ND	5.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	5.0
106-93-4	1,2-Dibromoethane	ND	5.0
107-06-2	1,2-Dichloroethane	ND	5.0
78-87-5	1,2-Dichloropropane	ND	5.0
142-28-9	1,3-Dichloropropane	ND	5.0
594-20-7	2,2-Dichloropropane	ND	5.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	25.0
108-10-1	4-Methyl-2-pentanone	ND	25.0
67-64-1	Acetone	ND	25.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*25.0*
107-02-8	Acrolein	ND	25.0
107-13-1	Acrylonitrile	ND	25.0
107-05-1	*Allyl chloride*	*ND*	*25.0*
71-43-2	Benzene	ND	5.0
74-97-5	Bromochloromethane	ND	5.0
75-27-4	Bromodichloromethane	ND	5.0
75-25-2	Bromoform (Tribromomethane)	ND	5.0
75-15-0	Carbon disulfide	ND	25.0
56-23-5	Carbon tetrachloride	ND	5.0
108-90-7	Chlorobenzene	ND	5.0
75-00-3	Chloroethane (Ethyl chloride)	ND	5.0
67-66-3	Chloroform (Trichloromethane)	ND	5.0
126-99-8	*Chloroprene*	*ND*	*25.0*
156-59-2	cis-1,2-Dichloroethylene	ND	5.0
10061-01-5	cis-1,3-Dichloropropene	ND	5.0
124-48-1	Dibromochloromethane	ND	5.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	5.0
97-63-2	*Ethyl methacrylate*	*ND*	*25.0*
100-41-4	Ethylbenzene	ND	5.0
78-83-1	*Isobutyl alcohol*	*ND*	*100*
465-73-6	*Isodrin*	*ND*	*25.0*
541-73-1	m-Dichlorobenzene	ND	5.0
126-98-7	*Methacrylonitrile*	*ND*	*50.0*
74-83-9	Methyl bromide (Bromomethane)	ND	5.0

Sample: OW-16 Case Number: 8C29032
Method: 8260C

CAS RN	**Common Name**	**Result, ppb**	**PQL (ppb)**
74-87-3	Methyl chloride (Chloromethane)	ND	5.0
78-93-3	Methyl ethyl ketone (MEK)	ND	25.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*25.0*
80-62-6	*Methyl methacrylate*	*ND*	*50.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	5.0
75-09-2	Methylene chloride (Dichloromethane)	ND	5.0
95-50-1	o-Dichlorobenzene	ND	5.0
106-46-7	p-Dichlorobenzene	ND	5.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*100*
100-42-5	Styrene	ND	5.0
127-18-4	Tetrachloroethylene	ND	5.0
1634-04-4	tert-Butylmethylether	7.8	5.0
108-88-3	Toluene	ND	5.0
156-60-5	trans-1,2-Dichloroethylene	ND	5.0
10061-02-6	trans-1,3-Dichloropropene	ND	5.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*25.0*
79-01-6	Trichloroethylene	ND	5.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	5.0
108-05-4	*Vinyl acetate*	*ND*	*25.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	5.0
1330-20-7	Xylene (total)	ND	5.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	99	70-130
1,2-Dichloroethane d4	101	70-130
4 BFB	98	70-130

ND = Not Detected

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

CHAIN OF CUSTODY RECORD

Sr - pH<2

8C2 9032V

PROJ. NO. 94139.24
PROJECT NAME/LOCATION Tiverton Landfill
CLIENT Pare Corporation
REPORT TO: tjohnson@parecorp.com
INVOICE TO: Accounting

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** App A Metals + Hg	App A VOCs					REMARKS
3/28			X	OW-7	X			34	HCl, HNO3	X	X					
				OW-9												
				OW-12												
				OW-13												
				OW-14												
				OW-15												
				OW-16												

Sampled by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	3/29 10:20		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	3/29 11:00		3/29/18 1100
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time
	3/29/18 1605		3/29/18 1605

Laboratory Remarks:
Temp. received: 2.
Cooled ☐

Special Instructions:
List Specific Detection
Limit Requirements:

Turnaround (Business Days)________

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

KS

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 8C29030
Client Project: 94139 - Tiverton Landfill

Report Date: 05-April-2018

Prepared for:

Travis Johnson
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Total # of Pages: 6

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
8C29030-01	OW-14	Water	03/28/2018	03/29/2018

Request for Analysis

OW-14 (Lab Number: 8C29030-01)

Analysis	**Method**
Sulfide	SM4500-S-D

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Wet Chemistry

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures.

Sample: OW-14 Case Number: 8C29030

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
18496-25-8	Sulfide	376.2	0.04	0.02

ND = Not Detected

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

8 C 2 9030 J

CHAIN OF CUSTODY RECORI

PROJ. NO.	94139.01
PROJECT NAME/LOCATION	TIVERTON LANDFILL - Assessment Monitoring
CLIENT	PARE CORPORATION
REPORT TO:	tjohnson@parecorp.com
INVOICE TO:	ACCOUNTING

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** SULFIDES						REMARKS
3/28			X	OW-14	X			1	4. /	X						

Sampled by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	3/29 10:30		
Relinquished by: (Signature)	**Date/Time**	**Received by: (Signature)**	**Date/Time**
	3/29 11:00		3/29/18 1100
Relinquished by: (Signature)	**Date/Time**	**Received for Laboratory by: (Signature)**	**Date/Time**
	3/29/18 1605		3/29/18 1605

Laboratory Remarks: 3.
Temp. received: ______
Cooled ☐

Special Instructions:
List Specific Detection
Limit Requirements:

Turnaround (Business Days)______

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

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ATTACHMENT NO. 2
ANALYTICAL SUMMARY TABLES

TABLE 2
BACKGROUND WELL HISTORICAL RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-9

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEP '13	JUN '13	MAR '13	DEC '12	SEP '12	JUN '12	MAR '12	DEC '11	SEP '11	JUN '11	MAR '11	DEC '10	SEP '10	JUN '10	MAR '10
Antimony	0.006	mg/L^{1}	ND	0.0290	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	0.0160	0.2000	ND	ND	NT	ND	ND
Arsenic	0.010	mg/L^{1}	ND	ND	NT	NT	0.0030	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	0.0079
Barium	2	mg/L^{1}	0.0130	0.0410	NT	NT	0.0100	0.0060	NT	NT	0.0110	0.0110	NT	NT	0.0070	0.0420	NT	0.0100	0.0120	0.0200	NT	0.0150	0.0130	0.0160	NT	0.0110	0.0120	0.0070	0.0120	0.0080	0.0221	0.0230	NT	0.0460	0.0380
Beryllium	0.004	mg/L^{1}	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	0.0015	ND
Cadmium	0.005	mg/L^{1}	0.0020	0.3650	NT	NT	ND	ND	NT	NT	0.0010	ND	NT	NT	ND	0.0020	NT	ND	ND	0.0050	NT	0.0040	ND	0.0010	NT	ND	ND	ND	0.0020	ND	ND	ND	NT	ND	ND
Chromium	0.1	mg/L^{1}	0.0070	0.0300	NT	NT	0.0040	ND	NT	NT	0.0050	0.0070	NT	NT	0.0060	0.0270	NT	0.0060	0.0070	0.0150	NT	0.0070	0.0070	0.0120	NT	0.0050	0.0080	0.0040	0.0020	ND	0.0079	0.0068	NT	0.0230	0.0270
Cobalt	0.73	mg/L^{5}	0.0010	0.0020	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	0.0100	NT	ND	0.0010	0.0030	NT	0.0020	0.0020	0.0030	NT	ND	0.0020	ND	ND	ND	0.0019	0.0015	NT	0.0086	0.0110
Copper	1.3	mg/L^{1}	ND	0.0600	NT	NT	ND	ND	NT	NT	0.0020	ND	NT	NT	0.0020	0.0170	NT	ND	0.0060	0.0140	NT	0.0070	ND	0.0060	NT	ND	0.0080	0.0010	0.0100	0.0400	0.0041	0.0043	NT	0.0200	0.0170
Lead	0.015	mg/L^{1}	0.0020	0.1820	NT	NT	0.0020	0.0060	NT	NT	ND	0.0050	NT	NT	0.0010	0.0160	NT	0.0060	0.0030	0.1020	NT	0.0080	0.0020	0.0060	NT	ND	0.0110	0.0010	0.0040	0.0060	ND	ND	NT	0.0140	0.0024
Mercury	0.002	mg/L^{1}	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Nickel	0.1	mg/L^{2}	0.0040	0.0240	NT	NT	0.0040	ND	NT	NT	0.0030	0.0030	NT	NT	0.0170	0.0180	NT	0.0030	0.0040	0.0090	NT	0.0050	0.0050	0.0070	NT	0.0030	0.0040	0.0020	0.0080	0.0080	0.0046	0.0037	NT	0.0150	0.0180
Selenium	0.05	mg/L^{1}	ND	ND	NT	NT	ND	0.0100	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	0.0060	NT	ND	ND	ND	NT	ND	ND	ND	0.0100	0.0100	ND	ND	NT	ND	ND
Silver	0.1	mg/L^{2,3}	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	0.1180	ND	ND	NT	ND	ND
Thallium	0.002	mg/L^{1}	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Tin	22	mg/L^{5}	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	0.0080	0.1310	NT	ND	ND	ND	NT	ND	ND	ND	ND	0.0190	ND	ND	NT	ND	ND
Vanadium	0.26	mg/L^{5}	0.0020	ND	NT	NT	ND	ND	NT	NT	0.0010	0.0020	NT	NT	ND	0.0140	NT	0.0020	0.0030	0.0070	NT	0.0030	0.0020	0.0040	NT	ND	0.0010	ND	ND	ND	0.0034	0.0034	NT	0.0150	0.0110
Zinc	2	mg/L^{2,3}	0.0190	11.1000	NT	NT	0.0070	ND	NT	NT	0.0100	0.0050	NT	NT	ND	0.0410	NT	0.0110	0.0080	0.0170	NT	0.0210	0.0120	0.0160	NT	0.0150	0.0120	0.0090	0.0140	ND	0.0257	0.0190	NT	0.0330	0.0350
Acetone	610	µg/L^{5}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Acrylonitrile	0.039	µg/L^{5}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Benzene	5	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromochloromethane	80	µg/L^{2}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromodichloromethane (THM)	90	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromoform	80	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Carbon disulfide	1000	µg/L^{5}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Carbon tetrachloride	5	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chlorobenzene	100	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloroethane	4.6	µg/L^{5}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloroform (THM)	80	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chlorodibromomethane (THM)	80	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dibromo-3-chloropropane (DBC	0.2	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dibromoethane (EDB)	0.05	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichlorobenzene	600	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,4-Dichlorobenzene	75	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,4-Dichloro-2-butene		µg/L	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1-Dichloroethane	5	µg/L	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichloroethane	5	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1-Dichloroethylene	7	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
cis-1,2-Dichloroethene	70	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,2-Dichloroethene	100	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichloropropane	5	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
cis-1,3-Dichloropropene		µg/L	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,3-Dichloropropene		µg/L	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Ethylbenzene	700	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L^{5}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromomethane	10	µg/L^{2}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloromethane	30	µg/L^{2}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Dibromomethane	61	µg/L^{5}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methylene chloride	5	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L^{2}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl iodide		µg/L	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
4-Methyl-2-pentanone		µg/L	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Styrene	100	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,1,2-Tetrachloroethane	70	µg/L^{2}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L^{2}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Tetrachloroethylene(PCE)	5	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	2.1	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Toluene	1000	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,1-Trichloroethane	200	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,2-Trichloroethane	5	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Trichloroethylene(TCE)	5	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Trichloroflouromethane	2000	µg/L^{2}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2,3-Trichloropropane	40	µg/L^{2}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Vinyl acetate	410	µg/L^{5}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Vinyl chloride	2	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Xylenes	10000	µg/L^{1}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L^{4}	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND

▨ = Exceeded MCL

Note: Analytical data reported since commencement of low flow purging and sampling. Low flow puring and sampling commenced in May 2002, but no sample was taken at OW-9 at this time.
July 2002 represents the first time low flow purging and sampling was conducted at OW-9.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

" " = One half of the laboratory detection limit "DL"

NT = Not Tested due to dry conditions at well.

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-7

Concentration (expressed in same units as Threshold Value)

Parameter	Threshold Value	MAR '18	NOV '17	SEP '17	MAR '17	MAR '16	SEP '15	MAR '15	DEC '14	MAR '14	SEP '13	MAR '13	SEP '12	MAR '12	JUN '11	MAR '11	SEP '10	JUN '10	SEP '09	JUN '07	SEP '05	JUN '05
Antimony	0.006 mg/L^1	ND	ND	ND	0.0070	ND	ND	ND	NT	ND	ND	ND	ND	ND	0.0250	ND	ND	ND	ND	ND	ND	ND
Arsenic	0.01 mg/L^1	ND	ND	ND	ND	0.0070	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND^6	ND	ND	ND	ND	ND	ND
Barium	2 mg/L^1	0.0380	0.0350	0.0330	0.0380	0.0390	0.0300	0.0330	NT	0.0310	0.0200	0.0310	0.0260	0.0280	0.0350	0.0398	0.0375	0.0370	0.0310	0.0340	0.0240	0.0280
Beryllium	0.004 mg/L^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND^6	ND^6	ND	ND	ND	ND	ND
Cadmium	0.005 mg/L^1	ND	ND	ND	0.0010	ND	0.0010	ND	NT	0.0010	ND	ND	0.0050	ND	ND	0.0012	0.0419	0.0410	ND	ND	ND	ND
Chromium	0.1 mg/L^1	0.0050	0.0050	0.0040	0.0060	ND	ND	ND	NT	ND	ND	ND	ND	0.0010	0.0080	ND	0.0054	0.0048	0.0530	ND	ND	ND
Cobalt	0.73 mg/L^5	0.0190	0.0180	0.0180	0.0250	0.0280	0.0200	0.0250	NT	0.0220	0.0130	0.0250	0.0160	0.0200	0.0200	0.0353	0.0229	0.0250	0.0250	0.0200	0.0190	0.0220
Copper	1.3 mg/L^1	ND	0.0050	ND	0.0060	0.0060	0.0080	0.0250	NT	0.0180	0.0040	ND	0.0080	0.0040	0.0390	0.0056	0.2180	0.5000	0.0058	0.0098	ND	ND
Lead	0.015 mg/L^1	ND	ND	ND	ND	ND	0.0010	0.0050	NT	0.0060	0.0040	0.0020	0.0020	0.0040	0.0460	0.0033	0.0074	0.0060	0.0043	0.0042	ND	ND
Nickel	0.1 mg/L^2	0.0210	0.0210	0.0190	0.0250	ND	0.0200	0.0240	NT	0.0190	0.0120	0.0220	0.0150	0.0020	0.0220	0.0302	0.0270	0.0280	0.0390	0.0240	0.0220	0.0370
Selenium	0.05 mg/L^1	0.0100	ND	0.0030	ND	0.1070	0.0070	0.1880	NT	0.1830	0.1410	0.1800	0.1920	0.2260	0.0340	ND	ND	ND	0.0120	0.0110	0.0140	ND
Silver	0.1 mg/L^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0054	ND	ND	0.0035
Thallium	0.002 mg/L^1	0.0003	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	0.0032	ND	ND	0.0420	0.0440	ND	0.0140
Tin	22 mg/L^5	ND	ND	ND	ND	ND	ND	ND	NT	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	0.26 mg/L^5	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	0.0170	ND	0.0051	0.0072	0.0230	0.0240	ND	ND
Zinc	5 mg/L^3	0.0180	0.0200	0.0120	0.0210	0.0050	0.0120	0.0060	0.0060	#######	ND	0.0150	0.0100	0.0130	ND	0.0250	0.0472	0.0380	0.0120	0.0110	0.0160	0.0180
Mercury	0.002 mg/L^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	610 ug/l^5	ND	ND	ND	5.8	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrate	0.039 ug/l^5	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	80 ug/l^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	90 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000 ug/l^5	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10 ug/l^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	1.0	2.0	ND	1.4	1.8	2.7	1.7	ND
Chlorodibromomethane	80 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	80 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	4.6 ug/l^5	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	2.2	ND	1.3	1.6	1.5	3.8	ND	ND
Chloromethane	30 ug/l^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.2 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	0.05 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61 ug/l^5	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichlo-2-butene	ug/l	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	70 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,2-Dichloroethylene	100 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/l	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/l	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70 ug/l^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3 ug/l^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000 ug/l^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000 ug/l^1	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160 ug/l^5	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40 ug/l^4	6.8	5.9	5.36	10.3	8.8	ND	ND	NT	9.7	5.6	11.9	8.0	11.2	10.7	15.7	7.2	8.2	9.0	12.0	7.4	2.1
Methyl ethyl ketone(2-Butanone)	4000 ug/l^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide	ug/l	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	ug/l	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100 ug/l^1	ND	ND	ND	ND	ND	4.9	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40 ug/l^2	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410 ug/l^5	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND

Note: Low flow purging and sampling used starting with the June 2005 monitoring round

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

▨ = Exceeded MCL

TABLE 1
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-12

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006	mg/L^{1}	ND	0.0210	ND	0.0010	0.0250	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0060	ND	ND	ND	0.0100	0.0600	ND	ND	ND	ND
Arsenic	0.010	mg/L^{1}	ND	0.0050	ND	0.0090	ND	ND	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0300	ND	ND	ND	ND
Barium	2	mg/L^{1}	0.0170	0.0240	0.0260	0.0240	0.0410	0.0260	0.0670	0.0360	0.0200	0.0260	0.0250	0.0190	0.0600	0.0160	0.0210	0.0120	0.0140	0.0130	0.0150	0.0080	0.0130	0.0180	0.0170	0.0160	0.0160	0.0100	0.0280	0.0130	0.0113	0.0151	0.0156	0.0094
Beryllium	0.004	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND
Cadmium	0.005	mg/L^{1}	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.1	mg/L^{1}	ND	ND	0.0030	0.0010	0.0040	ND	0.0180	0.0130	ND	0.0020	ND	ND	ND	ND	0.0020	0.0020	0.0020	0.0010	0.0020	ND	0.0020	ND	ND	ND	0.0010	ND	ND	ND	ND^{6}	ND^{6}	0.0014	0.0025
Cobalt	0.73	mg/L^{5}	ND	ND	0.0020	ND	0.0020	ND	0.0090	0.0080	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	0.0006	ND^{6}	ND
Copper	1.3	mg/L^{1}	ND	ND	ND	ND	ND	ND	0.0200	0.0150	ND	0.0330	ND	ND	ND	ND	ND	0.0020	0.0030	0.0060	0.0020	0.0010	ND	ND	ND	ND	0.0010	ND	0.0100	0.0400	ND	0.0013	ND	0.0019
Lead	0.015	mg/L^{1}	ND	ND	ND	ND	ND	ND	0.0150	0.0120	ND	ND	0.0020	ND	0.0020	0.0020	0.0030	0.0020	0.0020	0.0020	0.0010	0.0010	0.0020	0.0020	0.0020	ND	0.0020	ND	ND	ND	ND	ND	ND	0.0012
Mercury	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND	ND
Nickel	0.1	mg/L^{2}	0.0200	0.0170	0.0140	0.0090	0.0140	0.0070	0.0220	0.0130	0.0060	0.0080	0.0040	0.0060	0.0040	0.0040	0.0060	0.0040	0.0040	0.0040	0.0050	0.0020	0.0040	0.0050	0.0040	0.0030	0.0050	0.0030	0.0070	0.0110	0.0034	0.0028	0.0037	0.0023
Selenium	0.05	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	0.0100	ND	ND	ND	ND	0.0060	ND	0.0120	0.0110	0.0060	ND	ND	ND	ND	ND	ND	0.0080	0.0060	ND	0.0300	ND	ND	ND	ND
Silver	0.1	mg/L^{2,3}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1350	ND	ND	ND	ND
Thallium	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22	mg/L^{5}	ND	ND	ND	ND	ND	ND	0.0980	ND	0.1800	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	0.26	mg/L^{5}	ND	ND	0.0030	ND	0.0040	ND	0.0200	0.0200	ND	ND	ND	ND	ND	ND	0.0020	ND	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0057
Zinc	2	mg/L^{2,3}	0.0070	0.0060	0.0130	0.0100	0.0220	ND	0.0500	0.0420	ND	ND	0.0050	0.0070	ND	ND	ND	ND	ND	ND	ND	0.0080	0.0100	ND	ND	0.0080	0.0070	0.0080	0.0160	ND	0.0170	0.0147	0.0151	0.0130
Acetone	610	μg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	0.039	μg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	80	μg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	μg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	4.6	μg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	80	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	μg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	μg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30	μg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	μg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	μg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	μg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	μg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	μg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	μg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	μg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	μg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	μg/L^{4}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-13

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10
Antimony	0.006	mg/L[1]	ND	0.0360	ND	0.0020	0.0080	ND	0.0110	ND	ND	ND	ND	ND	ND	ND	ND	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0100	0.0200	ND	ND	ND
Arsenic	0.010	mg/L[1]	0.0070	ND	0.0050	0.0200	ND	ND	0.0100	ND	0.0190	0.0100	0.0110	0.0070	0.0040	0.0200	0.0070	ND	0.0140	0.0160	0.0070	0.0080	0.0070	ND	ND	0.0060	0.0050	0.0050	0.0090	ND	0.0096	0.0094	0.0108
Barium	2	mg/L[1]	0.1150	0.0970	0.0460	0.0860	0.1080	0.0990	0.1830	0.0890	0.1700	0.0910	0.0870	0.0900	0.0890	0.1400	0.0870	0.0700	0.1180	0.0780	0.0650	0.0690	0.0750	0.0770	0.0760	0.0720	0.0760	0.0650	0.0760	0.0800	0.0912	0.0817	0.0807
Beryllium	0.004	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	0.005	mg/L[1]	0.0040	ND	0.0020	0.0030	0.0050	ND	0.0290	ND	0.0050	0.0040	0.0040	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	0.0020	ND	0.0004	0.0004	0.0004
Chromium	0.1	mg/L[1]	0.0020	0.0010	ND	0.0040	0.0030	ND	0.0330	0.0050	ND	0.0040	ND	ND	ND	0.0090	ND	0.0010	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND
Cobalt	0.73	mg/L[5]	0.0130	0.0120	0.0070	0.0120	0.0140	0.0140	0.0280	0.0130	0.0150	0.0130	0.0120	0.0140	0.0160	0.0180	0.0110	0.0100	0.0120	0.0100	0.0090	0.0130	0.0120	ND	0.0100	0.0130	0.0120	0.0110	0.0120	0.0090	0.0192	0.0156	0.0138
Copper	1.3	mg/L[1]	ND	ND	ND	0.0100	ND	ND	0.0900	ND	0.0060	ND	0.0020	ND	0.0050	0.0730	0.0050	0.0050	0.0080	0.0230	0.0030	0.0050	ND	ND	ND	0.0060	0.0040	0.0020	0.0090	0.0300	0.0028	0.0018	0.0027
Lead	0.015	mg/L[1]	0.0020	ND	ND	0.0010	ND	0.0070	0.0350	0.0190	ND	ND	0.0020	0.0030	0.0030	0.0170	0.0040	0.0040	0.0070	0.0020	0.0020	0.0030	0.0020	0.0020	0.0020	ND	0.0020	ND	0.0040	0.0130	0.0015	ND	ND
Mercury	0.002	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND
Nickel	0.1	mg/L[2]	0.0120	0.0290	0.0060	0.0120	0.0350	0.0140	0.0465	0.0130	0.0130	0.0120	0.0120	0.0130	0.0130	0.0220	0.0110	0.0100	0.0120	0.0100	0.0090	0.0100	0.0100	0.0100	0.0100	0.0110	0.0100	0.0090	0.0110	0.0060	0.0141	0.0127	0.0121
Selenium	0.05	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	0.0390	ND	ND	ND	0.0800	0.0210	0.0590	0.0120	0.0330	0.0700	0.0350	0.0400	ND	ND	0.0700	0.0640	0.0620	0.0710	0.0690	0.0100	ND	ND	ND
Silver	0.1	mg/L[2,3]	ND	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0020	ND	ND	0.0010	0.0020	0.0020	ND	0.0010	0.0010	ND	0.0020	ND	0.0020	ND	0.0030	0.0340	ND	ND	ND
Thallium	0.002	mg/L[1]	0.0003	0.0003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22	mg/L[5]	ND	ND	ND	ND	ND	ND	0.2800	0.1100	ND	0.0120	ND	ND	0.0010	ND	ND	ND	0.0170	0.0400	0.0090	0.0180	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND	ND
Vanadium	0.26	mg/L[5]	ND	0.0020	ND	ND	ND	0.0060	0.0390	0.0030	ND	ND	ND	ND	ND	0.0130	0.0020	ND	0.0010	0.0040	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	0.0200	ND	ND	ND
Zinc	2	mg/L[2,3]	0.0170	0.0070	0.0070	0.0200	0.0170	ND	0.1300	0.0130	0.0060	ND	0.0070	ND	ND	0.0470	ND	ND	0.0090	ND	ND	0.0110	0.0100	ND	ND	0.0230	0.0050	0.0050	0.0090	ND	0.0178	0.0092	0.0098
Acetone	610	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	0.039	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND	ND
Bromochloromethane	80	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	μg/L[1]	5.40	ND	5.23	5.03	6.8	ND	5.5	2.5	6.6	7.4	6.3	6.1	7.4	8.1	ND	7.1	7.2	6.4	2.2	3.9	6.8	6.3	1.6	4.2	6.7	6.5	6.0	3.7	6.2	5.6	5.9
Chloroethane	4.6	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	1.3
Chloroform	80	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	μg/L[1]	ND	ND	1.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	μg/L[1]	ND	ND	1.11	ND	ND	ND	ND	ND	ND	ND	1.4	1.2	1.3	ND	ND	1.4	ND	ND	ND	ND	1.0	1.2	ND	ND	1.2	ND	1.4	1.0	ND[6]	1.1	1.2
trans-1,4-Dichloro-2-butene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	μg/L[4]	ND	ND	3.70	3.53	6.1	ND	3.6	2.6	4.1	4.9	3.2	5.2	4.5	2.9	ND	4.2	5.0	5.4	3.3	3.3	5.0	4.5	2.8	3.8	4.5	2.8	4.7	3.2	7.9	3.8	3.4

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-14

Concentration (Expressed in same units as Threshold Value)

Parameter	**Threshold Value**		MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEP '13	JUN '13	MAR '13	DEC '12	SEP '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006	mg/L^{1}	ND	0.0350	NT	0.0050	0.0410	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	0.0060	ND	ND	0.0110	0.0170	ND	ND	NT	ND
Arsenic	0.010	mg/L^{1}	ND	0.0030	NT	0.0200	0.0120	ND	NT	ND	0.0070	0.0050	0.0050	NT	ND	ND	NT	ND	ND	ND	NT	0.0060	ND	ND	NT	ND	ND	ND	0.0060	ND	0.0074	ND	NT	0.0070
Barium	2	mg/L^{1}	0.2240	0.1990	NT	0.2400	0.2490	0.2290	NT	0.1380	0.1750	0.1980	0.1140	NT	0.2020	0.0910	NT	0.1570	0.1840	0.0790	NT	0.1440	0.1760	0.1370	NT	0.1750	0.1770	0.1470	0.1610	0.2100	0.2700	0.2030	NT	0.1900
Beryllium	0.004	mg/L^{1}	ND	ND	NT	0.0030	ND	ND	NT	0.0010	0.0010	ND	0.0010	NT	ND	ND	NT	ND	ND	0.0010	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	0.0010	NT	ND
Cadmium	0.005	mg/L^{1}	0.0050	ND	NT	0.0050	0.0060	ND	NT	ND	0.0070	0.0080	0.0060	NT	ND	ND	NT	0.0050	0.0010	ND	NT	ND	0.0020	ND	NT	ND	0.0040	0.0030	0.0030	ND	ND^{6}	ND^{6}	NT	ND
Chromium	0.1	mg/L^{1}	0.0060	0.0020	NT	0.0010	0.0020	ND	NT	0.0110	0.0030	0.0030	0.0170	NT	0.0050	0.0050	NT	0.0040	0.0010	0.0080	NT	ND	0.0050	ND	NT	ND	ND	ND	ND	ND	ND	0.0065	NT	0.0018
Cobalt	0.73	mg/L^{5}	0.0140	0.0090	NT	0.0140	0.0130	0.0360	NT	0.0100	0.0100	0.0100	0.0120	NT	0.0170	0.0120	NT	0.0080	0.0150	0.0120	NT	0.0080	0.0160	0.0370	NT	0.0140	0.0100	0.0100	0.0160	0.0090	0.0457	0.0261	NT	0.0130
Copper	1.3	mg/L^{1}	0.0090	ND	NT	0.0100	ND	0.0200	NT	0.0010	0.0010	ND	0.0170	NT	0.0100	0.0090	NT	0.0070	0.0050	0.0200	NT	0.0030	0.0080	0.0100	NT	ND	ND	0.0010	0.0090	ND	0.0049	0.0140	NT	0.0050
Lead	0.015	mg/L^{1}	0.0060	ND	NT	0.0170	ND	ND	NT	0.0160	0.0070	ND	0.0090	NT	0.0050	0.0050	NT	0.0040	0.0040	0.0070	NT	0.0020	0.0050	0.0030	NT	0.0020	ND	0.0090	0.0020	ND	ND	0.0039	NT	0.0011
Mercury	0.002	mg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Nickel	0.1	mg/L^{2}	0.0220	0.0320	NT	0.0220	0.0470	0.0400	NT	0.0160	0.0160	0.0170	0.0200	NT	0.0270	0.0180	NT	0.0150	0.0230	0.0200	NT	0.0120	0.0200	0.0350	NT	0.0190	0.0170	0.0150	0.0180	0.0180	0.0460	0.0407	NT	0.0170
Selenium	0.05	mg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	0.0350	0.0140	NT	ND	ND	0.0260	NT	ND	ND	ND	NT	0.0200	0.0310	0.0240	0.0300	ND	ND	ND	NT	ND
Silver	0.1	mg/L^{2,3}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	0.0040	NT	0.0020	ND	NT	0.0020	0.0020	ND	NT	ND	0.0020	ND	NT	ND	0.0040	ND	0.0050	ND	ND	ND	NT	ND
Thallium	0.002	mg/L^{1}	0.0003	0.0003	NT	ND	ND	ND	NT	ND	ND	ND	0.0010	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	0.0010	ND	ND	ND	ND	NT	ND
Tin	22	mg/L^{5}	ND	ND	NT	ND	ND	ND	NT	0.0350	ND	0.0070	0.0010	NT	ND	ND	NT	ND	0.0220	0.0180	NT	0.0310	ND	ND	NT	ND	ND	ND	ND	ND	ND^{6}	ND	NT	ND
Vanadium	0.26	mg/L^{5}	0.0070	0.0030	NT	0.0070	ND	ND	NT	0.0170	ND	ND	0.0140	NT	0.0080	0.0050	NT	0.0050	0.0020	0.0080	NT	0.0030	0.0060	ND	NT	ND	ND	ND	ND	0.0290	ND	0.0063	NT	0.0028
Zinc	2	mg/L^{2,3}	0.0480	0.0160	NT	0.0600	0.0230	0.0300	NT	0.0280	0.0170	0.0140	0.0680	NT	0.0240	0.0190	NT	0.0070	0.0100	0.0310	NT	0.0120	0.0310	0.0210	NT	0.0160	0.0070	0.0070	0.0270	ND	0.0453	0.0570	NT	0.0094
Acetone	610	μg/L^{5}	ND	ND	NT	ND	6.9	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	6.4	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Acrylonitrile	0.039	μg/L^{5}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Benzene	5	μg/L^{1}	ND	ND	NT	3.2	4.1	ND	NT	2.7	3.1	3.9	2.0	NT	3.5	ND	NT	3.3	3.6	ND	NT	2.9	4.3	1.9	NT	1.8	3.5	3.6	4.1	2.1	3.7	1.7	NT	3.6
Bromochloromethane	80	μg/L^{2}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromodichloromethane (THM)	90	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromoform	80	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Carbon disulfide	1000	μg/L^{5}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Carbon tetrachloride	5	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chlorobenzene	100	μg/L^{1}	10.8	ND	NT	13.42	15.6	ND	NT	12.5	13.5	15.4	10.7	NT	16.7	5.3	NT	15.7	15.7	3.2	NT	11.3	19.1	8.0	NT	7.0	14.3	14.6	16.5	7.1	15.3	6.1	NT	14.0
Chloroethane	4.6	μg/L^{5}	ND	ND	NT	2.27	ND	ND	NT	3.3	ND	2.0	1.5	NT	ND	ND	NT	ND	ND	ND	NT	ND	2.5	ND	NT	ND	1.4	2.4	ND	1.6	1.3	ND	NT	3.0
Chloroform	80	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chlorodibromomethane (THM)	80	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dibromoethane (EDB)	0.05	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichlorobenzene	600	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,4-Dichlorobenzene	75	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	1.8	ND	ND	2.2	NT	3.3	ND	NT	3.4	ND	ND	NT	2.2	2.9	1.8	NT	1.4	2.7	2.2	3.2	1.8	2.7	1.9	NT	3.0
trans-1,4-Dichloro-2-butene		μg/L	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1-Dichloroethane	5	μg/L	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichloroethane	5	μg/L	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1-Dichloroethylene	7	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
cis-1,2-Dichloroethene	70	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
trans-1,2-Dichloroethene	100	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichloropropane	5	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
cis-1,3-Dichloropropene		μg/L	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
trans-1,3-Dichloropropene		μg/L	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Ethylbenzene	700	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl butyl ketone(2-Hexanone)	160	μg/L^{5}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromomethane	10	μg/L^{2}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chloromethane	30	μg/L^{2}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Dibromomethane	61	μg/L^{5}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methylene chloride	5	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl ethyl ketone(2-Butanone)	4000	μg/L^{2}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl iodide		μg/L	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
4-Methyl-2-pentanone		μg/L	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Styrene	100	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,1,2-Tetrachloroethane	70	μg/L^{2}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,2,2-Tetrachloroethane	0.3	μg/L^{2}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Tetrachloroethylene(PCE)	5	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Toluene	1000	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,1-Trichloroethane	200	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,2-Trichloroethane	5	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Trichloroethylene(TCE)	5	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Trichloroflouromethane	2000	μg/L^{2}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2,3-Trichloropropane	40	μg/L^{2}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Vinyl acetate	410	μg/L^{5}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Vinyl chloride	2	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Xylenes	10000	μg/L^{1}	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl tert-butyl ether (MTBE)	20 - 40	μg/L^{4}	9.4	ND	NT	7.08	16.5	ND	NT	6.7	7.7	12.3	6.9	NT	11.2	1.7	NT	6.6	14.8	4.3	NT	6.9	11.9	11.0	NT	7.5	8.4	6.6	12.4	7.0	16.3	12.3	NT	5.3

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above
NT = Not Tested due to dry conditions at well.

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-15
Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006	mg/L[1]	ND	0.0300	ND	0.0020	0.0340	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0060	0.0070	0.0060	0.0400	ND	ND	ND	ND	ND
Arsenic	0.010	mg/L[1]	0.0200	0.0200	0.0300	0.0300	ND	ND	0.0700	0.0130	0.0320	0.0170	ND	ND	0.0160	ND	0.0350	ND	ND	0.0050	0.0280	0.0130	0.0180	0.0040	0.0300	ND	ND	0.0110	ND	ND	0.0023	0.0338	0.0362	ND
Barium	2	mg/L[1]	0.1280	0.1240	0.0850	0.0890	0.1230	0.1560	0.3100	0.0600	0.1130	0.1840	0.1390	0.2230	0.1260	0.1350	0.1060	0.1810	0.1180	0.1340	0.0750	0.1510	0.1550	0.1340	0.1010	0.2360	0.2350	0.1620	0.1930	ND	0.1890	0.1260	0.1110	0.2900
Beryllium	0.004	mg/L[1]	ND	ND	ND	ND	ND	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0050	ND	ND	ND[6]	ND
Cadmium	0.005	mg/L[1]	0.0090	ND	0.0100	0.0050	0.0100	0.0050	0.0460	ND	0.0100	0.0080	0.0070	ND	ND	ND	ND	0.0100	0.0010	ND	0.0010	ND	0.0040	ND	0.0020	ND	0.0060	0.0010	0.0040	ND	ND	ND[6]	ND[6]	ND
Chromium	0.1	mg/L[1]	ND	ND	0.0030	ND	0.0020	ND	0.1180	0.0020	0.0010	0.0050	0.0020	0.0010	ND	ND	0.0030	0.0030	0.0030	ND	ND	ND	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	ND[6]	0.0018	0.0018
Cobalt	0.73	mg/L[5]	0.0100	0.0090	0.0180	0.0130	0.0040	ND	0.2300	0.0080	0.0180	0.0070	0.0040	0.0020	0.0120	ND	0.0190	0.0020	ND	0.0010	0.0140	0.0100	0.0060	0.0020	0.0170	0.0030	0.0040	0.0090	0.0020	ND	0.0039	0.0185	0.0244	0.0017
Copper	1.3	mg/L[1]	ND	ND	ND	ND	ND	ND	0.1400	ND	ND	ND	ND	ND	0.0020	ND	ND	0.0080	0.0040	0.0240	0.0050	0.0060	0.0060	ND	ND	ND	0.0030	0.0040	0.0100	0.2400	ND	0.0012	0.0059	0.0028
Lead	0.015	mg/L[1]	0.0020	ND	ND	0.0020	ND	0.0050	0.1350	0.0140	ND	ND	ND	0.0040	0.0020	0.0040	0.0110	0.0040	0.0020	0.0030	0.0020	0.0050	0.0050	0.0030	0.0050	0.0020	0.0020	0.0010	0.0030	ND	ND	0.0025	0.0025	0.0013
Mercury	0.002	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0070	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	0.1	mg/L[2]	0.0200	0.0510	0.0350	0.0240	0.0520	0.0110	0.6610	0.0140	0.0290	0.0170	0.0100	0.0110	0.0180	0.0080	0.0330	0.0120	0.0070	0.0110	0.0230	0.0190	0.0150	ND	0.0270	0.0110	0.0130	0.0160	0.0090	0.0140	0.0086	0.0374	0.0396	0.0097
Selenium	0.05	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0220	ND	ND	ND	ND	0.0160	ND	ND	ND	ND	0.0100	0.0120	0.0180	0.0110	0.0190	0.0400	ND	ND[6]	ND	ND
Silver	0.1	mg/L[2,3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0030	0.0020	0.0150	0.0030	0.0030	0.0050	0.0020	0.0030	0.0030	ND	0.0040	ND	0.0050	ND	0.0050	ND	ND	ND[6]	ND[6]	ND
Thallium	0.002	mg/L[1]	ND	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22	mg/L[5]	ND	ND	ND	ND	ND	ND	1.0600	ND	ND	0.0470	ND	ND	ND	ND	ND	ND	0.0270	0.0780	0.0210	0.0400	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND[6]	ND[6]	ND
Vanadium	0.26	mg/L[5]	0.0060	0.0040	0.0110	ND	ND	0.0150	0.1560	0.0050	ND	ND	0.0020	ND	0.0040	0.0050	0.0060	0.0040	0.0030	0.0090	0.0030	0.0050	0.0040	0.0040	0.0030	0.0030	0.0020	0.0020	ND	0.0160	ND	0.0012	0.0023	0.0023
Zinc	2	mg/L[2,3]	0.0210	0.0100	0.0300	0.0200	0.0140	ND	0.9700	ND	0.0120	0.0150	0.0080	ND	ND	ND	ND	ND	ND	ND	ND	0.0150	0.0200	ND	0.0280	0.0090	0.0120	0.0060	0.0170	ND	0.0181	0.0147	0.0227	ND
Acetone	610	μg/L[5]	ND	ND	ND	ND	ND	ND	5.2	ND	ND	6.7	ND	ND	ND	ND	ND	ND	5.6	ND	ND	ND	18.6	ND	ND	ND	ND	ND	ND	ND	6.8	ND	ND	ND
Acrylonitrile	0.039	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	μg/L[1]	ND	ND	3.59	2.83	ND	ND	3.4	3.2	2.1	3.2	1.7	2.0	2.8	2.8	3.6	2.2	2.1	2.8	3.4	2.7	2.8	2.5	3.4	3.1	2.7	3.2	3.5	2.1	1.9	3.3	3.5	2.5
Bromochloromethane	80	μg/L[2]	ND	ND	ND	ND	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	μg/L[1]	17	15.2	18.19	21.26	17.4	21.5	16.0	16.8	17.7	18.3	21.0	21.1	19.7	26.9	19.0	27.0	25.0	32.5	18.9	14.3	20.0	29.0	15.5	12.4	16.9	15.8	25.0	11.8	23.1	19.8	16.9	12.0
Chloroethane	4.6	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	2.8	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	2.9	1.4
Chloroform	80	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	1.0	1.3	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	μg/L[1]	ND	ND	2.51	ND	1.6	ND	ND	2.1	ND	ND	3.4	2.9	3.0	ND	ND	3.4	ND	ND	2.1	2.3	2.6	3.2	1.9	1.9	2.3	1.5	3.1	2.1	2.9	2.4	2.4	2.1
trans-1,4-Dichloro-2-butene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		μg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	μg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	μg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	μg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	3.3	ND	ND	2.2	5.4	ND	ND	3.1	ND	6.1	2.0	3.9	ND	ND	6.5
Methyl tert-butyl ether (MTBE)	20 - 40	μg/L[4]	ND	6.3	7.52	7.69	8.5	ND	7.9	7.9	6.8	7.8	6.7	12.2	7.1	4.2	6.0	9.4	5.4	7.7	8.3	10.3	6.1	3.9	8.8	9.5	9.5	5.5	7.5	7.1	7.9	6.1	7.6	5.7

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-16

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		MAR '18	NOV '17
Antimony	0.006	mg/L[1]	ND	ND
Arsenic	0.010	mg/L[1]	ND	ND
Barium	2	mg/L[1]	0.0190	0.1000
Beryllium	0.004	mg/L[1]	ND	ND
Cadmium	0.005	mg/L[1]	ND	ND
Chromium	0.1	mg/L[1]	0.0060	0.0050
Cobalt	0.73	mg/L[5]	0.0050	0.0050
Copper	1.3	mg/L[1]	ND	ND
Lead	0.015	mg/L[1]	ND	ND
Mercury	0.002	mg/L[1]	ND	ND
Nickel	0.1	mg/L[2]	0.0100	0.0100
Selenium	0.05	mg/L[1]	0.0100	0.0050
Silver	0.1	mg/L[2,3]	ND	ND
Thallium	0.002	mg/L[1]	0.0003	ND
Tin	22	mg/L[5]	ND	ND
Vanadium	0.26	mg/L[5]	ND	ND
Zinc	2	mg/L[2,3]	0.024	0.0210
Acetone	610	µg/L[5]	ND	ND
Acrylonitrile	0.039	µg/L[5]	ND	ND
Benzene	5	µg/L[1]	ND	ND
Bromochloromethane	80	µg/L[2]	ND	ND
Bromodichloromethane (THM)	90	µg/L[1]	ND	ND
Bromoform	80	µg/L[1]	ND	ND
Carbon disulfide	1000	µg/L[5]	ND	ND
Carbon tetrachloride	5	µg/L[1]	ND	ND
Chlorobenzene	100	µg/L[1]	ND	ND
Chloroethane	4.6	µg/L[5]	ND	ND
Chloroform	80	µg/L[1]	ND	ND
Chlorodibromomethane (THM)	80	µg/L[1]	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	µg/L[1]	ND	ND
1,2-Dibromoethane (EDB)	0.05	µg/L[1]	ND	ND
1,2-Dichlorobenzene	600	µg/L[1]	ND	ND
1,4-Dichlorobenzene	75	µg/L[1]	ND	ND
trans-1,4-Dichloro-2-butene		µg/L	ND	ND
1,1-Dichloroethane	5	µg/L	ND	ND
1,2-Dichloroethane	5	µg/L	ND	ND
1,1-Dichloroethylene	7	µg/L[1]	ND	ND
cis-1,2-Dichloroethene	70	µg/L[1]	ND	ND
trans-1,2-Dichloroethene	100	µg/L[1]	ND	ND
1,2-Dichloropropane	5	µg/L[1]	ND	ND
cis-1,3-Dichloropropene		µg/L	ND	ND
trans-1,3-Dichloropropene		µg/L	ND	ND
Ethylbenzene	700	µg/L[1]	ND	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L[5]	ND	ND
Bromomethane	10	µg/L[2]	ND	ND
Chloromethane	30	µg/L[2]	ND	ND
Dibromomethane	61	µg/L[5]	ND	ND
Methylene chloride	5	µg/L[1]	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L[2]	ND	ND
Methyl iodide		µg/L	ND	ND
4-Methyl-2-pentanone		µg/L	ND	ND
Styrene	100	µg/L[1]	ND	ND
1,1,1,2-Tetrachloroethane	70	µg/L[2]	ND	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L[2]	ND	ND
Tetrachloroethylene(PCE)	5	µg/L[1]	ND	ND
Toluene	1000	µg/L[1]	ND	ND
1,1,1-Trichloroethane	200	µg/L[1]	ND	ND
1,1,2-Trichloroethane	5	µg/L[1]	ND	ND
Trichloroethylene(TCE)	5	µg/L[1]	ND	ND
Trichloroflouromethane	2000	µg/L[2]	ND	ND
1,2,3-Trichloropropane	40	µg/L[2]	ND	ND
Vinyl acetate	410	µg/L[5]	ND	ND
Vinyl chloride	2	µg/L[1]	ND	ND
Xylenes	10000	µg/L[1]	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L[4]	7.8	4.6

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
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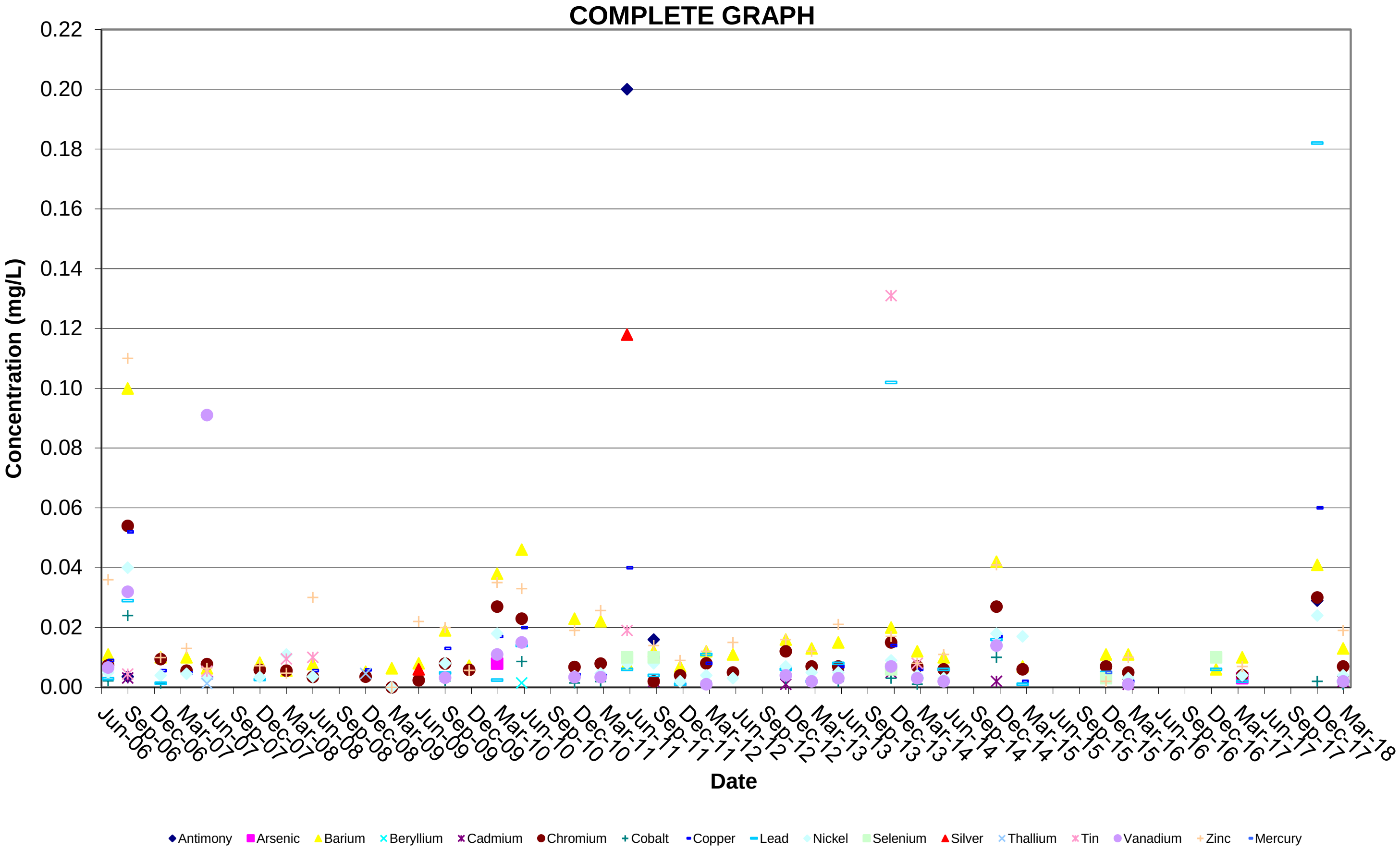
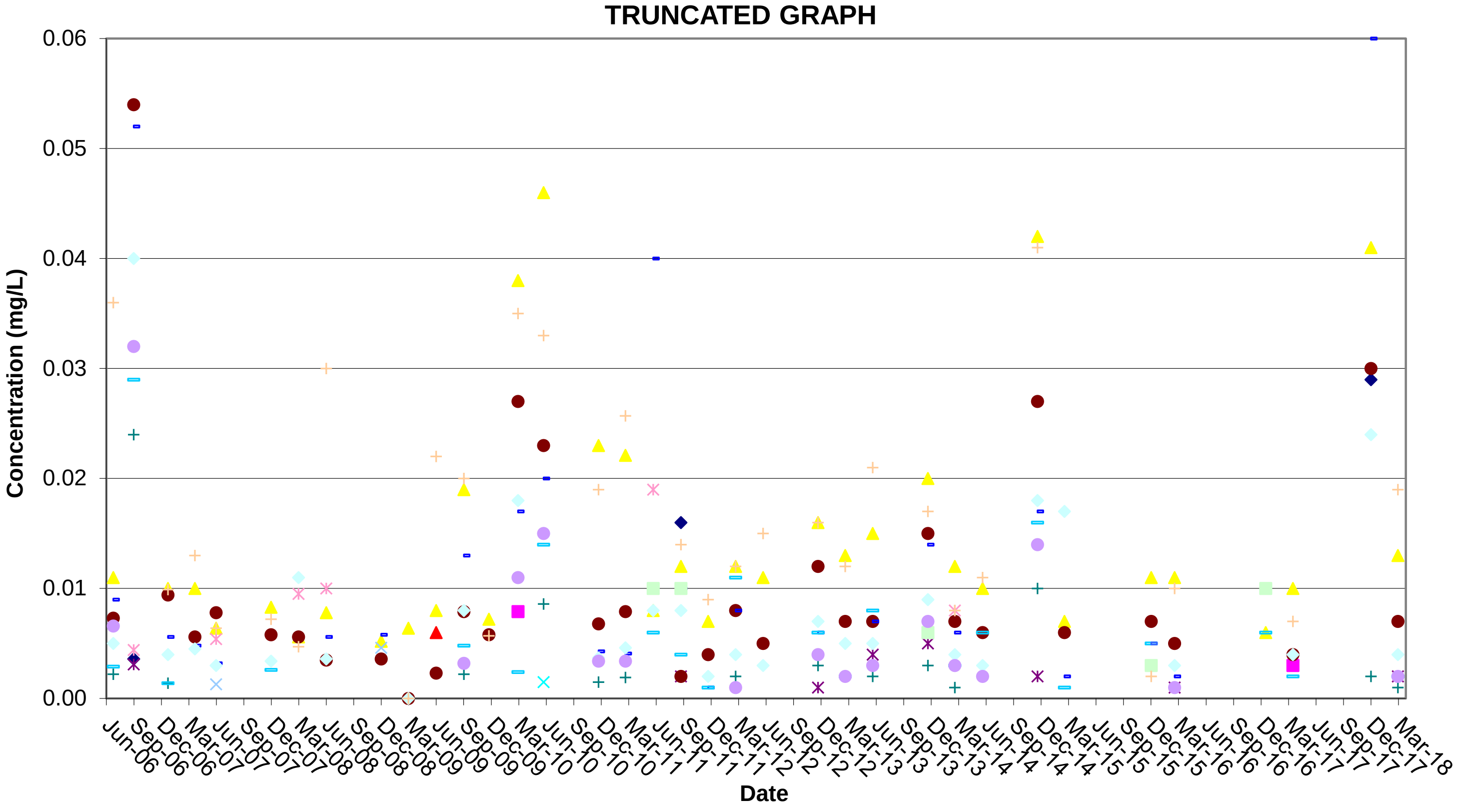
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit.
   However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those
   constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

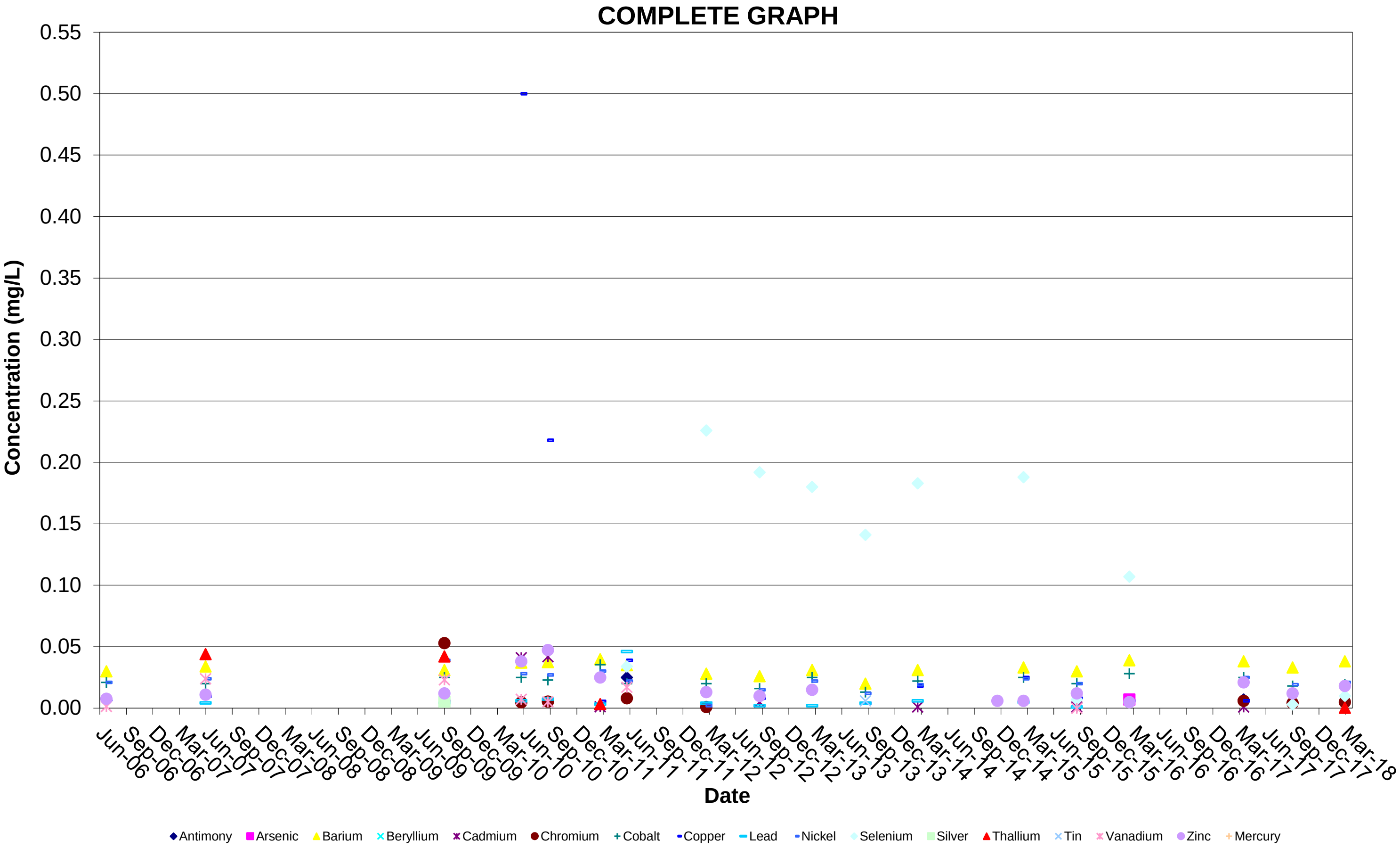
ATTACHMENT NO. 3
HISTORICAL DETECTED METALS GRAPHS

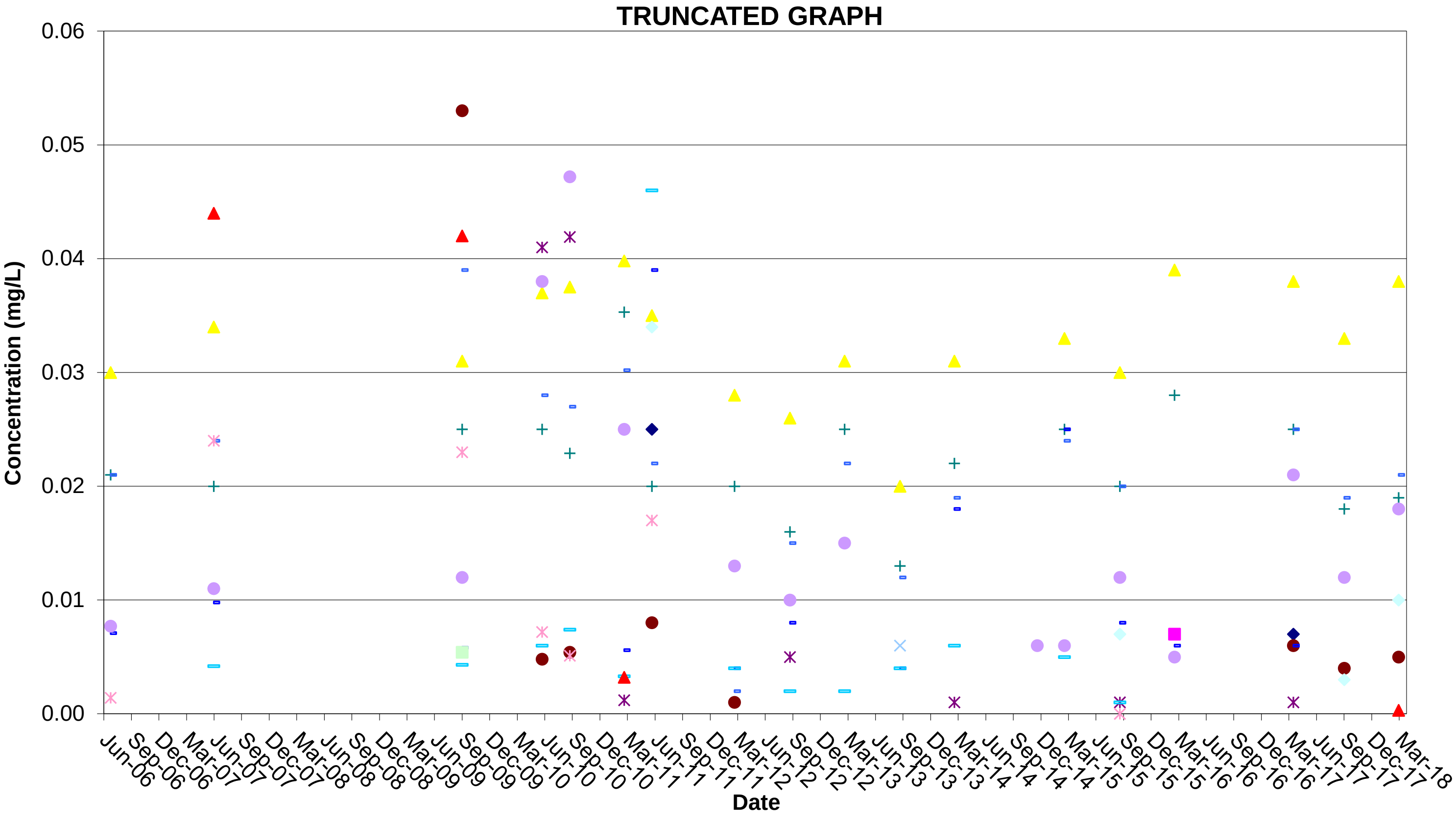
Detected Appendix A Metals in OW-9
Tiverton Landfill



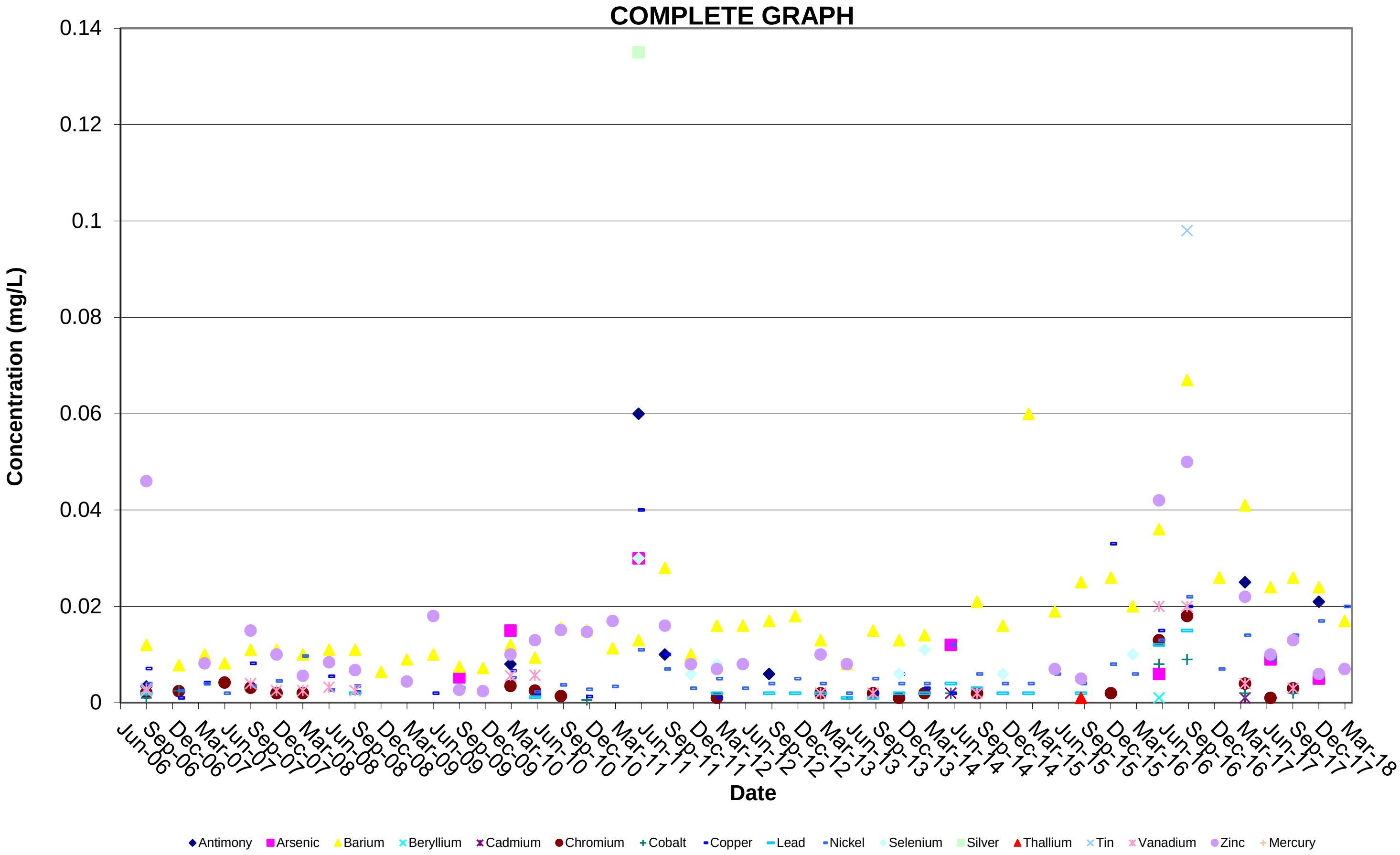


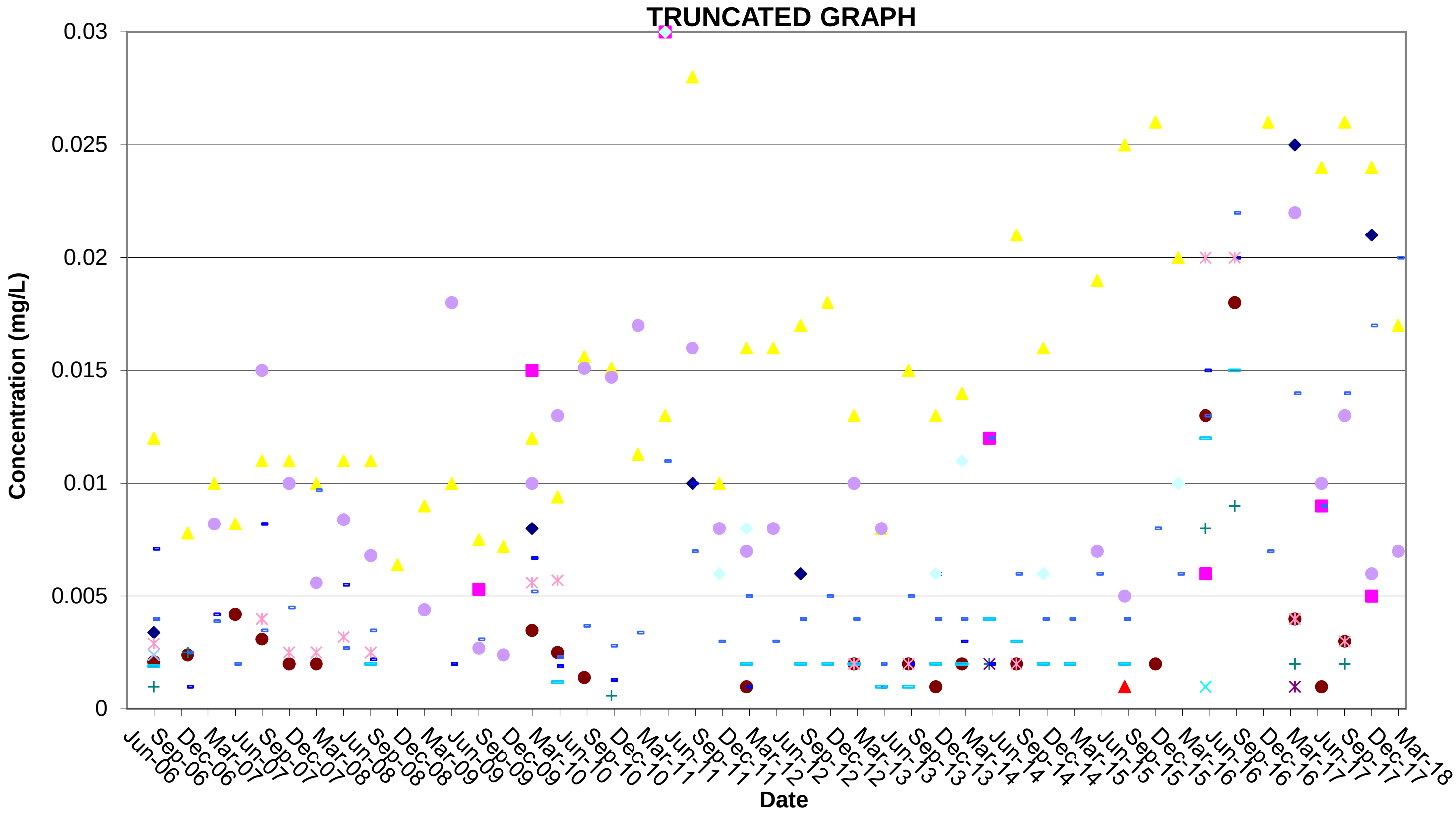
Detected Appendix A Metals in OW-7
Tiverton Landfill



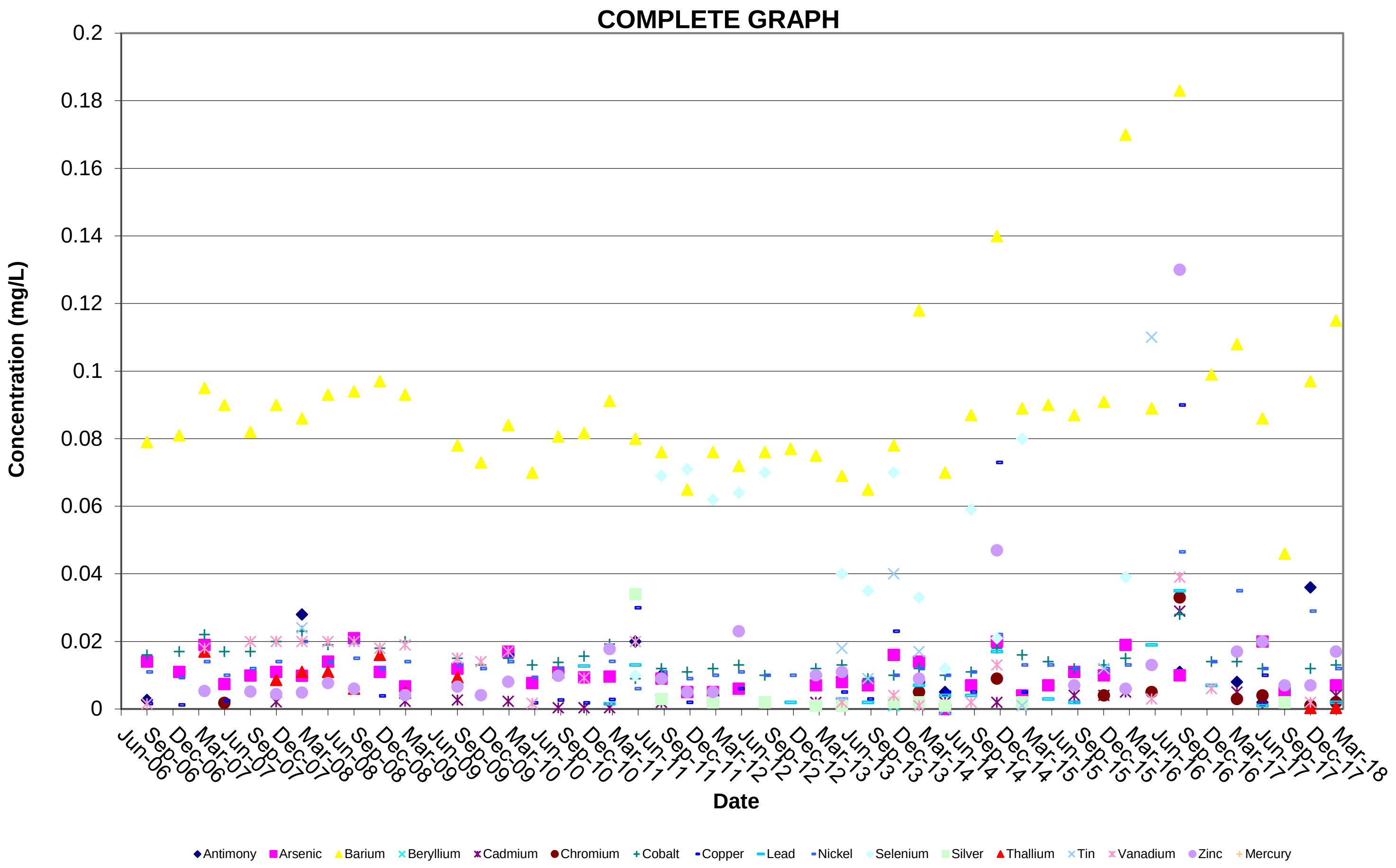


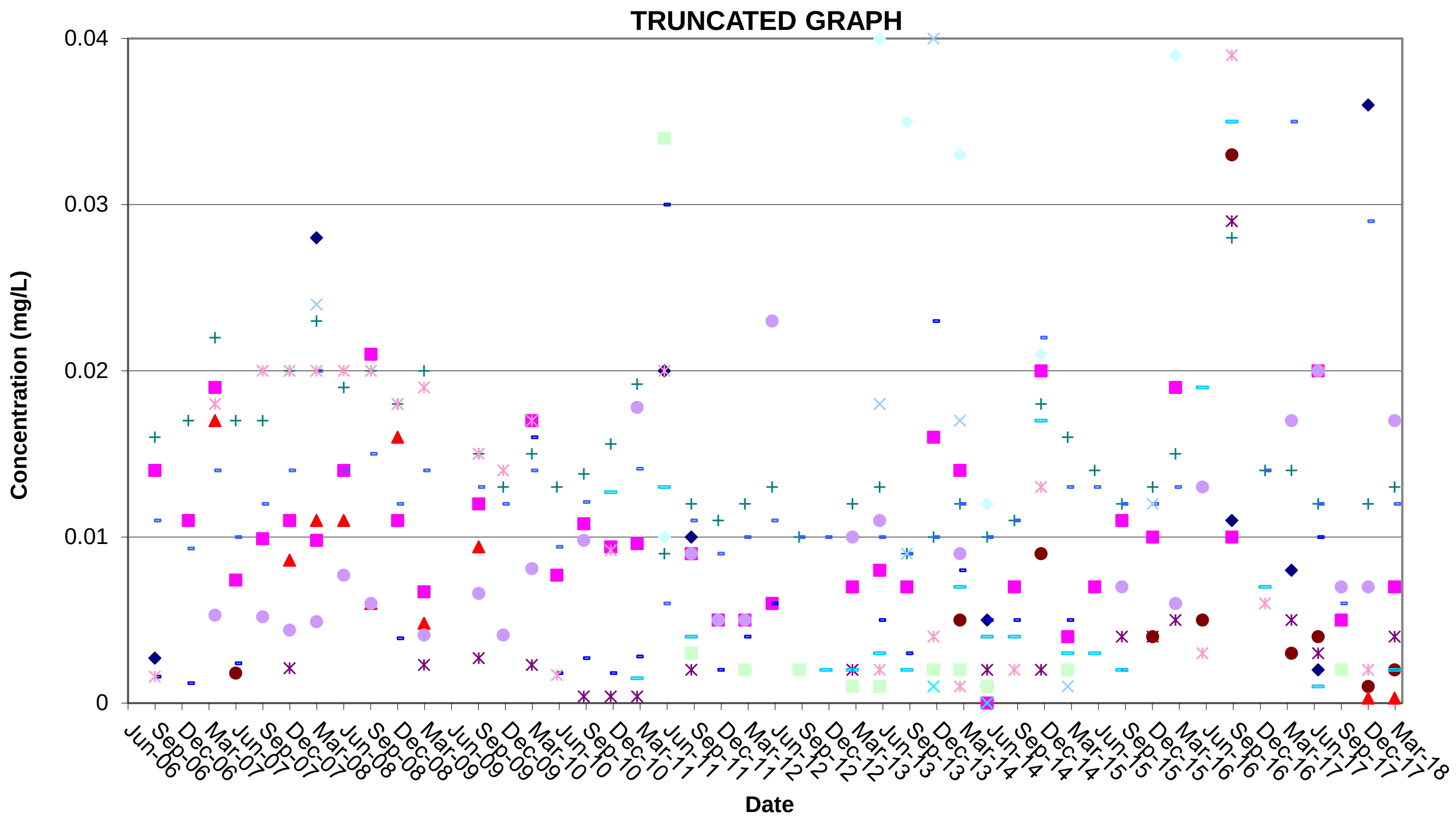
Detected Appendix A Metals in OW-12
Tiverton Landfill





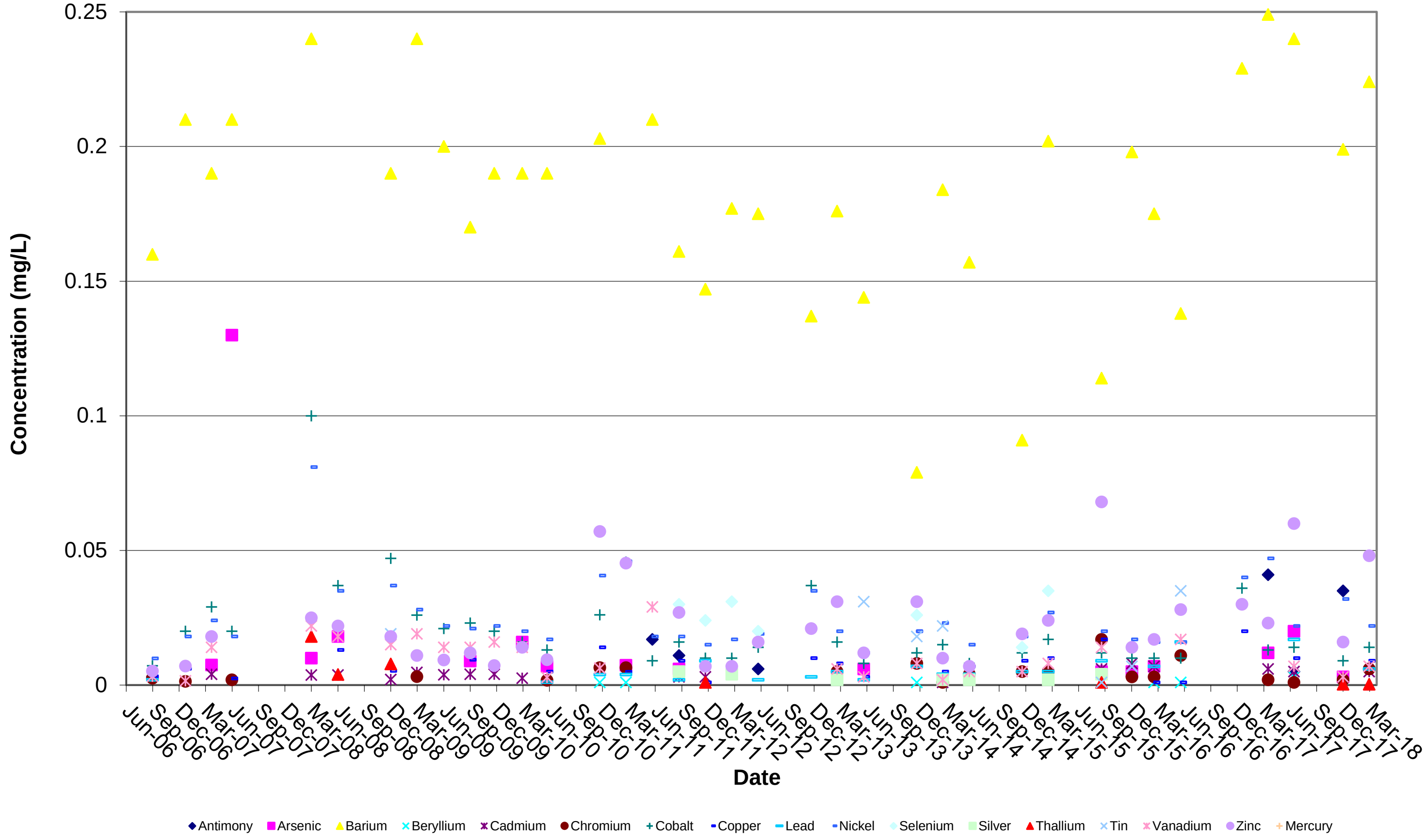
Detected Appendix A Metals in OW-13
Tiverton Landfill





Detected Appendix A Metals in OW-14
Tiverton Landfill

COMPLETE GRAPH



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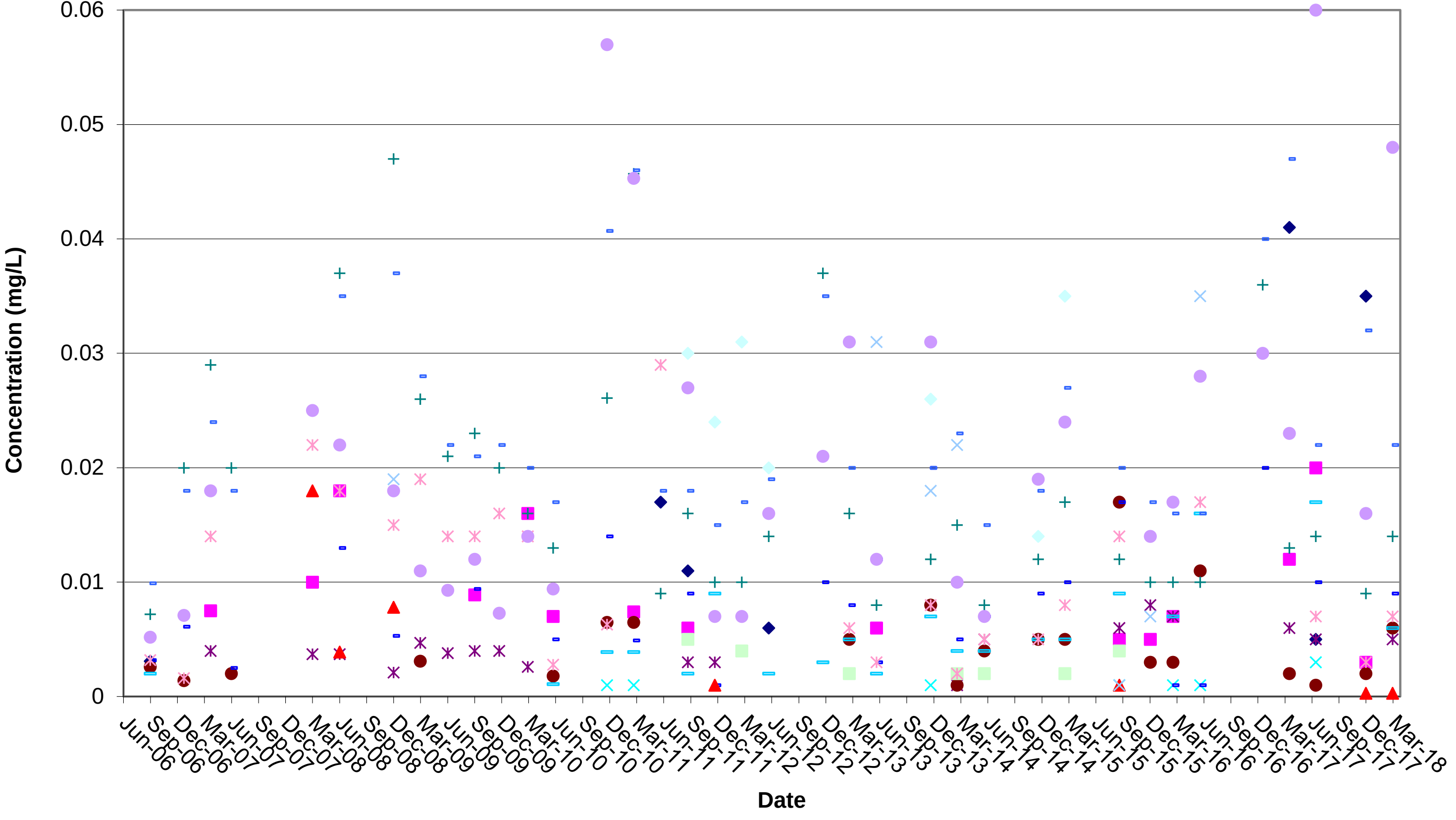
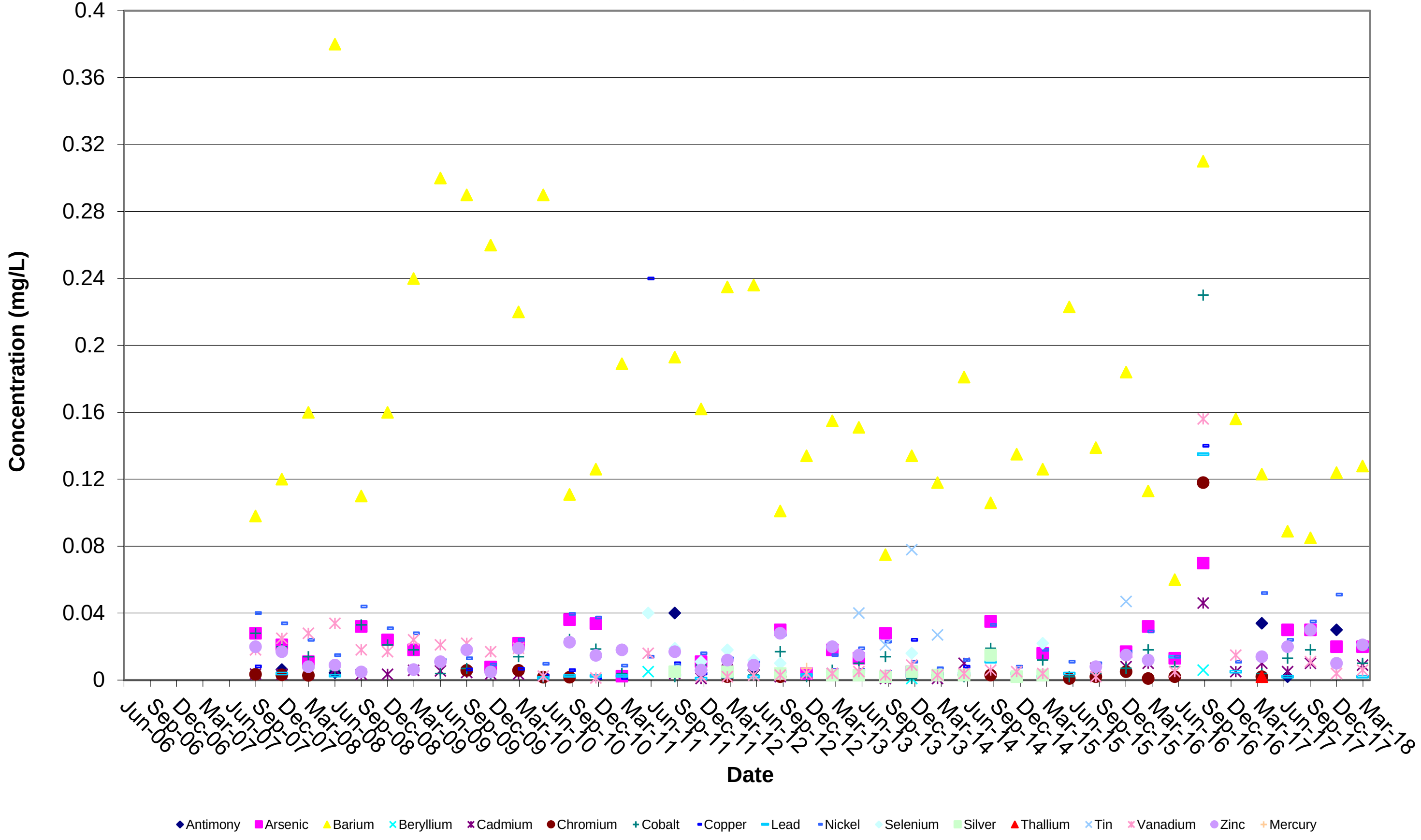


Detected Appendix A Metals in OW-15
Tiverton Landfill



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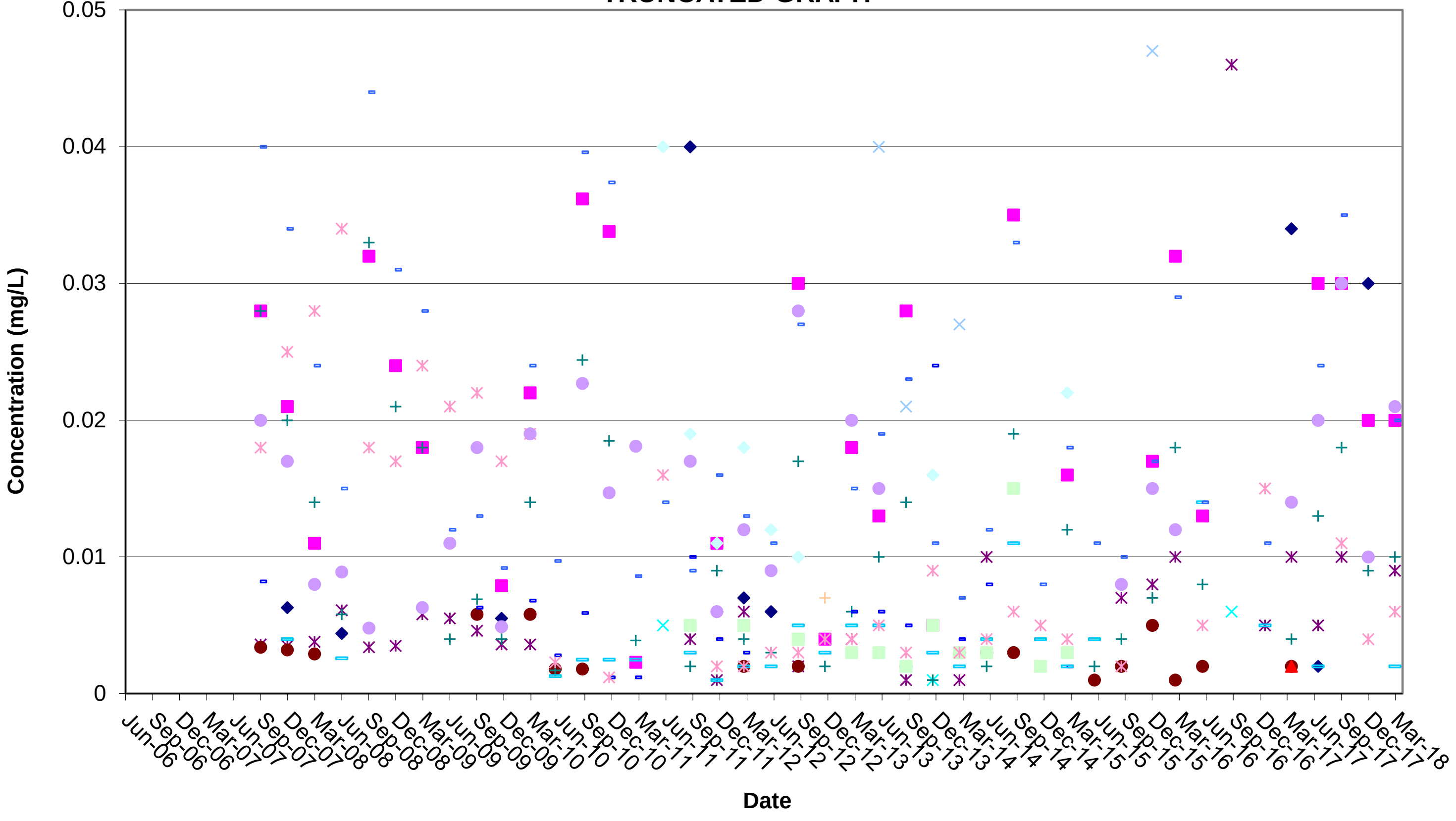
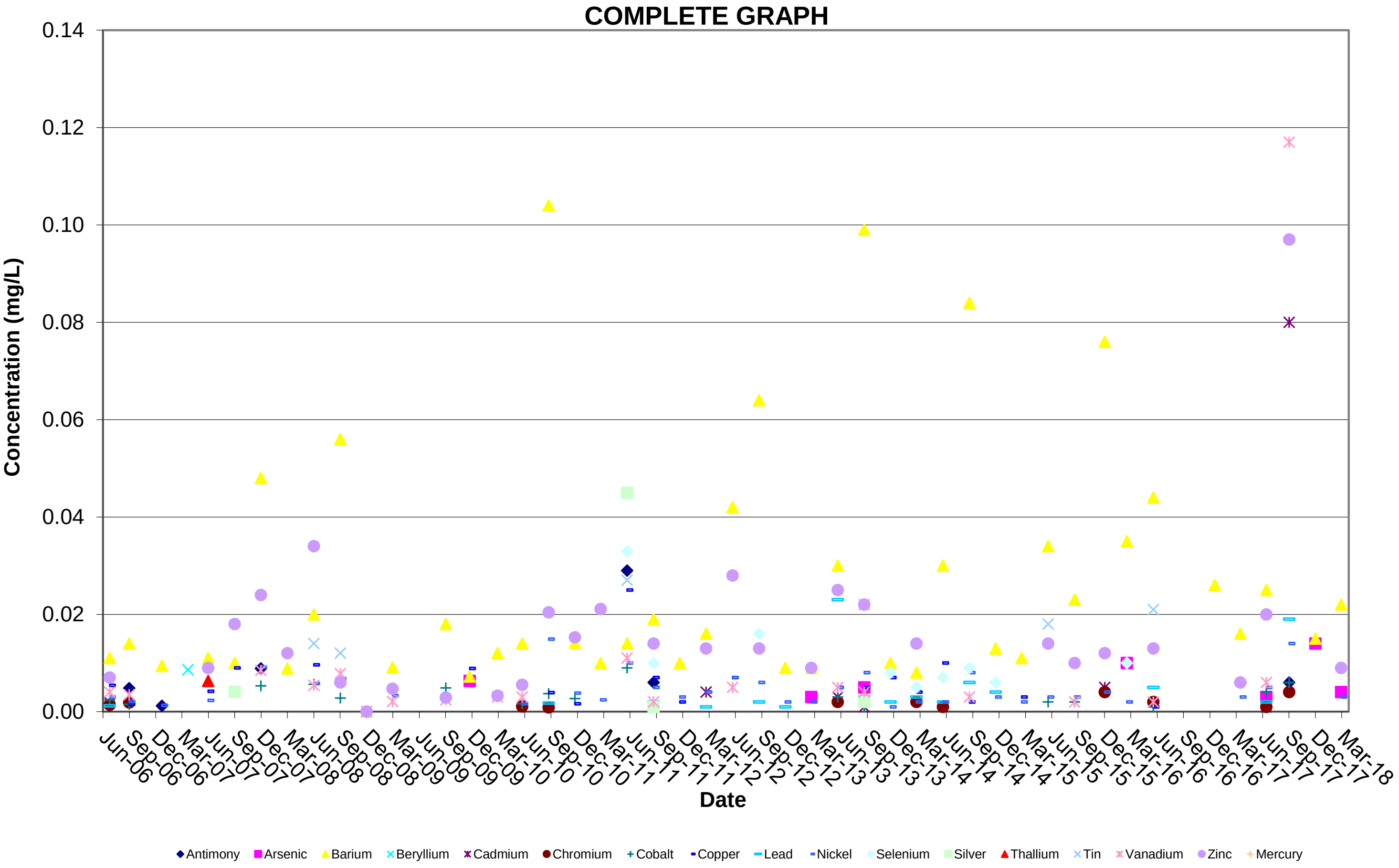
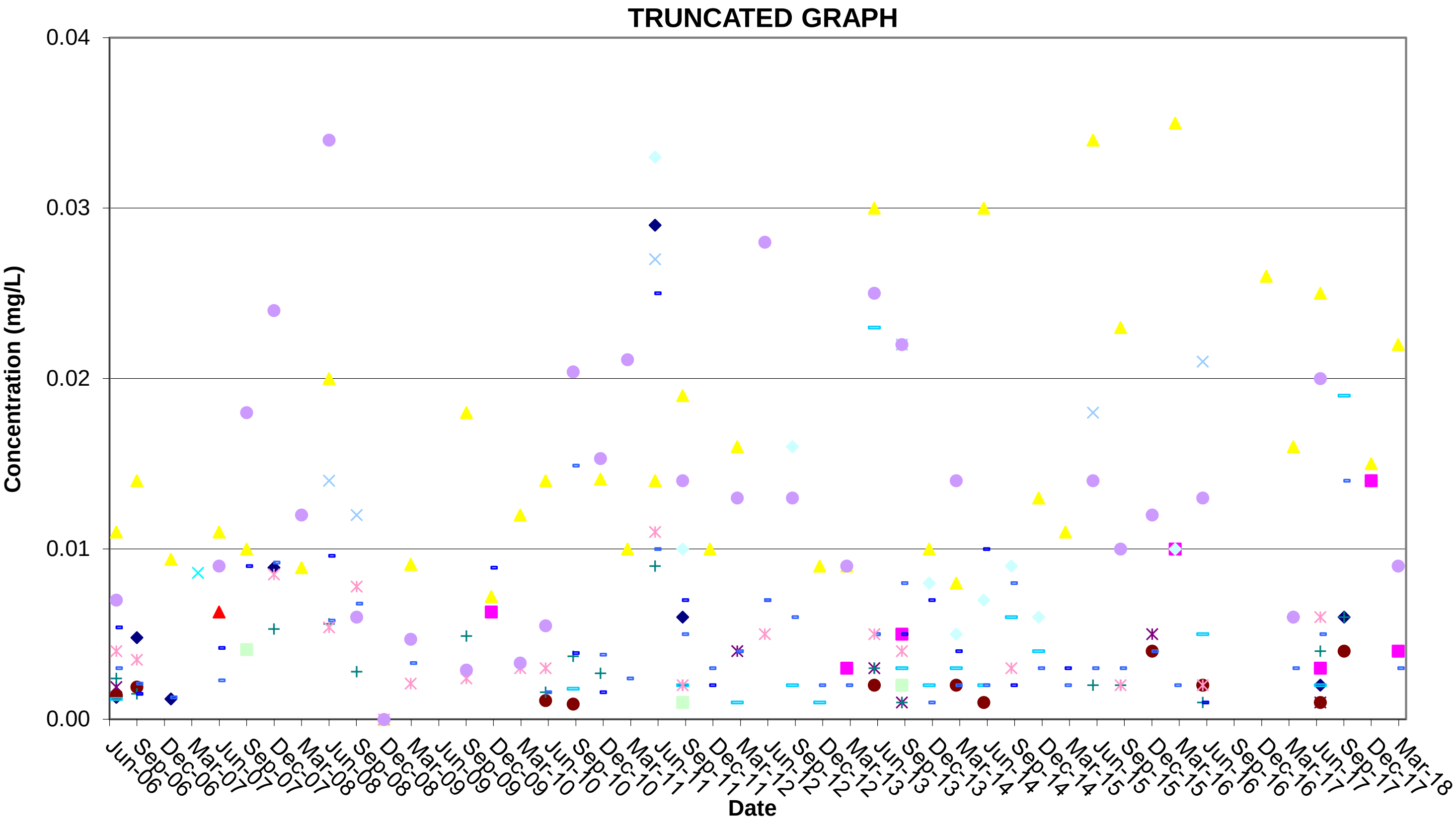


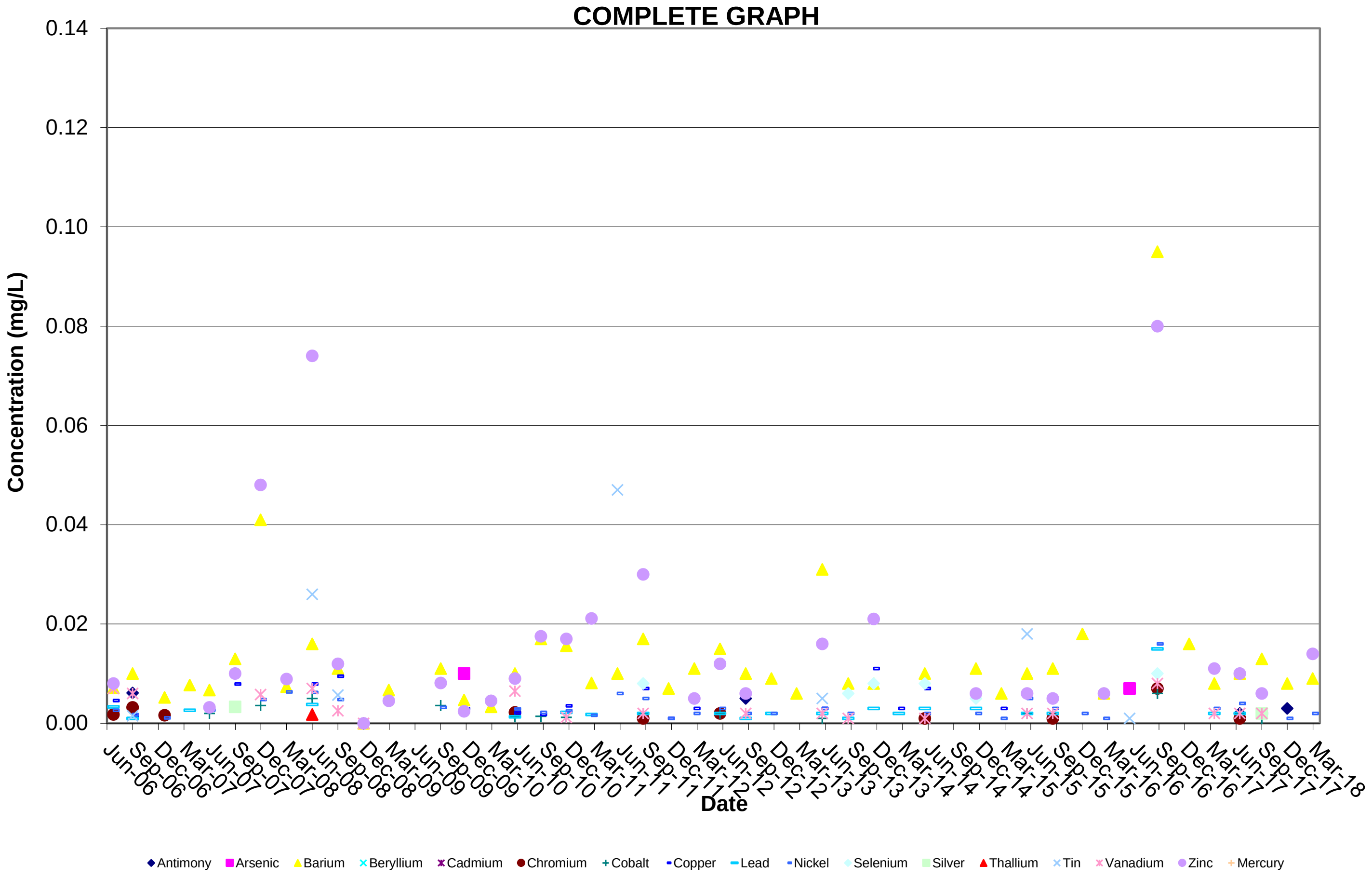
TRUNCATED GRAPH

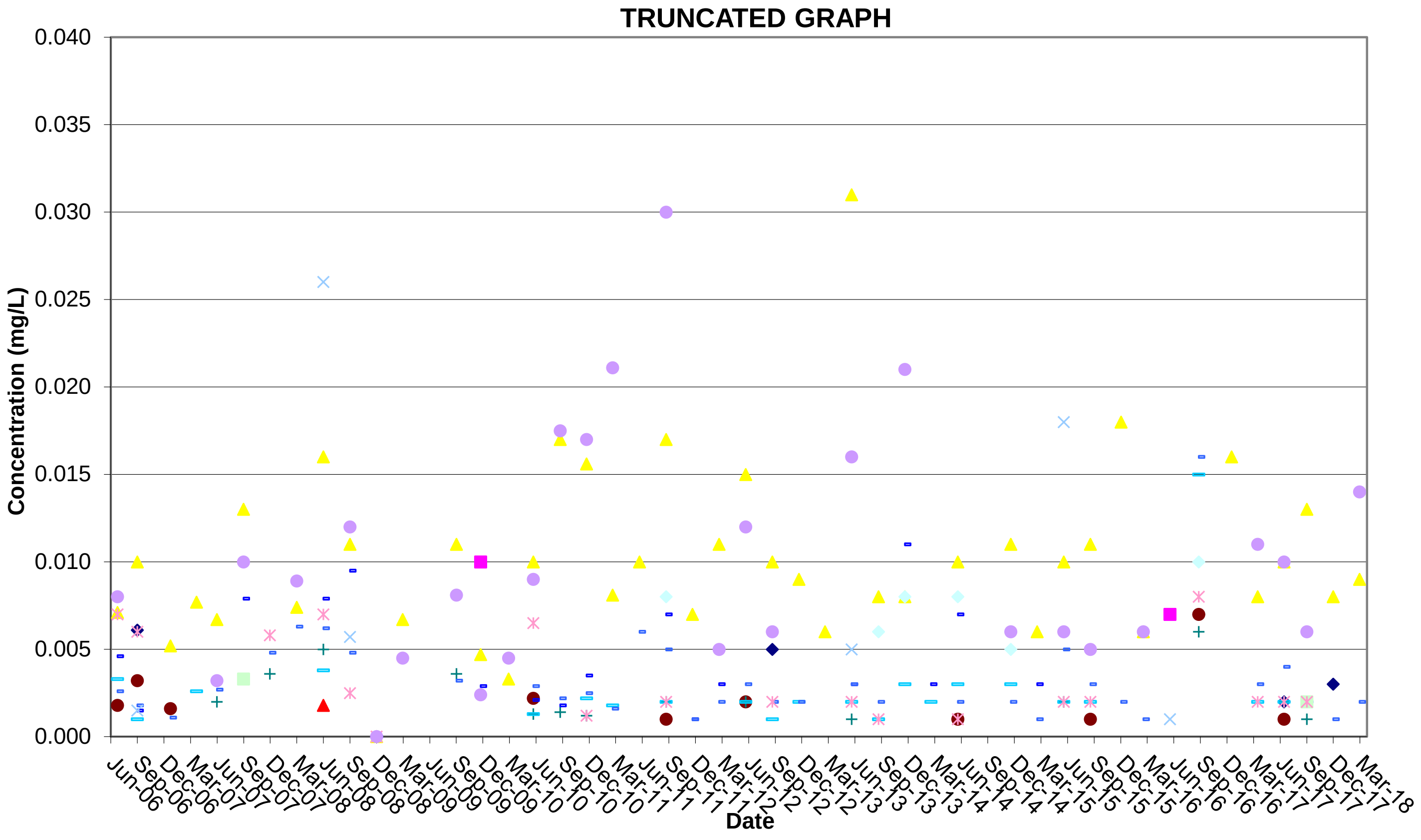
Detected Appendix A Metals at Surface Water Sampling Location SW-1
Tiverton Landfill



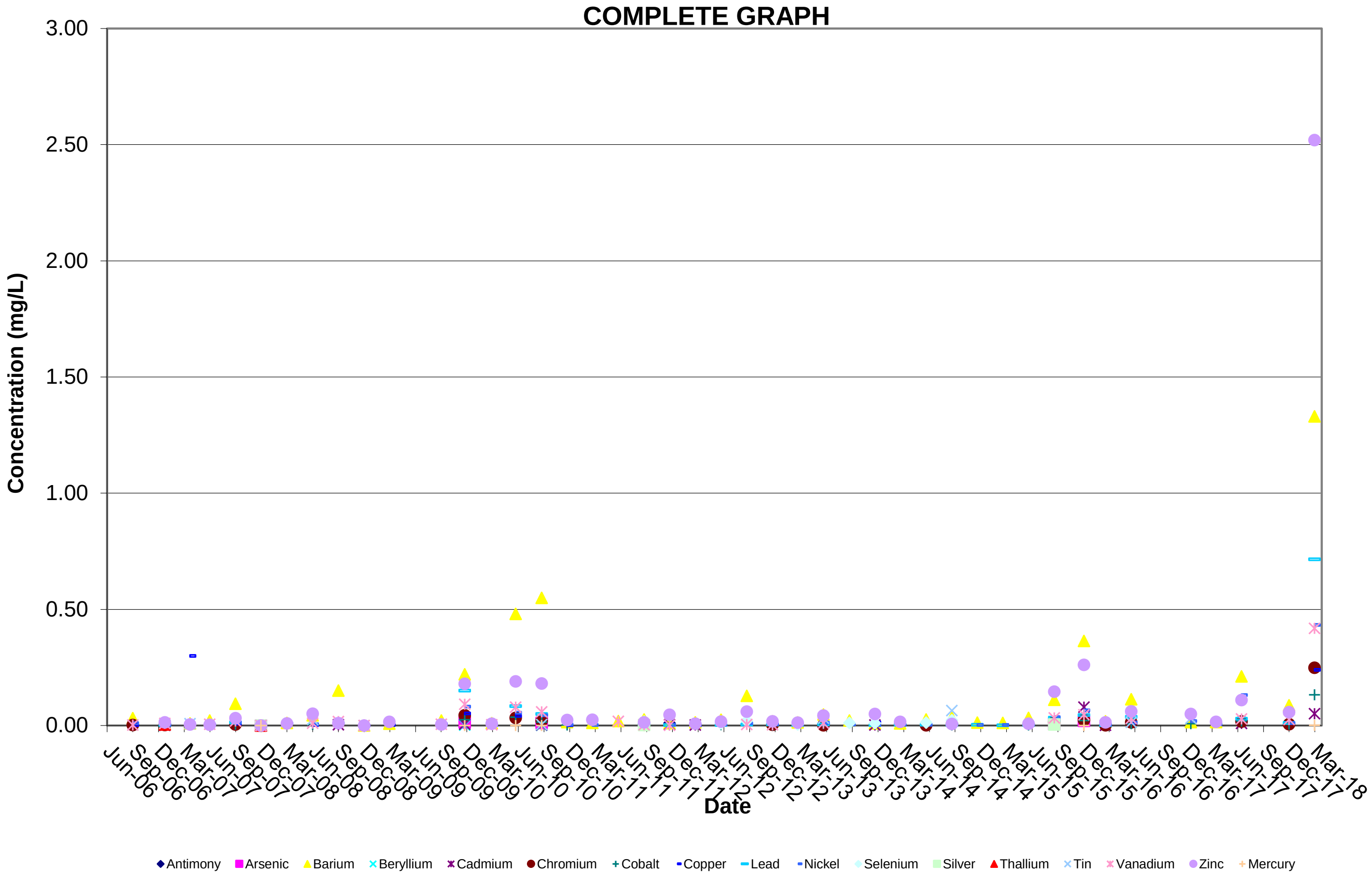


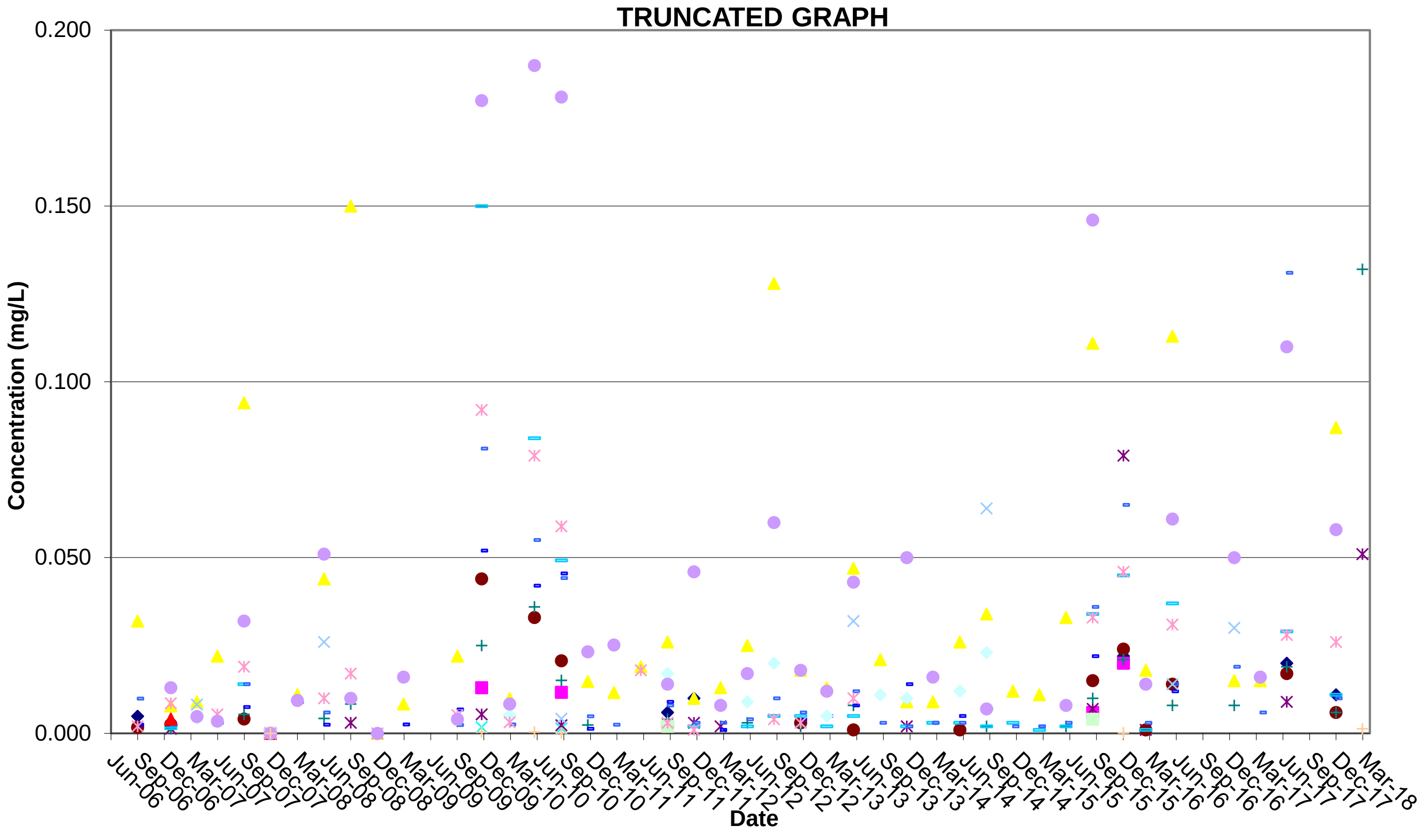
Detected Appendix A Metals at Surface Water Sampling Location SW-2
Tiverton Landfill





Detected Appendix A Metals at Surface Water Sampling Location SW-3
Tiverton Landfill


COMPLETE GRAPH


TRUNCATED GRAPH

ATTACHMENT NO. 4
TOLERANCE INTERVAL STATISTICAL EVALUATION

TABLE 3
SUMMARY OF GROUNDWATER MONITORING RESULTS - TOLERANCE INTERVAL COMPARISON
MAR 2018 - SAMPLE ROUND

Concentration (units as specified for Threshold Value)

		OW-9				Background Well		Compliance wells		
		Tolerance Limit *		Threshold						
	Parameter	TL=AVG+K*S		Value		OW-9	OW-12	OW-13	OW-14	OW-15
METALS	Antimony	0.0290	mg/L	0.006	mg/L[1]	ND	ND	ND	ND	ND
	Arsenic	0.0030	mg/L	0.010	mg/L[1]	ND	ND	0.0070	ND	0.0200
	Barium	0.0645	mg/L	2	mg/L[1]	0.0130	0.0170	0.1150	0.2240	0.1280
	Beryllium	0.0005	mg/L	0.004	mg/L[1]	ND	ND	ND	ND	ND
	Cadmium	0.3650	mg/L	0.005	mg/L[1]	0.0020	ND	0.0040	0.0050	0.0090
	Chromium	0.0453	mg/L	0.1	mg/L[1]	0.0070	ND	0.0020	0.0060	ND
	Cobalt	0.0100	mg/L	0.73	mg/L[5]	0.0010	ND	0.0130	0.0140	0.0100
	Copper	0.0600	mg/L	1.3	mg/L[1]	ND	ND	ND	0.0090	ND
	Lead	0.2245	mg/L	0.015	mg/L[1]	0.0020	ND	0.0020	0.0060	0.0020
	Mercury	0.0001	mg/L	0.002	mg/L[1]	ND	ND	ND	ND	ND
	Nickel	0.0369	mg/L	0.1	mg/L[2]	0.0040	0.0200	0.0120	0.0220	0.0200
	Selenium	0.0100	mg/L	0.05	mg/L[1]	ND	ND	ND	ND	ND
	Silver	0.0005	mg/L	0.1	mg/L[2,3]	ND	ND	ND	ND	ND
	Thallium	0.0005	mg/L	0.002	mg/L[1]	ND	ND	0.0003	0.0003	ND
	Tin	0.0025	mg/L	22	mg/L[5]	ND	ND	ND	ND	ND
	Vanadium	0.0140	mg/L	0.26	mg/L[5]	0.0020	ND	ND	0.0070	0.0060
	Zinc	13.7193	mg/L	2 - 5	mg/L[2,3]	0.0190	0.0700	0.0170	0.0480	0.0210
VOC'S	Acetone			610	µg/L[5]					
	Acrylonitrile			0.039	µg/L[5]					
	Benzene			5	µg/L[1]					
	Bromochloromethane			80	µg/L[2]					
	Bromodichloromethane (THM)			90	µg/L[1]					
	Bromoform			80	µg/L[1]					
	Carbon disulfide			1000	µg/L[5]					
	Carbon tetrachloride			5	µg/L[1]					
	Chlorobenzene			100	µg/L[1]					
	Chloroethane			4.6	µg/L[5]					
	Chloroform			80	µg/L[1]					
	Chlorodibromomethane (THM)			80	µg/L[1]					
	1,2-Dibromo-3-chloropropane (DBCP)			0.2	µg/L[1]					
	1,2-Dibromoethane (EDB)			0.05	µg/L[1]					
	1,2-Dichlorobenzene			600	µg/L[1]					
	1,4-Dichlorobenzene			75	µg/L[1]					
	trans-1,4-Dichloro-2-butene				µg/L					
	1,1 -Dichloroethane			5	µg/L					
	1,2-Dichloroethane			5	µg/L[1]					
	1,1-Dichloroethylene			7	µg/L[1]					
	cis-1,2-Dichloroethene			70	µg/L[1]					
	trans-1,2-Dichloroethene			100	µg/L[1]					
	1,2-Dichloropropane			5	µg/L[1]					
	cis-1,3-Dichloropropene				µg/L					
	trans-1,3-Dichloropropene				µg/L					
	Ethylbenzene			700	µg/L[1]					
	Methyl butyl ketone(2-Hexanone)			160	µg/L[5]					
	Bromomethane			10	µg/L[2]					
	Chloromethane			30	µg/L[2]					
	Dibromomethane			61	µg/L[5]					
	Methylene chloride			5	µg/L[1]					
	Methyl ethyl ketone(2-Butanone)			4000	µg/L[2]					
	Methyl iodide				µg/L					
	4-Methyl-2-pentanone				µg/L					
	Styrene			100	µg/L[1]					
	1,1,1,2-Tetrachloroethane			70	µg/L[2]					
	1,1,2,2-Tetrachloroethane			0.3	µg/L[2]					
	Tetrachloroethylene(PCE)			5	µg/L[1]					
	Toluene			1000	µg/L[1]					
	1,1,1-Trichloroethane			200	µg/L[1]					
	1,1,2-Trichloroethane			5	µg/L[1]					
	Trichloroethylene(TCE)			5	µg/L[1]					
	Trichloroflouromethane			2000	µg/L[2]					
	1,2,3-Trichloropropane			40	µg/L[2]					
	Vinyl acetate			410	µg/L[5]					
	Vinyl chloride			2	µg/L[1]					
	Xylenes			10000	µg/L[1]					
	Methyl tert-butyl ether (MTBE)			20 - 40	µg/L[4]					

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
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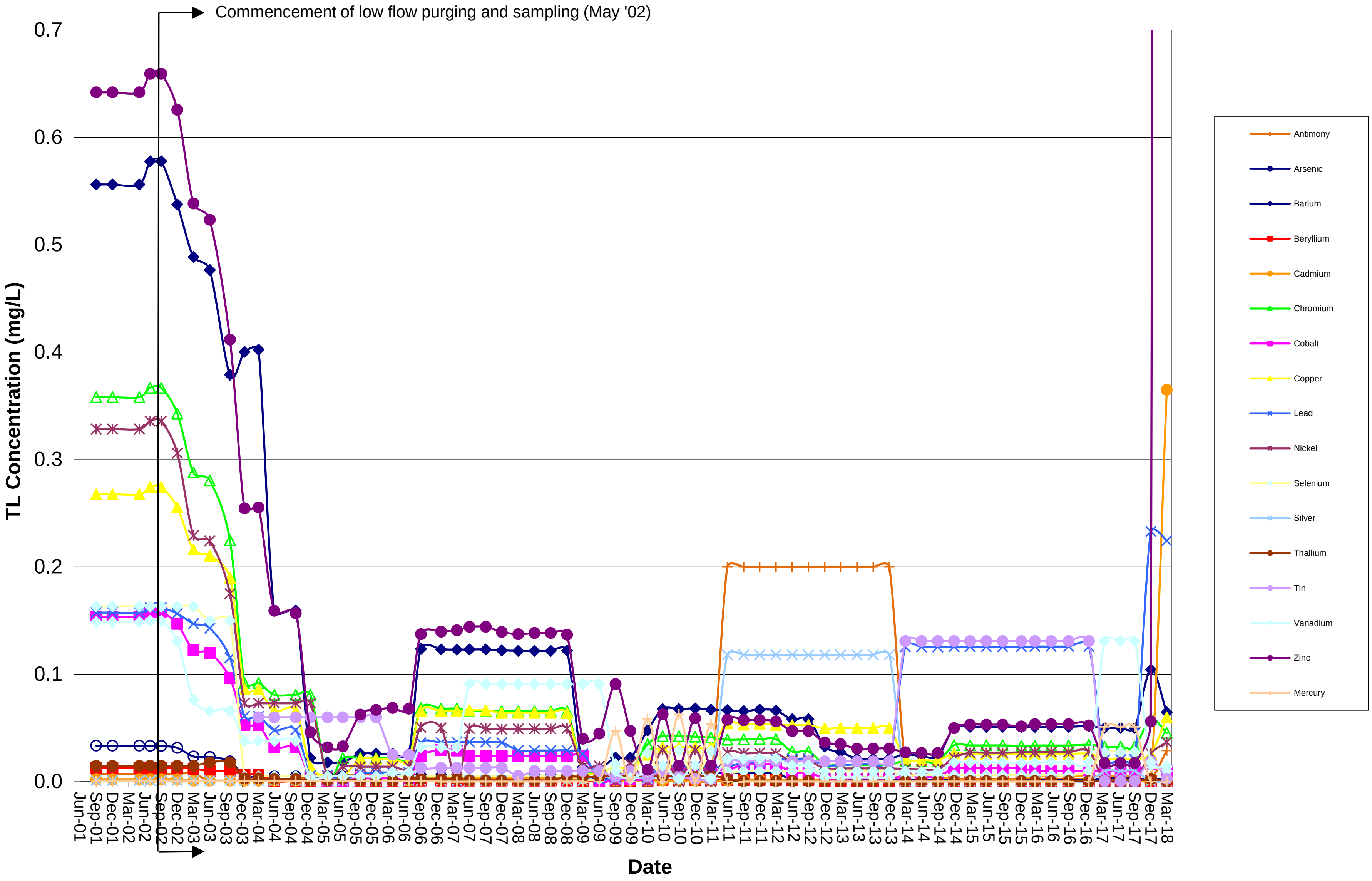
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

"▨" =	Exceedance of TL
ND =	Not Detected

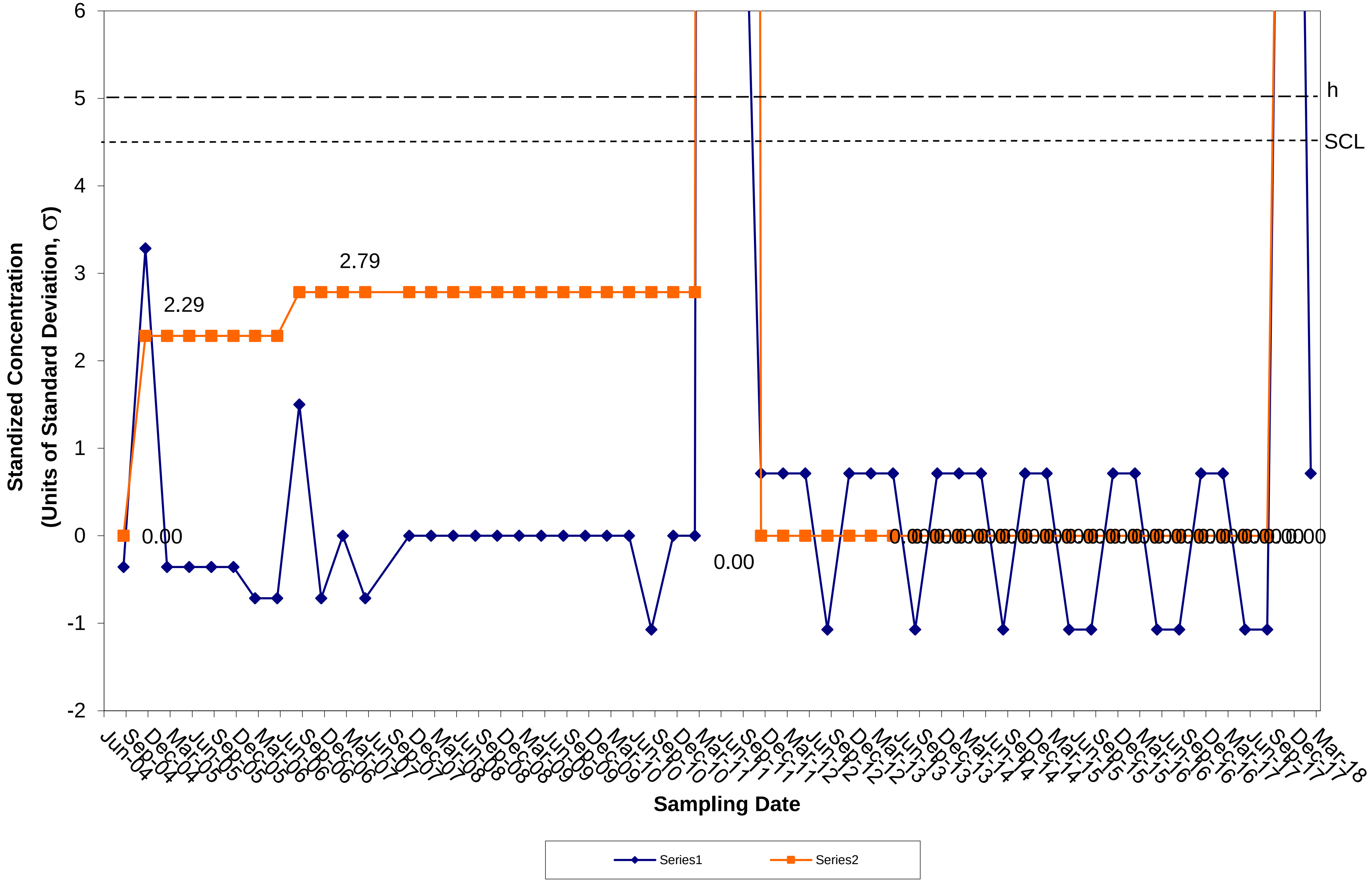
* Tolerance Limit (TL) constructed from background (upgradient) well data from OW-9.

Historical Tolerance Limit Concentrations from Background Well
Tiverton Landfill Compliance Sampling

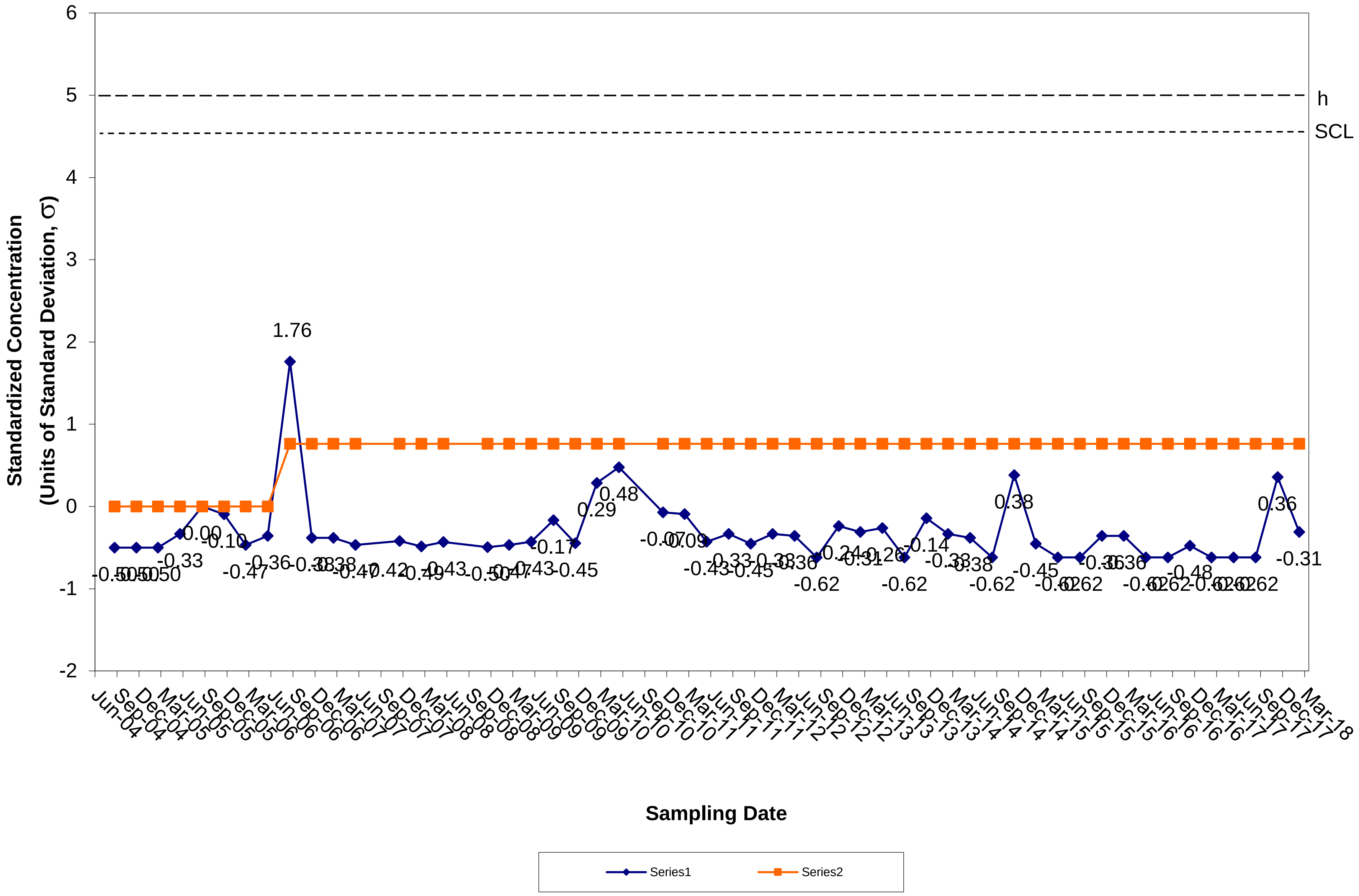


ATTACHMENT NO. 5
CUSUM METHOD STATISTICAL EVALUATION

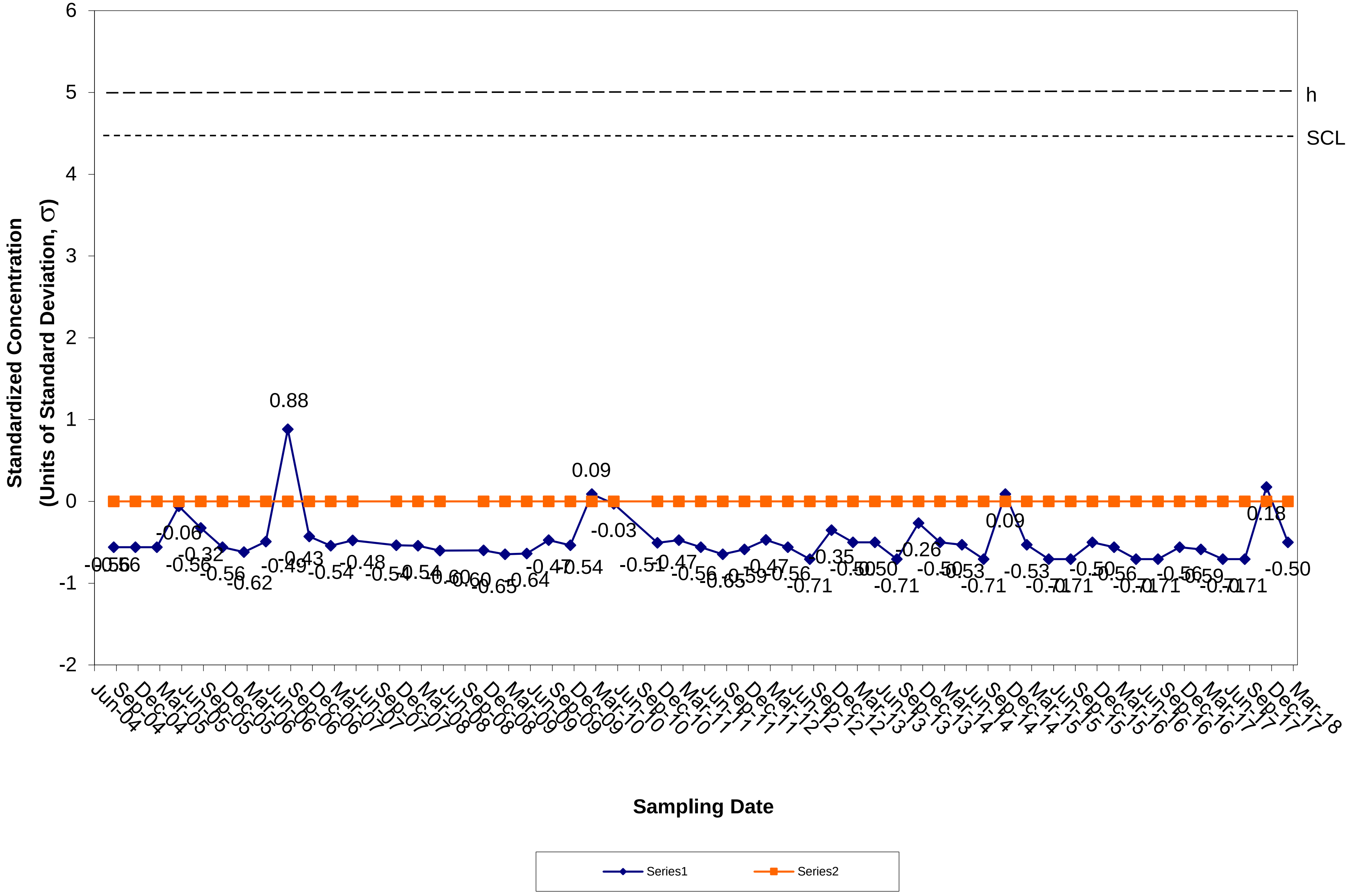
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Complaince Well OW-9



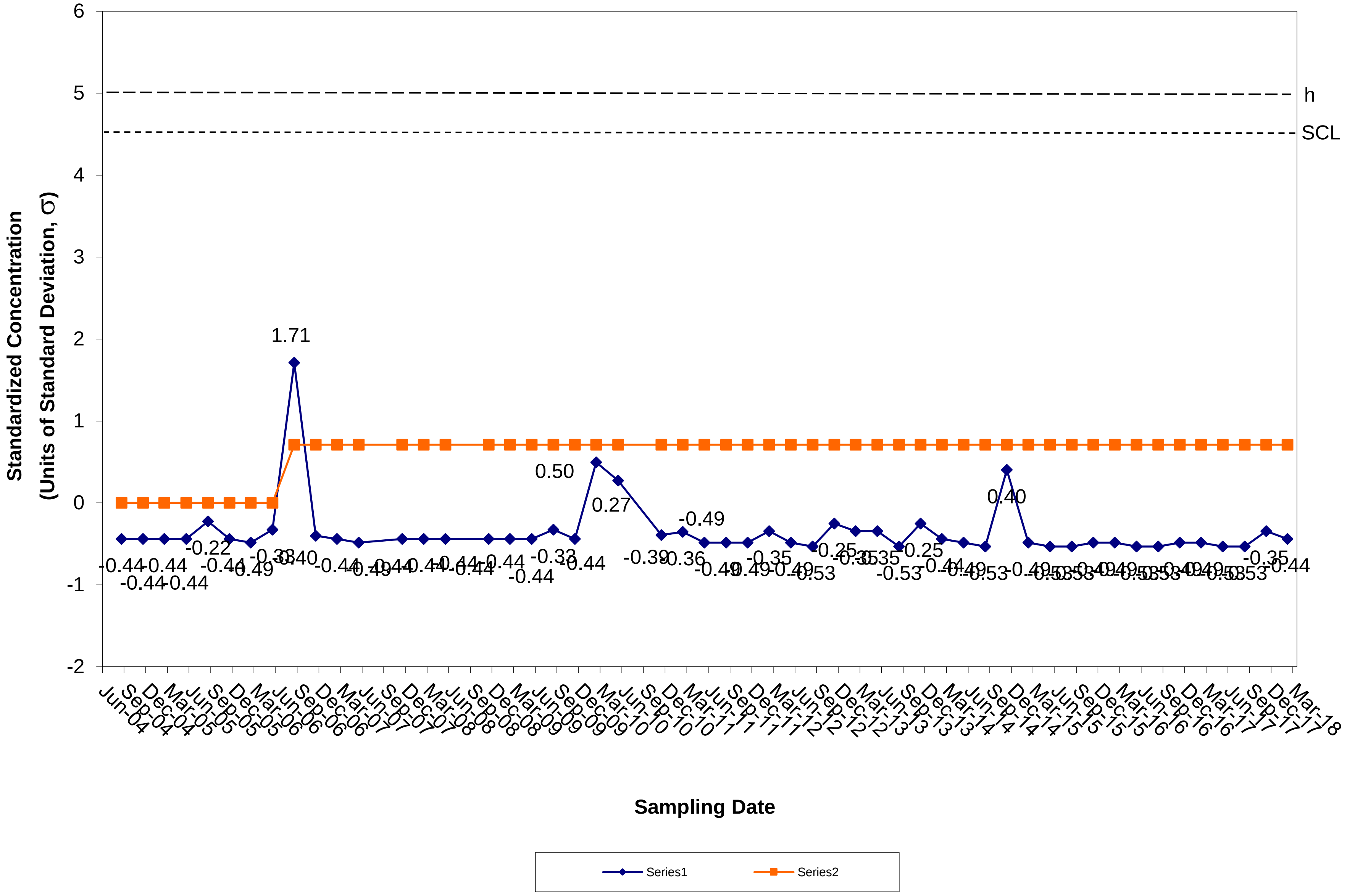
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Background Well OW-9



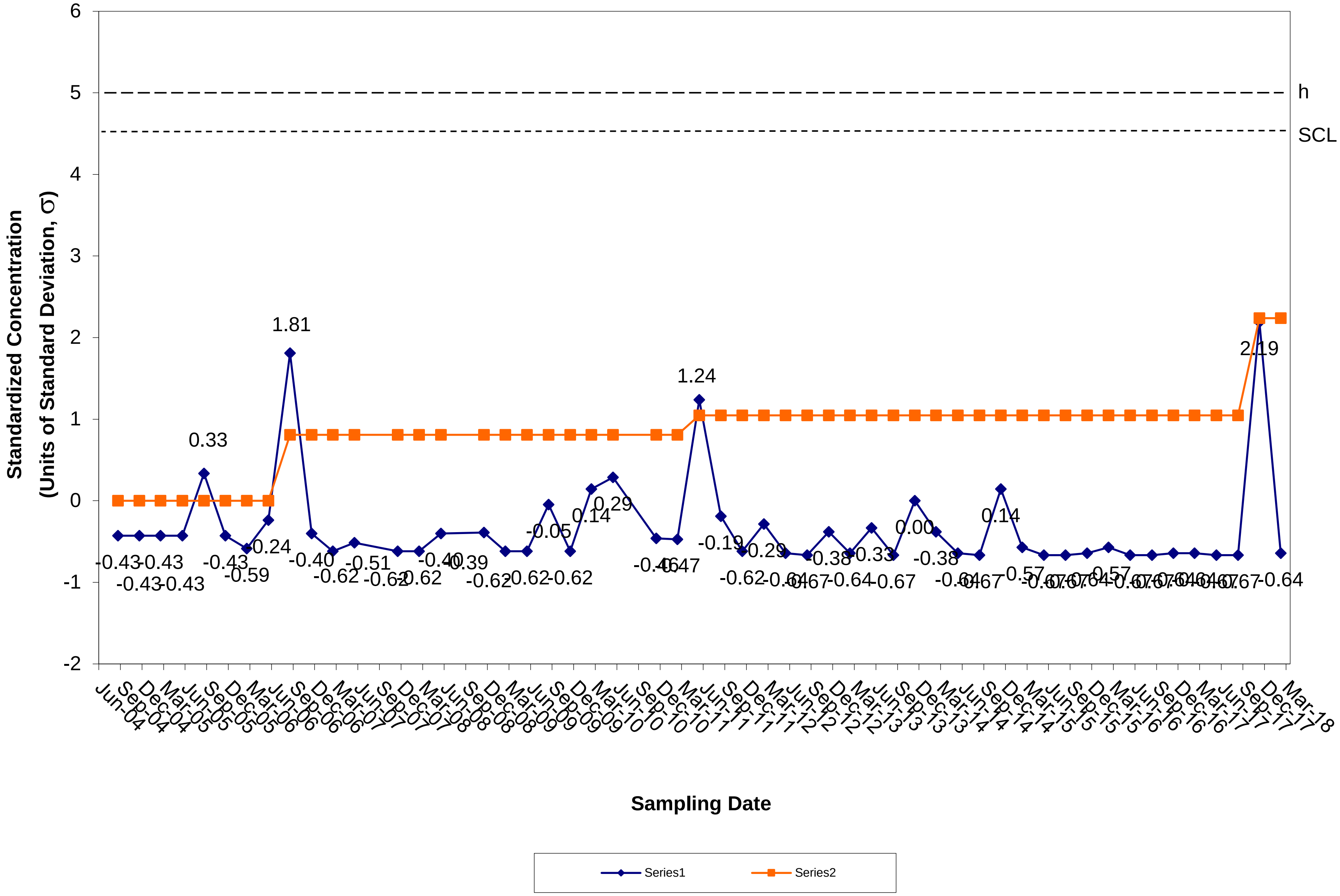
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Background Well OW-9

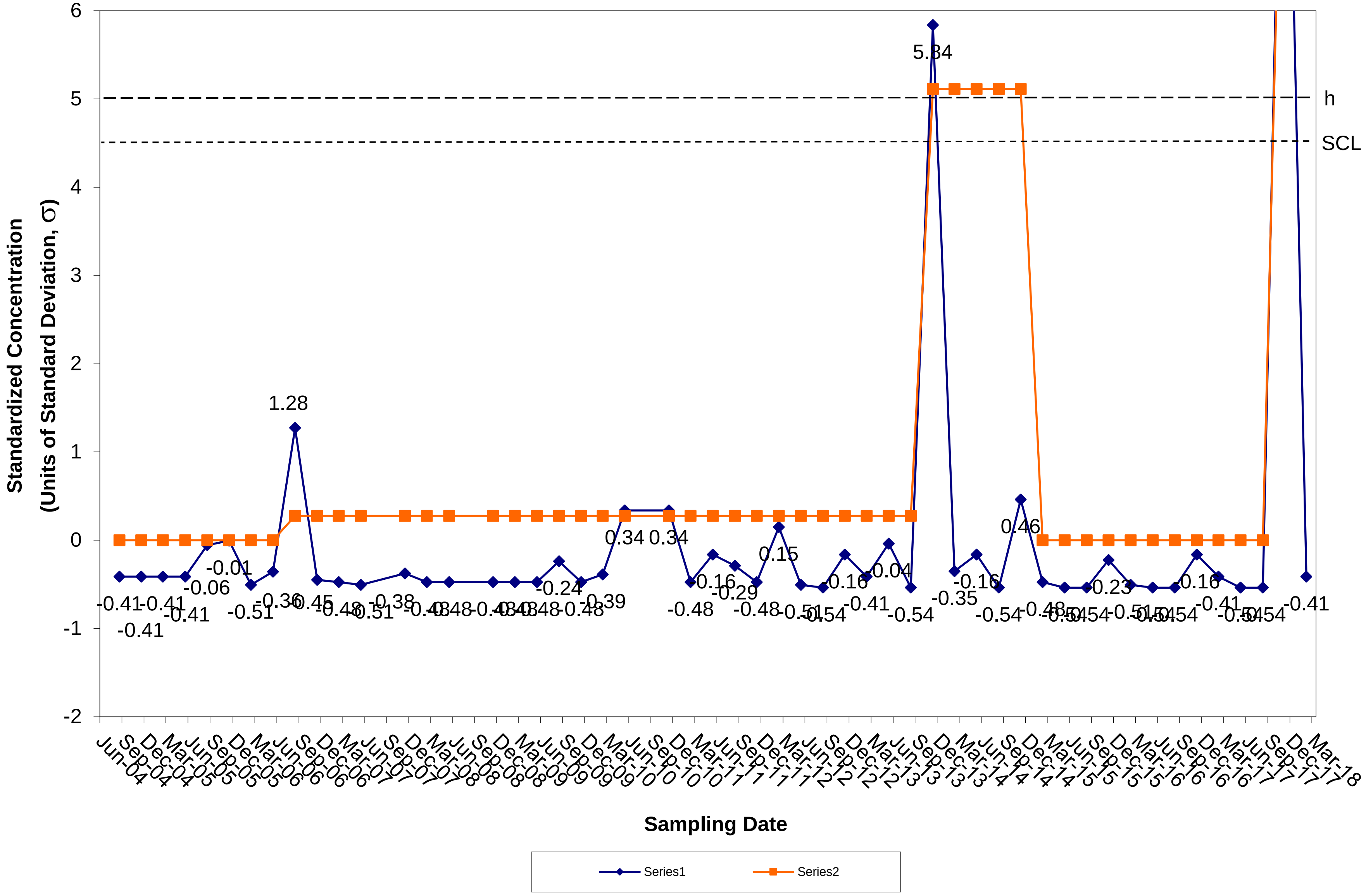


CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Background Well OW-9



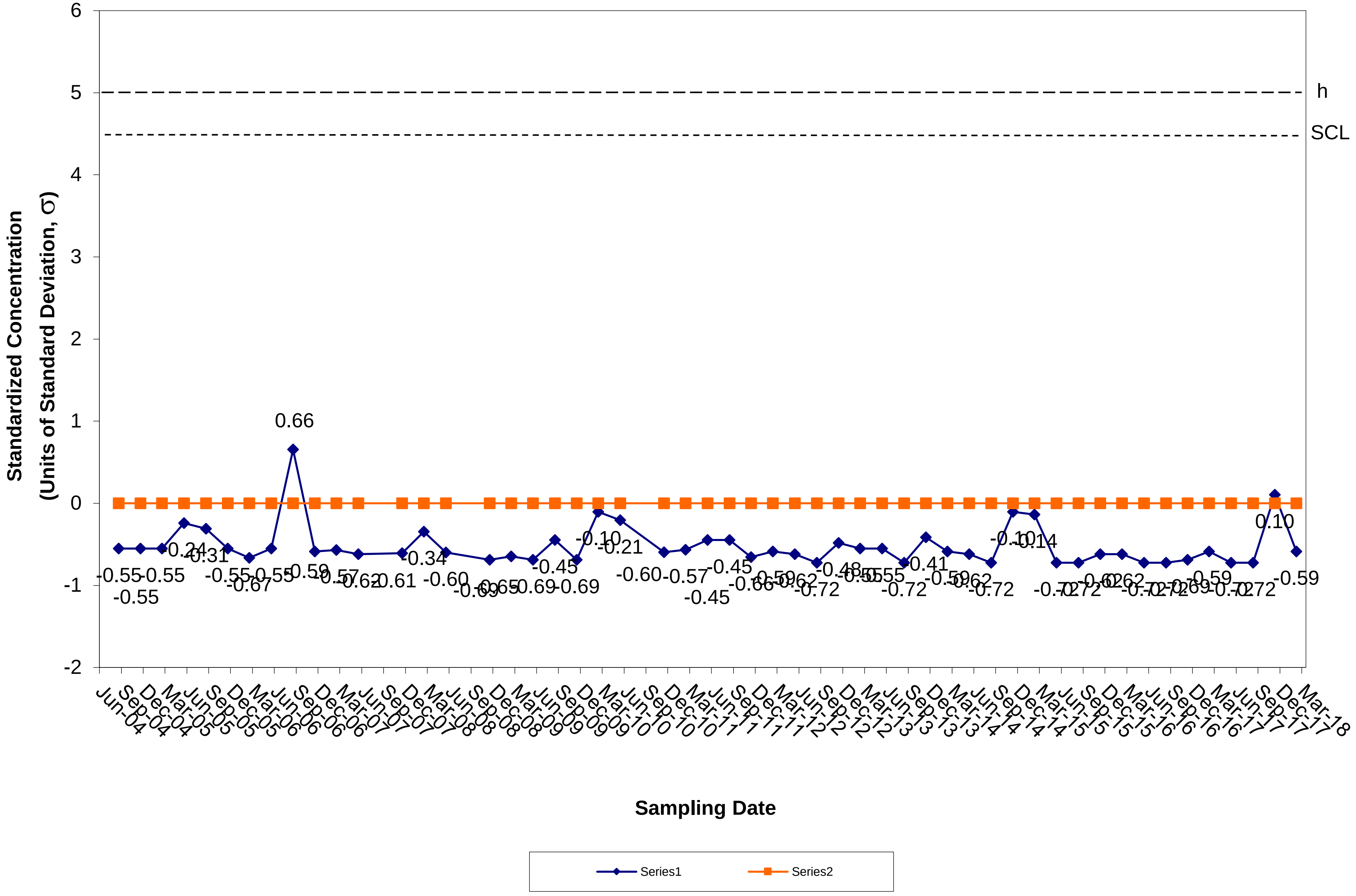
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Background Well OW-9



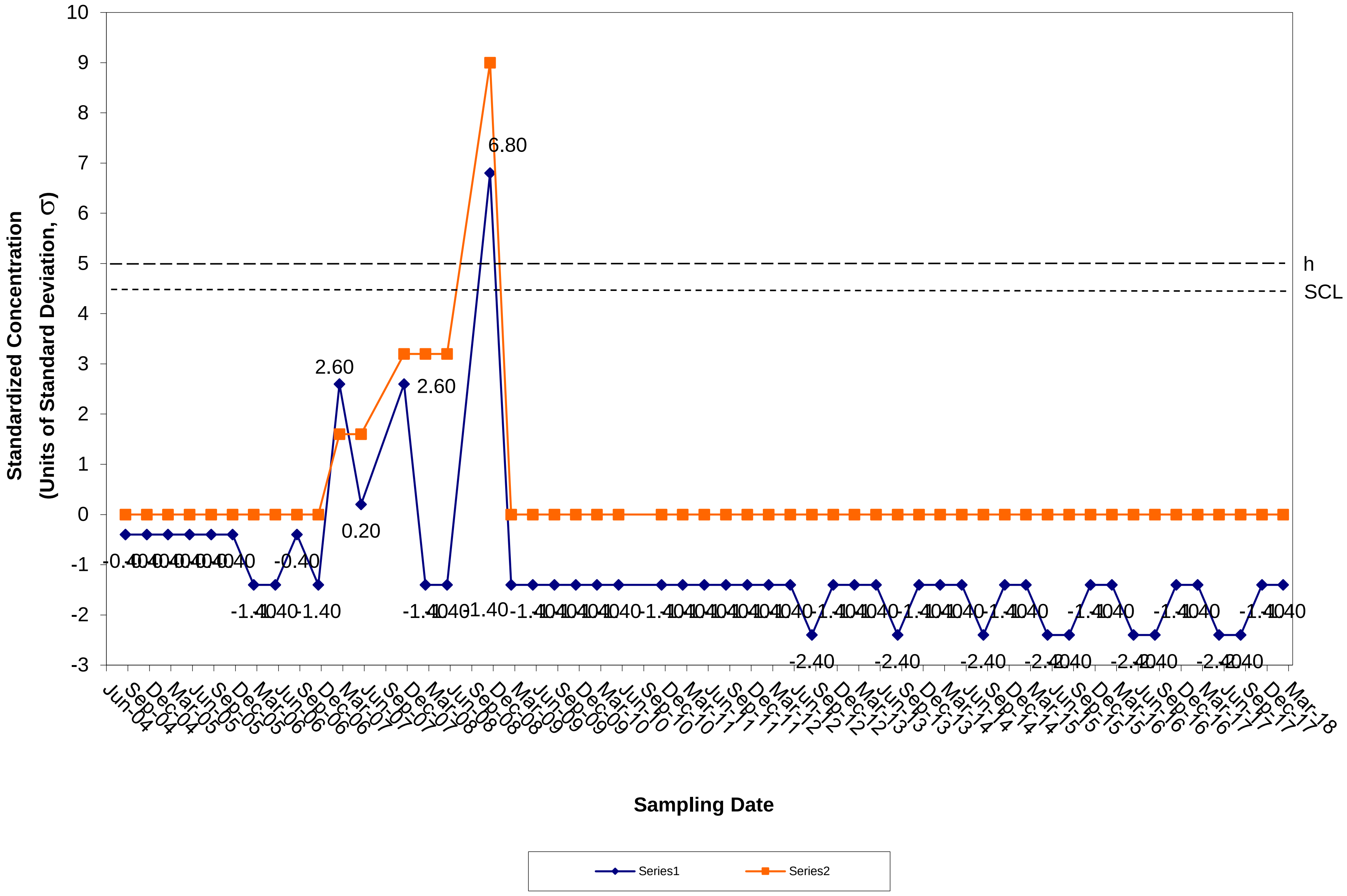


CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Background Well OW-9

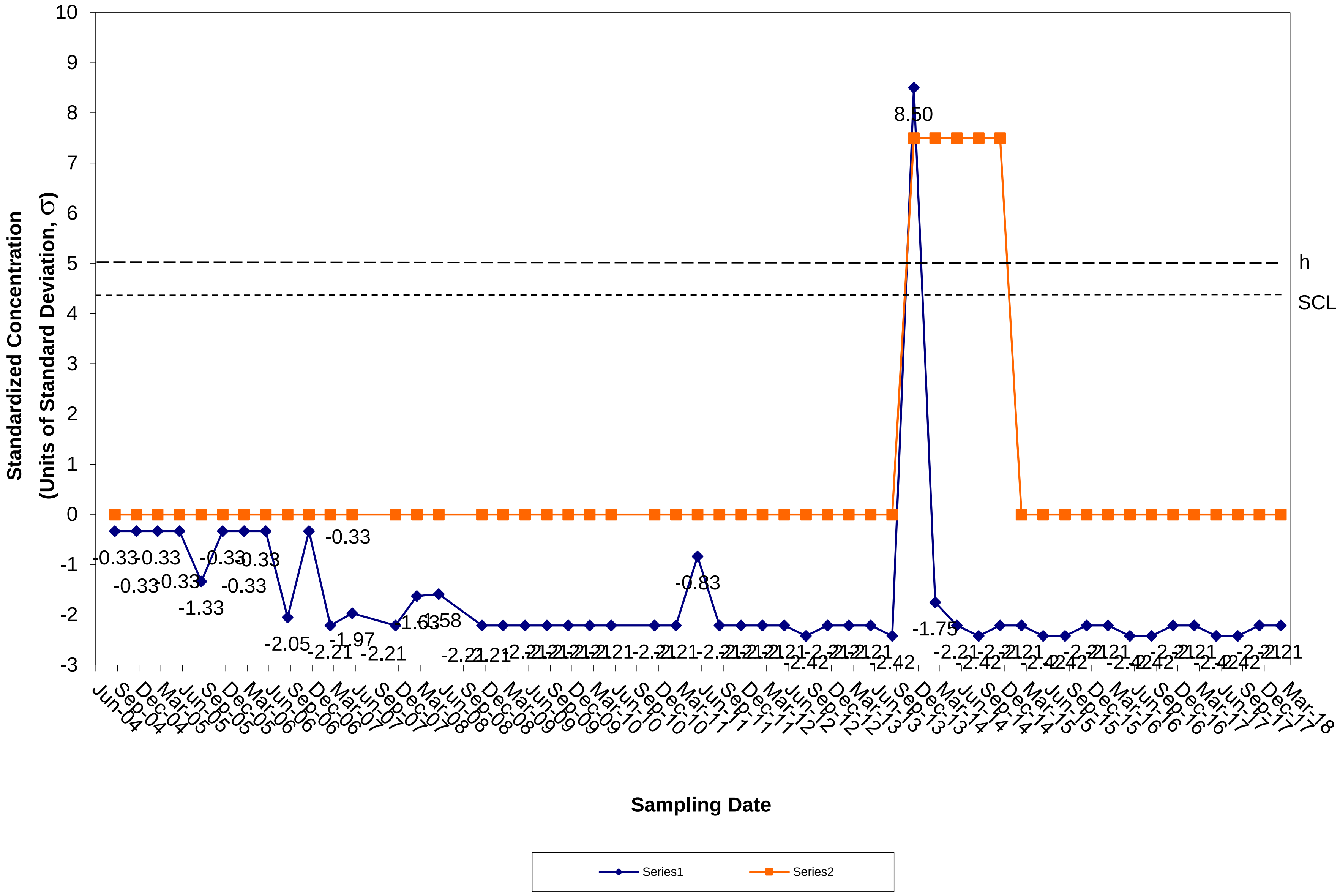
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Background Well OW-9

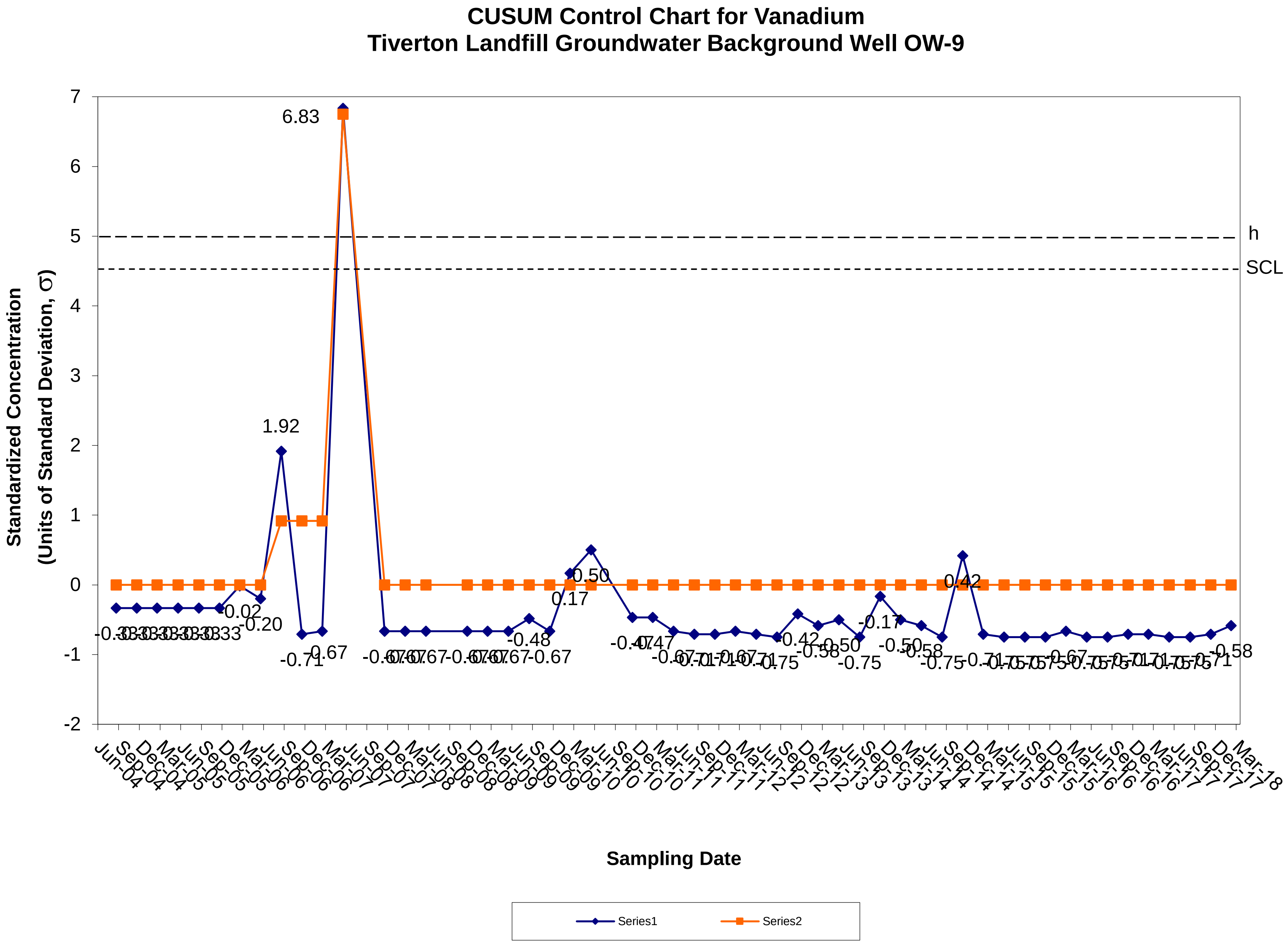


CUSUM Control Chart for Thallium
Tiverton Landfill Groundwater Background Well OW-9



CUSUM Control Chart for Tin
Tiverton Landfill Groundwater Background Well OW-9




CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Background Well OW-9
Standardized Concentration
(Units of Standard Deviation, σ)
7
6
5
4
3
2
1
0
-1
-2
h
SCL
6.83
1.92
-0.02
-0.20
-0.33
-0.71
-0.67
-0.48
0.17
0.50
0.42
-0.42
-0.58
-0.50
-0.75
-0.17
-0.47
-0.58
Sampling Date
Jun-04
Sep-04
Dec-04
Mar-05
Jun-05
Sep-05
Dec-05
Mar-06
Jun-06
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
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Dec-11
Mar-12
Jun-12
Sep-12
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Mar-13
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Mar-15
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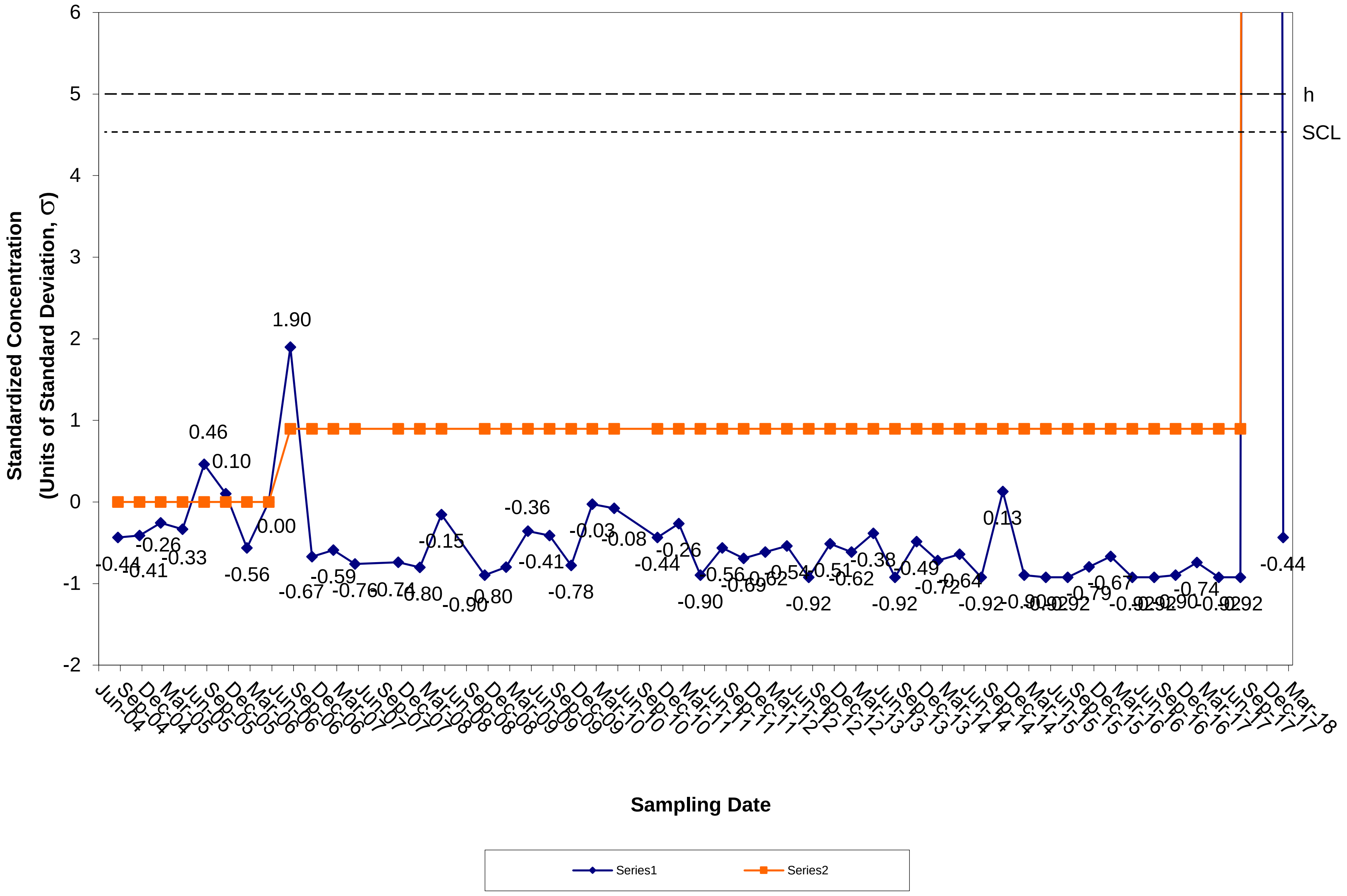
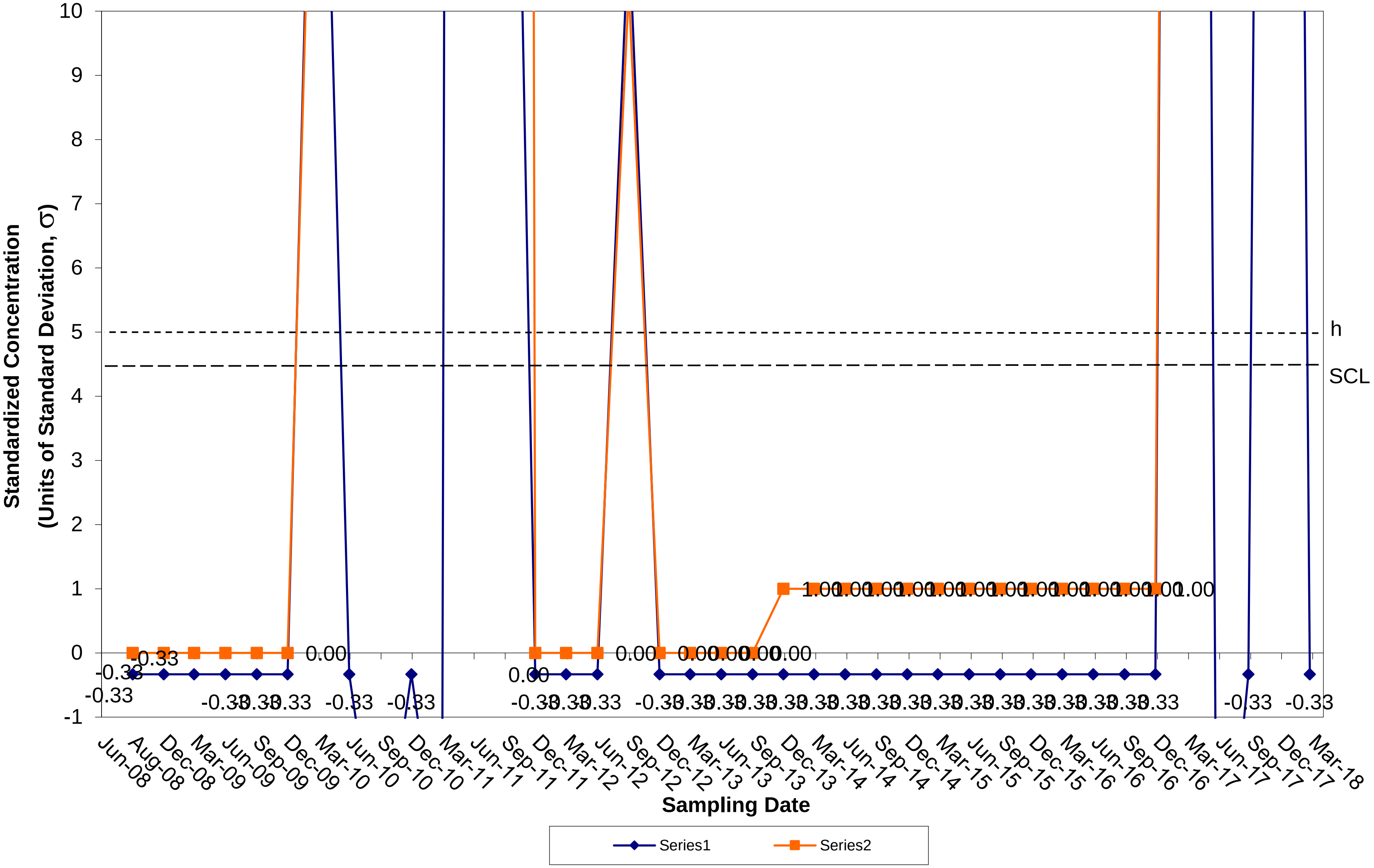
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Series1
Series2

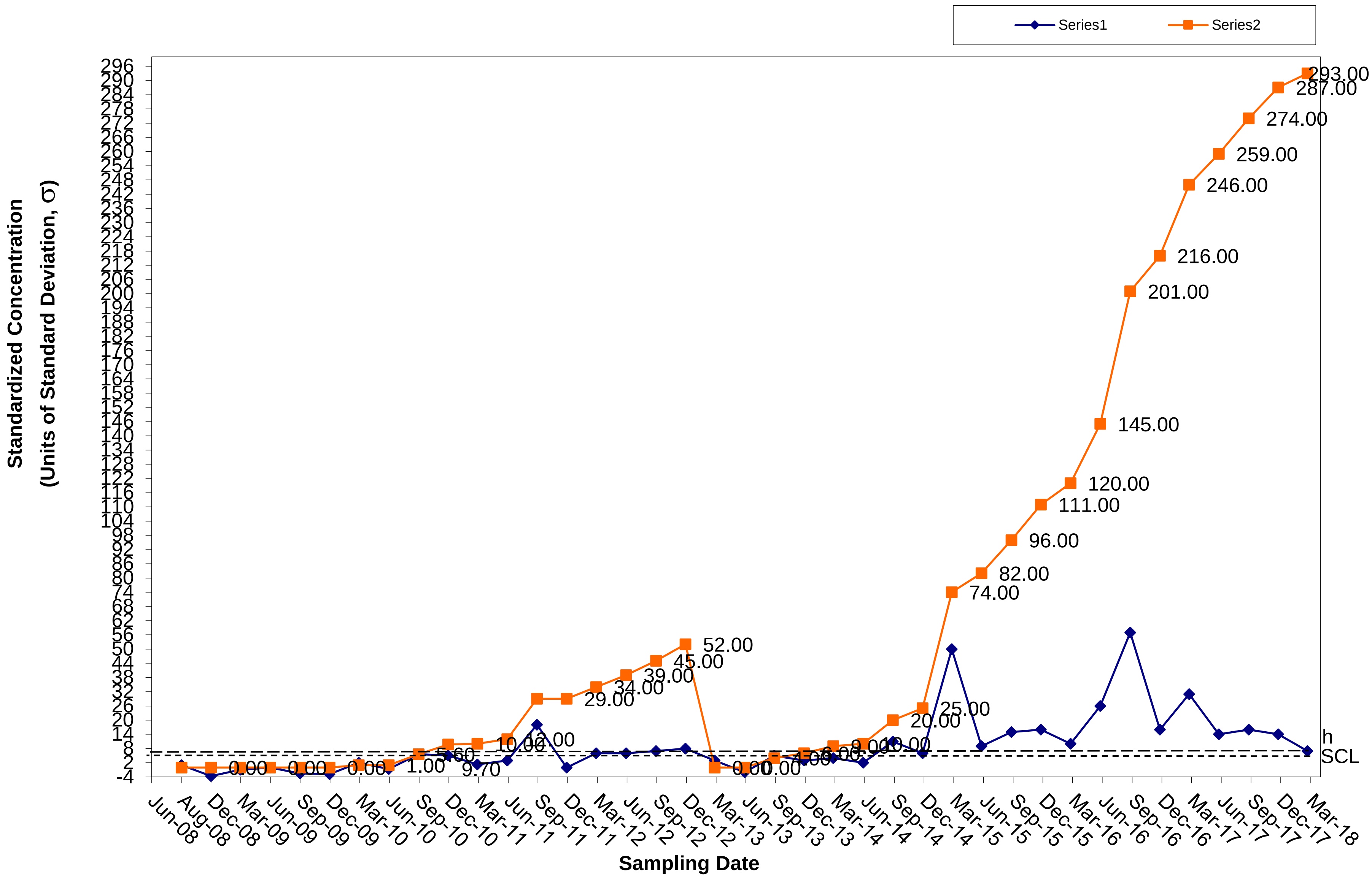
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Background Well OW-9

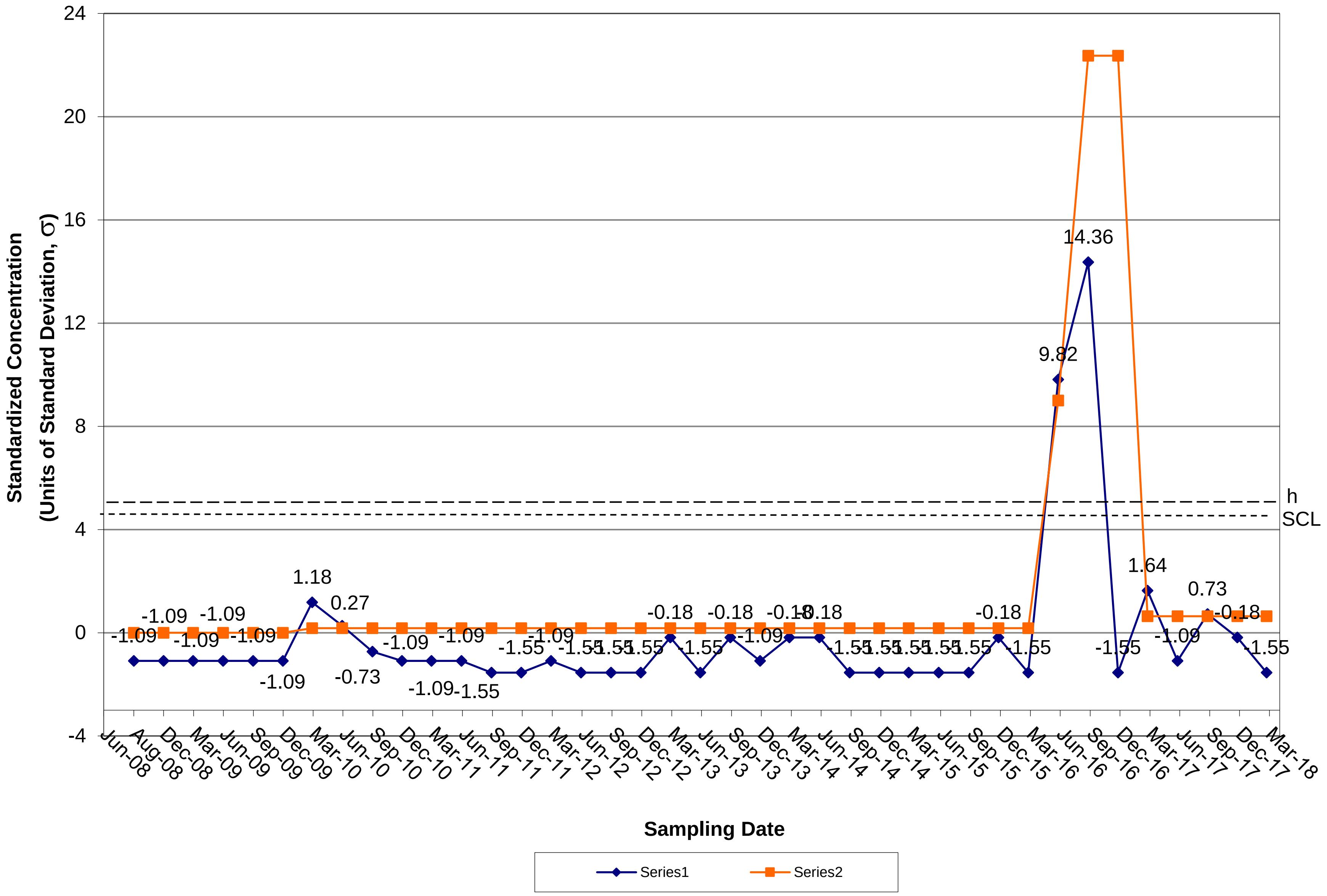


CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-12



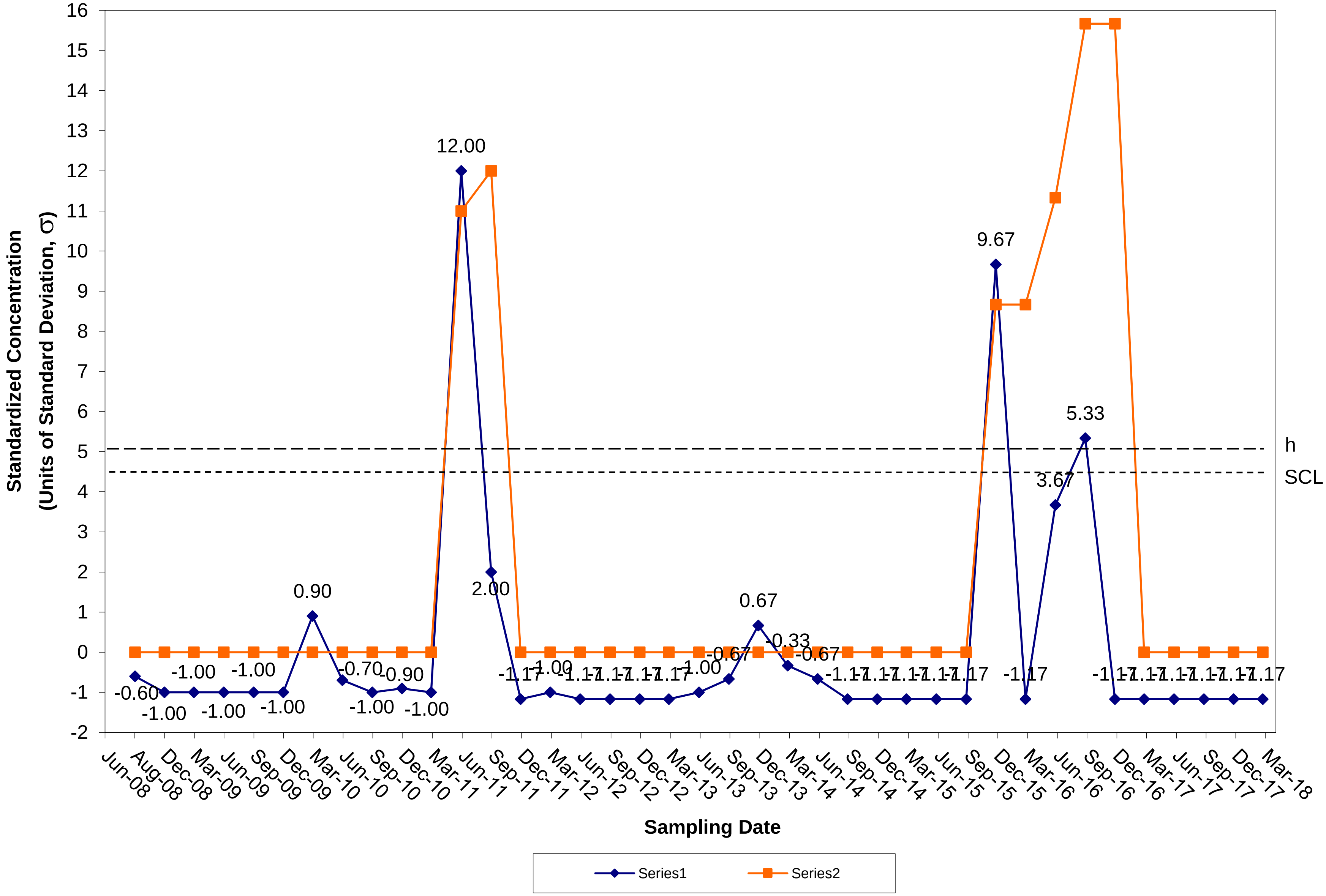
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-12



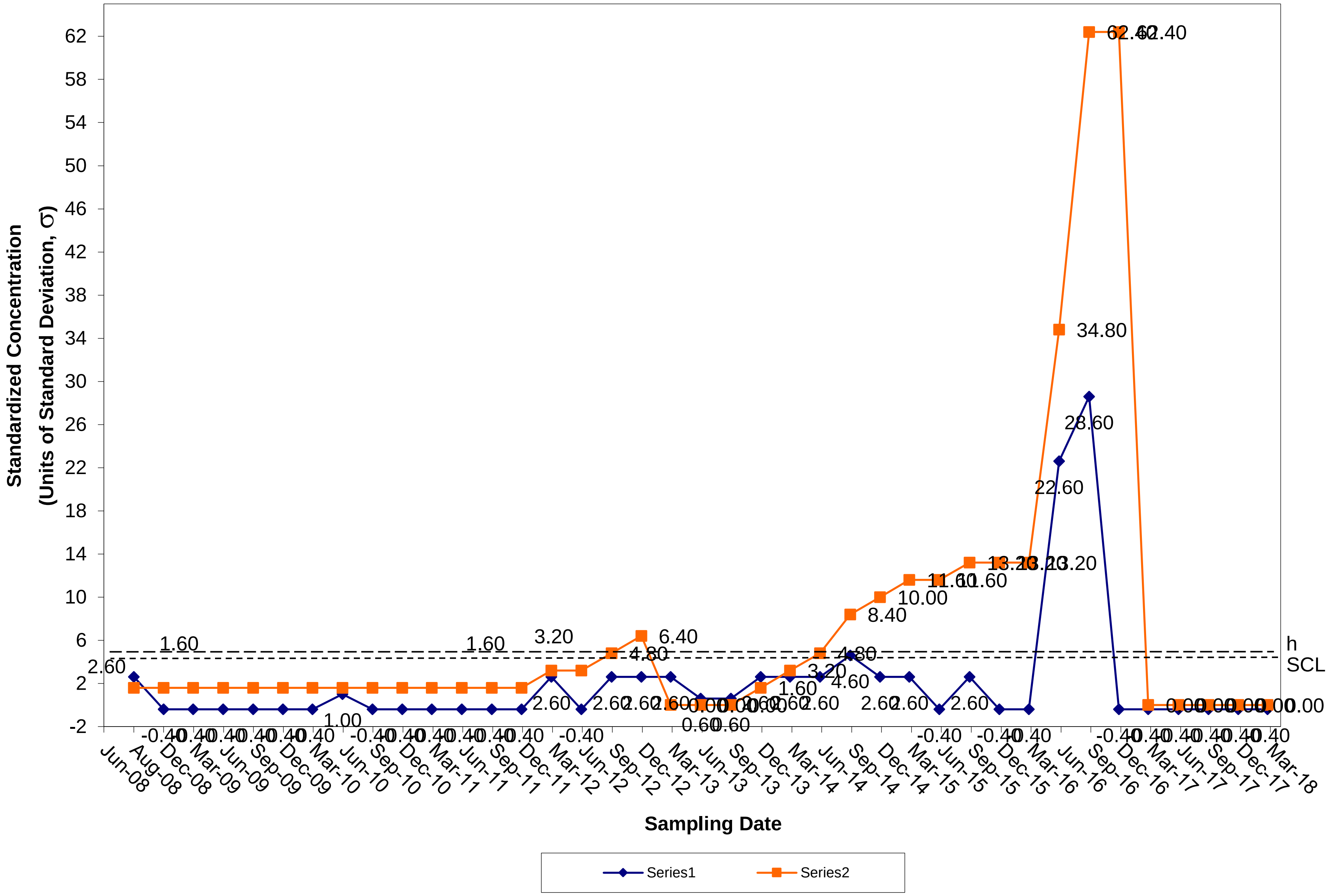


CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-12

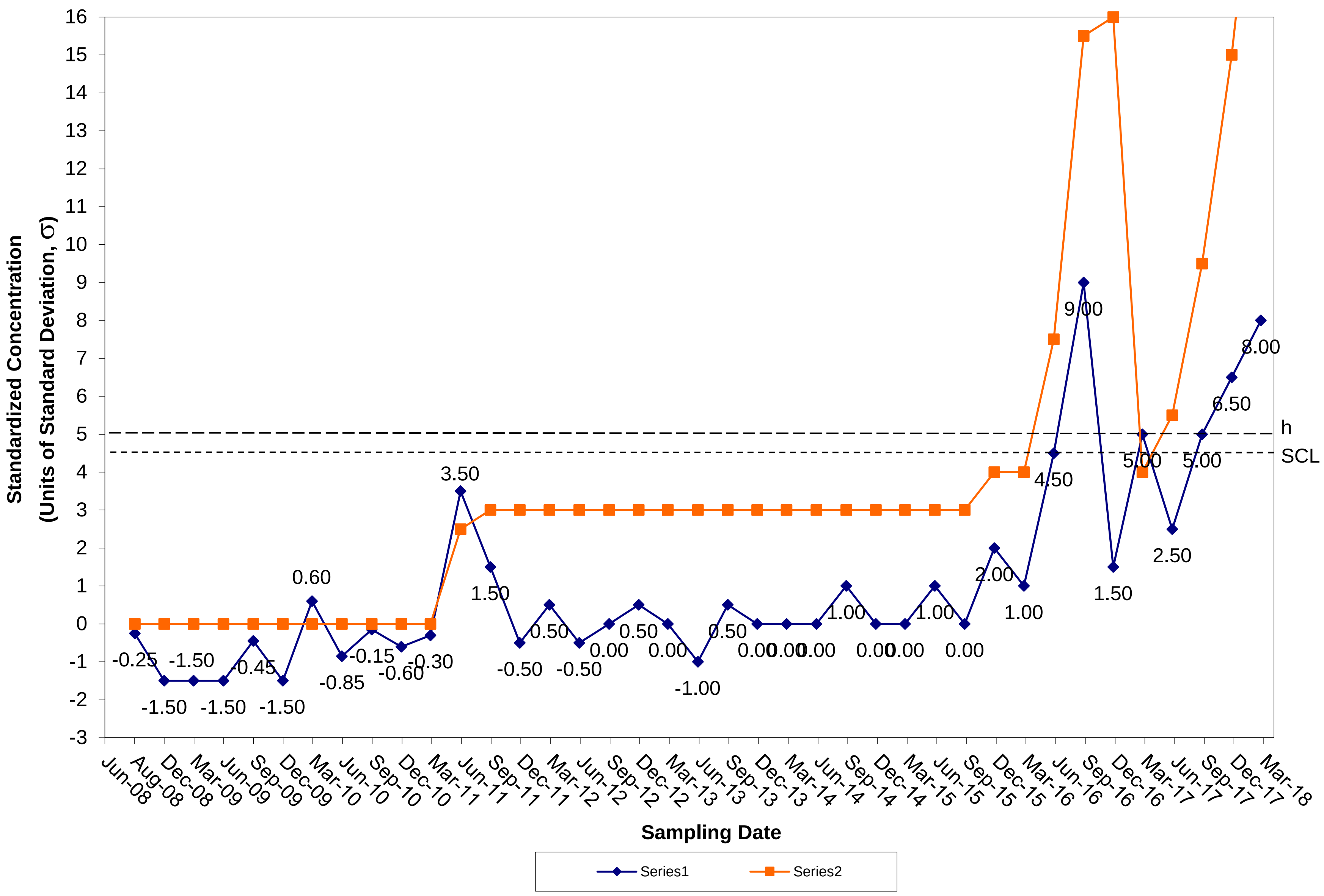
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Compliance Well OW-12



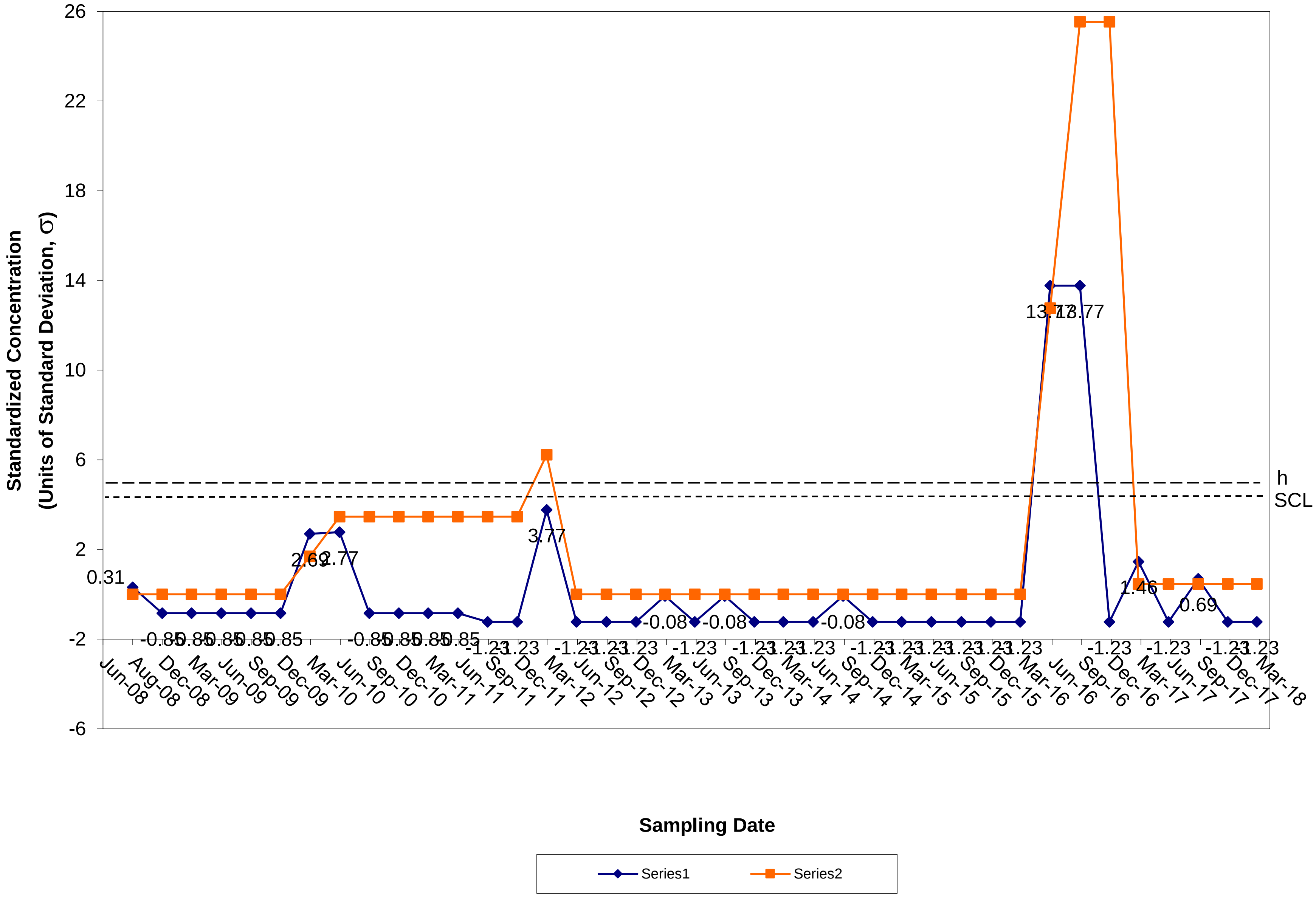
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-12



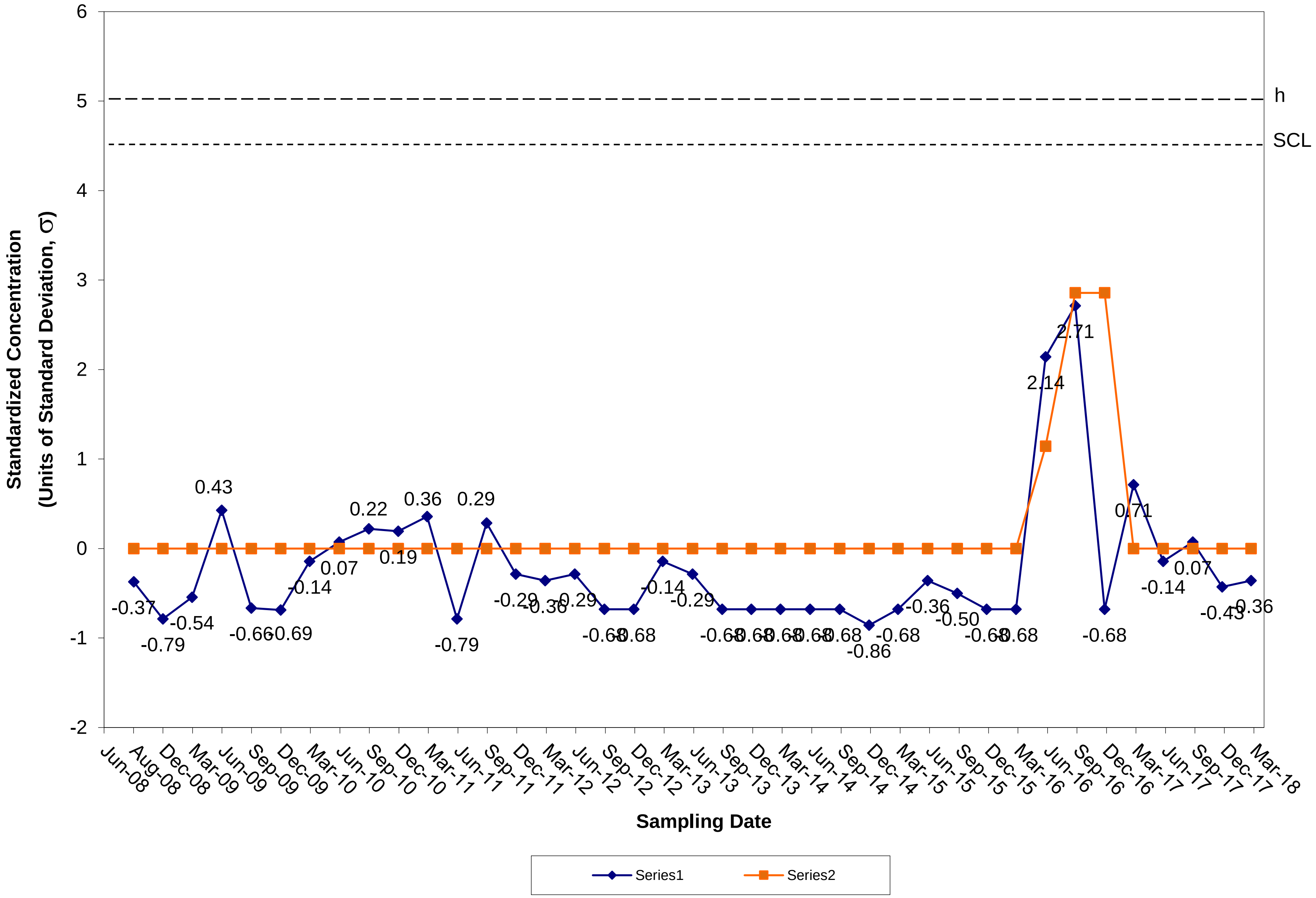
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-12



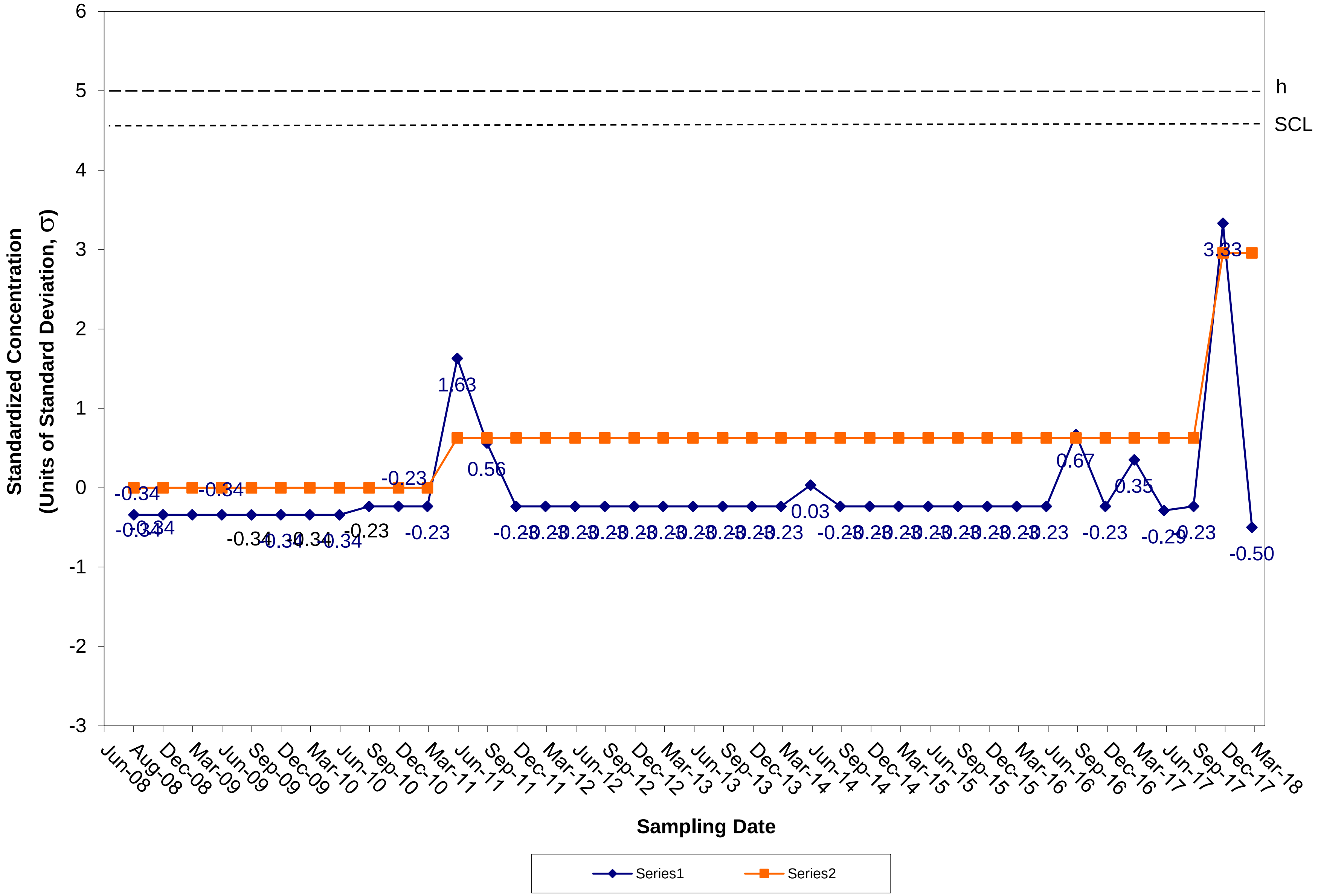
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-12



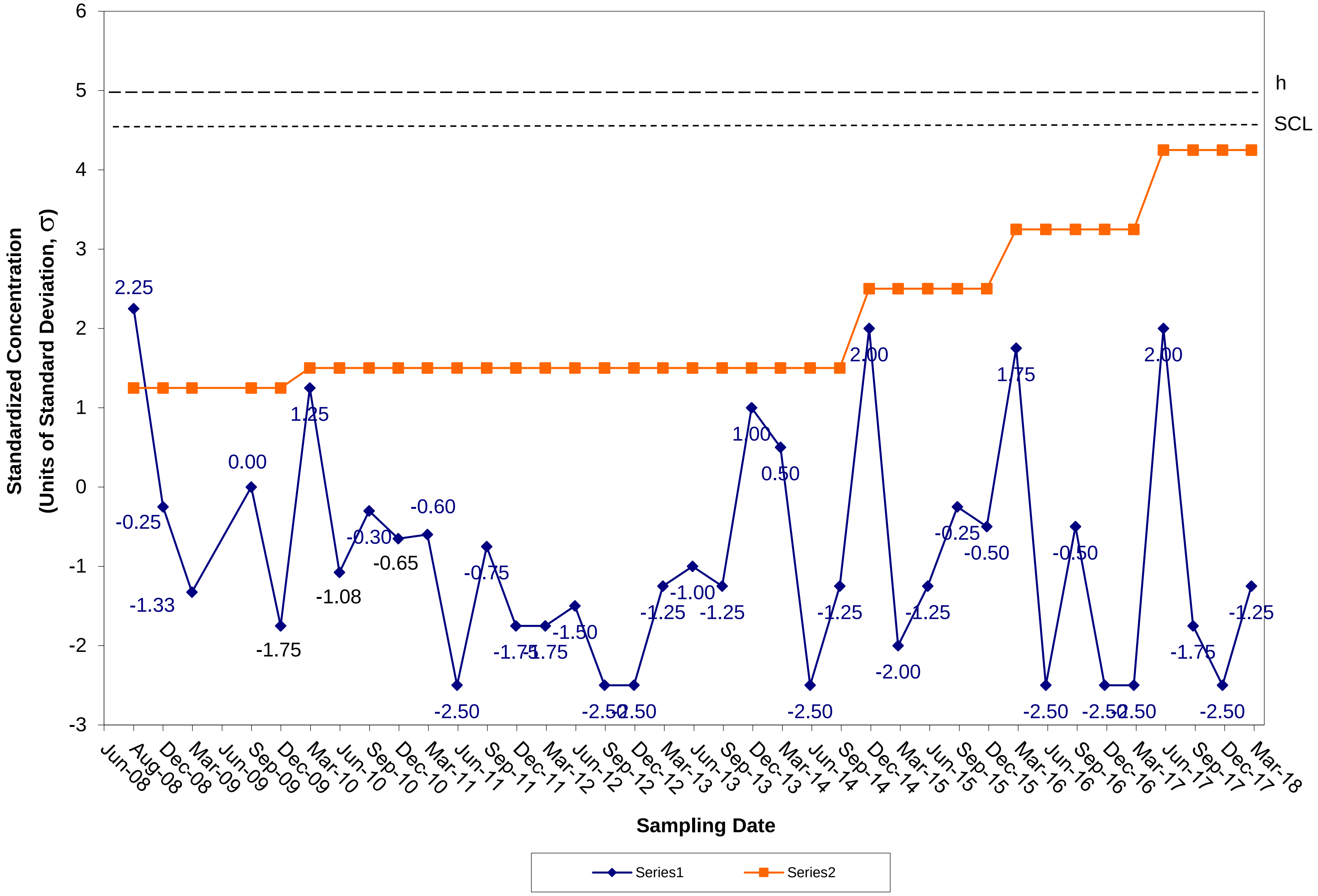
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-12



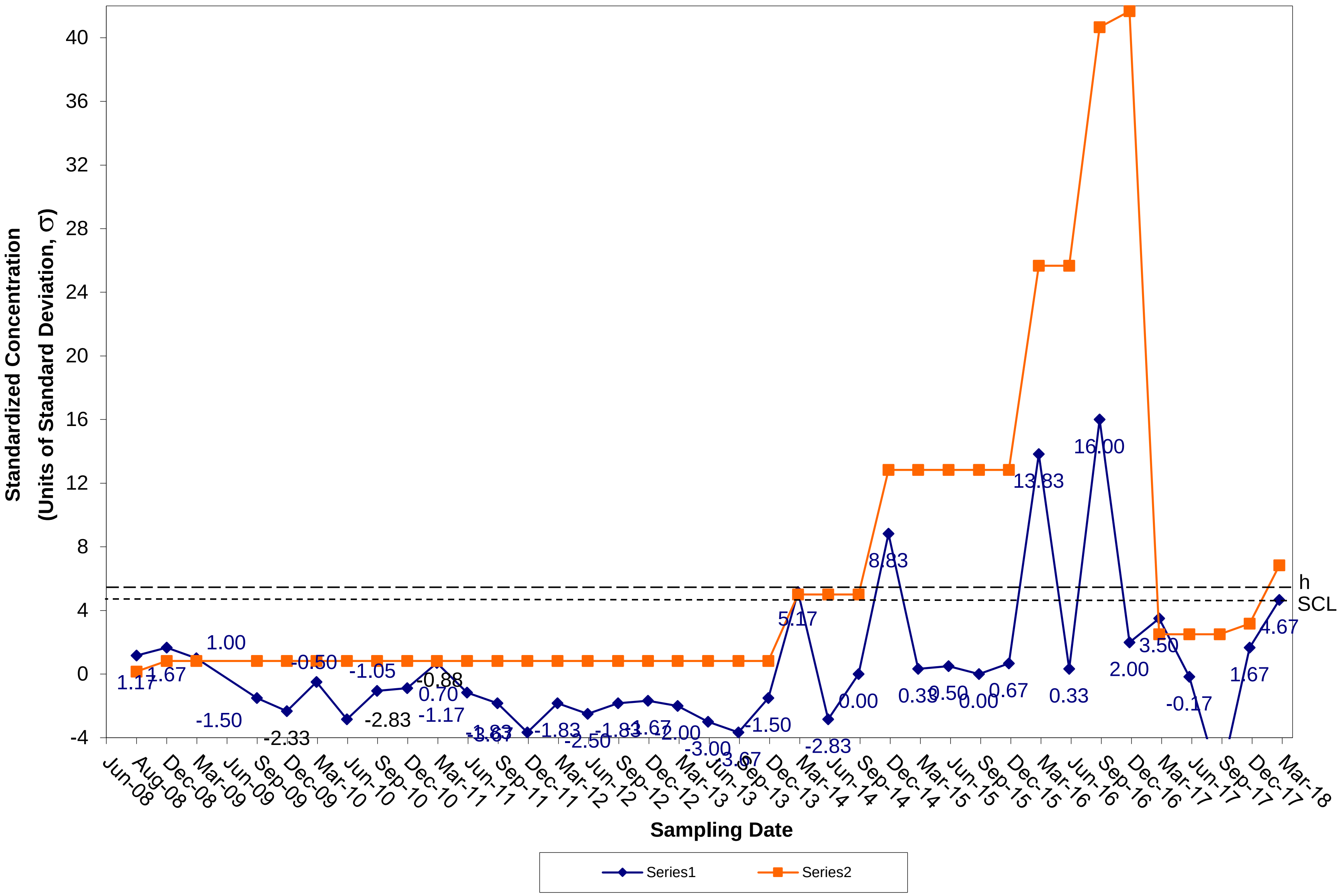
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-13



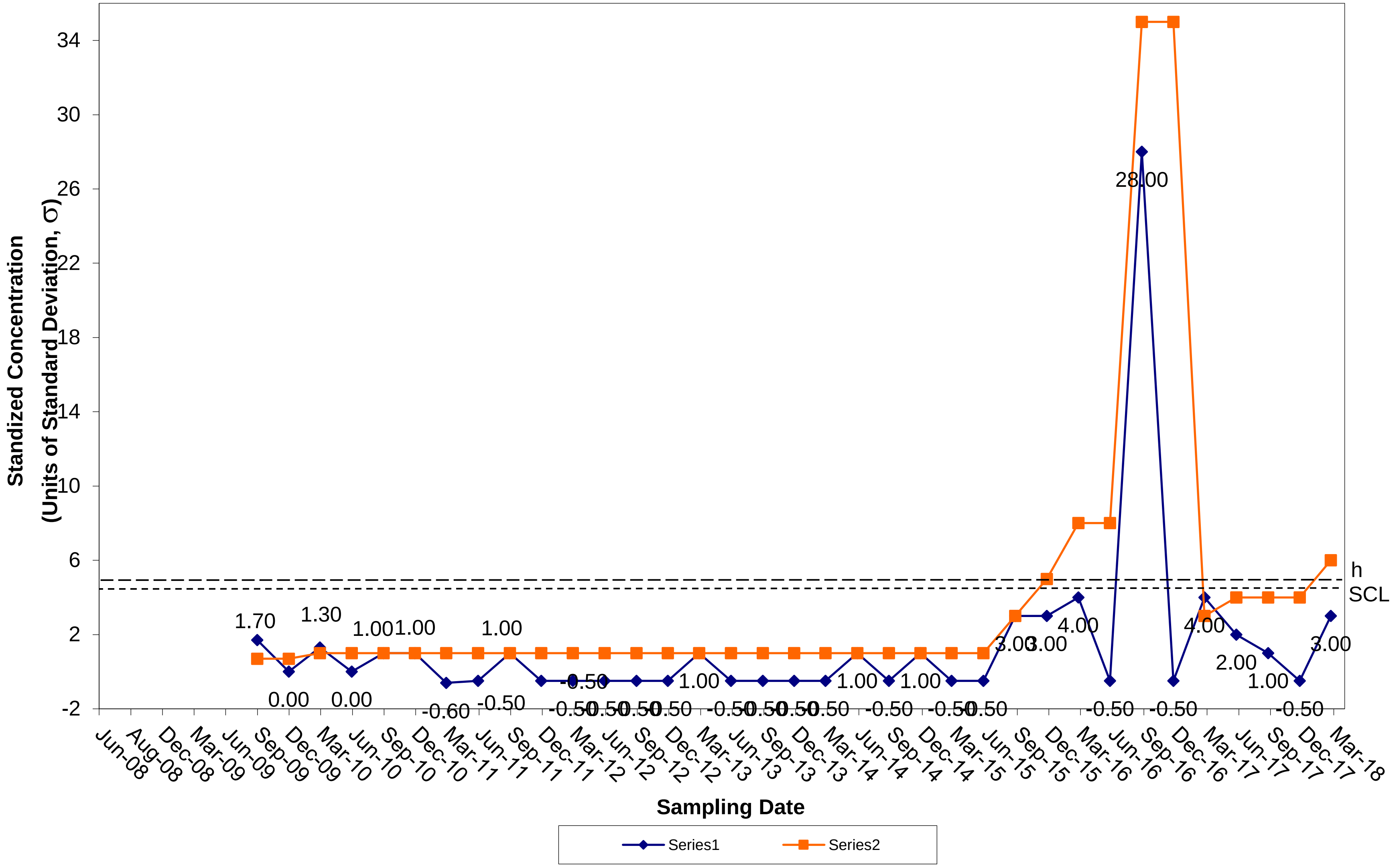
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-13



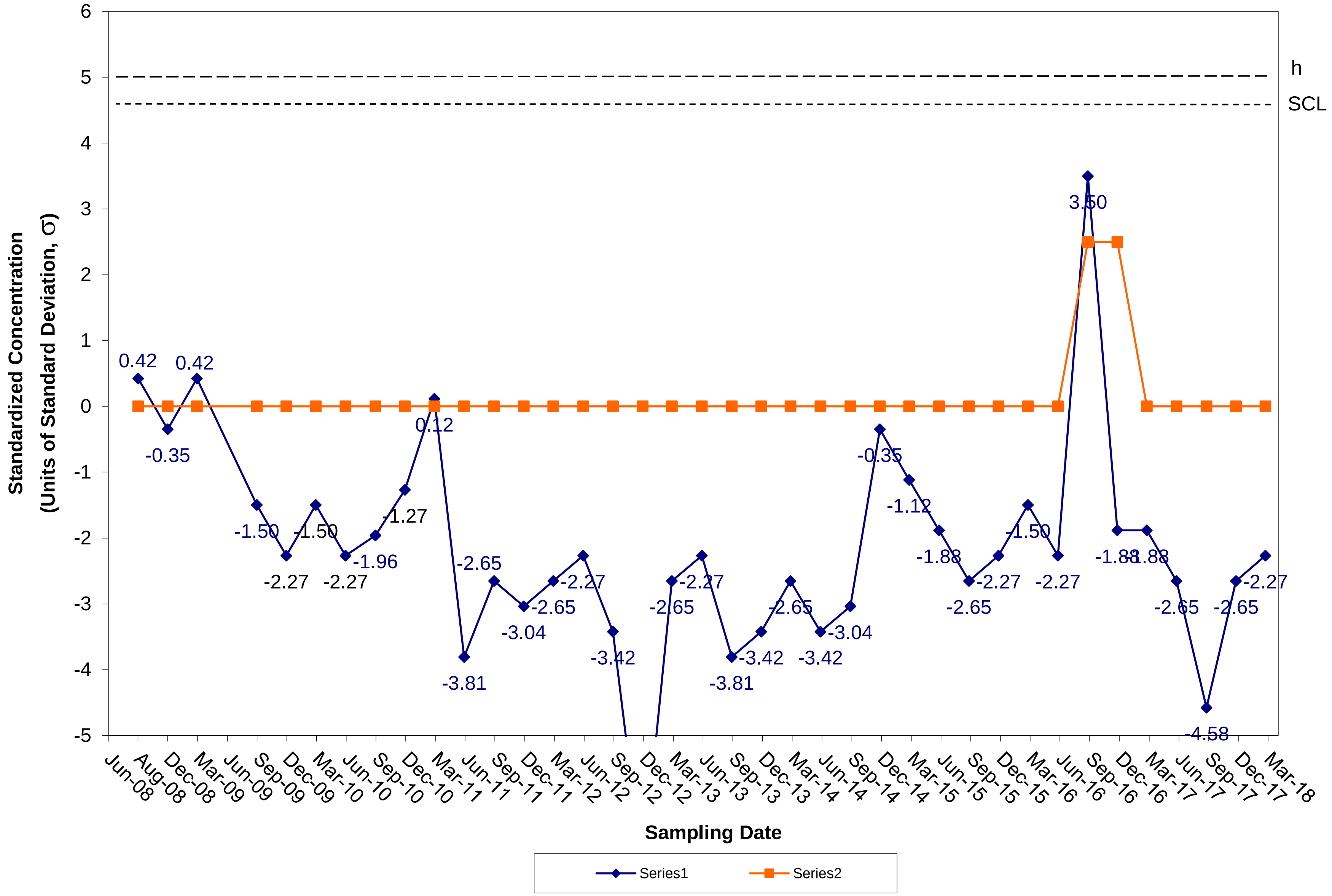
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-13



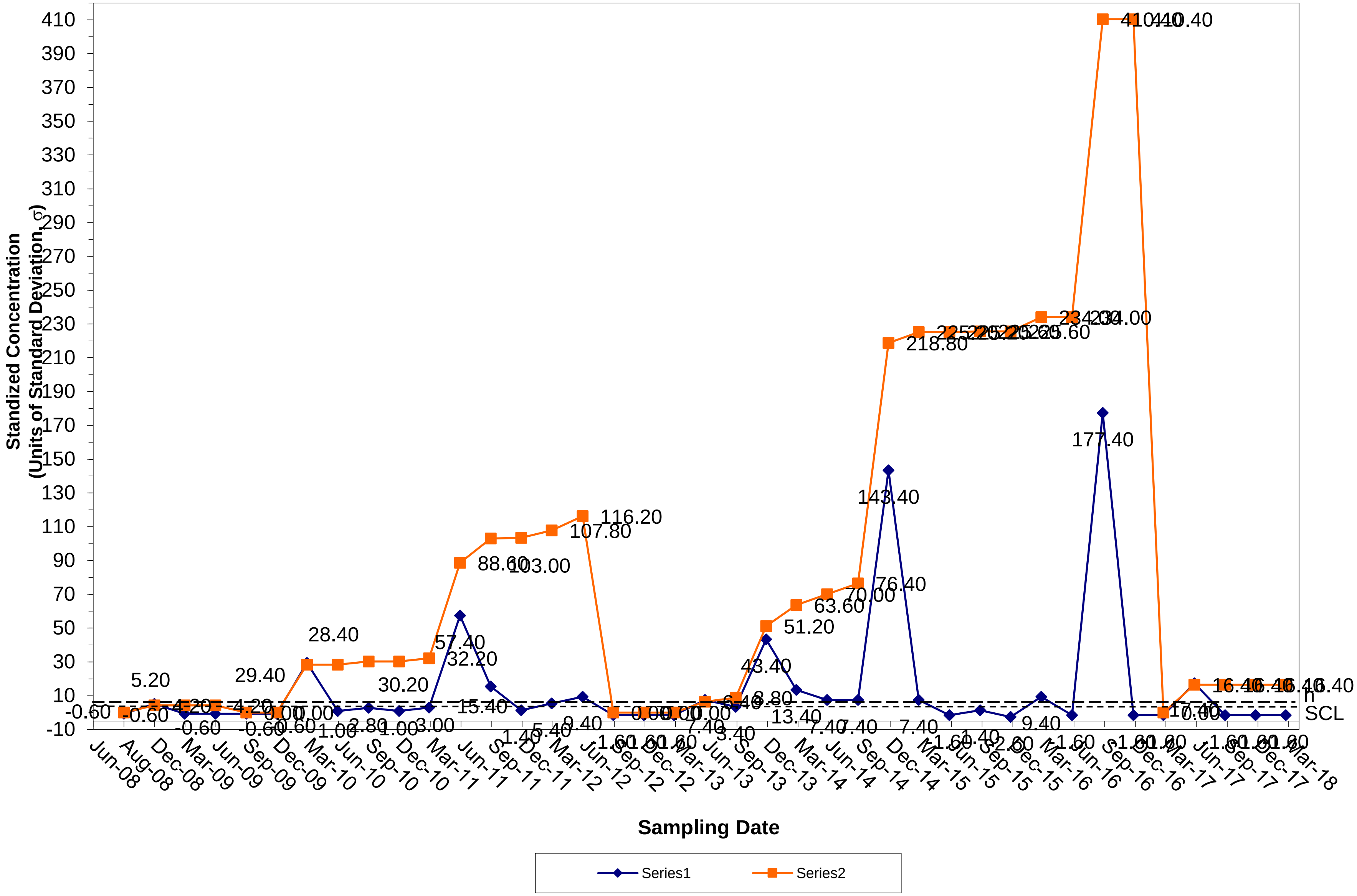
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Complaince Well OW-13



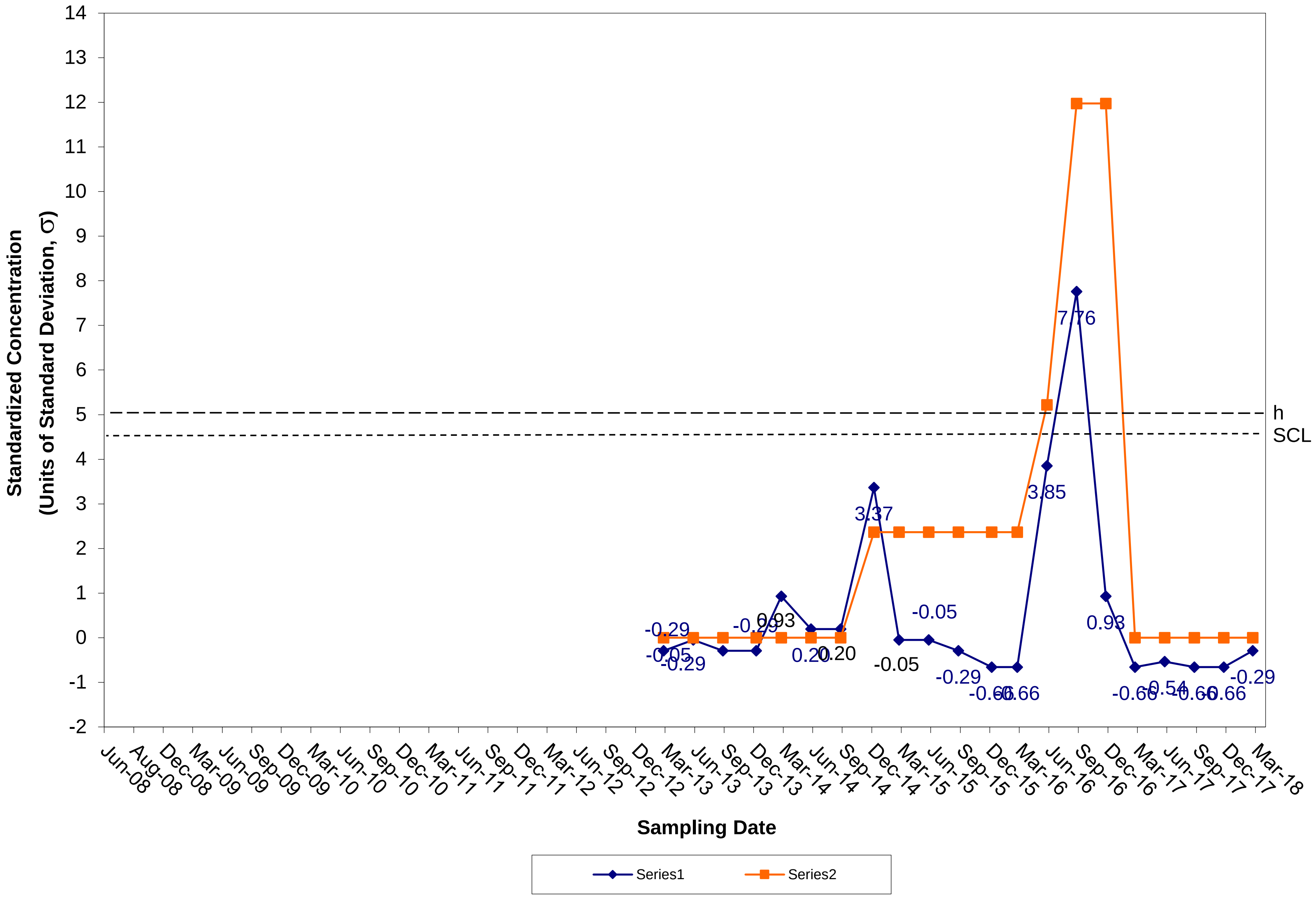
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-13



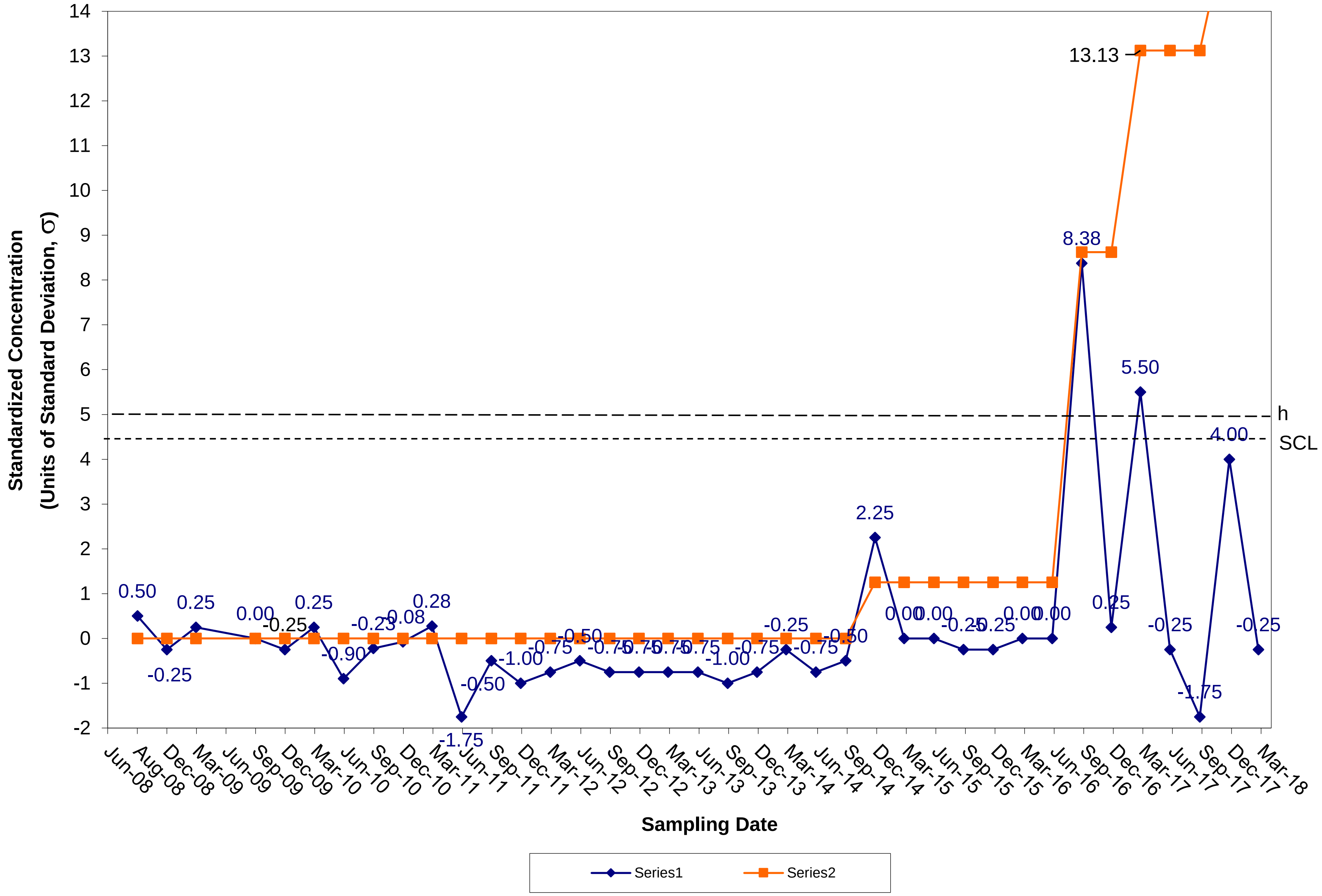
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Complaince Well OW-13



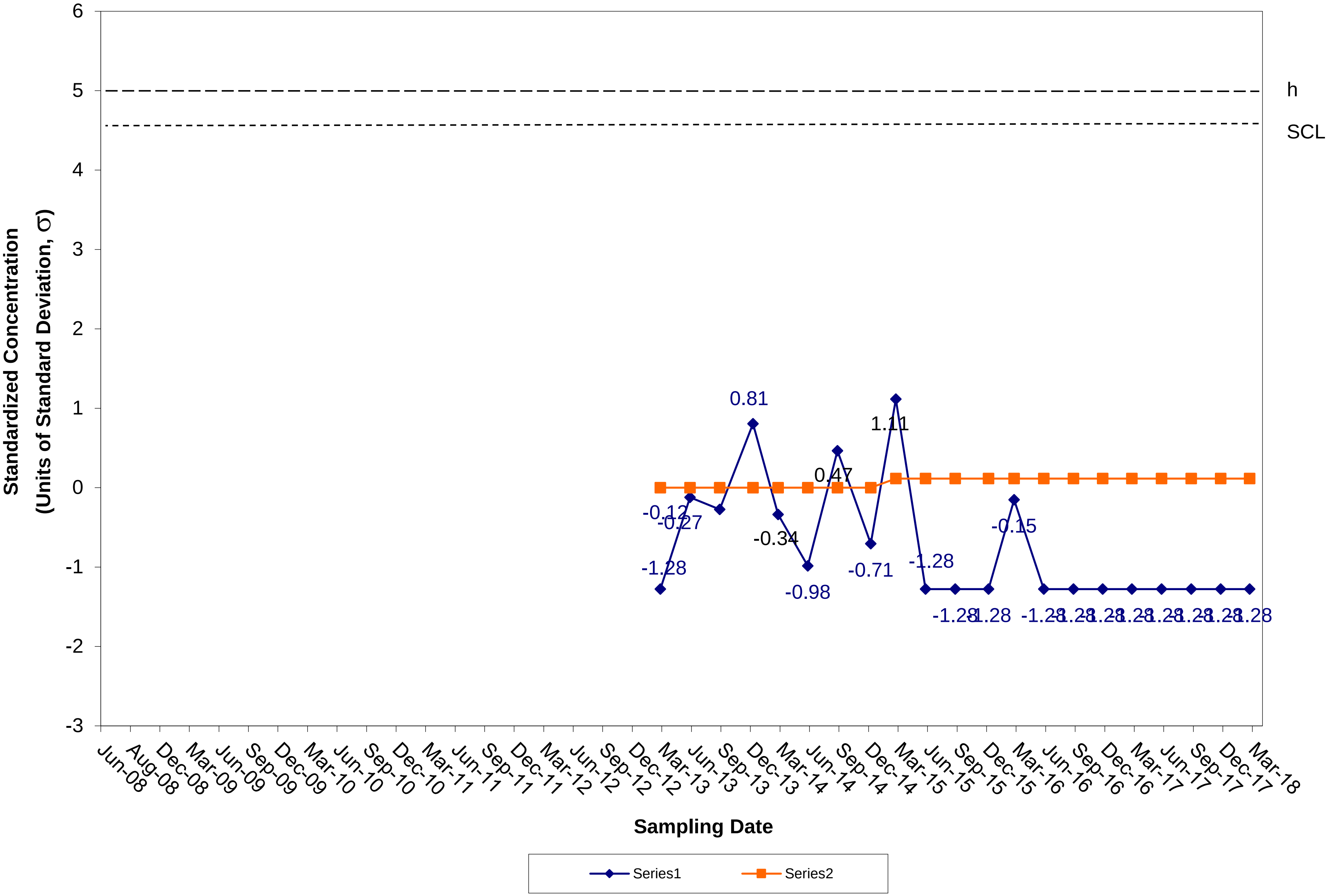
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-13



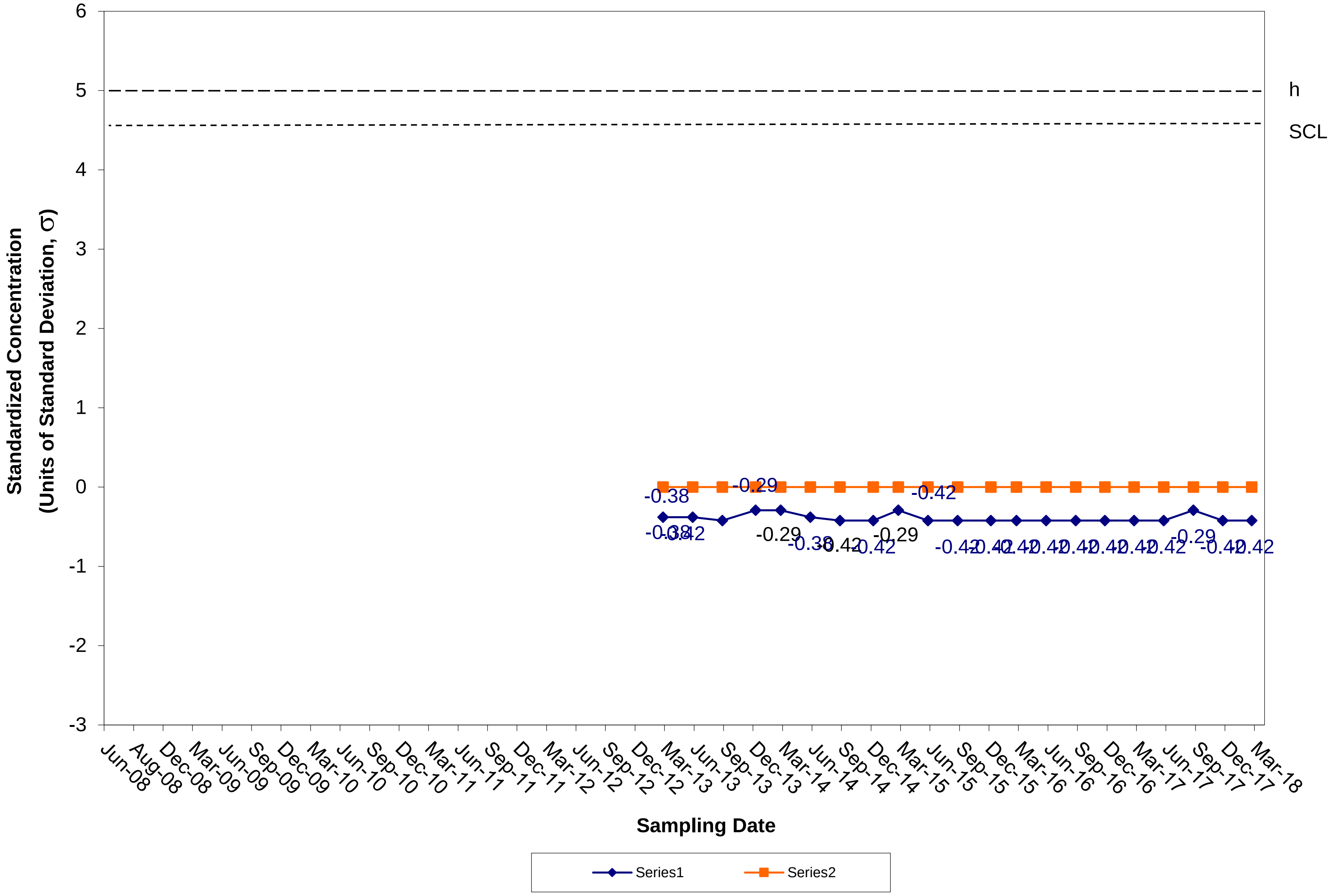
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-13



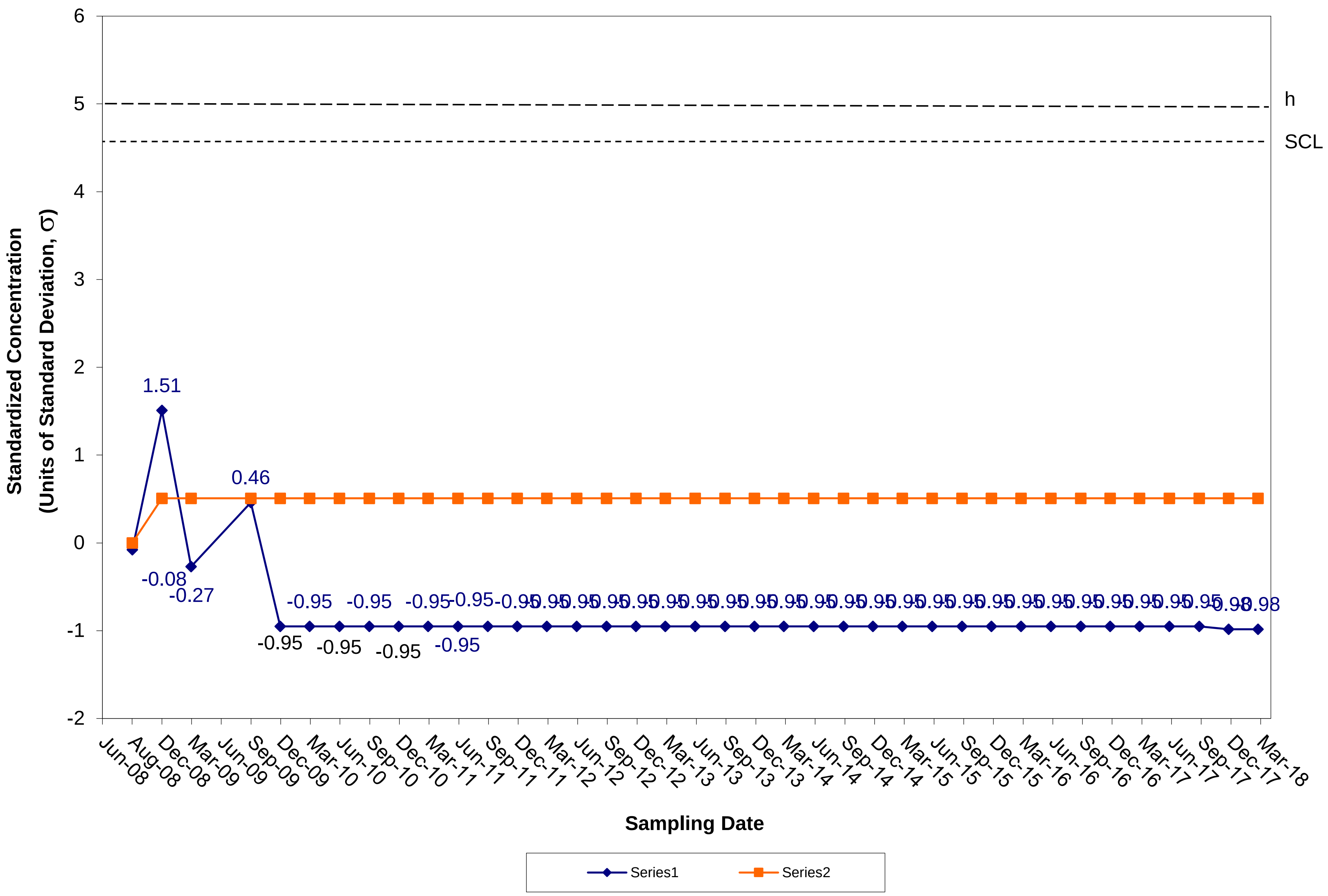
CUSUM Control Chart for Selenium
Tiverton Landfill Groundwater Compliance Well OW-13



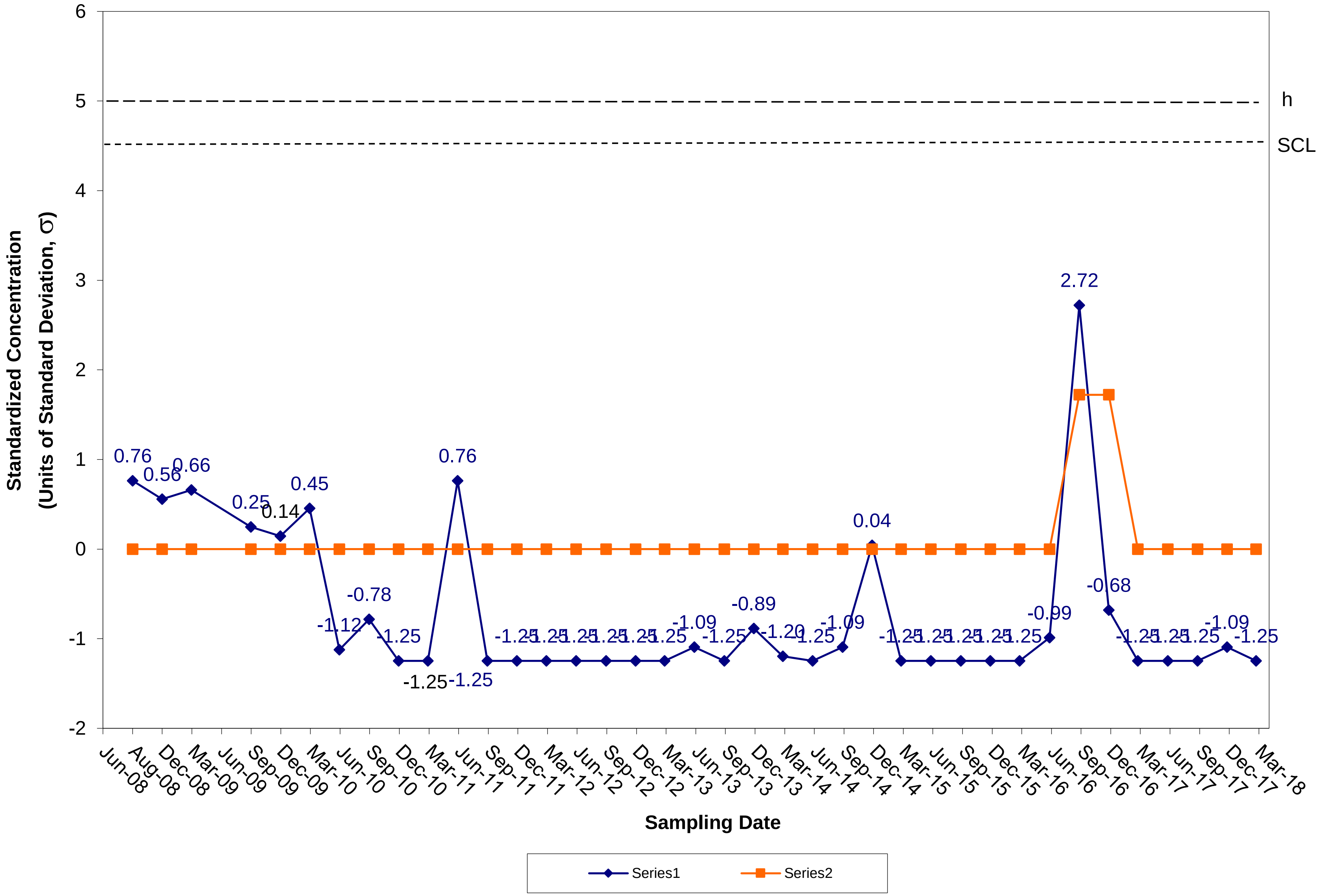
CUSUM Control Chart for Silver
Tiverton Landfill Groundwater Compliance Well OW-13

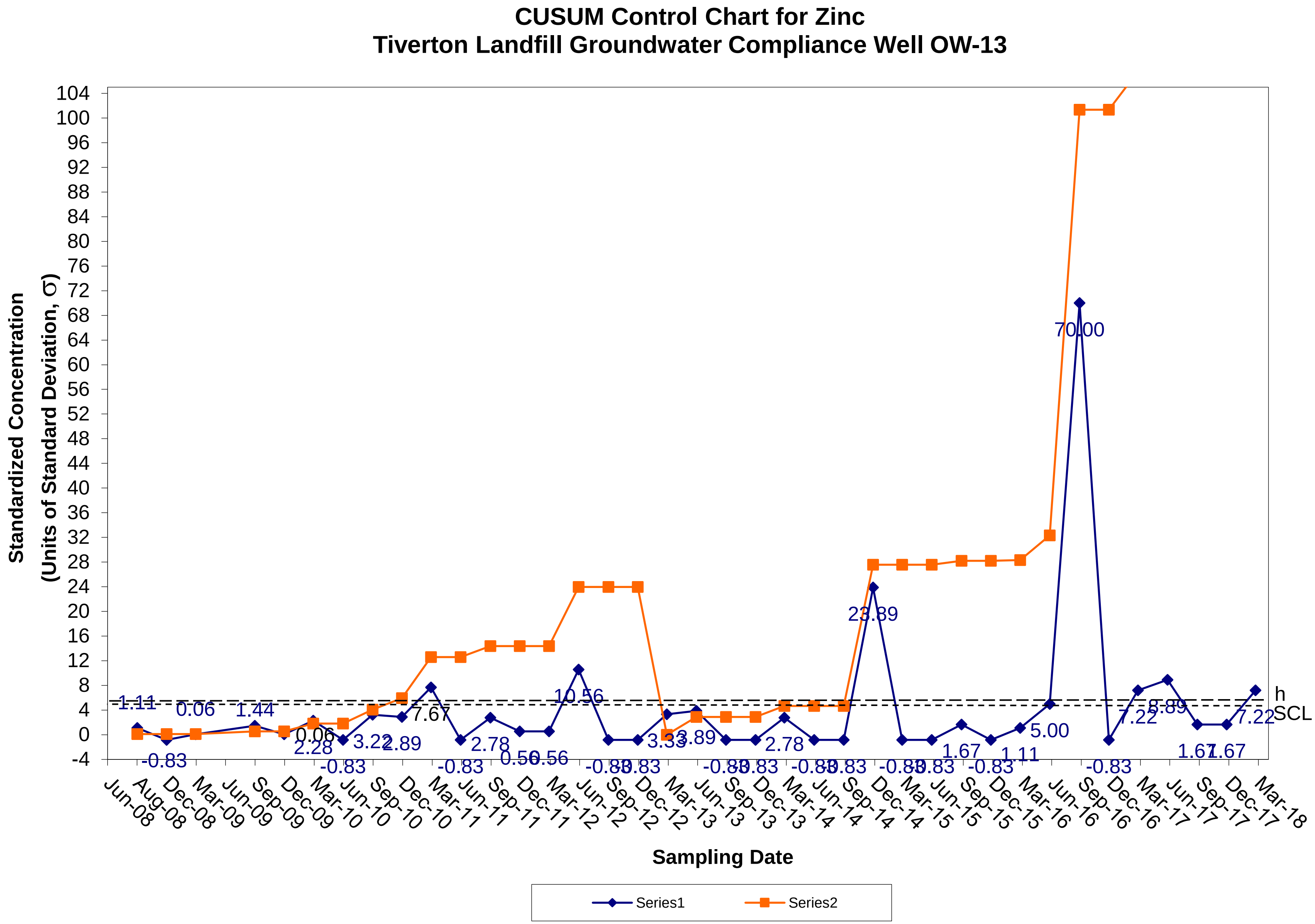


CUSUM Control Chart for Thallium
Tiverton Landfill Groundwater Compliance Well OW-13

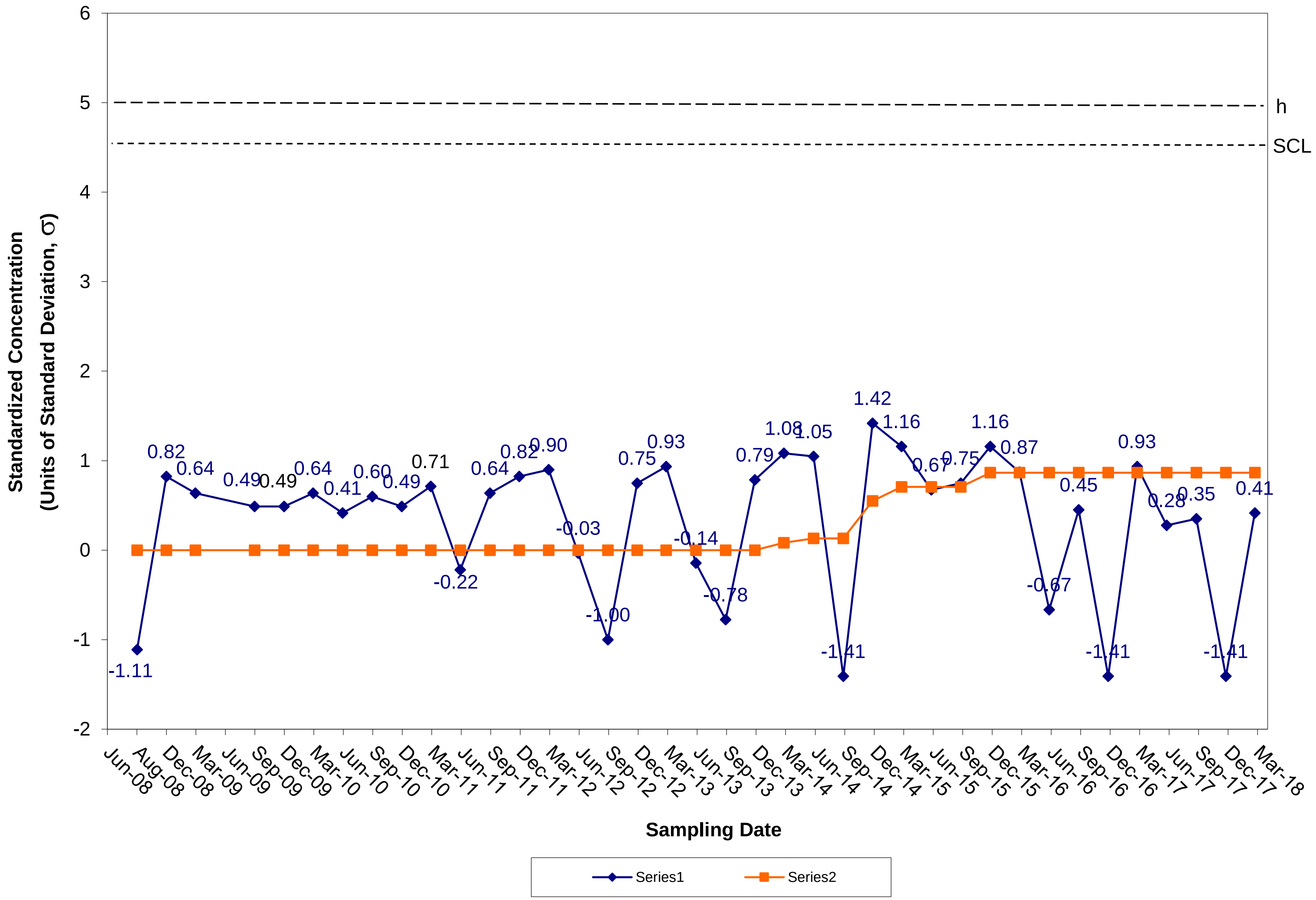


CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-13

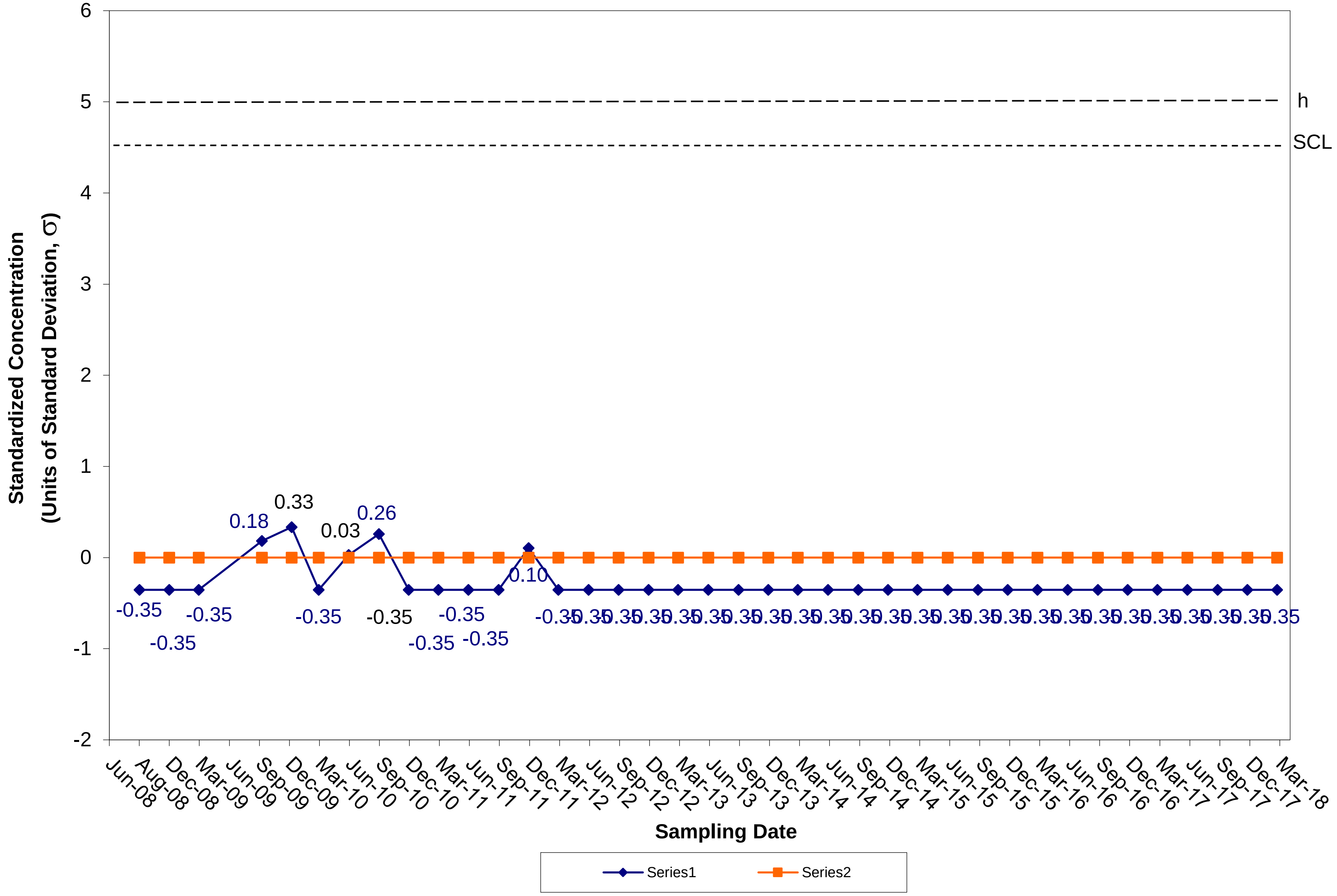



CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-13

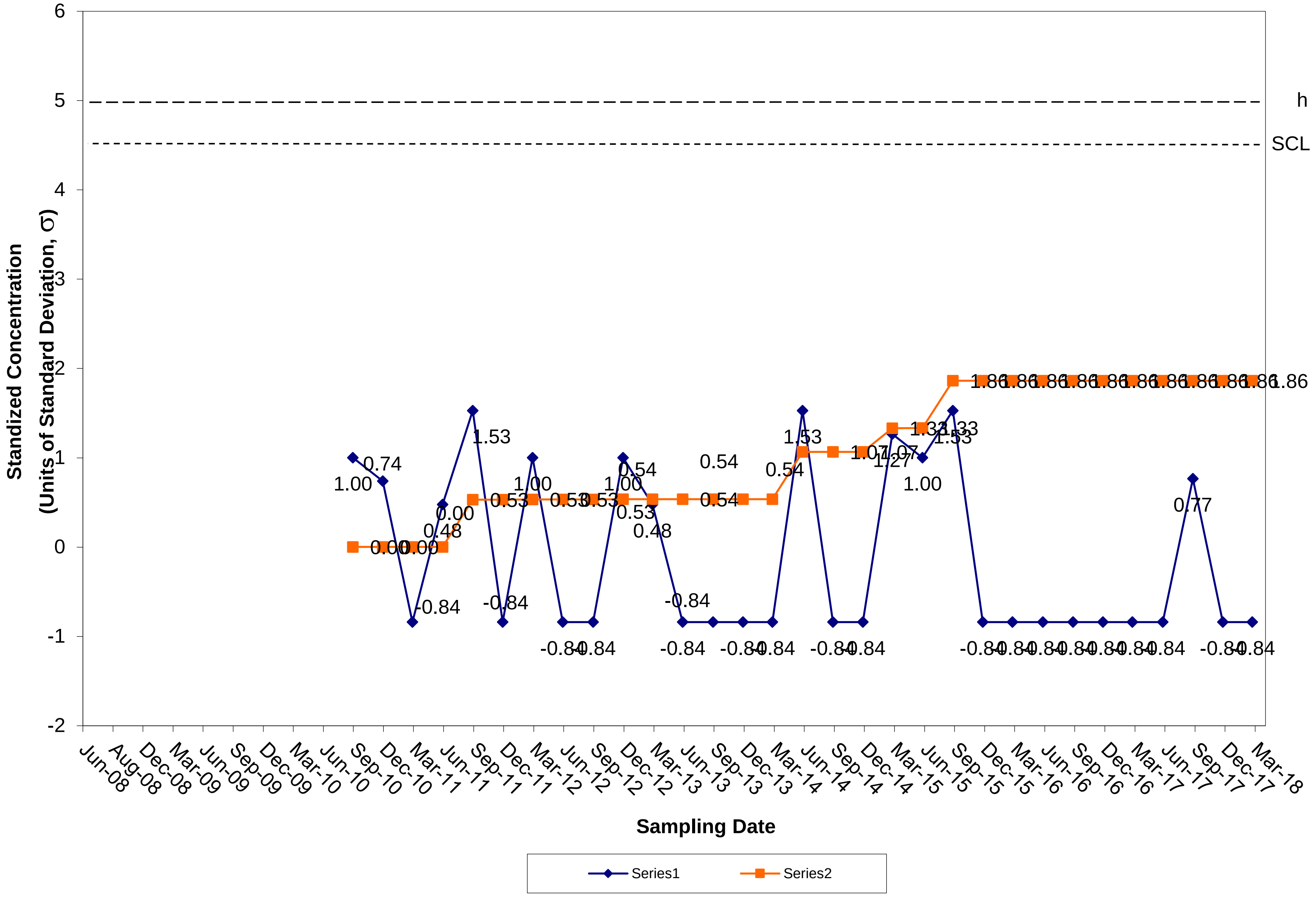
CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-13



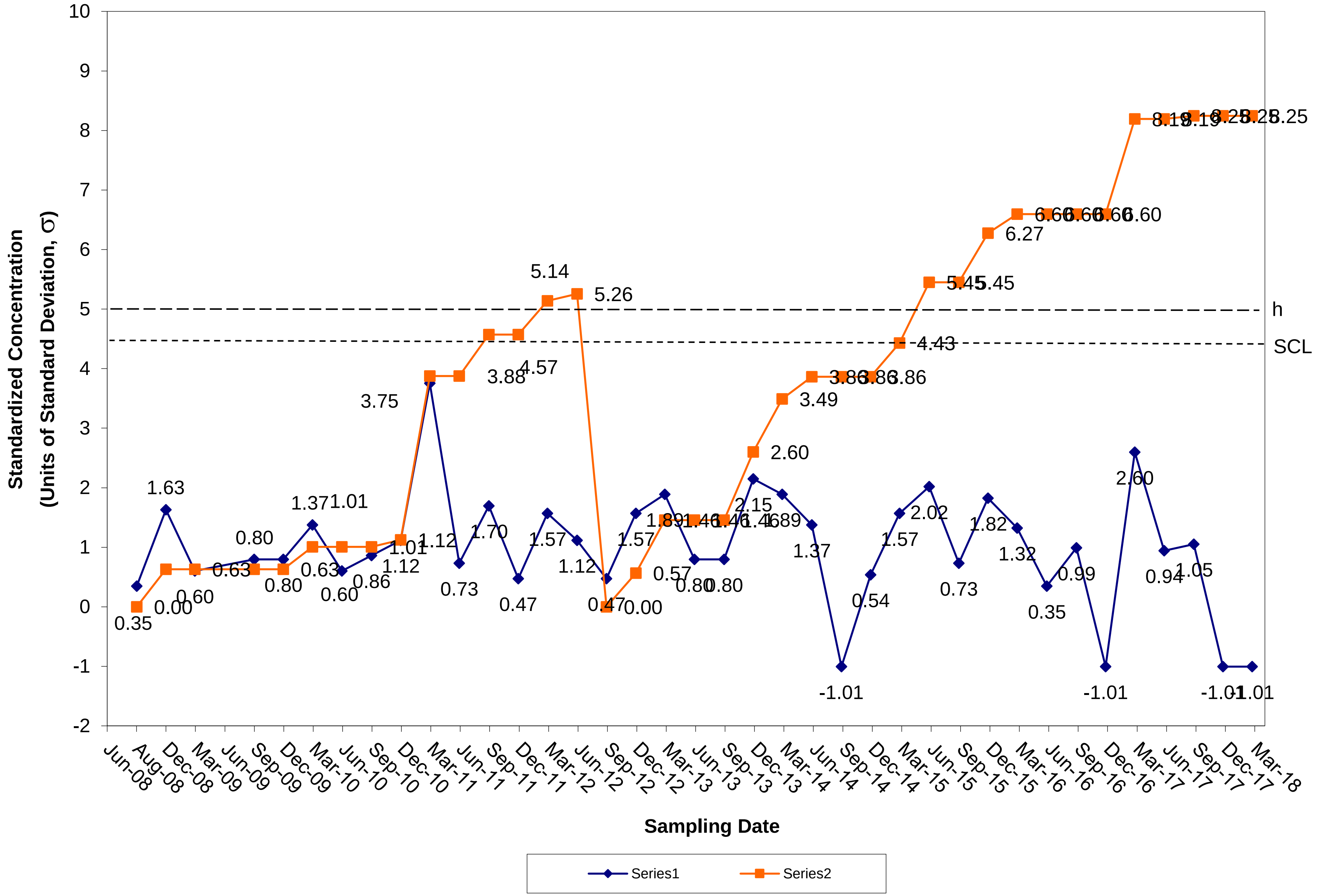
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Compliance Well OW-13



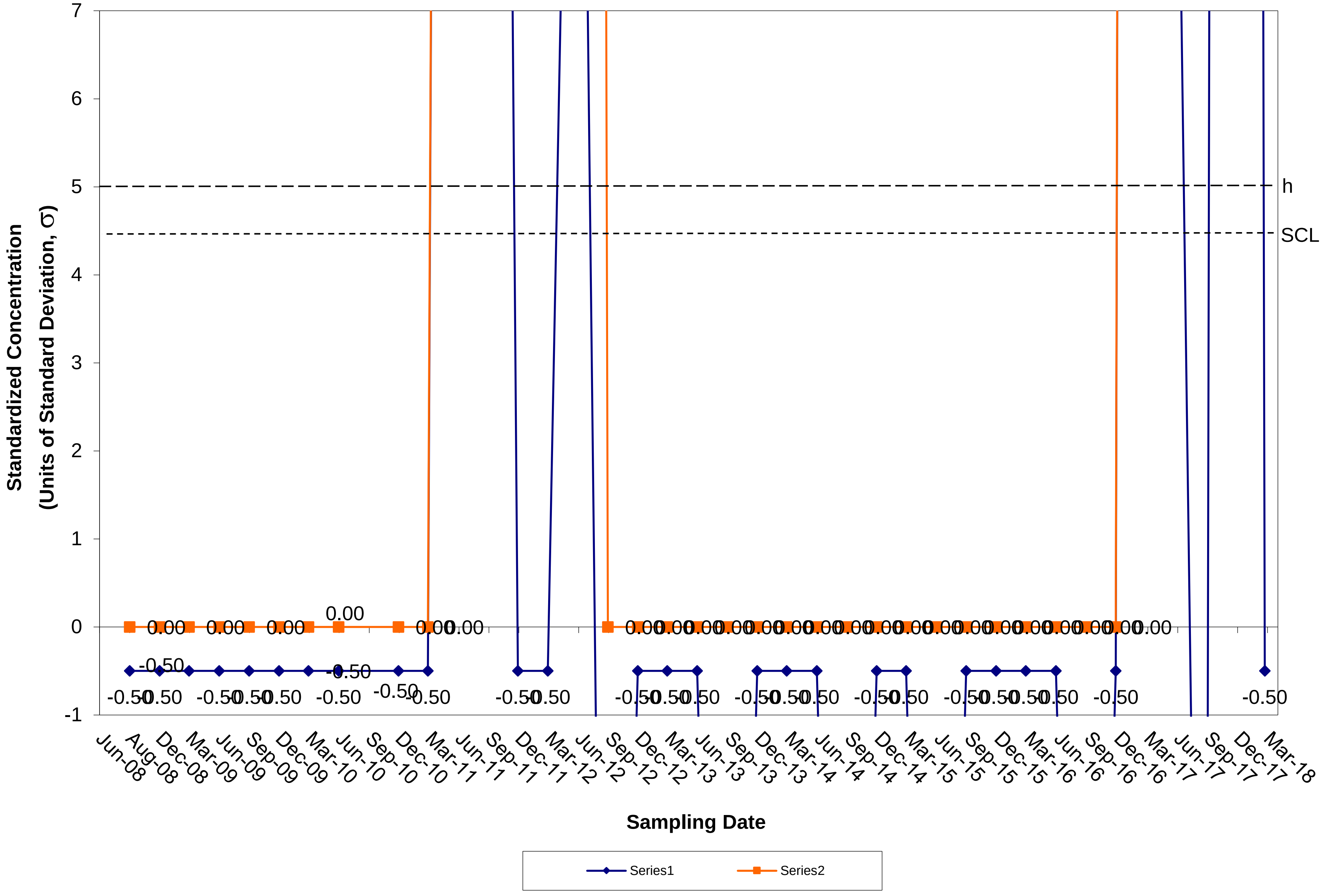
CUSUM Control Chart for 1,4-Dichlorobenzene - Adjusted Baseline
Tiverton Landfill Groundwater Complaince Well OW-13



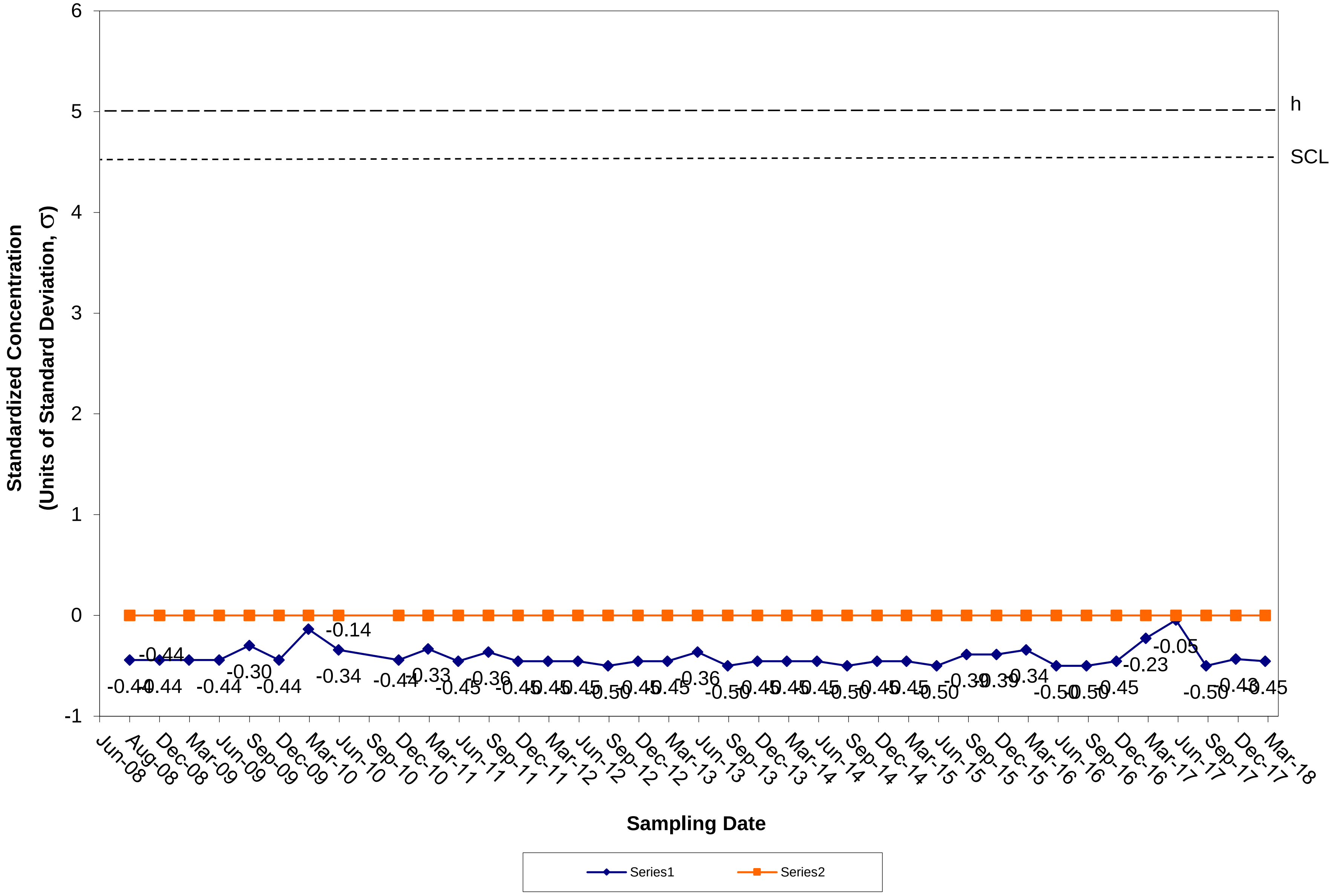
CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-13



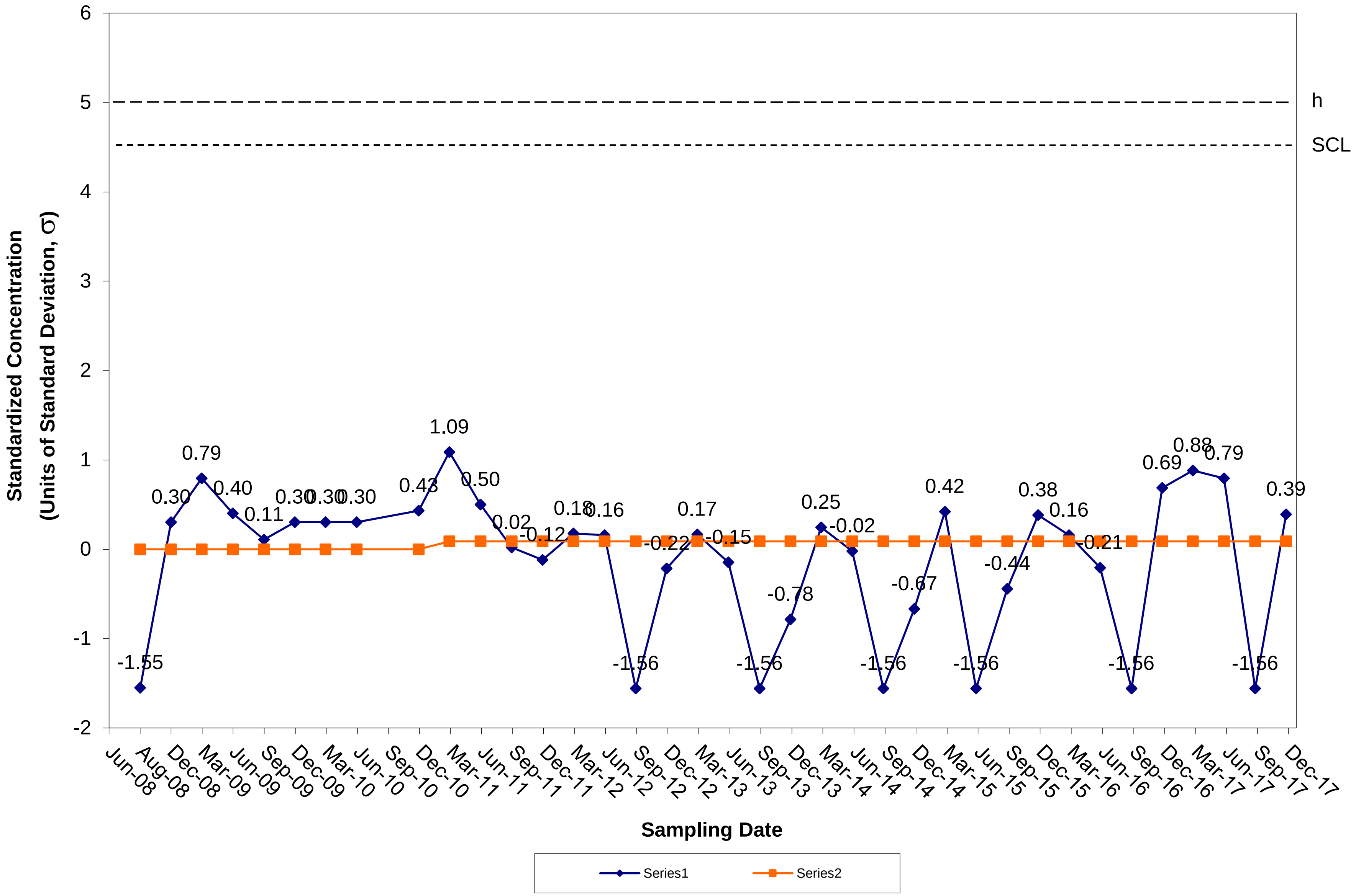
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-14



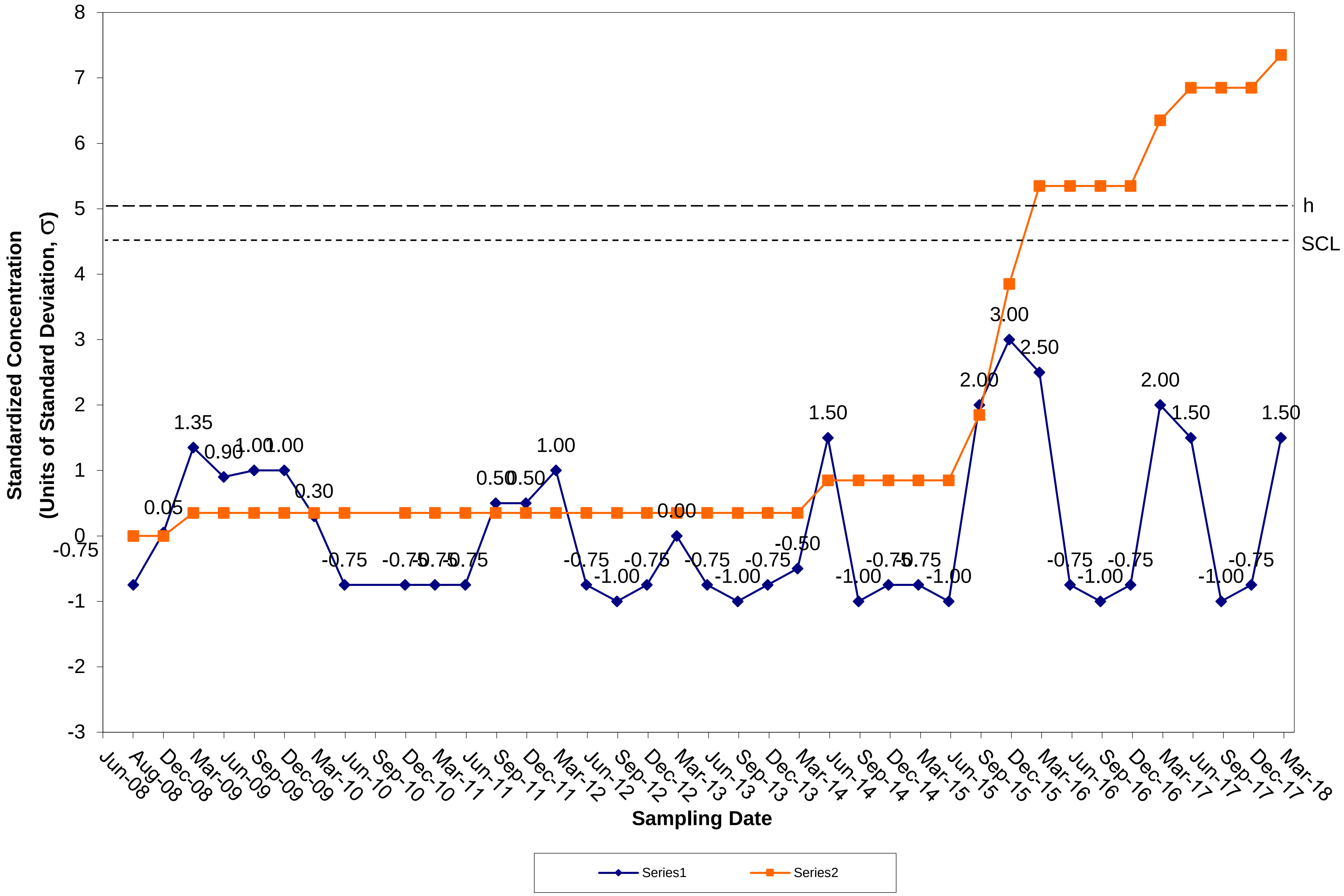
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-14



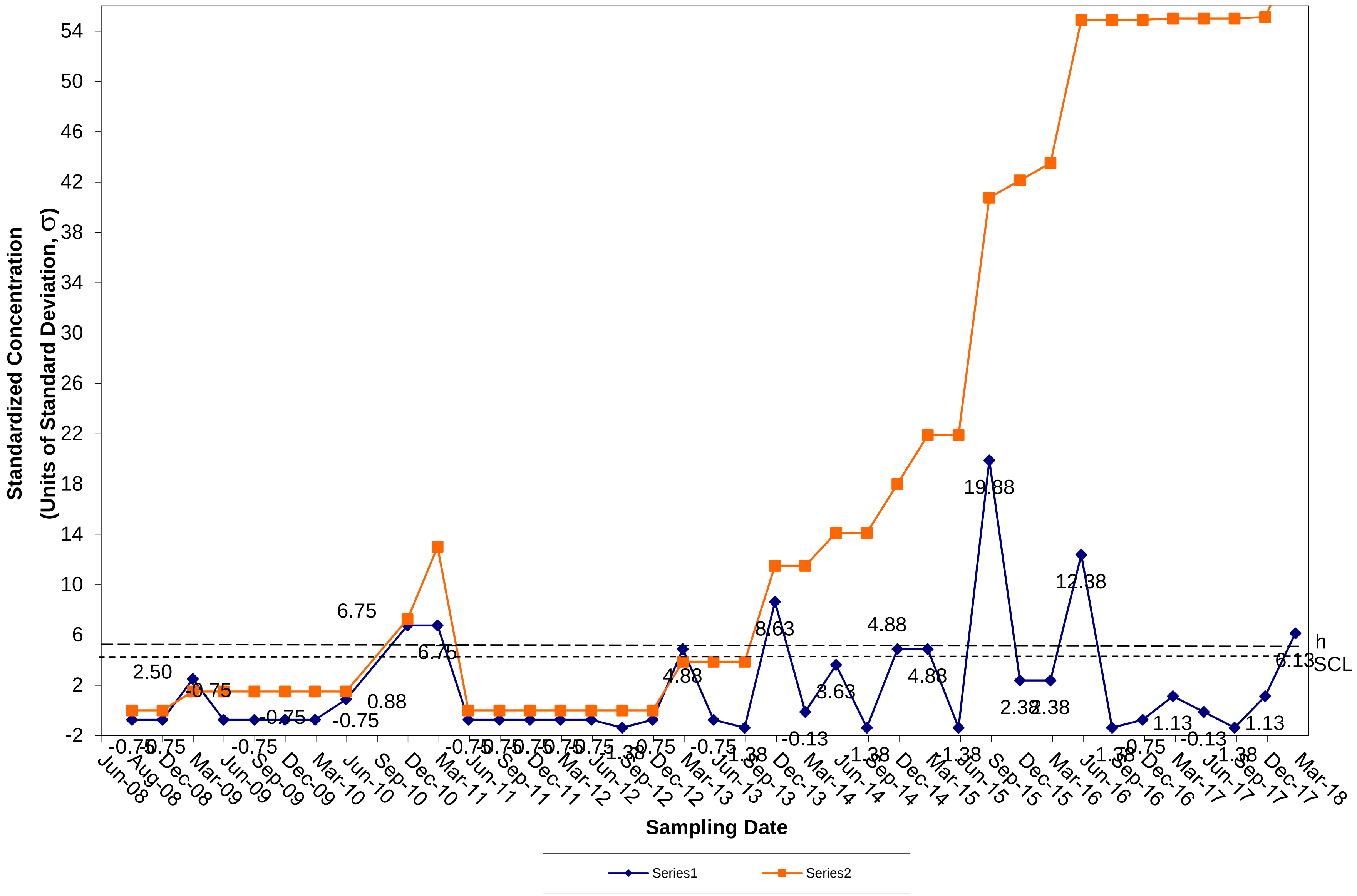
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-14



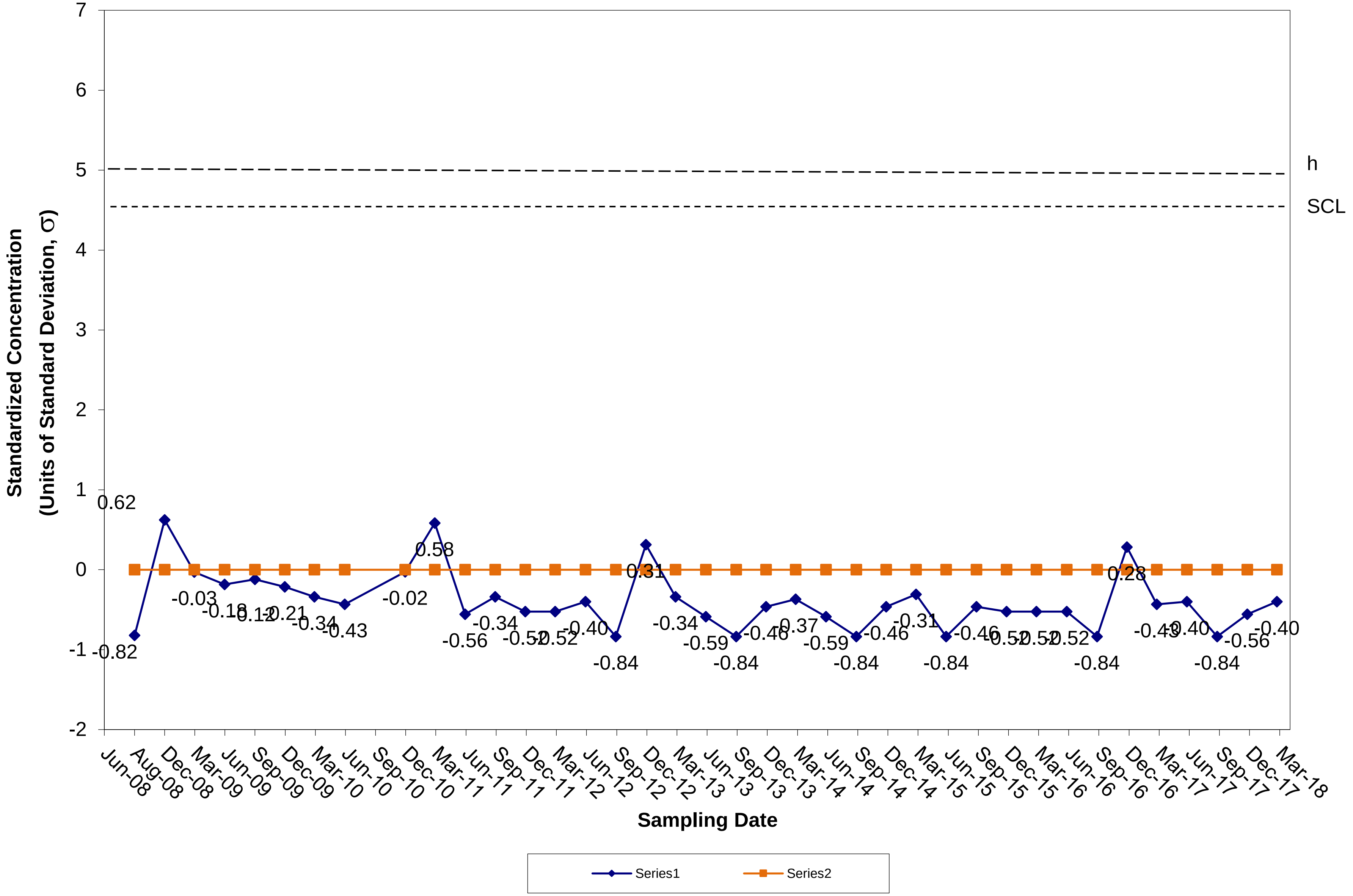
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Compliance Well OW-14



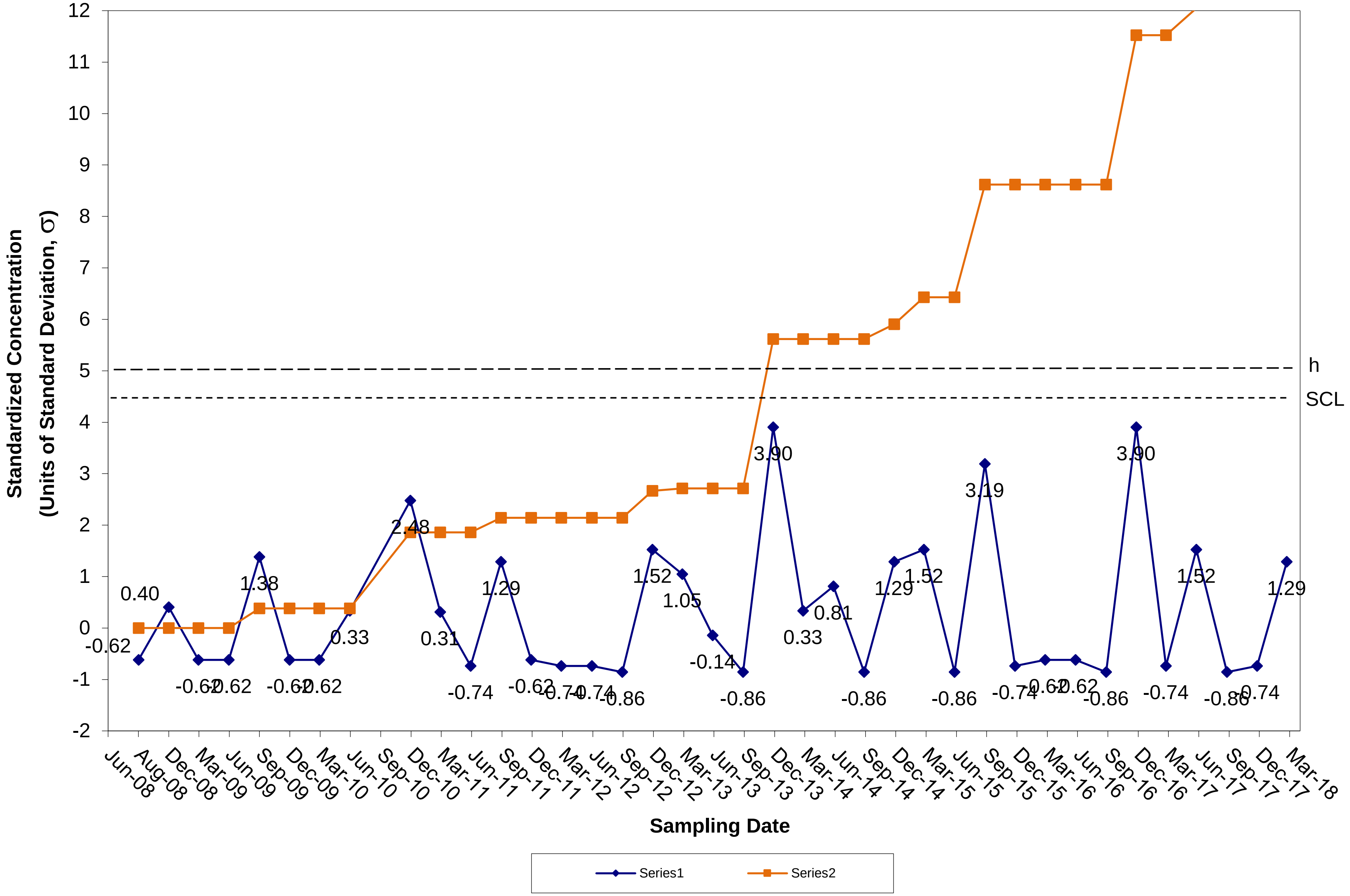
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-14



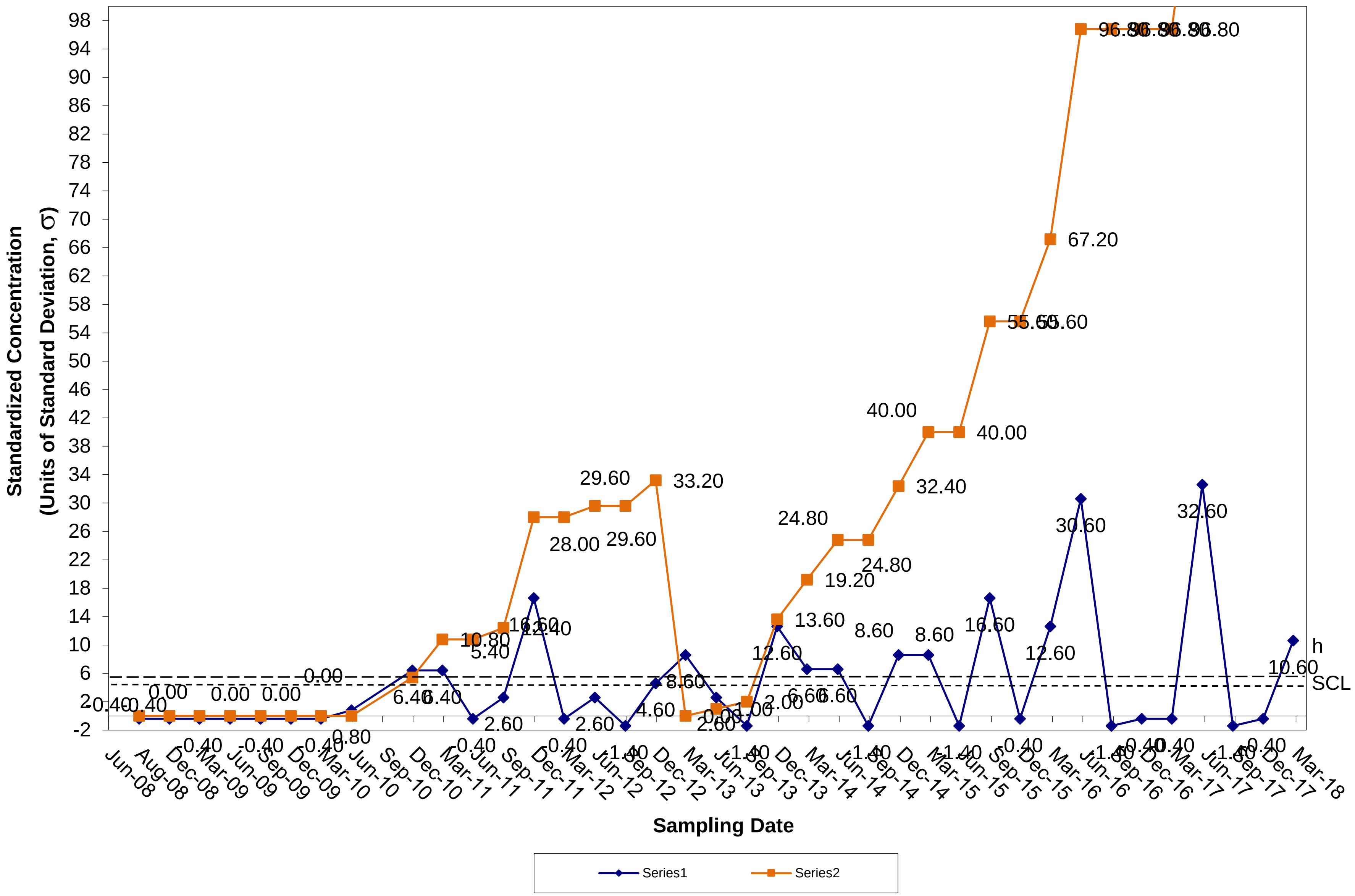
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-14



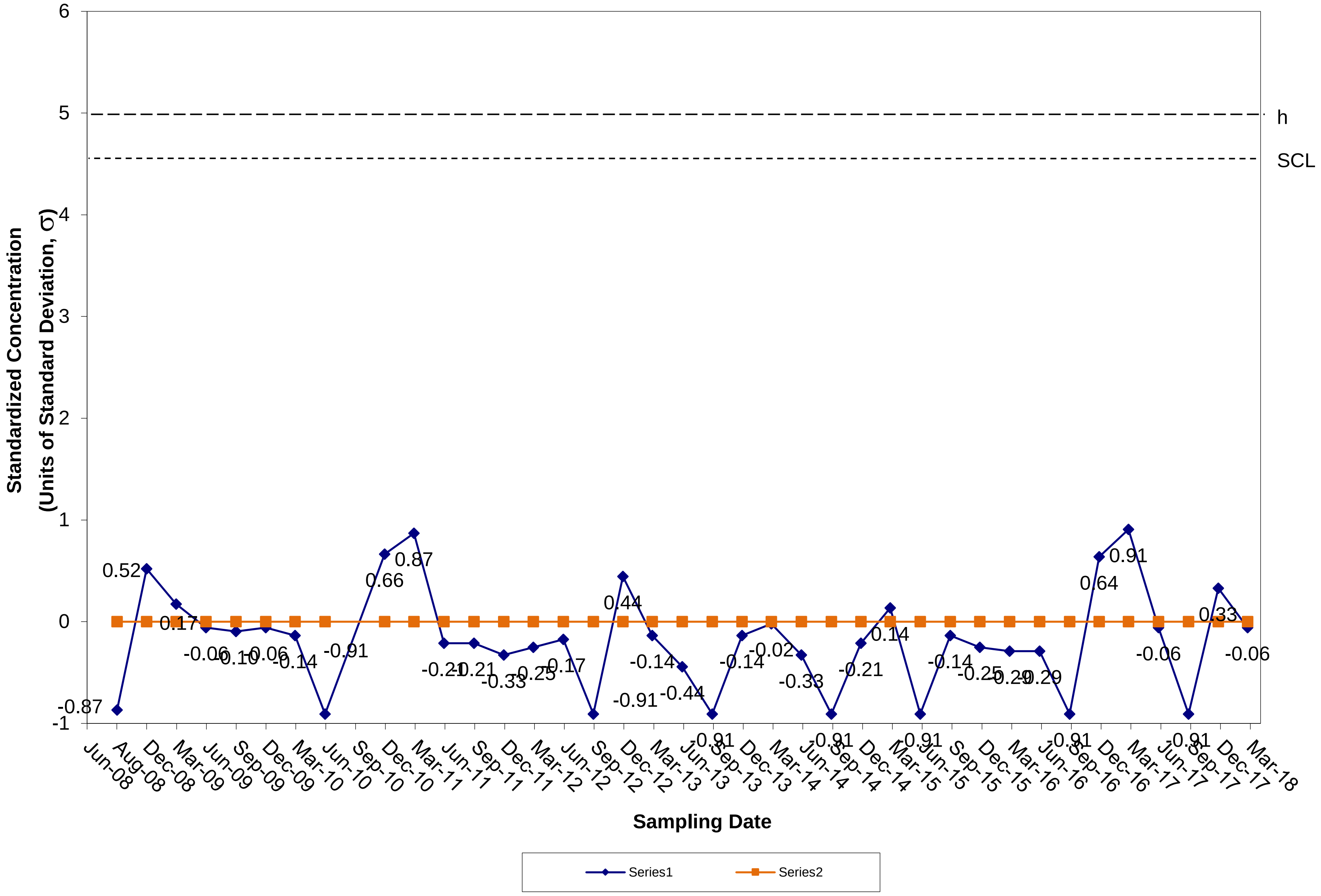
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Compliance Well OW-14

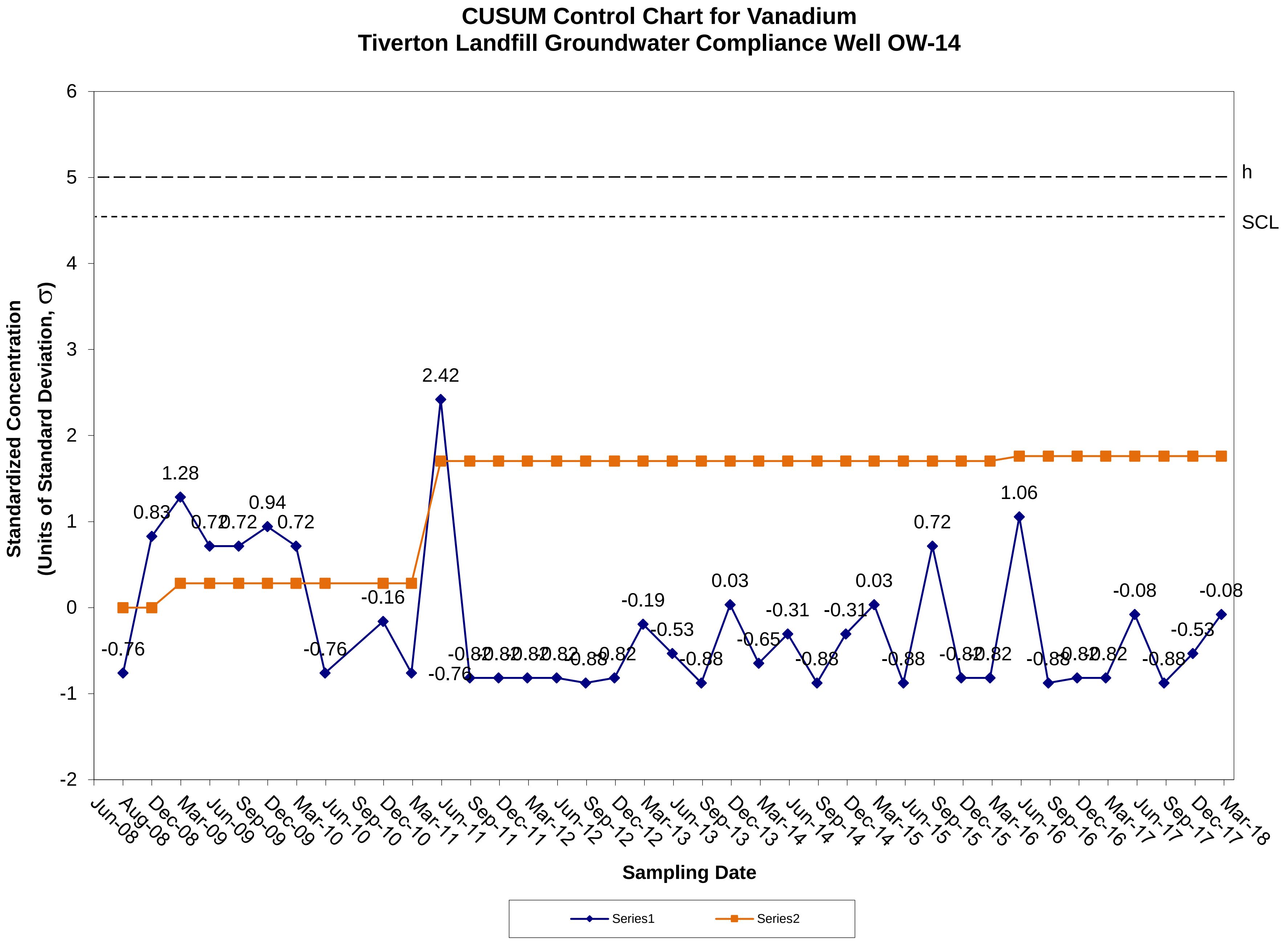


CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-14



CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-14




CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-14
Standardized Concentration
(Units of Standard Deviation, σ)
6
5
4
3
2
1
0
-1
-2
h
SCL
2.42
1.28
0.83
0.72
0.72
0.94
0.72
-0.76
-0.76
-0.16
-0.76
-0.82
-0.82
-0.82
-0.82
-0.88
-0.82
-0.19
-0.53
-0.88
0.03
-0.65
-0.31
-0.88
-0.31
0.03
-0.88
0.72
-0.82
-0.82
1.06
-0.88
-0.82
-0.82
-0.08
-0.88
-0.53
-0.08
Jun-08
Aug-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
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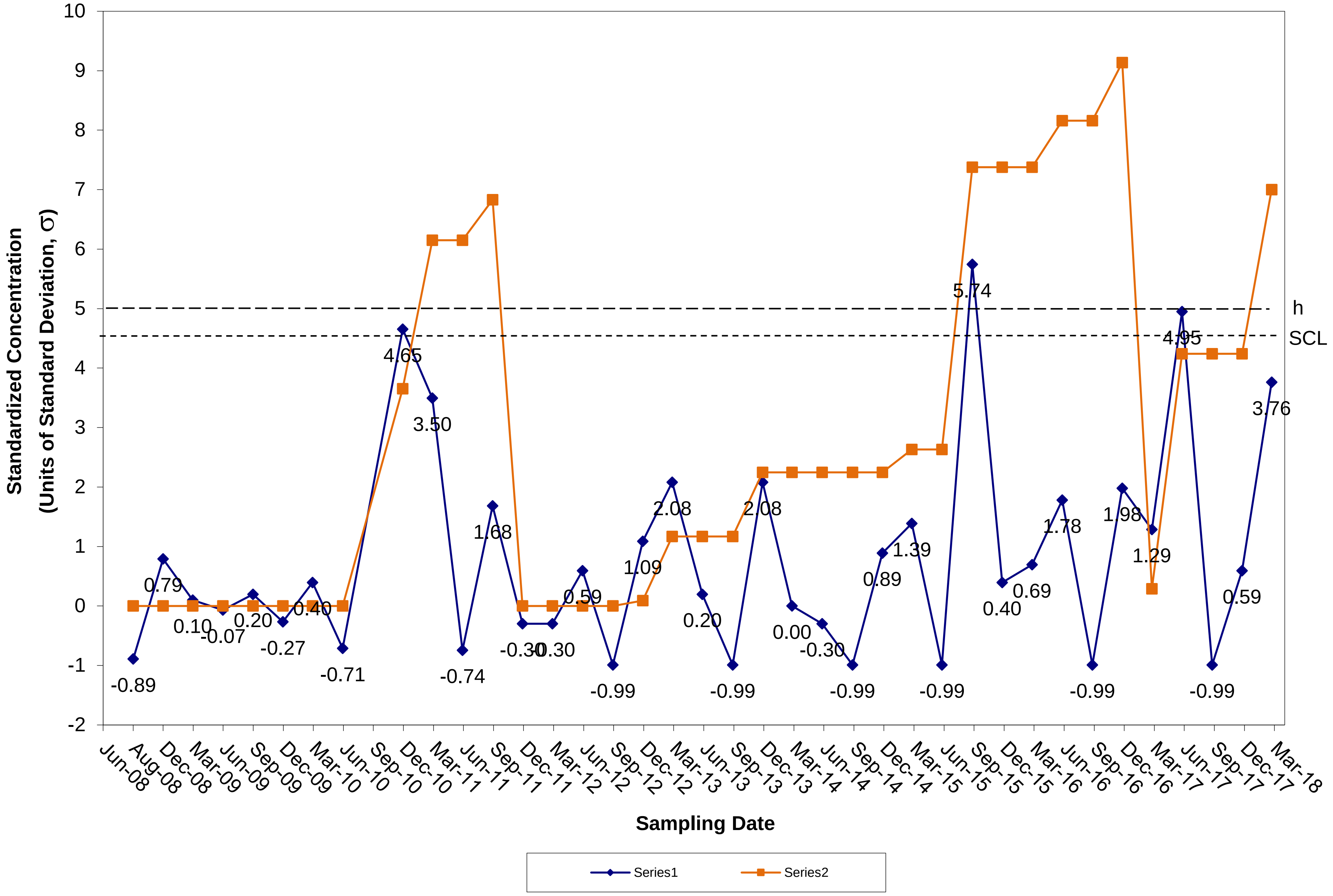
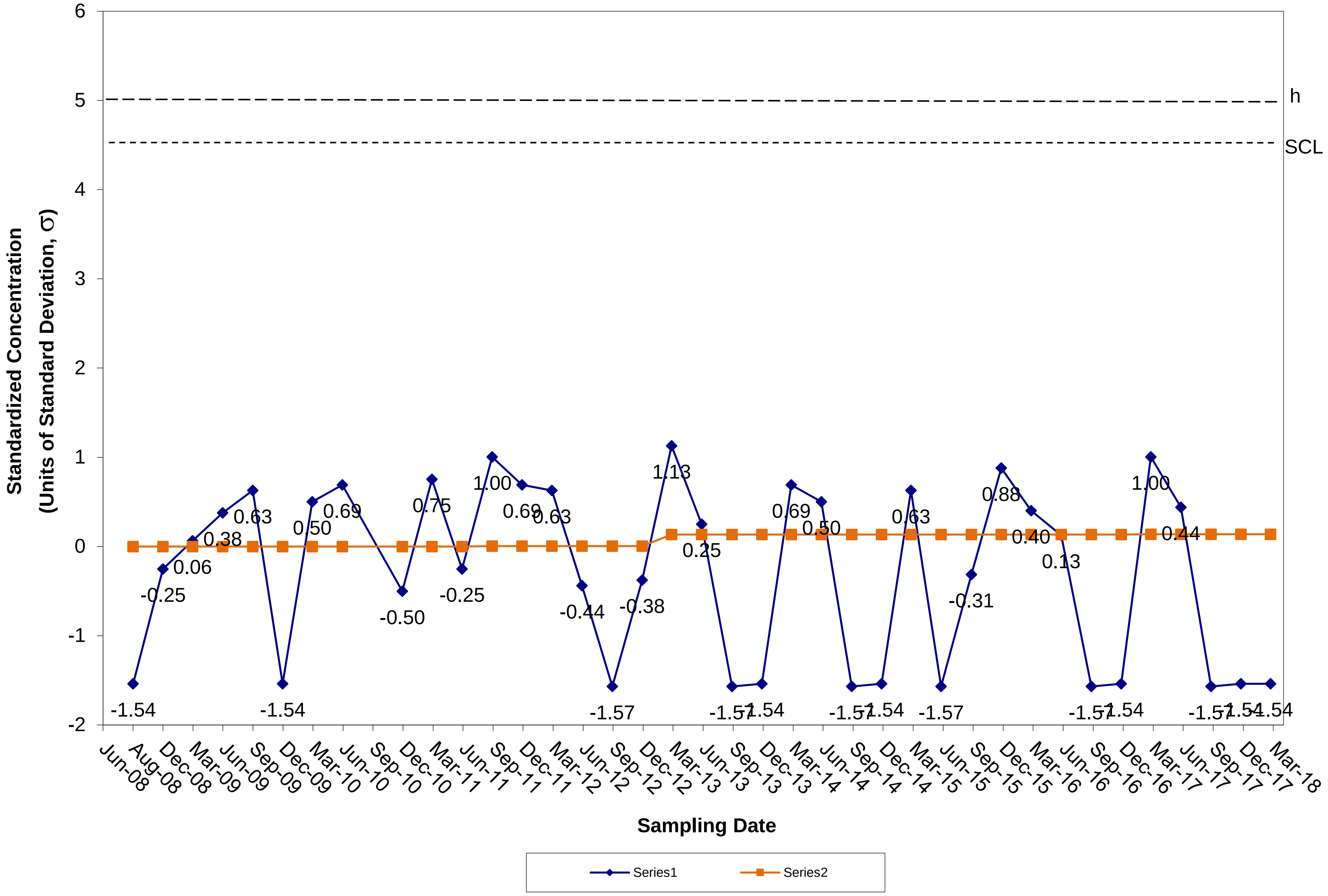
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Sampling Date
Series1
Series2

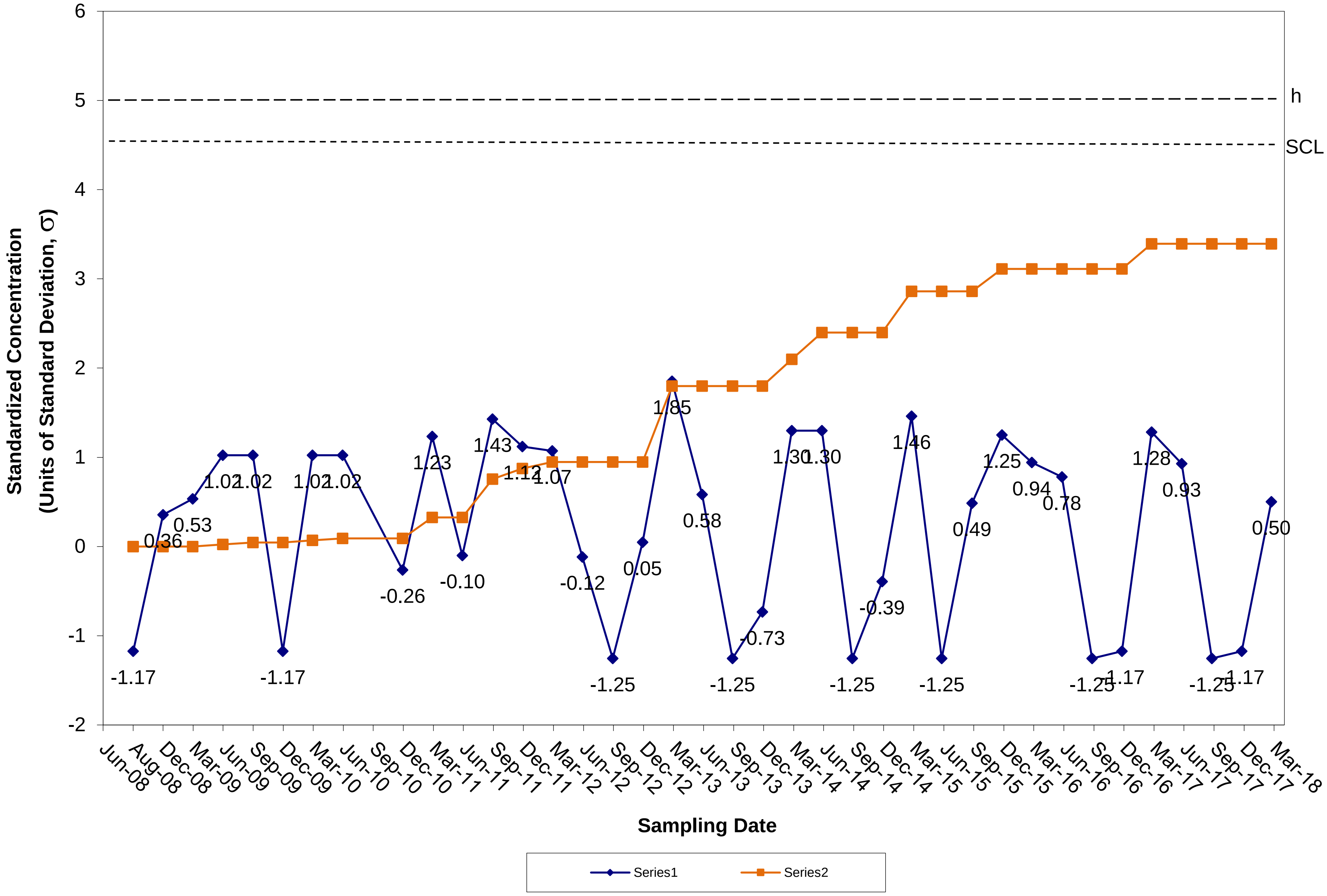
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-14



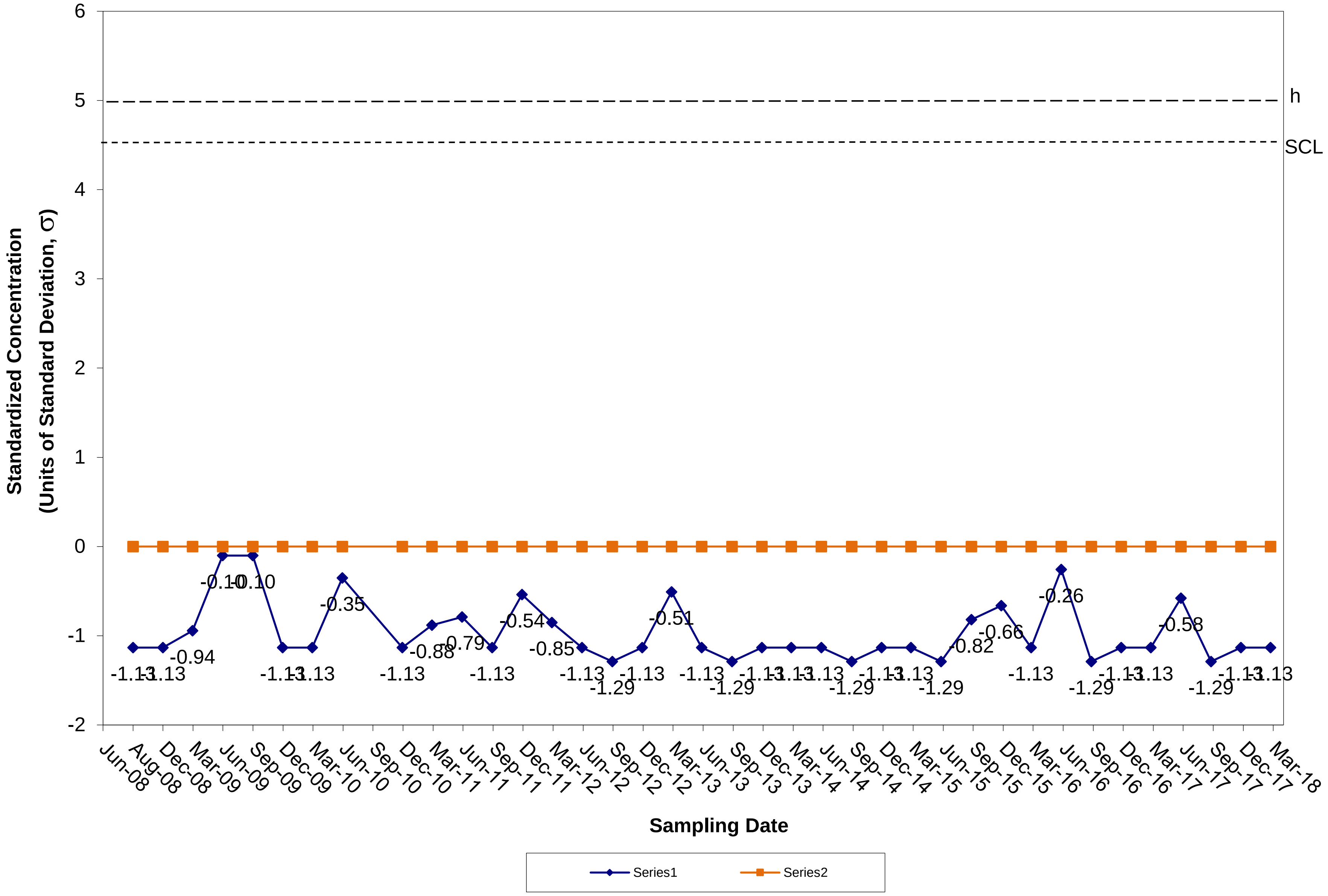
CUSUM Control Chart for Benzene
Tiverton Landfill Groundwater Compliance Well OW-14



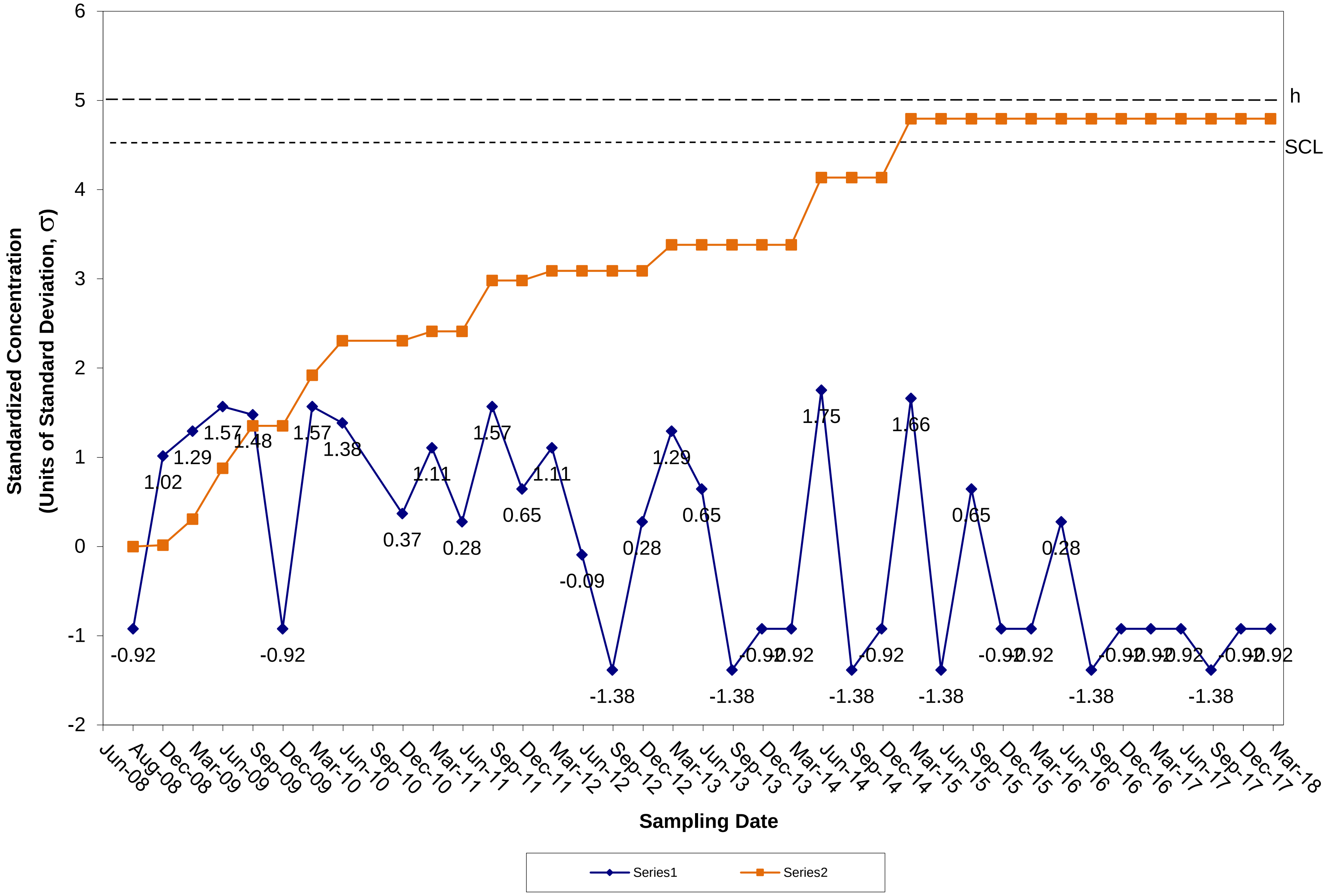
CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-14



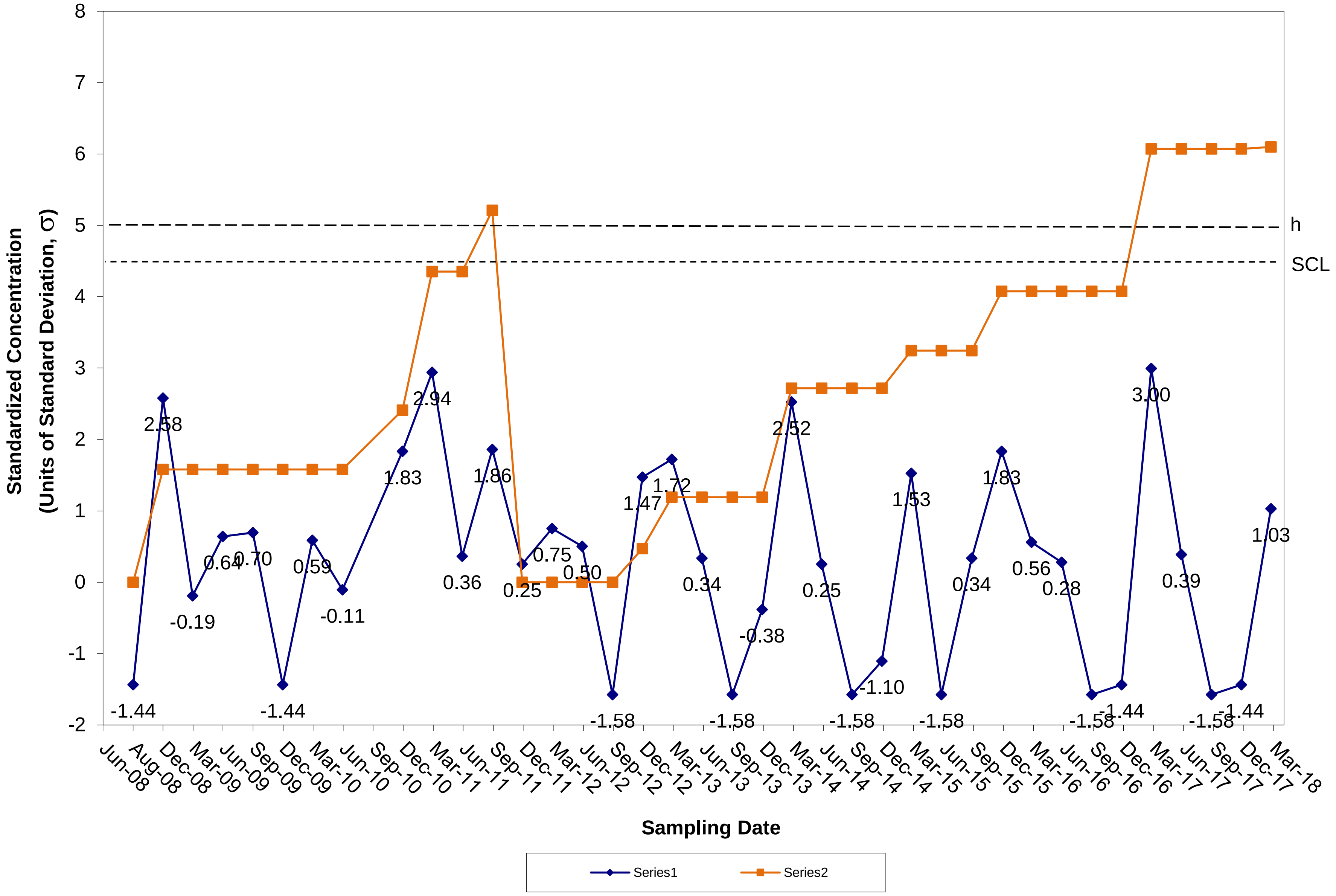
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Compliance Well OW-14



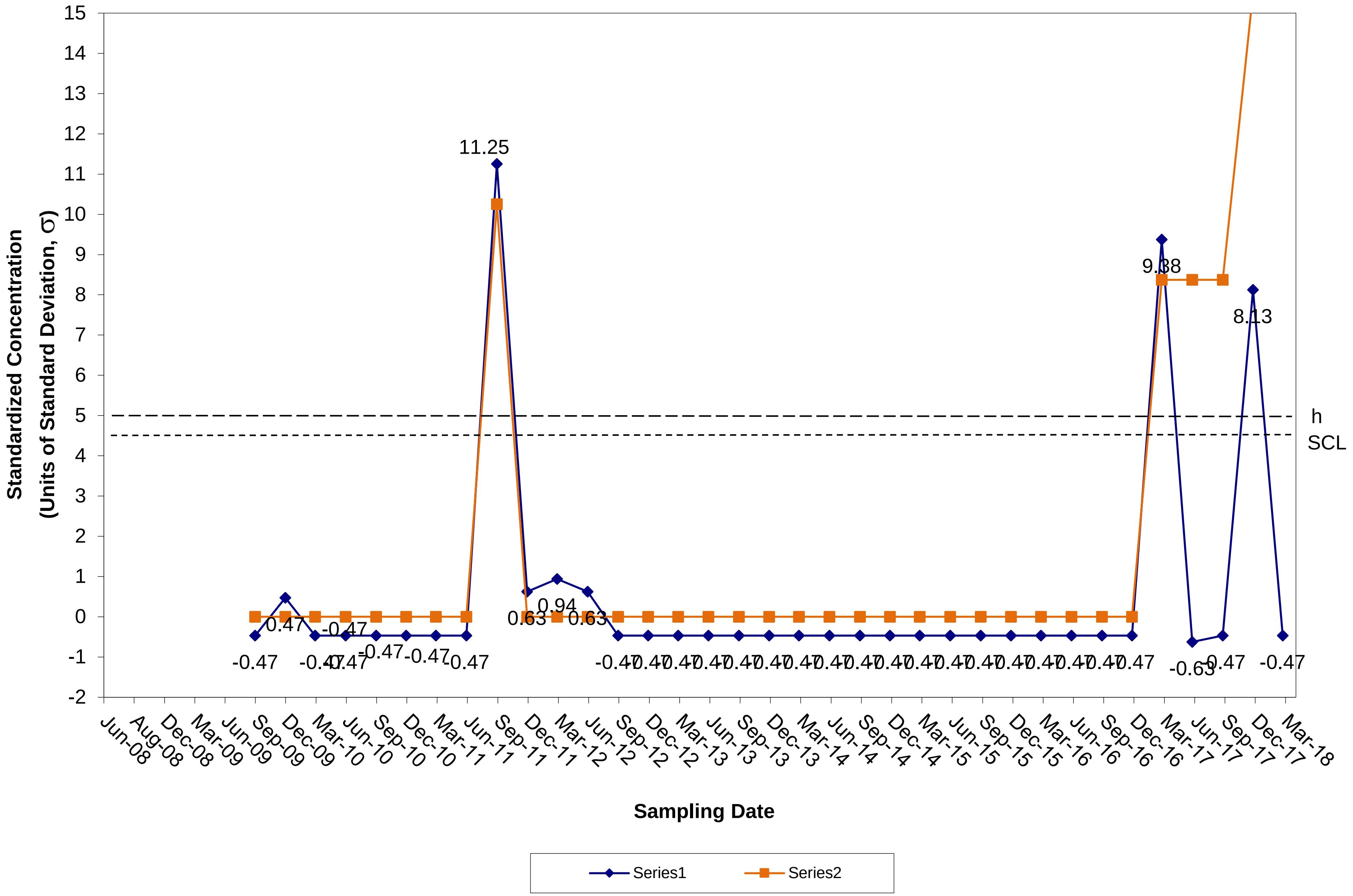
CUSUM Control Chart for 1,4-Dichlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-14



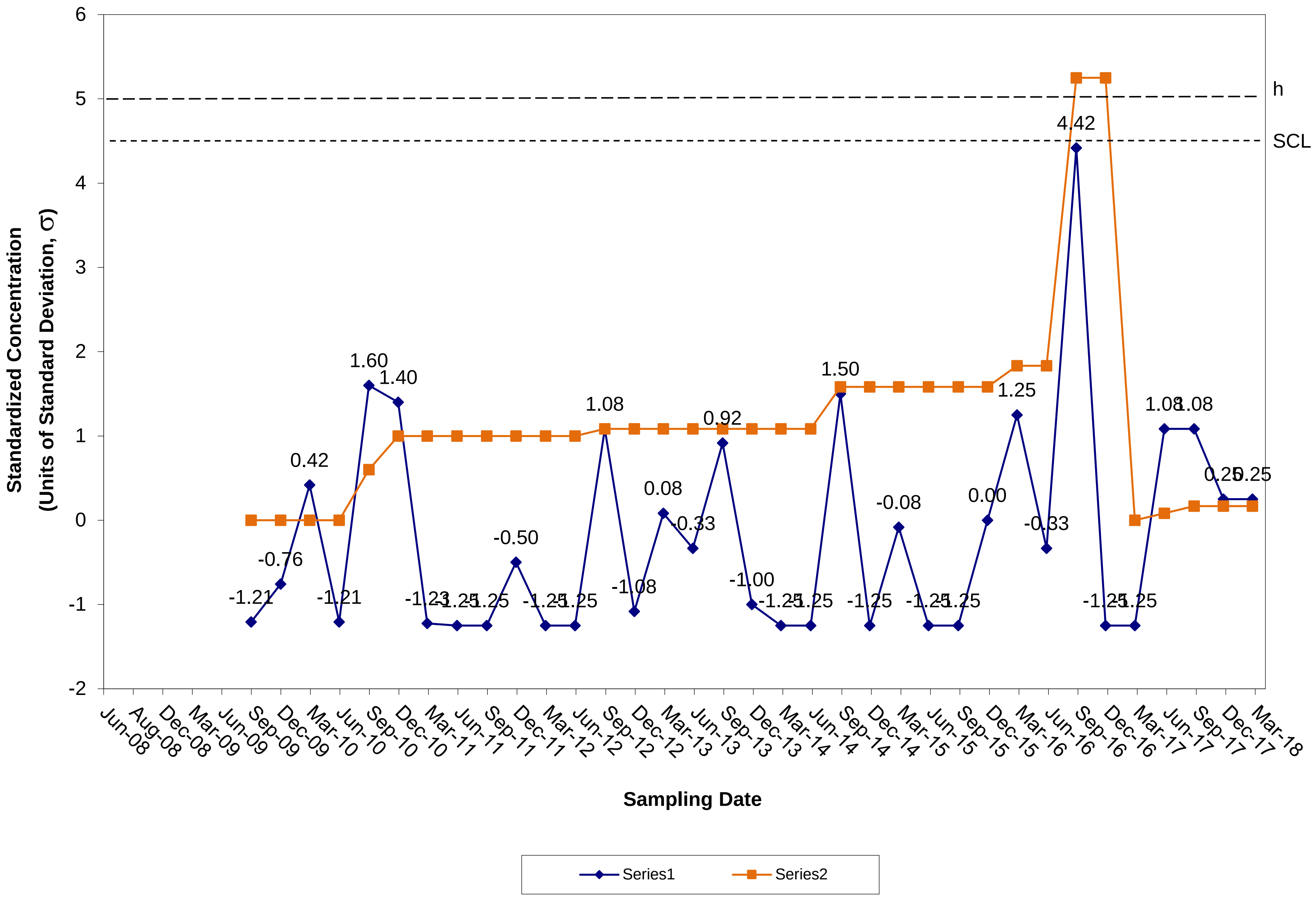
CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-14



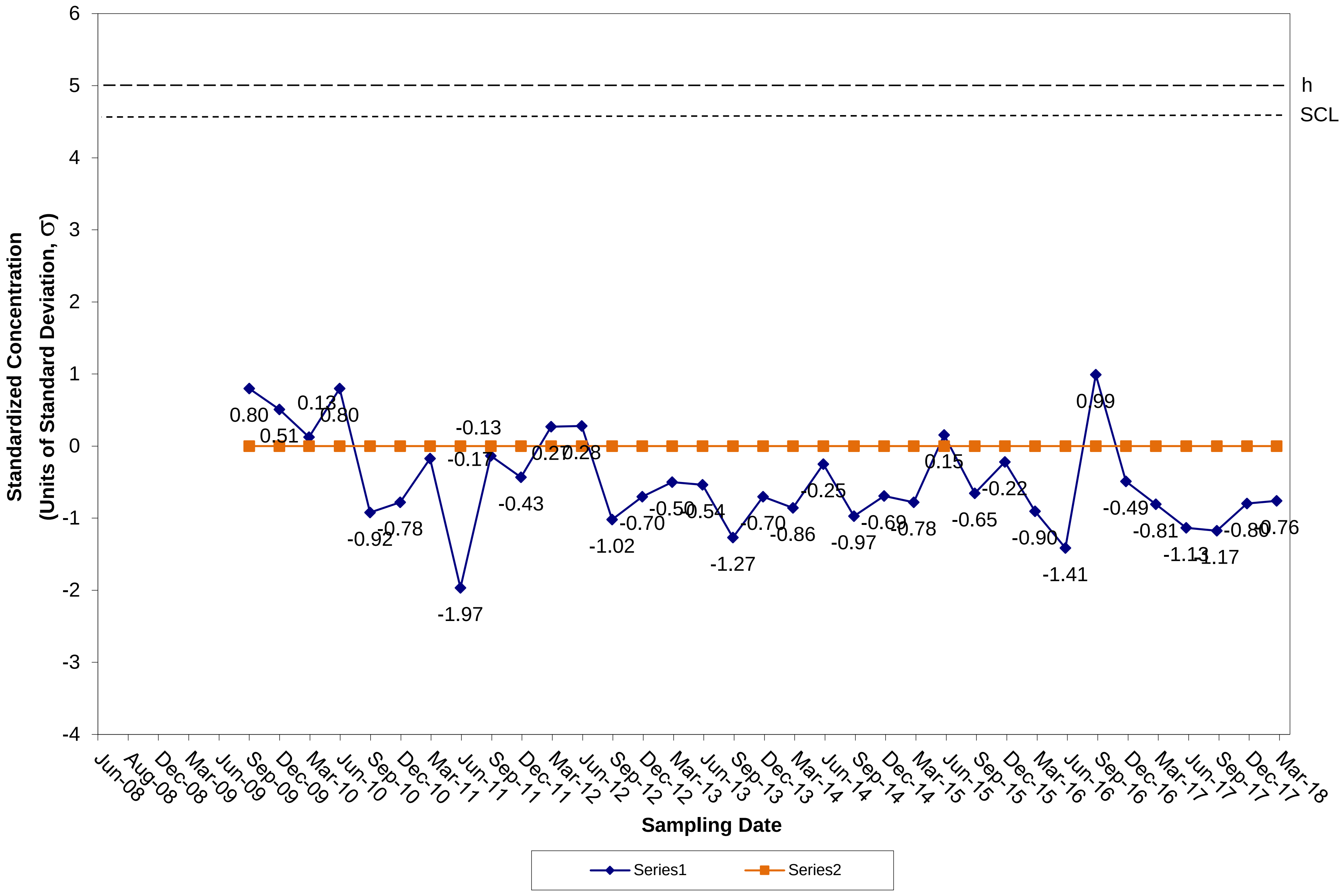
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-15



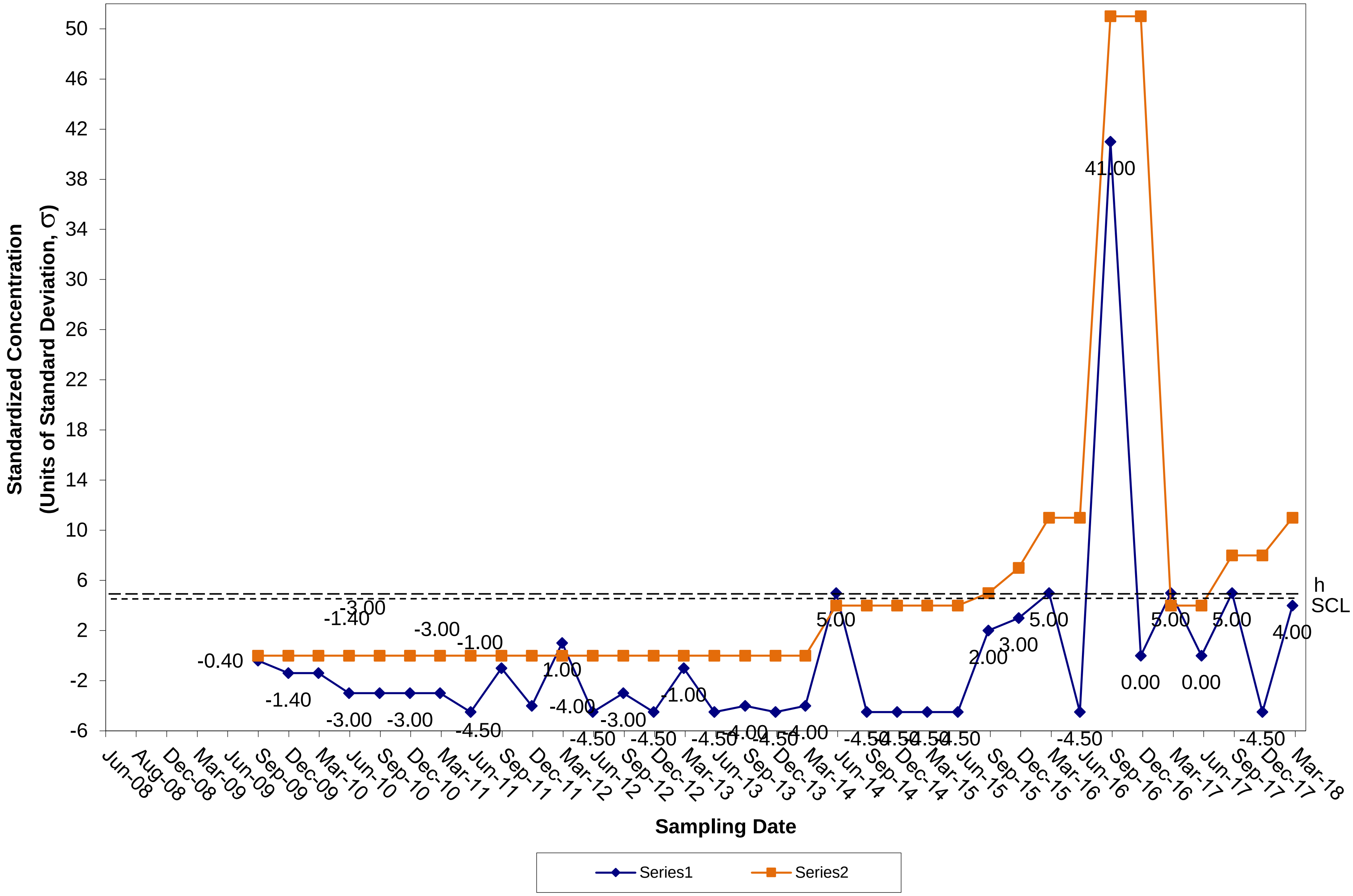
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-15



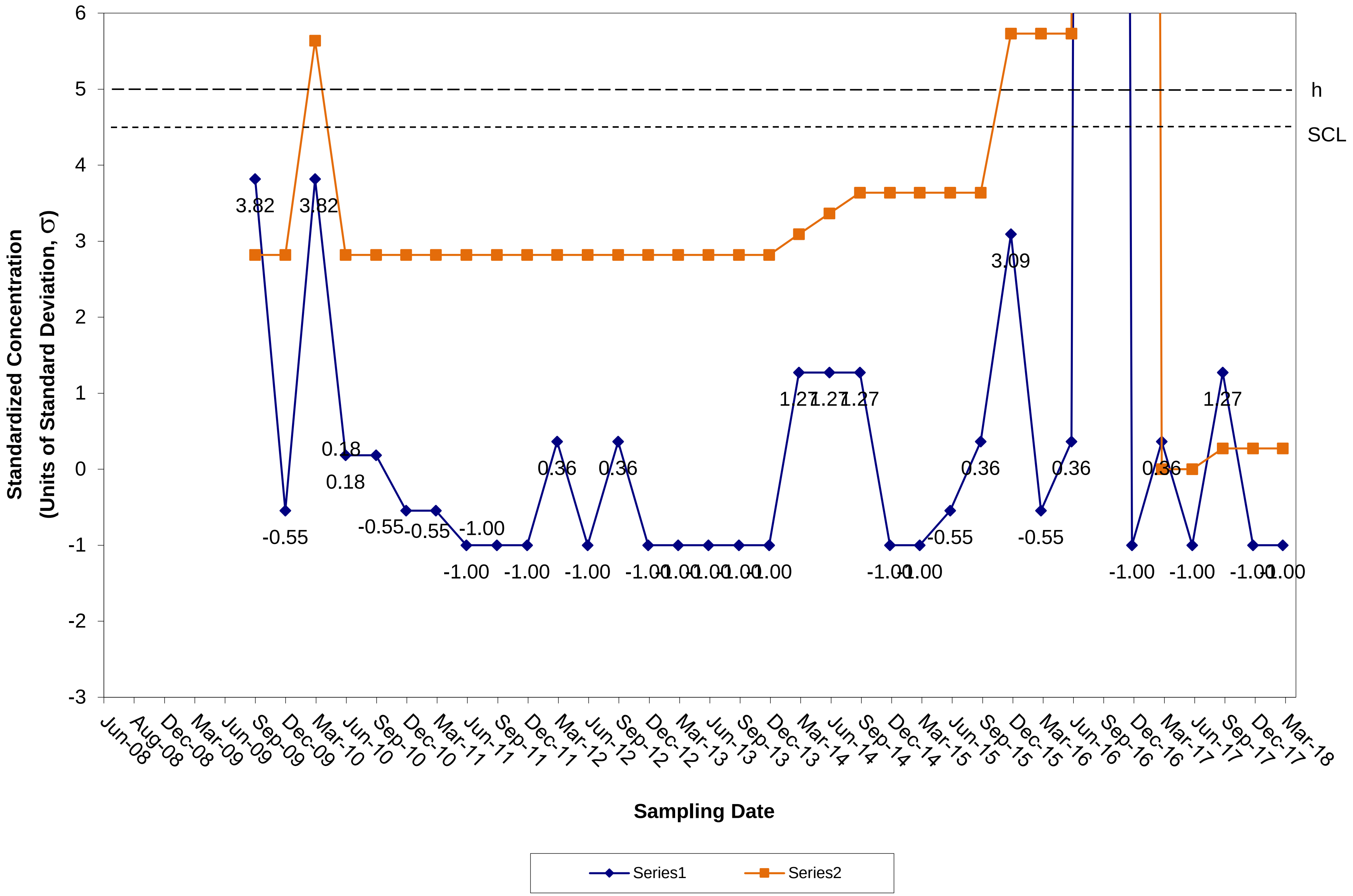
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-15



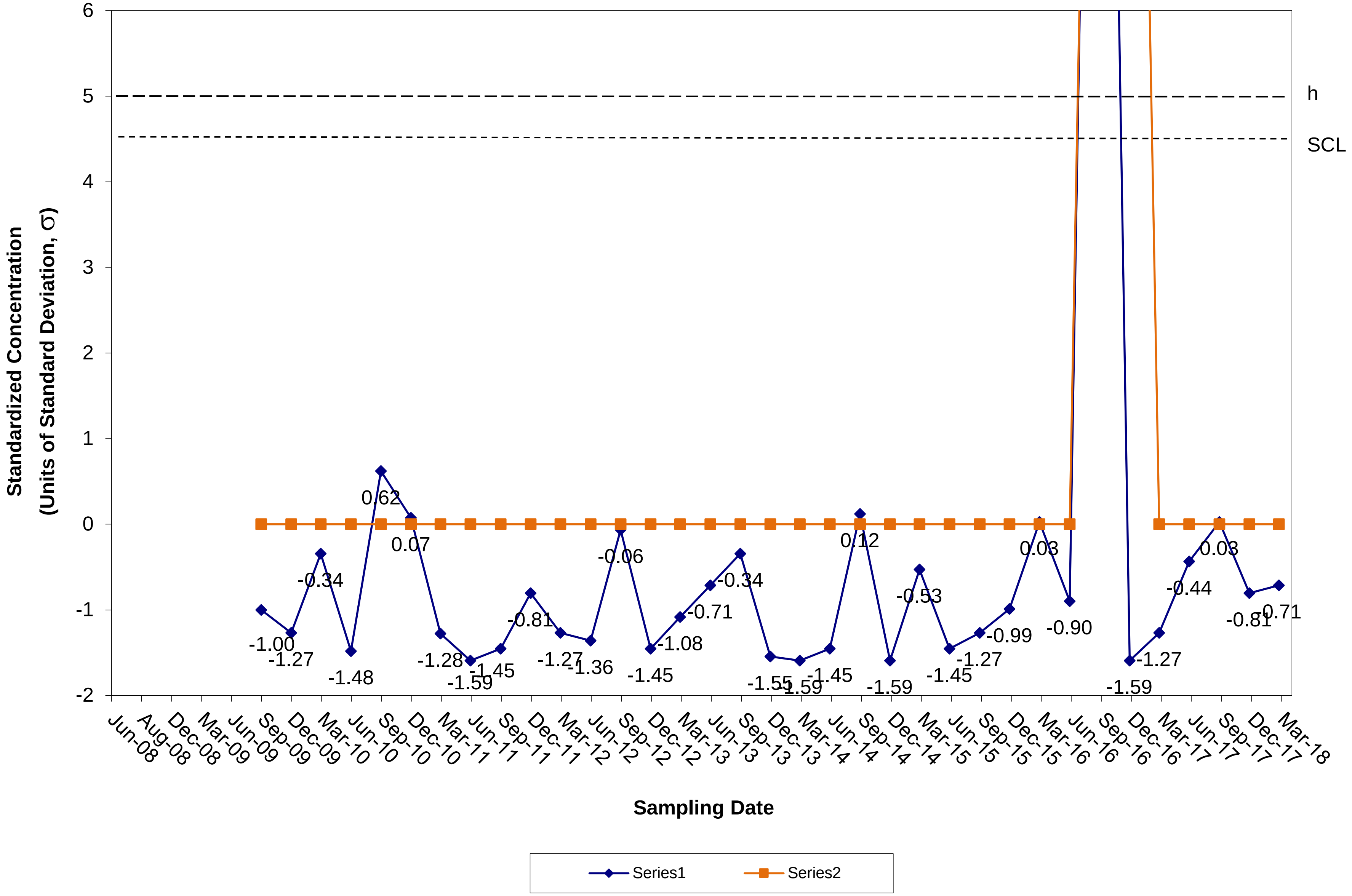
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Compliance Well OW-15



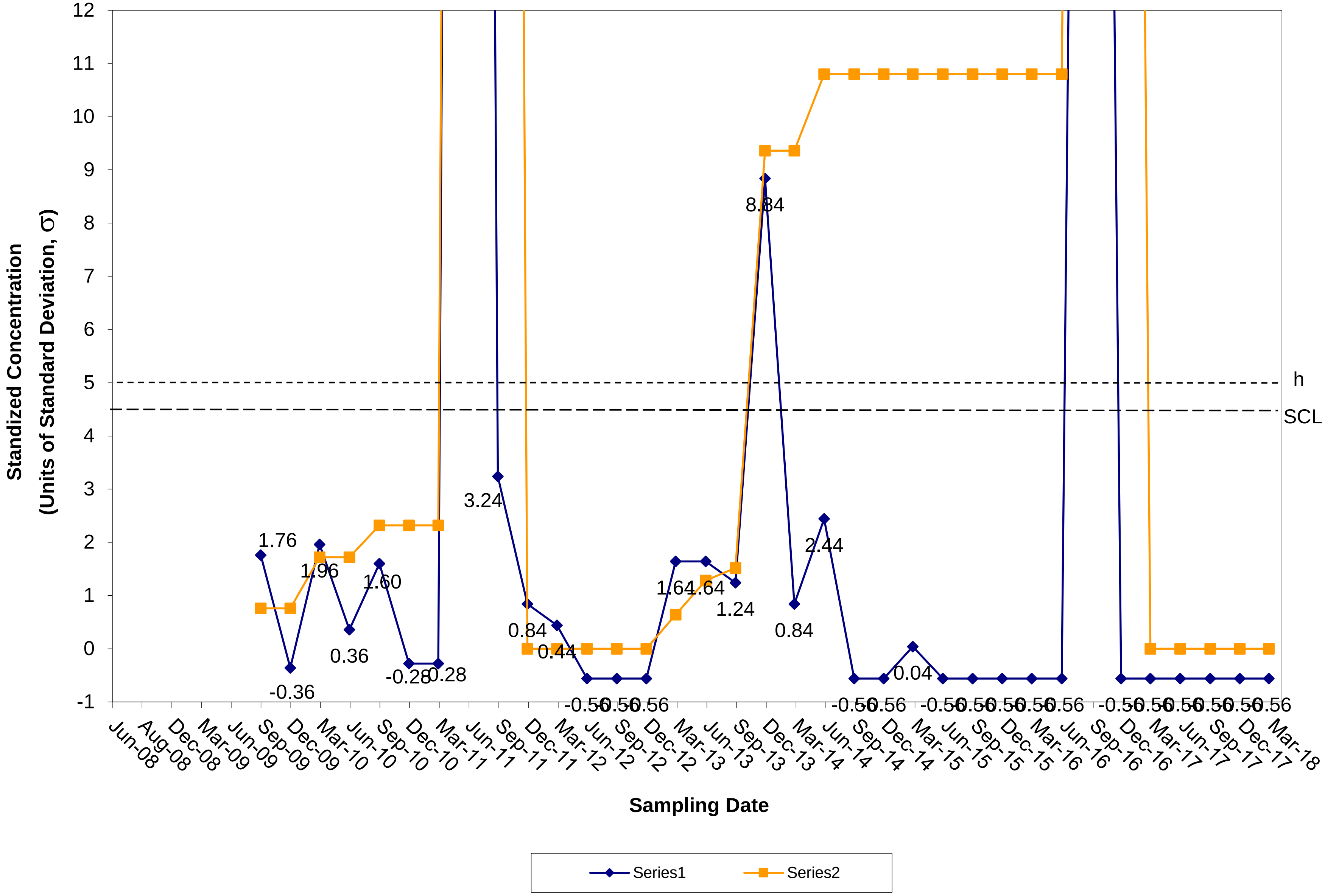
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-15



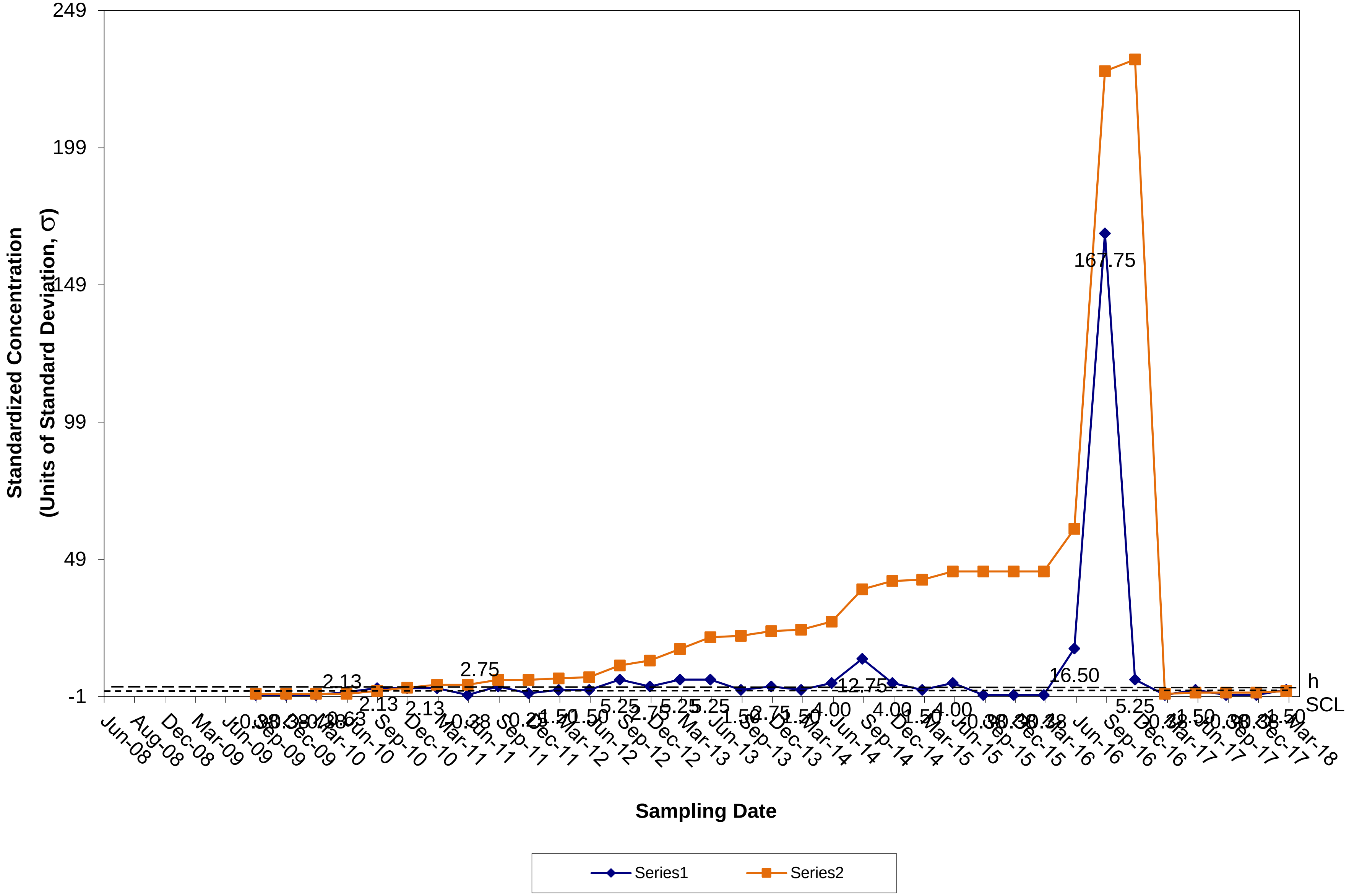
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-15



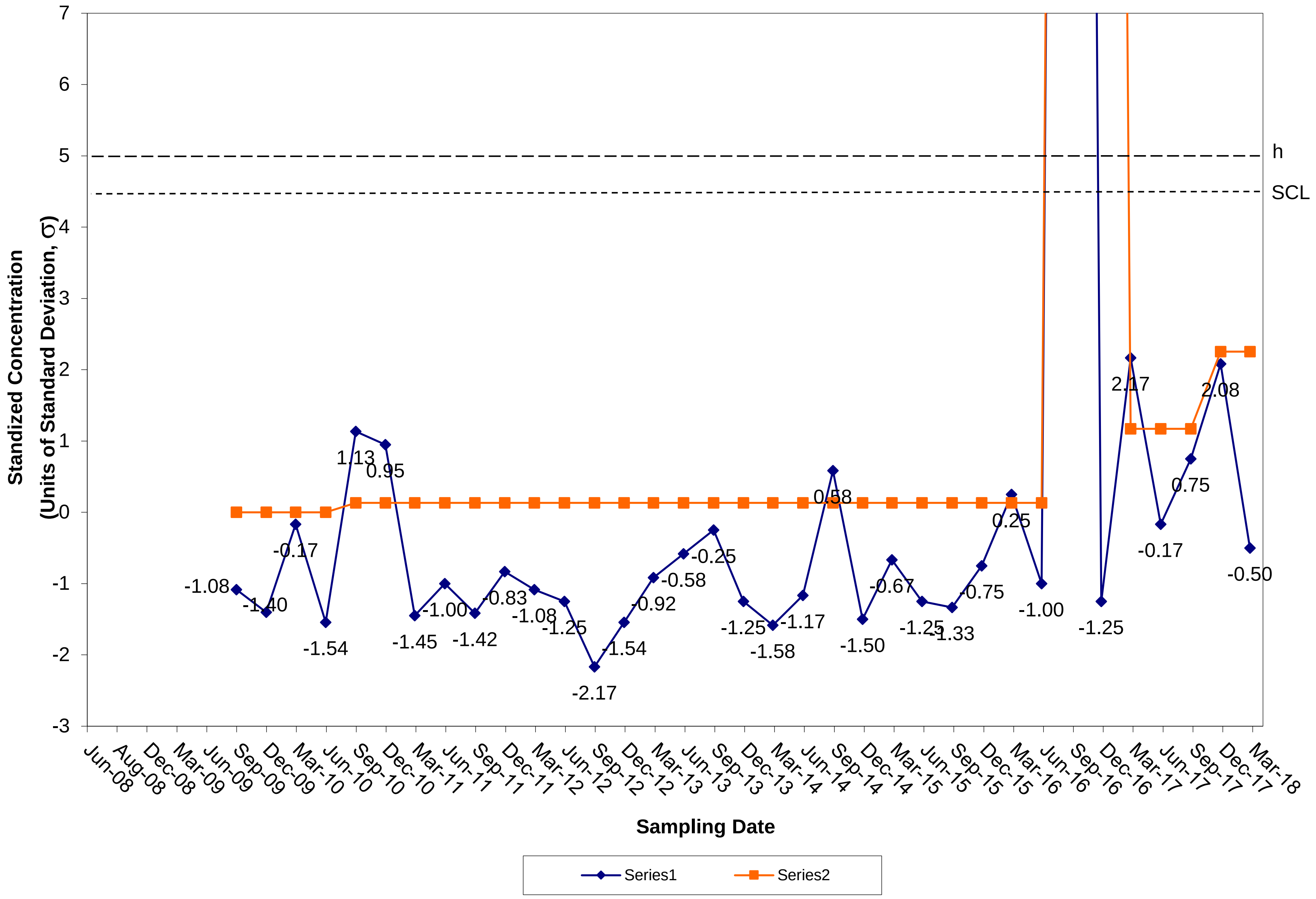
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Complaince Well OW-15



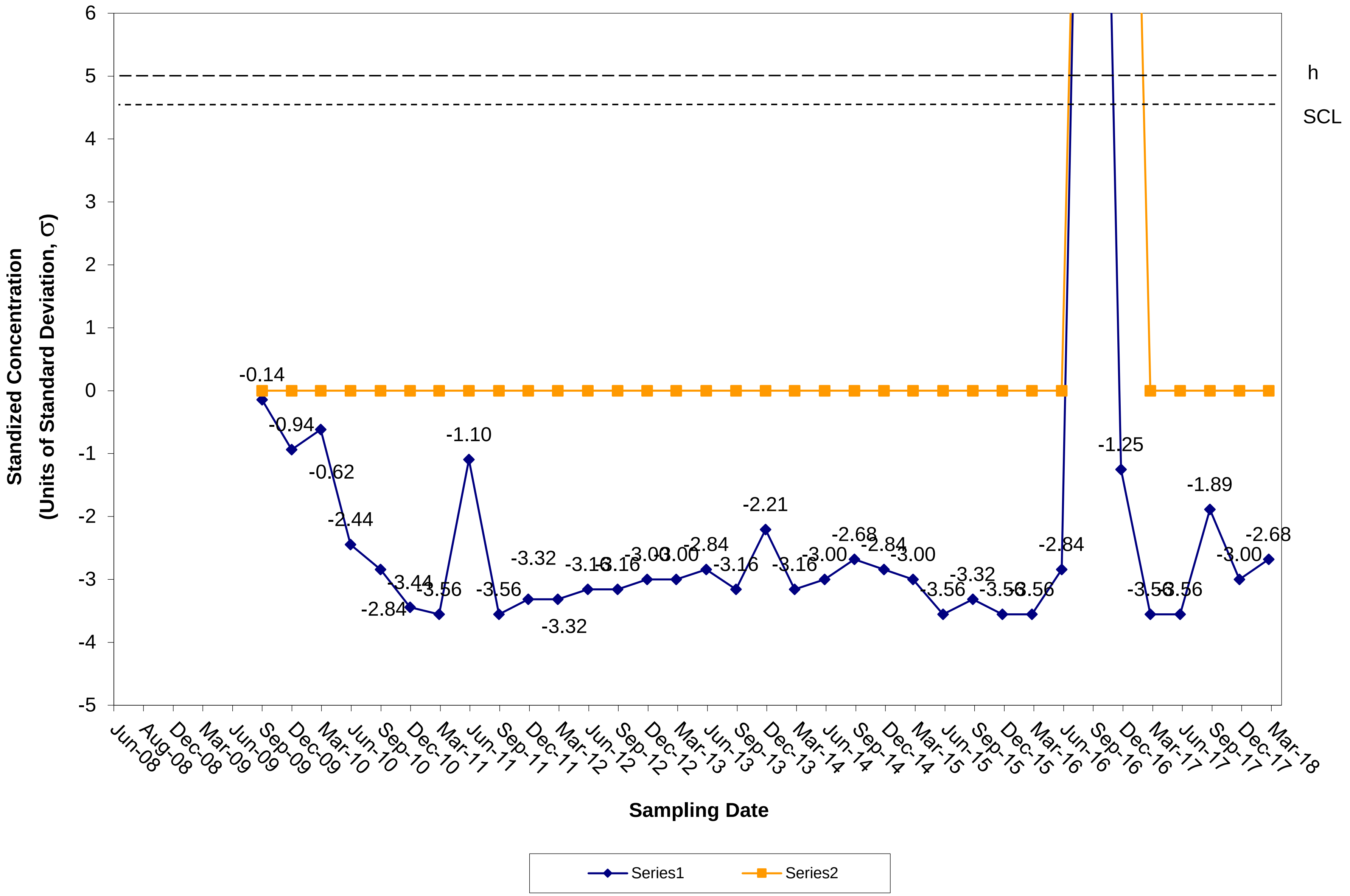
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-15



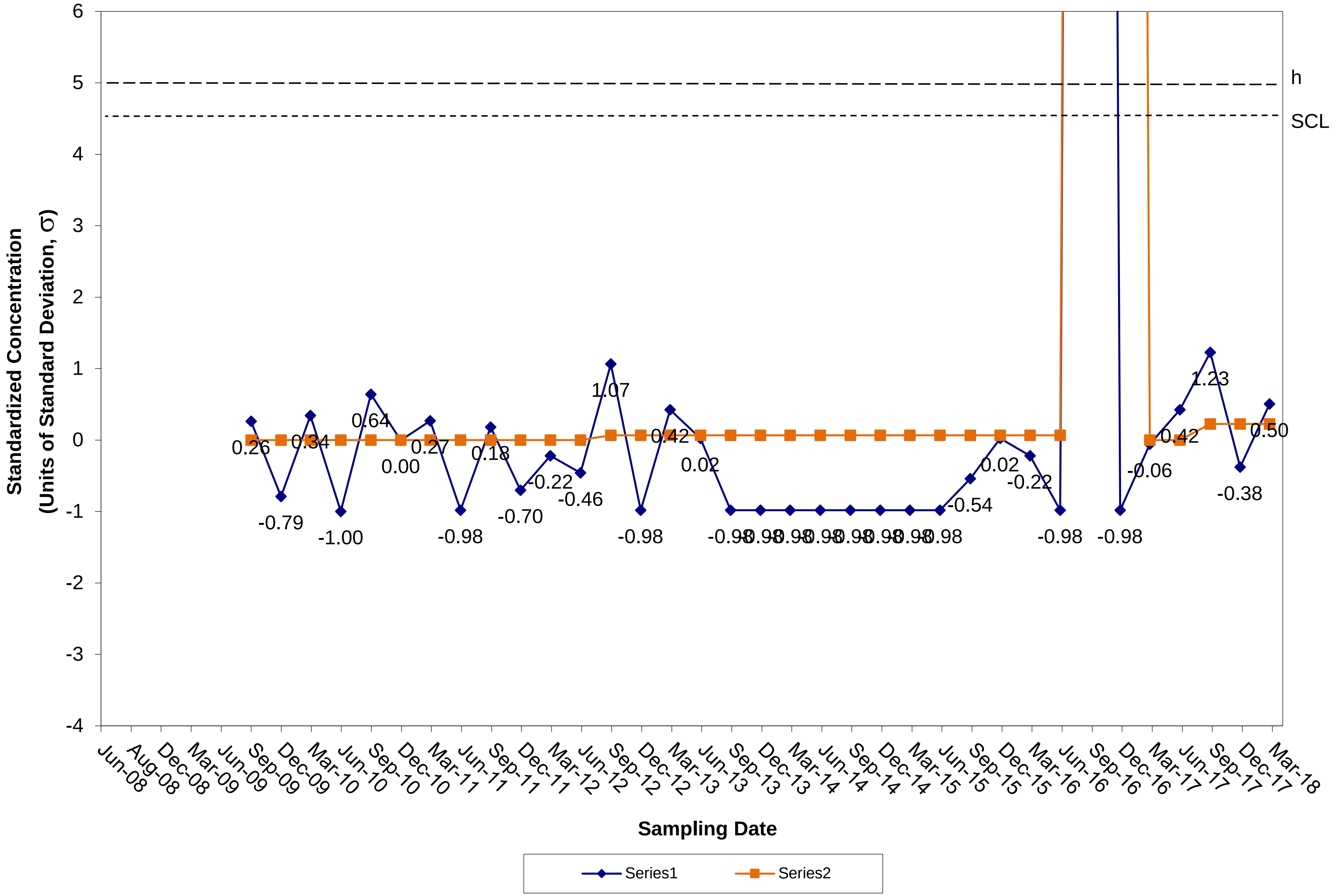
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Complaince Well OW-15



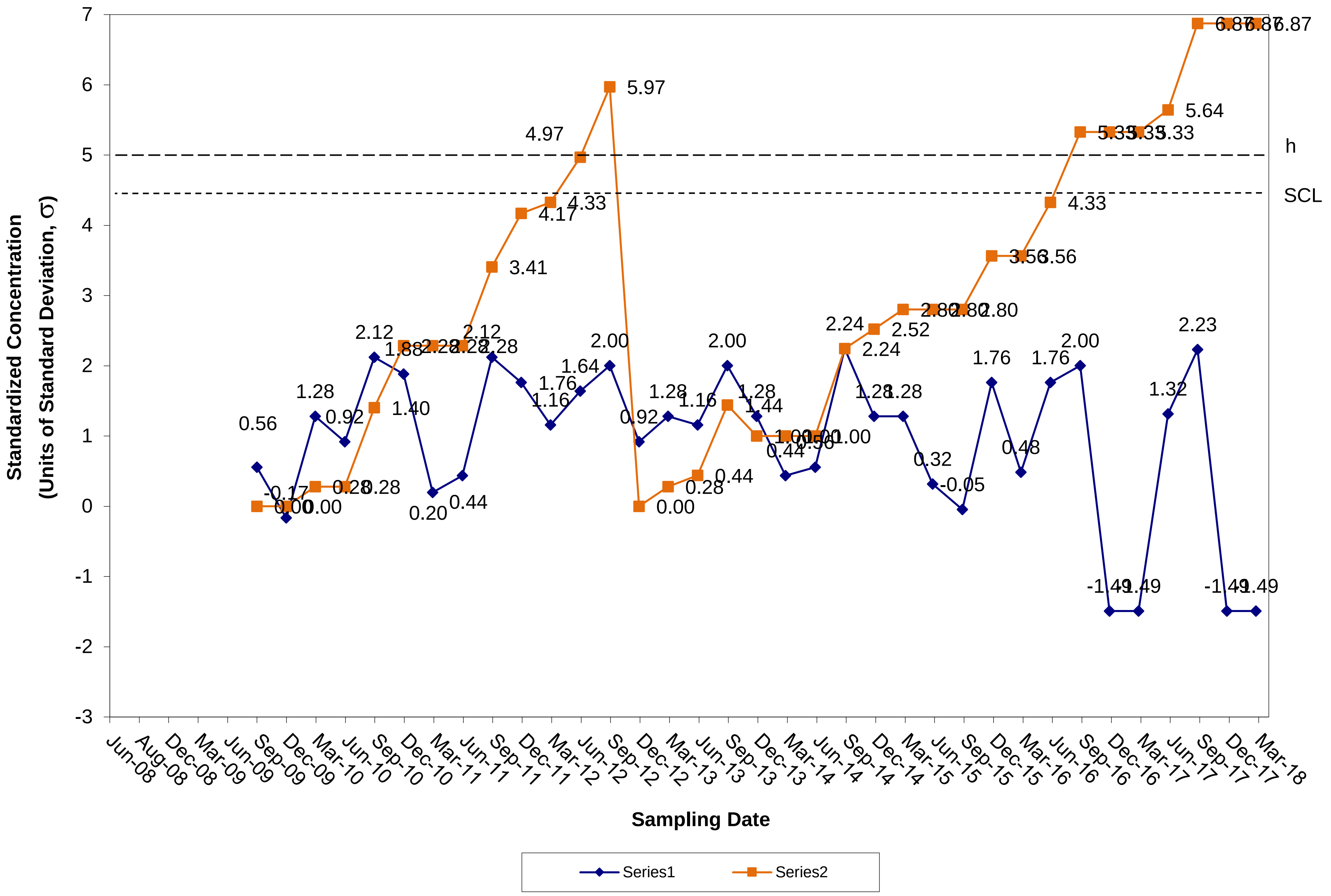
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Complaince Well OW-15



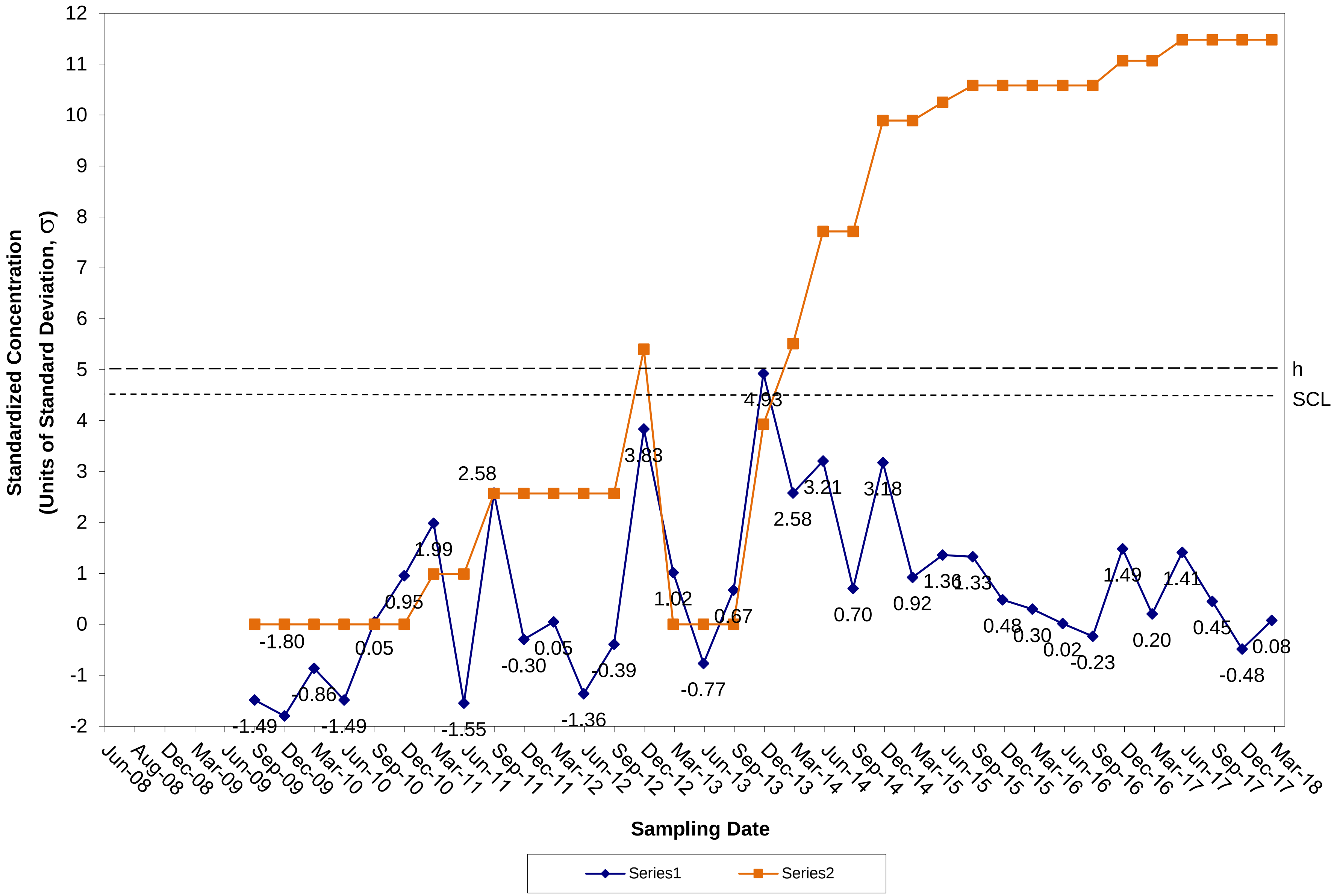
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-15



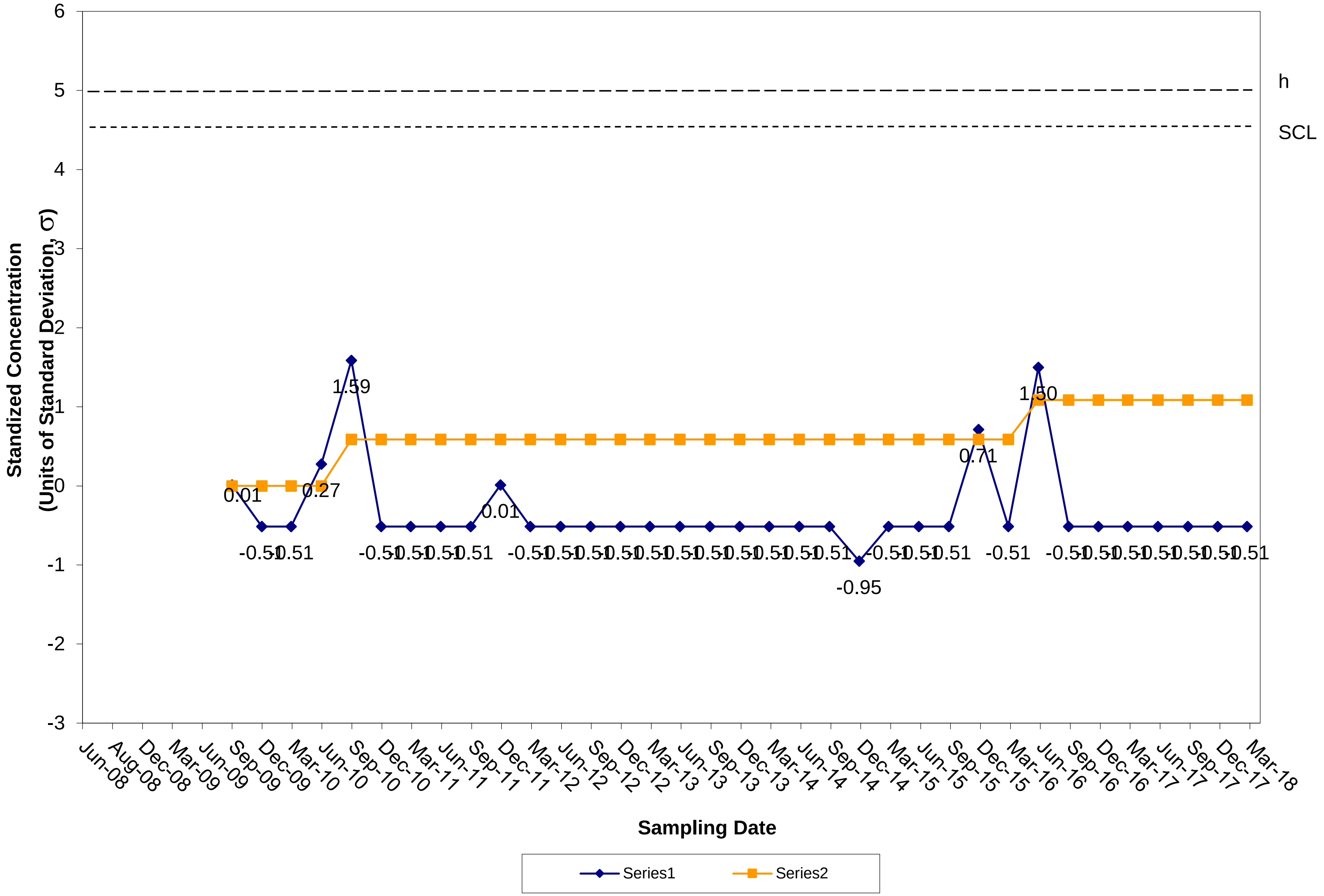
CUSUM Control Chart for Benzene
Tiverton Landfill Groundwater Compliance Well OW-15



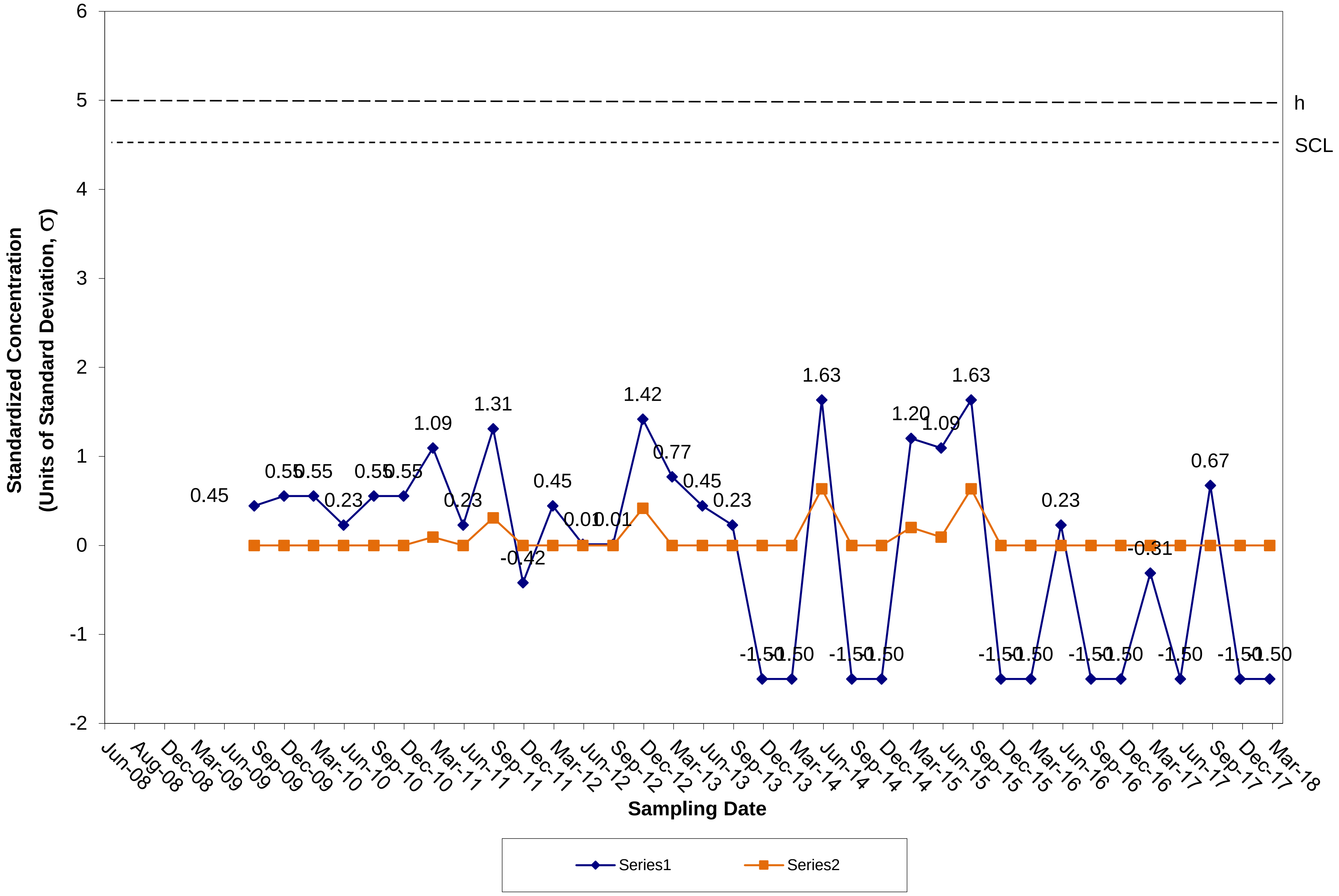
CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-15



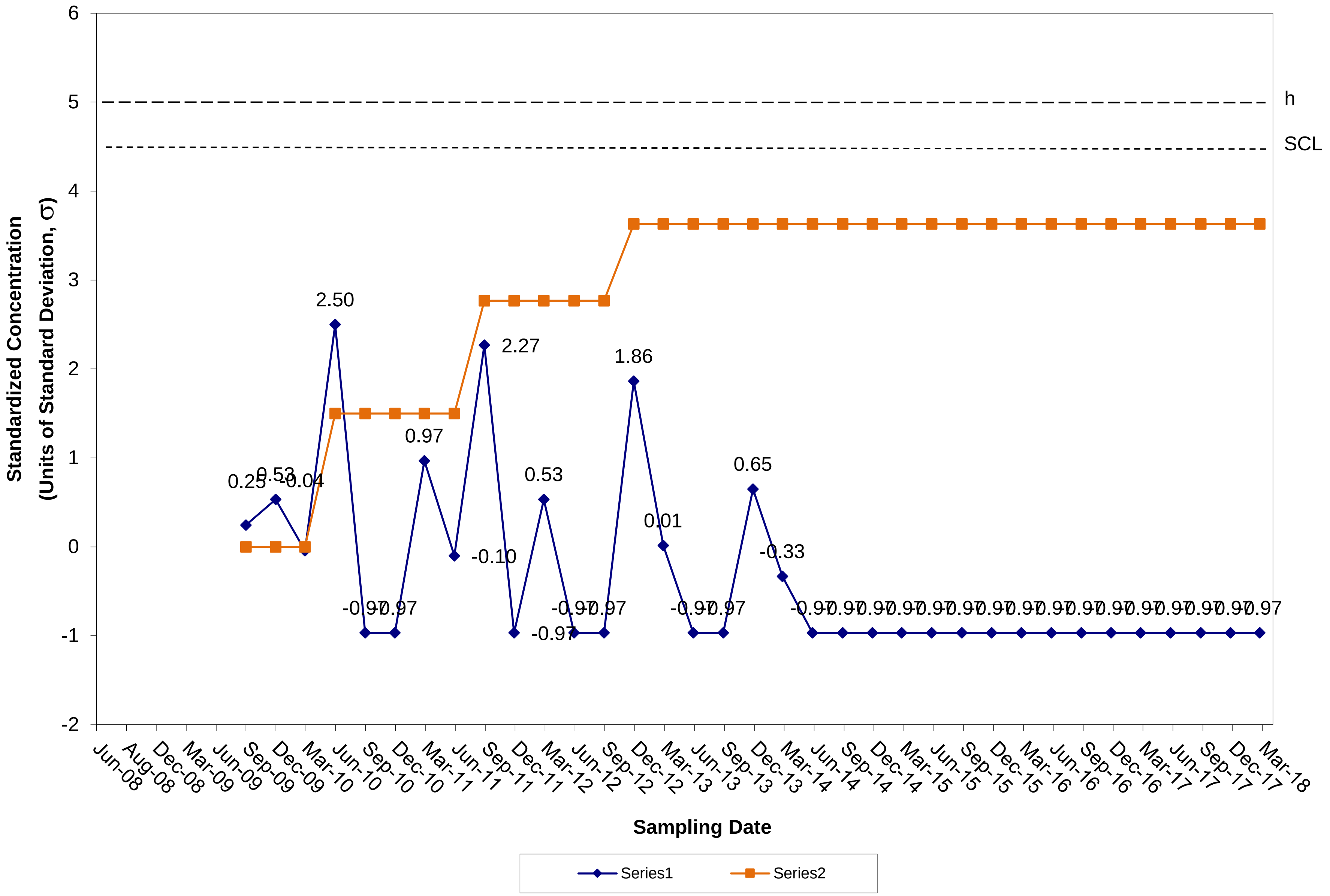
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Complaince Well OW-15



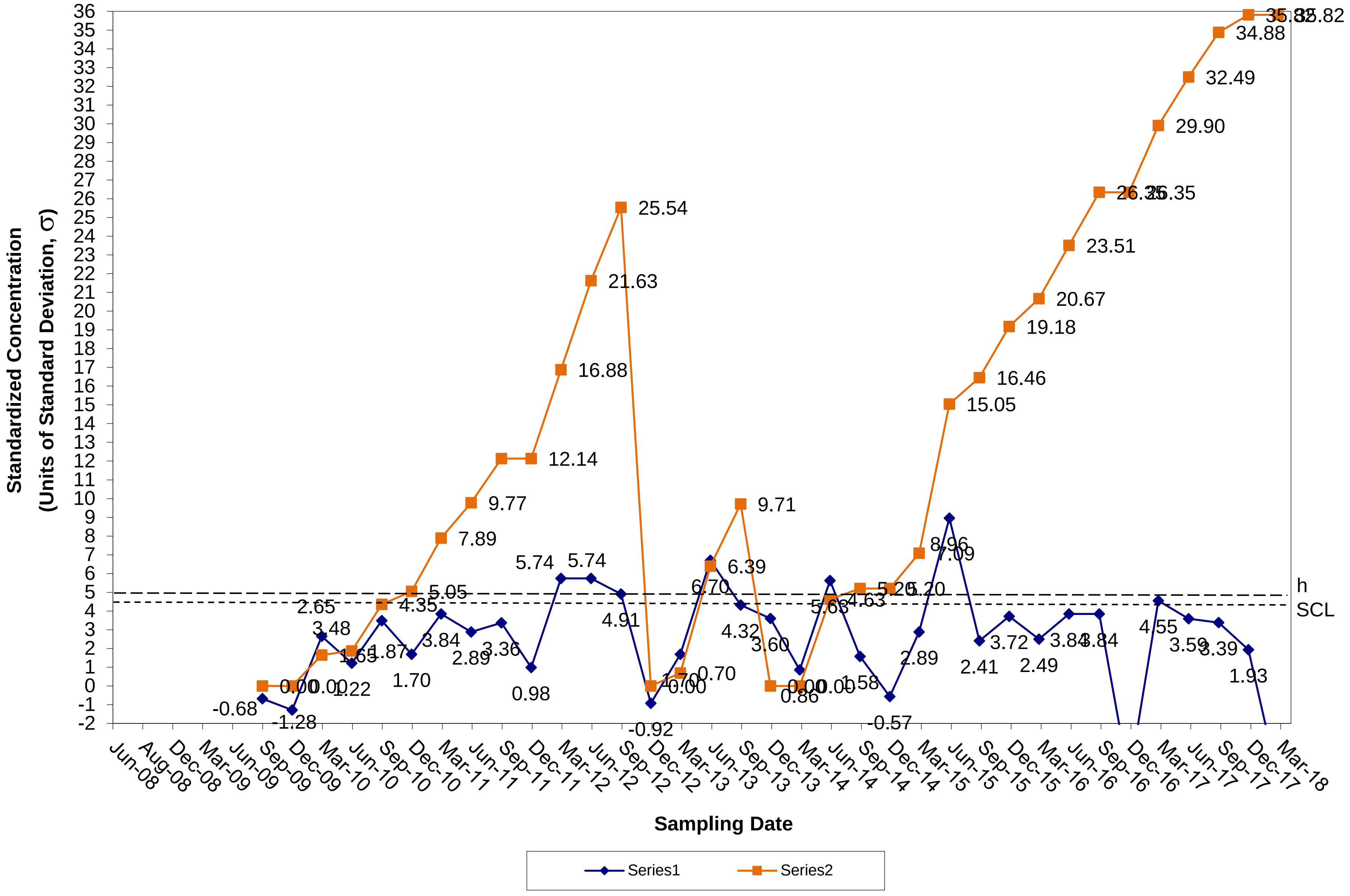
CUSUM Control Chart for 1,4-Dichlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-15



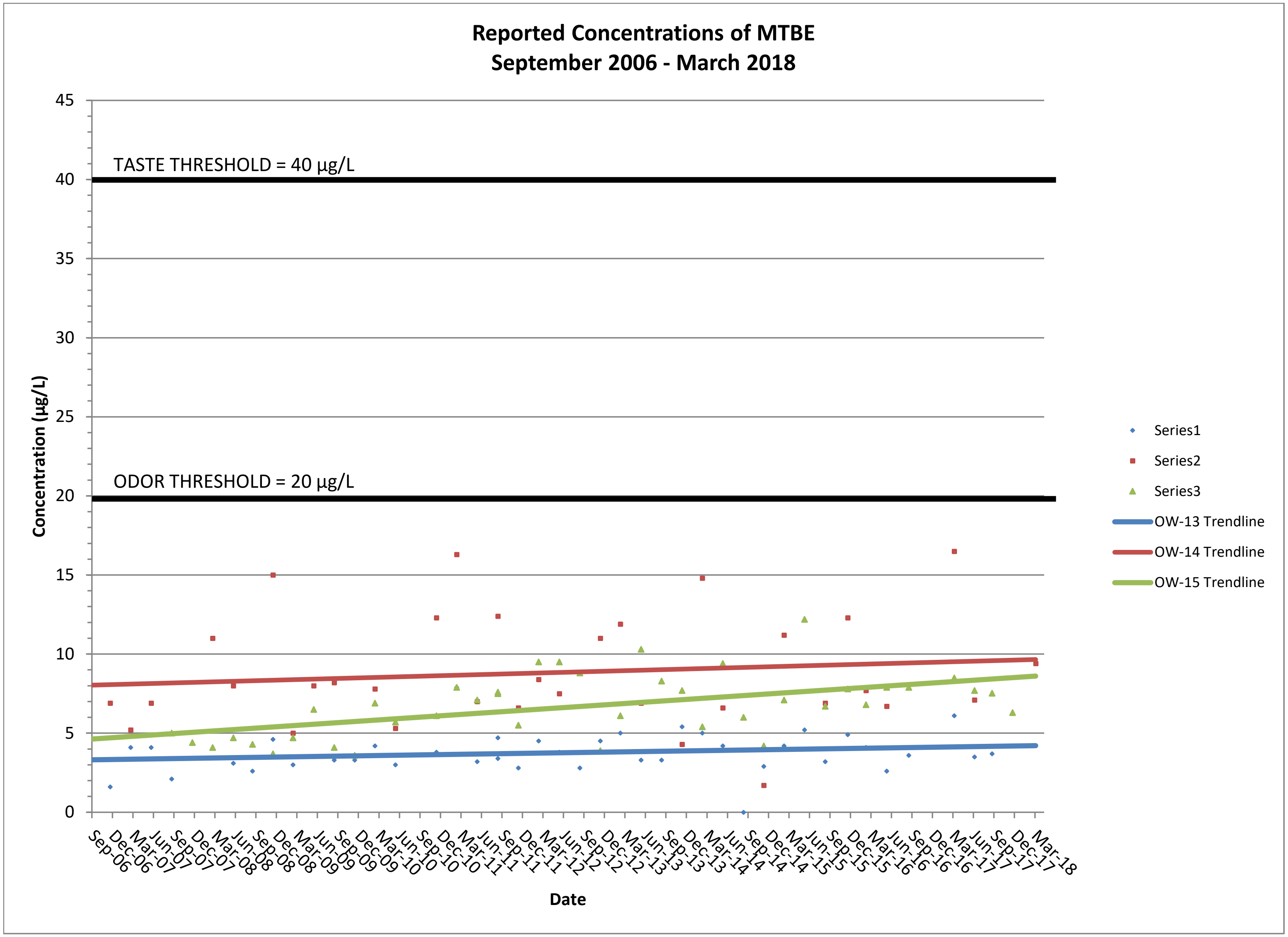
CUSUM Control Chart for Xylenes
Tiverton Landfill Groundwater Compliance Well OW-15



CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-15



ATTACHMENT NO. 6
REPORTED CONCENTRATIONS OF MTBE FIGURE


Reported Concentrations of MTBE
September 2006 - March 2018
TASTE THRESHOLD = 40 µg/L
ODOR THRESHOLD = 20 µg/L
Concentration (µg/L)
45
40
35
30
25
20
15
10
5
0
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
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Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Date
Series1
Series2
Series3
OW-13 Trendline
OW-14 Trendline
OW-15 Trendline

ATTACHMENT NO. 7

FIELD SAMPLING DATA SHEETS

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.01 /021
DATE: 3/28/2018
WEATHER: Sunny 50s

FIELD TESTING RESULTS:

SURFACE WATER LOCATION: SW-1

READING 1

pH: 6.20 pH UNITS
SPEC. COND: 0.42 mS/cm
TEMPERATURE: 7.2 °C

SURFACE WATER LOCATION: SW-2

READING 1

pH: 5.38 pH UNITS
SPEC. COND: 0.18 mS/cm
TEMPERATURE: 9 °C

SURFACE WATER LOCATION: SW-3

READING 1

pH: 5.98 pH UNITS
SPEC. COND: 0.52 mS/cm
TEMPERATURE: 10 °C

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24

DATE: 3/28/2018
WEATHER: Sunny 50s

WELL ID: OW-9

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 16 feet
PURGE VOLUME (GAL): 0.6 gallons
PURGER TYPE: Peristaltic pump

MEASURE POINT: Top of Casing
PURGE RATE (GPM): N/A
ELAPSED TIME (MIN): N/A

WATER LEVEL DATA

DEPTH: 12.6 feet
MEASURE POINT: Top of Casing

ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	5.71	pH UNITS	5.69	pH UNITS
SPEC. COND:	0.065	mS/cm	0.068	mS/cm
TEMPERATURE:	8.4	^{o}C	8.3	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.
Samples were collected at 4:00 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL

PARE PROJECT NO.: 94139.24

DATE: 3/28/2018

WEATHER: Sunny 50s

WELL ID: OW-12

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 16.2 feet

PURGE VOLUME (GAL): 2.40 gallons

PURGER TYPE: Peristaltic pump

MEASURE POINT: Top of Casing

PURGE RATE (GPM): 0.1 +/-

ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 2.2 feet

MEASURE POINT: Top of Casing

ELEVATION: See Site Plan

DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	5.79	pH UNITS	5.79	pH UNITS
SPEC. COND:	0.285	mS/cm	0.27	mS/cm
TEMPERATURE:	9.3	^{o}C	9.2	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 3:15 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 3/28/2018
WEATHER: Sunny 50s

WELL ID: OW-13
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 14.5 feet
PURGE VOLUME (GAL): 1.80 gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): 0.1 +/-
ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 3.8 feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.23	pH UNITS	6.23	pH UNITS
SPEC. COND:	1.115	mS/cm	1.119	mS/cm
TEMPERATURE:	7.3	^{o}C	7.3	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 6:30 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 3/28/2018
WEATHER: Sunny 50s

WELL ID: OW-14
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 10.6 feet
PURGE VOLUME (GAL): 1.2 gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): 0.1 +/-
ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 3.6 feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.03	pH UNITS	6.04	pH UNITS
SPEC. COND:	1.495	mS/cm	6.8	mS/cm
TEMPERATURE:	6.8	^oC	1.495	^oC

NOTES:

Samples were noted as generally clear with a reddish tinge and low in turbidity based on
visual inspection of the samples.
Samples were collected at 5:30 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 3/28/2018
WEATHER: Sunny 50s

WELL ID: OW-15
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	16.8 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1.7 gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	7.2 feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.28	pH UNITS	6.28	pH UNITS
SPEC. COND:	1.116	mS/cm	1.119	mS/cm
TEMPERATURE:	9.7	^{o}C	9.6	^{o}C

NOTES:

Samples were noted as generally clear with a brownish tinge and low in turbidity based on visual inspection of the samples.

Samples were collected at 6:00 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24

DATE: 3/28/2018
WEATHER: Sunny 50s

WELL ID: OW-7

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	11.8 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1.9 gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	0 feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.17	pH UNITS	6.17	pH UNITS
SPEC. COND:	0.847	mS/cm	0.860	mS/cm
TEMPERATURE:	8.4	°C	8.6	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 1:15 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL

PARE PROJECT NO.: 94139.24

DATE: 3/28/2018

WEATHER: Sunny 50s

WELL ID: OW-16

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 45.8 feet

PURGE VOLUME (GAL): 7.5 gallons

PURGER TYPE: Peristaltic pump

MEASURE POINT: Top of Casing

PURGE RATE (GPM): 0.1 +/-

ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 0.3 feet

MEASURE POINT: Top of Casing

ELEVATION: See Site Plan

DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.24	pH UNITS	6.24	pH UNITS
SPEC. COND:	0.908	mS/cm	0.904	mS/cm
TEMPERATURE:	10.7	°C	10.6	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 2:00 PM.

Engineers | Scientists | Planners
PARECORP.COM

PARE
CORPORATION

August 2, 2018

Mr. Leo Hellested, P.E.
Office of Waste Management
Solid Waste Section
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908-5767

Attn: Mr. Robert Schmidt

Re: **Quarterly Monitoring Report**
2nd Quarter (June) 2018, Groundwater Monitoring, Sampling, and Analysis
Tiverton Municipal Sanitary Landfill
Pare Project No.: 94139.24

Dear Mr. Hellested:

Enclosed herewith are results of the statistical analysis of groundwater monitoring data for the second quarterly monitoring round of Year 2018 from the Tiverton Landfill (Landfill). Pare Corporation (Pare) has prepared this report on behalf of the Town of Tiverton (Town). In the 2017 Annual Groundwater Monitoring Report, Pare recommended that overburden well OW-7 and bedrock well OW-16 be included in the groundwater monitoring program. As such, Pare conducted the groundwater sampling on June 7, 2018 at the background well OW-9 and compliance wells OW-7, OW-12, OW-13, OW-14, OW-15, and OW-16.

Groundwater samples were analyzed by New England Testing Laboratory (NETLAB) of West Warwick, Rhode Island for the constituents listed in Appendix A (Detection Monitoring) of the State Solid Waste Regulations, plus the Appendix B metals mercury and tin, which are routinely included. Certified laboratory results data are enclosed and are summarized on attached Tables 1-3.

Groundwater field parameters consisting of temperature, pH, and specific conductivity were measured at each monitoring well, in accordance with the RIDEM-approved Groundwater Monitoring Plan for the Landfill. Field parameters were collected until three successive measurements stabilized within ± 3% for temperature, ± 0.1 standard unit for pH, and ± 3% for specific conductivity, in accordance with US EPA's Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures. Field parameters are documented on Field Sampling Data Sheets, which are enclosed.

Combustible gases are monitored at each well and at the top of the Landfill. Combustible gases were unable to be monitored at the Landfill in June 2018 due to a malfunction of the gas monitoring equipment at the time of sampling.

Recent sampling rounds have been during periods of dry conditions; as such, samples collected contained a high amount of silt and suspended particles. Reported concentrations of heavy metals were higher than usual, and the degree of suspended particles observed in the samples may have impacted heavy metal concentrations. Pare believes these results were an anomaly and not indicative of typical groundwater quality. Therefore, Pare updated the groundwater monitoring program in the 2016 Annual Groundwater Monitoring Report to include a 10-15 settling minute period for turbidity to drop out of suspension, before the sample is decanted and then stored in laboratory glassware with preservative. Additionally, during the March 2017 monitoring round, accumulated sediment in the bottom of wells at the Landfill was removed prior to sampling.

HUMAN HEALTH THRESHOLD EVALUATION

Compliance Well OW-7 – Six (6) target metals were reported in the groundwater sample collected from OW-7. One (1) reported metal, arsenic (0.01 mg/L), was reported at its MCL (0.01 mg/L). One (1) target VOC, MTBE, was reported above laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-7.

Compliance Well OW-12 – Five (5) target metals were reported in the groundwater sample collected from OW-12. One (1) reported metal, arsenic (0.01 mg/L), was reported at its MCL (0.01 mg/L). No (0) target VOCs were reported above laboratory detection limits at OW-12.

Compliance Well OW-13 – Eight (8) target metals were reported in the groundwater sample collected from OW-13. One (1) reported metal, arsenic (0.02 mg/L), was reported above its MCL (0.01 mg/L). Two (2) target VOCs; chlorobenzene and MTBE; were reported above laboratory detection limits at OW-13.

Compliance Well OW-14 – Seven (7) target metals were reported in the groundwater sample collected from OW-14. Two (2) reported metals; arsenic (0.01 mg/L) and cadmium (0.006 mg/L); were reported at or above their MCLs (0.01 mg/L and 0.005 mg/L, respectively). Four (4) target VOCs; benzene, chlorobenzene, 1,4-dichlorobenzene and MTBE; were reported above their laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-14.

Compliance Well OW-15 – Six (6) target metals were reported in the groundwater sample collected from OW-15. Two (2) reported metals; arsenic (0.03 mg/L) and cadmium (0.01 mg/L); exceeded their MCLs (0.01 mg/L and 0.005 mg/L, respectively). Three (3) target VOCs; benzene, chlorobenzene and MTBE; were reported above their laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-15.

Compliance Well OW-16 (new bedrock well) – Seven (7) target metals were reported in the groundwater sample collected from OW-16. One (1) reported metal, arsenic (0.01 mg/L), was reported at its MCL (0.01 mg/L). One (1) target VOC, MTBE, was reported above laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-16.

Background Well OW-9 – Five (5) target metals were reported in the groundwater sample collected from OW-9. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-9. No (0) target VOCs were reported above laboratory detection limits at OW-9.

TOLERANCE INTERVAL STATISTICAL EVALUATION

The Tolerance Interval (TI) approach was used to develop Tolerance Limits (TLs) for each target inorganic constituent (i.e., metals) using the background well analytical results from the eight preceding rounds for which analytical results are available. The background well, OW-9, could not be sampled in several previous monitoring rounds including in the September 2016, June 2017, and September 2017 monitoring rounds due to dry conditions. Therefore, analytical results of the eight most recent rounds in which samples could be collected were utilized to generate the TLs for this monitoring round, dating back to December 2014. The TI approach is considered inappropriate for analysis of organic constituents and was therefore not performed to evaluate the results of reported VOCs. Table 2 summarizes historical results data from OW-9 used in the calculation of the TLs.

Three (3) of the metals concentration reported in June 2018; arsenic, barium and cobalt; exceeded the corresponding TLs calculated during this monitoring round in at least one compliance well. In total, there were ten (10) TL exceedances of these metals in this monitoring round. The TLs and the corresponding compliance well data from this monitoring round are presented in Table 3. Each of these metals is routinely detected in groundwater beneath the landfill.

CUSUM METHOD STATISTICAL EVALUATION

The Shewhart-CUSUM Method, a supplemental statistical analysis method used in addition to the TI Method, was performed in accordance with the US EPA documents titled “Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Interim Final Guidance, April 1989” and "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Addendum to Interim Final Guidance, July, 1992".

Barium and nickel at OW-12; and cadmium at OW-15; exceeded both of their Shewhart-CUSUM thresholds during the June 2018 monitoring round.

The dry conditions present during the September 2016 monitoring round were believed by Pare to have resulted in higher than usual suspended solids in samples collected, which are believed to have also resulted in atypical metals concentrations. As a result, the results of the Shewhart-CUSUM analysis for September 2016 were believed to be an anomaly. In many cases these deviations are outside of the statistical range expected. With the inception of the updated groundwater monitoring program, Pare has reset the Shewhart-CUSUM levels for several metals at multiple wells in order to have an accurate representation of cumulative statistical analysis of these constituents. The metals that have had their Shewhart-CUSUM thresholds reset include: chromium, lead, nickel, vanadium, and zinc at OW-12; barium, cadmium, cobalt, copper, lead, and vanadium at OW-13; zinc at OW-14; and arsenic, cadmium, chromium, cobalt, lead, nickel, vanadium, and zinc at OW-15. It should be noted that the reset of zinc at OW-14 is due to a statistical spike in the Shewhart-CUSUM limit during the September 2015 monitoring round (which was also sampled during dry conditions). These Shewhart-CUSUM parameters were reset prior to the March 2017 sampling round; therefore, data recorded from the March 2017 monitoring round is present in the analysis.

ASSESSMENT MONITORING

The Shewhart-CUSUM analysis is utilized, along with the Tolerance Limits, to identify when Assessment Monitoring should be performed.

Pare performed Assessment Monitoring at OW-14 in the December 2017 monitoring round due to an exceedance of the Shewhart-CUSUM threshold of antimony in the June 2017 monitoring period. This Assessment Monitoring was delayed from September 2017 to December 2017 due to dry conditions in September, rendering a sample unattainable. One Appendix B parameter, sulfides (0.04 mg/L), was detected in the December 2017 monitoring round. In the 2017 Annual Groundwater Monitoring report, Pare recommended that groundwater samples from OW-14 in the March 2018 monitoring round be tested again for sulfides. Again, the Appendix B parameter sulfides (0.04 mg/L) was detected in the samples collected from OW-14 in March 2018.

Pare performed Assessment Monitoring at OW-13 in the June 2018 monitoring round due to an exceedance of both the TL and the Shewhart-CUSUM threshold of barium in the March 2018 monitoring round. No (0) Appendix B parameters were reported in samples collected from OW-13. Sulfides were not detected at OW-13 in the June 2018 monitoring round.

MTBE ANALYSIS

Many of the most recent Assessment Monitoring rounds have been conducted due to MTBE concentrations in groundwater. Reported MTBE concentrations have generally risen since September 2006, as depicted in the attached figure titled Reported Concentrations of MTBE. The figure compares the recent increases in reported MTBE concentrations at OW-13, OW-14 and OW-15 to historical concentrations and drinking water advisories defined in the US EPA document titled “2011 Edition of the Drinking Water Standards and Health Advisories”. Although reported MTBE concentrations appear to be trending slowly upward, MTBE has never been reported above its odor threshold (0.020 mg/L) or its taste threshold (0.040 mg/L). The US EPA has not established a human health advisory concentration for MTBE.

Because the elevated concentrations of MTBE have recently triggered Assessment Monitoring at OW-13, OW-14, and OW-15, and that no Appendix B parameters were reported to a significant degree at these wells, it is Pare’s opinion that the increasing trend in MTBE concentrations beneath the Landfill is an isolated phenomenon and not the result of a significant change in groundwater quality beneath the Landfill.

Despite CUSUM values of MTBE at OW-13, OW-14, and OW-15 remaining above their threshold during the September 2017 monitoring round, Pare does not recommend assessment monitoring due to the aforementioned MTBE trend. The lack of Appendix B parameters in the past, in conjunction with the lack of Appendix B parameters at OW-13 and OW-15 during the December 2016 monitoring round, and the lack of Appendix B parameters at OW-14 during the June 2016 monitoring round, suggests that the presence of MTBE trend does not indicate an increased likelihood that Appendix B parameters would be present beneath the Landfill.

CONCLUSIONS AND RECOMMENDATIONS

Currently, the Landfill conducts Detection Monitoring for the parameters listed in Appendix A of the State Solid Waste Regulations, as well as mercury and tin. During this monitoring round, three (3) metals; arsenic, barium and cobalt; exceeded their tolerance limits (TLs) in at least one well. Arsenic and barium also exceeded their TLs during the previous monitoring round at OW-13 and OW-15, and OW-13, OW-14 and OW-15, respectively. TL exceedances in two consecutive monitoring rounds is one of the criteria used to consider introducing Assessment Monitoring in subsequent monitoring rounds.

Pare recommends that Assessment Monitoring be discontinued at OW-13 due to the lack of Appendix B parameters detected during the Assessment Monitoring performed in the June 2018 monitoring round. Additionally, Pare does not recommend Assessment Monitoring at the Landfill during the upcoming September 2018 monitoring round as the criteria to warrant Assessment Monitoring were not met in the June 2018 monitoring round.

During the 2016 and 2017 monitoring periods, a rising trend in detections of antimony at the compliance wells became apparent. Antimony was detected at the background well above its MCL during the December 2017 monitoring round. Previously, antimony had not been detected at the background well since the September 2011 monitoring round. The detection of antimony at compliance well OW-14 in the June 2017 monitoring round triggered Assessment Monitoring, which was performed in the December 2017 monitoring round. The Assessment Monitoring resulted in detection of one Appendix B parameter, sulfides (0.04 mg/L). However, antimony was not detected at any groundwater well during the December 2017 monitoring period. Analysis of the samples collected from OW-14 during the March 2018 monitoring round indicated another detection of sulfides (0.04 mg/L). Assessment Monitoring was not performed at OW-14 in June, but was performed at OW-13. Sulfides were not detected in the Assessment Monitoring performed at OW-13 during the June 2018 monitoring round.

The EPA has no MCL for sulfides in groundwater. Water with dissolved hydrogen sulfide will smell musty or swampy around 0.5-1.0 mg/L, and Pare did not identify a noticeable smell emanating from the groundwater sample in either round during which the constituent was detected. Hydrogen sulfide gas can occur naturally in groundwater from plant materials rotting underground in anaerobic conditions. Hydrogen sulfide gas could also be resulting from gypsum buried at the Landfill. Pare recommends that sulfides be again tested for at OW-14 in the September 2018 monitoring round. Additionally, Pare recommends that the Town consider adding regular analysis of sulfides to the groundwater monitoring program.

Pare recommended that wells OW-7 and OW-16 be incorporated into the compliance monitoring regimen in the 2017 Annual Groundwater Monitoring Report. Despite OW-7 having several years of sampling data, the sampling rounds were selected on a rotating basis with wells OW-6 and OW-8 for alternate monitoring. Pare recommends that wells OW-7 and OW-16 be sampled for two years, or eight consecutive monitoring rounds, prior to initiating statistical analysis. The June 2018 monitoring period marks the second monitoring round that these wells are to be sampled consistently; therefore, it is estimated that statistical analysis for the bedrock and overburden wells will begin in the March 2020 monitoring round.

Samples have been unable to be collected at the background well OW-9 in recent monitoring rounds. Dating back to September 2016, three out of the last eight monitoring rounds have resulted in a dry well (although Pare was able to collect a sample in June 2018). The tolerance interval analysis is dependent on data collected from the background well; therefore, uncharacteristic TL exceedances may be a result of the lack of recent historical data from this well. Pare will be able to more accurately assess this potential changing trend in groundwater quality with more data collection from the background well.

Recent monitoring rounds also indicate there is an increasing trend of barium and cadmium in groundwater at the Landfill. However, Assessment Monitoring triggered by exceedances of barium and cadmium have resulted in no (0) detections of Appendix B parameters. Pare will continue to evaluate antimony, barium, cadmium, and sulfides trends at the Landfill in subsequent monitoring rounds.

Should the RIDEM have any questions regarding this letter or the attached data, please feel free to contact the undersigned at (401) 334-4100, thank you.

Very truly yours,

Timothy P. Thies, P.E.
Vice President

TPT/TCJ/abv

Attachments

cc: Jay Lambert, Tiverton Landfill Subcommittee (w/encl.)
Jan Reitsma, Tiverton Town Administrator (w/encl.)
Travis C. Johnson, Pare Corporation (w/o encl.)
George G. Palmisciano, P.E. Pare Corporation (w/o encl.)

ATTACHMENT NO. 1
LABORATORY ANALYTICAL DATA REPORT

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 8F08028
Client Project: 94139 - Tiverton Landfill

Report Date: 15-June-2018

Prepared for:

Travis Johnson
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted:

The samples listed below were submitted to New England Testing Laboratory on 06/08/18. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client’s designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 8F08028. Custody records are included in this report.

Lab ID	**Sample**	**Matrix**	**Date Sampled**	**Date Received**
8F08028-01	OW-7	Water	06/07/2018	06/08/2018
8F08028-02	OW-9	Water	06/07/2018	06/08/2018
8F08028-03	OW-12	Water	06/07/2018	06/08/2018
8F08028-04	OW-14	Water	06/07/2018	06/08/2018
8F08028-05	OW-15	Water	06/07/2018	06/08/2018
8F08028-06	OW-16	Water	06/07/2018	06/08/2018

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

OW-12 (Lab Number: 8F08028-03)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-14 (Lab Number: 8F08028-04)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-15 (Lab Number: 8F08028-05)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C

Request for Analysis (continued)

OW-15 (Lab Number: 8F08028-05) (continued)

Analysis	Method
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-16 (Lab Number: 8F08028-06)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Request for Analysis (continued)

OW-7 (Lab Number: 8F08028-01)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-9 (Lab Number: 8F08028-02)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

CASE NARRATIVE:

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria. Those compounds in italics were qualitatively screened via reconstructed ion chromatography and no detections were identified to the listed PQLs.

Sample: OW-7 Case Number: 8F08028

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	0.01	0.002
7440-39-3	Barium	6010C	0.028	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.004	0.001
7440-48-4	Cobalt	6010C	0.015	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.018	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.014	0.005

ND = Not Detected

Sample: OW-9 Case Number: 8F08028

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.009	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.003	0.001
7440-48-4	Cobalt	6010C	ND	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	0.001	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.001	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.009	0.005

ND = Not Detected

Sample: OW-12 Case Number: 8F08028

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	0.001	0.001
7440-38-2	Arsenic	6010C	0.01	0.002
7440-39-3	Barium	6010C	0.020	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	ND	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.025	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.009	0.005

ND = Not Detected

Sample: OW-14 Case Number: 8F08028

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	0.01	0.002
7440-39-3	Barium	6010C	0.155	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.006	0.001
7440-47-3	Chromium	6010C	0.001	0.001
7440-48-4	Cobalt	6010C	0.006	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.012	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.031	0.005

ND = Not Detected

Sample: OW-15 Case Number: 8F08028

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	0.03	0.002
7440-39-3	Barium	6010C	0.096	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.010	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	0.012	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.023	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.032	0.005

ND = Not Detected

Sample: OW-16 Case Number: 8F08028

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	0.002	0.001
7440-38-2	Arsenic	6010C	0.01	0.002
7440-39-3	Barium	6010C	0.011	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.004	0.001
7440-48-4	Cobalt	6010C	0.002	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.009	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.022	0.005

ND = Not Detected

Sample: OW-7 Case Number: 8F08028

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-7 Case Number: 8F08028
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	3.56	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	95.2	70-130
1,2-Dichloroethane d4	94.1	70-130
4 BFB	93.5	70-130

ND = Not Detected

Sample: OW-9 Case Number: 8F08028
Method: 8260C

CAS RN	**Common Name**	**Result, ppb**	**PQL (ppb)**
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-9 Case Number: 8F08028
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	96.9	70-130
1,2-Dichloroethane d4	99.2	70-130
4 BFB	89.8	70-130

ND = Not Detected

Sample: OW-12 Case Number: 8F08028

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-12 Case Number: 8F08028
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	96.8	70-130
1,2-Dichloroethane d4	97.5	70-130
4 BFB	89.2	70-130

ND = Not Detected

Sample: OW-14 Case Number: 8F08028

Method: 8260C

CAS RN	**Common Name**	**Result, ppb**	**PQL (ppb)**
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	2.77	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	13.3	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-14 Case Number: 8F08028
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	2.62	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	6.23	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	95.8	70-130
1,2-Dichloroethane d4	96.7	70-130
4 BFB	94.9	70-130

ND = Not Detected

Sample: OW-15 Case Number: 8F08028

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	1.67	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	12.72	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-15 Case Number: 8F08028
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	6.61	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	95.8	70-130
1,2-Dichloroethane d4	94.9	70-130
4 BFB	98.9	70-130

ND = Not Detected

Sample: OW-16 Case Number: 8F08028
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-16 Case Number: 8F08028
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	6.53	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	94.6	70-130
1,2-Dichloroethane d4	95.5	70-130
4 BFB	90.7	70-130

ND = Not Detected

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

CHAIN OF CUSTODY RECORD

8F0 8028 s

PROJ. NO.: 94139.24
PROJECT NAME/LOCATION: Tiverton Landfill
CLIENT: Pare Corporation
REPORT TO: tjohnson@parecorp.com
INVOICE TO: Accounting

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** App A Metals, Hg, Sr	App. A VOCs					REMARKS
6/7			X	OW-7	X			3	HNO3, HCL							
			↓	OW-9				↓	↓	↓	↓					
			↓	OW-12				↓	↓	↓	↓					
			↓	~~OW-13~~				↓	↓	↓	↓					
			↓	OW-14				↓	↓	↓	↓					
			↓	OW-15				↓	↓	↓	↓					
			↓	OW-16				↓	↓	↓	↓					

	Date/Time		Received by: (Signature)	Date/Time	
Sampled by: (Signature)	6/8	12:00	Received by: (Signature)		
Relinquished by: (Signature)	6/8	1245	Received by: (Signature)	6-8	1245
Relinquished by: (Signature)	6-8	1320	Received for Laboratory by: (Signature) Alyssa Storm	6-8-18	1320

Laboratory Remarks:
Temp. received: 2.
Cooled ☐

Special Instructions:
List Specific Detection
Limit Requirements:

Turnaround (Business Days)________

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

n0

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 8F08027
Client Project: 94139 - Tiverton Landfill

Report Date: 15-June-2018

Prepared for:

Travis Johnson
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Total # of Pages: 13

Samples Submitted:

The samples listed below were submitted to New England Testing Laboratory on 06/08/18. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 8F08027. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
8F08027-01	OW-13	Water	06/07/2018	06/08/2018

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

OW-13 (Lab Number: 8F08027-01)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Cyanide	SM4500-CN-E
Herbicides	EPA 8151A
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
PCBs	EPA 8082A
Pesticides	EPA 8081B
Selenium	EPA 6010C
Semivolatile Organic Compounds	EPA 8270D
Silver	EPA 6010C
Sulfide	SM4500-S-D
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Method References

Standard Methods for the Examination of Water and Wastewater, 20th Edition, APHA/ AWWA-WPCF, 1998

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

Herbicides

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

PCBs

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Pesticides

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Semi-volatile Compounds

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria. Those compounds in italics were qualitatively screened via reconstructed ion chromatography and no detections were identified to the listed PQLs.

Wet Chemistry

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures.

Sample: OW-13 Case Number: 8F08027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
57-12-5	Cyanide	9014	ND	0.01
18496-25-8	Sulfide	376.2	ND	0.01

ND = Not Detected

Sample: OW-13 Case Number: 8F08027

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	0.002	0.001
7440-38-2	Arsenic	6010C	0.02	0.002
7440-39-3	Barium	6010C	0.089	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.004	0.001
7440-47-3	Chromium	6010C	0.002	0.001
7440-48-4	Cobalt	6010C	0.011	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.011	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.012	0.005

ND = Not Detected

Sample: OW-13 Case Number: 8F08027

Method: 8151A

CAS RN	Common Name	Result, ppb	PQL (ppb)
93-76-5	2,4,5-T	ND	1.0
94-75-7	2,4-D	ND	1.0
88-85-7	Dinoseb	ND	1.0
93-72-1	Silvex (2,4,5-TP)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
DCMA	106	30-150

Method: 8081B & 8082A

CAS RN	Common Name	Result, ppb	PQL (ppb)
72-54-8	4,4’-DDD	ND	0.02
72-55-9	4,4’-DDE	ND	0.02
50-29-3	4,4’-DDT	ND	0.02
309-00-2	Aldrin	ND	0.02
319-84-6	alpha-BHC	ND	0.02
319-85-7	beta-BHC	ND	0.02
319-86-8	delta-BHC	ND	0.02
60-57-1	Dieldrin	ND	0.02
959-98-8	Endosulfan I	ND	0.02
33213-65-9	Endosulfan II	ND	0.02
1031-07-8	Endosulfan sulfate	ND	0.02
72-20-8	Endrin	ND	0.02
7421-93-4	Endrin aldehyde	ND	0.02
58-89-9	gamma-BHC (Lindane)	ND	0.02
76-44-8	Heptachlor	ND	0.02
1024-57-3	Heptachlor epoxide	ND	0.02
72-43-5	Methoxychlor	ND	0.02
8001-35-2	Toxaphene (chlorinated camphene)	ND	0.50
	Polychlorinated biphenyls (PCBs)	ND	0.2

Surrogates:

Compound	**% Recovery**	**Limits**
TCMX	54.8	30-129
DCMP	74.1	30-126

ND = Not
Detected

Sample: OW-13 Case Number: 8F08027
Method: 8270

CAS RN	Common Name	Result, ppb	PQL (ppb)
126-68-1	*0,0,0-Triethyl phosphorothioate*	*ND*	*4.0*
95-94-3	*1,2,4,5-Tetrachlorobenzene*	ND	*4.0*
20-82-1	1,2,4-Trichlorobenzene	ND	4.0
130-15-4	*1,4-Naphthoquinone*	*ND*	*4.0*
134-32-7	*1-Naphthylamine*	*ND*	*4.0*
58-90-2	*2,3,4,6-Tetrachlorophenol*	*ND*	*4.0*
95-95-4	2,4,5-Trichlorophenol	ND	4.0
88-06-2	2,4,6-Trichlorophenol	ND	2.0
120-83-2	2,4-Dichlorophenol	ND	2.0
105-67-9	*2,4-Dimethylphenol (m-Xylenol)*	*ND*	*2.0*
51-28-5	2,4-Dinitrophenol	ND	2.0
121-14-2.	2,4-Dinitrotoluene	ND	4.0
87-65-0	2,6-Dichlorophenol	ND	4.0
606-20-2	2,6-Dinitrotoluene	ND	4.0
53-96-3	*2-Acetylaminofluorene (2-AAF)*	*ND*	*8.0*
91-58-7	2-Chloronaphthalene	ND	4.0
95-57-8	2-Chlorophenol	ND	2.0
91-57-6	2-Methylnaphthalene	ND	4.0
91-59-8	*2-Naphthylamine*	*ND*	*4.0*
91-94-1	3,3’-Dichlorobenzidine	ND	8.0
119-93-7	*3,3’-Dimethylbenzidine*	*ND*	*4.0*
56-49-5	*3-Methylcholanthrene*	*ND*	*4.0*
534-52-1	4,6-Dinitro-o-cresol	ND	20.0
92-67-1	*4-Aminobiphenyl*	*ND*	*8.0*
101-55-3	4-Bromophenyl phenyl ether	ND	4.0
7005-72-3	4-Chlorophenyl phenyl ether	ND	4.0
99-55-8	*5-Nitro-o-toluidine*	*ND*	*4.0*
57-97-6	*7,12-Dimethylbenz[a]anthracene*	*ND*	*4.0*
83-32-9	Acenaphthene	ND	4.0
208-96-8	Acenaphthylene	ND	4.0
98-86-2	*Acetophenone*	*ND*	*4.0*
120-12-7	Anthracene	ND	4.0
56-55-3	Benzo[a]anthracene (Benzanthracene)	ND	4.0
50-32-8	Benzo[a]pyrene	ND	4.0
205-99-2	Benzo[b]fluoranthene	ND	4.0
191-24-2	Benzo[ghi]perylene	ND	4.0
207-08-9	Benzo[k]fluoranthene	ND	4.0
100-51-6	Benzyl alcohol	ND	8.0
111-91-1	Bis(2-chloroethoxy)methane	ND	2.0
111-44-4	Bis(2-chloroethyl) ether	ND	2.0
108-60-1	Bis-(2-chloroisopropyl) ether	ND	4.0
117-81-7	Bis(2-ethylhexyl) phthalate	ND	8.0

Sample: OW-13 Case Number: 8F08027

Method: 8270

CAS RN	Common Name	Result, ppb	PQL (ppb)
85-68-7	Butyl benzyl phthalate	ND	2.0
	Chlordane (technical)	*ND*	*20.0*
510-15-6	*Chlorobenzilate*	*ND*	*4.0*
218-01-9	Chrysene	ND	4.0
2303-16-4	*Diallate*	*ND*	*4.0*
53-70-3	Dibenz[a,h]anthracene	ND	4.0
132-64-9	Dibenzofuran	ND	4.0
84-66-2	Diethyl phthalate	ND	2.0
60-51-5	*Dimethoate*	*ND*	*8.0*
131-11-3	Dimethyl phthalate	ND	2.0
84-74-2	Di-n-butyl phthalate	ND	2.0
117-84-0	Di-n-octyl phthalate	ND	4.0
122-39-4	*Diphenylamine*	*ND*	*4.0*
298-04-4	*Disulfoton*	*ND*	*4.0*
62-50-0	*Ethyl methanesulfonate*	*ND*	*8.0*
52-85-7	*Famphur*	*ND*	*8.0*
206-44-0	Fluoranthene	ND	4.0
86-73-7	Fluorene	ND	4.0
118-74-1	Hexachlorobenzene	ND	4.0
87-68-3	Hexachlorobutadiene	ND	4.0
77-47-4	Hexachlorocyclopentadiene	ND	4.0
67-72-1	Hexachloroethane	ND	4.0
1888-71-7	Hexachloropropene	ND	4.0
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.0
78-59-1	Isophorone	ND	4.0
120-58-1	*Isosafrole*	*ND*	*4.0*
143-50-0	*Kepone*	*ND*	*8.0*
108-39-4	m-Cresol (3-methylphenol)	ND	4.0
99-65-0	*m-Dinitrobenzene*	*ND*	*8.0*
91-80-5	*Methapyrilene*	*ND*	*40.0*
66-27-3	*Methyl methanesulfonate*	*ND*	*4.0*
298-00-0	*Methyl parathion*	*ND*	*4.0*
99-09-2	m-Nitroaniline (3-Nitroaniline)	ND	2.0
91-20-3	Naphthalene	ND	2.0
98-95-3	Nitrobenzene	ND	4.0
55-18-5	N-Nitrosodiethylamine	ND	8.0
62-75-9	N-Nitrosodimethylamine	ND	2.0
924-16-3	*N-Nitrosodi-n-butylamine*	*ND*	*4.0*
86-30-6	N-Nitrosodiphenylamine	ND	2.0
621-64-7	N-Nitrosodipropylamine	ND	4.0
10595-95-6	*N-Nitrosomethylethalamine*	*ND*	*4.0*
100-75-4	*N-Nitrosopiperidine*	*ND*	*8.0*

Sample: OW-13 Case Number: 8F08027

Method: 8270

CAS RN	Common Name	Result, ppb	PQL (ppb)
930-55-2	*N-Nitrosopyrrolidine*	*ND*	*10.0*
95-48-7	o-Cresol (2-methylphenol)	ND	4.0
88-74-4	o-Nitroaniline (2-Nitroaniline)	ND	2.0
88-75-5	o-Nitrophenol (2-Nitrophenol)	ND	2.0
95-53-4	*o-Toluidine*	*ND*	*4.0*
60-11-7	*p-(Dimethylamino)azobenzene*	*ND*	*4.0*
56-38-2	Parathion	*ND*	4.0
106-47-8	p-Chloroaniline	ND	8.0
59-50-7	p-Chloro-m-cresol	ND	2.0
106-44-5	p-Cresol; 4-methylphenol	ND	4.0
608-93-5	*Pentachlorobenzene*	*ND*	*4.0*
82-68-8	*Pentachloronitrobenzene*	*ND*	*8.0*
87-86-5	Pentachlorophenol	ND	2.0
62-44-2	*Phenacetin*	*ND*	*8.0*
85-01-8	Phenanthrene	ND	4.0
108-95-2	Phenol	ND	1.0
298-02-2	*Phorate*	*ND*	*4.0*
100-01-6	p-Nitroaniline (4-Nitroaniline)	ND	8.0
100-02-7	p-Nitrophenol (4-Nitrophenol)	ND	4.0
106-50-3	*p-Phenylenediamine*	*ND*	*4.0*
23950-58-5	*Pronamide*	*ND*	*4.0*
129-00-0	Pyrene	ND	4.0
94-59-7	*Safrole*	*ND*	*4.0*
99-35-4	*sym-Trinitrobenzene*	*ND*	*4.0*
297-97-2	*Thionazin*	*ND*	*8.0*

Surrogates:

Compound	**% Recovery**	**Limits**
Nitrobenzene d5	86	30-130
2-Fluorobiphenyl	96	30-123
p-Terphenyl d14	123	30-130
Phenol d6	22	10-83
2,4,6-Tribromophenol	119	18-120
2-Fluorophenol	30	10-81

ND = Not Detected

Sample: OW-13 Case Number: 8F08027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	4.72	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-13 Case Number: 8F08027
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	3.26	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	96.6	70-130
1,2-Dichloroethane d4	99.6	70-130
4 BFB	92.0	70-130

ND = Not Detected

NEW ENGLAND TESTING LABORATORY, INC
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

8 F 0 8027 m

PROJ. NO. 94139.01

PROJECT NAME/LOCATION Tiverton Landfill - Assessment Monitoring

CLIENT Pare Corporation

REPORT TO: tjohnson@parecorp.com

INVOICE TO: Accounting

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** App A ~~[illegible]~~ & B VOCs	App A&B Metals	Total Sulfides	Total Cyanide	App B Semi VOCs	Pests/Herbs/PCBs	REMARKS
6/7			X	OW-13	X			●●●●●●●●●		X	X	X	X	X	X	

Sampled by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	6/8 12:00		
Relinquished by: (Signature)	**Date/Time**	**Received by: (Signature)**	**Date/Time**
	6/8 12:45		6-8 1245
Relinquished by: (Signature)	**Date/Time**	**Received for Laboratory by: (Signature)**	**Date/Time**
	6-8 1320		6-8-18 1320

Laboratory Remarks:
Temp. received: 3°
Cooled ☐

Special Instructions:
List Specific Detection
Limit Requirements:

Turnaround (Business Days)________

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

CS

ATTACHMENT NO. 2
ANALYTICAL SUMMARY TABLES

TABLE 2
BACKGROUND WELL HISTORICAL RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-9

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEP '13	JUN '13	MAR '13	DEC '12	SEP '12	JUN '12	MAR '12	DEC '11	SEP '11	JUN '11	MAR '11	DEC '10	SEP '10	JUN '10	MAR '10
Antimony	0.006	mg/L[1]	ND	ND	0.0290	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	0.0160	0.2000	ND	ND	NT	ND	ND
Arsenic	0.010	mg/L[1]	ND	ND	ND	NT	NT	0.0030	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	0.0079
Barium	2	mg/L[1]	0.0090	0.0130	0.0410	NT	NT	0.0100	0.0060	NT	NT	0.0110	0.0110	NT	NT	0.0070	0.0420	NT	0.0100	0.0120	0.0200	NT	0.0150	0.0130	0.0160	NT	0.0110	0.0120	0.0070	0.0120	0.0080	0.0221	0.0230	NT	0.0460	0.0380
Beryllium	0.004	mg/L[1]	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	0.0015	ND
Cadmium	0.005	mg/L[1]	ND	0.0020	0.3650	NT	NT	ND	ND	NT	NT	0.0010	ND	NT	NT	ND	0.0020	NT	ND	ND	0.0050	NT	0.0040	ND	0.0010	NT	ND	ND	ND	0.0020	ND	ND	ND	NT	ND	ND
Chromium	0.1	mg/L[1]	0.003	0.0070	0.0300	NT	NT	0.0040	ND	NT	NT	0.0050	0.0070	NT	NT	0.0060	0.0270	NT	0.0060	0.0070	0.0150	NT	0.0070	0.0070	0.0120	NT	0.0050	0.0080	0.0040	0.0020	ND	0.0079	0.0068	NT	0.0230	0.0270
Cobalt	0.73	mg/L[5]	ND	0.0010	0.0020	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	0.0100	NT	ND	0.0010	0.0030	NT	0.0020	0.0020	0.0030	NT	ND	0.0020	ND	ND	ND	0.0019	0.0015	NT	0.0086	0.0110
Copper	1.3	mg/L[1]	ND	ND	0.0600	NT	NT	ND	ND	NT	NT	0.0020	ND	NT	NT	0.0020	0.0170	NT	ND	0.0060	0.0140	NT	0.0070	ND	0.0060	NT	ND	0.0080	0.0010	0.0100	0.0400	0.0041	0.0043	NT	0.0200	0.0170
Lead	0.015	mg/L[1]	0.001	0.0020	0.1820	NT	NT	0.0020	0.0060	NT	NT	ND	0.0050	NT	NT	0.0010	0.0160	NT	0.0060	0.0030	0.1020	NT	0.0080	0.0020	0.0060	NT	ND	0.0110	0.0010	0.0040	0.0060	ND	ND	NT	0.0140	0.0024
Mercury	0.002	mg/L[1]	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Nickel	0.1	mg/L[2]	0.001	0.0040	0.0240	NT	NT	0.0040	ND	NT	NT	0.0030	0.0030	NT	NT	0.0170	0.0180	NT	0.0030	0.0040	0.0090	NT	0.0050	0.0050	0.0070	NT	0.0030	0.0040	0.0020	0.0080	0.0080	0.0046	0.0037	NT	0.0150	0.0180
Selenium	0.05	mg/L[1]	ND	ND	ND	NT	NT	ND	0.0100	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	0.0060	NT	ND	ND	ND	NT	ND	ND	ND	0.0100	0.0100	ND	ND	NT	ND	ND
Silver	0.1	mg/L[2,3]	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	0.1180	ND	ND	NT	ND	ND
Thallium	0.002	mg/L[1]	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Tin	22	mg/L[5]	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	0.0080	0.1310	NT	ND	ND	ND	NT	ND	ND	ND	ND	0.0190	ND	ND	NT	ND	ND
Vanadium	0.26	mg/L[5]	ND	0.0020	ND	NT	NT	ND	ND	NT	NT	0.0010	0.0020	NT	NT	ND	0.0140	NT	0.0020	0.0030	0.0070	NT	0.0030	0.0020	0.0040	NT	ND	0.0010	ND	ND	ND	0.0034	0.0034	NT	0.0150	0.0110
Zinc	2	mg/L[2,3]	0.0090	0.0190	11.1000	NT	NT	0.0070	ND	NT	NT	0.0100	0.0050	NT	NT	ND	0.0410	NT	0.0110	0.0080	0.0170	NT	0.0210	0.0120	0.0160	NT	0.0150	0.0120	0.0090	0.0140	ND	0.0257	0.0190	NT	0.0330	0.0350
Acetone	610	μg/L[5]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Acrylonitrile	0.039	μg/L[5]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Benzene	5	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromochloromethane	80	μg/L[2]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromodichloromethane (THM)	90	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromoform	80	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Carbon disulfide	1000	μg/L[5]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Carbon tetrachloride	5	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chlorobenzene	100	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloroethane	4.6	μg/L[5]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloroform (THM)	80	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chlorodibromomethane (THM)	80	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dibromo-3-chloropropane (DBC	0.2	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dibromoethane (EDB)	0.05	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichlorobenzene	600	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,4-Dichlorobenzene	75	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,4-Dichloro-2-butene		μg/L	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1-Dichloroethane	5	μg/L	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichloroethane	5	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1-Dichloroethylene	7	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
cis-1,2-Dichloroethene	70	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,2-Dichloroethene	100	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichloropropane	5	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
cis-1,3-Dichloropropene		μg/L	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,3-Dichloropropene		μg/L	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Ethylbenzene	700	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl butyl ketone(2-Hexanone)	160	μg/L[5]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromomethane	10	μg/L[2]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloromethane	30	μg/L[2]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Dibromomethane	61	μg/L[5]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methylene chloride	5	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	μg/L[2]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl iodide		μg/L	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
4-Methyl-2-pentanone		μg/L	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Styrene	100	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,1,2-Tetrachloroethane	70	μg/L[2]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,2,2-Tetrachloroethane	0.3	μg/L[2]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Tetrachloroethylene(PCE)	5	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	2.1	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Toluene	1000	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,1-Trichloroethane	200	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,2-Trichloroethane	5	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Trichloroethylene(TCE)	5	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Trichloroflouromethane	2000	μg/L[2]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2,3-Trichloropropane	40	μg/L[2]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Vinyl acetate	410	μg/L[5]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Vinyl chloride	2	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Xylenes	10000	μg/L[1]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	μg/L[4]	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND

▨ = Exceeded MCL

Note: Analytical data reported since commencement of low flow purging and sampling. Low flow puring and sampling commenced in May 2002, but no sample was taken at OW-9 at this time.
July 2002 represents the first time low flow purging and sampling was conducted at OW-9.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above
" " = One half of the laboratory detection limit "DL"
NT = Not Tested due to dry conditions at well.

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-7

Concentration (expressed in same units as Threshold Value)

Parameter	Threshold Value		JUN '18	MAR '18	NOV '17	SEP '17	MAR '17	MAR '16	SEP '15	MAR '15	DEC '14	MAR '14	SEP '13	MAR '13	SEP '12	MAR '12	JUN '11	MAR '11	SEP '10	JUN '10	SEP '09	JUN '07	SEP '05	JUN '05
Antimony	0.006	mg/L^1	ND	ND	ND	ND	0.0070	ND	ND	ND	NT	ND	ND	ND	ND	ND	0.0250	ND	ND	ND	ND	ND	ND	ND
Arsenic	0.01	mg/L^1	0.0100	ND	ND	ND	ND	0.0070	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND^6	ND	ND	ND	ND	ND	ND
Barium	2	mg/L^1	0.0280	0.0380	0.0350	0.0330	0.0380	0.0390	0.0300	0.0330	NT	0.0310	0.0200	0.0310	0.0260	0.0280	0.0350	0.0398	0.0375	0.0370	0.0310	0.0340	0.0240	0.0280
Beryllium	0.004	mg/L^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND^6	ND^6	ND	ND	ND	ND	ND
Cadmium	0.005	mg/L^1	ND	ND	ND	ND	0.0010	ND	0.0010	ND	NT	0.0010	ND	ND	0.0050	ND	ND	0.0012	0.0419	0.0410	ND	ND	ND	ND
Chromium	0.1	mg/L^1	0.0040	0.0050	0.0050	0.0040	0.0060	ND	ND	ND	NT	ND	ND	ND	ND	0.0010	0.0080	ND	0.0054	0.0048	0.0530	ND	ND	ND
Cobalt	0.73	mg/L^5	0.0150	0.0190	0.0180	0.0180	0.0250	0.0280	0.0200	0.0250	NT	0.0220	0.0130	0.0250	0.0160	0.0200	0.0200	0.0353	0.0229	0.0250	0.0250	0.0200	0.0190	0.0220
Copper	1.3	mg/L^1	ND	ND	0.0050	ND	0.0060	0.0060	0.0080	0.0250	NT	0.0180	0.0040	ND	0.0080	0.0040	0.0390	0.0056	0.2180	0.5000	0.0058	0.0098	ND	ND
Lead	0.015	mg/L^1	ND	ND	ND	ND	ND	ND	0.0010	0.0050	NT	0.0060	0.0040	0.0020	0.0020	0.0040	0.0460	0.0033	0.0074	0.0060	0.0043	0.0042	ND	ND
Nickel	0.1	mg/L^2	0.0180	0.0210	0.0210	0.0190	0.0250	ND	0.0200	0.0240	NT	0.0190	0.0120	0.0220	0.0150	0.0020	0.0220	0.0302	0.0270	0.0280	0.0390	0.0240	0.0220	0.0370
Selenium	0.05	mg/L^1	ND	0.0100	ND	0.0030	ND	0.1070	0.0070	0.1880	NT	0.1830	0.1410	0.1800	0.1920	0.2260	0.0340	ND	ND	ND	0.0120	0.0110	0.0140	ND
Silver	0.1	mg/L^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0054	ND	ND	0.0035
Thallium	0.002	mg/L^1	ND	0.0003	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	0.0032	ND	ND	0.0420	0.0440	ND	0.0140
Tin	22	mg/L^5	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	0.26	mg/L^5	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	0.0170	ND	0.0051	0.0072	0.0230	0.0240	ND	ND
Zinc	5	mg/L^3	0.0140	0.0180	0.0200	0.0120	0.0210	0.0050	0.0120	0.0060	0.0060	190.0000	ND	0.0150	0.0100	0.0130	ND	0.0250	0.0472	0.0380	0.0120	0.0110	0.0160	0.0180
Mercury	0.002	mg/L^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	610	ug/l^5	ND	ND	ND	ND	5.8	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrate	0.039	ug/l^5	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	80	ug/l^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	90	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	ug/l^5	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	ug/l^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	1.0	2.0	ND	1.4	1.8	2.7	1.7	ND
Chlorodibromomethane	80	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	80	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	4.6	ug/l^5	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	2.2	ND	1.3	1.6	1.5	3.8	ND	ND
Chloromethane	30	ug/l^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.2	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	0.05	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	ug/l^5	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichlo-2-butene		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	70	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,2-Dichloroethylene	100	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	ug/l^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	ug/l^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	ug/l^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	ug/l^1	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	ug/l^5	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	ug/l^4	3.56	6.8	5.9	5.36	10.3	8.8	ND	ND	NT	9.7	5.6	11.9	8.0	11.2	10.7	15.7	7.2	8.2	9.0	12.0	7.4	2.1
Methyl ethyl ketone(2-Butanone)	4000	ug/l^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	ug/l^1	ND	ND	ND	ND	ND	ND	4.9	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	ug/l^2	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	ug/l^5	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND

Note: Low flow purging and sampling used starting with the June 2005 monitoring round

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

░ = Exceeded MCL

TABLE 1
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-12

Concentration (Expressed in same units as Threshold Value)

Parameter	**Threshold Value**		JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006	mg/L^{1}	0.001	ND	0.0210	ND	0.0010	0.0250	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0060	ND	ND	ND	0.0100	0.0600	ND	ND	ND	ND
Arsenic	0.010	mg/L^{1}	0.01	ND	0.0050	ND	0.0090	ND	ND	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0300	ND	ND	ND	ND
Barium	2	mg/L^{1}	0.02	0.0170	0.0240	0.0260	0.0240	0.0410	0.0260	0.0670	0.0360	0.0200	0.0260	0.0250	0.0190	0.0600	0.0160	0.0210	0.0120	0.0140	0.0130	0.0150	0.0080	0.0130	0.0180	0.0170	0.0160	0.0160	0.0100	0.0280	0.0130	0.0113	0.0151	0.0156	0.0094
Beryllium	0.004	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND
Cadmium	0.005	mg/L^{1}	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.1	mg/L^{1}	ND	ND	ND	0.0030	0.0010	0.0040	ND	0.0180	0.0130	ND	0.0020	ND	ND	ND	ND	0.0020	0.0020	0.0020	0.0010	0.0020	ND	0.0020	ND	ND	ND	0.0010	ND	ND	ND	ND^{6}	ND^{6}	0.0014	0.0025
Cobalt	0.73	mg/L^{5}	ND	ND	ND	0.0020	ND	0.0020	ND	0.0090	0.0080	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	0.0006	ND^{6}	ND
Copper	1.3	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	0.0200	0.0150	ND	0.0330	ND	ND	ND	ND	ND	0.0020	0.0030	0.0060	0.0020	0.0010	ND	ND	ND	ND	0.0010	ND	0.0100	0.0400	ND	0.0013	ND	0.0019
Lead	0.015	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	0.0150	0.0120	ND	ND	0.0020	ND	0.0020	0.0020	0.0030	0.0020	0.0020	0.0020	0.0010	0.0010	0.0020	0.0020	0.0020	ND	0.0020	ND	ND	ND	ND	ND	ND	0.0012
Mercury	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND	ND
Nickel	0.1	mg/L^{2}	0.025	0.0200	0.0170	0.0140	0.0090	0.0140	0.0070	0.0220	0.0130	0.0060	0.0080	0.0040	0.0060	0.0040	0.0040	0.0060	0.0040	0.0040	0.0040	0.0050	0.0020	0.0040	0.0050	0.0040	0.0030	0.0050	0.0030	0.0070	0.0110	0.0034	0.0028	0.0037	0.0023
Selenium	0.05	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0100	ND	ND	ND	ND	0.0060	ND	0.0120	0.0110	0.0060	ND	ND	ND	ND	ND	ND	0.0080	0.0060	ND	0.0300	ND	ND	ND	ND
Silver	0.1	mg/L^{2,3}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1350	ND	ND	ND	ND
Thallium	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22	mg/L^{5}	ND	ND	ND	ND	ND	ND	ND	0.0980	ND	0.1800	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	0.26	mg/L^{5}	ND	ND	ND	0.0030	ND	0.0040	ND	0.0200	0.0200	ND	ND	ND	ND	ND	ND	0.0020	ND	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0057
Zinc	2	mg/L^{2,3}	0.009	0.0070	0.0060	0.0130	0.0100	0.0220	ND	0.0500	0.0420	ND	ND	0.0050	0.0070	ND	ND	ND	ND	ND	ND	ND	0.0080	0.0100	ND	ND	0.0080	0.0070	0.0080	0.0160	ND	0.0170	0.0147	0.0151	0.0130
Acetone	610	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	0.039	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	80	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	4.6	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L^{4}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-13

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10
Antimony	0.006	mg/L^{1}	0.002	ND	0.0360	ND	0.0020	0.0080	ND	0.0110	ND	ND	ND	ND	ND	ND	ND	ND	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0100	0.0200	ND	ND	ND
Arsenic	0.010	mg/L^{1}	0.02	0.0070	ND	0.0050	0.0200	ND	ND	0.0100	ND	0.0190	0.0100	0.0110	0.0070	0.0040	0.0200	0.0070	ND	0.0140	0.0160	0.0070	0.0080	0.0070	ND	ND	0.0060	0.0050	0.0050	0.0090	ND	0.0096	0.0094	0.0108
Barium	2	mg/L^{1}	0.089	0.1150	0.0970	0.0460	0.0860	0.1080	0.0990	0.1830	0.0890	0.1700	0.0910	0.0870	0.0900	0.0890	0.1400	0.0870	0.0700	0.1180	0.0780	0.0650	0.0690	0.0750	0.0770	0.0760	0.0720	0.0760	0.0650	0.0760	0.0800	0.0912	0.0817	0.0807
Beryllium	0.004	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	0.005	mg/L^{1}	0.004	0.0040	ND	0.0020	0.0030	0.0050	ND	0.0290	ND	0.0050	0.0040	0.0040	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	0.0020	ND	0.0004	0.0004	0.0004
Chromium	0.1	mg/L^{1}	0.002	0.0020	0.0010	ND	0.0040	0.0030	ND	0.0330	0.0050	ND	0.0040	ND	ND	ND	0.0090	ND	0.0010	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND
Cobalt	0.73	mg/L^{5}	0.011	0.0130	0.0120	0.0070	0.0120	0.0140	0.0140	0.0280	0.0130	0.0150	0.0130	0.0120	0.0140	0.0160	0.0180	0.0110	0.0100	0.0120	0.0100	0.0090	0.0130	0.0120	ND	0.0100	0.0130	0.0120	0.0110	0.0120	0.0090	0.0192	0.0156	0.0138
Copper	1.3	mg/L^{1}	ND	ND	ND	ND	0.0100	ND	ND	0.0900	ND	0.0060	ND	0.0020	ND	0.0050	0.0730	0.0050	0.0050	0.0080	0.0230	0.0030	0.0050	ND	ND	ND	0.0060	0.0040	0.0020	0.0090	0.0300	0.0028	0.0018	0.0027
Lead	0.015	mg/L^{1}	ND	0.0020	ND	ND	0.0010	ND	0.0070	0.0350	0.0190	ND	ND	0.0020	0.0030	0.0030	0.0170	0.0040	0.0040	0.0070	0.0020	0.0020	0.0030	0.0020	0.0020	0.0020	ND	0.0020	ND	0.0040	0.0130	0.0015	ND	ND
Mercury	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND
Nickel	0.1	mg/L^{2}	0.011	0.0120	0.0290	0.0060	0.0120	0.0350	0.0140	0.0465	0.0130	0.0130	0.0120	0.0120	0.0130	0.0130	0.0220	0.0110	0.0100	0.0120	0.0100	0.0090	0.0100	0.0100	0.0100	0.0100	0.0110	0.0100	0.0090	0.0110	0.0060	0.0141	0.0127	0.0121
Selenium	0.05	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0390	ND	ND	ND	0.0800	0.0210	0.0590	0.0120	0.0330	0.0700	0.0350	0.0400	ND	ND	0.0700	0.0640	0.0620	0.0710	0.0690	0.0100	ND	ND	ND
Silver	0.1	mg/L^{2,3}	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0020	ND	ND	0.0010	0.0020	0.0020	ND	0.0010	0.0010	ND	0.0020	ND	0.0020	ND	0.0030	0.0340	ND	ND	ND
Thallium	0.002	mg/L^{1}	ND	0.0003	0.0003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22	mg/L^{5}	ND	ND	ND	ND	ND	ND	ND	0.2800	0.1100	ND	0.0120	ND	ND	0.0010	ND	ND	ND	0.0170	0.0400	0.0090	0.0180	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND
Vanadium	0.26	mg/L^{5}	ND	ND	0.0020	ND	ND	ND	0.0060	0.0390	0.0030	ND	ND	ND	ND	ND	0.0130	0.0020	ND	0.0010	0.0040	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	0.0200	ND	ND	ND
Zinc	2	mg/L^{2,3}	0.012	0.0170	0.0070	0.0070	0.0200	0.0170	ND	0.1300	0.0130	0.0060	ND	0.0070	ND	ND	0.0470	ND	ND	0.0090	ND	ND	0.0110	0.0100	ND	ND	0.0230	0.0050	0.0050	0.0090	ND	0.0178	0.0092	0.0098
Acetone	610	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	0.039	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND
Bromochloromethane	80	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	µg/L^{1}	4.72	5.40	ND	5.23	5.03	6.8	ND	5.5	2.5	6.6	7.4	6.3	6.1	7.4	8.1	ND	7.1	7.2	6.4	2.2	3.9	6.8	6.3	1.6	4.2	6.7	6.5	6.0	3.7	6.2	5.6	5.9
Chloroethane	4.6	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	1.3
Chloroform	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	µg/L^{1}	ND	ND	ND	1.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	µg/L^{1}	ND	ND	ND	1.11	ND	ND	ND	ND	ND	ND	ND	1.4	1.2	1.3	ND	ND	1.4	ND	ND	ND	ND	1.0	1.2	ND	ND	1.2	ND	1.4	1.0	ND^{6}	1.1	1.2
trans-1,4-Dichloro-2-butene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L^{4}	3.26	ND	ND	3.70	3.53	6.1	ND	3.6	2.6	4.1	4.9	3.2	5.2	4.5	2.9	ND	4.2	5.0	5.4	3.3	3.3	5.0	4.5	2.8	3.8	4.5	2.8	4.7	3.2	7.9	3.8	3.4

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-14

Concentration (Expressed in same units as Threshold Value)

Parameter	**Threshold Value**		JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEP '13	JUN '13	MAR '13	DEC '12	SEP '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006	mg/L^{1}	ND	ND	0.0350	NT	0.0050	0.0410	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	0.0060	ND	ND	0.0110	0.0170	ND	ND	NT	ND
Arsenic	0.010	mg/L^{1}	0.01	ND	0.0030	NT	0.0200	0.0120	ND	NT	ND	0.0070	0.0050	0.0050	NT	ND	ND	NT	ND	ND	ND	NT	0.0060	ND	ND	NT	ND	ND	ND	0.0060	ND	0.0074	ND	NT	0.0070
Barium	2	mg/L^{1}	0.155	0.2240	0.1990	NT	0.2400	0.2490	0.2290	NT	0.1380	0.1750	0.1980	0.1140	NT	0.2020	0.0910	NT	0.1570	0.1840	0.0790	NT	0.1440	0.1760	0.1370	NT	0.1750	0.1770	0.1470	0.1610	0.2100	0.2700	0.2030	NT	0.1900
Beryllium	0.004	mg/L^{1}	ND	ND	ND	NT	0.0030	ND	ND	NT	0.0010	0.0010	ND	0.0010	NT	ND	ND	NT	ND	ND	0.0010	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	0.0010	NT	ND
Cadmium	0.005	mg/L^{1}	0.006	0.0050	ND	NT	0.0050	0.0060	ND	NT	ND	0.0070	0.0080	0.0060	NT	ND	ND	NT	0.0050	0.0010	ND	NT	ND	0.0020	ND	NT	ND	0.0040	0.0030	0.0030	ND	ND^{6}	ND^{6}	NT	ND
Chromium	0.1	mg/L^{1}	0.001	0.0060	0.0020	NT	0.0010	0.0020	ND	NT	0.0110	0.0030	0.0030	0.0170	NT	0.0050	0.0050	NT	0.0040	0.0010	0.0080	NT	ND	0.0050	ND	NT	ND	ND	ND	ND	ND	ND	0.0065	NT	0.0018
Cobalt	0.73	mg/L^{5}	0.006	0.0140	0.0090	NT	0.0140	0.0130	0.0360	NT	0.0100	0.0100	0.0100	0.0120	NT	0.0170	0.0120	NT	0.0080	0.0150	0.0120	NT	0.0080	0.0160	0.0370	NT	0.0140	0.0100	0.0100	0.0160	0.0090	0.0457	0.0261	NT	0.0130
Copper	1.3	mg/L^{1}	ND	0.0090	ND	NT	0.0100	ND	0.0200	NT	0.0010	0.0010	ND	0.0170	NT	0.0100	0.0090	NT	0.0070	0.0050	0.0200	NT	0.0030	0.0080	0.0100	NT	ND	ND	0.0010	0.0090	ND	0.0049	0.0140	NT	0.0050
Lead	0.015	mg/L^{1}	ND	0.0060	ND	NT	0.0170	ND	ND	NT	0.0160	0.0070	ND	0.0090	NT	0.0050	0.0050	NT	0.0040	0.0040	0.0070	NT	0.0020	0.0050	0.0030	NT	0.0020	ND	0.0090	0.0020	ND	ND	0.0039	NT	0.0011
Mercury	0.002	mg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Nickel	0.1	mg/L^{2}	0.012	0.0220	0.0320	NT	0.0220	0.0470	0.0400	NT	0.0160	0.0160	0.0170	0.0200	NT	0.0270	0.0180	NT	0.0150	0.0230	0.0200	NT	0.0120	0.0200	0.0350	NT	0.0190	0.0170	0.0150	0.0180	0.0180	0.0460	0.0407	NT	0.0170
Selenium	0.05	mg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	0.0350	0.0140	NT	ND	ND	0.0260	NT	ND	ND	ND	NT	0.0200	0.0310	0.0240	0.0300	ND	ND	ND	NT	ND
Silver	0.1	mg/L^{2,3}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	0.0040	NT	0.0020	ND	NT	0.0020	0.0020	ND	NT	ND	0.0020	ND	NT	ND	0.0040	ND	0.0050	ND	ND	ND	NT	ND
Thallium	0.002	mg/L^{1}	ND	0.0003	0.0003	NT	ND	ND	ND	NT	ND	ND	ND	0.0010	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	0.0010	ND	ND	ND	ND	NT	ND
Tin	22	mg/L^{5}	ND	ND	ND	NT	ND	ND	ND	NT	0.0350	ND	0.0070	0.0010	NT	ND	ND	NT	ND	0.0220	0.0180	NT	0.0310	ND	ND	NT	ND	ND	ND	ND	ND	ND^{6}	ND	NT	ND
Vanadium	0.26	mg/L^{5}	ND	0.0070	0.0030	NT	0.0070	ND	ND	NT	0.0170	ND	ND	0.0140	NT	0.0080	0.0050	NT	0.0050	0.0020	0.0080	NT	0.0030	0.0060	ND	NT	ND	ND	ND	ND	0.0290	ND	0.0063	NT	0.0028
Zinc	2	mg/L^{2,3}	0.031	0.0480	0.0160	NT	0.0600	0.0230	0.0300	NT	0.0280	0.0170	0.0140	0.0680	NT	0.0240	0.0190	NT	0.0070	0.0100	0.0310	NT	0.0120	0.0310	0.0210	NT	0.0160	0.0070	0.0070	0.0270	ND	0.0453	0.0570	NT	0.0094
Acetone	610	µg/L^{5}	ND	ND	ND	NT	ND	6.9	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	6.4	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Acrylonitrile	0.039	µg/L^{5}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Benzene	5	µg/L^{1}	2.77	ND	ND	NT	3.2	4.1	ND	NT	2.7	3.1	3.9	2.0	NT	3.5	ND	NT	3.3	3.6	ND	NT	2.9	4.3	1.9	NT	1.8	3.5	3.6	4.1	2.1	3.7	1.7	NT	3.6
Bromochloromethane	80	µg/L^{2}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromodichloromethane (THM)	90	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromoform	80	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Carbon disulfide	1000	µg/L^{5}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Carbon tetrachloride	5	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chlorobenzene	100	µg/L^{1}	13.3	10.8	ND	NT	13.42	15.6	ND	NT	12.5	13.5	15.4	10.7	NT	16.7	5.3	NT	15.7	15.7	3.2	NT	11.3	19.1	8.0	NT	7.0	14.3	14.6	16.5	7.1	15.3	6.1	NT	14.0
Chloroethane	4.6	µg/L^{5}	ND	ND	ND	NT	2.27	ND	ND	NT	3.3	ND	2.0	1.5	NT	ND	ND	NT	ND	ND	ND	NT	ND	2.5	ND	NT	ND	1.4	2.4	ND	1.6	1.3	ND	NT	3.0
Chloroform	80	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chlorodibromomethane (THM)	80	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dibromoethane (EDB)	0.05	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichlorobenzene	600	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,4-Dichlorobenzene	75	µg/L^{1}	2.62	ND	ND	NT	ND	ND	ND	NT	1.8	ND	ND	2.2	NT	3.3	ND	NT	3.4	ND	ND	NT	2.2	2.9	1.8	NT	1.4	2.7	2.2	3.2	1.8	2.7	1.9	NT	3.0
trans-1,4-Dichloro-2-butene		µg/L	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1-Dichloroethane	5	µg/L	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichloroethane	5	µg/L	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1-Dichloroethylene	7	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
cis-1,2-Dichloroethene	70	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
trans-1,2-Dichloroethene	100	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichloropropane	5	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
cis-1,3-Dichloropropene		µg/L	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
trans-1,3-Dichloropropene		µg/L	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Ethylbenzene	700	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L^{5}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromomethane	10	µg/L^{2}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chloromethane	30	µg/L^{2}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Dibromomethane	61	µg/L^{5}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methylene chloride	5	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L^{2}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl iodide		µg/L	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
4-Methyl-2-pentanone		µg/L	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Styrene	100	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,1,2-Tetrachloroethane	70	µg/L^{2}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L^{2}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Tetrachloroethylene(PCE)	5	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Toluene	1000	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,1-Trichloroethane	200	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,2-Trichloroethane	5	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Trichloroethylene(TCE)	5	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Trichloroflouromethane	2000	µg/L^{2}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2,3-Trichloropropane	40	µg/L^{2}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Vinyl acetate	410	µg/L^{5}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Vinyl chloride	2	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Xylenes	10000	µg/L^{1}	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L^{4}	6.23	9.4	ND	NT	7.08	16.5	ND	NT	6.7	7.7	12.3	6.9	NT	11.2	1.7	NT	6.6	14.8	4.3	NT	6.9	11.9	11.0	NT	7.5	8.4	6.6	12.4	7.0	16.3	12.3	NT	5.3

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit.
However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those
constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above
NT = Not Tested due to dry conditions at well.

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-15

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006	mg/L[1]	ND	ND	0.0300	ND	0.0020	0.0340	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0060	0.0070	0.0060	0.0400	ND	ND	ND	ND	ND
Arsenic	0.010	mg/L[1]	0.03	0.0200	0.0200	0.0300	0.0300	ND	ND	0.0700	0.0130	0.0320	0.0170	ND	ND	0.0160	ND	0.0350	ND	ND	0.0050	0.0280	0.0130	0.0180	0.0040	0.0300	ND	ND	0.0110	ND	ND	0.0023	0.0338	0.0362	ND
Barium	2	mg/L[1]	0.096	0.1280	0.1240	0.0850	0.0890	0.1230	0.1560	0.3100	0.0600	0.1130	0.1840	0.1390	0.2230	0.1260	0.1350	0.1060	0.1810	0.1180	0.1340	0.0750	0.1510	0.1550	0.1340	0.1010	0.2360	0.2350	0.1620	0.1930	ND	0.1890	0.1260	0.1110	0.2900
Beryllium	0.004	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0050	ND	ND	ND[6]	ND
Cadmium	0.005	mg/L[1]	0.010	0.0090	ND	0.0100	0.0050	0.0100	0.0050	0.0460	ND	0.0100	0.0080	0.0070	ND	ND	ND	ND	0.0100	0.0010	ND	0.0010	ND	0.0040	ND	0.0020	ND	0.0060	0.0010	0.0040	ND	ND	ND[6]	ND[6]	ND
Chromium	0.1	mg/L[1]	ND	ND	ND	0.0030	ND	0.0020	ND	0.1180	0.0020	0.0010	0.0050	0.0020	0.0010	ND	ND	0.0030	0.0030	0.0030	ND	ND	ND	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	ND[6]	0.0018	0.0018
Cobalt	0.73	mg/L[5]	0.012	0.0100	0.0090	0.0180	0.0130	0.0040	ND	0.2300	0.0080	0.0180	0.0070	0.0040	0.0020	0.0120	ND	0.0190	0.0020	ND	0.0010	0.0140	0.0100	0.0060	0.0020	0.0170	0.0030	0.0040	0.0090	0.0020	ND	0.0039	0.0185	0.0244	0.0017
Copper	1.3	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	0.1400	ND	ND	ND	ND	ND	0.0020	ND	ND	0.0080	0.0040	0.0240	0.0050	0.0060	0.0060	ND	ND	ND	0.0030	0.0040	0.0100	0.2400	ND	0.0012	0.0059	0.0028
Lead	0.015	mg/L[1]	ND	0.0020	ND	ND	0.0020	ND	0.0050	0.1350	0.0140	ND	ND	ND	0.0040	0.0020	0.0040	0.0110	0.0040	0.0020	0.0030	0.0020	0.0050	0.0050	0.0030	0.0050	0.0020	0.0020	0.0010	0.0030	ND	ND	0.0025	0.0025	0.0013
Mercury	0.002	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0070	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	0.1	mg/L[2]	0.023	0.0200	0.0510	0.0350	0.0240	0.0520	0.0110	0.6610	0.0140	0.0290	0.0170	0.0100	0.0110	0.0180	0.0080	0.0330	0.0120	0.0070	0.0110	0.0230	0.0190	0.0150	ND	0.0270	0.0110	0.0130	0.0160	0.0090	0.0140	0.0086	0.0374	0.0396	0.0097
Selenium	0.05	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0220	ND	ND	ND	ND	0.0160	ND	ND	ND	ND	0.0100	0.0120	0.0180	0.0110	0.0190	0.0400	ND	ND[6]	ND	ND
Silver	0.1	mg/L[2,3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0030	0.0020	0.0150	0.0030	0.0030	0.0050	0.0020	0.0030	0.0030	ND	0.0040	ND	0.0050	ND	0.0050	ND	ND	ND[6]	ND[6]	ND
Thallium	0.002	mg/L[1]	ND	ND	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22	mg/L[5]	ND	ND	ND	ND	ND	ND	ND	1.0600	ND	ND	0.0470	ND	ND	ND	ND	ND	ND	0.0270	0.0780	0.0210	0.0400	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND[6]	ND[6]	ND
Vanadium	0.26	mg/L[5]	ND	0.0060	0.0040	0.0110	ND	ND	0.0150	0.1560	0.0050	ND	ND	0.0020	ND	0.0040	0.0050	0.0060	0.0040	0.0030	0.0090	0.0030	0.0050	0.0040	0.0040	0.0030	0.0030	0.0020	0.0020	ND	0.0160	ND	0.0012	0.0023	0.0023
Zinc	2	mg/L[2,3]	0.032	0.0210	0.0100	0.0300	0.0200	0.0140	ND	0.9700	ND	0.0120	0.0150	0.0080	ND	ND	ND	ND	ND	ND	ND	ND	0.0150	0.0200	ND	0.0280	0.0090	0.0120	0.0060	0.0170	ND	0.0181	0.0147	0.0227	ND
Acetone	610	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	5.2	ND	ND	6.7	ND	ND	ND	ND	ND	ND	5.6	ND	ND	ND	18.6	ND	ND	ND	ND	ND	ND	ND	6.8	ND	ND	ND
Acrylonitrile	0.039	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	µg/L[1]	1.67	ND	ND	3.59	2.83	ND	ND	3.4	3.2	2.1	3.2	1.7	2.0	2.8	2.8	3.6	2.2	2.1	2.8	3.4	2.7	2.8	2.5	3.4	3.1	2.7	3.2	3.5	2.1	1.9	3.3	3.5	2.5
Bromochloromethane	80	µg/L[2]	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	µg/L[1]	12.72	17	15.2	18.19	21.26	17.4	21.5	16.0	16.8	17.7	18.3	21.0	21.1	19.7	26.9	19.0	27.0	25.0	32.5	18.9	14.3	20.0	29.0	15.5	12.4	16.9	15.8	25.0	11.8	23.1	19.8	16.9	12.0
Chloroethane	4.6	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	2.8	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	2.9	1.4
Chloroform	80	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	1.0	1.3	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	µg/L[1]	ND	ND	ND	2.51	ND	1.6	ND	ND	2.1	ND	ND	3.4	2.9	3.0	ND	ND	3.4	ND	ND	2.1	2.3	2.6	3.2	1.9	1.9	2.3	1.5	3.1	2.1	2.9	2.4	2.4	2.1
trans-1,4-Dichloro-2-butene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	3.3	ND	ND	2.2	5.4	ND	ND	3.1	ND	6.1	2.0	3.9	ND	ND	6.5
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L[4]	6.61	ND	6.3	7.52	7.69	8.5	ND	7.9	7.9	6.8	7.8	6.7	12.2	7.1	4.2	6.0	9.4	5.4	7.7	8.3	10.3	6.1	3.9	8.8	9.5	9.5	5.5	7.5	7.1	7.9	6.1	7.6	5.7

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-16

Concentration (Expressed in same units as Threshold Value)

Parameter	**Threshold Value**	JUN '18	MAR '18	NOV '17
Antimony	0.006 mg/L^{1}	0.002	ND	ND
Arsenic	0.010 mg/L^{1}	0.01	ND	ND
Barium	2 mg/L^{1}	0.011	0.0190	0.1000
Beryllium	0.004 mg/L^{1}	ND	ND	ND
Cadmium	0.005 mg/L^{1}	ND	ND	ND
Chromium	0.1 mg/L^{1}	0.004	0.0060	0.0050
Cobalt	0.73 mg/L^{5}	0.002	0.0050	0.0050
Copper	1.3 mg/L^{1}	ND	ND	ND
Lead	0.015 mg/L^{1}	ND	ND	ND
Mercury	0.002 mg/L^{1}	ND	ND	ND
Nickel	0.1 mg/L^{2}	0.009	0.0100	0.0100
Selenium	0.05 mg/L^{1}	ND	0.0100	0.0050
Silver	0.1 mg/L^{2,3}	ND	ND	ND
Thallium	0.002 mg/L^{1}	ND	0.0003	ND
Tin	22 mg/L^{5}	ND	ND	ND
Vanadium	0.26 mg/L^{5}	ND	ND	ND
Zinc	2 mg/L^{2,3}	0.022	0.024	0.0210
Acetone	610 µg/L^{5}	ND	ND	ND
Acrylonitrile	0.039 µg/L^{5}	ND	ND	ND
Benzene	5 µg/L^{1}	ND	ND	ND
Bromochloromethane	80 µg/L^{2}	ND	ND	ND
Bromodichloromethane (THM)	90 µg/L^{1}	ND	ND	ND
Bromoform	80 µg/L^{1}	ND	ND	ND
Carbon disulfide	1000 µg/L^{5}	ND	ND	ND
Carbon tetrachloride	5 µg/L^{1}	ND	ND	ND
Chlorobenzene	100 µg/L^{1}	ND	ND	ND
Chloroethane	4.6 µg/L^{5}	ND	ND	ND
Chloroform	80 µg/L^{1}	ND	ND	ND
Chlorodibromomethane (THM)	80 µg/L^{1}	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2 µg/L^{1}	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05 µg/L^{1}	ND	ND	ND
1,2-Dichlorobenzene	600 µg/L^{1}	ND	ND	ND
1,4-Dichlorobenzene	75 µg/L^{1}	ND	ND	ND
trans-1,4-Dichloro-2-butene	µg/L	ND	ND	ND
1,1-Dichloroethane	5 µg/L	ND	ND	ND
1,2-Dichloroethane	5 µg/L	ND	ND	ND
1,1-Dichloroethylene	7 µg/L^{1}	ND	ND	ND
cis-1,2-Dichloroethene	70 µg/L^{1}	ND	ND	ND
trans-1,2-Dichloroethene	100 µg/L^{1}	ND	ND	ND
1,2-Dichloropropane	5 µg/L^{1}	ND	ND	ND
cis-1,3-Dichloropropene	µg/L	ND	ND	ND
trans-1,3-Dichloropropene	µg/L	ND	ND	ND
Ethylbenzene	700 µg/L^{1}	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160 µg/L^{5}	ND	ND	ND
Bromomethane	10 µg/L^{2}	ND	ND	ND
Chloromethane	30 µg/L^{2}	ND	ND	ND
Dibromomethane	61 µg/L^{5}	ND	ND	ND
Methylene chloride	5 µg/L^{1}	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000 µg/L^{2}	ND	ND	ND
Methyl iodide	µg/L	ND	ND	ND
4-Methyl-2-pentanone	µg/L	ND	ND	ND
Styrene	100 µg/L^{1}	ND	ND	ND
1,1,1,2-Tetrachloroethane	70 µg/L^{2}	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3 µg/L^{2}	ND	ND	ND
Tetrachloroethylene(PCE)	5 µg/L^{1}	ND	ND	ND
Toluene	1000 µg/L^{1}	ND	ND	ND
1,1,1-Trichloroethane	200 µg/L^{1}	ND	ND	ND
1,1,2-Trichloroethane	5 µg/L^{1}	ND	ND	ND
Trichloroethylene(TCE)	5 µg/L^{1}	ND	ND	ND
Trichloroflouromethane	2000 µg/L^{2}	ND	ND	ND
1,2,3-Trichloropropane	40 µg/L^{2}	ND	ND	ND
Vinyl acetate	410 µg/L^{5}	ND	ND	ND
Vinyl chloride	2 µg/L^{1}	ND	ND	ND
Xylenes	10000 µg/L^{1}	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40 µg/L^{4}	6.53	7.8	4.6

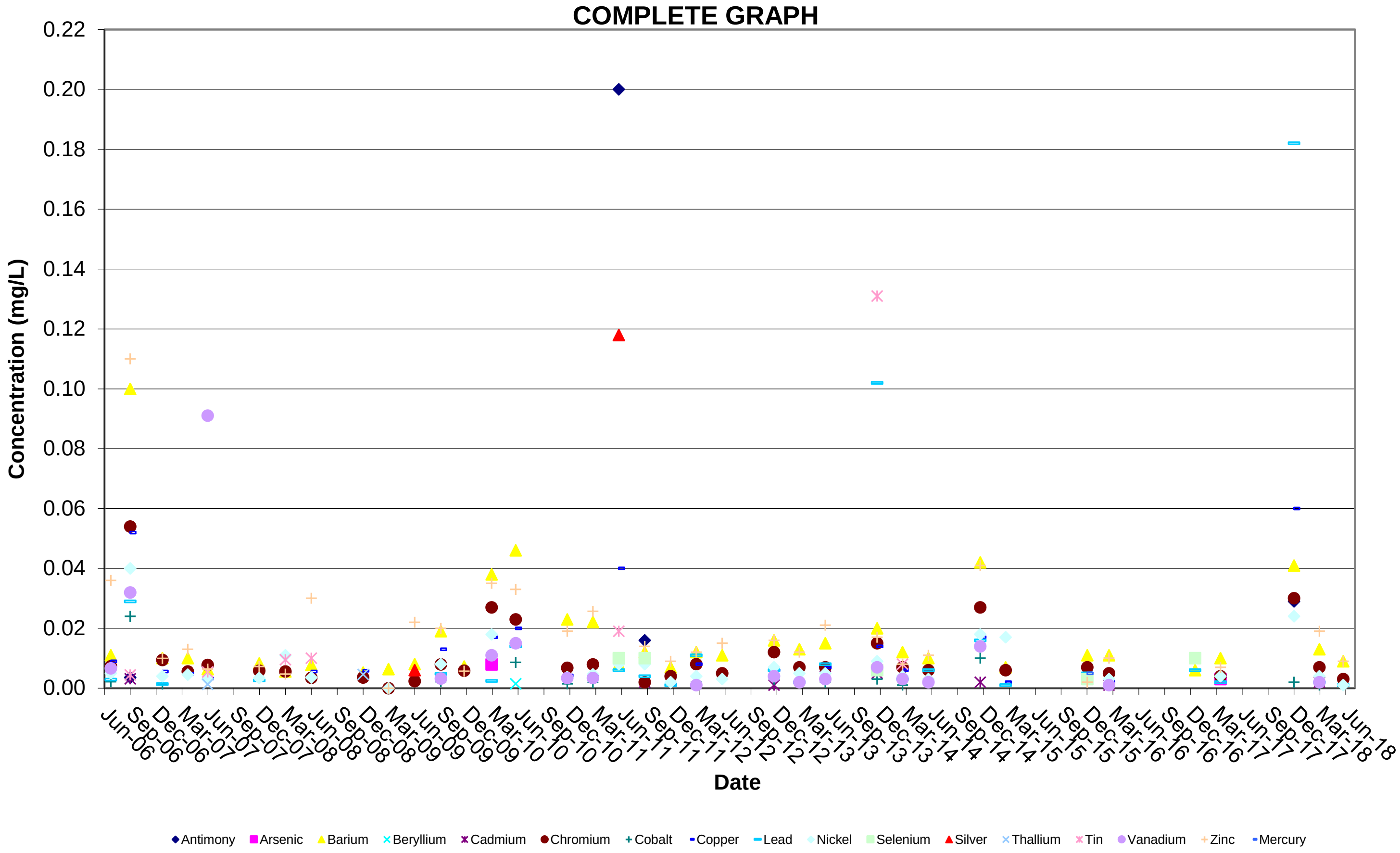
▨ = Exceeded MCL

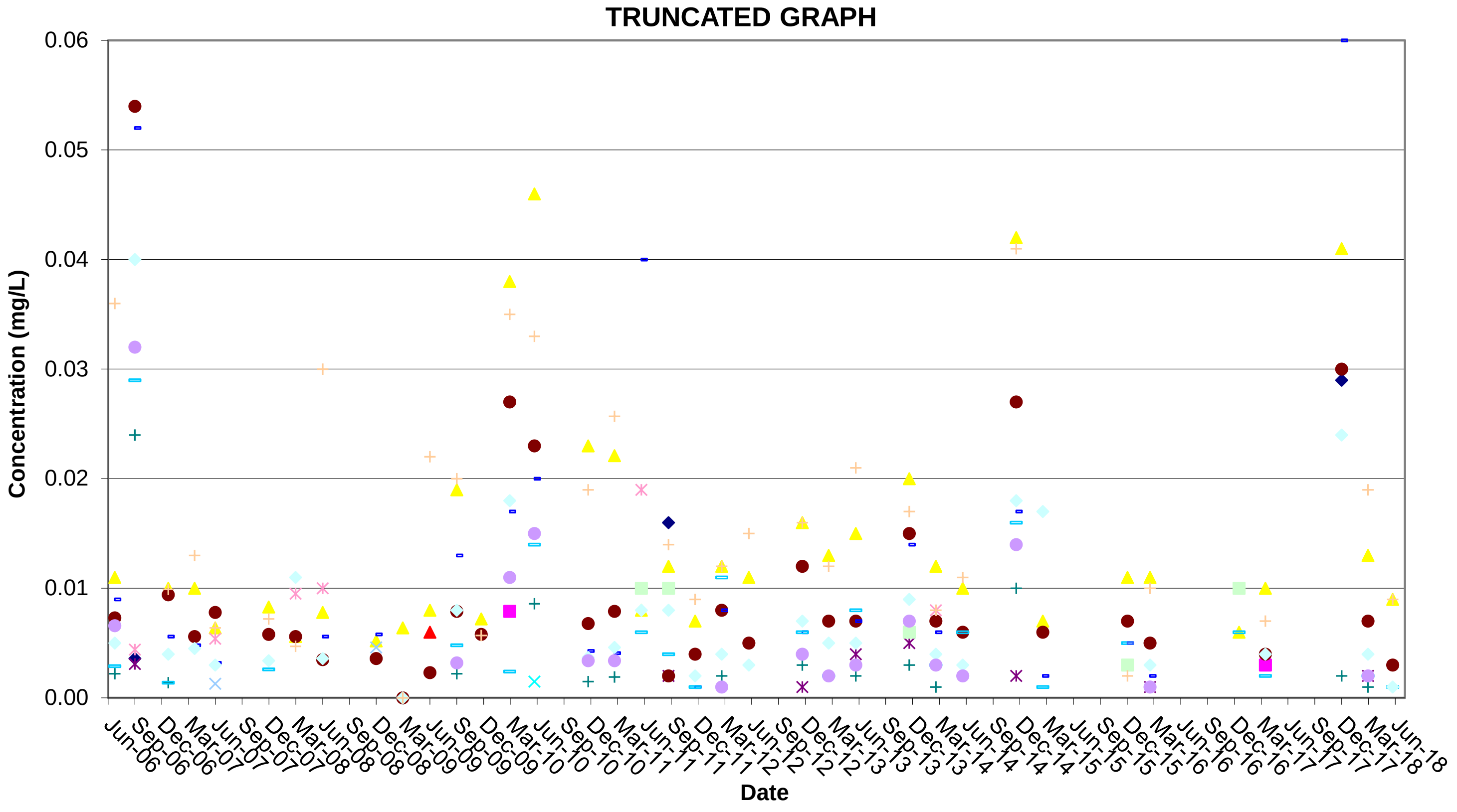
1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

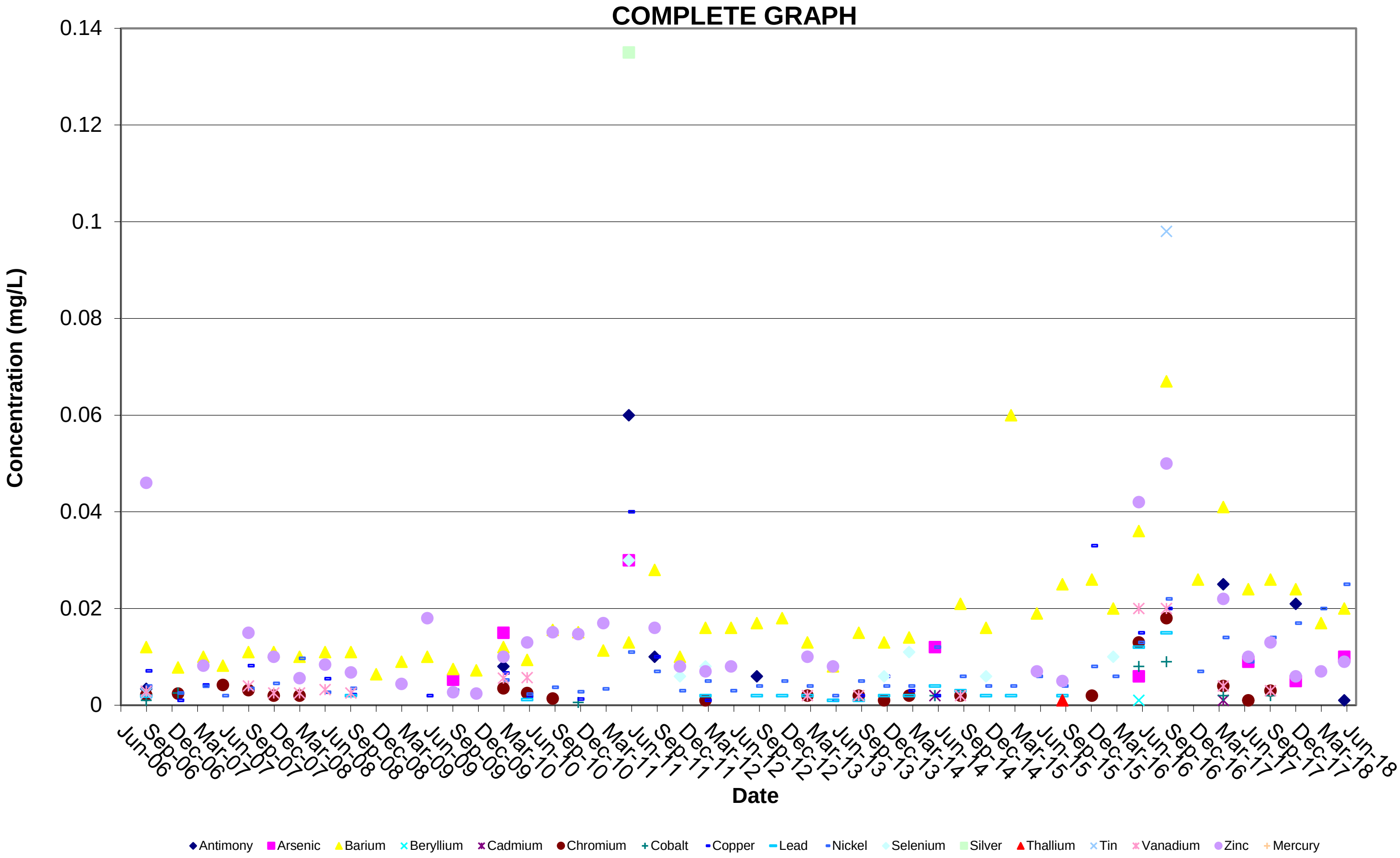
ATTACHMENT NO. 3
HISTORICAL DETECTED METALS GRAPHS

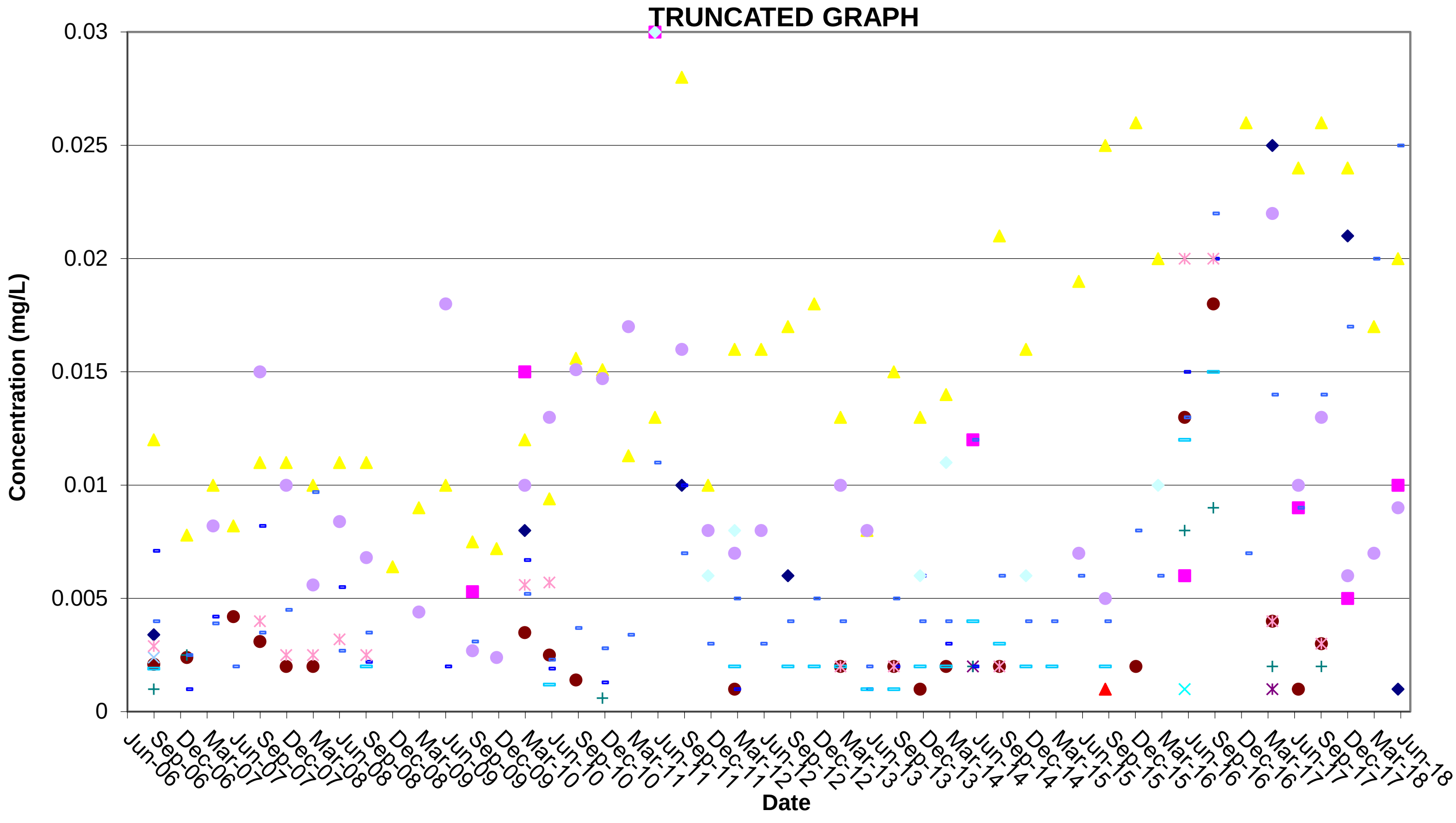
Detected Appendix A Metals in OW-9
Tiverton Landfill



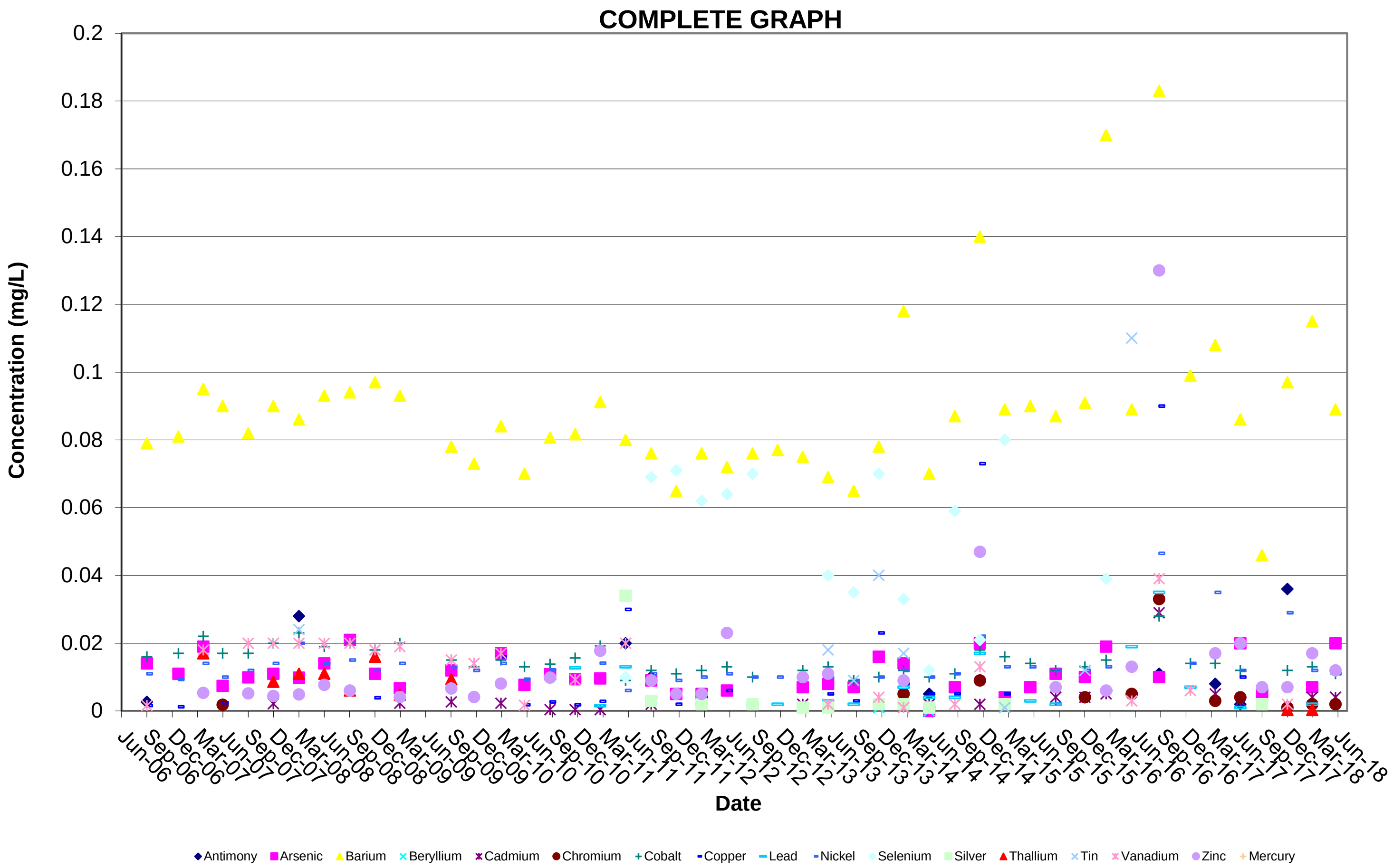


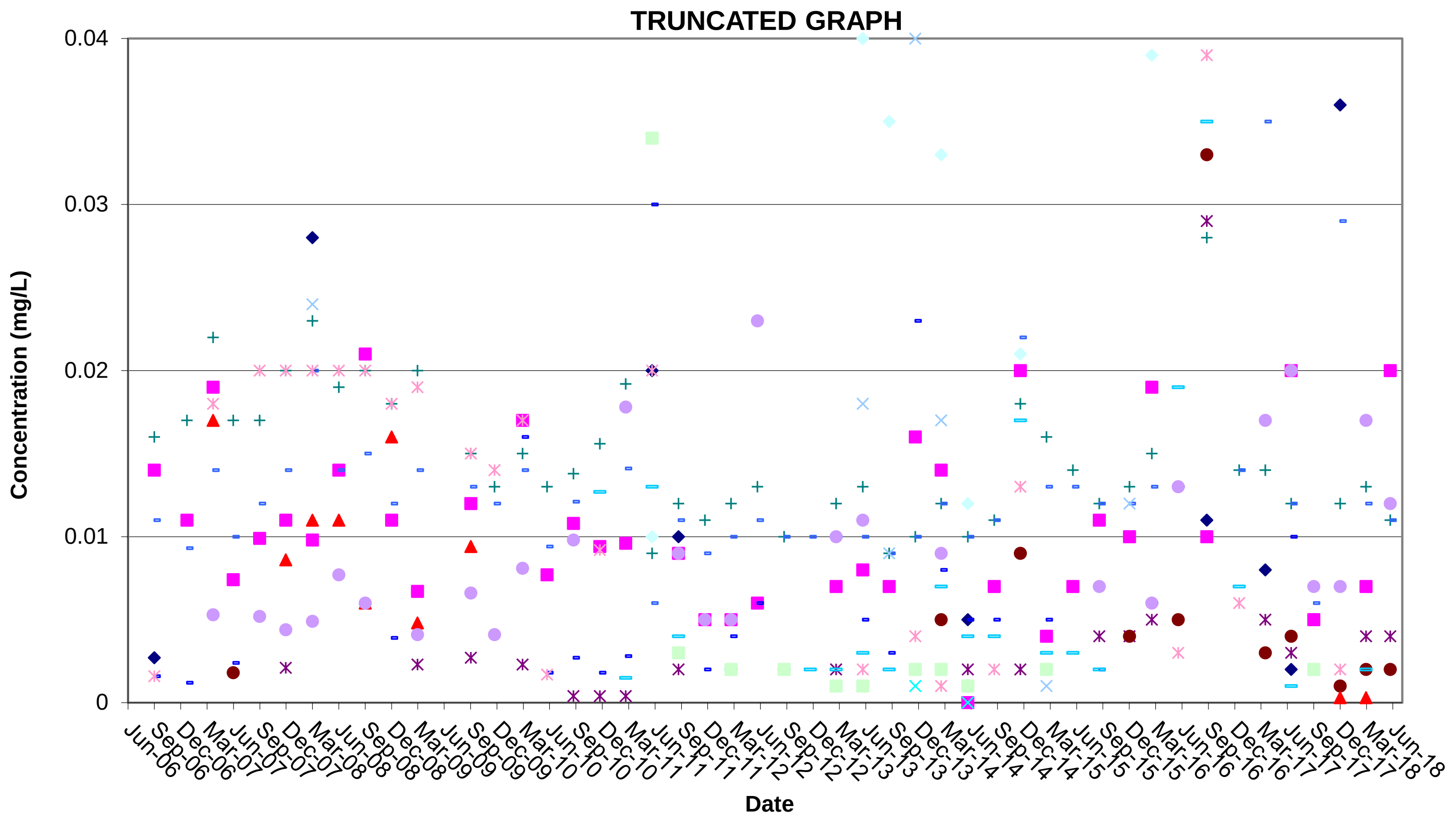
Detected Appendix A Metals in OW-12
Tiverton Landfill



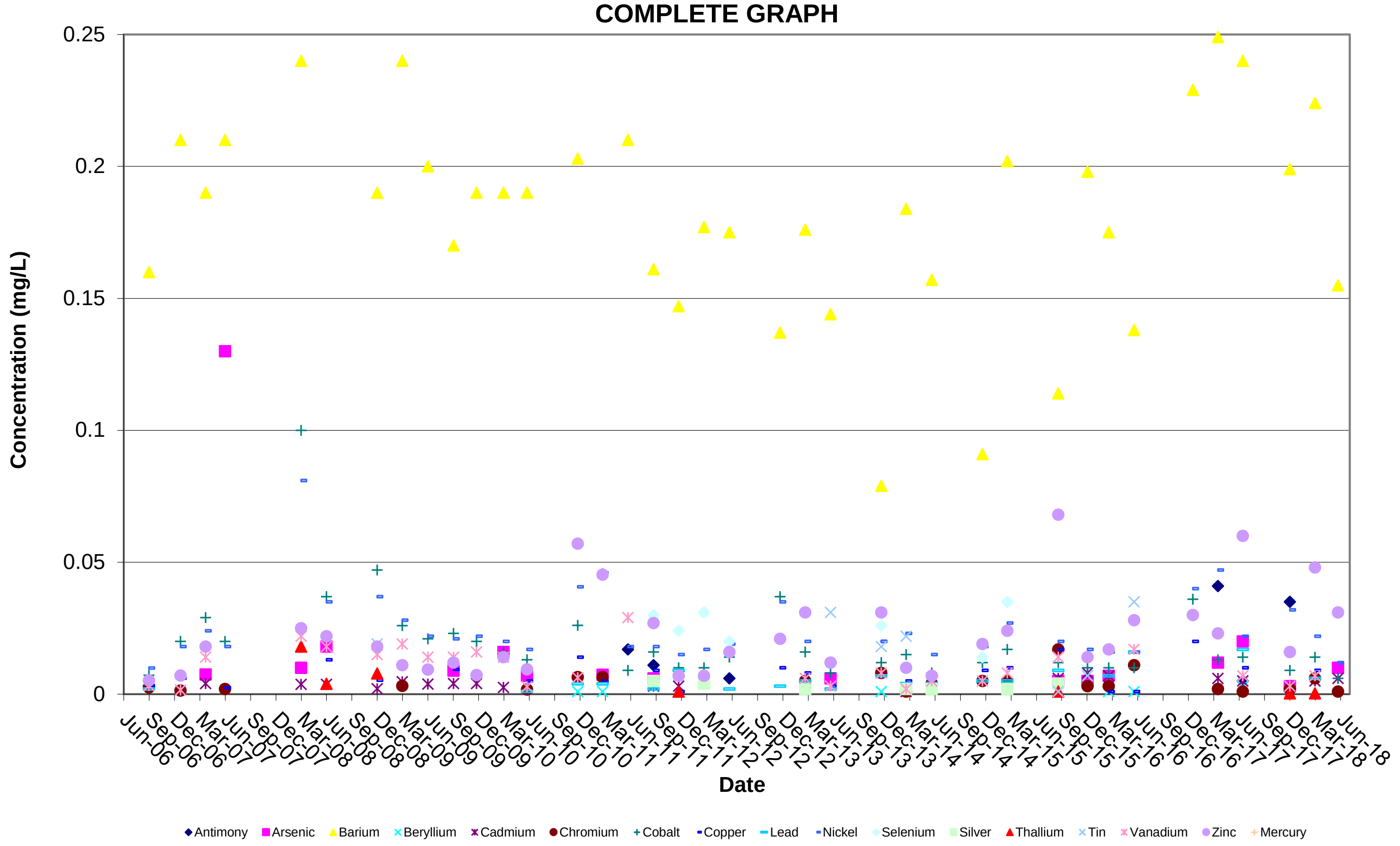


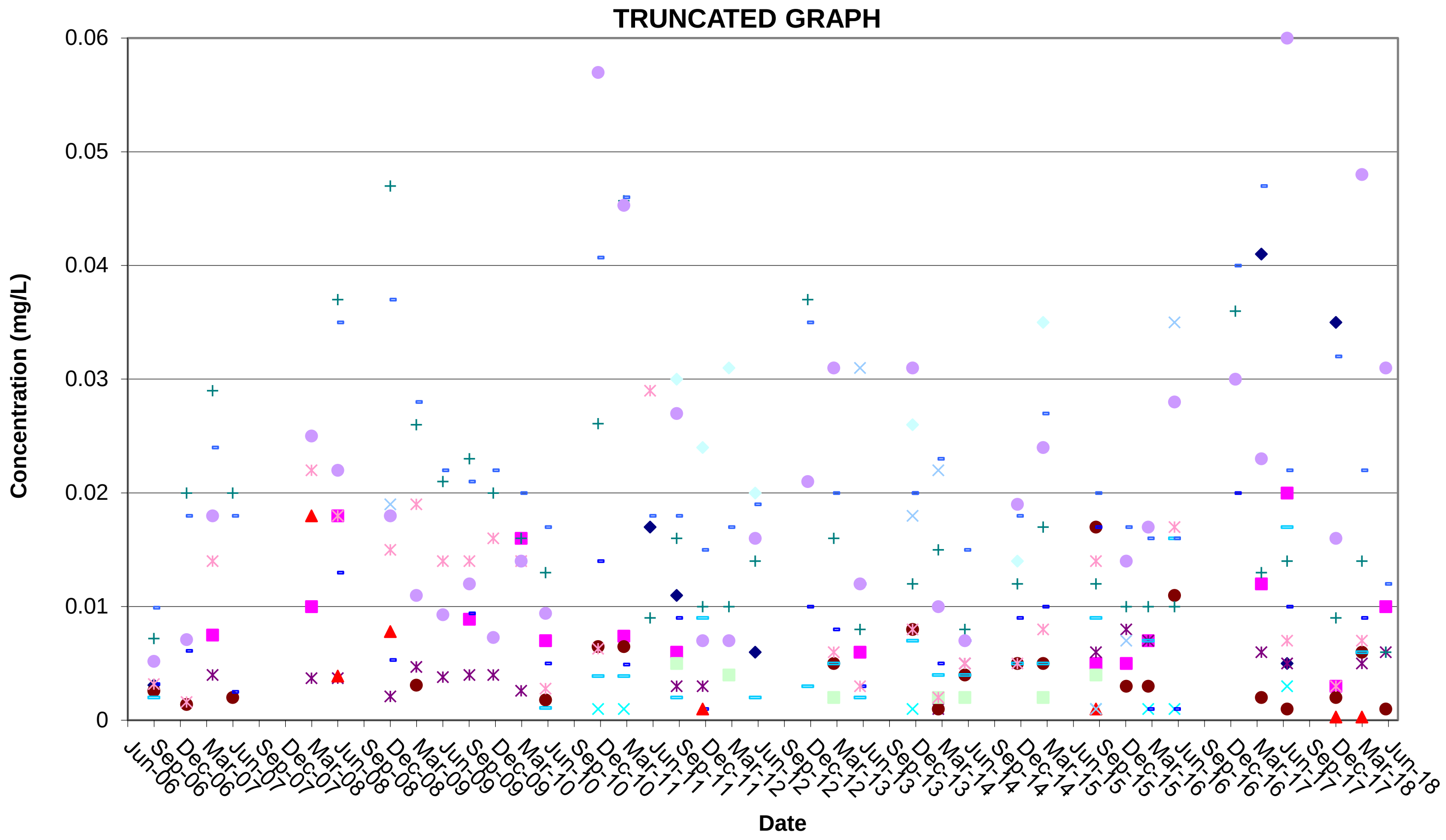
Detected Appendix A Metals in OW-13
Tiverton Landfill



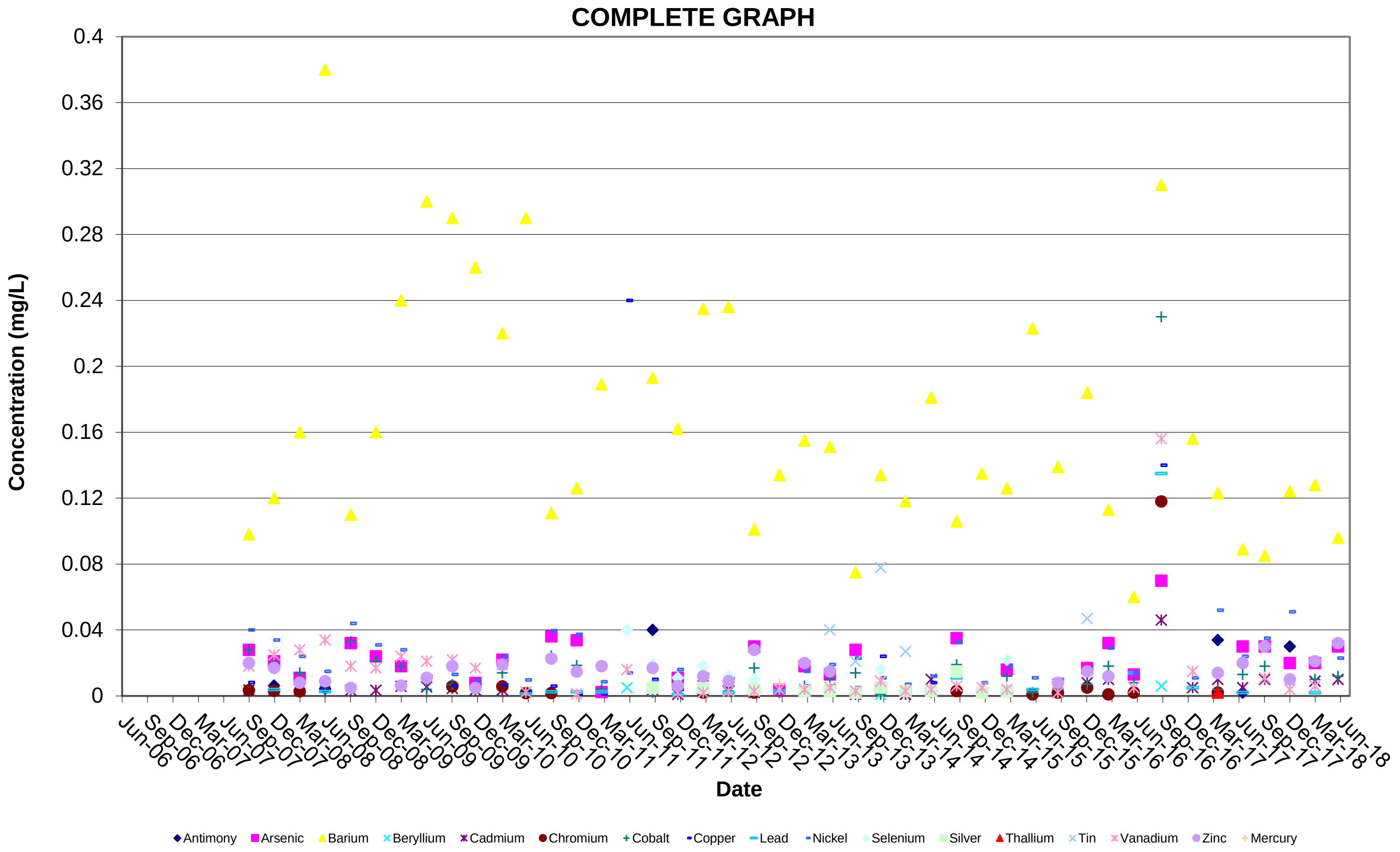


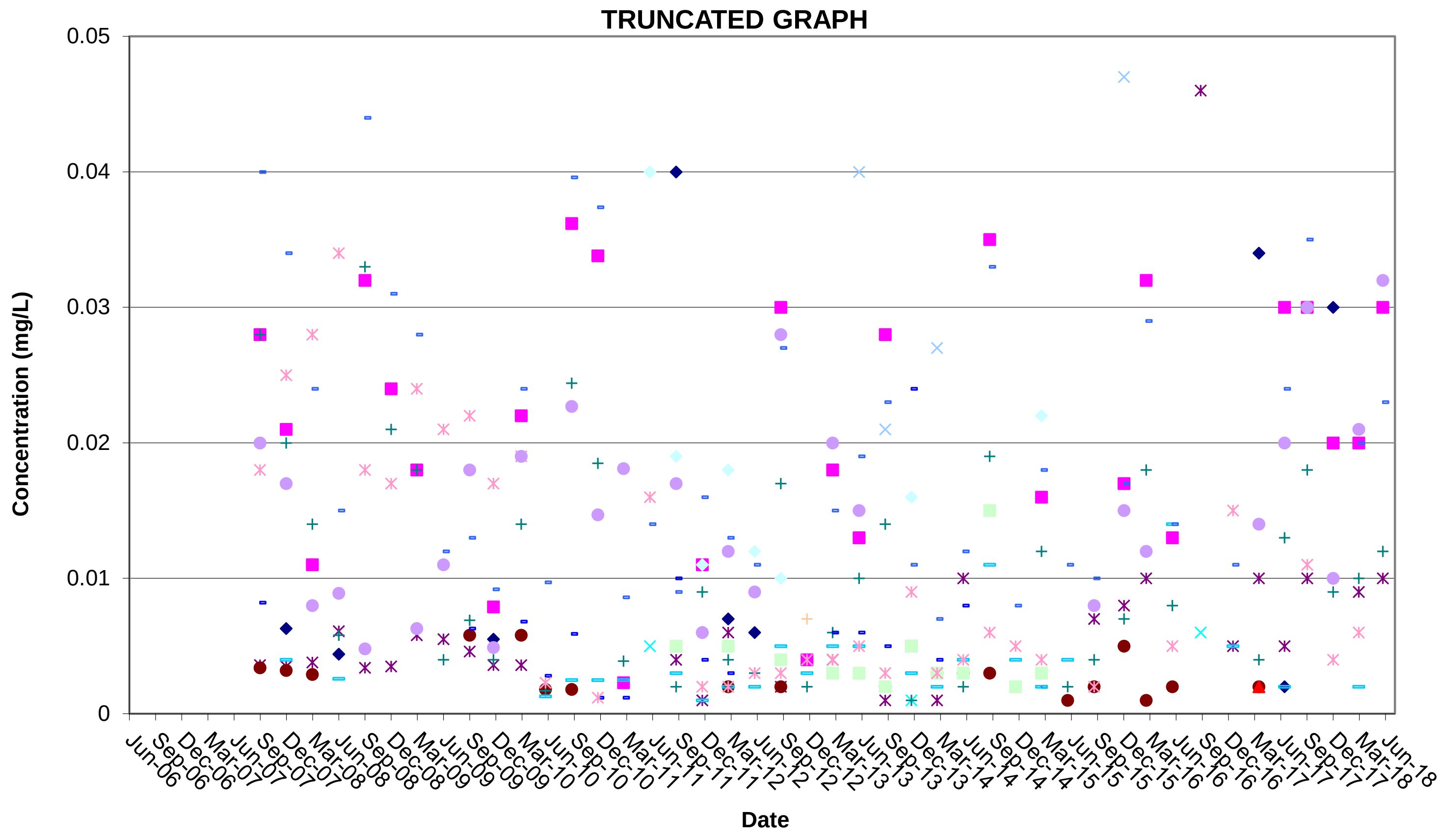
Detected Appendix A Metals in OW-14
Tiverton Landfill



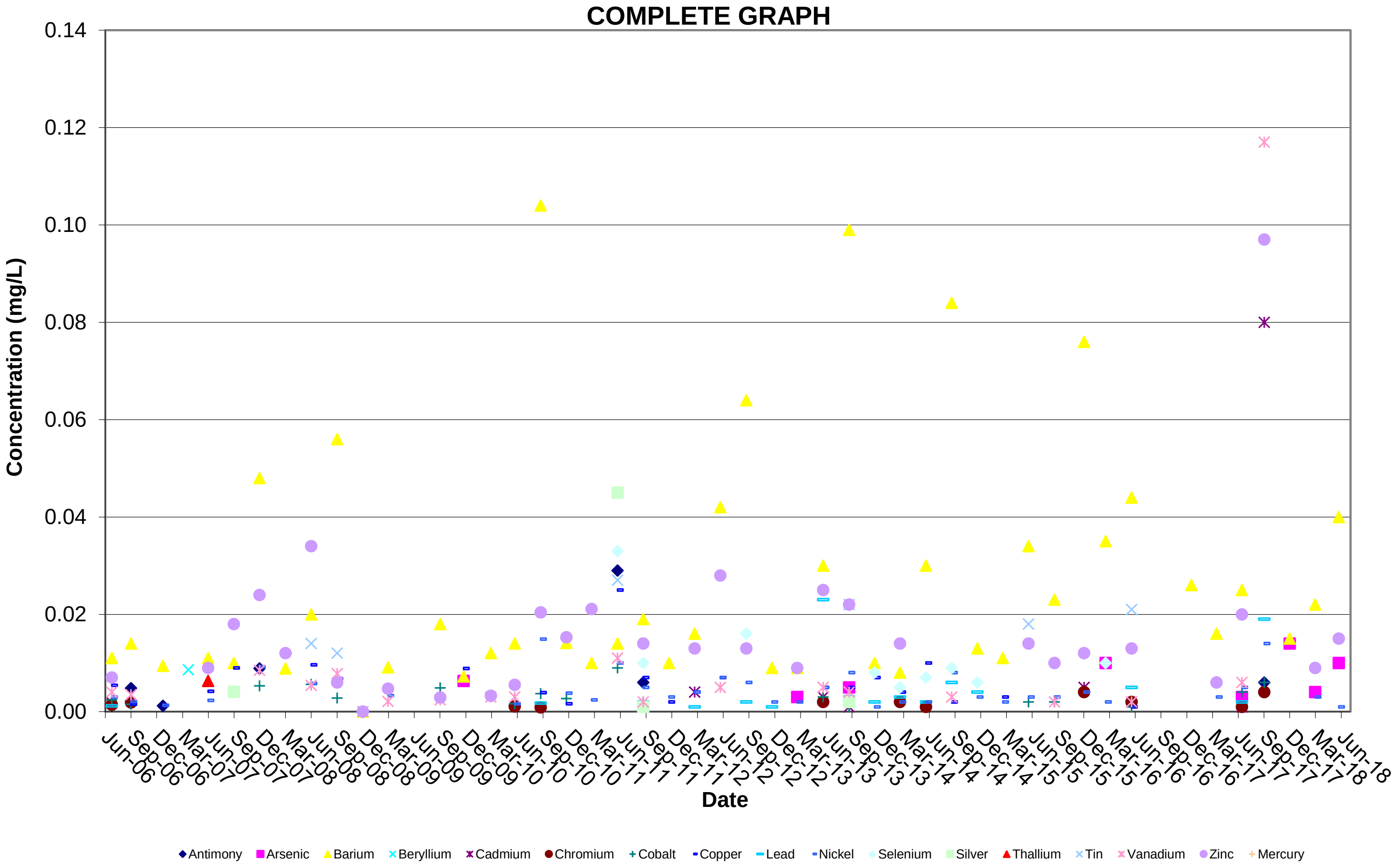


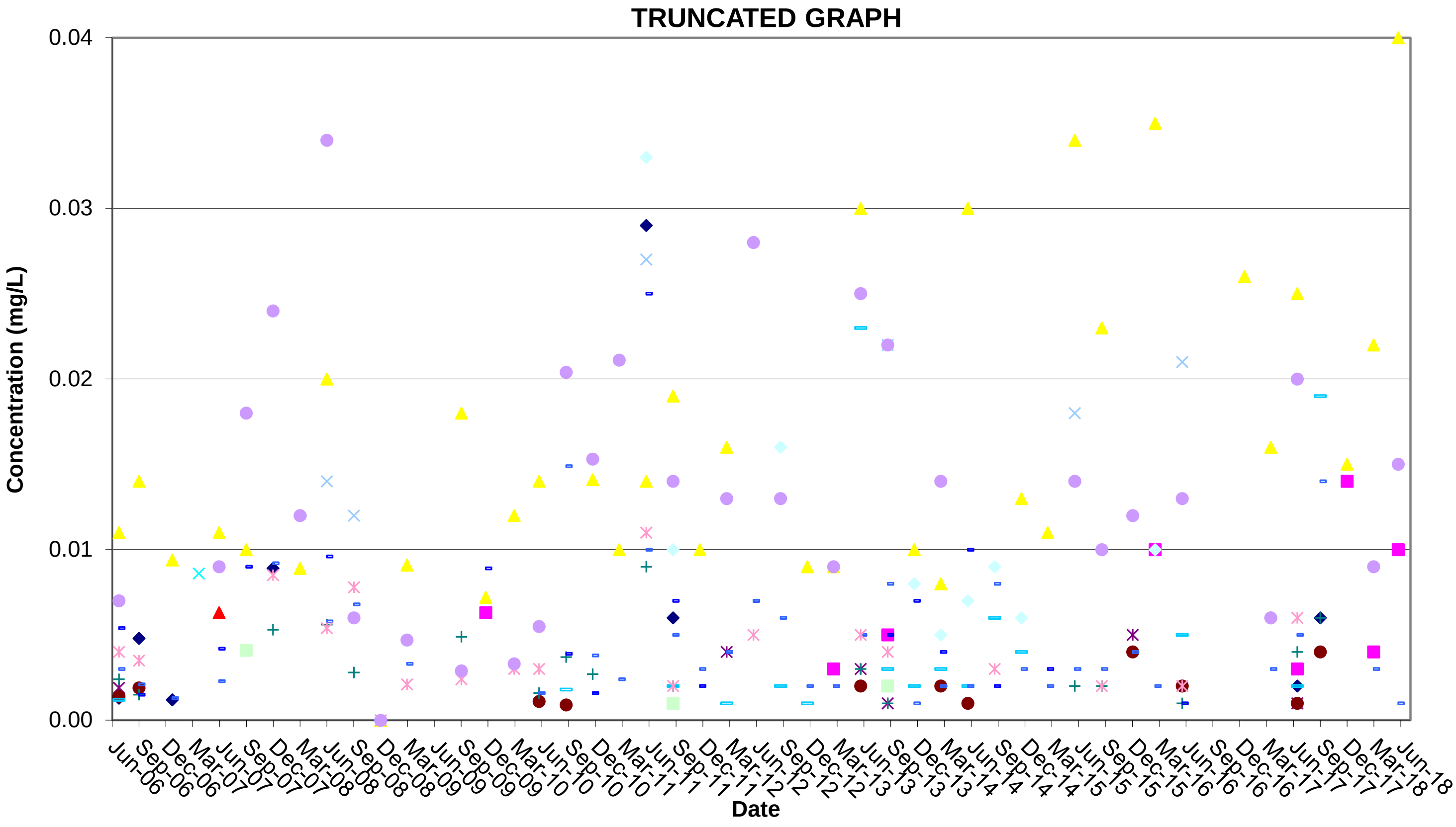
Detected Appendix A Metals in OW-15
Tiverton Landfill



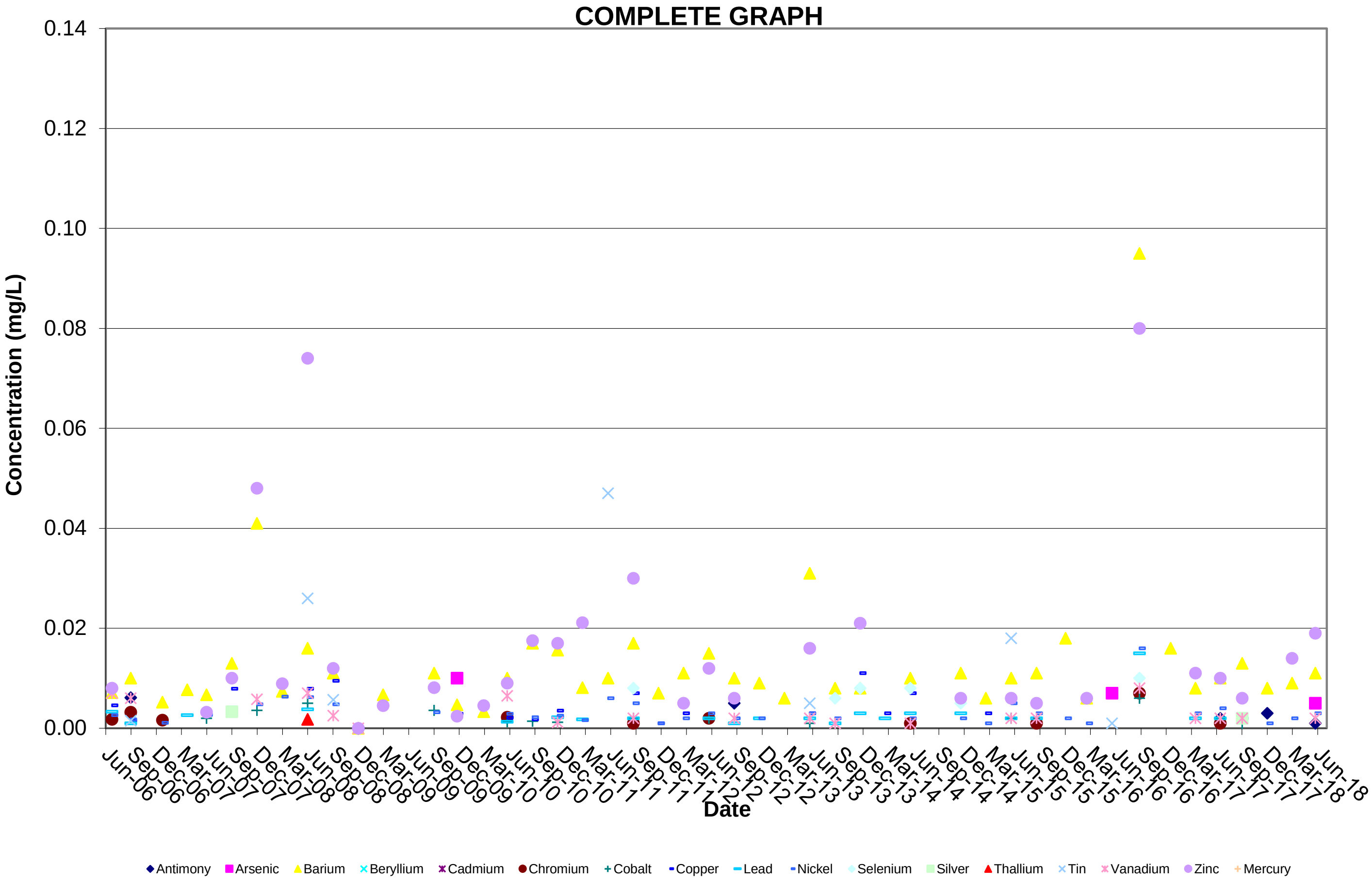


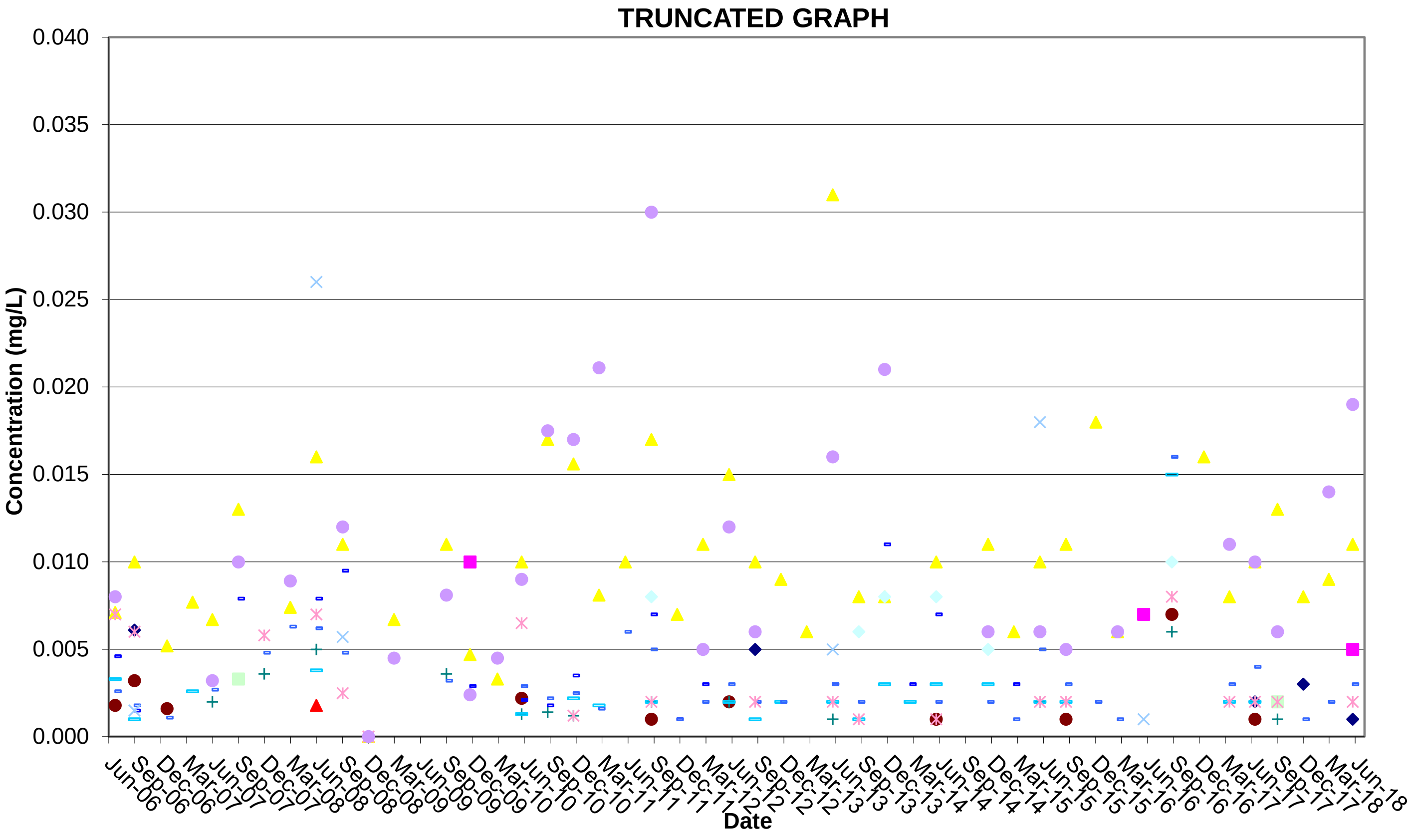
Detected Appendix A Metals at Surface Water Sampling Location SW-1
Tiverton Landfill



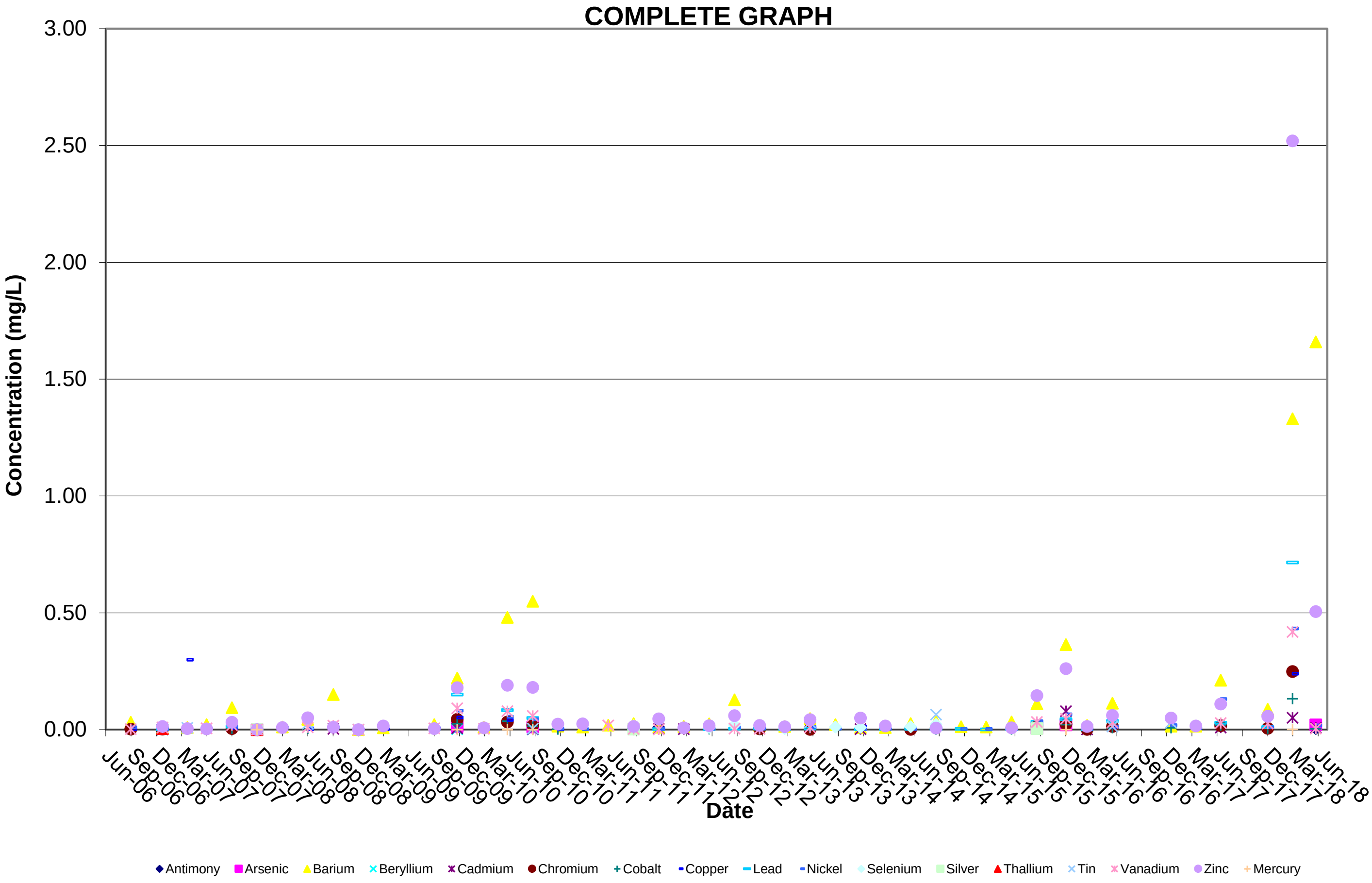


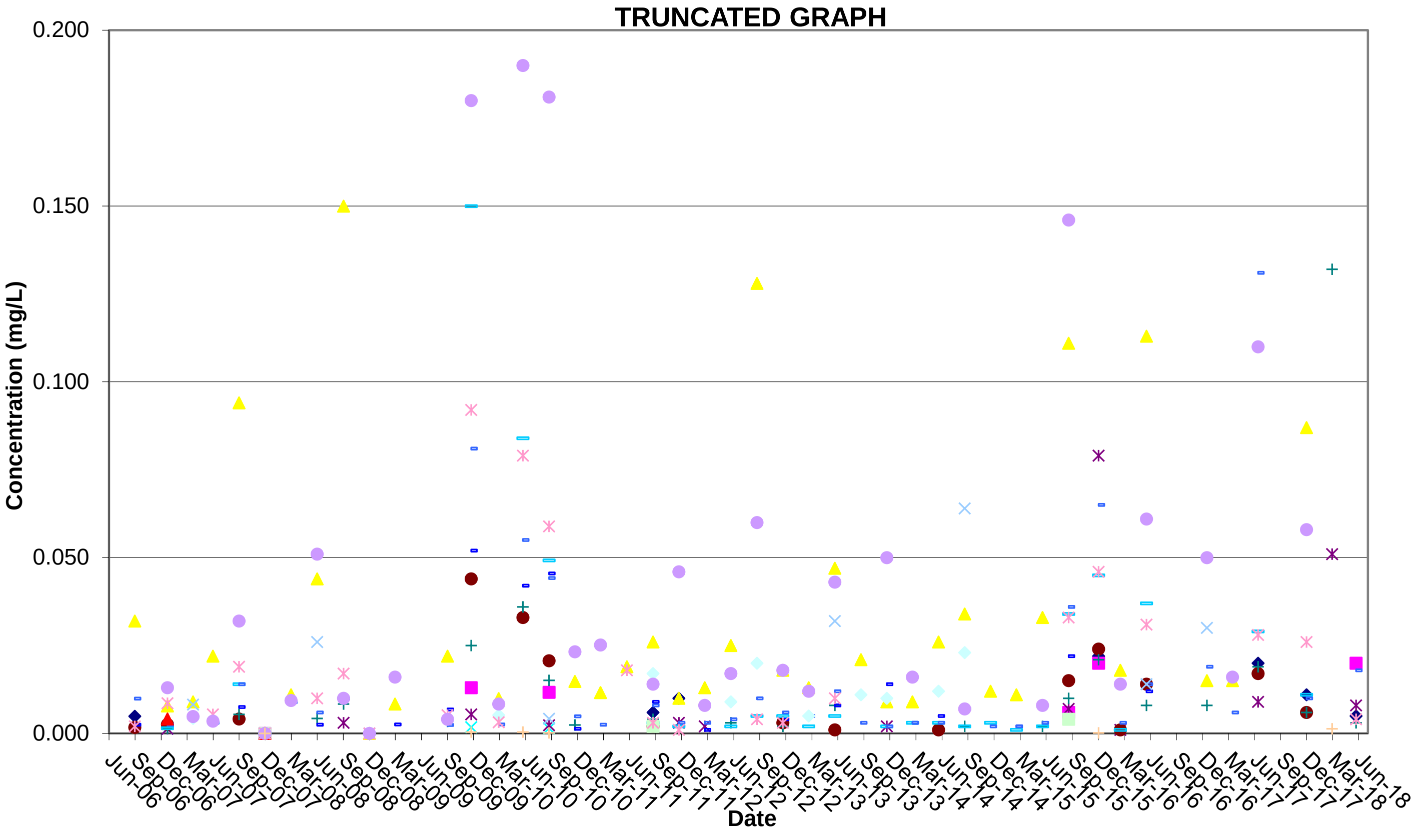
Detected Appendix A Metals at Surface Water Sampling Location SW-2
Tiverton Landfill





Detected Appendix A Metals at Surface Water Sampling Location SW-3
Tiverton Landfill


COMPLETE GRAPH


TRUNCATED GRAPH

ATTACHMENT NO. 4
TOLERANCE INTERVAL STATISTICAL EVALUATION

TABLE 3
SUMMARY OF GROUNDWATER MONITORING RESULTS - TOLERANCE INTERVAL COMPARISON
JUN 2018 - SAMPLE ROUND

Concentration (units as specified for Threshold Value)

		OW-9				Background Well	Compliance wells			
		Tolerance Limit *		Threshold						
	Parameter	**TL=AVG+K*S**		**Value**		**OW-9**	**OW-12**	**OW-13**	**OW-14**	**OW-15**
METALS	Antimony	0.0290	mg/L	0.006	mg/L[1]	ND	0.0010	0.0020	ND	ND
	Arsenic	0.0030	mg/L	0.010	mg/L[1]	ND	0.0100	0.0200	0.0100	0.0300
	Barium	0.0491	mg/L	2	mg/L[1]	0.0090	0.0200	0.0890	0.1550	0.0960
	Beryllium	0.0005	mg/L	0.004	mg/L[1]	ND	ND	ND	ND	ND
	Cadmium	0.3650	mg/L	0.005	mg/L[1]	ND	ND	0.0040	0.0060	0.0100
	Chromium	0.0364	mg/L	0.1	mg/L[1]	0.0030	ND	0.0020	0.0010	ND
	Cobalt	0.0020	mg/L	0.73	mg/L[5]	ND	ND	0.0110	0.0060	0.0120
	Copper	0.0600	mg/L	1.3	mg/L[1]	ND	ND	ND	ND	ND
	Lead	0.2245	mg/L	0.015	mg/L[1]	0.0010	ND	ND	ND	ND
	Mercury	0.0001	mg/L	0.002	mg/L[1]	ND	ND	ND	ND	ND
	Nickel	0.0337	mg/L	0.1	mg/L[2]	0.0010	0.0250	0.0110	0.0120	0.0230
	Selenium	0.0100	mg/L	0.05	mg/L[1]	ND	ND	ND	ND	ND
	Silver	0.0005	mg/L	0.1	mg/L[2,3]	ND	ND	ND	ND	ND
	Thallium	0.0005	mg/L	0.002	mg/L[1]	ND	ND	ND	ND	ND
	Tin	0.0025	mg/L	22	mg/L[5]	ND	ND	ND	ND	ND
	Vanadium	0.0020	mg/L	0.26	mg/L[5]	ND	ND	ND	ND	ND
	Zinc	13.7203	mg/L	2 - 5	mg/L[2,3]	0.0090	0.0090	0.0120	0.0310	0.0320
VOC'S	Acetone			610	µg/L[5]					
	Acrylonitrile			0.039	µg/L[5]					
	Benzene			5	µg/L[1]					
	Bromochloromethane			80	µg/L[2]					
	Bromodichloromethane (THM)			90	µg/L[1]					
	Bromoform			80	µg/L[1]					
	Carbon disulfide			1000	µg/L[5]					
	Carbon tetrachloride			5	µg/L[1]					
	Chlorobenzene			100	µg/L[1]					
	Chloroethane			4.6	µg/L[5]					
	Chloroform			80	µg/L[1]					
	Chlorodibromomethane (THM)			80	µg/L[1]					
	1,2-Dibromo-3-chloropropane (DBCP)			0.2	µg/L[1]					
	1,2-Dibromoethane (EDB)			0.05	µg/L[1]					
	1,2-Dichlorobenzene			600	µg/L[1]					
	1,4-Dichlorobenzene			75	µg/L[1]					
	trans-1,4-Dichloro-2-butene				µg/L					
	1,1 -Dichloroethane			5	µg/L					
	1,2-Dichloroethane			5	µg/L[1]					
	1,1-Dichloroethylene			7	µg/L[1]					
	cis-1,2-Dichloroethene			70	µg/L[1]					
	trans-1,2-Dichloroethene			100	µg/L[1]					
	1,2-Dichloropropane			5	µg/L[1]					
	cis-1,3-Dichloropropene				µg/L					
	trans-1,3-Dichloropropene				µg/L					
	Ethylbenzene			700	µg/L[1]					
	Methyl butyl ketone(2-Hexanone)			160	µg/L[5]					
	Bromomethane			10	µg/L[2]					
	Chloromethane			30	µg/L[2]					
	Dibromomethane			61	µg/L[5]					
	Methylene chloride			5	µg/L[1]					
	Methyl ethyl ketone(2-Butanone)			4000	µg/L[2]					
	Methyl iodide				µg/L					
	4-Methyl-2-pentanone				µg/L					
	Styrene			100	µg/L[1]					
	1,1,1,2-Tetrachloroethane			70	µg/L[2]					
	1,1,2,2-Tetrachloroethane			0.3	µg/L[2]					
	Tetrachloroethylene(PCE)			5	µg/L[1]					
	Toluene			1000	µg/L[1]					
	1,1,1-Trichloroethane			200	µg/L[1]					
	1,1,2-Trichloroethane			5	µg/L[1]					
	Trichloroethylene(TCE)			5	µg/L[1]					
	Trichloroflouromethane			2000	µg/L[2]					
	1,2,3-Trichloropropane			40	µg/L[2]					
	Vinyl acetate			410	µg/L[5]					
	Vinyl chloride			2	µg/L[1]					
	Xylenes			10000	µg/L[1]					
	Methyl tert-butyl ether (MTBE)			20 - 40	µg/L[4]					

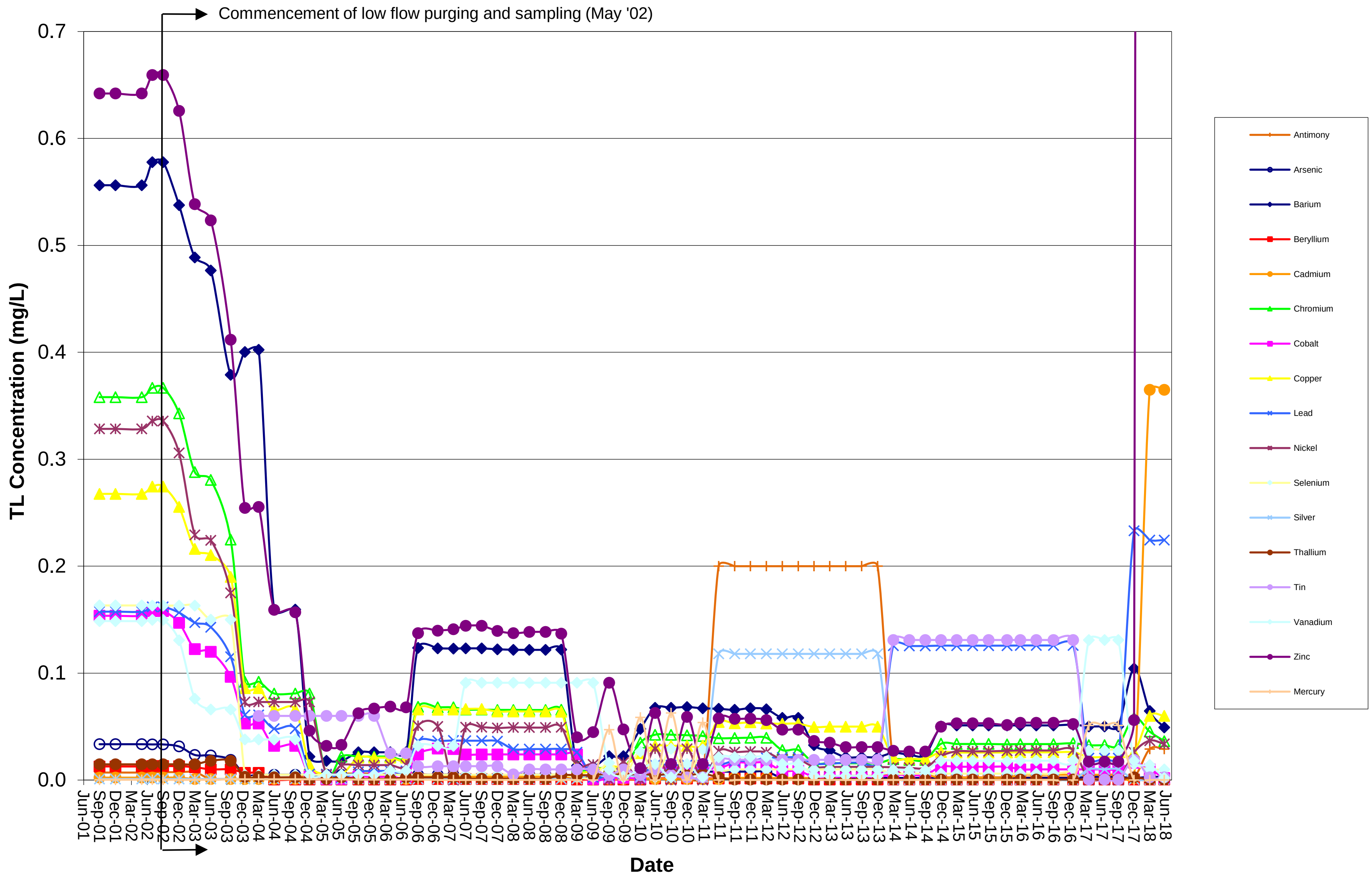
1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

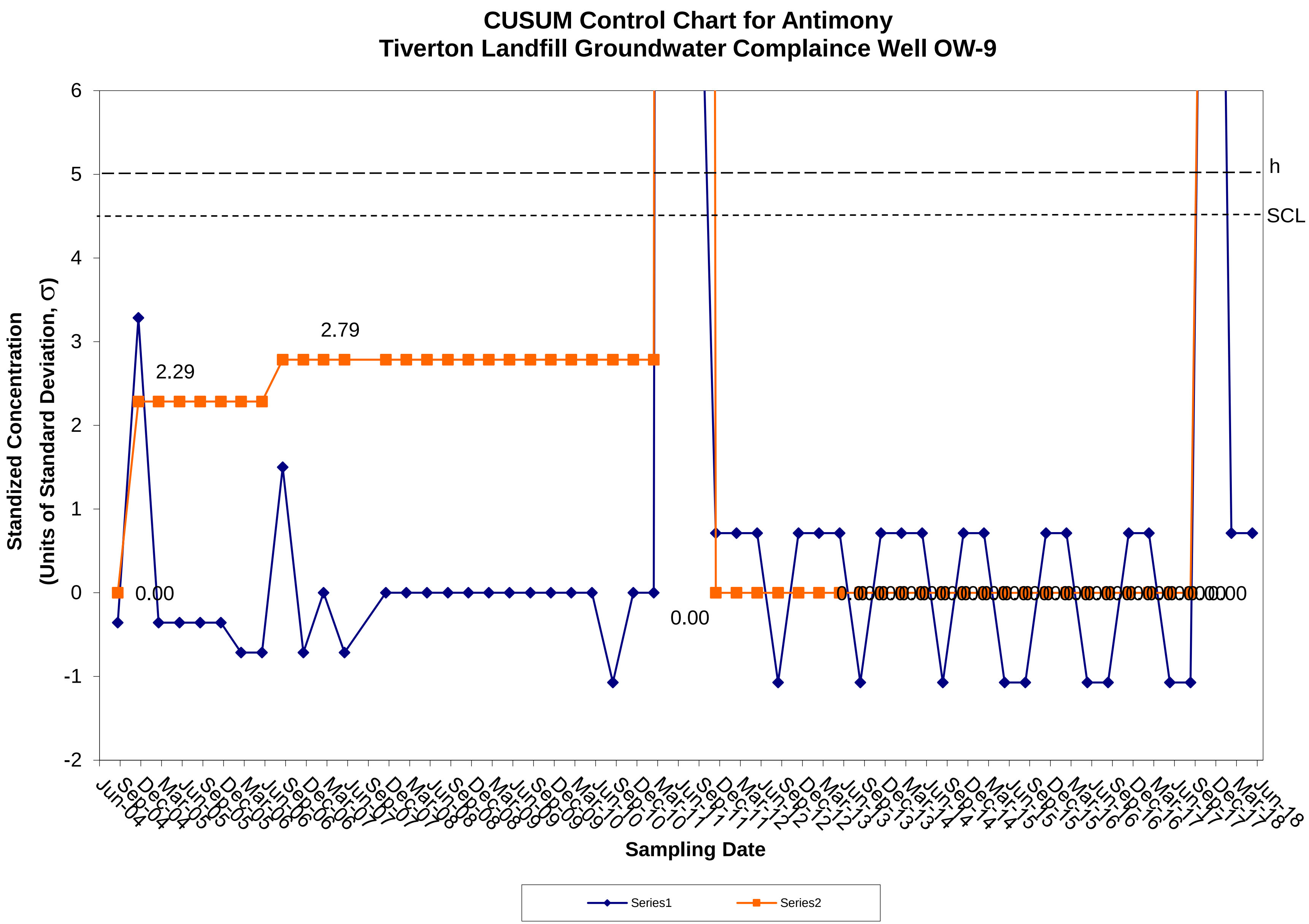
"   " = Exceedance of TL
ND = Not Detected

* Tolerance Limit (TL) constructed from background (upgradient) well data from OW-9.

Historical Tolerance Limit Concentrations from Background Well
Tiverton Landfill Compliance Sampling



ATTACHMENT NO. 5
CUSUM METHOD STATISTICAL EVALUATION


CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Complaince Well OW-9
Standized Concentration
(Units of Standard Deviation, σ)
6
5
4
3
2
1
0
-1
-2
h
SCL
2.29
2.79
0.00
0.00
0.00
Jun-04
Sep-04
Dec-04
Mar-05
Jun-05
Sep-05
Dec-05
Mar-06
Jun-06
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
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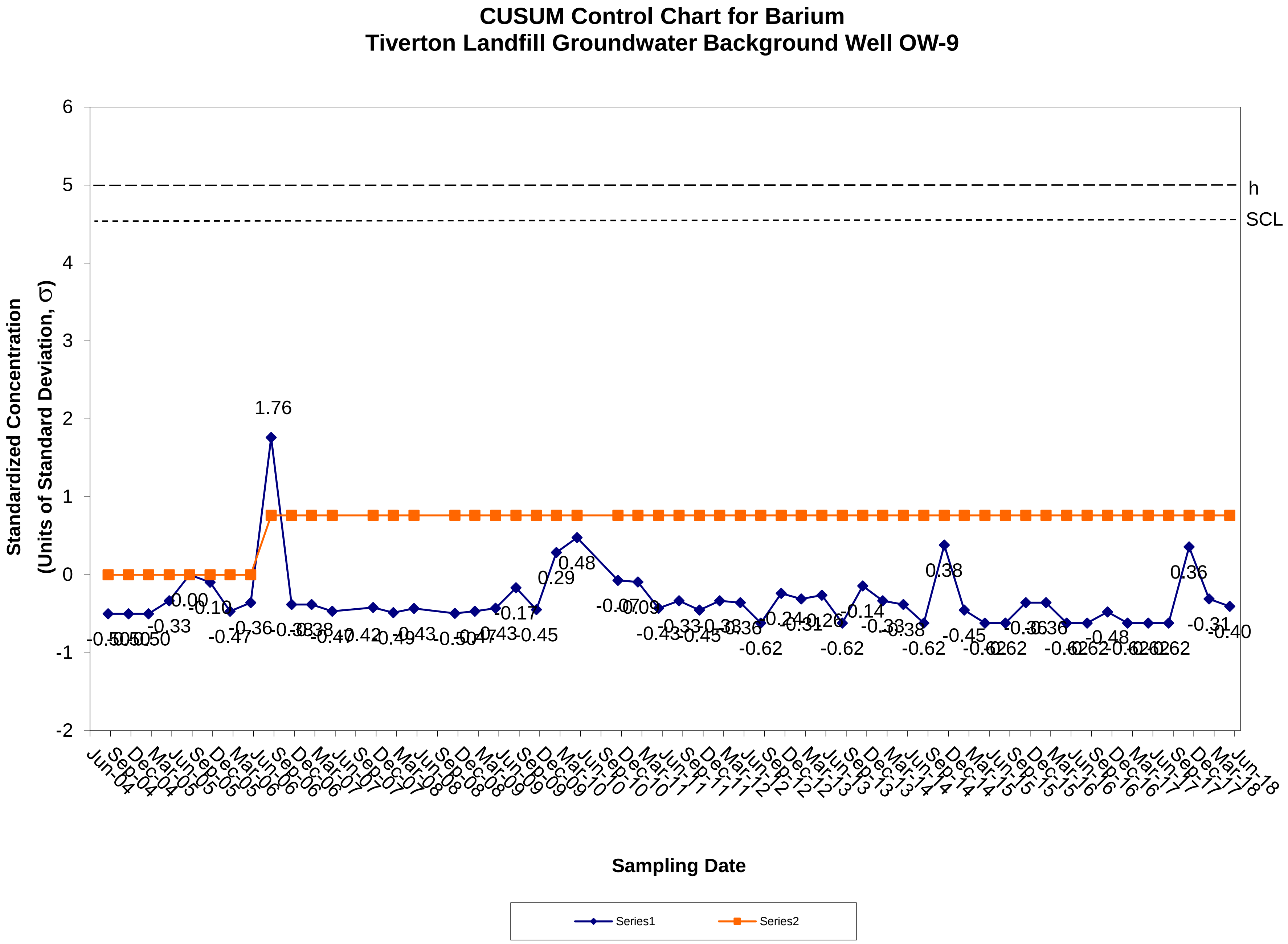
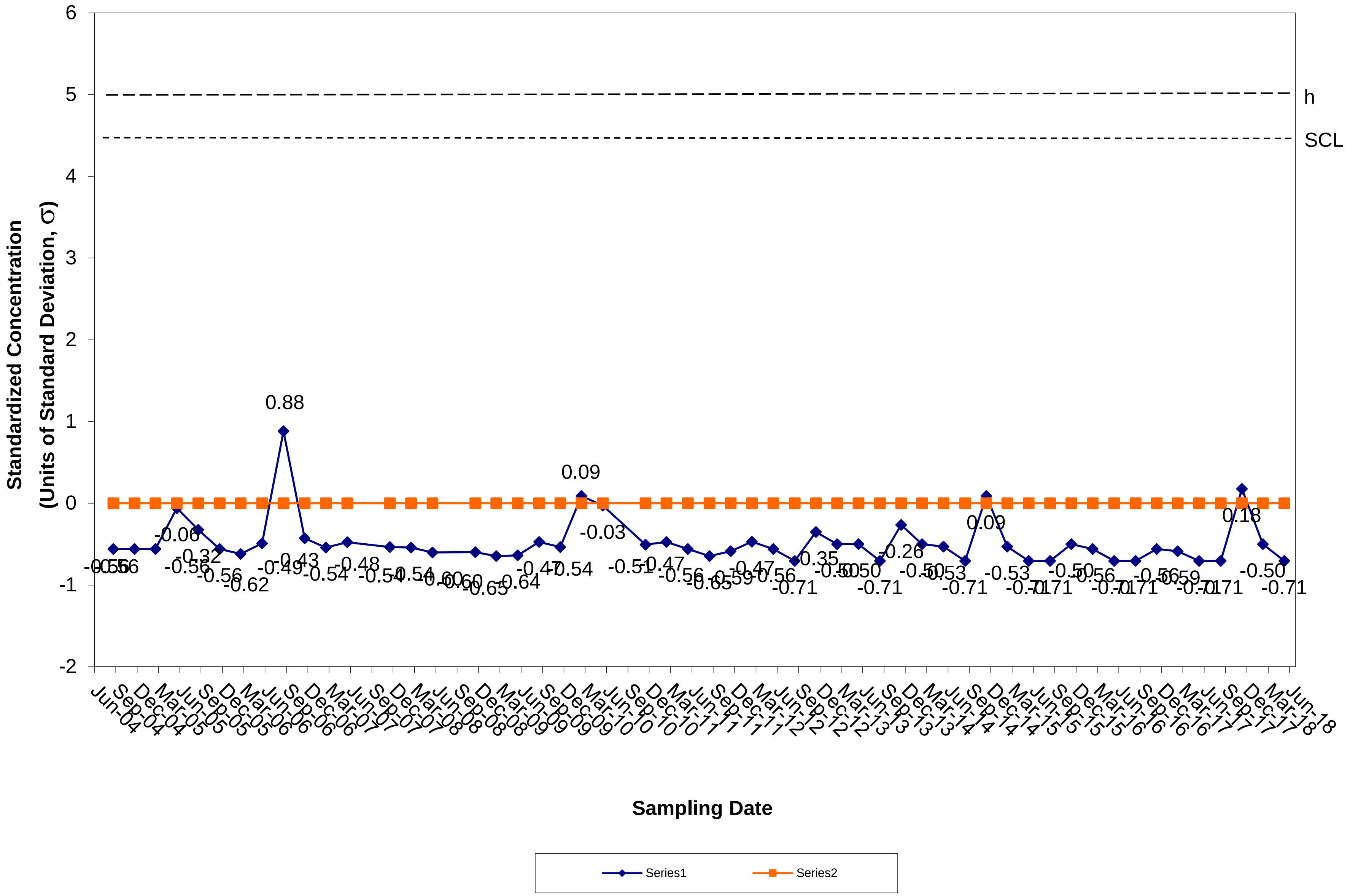
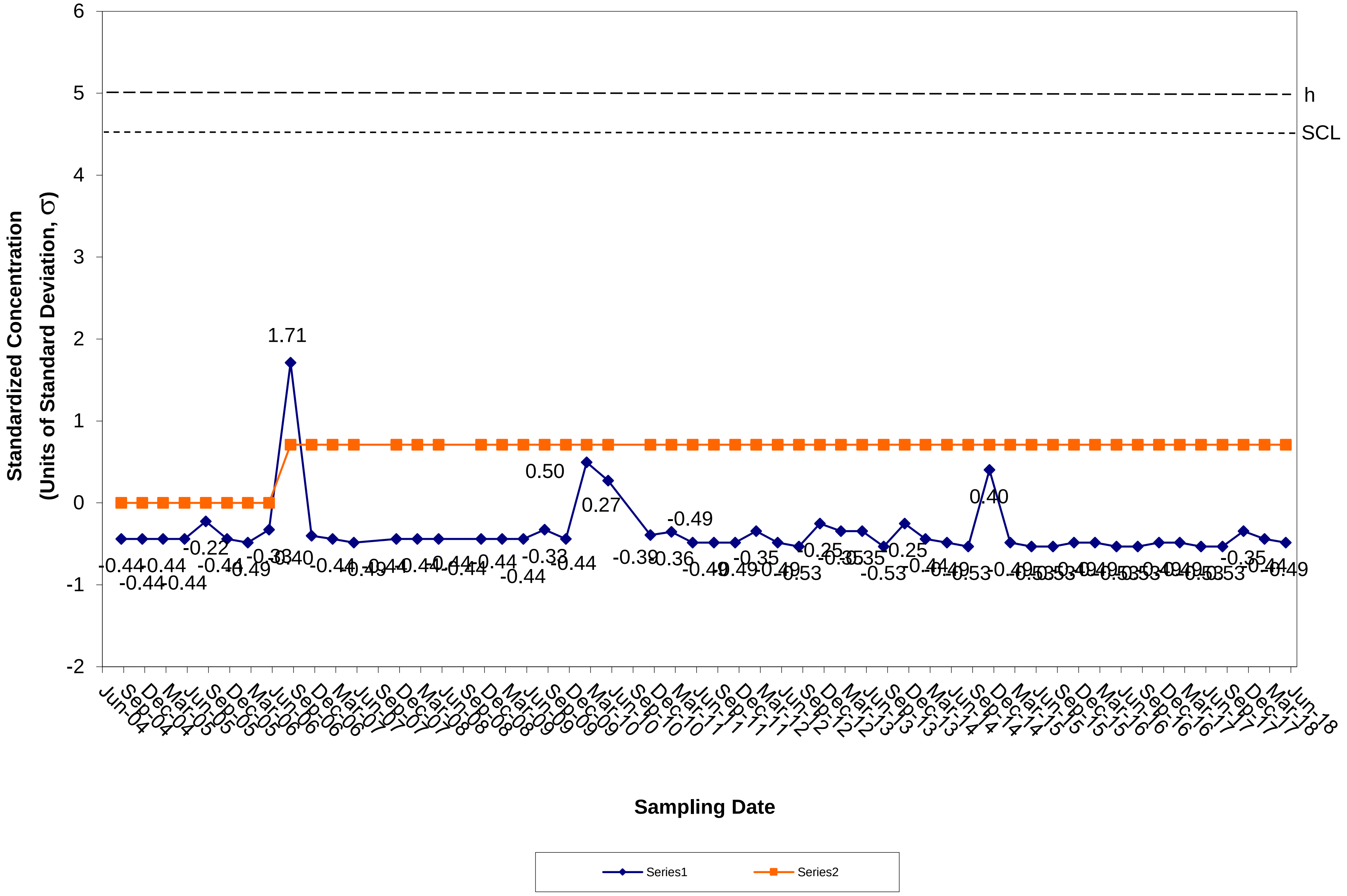
Mar-18
Jun-18
Sampling Date
Series1
Series2


CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Background Well OW-9
Standardized Concentration
(Units of Standard Deviation, σ)
Sampling Date
6
5
4
3
2
1
0
-1
-2
h
SCL
1.76
0.48
0.29
0.38
0.36
Series1
Series2
Jun-04
Sep-04
Dec-04
Mar-05
Jun-05
Sep-05
Dec-05
Mar-06
Jun-06
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18

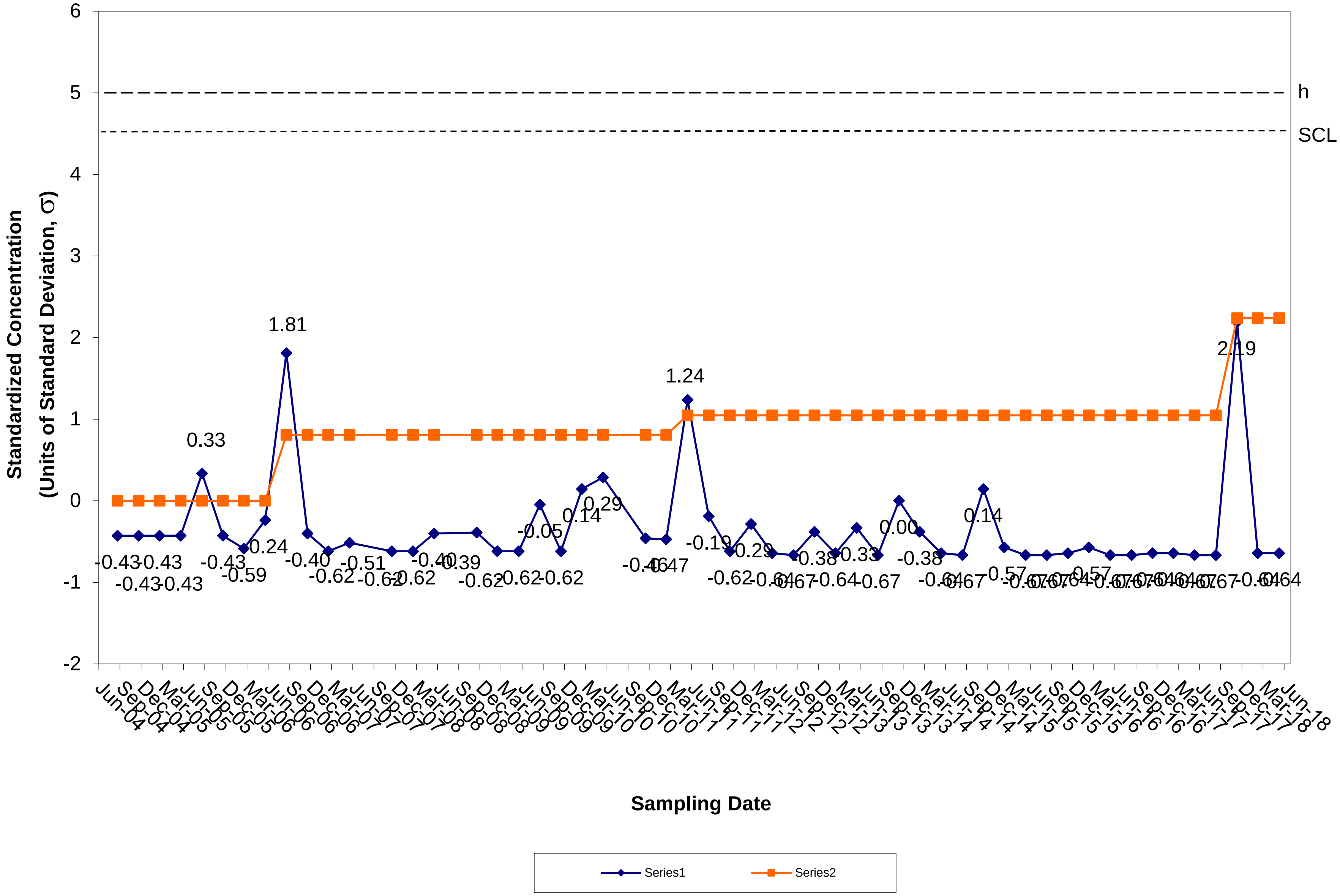
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Background Well OW-9



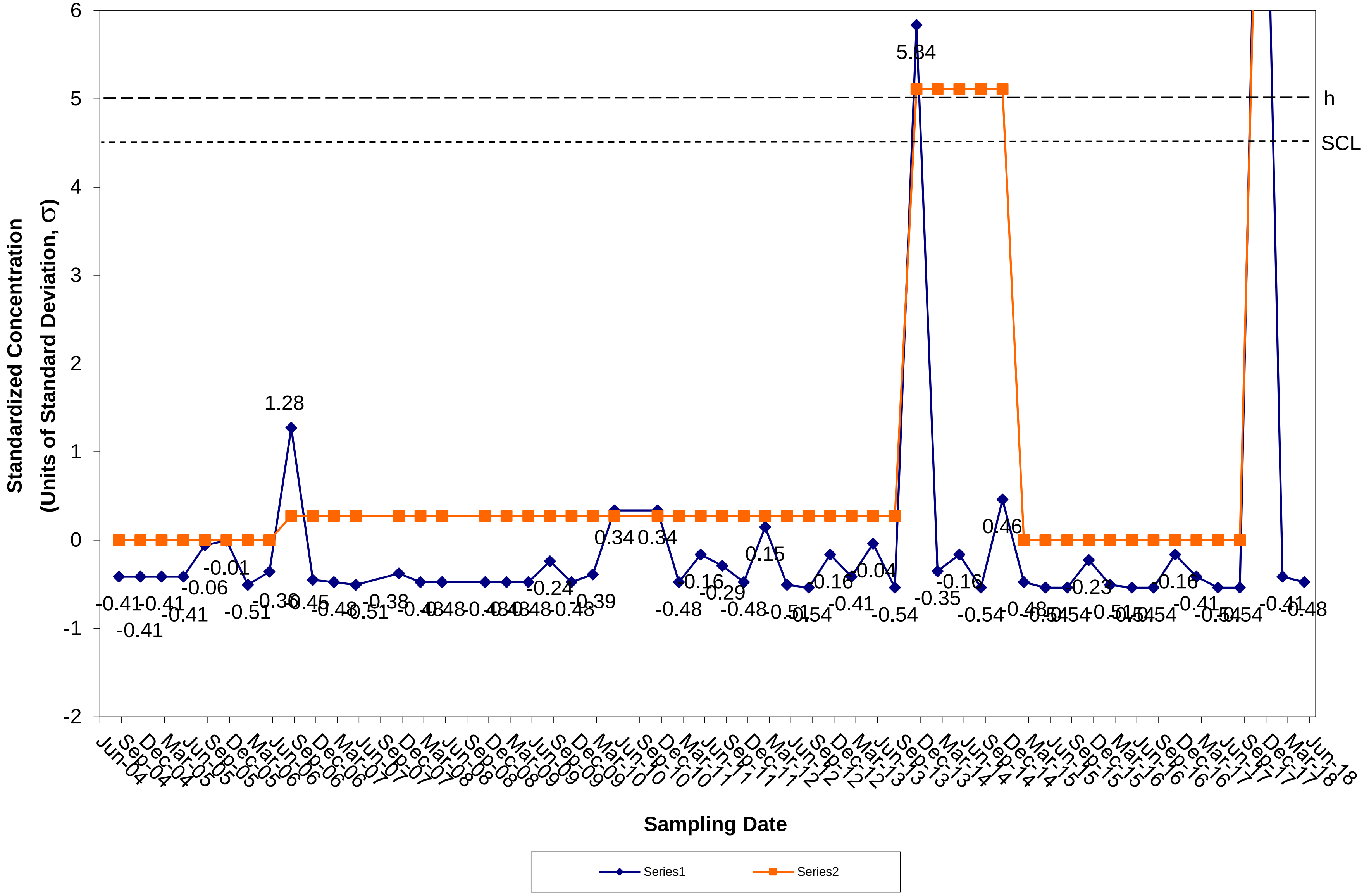
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Background Well OW-9



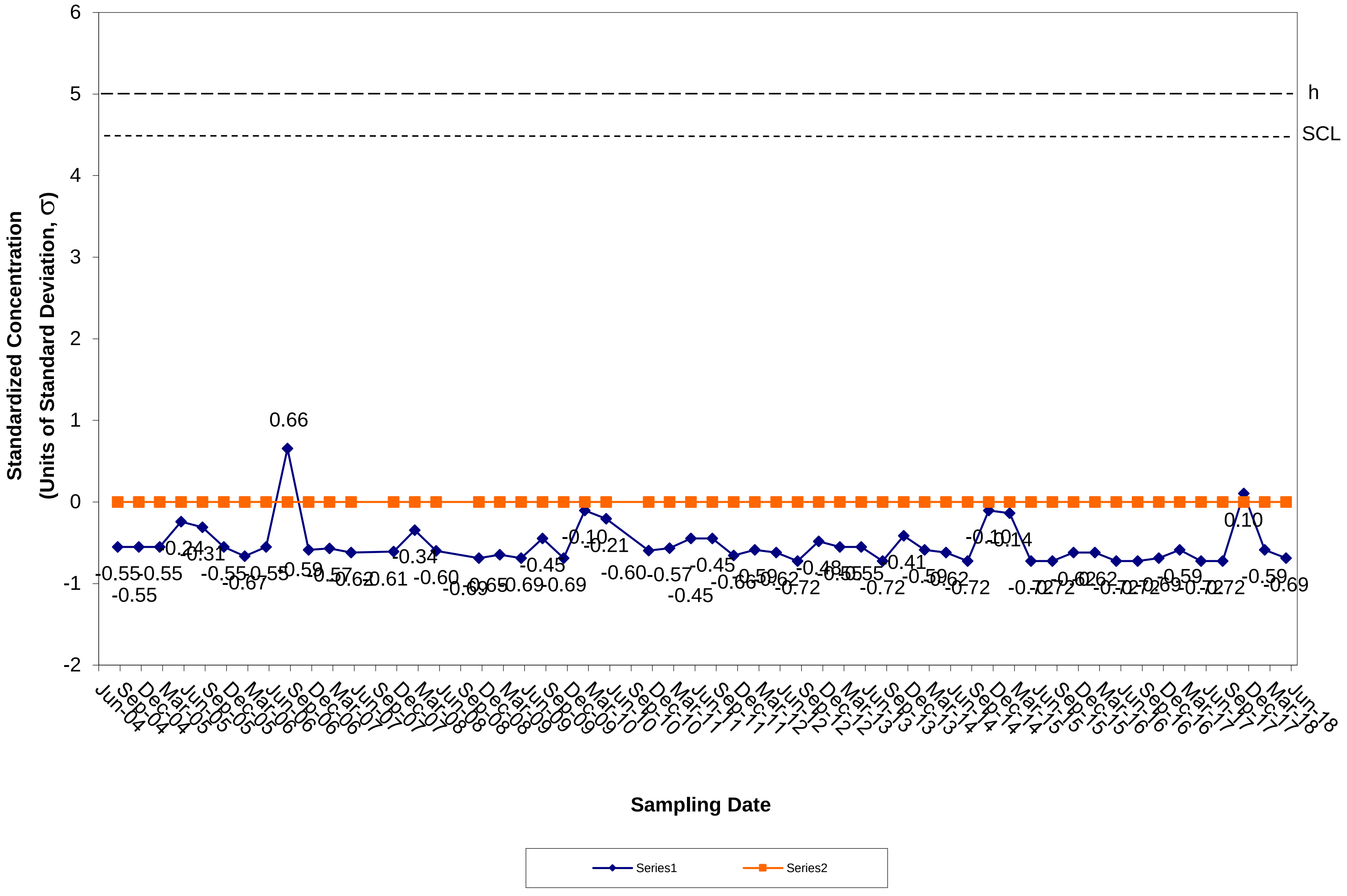
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Background Well OW-9

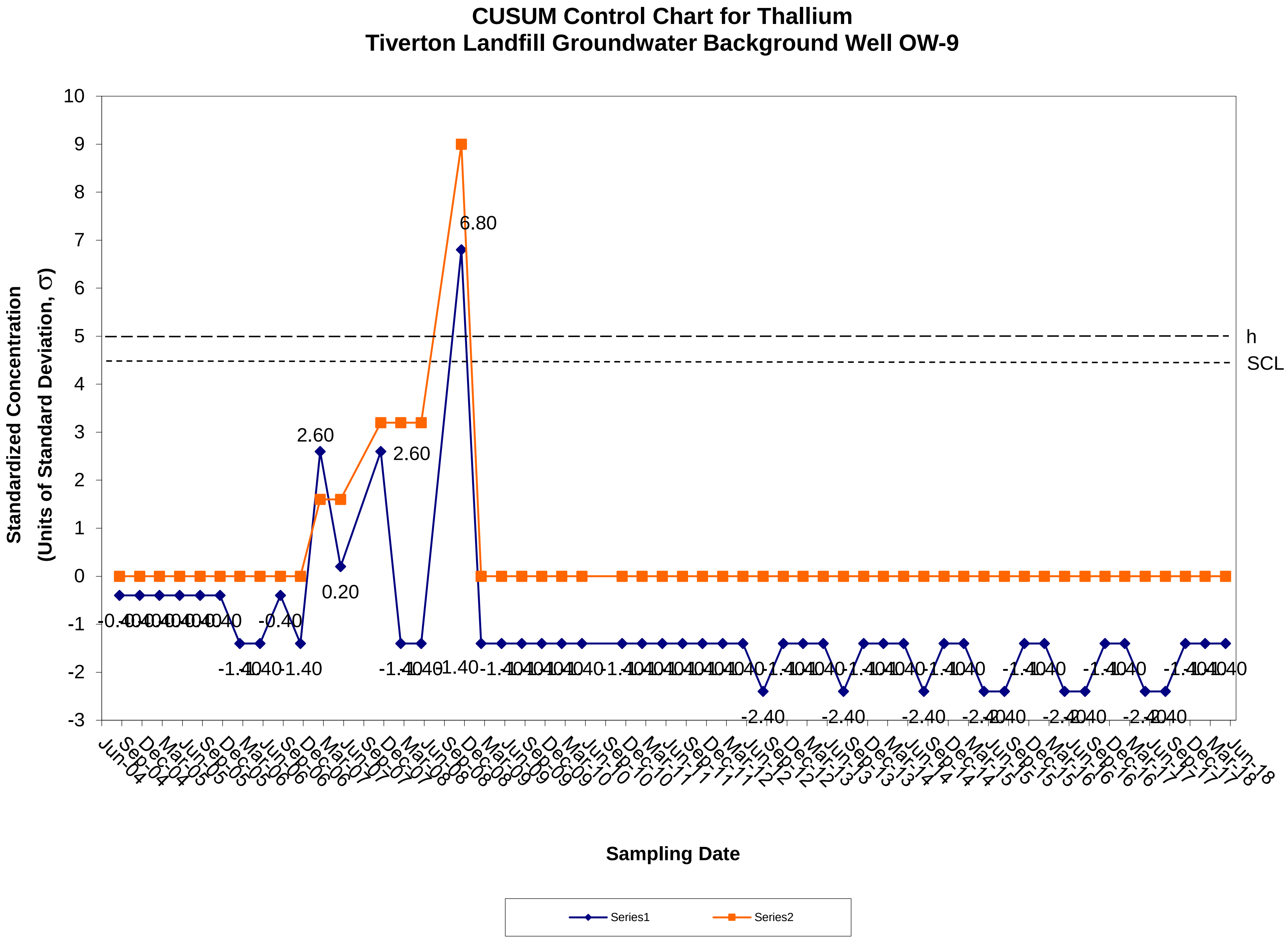


CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Background Well OW-9



CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Background Well OW-9




CUSUM Control Chart for Thallium
Tiverton Landfill Groundwater Background Well OW-9
Standardized Concentration
(Units of Standard Deviation, σ)
Sampling Date
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
h
SCL
6.80
2.60
2.60
0.20
-0.40
-1.40
-2.40
Jun-04
Sep-04
Dec-04
Mar-05
Jun-05
Sep-05
Dec-05
Mar-06
Jun-06
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
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Mar-15
Jun-15
Sep-15
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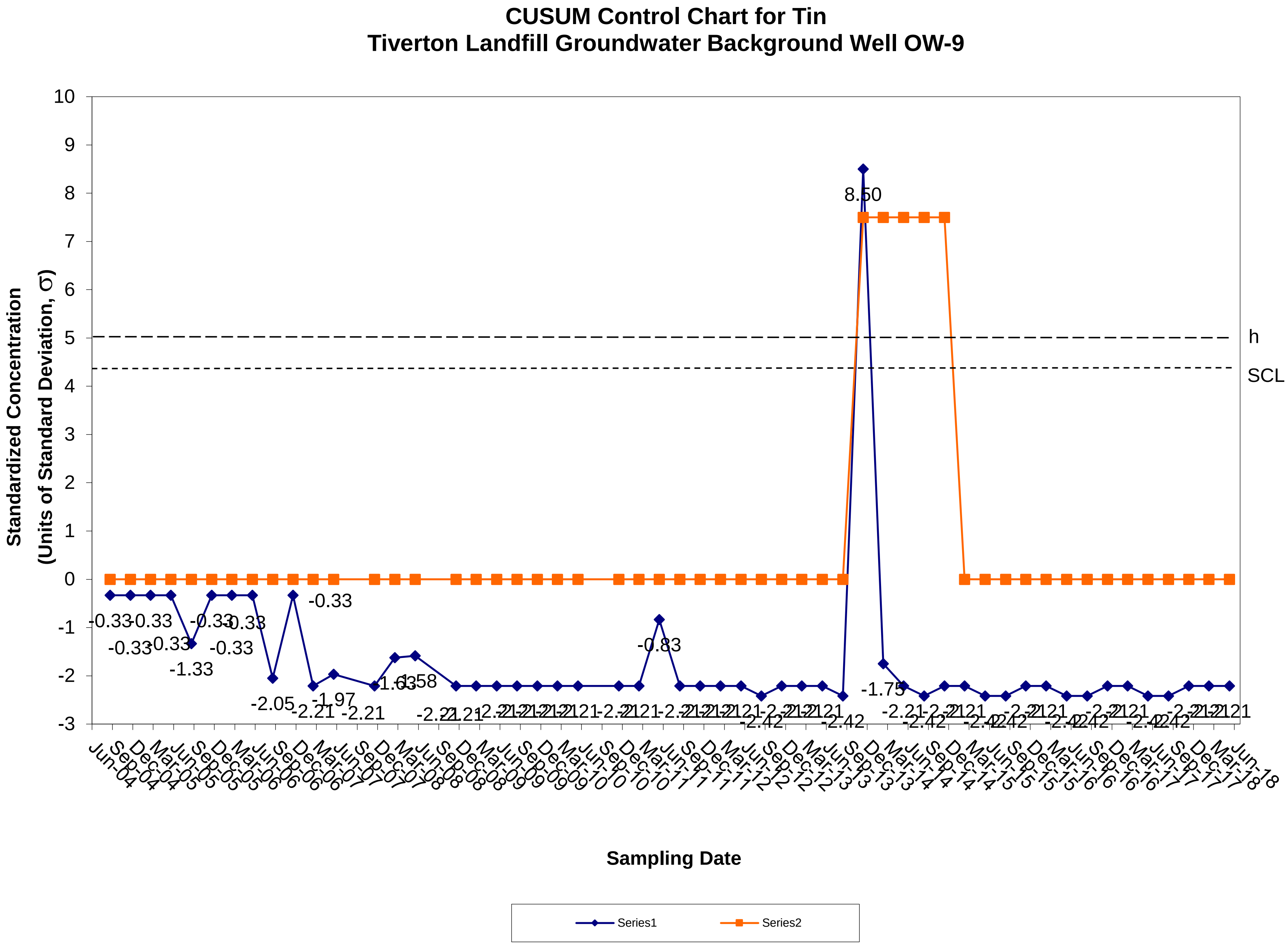
Mar-18
Jun-18
Series1
Series2


CUSUM Control Chart for Tin
Tiverton Landfill Groundwater Background Well OW-9
Standardized Concentration
(Units of Standard Deviation, σ)
Sampling Date
h
SCL
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
8.50
-0.33
-0.33
-0.33
-0.33
-1.33
-0.33
-0.33
-0.33
-2.05
-0.33
-2.21
-1.97
-2.21
-1.63
-1.58
-0.83
-1.75
-2.21
-2.42
Jun-04
Sep-04
Dec-04
Mar-05
Jun-05
Sep-05
Dec-05
Mar-06
Jun-06
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
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Dec-10
Mar-11
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Mar-13
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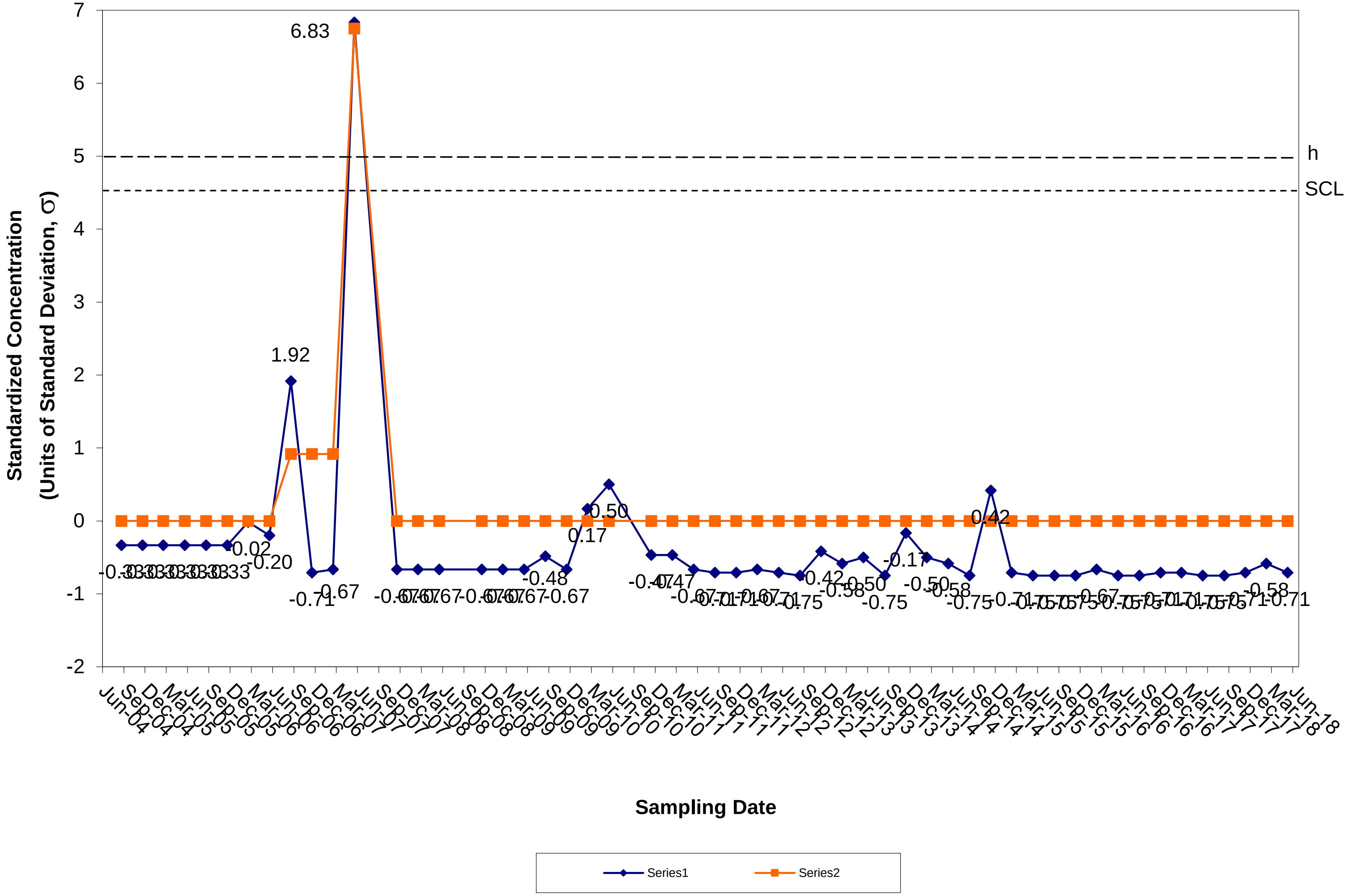
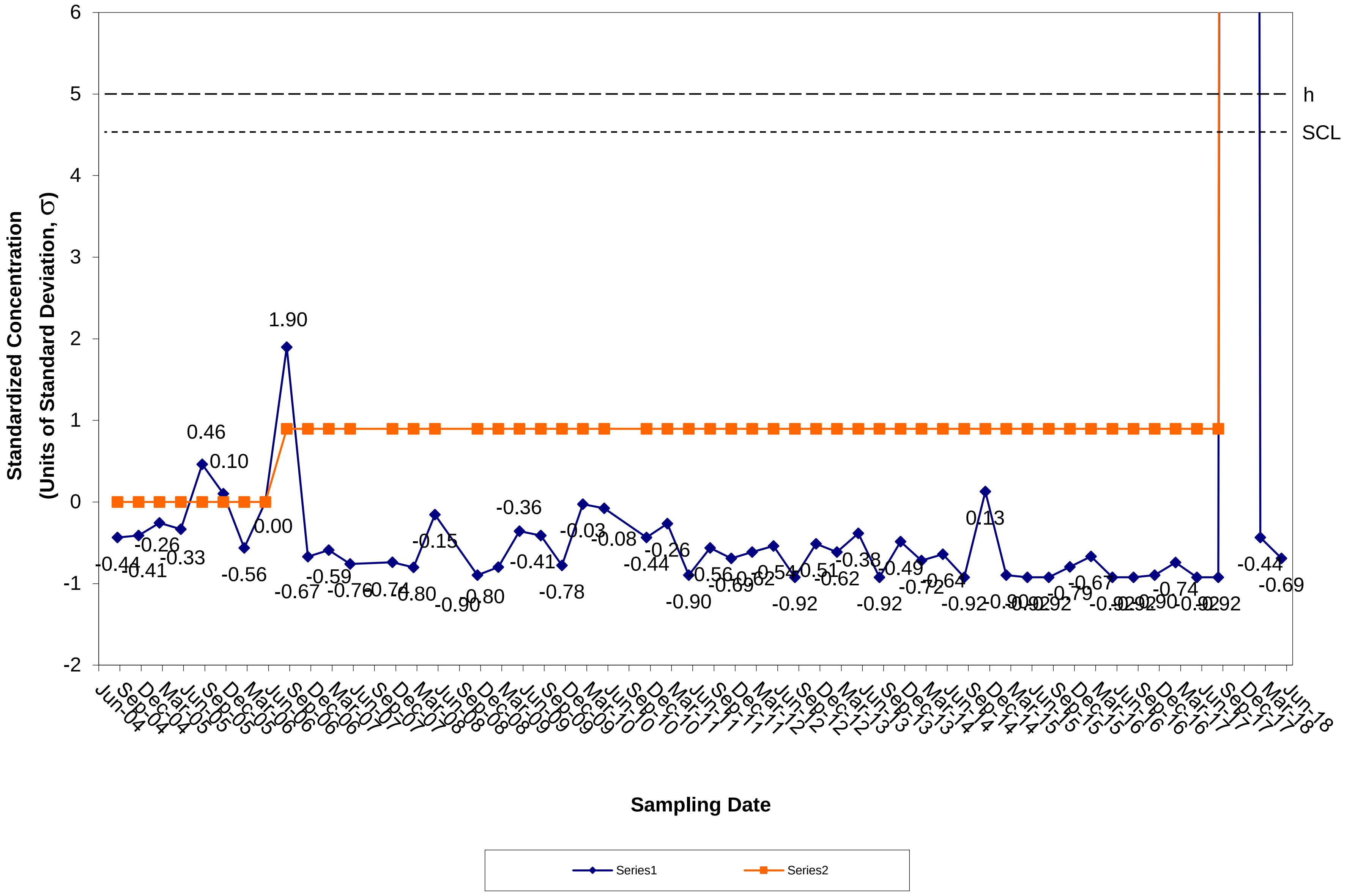
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Series1
Series2

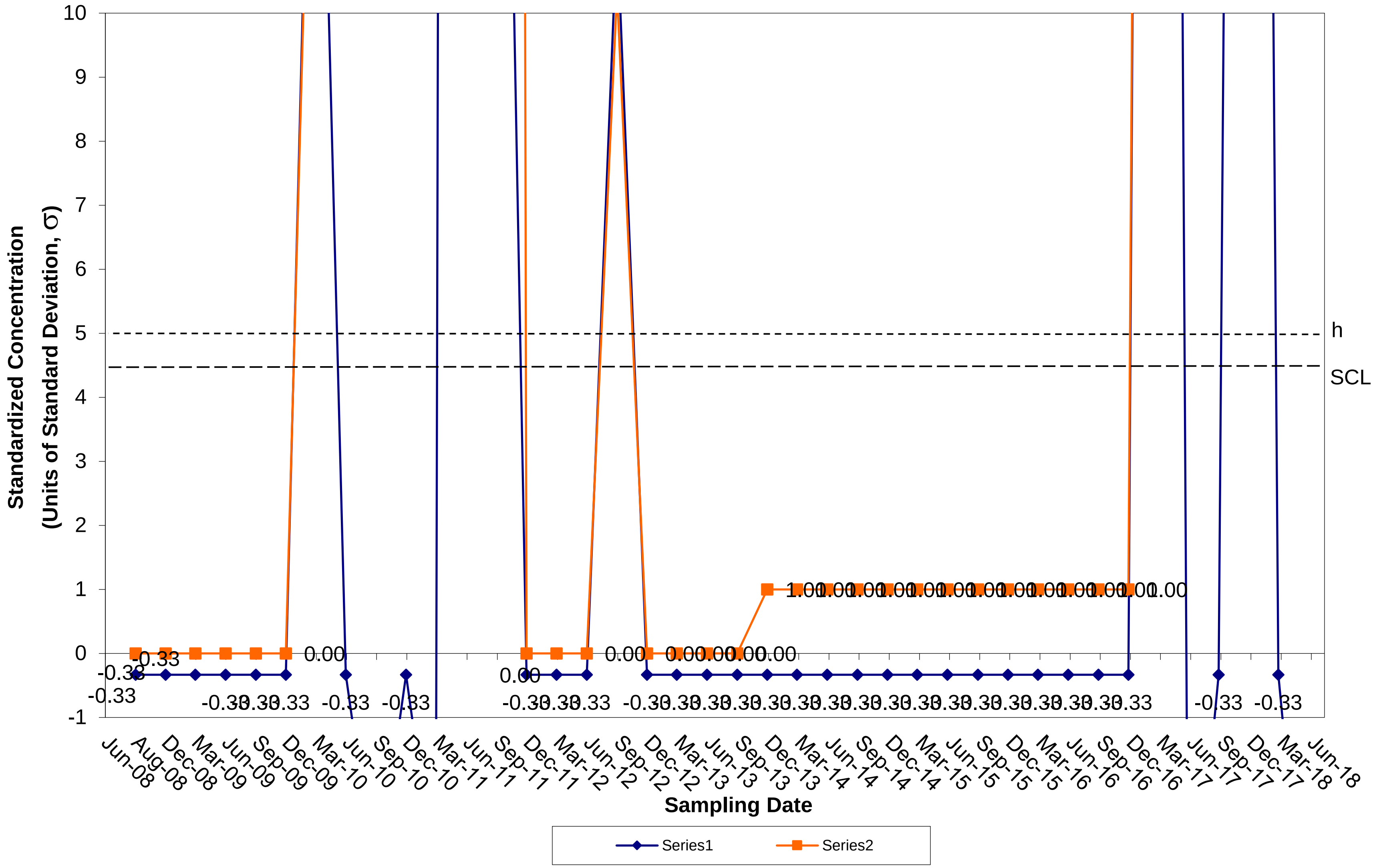
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Background Well OW-9



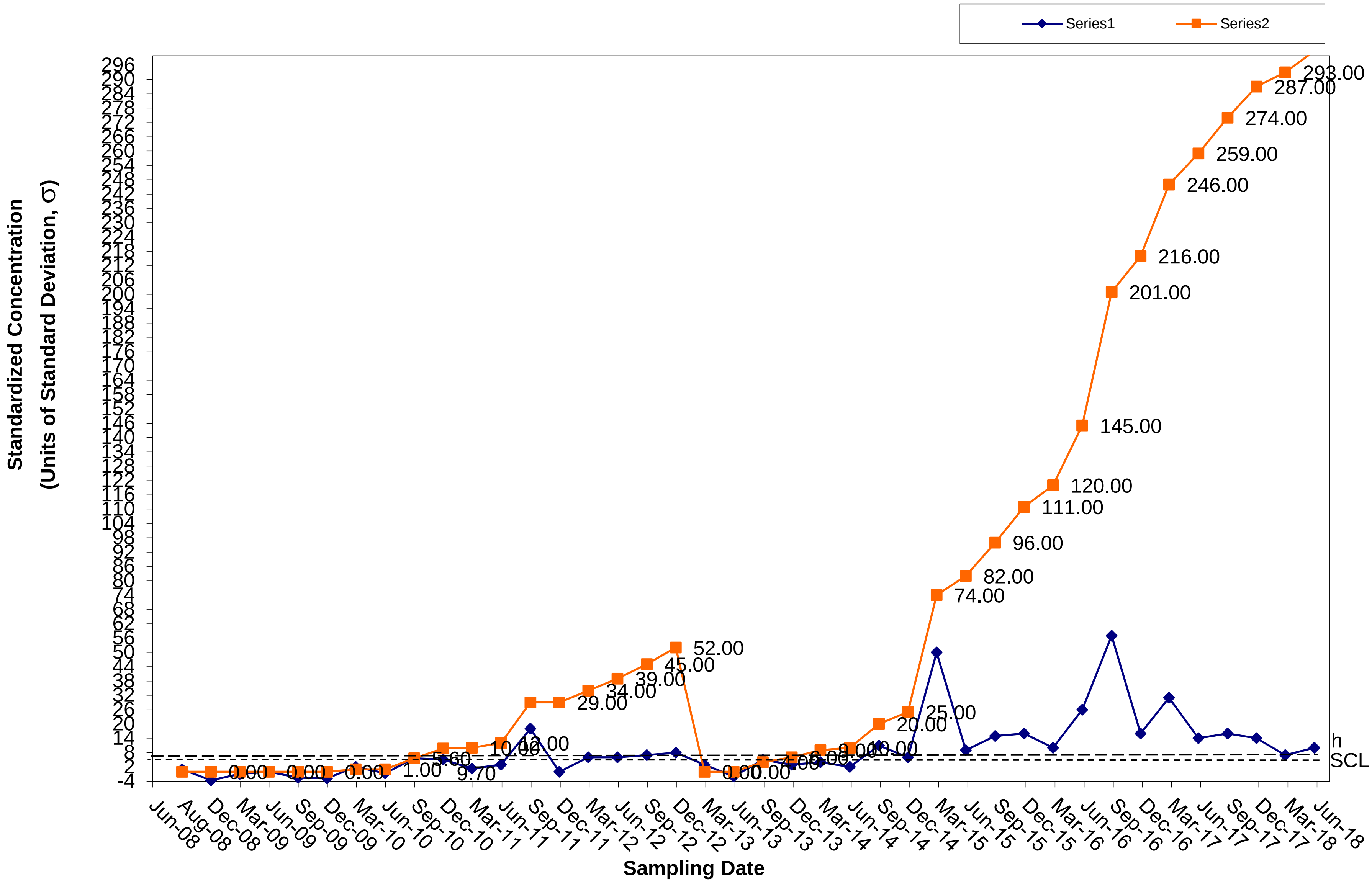
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Background Well OW-9



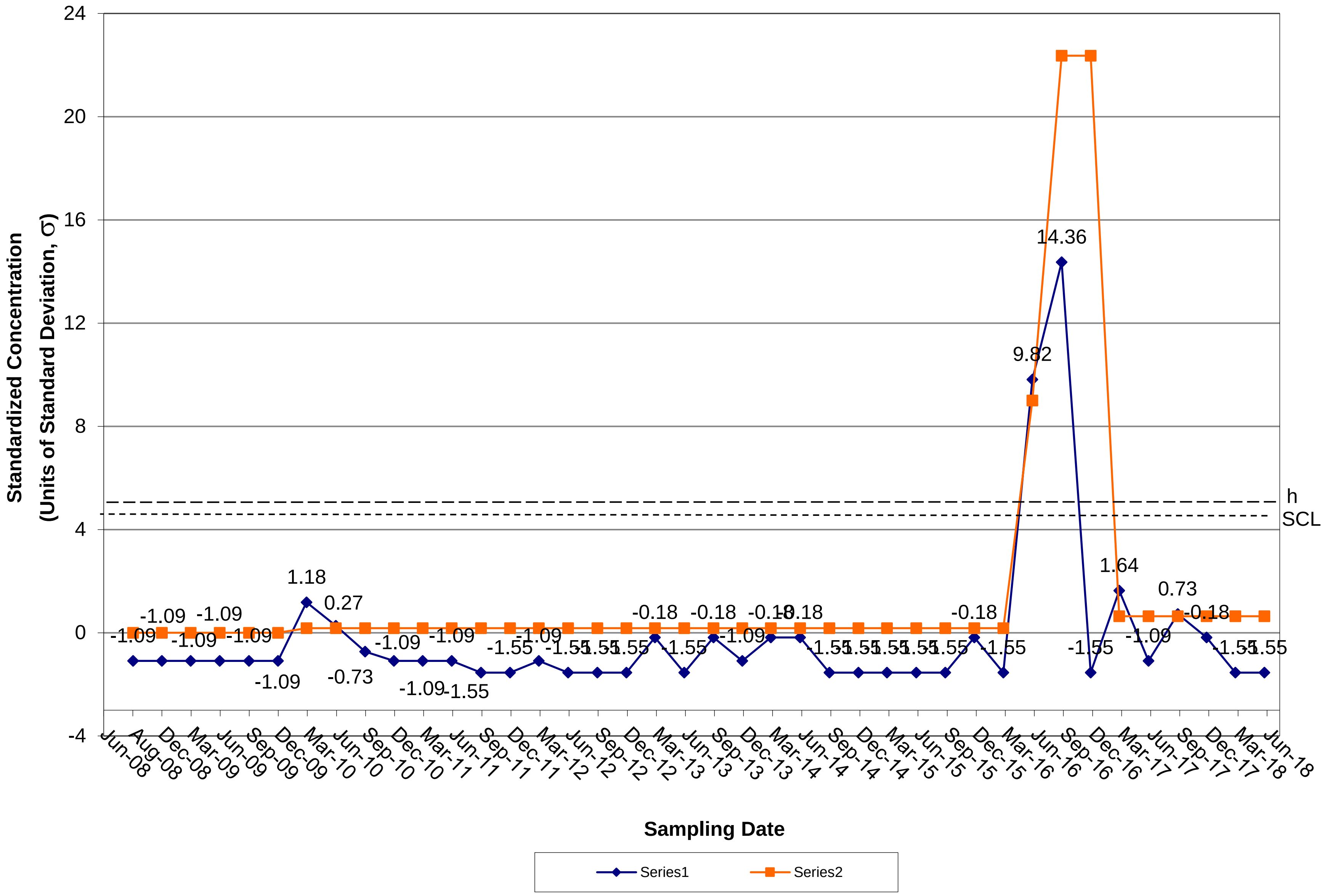
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-12



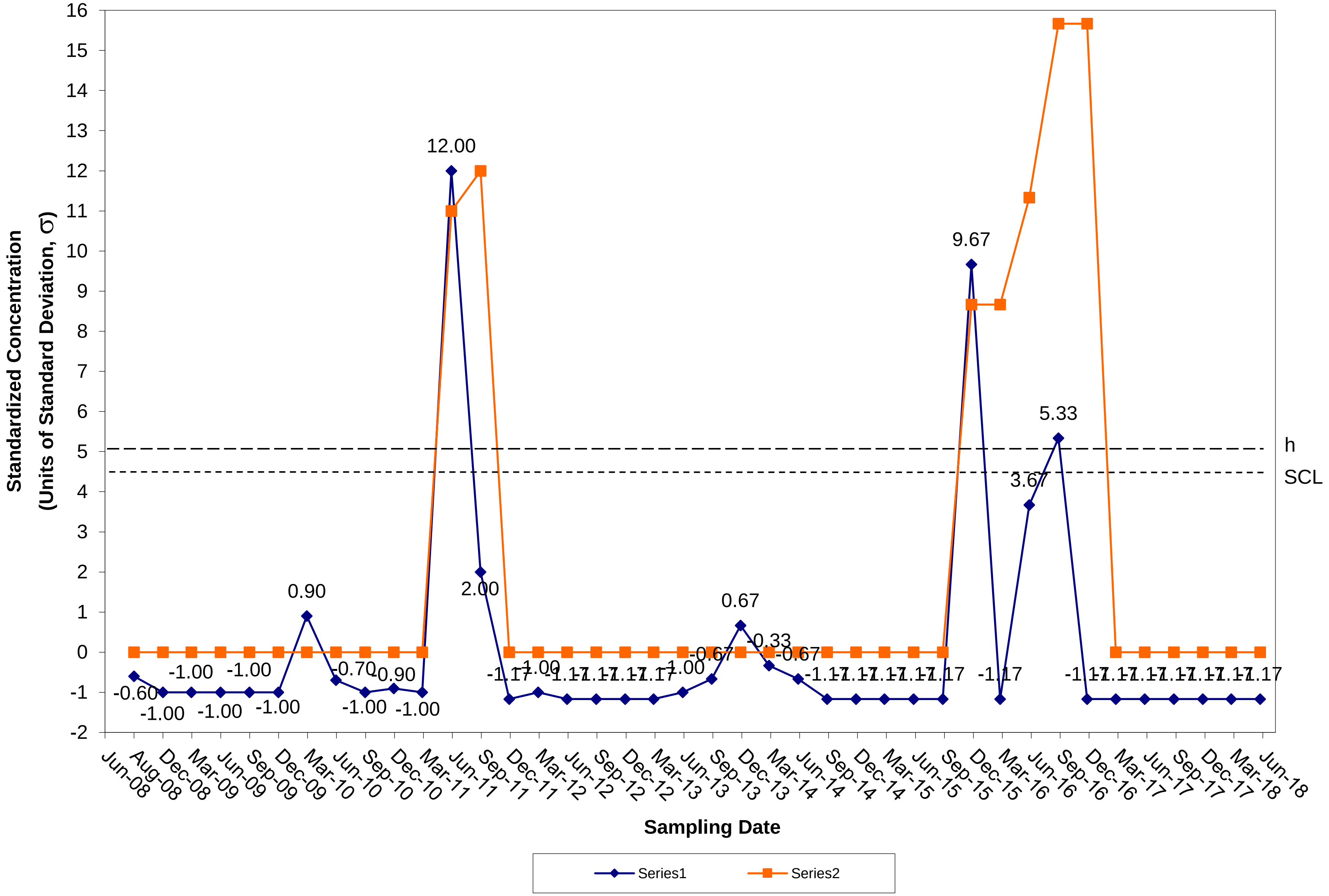
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-12



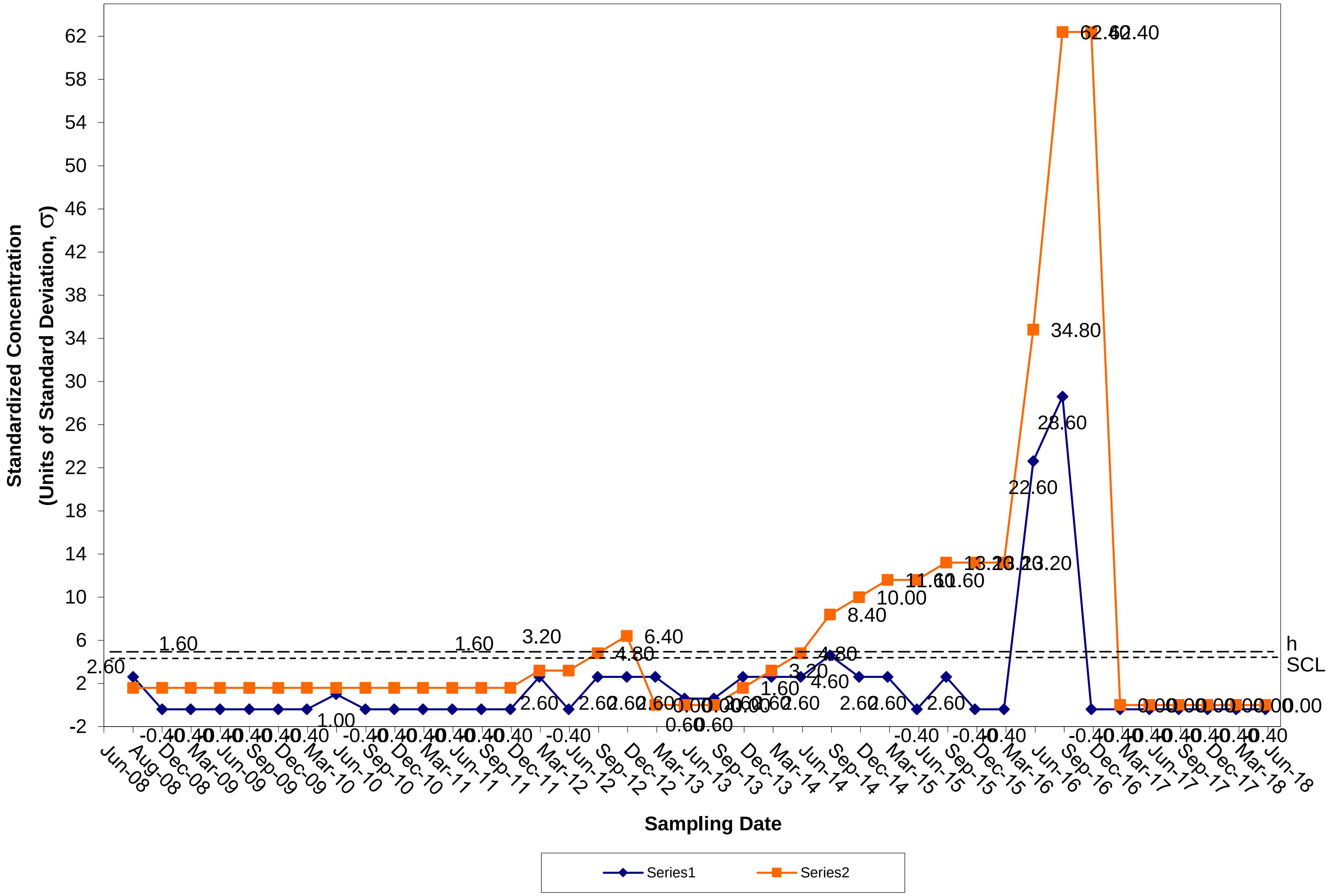
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-12



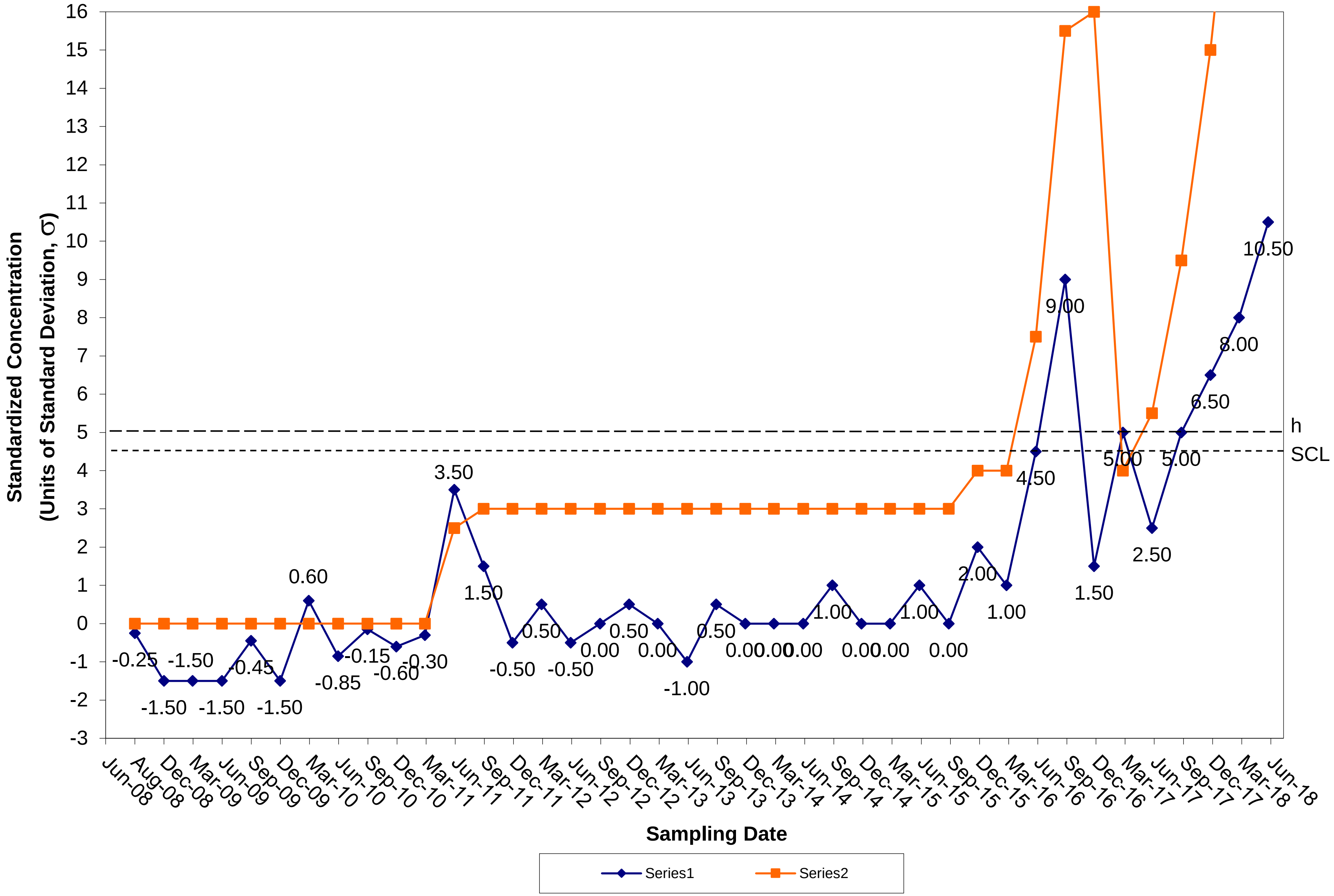
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Compliance Well OW-12



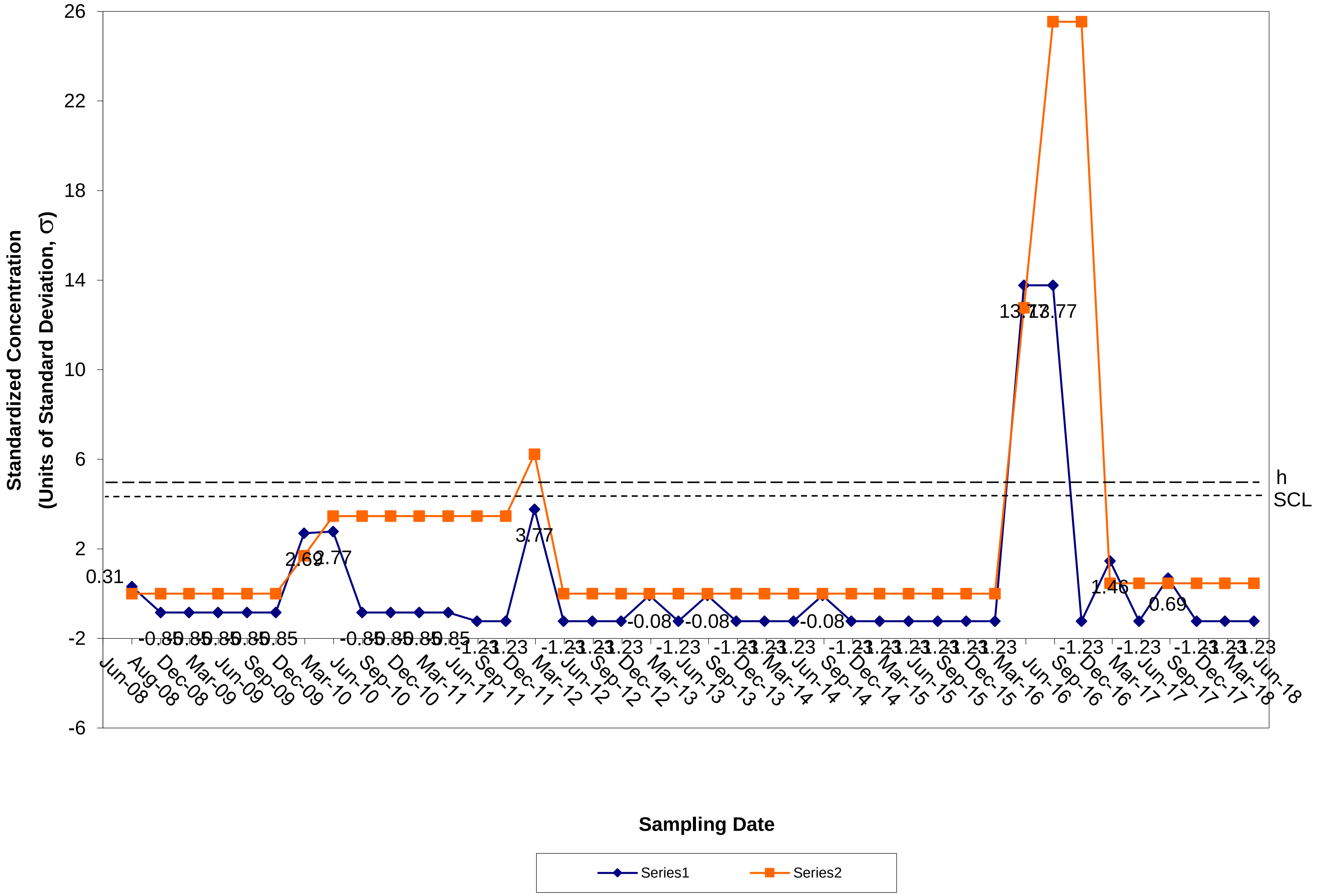
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-12



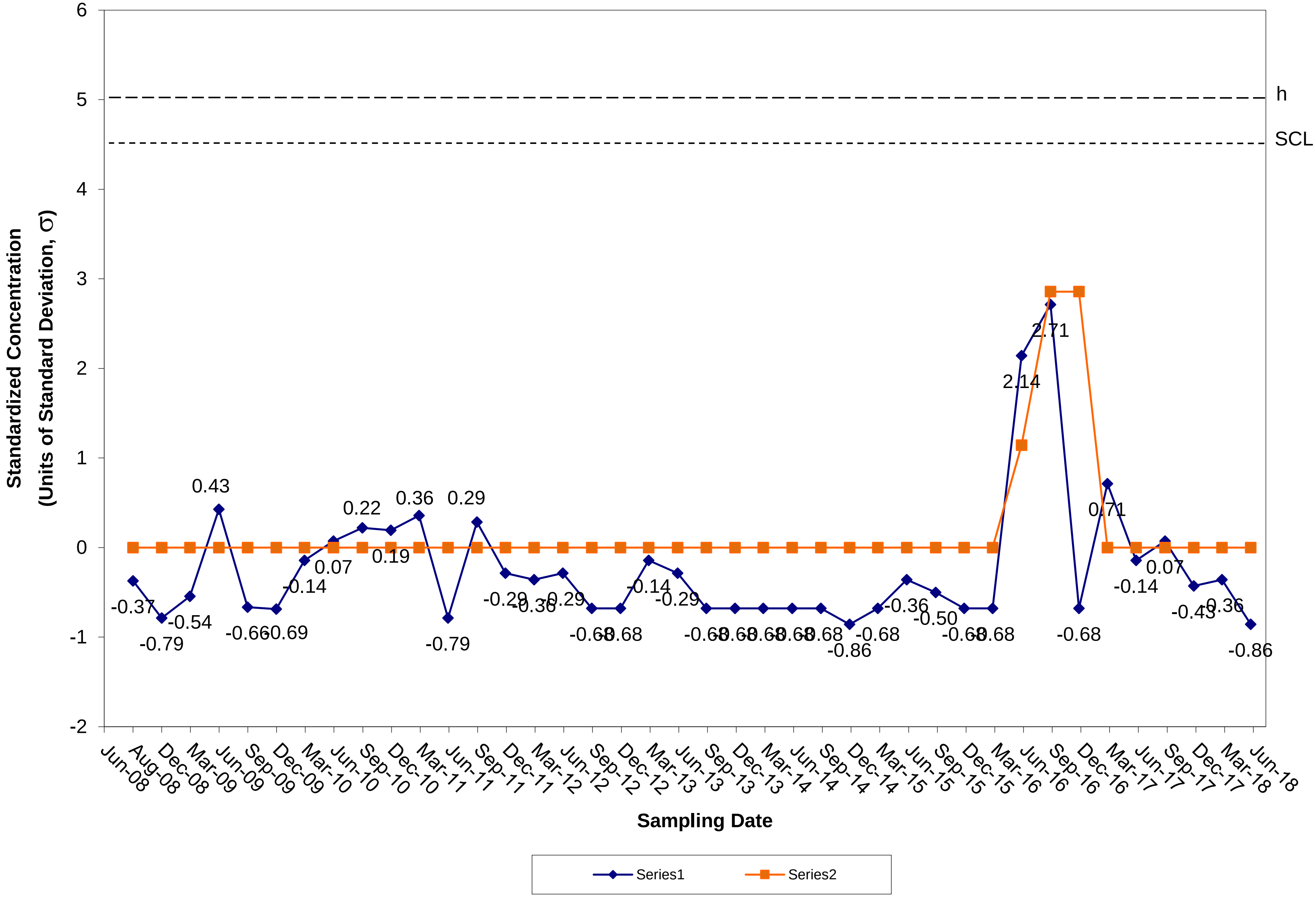
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-12



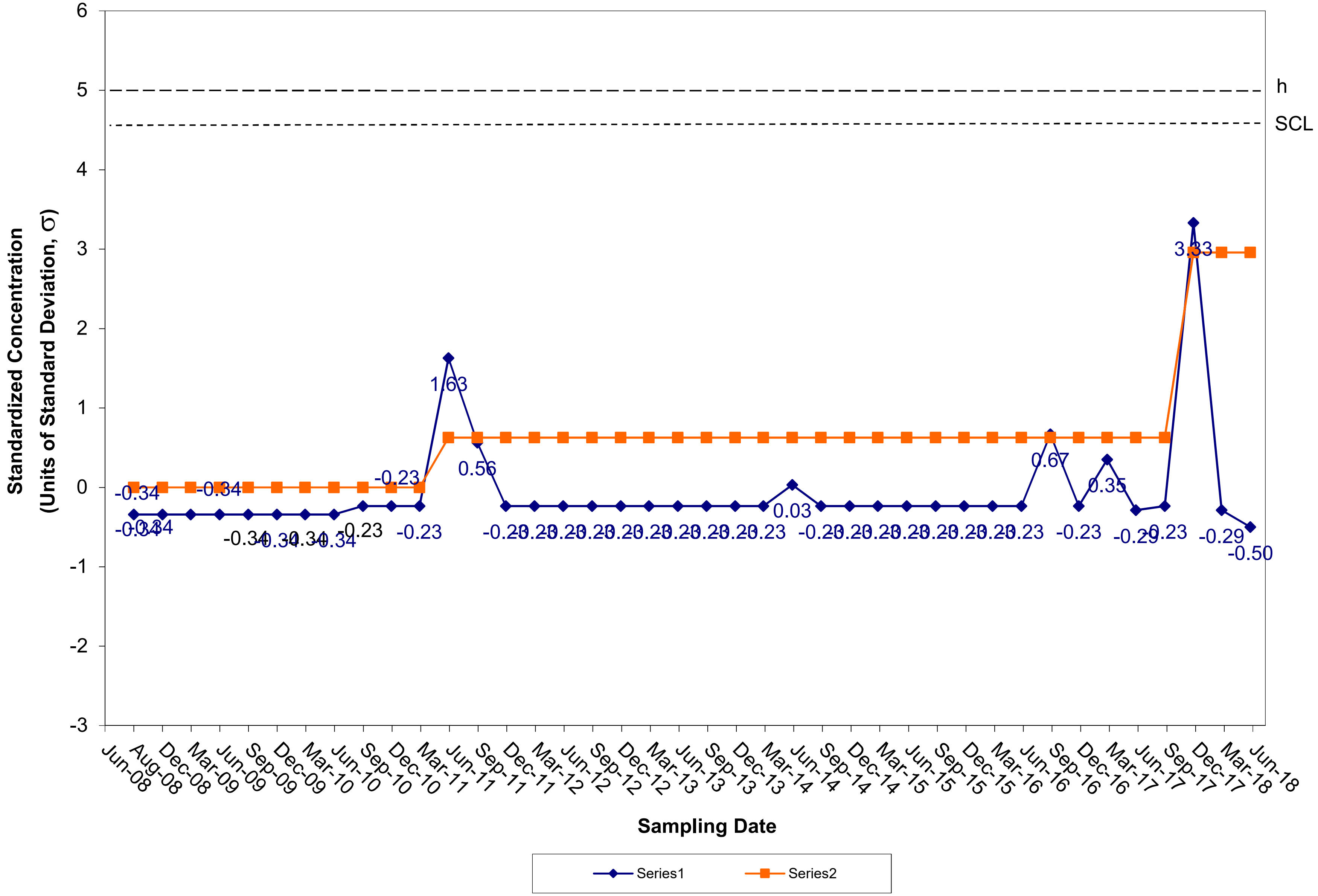
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-12



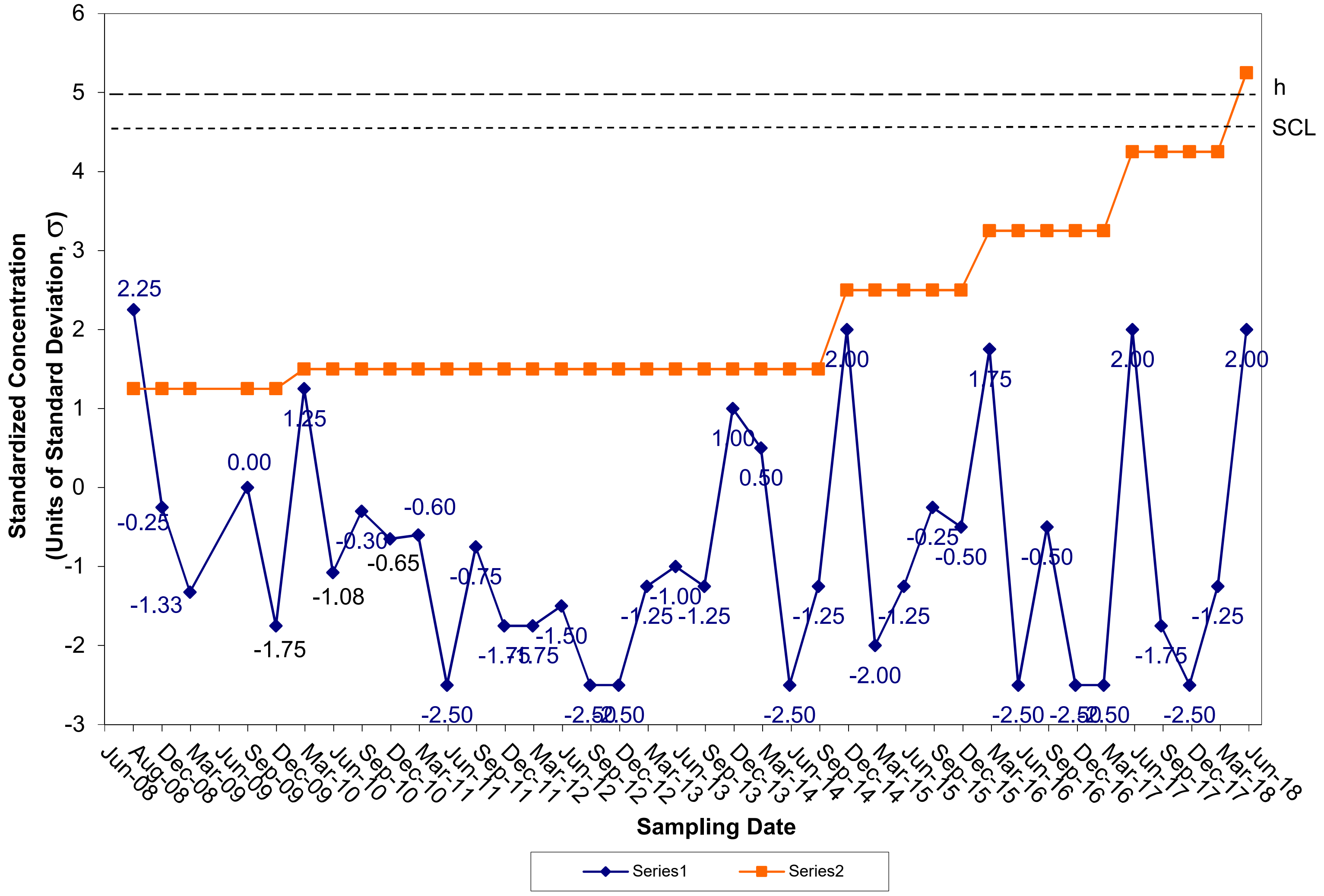
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-12



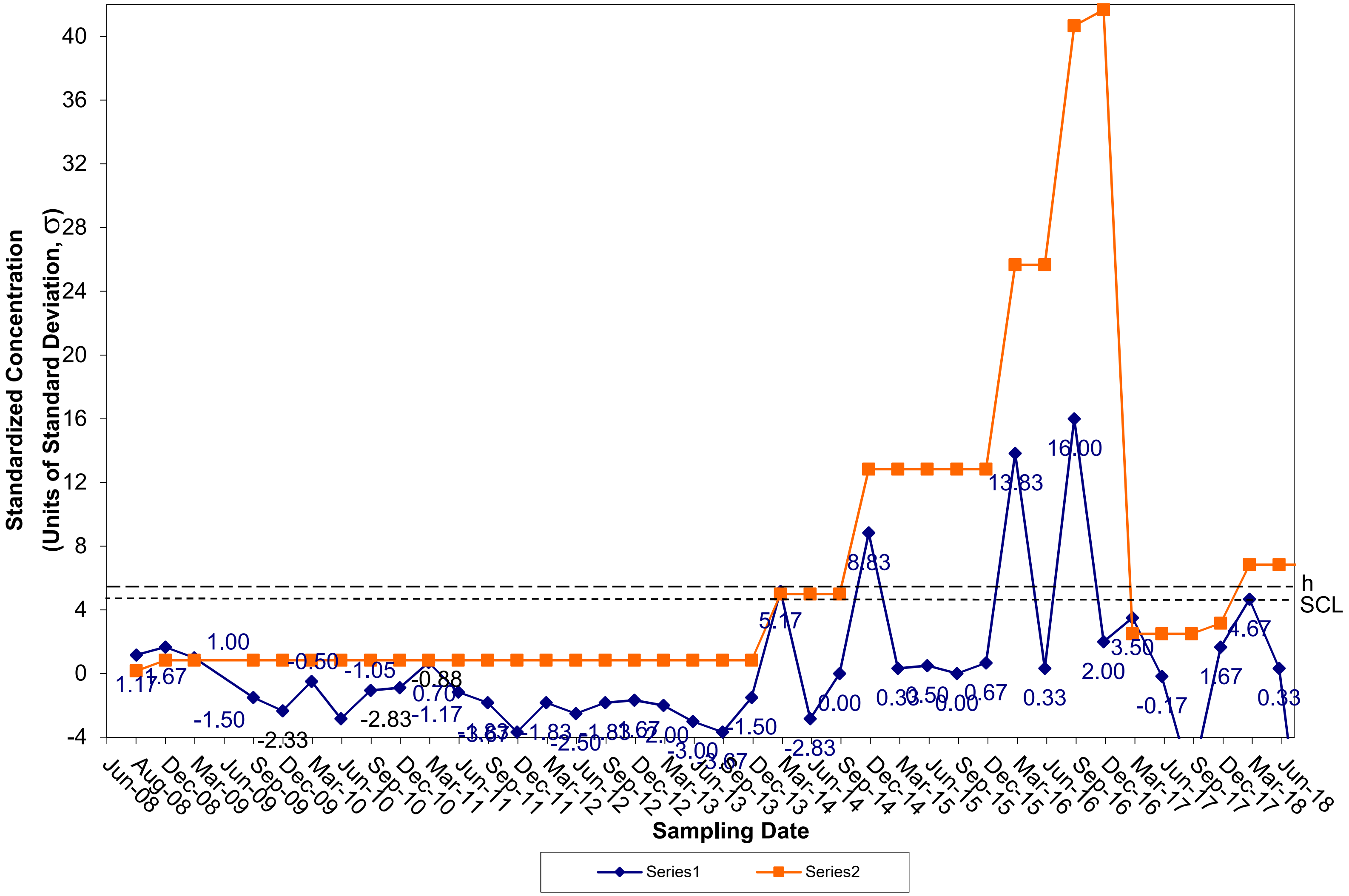
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-13



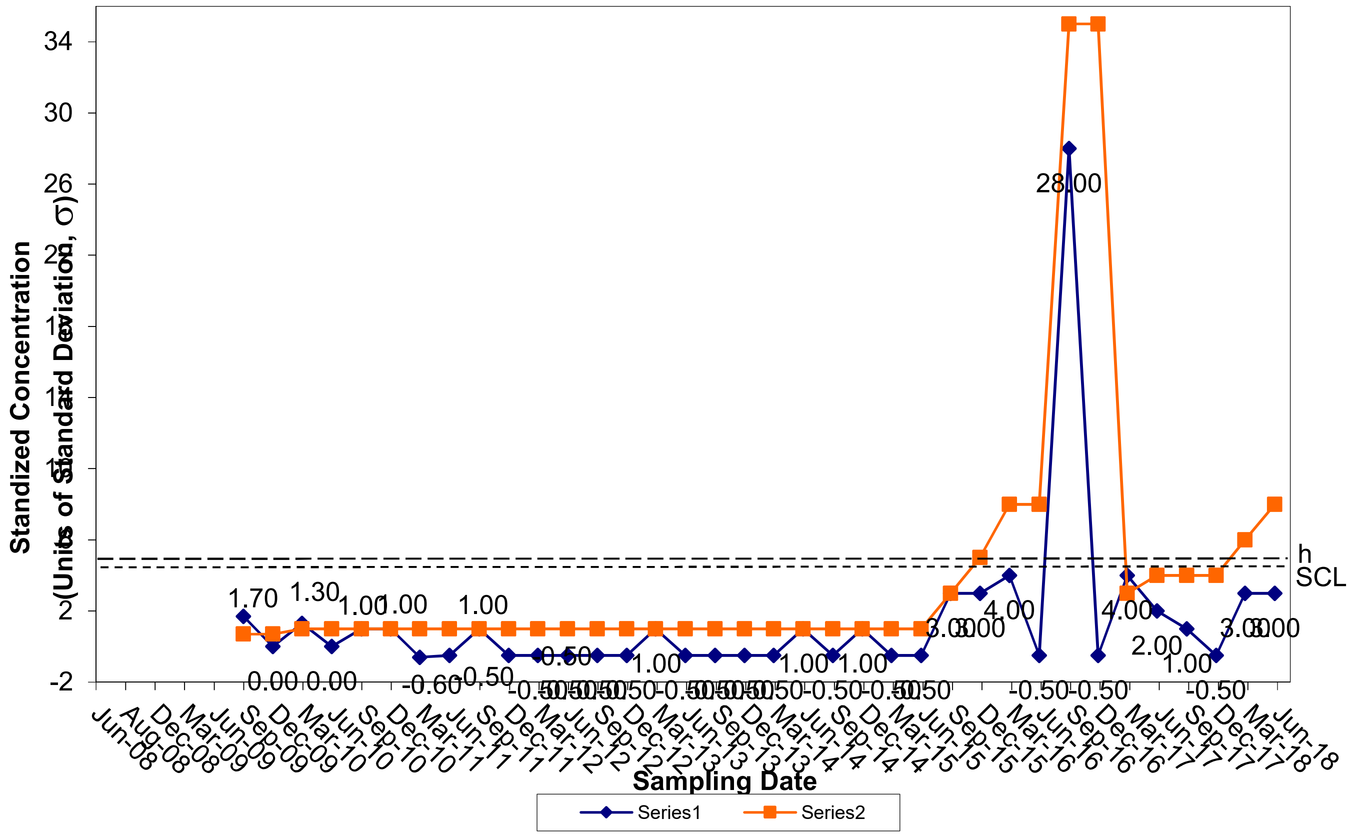
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-13



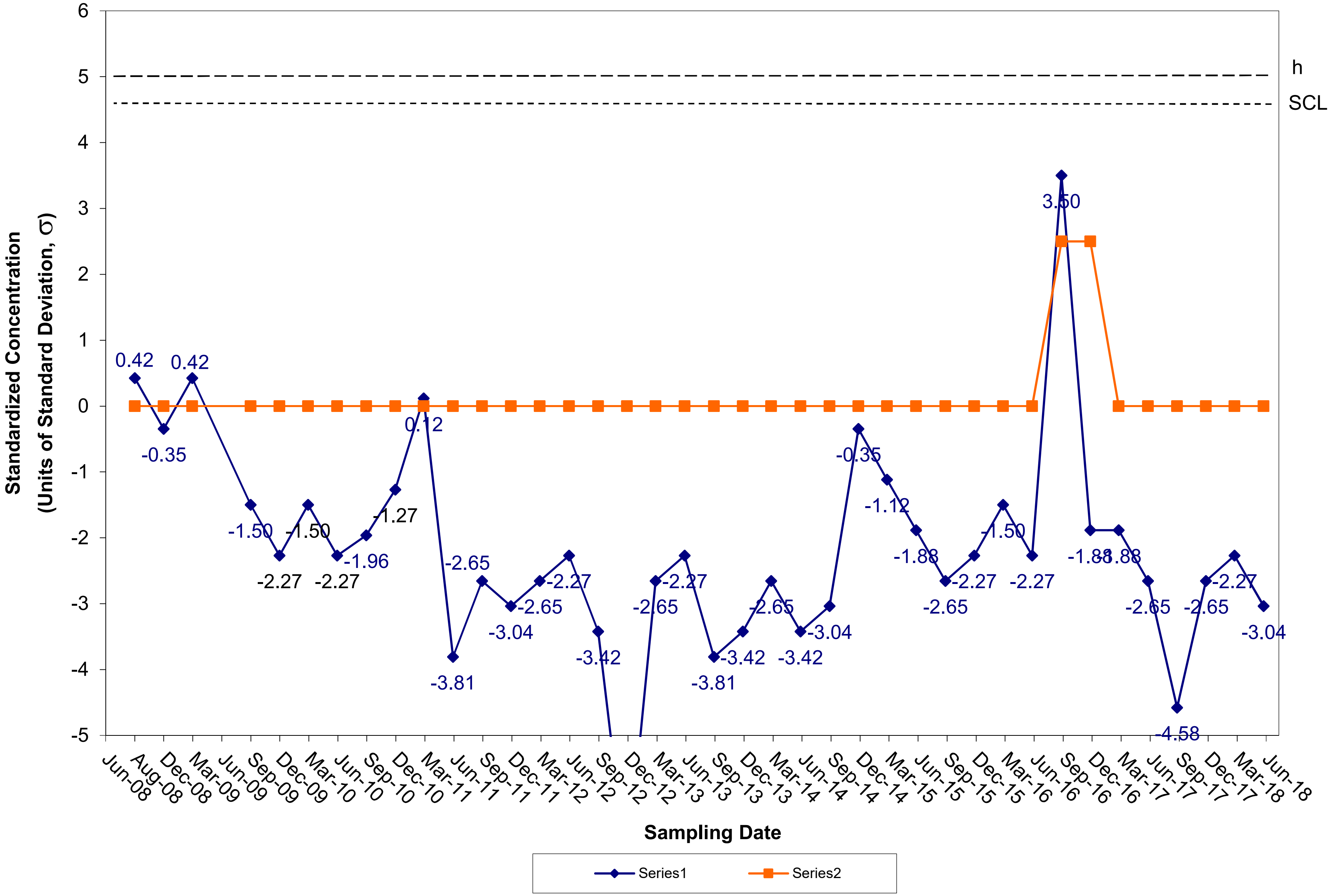
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-13



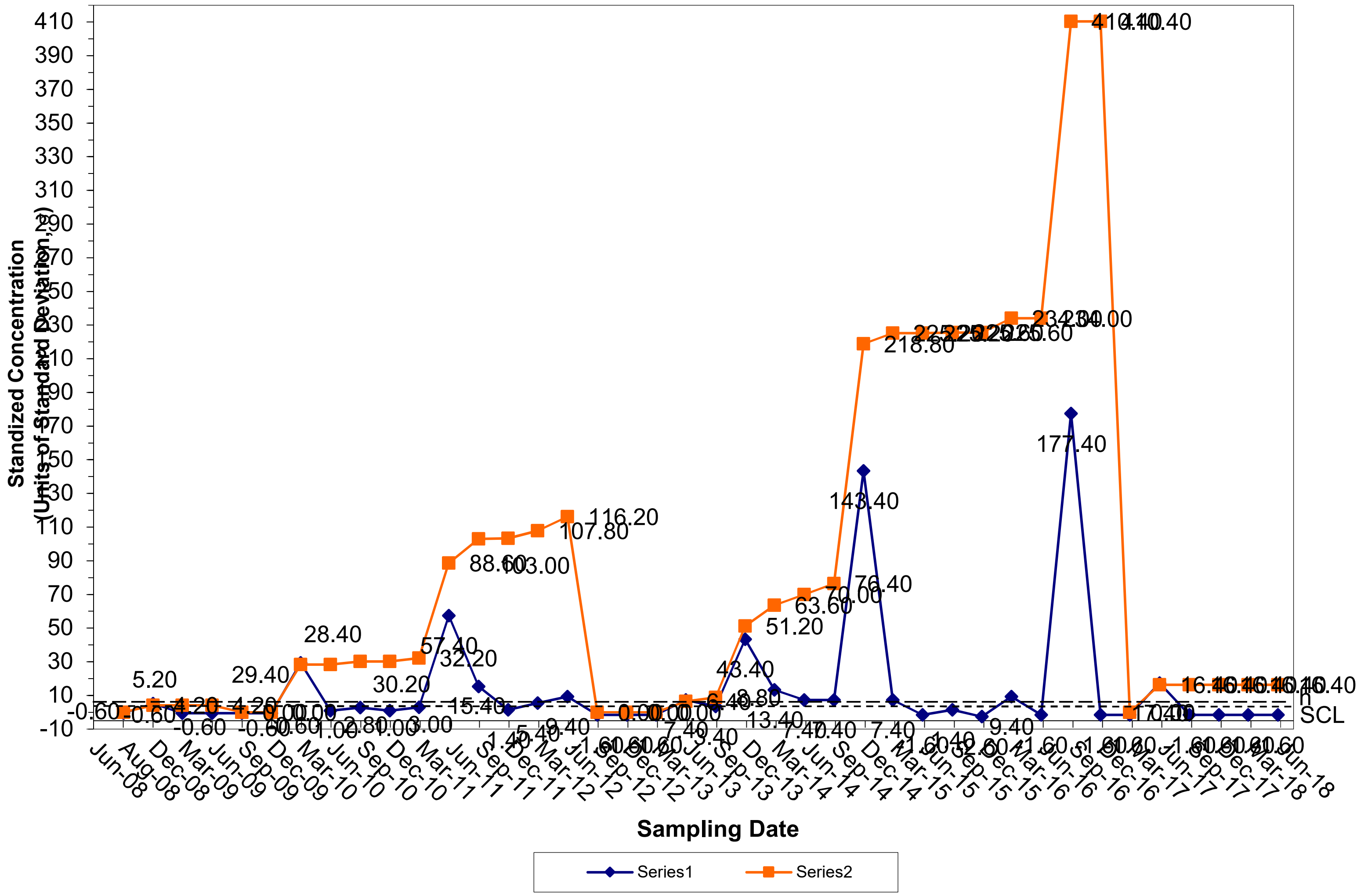
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Complaince Well OW-13



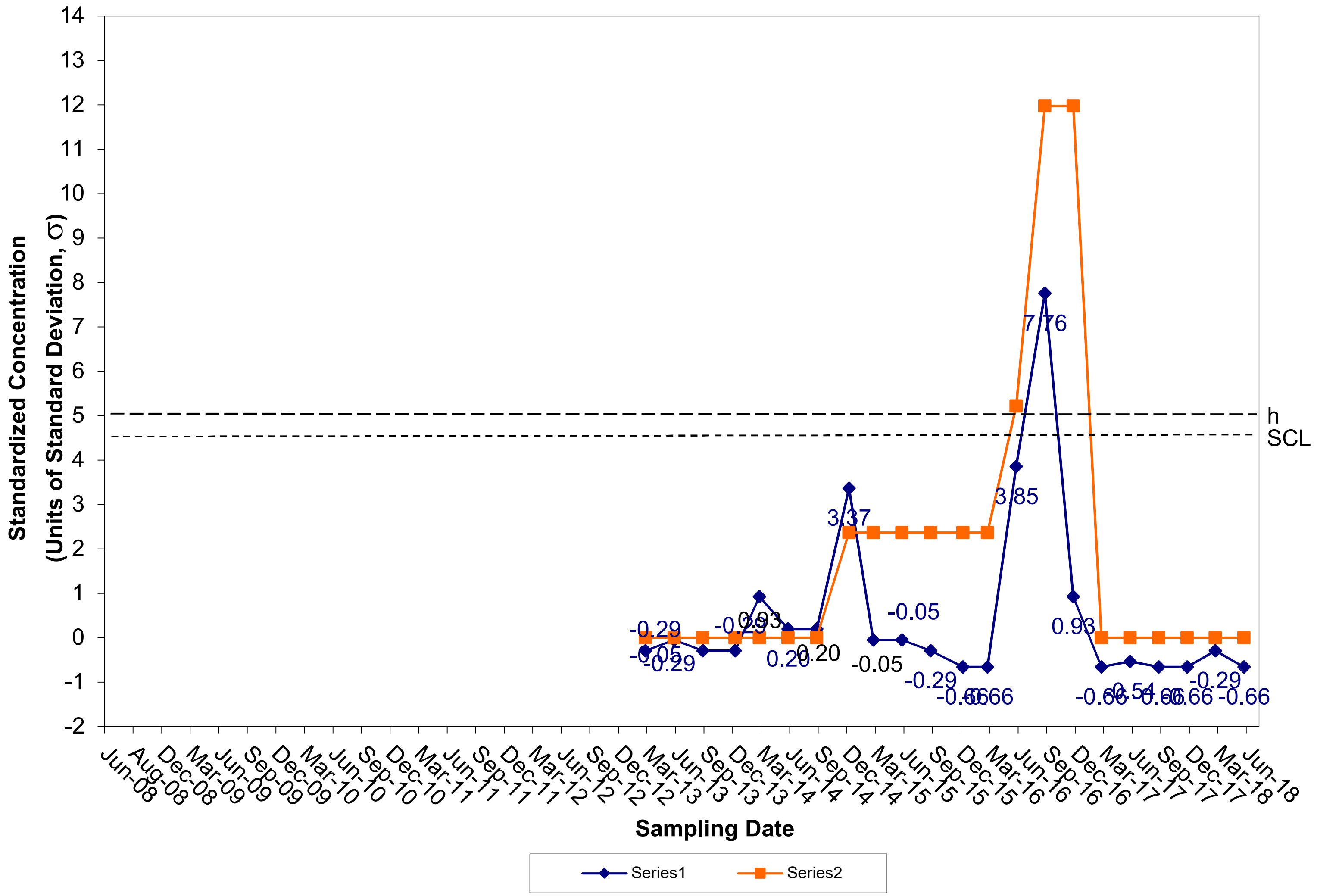
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-13



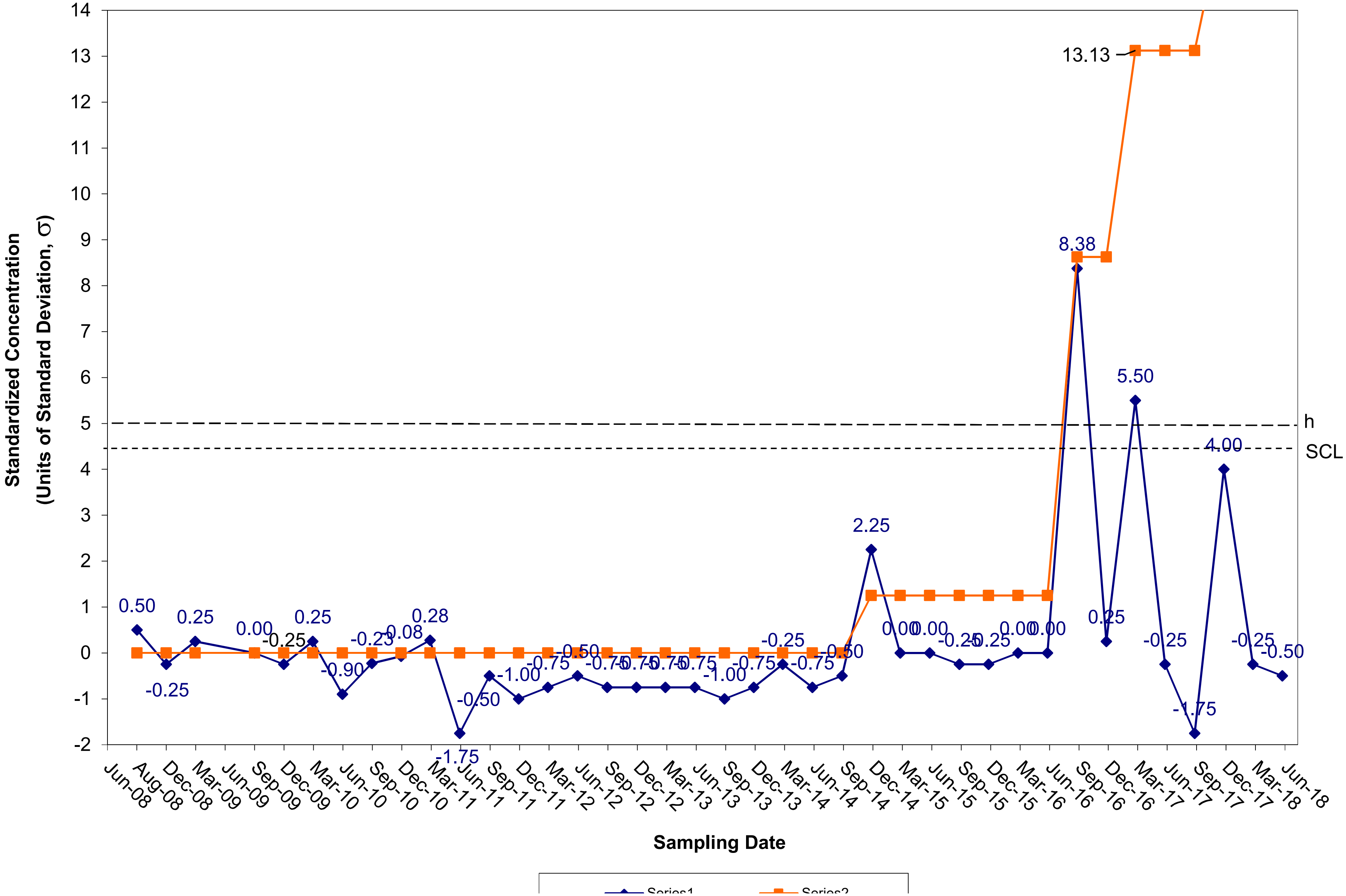
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Complaince Well OW-13



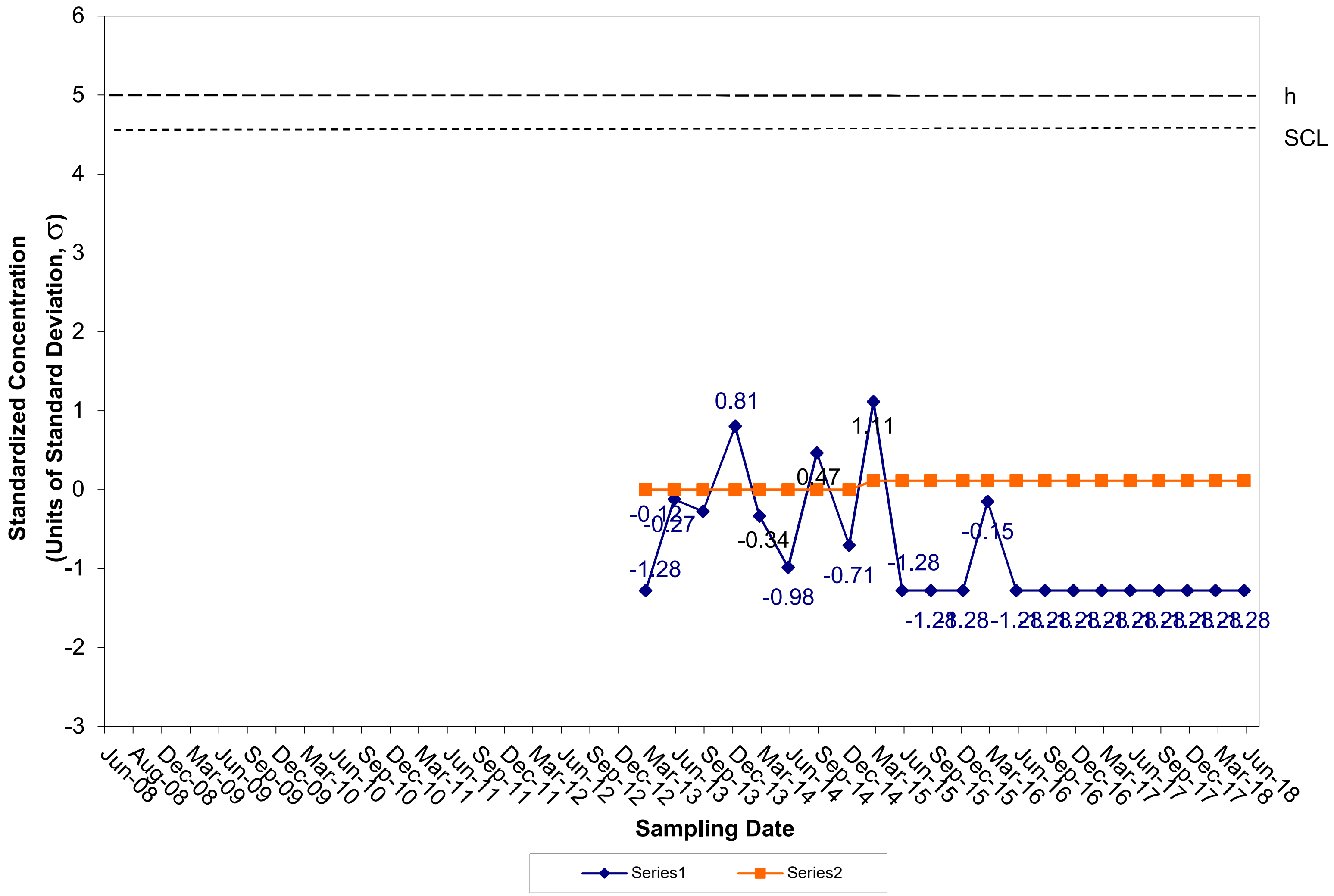
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-13

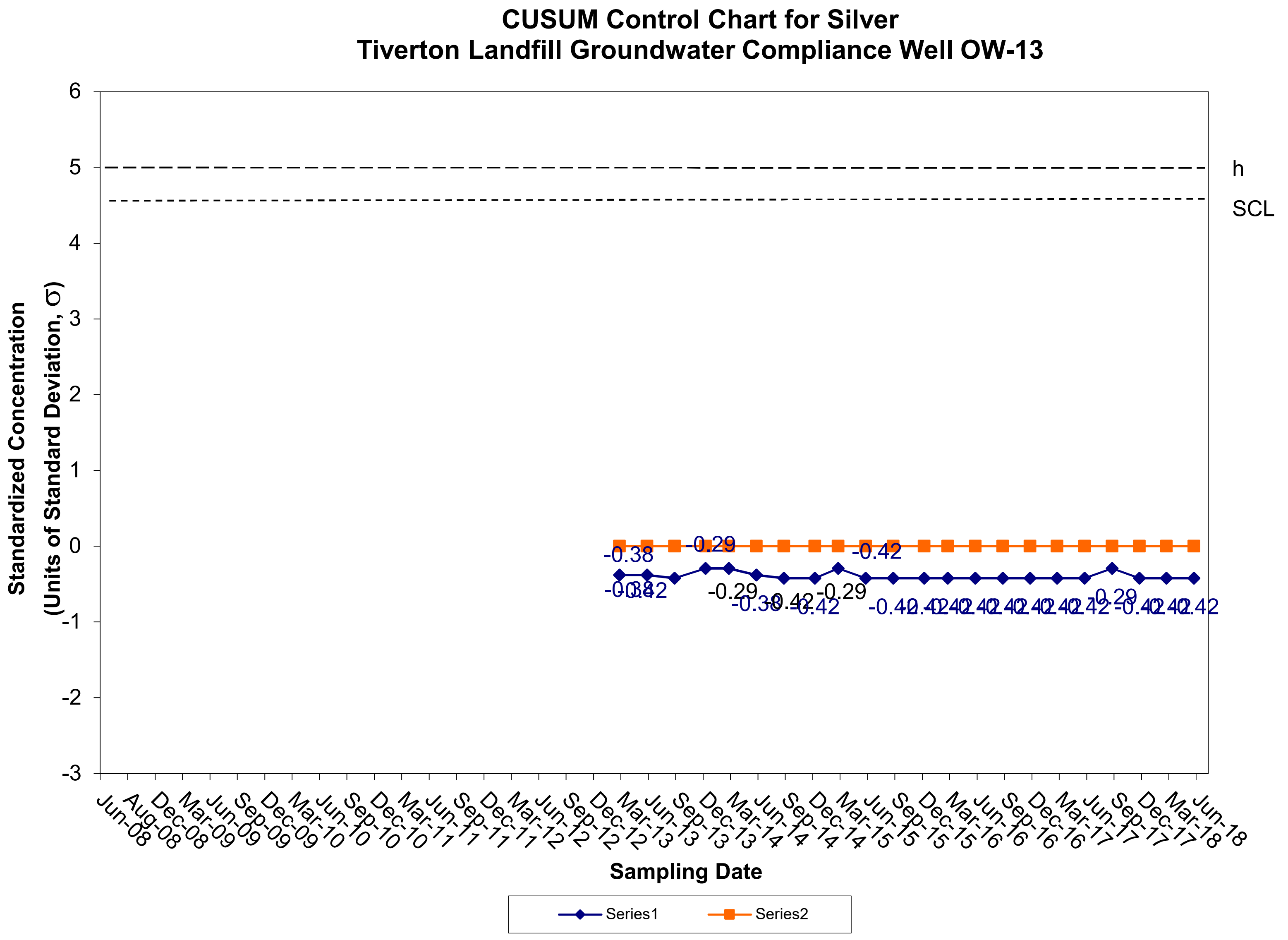


CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-13



CUSUM Control Chart for Selenium
Tiverton Landfill Groundwater Compliance Well OW-13




CUSUM Control Chart for Silver
Tiverton Landfill Groundwater Compliance Well OW-13
Standardized Concentration
(Units of Standard Deviation, σ)
6
5
4
3
2
1
0
-1
-2
-3
h
SCL
-0.38
-0.29
-0.42
-0.38
-0.42
-0.29
-0.38
-0.42
-0.42
-0.29
-0.42
-0.42
-0.42
-0.42
-0.42
-0.42
-0.42
-0.42
-0.29
-0.42
-0.42
-0.42
Jun-08
Aug-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
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Mar-13
Jun-13
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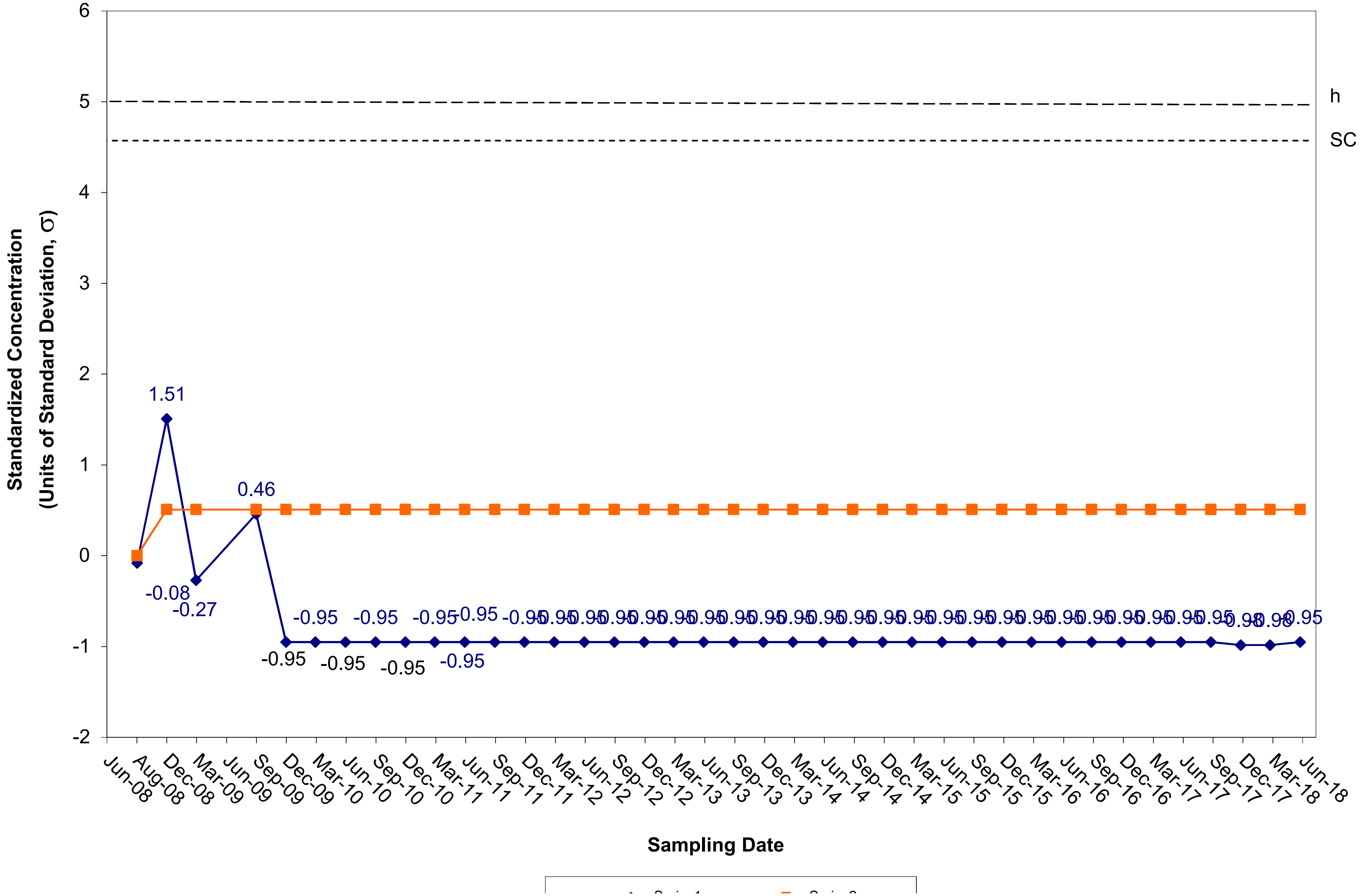
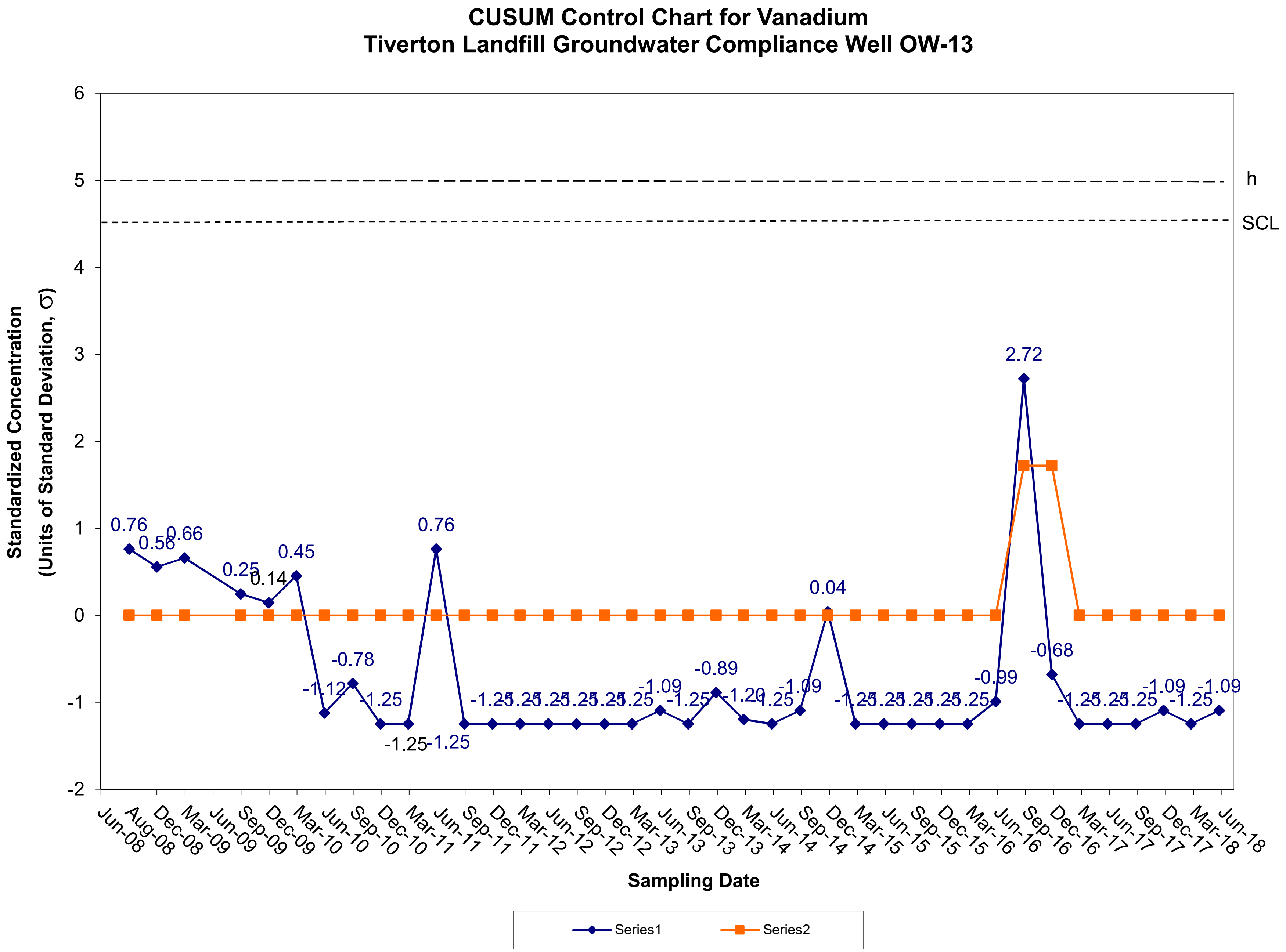
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Sampling Date
Series1
Series2

CUSUM Control Chart for Thallium
Tiverton Landfill Groundwater Compliance Well OW-13




CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-13
Standardized Concentration
(Units of Standard Deviation, σ)
6
5
4
3
2
1
0
-1
-2
h
SCL
0.76
0.56
0.66
0.25
0.14
0.45
-1.12
-0.78
-1.25
-1.25
-1.25
0.76
-1.25
-1.25
-1.25
-1.25
-1.25
-1.25
-1.25
-1.09
-1.25
-0.89
-1.20
-1.25
-1.09
0.04
-1.25
-1.25
-1.25
-1.25
-1.25
-0.99
2.72
-0.68
-1.25
-1.25
-1.25
-1.09
-1.25
-1.09
Jun-08
Aug-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
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Dec-13
Mar-14
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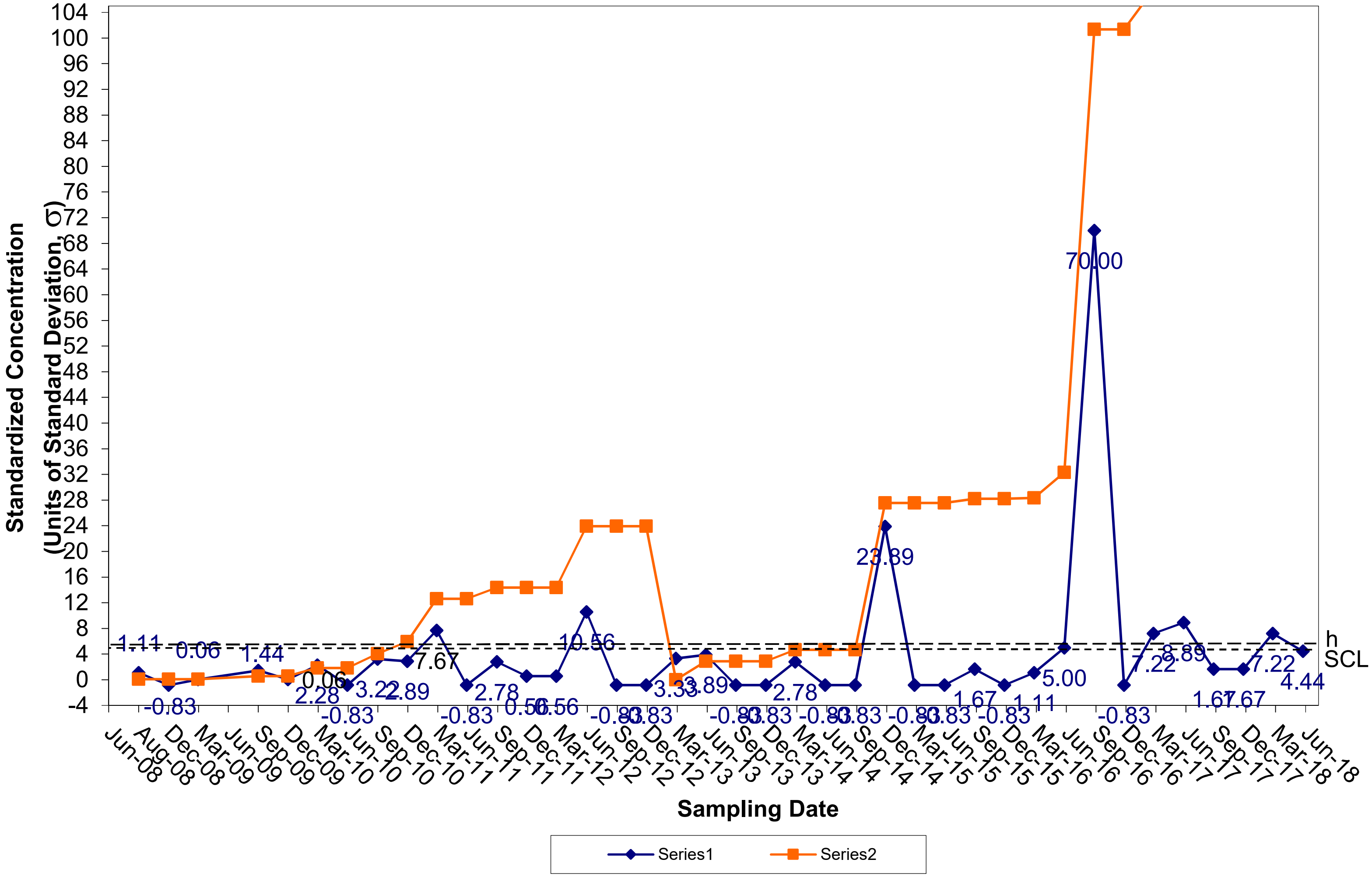
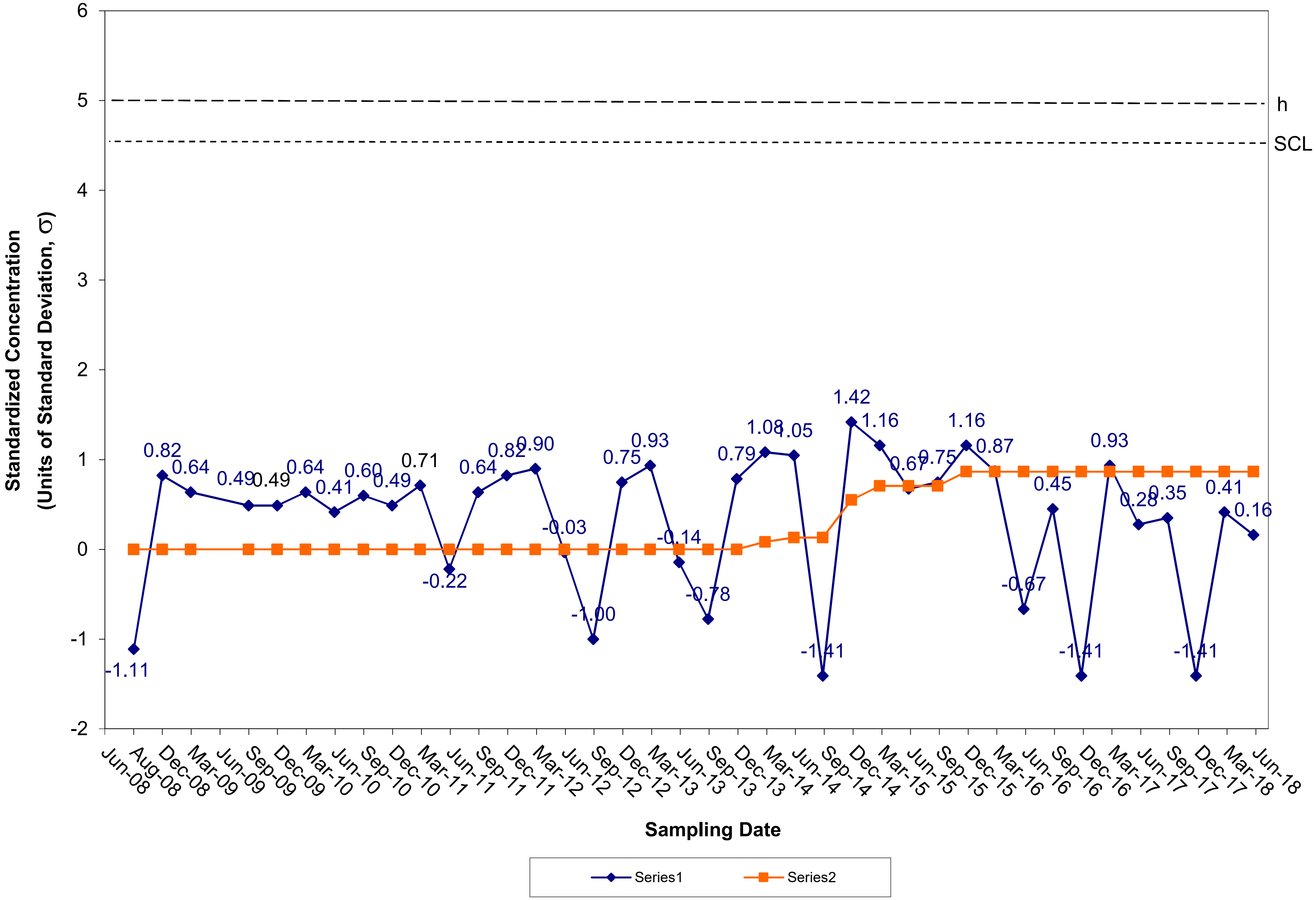
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Sampling Date
Series1
Series2

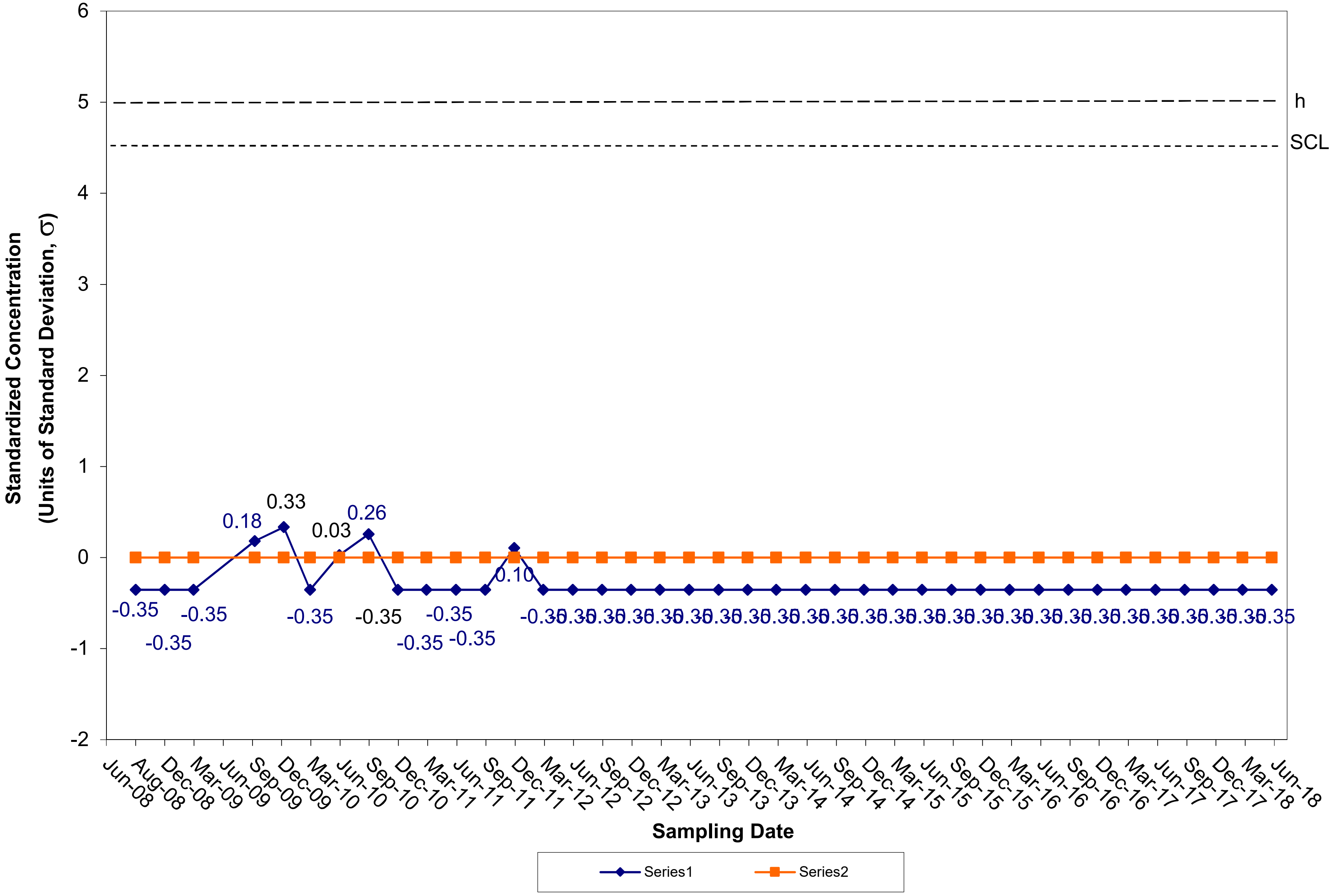
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-13

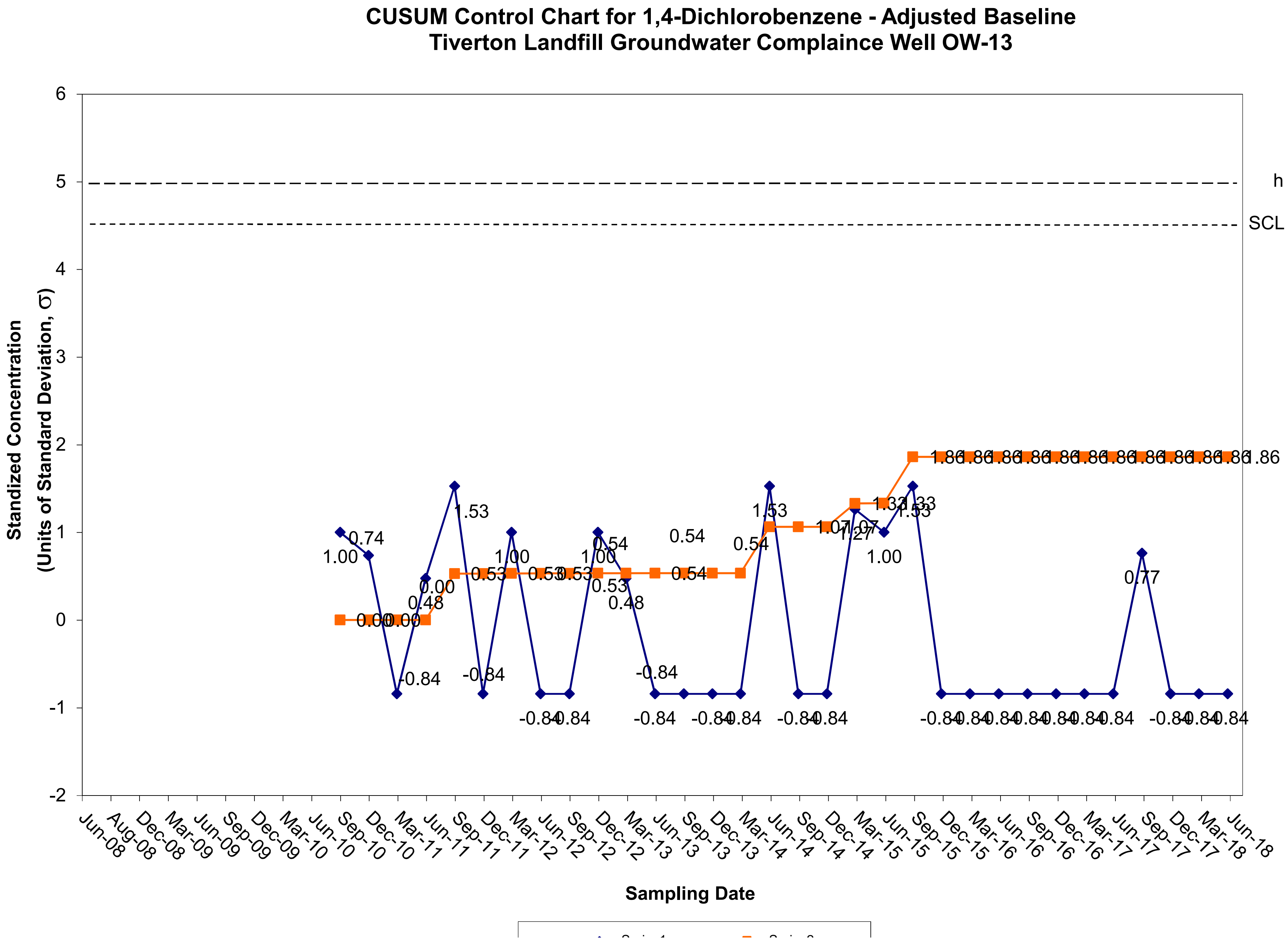


CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-13



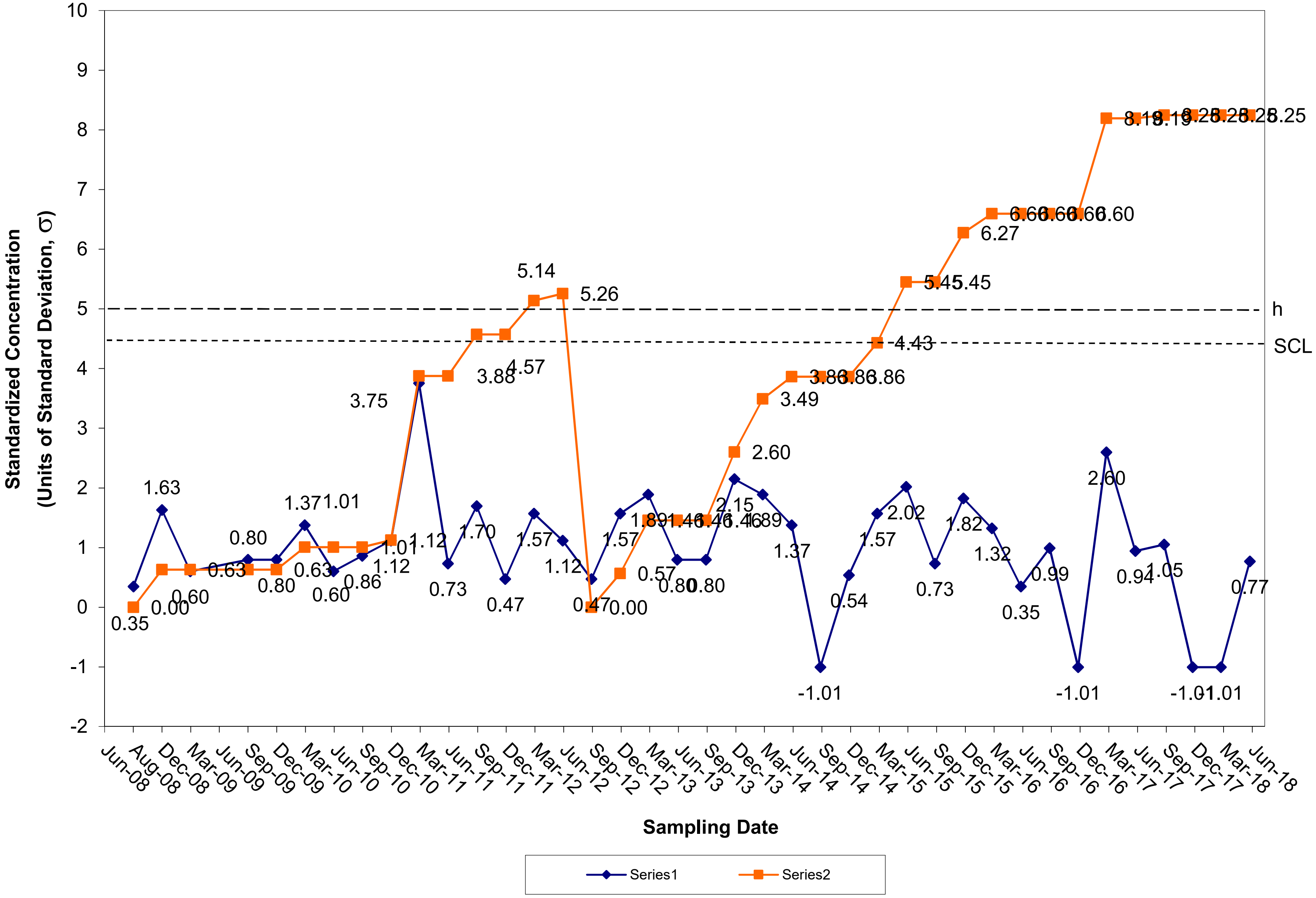
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Compliance Well OW-13



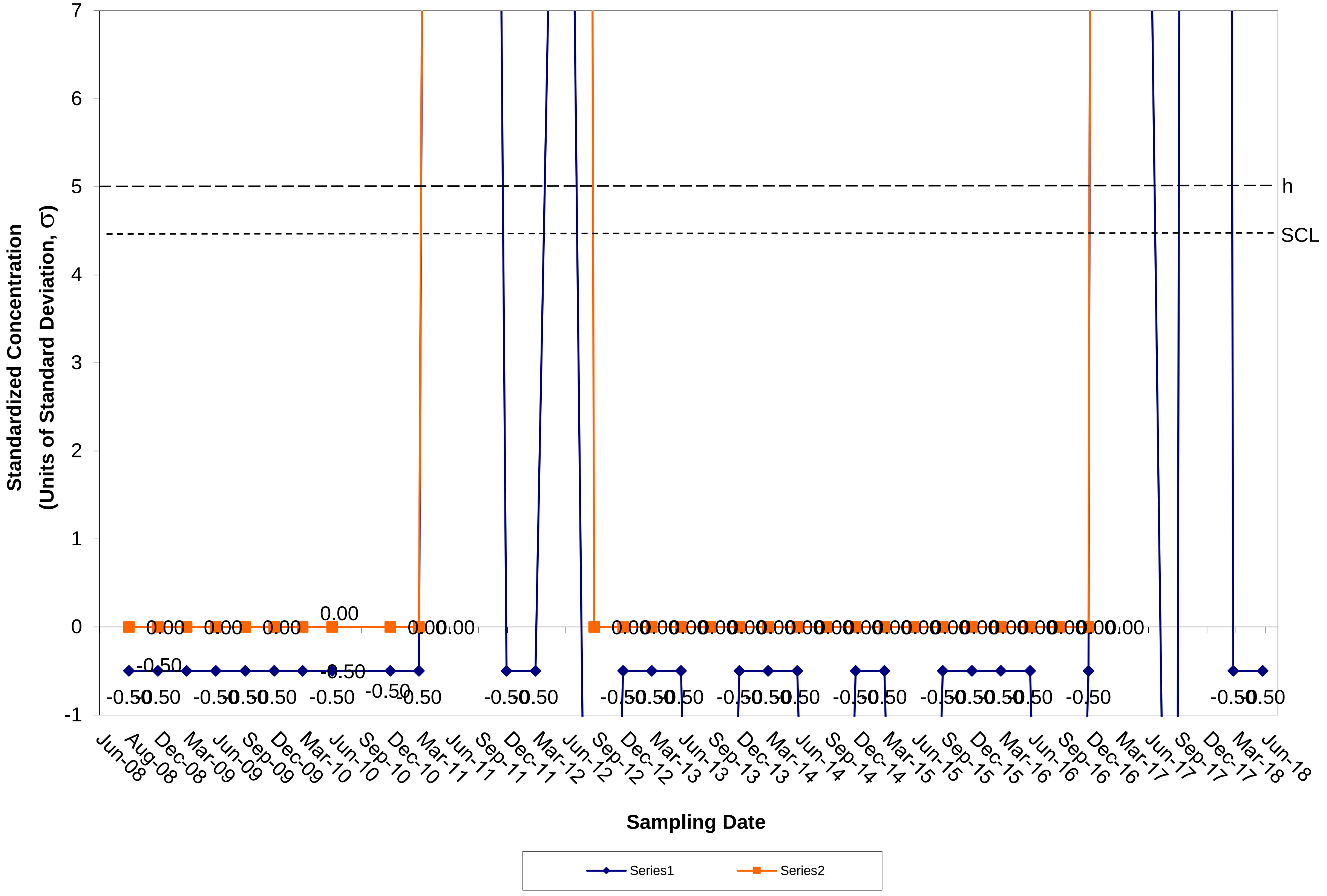


CUSUM Control Chart for 1,4-Dichlorobenzene - Adjusted Baseline
Tiverton Landfill Groundwater Complaince Well OW-13

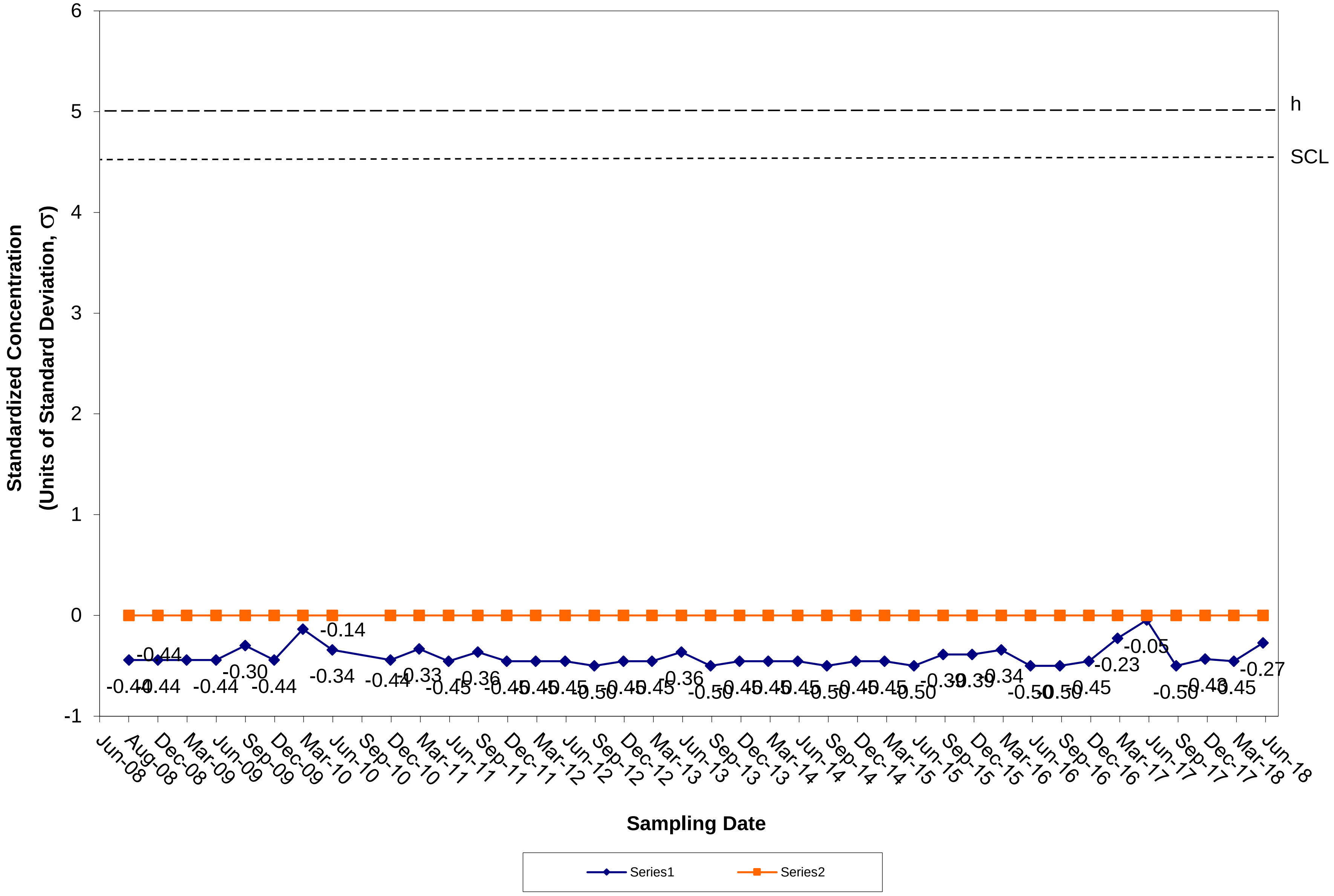
CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-13



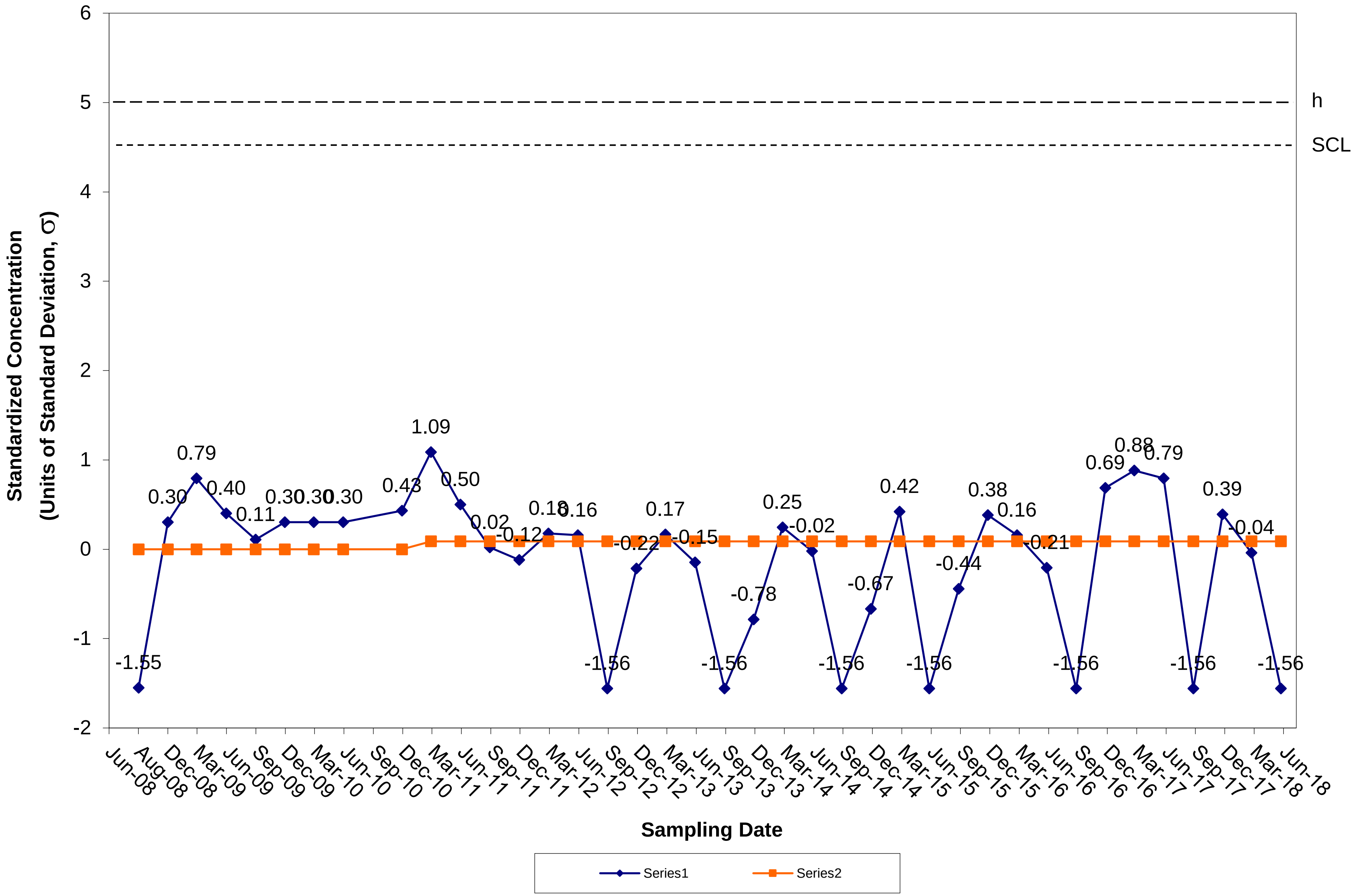
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-14



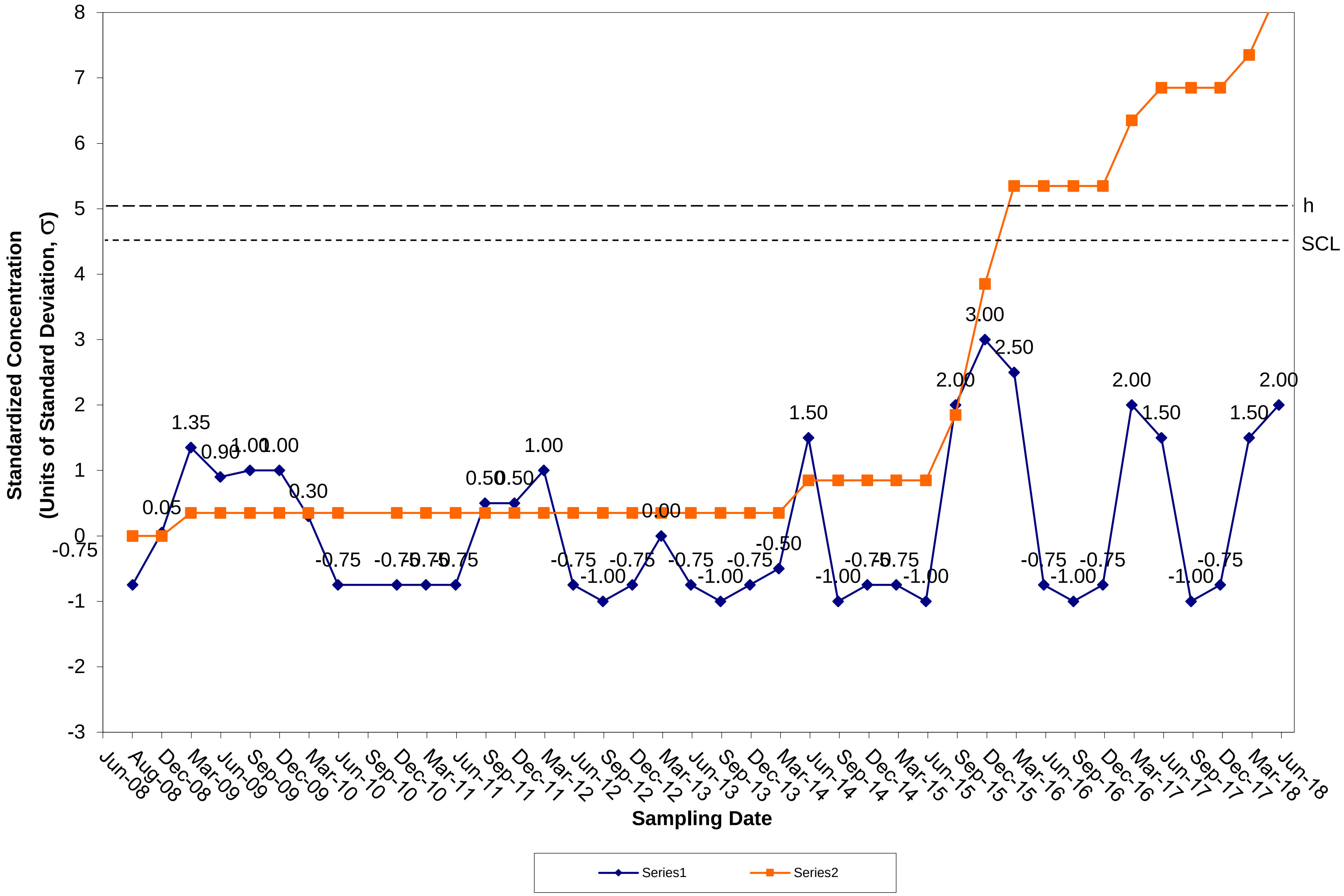
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-14



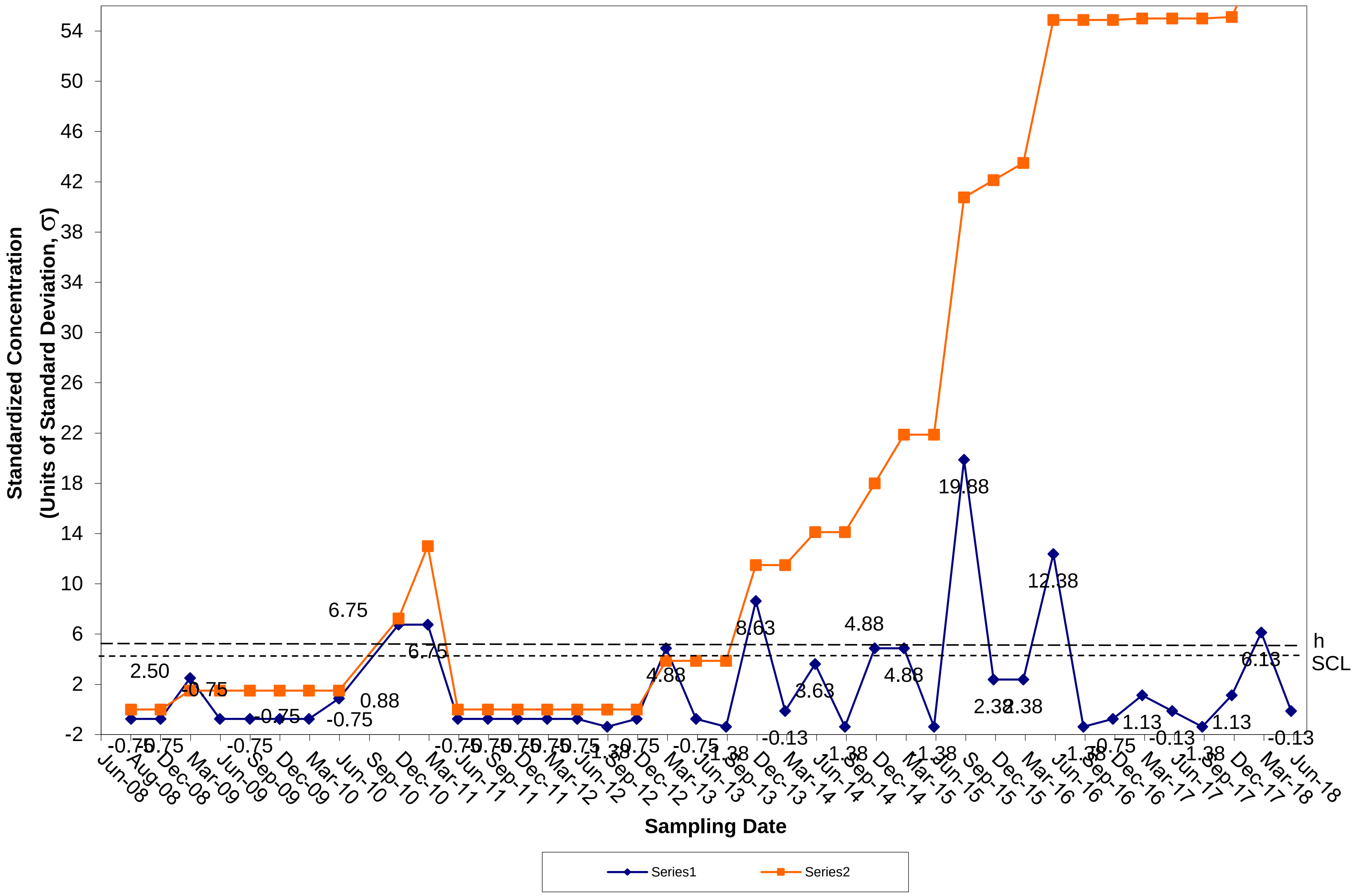
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-14



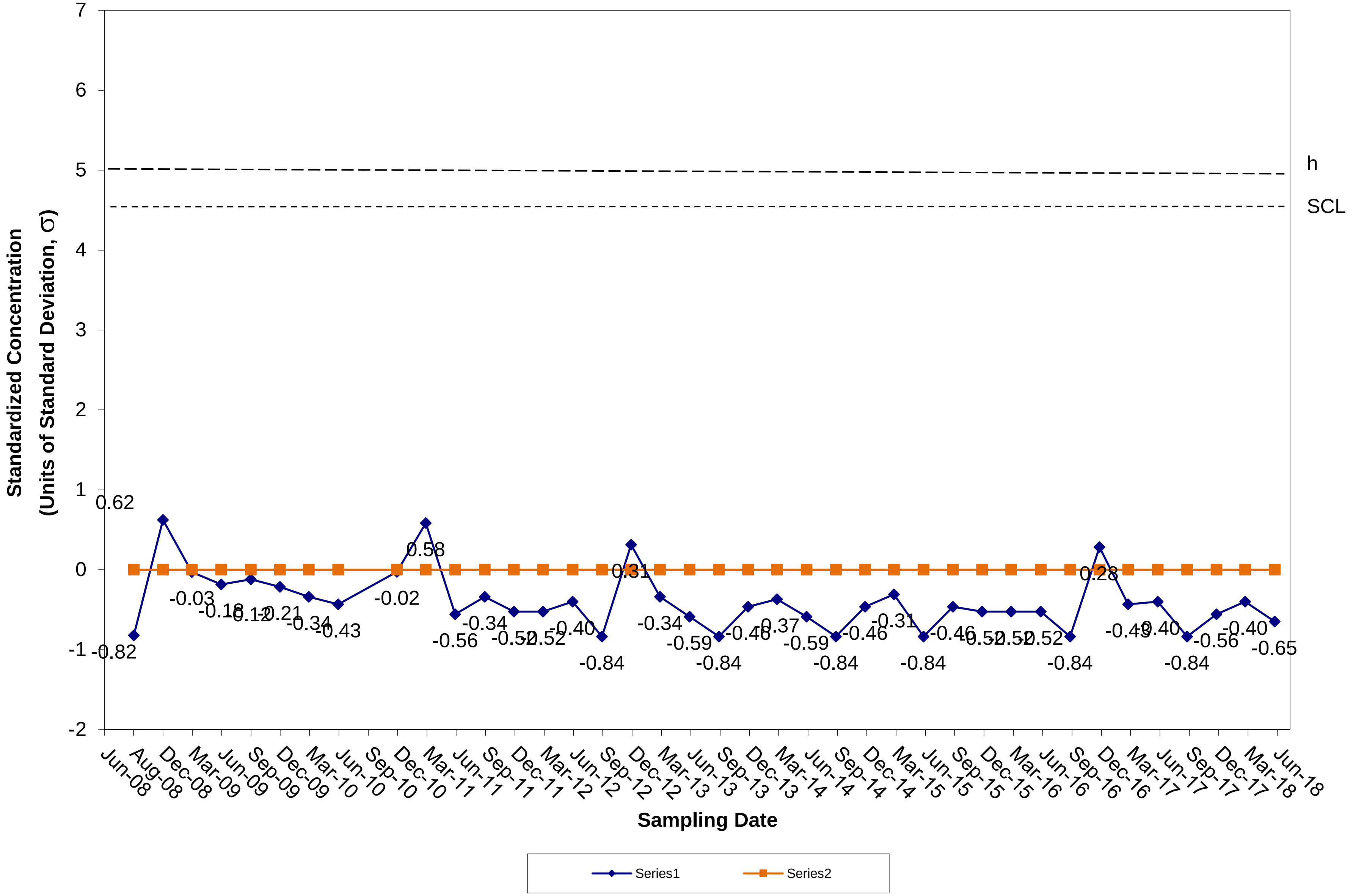
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Compliance Well OW-14



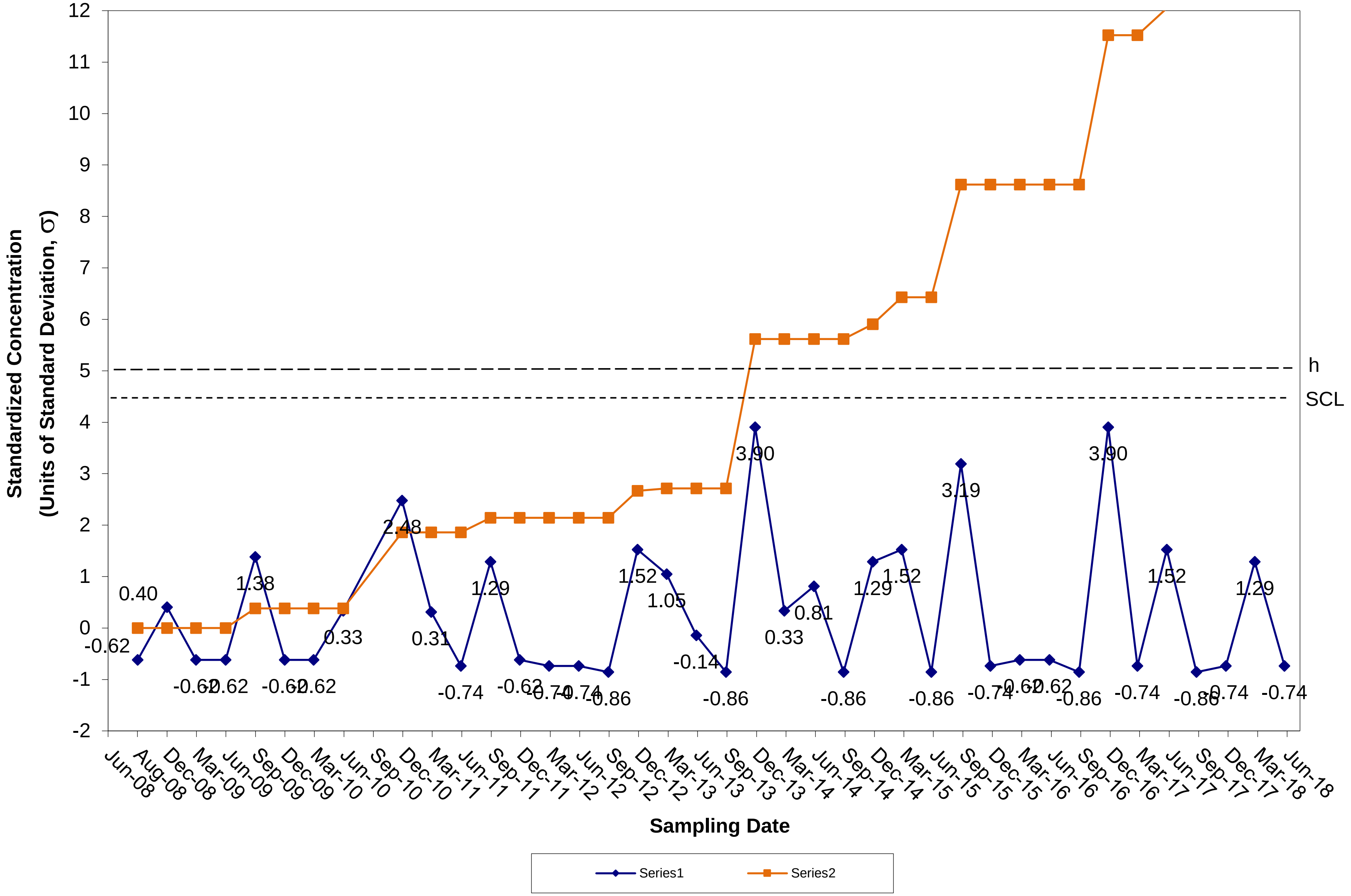
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-14



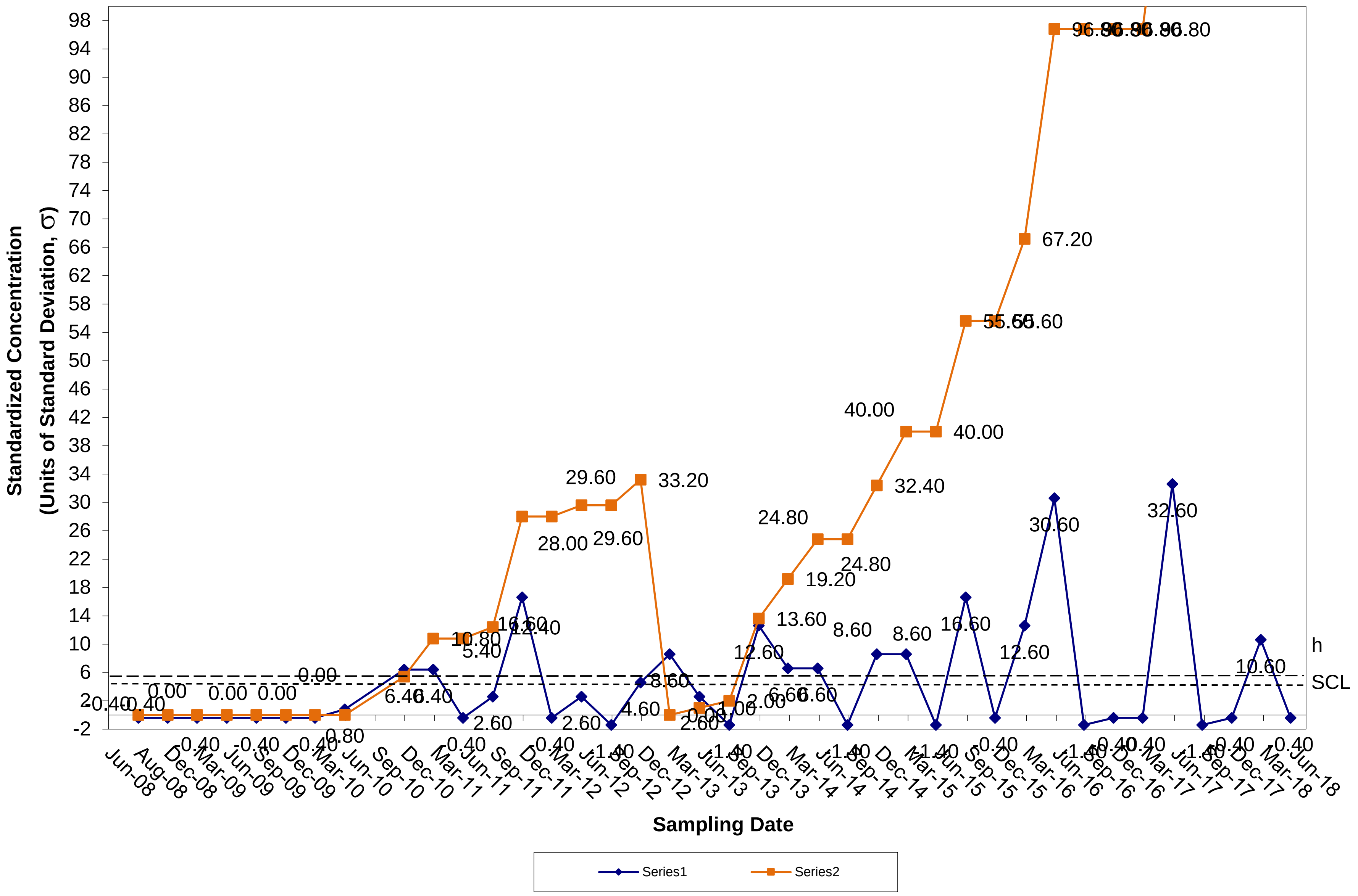
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-14



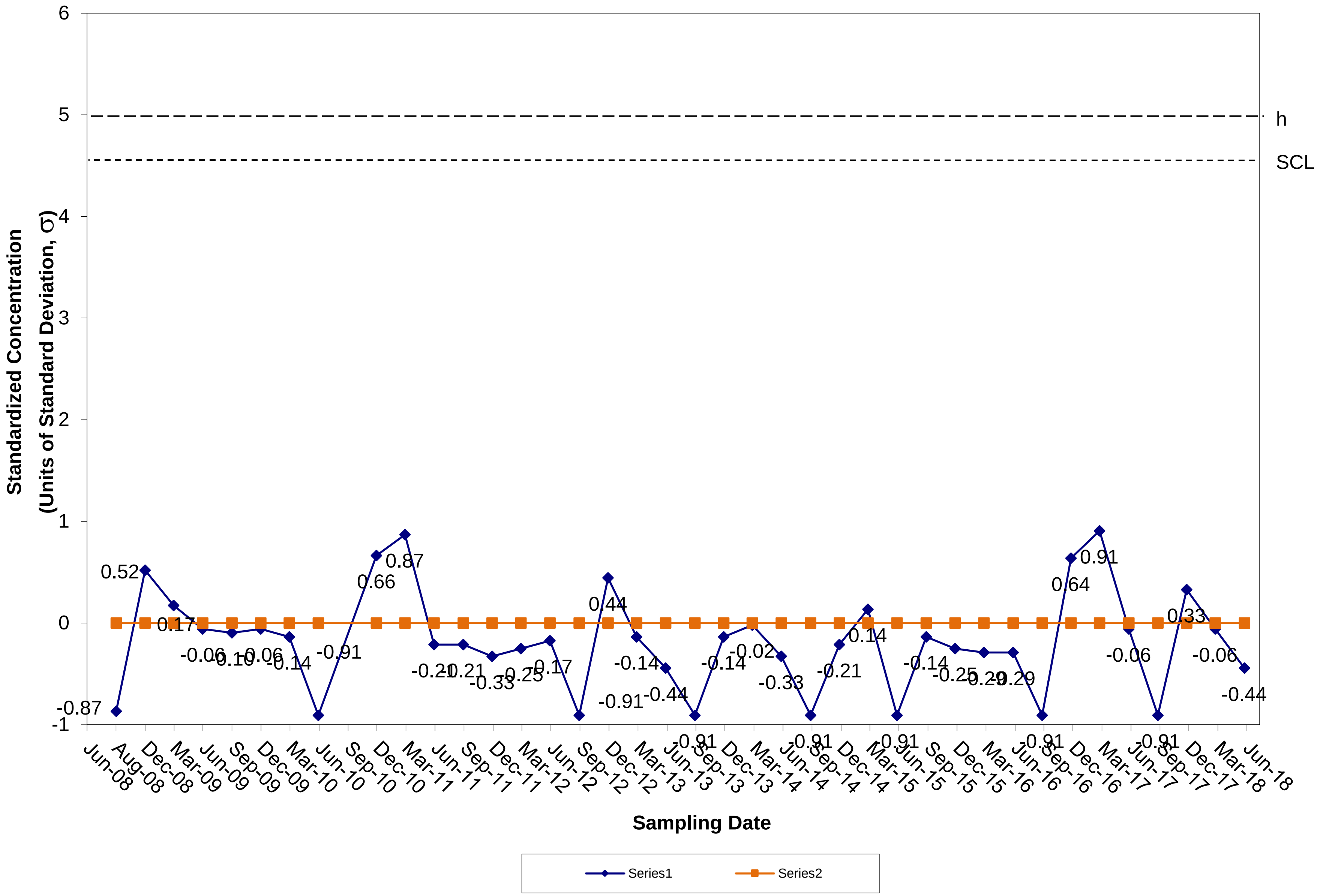
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Compliance Well OW-14

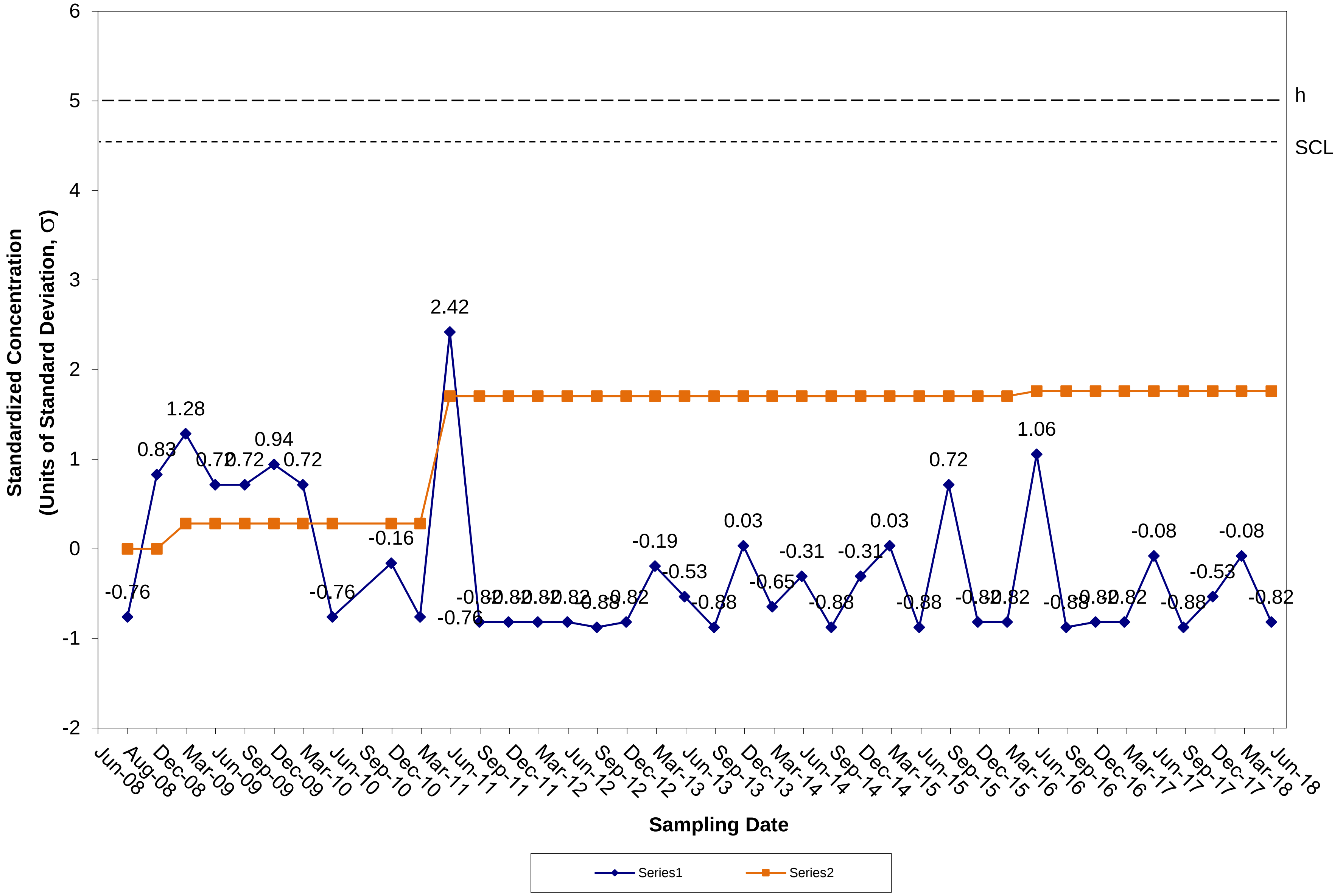


CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-14



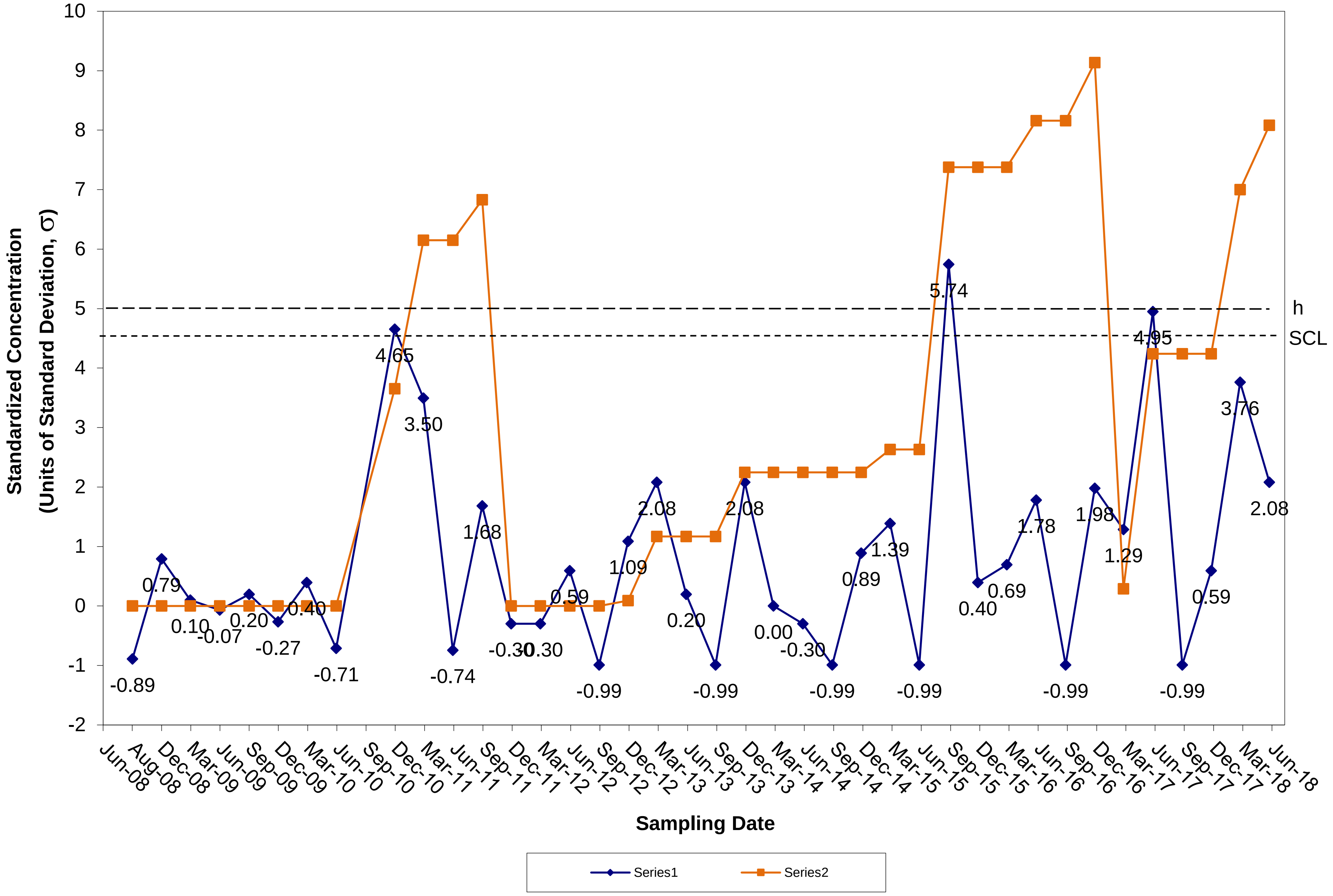
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-14



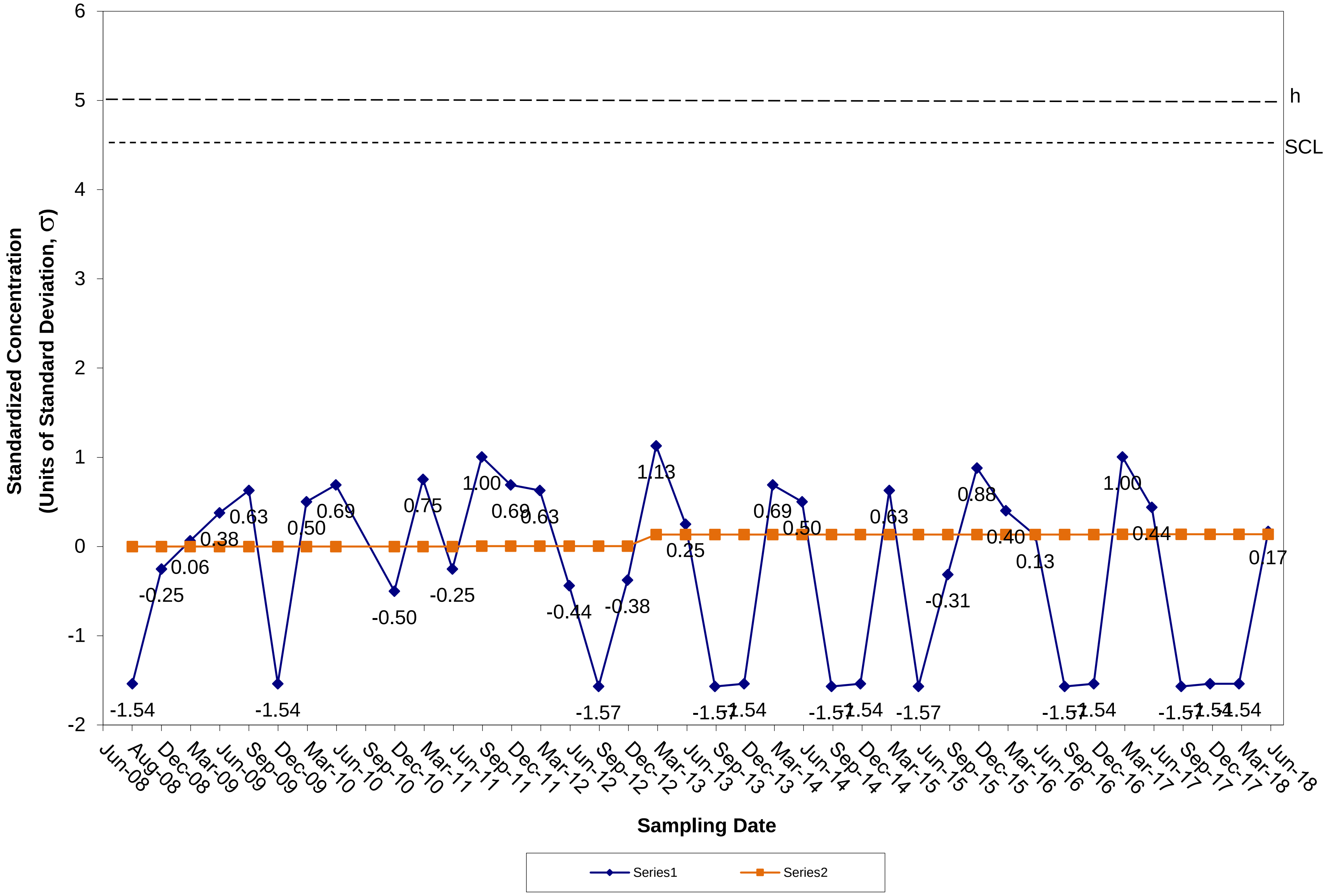


CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-14

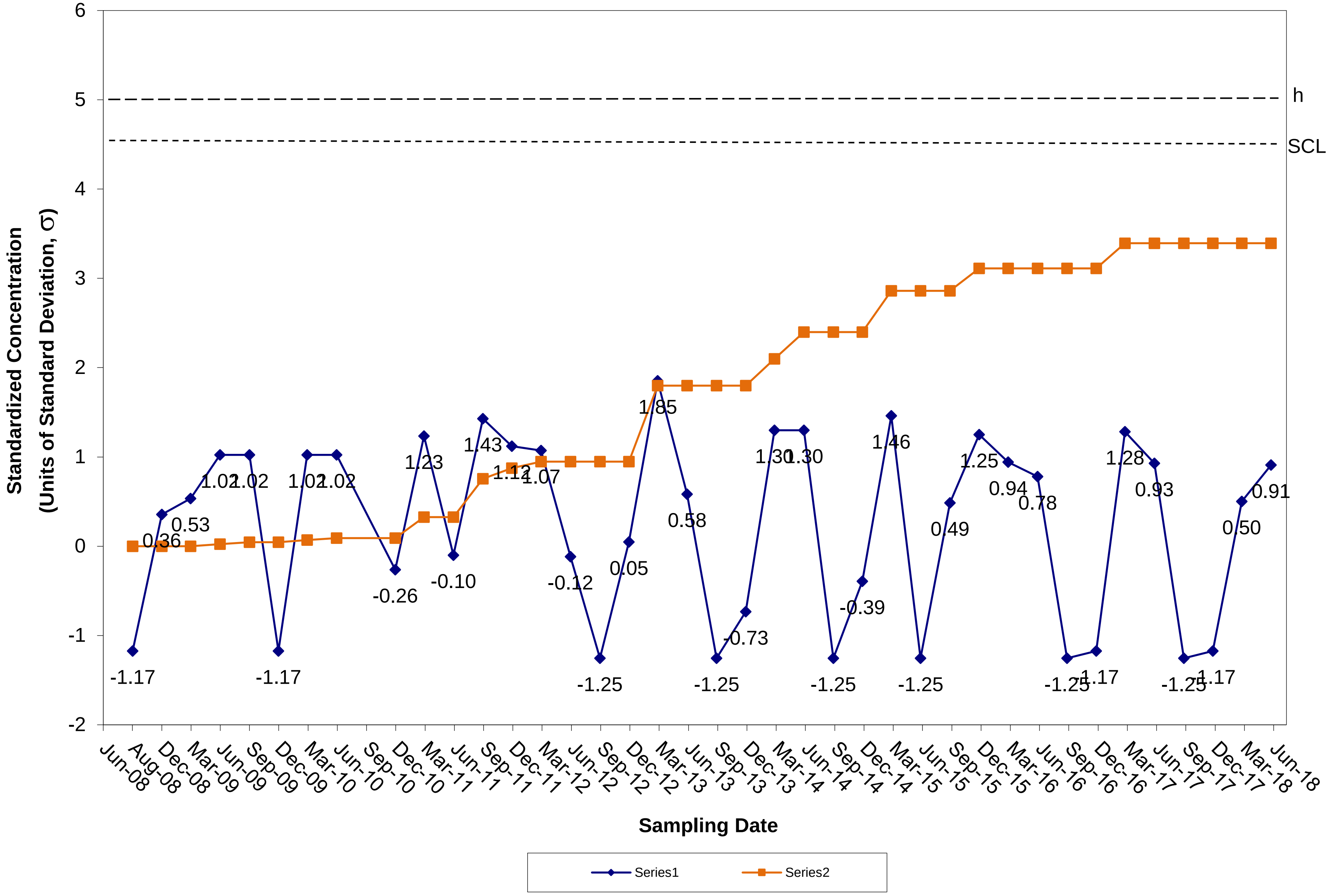
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-14



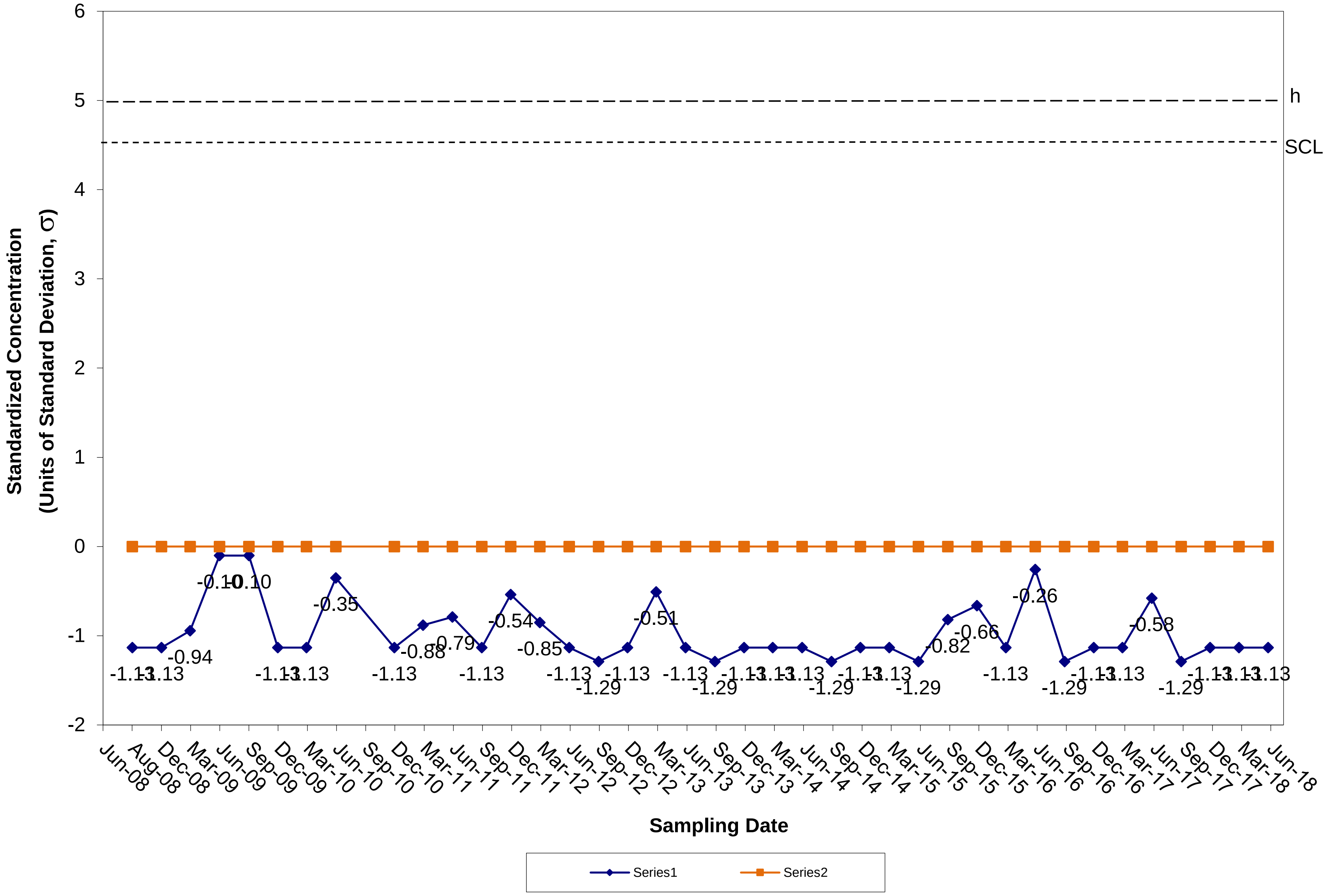
CUSUM Control Chart for Benzene
Tiverton Landfill Groundwater Compliance Well OW-14



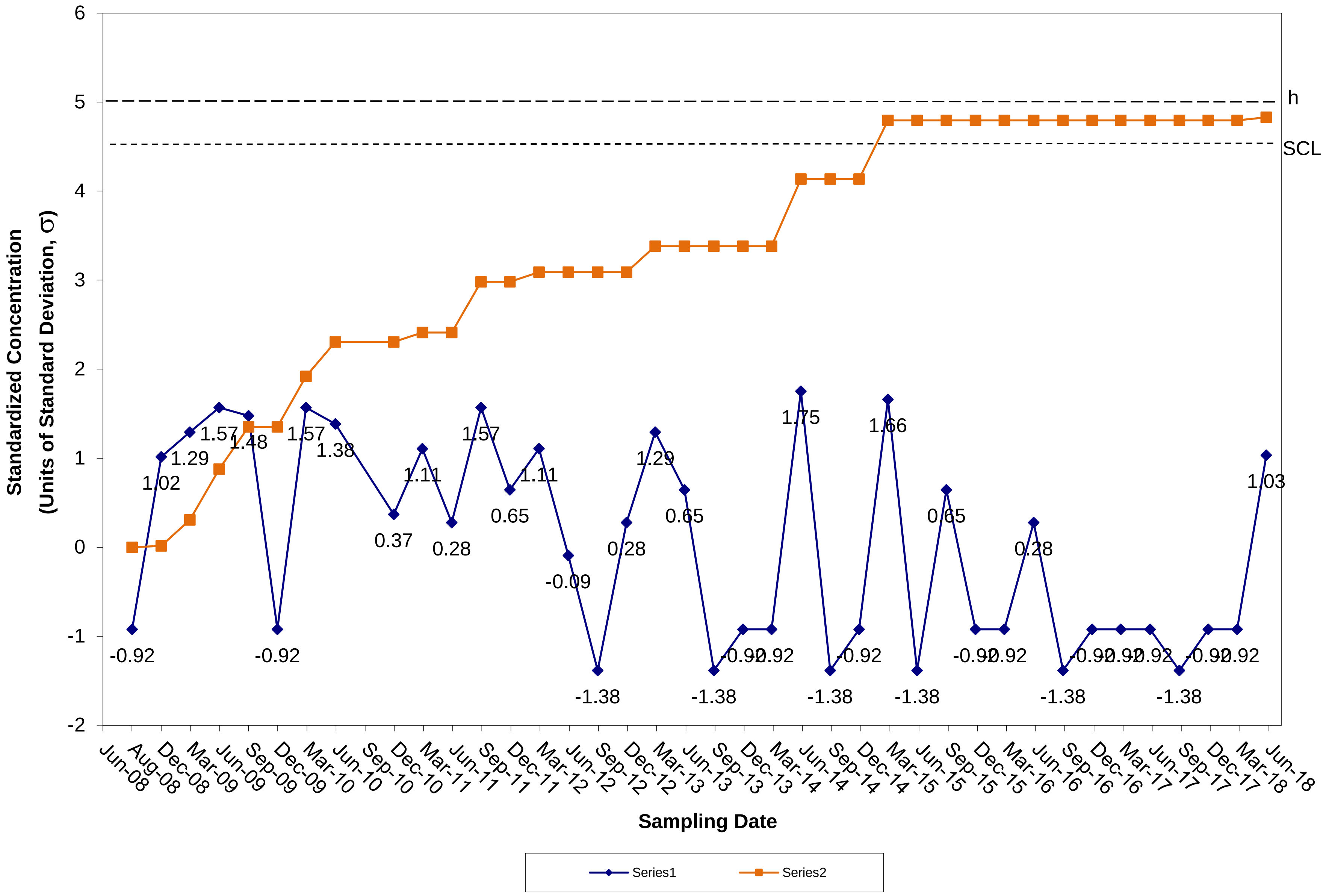
CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-14



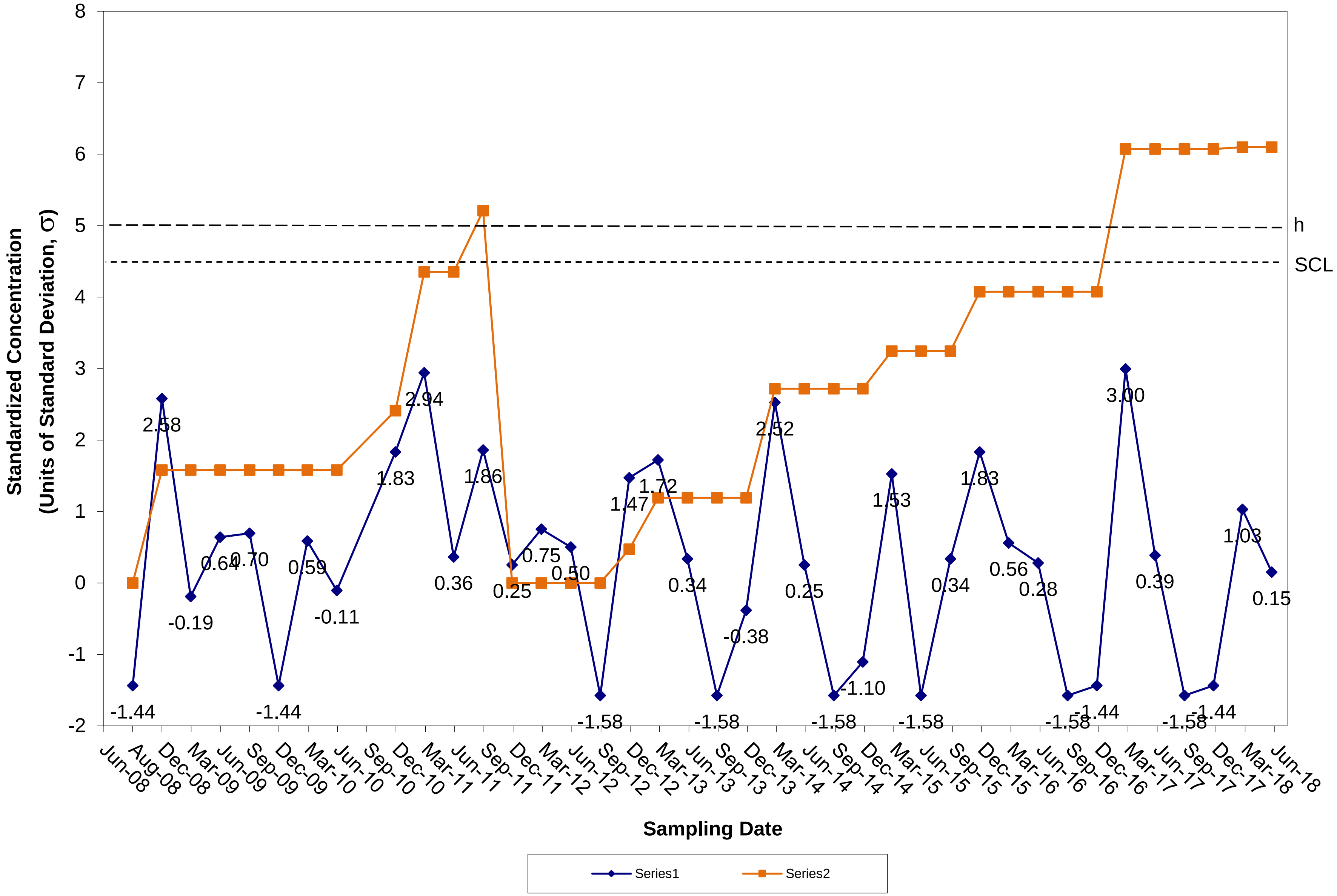
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Compliance Well OW-14



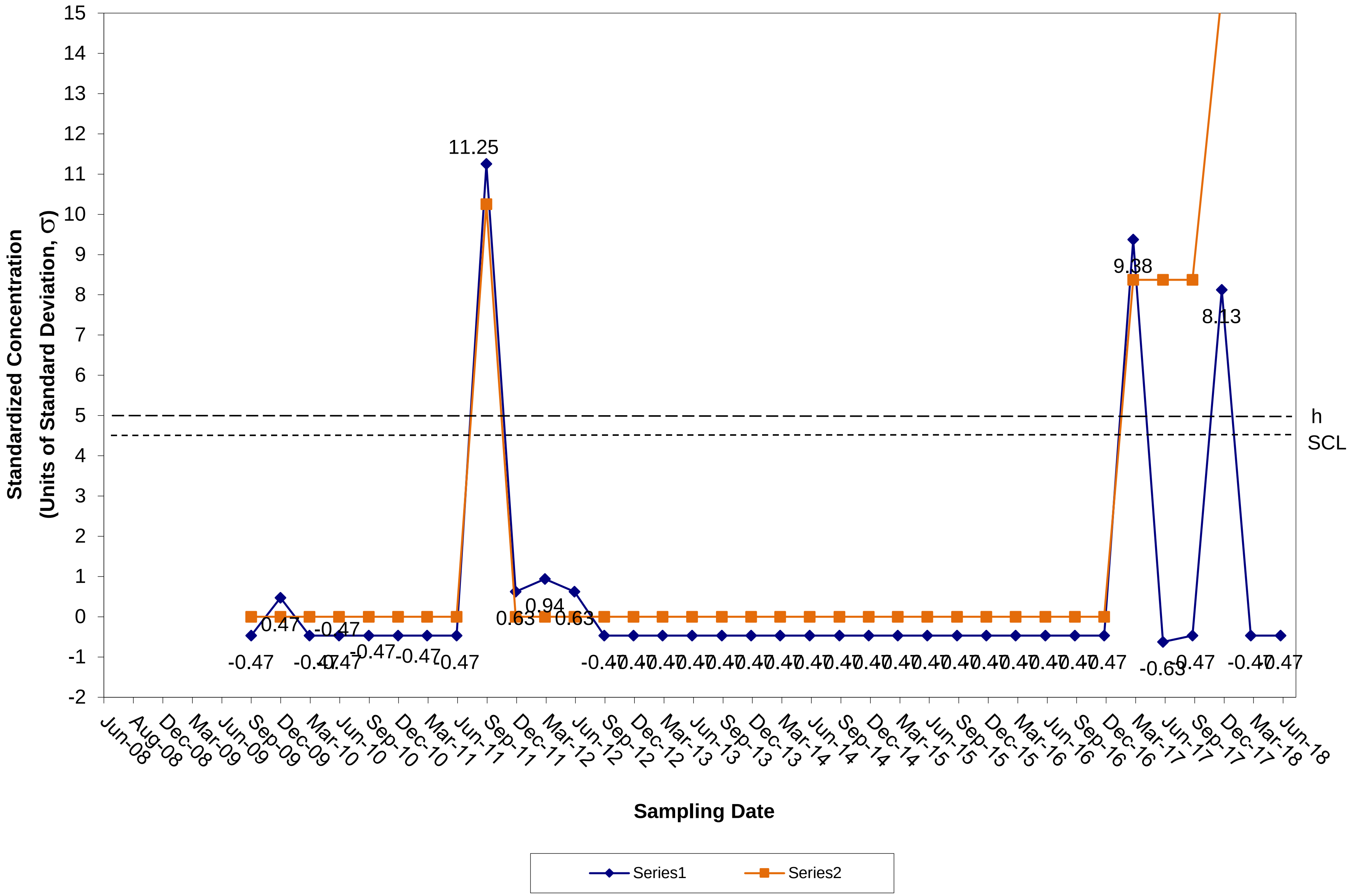
CUSUM Control Chart for 1,4-Dichlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-14



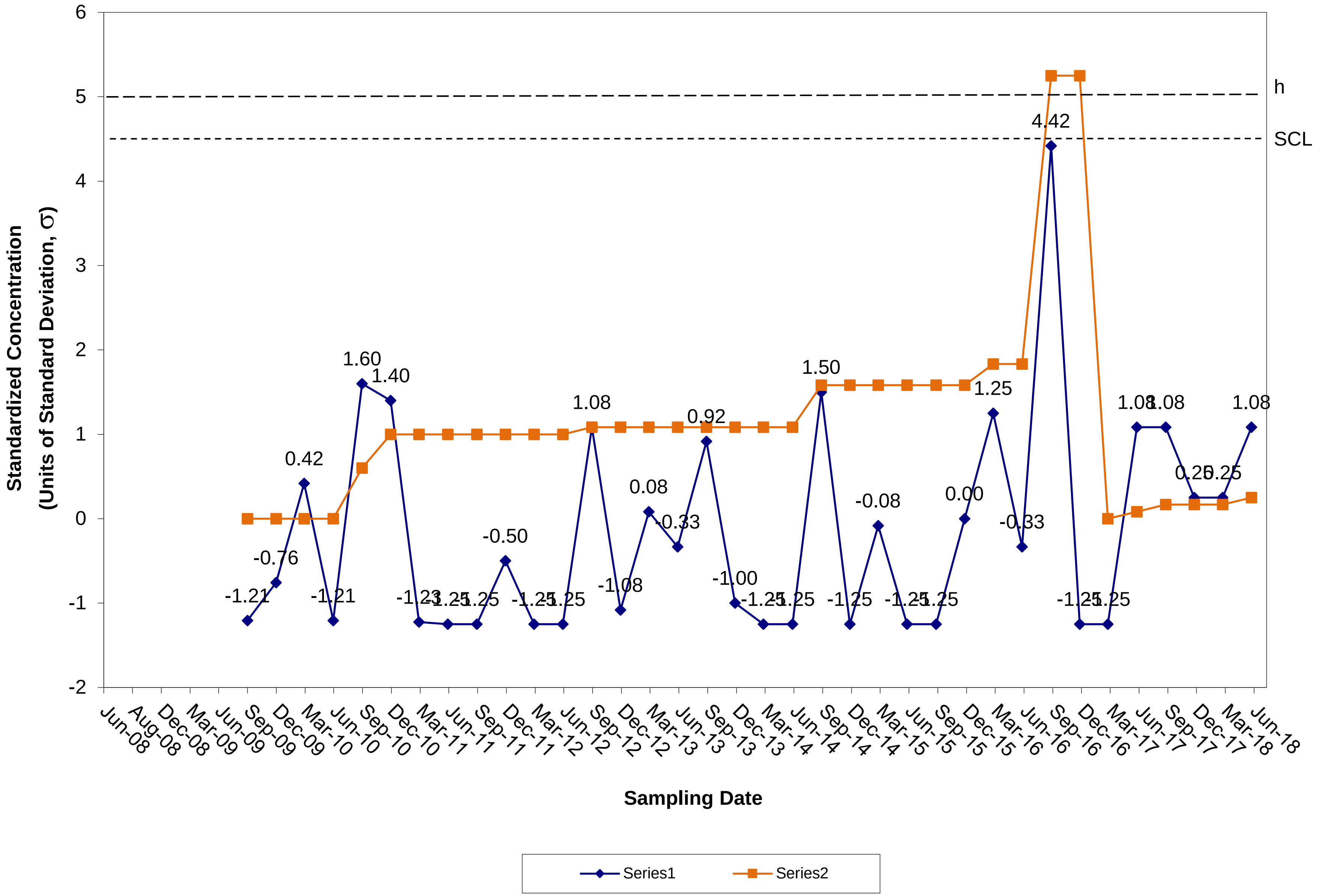
CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-14



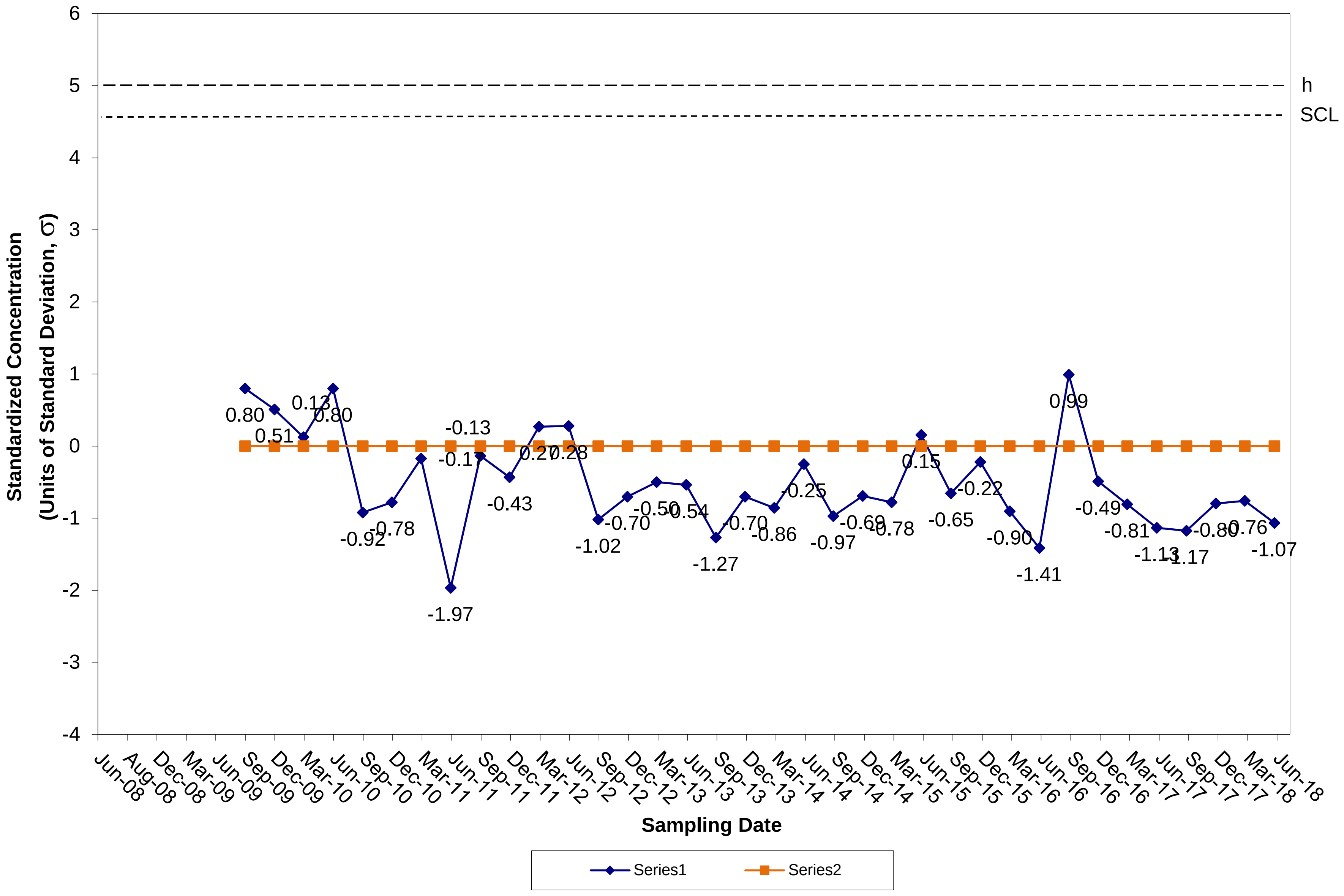
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-15



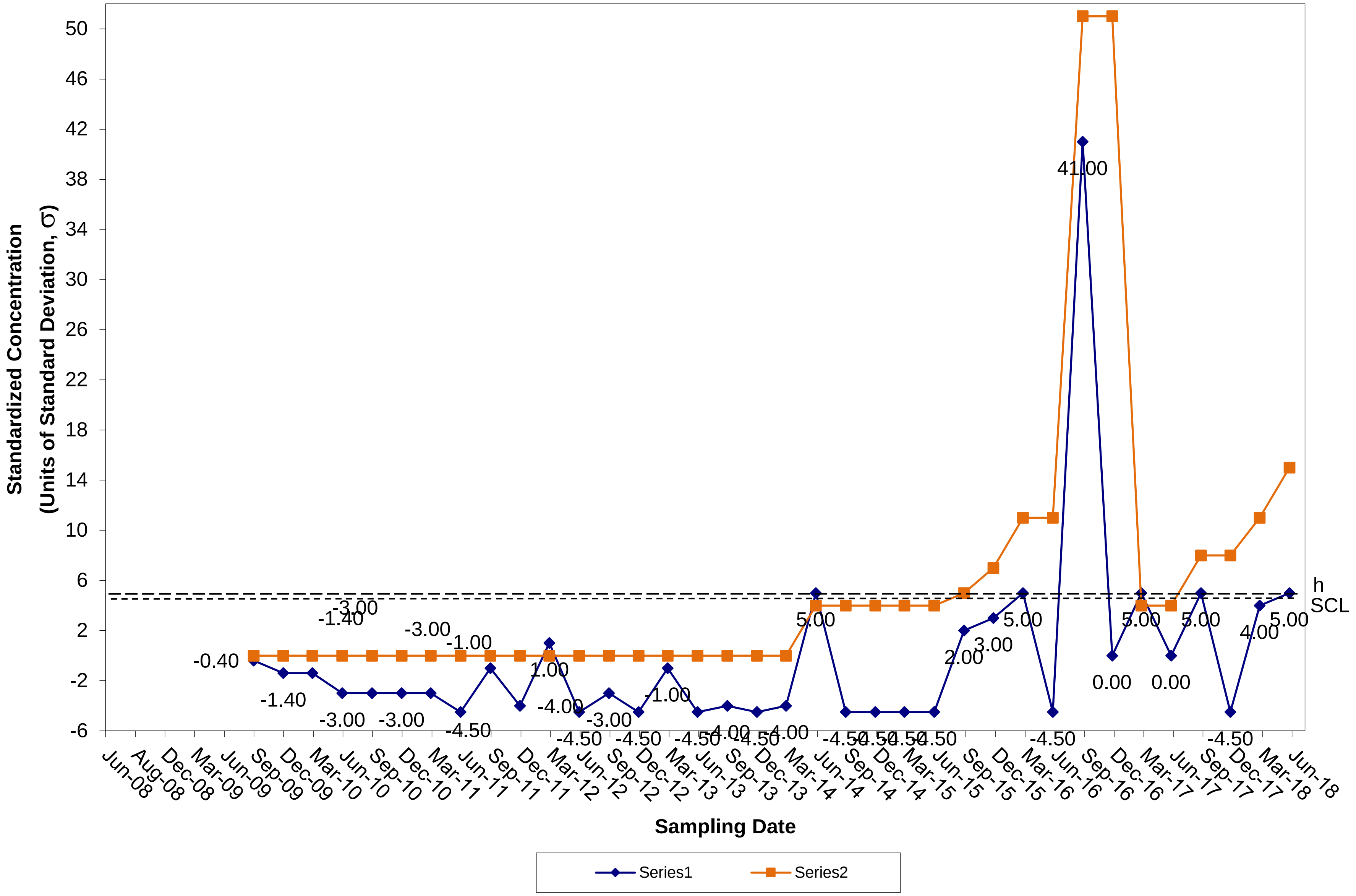
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-15



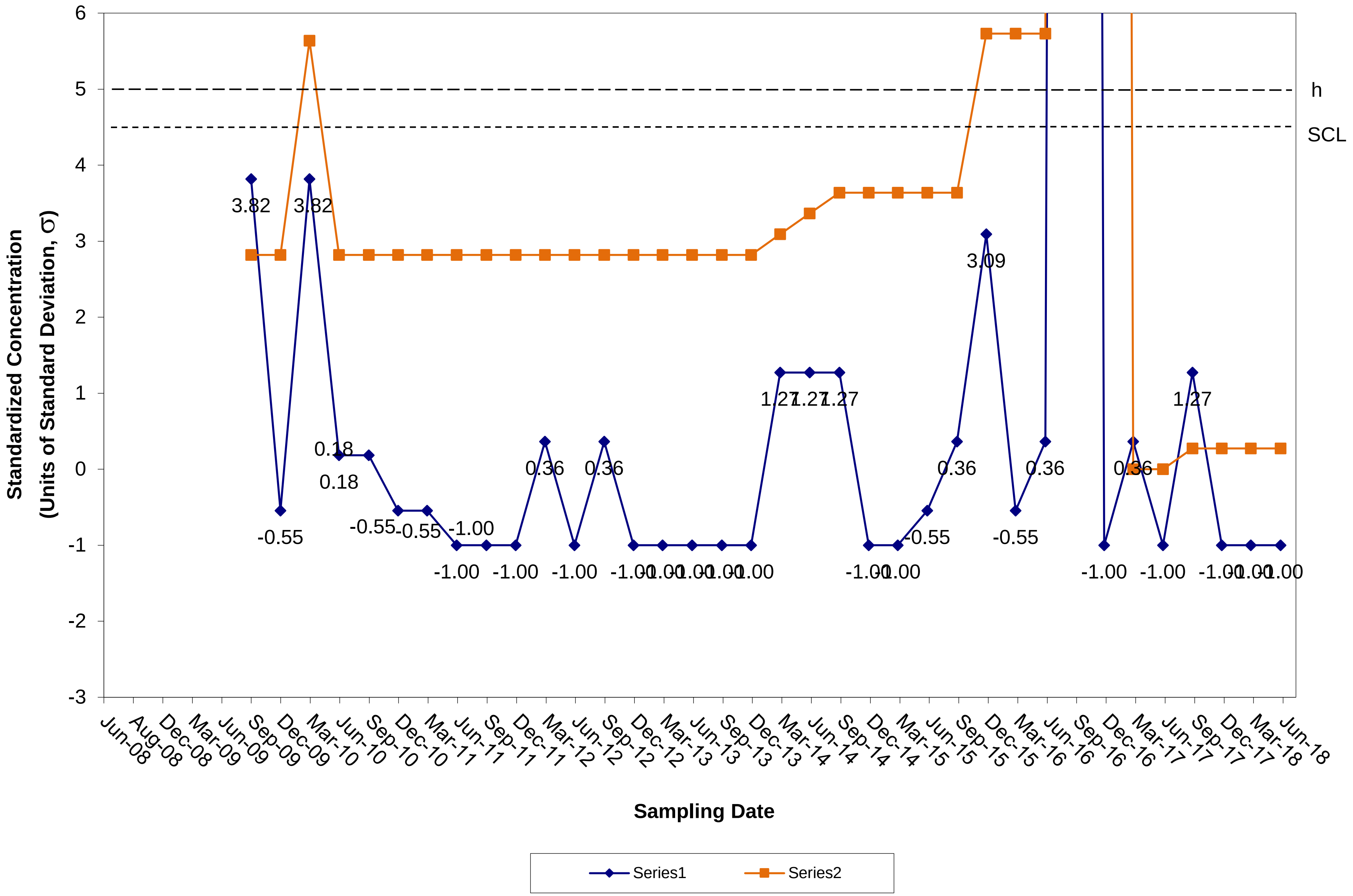
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-15



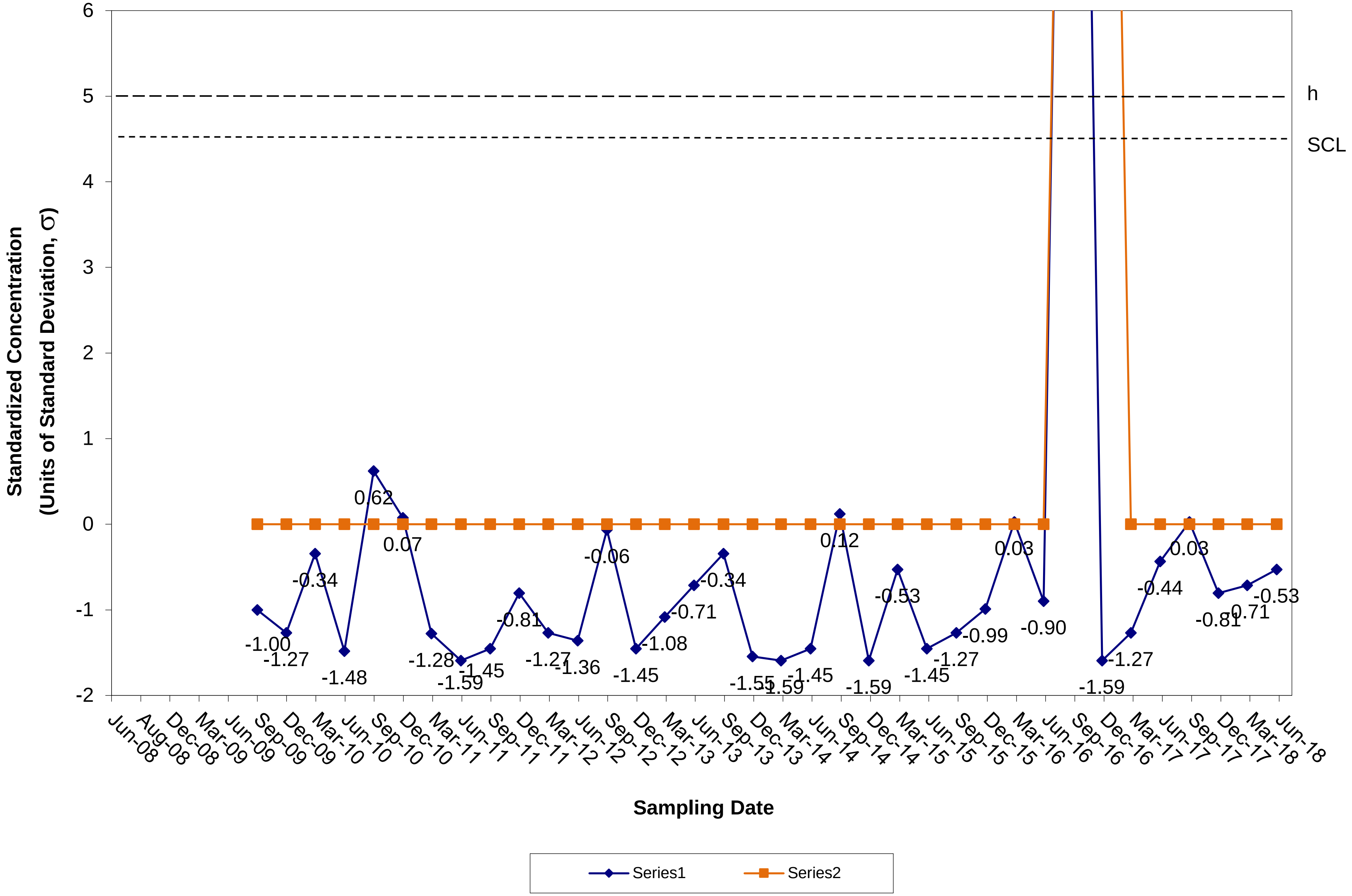
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Compliance Well OW-15



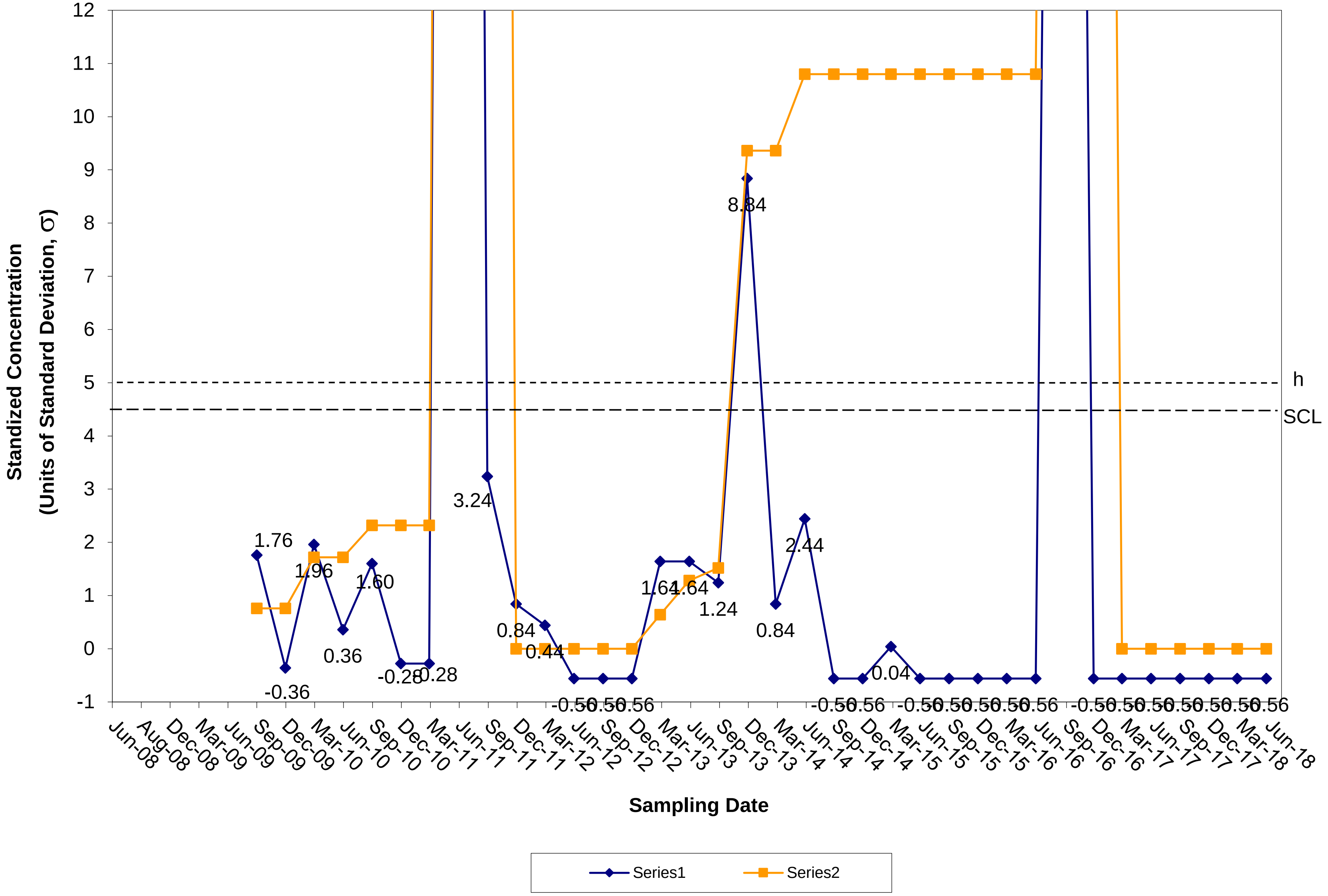
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-15



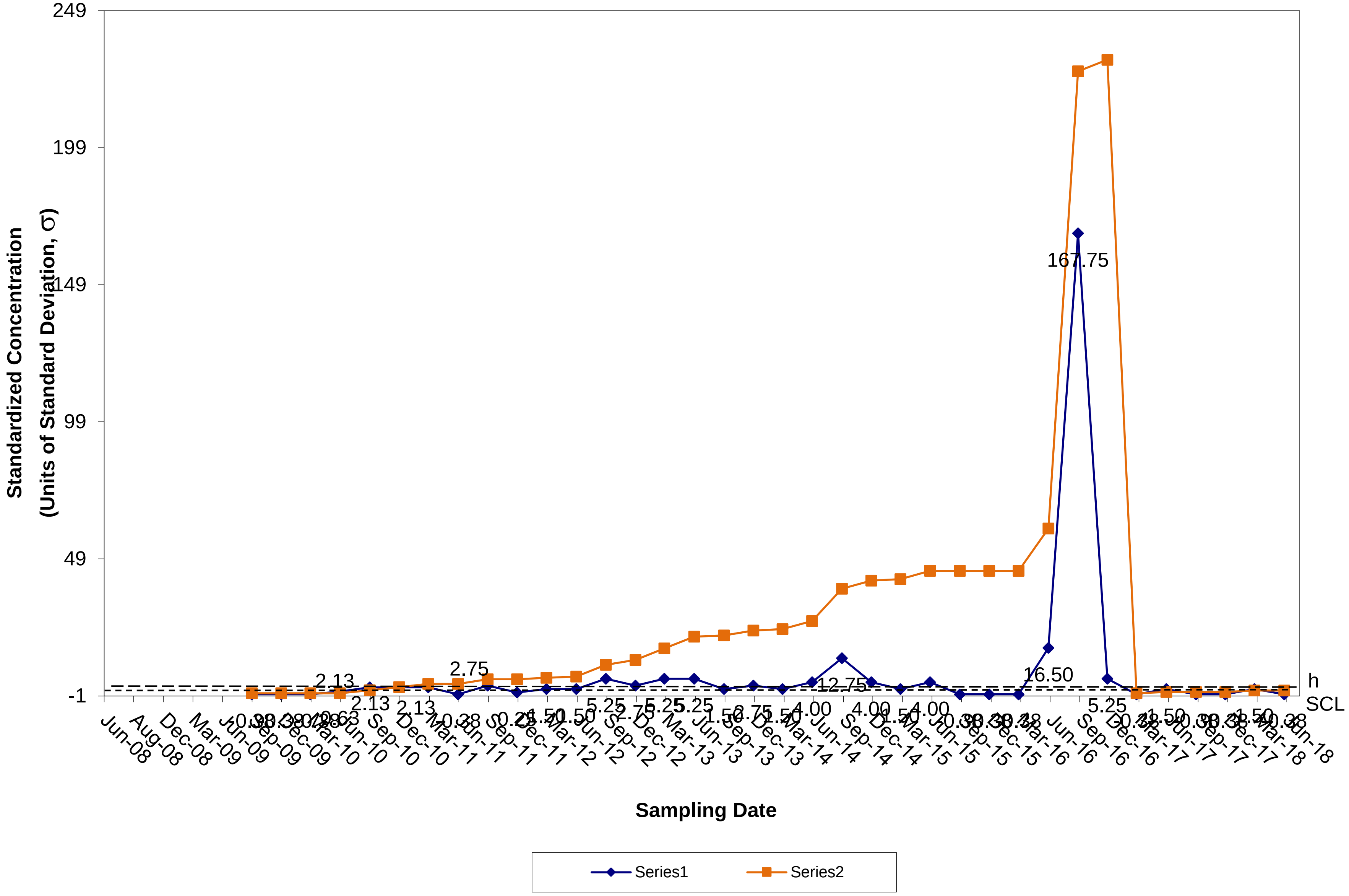
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-15



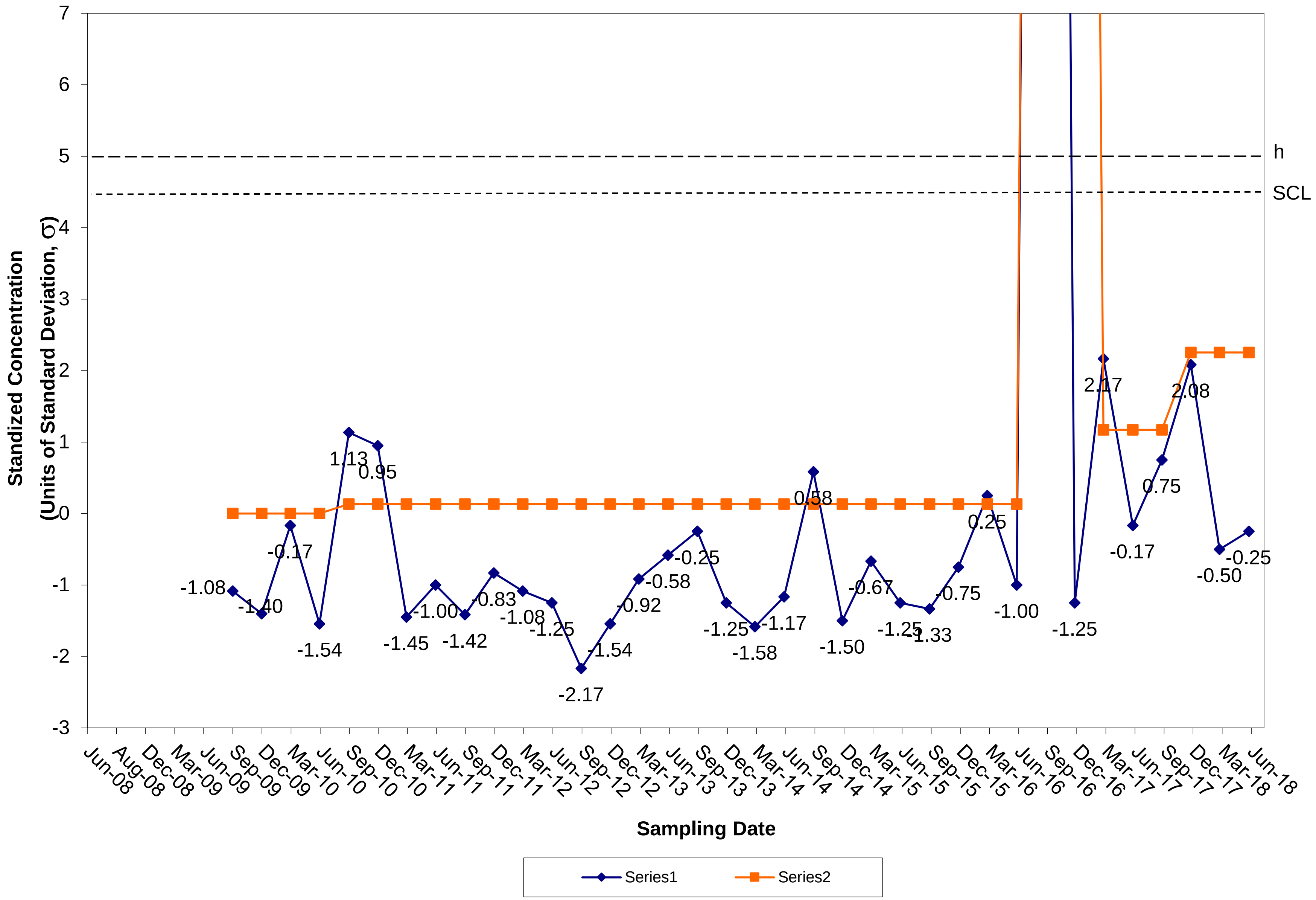
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Complaince Well OW-15



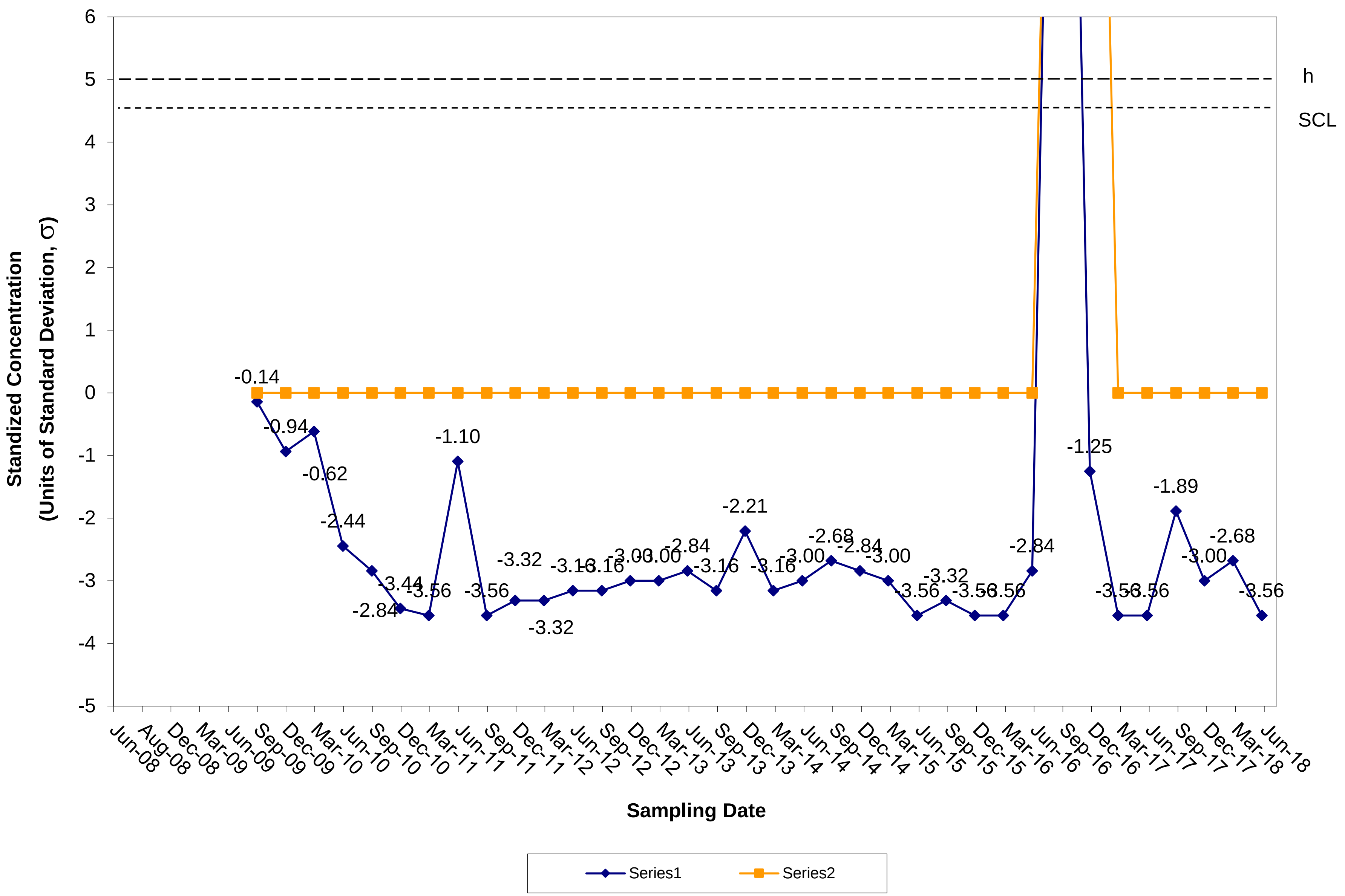
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-15



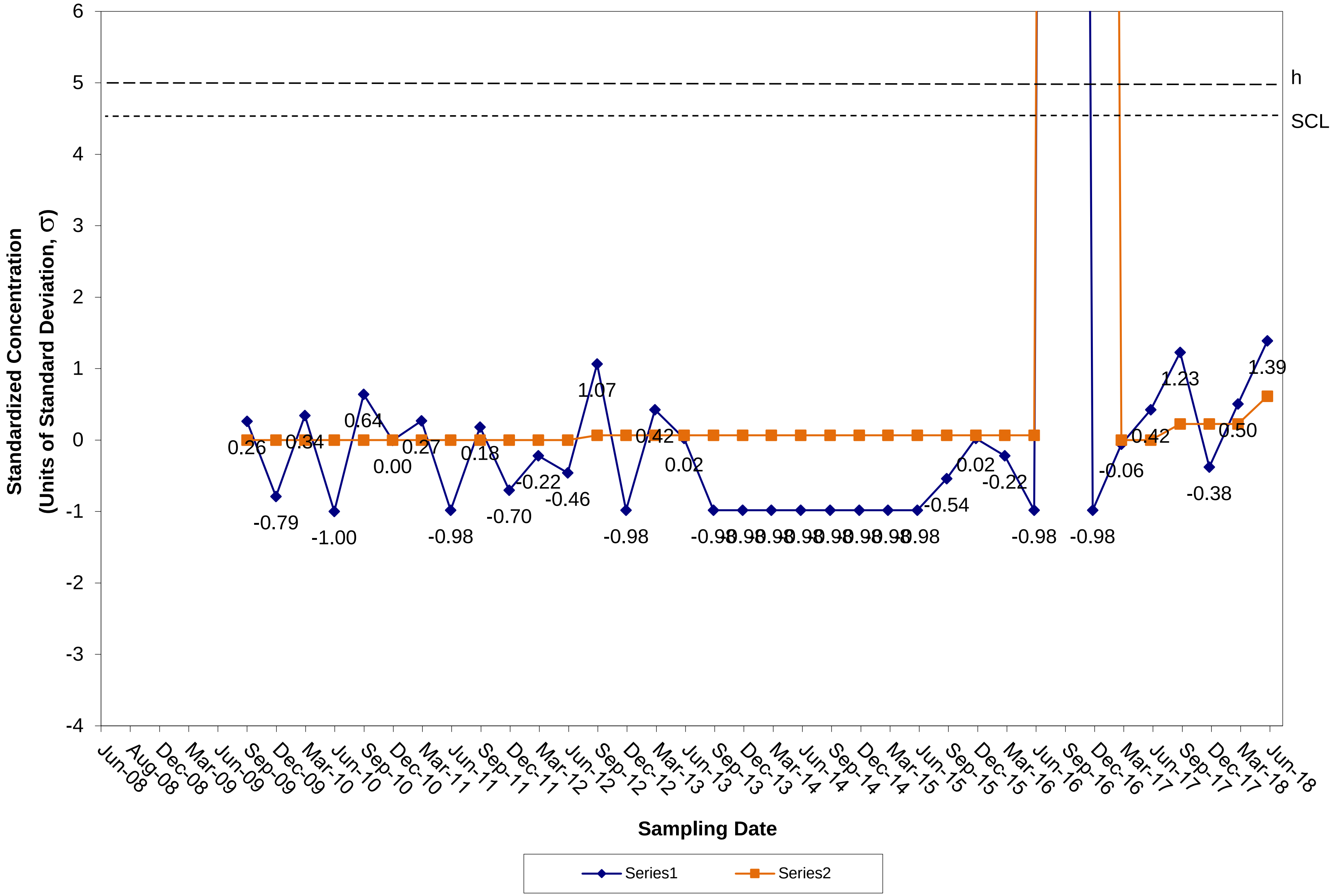
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Complaince Well OW-15



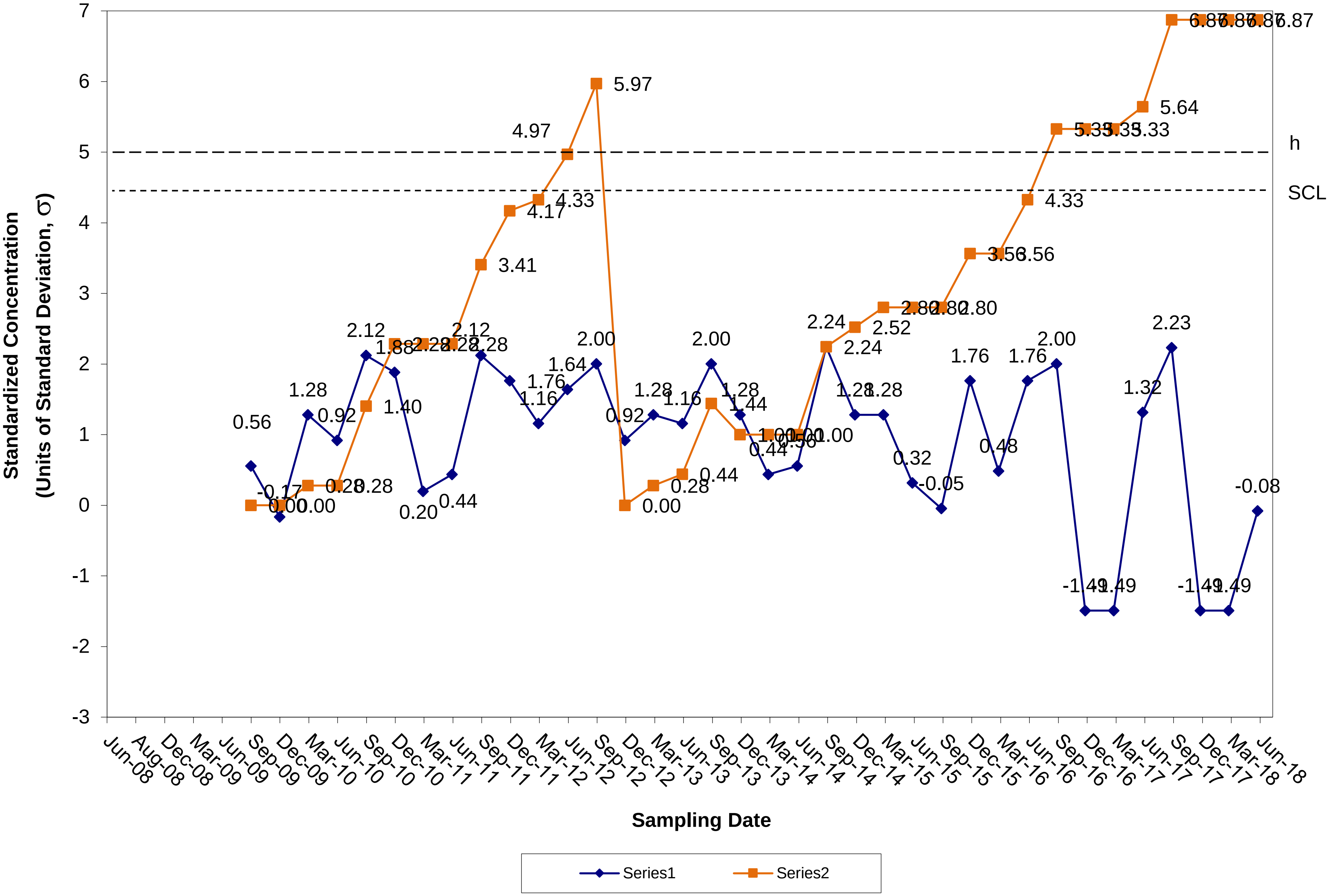
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Complaince Well OW-15



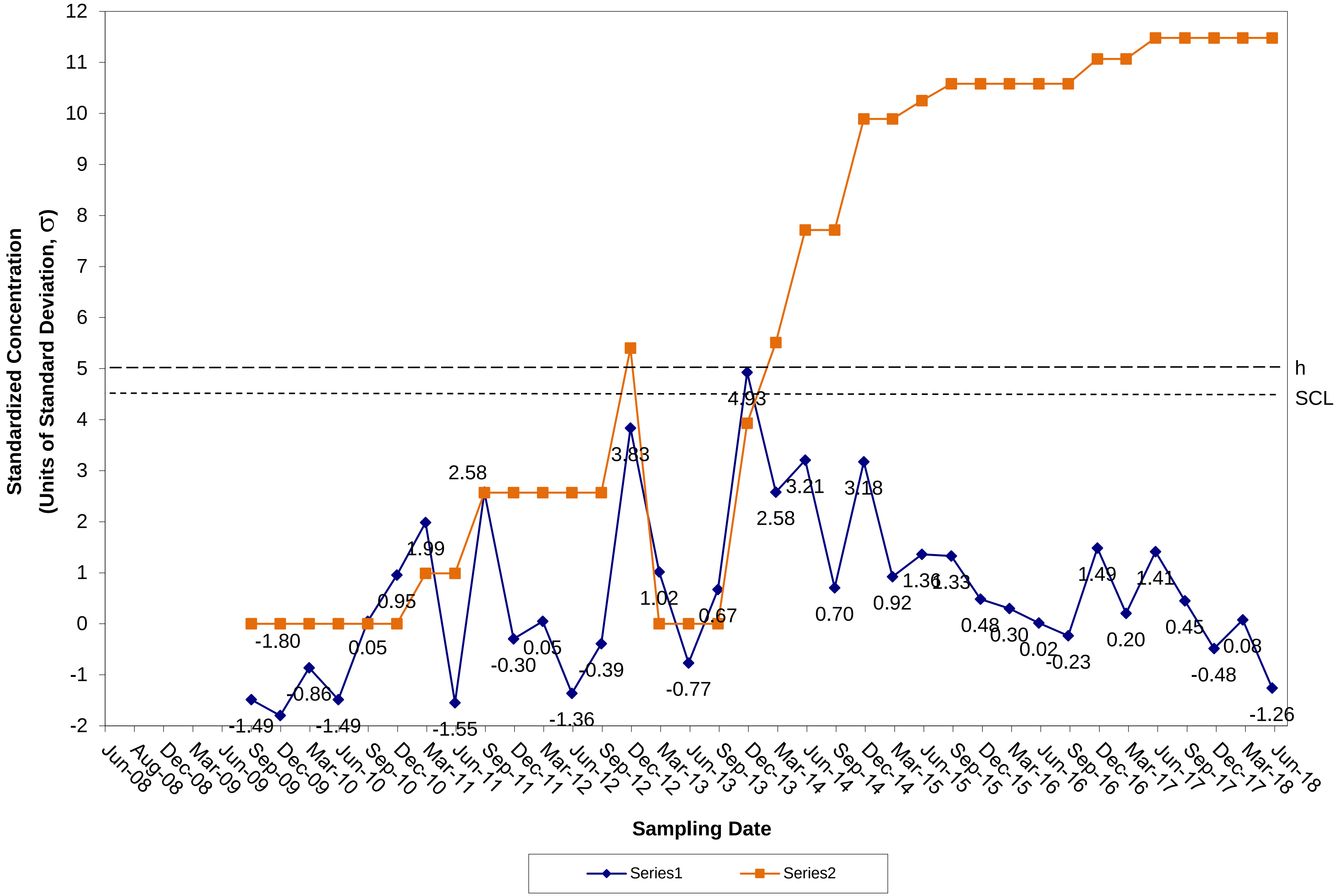
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-15

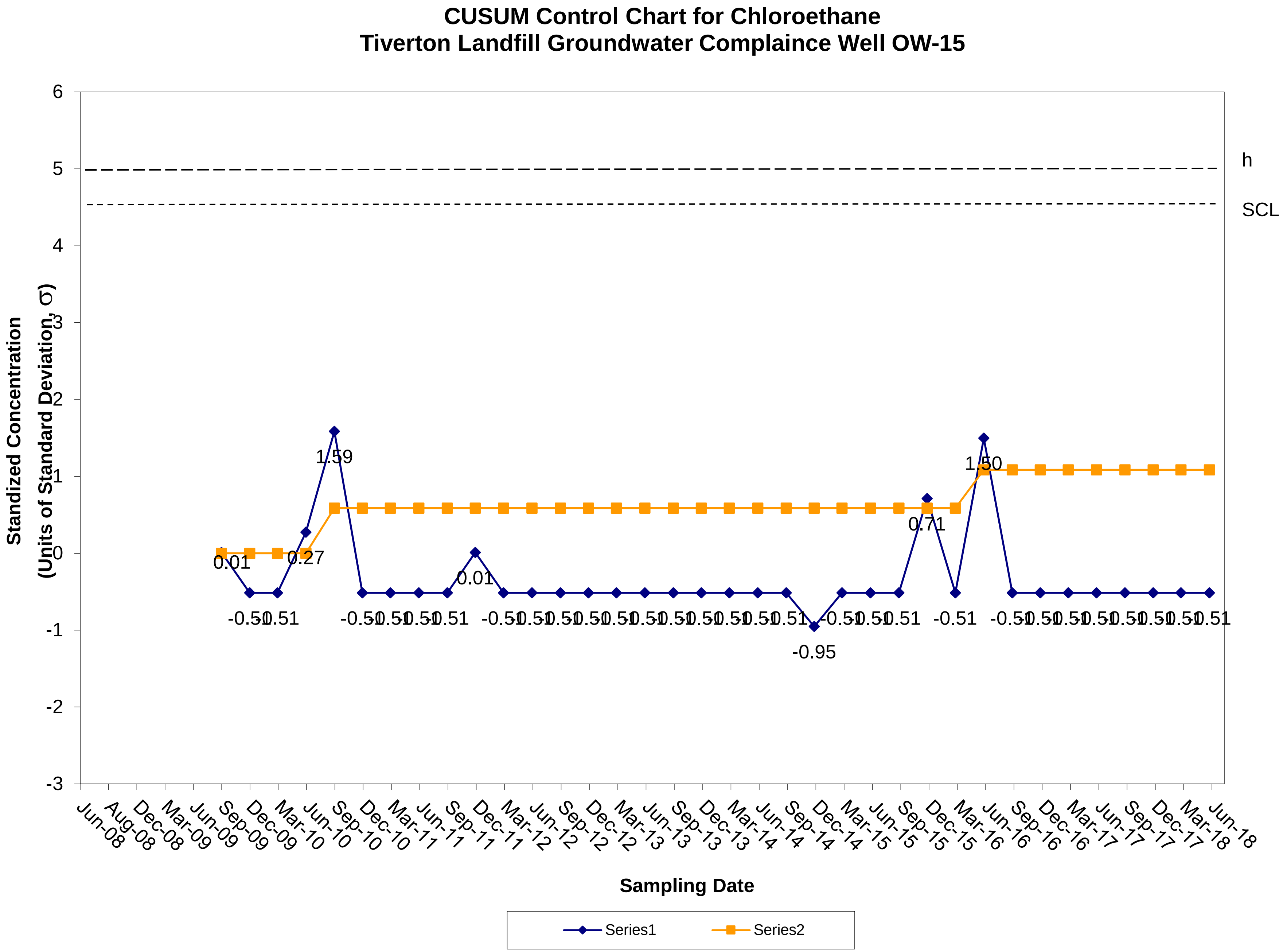


CUSUM Control Chart for Benzene
Tiverton Landfill Groundwater Compliance Well OW-15

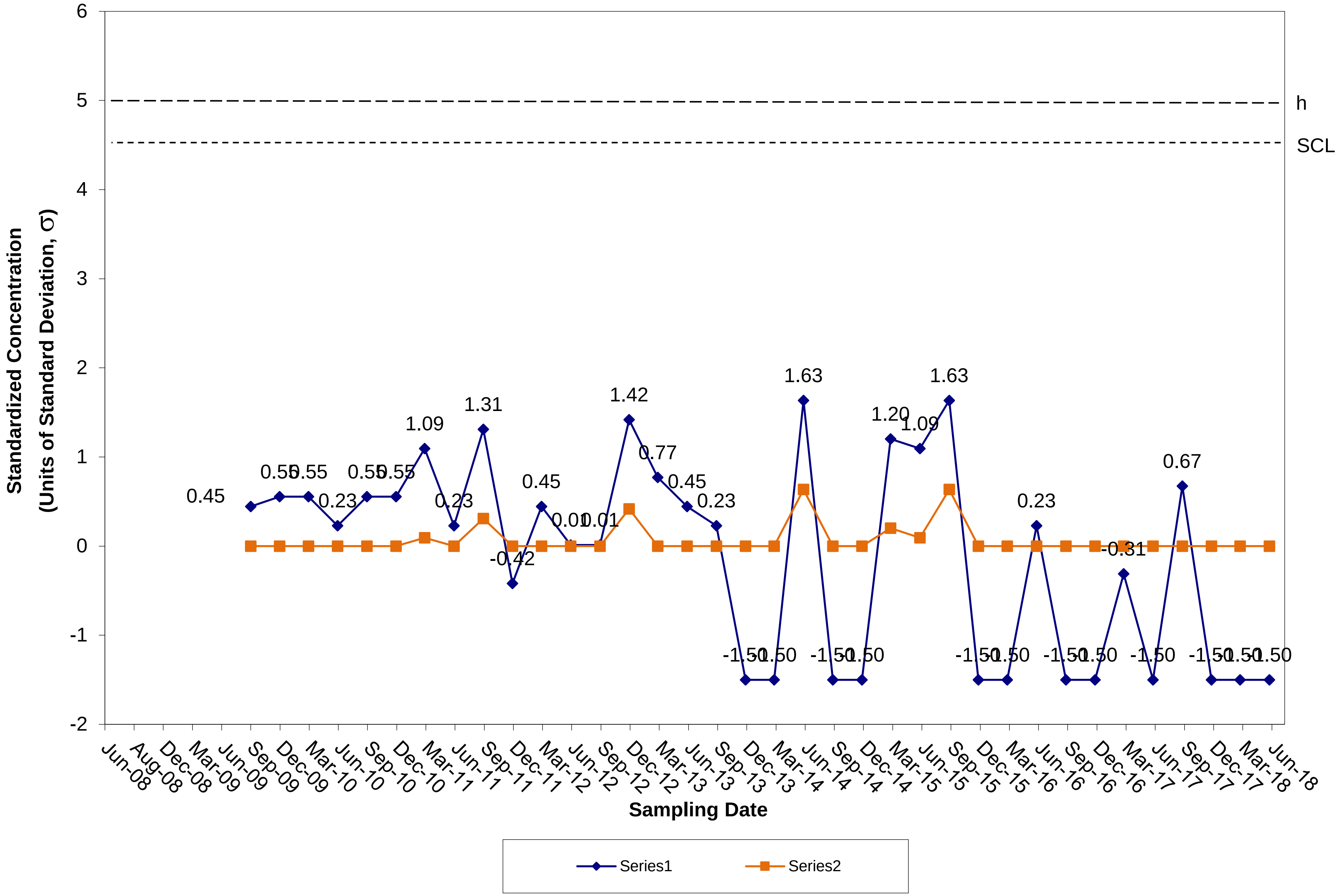


CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-15

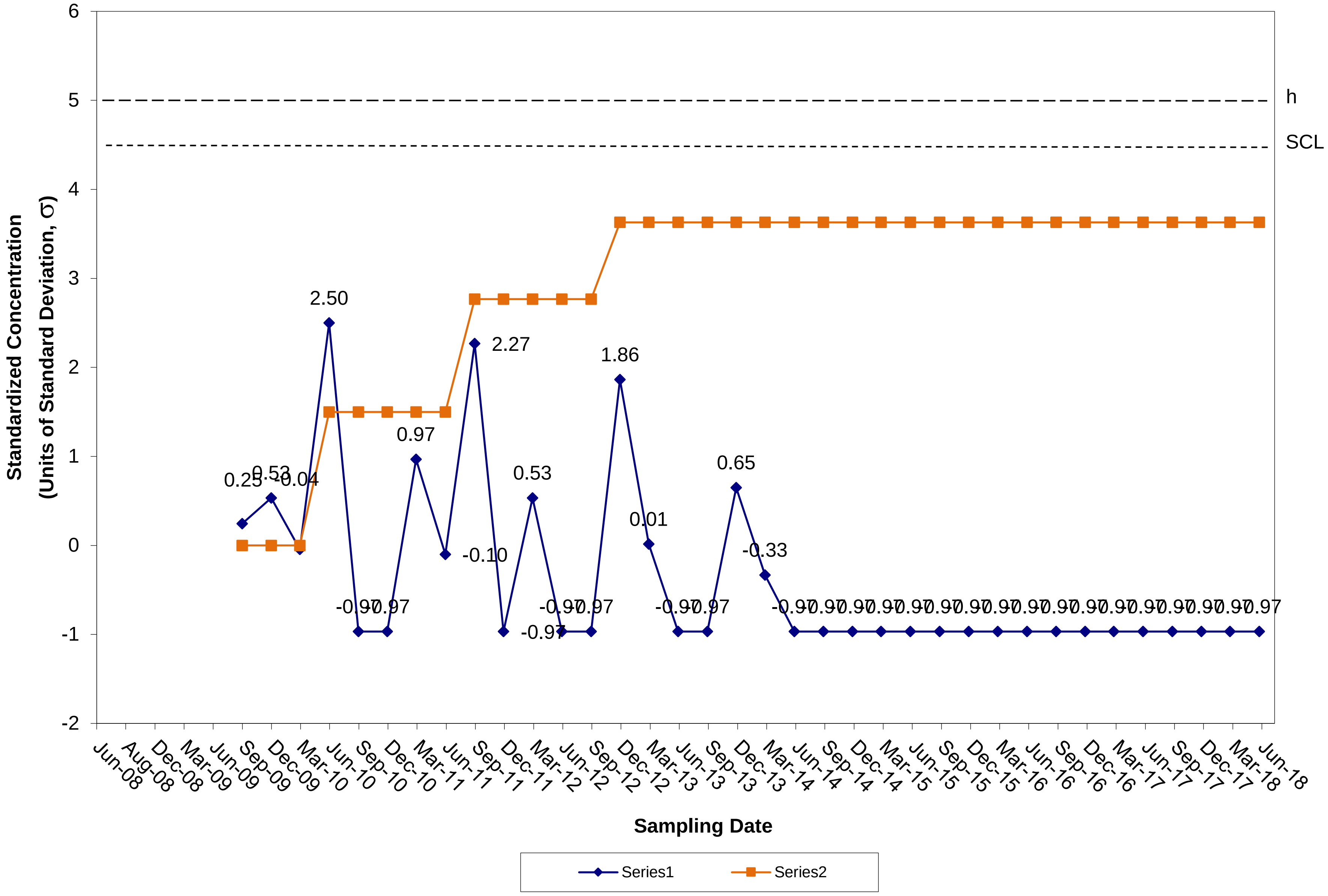



CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Complaince Well OW-15
Standized Concentration
(Units of Standard Deviation, σ)
6
5
4
3
2
1
0
-1
-2
-3
h
SCL
0.01
-0.51
-0.51
0.27
1.59
-0.51
-0.51
-0.51
-0.51
0.01
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
-0.95
-0.51
-0.51
-0.51
0.71
-0.51
1.50
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
-0.51
Jun-08
Aug-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Sampling Date
Series1
Series2

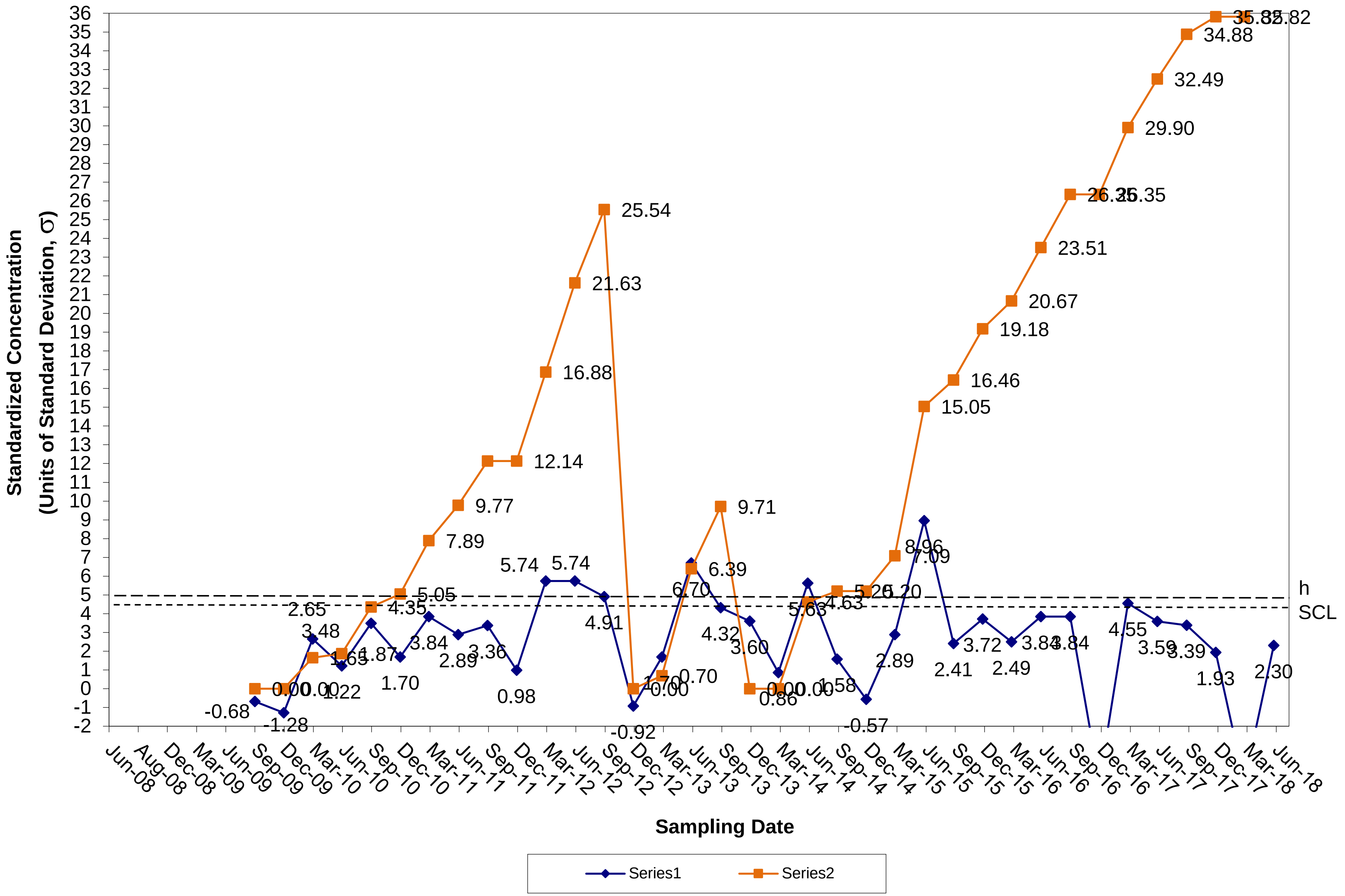
CUSUM Control Chart for 1,4-Dichlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-15



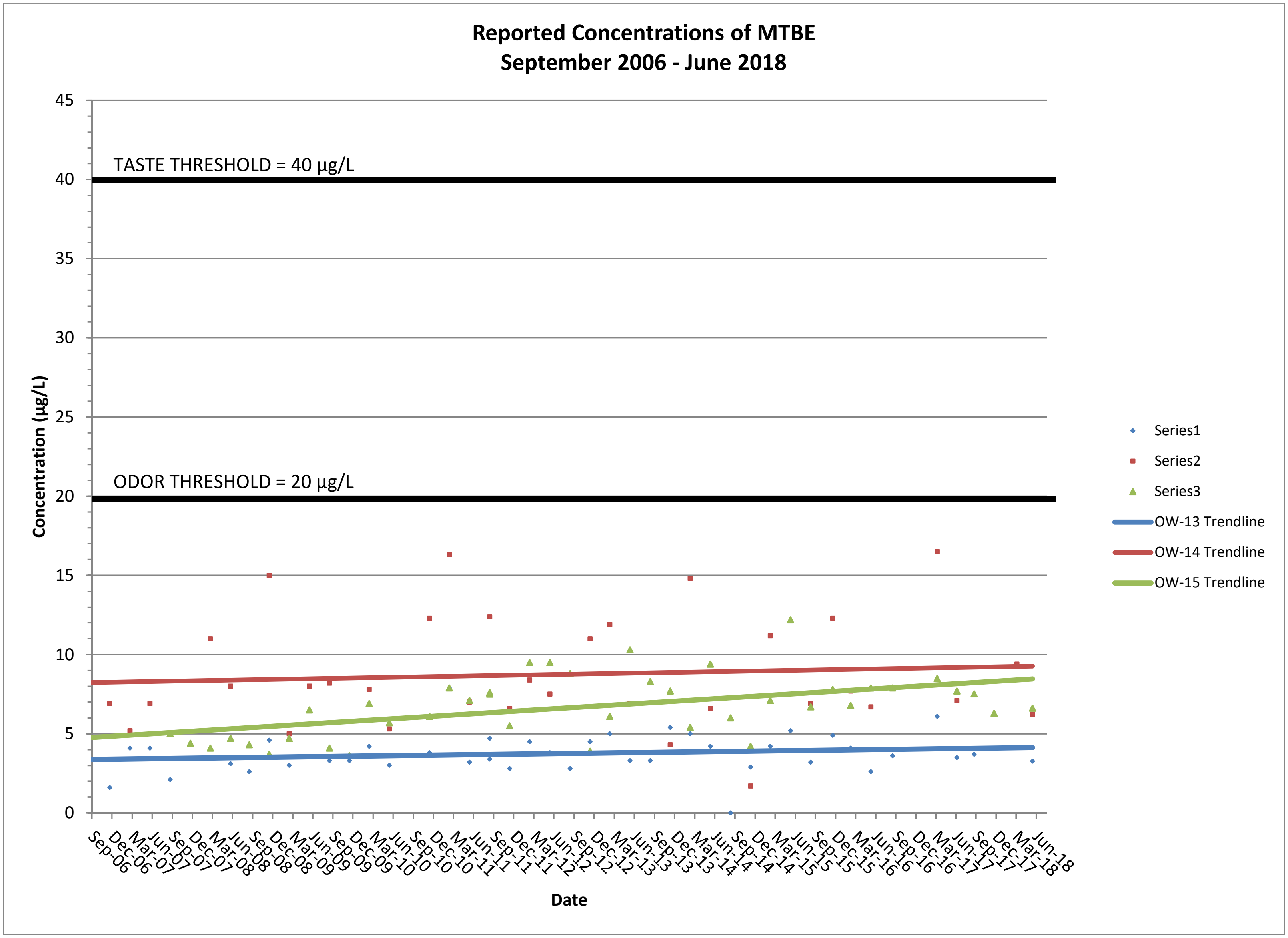
CUSUM Control Chart for Xylenes
Tiverton Landfill Groundwater Compliance Well OW-15



CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-15



<u>ATTACHMENT NO. 6</u>
REPORTED CONCENTRATIONS OF MTBE FIGURE


Reported Concentrations of MTBE
September 2006 - June 2018
Concentration (µg/L)
45
40
35
30
25
20
15
10
5
0
TASTE THRESHOLD = 40 µg/L
ODOR THRESHOLD = 20 µg/L
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
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Mar-12
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Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Date
Series1
Series2
Series3
OW-13 Trendline
OW-14 Trendline
OW-15 Trendline

ATTACHMENT NO. 7
FIELD SAMPLING DATA SHEETS

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24

DATE: 6/7/2018
WEATHER: Sunny 70s

WELL ID: OW-9

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 16 feet
PURGE VOLUME (GAL): 0.4 gallons
PURGER TYPE: Peristaltic pump

MEASURE POINT: Top of Casing
PURGE RATE (GPM): N/A
ELAPSED TIME (MIN): N/A

WATER LEVEL DATA

DEPTH: 13.6 feet
MEASURE POINT: Top of Casing

ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	5.74	pH UNITS	5.76	pH UNITS
SPEC. COND:	0.062	mS/cm	0.068	mS/cm
TEMPERATURE:	11.6	^{o}C	11.7	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.
Samples were collected at 3:00 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 6/7/2018
WEATHER: Sunny 70s

WELL ID: OW-7
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 11.8 feet
PURGE VOLUME (GAL): 1.9 gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): 0.1 +/-
ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 0 feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.52	pH UNITS	6.52	pH UNITS
SPEC. COND:	0.719	mS/cm	0.720	mS/cm
TEMPERATURE:	12.9	^{o}C	12.9	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 1:00 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 6/7/2018
WEATHER: Sunny 70s

WELL ID: OW-12
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	16.2	feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	2.10	gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump		ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	3.5	feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing		DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.07	pH UNITS	6.07	pH UNITS
SPEC. COND:	0.41	mS/cm	0.408	mS/cm
TEMPERATURE:	11.4	^{o}C	11.3	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 2:00 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME:	TIVERTON LANDFILL	DATE:	6/7/2018
PARE PROJECT NO.:	94139.24	WEATHER:	Sunny 70s

WELL ID: OW-13

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	14.5 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1.70 gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	4.4 feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.48	pH UNITS	6.48	pH UNITS
SPEC. COND:	1.178	mS/cm	1.171	mS/cm
TEMPERATURE:	12.5	^{o}C	12.5	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of supernatant sample after a 15-minute decanting period.

Samples were collected at 5:30 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 6/7/2018
WEATHER: Sunny 70s

WELL ID: OW-14
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	10.6	feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1	gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump		ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	4.6	feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing		DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.38	pH UNITS	6.39	pH UNITS
SPEC. COND:	1.51	mS/cm	1.524	mS/cm
TEMPERATURE:	15.6	^{o}C	15.6	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of supernatant sample after a 15-minute decanting period.

Samples were collected at 4:30 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME:	TIVERTON LANDFILL	DATE:	6/7/2018
PARE PROJECT NO.:	94139.24	WEATHER:	Sunny 70s

WELL ID: OW-15

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	16.8 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1.6 gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	7.6 feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.60	pH UNITS	6.60	pH UNITS
SPEC. COND:	1.365	mS/cm	1.375	mS/cm
TEMPERATURE:	12.7	^{o}C	12.6	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of supernatant sample after a 15-minute decanting period.

Samples were collected at 5:00 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 6/7/2018
WEATHER: Sunny 70s

WELL ID: OW-16
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 45.8 feet
PURGE VOLUME (GAL): 7.2 gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): 0.1 +/-
ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 2.4 feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	6.53	pH UNITS	6.54	pH UNITS
SPEC. COND:	0.772	mS/cm	0.782	mS/cm
TEMPERATURE:	12.4	^{o}C	12.4	^{o}C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 12:30 PM.

FIELD SAMPLING DATA SHEET

PROJECT NAME:	TIVERTON LANDFILL	DATE:	6/7/2018
PARE PROJECT NO.:	94139.01 /021	WEATHER:	Sunny 70s

FIELD TESTING RESULTS:

SURFACE WATER LOCATION: SW-1

READING 1

pH:	6.92	pH UNITS
SPEC. COND:	0.54	mS/cm
TEMPERATURE:	15.5	°C

SURFACE WATER LOCATION: SW-2

READING 1

pH:	5.66	pH UNITS
SPEC. COND:	0.09	mS/cm
TEMPERATURE:	16.4	°C

SURFACE WATER LOCATION: SW-3

READING 1

pH:	6.70	pH UNITS
SPEC. COND:	0.62	mS/cm
TEMPERATURE:	16.5	°C

Engineers | Scientists | Planners
PARECORP.COM
PARE CORPORATION

October 25, 2018

Mr. Leo Hellested, P.E.
Office of Waste Management
Solid Waste Section
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908-5767

Attn: Mr. Robert Schmidt

Re: **Quarterly Monitoring Report**
3rd Quarter (September) 2018, Groundwater Monitoring, Sampling, and Analysis
Tiverton Municipal Sanitary Landfill
Pare Project No.: 94139.24

Dear Mr. Hellested:

Enclosed herewith are results of the statistical analysis of groundwater monitoring data for the third quarterly monitoring round of Year 2018 from the Tiverton Landfill (Landfill). Pare Corporation (Pare) has prepared this report on behalf of the Town of Tiverton (Town). In the 2017 Annual Groundwater Monitoring Report, Pare recommended that overburden well OW-7 and bedrock well OW-16 be included in the groundwater monitoring program. As such, Pare conducted the groundwater sampling on September 27, 2018 at the compliance wells OW-7, OW-12, OW-13, OW-15, and OW-16. Pare was unable to retrieve groundwater samples at the background well OW-9 and compliance well OW-14 due to dry conditions.

Groundwater samples were analyzed by New England Testing Laboratory (NETLAB) of West Warwick, Rhode Island for the constituents listed in Appendix A (Detection Monitoring) of the State Solid Waste Regulations. Certified laboratory results data are enclosed and are summarized on attached Tables 1-3.

Groundwater field parameters consisting of temperature, pH, and specific conductivity were measured at each monitoring well, in accordance with the RIDEM-approved Groundwater Monitoring Plan for the Landfill. Field parameters were collected until three successive measurements stabilized within ± 3% for temperature, ± 0.1 standard unit for pH, and ± 3% for specific conductivity, in accordance with US EPA's Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures. Field parameters are documented on Field Sampling Data Sheets, which are enclosed. pH was unable to be monitored at the Landfill in September 2018 due to a malfunction of the equipment at the time of sampling.

Combustible gases are monitored at each well and at the top of the Landfill. Combustible gases were unable to be monitored at the Landfill in September 2018 due to a malfunction of the gas monitoring equipment at the time of sampling.

Recent sampling rounds have been during periods of dry conditions; as such, samples collected contained a high amount of silt and suspended particles. Reported concentrations of heavy metals were higher than usual, and the degree of suspended particles observed in the samples may have impacted heavy metal concentrations.

Pare believes these results were an anomaly and not indicative of typical groundwater quality. Therefore, Pare updated the groundwater monitoring program in the 2016 Annual Groundwater Monitoring Report to include a 10-15 settling minute period for turbidity to drop out of suspension, before the sample is decanted and then stored in laboratory glassware with preservative. Additionally, during the March 2017 monitoring round, accumulated sediment in the bottom of wells at the Landfill was removed prior to sampling.

HUMAN HEALTH THRESHOLD EVALUATION

Compliance Well OW-7 – Nine (9) target metals were reported in the groundwater sample collected from OW-7. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-7. One (1) target VOC, MTBE, was reported above laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-7.

Compliance Well OW-12 – Six (6) target metals were reported in the groundwater sample collected from OW-12. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-12. No (0) target VOCs were reported above laboratory detection limits at OW-12.

Compliance Well OW-13 – Nine (9) target metals were reported in the groundwater sample collected from OW-13. One (1) reported metal, arsenic (0.01 mg/L), was reported at its MCL (0.01 mg/L). No (0) target VOCs were reported above laboratory detection limits at OW-13.

Compliance Well OW-14 – No samples were collected from OW-14 due to dry conditions.

Compliance Well OW-15 – Nine (9) target metals were reported in the groundwater sample collected from OW-15. Two (2) reported metals; arsenic (0.03 mg/L) and cadmium (0.007 mg/L); exceeded their MCLs (0.01 mg/L and 0.005 mg/L, respectively). Two (2) target VOCs; chlorobenzene and MTBE; were reported above their laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-15.

Compliance Well OW-16 (new bedrock well) – Six (6) target metals were reported in the groundwater sample collected from OW-16. No (0) target metals were reported above their corresponding MCLs or human health thresholds at OW-16. One (1) target VOC, MTBE, was reported above laboratory detection limits. No (0) target VOCs were reported above their corresponding MCLs or human health thresholds at OW-16.

Background Well OW-9 – No samples were collected from OW-9 due to dry conditions.

TOLERANCE INTERVAL STATISTICAL EVALUATION

The Tolerance Interval (TI) approach was used to develop Tolerance Limits (TLs) for each target inorganic constituent (i.e., metals) using the background well analytical results from the eight preceding rounds for which analytical results are available. The background well, OW-9, could not be sampled in this monitoring round along with several previous monitoring rounds including in the June 2016, September 2016, June 2017, and September 2017 monitoring rounds due to dry conditions. Therefore, analytical results of the eight most recent rounds in which samples could be collected were utilized to generate the TLs for this monitoring round, dating back to March 2015. The TI approach is considered inappropriate for analysis of organic constituents and was therefore not performed to evaluate the results of reported VOCs. Table 2 summarizes historical results data from OW-9 used in the calculation of the TLs.

Four (4) of the metals concentration reported in September 2018; arsenic, barium, cobalt, and vanadium; exceeded their corresponding TLs calculated during this monitoring round in at least one compliance well. In total, there were eight (8) TL exceedances of these metals in this monitoring round. The TLs and the corresponding compliance well data from this monitoring round are presented in Table 3. Each of these metals is routinely detected in groundwater beneath the landfill.

CUSUM METHOD STATISTICAL EVALUATION

The Shewhart-CUSUM Method, a supplemental statistical analysis method used in addition to the TI Method, was performed in accordance with the US EPA documents titled “Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Interim Final Guidance, April 1989” and "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Addendum to Interim Final Guidance, July, 1992".

Barium and nickel at OW-12 exceeded both of their respective Shewhart-CUSUM thresholds during the September 2018 monitoring round.

The dry conditions present during the September 2016 monitoring round were believed by Pare to have resulted in higher than usual suspended solids in samples collected, which are believed to have also resulted in atypical metals concentrations. As a result, the results of the Shewhart-CUSUM analysis for September 2016 were believed to be an anomaly. In many cases these deviations are outside of the statistical range expected. With the inception of the updated groundwater monitoring program, Pare has reset the Shewhart-CUSUM levels for several metals at multiple wells in order to have an accurate representation of cumulative statistical analysis of these constituents. The metals that have had their Shewhart-CUSUM thresholds reset include: chromium, lead, nickel, vanadium, and zinc at OW-12; barium, cadmium, cobalt, copper, lead, and vanadium at OW-13; zinc at OW-14; and arsenic, cadmium, chromium, cobalt, lead, nickel, vanadium, and zinc at OW-15. It should be noted that the reset of zinc at OW-14 is due to a statistical spike in the Shewhart-CUSUM limit during the September 2015 monitoring round (which was also sampled during dry conditions). These Shewhart-CUSUM parameters were reset prior to the March 2017 sampling round; therefore, data recorded from the March 2017 monitoring round is present in the analysis.

ASSESSMENT MONITORING

The Shewhart-CUSUM analysis is utilized, along with the Tolerance Limits, to identify when Assessment Monitoring should be performed.

Pare performed Assessment Monitoring at OW-14 in the December 2017 monitoring round due to an exceedance of the Shewhart-CUSUM threshold of antimony in the June 2017 monitoring period. This Assessment Monitoring was delayed from September 2017 to December 2017 due to dry conditions in September, rendering a sample unattainable. One Appendix B parameter, sulfides (0.04 mg/L), was detected in the December 2017 monitoring round. In the 2017 Annual Groundwater Monitoring report, Pare recommended that groundwater samples from OW-14 in the March 2018 monitoring round be tested again for sulfides. Again, the Appendix B parameter sulfides (0.04 mg/L) was detected in the samples collected from OW-14 in March 2018.

Pare performed Assessment Monitoring at OW-13 in the June 2018 monitoring round due to an exceedance of both the TL and the Shewhart-CUSUM threshold of barium in the March 2018 monitoring round. No (0) Appendix B parameters were reported in samples collected from OW-13. Sulfides were not detected at OW-13 in the June 2018 monitoring round.

Pare attempted to sample OW-14 in the September 2018 monitoring round to test for sulfides; however, a sample was unobtainable due to dry conditions.

MTBE ANALYSIS

Many of the most recent Assessment Monitoring rounds have been conducted due to MTBE concentrations in groundwater. Reported MTBE concentrations have generally risen since September 2006, as depicted in the attached figure titled Reported Concentrations of MTBE. The figure compares the recent increases in reported MTBE concentrations at OW-13, OW-14 and OW-15 to historical concentrations and drinking water advisories defined in the US EPA document titled “2011 Edition of the Drinking Water Standards and Health Advisories”. Although reported MTBE concentrations appear to be trending slowly upward, MTBE has never been reported above its odor threshold (0.020 mg/L) or its taste threshold (0.040 mg/L). The US EPA has not established a human health advisory concentration for MTBE.

Because the elevated concentrations of MTBE have recently triggered Assessment Monitoring at OW-13, OW-14, and OW-15, and that no Appendix B parameters were reported to a significant degree at these wells, it is Pare’s opinion that the increasing trend in MTBE concentrations beneath the Landfill is an isolated phenomenon and not the result of a significant change in groundwater quality beneath the Landfill.

Despite CUSUM values of MTBE at OW-13, OW-14, and OW-15 remaining above their threshold during the September 2017 monitoring round, Pare does not recommend assessment monitoring due to the aforementioned MTBE trend. The lack of Appendix B parameters in the past, in conjunction with the lack of Appendix B parameters at OW-13 and OW-15 during the December 2016 monitoring round, and the lack of Appendix B parameters at OW-14 during the June 2016 monitoring round, suggests that the presence of MTBE trend does not indicate an increased likelihood that Appendix B parameters would be present beneath the Landfill.

CONCLUSIONS AND RECOMMENDATIONS

Currently, the Landfill conducts Detection Monitoring for the parameters listed in Appendix A of the State Solid Waste Regulations, as well as mercury and tin. During this monitoring round, four (4) metals; arsenic, barium, cobalt and vanadium; exceeded their tolerance limits (TLs) in at least one well. Arsenic, barium and cobalt also exceeded their TLs during the previous monitoring round at OW-13 and OW-15. TL exceedances in two consecutive monitoring rounds is one of the criteria used to consider introducing Assessment Monitoring in subsequent monitoring rounds.

Pare does not recommend Assessment Monitoring at the Landfill during the upcoming December 2018 monitoring round as the criteria to warrant Assessment Monitoring were not met in the September 2018 monitoring round.

During the 2016 and 2017 monitoring periods, a rising trend in detections of antimony at the compliance wells became apparent. Antimony was detected at the background well above its MCL during the December 2017 monitoring round. Previously, antimony had not been detected at the background well since the September 2011 monitoring round. The detection of antimony at compliance well OW-14 in the June 2017 monitoring round triggered Assessment Monitoring, which was performed in the December 2017 monitoring round. The Assessment Monitoring resulted in detection of one Appendix B parameter, sulfides (0.04 mg/L). However, antimony was not detected at any groundwater well during the December 2017 monitoring period. Analysis of the samples collected from OW-14 during the March 2018 monitoring round indicated another detection of sulfides (0.04 mg/L). Assessment Monitoring was not performed at OW-14 in June but was performed at OW-13. Sulfides were not detected in the Assessment Monitoring performed at OW-13 during the June 2018 monitoring round.

The EPA has no MCL for sulfides in groundwater. Water with dissolved hydrogen sulfide will smell musty or swampy around 0.5-1.0 mg/L and Pare did not identify a noticeable smell emanating from the groundwater sample in either round during which the constituent was detected. Hydrogen sulfide gas can occur naturally in groundwater from plant materials rotting underground in anaerobic conditions. Hydrogen sulfide gas could also be resulting from gypsum buried at the Landfill. Pare recommends that sulfides be again tested for at OW-14 in the December 2018 monitoring round as a sample was unobtainable in the September 2018 monitoring round due to dry conditions. Additionally, Pare recommends that the Town consider adding regular analysis of sulfides to the groundwater monitoring program.

Pare recommended that wells OW-7 and OW-16 be incorporated into the compliance monitoring regimen in the 2017 Annual Groundwater Monitoring Report. Despite OW-7 having several years of sampling data, the sampling rounds were selected on a rotating basis with wells OW-6 and OW-8 for alternate monitoring. Pare recommends that wells OW-7 and OW-16 be sampled for two years, or eight consecutive monitoring rounds, prior to initiating statistical analysis. The June 2018 monitoring period marks the second monitoring round that these wells are to be sampled consistently; therefore, it is estimated that statistical analysis for the bedrock and overburden wells will begin in the March 2020 monitoring round.

Samples have been unable to be collected at the background well OW-9 in recent monitoring rounds. Dating back to June 2016, five out of the last ten monitoring rounds have resulted in a dry well. The tolerance interval analysis is dependent on data collected from the background well; therefore, uncharacteristic TL exceedances may be a result of the lack of recent historical data from this well. Pare will be able to more accurately assess this potential changing trend in groundwater quality with more data collection from the background well.

Recent monitoring rounds also indicate there is an increasing trend of barium and cadmium in groundwater at the Landfill. However, Assessment Monitoring triggered by exceedances of barium and cadmium have resulted in no (0) detections of Appendix B parameters. Pare will continue to evaluate antimony, barium, cadmium, and sulfides trends at the Landfill in subsequent monitoring rounds.

Should the RIDEM have any questions regarding this letter or the attached data, please feel free to contact the undersigned at (401) 334-4100, thank you.

Very truly yours,

Timothy P. Thies, P.E.
Vice President

TPT/TCJ/abv

Attachments

cc: Richard Rogers, Tiverton Public Works Director (w/encl.)
Jay Lambert, Tiverton Landfill Subcommittee (w/encl.)
Jan Reitsma, Tiverton Town Administrator (w/encl.)
Travis C. Johnson, Pare Corporation (w/o encl.)
George G. Palmisciano, P.E. Pare Corporation (w/o encl.)

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ATTACHMENT NO. 1
LABORATORY ANALYTICAL DATA REPORT

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 8I28041
Client Project: 94139 - Tiverton Landfill

Report Date: 05-October-2018

Prepared for:

Travis Johnson
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Total # of Pages: 22

Samples Submitted:

The samples listed below were submitted to New England Testing Laboratory on 09/28/18. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 8I28041. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
8I28041-01	OW-12	Water	09/27/2018	09/28/2018
8I28041-02	OW-7	Water	09/27/2018	09/28/2018
8I28041-03	OW-16	Water	09/27/2018	09/28/2018
8I28041-04	OW-15	Water	09/27/2018	09/28/2018
8I28041-05	OW-13	Water	09/27/2018	09/28/2018
8I28041-06	SW-1	Water	09/27/2018	09/28/2018
8I28041-07	SW-2	Water	09/27/2018	09/28/2018
8I28041-08	SW-3	Water	09/27/2018	09/28/2018

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

OW-12 (Lab Number: 8I28041-01)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-13 (Lab Number: 8I28041-05)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-15 (Lab Number: 8I28041-04)

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C

Request for Analysis (continued)

OW-15 (Lab Number: 8I28041-04) (continued)

Analysis	Method
Lead	EPA 6010C
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-16 (Lab Number: 8I28041-03)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-7 (Lab Number: 8I28041-02)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Request for Analysis (continued)

SW-1 (Lab Number: 8I28041-06)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Vanadium	EPA 6010C
Zinc	EPA 6010C

SW-2 (Lab Number: 8I28041-07)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Vanadium	EPA 6010C
Zinc	EPA 6010C

SW-3 (Lab Number: 8I28041-08)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Vanadium	EPA 6010C
Zinc	EPA 6010C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

CASE NARRATIVE:

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria. Those compounds in italics were qualitatively screened via reconstructed ion chromatography and no detections were identified to the listed PQLs.

Sample: OW-12 Case Number: 8I28041

Total Metals

CAS RN	Common Name	Method	Result, mg/l	PQL, mg/l
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.023	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.002	0.001
7440-48-4	Cobalt	6010C	0.002	0.001
7440-50-8	Copper	6010C	ND	0.004
7439-92-1	Lead	6010C	ND	0.001
7440-02-0	Nickel	6010C	0.025	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.001	0.001
7440-66-6	Zinc	6010C	0.026	0.004

Sample: OW-7 Case Number: 8I28041

Total Metals

CAS RN	Common Name	Method	Result, mg/l	PQL, mg/l
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.054	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.004	0.001
7440-47-3	Chromium	6010C	0.018	0.001
7440-48-4	Cobalt	6010C	0.022	0.001
7440-50-8	Copper	6010C	0.03	0.004
7439-92-1	Lead	6010C	0.006	0.001
7440-02-0	Nickel	6010C	0.032	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.016	0.001
7440-66-6	Zinc	6010C	0.085	0.004

Sample: OW-16 Case Number: 8I28041

Total Metals

CAS RN	Common Name	Method	Result, mg/l	PQL, mg/l
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.027	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.003	0.001
7440-48-4	Cobalt	6010C	0.004	0.001
7440-50-8	Copper	6010C	ND	0.004
7439-92-1	Lead	6010C	ND	0.001
7440-02-0	Nickel	6010C	0.010	0.001
7782-49-2	Selenium	6010C	0.003	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	ND	0.001
7440-66-6	Zinc	6010C	0.019	0.004

Sample: OW-15 Case Number: 8I28041

Total Metals

CAS RN	Common Name	Method	Result, mg/l	PQL, mg/l
7440-36-0	Antimony	6010C	0.004	0.001
7440-38-2	Arsenic	6010C	0.03	0.002
7440-39-3	Barium	6010C	0.084	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.007	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	0.014	0.001
7440-50-8	Copper	6010C	ND	0.004
7439-92-1	Lead	6010C	0.002	0.001
7440-02-0	Nickel	6010C	0.029	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.011	0.001
7440-66-6	Zinc	6010C	0.015	0.004

Sample: OW-13 Case Number: 8I28041

Total Metals

CAS RN	Common Name	Method	Result, mg/l	PQL, mg/l
7440-36-0	Antimony	6010C	0.002	0.001
7440-38-2	Arsenic	6010C	0.01	0.002
7440-39-3	Barium	6010C	0.089	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	0.003	0.001
7440-47-3	Chromium	6010C	0.002	0.001
7440-48-4	Cobalt	6010C	0.010	0.001
7440-50-8	Copper	6010C	ND	0.004
7439-92-1	Lead	6010C	ND	0.001
7440-02-0	Nickel	6010C	0.012	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.004	0.001
7440-66-6	Zinc	6010C	0.010	0.004

Sample: SW-1 Case Number: 8I28041

Total Metals

CAS RN	Common Name	Method	Result, mg/l	PQL, mg/l
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.036	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	ND	0.001
7440-50-8	Copper	6010C	ND	0.004
7439-92-1	Lead	6010C	ND	0.001
7440-02-0	Nickel	6010C	0.003	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.001	0.001
7440-66-6	Zinc	6010C	0.005	0.004

Sample: SW-2 Case Number: 8I28041

Total Metals

CAS RN	Common Name	Method	Result, mg/l	PQL, mg/l
7440-36-0	Antimony	6010C	0.003	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.017	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	0.002	0.001
7440-50-8	Copper	6010C	ND	0.004
7439-92-1	Lead	6010C	ND	0.001
7440-02-0	Nickel	6010C	0.002	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.001	0.001
7440-66-6	Zinc	6010C	0.006	0.004

Sample: SW-3 Case Number: 8I28041

Total Metals

CAS RN	Common Name	Method	Result, mg/l	PQL, mg/l
7440-36-0	Antimony	6010C	0.003	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.018	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	ND	0.001
7440-48-4	Cobalt	6010C	0.004	0.001
7440-50-8	Copper	6010C	ND	0.004
7439-92-1	Lead	6010C	ND	0.001
7440-02-0	Nickel	6010C	0.006	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	7010	ND	0.0002
7440-62-2	Vanadium	6010C	0.003	0.001
7440-66-6	Zinc	6010C	0.011	0.004

Sample: OW-12 Case Number: 8I28041
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	1.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-12 Case Number: 8I28041
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	98.18	70-130
1,2-Dichloroethane d4	111.32	70-130
4 BFB	91.30	70-130

ND = Not Detected

Sample: OW-7 Case Number: 8I28041

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	1.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-7 Case Number: 8I28041
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	4.87	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	107.54	70-130
1,2-Dichloroethane d4	129.52	70-130
4 BFB	105.38	70-130

ND = Not Detected

Sample: OW-16 Case Number: 8I28041
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	1.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-16 Case Number: 8I28041
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	3.42	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	108.90	70-130
1,2-Dichloroethane d4	117.76	70-130
4 BFB	105.42	70-130

ND = Not Detected

Sample: OW-15 Case Number: 8I28041

Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0
71-55-6	1,1,1-Trichloroethane	ND	5.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0
79-00-5	1,1,2-Trichloroethane	ND	5.0
75-34-3	1,1-Dichloroethane	ND	5.0
75-35-4	1,1-Dichloroethylene	ND	5.0
563-58-6	1,1-Dichloropropene	ND	5.0
96-18-4	1,2,3-Trichloropropane	ND	5.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	5.0
106-93-4	1,2-Dibromoethane	ND	5.0
107-06-2	1,2-Dichloroethane	ND	5.0
78-87-5	1,2-Dichloropropane	ND	5.0
142-28-9	1,3-Dichloropropane	ND	5.0
594-20-7	2,2-Dichloropropane	ND	5.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	25.0
108-10-1	4-Methyl-2-pentanone	ND	25.0
67-64-1	Acetone	ND	25.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*25.0*
107-02-8	Acrolein	ND	25.0
107-13-1	Acrylonitrile	ND	25.0
107-05-1	*Allyl chloride*	*ND*	*25.0*
71-43-2	Benzene	ND	5.0
74-97-5	Bromochloromethane	ND	5.0
75-27-4	Bromodichloromethane	ND	5.0
75-25-2	Bromoform (Tribromomethane)	ND	5.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	5.0
108-90-7	Chlorobenzene	14	5.0
75-00-3	Chloroethane (Ethyl chloride)	ND	5.0
67-66-3	Chloroform (Trichloromethane)	ND	5.0
126-99-8	*Chloroprene*	*ND*	*25.0*
156-59-2	cis-1,2-Dichloroethylene	ND	5.0
10061-01-5	cis-1,3-Dichloropropene	ND	5.0
124-48-1	Dibromochloromethane	ND	5.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	5.0
97-63-2	*Ethyl methacrylate*	*ND*	*25.0*
100-41-4	Ethylbenzene	ND	5.0
78-83-1	*Isobutyl alcohol*	*ND*	*100.0*
465-73-6	*Isodrin*	*ND*	*25.0*
541-73-1	m-Dichlorobenzene	ND	5.0
126-98-7	*Methacrylonitrile*	*ND*	*50.0*
74-83-9	Methyl bromide (Bromomethane)	ND	5.0

Sample: OW-15 Case Number: 8I28041
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	5.0
78-93-3	Methyl ethyl ketone (MEK)	ND	25.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*25.0*
80-62-6	*Methyl methacrylate*	*ND*	*50.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	5.0
75-09-2	Methylene chloride (Dichloromethane)	ND	5.0
95-50-1	o-Dichlorobenzene	ND	5.0
106-46-7	p-Dichlorobenzene	ND	5.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*100.0*
100-42-5	Styrene	ND	5.0
127-18-4	Tetrachloroethylene	ND	5.0
1634-04-4	tert-Butylmethylether	7.0	5.0
108-88-3	Toluene	ND	5.0
156-60-5	trans-1,2-Dichloroethylene	ND	5.0
10061-02-6	trans-1,3-Dichloropropene	ND	5.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*25.0*
79-01-6	Trichloroethylene	ND	5.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	5.0
108-05-4	*Vinyl acetate*	*ND*	*25.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	5.0
1330-20-7	Xylene (total)	ND	5.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	105.18	70-130
1,2-Dichloroethane d4	115.80	70-130
4 BFB	99.12	70-130

ND = Not Detected

Sample: OW-13 Case Number: 8I28041
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	1.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-13 Case Number: 8I28041
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	ND	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	104.40	70-130
1,2-Dichloroethane d4	117.50	70-130
4 BFB	100.04	70-130

ND = Not Detected

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

CHAIN OF CUSTODY RECORD

8 I 2 8041 f

pH<2

PROJ. NO. 94139.24
PROJECT NAME/LOCATION Tiverton LF Quarterly Monitoring
CLIENT Parc Corporation
REPORT TO: nmcarsman@parccorp.com
INVOICE TO: Accounting

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** App A Metals	App A VOCs	-				REMARKS
9/27/18				~~[illegible]~~												
↓	11:45		X	OW-12	X			3 •••	AU, HNO_3	X	X					
	1:00		X	OW-7	X			3 •••	↓	X	X					
	1:45		X	OW-16	X			3 •••		X	X					
	4:30		X	OW-15	X			3 •••		X	X					
	5:30		X	OW-13	X			3 •••		X	X					
9/27/18	10:20		X	SW-1	X			1 •	HNO_3	X						
↓	9:50am		X	SW-2	X			1 •	↓	X						
	10:30		X	SW-3	X			1 •		X						

Sampled by: (Signature)	Date/Time		Received by: (Signature)	Date/Time	
	9/27	9:50am			
Relinquished by: (Signature)	**Date/Time**		**Received by: (Signature)**	**Date/Time**	
	9/28	12:15	Bruce Goodhon	9-28-18	12:15
Relinquished by: (Signature)	**Date/Time**		**Received for Laboratory by: (Signature)**	**Date/Time**	
Bruce Goodhon	9-28-18	15:40		9/28/18	1540

Laboratory Remarks:
Temp. received: 2.
Cooled ☐

Special Instructions:
List Specific Detection
Limit Requirements:

Turnaround (Business Days)________

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

KS

ATTACHMENT NO. 2

ANALYTICAL SUMMARY TABLES

TABLE 2
BACKGROUND WELL HISTORICAL RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-9

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value	SEP '18	JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEP '13	JUN '13	MAR '13	DEC '12	SEP '12	JUN '12	MAR '12	DEC '11	SEP '11	JUN '11	MAR '11	DEC '10	SEP '10	JUN '10	MAR '10
Antimony	0.006 mg/L^{1}	NT	ND	ND	0.0290	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	0.0160	0.2000	ND	ND	NT	ND	ND
Arsenic	0.010 mg/L^{1}	NT	ND	ND	ND	NT	NT	0.0030	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	0.0079
Barium	2 mg/L^{1}	NT	0.0090	0.0130	0.0410	NT	NT	0.0100	0.0060	NT	NT	0.0110	0.0110	NT	NT	0.0070	0.0420	NT	0.0100	0.0120	0.0200	NT	0.0150	0.0130	0.0160	NT	0.0110	0.0120	0.0070	0.0120	0.0080	0.0221	0.0230	NT	0.0460	0.0380
Beryllium	0.004 mg/L^{1}	NT	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	0.0015	ND
Cadmium	0.005 mg/L^{1}	NT	ND	0.0020	0.3650	NT	NT	ND	ND	NT	NT	0.0010	ND	NT	NT	ND	0.0020	NT	ND	ND	0.0050	NT	0.0040	ND	0.0010	NT	ND	ND	ND	0.0020	ND	ND	ND	NT	ND	ND
Chromium	0.1 mg/L^{1}	NT	0.003	0.0070	0.0300	NT	NT	0.0040	ND	NT	NT	0.0050	0.0070	NT	NT	0.0060	0.0270	NT	0.0060	0.0070	0.0150	NT	0.0070	0.0070	0.0120	NT	0.0050	0.0080	0.0040	0.0020	ND	0.0079	0.0068	NT	0.0230	0.0270
Cobalt	0.73 mg/L^{5}	NT	ND	0.0010	0.0020	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	0.0100	NT	ND	0.0010	0.0030	NT	0.0020	0.0020	0.0030	NT	ND	0.0020	ND	ND	ND	0.0019	0.0015	NT	0.0086	0.0110
Copper	1.3 mg/L^{1}	NT	ND	ND	0.0600	NT	NT	ND	ND	NT	NT	0.0020	ND	NT	NT	0.0020	0.0170	NT	ND	0.0060	0.0140	NT	0.0070	ND	0.0060	NT	ND	0.0080	0.0010	0.0100	0.0400	0.0041	0.0043	NT	0.0200	0.0170
Lead	0.015 mg/L^{1}	NT	0.001	0.0020	0.1820	NT	NT	0.0020	0.0060	NT	NT	ND	0.0050	NT	NT	0.0010	0.0160	NT	0.0060	0.0030	0.1020	NT	0.0080	0.0020	0.0060	NT	ND	0.0110	0.0010	0.0040	0.0060	ND	ND	NT	0.0140	0.0024
Mercury	0.002 mg/L^{1}	NT	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Nickel	0.1 mg/L^{2}	NT	0.001	0.0040	0.0240	NT	NT	0.0040	ND	NT	NT	0.0030	0.0030	NT	NT	0.0170	0.0180	NT	0.0030	0.0040	0.0090	NT	0.0050	0.0050	0.0070	NT	0.0030	0.0040	0.0020	0.0080	0.0080	0.0046	0.0037	NT	0.0150	0.0180
Selenium	0.05 mg/L^{1}	NT	ND	ND	ND	NT	NT	ND	0.0100	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	0.0060	NT	ND	ND	ND	NT	ND	ND	ND	0.0100	0.0100	ND	ND	NT	ND	ND
Silver	0.1 mg/L^{2,3}	NT	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	0.1180	ND	ND	NT	ND	ND
Thallium	0.002 mg/L^{1}	NT	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Tin	22 mg/L^{5}	NT	ND	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	0.0080	0.1310	NT	ND	ND	ND	NT	ND	ND	ND	ND	0.0190	ND	ND	NT	ND	ND
Vanadium	0.26 mg/L^{5}	NT	ND	0.0020	ND	NT	NT	ND	ND	NT	NT	0.0010	0.0020	NT	NT	ND	0.0140	NT	0.0020	0.0030	0.0070	NT	0.0030	0.0020	0.0040	NT	ND	0.0010	ND	ND	ND	0.0034	0.0034	NT	0.0150	0.0110
Zinc	2 mg/L^{2,3}	NT	0.0090	0.0190	11.1000	NT	NT	0.0070	ND	NT	NT	0.0100	0.0050	NT	NT	ND	0.0410	NT	0.0110	0.0080	0.0170	NT	0.0210	0.0120	0.0160	NT	0.0150	0.0120	0.0090	0.0140	ND	0.0257	0.0190	NT	0.0330	0.0350
Acetone	610 µg/L^{5}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Acrylonitrile	0.039 µg/L^{5}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Benzene	5 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromochloromethane	80 µg/L^{2}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromodichloromethane (THM)	90 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromoform	80 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Carbon disulfide	1000 µg/L^{5}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Carbon tetrachloride	5 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chlorobenzene	100 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloroethane	4.6 µg/L^{5}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloroform (THM)	80 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chlorodibromomethane (THM)	80 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dibromo-3-chloropropane (DBC	0.2 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dibromoethane (EDB)	0.05 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichlorobenzene	600 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,4-Dichlorobenzene	75 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,4-Dichloro-2-butene	µg/L	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1-Dichloroethane	5 µg/L	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichloroethane	5 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1-Dichloroethylene	7 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
cis-1,2-Dichloroethene	70 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,2-Dichloroethene	100 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2-Dichloropropane	5 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
cis-1,3-Dichloropropene	µg/L	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
trans-1,3-Dichloropropene	µg/L	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Ethylbenzene	700 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl butyl ketone(2-Hexanone)	160 µg/L^{5}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Bromomethane	10 µg/L^{2}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Chloromethane	30 µg/L^{2}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Dibromomethane	61 µg/L^{5}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methylene chloride	5 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl ethyl ketone(2-Butanone)	4000 µg/L^{2}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl iodide	µg/L	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
4-Methyl-2-pentanone	µg/L	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Styrene	100 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,1,2-Tetrachloroethane	70 µg/L^{2}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,2,2-Tetrachloroethane	0.3 µg/L^{2}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Tetrachloroethylene(PCE)	5 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	2.1	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Toluene	1000 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,1-Trichloroethane	200 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,1,2-Trichloroethane	5 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Trichloroethylene(TCE)	5 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Trichloroflouromethane	2000 µg/L^{2}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
1,2,3-Trichloropropane	40 µg/L^{2}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Vinyl acetate	410 µg/L^{5}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Vinyl chloride	2 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Xylenes	10000 µg/L^{1}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40 µg/L^{4}	NT	ND	ND	ND	NT	NT	ND	NT	NT	NT	ND	ND	NT	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND

▨ = Exceeded MCL

Note: Analytical data reported since commencement of low flow purging and sampling. Low flow puring and sampling commenced in May 2002, but no sample was taken at OW-9 at this time.
July 2002 represents the first time low flow purging and sampling was conducted at OW-9.

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above
" " = One half of the laboratory detection limit "DL"
NT = Not Tested due to dry conditions at well.

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-7

Concentration (expressed in same units as Threshold Value)

Parameter	**Threshold Value**		SEP '18	JUN '18	MAR '18	NOV '17	SEP '17	MAR '17	MAR '16	SEP '15	MAR '15	DEC '14	MAR '14	SEP '13	MAR '13	SEP '12	MAR '12	JUN '11	MAR '11	SEP '10	JUN '10	SEP '09	JUN '07	SEP '05	JUN '05
Antimony	0.006	mg/L^{1}	ND	ND	ND	ND	ND	0.0070	ND	ND	ND	NT	ND	ND	ND	ND	ND	0.0250	ND	ND	ND	ND	ND	ND	ND
Arsenic	0.01	mg/L^{1}	ND	0.0100	ND	ND	ND	ND	0.0070	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND	ND	ND	ND	ND
Barium	2	mg/L^{1}	0.0540	0.0280	0.0380	0.0350	0.0330	0.0380	0.0390	0.0300	0.0330	NT	0.0310	0.0200	0.0310	0.0260	0.0280	0.0350	0.0398	0.0375	0.0370	0.0310	0.0340	0.0240	0.0280
Beryllium	0.004	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND^{6}	ND^{6}	ND	ND	ND	ND	ND
Cadmium	0.005	mg/L^{1}	0.004	ND	ND	ND	ND	0.0010	ND	0.0010	ND	NT	0.0010	ND	ND	0.0050	ND	ND	0.0012	0.0419	0.0410	ND	ND	ND	ND
Chromium	0.1	mg/L^{1}	0.0180	0.0040	0.0050	0.0050	0.0040	0.0060	ND	ND	ND	NT	ND	ND	ND	ND	0.0010	0.0080	ND	0.0054	0.0048	0.0530	ND	ND	ND
Cobalt	0.73	mg/L^{5}	0.0220	0.0150	0.0190	0.0180	0.0180	0.0250	0.0280	0.0200	0.0250	NT	0.0220	0.0130	0.0250	0.0160	0.0200	0.0200	0.0353	0.0229	0.0250	0.0250	0.0200	0.0190	0.0220
Copper	1.3	mg/L^{1}	0.03	ND	ND	0.0050	ND	0.0060	0.0060	0.0080	0.0250	NT	0.0180	0.0040	ND	0.0080	0.0040	0.0390	0.0056	0.2180	0.5000	0.0058	0.0098	ND	ND
Lead	0.015	mg/L^{1}	0.006	ND	ND	ND	ND	ND	ND	0.0010	0.0050	NT	0.0060	0.0040	0.0020	0.0020	0.0040	0.0460	0.0033	0.0074	0.0060	0.0043	0.0042	ND	ND
Nickel	0.1	mg/L^{2}	0.0320	0.0180	0.0210	0.0210	0.0190	0.0250	ND	0.0200	0.0240	NT	0.0190	0.0120	0.0220	0.0150	0.0020	0.0220	0.0302	0.0270	0.0280	0.0390	0.0240	0.0220	0.0370
Selenium	0.05	mg/L^{1}	ND	ND	0.0100	ND	0.0030	ND	0.1070	0.0070	0.1880	NT	0.1830	0.1410	0.1800	0.1920	0.2260	0.0340	ND	ND	ND	0.0120	0.0110	0.0140	ND
Silver	0.1	mg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0054	ND	ND	0.0035
Thallium	0.002	mg/L^{1}	ND	ND	0.0003	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	0.0032	ND	ND	0.0420	0.0440	ND	0.0140
Tin	22	mg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	0.26	mg/L^{5}	0.016	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	0.0170	ND	0.0051	0.0072	0.0230	0.0240	ND	ND
Zinc	5	mg/L^{3}	0.0850	0.0140	0.0180	0.0200	0.0120	0.0210	0.0050	0.0120	0.0060	0.0060	#######	ND	0.0150	0.0100	0.0130	ND	0.0250	0.0472	0.0380	0.0120	0.0110	0.0160	0.0180
Mercury	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	610	ug/l^{5}	ND	ND	ND	ND	ND	5.8	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrate	0.039	ug/l^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	80	ug/l^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	90	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	ug/l^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	ug/l^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	1.0	2.0	ND	1.4	1.8	2.7	1.7	ND
Chlorodibromomethane	80	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	80	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	4.6	ug/l^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	2.2	ND	1.3	1.6	1.5	3.8	ND	ND
Chloromethane	30	ug/l^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.2	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	0.05	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	ug/l^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichlo-2-butene		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	70	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,2-Dichloroethylene	100	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	ug/l^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	ug/l^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	ug/l^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	ug/l^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	ug/l^{4}	4.87	3.56	6.80	5.9	5.36	10.3	8.8	ND	ND	NT	9.7	5.6	11.9	8.0	11.2	10.7	15.7	7.2	8.2	9.0	12.0	7.4	2.1
Methyl ethyl ketone(2-Butanone)	4000	ug/l^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	ug/l^{1}	ND	ND	ND	ND	ND	ND	ND	4.9	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	ug/l^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	ug/l^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	ND	ND

Note: Low flow purging and sampling used starting with the June 2005 monitoring round

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-12

Concentration (Expressed in same units as Threshold Value)

Parameter	**Threshold Value**		SEP '18	JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006	mg/L^{1}	ND	0.001	ND	0.0210	ND	0.0010	0.0250	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0060	ND	ND	ND	0.0100	0.0600	ND	ND	ND	ND
Arsenic	0.010	mg/L^{1}	ND	0.01	ND	0.0050	ND	0.0090	ND	ND	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0300	ND	ND	ND	ND
Barium	2	mg/L^{1}	0.023	0.02	0.0170	0.0240	0.0260	0.0240	0.0410	0.0260	0.0670	0.0360	0.0200	0.0260	0.0250	0.0190	0.0600	0.0160	0.0210	0.0120	0.0140	0.0130	0.0150	0.0080	0.0130	0.0180	0.0170	0.0160	0.0160	0.0100	0.0280	0.0130	0.0113	0.0151	0.0156	0.0094
Beryllium	0.004	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND
Cadmium	0.005	mg/L^{1}	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.1	mg/L^{1}	0.002	ND	ND	ND	0.0030	0.0010	0.0040	ND	0.0180	0.0130	ND	0.0020	ND	ND	ND	ND	0.0020	0.0020	0.0020	0.0010	0.0020	ND	0.0020	ND	ND	ND	0.0010	ND	ND	ND	ND^{6}	ND^{6}	0.0014	0.0025
Cobalt	0.73	mg/L^{5}	0.002	ND	ND	ND	0.0020	ND	0.0020	ND	0.0090	0.0080	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	0.0006	ND^{6}	ND
Copper	1.3	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	0.0200	0.0150	ND	0.0330	ND	ND	ND	ND	ND	0.0020	0.0030	0.0060	0.0020	0.0010	ND	ND	ND	ND	0.0010	ND	0.0100	0.0400	ND	0.0013	ND	0.0019
Lead	0.015	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	0.0150	0.0120	ND	ND	0.0020	ND	0.0020	0.0020	0.0030	0.0020	0.0020	0.0020	0.0010	0.0010	0.0020	0.0020	0.0020	ND	0.0020	ND	ND	ND	ND	ND	ND	0.0012
Mercury	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND^{6}	ND	ND	ND
Nickel	0.1	mg/L^{2}	0.025	0.025	0.0200	0.0170	0.0140	0.0090	0.0140	0.0070	0.0220	0.0130	0.0060	0.0080	0.0040	0.0060	0.0040	0.0040	0.0060	0.0040	0.0040	0.0040	0.0050	0.0020	0.0040	0.0050	0.0040	0.0030	0.0050	0.0030	0.0070	0.0110	0.0034	0.0028	0.0037	0.0023
Selenium	0.05	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0100	ND	ND	ND	ND	0.0060	ND	0.0120	0.0110	0.0060	ND	ND	ND	ND	ND	ND	0.0080	0.0060	ND	0.0300	ND	ND	ND	ND
Silver	0.1	mg/L^{2,3}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1350	ND	ND	ND	ND
Thallium	0.002	mg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22	mg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	0.0980	ND	0.1800	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	0.26	mg/L^{5}	0.001	ND	ND	ND	0.0030	ND	0.0040	ND	0.0200	0.0200	ND	ND	ND	ND	ND	ND	0.0020	ND	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0057
Zinc	2	mg/L^{2,3}	0.026	0.009	0.0070	0.0060	0.0130	0.0100	0.0220	ND	0.0500	0.0420	ND	ND	0.0050	0.0070	ND	ND	ND	ND	ND	ND	ND	0.0080	0.0100	ND	ND	0.0080	0.0070	0.0080	0.0160	ND	0.0170	0.0147	0.0151	0.0130
Acetone	610	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	0.039	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	80	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	4.6	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	µg/L^{2}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	µg/L^{5}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	µg/L^{1}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L^{4}	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-13

Concentration (Expressed in same units as Threshold Value)

Parameter	**Threshold Value**		SEP '18	JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10
Antimony	0.006	mg/L[1]	0.002	0.002	ND	0.0360	ND	0.0020	0.0080	ND	0.0110	ND	ND	ND	ND	ND	ND	ND	ND	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0100	0.0200	ND	ND	ND
Arsenic	0.010	mg/L[1]	0.01	0.02	0.0070	ND	0.0050	0.0200	ND	ND	0.0100	ND	0.0190	0.0100	0.0110	0.0070	0.0040	0.0200	0.0070	ND	0.0140	0.0160	0.0070	0.0080	0.0070	ND	ND	0.0060	0.0050	0.0050	0.0090	ND	0.0096	0.0094	0.0108
Barium	2	mg/L[1]	0.089	0.089	0.1150	0.0970	0.0460	0.0860	0.1080	0.0990	0.1830	0.0890	0.1700	0.0910	0.0870	0.0900	0.0890	0.1400	0.0870	0.0700	0.1180	0.0780	0.0650	0.0690	0.0750	0.0770	0.0760	0.0720	0.0760	0.0650	0.0760	0.0800	0.0912	0.0817	0.0807
Beryllium	0.004	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	0.005	mg/L[1]	0.003	0.004	0.0040	ND	0.0020	0.0030	0.0050	ND	0.0290	ND	0.0050	0.0040	0.0040	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	0.0020	ND	0.0004	0.0004	0.0004
Chromium	0.1	mg/L[1]	0.002	0.002	0.0020	0.0010	ND	0.0040	0.0030	ND	0.0330	0.0050	ND	0.0040	ND	ND	ND	0.0090	ND	0.0010	0.0050	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND
Cobalt	0.73	mg/L[5]	0.01	0.011	0.0130	0.0120	0.0070	0.0120	0.0140	0.0140	0.0280	0.0130	0.0150	0.0130	0.0120	0.0140	0.0160	0.0180	0.0110	0.0100	0.0120	0.0100	0.0090	0.0130	0.0120	ND	0.0100	0.0130	0.0120	0.0110	0.0120	0.0090	0.0192	0.0156	0.0138
Copper	1.3	mg/L[1]	ND	ND	ND	ND	ND	0.0100	ND	ND	0.0900	ND	0.0060	ND	0.0020	ND	0.0050	0.0730	0.0050	0.0050	0.0080	0.0230	0.0030	0.0050	ND	ND	ND	0.0060	0.0040	0.0020	0.0090	0.0300	0.0028	0.0018	0.0027
Lead	0.015	mg/L[1]	ND	ND	0.0020	ND	ND	0.0010	ND	0.0070	0.0350	0.0190	ND	ND	0.0020	0.0030	0.0030	0.0170	0.0040	0.0040	0.0070	0.0020	0.0020	0.0030	0.0020	0.0020	0.0020	ND	0.0020	ND	0.0040	0.0130	0.0015	ND	ND
Mercury	0.002	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND
Nickel	0.1	mg/L[2]	0.012	0.011	0.0120	0.0290	0.0060	0.0120	0.0350	0.0140	0.0465	0.0130	0.0130	0.0120	0.0120	0.0130	0.0130	0.0220	0.0110	0.0100	0.0120	0.0100	0.0090	0.0100	0.0100	0.0100	0.0100	0.0110	0.0100	0.0090	0.0110	0.0060	0.0141	0.0127	0.0121
Selenium	0.05	mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0390	ND	ND	ND	0.0800	0.0210	0.0590	0.0120	0.0330	0.0700	0.0350	0.0400	ND	ND	0.0700	0.0640	0.0620	0.0710	0.0690	0.0100	ND	ND	ND
Silver	0.1	mg/L[2,3]	ND	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0020	ND	ND	0.0010	0.0020	0.0020	ND	0.0010	0.0010	ND	0.0020	ND	0.0020	ND	0.0030	0.0340	ND	ND	ND
Thallium	0.002	mg/L[1]	ND	ND	0.0003	0.0003	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22	mg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	0.2800	0.1100	ND	0.0120	ND	ND	0.0010	ND	ND	ND	0.0170	0.0400	0.0090	0.0180	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND	ND
Vanadium	0.26	mg/L[5]	0.004	ND	ND	0.0020	ND	ND	ND	0.0060	0.0390	0.0030	ND	ND	ND	ND	ND	0.0130	0.0020	ND	0.0010	0.0040	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	0.0200	ND	ND	ND
Zinc	2	mg/L[2,3]	0.01	0.012	0.0170	0.0070	0.0070	0.0200	0.0170	ND	0.1300	0.0130	0.0060	ND	0.0070	ND	ND	0.0470	ND	ND	0.0090	ND	ND	0.0110	0.0100	ND	ND	0.0230	0.0050	0.0050	0.0090	ND	0.0178	0.0092	0.0098
Acetone	610	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	0.039	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND	ND
Bromochloromethane	80	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100	µg/L[1]	ND	4.72	5.40	ND	5.23	5.03	6.8	ND	5.5	2.5	6.6	7.4	6.3	6.1	7.4	8.1	ND	7.1	7.2	6.4	2.2	3.9	6.8	6.3	1.6	4.2	6.7	6.5	6.0	3.7	6.2	5.6	5.9
Chloroethane	4.6	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	1.3
Chloroform	80	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600	µg/L[1]	ND	ND	ND	ND	1.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75	µg/L[1]	ND	ND	ND	ND	1.11	ND	ND	ND	ND	ND	ND	ND	1.4	1.2	1.3	ND	ND	1.4	ND	ND	ND	ND	1.0	1.2	ND	ND	1.2	ND	1.4	1.0	ND[6]	1.1	1.2
trans-1,4-Dichloro-2-butene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone		µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40	µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410	µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000	µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L[4]	ND	3.26	ND	ND	3.70	3.53	6.1	ND	3.6	2.6	4.1	4.9	3.2	5.2	4.5	2.9	ND	4.2	5.0	5.4	3.3	3.3	5.0	4.5	2.8	3.8	4.5	2.8	4.7	3.2	7.9	3.8	3.4

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-14
Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value		SEP '18	JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEP '13	JUN '13	MAR '13	DEC '12	SEP '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006	mg/L[1]	NT	ND	ND	0.0350	NT	0.0050	0.0410	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	0.0060	ND	ND	0.0110	0.0170	ND	ND	NT	ND
Arsenic	0.010	mg/L[1]	NT	0.01	ND	0.0030	NT	0.0200	0.0120	ND	NT	ND	0.0070	0.0050	0.0050	NT	ND	ND	NT	ND	ND	ND	NT	0.0060	ND	ND	NT	ND	ND	ND	0.0060	ND	0.0074	ND	NT	0.0070
Barium	2	mg/L[1]	NT	0.155	0.2240	0.1990	NT	0.2400	0.2490	0.2290	NT	0.1380	0.1750	0.1980	0.1140	NT	0.2020	0.0910	NT	0.1570	0.1840	0.0790	NT	0.1440	0.1760	0.1370	NT	0.1750	0.1770	0.1470	0.1610	0.2100	0.2700	0.2030	NT	0.1900
Beryllium	0.004	mg/L[1]	NT	ND	ND	ND	NT	0.0030	ND	ND	NT	0.0010	0.0010	ND	0.0010	NT	ND	ND	NT	ND	ND	0.0010	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	0.0010	NT	ND
Cadmium	0.005	mg/L[1]	NT	0.006	0.0050	ND	NT	0.0050	0.0060	ND	NT	ND	0.0070	0.0080	0.0060	NT	ND	ND	NT	0.0050	0.0010	ND	NT	ND	0.0020	ND	NT	ND	0.0040	0.0030	0.0030	ND	ND[6]	ND[6]	NT	ND
Chromium	0.1	mg/L[1]	NT	0.001	0.0060	0.0020	NT	0.0010	0.0020	ND	NT	0.0110	0.0030	0.0030	0.0170	NT	0.0050	0.0050	NT	0.0040	0.0010	0.0080	NT	ND	0.0050	ND	NT	ND	ND	ND	ND	ND	ND	0.0065	NT	0.0018
Cobalt	0.73	mg/L[5]	NT	0.006	0.0140	0.0090	NT	0.0140	0.0130	0.0360	NT	0.0100	0.0100	0.0100	0.0120	NT	0.0170	0.0120	NT	0.0080	0.0150	0.0120	NT	0.0080	0.0160	0.0370	NT	0.0140	0.0100	0.0100	0.0160	0.0090	0.0457	0.0261	NT	0.0130
Copper	1.3	mg/L[1]	NT	ND	0.0090	ND	NT	0.0100	ND	0.0200	NT	0.0010	0.0010	ND	0.0170	NT	0.0100	0.0090	NT	0.0070	0.0050	0.0200	NT	0.0030	0.0080	0.0100	NT	ND	ND	0.0010	0.0090	ND	0.0049	0.0140	NT	0.0050
Lead	0.015	mg/L[1]	NT	ND	0.0060	ND	NT	0.0170	ND	ND	NT	0.0160	0.0070	ND	0.0090	NT	0.0050	0.0050	NT	0.0040	0.0040	0.0070	NT	0.0020	0.0050	0.0030	NT	0.0020	ND	0.0090	0.0020	ND	ND	0.0039	NT	0.0011
Mercury	0.002	mg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Nickel	0.1	mg/L[2]	NT	0.012	0.0220	0.0320	NT	0.0220	0.0470	0.0400	NT	0.0160	0.0160	0.0170	0.0200	NT	0.0270	0.0180	NT	0.0150	0.0230	0.0200	NT	0.0120	0.0200	0.0350	NT	0.0190	0.0170	0.0150	0.0180	0.0180	0.0460	0.0407	NT	0.0170
Selenium	0.05	mg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	0.0350	0.0140	NT	ND	ND	0.0260	NT	ND	ND	ND	NT	0.0200	0.0310	0.0240	0.0300	ND	ND	ND	NT	ND
Silver	0.1	mg/L[2,3]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	0.0040	NT	0.0020	ND	NT	0.0020	0.0020	ND	NT	ND	0.0020	ND	NT	ND	0.0040	ND	0.0050	ND	ND	ND	NT	ND
Thallium	0.002	mg/L[1]	NT	ND	0.0003	0.0003	NT	ND	ND	ND	NT	ND	ND	ND	0.0010	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	0.0010	ND	ND	ND	ND	NT	ND
Tin	22	mg/L[5]	NT	ND	ND	ND	NT	ND	ND	ND	NT	0.0350	ND	0.0070	0.0010	NT	ND	ND	NT	ND	0.0220	0.0180	NT	0.0310	ND	ND	NT	ND	ND	ND	ND	ND	ND[6]	ND	NT	ND
Vanadium	0.26	mg/L[5]	NT	ND	0.0070	0.0030	NT	0.0070	ND	ND	NT	0.0170	ND	ND	0.0140	NT	0.0080	0.0050	NT	0.0050	0.0020	0.0080	NT	0.0030	0.0060	ND	NT	ND	ND	ND	ND	0.0290	ND	0.0063	NT	0.0028
Zinc	2	mg/L[2,3]	NT	0.031	0.0480	0.0160	NT	0.0600	0.0230	0.0300	NT	0.0280	0.0170	0.0140	0.0680	NT	0.0240	0.0190	NT	0.0070	0.0100	0.0310	NT	0.0120	0.0310	0.0210	NT	0.0160	0.0070	0.0070	0.0270	ND	0.0453	0.0570	NT	0.0094
Acetone	610	µg/L[5]	NT	ND	ND	ND	NT	ND	6.9	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	6.4	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Acrylonitrile	0.039	µg/L[5]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Benzene	5	µg/L[1]	NT	2.77	ND	ND	NT	3.2	4.1	ND	NT	2.7	3.1	3.9	2.0	NT	3.5	ND	NT	3.3	3.6	ND	NT	2.9	4.3	1.9	NT	1.8	3.5	3.6	4.1	2.1	3.7	1.7	NT	3.6
Bromochloromethane	80	µg/L[2]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromodichloromethane (THM)	90	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromoform	80	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Carbon disulfide	1000	µg/L[5]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Carbon tetrachloride	5	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chlorobenzene	100	µg/L[1]	NT	13.3	10.8	ND	NT	13.42	15.6	ND	NT	12.5	13.5	15.4	10.7	NT	16.7	5.3	NT	15.7	15.7	3.2	NT	11.3	19.1	8.0	NT	7.0	14.3	14.6	16.5	7.1	15.3	6.1	NT	14.0
Chloroethane	4.6	µg/L[5]	NT	ND	ND	ND	NT	2.27	ND	ND	NT	3.3	ND	2.0	1.5	NT	ND	ND	NT	ND	ND	ND	NT	ND	2.5	ND	NT	ND	1.4	2.4	ND	1.6	1.3	ND	NT	3.0
Chloroform	80	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chlorodibromomethane (THM)	80	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dibromoethane (EDB)	0.05	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichlorobenzene	600	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,4-Dichlorobenzene	75	µg/L[1]	NT	2.62	ND	ND	NT	ND	ND	ND	NT	1.8	ND	ND	2.2	NT	3.3	ND	NT	3.4	ND	ND	NT	2.2	2.9	1.8	NT	1.4	2.7	2.2	3.2	1.8	2.7	1.9	NT	3.0
trans-1,4-Dichloro-2-butene		µg/L	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1-Dichloroethane	5	µg/L	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichloroethane	5	µg/L	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1-Dichloroethylene	7	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
cis-1,2-Dichloroethene	70	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
trans-1,2-Dichloroethene	100	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2-Dichloropropane	5	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
cis-1,3-Dichloropropene		µg/L	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
trans-1,3-Dichloropropene		µg/L	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Ethylbenzene	700	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl butyl ketone(2-Hexanone)	160	µg/L[5]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Bromomethane	10	µg/L[2]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Chloromethane	30	µg/L[2]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Dibromomethane	61	µg/L[5]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methylene chloride	5	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl ethyl ketone(2-Butanone)	4000	µg/L[2]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl iodide		µg/L	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
4-Methyl-2-pentanone		µg/L	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Styrene	100	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,1,2-Tetrachloroethane	70	µg/L[2]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,2,2-Tetrachloroethane	0.3	µg/L[2]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Tetrachloroethylene(PCE)	5	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Toluene	1000	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,1-Trichloroethane	200	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,1,2-Trichloroethane	5	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Trichloroethylene(TCE)	5	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Trichloroflouromethane	2000	µg/L[2]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
1,2,3-Trichloropropane	40	µg/L[2]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Vinyl acetate	410	µg/L[5]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Vinyl chloride	2	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Xylenes	10000	µg/L[1]	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	NT	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	NT	ND	ND	ND	ND	ND	ND	ND	NT	ND
Methyl tert-butyl ether (MTBE)	20 - 40	µg/L[4]	NT	6.23	9.4	ND	NT	7.08	16.5	ND	NT	6.7	7.7	12.3	6.9	NT	11.2	1.7	NT	6.6	14.8	4.3	NT	6.9	11.9	11.0	NT	7.5	8.4	6.6	12.4	7.0	16.3	12.3	NT	5.3

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above
NT = Not Tested due to dry conditions at well.

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-15

Concentration (Expressed in same units as Threshold Value)

Parameter	Threshold Value	SEP '18	JUN '18	MAR '18	DEC '17	SEP '17	JUN '17	MAR '17	DEC '16	SEP '16	JUN '16	MAR '16	DEC '15	SEP '15	JUN '15	MAR '15	DEC '14	SEP '14	JUN '14	MAR '14	DEC '13	SEPT '13	JUN '13	MAR '13	DEC '12	SEPT '12	JUN '12	MAR '12	DEC '11	SEPT '11	JUN '11	MAR '11	DEC '10	SEPT '10	JUN '10
Antimony	0.006 mg/L[1]	0.0040	ND	ND	0.0300	ND	0.0020	0.0340	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0060	0.0070	0.0060	0.0400	ND	ND	ND	ND	ND
Arsenic	0.010 mg/L[1]	0.03	0.03	0.0200	0.0200	0.0300	0.0300	ND	ND	0.0700	0.0130	0.0320	0.0170	ND	ND	0.0160	ND	0.0350	ND	ND	0.0050	0.0280	0.0130	0.0180	0.0040	0.0300	ND	ND	0.0110	ND	ND	0.0023	0.0338	0.0362	ND
Barium	2 mg/L[1]	0.084	0.096	0.1280	0.1240	0.0850	0.0890	0.1230	0.1560	0.3100	0.0600	0.1130	0.1840	0.1390	0.2230	0.1260	0.1350	0.1060	0.1810	0.1180	0.1340	0.0750	0.1510	0.1550	0.1340	0.1010	0.2360	0.2350	0.1620	0.1930	ND	0.1890	0.1260	0.1110	0.2900
Beryllium	0.004 mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	0.0060	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0050	ND	ND	ND[6]	ND
Cadmium	0.005 mg/L[1]	0.007	0.010	0.0090	ND	0.0100	0.0050	0.0100	0.0050	0.0460	ND	0.0100	0.0080	0.0070	ND	ND	ND	ND	0.0100	0.0010	ND	0.0010	ND	0.0040	ND	0.0020	ND	0.0060	0.0010	0.0040	ND	ND	ND[6]	ND[6]	ND
Chromium	0.1 mg/L[1]	ND	ND	ND	ND	0.0030	ND	0.0020	ND	0.1180	0.0020	0.0010	0.0050	0.0020	0.0010	ND	ND	0.0030	0.0030	0.0030	ND	ND	ND	ND	ND	0.0020	ND	0.0020	ND	ND	ND	ND	ND[6]	0.0018	0.0018
Cobalt	0.73 mg/L[5]	0.014	0.012	0.0100	0.0090	0.0180	0.0130	0.0040	ND	0.2300	0.0080	0.0180	0.0070	0.0040	0.0020	0.0120	ND	0.0190	0.0020	ND	0.0010	0.0140	0.0100	0.0060	0.0020	0.0170	0.0030	0.0040	0.0090	0.0020	ND	0.0039	0.0185	0.0244	0.0017
Copper	1.3 mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	0.1400	ND	ND	ND	ND	ND	0.0020	ND	ND	0.0080	0.0040	0.0240	0.0050	0.0060	0.0060	ND	ND	ND	0.0030	0.0040	0.0100	0.2400	ND	0.0012	0.0059	0.0028
Lead	0.015 mg/L[1]	0.0020	ND	0.0020	ND	ND	0.0020	ND	0.0050	0.1350	0.0140	ND	ND	ND	0.0040	0.0020	0.0040	0.0110	0.0040	0.0020	0.0030	0.0020	0.0050	0.0050	0.0030	0.0050	0.0020	0.0020	0.0010	0.0030	ND	ND	0.0025	0.0025	0.0013
Mercury	0.002 mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0070	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	0.1 mg/L[2]	0.029	0.023	0.0200	0.0510	0.0350	0.0240	0.0520	0.0110	0.6610	0.0140	0.0290	0.0170	0.0100	0.0110	0.0180	0.0080	0.0330	0.0120	0.0070	0.0110	0.0230	0.0190	0.0150	ND	0.0270	0.0110	0.0130	0.0160	0.0090	0.0140	0.0086	0.0374	0.0396	0.0097
Selenium	0.05 mg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0220	ND	ND	ND	ND	0.0160	ND	ND	ND	ND	0.0100	0.0120	0.0180	0.0110	0.0190	0.0400	ND	ND[6]	ND	ND
Silver	0.1 mg/L[2,3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0030	0.0020	0.0150	0.0030	0.0030	0.0050	0.0020	0.0030	0.0030	ND	0.0040	ND	0.0050	ND	0.0050	ND	ND	ND[6]	ND[6]	ND
Thallium	0.002 mg/L[1]	ND	ND	ND	ND	ND	ND	0.0020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tin	22 mg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	1.0600	ND	ND	0.0470	ND	ND	ND	ND	ND	ND	0.0270	0.0780	0.0210	0.0400	ND	ND	ND	ND	ND	ND	ND	ND	ND[6]	ND[6]	ND[6]	ND
Vanadium	0.26 mg/L[5]	0.0110	ND	0.0060	0.0040	0.0110	ND	ND	0.0150	0.1560	0.0050	ND	ND	0.0020	ND	0.0040	0.0050	0.0060	0.0040	0.0030	0.0090	0.0030	0.0050	0.0040	0.0040	0.0030	0.0030	0.0020	0.0020	ND	0.0160	ND	0.0012	0.0023	0.0023
Zinc	2 mg/L[2,3]	0.015	0.032	0.0210	0.0100	0.0300	0.0200	0.0140	ND	0.9700	ND	0.0120	0.0150	0.0080	ND	ND	ND	ND	ND	ND	ND	ND	0.0150	0.0200	ND	0.0280	0.0090	0.0120	0.0060	0.0170	ND	0.0181	0.0147	0.0227	ND
Acetone	610 µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	5.2	ND	ND	6.7	ND	ND	ND	ND	ND	ND	5.6	ND	ND	ND	18.6	ND	ND	ND	ND	ND	ND	ND	6.8	ND	ND	ND
Acrylonitrile	0.039 µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	5 µg/L[1]	ND	1.67	ND	ND	3.59	2.83	ND	ND	3.4	3.2	2.1	3.2	1.7	2.0	2.8	2.8	3.6	2.2	2.1	2.8	3.4	2.7	2.8	2.5	3.4	3.1	2.7	3.2	3.5	2.1	1.9	3.3	3.5	2.5
Bromochloromethane	80 µg/L[2]	ND	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane (THM)	90 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	80 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	1000 µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	5 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	100 µg/L[1]	14.0	12.72	17	15.2	18.19	21.26	17.4	21.5	16.0	16.8	17.7	18.3	21.0	21.1	19.7	26.9	19.0	27.0	25.0	32.5	18.9	14.3	20.0	29.0	15.5	12.4	16.9	15.8	25.0	11.8	23.1	19.8	16.9	12.0
Chloroethane	4.6 µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.8	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	2.9	1.4
Chloroform	80 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane (THM)	80 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	600 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	1.0	1.3	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	75 µg/L[1]	ND	ND	ND	ND	2.51	ND	1.6	ND	ND	2.1	ND	ND	3.4	2.9	3.0	ND	ND	3.4	ND	ND	2.1	2.3	2.6	3.2	1.9	1.9	2.3	1.5	3.1	2.1	2.9	2.4	2.4	2.1
trans-1,4-Dichloro-2-butene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5 µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5 µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	7 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	70 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	5 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160 µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	10 µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	30 µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	61 µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	5 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000 µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl iodide	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	µg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70 µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3 µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	200 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene(TCE)	5 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroflouromethane	2000 µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	40 µg/L[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	410 µg/L[5]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	2 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	10000 µg/L[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	3.3	ND	ND	2.2	5.4	ND	ND	3.1	ND	6.1	2.0	3.9	ND	ND	6.5
Methyl tert-butyl ether (MTBE)	20 - 40 µg/L[4]	7.0	6.61	ND	6.3	7.52	7.69	8.5	ND	7.9	7.9	6.8	7.8	6.7	12.2	7.1	4.2	6.0	9.4	5.4	7.7	8.3	10.3	6.1	3.9	8.8	9.5	9.5	5.5	7.5	7.1	7.9	6.1	7.6	5.7

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

TABLE 1 (CONT.)
SUMMARY OF GROUNDWATER MONITORING RESULTS
APPENDIX A - CONSTITUENTS FOR DETECTION MONITORING
MONITORING WELL OW-16

Concentration (Expressed in same units as Threshold Value)

Parameter	**Threshold Value**		SEP '18	JUN '18	MAR '18	NOV '17
Antimony	0.006	mg/L^{1}	ND	0.002	ND	ND
Arsenic	0.010	mg/L^{1}	ND	0.01	ND	ND
Barium	2	mg/L^{1}	0.027	0.011	0.0190	0.1000
Beryllium	0.004	mg/L^{1}	ND	ND	ND	ND
Cadmium	0.005	mg/L^{1}	ND	ND	ND	ND
Chromium	0.1	mg/L^{1}	0.003	0.004	0.0060	0.0050
Cobalt	0.73	mg/L^{5}	0.004	0.002	0.0050	0.0050
Copper	1.3	mg/L^{1}	ND	ND	ND	ND
Lead	0.015	mg/L^{1}	ND	ND	ND	ND
Mercury	0.002	mg/L^{1}	ND	ND	ND	ND
Nickel	0.1	mg/L^{2}	0.01	0.009	0.0100	0.0100
Selenium	0.05	mg/L^{1}	0.003	ND	0.0100	0.0050
Silver	0.1	mg/L^{2,3}	ND	ND	ND	ND
Thallium	0.002	mg/L^{1}	ND	ND	0.0003	ND
Tin	22	mg/L^{5}	ND	ND	ND	ND
Vanadium	0.26	mg/L^{5}	ND	ND	ND	ND
Zinc	2	mg/L^{2,3}	0.019	0.022	0.024	0.0210
Acetone	610	μg/L^{5}	ND	ND	ND	ND
Acrylonitrile	0.039	μg/L^{5}	ND	ND	ND	ND
Benzene	5	μg/L^{1}	ND	ND	ND	ND
Bromochloromethane	80	μg/L^{2}	ND	ND	ND	ND
Bromodichloromethane (THM)	90	μg/L^{1}	ND	ND	ND	ND
Bromoform	80	μg/L^{1}	ND	ND	ND	ND
Carbon disulfide	1000	μg/L^{5}	ND	ND	ND	ND
Carbon tetrachloride	5	μg/L^{1}	ND	ND	ND	ND
Chlorobenzene	100	μg/L^{1}	ND	ND	ND	ND
Chloroethane	4.6	μg/L^{5}	ND	ND	ND	ND
Chloroform	80	μg/L^{1}	ND	ND	ND	ND
Chlorodibromomethane (THM)	80	μg/L^{1}	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	0.2	μg/L^{1}	ND	ND	ND	ND
1,2-Dibromoethane (EDB)	0.05	μg/L^{1}	ND	ND	ND	ND
1,2-Dichlorobenzene	600	μg/L^{1}	ND	ND	ND	ND
1,4-Dichlorobenzene	75	μg/L^{1}	ND	ND	ND	ND
trans-1,4-Dichloro-2-butene		μg/L	ND	ND	ND	ND
1,1-Dichloroethane	5	μg/L	ND	ND	ND	ND
1,2-Dichloroethane	5	μg/L	ND	ND	ND	ND
1,1-Dichloroethylene	7	μg/L^{1}	ND	ND	ND	ND
cis-1,2-Dichloroethene	70	μg/L^{1}	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	μg/L^{1}	ND	ND	ND	ND
1,2-Dichloropropane	5	μg/L^{1}	ND	ND	ND	ND
cis-1,3-Dichloropropene		μg/L	ND	ND	ND	ND
trans-1,3-Dichloropropene		μg/L	ND	ND	ND	ND
Ethylbenzene	700	μg/L^{1}	ND	ND	ND	ND
Methyl butyl ketone(2-Hexanone)	160	μg/L^{5}	ND	ND	ND	ND
Bromomethane	10	μg/L^{2}	ND	ND	ND	ND
Chloromethane	30	μg/L^{2}	ND	ND	ND	ND
Dibromomethane	61	μg/L^{5}	ND	ND	ND	ND
Methylene chloride	5	μg/L^{1}	ND	ND	ND	ND
Methyl ethyl ketone(2-Butanone)	4000	μg/L^{2}	ND	ND	ND	ND
Methyl iodide		μg/L	ND	ND	ND	ND
4-Methyl-2-pentanone		μg/L	ND	ND	ND	ND
Styrene	100	μg/L^{1}	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	70	μg/L^{2}	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.3	μg/L^{2}	ND	ND	ND	ND
Tetrachloroethylene(PCE)	5	μg/L^{1}	ND	ND	ND	ND
Toluene	1000	μg/L^{1}	ND	ND	ND	ND
1,1,1-Trichloroethane	200	μg/L^{1}	ND	ND	ND	ND
1,1,2-Trichloroethane	5	μg/L^{1}	ND	ND	ND	ND
Trichloroethylene(TCE)	5	μg/L^{1}	ND	ND	ND	ND
Trichloroflouromethane	2000	μg/L^{2}	ND	ND	ND	ND
1,2,3-Trichloropropane	40	μg/L^{2}	ND	ND	ND	ND
Vinyl acetate	410	μg/L^{5}	ND	ND	ND	ND
Vinyl chloride	2	μg/L^{1}	ND	ND	ND	ND
Xylenes	10000	μg/L^{1}	ND	ND	ND	ND
Methyl tert-butyl ether (MTBE)	20 - 40	μg/L^{4}	3.42	6.53	7.8	4.6

▨ = Exceeded MCL

1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
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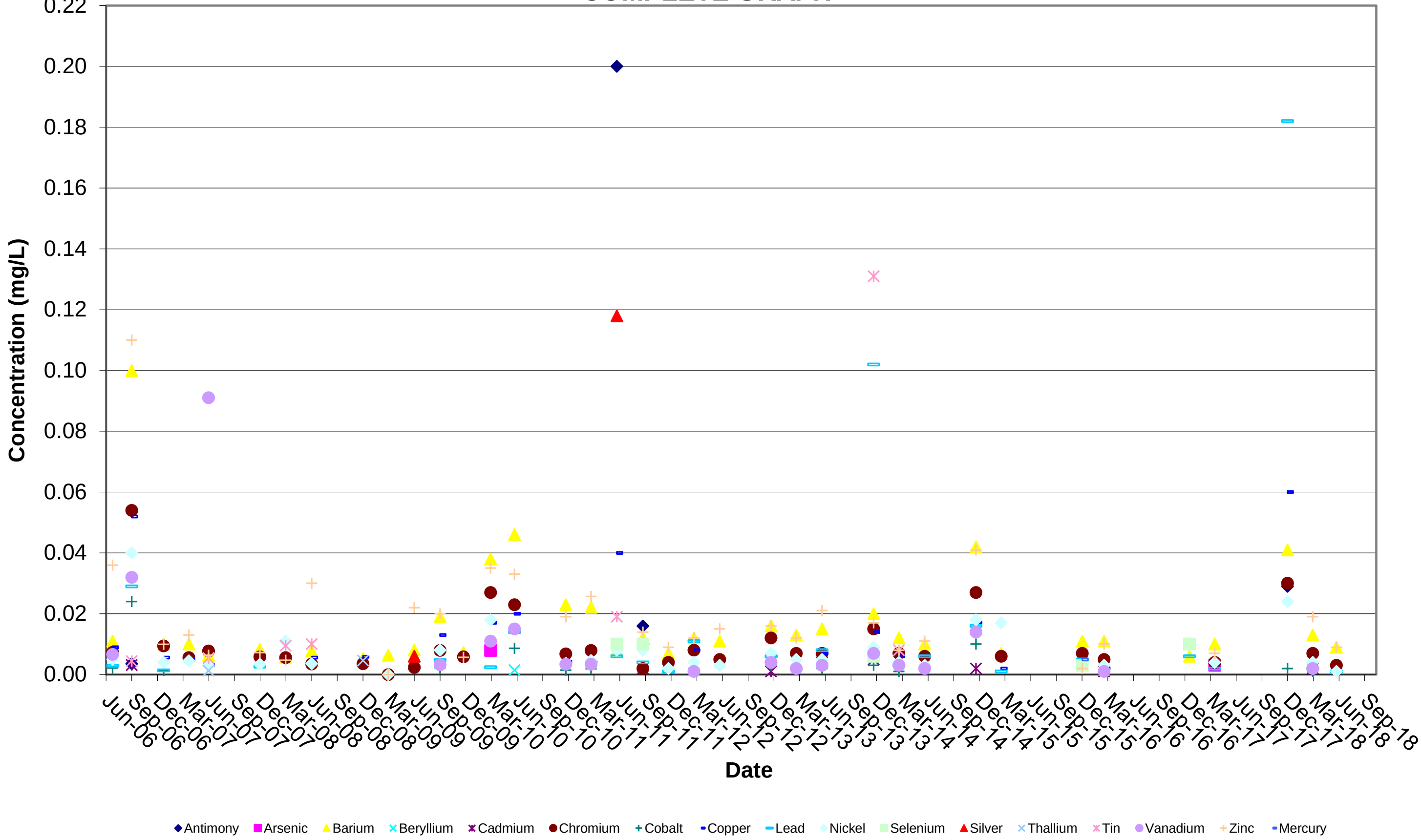
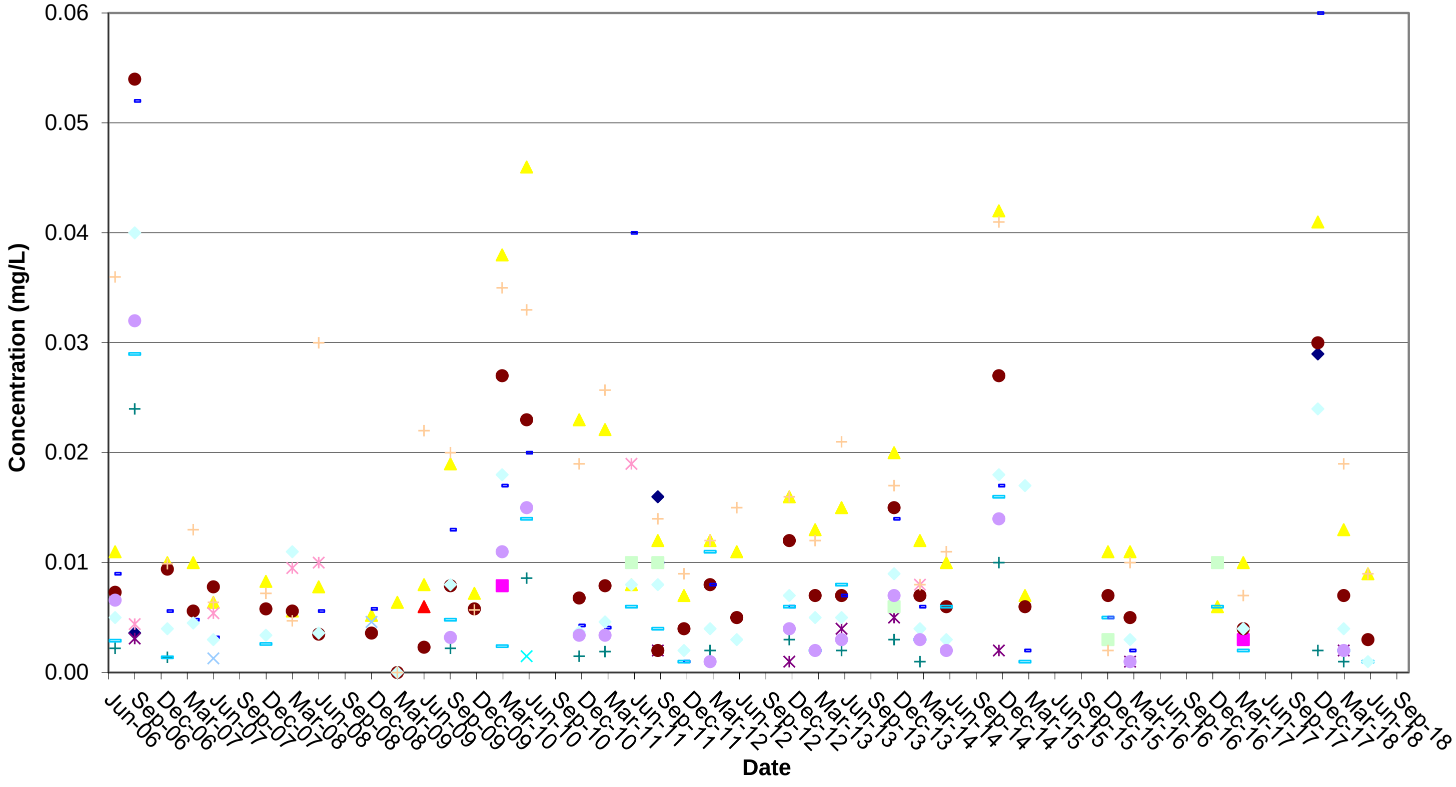
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

ATTACHMENT NO. 3
HISTORICAL DETECTED METALS GRAPHS

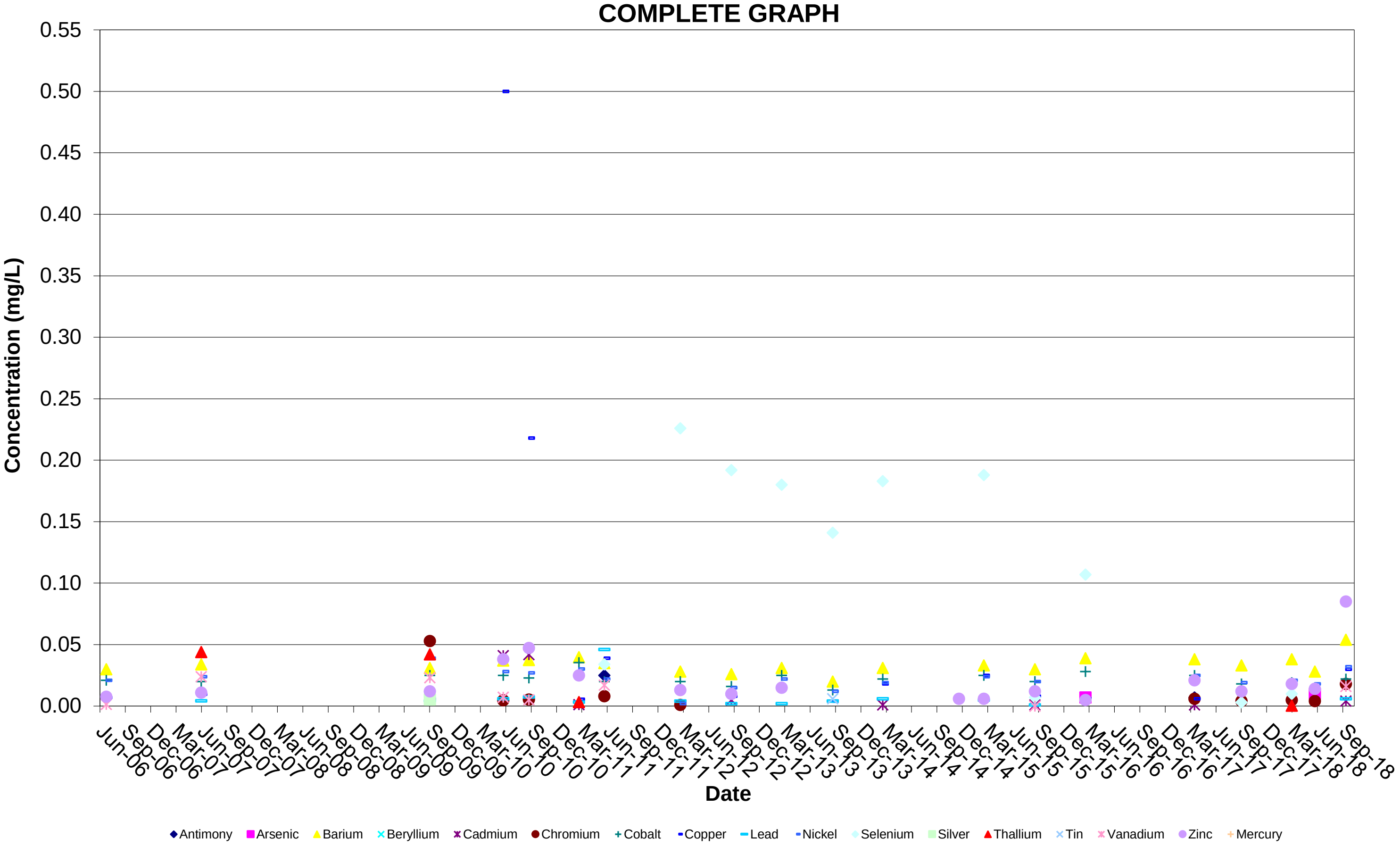
Detected Appendix A Metals in OW-9
Tiverton Landfill


COMPLETE GRAPH


TRUNCATED GRAPH

Detected Appendix A Metals in OW-7
Tiverton Landfill

COMPLETE GRAPH



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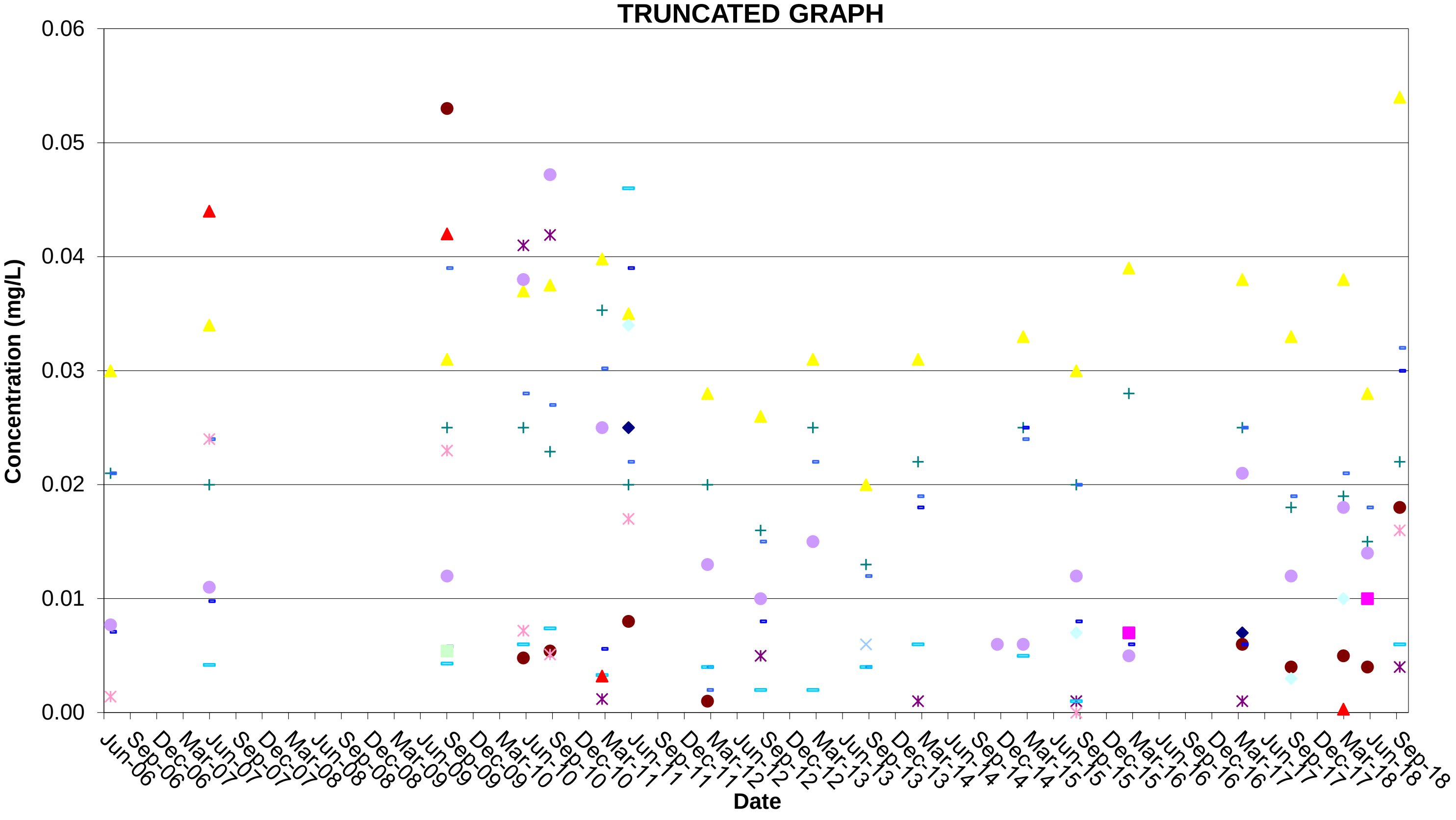
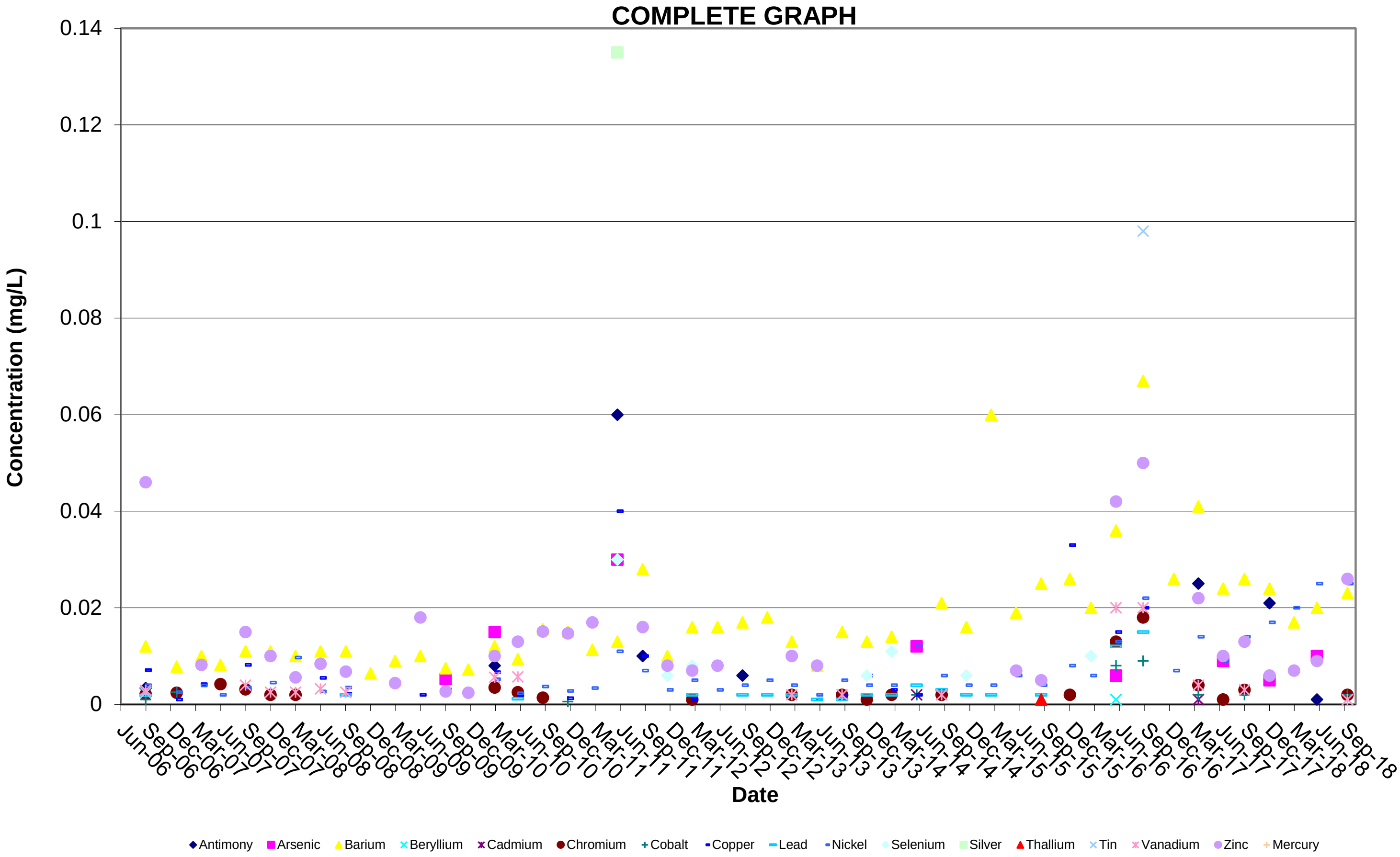
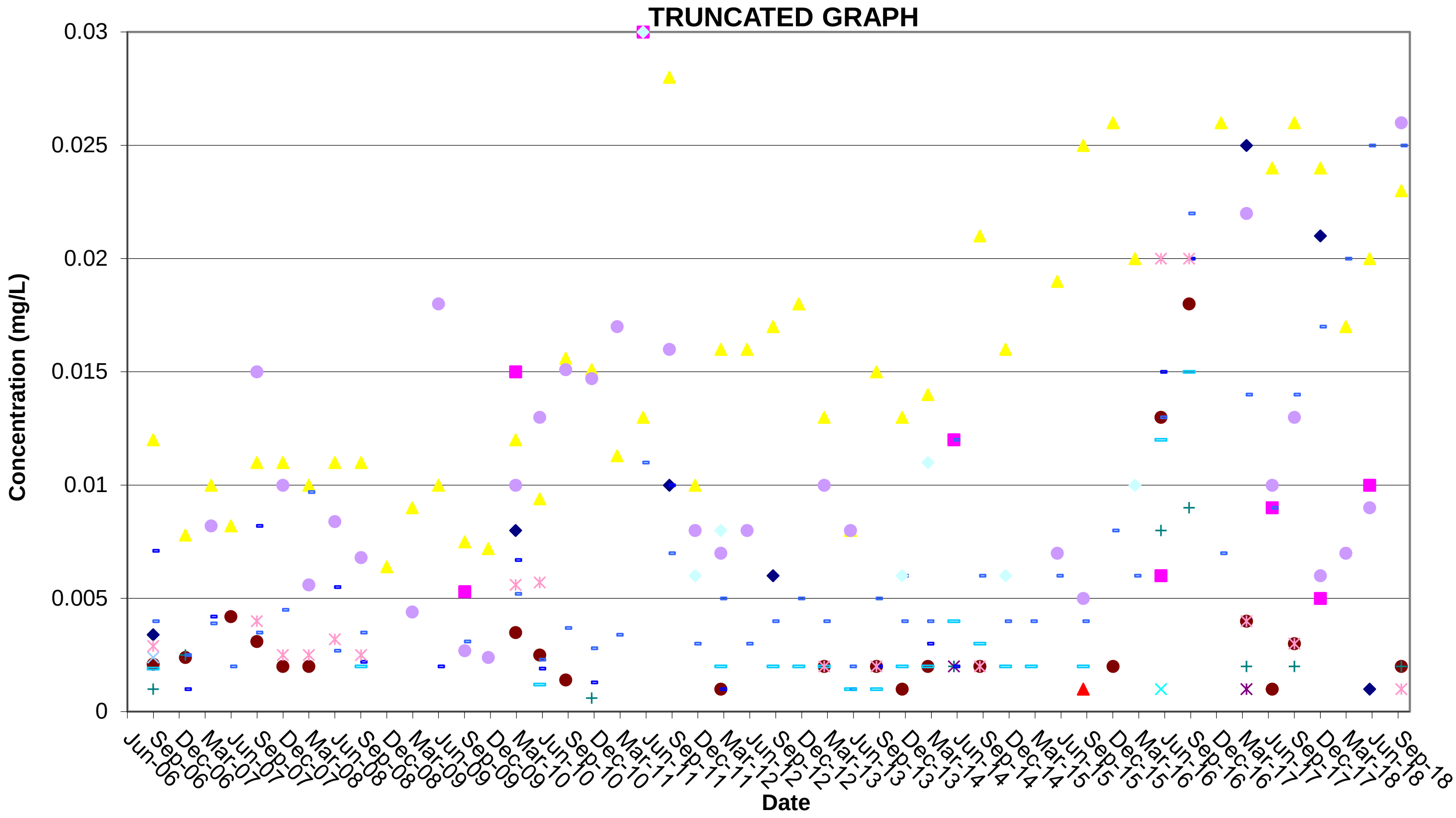
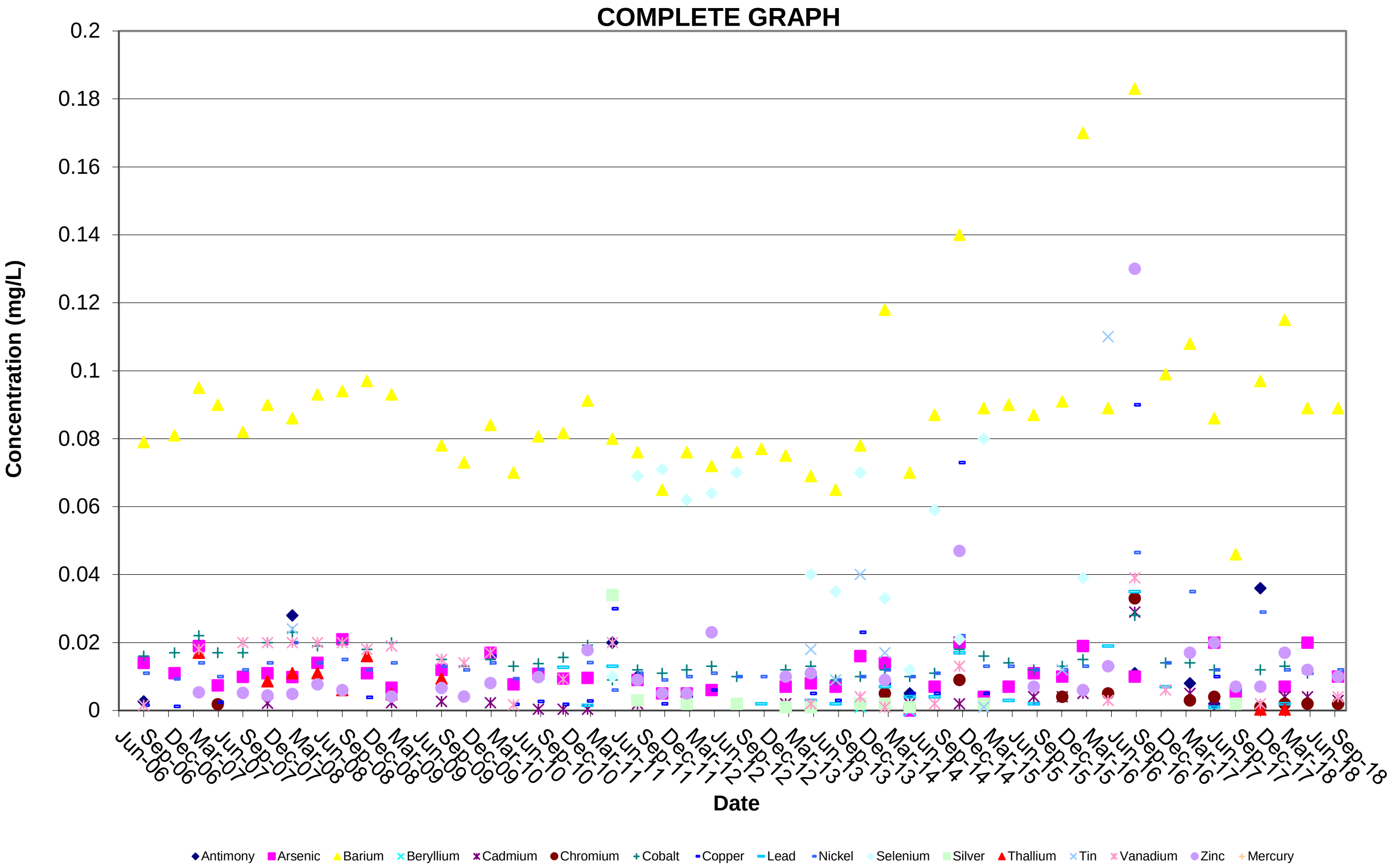


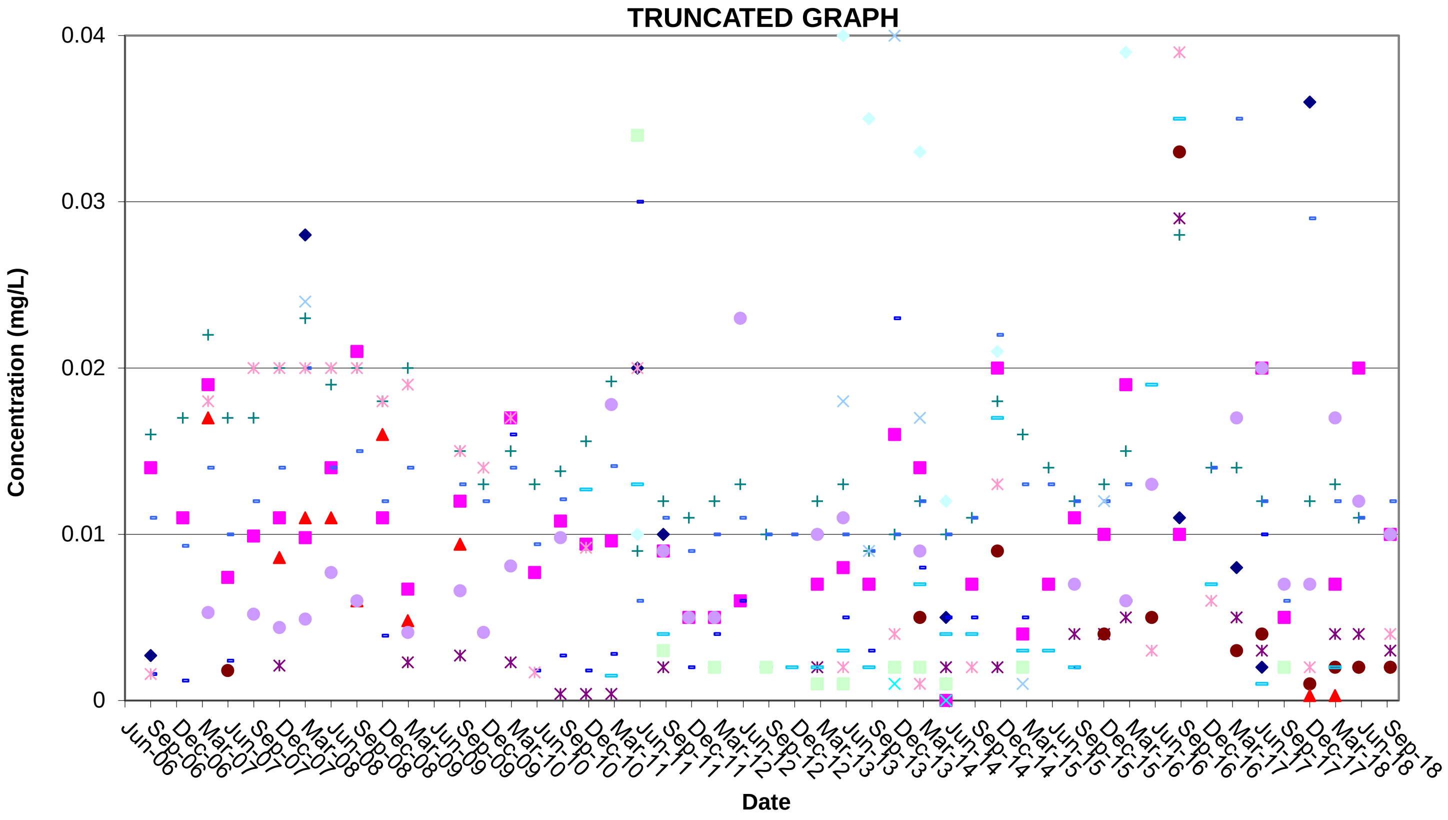
Detected Appendix A Metals in OW-12
Tiverton Landfill



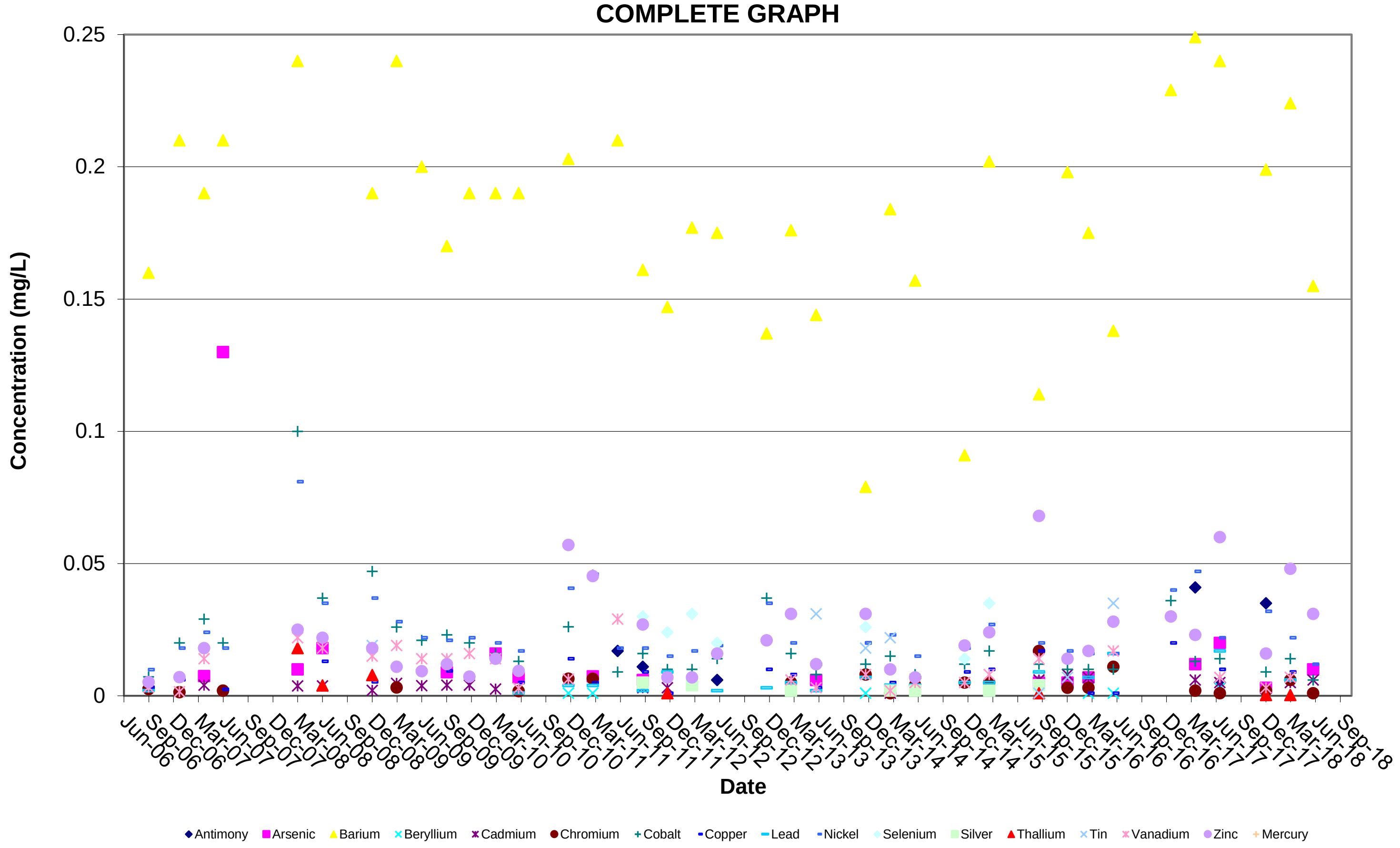


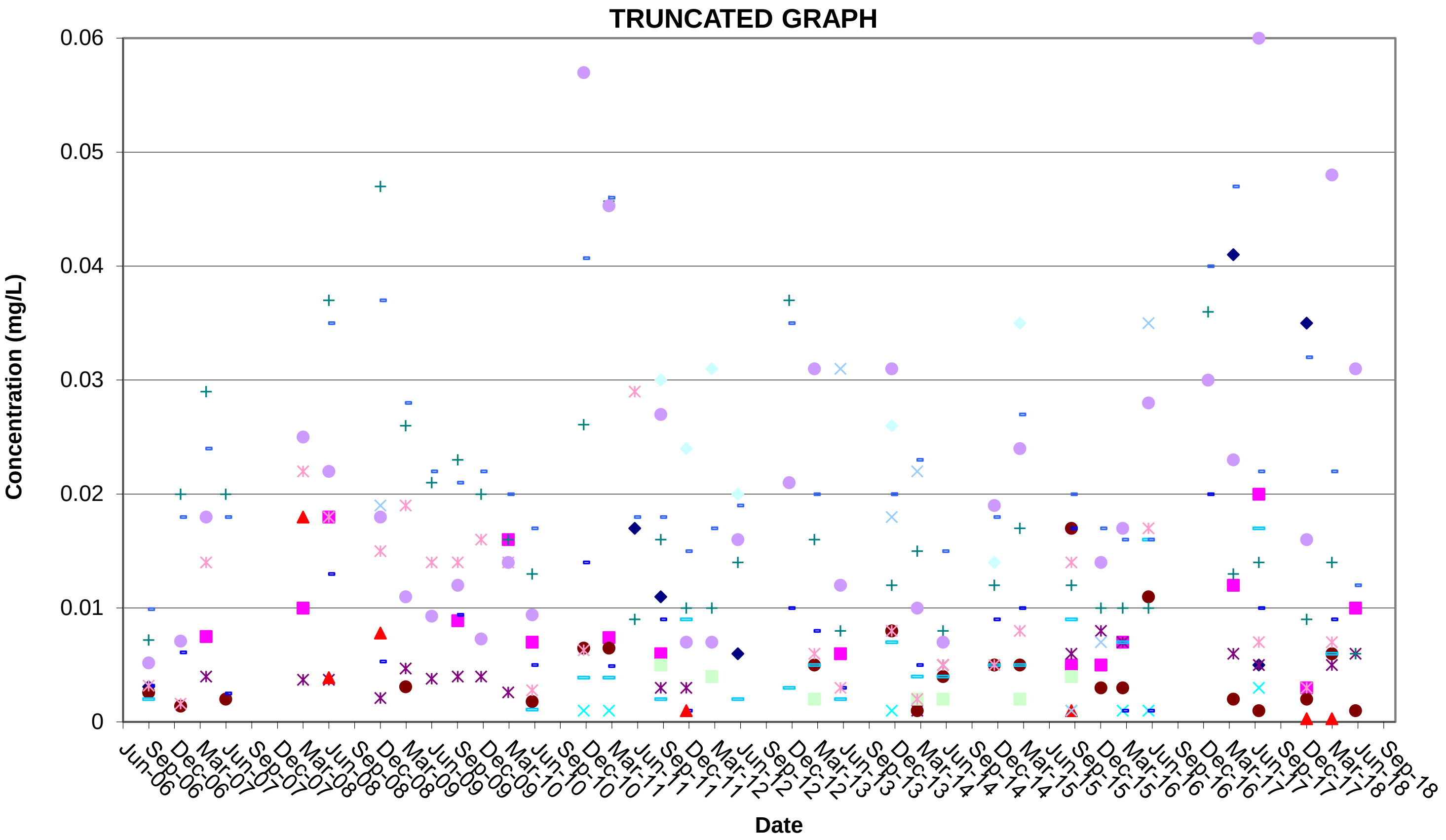
Detected Appendix A Metals in OW-13
Tiverton Landfill



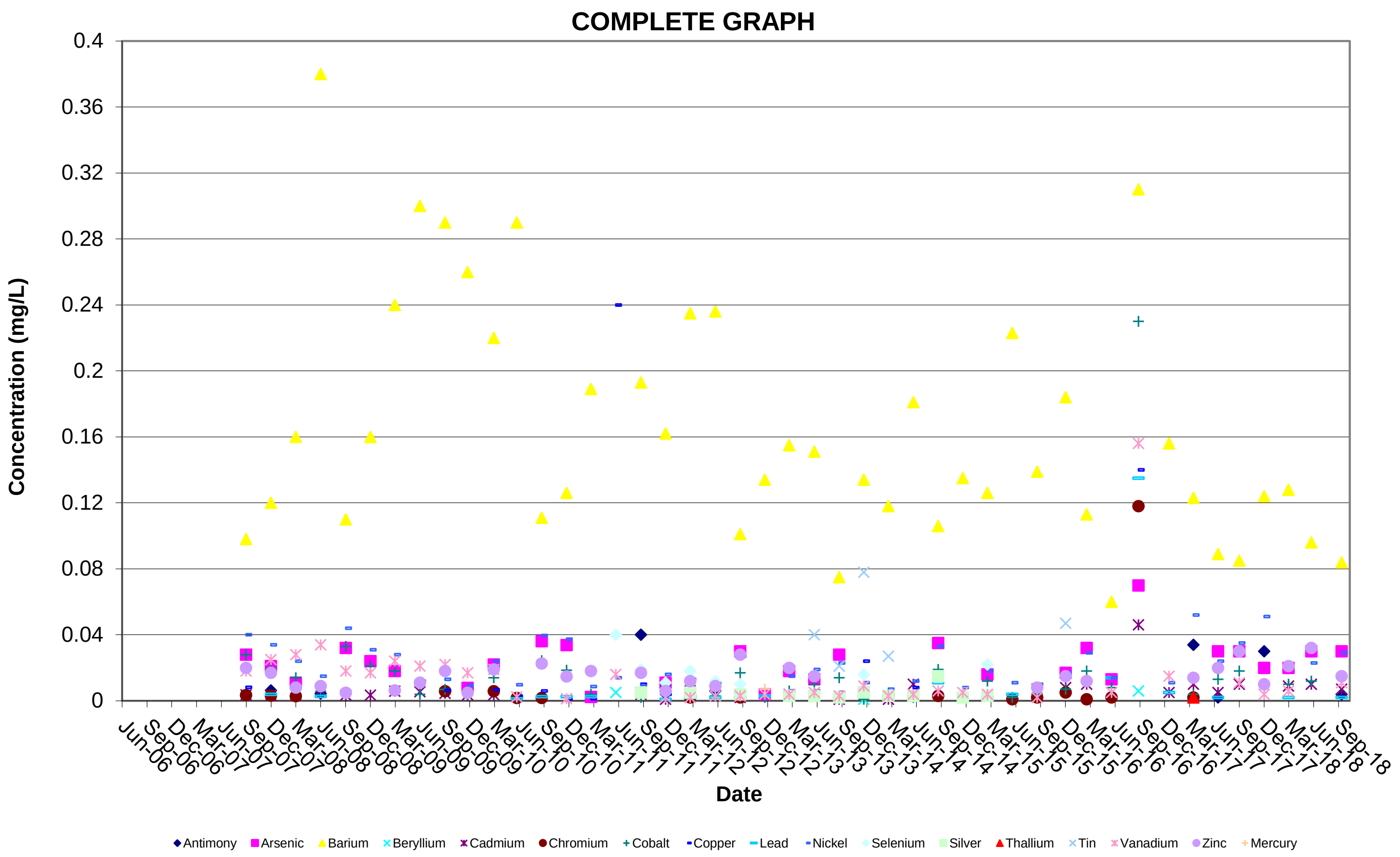


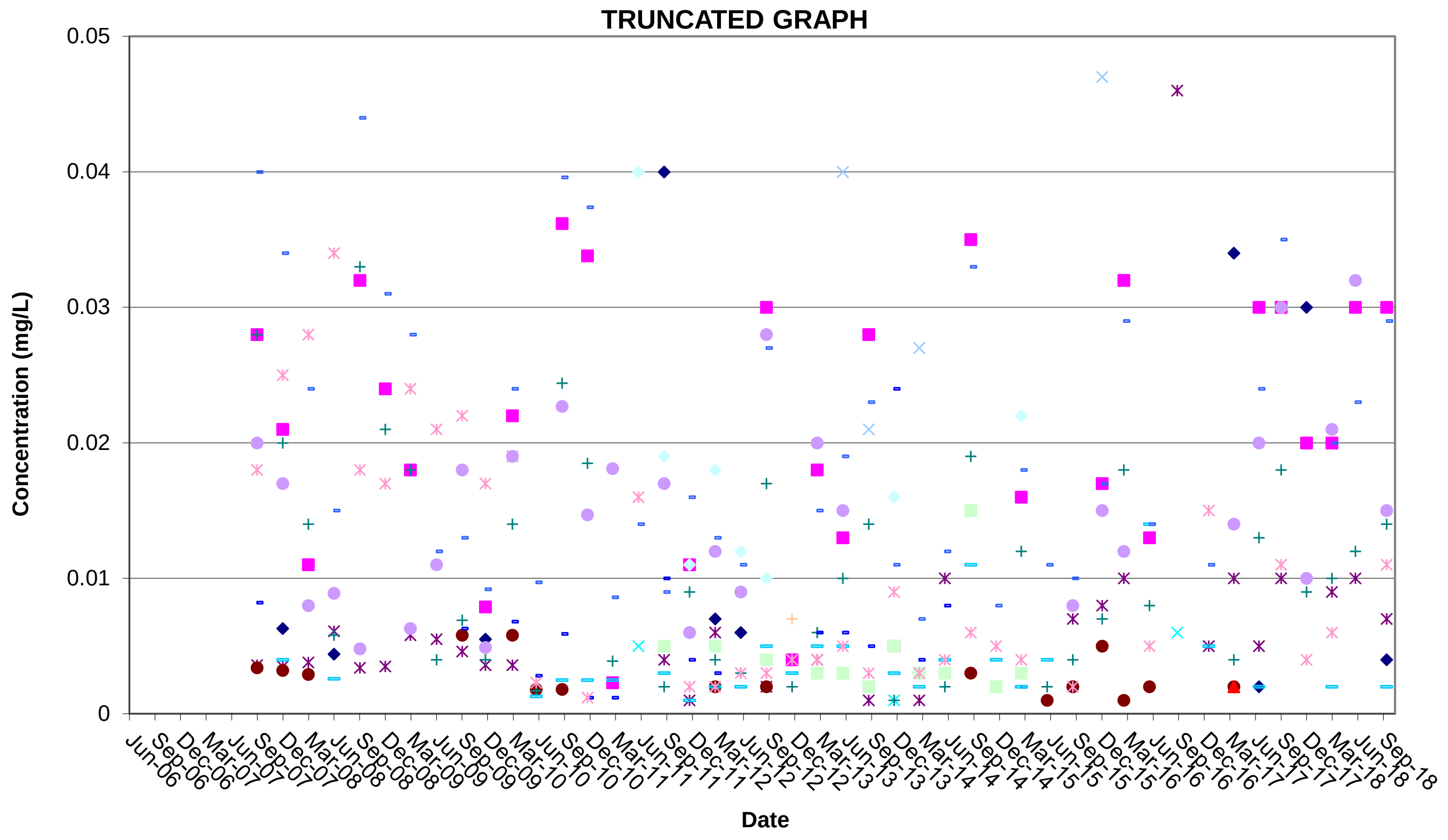
Detected Appendix A Metals in OW-14
Tiverton Landfill



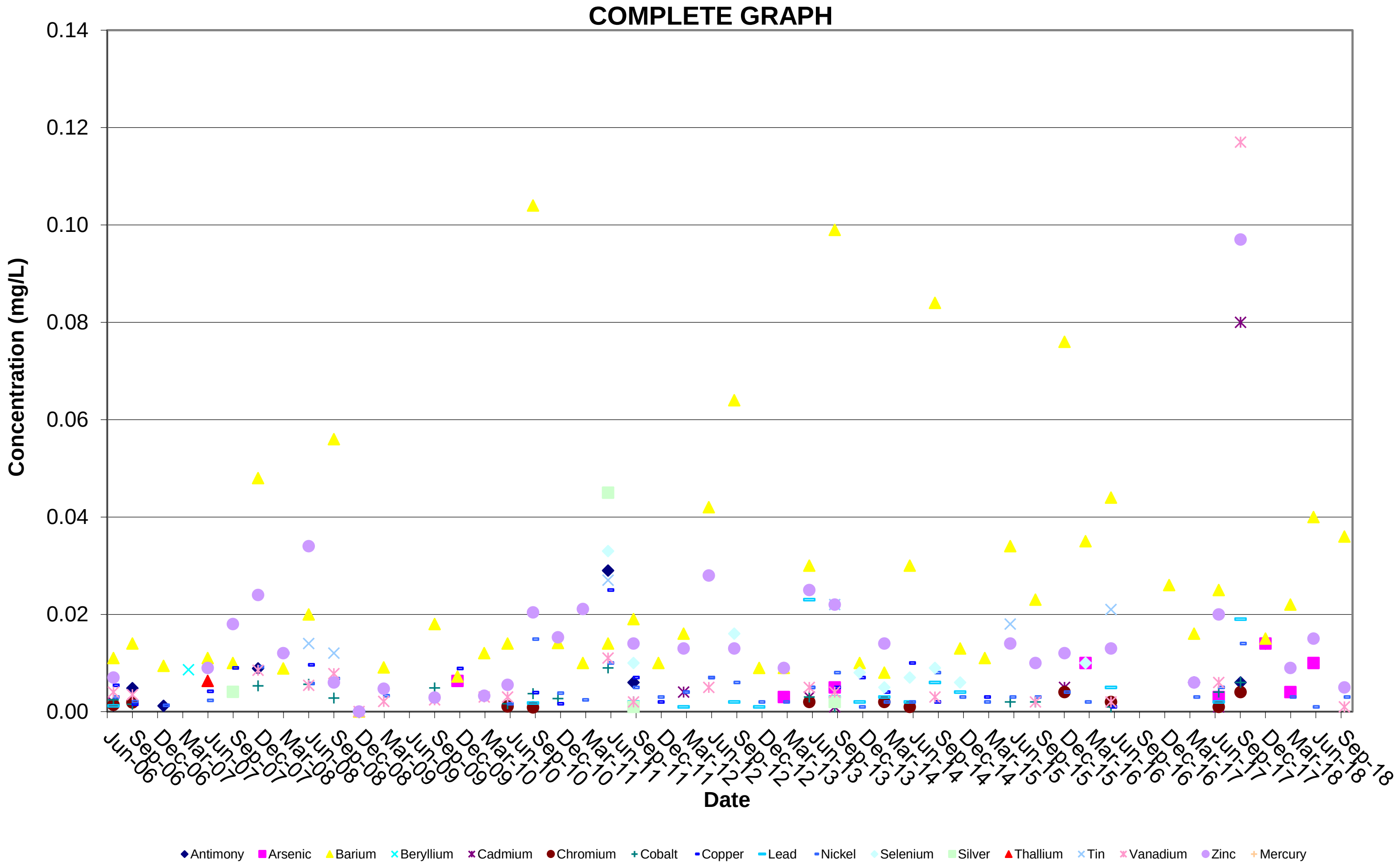


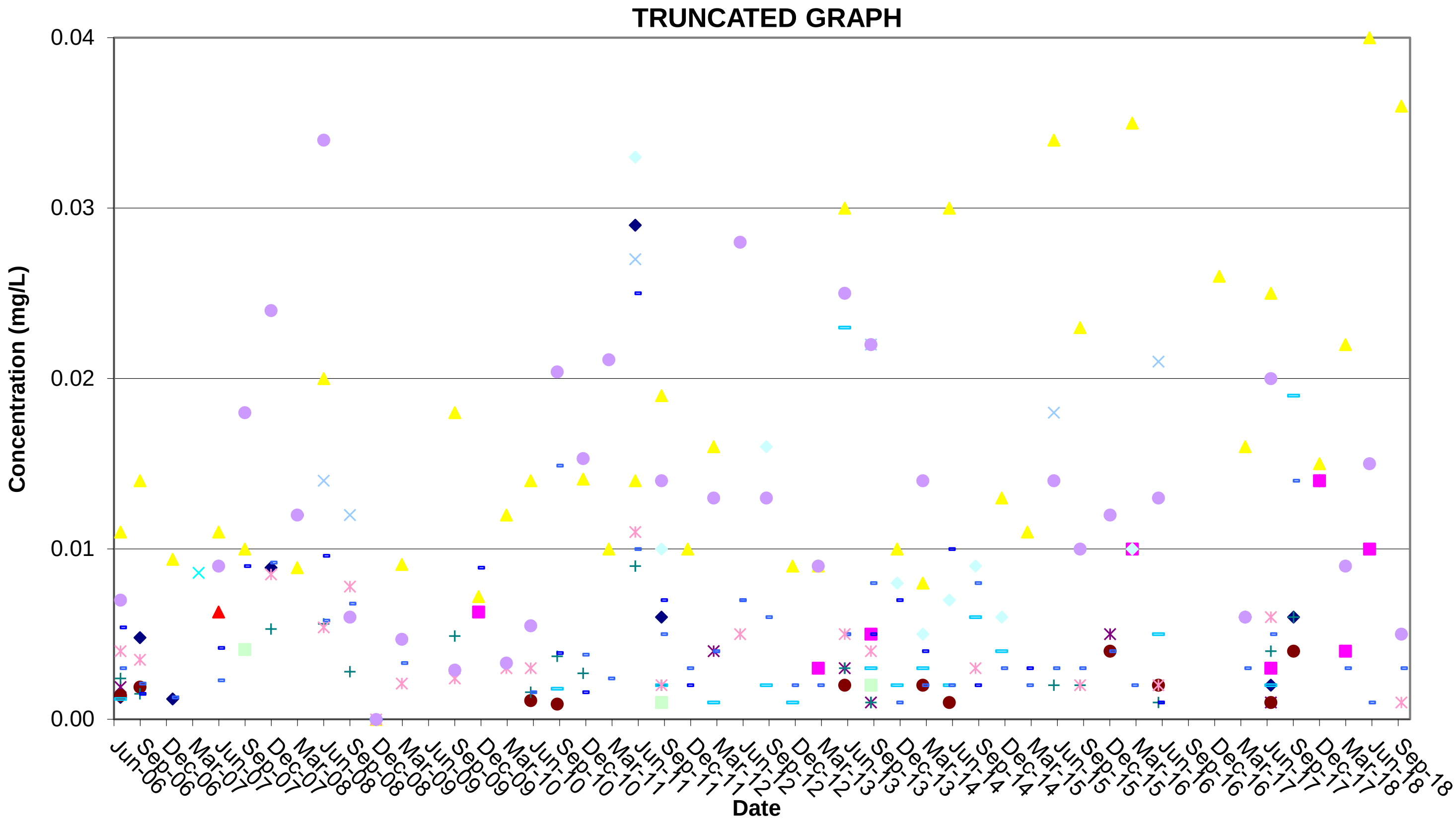
Detected Appendix A Metals in OW-15
Tiverton Landfill



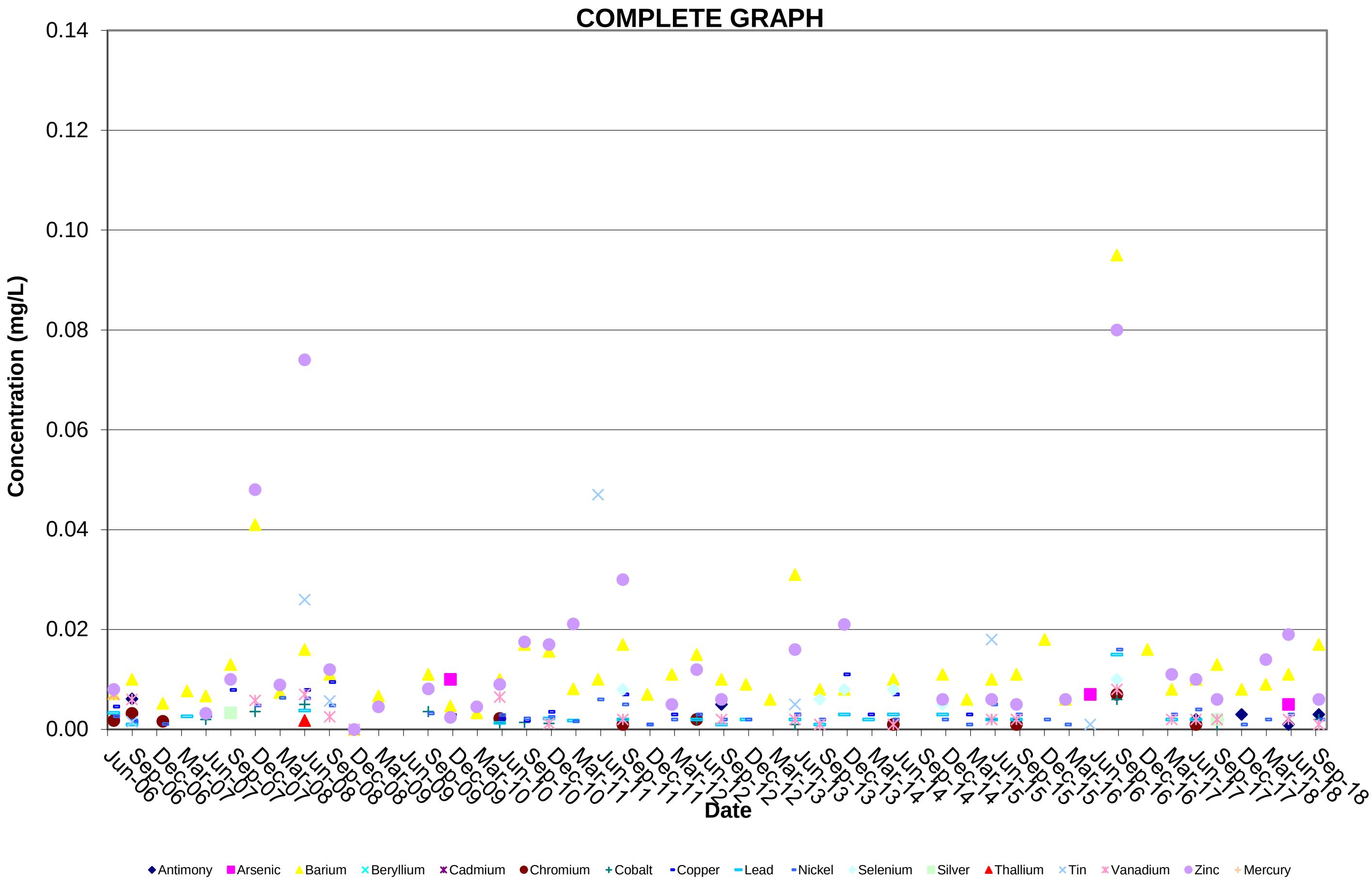


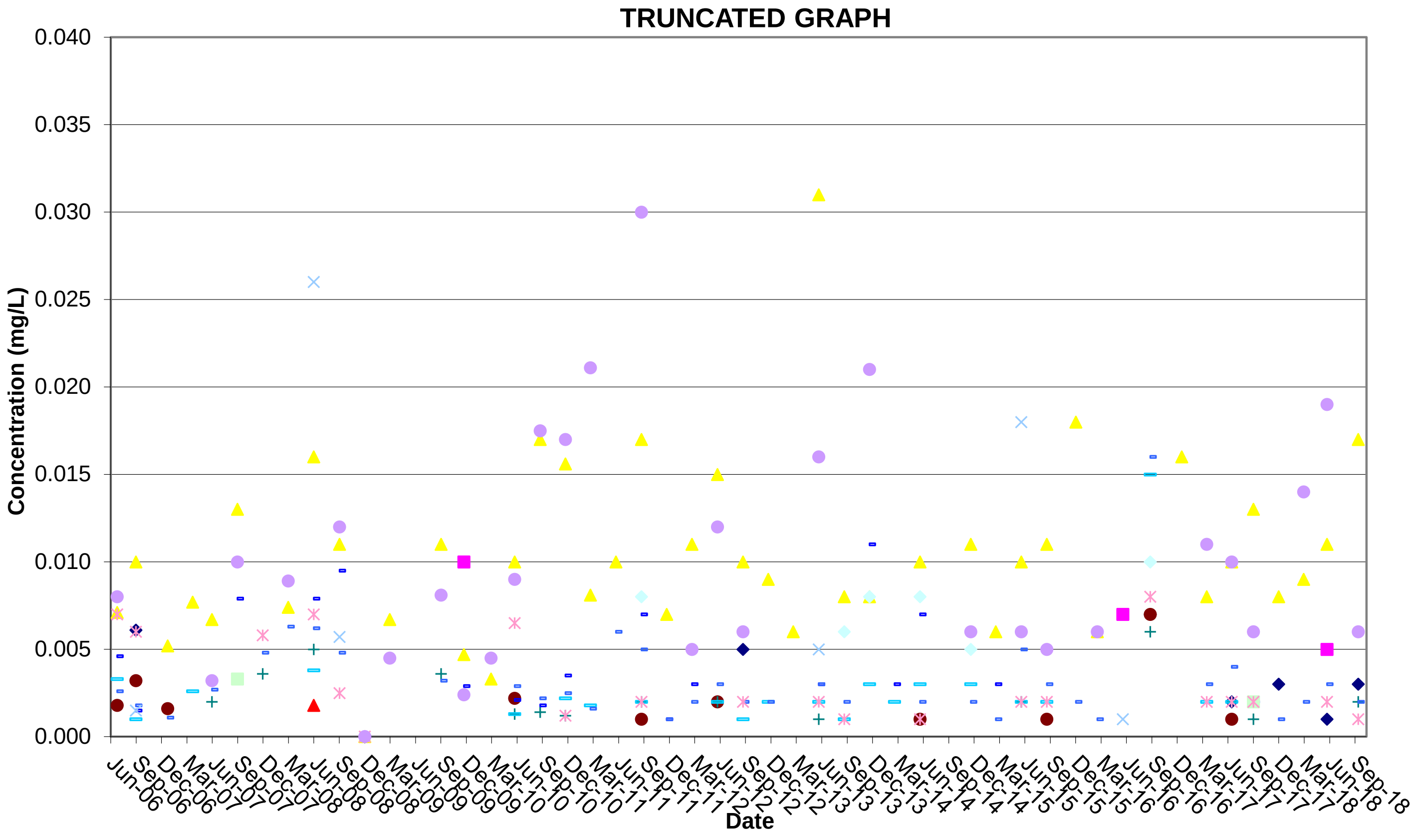
Detected Appendix A Metals at Surface Water Sampling Location SW-1
Tiverton Landfill



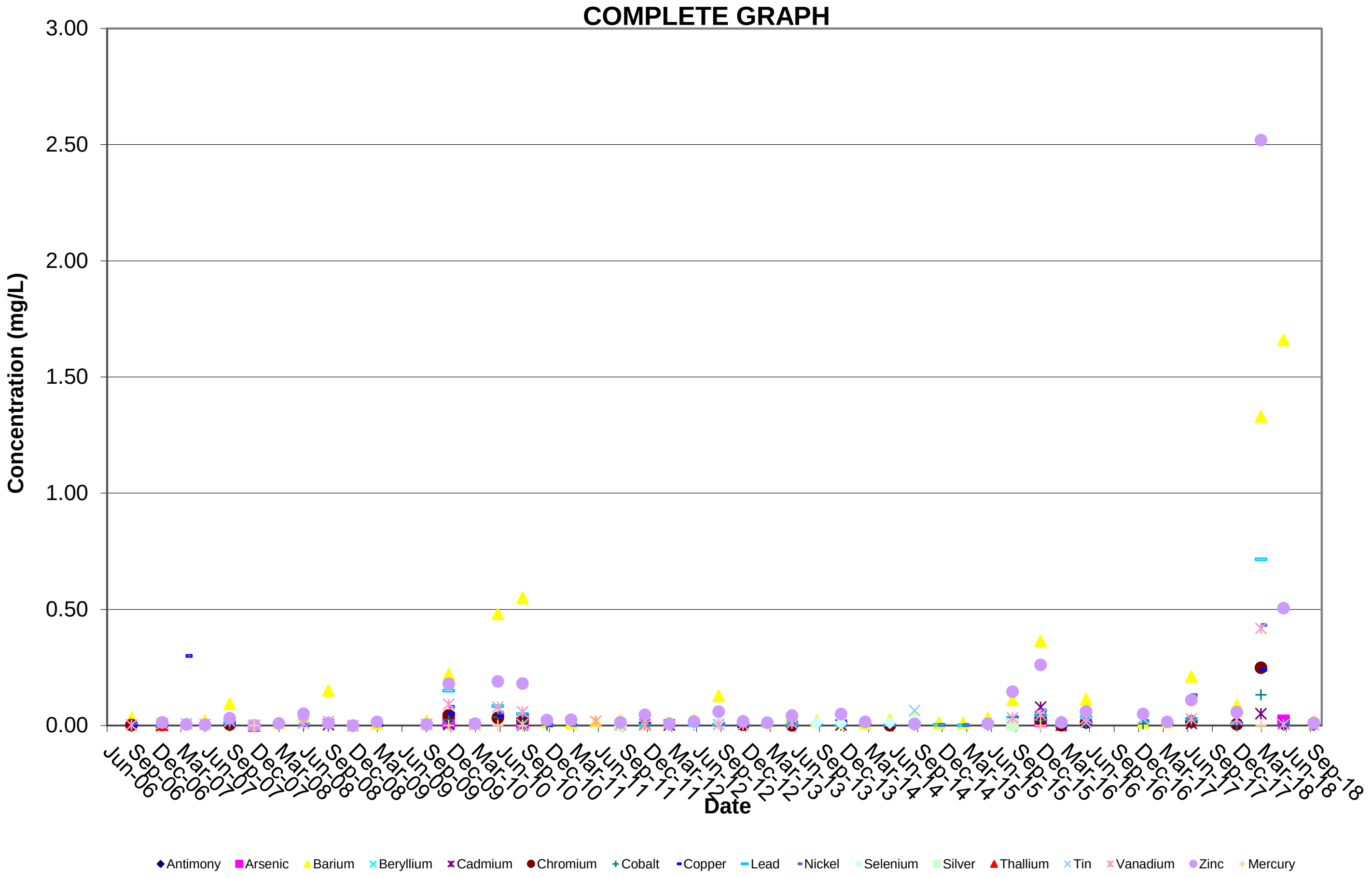


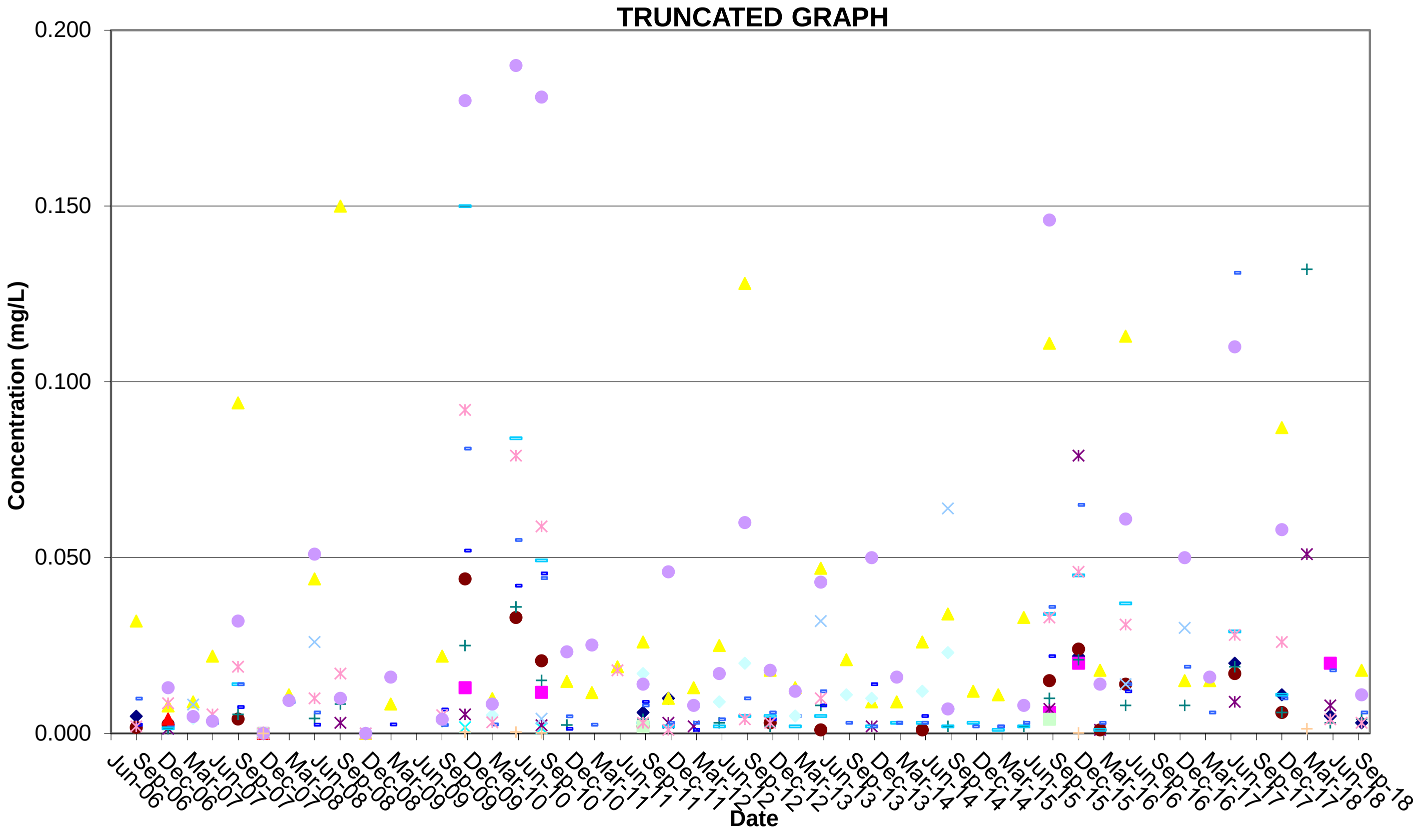
Detected Appendix A Metals at Surface Water Sampling Location SW-2
Tiverton Landfill





Detected Appendix A Metals at Surface Water Sampling Location SW-3
Tiverton Landfill


COMPLETE GRAPH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ATTACHMENT NO. 4
TOLERANCE INTERVAL STATISTICAL EVALUATION

TABLE 3
SUMMARY OF GROUNDWATER MONITORING RESULTS - TOLERANCE INTERVAL COMPARISON
SEPT 2018 - SAMPLE ROUND

Concentration (units as specified for Threshold Value)

		OW-9				Background Well		Compliance wells		
		Tolerance Limit *		Threshold						
	Parameter	TL=AVG+K*S		Value		OW-9	OW-12	OW-13	OW-14	OW-15
METALS	Antimony	0.0290	mg/L	0.006	mg/L^1	NT	ND	0.002	NT	0.004
	Arsenic	0.0030	mg/L	0.010	mg/L^1	NT	ND	0.010	NT	0.030
	Barium	0.0491	mg/L	2	mg/L^1	NT	0.023	0.089	NT	0.084
	Beryllium	0.0005	mg/L	0.004	mg/L^1	NT	ND	ND	NT	ND
	Cadmium	0.3650	mg/L	0.005	mg/L^1	NT	ND	0.003	NT	0.007
	Chromium	0.0364	mg/L	0.1	mg/L^1	NT	0.002	0.002	NT	ND
	Cobalt	0.0020	mg/L	0.73	mg/L^5	NT	0.002	0.010	NT	0.014
	Copper	0.0600	mg/L	1.3	mg/L^1	NT	ND	ND	NT	ND
	Lead	0.2245	mg/L	0.015	mg/L^1	NT	ND	ND	NT	0.0020
	Mercury	0.0001	mg/L	0.002	mg/L^1	NT	ND	ND	NT	ND
	Nickel	0.0337	mg/L	0.1	mg/L^2	NT	0.025	0.012	NT	0.029
	Selenium	0.0100	mg/L	0.05	mg/L^1	NT	ND	ND	NT	ND
	Silver	0.0005	mg/L	0.1	mg/L^{2,3}	NT	ND	ND	NT	ND
	Thallium	0.0005	mg/L	0.002	mg/L^1	NT	ND	ND	NT	ND
	Tin	0.0025	mg/L	22	mg/L^5	NT	ND	ND	NT	ND
	Vanadium	0.0020	mg/L	0.26	mg/L^5	NT	0.001	0.004	NT	0.0110
	Zinc	13.7203	mg/L	2 - 5	mg/L^{2,3}	NT	0.026	0.01	NT	0.015
VOC'S	Acetone			610	µg/L^5					
	Acrylonitrile			0.039	µg/L^5					
	Benzene			5	µg/L^1					
	Bromochloromethane			80	µg/L^2					
	Bromodichloromethane (THM)			90	µg/L^1					
	Bromoform			80	µg/L^1					
	Carbon disulfide			1000	µg/L^5					
	Carbon tetrachloride			5	µg/L^1					
	Chlorobenzene			100	µg/L^1					
	Chloroethane			4.6	µg/L^5					
	Chloroform			80	µg/L^1					
	Chlorodibromomethane (THM)			80	µg/L^1					
	1,2-Dibromo-3-chloropropane (DBCP)			0.2	µg/L^1					
	1,2-Dibromoethane (EDB)			0.05	µg/L^1					
	1,2-Dichlorobenzene			600	µg/L^1					
	1,4-Dichlorobenzene			75	µg/L^1					
	trans-1,4-Dichloro-2-butene				µg/L					
	1,1 -Dichloroethane			5	µg/L					
	1,2-Dichloroethane			5	µg/L^1					
	1,1-Dichloroethylene			7	µg/L^1					
	cis-1,2-Dichloroethene			70	µg/L^1					
	trans-1,2-Dichloroethene			100	µg/L^1					
	1,2-Dichloropropane			5	µg/L^1					
	cis-1,3-Dichloropropene				µg/L					
	trans-1,3-Dichloropropene				µg/L					
	Ethylbenzene			700	µg/L^1					
	Methyl butyl ketone(2-Hexanone)			160	µg/L^5					
	Bromomethane			10	µg/L^2					
	Chloromethane			30	µg/L^2					
	Dibromomethane			61	µg/L^5					
	Methylene chloride			5	µg/L^1					
	Methyl ethyl ketone(2-Butanone)			4000	µg/L^2					
	Methyl iodide				µg/L					
	4-Methyl-2-pentanone				µg/L					
	Styrene			100	µg/L^1					
	1,1,1,2-Tetrachloroethane			70	µg/L^2					
	1,1,2,2-Tetrachloroethane			0.3	µg/L^2					
	Tetrachloroethylene(PCE)			5	µg/L^1					
	Toluene			1000	µg/L^1					
	1,1,1-Trichloroethane			200	µg/L^1					
	1,1,2-Trichloroethane			5	µg/L^1					
	Trichloroethylene(TCE)			5	µg/L^1					
	Trichloroflouromethane			2000	µg/L^2					
	1,2,3-Trichloropropane			40	µg/L^2					
	Vinyl acetate			410	µg/L^5					
	Vinyl chloride			2	µg/L^1					
	Xylenes			10000	µg/L^1					
	Methyl tert-butyl ether (MTBE)			20 - 40	µg/L^4					

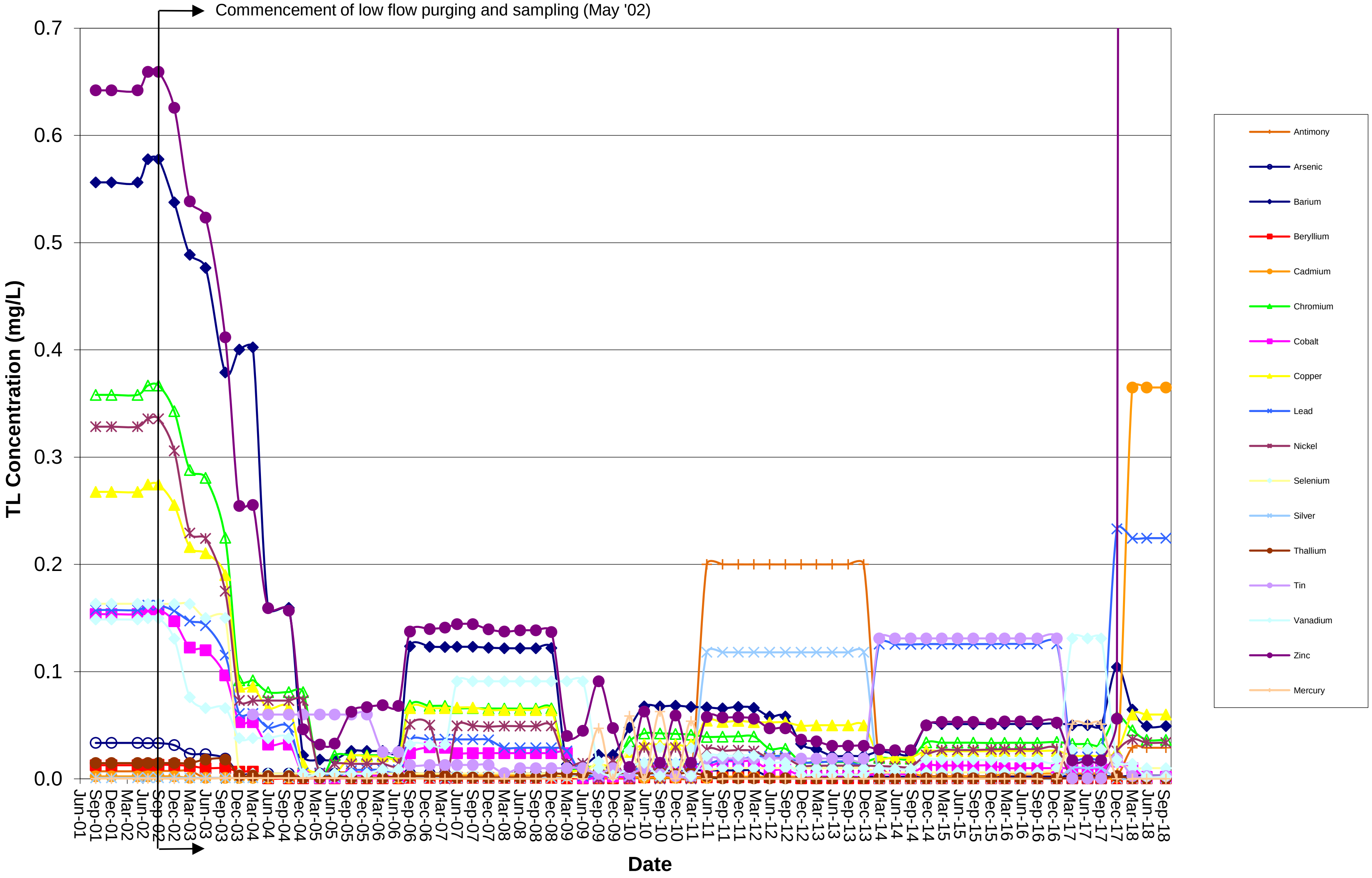
1. Threshold value given is the Maximum Contaminant Level (MCL) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
2. Threshold value given is the lifetime health advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
3. Threshold value given is the Secondary Drinking Water Regulation (SDWR) as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
4. Threshold value given is the Drinking Water Advisory as provided in the USEPA 2004 Edition of the Drinking Water Standards and Health Advisories
5. Threshold value given is the Preliminary Remedial Goal (PRG) for tap water, as provided in the October 2002 USEPA Region 9 PRGs Table 2002 Update
6. Constituent concentration was reported above its laboratory method detection limit, but lower than its laboratory reporting limit and historical reporting limit. However, the reporting limit this round was significantly higher than previous reporting limits. Therefore, to be consistent with historical data, only those constituents with concentrations lower than historical reporting limits were reported as non-detect.

No threshold value has been provided for parameters not identified in the sources listed above

▨ " " =	Exceedance of TL
ND =	Not Detected

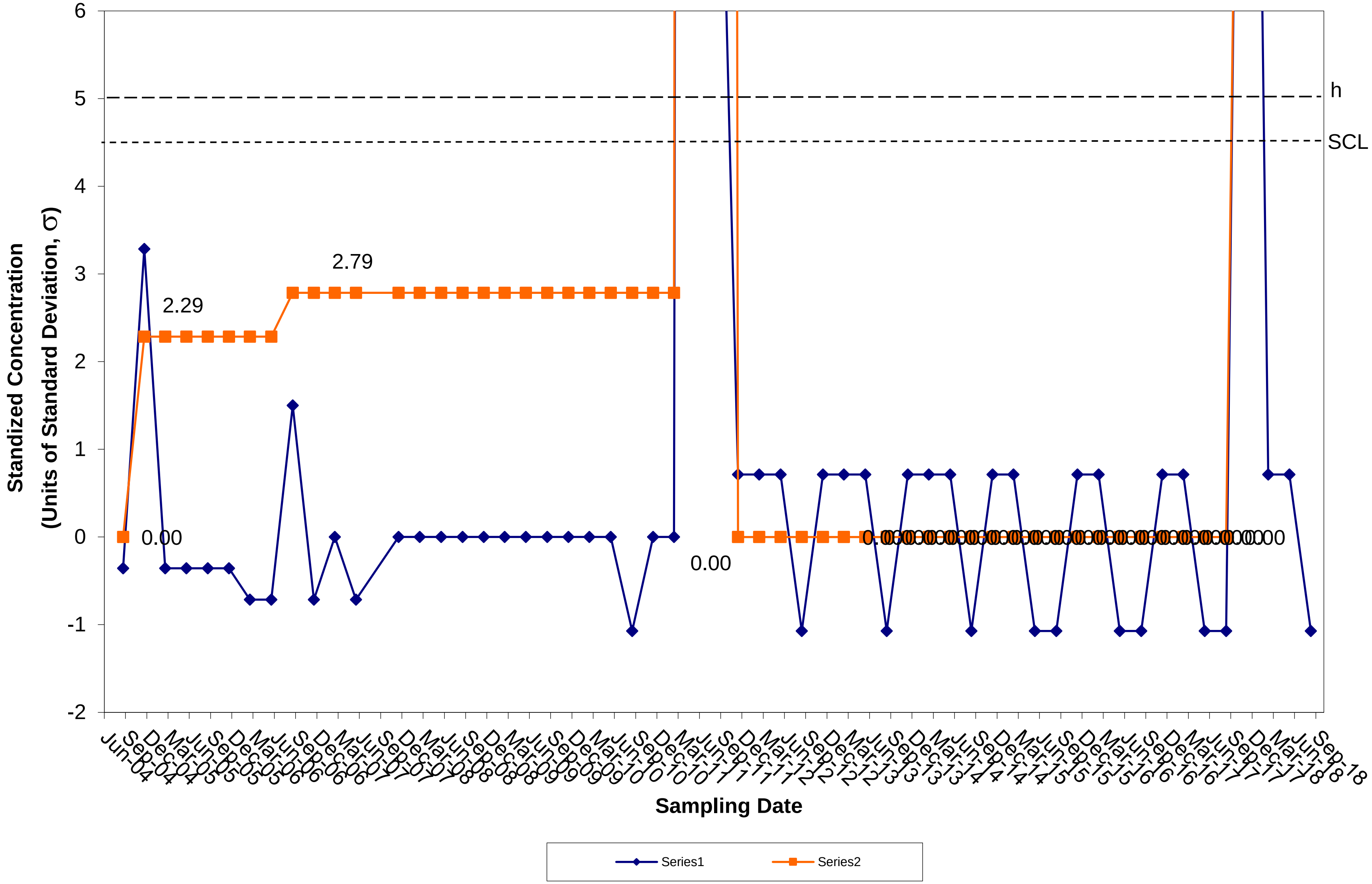
* Tolerance Limit (TL) constructed from background (upgradient) well data from OW-9.

Historical Tolerance Limit Concentrations from Background Well
Tiverton Landfill Compliance Sampling

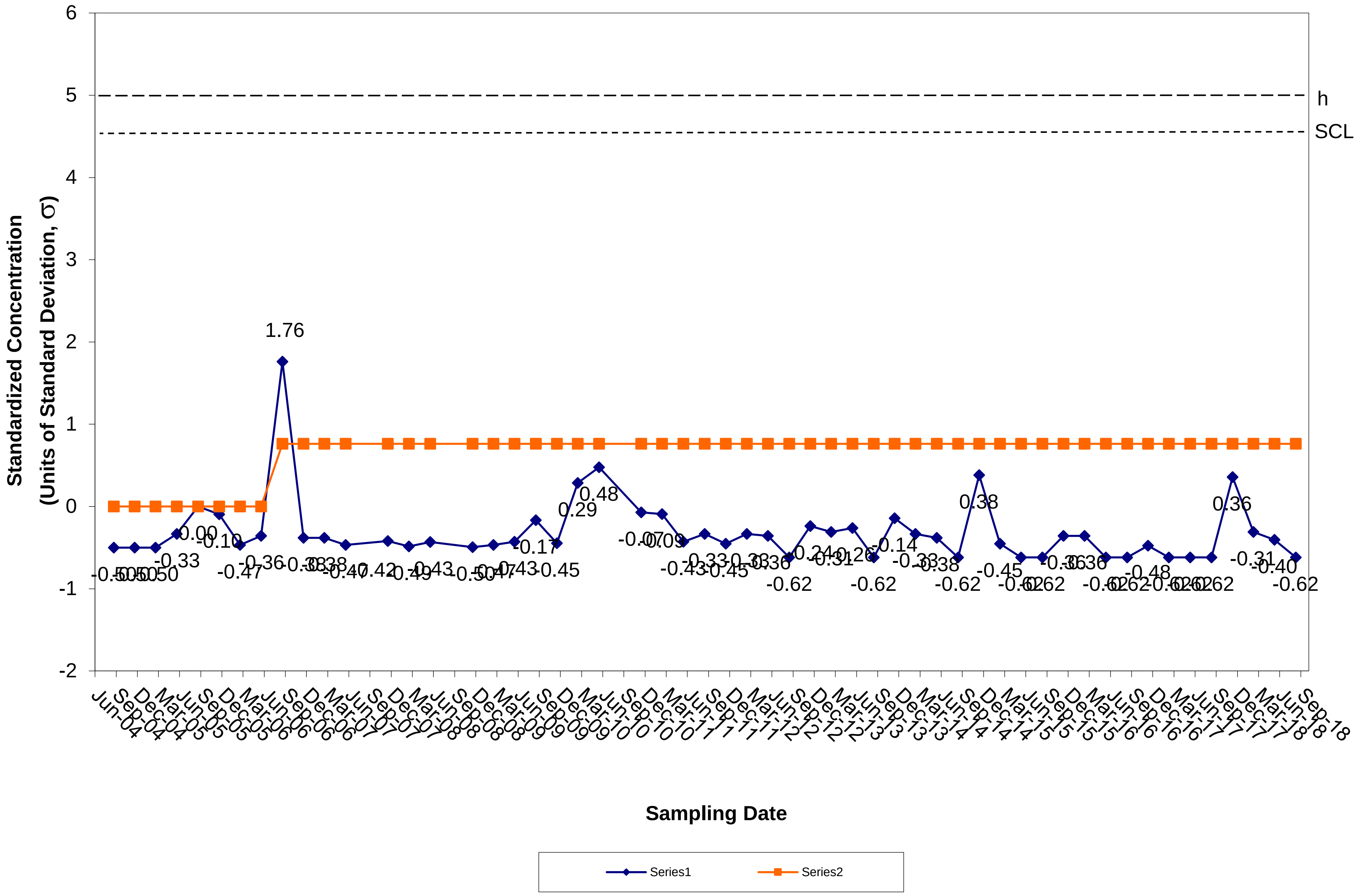


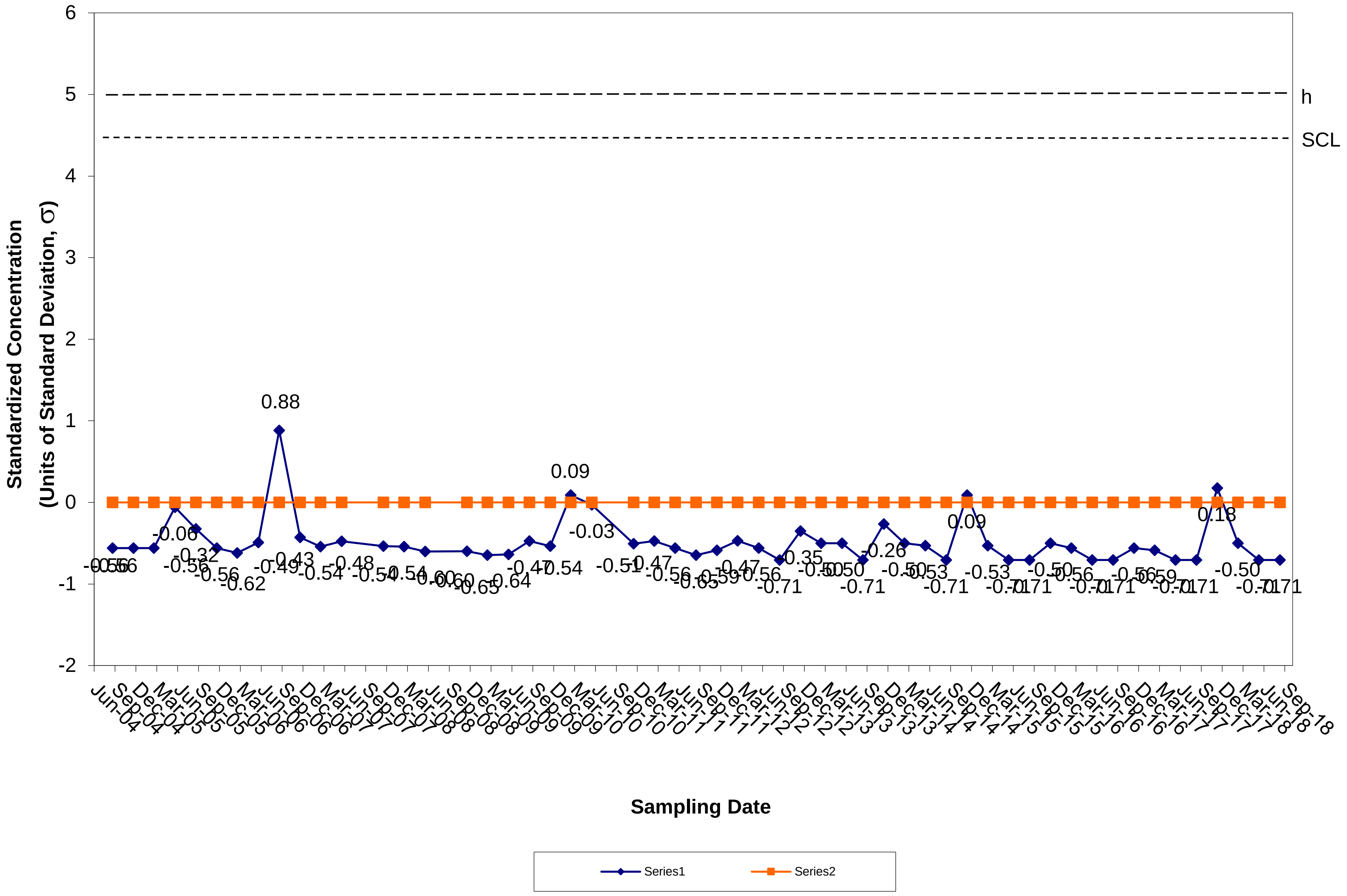
ATTACHMENT NO. 5
CUSUM METHOD STATISTICAL EVALUATION

CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Complaince Well OW-9



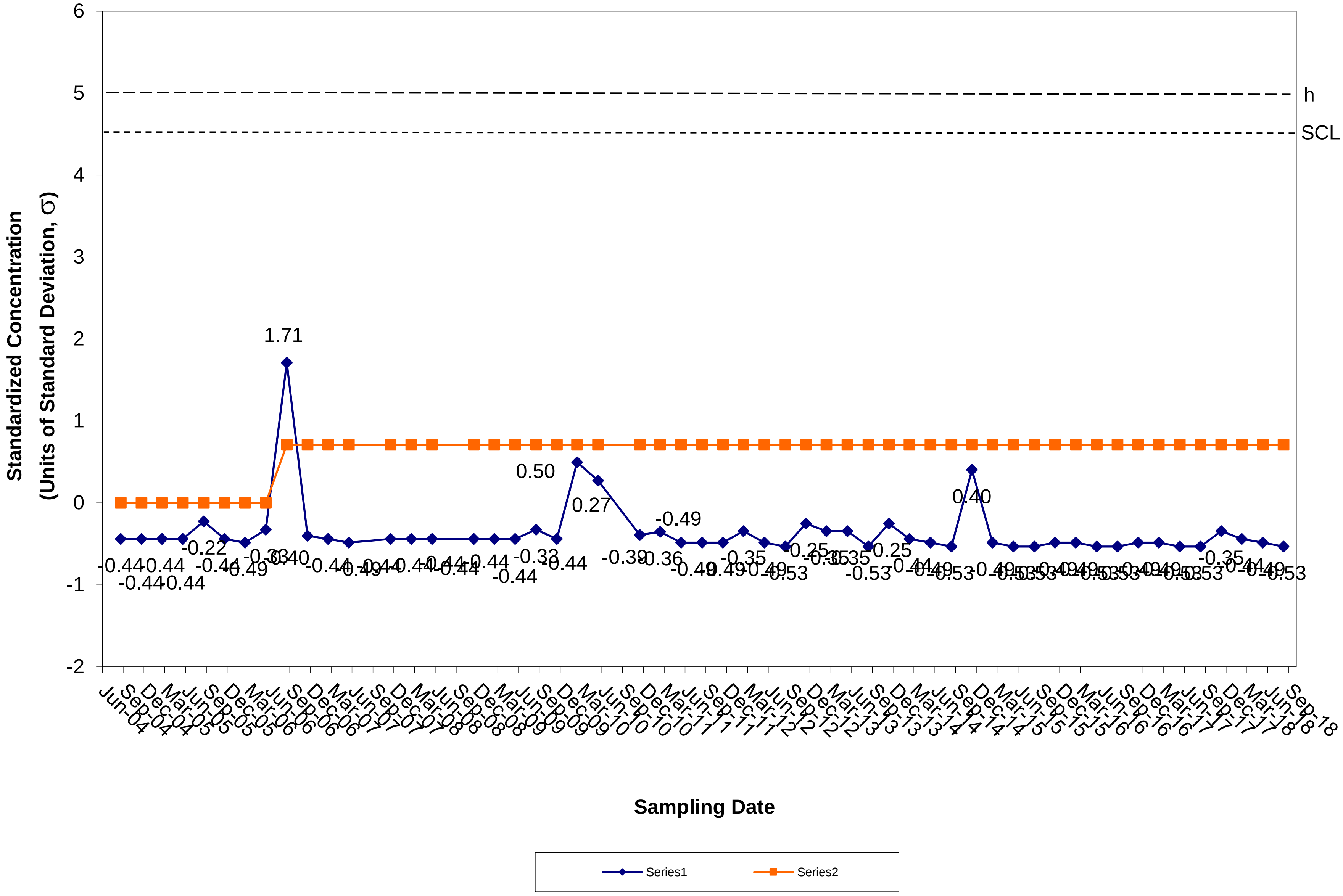
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Background Well OW-9



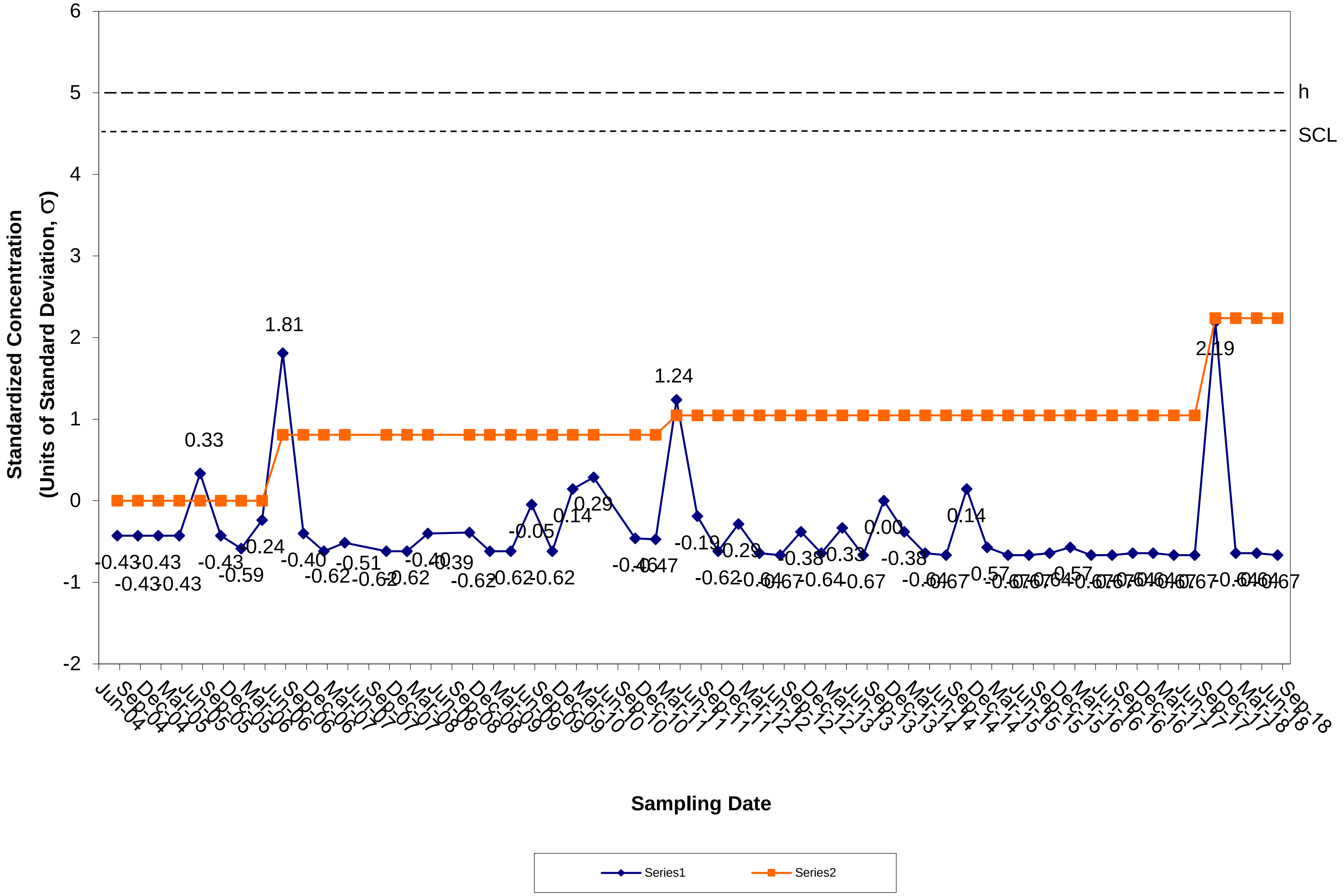


CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Background Well OW-9

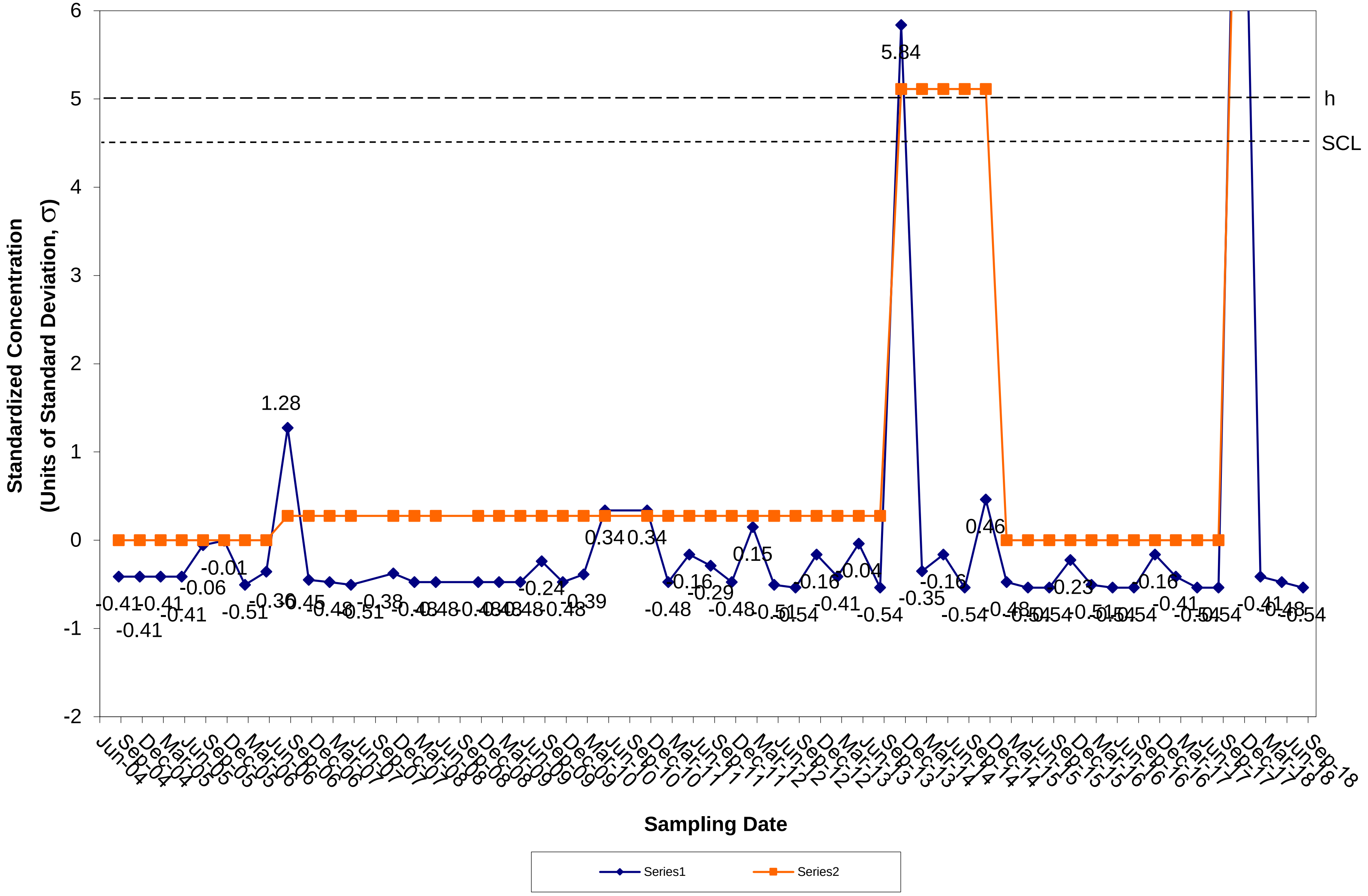
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Background Well OW-9



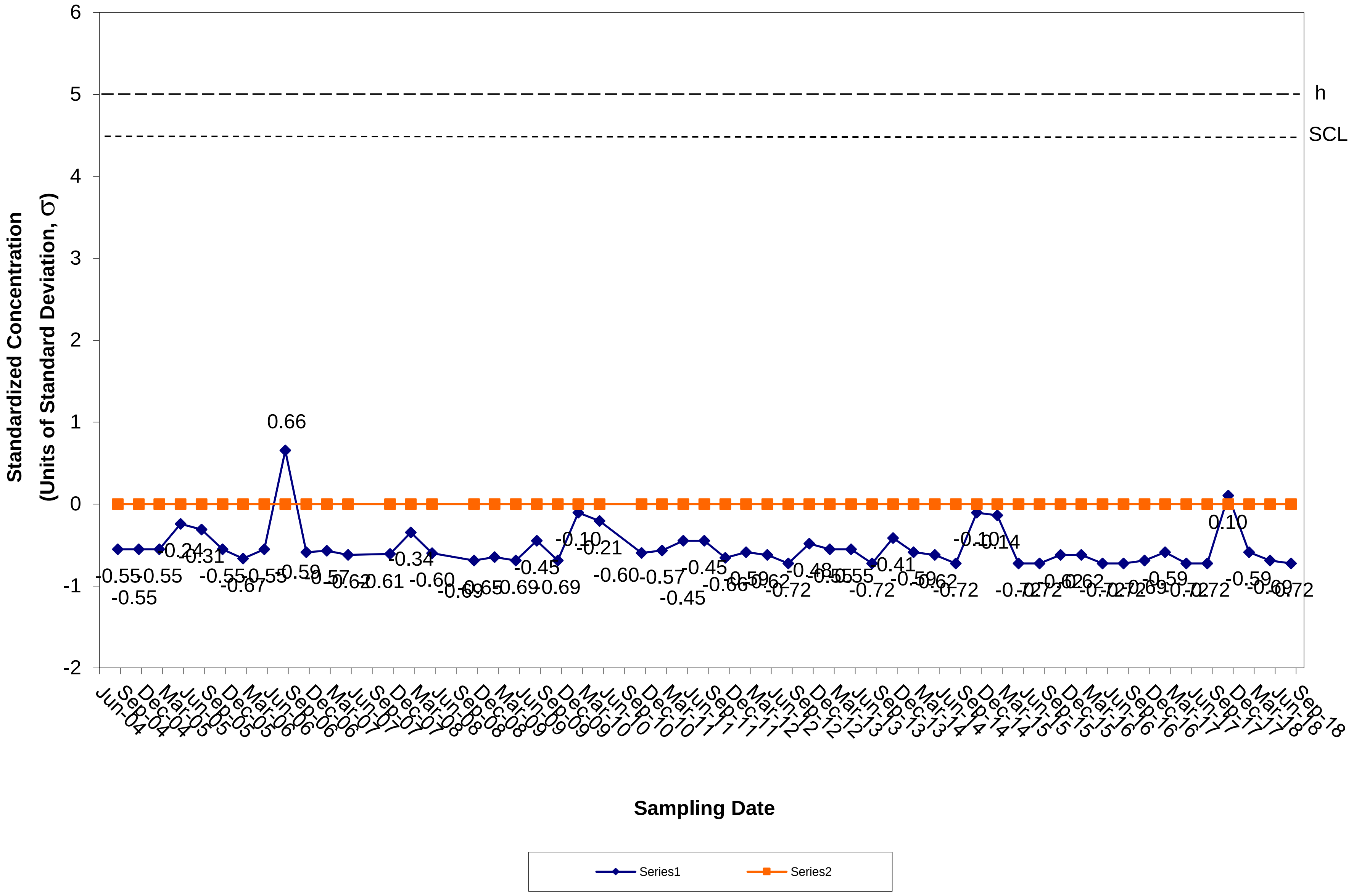
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Background Well OW-9



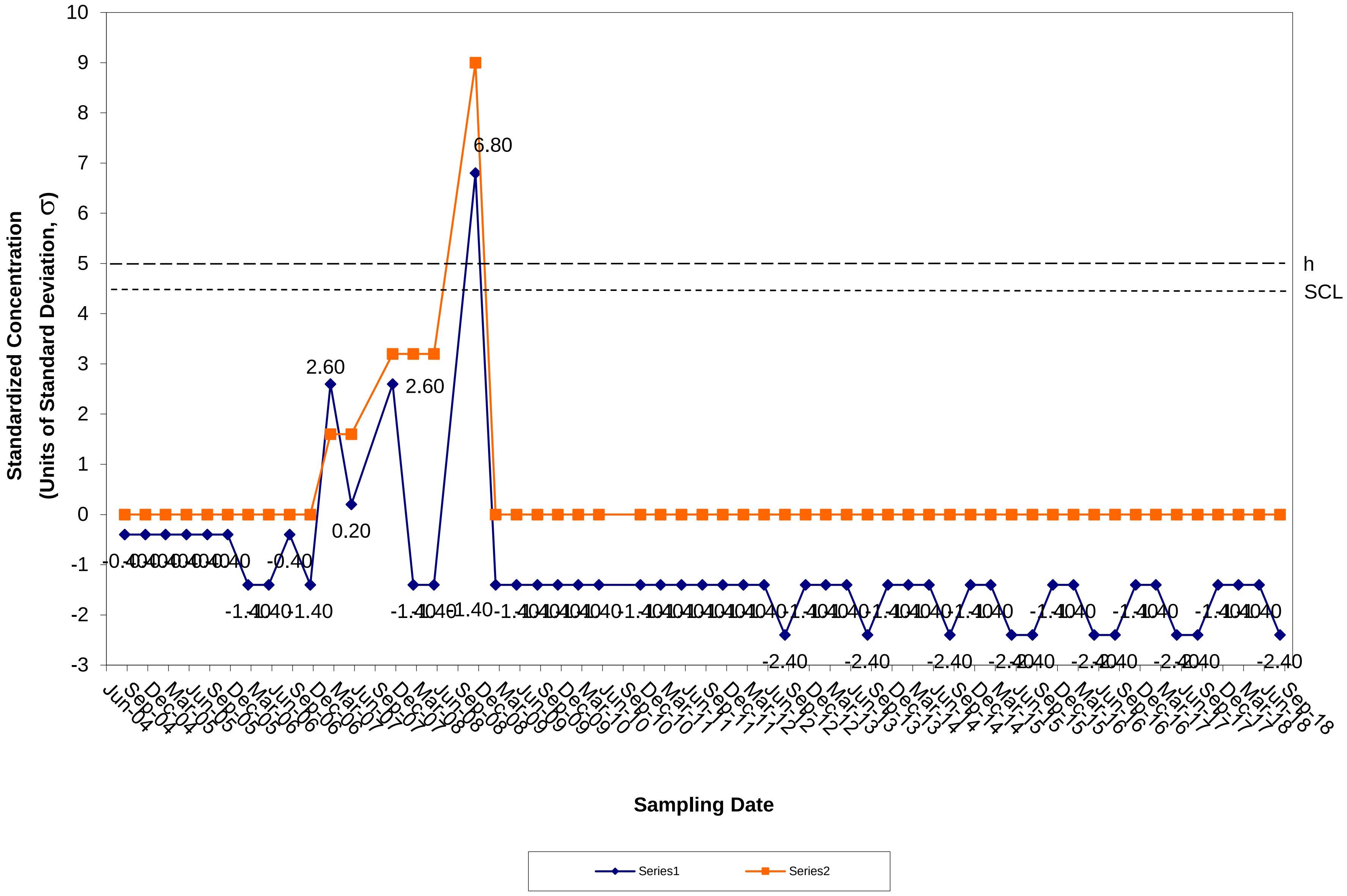
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Background Well OW-9



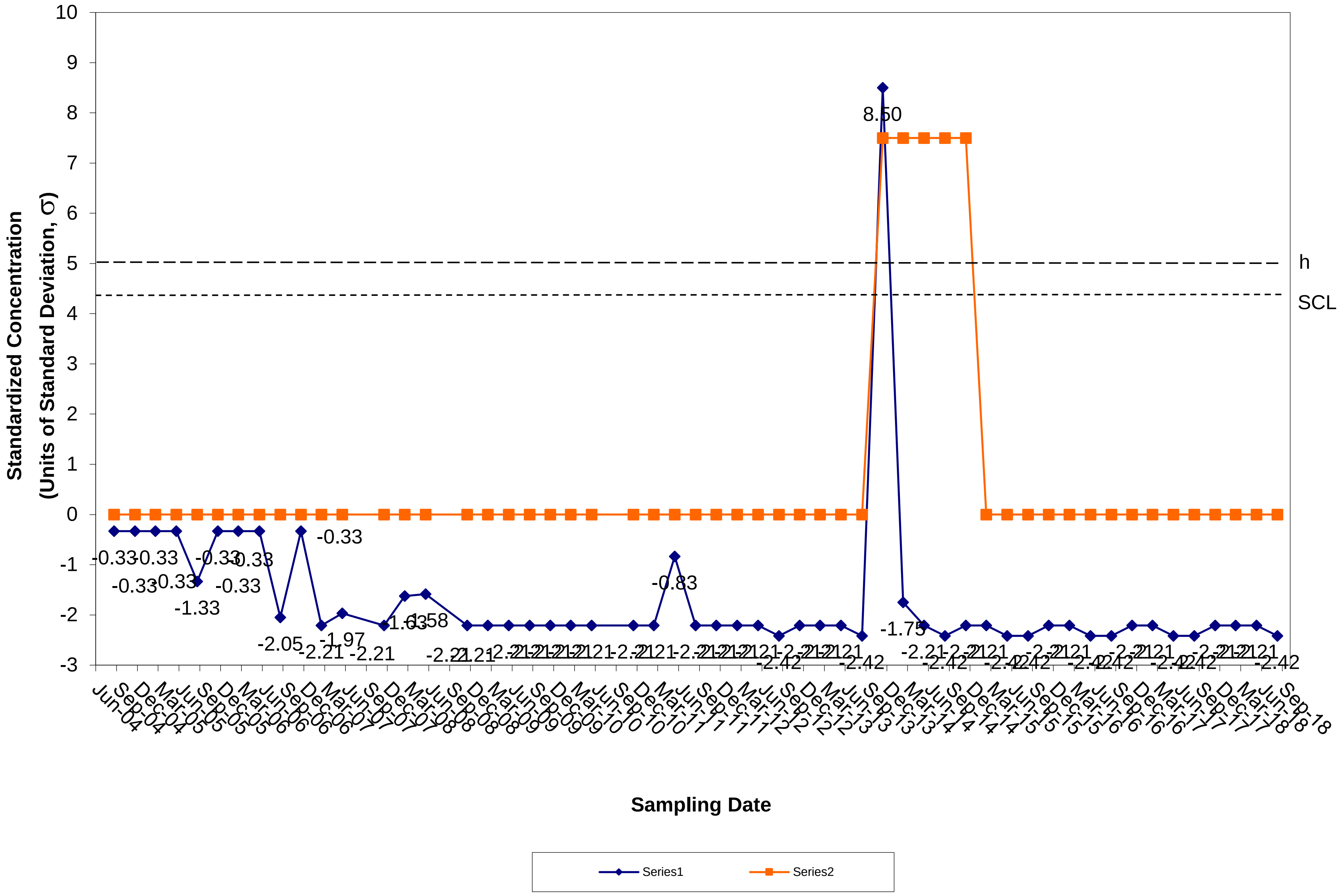
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Background Well OW-9

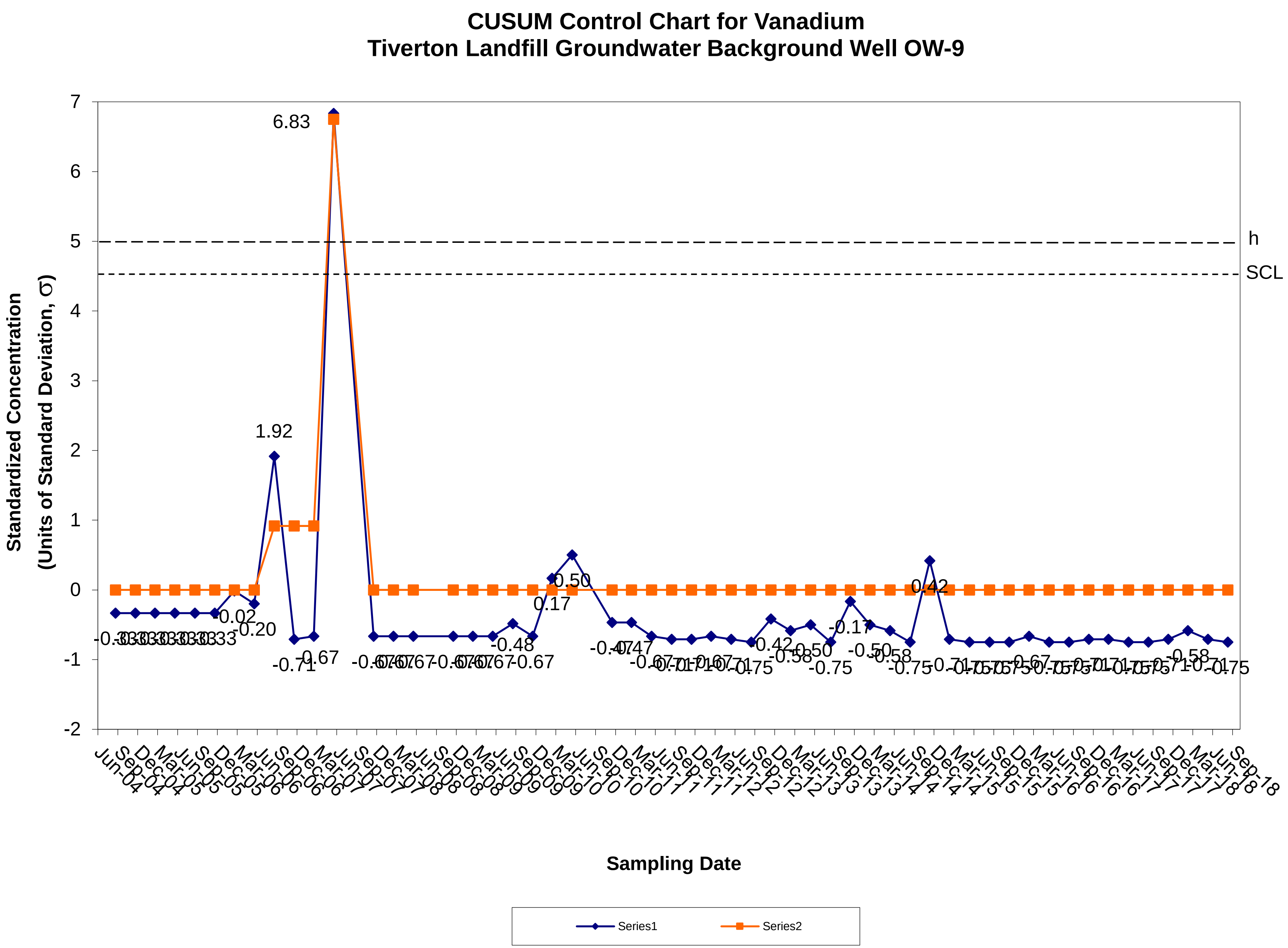


CUSUM Control Chart for Thallium
Tiverton Landfill Groundwater Background Well OW-9



CUSUM Control Chart for Tin
Tiverton Landfill Groundwater Background Well OW-9





CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Background Well OW-9
Standardized Concentration
(Units of Standard Deviation, σ)
7
6
5
4
3
2
1
0
-1
-2
h
SCL
6.83
1.92
-0.33
-0.02
-0.20
-0.71
-0.67
-0.48
0.17
0.50
-0.47
-0.71
-0.75
-0.42
-0.58
-0.50
-0.17
0.42
Jun-04
Sep-04
Dec-04
Mar-05
Jun-05
Sep-05
Dec-05
Mar-06
Jun-06
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
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Jun-10
Sep-10
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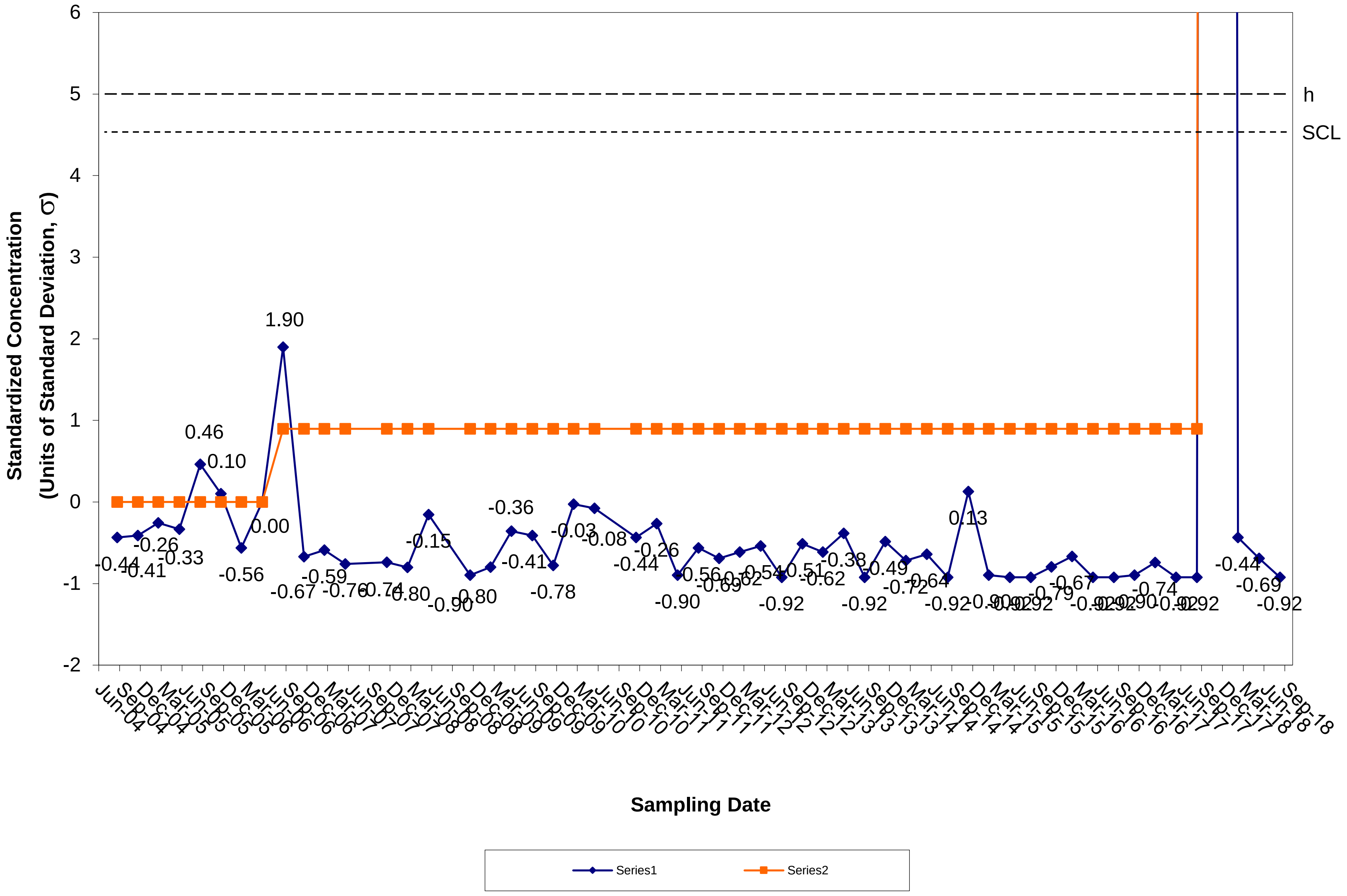
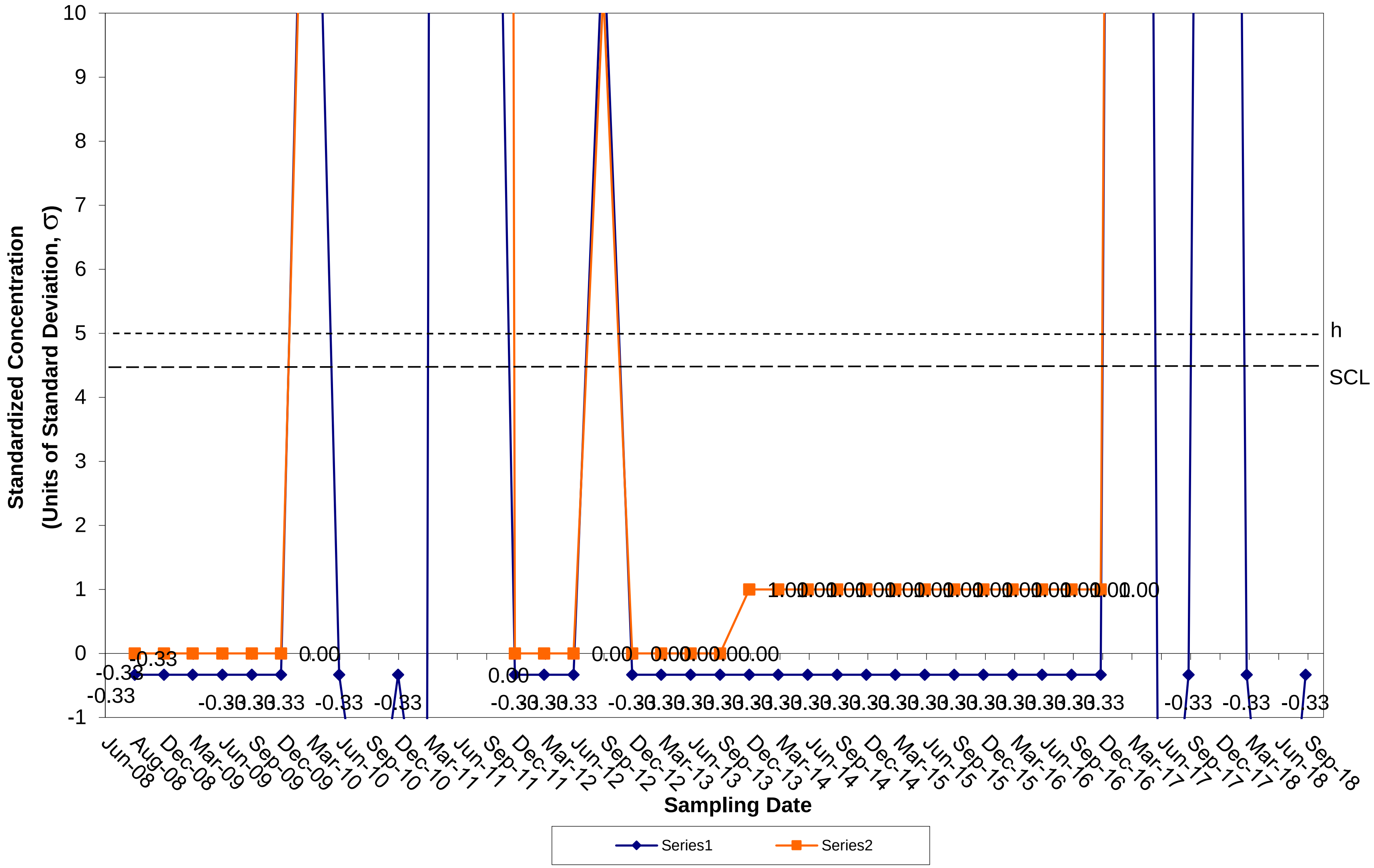
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
Sep-14
Dec-14
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Sep-18
Sampling Date
Series1
Series2

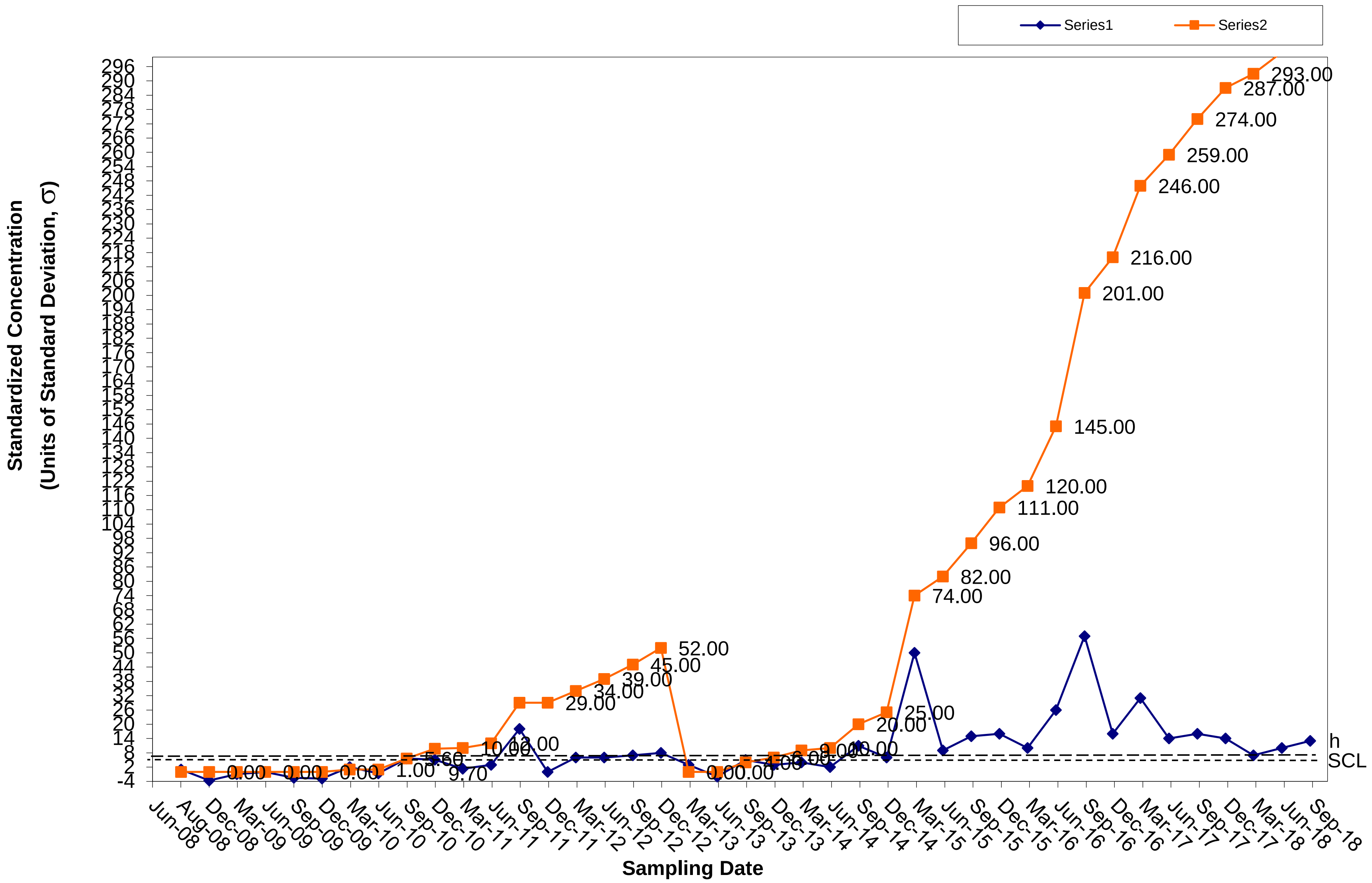
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Background Well OW-9



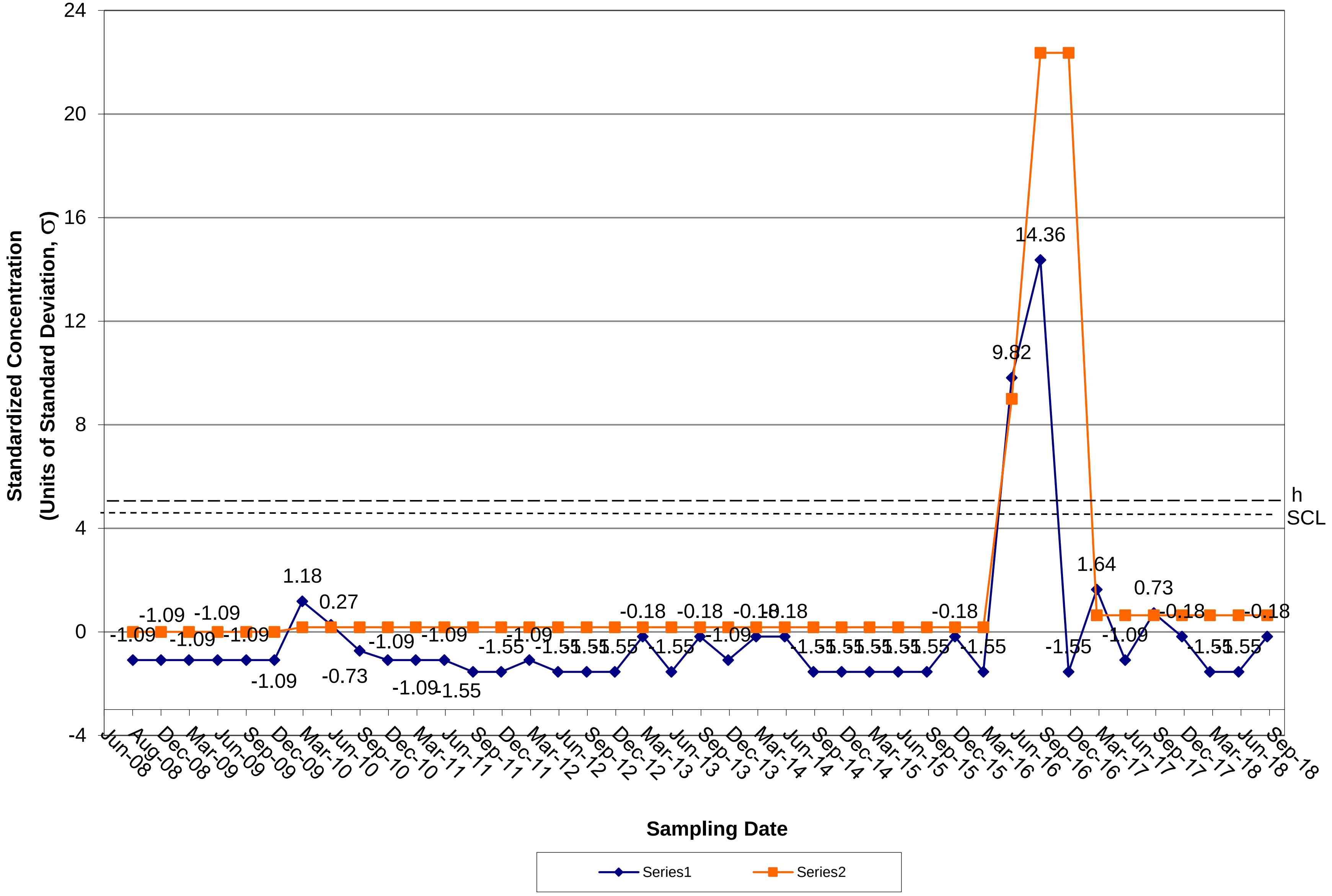
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-12



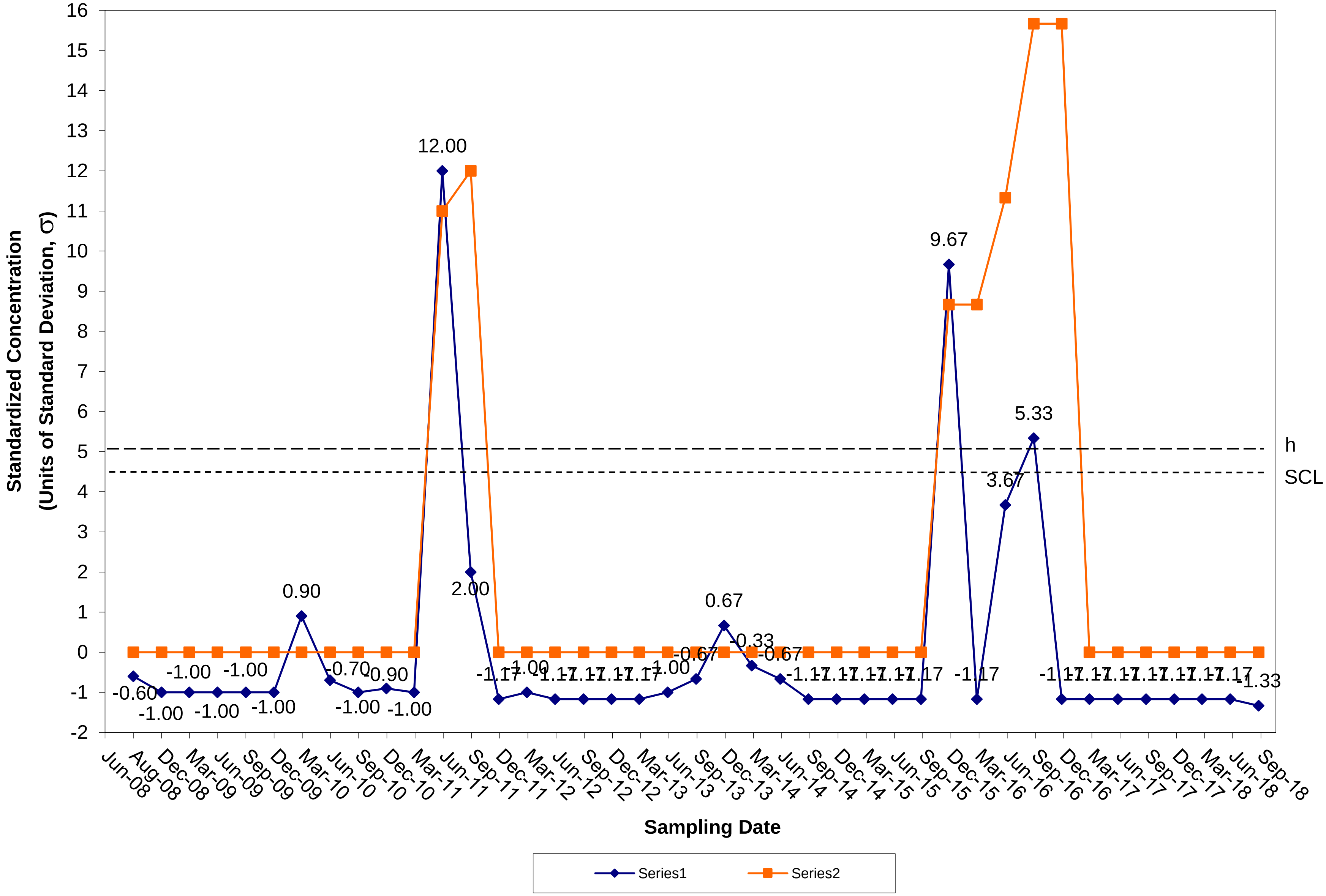
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-12



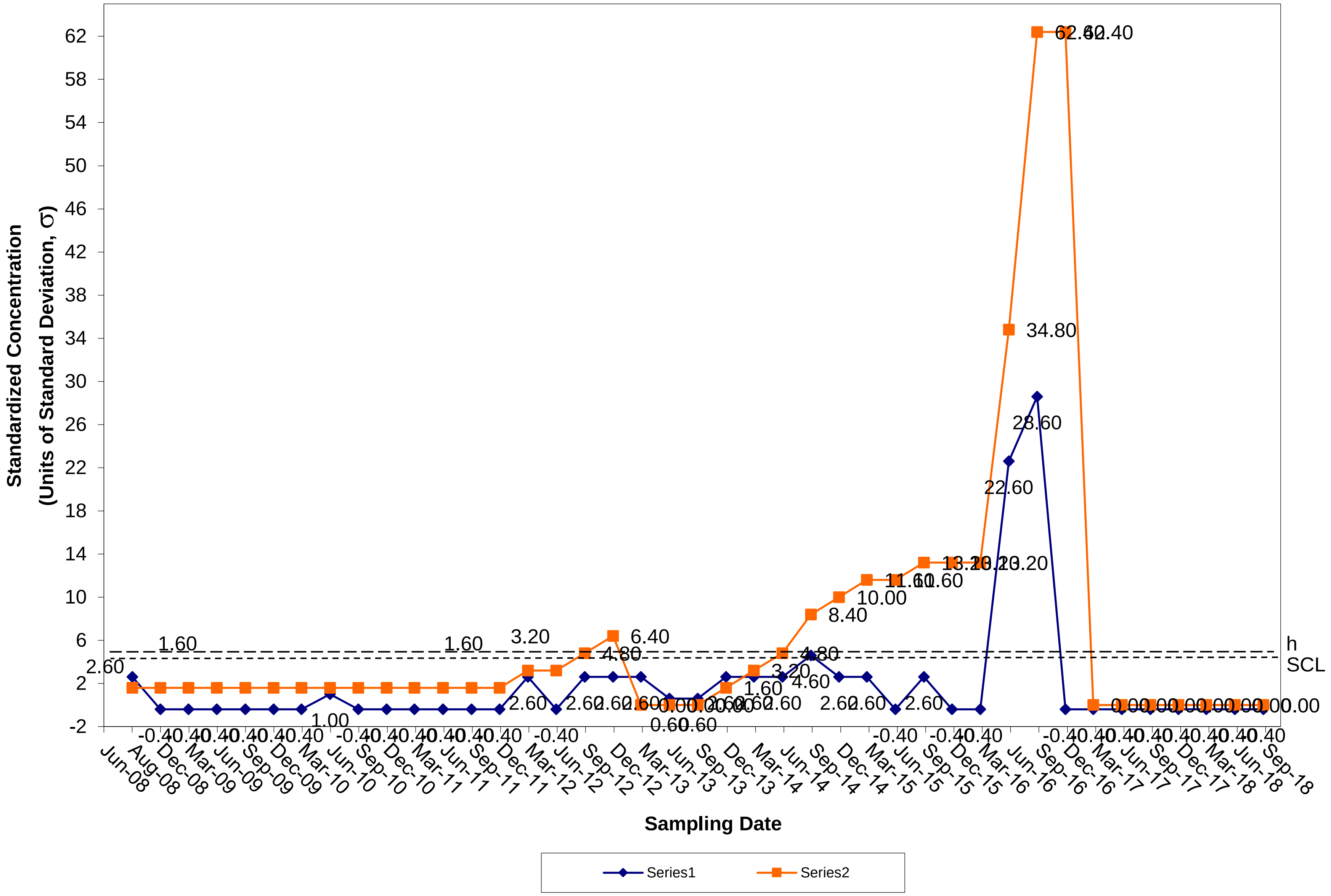
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-12



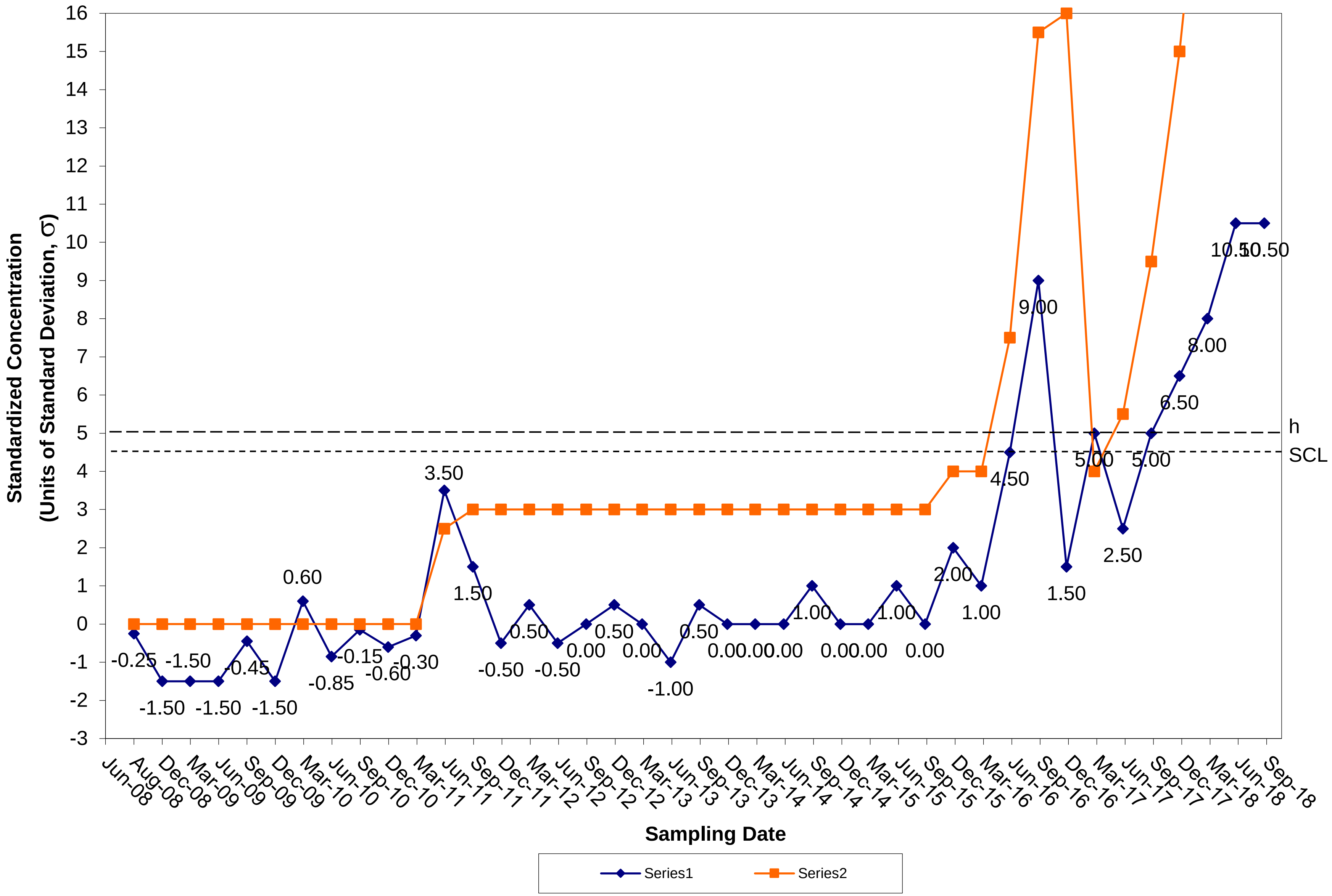
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Compliance Well OW-12



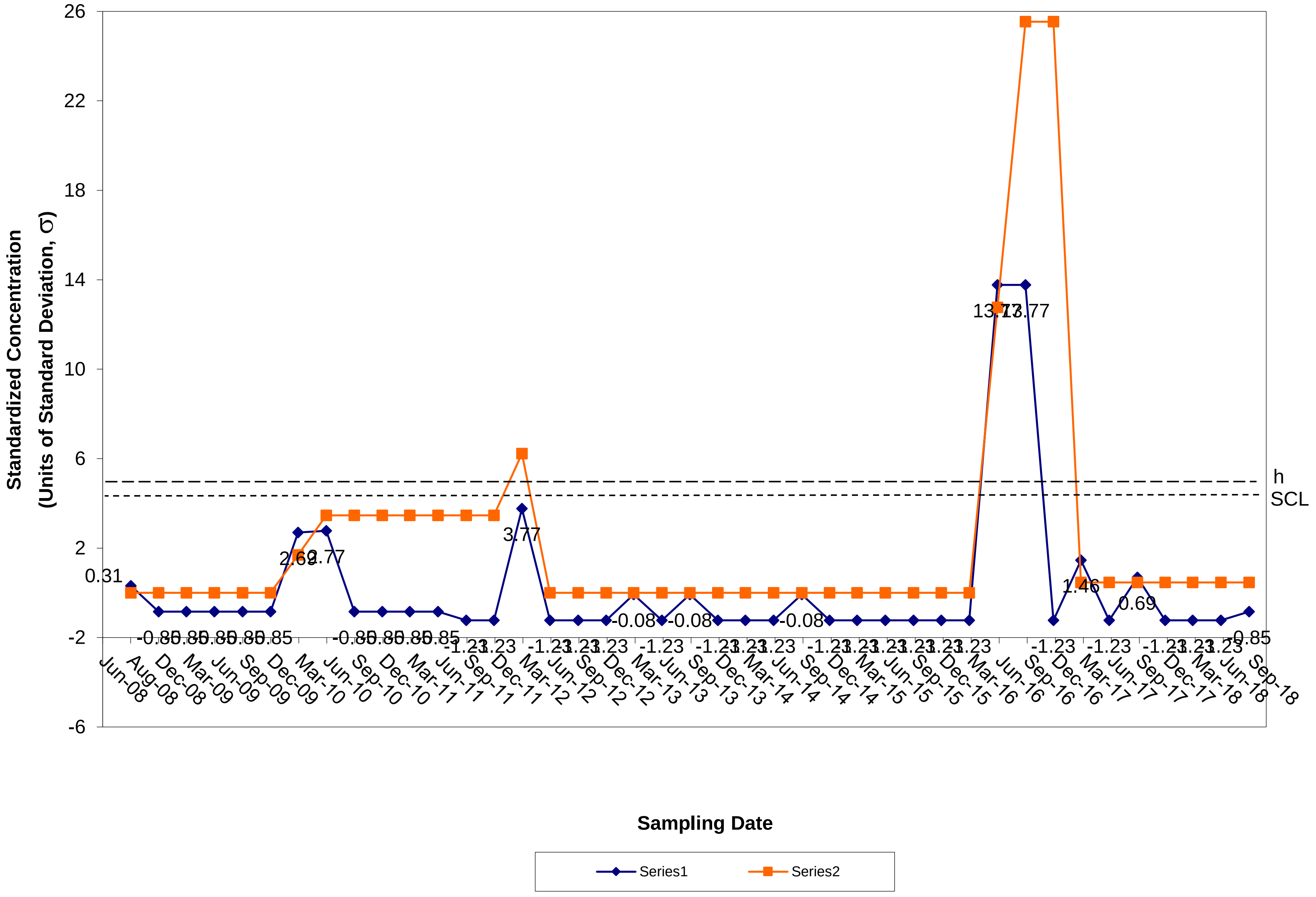
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-12



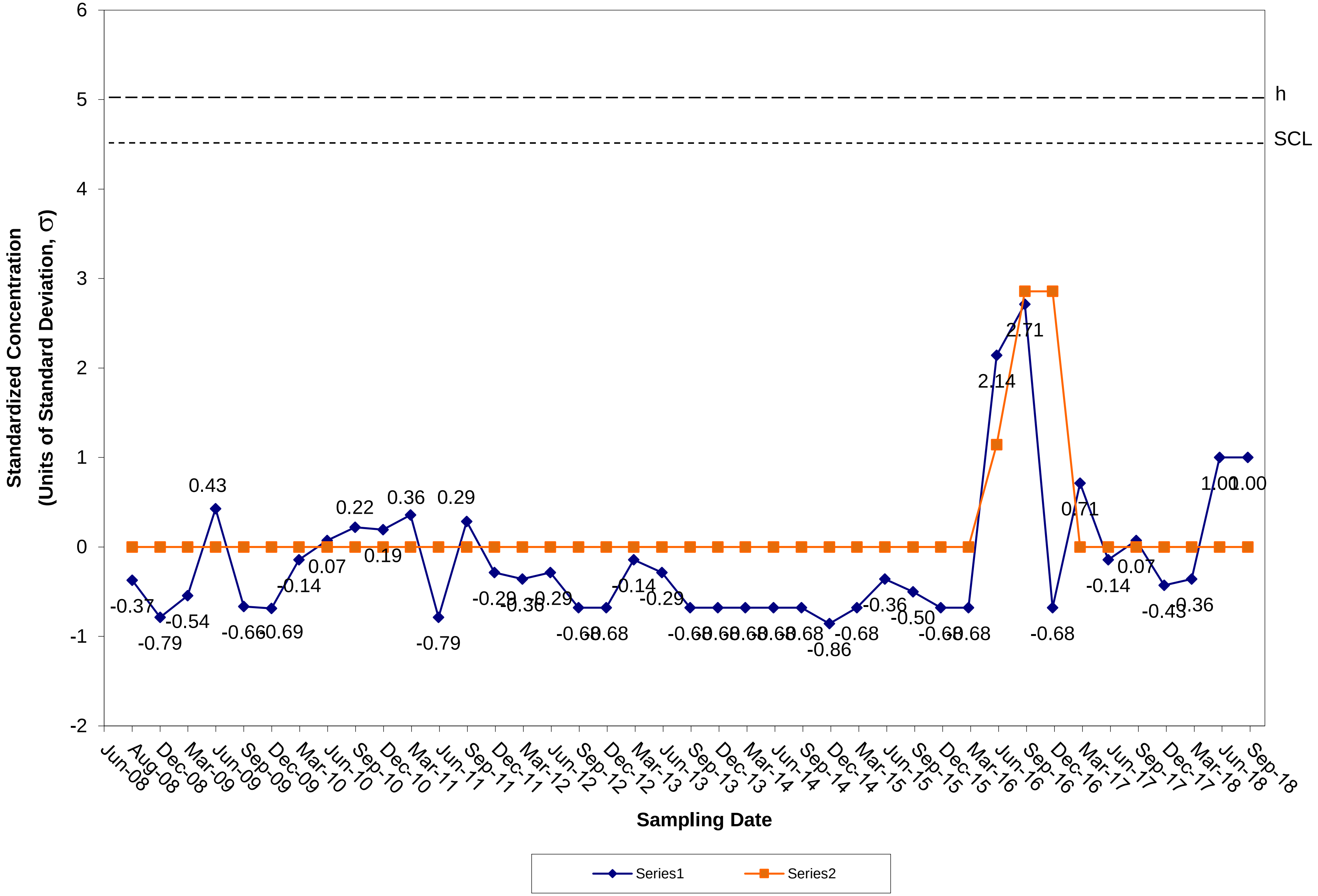
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-12



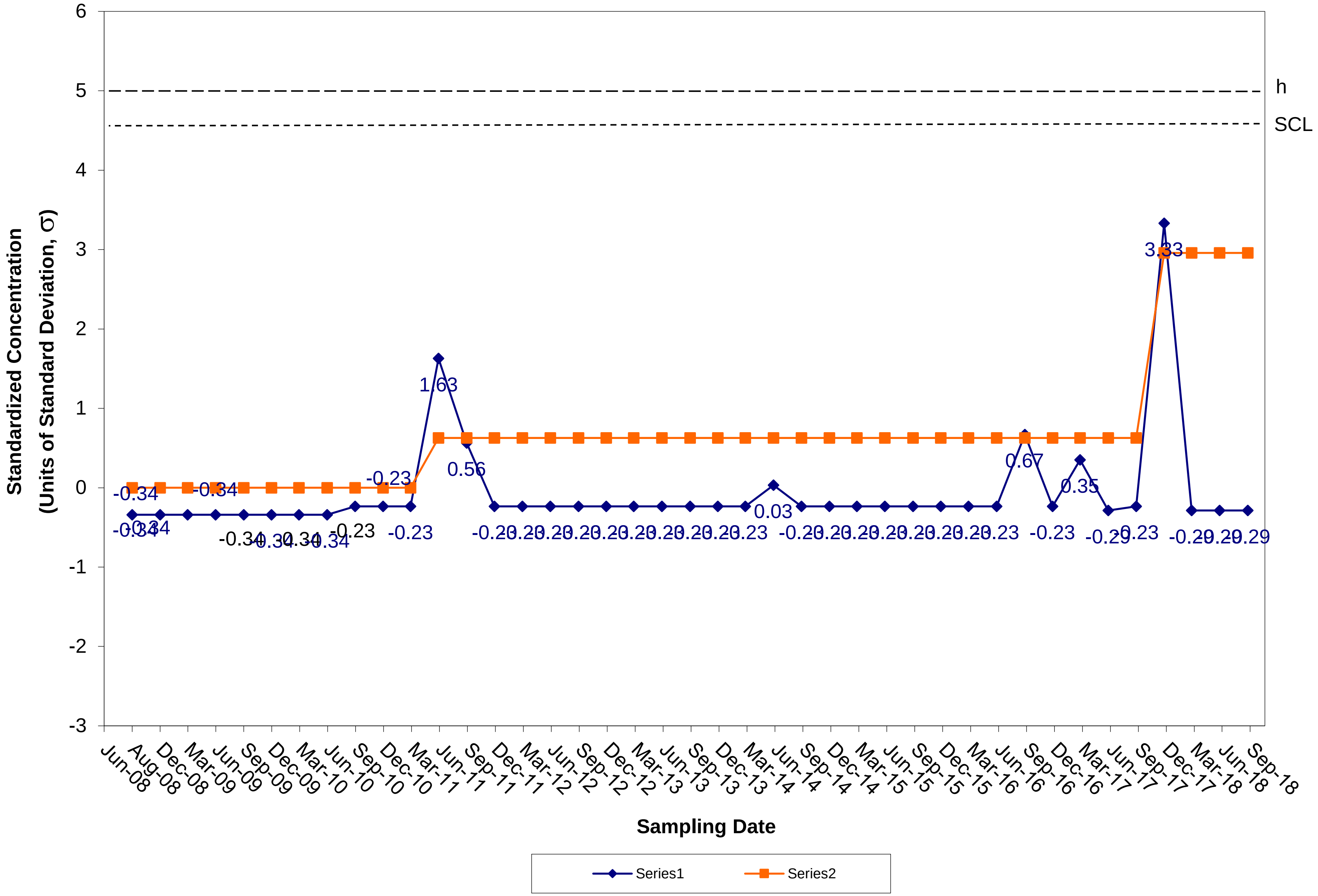
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-12



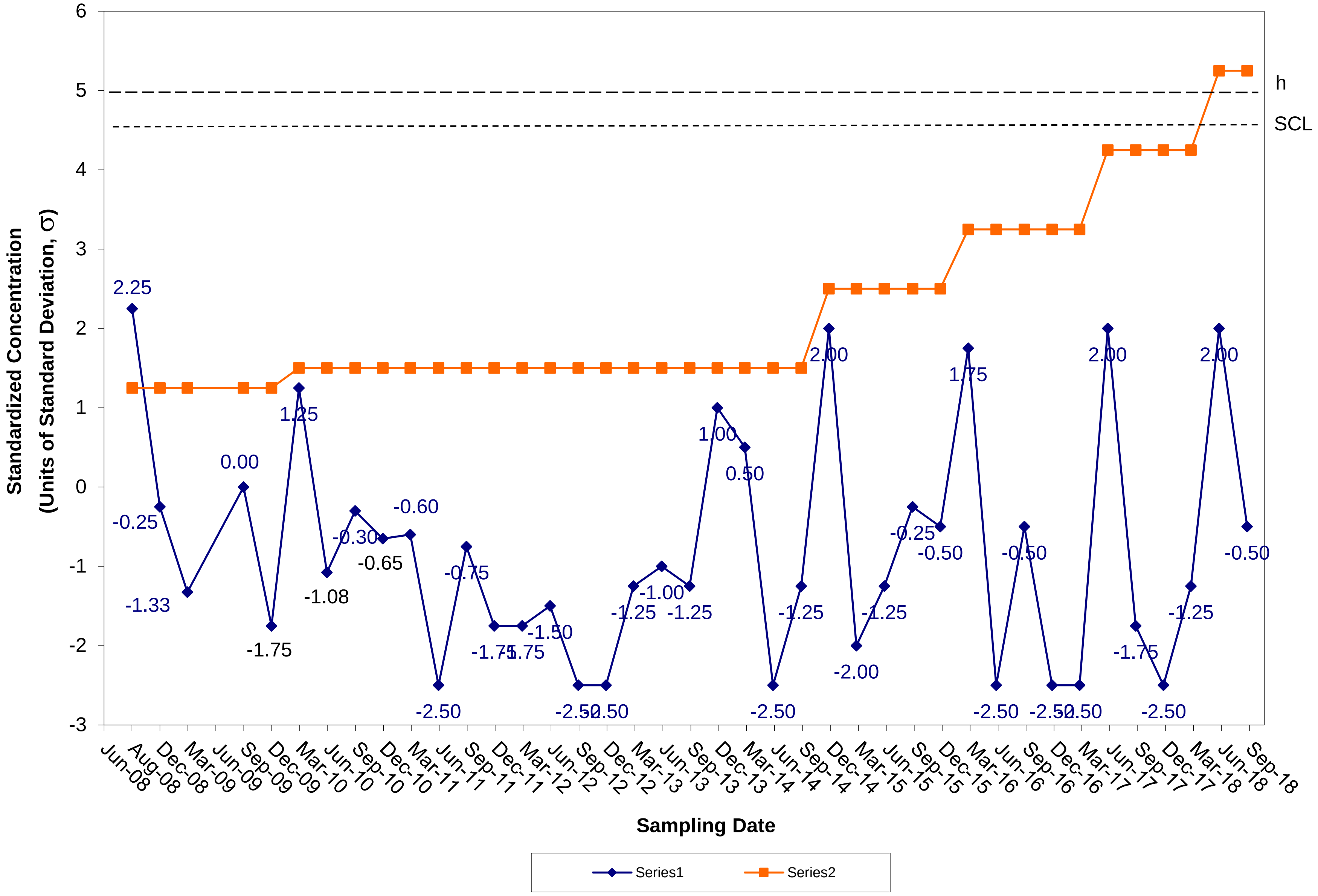
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-12



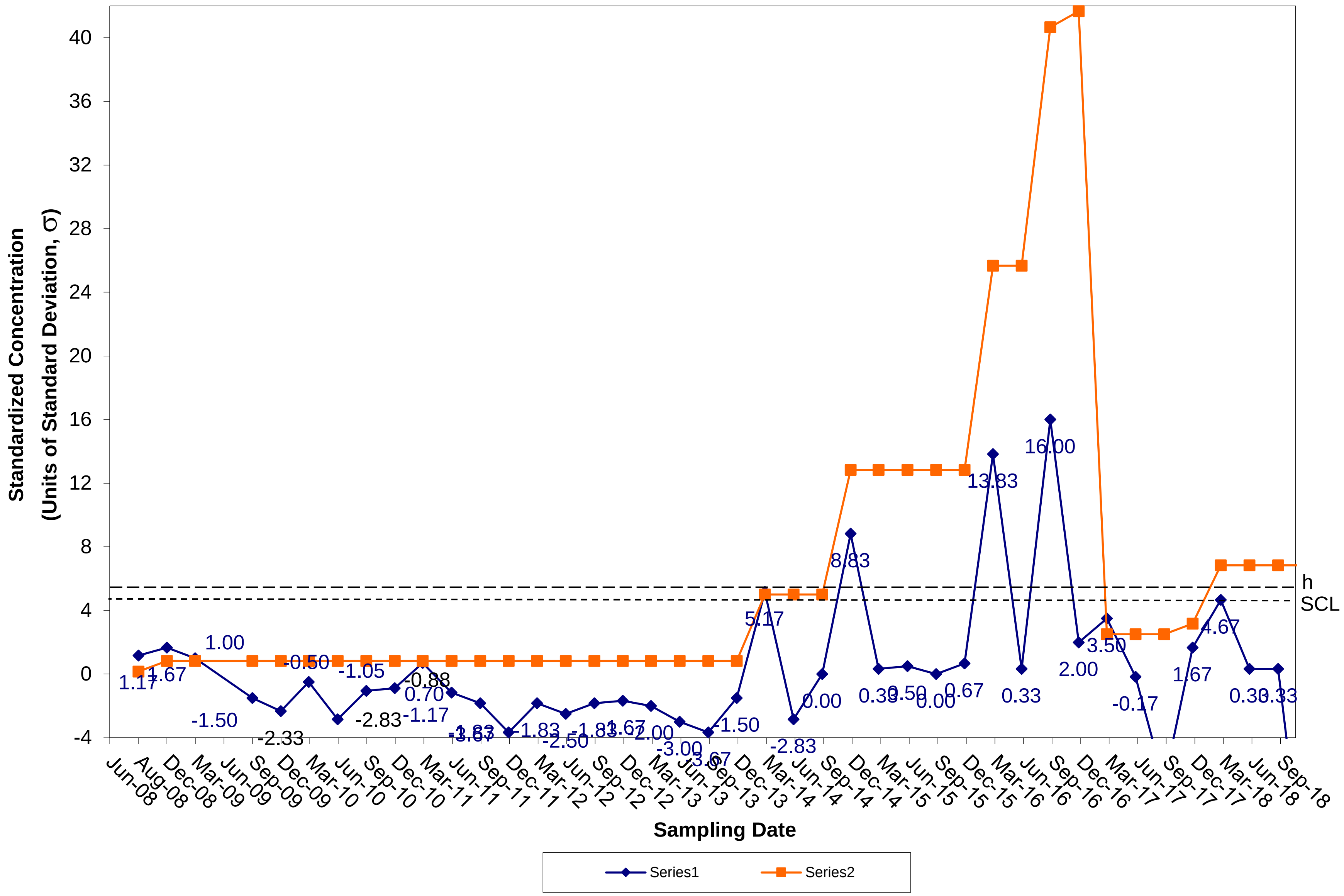
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-13



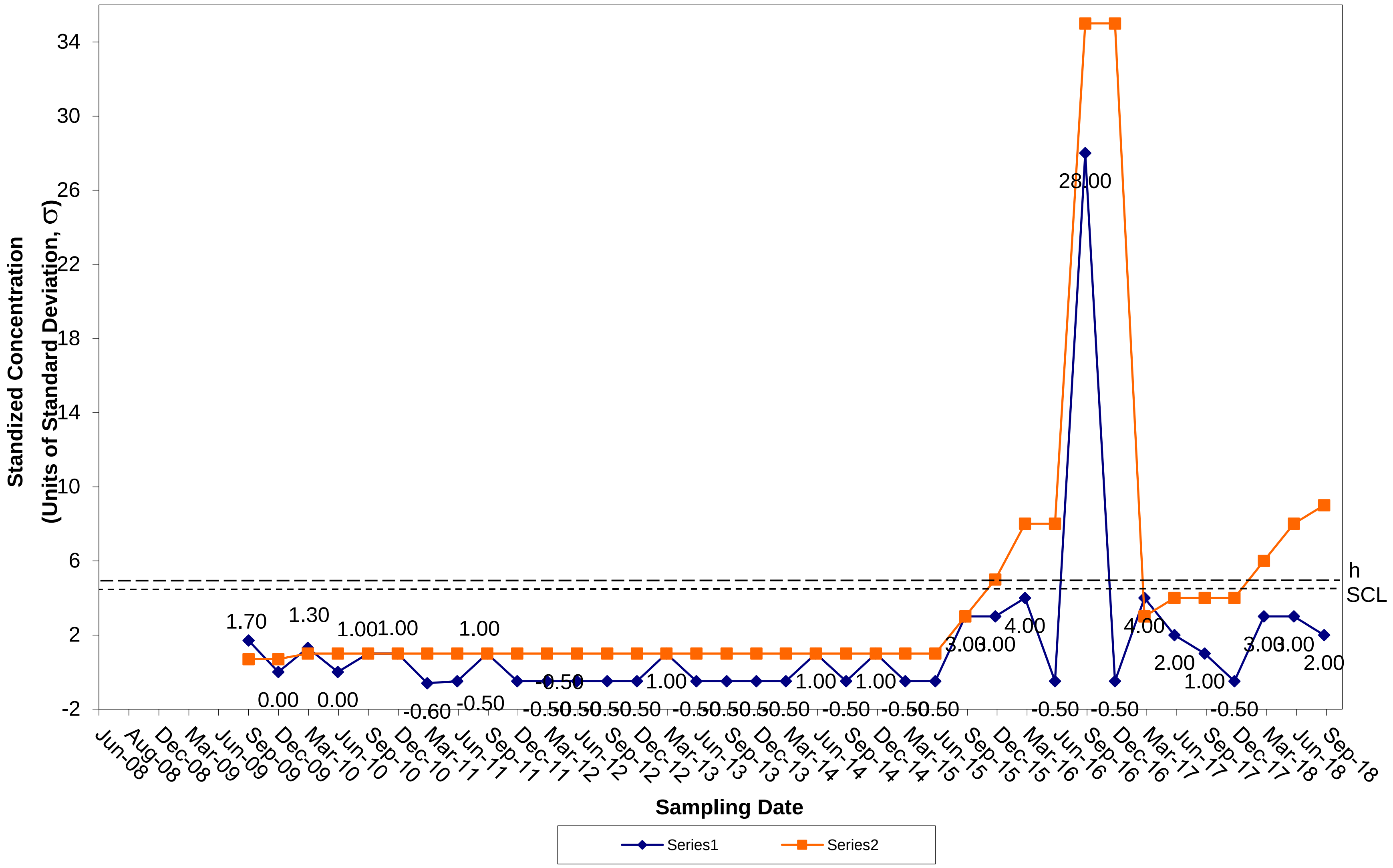
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-13



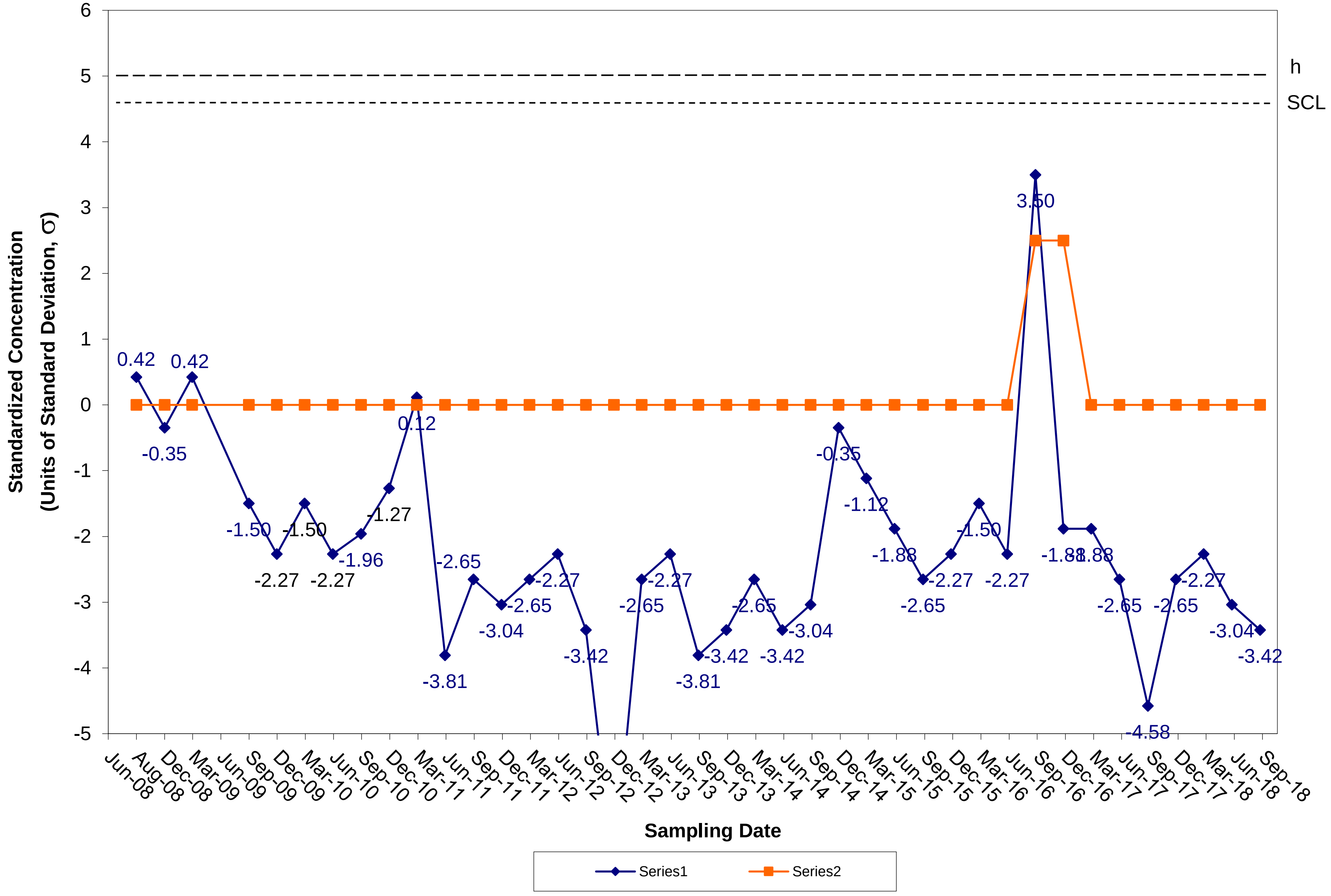
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-13

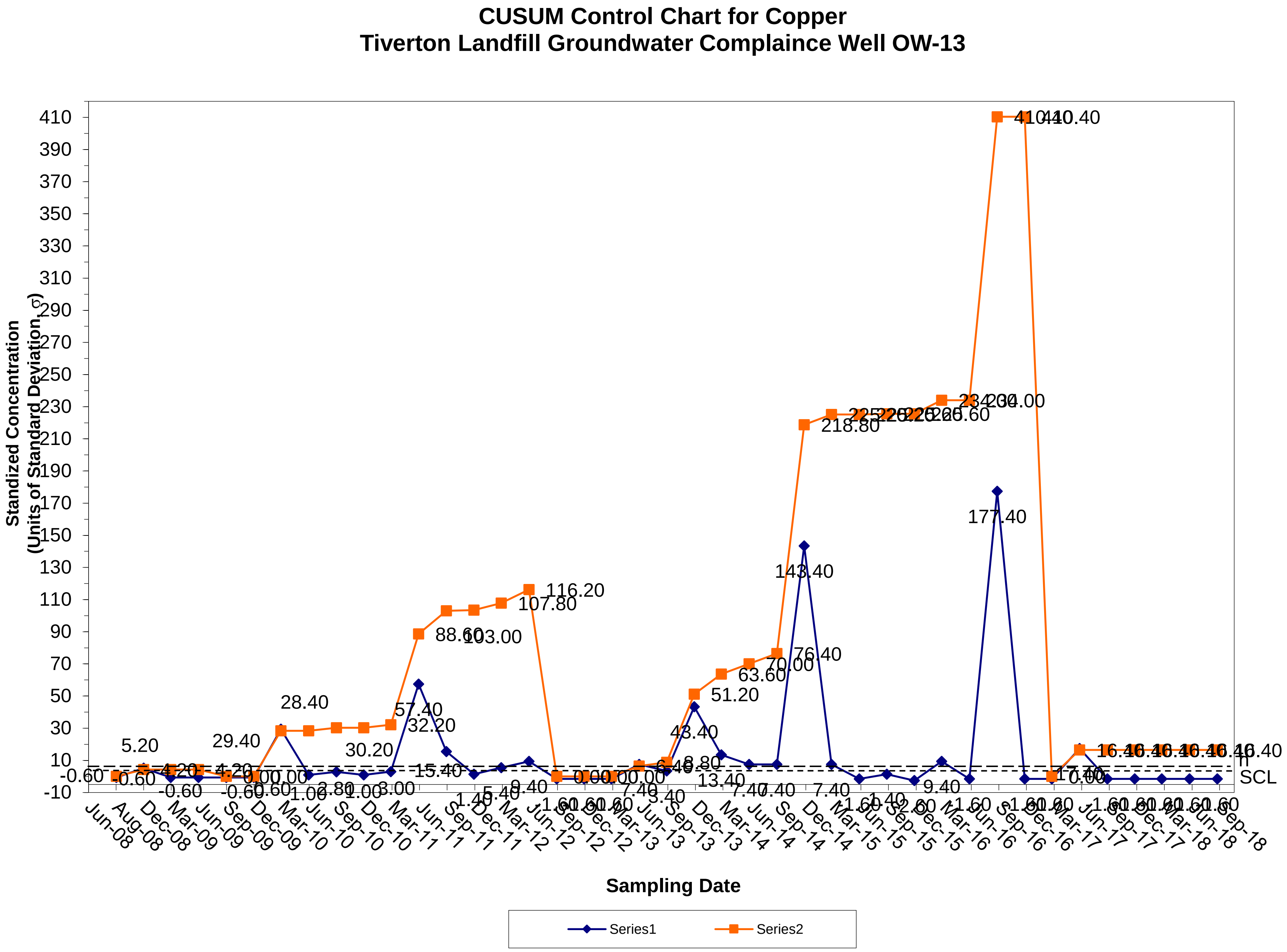


CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Complaince Well OW-13



CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-13




CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Complaince Well OW-13
Standized Concentration
(Units of Standard Deviation, σ)
Sampling Date
SCL
Series1
Series2
410
390
370
350
330
310
290
270
250
230
210
190
170
150
130
110
90
70
50
30
10
-10
Jun-08
Aug-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
Sep-11
Dec-11
Mar-12
Jun-12
Sep-12
Dec-12
Mar-13
Jun-13
Sep-13
Dec-13
Mar-14
Jun-14
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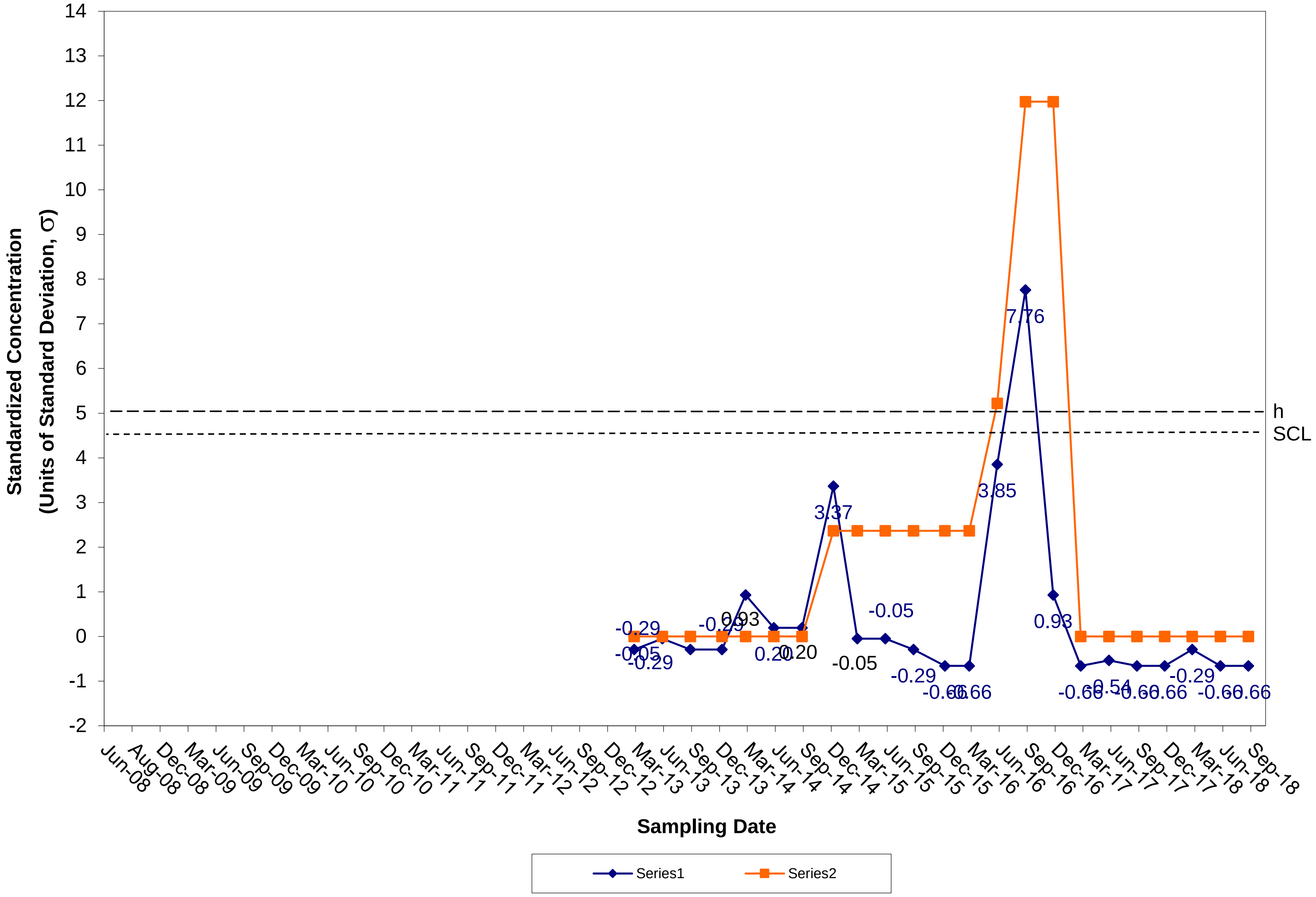
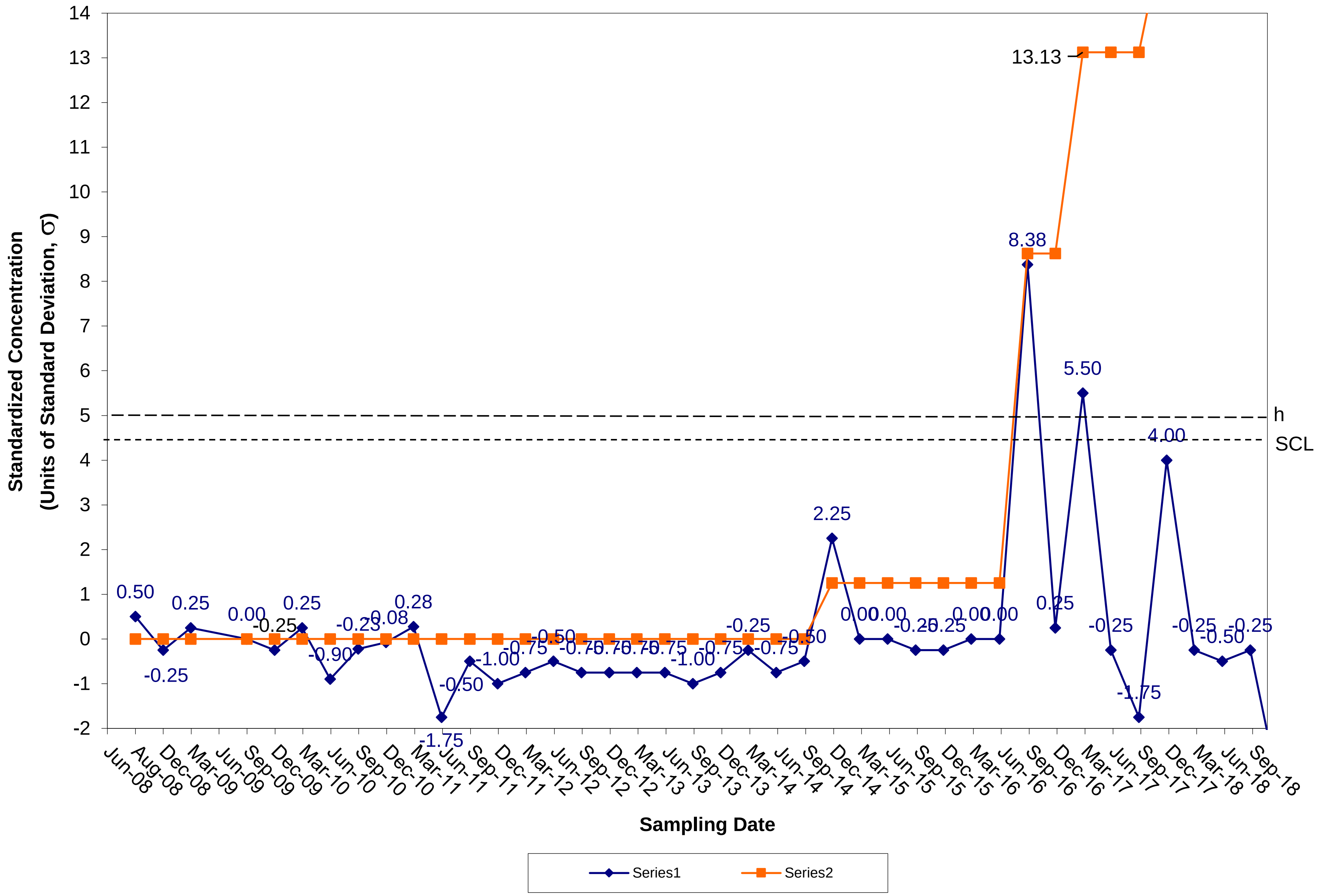
Mar-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Sep-18
410.40
234.00
225.60
218.80
177.40
143.40
116.20
107.80
103.00
88.60
76.40
70.00
63.60
57.40
51.20
43.40
32.20
30.20
29.40
28.40
17.40
16.40
15.40
13.40
9.40
8.80
7.40
6.40
5.40
5.20
4.20
3.40
3.00
2.80
1.40
1.00
0.00
-0.60
-1.60
-2.60

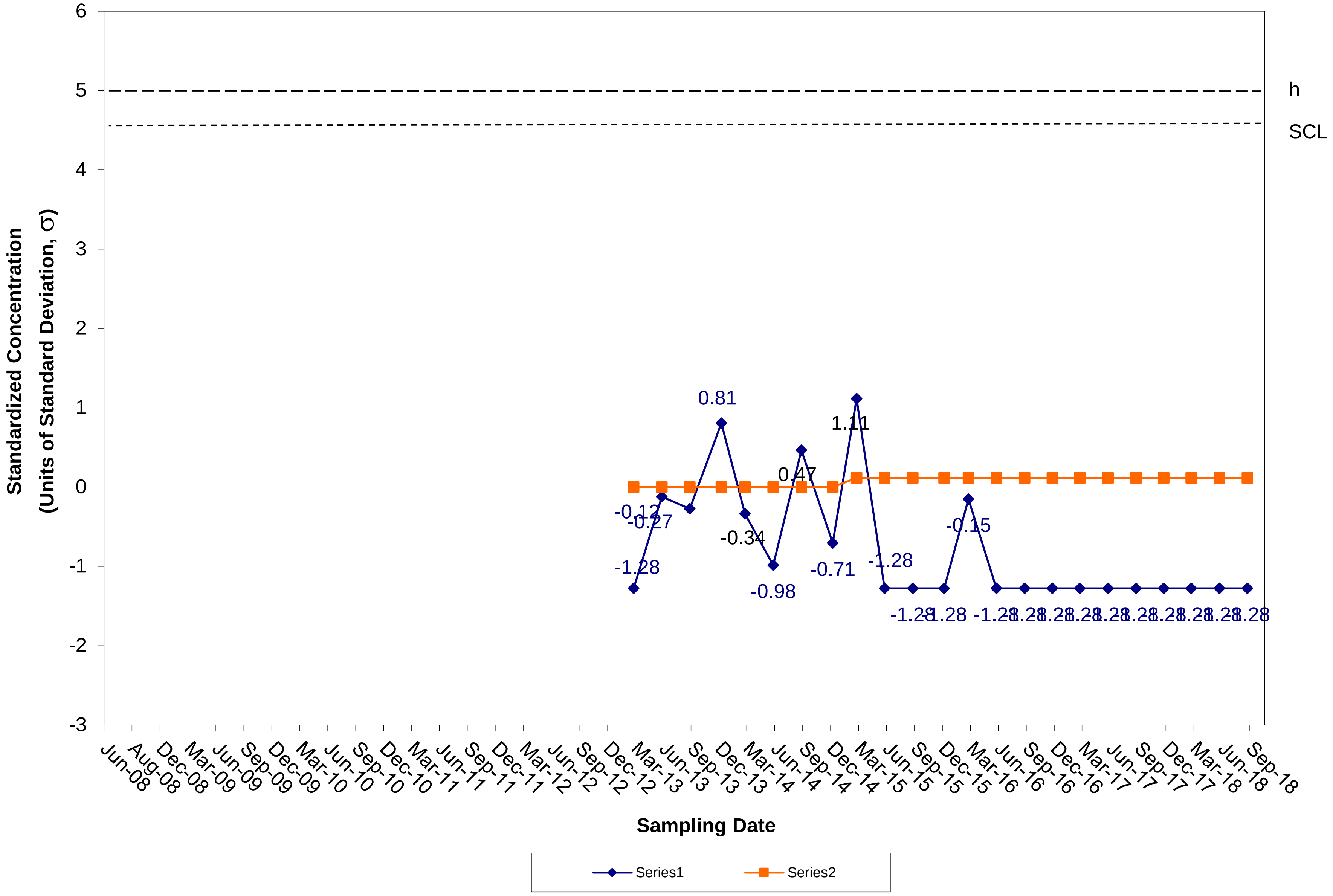


CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-13

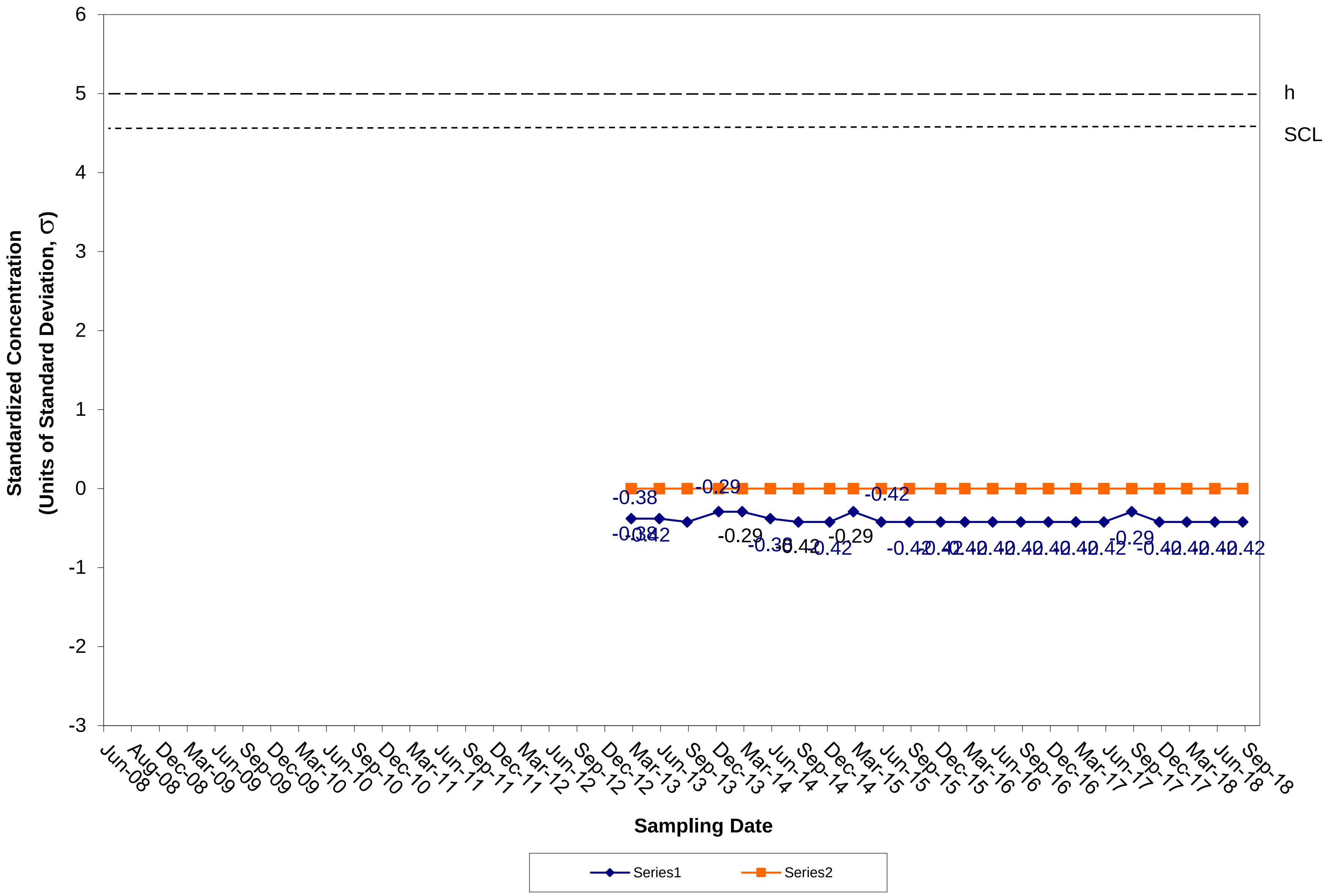
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-13



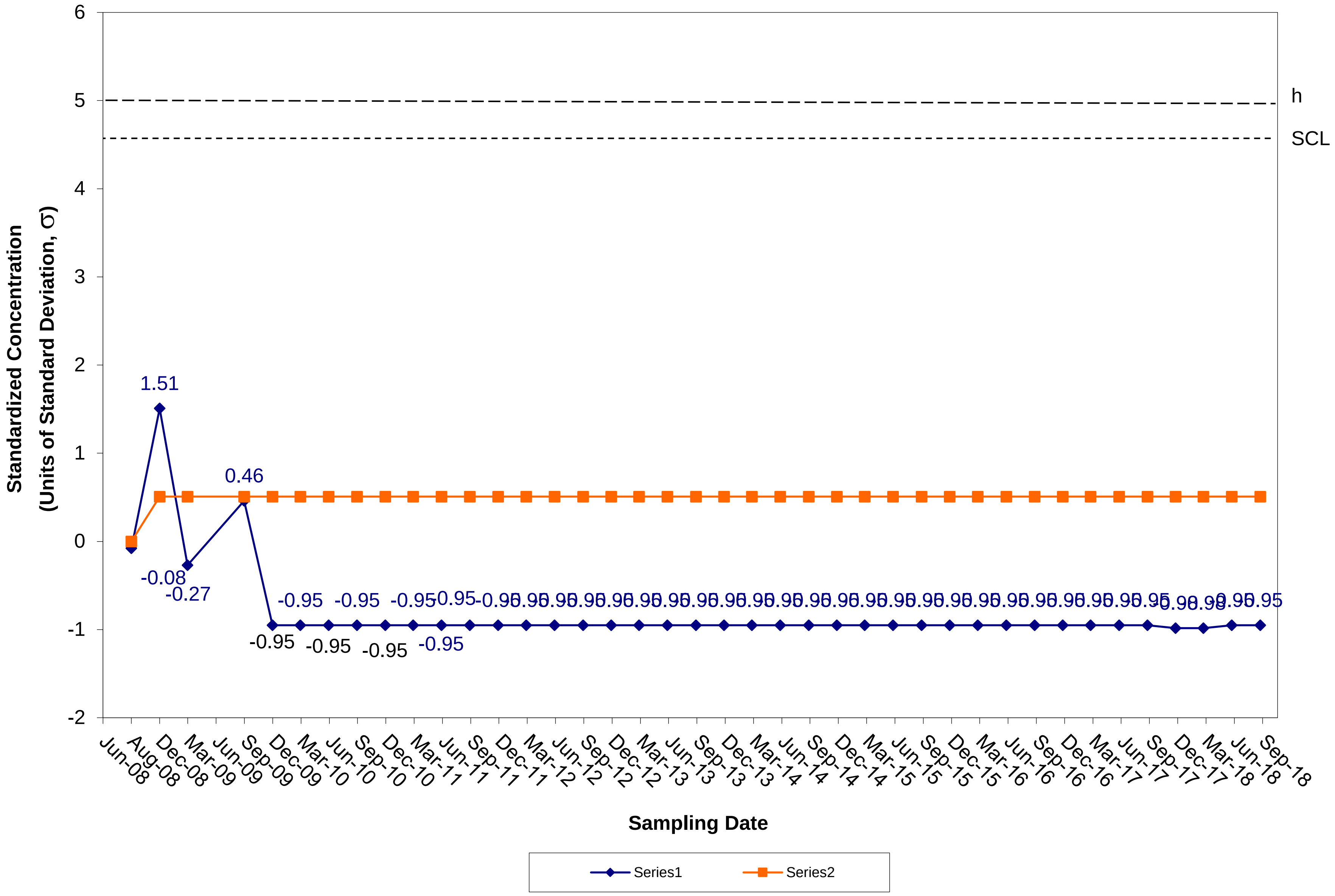
CUSUM Control Chart for Selenium
Tiverton Landfill Groundwater Compliance Well OW-13



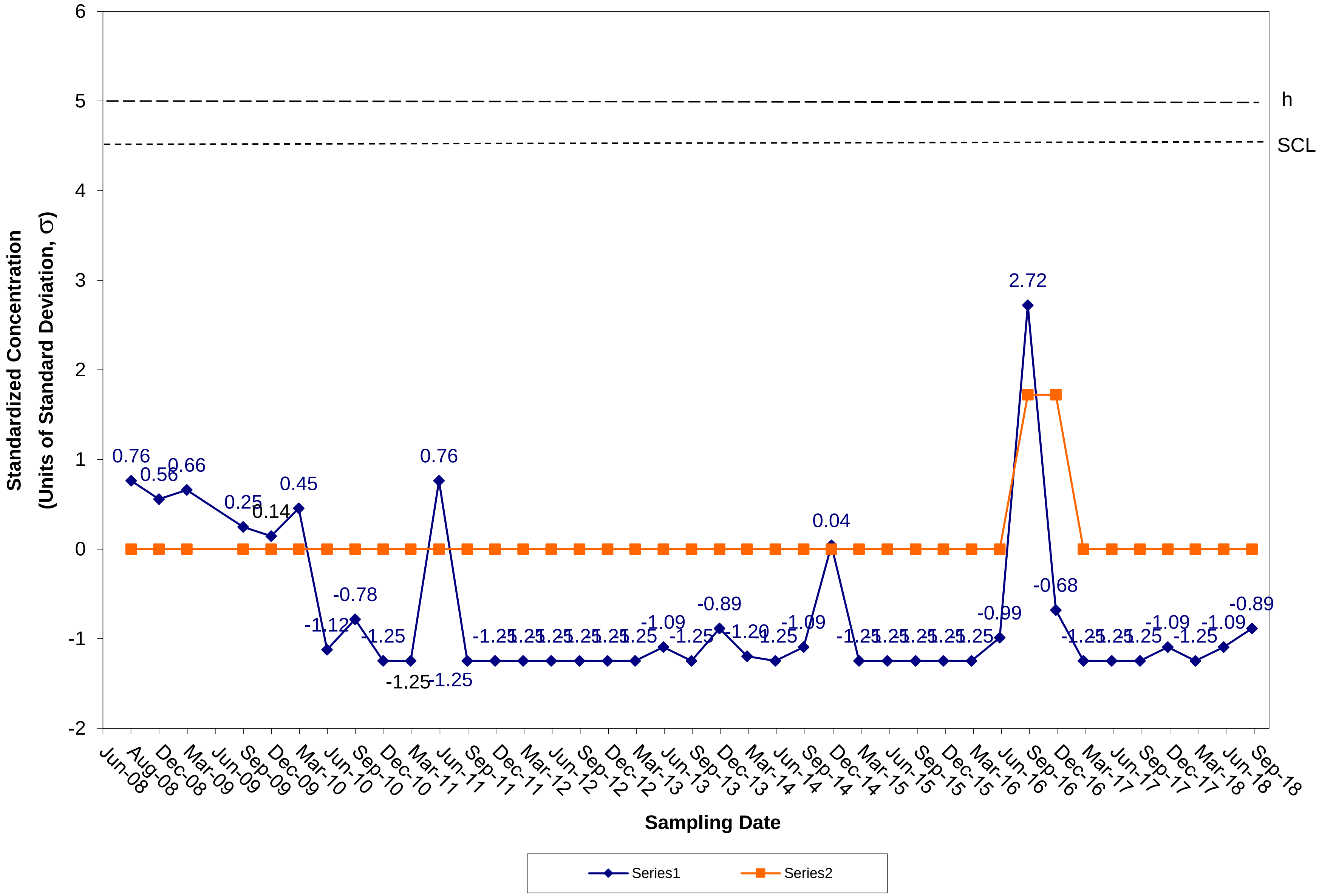
CUSUM Control Chart for Silver
Tiverton Landfill Groundwater Compliance Well OW-13

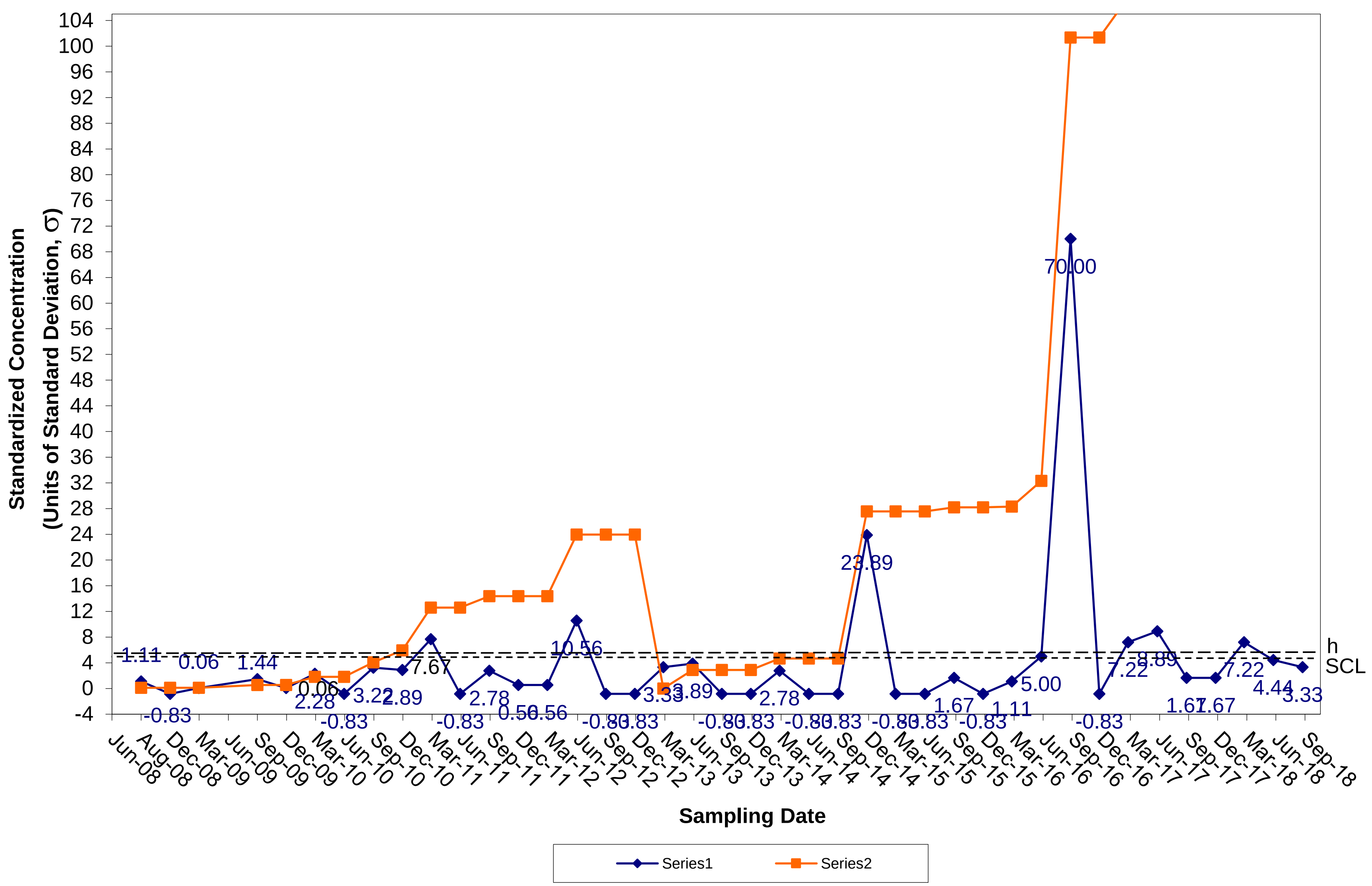


CUSUM Control Chart for Thallium
Tiverton Landfill Groundwater Compliance Well OW-13



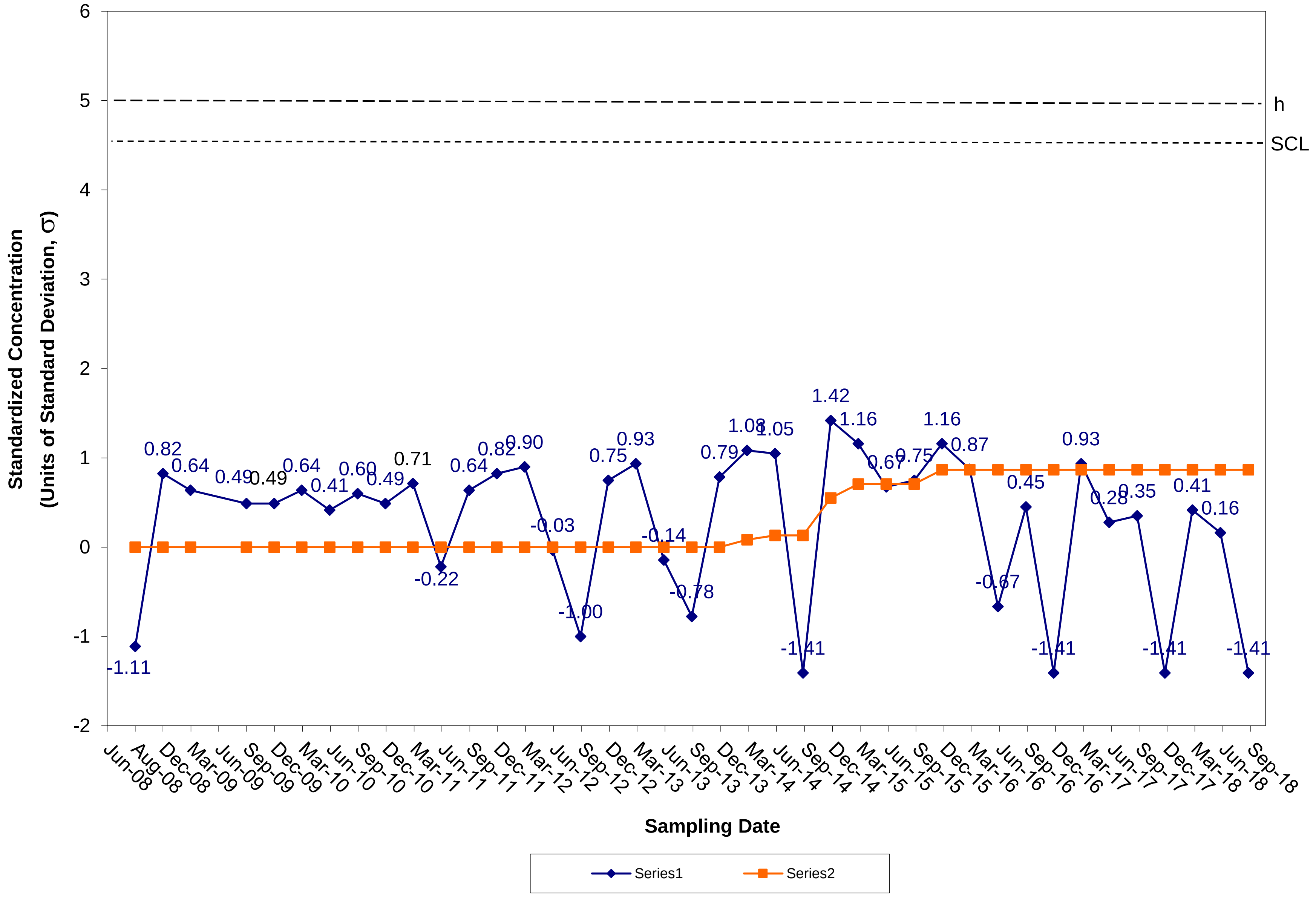
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-13



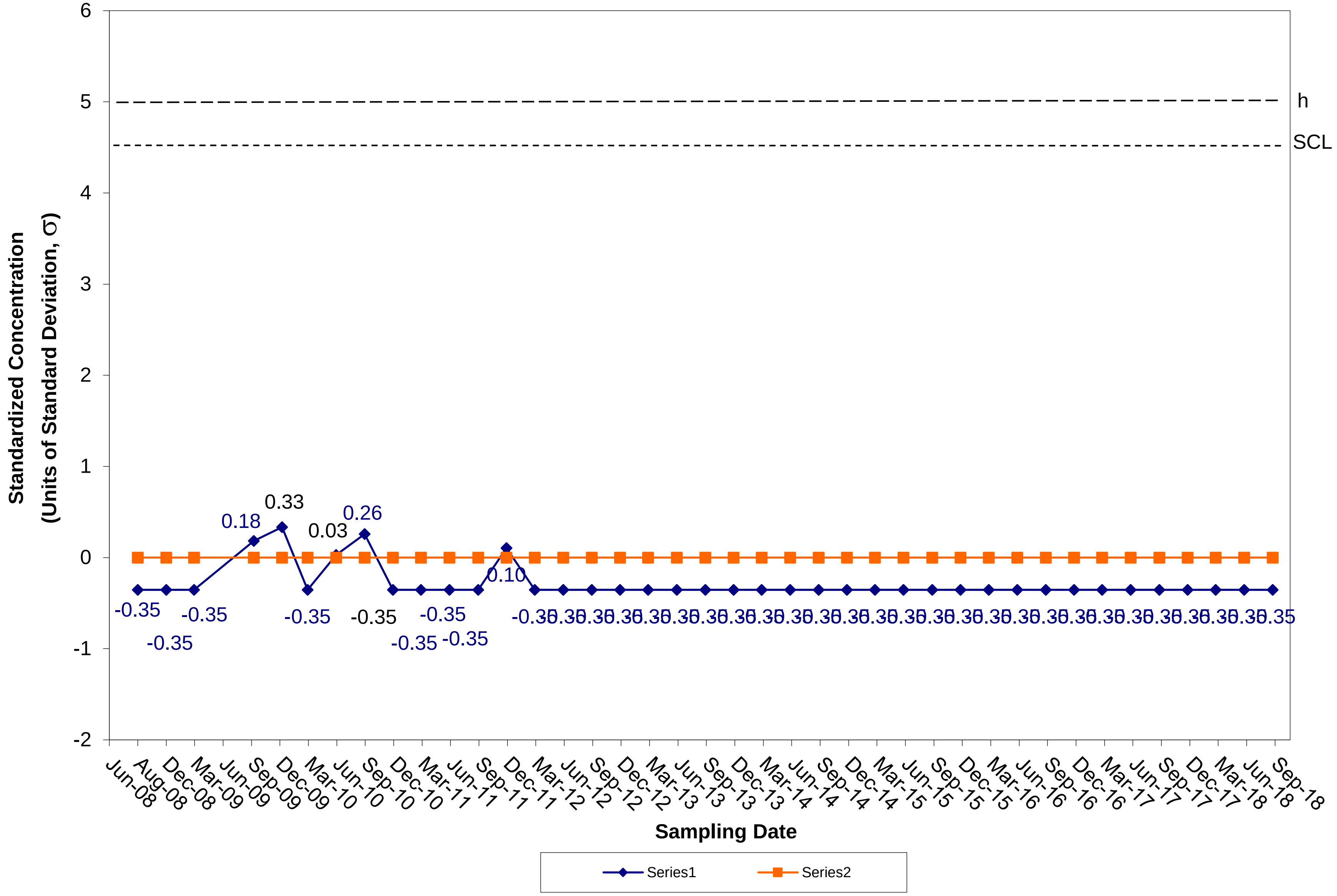


CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-13

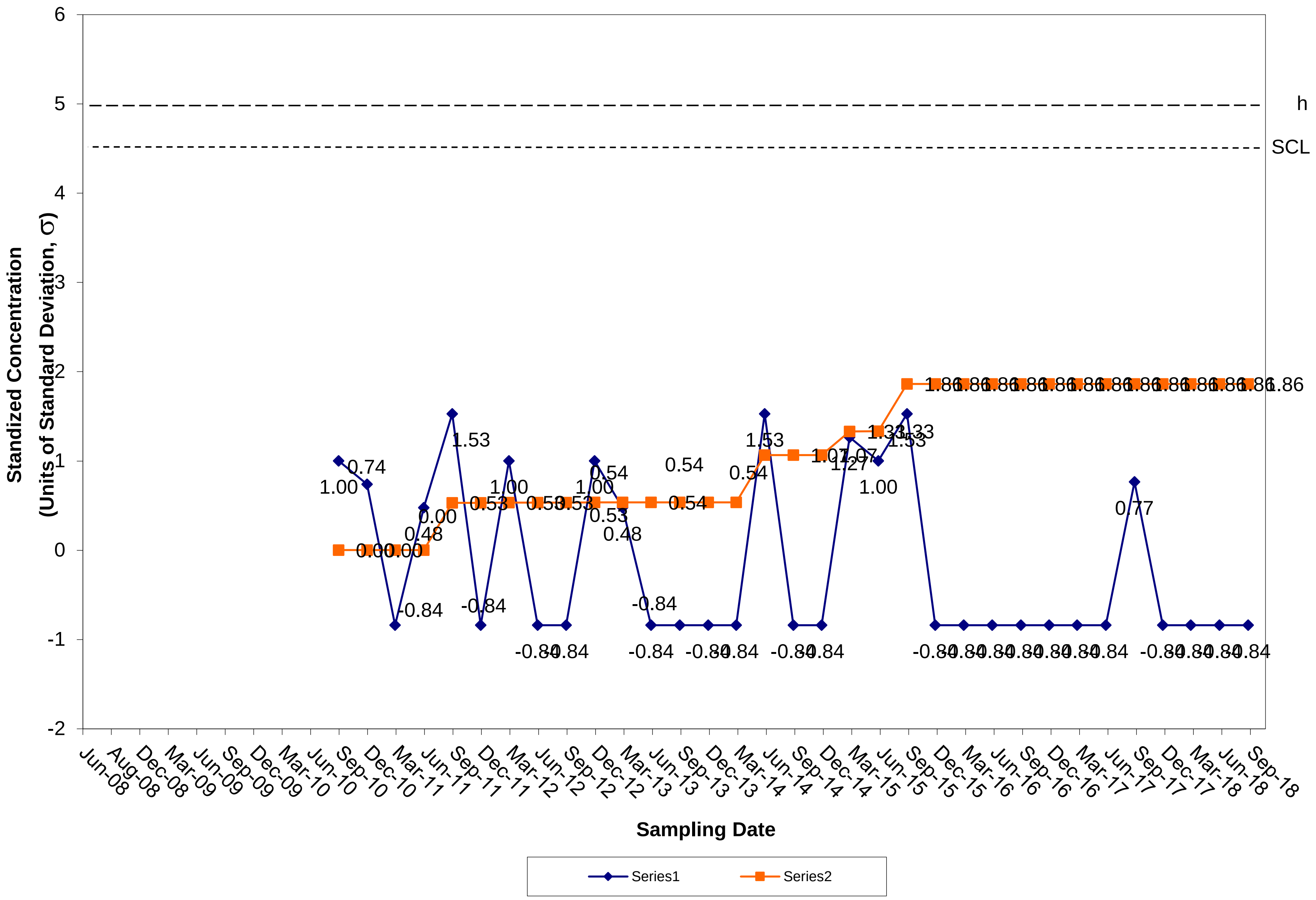
CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-13



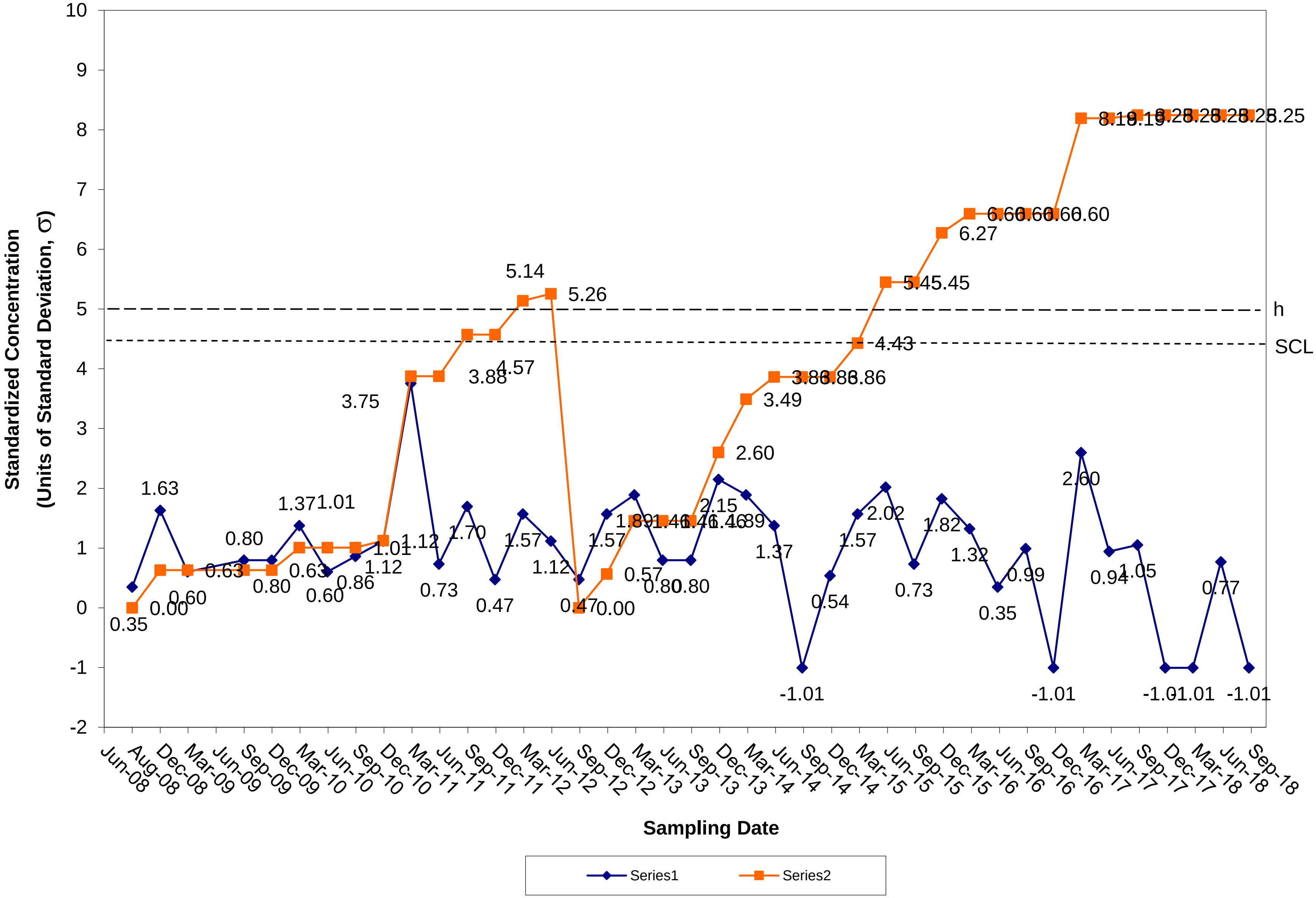
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Compliance Well OW-13



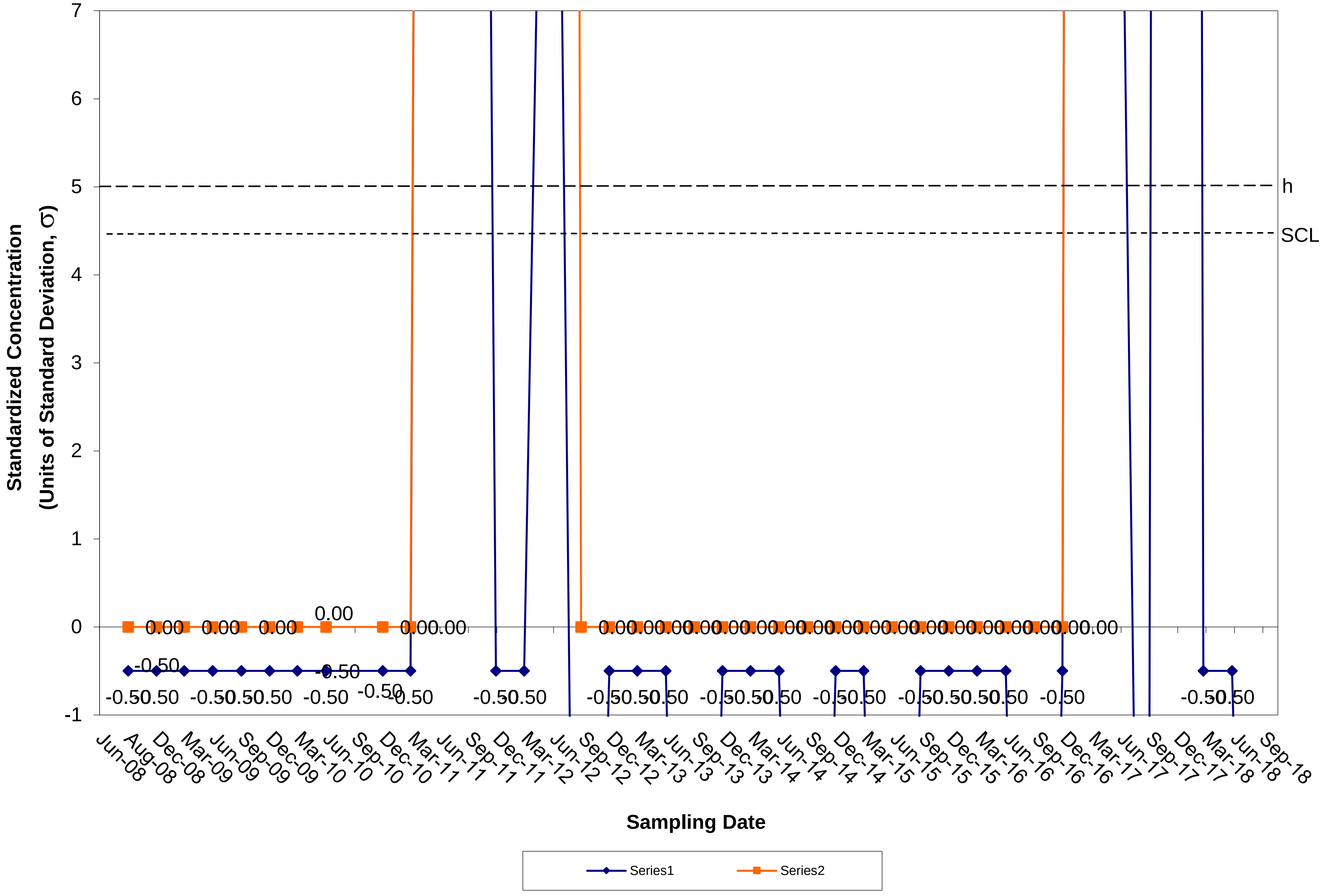
CUSUM Control Chart for 1,4-Dichlorobenzene - Adjusted Baseline
Tiverton Landfill Groundwater Complaince Well OW-13



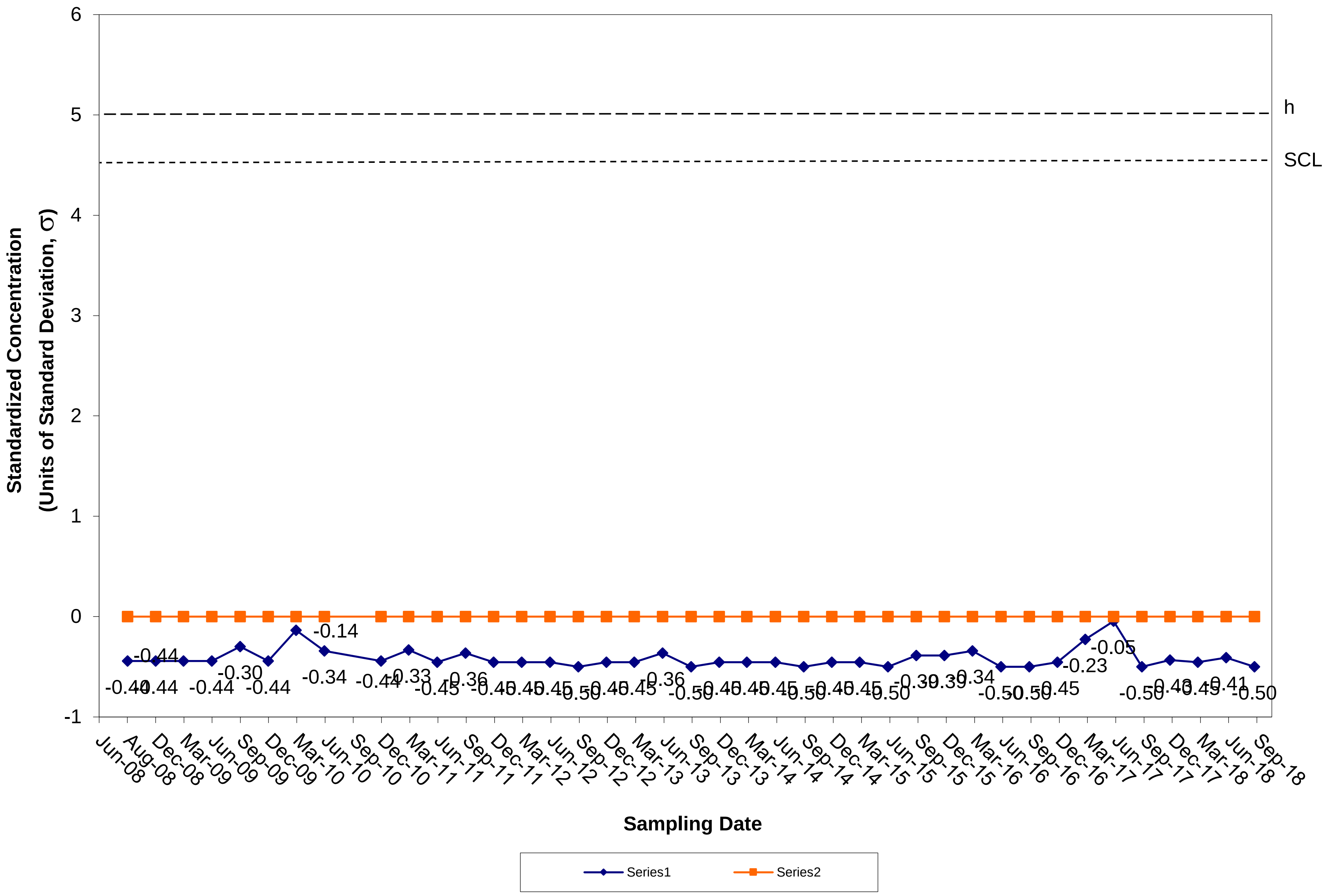
CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-13



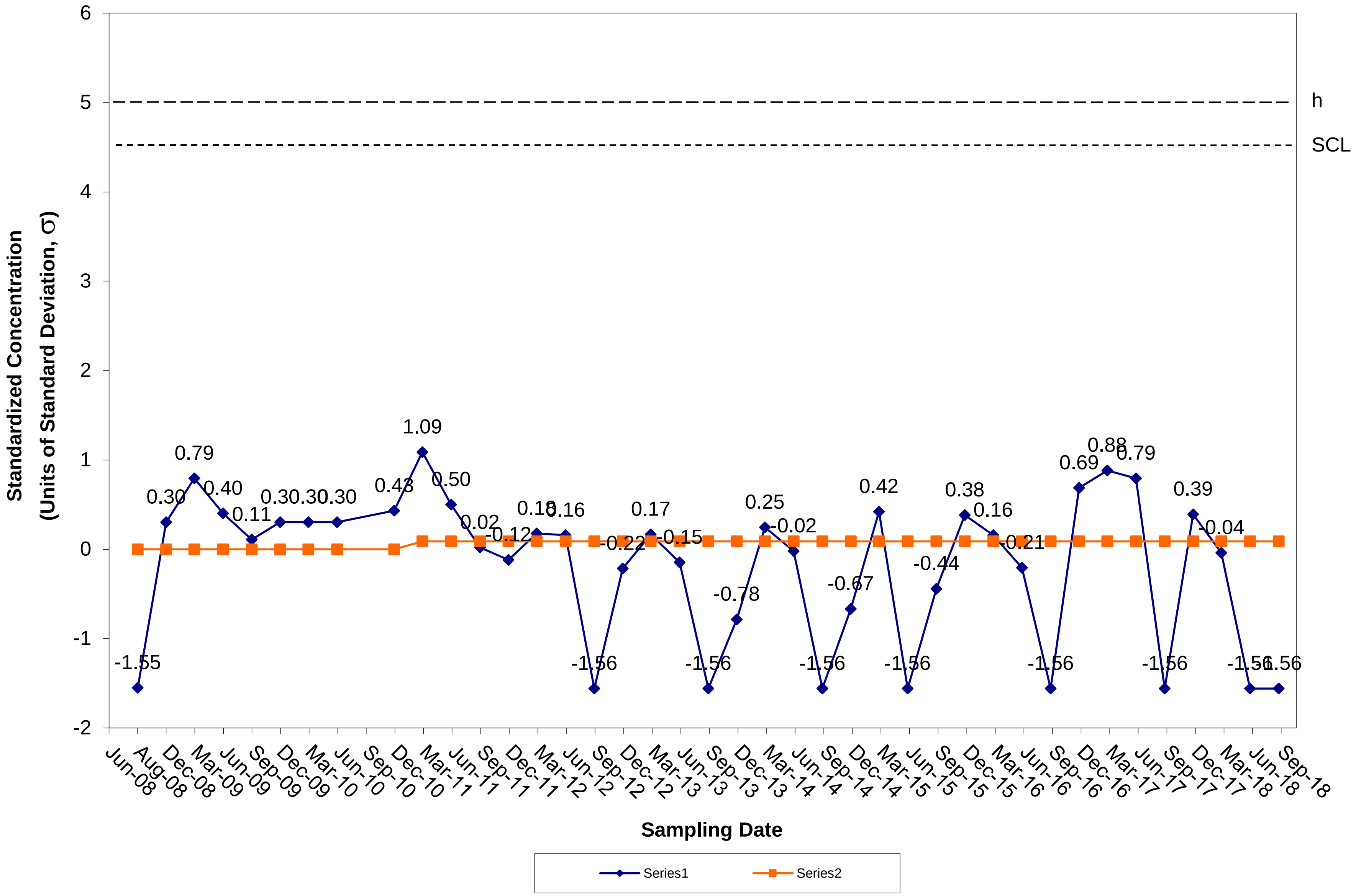
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-14

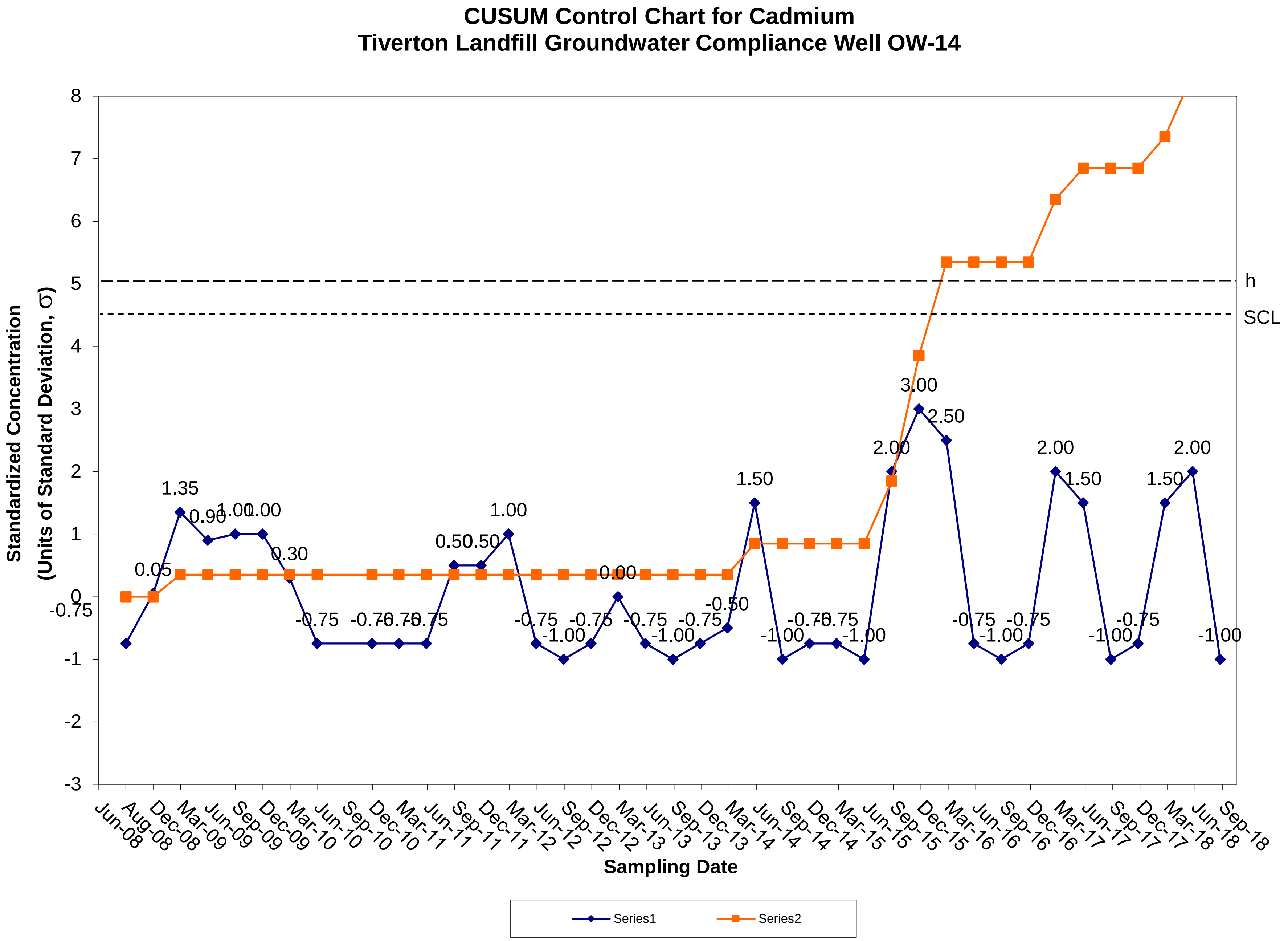


CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-14



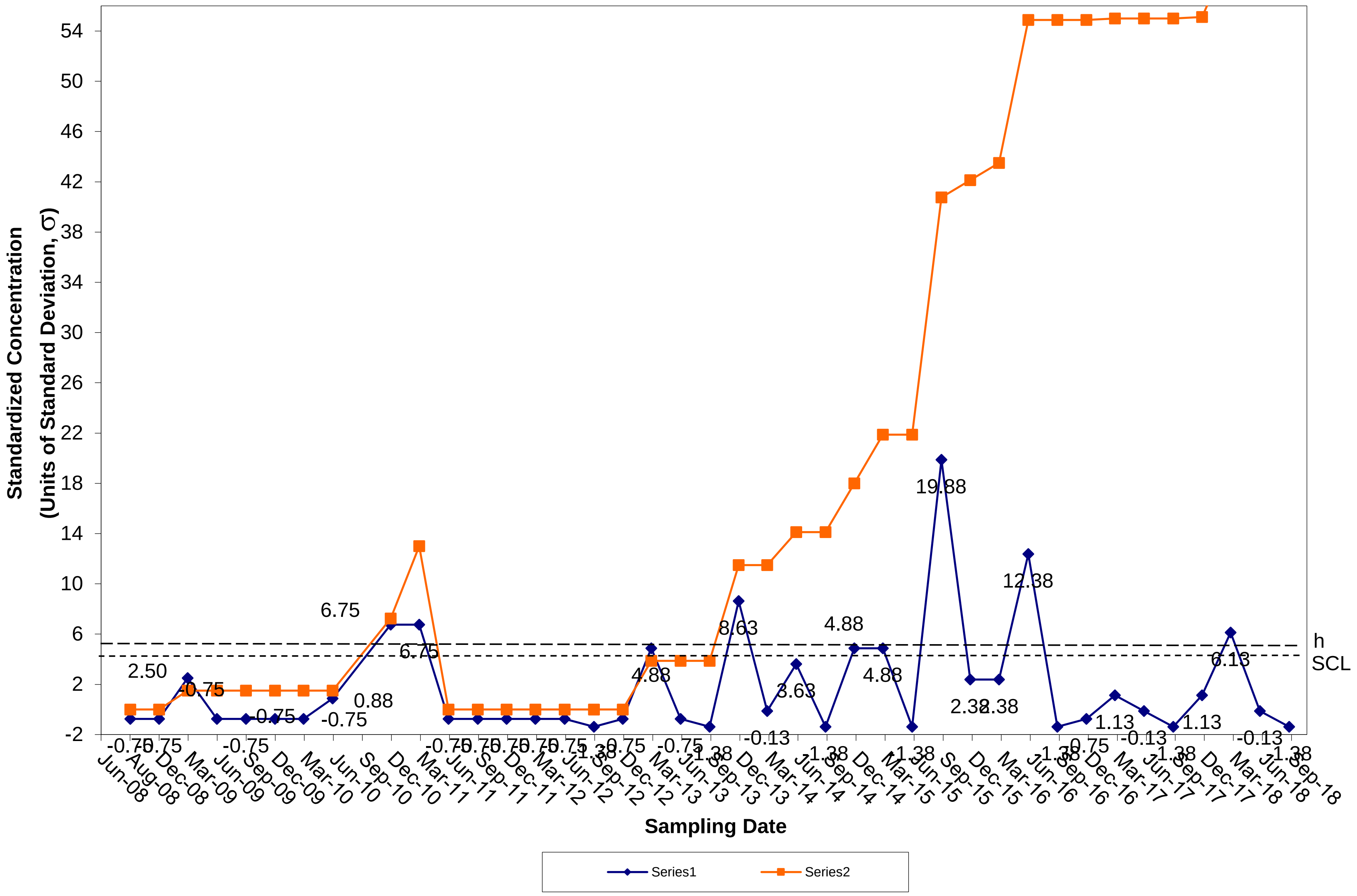
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-14



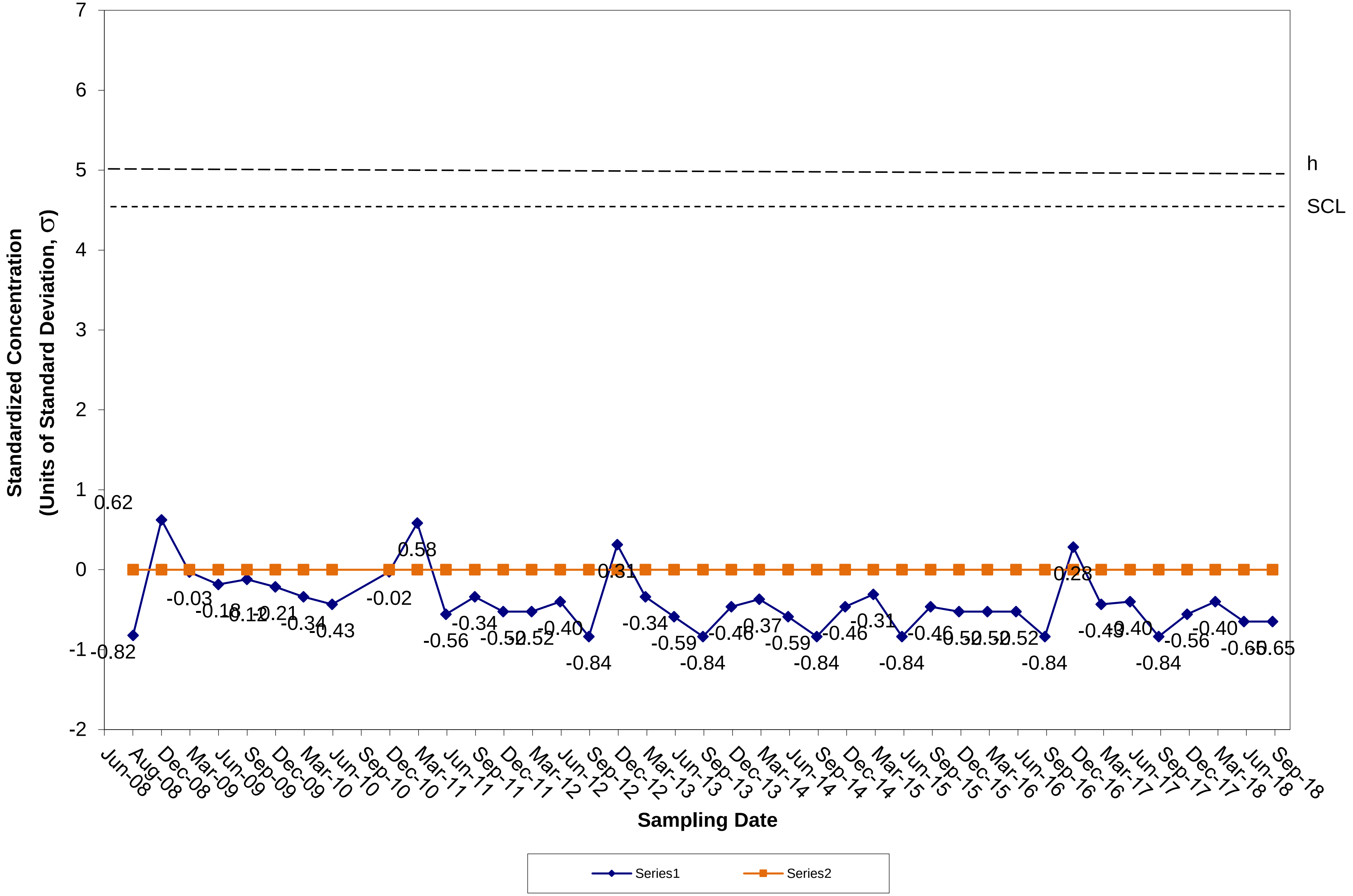


CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Compliance Well OW-14

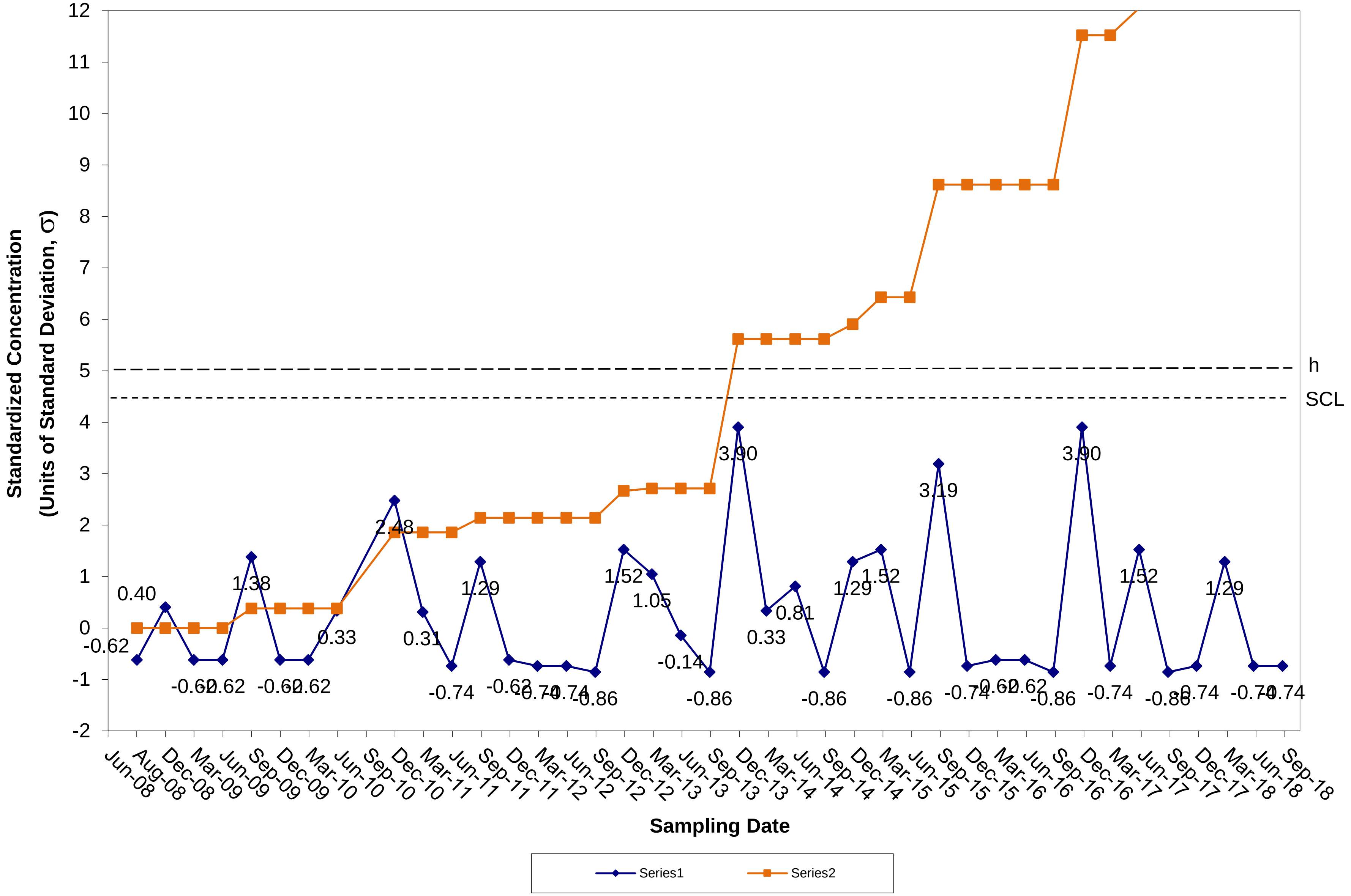
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-14



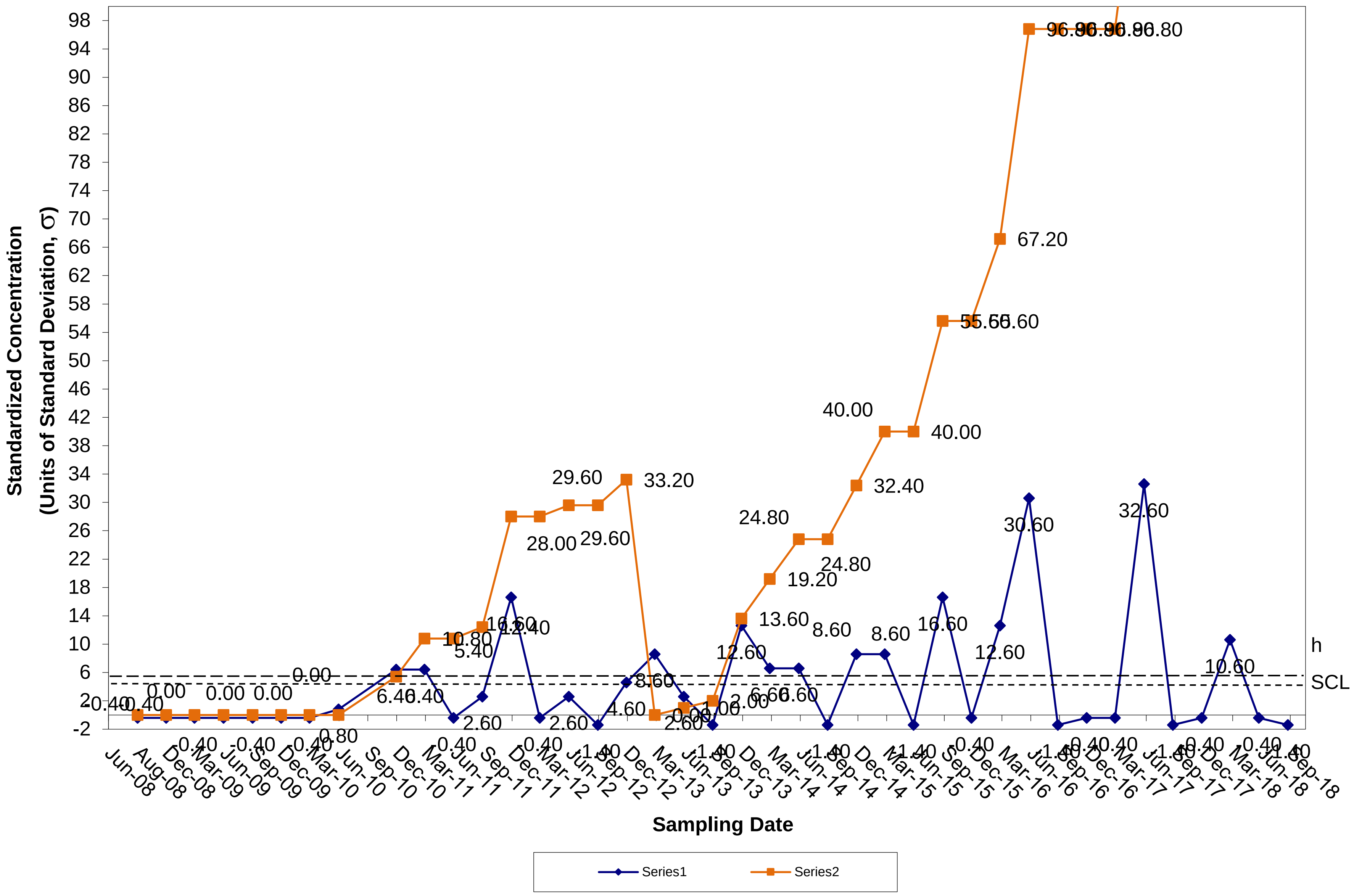
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-14



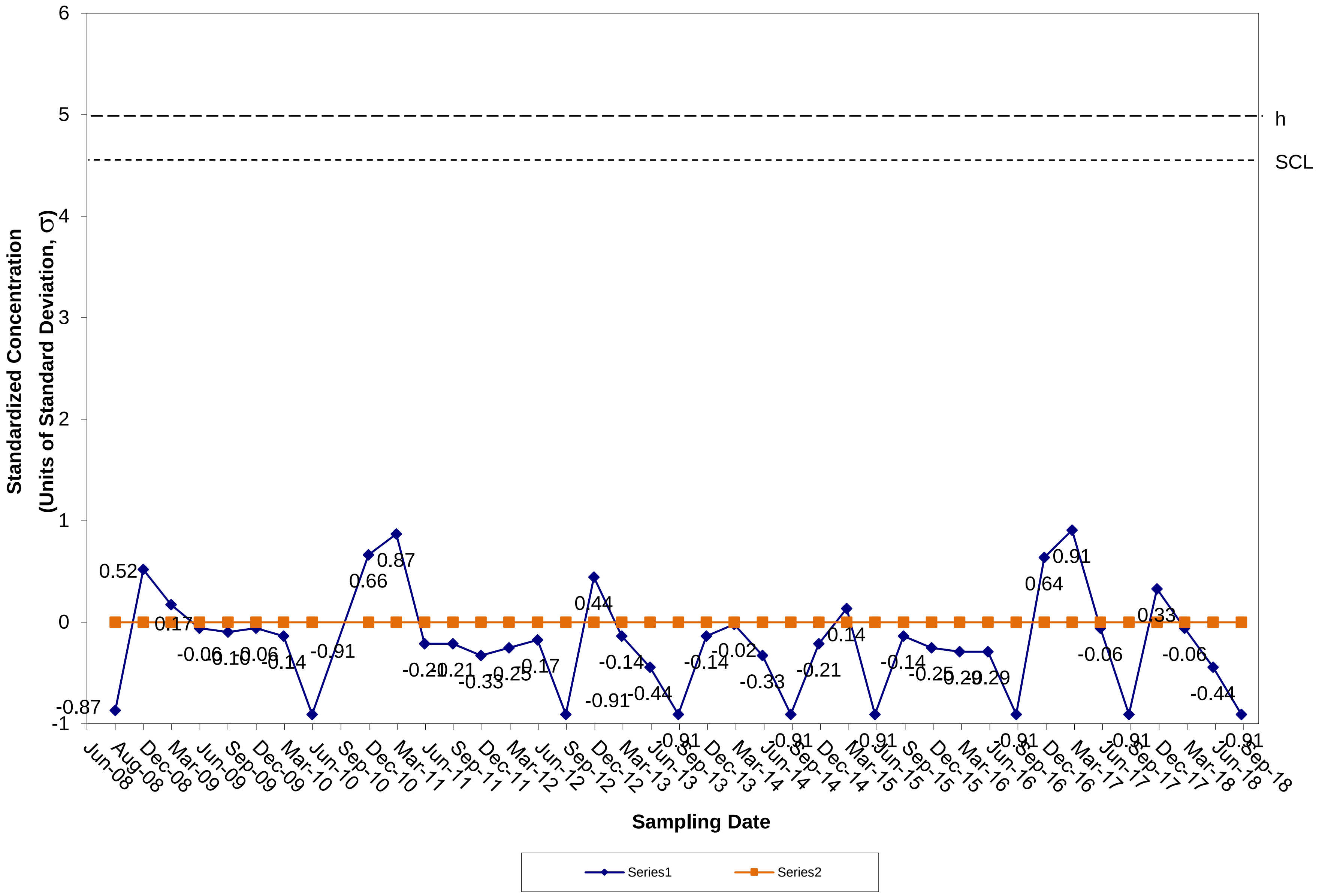
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Compliance Well OW-14



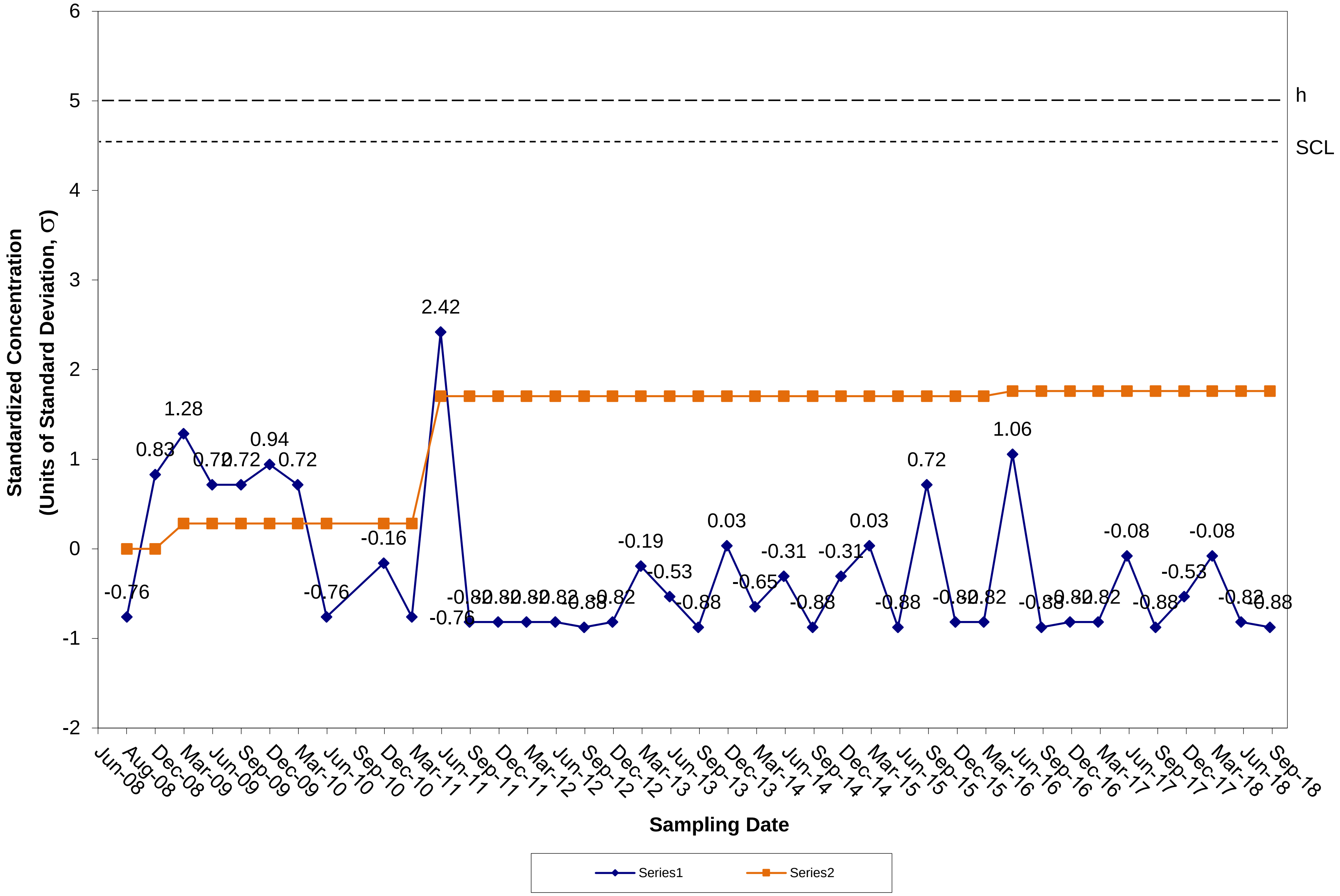
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-14



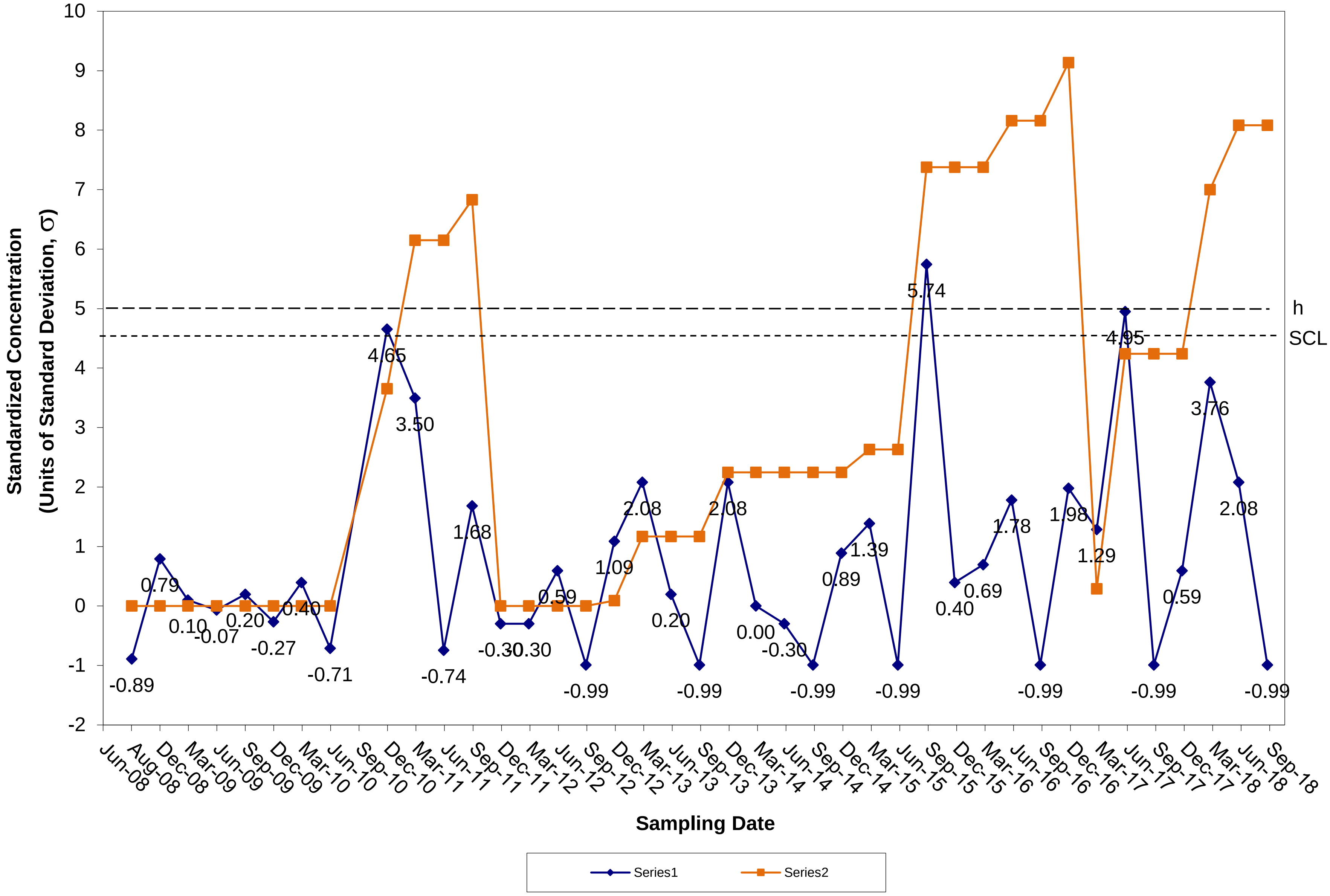
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Compliance Well OW-14



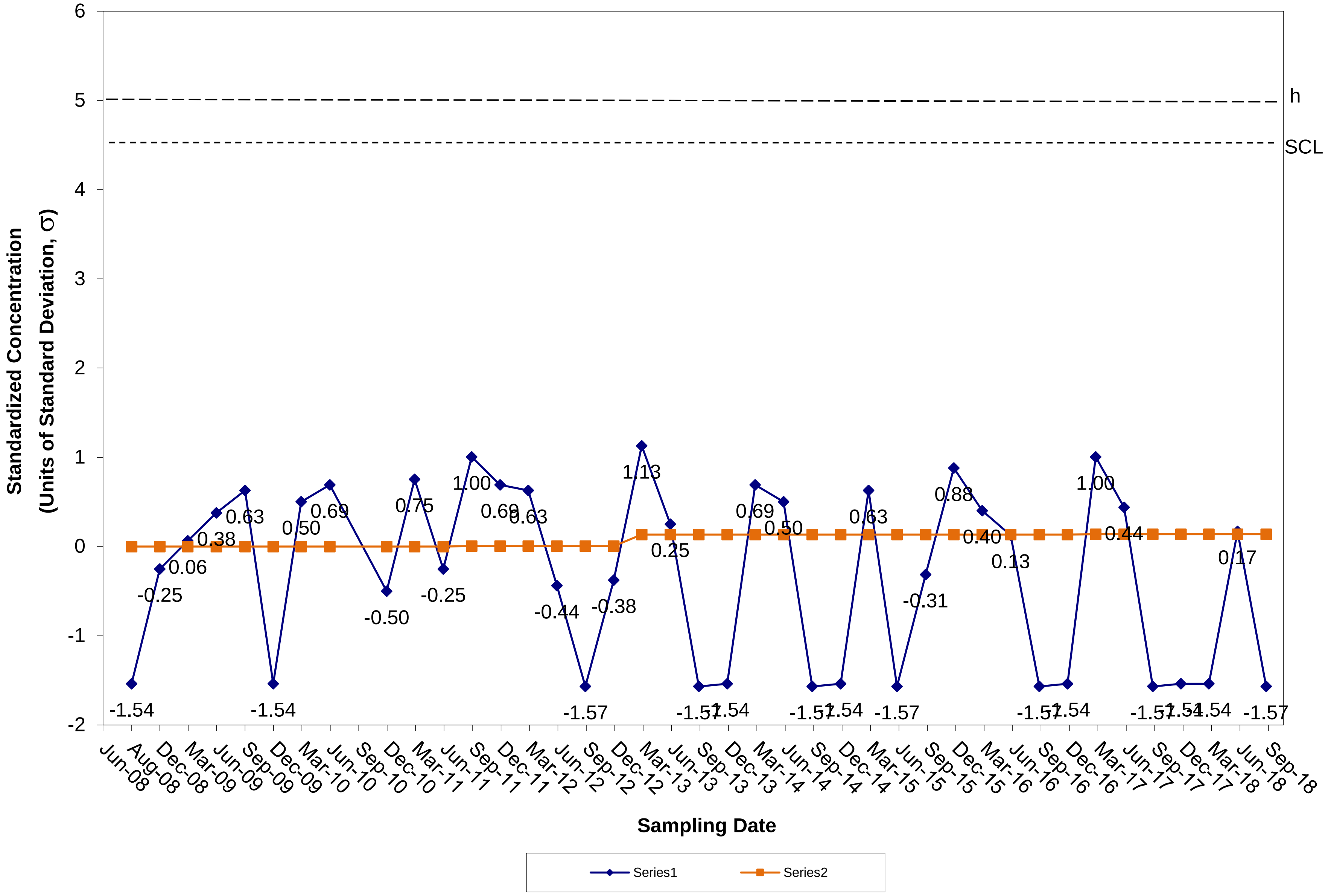
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Compliance Well OW-14



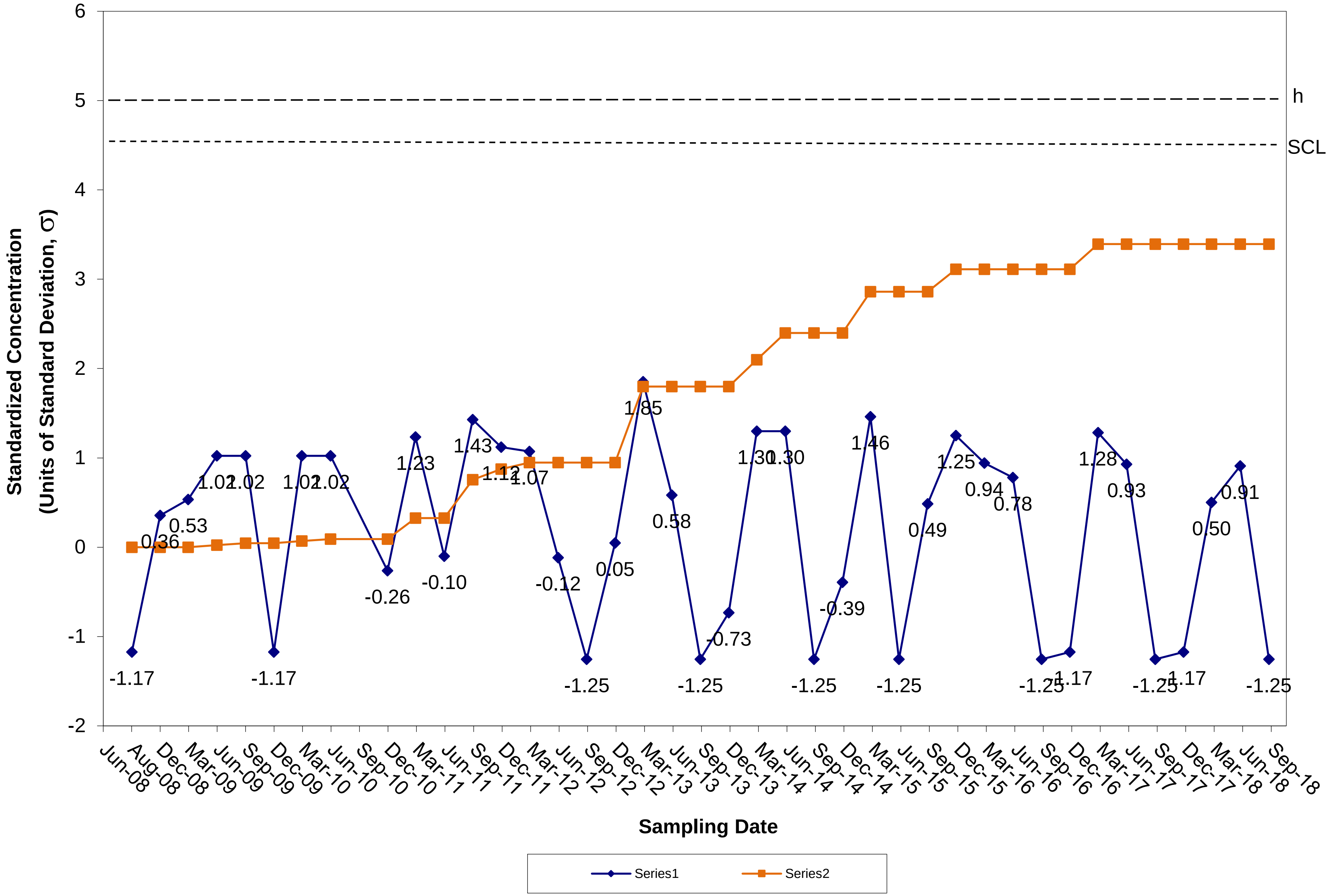
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-14



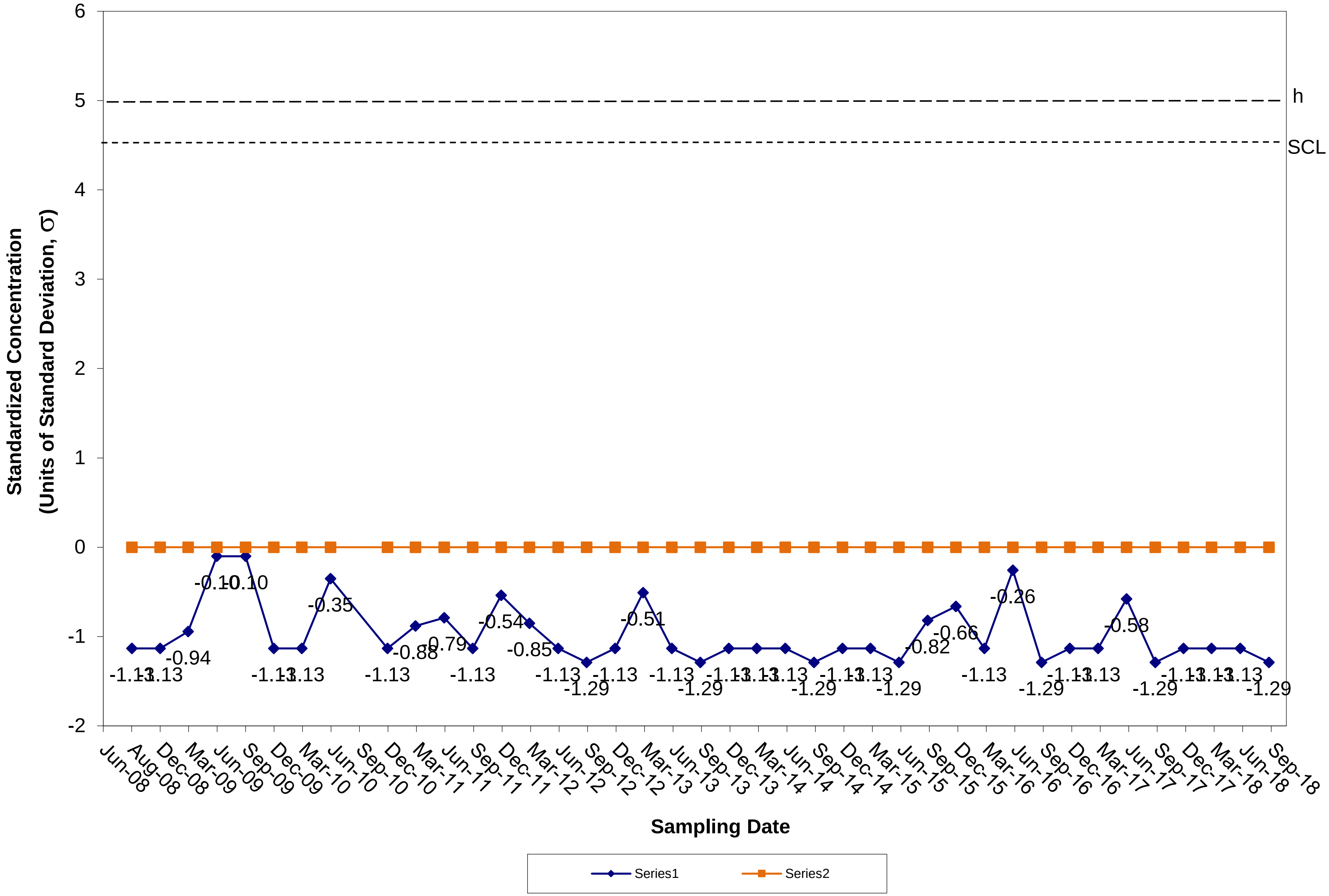
CUSUM Control Chart for Benzene
Tiverton Landfill Groundwater Compliance Well OW-14



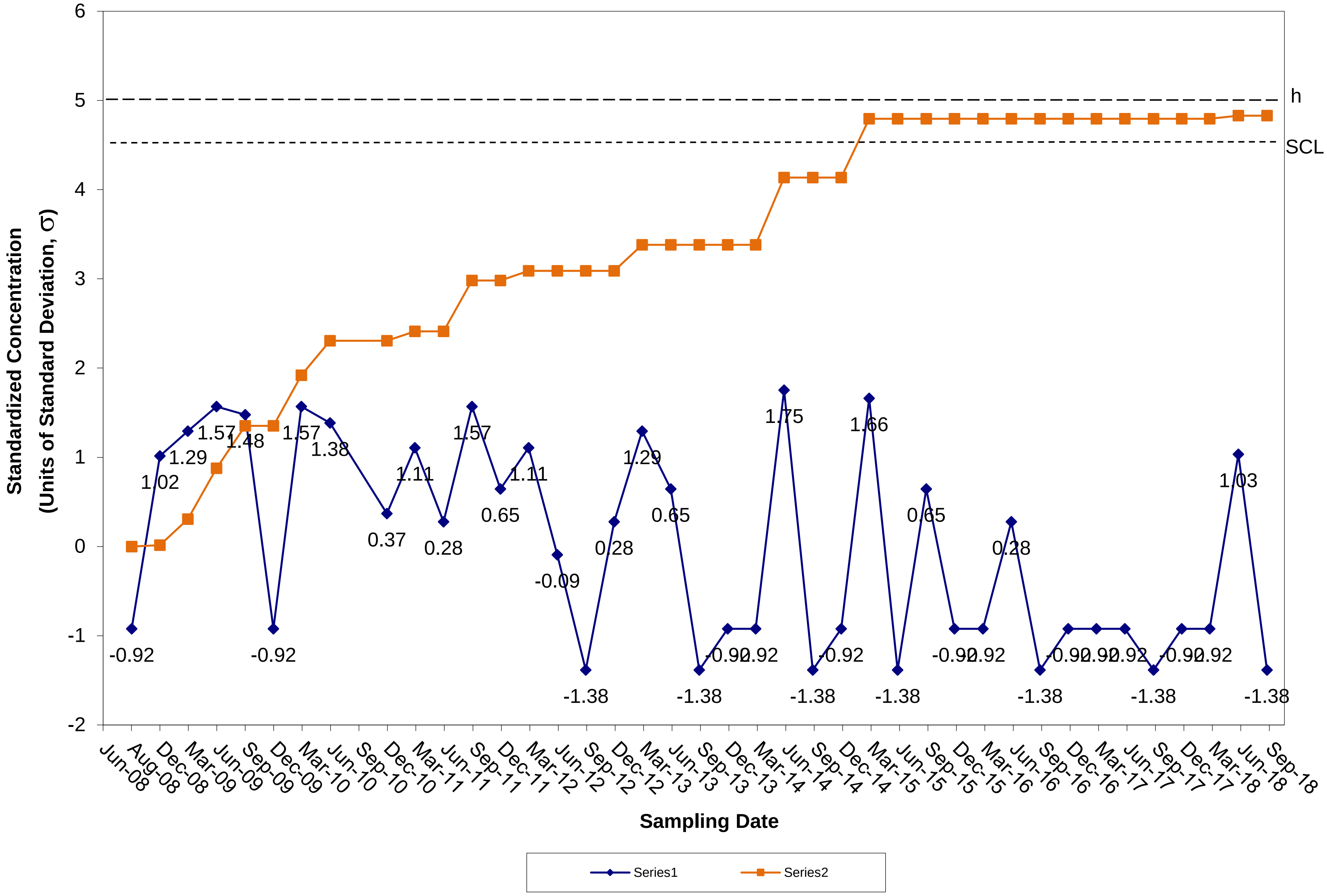
CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-14



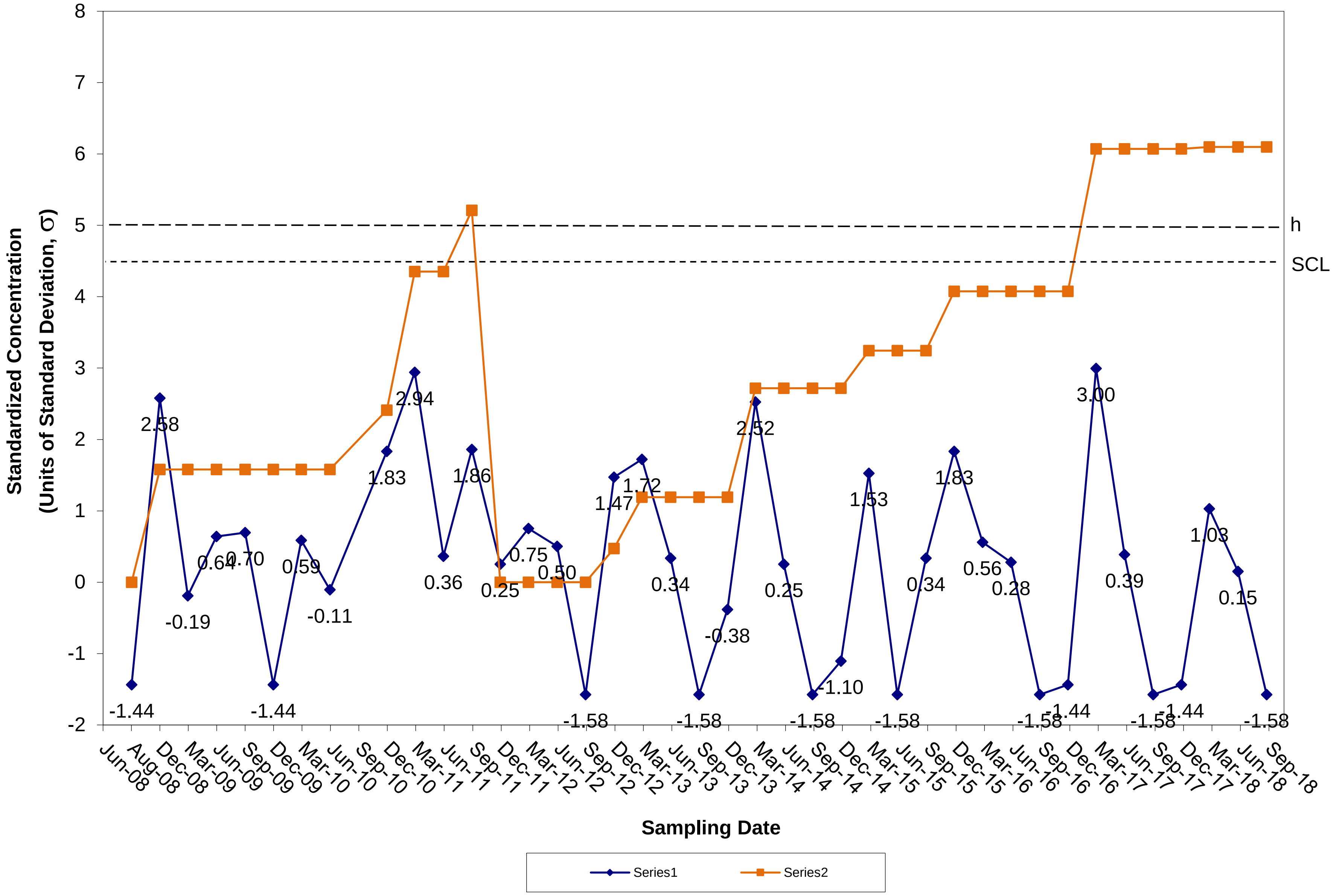
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Compliance Well OW-14



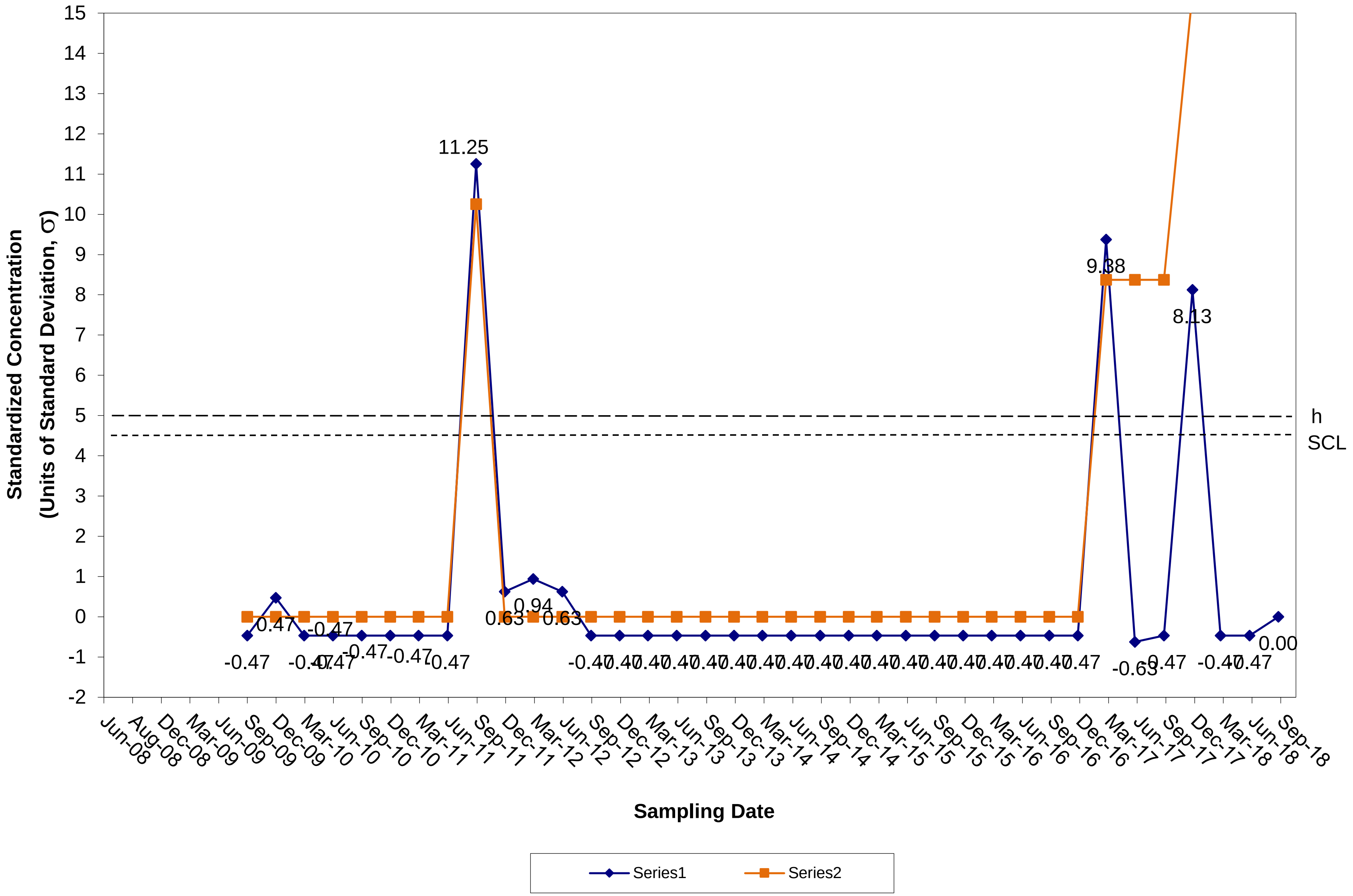
CUSUM Control Chart for 1,4-Dichlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-14



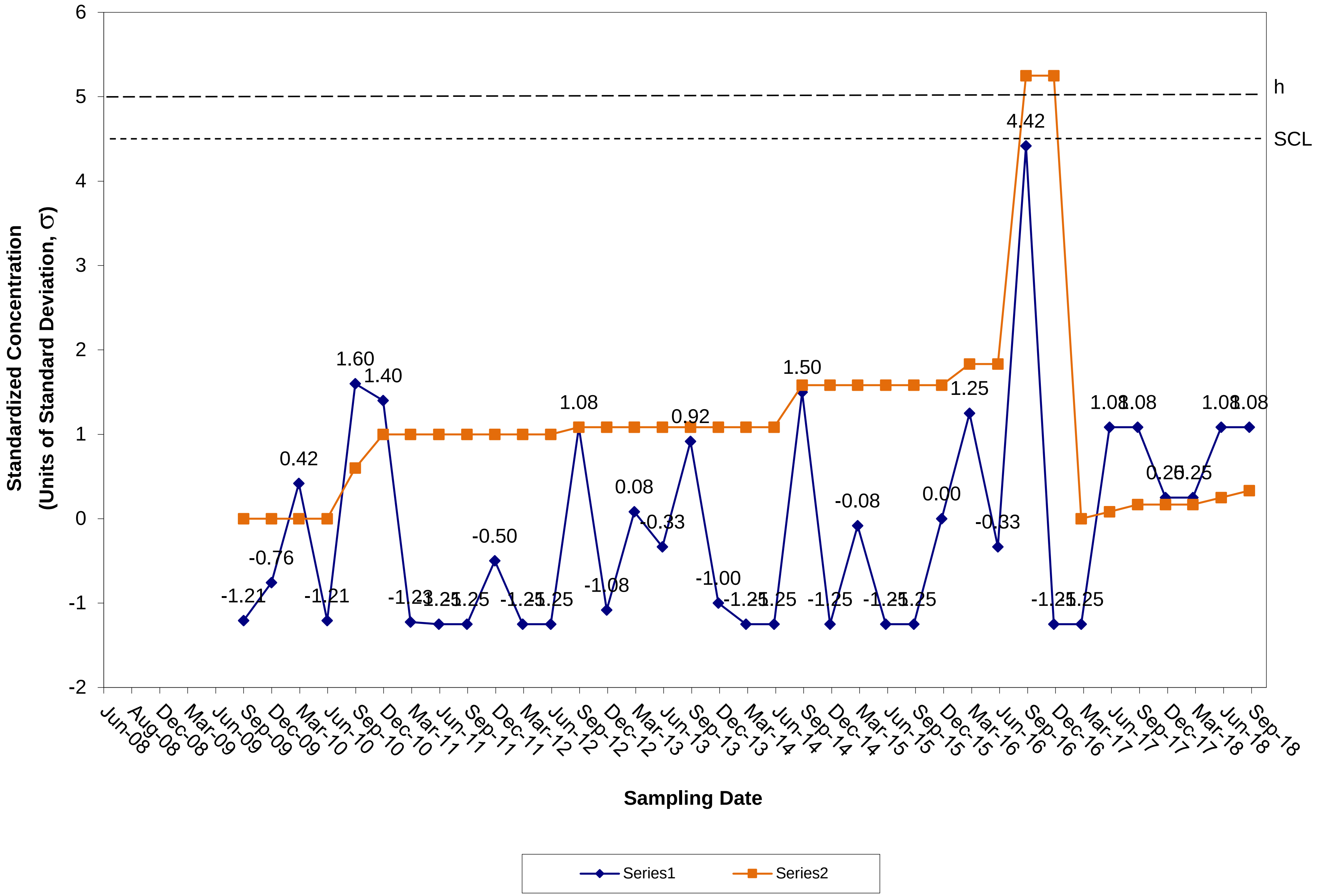
CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-14



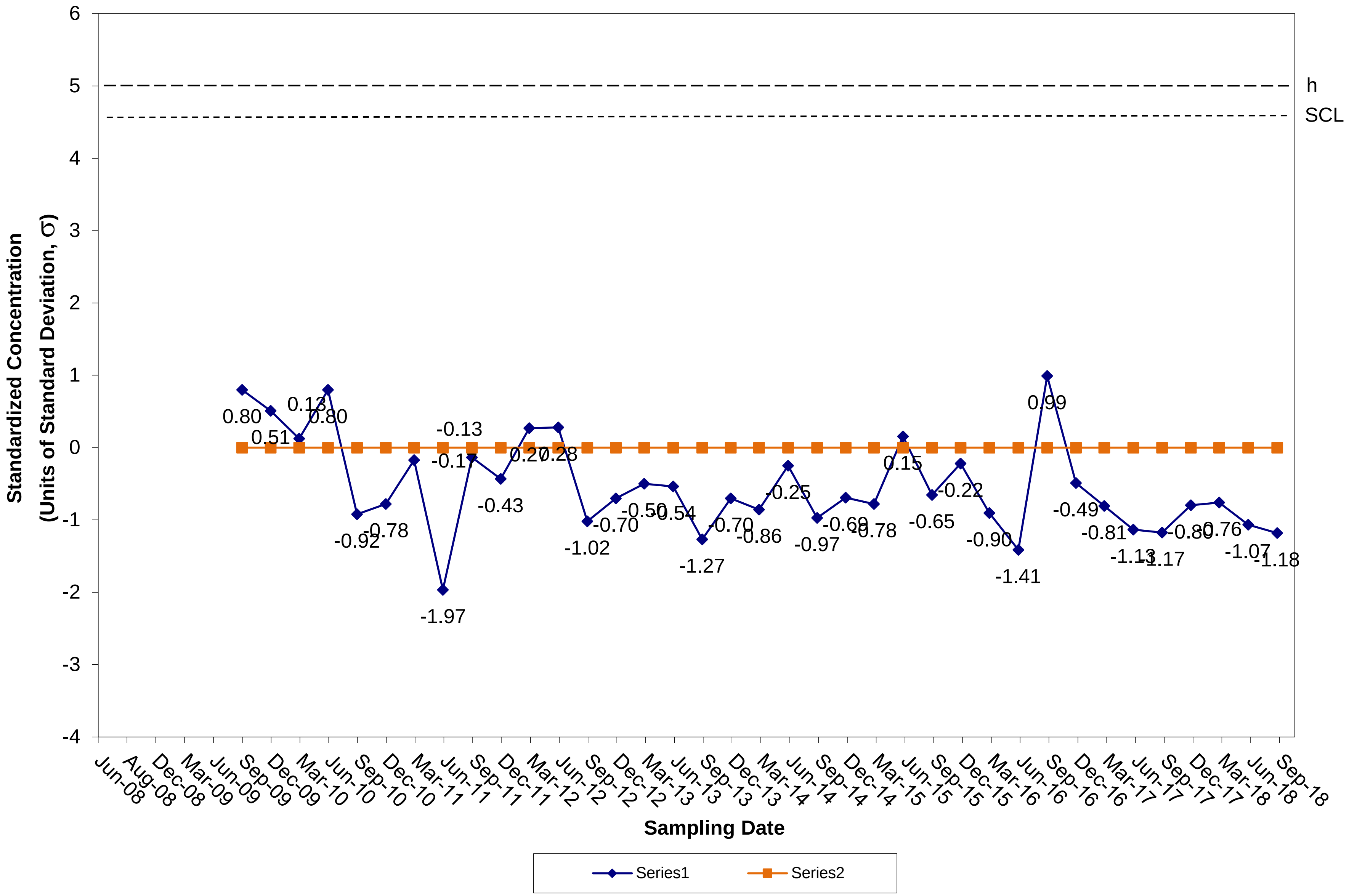
CUSUM Control Chart for Antimony
Tiverton Landfill Groundwater Compliance Well OW-15



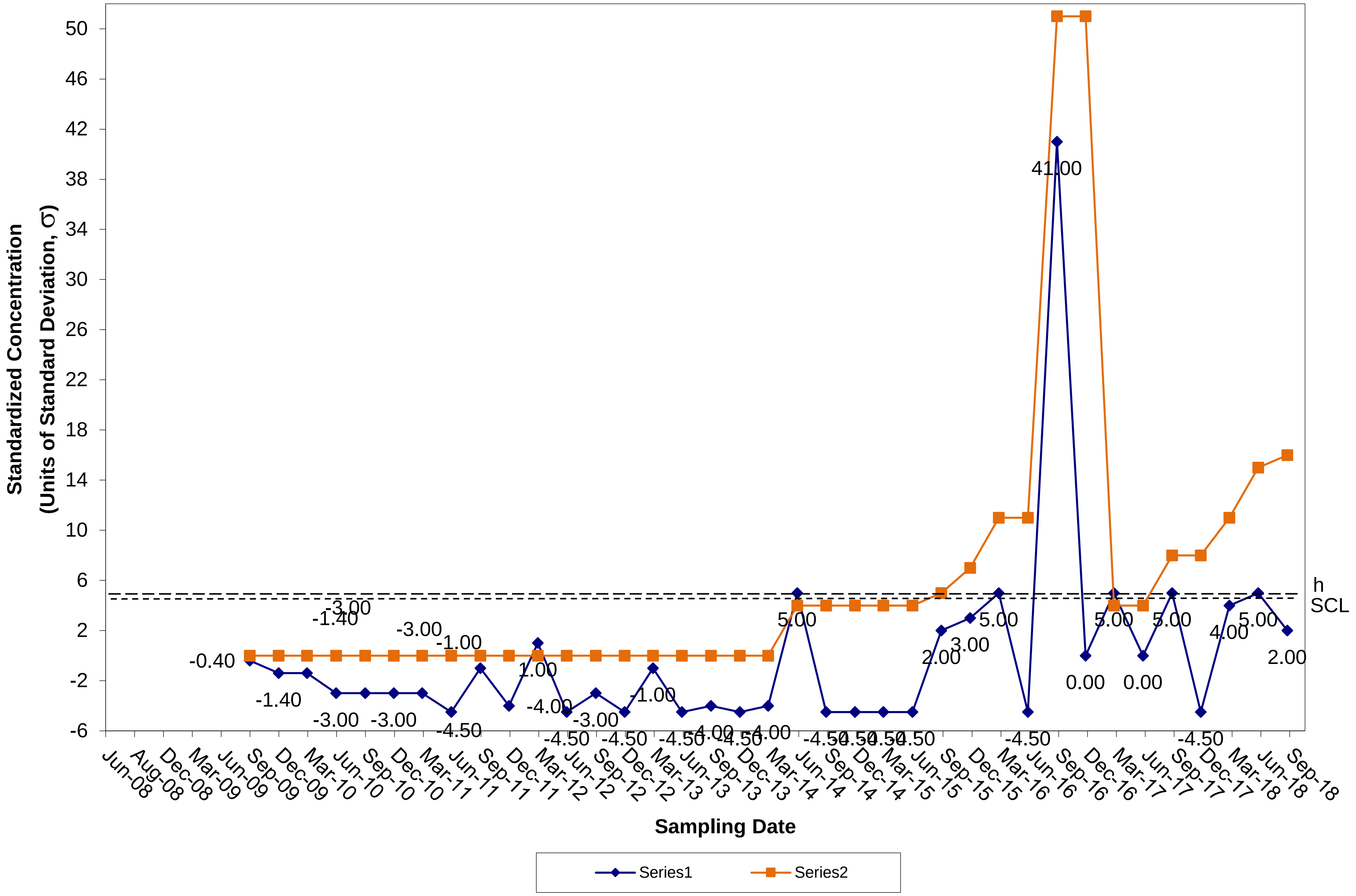
CUSUM Control Chart for Arsenic
Tiverton Landfill Groundwater Compliance Well OW-15



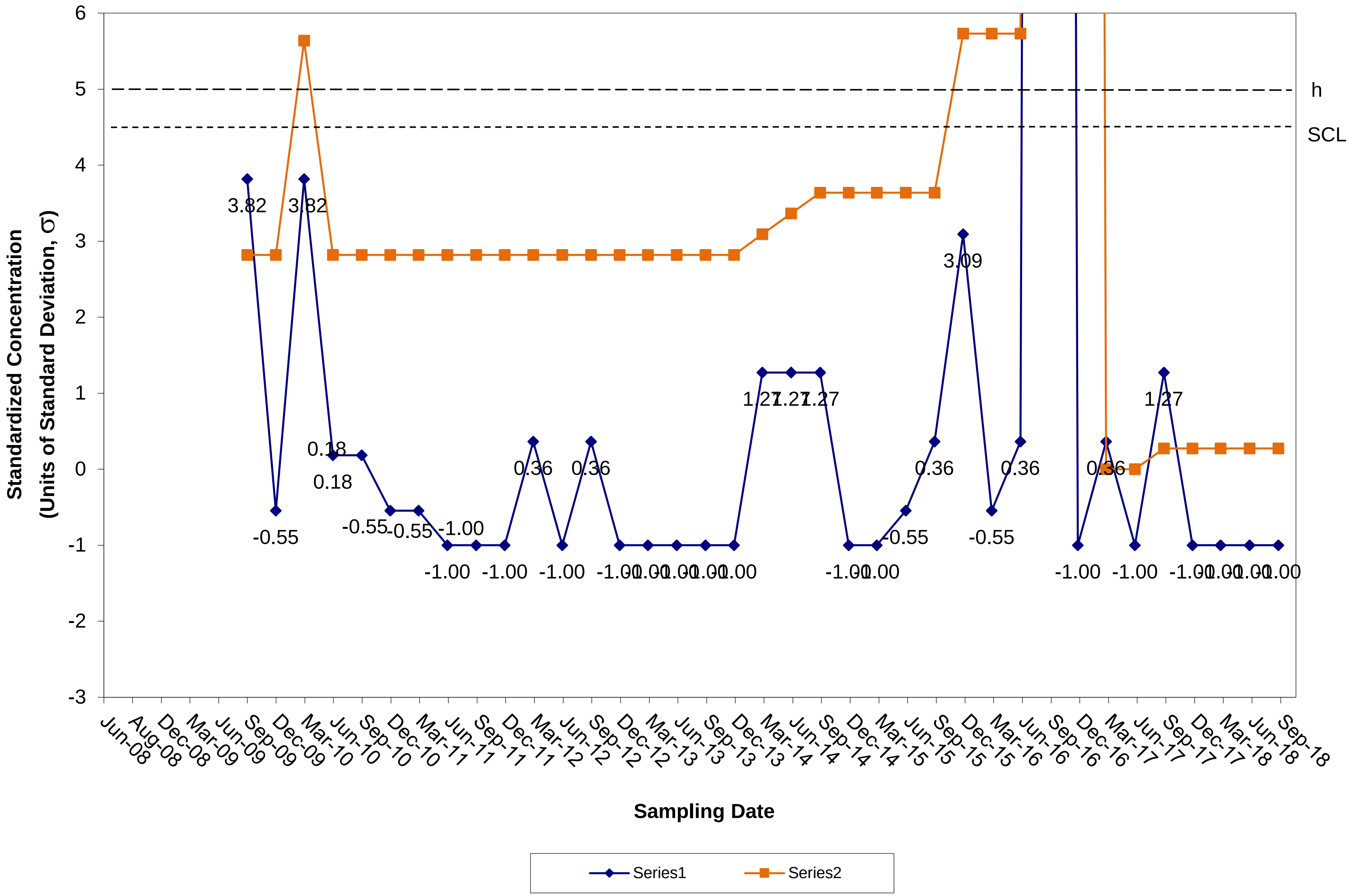
CUSUM Control Chart for Barium
Tiverton Landfill Groundwater Compliance Well OW-15



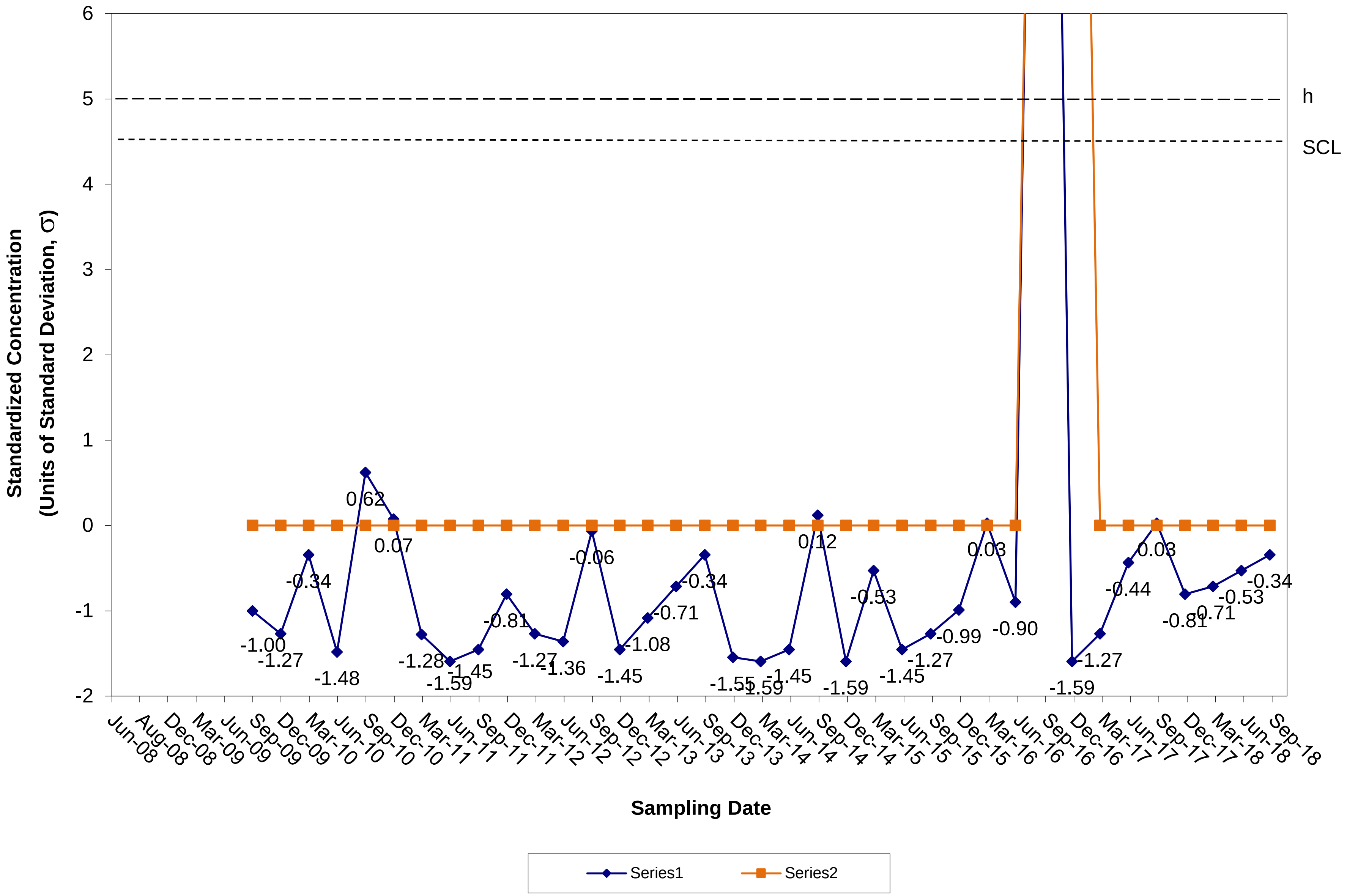
CUSUM Control Chart for Cadmium
Tiverton Landfill Groundwater Compliance Well OW-15



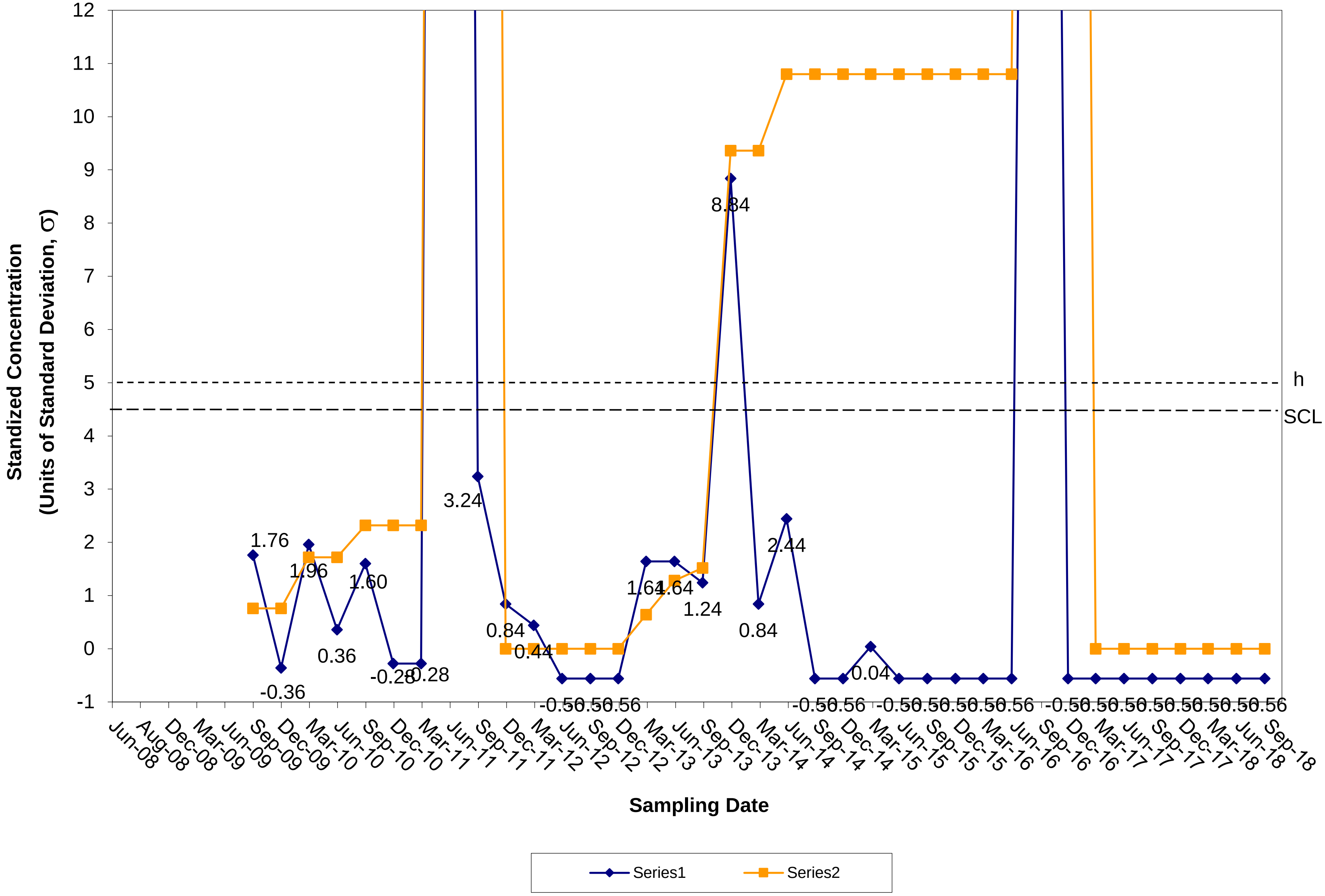
CUSUM Control Chart for Chromium
Tiverton Landfill Groundwater Compliance Well OW-15



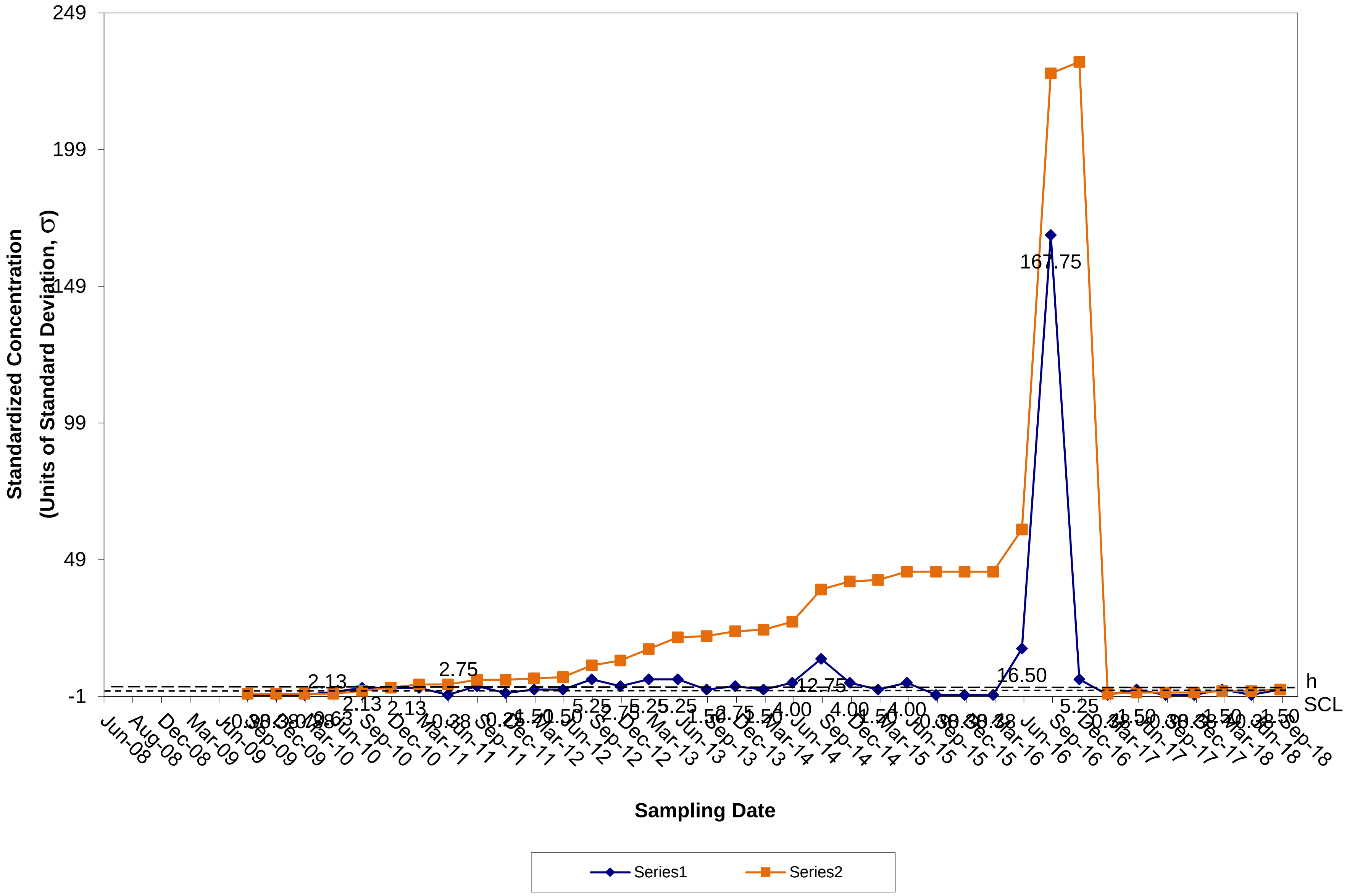
CUSUM Control Chart for Cobalt
Tiverton Landfill Groundwater Compliance Well OW-15



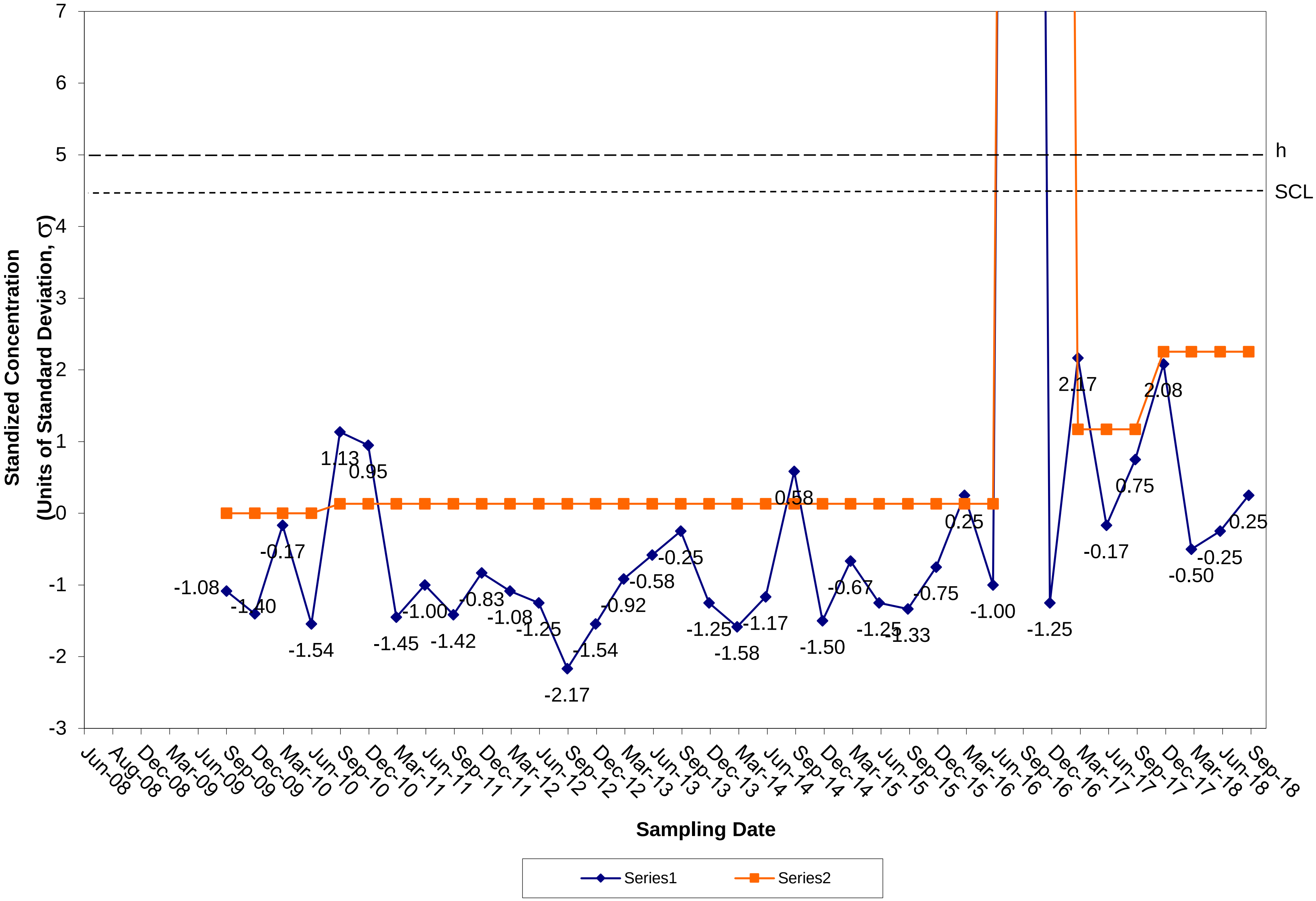
CUSUM Control Chart for Copper
Tiverton Landfill Groundwater Complaince Well OW-15



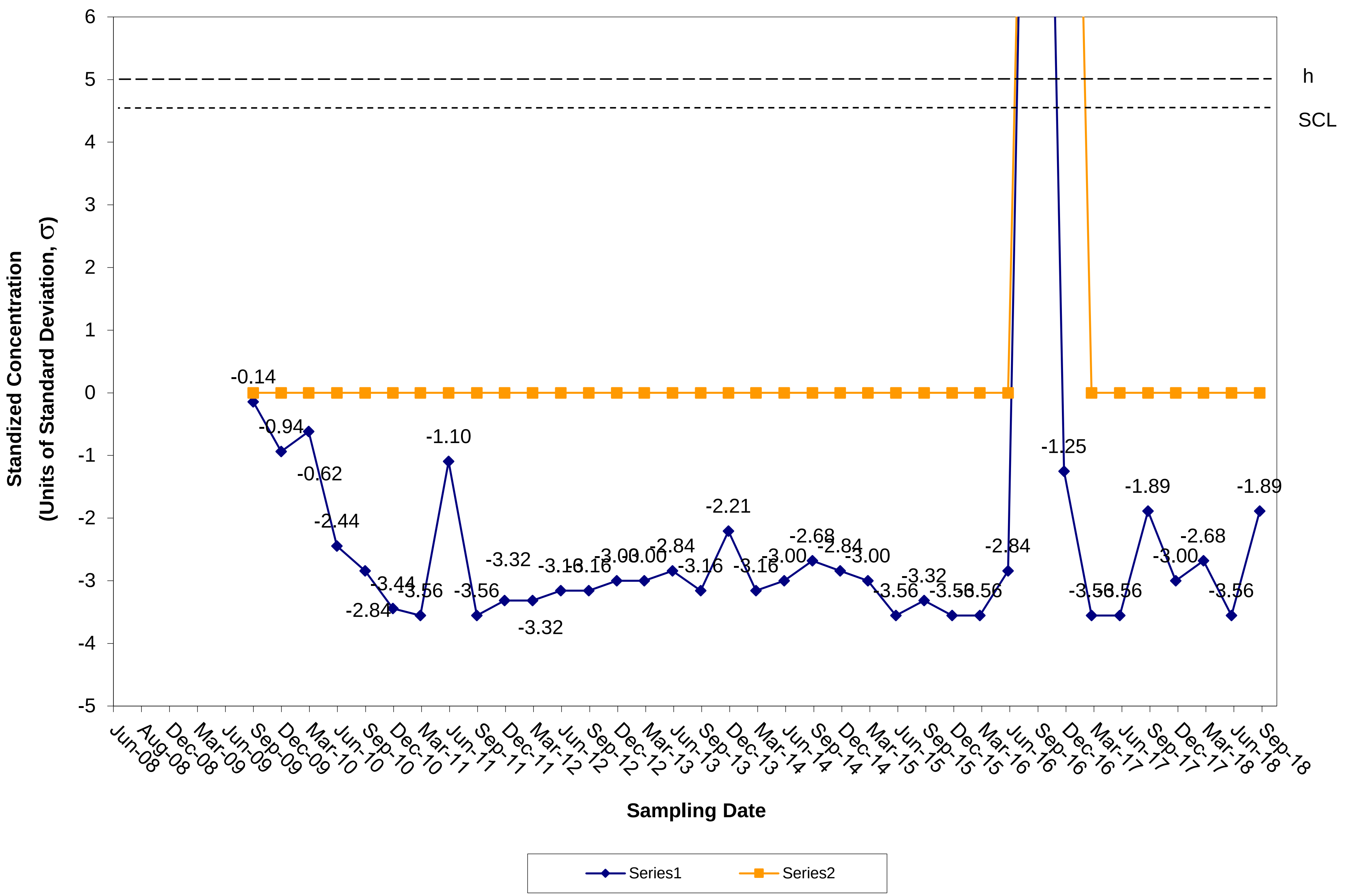
CUSUM Control Chart for Lead
Tiverton Landfill Groundwater Compliance Well OW-15



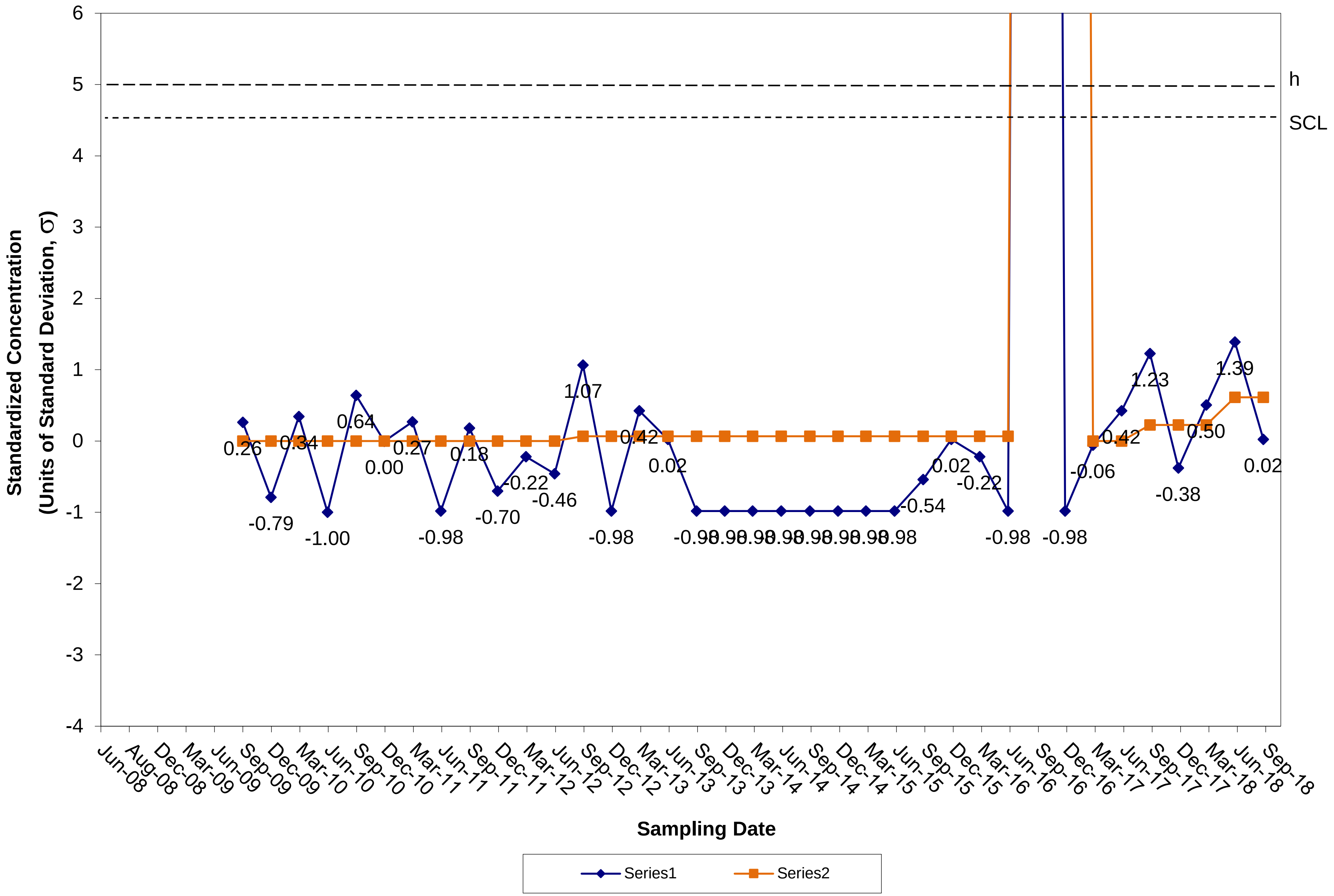
CUSUM Control Chart for Nickel
Tiverton Landfill Groundwater Complaince Well OW-15



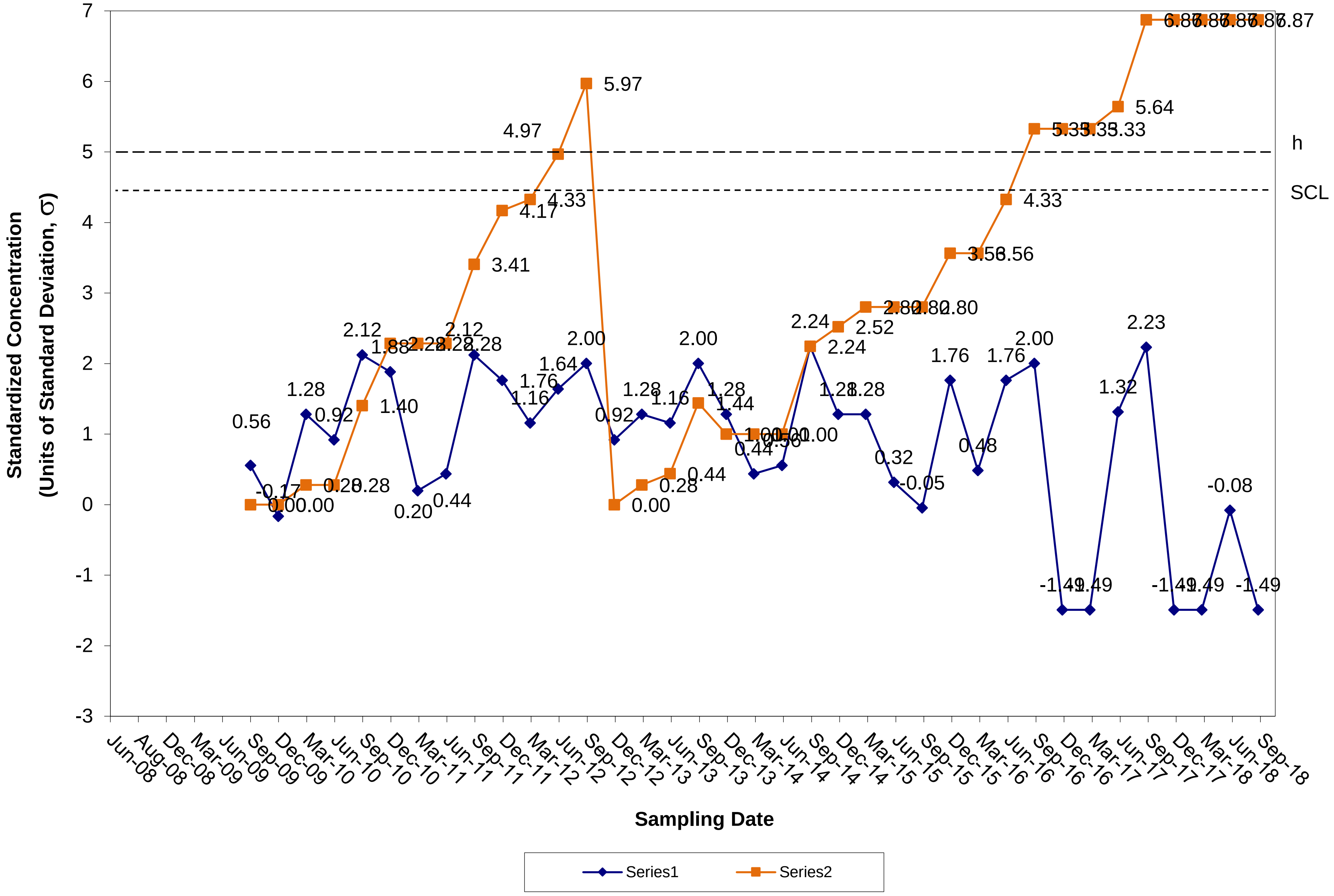
CUSUM Control Chart for Vanadium
Tiverton Landfill Groundwater Complaince Well OW-15



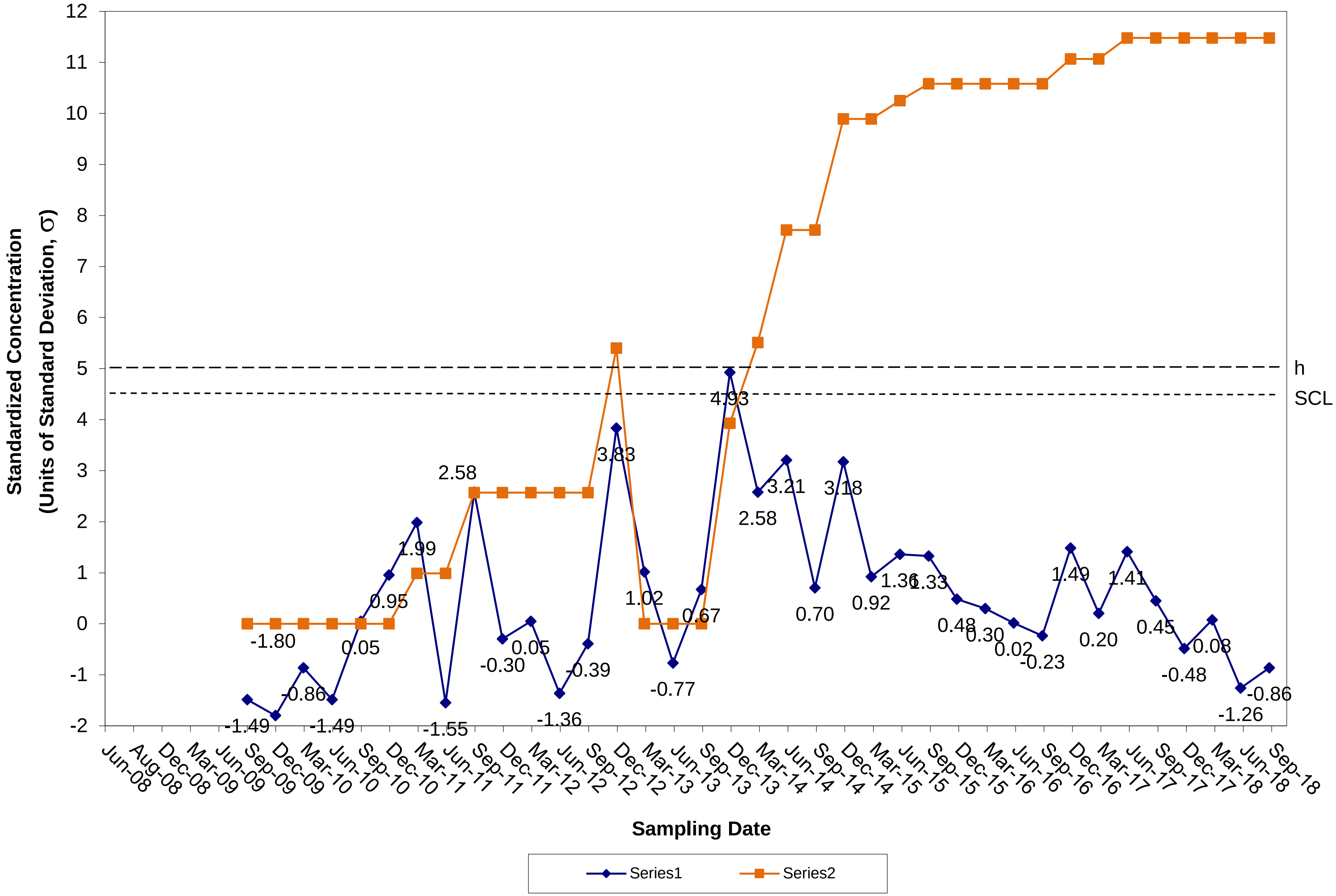
CUSUM Control Chart for Zinc
Tiverton Landfill Groundwater Compliance Well OW-15



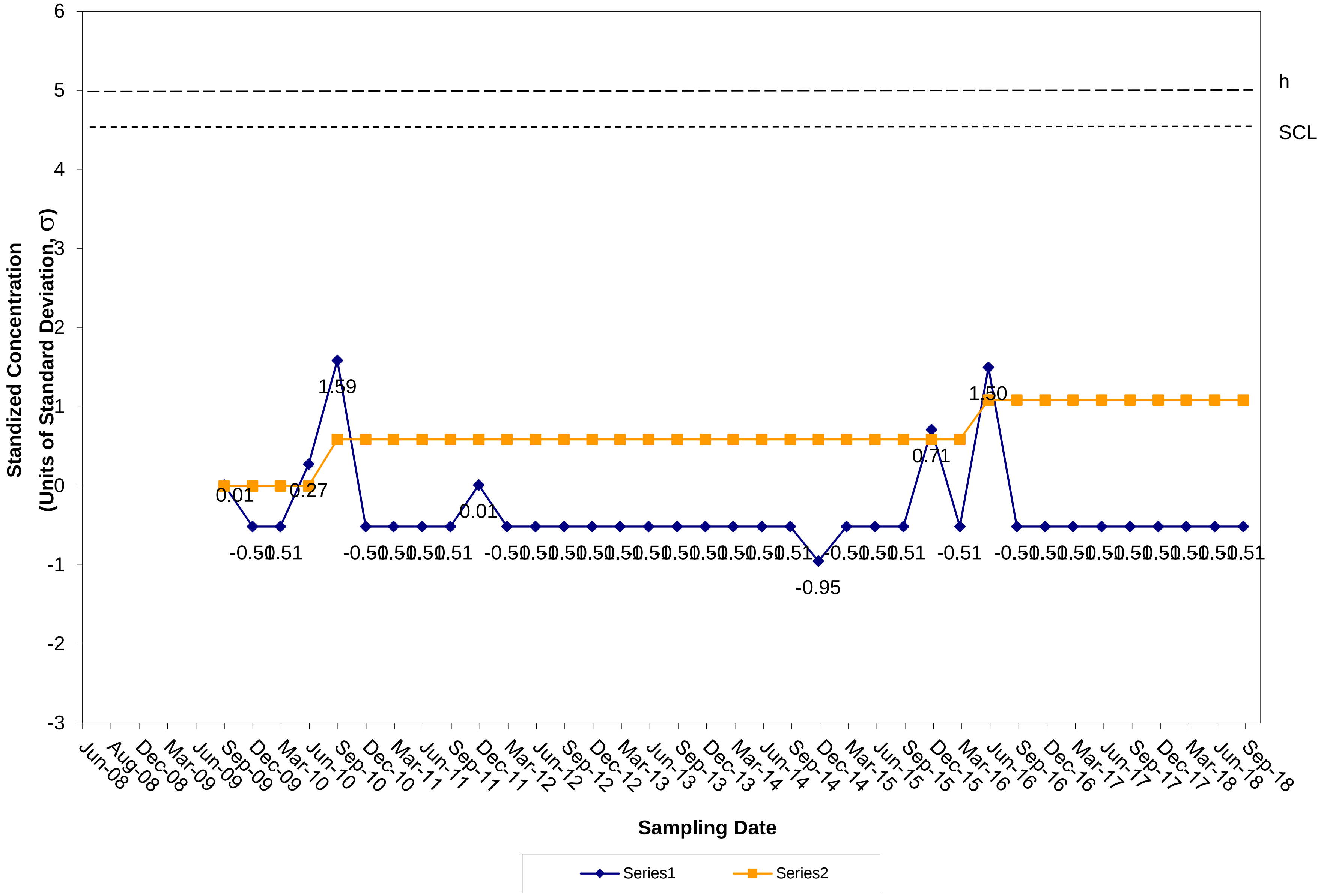
CUSUM Control Chart for Benzene
Tiverton Landfill Groundwater Compliance Well OW-15



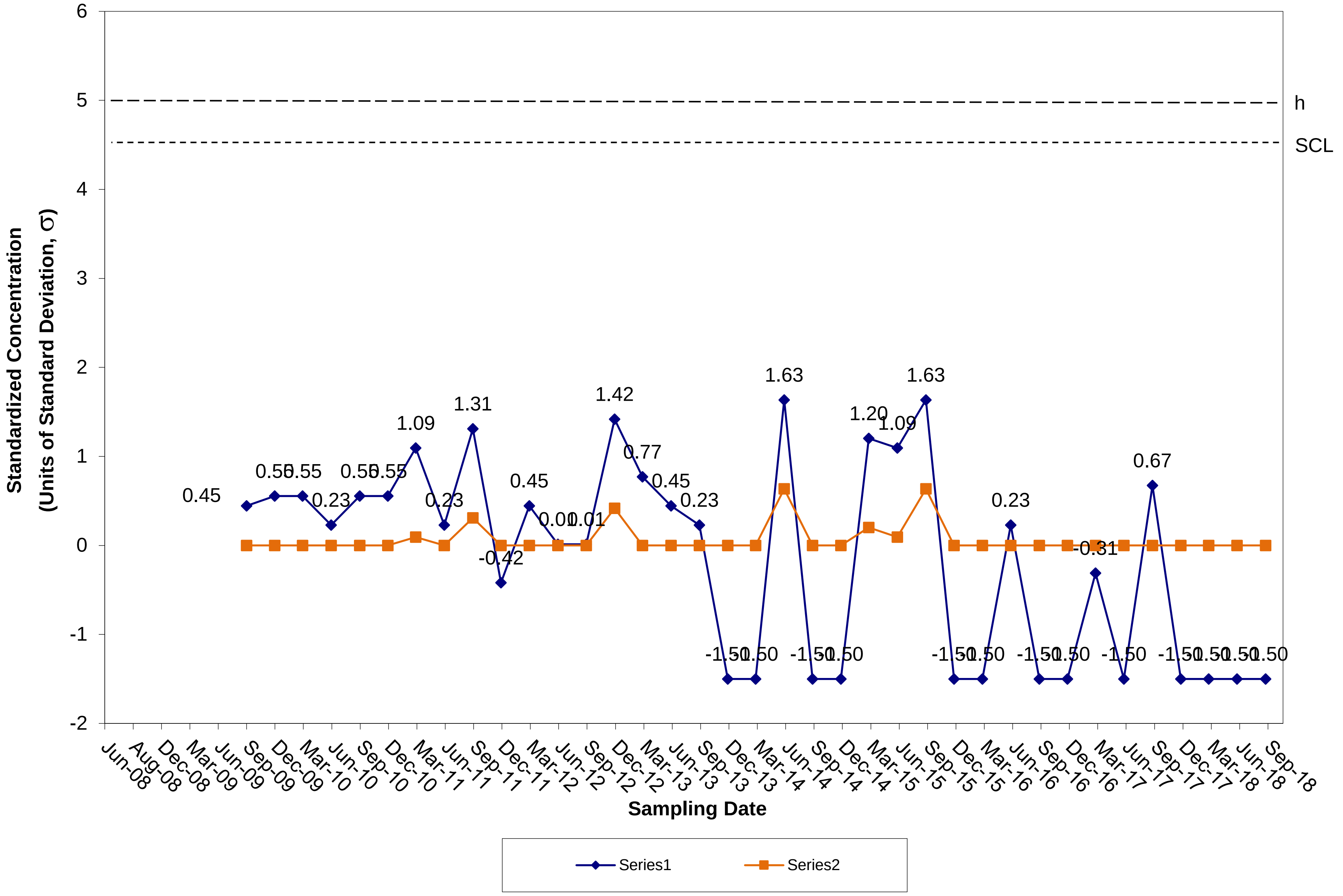
CUSUM Control Chart for Chlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-15



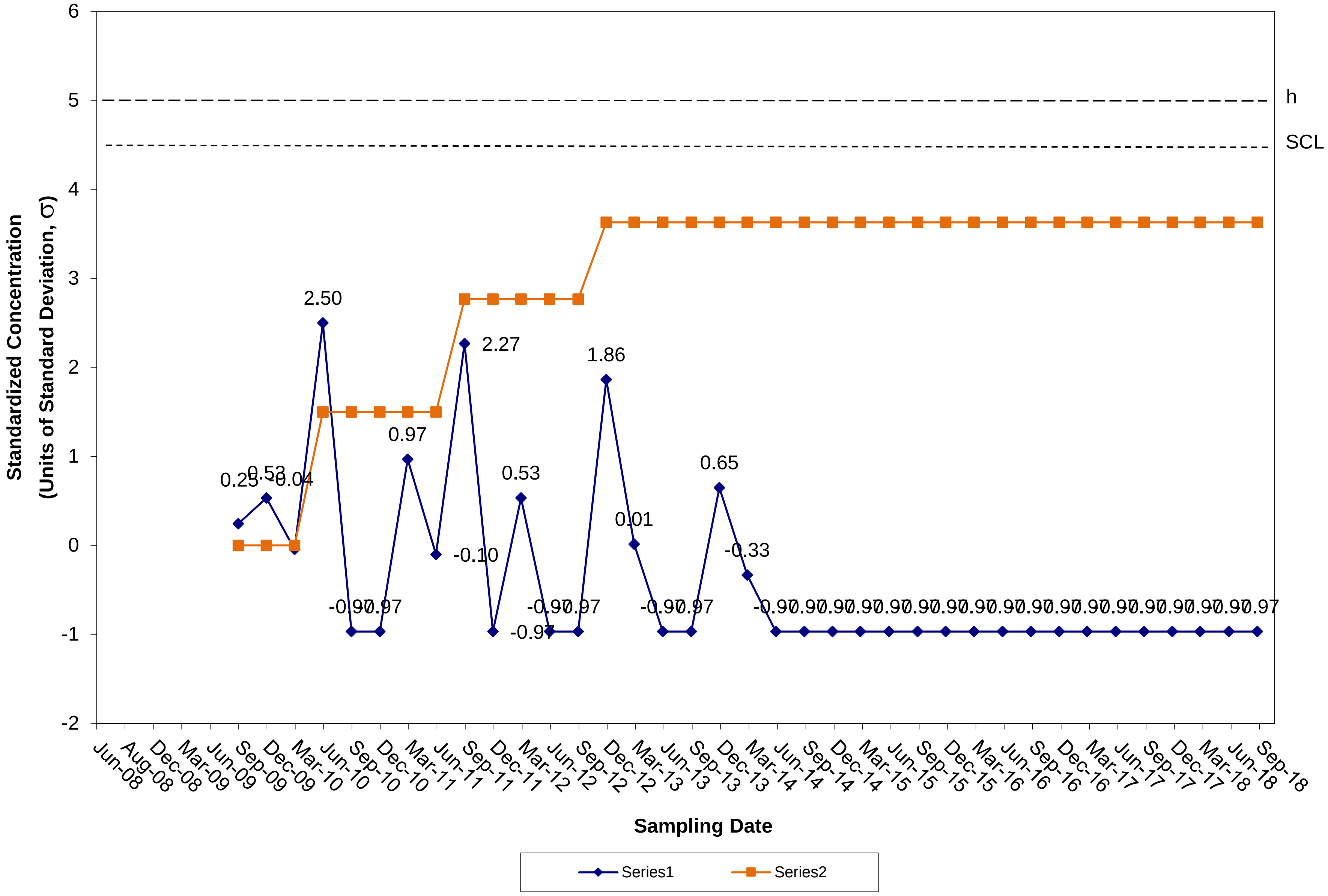
CUSUM Control Chart for Chloroethane
Tiverton Landfill Groundwater Complaince Well OW-15



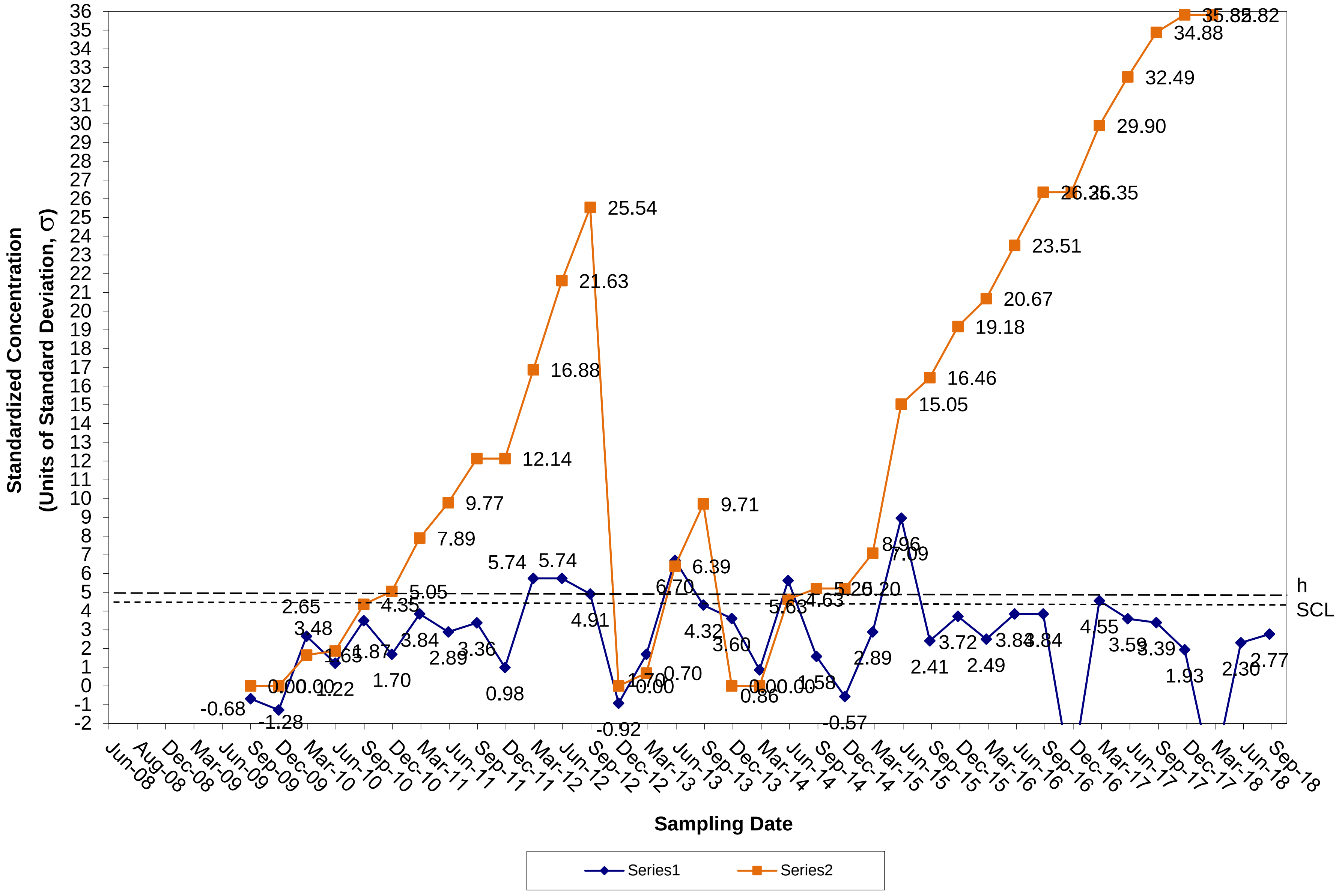
CUSUM Control Chart for 1,4-Dichlorobenzene
Tiverton Landfill Groundwater Compliance Well OW-15



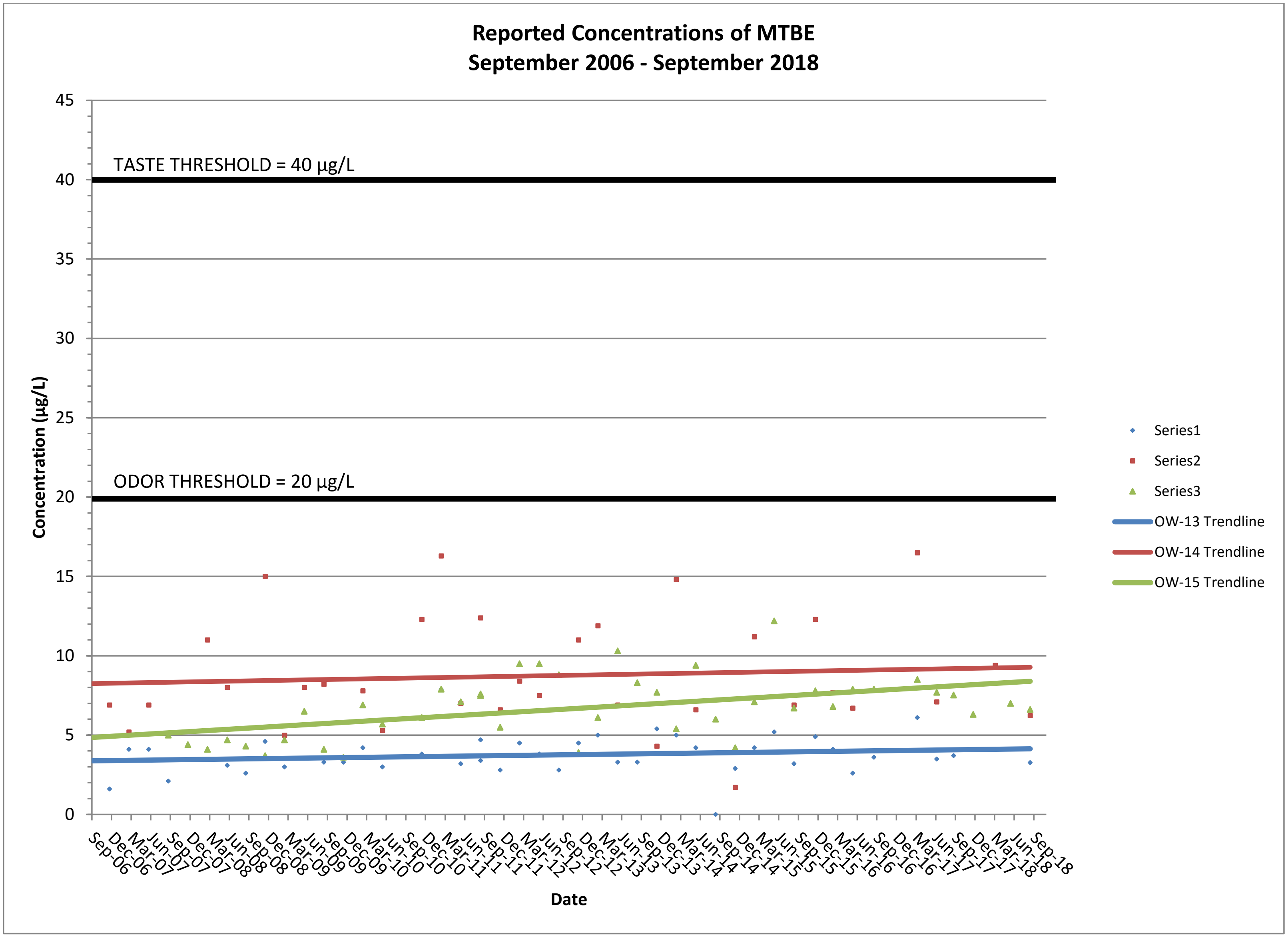
CUSUM Control Chart for Xylenes
Tiverton Landfill Groundwater Compliance Well OW-15



CUSUM Control Chart for MTBE
Tiverton Landfill Groundwater Compliance Well OW-15



ATTACHMENT NO. 6
REPORTED CONCENTRATIONS OF MTBE FIGURE


Reported Concentrations of MTBE
September 2006 - September 2018
TASTE THRESHOLD = 40 µg/L
ODOR THRESHOLD = 20 µg/L
Concentration (µg/L)
45
40
35
30
25
20
15
10
5
0
Date
Sep-06
Dec-06
Mar-07
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
Sep-08
Dec-08
Mar-09
Jun-09
Sep-09
Dec-09
Mar-10
Jun-10
Sep-10
Dec-10
Mar-11
Jun-11
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Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Sep-18
Series1
Series2
Series3
OW-13 Trendline
OW-14 Trendline
OW-15 Trendline

ATTACHMENT NO. 7
FIELD SAMPLING DATA SHEETS

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 9/27/2018
WEATHER: Sunny 70s

WELL ID: OW-9
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 16 feet
PURGE VOLUME (GAL): N/A gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): N/A
ELAPSED TIME (MIN): N/A

WATER LEVEL DATA

DEPTH: N/A feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	N/A	pH UNITS	N/A	pH UNITS
SPEC. COND:	N/A	mS/cm	N/A	mS/cm
TEMPERATURE:	N/A	°C	N/A	°C

NOTES:

Well was was completely dry; therefore no readings or samples were collected.
pH sensor was not working for this round of sampling.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 9/27/2018
WEATHER: Sunny 70s

WELL ID: OW-7
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	11.8	feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1.6	gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump		ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	2.4	feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing		DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	N/A	pH UNITS	N/A	pH UNITS
SPEC. COND:	0.797	mS/cm	0.798	mS/cm
TEMPERATURE:	17.4	°C	17.4	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 1:00 PM.

pH sensor was not working for this round of sampling.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 9/27/2018
WEATHER: Sunny 70s

WELL ID: OW-12
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH: 16.2 feet
PURGE VOLUME (GAL): 0.90 gallons
PURGER TYPE: Peristaltic pump
MEASURE POINT: Top of Casing
PURGE RATE (GPM): 0.1 +/-
ELAPSED TIME (MIN): 15 +/-

WATER LEVEL DATA

DEPTH: 10.9 feet
MEASURE POINT: Top of Casing
ELEVATION: See Site Plan
DEVICE: Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	N/A	pH UNITS	N/A	pH UNITS
SPEC. COND:	0.608	mS/cm	0.601	mS/cm
TEMPERATURE:	14.2	°C	14.3	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 11:45 AM.

pH sensor was not working for this round of sampling.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL

PARE PROJECT NO.: 94139.24

DATE: 9/27/2018

WEATHER: Sunny 70s

WELL ID: OW-13

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	14.5 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1.70 gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	4.1 feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	N/A	pH UNITS	N/A	pH UNITS
SPEC. COND:	1.215	mS/cm	1.216	mS/cm
TEMPERATURE:	18.3	°C	18.4	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of supernatant sample after a 15-minute decanting period.

Samples were collected at 5:30 PM.

pH sensor was not working for this round of sampling.

FIELD SAMPLING DATA SHEET

PROJECT NAME:	TIVERTON LANDFILL	DATE:	9/27/2018
PARE PROJECT NO.:	94139.24	WEATHER:	Sunny 70s

WELL ID: OW-14

DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	10.6 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	N/A gallons	PURGE RATE (GPM):	N/A
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	N/A

WATER LEVEL DATA

DEPTH:	N/A feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1	READING 2
pH:	N/A pH UNITS	N/A pH UNITS
SPEC. COND:	N/A mS/cm	N/A mS/cm
TEMPERATURE:	N/A °C	N/A °C

NOTES:

Well was was completely dry; therefore no readings or samples were collected.

pH sensor was not working for this round of sampling.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 9/27/2018
WEATHER: Sunny 70s

WELL ID: OW-15
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	16.8 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	1.2 gallons	PURGE RATE (GPM):	0.1 +/-
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	15 +/-

WATER LEVEL DATA

DEPTH:	9.5 feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	N/A	pH UNITS	N/A	pH UNITS
SPEC. COND:	1.550	mS/cm	1.557	mS/cm
TEMPERATURE:	14.9	°C	14.7	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of supernatant sample after a 15-minute decanting period.

Samples were collected at 4:30 PM.

pH sensor was not working for this round of sampling.

FIELD SAMPLING DATA SHEET

PROJECT NAME: TIVERTON LANDFILL
PARE PROJECT NO.: 94139.24
DATE: 9/27/2018
WEATHER: Sunny 70s

WELL ID: OW-16
DIAMETER (INCHES): 2

PURGE DATA

WELL DEPTH:	45.8 feet	MEASURE POINT:	Top of Casing
PURGE VOLUME (GAL):	6.8 gallons	PURGE RATE (GPM):	0.3 +/-
PURGER TYPE:	Peristaltic pump	ELAPSED TIME (MIN):	20 +/-

WATER LEVEL DATA

DEPTH:	4.5 feet	ELEVATION:	See Site Plan
MEASURE POINT:	Top of Casing	DEVICE:	Water Level Indicator

FIELD TESTING RESULTS

	READING 1		READING 2	
pH:	N/A	pH UNITS	N/A	pH UNITS
SPEC. COND:	0.739	mS/cm	0.737	mS/cm
TEMPERATURE:	14.5	°C	14.6	°C

NOTES:

Samples were noted as generally clear and low in turbidity based on visual inspections of samples.

Samples were collected at 1:45 PM.

pH sensor was not working for this round of sampling.

FIELD SAMPLING DATA SHEET

PROJECT NAME:	TIVERTON LANDFILL	DATE:	9/27/2018
PARE PROJECT NO.:	94139.01 /021	WEATHER:	Sunny 70s

FIELD TESTING RESULTS:

SURFACE WATER LOCATION: SW-1

	READING 1	
pH:	N/A	pH UNITS
SPEC. COND:	0.62	mS/cm
TEMPERATURE:	18.4	^oC

SURFACE WATER LOCATION: SW-2

	READING 1	
pH:	N/A	pH UNITS
SPEC. COND:	0.34	mS/cm
TEMPERATURE:	18.9	^oC

SURFACE WATER LOCATION: SW-3

	READING 1	
pH:	N/A	pH UNITS
SPEC. COND:	0.57	mS/cm
TEMPERATURE:	19.4	^oC

NOTES:

pH sensor was not working for this round of sampling.

APPENDIX L

Bedrock Well Installation Report

Engineers | Scientists | Planners
PARECORP.COM

PARE
CORPORATION

December 4, 2017

William Anderson, P.E., Director Tiverton DPW
Town of Tiverton
343 Highland Road
Tiverton, Rhode Island 02878

Re: **Bedrock Well Installation**
Tiverton Municipal Sanitary Landfill
Pare Project No. 94139.01/Task 27

Dear Mr. Anderson:

On October 4 and 5, 2017, a bedrock well (OW-16) was installed at the Tiverton Landfill in Tiverton, Rhode Island by New England Boring Contractors and observed by Pare Corporation (Pare). The bedrock well was installed using a track mounted drill rig with an air drill. The bedrock well was constructed using 4-inch steel casing, slotted PVC pipe, and solid PVC pipe.

The 4-inch casing was installed to a depth of 42 feet below the ground surface to approximately 2 feet above the ground surface. The top of bedrock was discovered at 10.5 feet below the ground surface with groundwater first being discovered at 17 feet below the ground surface. At the beginning of the day on October 5, the groundwater level has risen to 2 feet below the ground surface. From a depth of 32 feet to 42 feet below the ground surface slotted PVC pipe was installed. From a depth of 32 feet to the top of casing, solid PVC pipe was installed. Between the outside of the PVC pipe and the inside of the steel casing, holliston sand, bentonite, grout, and quickcrete were installed. Holliston sand was installed from the bottom of the hole to 15 feet below the ground surface. A bentonite seal was established from the top of rock to 15 feet below the ground surface. The rest of the hole was filled with grout. A detail drawing of the bedrock well and site photography are attached.

Personnel from Pare went to sample OW-16 and the adjacent overburden well OW-7 on November 8, 2017. During the purge and sampling of OW-16, the water level of OW-7 was unchanged, implicating that the wells are not directly connected. Attached are an analytical summary table and analytical results for the sampling of both wells.

Should you have any questions regarding this letter or the attached data, please feel free to contact the undersigned at (401) 334-4100, thank you.

Very truly yours,

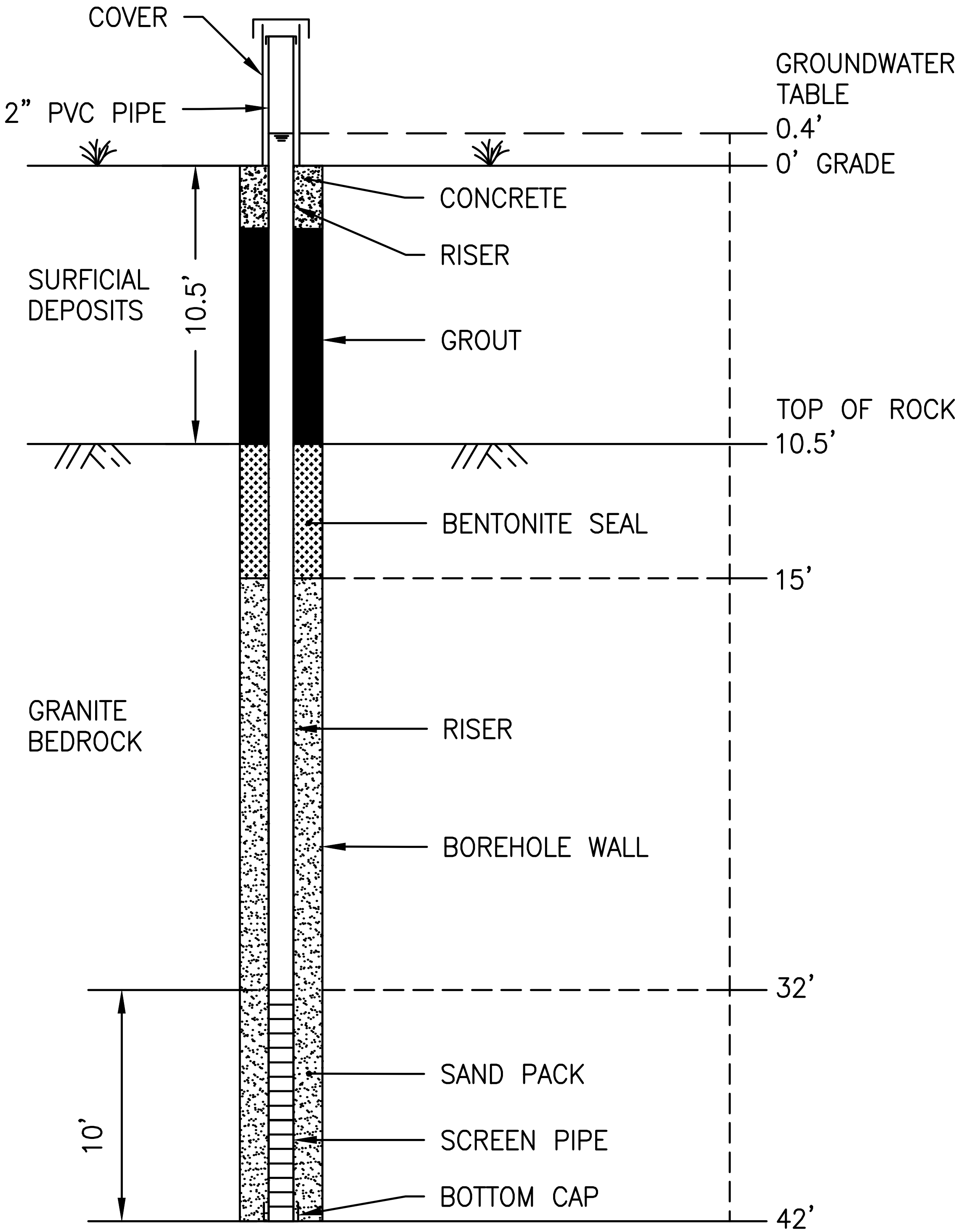
Timothy P. Thies, P.E.
Vice President

TPT/TCJ/abv

Attachments:
Bedrock Well Detail
Site Photography
Analytical Summary Table
Analytical Data Report

cc:
Jay Lambert, Tiverton Landfill Subcommittee (w/encl.)
Matthew Wojcik, Tiverton Town Administrator (w/encl.)
Travis C. Johnson, Pare Corporation (w/o encl.)
George G. Palmisciano, P.E. Pare Corporation (w/o encl.)

Z:\JOBS\01 - Earlier Jobs\94139.00\94139.01\Task 027 Bedrock Well Installation\Bedrock Well Letter Report



BEDROCK WELL OW–16 DETAIL

NOT TO SCALE

PARE CORPORATION
ENGINEERS - SCIENTISTS - PLANNERS
8 BLACKSTONE VALLEY PLACE
LINCOLN, RI 02865
401-334-4100

PROJECT NO. 94139.01/27

DATE: DECEMBER 2017

BEDROCK WELL DETAIL

TIVERTON MUNICIPAL
SANITARY LANDFILL

TIVERTON

RHODE ISLAND

Tiverton Landfill Monitoring Well Sampling Results

				11/8/2017	
				Overburden Well	Bedrock Well
	Parameter	**Threshold Value**	**Method Detection Limit**	**OW-7**	**OW-16**
METALS	Antimony	0.006 mg/L[1]	0.001 mg/L[1]	ND	ND
	Arsenic	0.010 mg/L[1]	0.002 mg/L[1]	ND	ND
	Barium	2 mg/L[1]	0.001 mg/L[1]	0.035	0.100
	Beryllium	0.004 mg/L[1]	0.001 mg/L[1]	ND	ND
	Cadmium	0.005 mg/L[1]	0.001 mg/L[1]	ND	ND
	Chromium	0.1 mg/L[1]	0.001 mg/L[1]	0.005	0.005
	Cobalt	0.73 mg/L[5]	0.001 mg/L[5]	0.018	0.005
	Copper	1.3 mg/L[1]	0.005 mg/L[1]	0.005	ND
	Lead	0.015 mg/L[1]	0.001 mg/L[1]	ND	ND
	Mercury	0.002 mg/L[1]	0.0002 mg/L[1]	ND	ND
	Nickel	0.1 mg/L[2]	0.001 mg/L[2]	0.021	0.010
	Selenium	0.05 mg/L[1]	0.002 mg/L[1]	ND	0.005
	Silver	0.1 mg/L[2,3]	0.001 mg/L[2,3]	ND	ND
	Thallium	0.002 mg/L[1]	0.0002 mg/L[1]	ND	ND
	Tin	22 mg/L[5]	0.002 mg/L[5]	ND	ND
	Vanadium	0.26 mg/L[5]	0.001 mg/L[5]	ND	ND
	Zinc	2 - 5 mg/L[2,3]	0.005 mg/L[2,3]	0.020	0.021
VOC's	MTBE	20-40 µg/L[4]	1.0 µg/L[4]	5.9	4.6
▨	= Exceedance of Threshold Value				

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 7K09004
Client Project: 94139 - Tiverton Landfill

Report Date: 16-November-2017

Prepared for:

Travis Johnson
Pare Corporation
8 Blackstone Valley Place
Lincoln, RI 02865

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Total # of Pages: 12

Project: 94139 - Tiverton Landfill

Case Number: 7K09004

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
7K09004-01	OW-7	Water	11/08/2017	11/09/2017
7K09004-02	OW-16	Water	11/08/2017	11/09/2017

Project: 94139 - Tiverton Landfill
Case Number: 7K09004

Request for Analysis

OW-16

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

OW-7

Analysis	**Method**
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Cobalt	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7470A
Nickel	EPA 6010C
Selenium	EPA 6010C

Silver	EPA 6010C
Thallium	EPA 7010
Tin	EPA 6010C
Vanadium	EPA 6010C
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Project: 94139 - Tiverton Landfill
Case Number: 7K09004

Case Narrative

CASE NARRATIVE:

<u>Sample Receipt</u>

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

<u>Metals</u>

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

<u>Volatile Organic Compounds</u>

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria. Those compounds in italics were qualitatively screened via reconstructed ion chromatography and no detections were identified to the listed PQLs.

Sample: OW-7 Case Number: 7K09004

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.035	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.005	0.001
7440-48-4	Cobalt	6010C	0.018	0.001
7440-50-8	Copper	6010C	0.005	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.021	0.001
7782-49-2	Selenium	6010C	ND	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.020	0.005

ND = Not Detected

Sample: OW-16 Case Number: 7K09004

CAS RN	Common Name	Method	Result, ppm	PQL (ppm)
7440-36-0	Antimony	6010C	ND	0.001
7440-38-2	Arsenic	6010C	ND	0.002
7440-39-3	Barium	6010C	0.100	0.001
7440-41-7	Beryllium	6010C	ND	0.001
7440-43-9	Cadmium	6010C	ND	0.001
7440-47-3	Chromium	6010C	0.005	0.001
7440-48-4	Cobalt	6010C	0.005	0.001
7440-50-8	Copper	6010C	ND	0.005
7439-92-1	Lead	6010C	ND	0.001
7439-97-6	Mercury	7470A	ND	0.0002
7440-02-0	Nickel	6010C	0.010	0.001
7782-49-2	Selenium	6010C	0.005	0.002
7440-22-44	Silver	6010C	ND	0.001
7440-28-0	Thallium	6010C	ND	0.0002
7440-34-5	Tin	6010C	ND	0.002
7440-62-2	Vanadium	7010	ND	0.001
7440-66-6	Zinc	6010C	0.021	0.005

ND = Not Detected

Sample: OW-7 Case Number: 7K09004
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-7 Case Number: 7K09004
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	5.9	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	108	70-130
1,2-Dichloroethane d4	100	70-130
4 BFB	103	70-130

ND = Not Detected

Sample: OW-16 Case Number: 7K09004
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0
71-55-6	1,1,1-Trichloroethane	ND	1.0
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0
79-00-5	1,1,2-Trichloroethane	ND	1.0
75-34-3	1,1-Dichloroethane	ND	1.0
75-35-4	1,1-Dichloroethylene	ND	1.0
563-58-6	1,1-Dichloropropene	ND	1.0
96-18-4	1,2,3-Trichloropropane	ND	1.0
96-12-8	1,2-Dibromo-3-chloropropane(DBCP)	ND	1.0
106-93-4	1,2-Dibromoethane	ND	1.0
107-06-2	1,2-Dichloroethane	ND	1.0
78-87-5	1,2-Dichloropropane	ND	1.0
142-28-9	1,3-Dichloropropane	ND	1.0
594-20-7	2,2-Dichloropropane	ND	1.0
591-78-6	2-Hexanone (Methyl butyl ketone)	ND	5.0
108-10-1	4-Methyl-2-pentanone	ND	5.0
67-64-1	Acetone	ND	5.0
75-05-8	*Acetonitrile (Methyl cyanide)*	*ND*	*5.0*
107-02-8	Acrolein	ND	5.0
107-13-1	Acrylonitrile	ND	5.0
107-05-1	*Allyl chloride*	*ND*	*5.0*
71-43-2	Benzene	ND	1.0
74-97-5	Bromochloromethane	ND	1.0
75-27-4	Bromodichloromethane	ND	1.0
75-25-2	Bromoform (Tribromomethane)	ND	1.0
75-15-0	Carbon disulfide	ND	5.0
56-23-5	Carbon tetrachloride	ND	1.0
108-90-7	Chlorobenzene	ND	1.0
75-00-3	Chloroethane (Ethyl chloride)	ND	1.0
67-66-3	Chloroform (Trichloromethane)	ND	1.0
126-99-8	*Chloroprene*	*ND*	*5.0*
156-59-2	cis-1,2-Dichloroethylene	ND	1.0
10061-01-5	cis-1,3-Dichloropropene	ND	1.0
124-48-1	Dibromochloromethane	ND	1.0
75-71-8	Dichlorodifluoromethane (CFC 12)	ND	1.0
97-63-2	*Ethyl methacrylate*	*ND*	*5.0*
100-41-4	Ethylbenzene	ND	1.0
78-83-1	*Isobutyl alcohol*	*ND*	*20.0*
465-73-6	*Isodrin*	*ND*	*5.0*
541-73-1	m-Dichlorobenzene	ND	1.0
126-98-7	*Methacrylonitrile*	*ND*	*10.0*
74-83-9	Methyl bromide (Bromomethane)	ND	1.0

Sample: OW-16 Case Number: 7K09004
Method: 8260C

CAS RN	Common Name	Result, ppb	PQL (ppb)
74-87-3	Methyl chloride (Chloromethane)	ND	1.0
78-93-3	Methyl ethyl ketone (MEK)	ND	5.0
74-88-4	*Methyl iodide (Iodomethane)*	*ND*	*5.0*
80-62-6	*Methyl methacrylate*	*ND*	*10.0*
74-95-3	Methylene bromide (Dibromomethane)	ND	1.0
75-09-2	Methylene chloride (Dichloromethane)	ND	1.0
95-50-1	o-Dichlorobenzene	ND	1.0
106-46-7	p-Dichlorobenzene	ND	1.0
107-12-0	*Propionitrile (Ethyl cyanide)*	*ND*	*20.0*
100-42-5	Styrene	ND	1.0
127-18-4	Tetrachloroethylene	ND	1.0
1634-04-4	tert-Butylmethylether	4.6	1.0
108-88-3	Toluene	ND	1.0
156-60-5	trans-1,2-Dichloroethylene	ND	1.0
10061-02-6	trans-1,3-Dichloropropene	ND	1.0
110-57-6	*trans-1,4-Dichloro-2-butene*	*ND*	*5.0*
79-01-6	Trichloroethylene	ND	1.0
75-69-4	Trichlorofluoromethane (CFC-11)	ND	1.0
108-05-4	*Vinyl acetate*	*ND*	*5.0*
75-01-4	Vinyl chloride (Chloroethene)	ND	1.0
1330-20-7	Xylene (total)	ND	1.0

Surrogates:

Compound	**% Recovery**	**Limits**
Toluene d8	96	70-130
1,2-Dichloroethane d4	94	70-130
4 BFB	103	70-130

ND = Not Detected

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

7K0 9004

CHAIN OF CUSTODY RECORD

PROJ. NO. 9413901/27

PROJECT NAME/LOCATION Tiverton Landfill

CLIENT Pare Corporation

REPORT TO: tjohnson@parecorp.com

INVOICE TO: Accounting

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** App A Metals Hg, Sn pH<2	App A VOCs				REMARKS
11/8	3:15		X	OW-7	X			3	HCl, HNO3	X	X				
	2:45		X	OW-16	X			3	↓	X	X				

Sampled by: (Signature)	Date/Time		Received by: (Signature)	Date/Time	
	11/8	3:30			
Relinquished by: (Signature)	**Date/Time**		**Received by: (Signature)**	**Date/Time**	
	11/9	9:30	G Sll	11/9	930
Relinquished by: (Signature)	**Date/Time**		**Received for Laboratory by: (Signature)**	**Date/Time**	
G Sll	11/9	1515	Alya Stone	11/9/17	1515

Laboratory Remarks:
Temp. received: 3
Cooled ☐

Special Instructions:
List Specific Detection
Limit Requirements:

Turnaround (Business Days)

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

CS