VASHON ISLAND CLOSED LANDFILL 2014 ANNUAL GROUNDWATER DATA EVALUATION REPORT

Prepared By: *Sidney Lyons/Dan Swope*

King County
Department of Natural Resources and Parks
Solid Waste Division

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April 2015

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King County Department of Natural Resources & Parks
Solid Waste Division, Facility Engineering & Science Unit

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CERTIFICATION

Annual Report Groundwater Evaluation Report Certification

I certify in accordance with the requirements of WAC 173-351-400(c) (3), that the contents of this document were prepared under my direction or supervision under a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Where applicable, some specific and related hydrogeologic portions have been duly certified by the responsible groundwater scientist. Based on my inquiry of the person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

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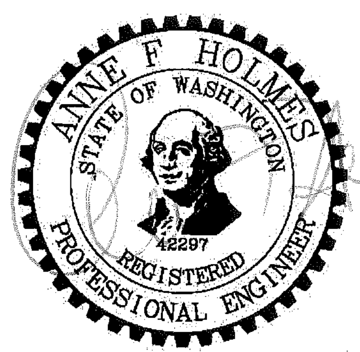

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EXECUTIVE SUMMARY

This Report presents the results of statistical analyses on the ground water monitoring data collected at the Vashon Island Closed Landfill from 1986 through December 2014.

In August 1999, landfilling was discontinued at the Vashon Landfill and a temporary plastic cover was placed over the refuse mound. A transfer/recycling station was constructed in the summer of 1999 to receive the waste generated on the island.

The final cover placement occurred in fall 2001. The landfill closure area is approximately 34 acres. The basic components of the cover system, from the top down, include: vegetative layer, upper drainage layer, impervious layer consists of high density polyethylene (HDPE), and lower gravel drainage layer.

The recent data reflects the natural variability in water quality present in the Cc2 background well MW-20. The relatively low and stable concentrations detected in MW-20 indicate that groundwater quality in this well is not impacted by the landfill. Chemical data from MW-20 represents natural aquifer conditions in the vicinity of the landfill. Wells in the groundwater perched in channel Cc2 displaying impacts from landfill activities include MW-2, MW-21, MW-5D. Stronger reducing conditions are identified in wells MW-5D and MW-21 than in MW-2, consistent with historical conditions. Most volatile compounds indicate decreasing or stable levels. Patterns observed for VOCs in wells MW-2 and MW-5D also, the wells indicate the possibility of a different mechanism of transport than for other water quality parameters. The observations indicate landfill gas as the most probable source of these groundwater impacts.

We have continued to monitor the effectiveness of the landfill gas control system. There have been no methane detections at the compliance monitoring points since 2008.

A number of springs discharge on the hillslope on the Westside Highway SW. The water from these springs has been collected since 1991 at three weirs, SW-W1, SW-W2 and SW-W3. The only VOC detected with any frequency in the weirs is vinyl chloride. Vinyl chloride is rarely detected in SW-W1 and occasionally in SW-W2, but is routinely detected in SW-W3. A surface water site, SW-E was added to the sampling network in November of 2012 and results show that water quality is similar to SW-W1 with no volatile organic compound detections.

King County Solid Waste Division (KCSWD) currently monitors quarterly for groundwater, surface water and leachate at Vashon Island Closed Landfill, monthly for landfill gas and bi-annually for offsite wells. Since the landfill was closed and capped, wells in the channel Cc2 have shown an overall reduction in volatile organic compounds. Wells screened in channel Cc3/regional aquifer do not show impacts attributed to landfill activities. KCSWD is currently reviewing the need for additional

monitoring wells and or improvements to the engineering control systems for the landfill.

The Financial Assurance information in this document (included in Appendix M) presents the authorized 2015-2016 budget for the Vashon Island Closed Landfill. The financial information is presented in a format which responds to regulatory request for financial assurance.

1. PURPOSE

The purpose of this report is to meet or exceed the regulatory requirements of the WAC 173-351, Criteria for Municipal Solid Waste Landfills.

2. INTRODUCTION

This is the 2014 Annual Groundwater Data Evaluation Report that presents the results of statistical analyses on the ground water monitoring data collected at the Vashon Island Closed Landfill from 1986 through December 2014. This annual report describes the hydrogeologic conditions at the landfill and presents the evaluations on the groundwater quality data collected from upgradient and downgradient monitoring wells and on the water quality from seeps on the hillside to the west of the landfill. The data in this report are presented in compliance with Washington Department of Ecology "Criteria for Municipal Solid Waste Landfills" (WAC 173-351-415), and the Code of the King County Board of Health "King County Solid Waste Regulations" (Title 10, Rules and Regulations No. 8).

To meet the annual reporting requirement of WAC 173-351, this annual report includes a discussion of maintenance activities at the site in 2014, surface water data, landfill gas data and leachate data.

This report also provides a brief description of the partial closure and site improvements that were completed in 1989 and mentions the site investigations conducted at the landfill in 1995 and 1999 and the final closure construction completed in 2002. Groundwater quality trends are discussed in context of these site improvements. This report also includes: a summary of previous site investigations; a description of the location, topography, and regional geology and groundwater hydrology of the landfill; a history of the landfill; evaluation methods; data quality; site hydrogeology; and results and discussion of groundwater flow and chemistry at the landfill. Planned future activities at the site are presented in Section 4.

2.1. REGIONAL SETTING

The Vashon Landfill includes a 24-acre mixed municipal refuse fill area, located on a 145-acre parcel in the west central portion of Vashon Island (Figure 1). Groundwater monitoring at the landfill has occurred at various sampling locations (Figure 3) since 1986. Most of the property exists in sparsely to unwooded, gently rolling terrain at elevations of 300 to 400 feet. The western portion of the property (west of Westside Highway SW) is undeveloped, forested land that slopes steeply towards Colvos Passage.

The Vashon Landfill site is within the Judd Creek drainage area with surface water draining towards the south. The undeveloped portion of the property west of Westside

Highway SW drains westward. Judd Creek discharges approximately three miles to the south east to Quartermaster Harbor. Judd Creek is one of Vashon Island's largest creeks. It flows through a drainage area of 3,149 acres with midsummer low flows of about 224 gpm (Carr, 1983).

Vashon Island hydrogeology has previously been characterized based on island well logs (Carr, 1983). The island is composed of glacially derived sediments that layered in three units. The most recent unit is glacial till which mantles the island with a thickness of 1 to greater than 50 feet. Beneath the till is a sand, and sand and gravel zone, which is 50 to 400 feet thick. In the landfill vicinity, this unit is estimated to be up to 300 feet thick. The deepest unit identified consists of silt and clay with sandy zones that extend to depths of about 600 feet below sea level.

The surface till has poor water-bearing characteristics and does not contain an aquifer. However, the till is important to island hydrology because groundwater recharge through the till is variable from location to location. The sand and gravel stratum contains the "Principal Aquifer" of the island, which services about 95 percent of island wells (Carr, 1983). In the landfill vicinity, the direction of regional groundwater flow within the Principal Aquifer is generally westward (Figure 2). Recharge of this Principal Aquifer occurs from infiltration of rainwater through the till. Island wide, the aquifer has generally good water quality, with local areas of elevated nitrate and iron levels. A "Deep Aquifer" exists about 100 to 300 feet below sea level, but is not penetrated by many wells, and none at the landfill site. See Table 1-1.

2.2. BACKGROUND AND PREVIOUS INVESTIGATIONS

Hydrogeology and water quality studies of the Vashon Landfill vicinity have been performed on behalf of the King County Solid Waste Division by R. W. Beck (1984), Harper-Owes (1986 and 1988), CH2M Hill (1995 and 1996), and Berryman & Henigar (2000). Central conclusions of the earlier reports were that groundwater beneath the landfill exists in two separate zones. The CH2M Hill report defined a third zone of groundwater. The 2000 report describes groundwater as occurring as both perched saturated zones and within a deeper, extensive saturated zone. This deeper zone is identified as the regional aquifer. The latest investigation included 3 additional groundwater wells in the regional aquifer, completed in 2003. The *Vashon Island Hydrogeologic Report Update* (Berryman & Henigar with UES) was finalized in December 2004. The 2004 Update identified geologic units beneath the landfill; identified as Units A through G. Table 1-1 in this report (Table 2-4 in the 2004 Update) describes the identified units. Unit C is a lacustrine silt incised by channel deposits. Three distinct channel deposits were identified and loosely correspond to zones identified in previous reports. Wells screened in channel Cc1, the uppermost channel, are described in previous reports as "screened above the lacustrine silt". Wells screened in channel Cc2, the middle channel, are described as "screened within the lacustrine silt." Wells in the lower channel, Cc3, are described as "screened below the

lacustrine silt". The regional aquifer is identified within the Unit D formation. The detailed description of the hydrogeology is found in the 2004 Hydrogeologic Update.

Channel Cc2 and the regional aquifer are the only water bearing units with sufficient information to produce potentiometric maps. Direction of groundwater flow within channel Cc2 was determined in the 2004 Update and subsequent quarterly potentiometric reports to be primarily westward. The direction of groundwater flow within the regional aquifer is indeterminate, with flow components potentially northward, westward and southward.

A steep slope drops down to the west of the landfill and cuts across a water-bearing silt/sand contact. As a result, some 400 to 500 feet to the west of the landfill, groundwater emerges and enters an unnamed creek before entering Puget Sound at Colvos Passage approximately 2/3 of a mile to the west. A hydrogeologic investigation of the hillslope was completed in 2011 that attempted to locate the outcroppings of the identified Unit C channels and provide water quality monitoring locations for the channels. The Vashon Landfill Western Hillslope Investigation Report presents the findings of this project.

The R. W. Beck (1984) and Harper-Owes (1986) reports indicated some evidence of leachate in the sand and gravel units beneath the till. Water quality conditions were re-evaluated in 1988 (letter report by Harper-Owes to Kevin Kiernan, King County Solid Waste Division) just prior to construction of the landfill closure and upgraded disposal area. Conclusions at that time were that the leachate was more dilute than typical of municipal landfills in the Pacific Northwest with no indication of elevated concentrations of organic compounds. Perimeter monitoring wells had some exceedances of primary and secondary drinking water criteria. The hillside weeps had only exceedances of secondary drinking water criteria.

2.3. LANDFILL HISTORY AND SITE IMPROVEMENTS

Solid waste disposal operations have been ongoing at the landfill since the early 1900s. Operation of the landfill was taken over by the Solid Waste Division by the late 1950's (R.W. Beck and Associates, 1983) and daily cover, record keeping, and other updated solid waste management practices were initiated. In 1983, the first four groundwater monitoring wells were installed at the landfill. Piezometers P-1 and P-2 (Figure 3), previously located in the fill area on the eastside, were abandoned in 1988 by overdrilling and then filling the borehole with bentonite in accordance with the Washington Administrative Code 173-160 as required at that time. An analysis of various leachate collection system alternatives was performed in order to meet King County Solid Waste Regulations (KCSWR - Regulation No. 8). The selected design consisted of installing an impermeable cap over the existing refuse area, a passive gas collection system under this cap, a leachate collection and conveyance system, an aerated pretreatment lagoon, storm water control facilities (ditches, culverts, and siltation and detention ponds), and a venting and treatment system of flares. A liner for

the future refuse area was installed. These improvements were completed in 1989. The northwest 2.3 acres of the landfill received final cover in 1988-1990. Two piezometers, MW-13 and MW-24 were installed in 1992. MW-13 is now being used as monitoring well. MW-24 is monitored for groundwater levels.

The existing groundwater monitoring network was supplemented by the installation of eight groundwater monitoring wells during the summer of 1995. Figure 3 shows the location of new monitoring wells 7, 8, 9, 10, 11, 12, 14, and 19. Eight gas probes were installed around the perimeter of the refuse area to determine if gas migration was occurring at the landfill in 1995. Other improvements to the gas collection system included converting the system from passive to active and the conveyance and treatment system change from flares to activated carbon in 1996.

A detailed discussion of the depths and locations of the monitoring wells and gas probes installed in 1995 is provided in the Groundwater Monitoring Well Construction Work Plan (CH2M Hill, 1995).

During fall 1998, two more wells MW-20 and MW-21 were installed to provide supplementary monitoring of an extensive sand bed in the lacustrine silt. The most recent interpretation of the site hydrogeology is presented in the Vashon Island Landfill Hydrogeologic Report (Berryman & Henigar et. al., 2000). This report addresses the requirements in Chapter 173-351-490 of the Washington Administrative Code.

In August 1999, landfilling was discontinued at the Vashon Landfill and a temporary plastic cover was placed over the refuse mound. A transfer/recycling station was completed in the summer of 1999 to receive the waste generated on the island.

Storm water facility improvements were constructed during the summer and fall of 1999, including a detention pond in the southeast corner and an underground drain system around the perimeter of the landfill.

The final cover placement occurred in fall 2001. The landfill closure area is approximately 34 acres. The basic components of the cover system, from the top down, include: vegetative layer, upper drainage layer, impervious layer consists of high density polyethelene (HDPE), and lower gravel drainage layer (Berryman & Henigar et. al, 1999).

MW-11 was damaged in February 2001 during the Nisqually earthquake. No more samples have been collected from this well since then. MW-11 was decommissioned and the replacement well, MW-29, was installed in the summer of 2003. Additionally, MW-6S & D were damaged in the earthquake and were decommissioned as part of the drilling operations in 2003.

Drilling operations in 2003 also included installing 3 additional monitoring wells (MW-26, MW-27 and MW-28) and one piezometer (MW-25) to expand the monitoring network for the regional aquifer. MW-28 has been dry since completion. The 2004 revision to the

2000 Hydrogeologic Report was finalized in December 2004, incorporating these new wells into the hydrogeologic interpretation of the site. Table 1-2 describes well details for all of the wells on the site.

Maintenance activities for the environmental control facilities are performed throughout the year. The Operations and Maintenance Plan was finalized at the end of 2005, which provides tables listing the specific O&M activities for each system. The new listings were incorporated into the SWD Operations tracking database in 2006. A summary of the maintenance activities completed in 2011 is included as Table 1-3.

In March 2006, three documents representing the environmental evaluation of the landfill site were submitted to Washington Department of Ecology (DOE) and to Seattle King County Department of Public Health (SKCDPH). The first report, “Environmental Evaluation”, provides evaluation of the landfill environmental control systems and their interaction with the hydrogeologic environment. The second document, “Potential Effects of Landfill Gas and Leachate on Vashon Landfill Groundwater and Springs”, addresses a chemistry based evaluation of the source of volatile organics seen in some of the wells. The third document, “VOC Sampling and Test Results”, reports the findings of the soil gas sampling performed at the site. In combination these documents address the requirements of Compliance Task 4 in the Vashon Closed Landfill Permit.

These reports provided recommendations for further actions. Some of these recommendations were completed in 2006. The task of the leachate lagoon liner testing was completed in 2007. The results were reported and concluded that the liner did not have any leaks.

Other recommendations in the reports require the procurement of consultant services, such as: Install wells as needed to better define Cc3 and extent of Cc2, evaluate and enhance the landfill gas extraction system and better define the geological contacts and springs on the West Hillslope (Table 5-1 Berryman & Henigar with UES, 2006). Some of these services are being performed by King County Water and Land Division (KCWLD). A consultant was hired to review all environmental investigations, monitoring and remediation performed at the landfill and to identify data gaps and identify enhancements to the existing engineering control systems.

As part of an ongoing investigation on the West Hillslope of the landfill, three shallow monitoring wells (MW-30, MW-31 and MW-32) were hand augured in December 2009. These three monitoring wells were sampled for one year and findings from this investigation are summarized in the Vashon Closed Landfill Western Hillslope Investigation March, 2011.

2.4. SITE GEOLOGY AND HYDROGEOLOGY

Surficial till, which corresponds to Vashon till, mantles the site. The weathered till has a thickness of 15-50 feet throughout most of the landfill site. No wells monitor the Vashon Till. The till is absent in southern portions of the site.

The outwash is underlain by a lacustrine silt layer that is interpreted to be laterally continuous beneath the site. This lacustrine silt is incised by fluvial sands and gravels. These sands and gravels are interpreted as channel deposits. Perched saturated zones identified beneath the Vashon Island Landfill site occur in channel deposits (Cc1 & Cc2) within the uppermost lacustrine silt (Unit C). Groundwater in the deeper saturated zone occurs in sands and gravels within the lowermost Unit C channel deposits (Cc3) and within Units D and F. This deeper saturated zone is apparently hydraulically continuous with the regional aquifer. Units D and F are generally separated by an aquitard (Unit E). However, this aquitard has likely been removed by erosion beneath at least some portions of the site (specifically, at MW-25 and MW-26, see Figure 7). A deeper aquitard, Unit G, was encountered in only one boring (MW-7, see Figures 6, 8, and 9). Due to its limited distribution, the hydrogeologic effect of the Unit G aquitard beneath the Vashon Island Landfill site is limited.

Groundwater perched in or adjacent to the upper Unit C channel deposits (Cc1) is evaluated using wells MW-1, MW-3, MW-4, MW-5S, MW-6S, MW-10, MW-13, and MW-24 (see Figures 6 through 9). All wells measure water levels within the Cc1 deposits, but not all wells produce sufficient water for sampling. Wells typically producing sufficient water include MW-10, MW-13, and periodically MW-1 and MW-3. Well MW-6S was also installed in these deposits; however, it was decommissioned after being damaged during the February 2001 Nisqually earthquake.

Wells MW-2, MW-5D, MW-9, MW-20, and MW-21 are completed within the middle channel deposits (Cc2) (see Figures 5 and 9). Well MW-6D was also installed in these deposits; however, it was decommissioned after being damaged during the February 2001 Nisqually earthquake. Wells MW-8 and MW-14 are installed in silty sands that are beneath the middle channel deposits and are laterally equivalent with and adjacent to the lower channel deposits (Cc3) (see Figures 5 and 9). Hydrographs for wells MW-8, MW-14, and wells completed within perched saturated zones within the middle channel deposits are shown in Figure 3-9. Groundwater in wells MW-8 and MW-14 does not appear hydraulically connected with groundwater within either the middle channel deposits (Cc2) or the lower channel deposits (Cc3).

Four borings (MW-7, MW-11, MW-12, and MW-19) were advanced to elevations between 8 and 40 feet to evaluate site stratigraphy at depth (CH2M HILL, 1996). These borings were completed as wells screened to intercept groundwater in Unit D (see Figures 5 through 9). Well MW-11 was decommissioned after being damaged during the February 2001 Nisqually earthquake.

Five additional borings were advanced into Unit D and completed as monitoring wells during 2003 (B&H and UES, 2003a and 2003b). Of these, wells MW-25, MW-26, MW-29 were installed to screen groundwater in Unit D. Well MW-27 is constructed to screen the lower Unit C channel deposits (Cc3); the base of the well screen also penetrates the upper few feet of underlying Unit D deposits. As is discussed in Section 3.2.3, groundwater in MW-27 is interpreted as being equivalent with groundwater in saturated Unit D soils and therefore with the regional aquifer. Well MW-28 was installed to screen the contact between Unit D and Unit E; the elevation of this contact exceeds the water table elevation in Unit D at this location (see Figure 6).

Geologic cross-sections of the landfill (Figures 4 to 9) show the relationship of the geologic units beneath the site and the identified water-bearing zones. Channel Cc2 and the regional aquifer are the only water bearing units with sufficient information to produce potentiometric maps. Direction of groundwater flow within channel Cc2 was determined in the 2004 Update and subsequent quarterly potentiometric reports to be primarily westward. The direction of groundwater flow within the regional aquifer is indeterminate, with flow components potentially northward, westward and southward.

King County
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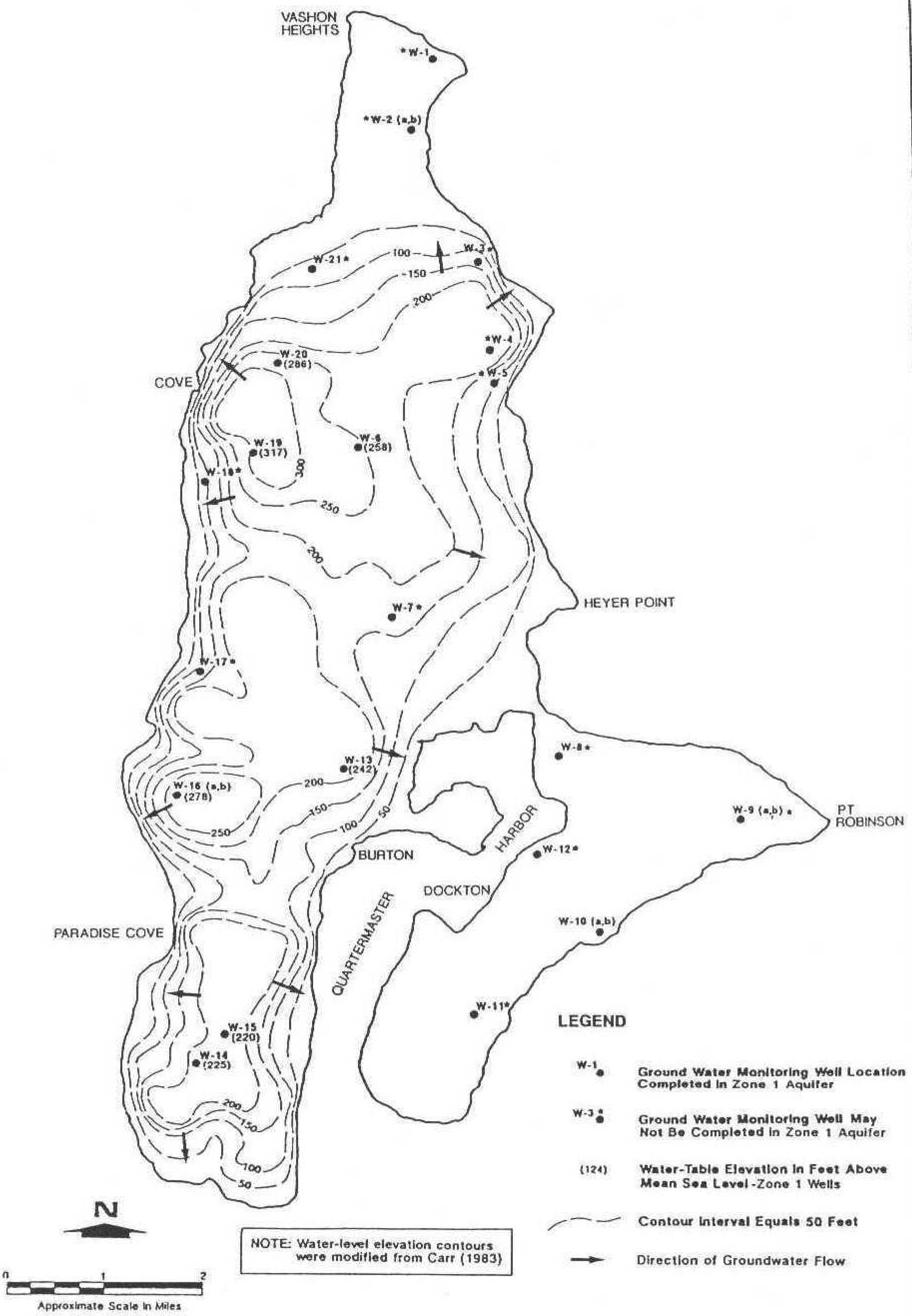
Solid Waste Division

Vashon Island Closed Landfill
Vicinity Map

Figure 1

DWG DATE: MAR 1994	PRJCT NO.:WA0028.00B	FILE NO.:	DRAWING:	CHECKED:	APPROVED: LER	DRAFTER: SAC



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GENERALIZED WATER-TABLE ELEVATIONS FOR ZONE 1 AQUIFER

Source April 1991,
Vashon Groundwater Management Plan

FIGURE 2

Table 1-1
Vashon Island Landfill Annual Groundwater Evaluation Report

Table 1-1
Summary of Vashon Island Landfill Site Stratigraphic Units

Formation[a]	Depositional Facies	Sediment Type	Approximate Elevations and Locations Beneath Vashon Island Landfill Site
Unit A: Vashon till (Qvt)	Beneath continental glacier	Dense to very dense yellow-gray to gra y fine sandy silt or silty gravel with trace cobbles and boulders.	Occurs as surficial deposit in all portions of the site except where absent by erosion. The base of the till varies from elevations of about 362 feet in the northwest to about 330 feet in the south. In general, till is absent below about 330 feet.
Unconformity			
Unit B: pre-Vashon proglacial sand (Qva)	Fluvial, possibly glaciolacustrine	Approximately 40- to 60-foot-thick deposit of clean fine sands with minor well-graded gravelly sand. Includes laterally equivalent slightly silty fine sands and minor fine sandy silt. Typically yellow brown to brown, loose, gravels (where present) typically fine and subangular to subrounded.	Occurs beneath entire site directly beneath till or as surficial unit in areas where till is absent by erosion. Basal contact elevation ranges from 304 to 289 feet.
Unconformity			
Unit C: pre-Vashon glaciolacustrine deposits (Qpff and Qpfc?)	Glaciolacustrine incised by sand- and gravel-filled channels; the channels may reflect periodic rapid draining of the lake.	Approximately 100- to 120-foot-thick sequence, predominantly laminated floodplain or lacustrine silts, includes laterally equivalent sand, gravelly sand, and sandy gravel channel deposits incised into the lacustrine silts. At least three significant and laterally extensive channel deposits are present within this unit.	Occurs beneath entire site at elevations of about 304 to about 181 feet. Where fully penetrated, the basal contact elevation ranges from 181 to 191 feet.
Unconformity			
Unit D: pre-Vashon fluvial deposits (Qpfc?)	Meandering river channel and flood plain.	Fluvial channel and silt or clay overbank deposits. The channel deposits are typically coarser-grained than those of Unit C.	Occurs beneath the entire site at elevations of about 125 to 191 feet. Gravelly sand channel deposits extend beneath the northern, central, and western portions of the site; soils east of this are significantly finer-grained. Where fully penetrated, the basal contact elevation ranges from 125 to 134 feet.

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Table 1-1
Summary of Vashon Island Landfill Site Stratigraphic Units

Formation[a]	Depositional Facies	Sediment Type	Approximate Elevations and Locations Beneath Vashon Island Landfill Site
Disconformity with least 40 feet of erosional relief.			
Unit E: pre-Vashon glacial till/ glaciolacustrine deposits (Qpff and/or Qpfc?)	Glaciolacustrine overlying basal till	Silty gravel and laterally equivalent silt, clay, and slightly silty fine sand.	Occurs at elevations of 96 to 134 feet, apparently beneath most of the site (only six borings penetrate this deposit). Apparently absent due to erosion at MW-25. The silty gravel facies is the basal unit at MW-7, MW-11, and MW-28 and generally occurs at elevations between 106 and 134 feet.
Possible Unconformity			
Unit F: pre-Vashon fluvial deposits (Qpfc?)	Meandering river channel and flood plain	Sequence of aggrading channel and overbank deposits. Predominantly fine sands and silty sands with laterally equivalent fine to medium sand channel deposits. Sediments contain white pumice and woody debris.	Occurs at elevations below about 100 to 111 feet beneath all portions of the site.
Disconformity with at least 68 feet of erosional relief			
Unit G: pre-Vashon lacustrine deposits (Qcso?)	Lacustrine	More than 50-foot-thick deposit of firm, dark gray clay and clayey silt with trace of fine sand and trace fine gravel.	Identified in MW-7 at elevations of 19.6 to 76 feet, not fully penetrated.
[a] Assignments to classifications derived from Booth (1991) are queried where tentative.			

Table 1-2
Vashon Island Groundwater Monitoring Well Completion Details

Well Number	Date Completed	Installed By	Top of PVC Casing Elevation (feet)[a]	Well Casing and Screen	Well Dia. (inches)	Screen slot (inches)	Top of Screen Elevation[b]	Bottom of Screen Elevation[b]	Top of Seal Elevation[b]	Bottom of Seal Elevation[b]	Seal Type	Top of Sand Pack (feet elev.)[b]	Bottom of Sand Pack (feet elev.)[b]	Sand Type	Reference[c]
MW-1	9/8/1983	Sweet-Edwards	403.60	Sch 80 PVC	3	0.010	284.48	274.48	402.48	289.48	Bentonite	289.48	272.48	3/8 minus pea gravel	A
MW-2	9/9/1983	Sweet-Edwards	314.28	Sch 80 PVC	3	0.010	233.58	228.58	312.58	246.58	Bentonite	244.58	227.58	3/8 minus pea gravel	A
MW-3	9/12/1983	Sweet-Edwards	314.87	Sch 80 PVC	3	0.010	277.90	272.90	312.90	280.90	Bentonite	280.90	272.90	3/8 minus pea gravel	A
MW-4	9/14/1983	Sweet-Edwards	374.21	Sch 80 PVC	3	0.010	273.08	263.08	373.08	278.08	Bentonite	278.08	263.08	3/8 minus pea gravel	A
MW-5S	3/6/1986	Golder	356.63	Sch 40 PVC[b]	2	0.020	281.86	271.86	355.86	352.86	Bentonite	352.86	271.36	#8 Monteray & Gravel	B
MW-5D	3/6/1986	Golder	357.20	Sch 40 PVC[b]	2	0.020	240.86	229.86	255.36	249.86	Bentonite	253.86	229.86	#8 Monteray & Gravel	B
MW-6S[d]	3/19/1986	Golder	394.2	Sch 40 PVC[b]	2	0.020	287.42	277.42	392.42	389.42	Bentonite	389.42	276.42	#8 Aqua and Gravel	B
MW-6D[d]	3/19/1986	Golder	394.1	Sch 40 PVC[b]	2	0.020	241.92	231.92	256.42	250.42	Bentonite	244.42	231.42	#8 Aqua	B
MW-7	4/28/1995	CH2M HILL	373.25	Sch 40 PVC	2	0.010	151.09	141.09	371.09	154.09	Bentonite	154.09	139.09	#20 x 40	C
MW-8	6/30/1995	CH2M HILL	383.42	Sch 40 PVC	2	0.010	213.24	203.24	381.24	214.24	Bentonite	214.24	201.24	#20 x 40	C
MW-9	6/12/1995	CH2M HILL	402.57	Sch 40 PVC	2	0.010	233.64	223.64	400.64	236.64	Bentonite	236.64	220.64	#20 x 40	C
MW-10	7/1/1995	CH2M HILL	407.51	Sch 40 PVC	2	0.010	262.34	252.34	405.34	265.34	Bentonite	265.34	250.34	#20 x 40	C
MW-11[d]	5/15/1995	CH2M HILL	406.39	Sch 40 PVC	2	0.010	162.28	152.28	404.28	164.28	Bentonite	164.28	144.28	#20 x 40	C
MW-12	5/26/1995	CH2M HILL	312.39	Sch 40 PVC	2	0.010	139.62	129.62	310.12	143.12	Bentonite	143.12	124.12	#20 x 40	C
MW-13	4/22/1992	Terra	374.07	Sch 40 PVC	2	0.020	264.00	259.00	372.00	266.00	Bentonite	266.00	256.50	#8	D
MW-14	6/21/1995	CH2M HILL	375.68	Sch 40 PVC	2	0.020	212.62	202.62	373.62	219.62	Bentonite	219.62	201.62	#20 x 40	C
MW-19	6/12/1995	CH2M HILL	403.83	Sch 40 PVC	2	0.020	141.10	131.10	400.60	140.60	Bentonite	140.60	124.60	#20 x 40	C
MW-20	10/21/1998	UES	367.21	Sch 40 PVC	2	0.020	237.57	233.27	365.27	240.87	Bentonite	240.87	231.27	#20 x 40	E
MW-21	10/21/1998	UES	345.66	Sch 40 PVC	2	0.020	243.17	233.77	343.77	248.77	Bentonite	248.77	232.77	#20 x 40	E
MW-24	4/27/1992	Terra	373.93	Sch 40 PVC	2	0.020	291.50	281.50	372.00	295.00	Bentonite	295.00	282.00	#8	D
MW-25	8/11/2003	UES	399.22	Sch 40 PVC	2	0.020	148.78	134.68	397.28	152.28	Bentonite	152.28	130.28	#16 x 30	F
MW-26	8/6/2003	UES	403.40	Sch 40 PVC	2	0.020	155.12	141.02	401.22	158.92	Bentonite	158.92	137.52	#16 x 30	F
MW-27	8/15/2003	UES	383.06	Sch 40 PVC	2	0.020	194.27	180.07	380.77	197.27	Bentonite	197.27	177.27	#16 x 30	F
MW-28	8/29/2003	UES	395.59	Sch 40 PVC	2	0.020	173.91	159.51	393.51	177.01	Bentonite	177.01	157.71	#16 x 30	F
MW-29	8/29/2003	UES	410.57	Sch 40 PVC	2	0.020	169.80	155.00	408.00	172.00	Bentonite	172.00	147.00	#16 x 30	G
P-1S[d]	3/12/1986	Golder	No data	Sch 40 PVC	2	0.020	304.00	294.00	393.00	390.00	Bentonite	390.00	288.00	#8 Aqua and Gravel	B
P-1D[d]	3/12/1986	Golder	No data	Sch 40 PVC	2	0.020	278.50	268.50	288.00	283.00	Bentonite	283.00	268.00	#8 Aqua	B
P-1A[d]	3/25/1986	Golder	No data	Sch 40 PVC	2	0.020	280.02	270.02	354.02	286.02	Bentonite	286.02	269.02	#8 Monteray	B
P-1B[d]	3/29/1986	Golder	No data	Sch 40 PVC	2	0.020	299.08	289.08	380.08	304.08	Bentonite	304.08	289.08	10 x 20 silica	B
P-2[d]	3/19/1986	Golder	No data	Sch 40 PVC	2	0.020	273.73	258.73	283.73	278.73	Bentonite	278.73	256.73	#8 Aqua	B
P-2A[d]	3/24/1986	Golder	No data	Sch 40 PVC	2	0.020	293.60	281.60	348.60	306.60	Bentonite	306.60	280.10	#8 Aqua	B
P-4	2/29/1988	Golder	No data	Sch 80 PVC	1	0.020	374.90	372.90	407.40	376.90	Bentonite	376.90	371.90	#16 Monteray	H

[a] All survey data in feet are relative to site datum.
[b] Well installed as a dual-completion.
[c] A = R.W. Beck, 1984; B = Golder Associates, 1986; C = CH2M HILL, 1996; D = Terra Associates., 1992; E = B&H and UES, 1999b; F = B&H and UES, 2003b; G = B&H and UES, 2003a; H = Golder Associates, 1986.
[d] Well has been decommissioned.

Table 1-3 Vashon Landfill Signifigant Maintenance Activities Summary 2014

Maintenance Activity	Resolution
Leachate pond liner testing	Scheduled for 2015
Grout work for annual stormwater facility maintenance inspections.	Completed in July 2014.
PS-2 Wet Well SCADA Upgrade	Completed in July 2014.
Fence Repairs	Fence Repairs are ongoing annually
West Hillslope Trail Maintenance	Trail Repairs are ongoing annually

3. Evaluation Methods

The site environmental evaluation was conducted in accordance with the Draft Data Evaluation Supplement to the Vashon Landfill Sampling and Analysis Plan. The evaluation tools include:

- Interwell Prediction Limits
- Intrawell Prediction Limits
- Mann Kendall Trend Test
- Time Concentration Plots
- Descriptive Statistics
- Exceedance Tables
- Trilinear Plots

The prediction limit exceedances, regulatory standard exceedances (Appendix B), ion balances and trilinear diagrams (Appendix J) are prepared for each quarterly report and compiled in this report. The data evaluated from wells screened within Cc3-Regional aquifer, will be calculated and compared to intrawell prediction limits and wells screened within channel Cc2 will be calculated and compared to interwell prediction limits (Appendix B).

The Mann Kendall trend test is recalculated based on the new data obtained in 2013. The trend test is evaluated for long term trends, including historical data up to the last eight samples, and for short term trends using the last eight samples. For wells with historical data beyond 50 samples, the most recent 50 samples are used in the long term trend test (Table 3-2). Wells with fewer than 20 samples and wells that have not produced sufficient water for eight samples in the last two years are compiled as a long term trend only.

Groundwater levels in individual wells have been plotted as a function of time. Changes in water levels before and after the 1989 closure are noted. Groundwater flow directions were estimated based on water elevations in monitoring wells screened in similar water-bearing zones. Upgradient and downgradient wells are determined by flow direction.

3.1. DATA QUALITY

Five analytical labs have performed laboratory services for water samples collected at the Vashon Landfill including Laucks from 1986 to March 1990, AmTest from March 1990 to April 1992, and Analytical Resources (ARI) from April 1992 to May 1995, Laucks again from May 1995 to April 2008 and Pace from April 2008 to March 2009 and the King County Environmental Laboratory from April 2009 to current. The State Manchester Laboratory accredited all five laboratories for the methods used at the time the samples were analyzed.

Contamination of blanks has important ramifications for data quality. However, some compounds have high blank contamination rates for compounds, such as methylene chloride. Although improvements have been made in reducing the rate of blank contamination in the lab, blank samples that have a longer residence time in the lab, such as volatile trip blanks and full set trip blanks, still show elevated rates. Since the common lab contaminants do not provide the only evidence of landfill impacts, other volatile compounds are used for this evaluation. Other compounds, such as, sulfate, zinc and iron have also been detected in blanks. These detections will be noted for the individual samples in which they have occurred. Some data, particularly concerning solvents, must be qualified based on blank contamination events and measures of precision and accuracy. All sample results qualified with a “B” have blank contamination associated with the analysis.

There are instances, particularly in the case of arsenic where the limit of detection, because of technological limitations, is above the State or Federal water quality levels. Because these concentrations are not quantifiable, they can be reported only qualitatively, as less than a reporting limit. Another issue involving limits arises when the limits of detection or analytical sensitivity changes over time. Especially noticeable for parameters such as chloride, where more recent samples show more fluctuations or definition on the graphs due to more significant figures (greater sensitivity) being reported. Other factors that may contribute to these changes may be due to dilution, or due to technical or contractual specifications such as technical advancements in instrumentation in the contractual laboratory industry. These changes must be kept in mind while reviewing data evaluation and conclusions.

4. RESULTS

4.1. GROUND WATER ELEVATIONS AND FLOW DIRECTION

The Vashon Island Landfill Hydrogeologic Report Update (Berryman & Henigar with UES) presents the latest interpretation of the hydrogeology and was completed in December 2004. Starting in the fourth quarter of 2004, the interpretation has been used in the preparation of potentiometric surface maps and calculations of groundwater velocities.

Monitoring well locations are shown on Figure 3. These monitoring wells penetrate three water-bearing zones. Cross-sections illustrating site statigraphy are presented in Figures 4 through 9.

The upper most unit over most of the property is till. This till unit is absent at the south end of the site. The upper most unit at the south end of the site consists of sands interbedded with silts. These sands interbedded with silt are directly beneath the till at the north end of the site. The silts act as partial aquitards as evidenced by different water levels in wells screened at different depths. Because of the presence of these silt barriers, groundwater has been subdivided for discussion purposes into 3 channels incised into the lacustrine silt and an extensive saturated zone. Groundwater in or adjacent to channel Cc1 is the perched saturated zone between the lacustrine silt (transitional beds) and the overlying advance outwash. Groundwater in channel Cc2 is the middle channel in Unit C and groundwater in channel Cc3 is the lowest channel. The regional aquifer is a saturated zone beneath the lacustrine silt.

The stratigraphy of the site identifies 7 geologic units, A through G. Unit A is the overlying Vashon till, B is outwash, C is lacustrine silt incised with channels of more permeable material and the regional aquifer is defined in Unit D. No wells are installed in the deeper units E through F; however some wells were overdrilled and provide information about these units. A thorough discussion of the site is in the Hydrogeologic Report Update. Wells are installed in 3 channels incised in Unit C and are identified as Channels Cc1, Cc2 and Cc3 in vertical descending order. Wells in Cc1 have previously been identified as “perched above the lacustrine silt” and well in Cc2 as within the lacustrine silt (MW-27). The well in Cc3 was not previously installed.

4.1.1. Groundwater in Channel Cc1

There are currently seven wells screened in or adjacent to Cc1 deposits: MW-1, MW-3, MW-4, MW-5S, MW-10, MW-13, and MW-24. Groundwater, when encountered in this zone, is encountered at elevations of 260 to 287 feet above mean sea level (MSL).

The saturated thickness of the channel Cc1 is generally less than 11 feet. The water levels in most of the wells (with the exception of MW-10 and MW-13) have declined to

the extent to make sample collection impracticable. There is an insufficient volume of water present to collect samples due to minimal recharge rates. The wells that have yielded sufficient groundwater for continuing analysis since 1993 are MW-10 and MW-13. In 1997, MW-4 started yielding sufficient groundwater for analysis again and stopped again in late 2000. In 2007, MW-4 again yielded sufficient groundwater for two samples. MW-3 yielded sufficient water for two samples in 2007 and MW-1 has not yielded sufficient water for sampling since 2002.

Water levels for most of the wells have fallen in elevation since 1991. The initial contributing factor was the periodic placement of temporary HDPE cover over the completed refuse fill area. This practice began in 1991. The final closure of the landfill in 2002 appears to have further reduced surface recharge to this sand zone.

Historically, water levels in the wells in the groundwater in and adjacent to channel Cc1 show a variation from less than one foot to almost five feet with no marked seasonality, with the exception of MW-4 (see Figure 10). MW-4 is screened across a silt contact and the well can act as a sump. The 2004 Update recommends not sampling the well unless the water levels rise above the silt contact. There was sufficient groundwater for two samples in 2007, but previously the water levels were not above the silt contact since November 2000. Water levels are measured and reported quarterly to confirm this.

Field permeability tests performed by Harper-Owes (1986) indicated that the average permeability of sand in channel Cc1 was approximately 4.3 feet per day (ft/day).

4.1.2. Groundwater in Channel Cc2

Monitoring wells MW-2, MW-20, MW-21, MW-5D, MW-6D, MW-14, MW-8, and MW-9 are screened at elevations between 200 and 234 feet MSL. MW-6D has been decommissioned.

Wells MW-9, MW-2, MW-20, MW-21, and MW-5D are completed in channel Cc2. Wells MW-14 and MW-8 are screened in silty sands beneath the Cc2 deposits and laterally equivalent with the Cc3 deposits. Groundwater levels in MW-8 and MW-14 do not appear to be hydraulically equivalent with groundwater within either Cc2 or Cc3. The water levels recorded for wells MW-14 and MW-8 suggest these wells are along flowpaths from Cc2 to Cc3.

Annual water level fluctuations in the wells MW-8 and MW-14 tended to be minor, with an annual range of about 1 foot. Water level fluctuations in MW-9 were about 1 foot. Annual water level fluctuations in MW-2, MW-20, MW-21, and MW-5D were less than 1 foot. See Figures 11 and 12. This low or lack of response to the annual cycle of wet and dry seasons can be explained by the landfill not being located in an area where significant recharge to the aquifer occurs (Carr, 1983). Relatively low permeability surficial deposits (till) and partial closures in 1989 and 1999 contribute to the lack of significant recharge.

The general flow direction in the continuous thin sand, where MW-20, MW-21, MW-2, and MW-5D are located, is to the west or southwest. The potentiometric maps submitted quarterly and included in Appendix G generally agree with the flow directions reported by Carr (1983, see Figure 2).

The perched zone monitored by MW-2, MW-20, MW-21, and MW-5D has a hydraulic gradient of 0.01 ft/ft. The hydraulic conductivity for this perched zone is estimated between 0.01 and 0.45 ft/day. The effective porosity ranges from 0.2 and 0.3. The estimated horizontal groundwater velocity for this zone in 2014 ranged from 0.0002 to 0.023 ft/day (see Appendix G). The calculated velocities are expected to be accurate only within one order of magnitude due to variability in permeability rates. Quarterly velocity calculations and potentiometric maps are attached in Appendix G.

4.1.3. Groundwater in Regional Aquifer & Channel Cc3

There are six wells screened within the regional aquifer (MW-12, MW-7, MW-19, MW-25, MW-26 and MW-29). MW-27, screened both in channel Cc3 and the regional, is included with the regional wells for the potentiometric mapping. Groundwater is encountered at elevations of 154 to 195 feet MSL (see Figure 13).

The general flow direction in the regional aquifer is radially away from MW-27. The water fluctuations for the regional wells are less than two feet and also without considerable seasonal trends, see Figure 13. This lack of response to the annual cycle of wet and dry seasons can be explained by the landfill not being located in an area where significant recharge to the aquifer occurs (Carr, 1983). Relatively low permeability surficial deposits (till) and site closures attributes to the lack of significant recharge. The potentiometric maps shown in Appendix G generally agree with the flow directions reported by Carr (1983, see Figure 2).

The groundwater velocity occurring in the regional aquifer in 2014 is between 0.26 and 5.5 ft/day, with a hydraulic gradient of 0.036 ft/ft and a hydraulic conductivity estimated between 3.0 and 28.0 ft/day. The estimated velocities are expected to be accurate only within one order of magnitude due to variability in permeability rates (see Appendix G).

4.2. GROUND WATER QUALITY

Results for the groundwater quality beneath the Vashon Landfill are presented according to two channels, Cc1 and Cc2; and the regional aquifer. MW-8 and MW-14 are discussed with the Channel Cc2 wells. MW-27, which is screened in both channel Cc3 and the regional aquifer, is discussed with the regional aquifer wells. Statistical summaries present data from two time periods, long and short. Emphasis is on the short term results, obtained from January 2013 to December 2014. All statistics and

trend information discussed in the text is for this period unless otherwise identified. Tables 3-1 and 3-2 provide statistics and trends respectively for both this recent period and the previous samples. During this recent sampling period, the number of samples is eight for all wells. The quantity of data available for certain wells is limited. These wells have limited data due to a short monitoring history, are seasonally dry, have low production or are slow to recover and did not yield adequate data for comprehensive analyses. Therefore only long term trend tests are available for these wells. Apparent trends in individual wells, long and short-term, are discussed where applicable. Hydraulically upgradient wells are presented first.

Due to the presence of volatile organic compounds in the downgradient wells within channel Cc2, MW-2, MW-21 and MW-5D were put into assessment monitoring. As the first step in assessment monitoring, these wells were tested with an expanded parameter list as defined by WAC 173-351 Appendix III. Results indicated that the single parameter detected in the downgradient wells not included in the lists defined by Appendix I and II was dichlorodifluoromethane. These test results led to an agreement that wells in assessment monitoring at the site should be tested for dichlorodifluoromethane in addition to the Appendix I and II lists. This addition was specifically required for MW-20, MW-2, MW-21, MW-5D, MW-4, MW-8 and MW-27. For site wide consistency, all wells on site are tested for Appendix I and II parameters and dichlorodifluoromethane. At the request of Ecology, wells MW-2, MW-5D, MW-20 and MW-21 were sampled again for Appendix III analytes. With the exception of dichlorodifluoromethane, there were no detections of Appendix III analytes. A demonstration was presented to Ecology in 2014 and based on the findings in the demonstration, it was agree that, with the exception of dichlorodifluoromethane, KCSWD would cease sampling for Appendix III analytes for five years starting in 2013. The last year Appendix III analytes were sampled in 2013.
It is also important to note that several compounds, in particular acetone and methylene chloride, have been frequently detected in blanks and field samples at similar concentrations. The likely source of these compounds is laboratory contamination.

The pH field data for the period between late 1993 and early 1996 may not be reliable because of inconsistent field instrumentation.

The summary statistics are presented in Table 3-1. A summary of long and short-term trend evaluations for individual wells is presented in Table 3-2. Exceedances of water quality standards, prediction limit exceedances, time-concentration plots, potentiometric maps, groundwater velocities, and raw analytical data are presented as appendices.

4.2.1. Groundwater Within or Adjacent to Channel Cc1

As described in Section 3.1.1, MW-10, MW-3, MW-4 and MW-13 are the only monitoring wells in the groundwater within or adjacent to channel Cc1 silt for which water quality samples were taken in the most recent period (January 2013 to December

2014). There was insufficient water to collect samples from MW-3 and MW-4 during this period.

For the Fourth Quarter 2014, due to scheduling errors, MW-10 was not sampled this quarter. Arsenic exceeded in MW-13 for the water quality standards and there were no volatile organic compounds detected for the quarter. The trilinear diagram shows the sample is within the same calcium-magnesium-bicarbonate hydrochemical facie. During this quarter, the ionic balance for the MW-13 is within ten percent (see Appendix J), which is sufficient for characterization.

<u>MW-10</u>

MW-10 was installed with eight additional groundwater monitoring wells during the summer of 1995. MW-10 is located in the northwest corner of the site. It is screened between 252.34 and 262.34 feet MSL. MW-10 is northwest to the placement of the refuse. MW-10 monitors a perched system distinct from other wells above the lacustrine silt. Water quality in MW-10 is discussed below.

The pH (field) is neutral (median 7.2). Specific conductance (field), median 133.0 μmhos/cm and total dissolved solids (median 106.0 mg/L) levels are low and stable. Sulfate (median 9.2 mg/L), chloride (median 3.2 mg/L) and nitrate (median 0.42 mg/L) are low and stable. See time concentration plots and statistical summaries. During the recent period, no conventional parameters exceed the water quality standards.

Iron (one detection of 0.012 mg/L in the last 8 samples) is low and stable. Concentrations of common metals, calcium, and magnesium are low and stable. Field pH and specific conductance both show decreasing short term trends. Arsenic exceeds the State Groundwater Quality Criteria in all eight samples. Arsenic is to some extent common, a naturally occurring element in groundwater throughout western Washington as identified by USGS and Washington State Department of Health.

No volatile organic compounds (VOC) have been detected in MW-10 since 2001.

In general, the water quality in this well is good with no indications of landfill impact.

<u>MW-13</u>

MW-13 is screened above the lacustrine silt in sandy soils. It was installed in 1992. It was placed on the quarterly monitoring schedule in June of 1994. MW-13 is located in the southeast portion of the site. It is screened between 261.07 and 266.07 feet. MSL.

The pH is neutral (median 7.3). Specific conductance (field) (median 163 μmhos/cm), total dissolved solids (median 134 mg/L), nitrate (median 0.07 mg/L), and sulfate (median 16.9 mg/L) are low and stable. See time concentration plots, and statistical summaries.

Manganese (only 4 detections in the last two years) is low and stable. Concentrations of common metals sodium, potassium and magnesium are low and stable. There was one short term statistically decreasing trend in this well for alkalinity. Thallium and zinc are sporadically detected. Vanadium is detected regularly at low levels. Mercury has been detected twice and copper has been detected once in the entire monitoring history. Their use as indicators of landfill impacts is limited.

Arsenic exceeds the State Groundwater Quality Criteria of 0.05 μg/L in all eight recent samples. No other samples exceed State or Federal standards. Arsenic is to some extent common, a naturally occurring element in groundwater throughout western Washington.

No volatile organic compounds have been detected in this well since 1999.

In general, water in this well is of good quality with no indications of potential landfill impact.

MW-1, MW-3, MW-4

MW-3, and MW-4 did not produce sufficient water to provide a sample in 2014 and MW-1 has been damaged and is unusable. We are reviewing our monitoring network and will provide a summary of our evaluation in 2015. MW-4 is monitored quarterly for water levels and will be sampled if possible. MW-3 shows similar or decreased values compared to previous years when samples were collected. Available chemical data is shown on time concentration plots and in the descriptive statistics table. MW-4 was placed in assessment monitoring in 2003, but did not have sufficient water for sampling until 2007. There was insufficient water for sampling in 2014.

MW-24

MW-24 also monitors water in channel Cc1. Per Chapter 4 of the 2004 Hydrogeologic Update, MW-24 is screened within a silt and will not be monitored unless water levels rise above the silt sand contact, at 291.0 feet MSL. Water levels are measured quarterly at MW-24 and the elevation has remained below the specified elevation.

Groundwater Perched In and Adjacent to Channel Cc1 Summary

Water quality in MW-10 is good and is not considered impacted by landfilling activities. The absence of manganese in this well is notable. The conditions in this well in combination with low iron suggest a predominantly oxidizing environment.

MW-13 water quality is good and is not considered impacted by landfilling activities as well.

Reduced water volumes in the other shallow wells following installation of the cover at the site suggest the cover is adequately preventing recharge through the waste and is protecting the groundwater.

4.2.2. Groundwater in Channel Cc2

Wells MW-9, MW-2, MW-20, MW-21, and MW-5D monitor the groundwater perched within channel Cc2. MW-8 and MW-14 monitor water beneath channel Cc2 and laterally equivalent with channel Cc3.

Wells MW-2, MW-20, MW-21, and MW-5D are completed in continuous thin sand that correlates with the elevation and location of one of the seeps (seep 2 or SW-W2) on the west side of the landfill.

For the Fourth Quarter 2014, Wells MW-2, MW-5D and MW-21 exceeded the groundwater criteria for manganese and vinyl chloride. Wells MW-5D and MW-21 exceeded for iron. Wells MW-2, MW-5D, MW-9, and MW-20 exceeded the groundwater criteria for arsenic. MW-20 exceeded the groundwater criteria for manganese.

The trilinear diagram shows all of the samples to be within the same calcium-magnesium-bicarbonate hydrochemical facie, as they have been in past samples for these wells. MW-5D, MW-21 and MW-2 continue to be characterized by more dominant bicarbonate-carbonate characteristics. The cation/anion balance during this quarter, for the wells in this zone, is within ten percent (see Appendix J). The reported results are sufficient for characterization.

Interwell prediction limits for the Fourth Quarter 2014 are tabulated in Appendix B (Table 8). The prediction limits in Cc2 are compared to well MW-20 and are similar to historic values with MW-2, MW-5D and MW-21 exceeding the prediction limit for: specific conductance, alkalinity, calcium, magnesium, manganese, sodium, total dissolved solids and total solids. Well MW-5D exceeded for arsenic, iron, and barium. Wells MW-2 and MW-9 exceeded the prediction limit for vanadium. Well MW-9 also exceeded the prediction limit for chloride and nitrate. MW-21 exceeded the prediction limit for barium, nitrate and sulfate.

MW-20

MW-20 is located in the southeast portion of the site. It was installed in October 1998. It is screened between 233.2 and 237.5 feet MSL in a continuous sand bed within the lacustrine silt. It is upgradient of the landfilled area and used to calculate prediction limits and for upgradient comparison to wells MW-2, MW-21 and MW-5D.

The field pH results show a higher pH (median 7.9). Measurements of specific conductance (median 170 μmhos/cm), chloride (median 3.3 mg/L), sulfate (median 17.4 mg/L) and total dissolved solids (median 135 mg/L) are stable.

Iron was not detected in the past eight samples, calcium (median 12.4 mg/L) and magnesium (median 10.3 mg/L) both exhibit short term stability. During the 2014 reporting period, arsenic levels exceed the State Groundwater Quality Criteria in four of four samples.

In 2014, there were no volatile organic compounds detected in MW-20. Groundwater from this well is believed to represent natural conditions. This well is not impacted by landfilling activities.

MW-9

MW-9 is located in the northwest portion of the site. It was also installed as part of the addition of eight groundwater monitoring wells during the summer of 1995. It is screened between 223.64 and 233.64 ft. MSL in sand and gravel.

The pH conditions in this well are fairly neutral with a median of 7.3. The specific conductance (median 155 μmhos/cm) is stable. The measurement of total dissolved solids (median 126 mg/L) fluctuates in a narrow range and exhibits no evident trend. Nitrate (median 0.21 mg/L), chloride (median 4.6 mg/L), and sulfate (median 13.5 mg/L) appear to be stable in recent samples.

Iron levels are low and stable with no detections in the past 8 samples. Sodium (median 5.3 mg/L) levels are stable. Arsenic exceeds the State Groundwater Quality Criteria of 0.05 μg/L in the eight recent samples. Arsenic is to some extent common, a naturally occurring element in groundwater throughout western Washington.

In 2014, there were no volatile organic compounds detected in MW-9.

The general water characteristics in this well represent good quality with no indications of landfill impact.

<u>MW-2, MW-21, and MW-5D</u>

These three wells are located downgradient and in the southwest portion of the site. MW-2 is located easterly from the other two. Wells MW-2 and MW-5D have been monitored quarterly since September 1986. MW-21 was installed in fall 1998 and has been monitored continuously since then.

The screen elevations for these wells are: 227.58 ft. to 244.58 ft. MSL for MW-2; 228.86 ft. and 239.86 ft. MSL for MW-5D; and 233.7 ft. to 243.1 ft. MSL for MW-21.

The pH measurements from these wells show conditions close to neutrality. Median values for the three wells range from 6.7 to 6.9, are stable in all three wells. Several indicator parameters and metals in recent sampling events from wells MW-21, MW-2, and MW-5D are elevated relative to MW-20. Samples from MW-5D have the highest levels in the unit for iron (median 8.4 mg/L), manganese (0.565 mg/L), and sodium (13.5 mg/L). MW-2 has the highest levels for total dissolved solids (median 239 mg/L), specific conductance (median 333 μmhos/cm), calcium (24.2 mg/L), and magnesium (28.6 mg/L). MW-2 and MW-21 have iron and manganese levels that are lower by an order of magnitude or more, than MW-5D. Chloride levels in all three wells are at or near the level in the upgradient well MW-20.

The State and Federal groundwater quality criteria are exceeded consistently for iron and manganese in MW-5D and MW-21. All four wells, MW-2, MW-5D, MW-20 and MW-21 last year exceeded the criteria for manganese. All recent samples from wells MW-5D, and MW-20 exceeded the State Ground Water Criterion for arsenic in 2013.

MW-5D and MW-20 showed no statistically significant short term trends for the past 8 samples. MW-2 showed a statistically significant decreasing short term trend for field specific conductance and an increasing short term trend for trichlorofluoromethane. MW-21 showed a statistically significant decreasing short term trend for alkalinity and cis 1,2-dichloroethene. MW-21 showed a statistically significant increasing short term trend for vinyl chloride and dichlodifluormethane. Vinyl chloride has a statistically significant decreasing long term trend in MW-21, furthermore the short term values of vinyl chloride are all below 0.2 ug/L, well below the Federal Drinking Water standard.

Groundwater sampling results from MW-2, MW-21, and MW-5D continue to show detections of volatile organic compounds (VOCs). The detections for the past eight samples indicate overall stable levels for VOCs with minimal short term trends as listed above. All of these compounds are present in landfill gas as well as leachate and their distribution between phases (partitioning) is regulated by

physical properties (Henry's constant, solubility, vapor pressure) where these phases are in contact.

Most of these detected compounds are likely components of the waste stream; however others are almost certainly degradation products of tetrachloroethene and/or trichloroethene by the process of reductive dechlorination. The detected VOCs, wells, median values or recent detection frequency for the last eight samples are:

- Benzene in MW-5D (median 0.49 μg/L) in all eight samples;
- *Cis*-1,2 dichloroethene in MW-21 (8 out of 8 samples, median 1.02 μg/L), MW-5D (8 out of 8 samples, median 7.92 μg/L), and MW-2 (1 out of 8 samples, median 0.1 μg/L);
- *Trans*- 1,2 dichloroethene in MW-5D (8 out of 8 samples, median 0.315 μg/L);
- Vinyl chloride in MW-21 (8 out of 8 samples,median 0.124 μg/L), MW-5D (8 out of 8 samples,median 3.2 μg/L) and MW-2 (8 out of 8 samples,median 0.88 μg/L);
- Trichlorofluoromethane in MW-21 (8 out of 8 samples, median 0.72 μg/L), MW-2 (8 out of 8 samples, median 2.26 μg/L) and MW-5D (0 out of 8 samples);
- Dichlorodifluoromethane in MW-21 (8 out of 8 samples, median 2.3 μg/L), MW-2 (8 out of 8 samples, median 6.0 μg/L) and MW-5D (8 out of 8 samples, median 1.4 μg/L).

VOCs exceeding State Groundwater Quality Criteria in 2014 samples are:

- Vinyl chloride, all recent samples from MW-2, MW-5D, and MW-21.

Historically, MW-5D has displayed elevated concentrations of some indicator constituents, along with some exceedances. However, evaluation of recent data indicates in most cases short-term stability at considerably lower concentrations than historical data in this well. In 1992-1995, total dissolved solids, chloride, manganese, calcium, and magnesium levels went up while iron levels went down. In early 2002, manganese, total dissolved solids and chloride levels were slightly higher than previous quarters while iron levels were unusually low. Levels for total dissolved solids, chloride, manganese, calcium, and magnesium returned to previous levels and iron came back up. During 2001 – 2002 an event similar to the one observed between 1992 and 1995, might have occurred but to a much lesser extent.

The assessment monitoring program for Appendix III parameters detected dichlorodifluoromethane as the single Appendix III parameter not included on the Appendix I and II lists. This parameter is included in the current monitoring program for this site. At the request of Ecology, wells MW-2, MW-5D, MW-20

and MW-21 were sampled again for Appendix III analytes. With the exception of dichlorodifluoromethane, there continue to be no detections of Appendix III analytes. A demonstration was presented to Ecology in 2014 and based on the findings in the demonstration, it was agree that, with the exception of dichlorodifluoromethane, KCSWD would cease sampling for Appendix III analytes for five years starting in 2013. The last year Appendix III analytes were sampled in 2013.

There is an impact from landfill activities in wells MW-2, MW-5D, and MW-21. Closure activities have contributed to improvement of the water in MW-2, and MW-5D. MW-21 was installed following closure and exhibits similar characteristics to MW-2 and MW-5D. Improvement in water quality is characterized by decreases in specific conductance, chloride, nitrate and a reduction in the frequency and level of several VOCs.

The declines in concentration of general water quality indicators (specific conductance, dissolved solids, chlorides, metals, etc.) suggest that leachate impacts have been controlled as a result of closure activities. A different response for several volatile compounds strongly suggests that the source of these compounds has not been completely addressed by leachate control and most likely results from a landfill gas transport mechanism (although several show decreasing levels). The volatile compounds detected in groundwater are all present in significant amounts in landfill gas. Characterization of leachate indicates that the observed groundwater quality in impacted wells could not be achieved by leachate alone. Using the best available data, Vashon leachate does not contain adequate concentrations of VOCs or alkalinity to result in groundwater quality observed at MW-5D. Alkalinity and VOCs are two of the most likely contributions to groundwater by interaction with landfill gas.

Groundwater perched in Channel Cc2 Summary

The recent data reflects the natural variability in water quality present in MW-20. The relatively low and stable concentrations detected in MW-20 indicate that groundwater quality in this well is not impacted by the landfill. Chemical data from MW-20 represents natural aquifer conditions in the vicinity of the landfill.

Wells in the groundwater perched in channel Cc2 displaying impacts from landfill activities include MW-2, MW-21, MW-5D. Stronger reducing conditions are identified in wells MW-5D and MW-21 than in MW-2, consistent with historical conditions. Most volatile compounds indicate decreasing or stable levels.

Patterns observed for VOCs in wells MW-2 and MW-5D, and the fact that the wells were constructed with screened intervals extending above the saturated zone, indicate

the possibility of a different mechanism of transport than for other water quality parameters. As discussed in the 1992 Annual Report, the observations indicate landfill gas as the most probable source of these groundwater impacts.

Further investigations were conducted in 2003. Gas samples were taken from the airspace above the water table. Samples of landfill gas from probes and the active gas collection system were also taken to provide a comparison to typical landfill gas generated at the Vashon Landfill. The results from this sampling event were submitted to agency in 2006.

Further evaluation of the site continued in 2004. An environmental evaluation technical memorandum was submitted to agency in 2006. The technical memorandum made recommendations for further investigation and actions on the site. These recommendations are discussed in Section 1.3. These wells will continue to be monitored for response to any activities undertaken at the site.

Wells MW-8 and MW-14 monitor the groundwater perched beneath channel Cc2.

Wells MW-8 and MW-14 are screened lower than MW-9. Water levels in these wells likely indicate vertical recharge to the underlying sand and gravel unit.

MW-14

MW-14 is located in the west portion of the site. MW-14 was installed as part of an addition of eight groundwater monitoring wells during the summer of 1995. It is screened below the lacustrine silt, between 202.62 and 212.62 ft. MSL.

MW-14 was not sampled in 2014 due to a stuck pump above the screen interval. SWD was unable to free the stuck pump. MW-14 will be over-drilled and decommissioned in 2015 and a new well will be drilled. The below information is unchanged from the 2012 annual report.

Water in MW-14 exhibits slightly alkaline conditions (pH median 7.8) fluctuating in a moderate range. Specific conductance (median 158 μmhos/cm), total dissolved solids (median 125 mg/L), sulfate (median 12.4 mg/L), and chloride (median 3.0 mg/L) exhibit small fluctuations and no trends with the exception of specific conductance which exhibits a decreasing short term trend.

Iron (only one detection in the past 8 samples), calcium (median 12.2 mg/L), magnesium (median 3.3 mg/L), Manganese (median 0.049 mg/L), potassium (median 2.53 mg/L), and sodium (median 5.93 mg/L) show no trend. Zinc is detected occasionally. These detections are near or at the limit of detection.

Sampling results in 2012 had no exceedances of the Secondary State and Federal Drinking Water Standards.

General characteristics show this well to be of good quality with no indications of landfill impact.

MW-8

MW-8 is located in the west portion of the site. It was also installed as part of the addition of eight groundwater monitoring wells during the summer of 1995. MW-8 is screened between 203.24 and 213.24 ft. MSL and is beneath the lacustrine silt. The screened interval in MW-8 has intersected the potentiometric surface in all depth to water measurements.

MW-8 has nearly neutral pH values (median 6.6) with little variability and no apparent trends. Specific conductance (median 145 μmhos/cm), total dissolved solids (median 125 mg/L), nitrate (median 3.4 mg/L), sulfate (median 8.2 mg/L) and chloride (median 4.8 mg/L), these levels exhibit minor variability and no discernible trend.

Iron levels (no detections in the past 8 samples) are low and stable. Other metals detected are barium, copper, manganese, vanadium and zinc. These detections are near or at the laboratory minimum detectable level. Magnesium (median 8.8 mg/L), sodium (median 5.8 mg/L), and potassium (median 1.1 mg/L) exhibit no trend in recent samples. Unlike other monitoring wells, there are no exceedances for arsenic State Groundwater Quality Criteria.

No volatile organics were detected at MW-8 in 2014.

General characteristics show this well to be of good quality except for nitrate. The source of the nitrate is uncertain due to the lack of any other impact indicators. Water in MW-8 is of good quality with low level of impact related to nitrate.

Groundwater Perched Beneath Channel Cc2 Summary

MW-8 is constructed with the screened interval extending above the saturated zone. Samples from this well show stable and decreasing trends.

Evaluations for MW-14 exhibit stable concentrations for constituents that are considered to represent naturally occurring spatial variation and show no indications of impacts from the landfill.

4.2.3. Groundwater in Regional Aquifer & Channel Cc3

Wells MW-7, MW-11, MW-12, MW-19, MW-26 and MW-29 monitor the groundwater in the regional aquifer. MW-27 is screened both in Channel Cc3 and the regional aquifer.

Construction differences make determination of groundwater gradients and flow direction difficult in the area monitored by these wells. Average screened depth below the water table in the wells ranges from near zero in MW-11, MW-26 and MW-29 to more than 30 ft in MW-12 and MW-7. Since MW-27 is screened in channel Cc3 and the regional aquifer, this represents a piezometric high. These differences along with spatial variation over the site may well account for prediction limit exceedances using MW-7 as background data.

For the Fourth Quarter 2014, Arsenic exceeded in all wells, MW-29 exceeded for iron and wells MW-7, MW-19, MW-26 and MW-29 exceeded the groundwater criteria for manganese. There were no volatile organic compounds detected for the quarter. The trilinear diagram shows all samples are within the same calcium-magnesium-bicarbonate hydrochemical facie. During this quarter, the ionic balances for the wells in this zone are within ten percent (see Appendix J), which is sufficient for characterization.

MW-7

MW-7 is located in the southeast portion of the site. Historically, MW-7 has been interpreted to represent upgradient conditions. The interpretation provided in the 2004 Hydrogeologic Update, redefines MW-7 as downgradient of the site. This well was installed as part of the addition of eight groundwater monitoring wells during the summer of 1995. The screened elevations for this well are between 141.09 and 151.09 ft. MSL.

The pH conditions in MW-7 are slightly alkaline with a median of 7.7. Specific conductance (median 148 μmhos/cm), ammonia (median 0.258 mg/L) is consistently detected in this well. Nitrate(median 0.005 mg/L), alkalinity (median 74 mg/L), total dissolved solids (median 129 mg/L), chloride (median 3.2 mg/L), and sulfate (median 10.5 mg/L), are stable.

Iron only had one detection in the past eight samples and manganese (median 0.145 mg/L) display no significant trends. Manganese exceeds water quality standards in all four of the most recent samples. All samples exceed State Groundwater Quality Criteria for arsenic. Other metals detected occasionally in this period include selenium and zinc.

No volatile organic compounds were detected in 2014 at MW-7.

The results from MW-7 are considered to represent natural conditions and are not related to landfilling activities.

MW-11, MW-25 and MW-29

MW-11 was installed as part of the addition of eight groundwater monitoring wells during the summer of 1995. The screened elevations for these wells are between 152.28 and 162.28 ft. MSL. MW-11 was damaged during the Nisqually earthquake in February 2001. No more samples have been collected since then. The 2001 report contains the last assessment on well MW-11. The 2001 assessment indicated no impacts in this well from the landfill. MW-11 was decommissioned in 2003. MW-25 was installed to replace MW-11. However the screen failed during installation and the well cannot be developed. The well has been left in place for use as a piezometer. MW-29 was subsequently installed in 2003 as the replacement well for MW-11. The screened elevations for MW-29 are between 155.00 and 169.80 ft. MSL.

The water pH for MW-29 is slightly alkaline (median 7.4). Specific conductance is low (median 210), total dissolved solids (median 161 mg/L), alkalinity (median 103 mg/L), chloride (median 3.7 mg/L), sulfate (median 16.6 mg/L), are stable.

Iron (median 0.74 mg/L) and manganese (median 0.089 mg/L) are stable. Arsenic, Iron and manganese exceed water quality standards in all 2014 samples. All samples exceed State Groundwater Quality Criteria for arsenic. Other metals detected occasionally in this period include selenium and zinc.

No volatile organic compounds were detected in 2014 at MW--29.

The results from MW-29 resemble the historic MW-11 data and are considered to represent natural conditions and are not related to landfilling activities.

MW-12, MW-19, MW-26, MW-27 and MW-28

MW-12 and MW-19 were both installed in the summer of 1995. MW-12 is located to the south of the site. The screened elevations for MW-25 are between 129.62 and 139.62 ft. MSL. MW-19 is located to the northwest of the site. The screened elevations for MW-19 are between 131.10 and 141.10 ft. MSL.

MW-26 and MW-27 were both installed in 2003. MW-26 is located in the northwest corner of the site and the screened elevations are between 141.02 and 155.12 ft. MSL. MW-27 is screened both in channel Cc3 and the regional aquifer. Water quality discussions for this well are included with the other regional wells. The screened elevations for MW-27 are between 180.07 and 194.27 ft. MSL.

MW-28 has been dry since installation. The screened elevations for MW-28 are between 159.51 and 173.91 ft. MSL.

The pH for the regional aquifer for monitoring wells MW-12 and MW-19 is slightly alkaline (medians 7.2 and 7.6). The pH for MW-27 is neutral (median 6.8) and for MW-26, more alkaline (median 8.1).

Some parameter levels for MW-19 are higher than in MW-7 indicated by prediction limit (PL) exceedances, however there were no prediction limit exceedances in MW-19 in 2014 and only one for pH in MW-7. The highest concentrations of these parameters are low for groundwater in general and area groundwater specifically (see table on the next page). All parameters are currently stable and MW-19 had two decreasing short term statistical trends for alkalinity and calcium.

Manganese and arsenic concentrations in MW-19 exceed the water quality standard criteria in all four samples last year.

MW-12 and MW-27 historically are the only wells in this unit with infrequent detections of manganese, except for one detection in the entire monitoring history of MW-27 and two detections in MW-12 for the history of the well. MW-12 did not exhibit any short term trends. MW-27 did exhibit an increasing short term trend for magnesium.

Trends for MW-26 and MW-29 are stable for the past 8 samples with no short term trends. Manganese concentrations in MW-29 and MW-26 exceed the water quality standard criteria in all samples in 2014. Arsenic concentrations in MW-7, MW-12, MW-19, MW-26 and MW-29 exceed the water quality standard criteria in all samples in 2014.

There were no volatile organic compound detections in 2014.

In general, conditions in MW-12 appear to be at a higher redox potential than other wells in the regional aquifer. This environment is characterized by lower levels of iron and ammonia, absence of manganese, and higher levels of nitrate.

The redox conditions in the north portion of the site are more reducing, determined by lower levels of nitrate, and higher levels of iron, manganese and ammonia.

The following table presents a water quality comparison of background conditions and the regional aquifer characterized beneath the Vashon Landfill. VOCs are not summarized due to the absence of detections in these wells.

CONSTITUENT	Area Background Range*	Vashon Landfill Regional Aquifer Jan 2013- Dec 2014
General Indicators		
pH	6.5 to 8.3	6.5 to 8.2
Conductivity (micromhos/cm)	80 to 545	140 to 265
Chloride	1.6 to 14	2.9 to 7.19
Sulfate	<0.50 to 41	8.7 to 18.0
Nitrate	<0.2 to 5.8	<0.01 to 3.1
Metals[a]		
Arsenic	<0.001 to 0.017	<0.001 to 0.0062
Iron	0.04 to 10	<0.005 to 0.975
Manganese	0.005 to 0.960	<0.001 to 0.599
Sodium	5.0 to 62	4.9 to 9.4
Notes: All values except pH and specific conductivity are reported in milligrams per liter (mg/L). [a] = Total metals concentrations are reported for area background values. *Background values are based on Carr (1983) and Vashon-Maury Island Groundwater Management Plan (1998)		

Regional Aquifer Summary

Trend analyses for most wells in this unit show stable concentrations for many of the constituents in the short-term period. Exceptions include an increasing trend in total dissolved solids for MW-26 and MW-27. Conditions present in wells in the regional aquifer show no indication of impacts attributable to landfill activities at the Vashon Island site. The water quality in this unit is good and is believed to represent natural conditions.

Groundwater flow is not well defined in the regional aquifer in the area monitored by these wells. The additional wells installed in 2003 included MW-27, screened across the channel Cc3 – regional aquifer contact. This creates a potentiometric high. The extent of the influence of this radial flow is undetermined. Additional evaluations are scheduled to be completed in 2015 to evaluate this well.

4.3. WEIR and SURFACE WATER QUALITY

The weirs are located in the western ravine adjacent to the landfill (Figure 3). The elevations for the weirs are 239.33 ft for Weir 1; 224.78 ft for Weir 2; and 195.38 for Weir 3. The weir sampling locations SW-W1, SW-W2 and SW-W3 are located downstream of each weir. The elevations for the sampling locations are 230.59 ft for SW-W1; 189.89 ft for SW-W2; and 187.23 ft for SW-W3 (See Figure 3). The sampling stations consist of a v-notch weir.

Historically, the naming for these locations has on occasion been inadvertently switched. After a thorough review of the data, corrections have been made and the probable results from switching location names have been associated with the correct location name. However, single unusual results may be the result of the naming issues rather than true fluctuations in the data. As a result of this data issue, results reported previously may differ from the current conditions.

The weirs have been monitored since March 1991. Results for water from the weirs are presented in two periods similar to groundwater. Emphasis is on results obtained from the last eight samples, predominantly between 2013 and 2014. The flow at SW-W1 was insufficient to collect any samples during dry periods so data is considered as a whole, rather than focusing on the last eight samples. Four samples were collected from each of the three weirs in 2014.

The specific conductance ranges between 70 and 860 μmhos/cm for SW-W1; 557 to 750 μmhos/cm for SW-W2; and 264 to 415 μmhos/cm for SW-W3. Chloride levels range from 3 to 15 mg/L for SW-W1; 20 to 25 mg/L for SW-W2; and 7 to 11 mg/L for SW-W3. In general for specific conductance and chloride, SW-W1 has the lowest levels while SW-W2 displays the highest levels, and SW-W3 is midrange but tends closer to SW-W1. The maximum levels for both constituents have decreased compared to historical values for all three locations and in general the variability has decreased, as shown by decreases in standard deviation for short and long term periods at SW-W2 and SW-W3.

The medians for calcium concentrations are 21 mg/L for SW-W1, 57 mg/L for SW-W2, and 23 mg/L for SW-W3. The medians for magnesium concentrations are 16 mg/L for SW-W1, 49 mg/L for SW-W2, and 20 for SW-W3. The medians for potassium concentrations are 1.3 mg/L for SW-W1, 3.3 mg/L for SW-W2, and 2.2 mg/L for SW-W3. The medians for sodium concentrations are 8 mg/L for SW-W1, 15 mg/L for SW-W2, and 9 mg/L for SW-W3. As with specific conductance and chloride, SW-W1 and SW-W3 have lower levels for calcium, magnesium, potassium, and sodium, while SW-W2 has the higher levels. The levels of these metals are stable relative to long term values at all three locations. All medians above are equal to or lower than last year's values.

The only volatile organic compound (VOC) detected with any frequency in the weirs is vinyl chloride. Vinyl chloride is rarely detected in SW-W1 and occasionally in SW-W2, but is routinely detected in SW-W3. The median in the recent samples for SW-W3 is 0.037 μg/L. SW-W2 had no vinyl chloride detections in the recent 8 samples.

Most of the exceedances of the Federal and State Surface Water Quality Standards are for metals. Historically the value of these exceedances in evaluating water impacts associated with municipal solid waste landfills is limited since the standards are based on dissolved metals and the weir results are based on total metals. In 2007, field procedures changed allowing samples collected to be field filtered and metals to be analyzed for both total and dissolved constituents. Dissolved metals were then

compared to groundwater criteria and total metals were compared to surface water criteria. Because water collected at the weirs is truly surface water, having been exposed to atmospheric conditions, it will no longer be compared to groundwater standards starting in 2011. Iron is the only parameter to periodically exceed the surface water quality standard. All other exceedances are very inconsistent.

In November of 2011, a new surface water sampling location was established. SW-E is located approximately 1200 feet southwest of the weir locations on the east side of a culvert on Robinwood Road SW, approximately 200 feet south of the Robinwood Road SW-Sunset Road SW intersection (see Figure 1). For the first sample, we sampled for the same analytes as for the weirs but this analyte set will be paired down to a few analytes starting in the first quarter of 2015.

SW-E had a slightly alkaline pH of 10.72 and a specific conductivity of 170 umhos/cm and chloride is 5.67 mg/L. Specific conductivity and chloride are similar to weir SW-W1. For metals, calcium is 16.7 mg/L, sodium is 6.27 mg/L, magnesium is 14.5 mg/L and potassium is 2.34 mg/L. SW-E has lower metal values in all metals compared to SW-W1 with the exception of potassium which is only approximately 1 mg/L higher.

SW-E had no volatile organic compound detections.

<u>Weir and Surface Water Summary</u>

Conditions in SW-W1 represent the lowest levels of impact while SW-W2 displays somewhat higher low levels. SW-W3 exhibits a midrange impact on the basis of conventional parameters and metals, but has frequent detections of vinyl chloride. Water quality monitoring will continue at the weirs to provide water quality data for surface water flow leaving the site. The water quality is compared to surface water standards. The new down-stream surface water station has water quality values similar or better than SW-W1.

4.4. OFFSITE DOMESTIC WELL MONITORING

In 2002, Department of Natural Resources and Parks (DNRP) conducted sampling on Vashon-Maury Island in 11 domestic wells located around the landfill. No evidence of contamination originating from the landfill was found. The data was presented in the 2002 Annual Report. Data are included with the onsite well data, in the pdf files.

In 2005 SWD agreed to monitor 3 of these 11 wells. The first round of these samples was collected in October 2005. One of the three wells is no longer sampled as access is no longer available. Starting in 2010, samples will be collected from both of the offsite wells bi-annually. All samples were collected in 2014 from the two off site wells. No evidence of contamination originating from the landfill was found. The results are included in the .pdf files, in Appendix I.

5. Landfill Gas

Landfill gas migration is monitored by a network of compliance probes installed around the perimeter of the landfill and ambient air stations around the property boundary. The monitoring network comprises of nine ambient air stations, three monitoring wells and twenty-six gas probes. Probes are monitored monthly. The results can be found in Appendix K. There were no detections in 2014. The effects of landfill gas on current groundwater conditions are being reviewed to determine whether data gaps exist in the current analysis. Conclusions from the landfill gas review are scheduled to be submitted to SWD in 2015.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

Conditions at the Vashon Landfill have continued the historic trend with some volatiles showing decreasing trends. Therefore most of the conclusions drawn from the previous Annual Reports hold true for this report as well. The following conclusions reiterate some from the previous Annual Reports.

1. The groundwater generally moves westward in the middle channel of the lacustrine silt, now designated channel Cc2, within Unit C.
2. The flow direction within the regional aquifer is not well defined and potentiometric maps show the influence of well MW-27 being screened in both the lower channel of Unit C (Cc3) and in the regional aquifer (Unit D).
3. The wells in the regional aquifer showed low sensitivity to hydrologic activity, based on the observation of very small seasonal water level fluctuations, indicating limited groundwater recharge in the area of the landfill.
4. Landfilling impacts have been recognized in channel Cc2 at wells MW-5D, MW-21, and MW-2. Low levels of VOCs have been detected frequently in wells MW-2, MW-21, and MW-5D. Detections for most volatile compounds have declined significantly or are stable in the short term except for trichlorofluoromethane (short term increase in MW-2), and dichlorodiflouromethane and vinyl chloride (short term increases in MW-21). Leachate is believed to have contributed to impacts in the past. Recent data, specifically levels of VOCs in MW-21, MW-2, and MW-5D, suggest possible historic contaminant transport from landfill gas.
5. Expanded Appendix III analyte testing shows no new detections.

6. The landfill closure has been effective in improving the water quality condition of impacted wells, based on reductions in specific conductance, total dissolved solids, chloride and several VOCs.
7. Results obtained from wells in the regional aquifer do not show impacts attributable to landfill activities. The data reflects the natural variations in water quality that exist around the site.

6.2. Recommendations/Proposed Actions

1. The existing monitoring network shall continue to be monitored as described in the 2004 Vashon Island Landfill Hydrogeologic Report Update and following protocols from the Vashon Island Landfill Sampling and Analysis Plan.
2. Evaluation of the operating efficiency of the landfill gas collection system and probe network will continue in 2015 to determine if improvements to the collection and treatment system are needed.
3. Four groundwater monitoring wells will be drilled in spring of 2015 and up to four existing wells (MW-5 multi completion well, MW-14, MW-1 and MW-27) will be evaluated for effectiveness and may be decommissioned.
4. Monitoring of the wells will continue for Appendix I and II parameters, with the addition of dichlorodifluoromethane.
5. The water bearing zone in channel Cc2 shall continue in assessment monitoring in accordance with WAC 173-351-430.
6. Surface Water sampling site SW-E will be sampled quarterly for pH, specific conductivity, turbidly, hardness, dissolved metals and vinyl chloride.

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King County
Department of Natural Resources and Parks
Solid Waste Division

Site Map

Source December 2004,
Vashon Island Landfill Hydrogeologic Report Update

Prepared by Berryman & Henigar with UES

Figure
3

FILE NAME (UPDATED BY) S:\CAD\KING COUNTY\4021105-011\DWG\P21105011FIG3-1.DWG (PLS)

PLOT DATE & TIME NOV 22 2004 09:07:08

XREFS: X21104BM1, X21104GEO, X21104Lmts, X21104UT

King County
Department of Natural Resources and Parks
Solid Waste Division

Hydrogeologic Cross Section Location Map

Source December 2004,
Vashon Island Landfill Hydrogeologic Report Update
Prepared by Berryman & Henigar with UES

Figure 4

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Department of Natural Resources and Parks
Solid Waste Division

Hydrogeologic Cross Section A-A'

Source December 2004,
Vashon Island Landfill Hydrogeologic Report Update

Prepared by Berryman & Henigar with UES

Figure
5

King County
Department of Natural Resources and Parks
Solid Waste Division

Hydrogeologic Cross Section B-B'

Source December 2004,
Vashon Island Landfill Hydrogeologic Report Update

Prepared by Berryman & Henigar with UES

Figure 6

XREFS: NONE
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NOV 23 2004 15:00:56

King County
Department of Natural Resources and Parks
Solid Waste Division

Hydrogeologic Cross Section C-C'

Source December 2004,
Vashon Island Landfill Hydrogeologic Report Update

Prepared by Berryman & Henigar with UES

Figure 7

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XREFS: NONE

King County
Department of Natural Resources and Parks
Solid Waste Division

Hydrogeologic Cross Section D-D'

Figure 8

Source December 2004,
Vashon Island Landfill Hydrogeologic Report Update

Prepared by Berryman & Henigar with UES

King County
Department of Natural Resources and Parks
Solid Waste Division

Hydrogeologic Cross Section E-E'

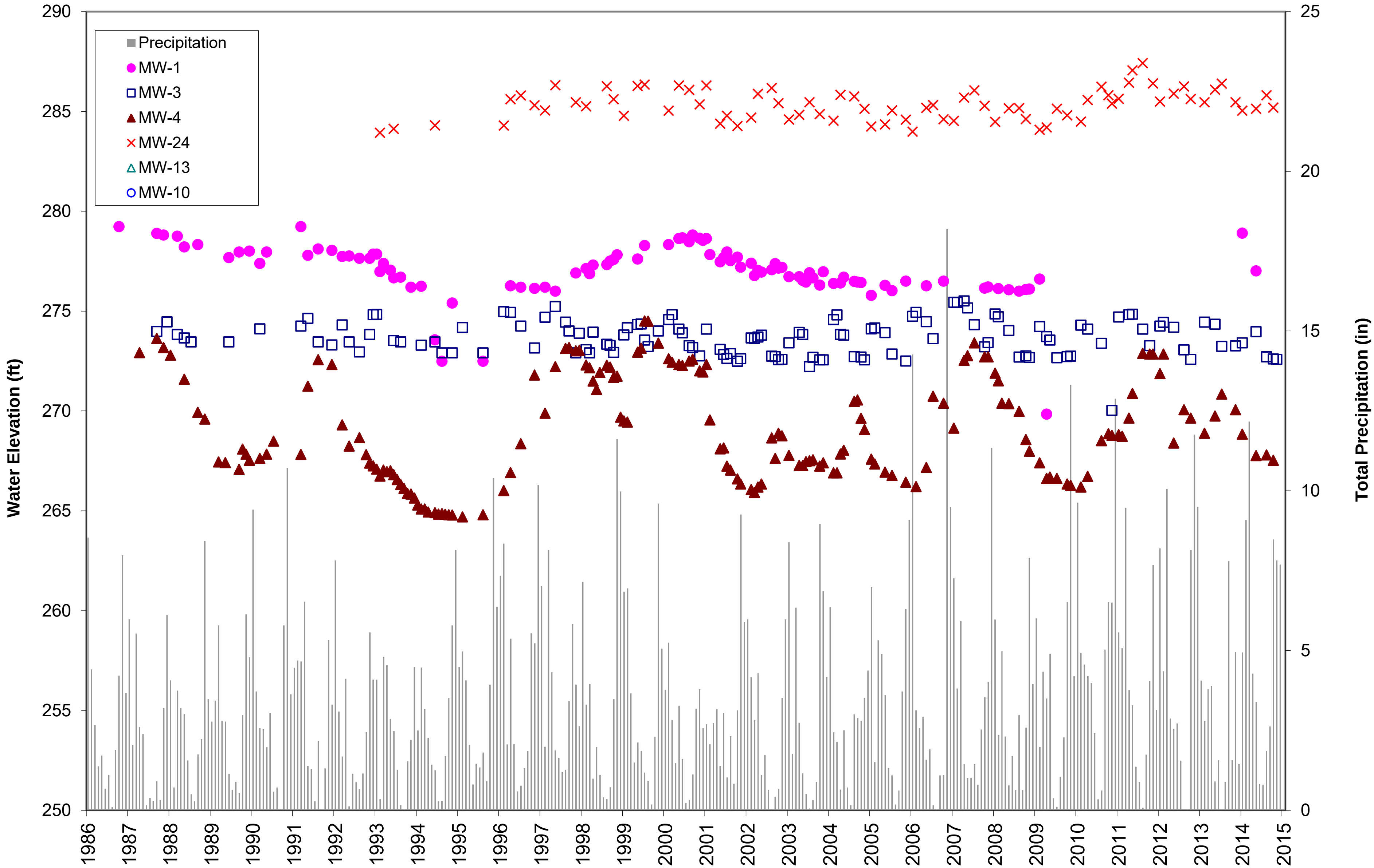
Source December 2004,
Vashon Island Landfill Hydrogeologic Report Update

Prepared by Berryman & Henigar with UES

Figure
9

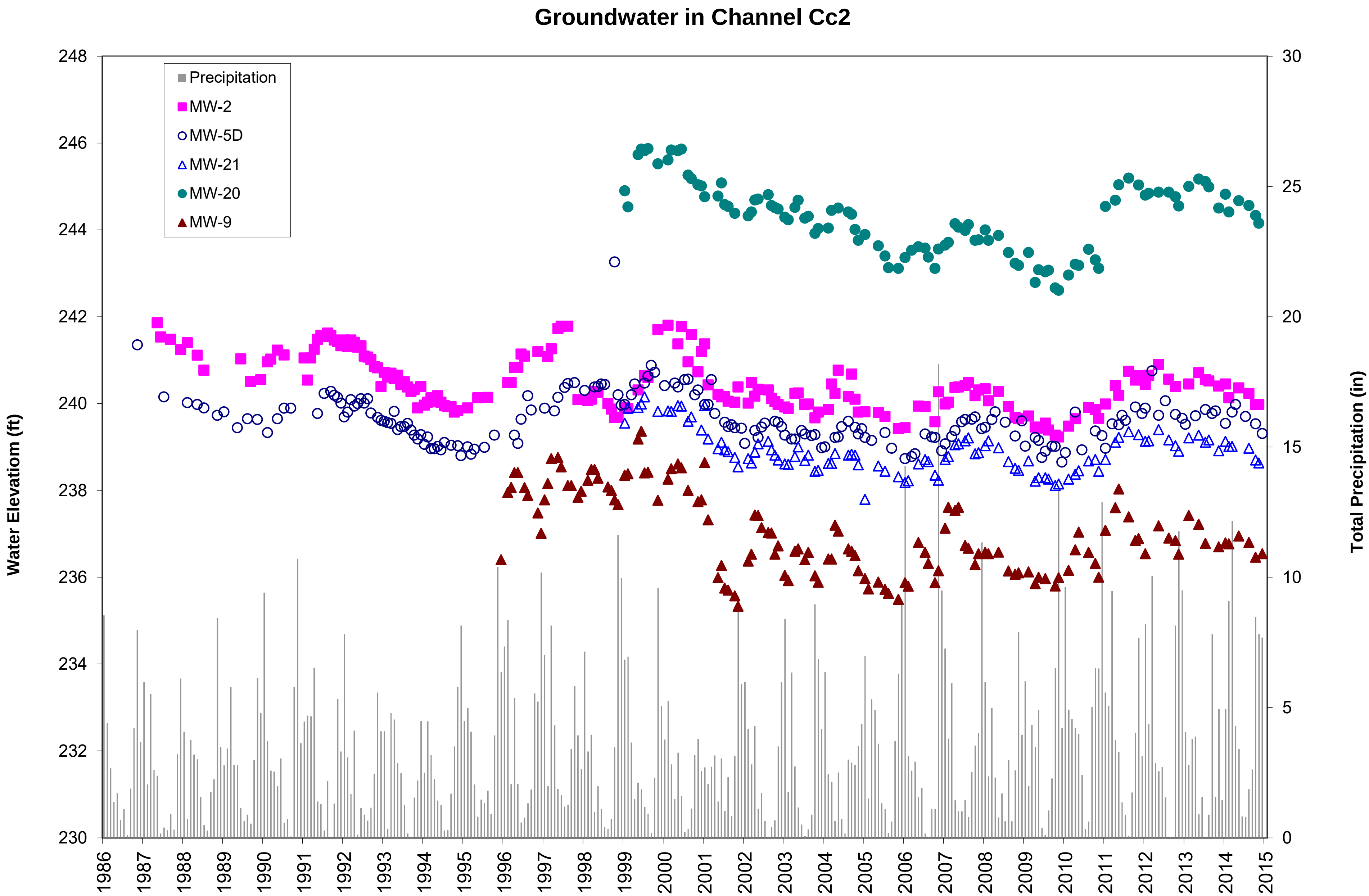
FILE NAME (UPDATED BY) S:\CAD\KING COUNTY\4021105-011\DWG\P21105011SECTIONS_F3.DWG (PLS)
PLOT DATE & TIME NOV 23 2004 15:00:56
XREFS: NONE

Groundwater in or Adjacent to Channel Cc1



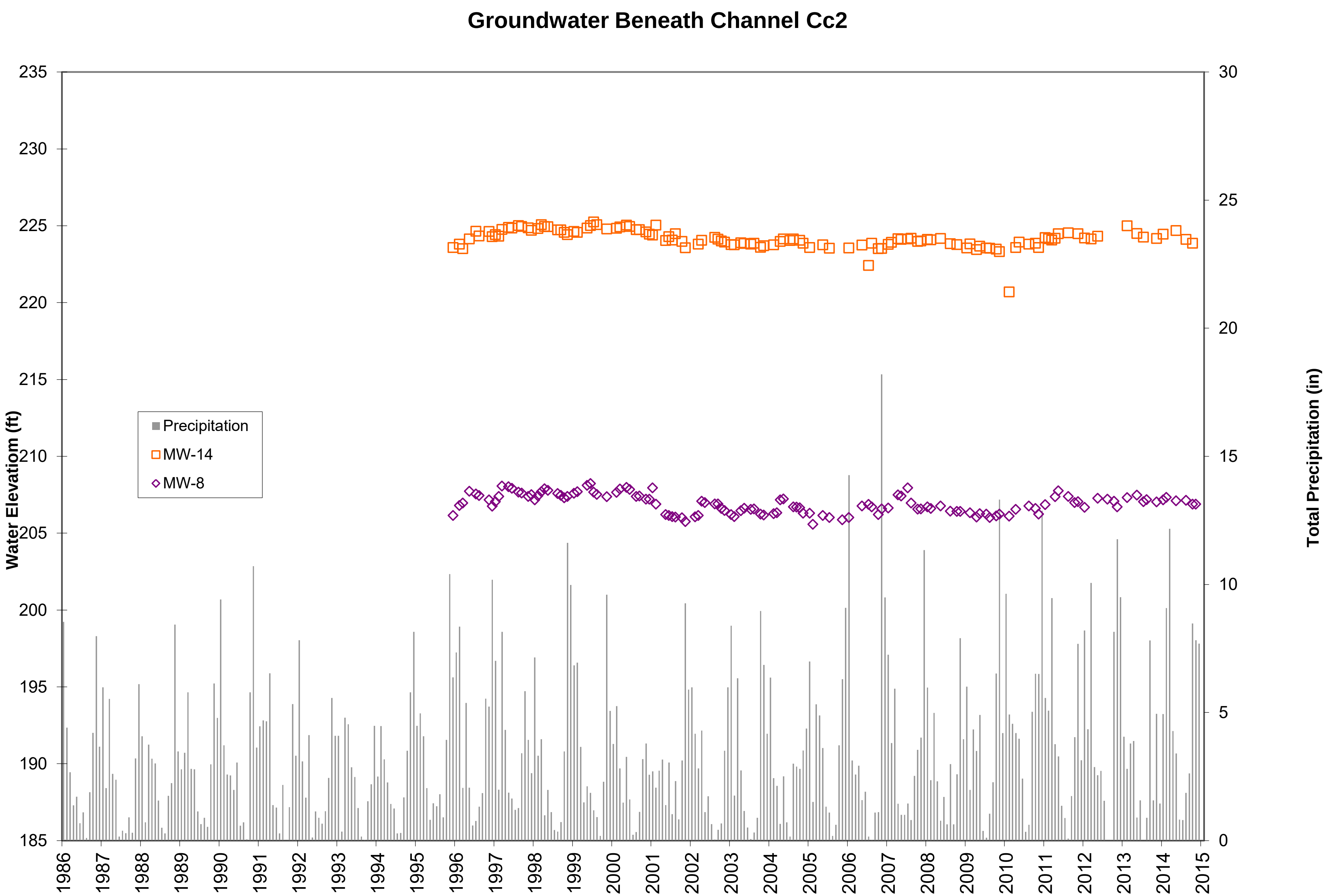
Precipitation Data Source:
Pre 2005: NOAA
Sea-Tac AP Station. Monthly Total Precipitation
Post 2005: KC DNRP. WLRD, Rain Gage, Vashon Landfill

Figure 10



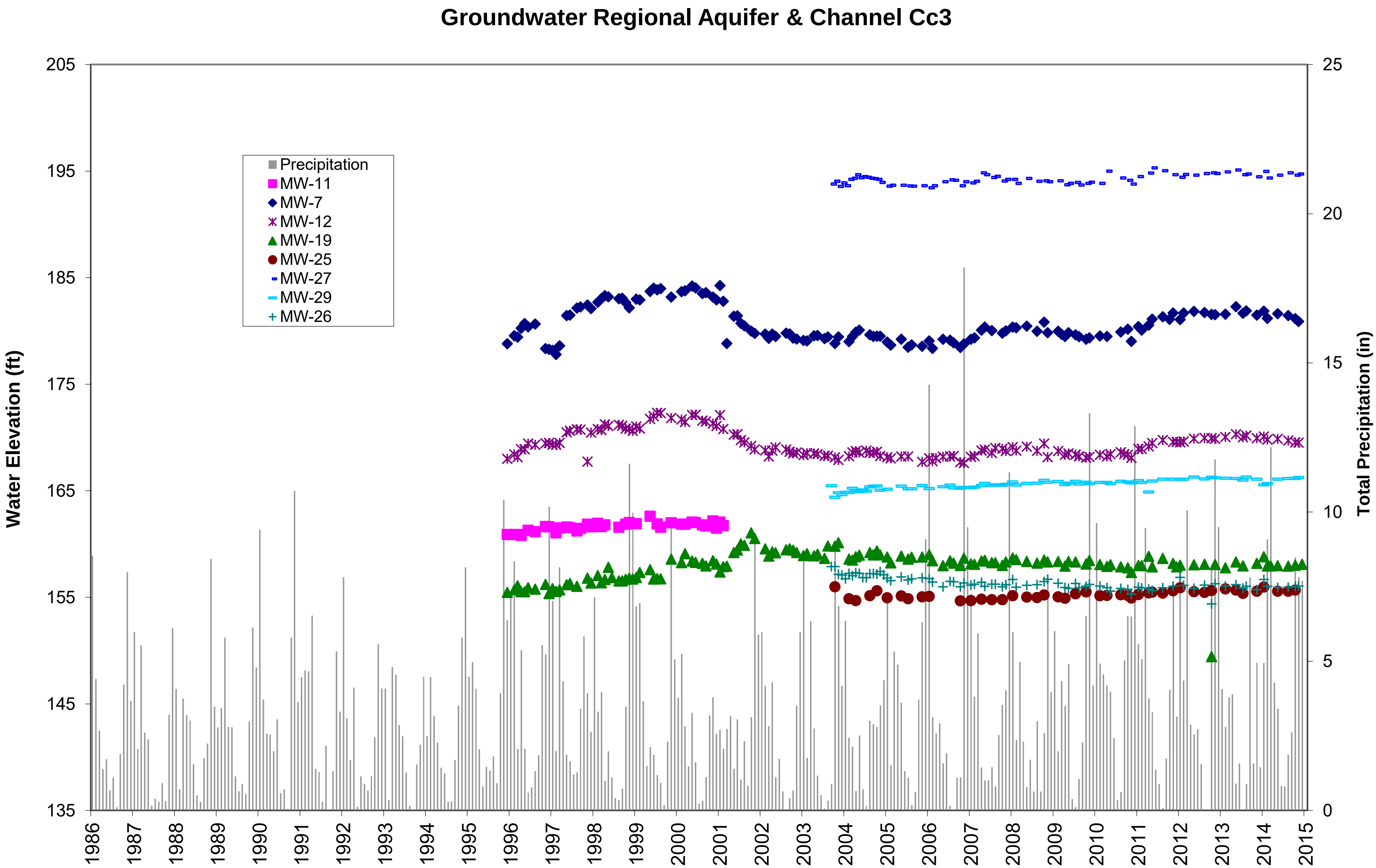
Precipitation Data Source:
Pre 2005: NOAA
Sea-Tac AP Station. Monthly Total Precipitation
Post 2005: KC DNRP. WLRD, Rain Gage, Vashon Landfill

Figure 11



Precipitation Data Source:
Pre 2005: NOAA
Sea-Tac AP Station. Monthly Total Precipitation
Post 2005: KC DNRP. WLRD, Rain Gage, Vashon Landfill

Figure 12



Precipitation Data Source:
Pre 2005: NOAA
Sea-Tac AP Station. Monthly Total Precipitation
Post 2005: KC DNRP. WLRD, Rain Gage, Vashon Landfill

Figure 13

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

Groundwater in or adjacent to Cc1							
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient							
Time Interval	Long	Long	Long	Short	Long	Short	Long
pH field, Standard Units							
No. of Analyses	17	22	70	8	77	8	36
No. of Detections	17	22	70	8	77	8	36
Minimum	6.4	5.6	6.8	7.0	6.7	6.9	6.1
Maximum	8.2	6.8	8.4	7.4	8.0	7.3	8.0
Mean	7.21	6.17	7.40	7.22	7.23	7.14	6.54
Standard Deviation	0.43	0.34	0.29	0.18	0.24	0.17	0.35
Median	7.2	6.2	7.4	7.2	7.2	7.3	6.4
Specific Conductance field, micromhos/cm							
No. of Analyses	18	22	70	8	76	8	36
No. of Detections	18	22	70	8	76	8	36
Minimum	155	86	100	115	130	130	190
Maximum	250	200	150	150	195	180	860
Mean	190.0	115.8	127.3	131.3	159.8	160.6	573.3
Standard Deviation	27.2	28.4	9.3	12.5	15.6	17.0	145.3
Median	185	100	130	133	160	163	553
Total Dissolved Solids							
No. of Analyses	19	16	68	8	80	8	33
No. of Detections	19	16	68	8	80	8	33
Minimum	77	8	46	97	68	123	29
Maximum	170	90	130	114	150	143	500
Mean	125.6	66.3	94.8	105.2	114.3	133.5	358.7
Standard Deviation	26.5	19.7	13.8	5.1	14.6	7.1	103.6
Median	123	71	95	106	110	134	360
Alkalinity, mg/L							
No. of Analyses	5	14	69	8	76	8	15
No. of Detections	5	14	69	8	76	8	15
Minimum	98	24	52	56	30	66	58
Maximum	120	41	70	59	80	77	320
Mean	109.60	31.36	56.36	57.54	63.17	70.90	225.80
Standard Deviation	10.53	4.36	2.95	1.20	8.28	4.17	81.91
Median	110.0	31.0	56.0	57.6	62.0	70.4	240.0
Ammonia-N, mg/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	4	9	9	1	11	0	19
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	0.1	0.7	0.1	0.0	0.1	ND	0.3
Mean	0.02	0.15	0.01	0.01	0.01	0.01	0.06
Standard Deviation	0.02	0.22	0.01	ID	0.01	ID	0.08
Median	0.03	0.03	0.01	0.01	0.01	0.01	0.03

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

Groundwater in or adjacent to Cc1							
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient							
Time Interval	Long	Long	Long	Short	Long	Short	Long
Nitrate-N, mg/L							
No. of Analyses	29	21	69	8	81	8	48
No. of Detections	21	21	69	8	79	8	23
Minimum	ND	0.2	0.2	0.4	ND	0.0	ND
Maximum	0.3	4.3	0.8	0.6	0.3	0.1	6.3
Mean	0.16	1.46	0.37	0.43	0.10	0.07	1.12
Standard Deviation	0.09	0.99	0.10	0.06	0.05	0.02	1.90
Median	0.16	1.20	0.37	0.42	0.09	0.07	0.10
Sulfate, mg/L							
No. of Analyses	29	21	69	8	80	8	48
No. of Detections	29	21	69	8	80	8	48
Minimum	11.0	7.7	2.6	8.8	17.0	14.5	3.7
Maximum	21.0	19.0	11.0	10.3	26.8	18.6	46.0
Mean	16.91	11.80	9.62	9.36	19.61	16.76	17.74
Standard Deviation	2.08	3.36	0.99	0.51	1.63	1.49	9.69
Median	17.0	11.0	9.8	9.2	19.0	16.9	16.0
Chloride, mg/L							
No. of Analyses	29	21	69	8	81	8	48
No. of Detections	29	21	68	8	81	8	46
Minimum	1.3	1.1	ND	3.0	2.5	2.6	ND
Maximum	6.3	11.0	4.9	3.4	5.6	3.3	19.0
Mean	4.27	3.27	3.04	3.19	3.56	2.93	8.87
Standard Deviation	0.87	2.49	0.42	0.14	0.78	0.20	4.52
Median	4.2	2.2	3.0	3.2	3.2	2.9	7.0
Dissolved Arsenic, mg/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	25	1	68	8	80	8	6
Minimum	ND	ND	ND	0.0017	ND	0.0016	ND
Maximum	0.0070	0.0070	0.0020	0.0018	0.0030	0.0018	0.0060
Mean	0.0050	0.0012	0.0016	0.0017	0.0018	0.0017	0.0013
Standard Deviation	0.0013	ID	0.0004	0.0000	0.0004	0.0001	0.0012
Median	0.0050	0.0005	0.0017	0.0017	0.0019	0.0017	0.0005
Dissolved Iron, mg/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	14	18	55	1	55	2	40
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	0.32	8.60	0.30	0.01	0.49	0.03	0.50
Mean	0.03	1.35	0.04	0.01	0.04	0.01	0.09
Standard Deviation	0.06	2.68	0.05	ID	0.08	ID	0.11
Median	0.02	0.05	0.03	0.01	0.03	0.01	0.06

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

Groundwater in or adjacent to Cc1							
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient							
Time Interval	Long	Long	Long	Short	Long	Short	Long
Dissolved Manganese, mg/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	6	17	8	1	48	4	42
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	0.058	2.700	0.003	0.002	0.027	0.002	0.970
Mean	0.01	0.46	0.00	0.00	0.00	0.00	0.18
Standard Deviation	0.01	0.96	0.00	ID	0.00	0.00	0.22
Median	0.001	0.004	0.001	0.001	0.001	0.001	0.089
Dissolved Calcium, mg/L							
No. of Analyses	10	15	69	8	81	8	25
No. of Detections	10	15	69	8	81	8	25
Minimum	11.0	7.6	4.3	8.0	6.5	9.1	17.0
Maximum	14.0	11.0	13.0	10.2	11.2	11.5	73.6
Mean	12.24	9.44	8.84	9.11	9.28	10.03	53.43
Standard Deviation	1.16	0.96	1.10	0.63	0.90	0.71	16.72
Median	11.7	9.4	8.9	9.1	9.5	10.0	55.0
Dissolved Magnesium, mg/L							
No. of Analyses	10	15	69	8	81	8	25
No. of Detections	10	15	69	8	81	8	25
Minimum	10.7	1.8	4.2	7.6	7.7	10.9	8.6
Maximum	16.0	3.1	12.0	9.4	13.8	14.0	56.8
Mean	12.46	2.36	8.08	8.66	10.44	12.25	40.70
Standard Deviation	1.74	0.31	0.91	0.56	1.12	0.89	12.78
Median	11.8	2.3	8.0	8.9	10.0	12.1	42.0
Dissolved Sodium, mg/L							
No. of Analyses	10	15	69	8	81	8	25
No. of Detections	10	15	69	8	81	8	25
Minimum	7.3	3.7	2.3	4.1	4.9	5.5	5.4
Maximum	10.0	6.4	6.4	5.2	14.4	6.9	24.8
Mean	8.34	4.75	4.50	4.80	5.97	6.12	15.55
Standard Deviation	0.95	0.84	0.49	0.35	1.06	0.43	5.54
Median	8.0	4.6	4.5	4.9	5.8	6.1	14.0
Dissolved Potasium, mg/L							
No. of Analyses	10	15	69	8	81	8	25
No. of Detections	10	15	69	8	81	8	25
Minimum	2.2	2.5	0.7	1.4	1.1	1.8	0.9
Maximum	3.0	4.1	2.0	1.6	2.2	2.2	2.7
Mean	2.51	3.41	1.34	1.44	1.66	1.88	1.92
Standard Deviation	0.25	0.44	0.16	0.08	0.16	0.15	0.40
Median	2.4	3.5	1.3	1.4	1.6	1.8	2.0

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

Groundwater in or adjacent to Cc1							
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient							
Time Interval	Long	Long	Long	Short	Long	Short	Long
Benzene, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	1	0	1	0	1	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	0.3	ND	0.3	ND	0.2	ND	ND
Mean	0.37	0.21	0.10	0.10	0.10	0.10	0.39
Standard Deviation	ID	ID	ID	ID	ID	ID	ID
Median	0.5	0.1	0.1	0.1	0.1	0.1	0.1
Chloroethane, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	0	0	0	0	0	0	6
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	1.3
Mean	1.23	0.45	0.10	0.10	0.10	0.10	1.12
Standard Deviation	ID	ID	ID	ID	ID	ID	1.08
Median	1.5	0.1	0.1	0.1	0.1	0.1	1.0
Toluene, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	2	0	1	0	1	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	0.5	ND	0.4	ND	0.8	ND	ND
Mean	0.99	0.31	0.10	0.10	0.11	0.10	0.72
Standard Deviation	ID	ID	ID	ID	ID	ID	ID
Median	0.5	0.1	0.1	0.1	0.1	0.1	0.1
Trichloroethene, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	1	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	1.0	ND	ND	ND	ND	ND	ND
Mean	0.38	0.21	0.10	0.10	0.10	0.10	0.39
Standard Deviation	ID	ID	ID	ID	ID	ID	ID
Median	0.5	0.1	0.1	0.1	0.1	0.1	0.1
Vinyl Chloride, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	0	0	1	0	3	0	23
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	0.0	ND	0.0	ND	19.0
Mean	0.55	0.18	0.01	0.01	0.02	0.01	3.74
Standard Deviation	ID	ID	ID	ID	0.02	ID	5.22
Median	0.5	0.0	0.0	0.0	0.0	0.0	1.0

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

Groundwater in or adjacent to Cc1							
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient							
Time Interval	Long	Long	Long	Short	Long	Short	Long
Total Xylenes, ug/L							
No. of Analyses	29	21	69	8	81	8	48
No. of Detections	0	0	0	0	1	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	0.5	ND	ND
Mean	0.40	0.29	0.20	0.10	0.20	0.10	0.54
Standard Deviation	ID	ID	ID	ID	ID	ID	ID
Median	0.5	0.2	0.2	0.1	0.2	0.1	0.2
cis-1,2-Dichloroethene, ug/L							
No. of Analyses	17	18	69	8	81	8	35
No. of Detections	0	0	0	0	1	0	14
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	0.8	ND	16.0
Mean	0.26	0.17	0.10	0.10	0.11	0.10	1.24
Standard Deviation	ID	ID	ID	ID	ID	ID	2.74
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.5
trans-1,2-Dichloroethene, ug/L							
No. of Analyses	21	20	69	8	81	8	40
No. of Detections	0	0	0	0	0	0	1
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	0.3
Mean	0.31	0.20	0.10	0.10	0.10	0.10	0.37
Standard Deviation	ID	ID	ID	ID	ID	ID	ID
Median	0.5	0.1	0.1	0.1	0.1	0.1	0.1
1,1 Dichloroethane, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	0	0	0	0	0	0	17
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	1.0
Mean	0.37	0.21	0.10	0.10	0.10	0.10	0.54
Standard Deviation	ID	ID	ID	ID	ID	ID	0.69
Median	0.5	0.1	0.1	0.1	0.1	0.1	0.5
1,2-Dichloropropane, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	ND
Mean	0.37	0.21	0.10	0.10	0.10	0.10	0.39
Standard Deviation	ID	ID	ID	ID	ID	ID	ID
Median	0.50	0.10	0.10	0.10	0.10	0.10	0.10

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

Groundwater in or adjacent to Cc1							
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient							
Time Interval	Long	Long	Long	Short	Long	Short	Long
Trichlorofluoromethane, ug/L							
No. of Analyses	10	15	69	8	81	8	26
No. of Detections	0	7	1	0	1	0	22
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	0.7	0.2	ND	1.0	ND	2.1
Mean	0.10	0.24	0.10	0.10	0.11	0.10	1.24
Standard Deviation	ID	0.20	ID	ID	ID	ID	0.95
Median	0.1	0.1	0.1	0.1	0.1	0.1	1.2
Dichlorodifluoromethane, ug/L							
No. of Analyses	5	14	69	8	76	8	16
No. of Detections	0	0	0	0	1	0	12
Minimum	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	1.5	ND	4.2
Mean	0.10	0.10	0.10	0.10	0.12	0.10	1.79
Standard Deviation	ID	ID	ID	ID	ID	ID	1.44
Median	0.1	0.1	0.1	0.1	0.1	0.1	1.6

NOTES:

ID Insufficient Data. The number of detections is less than 3.
ND Not Detected (at laboratory MDL).
mg/L Milligram per liter.
ug/L Microgram per liter.
Current Reflects the most recent analysis data, up to eight analyses maximum.

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Groundwater in Channel Cc2													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
pH field, Standard Units														
No. of Analyses	56	8	57	8	127	8	120	8	64	8	71	8	72	8
No. of Detections	56	8	57	8	127	8	120	8	64	8	71	8	72	8
Minimum	7.0	7.4	6.6	6.7	6.1	6.7	6.0	6.5	6.7	7.5	6.2	6.4	6.8	7.1
Maximum	8.6	8.2	7.3	7.1	7.8	7.1	8.0	6.9	8.5	7.8	8.0	7.2	8.0	7.4
Mean	7.95	7.82	6.85	6.87	6.87	6.93	6.70	6.69	7.71	7.71	6.89	6.66	7.40	7.27
Standard Deviation	0.32	0.30	0.16	0.12	0.25	0.14	0.29	0.13	0.31	0.12	0.33	0.24	0.21	0.15
Median	8.0	7.9	6.9	6.9	6.9	6.9	6.7	6.7	7.8	7.8	6.8	6.6	7.4	7.3
Specific Conductance field, micr														
No. of Analyses	57	8	57	8	126	8	119	8	64	8	71	8	72	8
No. of Detections	57	8	57	8	126	8	119	8	64	8	71	8	72	8
Minimum	140	150	250	200	230	300	110	170	140	150	130	130	110	140
Maximum	190	175	480	305	1024	350	1760	280	190	190	650	165	195	175
Mean	167.4	166.9	368.2	260.6	463.2	331.3	770.7	240.0	158.7	162.5	172.1	145.0	151.3	155.0
Standard Deviation	10.2	10.7	61.7	32.1	119.8	14.8	385.9	37.8	10.9	15.6	59.2	12.2	16.3	13.1
Median	170	170	370	255	453	333	575	240	160	158	165	145	150	155
Total Dissolved Solids														
No. of Analyses	56	8	52	8	115	8	118	8	63	8	71	8	71	8
No. of Detections	54	8	52	8	115	8	118	8	63	8	71	8	71	8
Minimum	ND	131	189	195	34	225	188	204	71	112	54	114	58	112
Maximum	160	142	307	222	480	246	900	216	150	127	150	127	160	140
Mean	117.4	134.9	242.6	205.8	281.4	237.6	482.4	210.3	115.5	123.0	114.9	123.0	107.9	126.3
Standard Deviation	17.0	3.4	29.7	8.3	64.8	6.4	197.5	4.2	16.3	4.7	17.3	4.0	18.0	8.8
Median	120	135	240	204	275	239	395	209	120	125	120	125	110	126
Alkalinity, mg/L														
No. of Analyses	57	8	52	8	68	8	73	8	63	8	71	8	71	8
No. of Detections	55	8	52	8	68	8	73	8	63	8	71	8	71	8
Minimum	ND	66	156	131	110	172	80	133	54	64	47	52	56	63
Maximum	80	73	290	179	500	198	724	155	84	76	78	57	100	74
Mean	71.64	69.91	213.3	149.9	232.0	189.9	312.4	141.1	71.8	72.7	61.2	54.9	65.7	68.8
Standard Deviation	2.98	2.93	39.7	14.8	54.0	8.7	114.7	7.2	3.9	3.7	5.3	2.3	6.2	3.3
Median	72.0	70.9	210	149	240	192	310	140	72	74	62	56	65	69
Ammonia-N, mg/L														
No. of Analyses	57	8	52	8	126	8	134	8	63	8	71	8	71	8
No. of Detections	25	8	22	5	15	2	110	7	11	0	7	0	10	1
Minimum	ND	0.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	0.1	0.0	0.1	0.0	0.0	0.0	0.4	0.1	0.3	ND	0.4	ND	0.1	0.0
Mean	0.02	0.02	0.02	0.01	0.01	0.01	0.07	0.04	0.02	0.01	0.02	0.01	0.01	0.01
Standard Deviation	0.02	0.00	0.02	0.01	0.01	ID	0.07	0.02	0.03	ID	0.05	ID	0.01	ID
Median	0.02	0.02	0.02	0.01	0.01	0.01	0.05	0.04	0.01	0.01	0.01	0.01	0.01	0.01

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Groundwater in Channel Cc2													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Nitrate-N, mg/L														
No. of Analyses	57	8	52	8	126	8	134	8	63	8	71	8	72	8
No. of Detections	7	6	19	8	52	8	23	2	10	0	70	8	71	8
Minimum	ND	ND	ND	0.1	ND	0.0	ND	ND	ND	ND	ND	3.0	ND	0.2
Maximum	0.1	0.0	0.3	0.3	0.5	0.9	0.3	0.0	0.1	ND	8.1	3.9	1.6	0.2
Mean	0.02	0.02	0.06	0.11	0.08	0.35	0.05	0.01	0.02	0.01	3.96	3.43	0.24	0.21
Standard Deviation	0.02	0.01	0.07	0.06	0.10	0.40	0.06	ID	0.01	ID	1.00	0.24	0.27	0.01
Median	0.02	0.02	0.03	0.09	0.05	0.15	0.03	0.01	0.02	0.01	3.80	3.39	0.15	0.21
Sulfate, mg/L														
No. of Analyses	57	8	52	8	126	8	134	8	63	8	71	8	71	8
No. of Detections	55	8	52	8	126	8	102	8	63	8	71	8	71	8
Minimum	ND	15.9	10.0	15.1	1.5	15.9	ND	8.9	9.0	11.7	7.2	7.7	9.0	13.1
Maximum	18.0	17.8	19.0	18.7	18.8	18.3	81.8	10.0	13.0	13.0	11.0	8.5	18.0	15.1
Mean	15.73	17.19	13.41	17.51	11.84	17.30	5.26	9.50	11.12	12.48	8.73	8.12	12.79	13.71
Standard Deviation	1.15	0.59	2.70	1.08	2.37	0.72	7.38	0.40	0.98	0.39	0.75	0.31	1.39	0.67
Median	16.0	17.4	12.4	17.8	11.9	17.3	5.7	9.6	11.0	12.4	9.0	8.2	13.0	13.5
Chloride, mg/L														
No. of Analyses	57	8	52	8	126	8	134	8	63	8	71	8	71	8
No. of Detections	55	8	52	8	123	8	129	8	63	8	70	8	71	8
Minimum	ND	3.2	2.8	2.6	ND	3.1	ND	2.9	2.8	2.8	ND	4.2	3.0	4.1
Maximum	4.3	3.5	9.0	15.2	8.8	3.6	89.0	3.4	4.0	3.3	5.3	6.2	5.9	23.0
Mean	3.76	3.29	4.35	4.54	4.47	3.34	23.90	3.16	3.12	3.05	4.27	4.91	4.10	6.87
Standard Deviation	0.31	0.11	1.34	4.34	1.52	0.16	25.25	0.16	0.26	0.20	0.42	0.58	0.50	6.52
Median	3.8	3.3	4.0	3.0	4.0	3.3	7.8	3.2	3.0	3.0	4.0	4.8	4.0	4.6
Dissolved Arsenic, mg/L														
No. of Analyses	57	8	52	8	127	8	134	8	63	8	71	8	71	8
No. of Detections	54	8	50	4	77	8	133	8	63	8	1	0	70	8
Minimum	ND	0.0014	ND	ND	ND	0.0005	ND	0.0858	0.0020	0.0027	ND	ND	ND	0.0022
Maximum	0.0050	0.0016	0.0230	0.0011	0.0040	0.0011	0.3200	0.0960	0.0035	0.0031	0.0021	ND	0.0030	0.0024
Mean	0.0018	0.0015	0.0064	0.0008	0.0011	0.0010	0.1035	0.0930	0.0028	0.0029	0.0005	0.0005	0.0024	0.0023
Standard Deviation	0.0006	0.0001	0.0064	0.0003	0.0007	0.0002	0.0640	0.0034	0.0003	0.0001	ID	ID	0.0005	0.0001
Median	0.0017	0.0015	0.0044	0.0008	0.0010	0.0011	0.1100	0.0942	0.0030	0.0029	0.0005	0.0005	0.0024	0.0023
Dissolved Iron, mg/L														
No. of Analyses	57	8	52	8	127	8	133	8	63	8	71	8	71	8
No. of Detections	44	0	52	8	106	1	133	8	53	1	52	0	50	0
Minimum	ND	ND	0.4	0.1	ND	ND	1.5	7.9	ND	ND	ND	ND	ND	ND
Maximum	0.51	ND	5.20	0.46	0.89	0.01	59.00	9.12	0.23	0.01	0.17	ND	0.29	ND
Mean	0.07	0.01	1.90	0.27	0.08	0.01	21.76	8.40	0.05	0.01	0.04	0.01	0.04	0.01
Standard Deviation	0.08	ID	1.28	0.12	0.11	ID	12.02	0.46	0.05	ID	0.04	ID	0.06	ID
Median	0.05	0.01	1.60	0.22	0.05	0.01	19.00	8.39	0.04	0.01	0.03	0.01	0.03	0.01

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Groundwater in Channel Cc2													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Dissolved Manganese, mg/L														
No. of Analyses	57	8	51	8	127	8	133	8	63	8	71	8	71	8
No. of Detections	55	8	51	8	126	8	132	8	63	8	5	0	8	0
Minimum	ND	0.138	0.284	0.169	ND	0.081	ND	0.514	0.012	0.041	ND	ND	ND	ND
Maximum	0.317	0.337	1.600	0.378	0.590	0.132	11.500	0.660	0.061	0.059	0.003	ND	0.540	ND
Mean	0.17	0.273	0.63	0.28	0.13	0.11	2.60	0.57	0.05	0.05	0.00	0.00	0.01	0.00
Standard Deviation	0.07	0.065	0.34	0.08	0.08	0.02	2.66	0.04	0.01	0.01	0.00	ID	0.06	ID
Median	0.180	0.272	0.523	0.290	0.110	0.110	1.650	0.565	0.051	0.049	0.001	0.001	0.001	0.001
Dissolved Calcium, mg/L														
No. of Analyses	57	8	52	8	101	8	105	8	63	8	71	8	71	8
No. of Detections	55	8	52	8	101	8	105	8	63	8	71	8	71	8
Minimum	ND	11.2	18.0	19.2	4.3	23.2	19.6	19.1	9.1	10.9	9.7	10.3	5.1	11.1
Maximum	18.0	13.6	40.0	24.8	47.9	25.1	149.0	25.1	18.0	14.4	15.9	12.0	15.0	13.3
Mean	12.04	12.49	27.97	21.16	33.85	24.18	68.64	21.30	12.35	12.53	12.17	11.05	11.45	12.13
Standard Deviation	1.73	0.75	5.77	1.75	9.31	0.68	34.90	1.91	1.50	1.28	1.25	0.49	1.54	0.85
Median	12.0	12.4	27.5	20.7	34.0	24.2	56.0	21.0	12.0	12.2	12.0	11.0	11.9	12.0
Dissolved Magnesium, mg/L														
No. of Analyses	57	8	52	8	101	8	105	8	63	8	71	8	71	8
No. of Detections	55	8	52	8	101	8	105	8	63	8	71	8	71	8
Minimum	ND	9.9	17.0	18.3	3.9	25.4	13.8	14.4	6.8	7.6	7.1	8.2	6.6	8.7
Maximum	13.0	11.7	43.2	25.3	53.9	30.6	102.0	17.8	12.0	10.3	11.9	9.6	13.0	11.2
Mean	9.72	10.45	28.32	21.70	37.87	28.58	51.24	15.70	8.53	9.29	9.35	8.90	8.99	10.01
Standard Deviation	1.18	0.57	7.64	2.60	10.49	1.58	27.35	1.16	0.86	0.85	0.82	0.53	1.05	0.93
Median	9.5	10.3	26.0	21.0	37.0	28.6	38.0	15.3	8.4	9.3	9.4	8.8	8.9	10.1
Dissolved Sodium, mg/L														
No. of Analyses	57	8	52	8	101	8	106	8	63	8	71	8	71	8
No. of Detections	55	8	52	8	101	8	106	8	63	8	71	8	71	8
Minimum	ND	5.4	8.9	9.0	2.2	8.3	11.5	11.5	4.9	4.9	4.5	5.6	4.5	4.9
Maximum	8.0	6.5	13.0	10.4	14.0	9.8	27.1	14.7	7.3	6.6	7.3	6.5	6.2	5.9
Mean	6.23	5.81	10.40	9.61	10.68	9.21	17.09	13.16	5.63	5.94	6.12	5.96	5.17	5.39
Standard Deviation	0.87	0.34	0.97	0.47	1.78	0.48	3.71	1.18	0.46	0.55	0.50	0.33	0.39	0.37
Median	6.2	5.8	10.0	9.4	10.7	9.1	16.0	13.5	5.6	5.93	6.2	5.8	5.2	5.3
Dissolved Potasium, mg/L														
No. of Analyses	57	8	52	8	101	8	106	8	63	8	71	8	71	8
No. of Detections	56	8	52	8	101	8	106	8	63	8	71	8	71	8
Minimum	ND	2.1	1.8	2.1	0.6	2.2	2.3	2.1	2.0	2.4	0.9	1.0	1.2	2.0
Maximum	2.9	2.4	3.3	2.5	3.7	2.8	5.3	2.4	3.4	2.8	1.5	1.2	2.3	2.2
Mean	2.04	2.21	2.47	2.30	2.57	2.39	3.57	2.26	2.42	2.53	1.09	1.10	1.87	2.05
Standard Deviation	0.24	0.10	0.37	0.12	0.42	0.20	0.89	0.08	0.23	0.11	0.12	0.05	0.18	0.06
Median	2.0	2.2	2.4	2.3	2.5	2.3	3.5	2.3	2.4	2.53	1.1	1.1	1.9	2.1

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Groundwater in Channel Cc2													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Benzene, ug/L														
No. of Analyses	57	8	52	8	138	8	135	8	63	8	71	7	72	8
No. of Detections	0	0	3	0	0	0	105	8	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	0.3	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	0.3	ND	ND	ND	5.0	0.5	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.11	ND	0.20	0.10	1.18	0.45	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	0.03	ID	ID	ID	1.19	0.10	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	ND	0.1	0.1	0.69	0.49	0.1	0.1	0.1	0.1	0.1	0.1
Chloroethane, ug/L														
No. of Analyses	57	8	52	8	138	8	135	8	63	8	71	7	72	8
No. of Detections	0	0	0	0	27	0	9	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	1.2	ND	0.9	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.74	0.10	0.52	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	0.91	ID	0.79	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Toluene, ug/L														
No. of Analyses	57	8	52	8	138	8	135	8	63	8	71	7	72	8
No. of Detections	1	0	0	0	2	0	49	0	0	0	1	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	0.2	ND	ND	ND	0.3	ND	2.9	ND	ND	ND	0.3	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.54	0.10	0.83	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	0.91	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Trichloroethene, ug/L														
No. of Analyses	57	8	52	8	138	8	135	8	63	8	71	7	72	8
No. of Detections	0	0	0	0	0	0	35	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.20	0.10	0.39	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	0.45	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Vinyl Chloride, ug/L														
No. of Analyses	57	8	52	8	138	8	135	8	63	8	71	7	72	8
No. of Detections	0	0	52	8	126	8	119	8	1	0	0	0	0	0
Minimum	ND	ND	0.1	0.1	ND	0.1	ND	2.9	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	1.0	0.2	40.0	0.1	38.0	4.8	0.0	ND	ND	ND	ND	ND
Mean	0.01	0.01	0.44	0.13	7.35	0.09	14.25	3.57	0.01	0.01	0.01	0.01	0.01	0.01
Standard Deviation	ID	ID	0.18	0.03	8.55	0.03	8.90	0.78	ID	ID	ID	ID	ID	ID
Median	0.0	0.0	0.45	0.124	2.6	0.088	13.8	3.2	0.0	0.0	0.0	0.0	0.0	0.0

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Groundwater in Channel Cc2													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Total Xylenes, ug/L														
No. of Analyses	57	8	52	8	138	8	135	8	63	8	71	7	72	8
No. of Detections	0	0	0	0	0	0	19	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND
Mean	0.20	0.10	0.20	0.10	0.28	0.10	0.46	0.10	0.20	0.10	0.20	0.10	0.20	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	0.50	ID	ID	ID	ID	ID	ID	ID
Median	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1
cis-1,2-Dichloroethene, ug/L														
No. of Analyses	57	8	52	8	111	8	118	8	63	8	71	7	72	8
No. of Detections	0	0	51	8	31	1	112	8	0	0	0	0	0	0
Minimum	ND	ND	ND	0.6	ND	ND	ND	6.6	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	8.7	1.2	0.6	0.2	22.0	9.4	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	2.66	0.99	0.18	0.11	10.61	8.04	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	2.38	0.20	0.13	ID	3.88	1.01	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	1.8	1.024	0.1	0.1	10.3	7.915	0.1	0.1	0.1	0.1	0.1	0.1
trans-1,2-Dichloroethene, ug/L														
No. of Analyses	57	8	52	8	114	8	121	8	63	8	71	7	72	8
No. of Detections	0	0	9	0	0	0	93	8	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	0.4	ND	ND	ND	0.9	0.4	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.14	0.10	0.14	0.10	0.41	0.30	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	0.09	ID	ID	ID	0.19	0.05	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.315	0.1	0.1	0.1	0.1	0.1	0.1
1,1 Dichloroethane, ug/L														
No. of Analyses	57	8	52	8	138	8	135	8	63	8	71	7	72	8
No. of Detections	0	0	0	0	8	0	78	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	0.3	ND	1.2	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.21	0.10	0.46	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	0.17	ID	0.32	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.100	0.5	0.100	0.1	0.1	0.1	0.1	0.1	0.1
1,2-Dichloropropane, ug/L														
No. of Analyses	57	8	52	8	138	8	135	8	63	8	71	7	72	8
No. of Detections	0	0	0	0	0	0	70	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	2.8	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.20	0.10	0.56	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	0.56	ID	ID	ID	ID	ID	ID	ID
Median	0.10	0.10	0.10	0.10	0.10	0.10	0.50	0.10	0.10	0.10	0.10	0.10	0.10	0.10

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Groundwater in Channel Cc2													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Trichlorofluoromethane, ug/L														
No. of Analyses	57	8	52	8	101	8	106	8	63	8	71	7	72	8
No. of Detections	0	0	49	8	97	8	21	0	0	0	20	0	0	0
Minimum	ND	ND	ND	0.6	ND	1.7	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	9.0	1.3	23.0	3.2	1.5	ND	ND	ND	0.6	ND	ND	ND
Mean	0.10	0.10	2.89	0.81	7.65	2.32	0.22	0.10	0.10	0.10	0.17	0.10	0.10	0.10
Standard Deviation	ID	ID	2.46	0.23	5.56	0.58	0.27	ID	ID	ID	0.12	ID	ID	ID
Median	0.1	0.1	2.1	0.72	5.3	2.26	0.1	0.100	0.1	0.1	0.1	0.1	0.1	0.1
Dichlorodifluoromethane, ug/L														
No. of Analyses	57	8	51	8	67	8	72	8	63	8	71	7	72	8
No. of Detections	1	0	50	8	65	8	72	8	0	0	11	0	0	0
Minimum	ND	ND	ND	1.5	ND	3.6	0.6	1.1	ND	ND	ND	ND	ND	ND
Maximum	0.2	ND	20.0	4.3	45.0	12.2	10.0	2.4	ND	ND	0.6	ND	ND	ND
Mean	0.10	0.10	6.24	2.57	12.73	6.75	3.85	1.53	0.10	0.10	0.15	0.10	0.10	0.10
Standard Deviation	ID	ID	3.89	0.97	7.61	2.74	2.06	0.44	ID	ID	0.12	ID	ID	ID
Median	0.1	0.1	5.8	2.3	11.0	6.0	3.7	1.4	0.1	0.1	0.1	0.1	0.1	0.1

NOTES:

ID	Insufficient Data. The number of detections is less than 3.
ND	Not Detected (at laboratory MDL).
mg/L	Milligram per liter.
ug/L	Microgram per liter.
Current	Reflects the most recent analysis data, up to eight analyses maximum.

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Regional Aquifer / Channel Cc3												
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient			a										
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
pH field, Standard Units													
No. of Analyses	71	8	25	71	8	72	8	41	8	42	8	42	8
No. of Detections	71	8	25	71	8	72	8	41	8	42	8	42	8
Minimum	6.8	7.2	6.9	6.8	7.1	6.8	7.3	7.9	7.4	6.5	6.5	7.3	7.2
Maximum	8.4	7.9	8.4	8.4	7.6	8.5	7.8	8.6	8.2	7.2	7.1	7.8	7.7
Mean	7.72	7.63	7.52	7.52	7.30	7.68	7.57	8.18	7.94	6.86	6.79	7.58	7.41
Standard Deviation	0.30	0.26	0.36	0.26	0.21	0.25	0.18	0.17	0.27	0.14	0.24	0.13	0.17
Median	7.8	7.7	7.6	7.5	7.2	7.7	7.6	8.2	8.1	6.9	6.8	7.6	7.4
Specific Conductance field, micr													
No. of Analyses	71	8	25	70	8	72	8	41	8	42	8	42	8
No. of Detections	71	8	25	70	8	72	8	41	8	42	8	42	8
Minimum	100	140	153	115	130	100	140	150	150	145	140	165	180
Maximum	190	165	220	185	145	230	210	195	200	190	170	245	265
Mean	157.3	150.6	179.4	137.6	135.6	191.0	189.4	168.0	165.0	171.5	160.0	208.9	211.3
Standard Deviation	12.4	11.8	13.9	10.8	6.2	23.3	21.9	8.1	16.7	11.2	11.0	16.3	27.4
Median	160	148	180	135	135	192	190	170	160	170	163	210	210
Total Dissolved Solids													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	71	8	38	8	38	8	38	8
Minimum	63	123	36	53	104	80	141	90	128	57	119	90	151
Maximum	160	137	130	150	124	170	163	450	147	140	146	170	165
Mean	111.3	129.4	113.1	97.8	114.0	128.8	154.8	131.8	138.6	115.4	133.8	139.3	159.1
Standard Deviation	15.2	5.1	18.8	15.6	6.2	20.2	7.6	54.0	6.0	17.3	8.6	14.9	5.3
Median	110	129	120	99	113	130	158	127	139	120	134	140	161
Alkalinity, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	71	8	38	8	38	8	38	8
Minimum	58	68	74	30	56	64	86	69	68	57	58	88	96
Maximum	100	78	100	66	62	110	100	86	78	78	70	140	106
Mean	73.2	72.9	81.9	56.9	59.2	82.3	93.5	74.1	75.0	67.8	64.0	97.7	102.0
Standard Deviation	5.4	3.2	5.2	4.6	1.7	13.4	4.3	3.5	3.2	3.9	4.6	8.6	3.0
Median	73	74	83	58	59	80	94	74	76	68	63	97	103
Ammonia-N, mg/L													
No. of Analyses	70	8	24	70	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	20	5	2	56	8	38	8	6	1	3	0
Minimum	0.1	0.2	ND	ND	ND	ND	0.0	0.2	0.0	ND	ND	ND	ND
Maximum	0.3	0.3	0.1	0.1	0.0	0.2	0.1	0.3	0.3	0.5	0.0	0.0	ND
Mean	0.19	0.26	0.03	0.01	0.01	0.05	0.03	0.22	0.20	0.03	0.01	0.01	0.01
Standard Deviation	0.05	0.03	0.03	0.01	ID	0.04	0.01	0.03	0.08	0.07	ID	0.01	ID
Median	0.18	0.26	0.02	0.01	0.01	0.04	0.04	0.22	0.23	0.02	0.01	0.01	0.01

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

Regional Aquifer / Channel Cc3													
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient			a										
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Nitrate-N, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	28	5	6	71	8	27	8	12	8	37	8	1	0
Minimum	ND	ND	ND	0.6	0.7	ND	0.0	ND	0.0	ND	1.8	ND	ND
Maximum	0.3	0.127	0.0	1.9	0.8	0.8	0.0	0.1	0.2	6.5	3.1	0.1	ND
Mean	0.02	0.033	0.01	0.74	0.74	0.03	0.02	0.03	0.06	3.10	2.30	0.02	0.01
Standard Deviation	0.04	0.05	0.00	0.16	0.03	0.10	0.02	0.01	0.07	1.32	0.42	ID	ID
Median	0.02	0.01	0.01	0.74	0.73	0.01	0.01	0.03	0.03	3.06	2.18	0.03	0.01
Sulfate, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	71	8	38	8	38	8	38	8
Minimum	8.7	10.0	13.0	9.0	10.6	12.0	16.2	11.0	11.9	7.8	8.7	15.0	16.1
Maximum	14.0	11.4	17.0	12.0	11.1	24.0	18.0	14.0	13.3	11.0	10.5	18.0	17.2
Mean	10.36	10.59	14.58	10.06	10.78	19.43	17.23	12.93	12.95	9.38	9.59	16.54	16.63
Standard Deviation	0.68	0.42	0.93	0.48	0.15	2.02	0.62	0.62	0.44	0.95	0.69	0.94	0.35
Median	10.0	10.5	14.5	10.0	10.8	19.0	17.5	13.0	13.1	9.2	9.5	16.7	16.6
Chloride, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	71	8	38	8	38	8	38	8
Minimum	2.7	2.9	3.0	2.6	2.9	3.7	4.6	3.0	3.5	4.0	4.8	3.5	3.4
Maximum	5.0	3.9	6.0	5.0	3.9	6.7	37.6	7.0	4.1	5.6	6.1	5.6	4.1
Mean	3.15	3.31	3.63	3.06	3.19	5.23	9.28	4.05	3.74	4.72	5.34	3.99	3.73
Standard Deviation	0.34	0.35	0.69	0.39	0.32	0.62	11.47	0.99	0.23	0.46	0.38	0.33	0.23
Median	3.0	3.2	3.8	3.0	3.1	5.0	4.9	3.9	3.7	4.9	5.3	4.0	3.7
Dissolved Arsenic, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	71	8	38	8	2	0	38	8
Minimum	0.0021	0.0050	0.0030	0.0017	0.0020	0.0015	0.0013	0.0020	0.0030	ND	ND	0.0039	0.0041
Maximum	0.0220	0.0062	0.0070	0.0056	0.0021	0.0270	0.0015	0.0034	0.0033	0.0013	ND	0.0080	0.0053
Mean	0.0076	0.0057	0.0050	0.0021	0.0021	0.0045	0.0014	0.0028	0.0032	0.0005	0.0005	0.0049	0.0044
Standard Deviation	0.0034	0.0003	0.0011	0.0005	0.0001	0.0041	0.0001	0.0005	0.0001	ID	ID	0.0007	0.0004
Median	0.0070	0.0057	0.0050	0.0020	0.0021	0.0030	0.0014	0.0030	0.0032	0.0005	0.0005	0.0047	0.0043
Dissolved Iron, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	56	1	24	51	0	70	8	38	8	26	1	38	8
Minimum	ND	ND	0.1	ND	ND	ND	0.0	0.0	0.1	ND	ND	0.290	0.670
Maximum	0.22	0.01	4.00	0.42	ND	0.19	0.14	0.23	0.14	0.30	0.01	0.88	0.98
Mean	0.05	0.01	0.35	0.04	0.01	0.06	0.04	0.10	0.10	0.04	0.01	0.64	0.76
Standard Deviation	0.04	ID	0.78	0.07	ID	0.04	0.04	0.04	0.03	0.05	ID	0.13	0.09
Median	0.05	0.01	0.20	0.03	0.01	0.06	0.03	0.10	0.09	0.04	0.01	0.69	0.74

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Regional Aquifer / Channel Cc3												
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient			a										
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Dissolved Manganese, mg/L													
No. of Analyses	70	8	24	71	8	70	8	38	8	38	8	38	8
No. of Detections	68	8	24	2	0	69	8	38	8	1	0	38	8
Minimum	ND	0.117	0.077	ND	ND	ND	0.465	0.042	0.052	ND	ND	0.068	0.081
Maximum	0.190	0.167	0.130	0.140	ND	1.350	0.599	0.080	0.085	0.002	ND	0.110	0.123
Mean	0.13	0.14	0.10	0.00	0.00	0.42	0.50	0.06	0.06	0.00	0.00	0.093	0.094
Standard Deviation	0.03	0.02	0.01	ID	ID	0.22	0.04	0.01	0.01	ID	ID	0.007	0.014
Median	0.140	0.145	0.094	0.001	0.001	0.440	0.501	0.065	0.058	0.001	0.001	0.093	0.089
Dissolved Calcium, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	71	8	38	8	38	8	38	8
Minimum	9.2	12.4	12.0	7.7	9.4	9.2	14.2	11.2	14.5	11.0	10.8	13.6	17.2
Maximum	18.0	14.5	18.0	13.0	11.9	19.6	16.8	18.3	18.3	17.0	12.9	23.0	20.0
Mean	12.85	13.34	15.79	9.64	10.45	13.89	15.25	15.64	15.63	12.77	12.05	18.25	18.73
Standard Deviation	1.60	0.73	1.53	1.10	0.80	2.15	0.85	1.28	1.15	1.25	0.69	1.45	0.93
Median	13.0	13.2	16.0	9.5	10.2	14.0	15.1	15.9	15.5	12.8	12.1	18.0	18.9
Dissolved Magnesium, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	71	8	38	8	38	8	38	8
Minimum	6.3	7.6	8.4	6.2	7.8	8.4	12.5	5.4	6.2	8.8	9.3	10.0	12.8
Maximum	11.0	9.0	11.0	9.5	9.3	17.1	15.6	7.9	7.3	13.0	11.3	15.0	14.8
Mean	8.00	8.49	9.92	7.52	8.69	12.40	14.28	6.50	6.70	10.33	10.29	12.51	13.80
Standard Deviation	0.74	0.55	0.62	0.71	0.48	2.02	1.09	0.58	0.35	0.97	0.65	1.27	0.63
Median	8.0	8.6	9.9	7.5	8.7	12.0	14.4	6.5	6.7	10.0	10.2	12.1	13.8
Dissolved Sodium, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	71	8	38	8	38	8	38	8
Minimum	4.8	5.3	4.9	4.3	4.9	4.8	6.1	6.5	8.2	5.3	5.7	5.2	5.8
Maximum	7.5	6.1	7.0	10.0	5.9	7.5	7.3	9.2	9.4	7.4	6.6	7.3	6.7
Mean	5.90	5.83	5.90	5.40	5.37	6.24	6.60	7.94	8.78	6.14	6.11	6.00	6.25
Standard Deviation	0.59	0.32	0.52	1.03	0.31	0.58	0.44	0.75	0.48	0.54	0.30	0.52	0.29
Median	5.9	5.9	5.9	5.2	5.4	6.2	6.6	7.9	8.8	6.1	6.1	5.9	6.2
Dissolved Potasium, mg/L													
No. of Analyses	70	8	24	71	8	71	8	38	8	38	8	38	8
No. of Detections	70	8	24	71	8	70	8	38	8	38	8	38	8
Minimum	1.6	2.4	1.7	1.4	1.6	ND	2.4	2.1	2.9	1.0	1.2	1.6	2.0
Maximum	3.6	3.0	2.6	2.3	1.9	3.3	2.5	3.3	3.2	1.5	1.5	2.5	2.2
Mean	2.51	2.63	2.08	1.71	1.77	2.40	2.48	2.80	3.03	1.26	1.33	2.00	2.16
Standard Deviation	0.29	0.19	0.21	0.19	0.09	0.27	0.05	0.24	0.11	0.11	0.09	0.19	0.08
Median	2.5	2.6	2.1	1.7	1.8	2.4	2.5	2.8	3.0	1.3	1.4	2.0	2.2

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Regional Aquifer / Channel Cc3												
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient			a										
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Benzene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chloroethane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Toluene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	1	0	0	1	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	0.2	ND	ND	0.9	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Trichloroethene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	1	0	1	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	0.4	ND	0.3	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Vinyl Chloride, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mean	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Regional Aquifer / Channel Cc3												
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient			a										
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Total Xylenes, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mean	0.20	0.10	0.20	0.20	0.10	0.20	0.10	0.20	0.10	0.20	0.10	0.20	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1
cis-1,2-Dichloroethene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	1	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
trans-1,2-Dichloroethene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	1	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
1,1 Dichloroethane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	1	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
1,2-Dichloropropane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	1	0	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

Table 3-1
Vashon Island Landfill
Summary of Statistical Analyses for Groundwater Well Samples
May 1987 through December 2014

	Regional Aquifer / Channel Cc3												
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient			a										
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Trichlorofluoromethane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	1	0	0	1	0	0	0	1	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	0.7	ND	ND	0.2	ND	ND	ND	0.2	ND	ND	ND
Mean	0.10	0.10	0.12	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Dichlorodifluoromethane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	38	8	38	8	38	8
No. of Detections	0	0	0	0	0	1	0	0	0	2	0	0	0
Minimum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	0.2	ND	ND	ND	0.3	ND	ND	ND
Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.10	0.10	0.10
Standard Deviation	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID	ID
Median	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

NOTES:

ID	Insufficient Data. The number of detections is less than 3.
ND	Not Detected (at laboratory MDL).
mg/L	Milligram per liter.
ug/L	Microgram per liter.
Current	Reflects the most recent analysis data, up to eight analyses maximum.
a	(Decommisioned 2003)

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

	Groundwater in or Adjacent to Cc1						
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient Location							
Time Interval	Long	Long	Long	Short	Long	Short	Long
pH field, Standard Units							
No. of Analyses	17	22	70	8	77	8	36
No. of Detections	17	22	70	8	77	8	36
Trend	--	--	--	D	D	--	--
S - value	12.0	-51.0	-179.0	-18.0	-316.0	-4.0	22.0
Probability	0.650	0.159	0.137	0.032	0.008	0.720	0.775
Significant	NO	NO	NO	YES	YES	NO	NO
Specific Conductance field, micromhos/cm							
No. of Analyses	18	22	70	8	76	8	36
No. of Detections	18	22	70	8	76	8	36
Trend	I	D	I	D	I	--	--
S - value	76.0	-113.0	257.0	-26.0	553.0	-14.0	-85.0
Probability	0.004	0.002	0.032	0.000	0.000	0.108	0.253
Significant	YES	YES	YES	YES	YES	NO	NO
Total Dissolved Solids							
No. of Analyses	19	16	68	8	80	8	33
No. of Detections	19	16	68	8	80	8	33
Trend	--	D	--	--	I	--	D
S - value	3.0	-45.0	197.0	6.0	419.0	-13.0	-269.0
Probability	0.944	0.048	0.101	0.548	0.000	0.143	0.000
Significant	NO	YES	NO	NO	YES	NO	YES
Alkalinity, mg/L							
No. of Analyses	5	14	69	8	76	8	15
No. of Detections	5	14	69	8	76	8	15
Trend	--	--	--	--	I	D	D
S - value	-1.0	-27.0	150.0	-16.0	905.0	-17.0	-63.0
Probability	1.000	0.155	0.213	0.062	0.000	0.047	0.002
Significant	NO	NO	NO	NO	YES	YES	YES
Ammonia-N, mg/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	4	9	9	1	11	0	19
Trend	--	D	--	--	--	--	--
S - value	-30.0	-71.0	60.0	7.0	-77.0	0.0	-133.0
Probability	0.605	0.035	0.622	--	0.525	--	0.241
Significant	NO	YES	NO	--	NO	--	NO
Nitrate-N, mg/L							
No. of Analyses	29	21	69	8	81	8	48
No. of Detections	21	21	69	8	79	8	23
Trend	--	--	--	--	--	--	I
S - value	-8.0	54.0	-170.0	-1.0	100.0	-9.0	376.0
Probability	0.896	0.110	0.157	1.000	0.408	0.337	0.001
Significant	NO	NO	NO	NO	NO	NO	YES
Sulfate, mg/L							
No. of Analyses	29	21	69	8	80	8	48
No. of Detections	29	21	69	8	80	8	48
Trend	--	D	--	--	D	--	I
S - value	-57.0	-78.0	-95.0	-2.0	-385.0	-9.0	416.0
Probability	0.294	0.020	0.432	0.904	0.001	0.337	0.000
Significant	NO	YES	NO	NO	YES	NO	YES

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

	Groundwater in or Adjacent to Cc1						
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient Location							
Time Interval	Long	Long	Long	Short	Long	Short	Long
Chloride, mg/L							
No. of Analyses	29	21	69	8	81	8	48
No. of Detections	29	21	68	8	81	8	46
Trend	--	D	I	--	D	--	--
S - value	95.0	-69.0	374.0	4.0	-288.0	-2.0	102.0
Probability	0.078	0.040	0.002	0.720	0.016	0.904	0.369
Significant	NO	YES	YES	NO	YES	NO	NO
Dissolved Iron, mg/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	14	18	54	1	55	2	40
Trend	--	--	--	--	--	--	--
S - value	-96.0	-62.0	-77.0	1.0	2.0	9.0	176.0
Probability	0.090	0.065	0.525	--	0.993	--	0.120
Significant	NO	NO	NO	--	NO	--	NO
Dissolved Manganese, mg/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	6	17	7	1	48	4	42
Trend	D	D	--	--	D	--	I
S - value	-134.0	-104.0	123.0	1.0	-258.0	0.0	306.0
Probability	0.018	0.002	0.307	--	0.032	1.000	0.007
Significant	YES	YES	NO	--	YES	NO	YES
Dissolved Calcium, mg/L							
No. of Analyses	10	15	69	8	81	8	25
No. of Detections	10	15	69	8	81	8	25
Trend	I	--	--	--	I	--	D
S - value	25.0	-13.0	92.0	4.0	521.0	-7.0	-191.0
Probability	0.032	0.553	0.447	0.720	0.000	0.473	0.000
Significant	YES	NO	NO	NO	YES	NO	YES
Dissolved Magnesium, mg/L							
No. of Analyses	10	15	69	8	81	8	25
No. of Detections	10	15	69	8	81	8	25
Trend	I	--	I	--	I	--	D
S - value	28.0	-5.0	245.0	0.0	532.0	10.0	-170.0
Probability	0.016	0.843	0.041	1.000	0.000	0.276	0.000
Significant	YES	NO	YES	NO	YES	NO	YES
Dissolved Sodium, mg/L							
No. of Analyses	10	15	69	8	81	8	25
No. of Detections	10	15	69	8	81	8	25
Trend	--	--	--	--	--	--	D
S - value	18.0	-8.0	-55.0	2.0	165.0	-1.0	-181.0
Probability	0.128	0.729	0.651	0.904	0.170	1.000	0.000
Significant	NO	NO	NO	NO	NO	NO	YES
Dissolved Potassium, mg/L							
No. of Analyses	10	15	69	8	81	8	25
No. of Detections	10	15	69	8	81	8	25
Trend	--	D	--	--	--	--	D
S - value	20.0	-50.0	160.0	10.0	207.0	7.0	-194.0
Probability	0.089	0.015	0.184	0.276	0.085	0.473	0.000
Significant	NO	YES	NO	NO	NO	NO	YES

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

	Groundwater in or Adjacent to Cc1						
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient Location							
Time Interval	Long	Long	Long	Short	Long	Short	Long
Benzene, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	1	0	1	0	1	0	0
Trend	--	--	--	--	--	--	--
S - value	-203.0	-72.0	0.0	0.0	0.0	0.0	-533.0
Probability	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--
Vinyl chloride, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	0	0	1	0	2	0	23
Trend	--	--	--	--	--	--	D
S - value	-134.0	-78.0	0.0	0.0	30.0	0.0	-386.0
Probability	--	--	--	--	--	--	0.001
Significant	--	--	--	--	--	--	YES
cis 1,2-Dichloroethene, ug/L							
No. of Analyses	17	18	69	8	81	8	35
No. of Detections	0	0	0	0	1	0	14
Trend	--	--	--	--	--	--	I
S - value	-70.0	-27.0	0.0	0.0	0.0	0.0	167.0
Probability	--	--	--	--	--	--	0.018
Significant	--	--	--	--	--	--	YES
trans 1,2-Dichloroethene, ug/L							
No. of Analyses	21	20	69	8	81	8	40
No. of Detections	0	0	0	0	0	0	1
Trend	--	--	--	--	--	--	--
S - value	-77.0	-65.0	0.0	0.0	0.0	0.0	-319.0
Probability	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--
1,1-Dichloroethane, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	0	0	0	0	0	0	17
Trend	--	--	--	--	--	--	D
S - value	-200.0	-72.0	0.0	0.0	0.0	0.0	-270.0
Probability	--	--	--	--	--	--	0.017
Significant	--	--	--	--	--	--	YES
1,2-Dichloropropane, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--
S - value	-200.0	-72.0	0.0	0.0	0.0	0.0	-533.0
Probability	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

	Groundwater in or Adjacent to Cc1						
Well Location	MW-1	MW-3	MW-10		MW-13		MW-4
Gradient Location							
Time Interval	Long	Long	Long	Short	Long	Short	Long
Chloroethane, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	0	0	0	0	0	0	6
Trend	--	--	--	--	--	--	D
S - value	-77.0	-61.0	0.0	0.0	0.0	0.0	-461.0
Probability	--	--	--	--	--	--	0.000
Significant	--	--	--	--	--	--	YES
Toluene, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	2	0	1	0	1	0	0
Trend	--	--	--	--	--	--	--
S - value	-88.0	-67.0	0.0	0.0	0.0	0.0	-421.0
Probability	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--
Trichloroethene, ug/L							
No. of Analyses	30	21	69	8	81	8	48
No. of Detections	1	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--
S - value	-215.0	-72.0	0.0	0.0	0.0	0.0	-533.0
Probability	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--
Total Xylenes, ug/L							
No. of Analyses	29	21	69	8	81	8	48
No. of Detections	0	0	0	0	1	0	0
Trend	--	--	--	--	--	--	--
S - value	-190.0	-72.0	-140.0	0.0	-183.0	0.0	-533.0
Probability	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--
Trichlorofluoromethane, ug/L							
No. of Analyses	10	15	69	8	81	8	26
No. of Detections	0	7	1	0	1	0	22
Trend	--	--	--	--	--	--	--
S - value	0.0	-1.0	0.0	0.0	0.0	0.0	-50.0
Probability	--	1.000	--	--	--	--	0.280
Significant	--	NO	--	--	--	--	NO
Dichlorodifluoromethane, ug/L							
No. of Analyses	5	14	69	8	76	8	16
No. of Detections	0	0	0	0	1	0	12
Trend	--	--	--	--	--	--	D
S - value	0.0	0.0	0.0	0.0	0.0	0.0	-61.0
Probability	--	--	--	--	--	--	0.007
Significant	--	--	--	--	--	--	YES

NOTES
Long Period of record excluding the last 8 sampling quarters.
The maximum No. of Analyses considered for the statistics are 40.
Short Results fron the most recent sampling quarters

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

	Groundwater in Cc2 and between Cc2 and Cc3													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient Location	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
pH field, Standard Units														
No. of Analyses	56	8	57	8	127	8	120	8	64	8	71	8	72	8
No. of Detections	56	8	57	8	127	8	120	8	64	8	71	8	72	8
Trend	--	--	--	--	D	--	D	--	I	--	D	--	D	--
S - value	116.0	-2.0	-161.0	10.0	-474.0	-4.0	-235.0	-8.0	245.0	0.0	-505.0	1.0	-418.0	-2.0
Probability	0.336	0.904	0.181	0.276	0.000	0.720	0.044	0.398	0.041	1.000	0.000	1.000	0.000	0.904
Significant	NO	NO	NO	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Specific Conductance field, micromhos/cm														
No. of Analyses	57	8	57	8	126	8	119	8	64	8	71	8	72	8
No. of Detections	57	8	57	8	126	8	119	8	64	8	71	8	72	8
Trend	I	--	I	--	I	D	D	--	--	--	--	--	I	--
S - value	257.0	-13.0	306.0	13.0	401.0	-20.0	-529.0	-4.0	177.0	-5.0	-160.0	1.0	425.0	-6.0
Probability	0.032	0.143	0.011	1.E-01	0.001	1.E-02	0.000	0.720	0.141	0.634	0.184	1.000	0.000	0.548
Significant	YES	NO	YES	NO	YES	YES	YES	NO	NO	NO	NO	NO	YES	NO
Total Dissolved Solids														
No. of Analyses	56	8	56	8	119	8	118	8	63	8	71	8	67	8
No. of Detections	56	8	56	8	119	8	118	8	63	8	71	8	67	8
Trend	--	--	I	--	I	--	D	--	I	--	--	--	--	--
S - value	221.0	-15.0	312.0	10.0	621.0	-1.0	-699.0	-1.0	247.0	-5.0	56.0	-11.0	169.0	1.0
Probability	0.066	0.085	0.009	0.276	0.000	1.000	0.000	1.000	0.040	0.634	0.645	0.227	0.160	1.000
Significant	NO	NO	YES	NO	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO
Alkalinity, mg/L														
No. of Analyses	57	8	56	8	72	8	73	8	63	8	71	8	67	8
No. of Detections	57	8	56	8	72	8	73	8	63	8	71	8	67	8
Trend	--	--	I	D	I	--	D	--	--	--	D	--	I	--
S - value	167.0	-10.0	436.0	-28.0	478.0	-8.0	-797.0	-7.0	-45.0	3.0	-562.0	6.0	339.0	-2.0
Probability	0.165	0.276	0.000	0.000	0.000	0.398	0.000	0.473	0.713	0.812	0.000	0.548	0.005	0.904
Significant	NO	NO	YES	YES	YES	NO	YES	NO	NO	NO	YES	NO	YES	NO
Ammonia-N, mg/L														
No. of Analyses	57	8	56	8	130	8	134	8	63	8	71	8	67	8
No. of Detections	25	8	25	5	15	2	110	7	11	0	7	0	8	1
Trend	--	--	D	--	--	--	--	--	--	--	--	--	--	--
S - value	95.0	4.0	-371.0	-10.0	13.0	9.0	58.0	0.0	198.0	0.0	14.0	0.0	-111.0	3.0
Probability	0.432	0.720	0.002	0.276	0.920	--	0.634	1.000	0.099	--	0.913	--	0.358	--
Significant	NO	NO	YES	NO	NO	--	NO	NO	NO	--	NO	--	NO	--
Nitrate-N, mg/L														
No. of Analyses	57	8	56	8	130	8	134	8	63	8	71	8	68	8
No. of Detections	7	6	23	8	56	8	23	2	10	0	70	8	67	8
Trend	--	--	I	--	I	--	D	--	I	--	I	--	I	--
S - value	-1.0	5.0	499.0	10.0	774.0	16.0	-348.0	-1.0	417.0	0.0	357.0	-16.0	324.0	0.0
Probability	1.000	0.634	0.000	0.276	0.000	0.062	0.004	--	0.001	--	0.003	0.062	0.007	1.000
Significant	NO	NO	YES	NO	YES	NO	YES	--	YES	--	YES	NO	YES	NO
Sulfate, mg/L														
No. of Analyses	57	8	56	8	130	8	134	8	63	8	71	8	67	8
No. of Detections	57	8	56	8	130	8	102	8	63	8	71	8	67	8
Trend	I	--	--	--	I	--	I	--	I	--	D	--	I	--
S - value	706.0	0.0	119.0	0.0	502.0	0.0	720.0	0.0	607.0	-12.0	-310.0	10.0	520.0	0.0
Probability	0.000	1.000	0.309	1.000	0.000	1.000	0.000	1.000	0.000	0.178	0.010	0.276	0.000	1.000
Significant	YES	NO	NO	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

	Groundwater in Cc2 and between Cc2 and Cc3													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient Location	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Chloride, mg/L														
No. of Analyses	57	8	56	8	130	8	134	8	63	8	71	8	67	8
No. of Detections	57	8	56	8	127	8	129	8	63	8	70	8	67	8
Trend	D	--	D	--	--	--	D	--	I	--	I	--	I	--
S - value	-569.0	3.0	-457.0	9.0	-16.0	10.0	-444.0	1.0	299.0	2.0	442.0	7.0	486.0	2.0
Probability	0.000	0.812	0.000	0.337	0.900	0.276	0.000	1.000	0.013	0.904	0.000	0.473	0.000	0.904
Significant	YES	NO	YES	NO	NO	NO	YES	NO	YES	NO	YES	NO	YES	NO
Dissolved Iron, mg/L														
No. of Analyses	57	8	56	8	131	8	133	8	63	8	71	8	67	8
No. of Detections	44	0	56	8	106	1	133	8	53	0	52	0	47	0
Trend	D	--	D	--	--	--	--	--	I	--	--	--	--	--
S - value	-272.0	0.0	-672.0	14.0	-88.0	1.0	-144.0	2.0	381.0	0.0	-114.0	0.0	-44.0	0.0
Probability	0.023	--	0.000	0.108	0.467	--	0.232	0.904	0.001	--	0.345	--	0.719	--
Significant	YES	--	YES	NO	NO	--	NO	NO	YES	--	NO	--	NO	--
Dissolved Manganese, mg/L														
No. of Analyses	57	8	55	8	131	8	133	8	63	8	71	8	67	8
No. of Detections	57	8	55	8	130	8	132	8	63	8	5	0	8	0
Trend	D	--	D	--	I	--	D	--	--	--	--	--	--	--
S - value	-422.0	8.0	-668.0	8.0	643.0	8.0	-587.0	-10.0	162.0	2.0	10.0	0.0	64.0	0.0
Probability	0.000	0.398	0.000	0.398	0.000	0.398	0.000	0.276	0.178	0.904	0.940	--	0.598	--
Significant	YES	NO	YES	NO	YES	NO	YES	NO	NO	NO	NO	--	NO	--
Dissolved Calcium, mg/L														
No. of Analyses	57	8	56	8	105	8	105	8	63	8	71	8	67	8
No. of Detections	57	8	56	8	105	8	105	8	63	8	71	8	67	8
Trend	--	--	--	--	I	--	D	--	--	--	--	--	--	--
S - value	97.0	11.0	187.0	5.0	376.0	-2.0	-602.0	-2.0	-64.0	-1.0	-193.0	14.0	160.0	-10.0
Probability	0.422	0.227	0.120	0.634	0.002	0.904	0.000	0.904	0.598	1.000	0.108	0.108	0.184	0.276
Significant	NO	NO	NO	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO
Dissolved Magnesium, mg/L														
No. of Analyses	57	8	56	8	105	8	105	8	63	8	71	8	67	8
No. of Detections	57	8	56	8	105	8	105	8	63	8	71	8	67	8
Trend	--	--	I	--	I	--	D	--	--	--	--	--	I	--
S - value	106.0	7.0	431.0	-8.0	576.0	-1.0	-502.0	4.0	140.0	-2.0	-127.0	-3.0	454.0	6.0
Probability	0.380	0.473	0.000	0.398	0.000	1.000	0.000	0.720	0.245	0.904	0.292	0.812	0.000	0.548
Significant	NO	NO	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	YES	NO
Dissolved Sodium, mg/L														
No. of Analyses	57	8	56	8	105	8	106	8	63	8	71	8	67	8
No. of Detections	57	8	56	8	105	8	106	8	63	8	71	8	67	8
Trend	I	--	I	--	I	--	--	--	--	--	--	--	I	--
S - value	309.0	0.0	390.0	-5.0	384.0	2.0	-17.0	-3.0	-203.0	-1.0	-67.0	-10.0	371.0	6.0
Probability	0.010	1.000	0.001	0.634	0.001	0.904	0.894	0.812	0.091	1.000	0.581	0.276	0.002	0.548
Significant	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	NO
Dissolved Potassium, mg/L														
No. of Analyses	57	8	56	8	105	8	106	8	63	8	71	8	67	8
No. of Detections	57	8	56	8	105	8	106	8	63	8	71	8	67	8
Trend	--	--	I	--	I	--	D	--	--	--	--	--	I	--
S - value	2.0	2.0	402.0	14.0	335.0	-6.0	-322.0	-9.0	-169.0	6.0	-96.0	12.0	372.0	4.0
Probability	0.993	0.904	0.001	0.108	0.005	0.548	0.007	0.337	0.160	0.548	0.427	0.178	0.002	0.720
Significant	NO	NO	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	YES	NO

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

	Groundwater in Cc2 and between Cc2 and Cc3													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient Location	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Benzene, ug/L														
No. of Analyses	57	8	56	8	142	8	135	8	63	8	71	7	68	8
No. of Detections	0	0	3	0	0	0	105	8	0	0	0	0	0	0
Trend	--	--	--	--	--	--	D	--	--	--	--	--	--	--
S - value	0.0	0.0	-125.0	0.0	0.0	0.0	-651.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	0.000	0.276	--	--	--	--	--	--
Significant	--	--	NO	--	--	--	YES	NO	--	--	--	--	--	--
Vinyl chloride, ug/L														
No. of Analyses	57	8	56	8	142	8	135	8	63	8	71	7	68	8
No. of Detections	0	0	56	8	130	8	119	8	1	0	0	0	0	0
Trend	--	--	D	I	D	--	D	--	--	--	--	--	--	--
S - value	0.0	0.0	-512.0	20.0	-615.0	8.0	-806.0	4.0	39.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	0.000	0.014	0.000	0.398	0.000	0.720	--	--	--	--	--	--
Significant	--	--	YES	YES	YES	NO	YES	NO	--	--	--	--	--	--
cis 1,2-Dichloroethene, ug/L														
No. of Analyses	57	8	56	8	115	8	118	8	63	8	71	7	68	8
No. of Detections	0	0	55	8	31	1	112	8	0	0	0	0	0	0
Trend	--	--	D	D	--	--	D	--	--	--	--	--	--	--
S - value	0.0	0.0	-756.0	-18.0	-149.0	-3.0	-305.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	0.000	0.032	0.216	--	0.011	1.000	--	--	--	--	--	--
Significant	--	--	YES	YES	NO	--	YES	NO	--	--	--	--	--	--
trans 1,2-Dichloroethene, ug/L														
No. of Analyses	57	8	56	8	118	8	121	8	63	8	71	7	68	8
No. of Detections	0	0	9	0	0	0	93	8	0	0	0	0	0	0
Trend	--	--	D	--	--	--	D	--	--	--	--	--	--	--
S - value	0.0	0.0	-324.0	0.0	0.0	0.0	-246.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	0.007	--	--	--	0.040	1.000	--	--	--	--	--	--
Significant	--	--	YES	--	--	--	YES	NO	--	--	--	--	--	--
1,1-Dichloroethane, ug/L														
No. of Analyses	57	8	56	8	142	8	135	8	63	8	71	7	68	8
No. of Detections	0	0	0	0	8	0	78	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	D	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	-10.0	0.0	-445.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	0.940	--	0.000	--	--	--	--	--	--	--
Significant	--	--	--	--	NO	--	YES	--	--	--	--	--	--	--
1,2-Dichloropropane, ug/L														
No. of Analyses	57	8	56	8	142	8	135	8	63	8	71	7	68	8
No. of Detections	0	0	0	0	0	0	70	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	D	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	-333.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	0.005	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	YES	--	--	--	--	--	--	--

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

	Groundwater in Cc2 and between Cc2 and Cc3													
Well Location	MW-20		MW-21		MW-2		MW-5D		MW-14		MW-8		MW-9	
Gradient Location	Up		Down		Down		Down							
Time Interval	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Chloroethane, ug/L														
No. of Analyses	57	8	56	8	142	8	135	8	63	8	71	7	68	8
No. of Detections	0	0	0	0	27	0	9	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	-147.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	0.222	--	0.993	--	--	--	--	--	--	--
Significant	--	--	--	--	NO	--	NO	--	--	--	--	--	--	--
Toluene, ug/L														
No. of Analyses	57	8	56	8	142	8	135	8	63	8	71	7	68	8
No. of Detections	1	0	0	0	2	0	49	0	0	0	1	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	31.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	0.993	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	NO	--	--	--	--	--	--	--
Trichloroethene, ug/L														
No. of Analyses	57	8	56	8	142	8	135	8	63	8	71	7	68	8
No. of Detections	0	0	0	0	0	0	35	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	0.993	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	NO	--	--	--	--	--	--	--
Total Xylenes, ug/L														
No. of Analyses	57	8	56	8	142	8	135	8	63	8	71	7	68	8
No. of Detections	0	0	0	0	0	0	19	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	-183.0	6.0	-183.0	0.0	-183.0	0.0	-183.0	0.0	-183.0	0.0	-183.0	0.0	-183.0	0.0
Probability	--	--	--	--	--	--	0.128	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	NO	--	--	--	--	--	--	--
Trichlorofluoromethane, ug/L														
No. of Analyses	57	8	56	8	105	8	106	8	63	8	71	7	68	8
No. of Detections	0	0	53	8	101	8	21	0	0	0	20	0	0	0
Trend	--	--	I	--	I	I	--	--	--	--	--	--	--	--
S - value	0.0	6.0	438.0	15.0	287.0	24.0	-156.0	0.0	0.0	0.0	-229.0	0.0	0.0	0.0
Probability	--	--	0.000	0.085	0.017	0.002	0.195	--	--	--	0.056	--	--	--
Significant	--	--	YES	NO	YES	YES	NO	--	--	--	NO	--	--	--
Dichlorodifluoromethane, ug/L														
No. of Analyses	57	8	55	8	71	8	72	8	63	8	71	7	68	8
No. of Detections	1	0	54	8	69	8	72	8	0	0	11	0	0	0
Trend	--	--	--	I	D	--	D	--	--	--	--	--	--	--
S - value	-48.0	6.0	215.0	18.0	-320	16.0	-726.0	10.0	0.0	0.0	-183.0	0.0	0.0	0.0
Probability	--	--	0.073	0.032	0.008	0.062	0.000	0.276	--	--	0.128	--	--	--
Significant	--	--	NO	YES	YES	NO	YES	NO	--	--	NO	--	--	--

NOTES

Gradient indicates location of monitoring AYell relative to the hydraulic gradient and the placement of soild AYaste

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

Groundwater in Cc3 and the Regional Aquifer													
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient Location	Up		Side	Side		Down		(Installed 2003)		(Installed 2003)		(Installed 2003)	
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
pH field, Standard Units													
No. of Analyses	71	8	25	71	8	72	8	42	8	42	8	42	8
No. of Detections	71	8	25	71	8	72	8	42	8	42	8	42	8
Trend	--	--	--	--	--	D	--	D	--	D	--	--	--
S - value	215.0	-3.0	-17.0	-58.0	3.0	-279.0	14.0	-238.0	-10.0	-228.0	-14.0	-88.0	-7.0
Probability	0.073	0.812	0.709	0.634	0.812	0.020	0.108	0.003	0.276	0.004	0.108	0.274	0.473
Significant	NO	NO	NO	NO	NO	YES	NO	YES	NO	YES	NO	NO	NO
Specific Conductance field, micromhos/cm													
No. of Analyses	71	8	25	70	8	72	8	42	8	42	8	42	8
No. of Detections	71	8	25	70	8	72	8	42	8	42	8	42	8
Trend	--	--	--	--	--	I	--	--	--	D	--	I	--
S - value	172.0	-5.0	-16.0	138.0	-5.0	798.0	2.0	47.0	0.0	-201.0	-13.0	178.0	-5.0
Probability	0.153	0.634	0.726	0.252	0.634	0.000	0.904	0.563	1.000	0.012	0.143	0.026	0.634
Significant	NO	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	YES	NO
Total Dissolved Solids													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	24	71	8	71	8	42	8	42	8	42	8
Trend	--	--	I	--	--	I	--	--	--	--	--	I	--
S - value	201.0	2.0	99.0	93.0	0.0	442.0	-11.0	144.0	-3.0	156.0	5.0	288.0	-1.0
Probability	0.094	0.904	0.015	0.442	1.000	0.000	0.227	0.072	0.812	0.051	0.634	0.000	1.000
Significant	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO	NO	YES	NO
Alkalinity, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	24	71	8	71	8	42	8	42	8	42	8
Trend	I	--	--	--	--	I	D	I	--	--	--	I	--
S - value	361.0	-2.0	8.0	-158.0	-6.0	899.0	-20.0	176.0	-2.0	-59.0	-2.0	452.0	-6.0
Probability	0.003	0.904	0.862	0.189	0.548	0.000	0.014	0.028	0.904	0.466	0.904	0.000	0.548
Significant	YES	NO	NO	NO	NO	YES	YES	YES	NO	NO	NO	YES	NO
Ammonia-N, mg/L													
No. of Analyses	70	8	24	70	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	20	5	2	56	8	42	8	6	1	6	0
Trend	I	--	D	--	--	--	--	--	--	D	--	--	--
S - value	580.0	9.0	-152.0	94.0	3.0	133.0	-1.0	34.0	-2.0	-261.0	0.0	-106.0	0.0
Probability	0.000	0.337	0.000	0.437	--	0.270	1.000	0.678	0.904	0.001	--	0.187	--
Significant	YES	NO	YES	NO	--	NO	NO	NO	NO	YES	--	NO	--
Nitrate-N, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	28	5	6	71	8	27	8	16	8	41	8	41	0
Trend	D	--	--	--	--	--	--	--	--	--	--	D	--
S - value	-322.0	6.0	-49.0	153.0	0.0	75.0	-15.0	90.0	2.0	-30.0	-12.0	-237.0	0.0
Probability	0.007	0.548	0.234	0.204	1.000	0.536	0.085	0.263	0.904	0.605	0.178	0.003	--
Significant	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	--
Sulfate, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	24	71	8	71	8	42	8	42	8	42	8
Trend	--	--	--	--	--	D	--	I	--	--	--	I	--
S - value	-52.0	5.0	-65.0	-50.0	-3.0	-649.0	8.0	181.0	7.0	-65.0	12.0	350.0	-4.0
Probability	0.670	0.634	0.112	0.682	0.812	0.000	0.398	0.024	0.473	0.254	0.178	0.000	0.720
Significant	NO	NO	NO	NO	NO	YES	NO	YES	NO	NO	NO	YES	NO

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

Groundwater in Cc3 and the Regional Aquifer													
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient Location	Up		Side	Side		Down		(Installed 2003)		(Installed 2003)		(Installed 2003)	
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Chloride, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	24	71	8	71	8	42	8	42	8	42	8
Trend	--	--	--	--	--	I	--	D	--	I	--	--	--
S - value	186.0	6.0	35.0	7.0	2.0	603.0	-6.0	-195.0	10.0	173.0	2.0	6.0	-4.0
Probability	0.122	0.548	0.399	0.960	0.904	0.000	0.548	0.015	0.276	0.002	0.904	0.950	0.720
Significant	NO	NO	NO	NO	NO	YES	NO	YES	NO	YES	NO	NO	NO
Dissolved Iron, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	56	1	24	51	0	70	8	42	8	26	1	26	8
Trend	--	--	--	--	--	I	--	--	--	--	--	I	--
S - value	-204.0	3.0	13.0	-41.0	0.0	466.0	1.0	-215.0	0.0	-78.0	-1.0	318.0	0.0
Probability	0.089	--	0.766	0.738	--	0.000	1.000	0.422	1.000	0.170	--	0.000	1.000
Significant	NO	--	NO	NO	--	YES	NO	NO	NO	NO	--	YES	NO
Dissolved Manganese, mg/L													
No. of Analyses	70	8	24	71	8	70	8	42	8	42	8	42	8
No. of Detections	68	8	24	2	0	69	8	42	8	1	0	1	8
Trend	--	--	D	--	--	I	--	D	--	--	--	--	--
S - value	-97.0	7.0	-98.0	-13.0	0.0	683.0	-4.0	-166.0	2.0	1.0	0.0	-57.0	-2.0
Probability	0.422	0.473	0.016	--	--	0.000	0.720	0.038	0.904	--	--	--	0.904
Significant	NO	NO	YES	--	--	YES	NO	YES	NO	--	--	--	NO
Dissolved Calcium, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	24	71	8	71	8	42	8	42	8	42	8
Trend	--	--	--	--	--	I	D	D	--	D	--	--	--
S - value	163.0	-12.0	-41.0	85.0	-2.0	592.0	-22.0	-194.0	-6.0	-284.0	3.0	91.0	0.0
Probability	0.175	0.178	0.321	0.482	0.904	0.000	0.006	0.015	0.548	0.000	0.812	0.258	1.000
Significant	NO	NO	NO	NO	NO	YES	YES	YES	NO	YES	NO	NO	NO
Dissolved Magnesium, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	24	71	8	71	8	42	8	42	8	42	8
Trend	--	--	--	--	--	I	--	--	--	--	I	I	--
S - value	96.0	-2.0	23.0	156.0	0.0	630.0	-2.0	0.0	-4.0	-11.0	21.0	250.0	0.0
Probability	0.427	0.904	0.585	0.195	1.000	0.000	0.904	0.990	0.720	0.900	0.010	0.002	1.000
Significant	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES	YES	NO
Dissolved Sodium, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	24	71	8	71	8	42	8	42	8	42	8
Trend	--	--	--	--	--	I	--	--	--	--	--	--	--
S - value	-220.0	-6.0	-78.0	-17.0	-2.0	410.0	-12.0	120.0	-10.0	-12.0	9.0	123.0	-2.0
Probability	0.067	0.548	0.056	0.894	0.904	0.001	0.178	0.135	0.276	0.890	0.337	0.125	0.904
Significant	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO
Dissolved Potassium, mg/L													
No. of Analyses	70	8	24	71	8	71	8	42	8	42	8	42	8
No. of Detections	70	8	24	71	8	71	8	42	8	42	8	42	8
Trend	--	--	D	--	--	I	--	--	--	--	--	--	--
S - value	4.0	-9.0	-134.0	-139.0	0.0	292.0	4.0	41.0	-1.0	80.0	5.0	135.0	4.0
Probability	0.980	0.337	0.001	0.248	1.000	0.015	0.720	0.615	1.000	0.321	0.634	0.092	0.720
Significant	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

Groundwater in Cc3 and the Regional Aquifer													
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient Location	Up		Side	Side		Down		(Installed 2003)		(Installed 2003)		(Installed 2003)	
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Benzene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	0	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	0	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
cis 1,2-Dichloroethene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	1	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
trans 1,2-Dichloroethene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	1	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	1	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	1	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 3-2
Vashon Island Landfill
Trends in Individual Wells
May 1987 through December 2014

Groundwater in Cc3 and the Regional Aquifer													
Well Location	MW-7		MW-11	MW-12		MW-19		MW-26		MW-27		MW-29	
Gradient Location	Up		Side	Side		Down		(Installed 2003)		(Installed 2003)		(Installed 2003)	
Time Interval	Long	Short	Long	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Chloroethane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	0	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	1	0	0	1	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	-9.0	0.0	0.0	41.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	1	0	1	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	-13.0	0.0	-21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Xylenes, ug/L													
No. of Analyses	70	8	24	72	8	70	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	0	0	0	0	0	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	-183.0	0.0	0.0	-183.0	0.0	-183.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	1	0	0	1	0	0	0	1	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	-19.0	0.0	0.0	0.0	0.0	0.0	0.0	-25.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane, ug/L													
No. of Analyses	70	8	24	72	8	71	8	42	8	42	8	42	8
No. of Detections	0	0	0	0	0	1	0	0	0	2	0	0	0
Trend	--	--	--	--	--	--	--	--	--	--	--	--	--
S - value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-53.0	0.0	0.0	0.0
Probability	--	--	--	--	--	--	--	--	--	--	--	--	--
Significant	--	--	--	--	--	--	--	--	--	--	--	--	--

NOTES

Table 3-3
Vashon Island Landfill
Summary of Statistical Analyses for Seeps
1991 through 2014

	West Hillside Seeps				
Monitoring Location	SW-W1	SW-W2		SW-W3	
Time Interval	Long	Long	Short	Long	Short
pH field, Standard Units					
No. of Analyses	61	84	8	85	8
No. of Detections	61	84	8	84	8
Minimum	6.5	6.9	7.5	ND	6.8
Maximum	8.4	8.9	8.7	10.7	8.5
Mean	7.5	8.0	8.0	7.8	7.7
Standard Deviation	0.4	0.4	0.4	0.6	0.6
Median	7.6	8.0	8.1	7.9	7.9
Specific Conductance field, micromhos/cm					
No. of Analyses	62	85	8	86	8
No. of Detections	62	85	8	86	8
Minimum	70	325	557	190	264
Maximum	860	1200	750	1034	415
Mean	342.5	780.7	657.5	489.9	322.7
Standard Deviation	172.2	185.8	61.3	166.9	47.6
Median	273	750	668	450	318
Chemical Oxygen Demand, mg/L					
No. of Analyses	63	86	8	86	8
No. of Detections	55	85	8	74	8
Minimum	ND	ND	11.0	ND	5.0
Maximum	100.0	130.0	23.1	160.0	24.0
Mean	21.09	21.90	19.16	18.67	15.39
Standard Deviation	20.41	19.98	3.88	22.80	6.84
Median	14.5	15.0	20.2	12.0	15.5
Alkalinity, mg/L					
No. of Analyses	35	45	8	44	8
No. of Detections	35	45	8	44	8
Minimum	69	222	319	96	87
Maximum	150	530	371	290	145
Mean	95.9	426.7	350.1	197.0	128.7
Standard Deviation	18.9	58.2	20.6	47.7	20.1
Median	93	430	355	186	138
Ammonia-N, mg/L					
No. of Analyses	63	87	8	87	8
No. of Detections	37	40	2	32	3
Minimum	ND	ND	ND	ND	ND
Maximum	0.14	45.00	0.02	0.20	0.06
Mean	0.027	0.534	ID	0.018	0.013
Standard Deviation	0.030	4.823	ID	0.026	0.018
Median	0.02	0.01	ID	0.01	0.01
Nitrate-N, mg/L					
No. of Analyses	63	87	8	87	8
No. of Detections	55	58	8	78	8
Minimum	ND	ND	0.114	ND	0.206
Maximum	3.68	9.00	0.42	1.40	0.95
Mean	1.374	0.226	0.215	0.310	0.484
Standard Deviation	1.063	0.960	0.100	0.267	0.225
Median	1.40	0.09	0.19	0.22	0.43
Sulfate, mg/L					
No. of Analyses	63	87	8	87	8
No. of Detections	62	87	8	87	8
Minimum	ND	5	10	6	11
Maximum	36	30	12	109	13
Mean	12.0	8.1	11.0	12.3	11.9
Standard Deviation	5.2	3.4	0.9	10.7	0.8
Median	11	7	11	11	12

Table 3-3
Vashon Island Landfill
Summary of Statistical Analyses for Seeps
1991 through 2014

	West Hillside Seeps				
Monitoring Location	SW-W1	SW-W2		SW-W3	
Time Interval	Long	Long	Short	Long	Short
Chloride, mg/L					
No. of Analyses	63	85	8	86	8
No. of Detections	63	83	8	84	8
Minimum	3	ND	20	ND	7
Maximum	15	79	25	48	11
Mean	5.9	33.8	22.4	12.9	8.6
Standard Deviation	2.0	11.2	1.6	6.4	1.3
Median	5	33	22	12	8
Dissolved Arsenic, mg/L					
No. of Analyses	63	86	8	86	8
No. of Detections	63	86	8	85	8
Minimum	0.002	0.002	0.002	ND	0.004
Maximum	0.083	0.017	0.014	0.052	0.005
Mean	0.0123	0.0048	0.0044	0.0061	0.0046
Standard Deviation	0.0126	0.0028	0.0039	0.0067	0.0006
Median	0.008	0.004	0.003	0.005	0.005
Dissolved Iron, mg/L					
No. of Analyses	63	86	8	86	8
No. of Detections	63	86	8	86	8
Minimum	0.7	0.4	1.5	0.5	0.9
Maximum	76.0	21.0	27.9	37.5	2.5
Mean	8.95	4.29	5.77	3.95	1.44
Standard Deviation	11.45	4.32	9.00	5.88	0.54
Median	4.9	2.8	2.8	2.0	1.3
Dissolved Manganese, mg/L					
No. of Analyses	63	85	8	85	8
No. of Detections	63	85	8	85	8
Minimum	0.40	0.27	0.35	0.25	0.56
Maximum	18.00	10.00	17.90	8.56	1.14
Mean	2.689	2.037	2.835	1.278	0.815
Standard Deviation	3.019	2.011	6.094	1.591	0.212
Median	1.50	1.10	0.79	0.80	0.83
Dissolved Calcium, mg/L					
No. of Analyses	58	80	8	80	8
No. of Detections	58	80	8	80	8
Minimum	13	27	54	17	20
Maximum	85	127	121	93	30
Mean	32.6	78.6	65.9	46.9	23.8
Standard Deviation	21.0	19.4	22.7	18.9	3.1
Median	21	76	57	41	23
Dissolved Magnesium, mg/L					
No. of Analyses	58	80	8	81	8
No. of Detections	58	80	8	81	8
Minimum	11	20	42	15	16
Maximum	55	104	54	89	24
Mean	20.9	67.9	49.1	36.4	19.9
Standard Deviation	10.5	17.9	3.5	14.6	2.6
Median	16	64	49	33	20
Dissolved Sodium, mg/L					
No. of Analyses	58	81	8	80	8
No. of Detections	58	81	8	80	8
Minimum	6	8	14	7	7
Maximum	17	25	17	19	10
Mean	9.2	16.3	15.5	11.9	8.7
Standard Deviation	3.1	2.6	1.1	3.0	0.8
Median	8	16	15	11	9

Table 3-3
Vashon Island Landfill
Summary of Statistical Analyses for Seeps
1991 through 2014

	West Hillside Seeps				
Monitoring Location	SW-W1	SW-W2		SW-W3	
Time Interval	Long	Long	Short	Long	Short
Dissolved Potasium, mg/L					
No. of Analyses	58	81	8	81	8
No. of Detections	58	81	8	81	8
Minimum	0.8	1.8	3.1	1.7	2.0
Maximum	2.8	5.6	3.5	17.0	2.5
Mean	1.41	3.52	3.29	2.77	2.25
Standard Deviation	0.43	0.57	0.13	1.69	0.19
Median	1.3	3.4	3.3	2.5	2.2
Vinyl Chloride, ug/L					
No. of Analyses	60	82	8	84	8
No. of Detections	7	1	0	56	8
Minimum	ND	ND	ND	ND	0.0295
Maximum	1.00	1.00	ND	1.00	0.06
Mean	0.07	ID	ID	0.08	0.04
Standard Deviation	0.22	ID	ID	0.18	0.01
Median	0.010	ID	ID	0.0462	0.0371

NOTES:

ID	Insufficient Data. The number of detections is less than 3.
ND	Not Detected (at laboratory MDL).
mg/L	Milligram per liter.
ug/L	Microgram per liter.
Short	Reflects the most recent analysis data, up to eight analyses maximum.

Appendix A

Groundwater Quality Standards

Water Quality Standards

Analyte	CAS No.	Eff. Date	Federal Drinking Water Standards MCL		Ref.	Ground Water Quality Criteria Criterion*		Eff. Date	Ref.
Primary Standards									
A. Inorganics									
Antimony	7440-36-0	17-Jan-94	0.006	mg/L	FR v. 57 No.138	0.006	mg/L	17-Jan-94	WAC 173-200
Arsenic c	7440-38-2	23-Jan-06	0.01	mg/L	66 FR 28342	0.00005	mg/L	01-Dec-90	WAC 173-200
Asbestos	132207-33-1	30-Jul-92	7	mf/L	FR v. 56 No. 20	7	mf/L	30-Jul-92	WAC 173-200
Barium	7440-39-3	1-Jan-93	2.0	mg/L	FR v. 56 No. 126	1.0	mg/L	01-Dec-90	WAC 173-200
Beryllium	7440-41-7	17-Jan-94	0.004	mg/L	FR v. 57 No.138	0.004	mg/L	17-Jan-94	WAC 173-200
Cadmium	7440-43-9	30-Jul-92	0.005	mg/L	FR v. 56 No. 20	0.005	mg/L	01-Dec-90	WAC 173-200
Chromium	7440-47-3	30-Jul-92	0.1	mg/L	FR v. 56 No. 20	0.05	mg/L	01-Dec-90	WAC 173-200
Copper	7440-50-8	7-Dec-92	1.3**	mg/L	FR v. 57 No. 125	1.0	mg/L	01-Dec-90	WAC 173-200
Cyanide	57-12-5	17-Jan-94	0.2	mg/L	FR v. 57 No.138	0.2	mg/L	17-Jan-94	WAC 173-200
Fluoride	16984-48-8	2-Oct-87	4.0	mg/L	40 CFR 141	4.0	mg/L	01-Dec-90	WAC 173-200
Lead	7439-92-1	7-Dec-92	0.015**	mg/L	FR v. 57 No. 125	0.015	mg/L	01-Dec-90	WAC 173-200
Mercury	7439-97-6	2-Apr-86	0.002	mg/L	40 CFR 141	0.002	mg/L	01-Dec-90	WAC 173-200
Nickel	7440-02-0	17-Jan-94	0.1	mg/L	FR v. 57 No.138	0.1	mg/L	17-Jan-94	WAC 173-200
Nitrate	14797-55-8	2-Apr-86	10.0	mg/L	FR v. 56 No. 20	10.0	mg/L	01-Dec-90	WAC 173-200
Nitrate and Nitrite	14797-55-8+147	30-Jul-92	10.0	mg/L	FR v. 56 No. 20	10.0	mg/L	30-Jul-92	WAC 173-200
Nitrite	14797-65-0	30-Jul-92	1	mg/L	FR v. 56 No. 20	1.0	mg/L	30-Jul-92	WAC 173-200
Selenium	7782-49-2	30-Jul-92	0.05	mg/L	FR v. 56 No. 20	0.01	mg/L	01-Dec-90	WAC 173-200
Silver	7440-22-4		--			0.05	mg/L	01-Dec-90	WAC 173-200
Sodium	7440-23-5	20-Sep-04	20***	mg/L		20***	mg/L	03-Jul-04	WAC 246-290
Thallium	7440-28-0	17-Jan-94	0.002	mg/L	FR v. 57 No.138	0.002	mg/L	17-Jan-94	WAC 173-200
Total Coliforms		24-Dec-75	1/100	mL	40 CFR 141	1/100	mL	01-Dec-90	WAC 173-200
Turbidity		24-Dec-75	1	NTU	40 CFR 141	--	--	--	--
B. Organic Chemicals									
Alachlor	15972-60-8	30-Jul-92	2	ug/L	FR v. 56 No. 20	2	ug/L	30-Jul-92	WAC 173-200
Atrazine	1912-24-9	30-Jul-92	3	ug/L	FR v. 56 No. 20	3	ug/L	30-Jul-92	WAC 173-200
Benzene c	71-43-2	9-Jan-89	5	ug/L	40 CFR 141	1	ug/L	01-Dec-90	WAC 173-200
Bis(2-ethylhexyl)phthalate	117-81-7	17-Jan-94	6	ug/L	FR v. 57 No.138	6	ug/L	01-Dec-90	WAC 173-200
Bromodichloromethane c	75-27-4		--			0.3	ug/L	01-Dec-90	WAC 173-200
Bromoform c	75-25-2		--			5	ug/L	01-Dec-90	WAC 173-200
Carbofuran	1563-66-2	30-Jul-92	40	ug/L	FR v. 56 No. 20	40	ug/L	30-Jul-92	WAC 173-200
Carbon Tetrachloride c	56-23-5	9-Jan-89	5	ug/L	40 CFR 141	0.3	ug/L	01-Dec-90	WAC 173-200
Chlordane c	5103-71-9	30-Jul-92	2	ug/L	FR v. 56 No. 20	0.06	ug/L	01-Dec-90	WAC 173-200
Chlorobenzene	108-90-7	30-Jul-92	100	ug/L	FR v. 56 No. 20	100	ug/L	30-Jul-92	WAC 173-200
Chlorodibromomethane c	124-48-1		--			0.5	ug/L	01-Dec-90	WAC 173-200
Chloroform c	67-66-3		--			7	ug/L	01-Dec-90	WAC 173-200
2,4-D	94-75-7	30-Jul-92	70	ug/L	FR v. 56 No. 20	70	ug/L	01-Dec-90	WAC 173-200
Dalapon	75-99-0	17-Jan-94	200	ug/L	FR v. 57 No.138	200	ug/L	17-Jan-94	WAC 173-200
1,2-Dibromo-3-chloropropane	96-12-8	30-Jul-92	0.2	ug/L	FR v. 56 No. 20	0.2	ug/L	30-Jul-92	WAC 173-200
1,2-Dichlorobenzene	95-50-1	30-Jul-92	600	ug/L	FR v. 56 No. 20	600	ug/L	30-Jul-92	WAC 173-200
1,4-Dichlorobenzene c	106-46-7	9-Jan-89	75	ug/L	40 CFR 141	4	ug/L	01-Dec-90	WAC 173-200
1,1-Dichloroethane c	75-34-3		--			1	ug/L	01-Dec-90	WAC 173-200
1,2-Dichloroethane c	107-06-2	9-Jan-89	5	ug/L	40 CFR 141	0.5	ug/L	01-Dec-90	WAC 173-200
1,1-Dichloroethene	75-35-4	9-Jan-89	7	ug/L	40 CFR 141	7	ug/L	01-Dec-90	WAC 173-200
c-1,2-Dichloroethene	156-59-2	30-Jul-92	70	ug/L	FR v. 56 No. 20	70	ug/L	30-Jul-92	WAC 173-200
t-1,2-Dichloroethene	156-60-5	30-Jul-92	100	ug/L	FR v. 56 No. 20	100	ug/L	30-Jul-92	WAC 173-200
1,2-Dichloropropane c	78-87-5	30-Jul-92	5	ug/L	FR v. 56 No. 20	0.6	ug/L	01-Dec-90	WAC 173-200
1,3-Dichloropropene tot. c	542-75-6		--			0.2	ug/L	01-Dec-90	WAC 173-200
Di(ethylhexyl)adipate	103-23-1	17-Jan-94	400	ug/L	FR v. 57 No.138	400	ug/L	17-Jan-94	WAC 173-200
Dinoseb	88-85-7	17-Jan-94	7	ug/L	FR v. 57 No.138	7	ug/L	17-Jan-94	WAC 173-200
Diquat	231-36-7	17-Jan-94	20	ug/L	FR v. 57 No.138	20	ug/L	17-Jan-94	WAC 173-200
Endothall	145-73-3	17-Jan-94	100	ug/L	FR v. 57 No.138	100	ug/L	17-Jan-94	WAC 173-200
Endrin	72-20-8	17-Jan-94	2	ug/L	40 CFR 141	0.2	ug/L	01-Dec-90	WAC 173-200
Ethylbenzene	100-41-4	30-Jul-92	700	ug/L	FR v. 56 No. 20	700	ug/L	30-Jul-92	WAC 173-200
Ethylene dibromide c	106-93-4	30-Jul-92	0.05	ug/L	FR v. 56 No. 20	0.001	ug/L	01-Dec-90	WAC 173-200
Glyphosate	1071-83-6	17-Jan-94	70	ug/L	FR v. 57 No.138	70	ug/L	17-Jan-94	WAC 173-200
Heptachlor c	76-44-8	30-Jul-92	0.4	ug/L	FR v. 56 No. 20	0.02	ug/L	01-Dec-90	WAC 173-200
Heptachlor epoxide c	1024-57-3	30-Jul-92	0.2	ug/L	FR v. 56 No. 20	0.009	ug/L	01-Dec-90	WAC 173-200
Hexachlorobenzene	118-74-1	17-Jan-94	1	ug/L	FR v. 57 No.138	0.05	ug/L	01-Dec-90	WAC 173-200
Hexachlorocyclopentadiene (HEX)	77-47-4	17-Jan-94	50	ug/L	FR v. 57 No.138	50	ug/L	17-Jan-94	WAC 173-200
Lindane c	58-89-9	30-Jul-92	0.2	ug/L	FR v. 56 No. 20	0.06	ug/L	01-Dec-90	WAC 173-200

Water Quality Standards

Analyte	CAS No.	Eff. Date	Federal Drinking Water Standards MCL		Ref.	Ground Water Quality Criteria Criterion*		Eff. Date	Ref.
Methoxychlor	72-43-5	30-Jul-92	40	ug/L	FR v. 56 No. 20	40	ug/L	30-Jul-92	WAC 173-200
Methylene Chloride c	75-09-2	17-Jan-94	5	ug/L	FR v. 57 No.138	5	ug/L	17-Jan-94	WAC 173-200
Oxamyl (vydate)	23135-22-0	17-Jan-94	200	ug/L	FR v. 57 No.138	200	ug/L	17-Jan-94	WAC 173-200
PAHs [Benzo(a)pyrene]		17-Jan-94	0.2	ug/l	FR v. 57 No.138	0.01	ug/L	17-Jan-94	WAC 173-200
PCBs c	27323-18-8	30-Jul-92	0.5	ug/L	FR v. 56 No. 20	0.01	ug/L	01-Dec-90	WAC 173-200
Pentachloropheno	87-86-5	1-Jan-93	1	ug/L	FR v. 56 No. 126	1	ug/L	01-Jan-93	WAC 173-200
Picloram	1918-02-1	17-Jan-94	500	ug/L	FR v. 57 No.138	500	ug/L	17-Jan-94	WAC 173-200
Simazine	122-34-9	17-Jan-94	4	ug/L	FR v. 57 No.138	4	ug/L	17-Jan-94	WAC 173-200
Styrene	100-42-5	30-Jul-92	100	ug/L	FR v. 56 No. 20	100	ug/L	30-Jul-92	WAC 173-200
2,3,7,8-Tetrachlorodibenzo-p-dioxir	1746-01-6	17-Jan-94	3E-05	ug/L	FR v. 57 No.138	0.0000006	ug/L	01-Dec-90	WAC 173-200
Tetrachloroethylene c	127-18-4	30-Jul-92	5	ug/L	FR v. 56 No. 20	0.8	ug/L	30-Jul-92	WAC 173-200
Toluene	108-88-3	30-Jul-92	1000	ug/L	FR v. 56 No. 20	1000	ug/L	30-Jul-92	WAC 173-200
Total Trihalomethanes c	75-27-4, 75-25-2	29-Nov-79	100	ug/L	40 CFR 141	--	--	--	--
Toxaphene c	8001-35-2	30-Jul-92	3	ug/L	FR v. 56 No. 20	0.08	ug/L	01-Dec-90	WAC 173-200
2,4,5-TP	93-72-1	30-Jul-92	50	ug/L	FR v. 56 No. 20	100	ug/L	01-Dec-90	WAC 173-200
1,2,4-Trichlorobenzene	120-82-1	17-Jan-94	70	ug/L	FR v. 57 No.138	70	ug/L	17-Jan-94	WAC 173-200
1,1,1-Trichloroethane	71-55-6	9-Jan-89	200	ug/L	40 CFR 141	200	ug/L	01-Dec-90	WAC 173-200
1,1,2-Trichloroethane	79-00-5	17-Jan-94	5	ug/L	FR v. 57 No.138	5	ug/L	17-Jan-94	WAC 173-200
Trichloroethylene (TCE) c	79-01-6	9-Jan-89	5	ug/L	40 CFR 141	3	ug/L	01-Dec-90	WAC 173-200
Vinyl chloride c	75-01-4	9-Jan-89	2	ug/L	40 CFR 141	0.02	ug/L	01-Dec-90	WAC 173-200
Xylenes (total)	1330-20-7	30-Jul-92	10000	ug/L	FR v. 56 No. 20	10000	ug/L	30-Jul-92	WAC 173-200
C. Radionuclides and Radioactivity									
Radium 226 & Radium 228		9-Jul-76	5	pCi/L	FR v. 41 No. 133	5	pCi/L	01-Dec-90	WAC 173-200
Radium 226	13982-63-3		--			3	pCi/L	01-Dec-90	WAC 173-200
Radium 228	15262-20-1		--			5	pCi/L	01-Dec-90	WAC 173-200
Gross Alpha particle activity		9-Jul-76	15	pCi/L	FR v. 41 No. 133	15	pCi/L	01-Dec-90	WAC 173-200
Tritium	10028-17-8	9-Jul-76	20,000	pCi/L	FR v. 41 No. 133	20,000	pCi/L	01-Dec-90	WAC 173-200
Strontium	7440-24-6	9-Jul-76	8	pCi/L	FR v. 41 No. 133	8	pCi/L	01-Dec-90	WAC 173-200
Gross Beta particle activity		9-Jul-76	50	pCi/L	FR v. 41 No. 133	50	pCi/L	01-Dec-90	WAC 173-200
D. Additional Carcinogens Listed in Groundwater Criteria									
Acrylamide	79-06-1		--			0.02	ug/L	01-Dec-90	WAC 173-200
Acrylonitrile	107-13-1		--			0.07	ug/L	01-Dec-90	WAC 173-200
Aldrin	309-00-2		--			0.005	ug/L	01-Dec-90	WAC 173-200
Aniline	62-53-3		--			14	ug/L	01-Dec-90	WAC 173-200
Aramite	140-57-8		--			3	ug/L	01-Dec-90	WAC 173-200
Azobenzene	103-33-3		--			0.7	ug/L	01-Dec-90	WAC 173-200
Benzidine	92-87-5		--			0.0004	ug/L	01-Dec-90	WAC 173-200
Benzo(a)pyrene	50-32-8		--			0.008	ug/L	01-Dec-90	WAC 173-200
Benzotrichloride	98-07-7		--			0.007	ug/L	01-Dec-90	WAC 173-200
Benzyl chloride	100-44-7		--			0.5	ug/L	01-Dec-90	WAC 173-200
Bis(chloroethyl)ether	111-44-4		--			0.07	ug/L	01-Dec-90	WAC 173-200
Bis(chloromethyl)ether	542-88-1		--			0.0004	ug/L	01-Dec-90	WAC 173-200
Carbazole	86-74-8		--			5	ug/L	01-Dec-90	WAC 173-200
4-Chloro-2-methyl analine	95-69-2		--			0.1	ug/L	01-Dec-90	WAC 173-200
4-Chloro-2-methyl analine hydrochlo	3165-93-3		--			0.2	ug/L	01-Dec-90	WAC 173-200
o-Chloronitrobenzene	88-73-3		--			3	ug/L	01-Dec-90	WAC 173-200
p-Chloronitrobenzene	100-00-5		--			5	ug/L	01-Dec-90	WAC 173-200
Chlorthaloni	1897-45-6		--			30	ug/L	01-Dec-90	WAC 173-200
Diallate	2303-16-4		--			1	ug/L	01-Dec-90	WAC 173-200
DDT (includes DDE and DDD)	50-29-3, 72-55-9, 72-54-8		--			0.3	ug/L	01-Dec-90	WAC 173-200
1,2-Dibromomethane	106-93-4		--			0.001	ug/L	01-Dec-90	WAC 173-200
3,3'-Dichlorobenzidine	91-94-1		--			0.2	ug/L	01-Dec-90	WAC 173-200
Dichlorovos	62-73-7		--			0.3	ug/L	01-Dec-90	WAC 173-200
Dieldrin	60-57-1		--			0.005	ug/L	01-Dec-90	WAC 173-200
3,3'-Dimethoxybenzidine	119-90-4		--			6.0	ug/L	01-Dec-90	WAC 173-200
3,3-Dimethylbenzidine	119-93-7		--			0.007	ug/L	01-Dec-90	WAC 173-200
1,2-Dimethylhydrazine	540-73-8		--			60	ug/L	01-Dec-90	WAC 173-200
2,4-Dinitrotoluene	121-14-2		--			0.1	ug/L	01-Dec-90	WAC 173-200
2,6-Dinitrotoluene	606-20-2		--			0.1	ug/L	01-Dec-90	WAC 173-200
1,4-Dioxane	123-91-1		--			7	ug/L	01-Dec-90	WAC 173-200
1,2-Diphenylhydrazine	122-66-7		--			0.09	ug/L	01-Dec-90	WAC 173-200

Water Quality Standards

Analyte	CAS No.	Eff. Date	Federal Drinking Water Standards MCL		Ref.	Ground Water Quality Criteria Criterion*		Eff. Date	Ref.
Direct Black 38	1937-37-7		--			0.009	ug/L	01-Dec-90	WAC 173-200
Direct Blue 6	2602-46-2		--			0.009	ug/L	01-Dec-90	WAC 173-200
Direct Brown 95	16071-86-6		--			0.009	ug/L	01-Dec-90	WAC 173-200
Epichlorohydrir	106-89-8		--			8	ug/L	01-Dec-90	WAC 173-200
Ethyl acrylate	140-88-5		--			2	ug/L	01-Dec-90	WAC 173-200
Ethylene thiourea	96-45-7		--			2	ug/L	01-Dec-90	WAC 173-200
Folpet	133-07-3		--			20	ug/L	01-Dec-90	WAC 173-200
Furazolidone	67-45-8		--			0.02	ug/L	01-Dec-90	WAC 173-200
Furium	531-82-8		--			0.002	ug/L	01-Dec-90	WAC 173-200
Furmecyclox	60568-05-0		--			3	ug/L	01-Dec-90	WAC 173-200
Hexachlorocyclohexane (alpha)	319-84-6		--			0.001	ug/L	01-Dec-90	WAC 173-200
Hexachlorocyclohexane (technical)	608-73-1		--			0.05	ug/L	01-Dec-90	WAC 173-200
Hexachlorodibenzo-p-dioxin, mix	34465-46-8		--			0.00001	ug/L	01-Dec-90	WAC 173-200
Hydrazine/hydrazine sufate	302-01-2/10034-93-2		--			0.03	ug/L	01-Dec-90	WAC 173-200
2-Methoxy-5-nitroanaline	99-59-2		--			2.0	ug/L	01-Dec-90	WAC 173-200
2-Methylanaline	95-53-4		--			0.2	ug/L	01-Dec-90	WAC 173-200
2-Methylanaline hydrochloride	636-21-5		--			0.5	ug/L	01-Dec-90	WAC 173-200
4,4'-Methylene bis(N,N'-dimethyl) an	101-61-1		--			2.0	ug/L	01-Dec-90	WAC 173-200
Mirex	2385-85-5		--			0.05	ug/L	01-Dec-90	WAC 173-200
Nitrofurazone	59-87-0		--			0.06	ug/L	01-Dec-90	WAC 173-200
N-Nitrosodiethanolamine	1116-54-7		--			0.03	ug/L	01-Dec-90	WAC 173-200
N-Nitrosodiethylamine	55-18-5		--			0.0005	ug/L	01-Dec-90	WAC 173-200
N-Nitrosodimethylamine	62-75-9		--			0.002	ug/L	01-Dec-90	WAC 173-200
N-Nitrosodiphenylamine	86-30-6		--			17.0	ug/L	01-Dec-90	WAC 173-200
N-Nitroso-di-n-propylamine	621-64-7		--			0.01	ug/L	01-Dec-90	WAC 173-200
N-Nitrosopyrrolidine	930-55-2		--			0.04	ug/L	01-Dec-90	WAC 173-200
N-Nitroso-di-n-butylamine	924-16-3		--			0.02	ug/L	01-Dec-90	WAC 173-200
N-Nitroso-N-methylethylylamine	10595-95-6		--			0.004	ug/L	01-Dec-90	WAC 173-200
PBBs	59536-65-1		--			0.01	ug/L	01-Dec-90	WAC 173-200
o-Phenylenediamine	95-54-5		--			0.005	ug/L	01-Dec-90	WAC 173-200
Propylene oxide	75-56-9]		--			0.01	ug/L	01-Dec-90	WAC 173-200
p,a,a,a-Tetrachlorotoluene	5216-25-1		--			0.004	ug/L	01-Dec-90	WAC 173-200
2,4-Toluenediamine	95-80-7		--			0.002	ug/L	01-Dec-90	WAC 173-200
o-Toluidine	95-53-4		--			0.2	ug/L	01-Dec-90	WAC 173-200
2,4,6-Trichlorophenol	88-06-2		--			4.0	ug/L	01-Dec-90	WAC 173-200
Trimethyl phosphate	512-56-1		--			2.0	ug/L	01-Dec-90	WAC 173-200
Secondary Standards									
Aluminum	7429-90-5	30-Jul-92	0.05-0.2	mg/L	FR v. 56 No. 20	0.05-0.2	mg/L	30-Jul-92	WAC 173-200
Copper	7440-50-8	7-Dec-92	1.0	mg/L	FR v. 57 No. 125	1.0	mg/L	01-Dec-90	WAC 173-200
Iron	7439-89-6	2-Apr-86	0.3	mg/L	40 CFR 143	0.3	mg/L	01-Dec-90	WAC 173-200
Manganese	7439-96-5	2-Apr-86	0.05	mg/L	40 CFR 143	0.05	mg/L	01-Dec-90	WAC 173-200
Color		2-Apr-86	15	units	40 CFR 143	15	units	01-Dec-90	WAC 173-200
pH	12408-02-5	2-Apr-86	6.5-8.5	units	40 CFR 143	6.5-8.5	units	01-Dec-90	WAC 173-200
Specific Conductivity			--			700	uS/cm		WAC 246-290
Total Dissolved Solids		2-Apr-86	500	mg/L	40 CFR 143	500	mg/L	01-Dec-90	WAC 173-200
Chloride	16887-00-6	2-Apr-86	250	mg/L	40 CFR 143	250	mg/L	01-Dec-90	WAC 173-200
Fluoride	16984-48-8	2-Apr-86	2.0	mg/L	40 CFR 143	p			
Silver	7440-22-4	30-Jul-92	0.1	mg/L	FR v. 56 No. 20	p			
Sulfate	14808-79-8	2-Apr-86	250	mg/L	40 CFR 143	250	mg/L	01-Dec-90	WAC 173-200
Surfactants		2-Apr-86	0.5	mg/L	40 CFR 143	0.5	mg/L	01-Dec-90	WAC 173-200
Corrosivity		2-Apr-86	non-corrosive		40 CFR 143	non-corrosive		01-Dec-90	WAC 173-200
Odor-Threshold		2-Apr-86	3	units	40 CFR 143	3	units	01-Dec-90	WAC 173-200
Zinc	7440-66-6	2-Apr-86	5.0	mg/L	40 CFR 143	5.0	mg/L	01-Dec-90	WAC 173-200

NOTES: pCi/L=picocouries per liter; mg/L=milligrams per liter; mf/L=million fibers per liter

p=Listed as a Primary Standard; --'=no standard established; i=listed individually as groundwater criteria

c=Listed as a carcinogen in the Ground Water Criteria; MCL=Maximum Contaminant Level

*=Criteria shall be the most stringent concentration of the Federal MCLG, MCL; or State MCL; MCLG= Maximum Contaminant Level Goal

=treatment technique in lieu of an MCL; *= A Drinking Water Advisory, not an enforceable standard.

Ground Water Quality Criteria=Water Quality Standards for Ground Waters of the State of Washington

Compiled by KCSWD 1/12/94. Revised 10/5/09

Appendix B

Exceedance Reports

Table 3

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES
(January 1, 2014 to March 31, 2014)

Regional Aquifer & Channel Cc3

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Iron	(mg/L)	MW-29	02/20/13	0.773	F2, SGW2
Manganese	(mg/L)	MW-7	02/07/13	0.135	F2, SGW2
		MW-19	02/14/13	0.599	F2, SGW2
		MW-26	02/08/13	0.0574	F2, SGW2
		MW-29	02/20/13	0.123	F2, SGW2
Arsenic	(mg/L)	MW-7	02/07/13	0.00583	SGW1
		MW-19	02/14/13	0.00146	SGW1
		MW-26	02/08/13	0.0033	SGW1
		MW-29	02/20/13	0.00447	SGW1
		MW-12	02/20/13	0.00212	SGW1

Table 3

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES
(April 1, 2014 to June 30, 2014)

Regional Aquifer & Channel Cc3

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Iron	(mg/L)	MW-29	05/08/14	0.975	SGW2
Manganese	(mg/L)	MW-7	05/06/14	0.167	SGW2
		MW-19	05/09/14	0.511	SGW2
		MW-26	05/08/14	0.0645	SGW2
		MW-29	05/08/14	0.105	SGW2
Arsenic	(mg/L)	MW-7	05/06/14	0.00578	SGW1
		MW-19	05/09/14	0.00145	SGW1
		MW-26	05/08/14	0.00329	SGW1
		MW-29	05/08/14	0.00528	SGW1
		MW-12	05/09/14	0.00211	SGW1

Table 3

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES
(July1, 2014 to September 31, 2014)

Regional Aquifer & Channel Cc3

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Iron	(mg/L)	MW-29	08/08/14	0.729	SGW2
Manganese	(mg/L)	MW-7	08/18/14	0.135	SGW2
		MW-19	08/08/14	0.465	SGW2
		MW-26	08/08/14	0.0587	SGW2
		MW-29	08/08/14	0.0847	SGW2
Arsenic	(mg/L)	MW-7	08/18/14	0.00501	SGW1
		MW-19	08/08/14	0.00142	SGW1
		MW-26	08/08/14	0.0032	SGW1
		MW-29	08/08/14	0.00411	SGW1
		MW-12	08/07/14	0.00199	SGW1

Table 3

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES
(October 1, 2014 to December 31, 2014)

Regional Aquifer & Channel Cc3

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Iron	(mg/L)	MW-29	11/14/14	0.67	SGW2
Manganese	(mg/L)	MW-7	11/10/14	0.147	SGW2
		MW-19	12/05/14	0.52	SGW2
		MW-26	11/13/14	0.0538	SGW2
		MW-29	11/14/14	0.0813	SGW2
Arsenic	(mg/L)	MW-7	11/10/14	0.00547	SGW1
		MW-19	12/05/14	0.00196	SGW1
		MW-26	11/13/14	0.0013	SGW1
		MW-29	11/14/14	0.00308	SGW1
		MW-12	11/14/14	0.00413	SGW1

See Analytical Data Qualifier Page for Data Qualifier Information.

Table 4

VASHON LANDFILL GW SUMMARY OF PREDICTION LIMIT EXCEEDANCES

(January 1, 2014 to March 31, 2014)

Intrawell

Regional Aquifer & Channel Cc3

Parameter		Site ID	Sample Date	Sample Value	Limit Value
Nitrate	(mg/L)	MW-26	02/04/14	0.093	0.09

VASHON LANDFILL GW SUMMARY OF PREDICTION LIMIT EXCEEDANCES

(April 1, 2014 to June 30, 2014)

Intrawell

Regional Aquifer & Channel Cc3

Parameter		Site ID	Sample Date	Sample Value	Limit Value
pH	std. units	MW-7	5/6/2014	7.15	7.36 - 8.56
		MW-29	5/8/2014	7.16	7.19 - 7.93
Barium	(mg/L)	MW-29	5/8/2014	0.0132	0.01
Iron	(mg/L)	MW-29	05/08/14	3.19	0.87

VASHON LANDFILL GW SUMMARY OF PREDICTION LIMIT EXCEEDANCES

(July1, 2014 to September 31, 2014)

Intrawell

Regional Aquifer & Channel Cc3

Parameter		Site ID	Sample Date	Sample Value	Limit Value
Conductance	(umhos/cm)	MW-26	8/8/2014	200	195.00
		MW-29	8/9/2014	265	244.00

VASHON LANDFILL GW SUMMARY OF PREDICTION LIMIT EXCEEDANCES

(October 1, 2014 to December 31, 2014)

Intrawell

Regional Aquifer & Channel Cc3

Parameter		Site ID	Sample Date	Sample Value	Limit Value
pH	(std. Units)	MW-26	11/13/14	7	7.70 - 8.63
		MW-27	11/13/14	6	6.5 - 7.25
Nitrate	(mg/L)	MW-26	11/13/2014	0.232	0.09

Table 5

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS
(January 1, 2014 to March 31, 2014)

Regional Aquifer & Channel Cc3

Component	Site ID	Date	ug/L
NO VOA DETECTIONS			

See Analytical Data Qualifier Page for Data Qualifier Information.

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS
(April 1, 2014 to June 30, 2014)

Regional Aquifer & Channel Cc3

Component	Site ID	Date	ug/L
Acetone	MW-27	5/7/2014	4.1

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS
(July1, 2014 to September 30, 2014)

Regional Aquifer & Channel Cc3

Component	Site ID	Date	ug/L
NO VOA DETECTIONS			

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS
(October 1, 2014 to December 31, 2014)

Regional Aquifer & Channel Cc3

Component	Site ID	Date	ug/L
NO VOA DETECTIONS			

Table 7

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES

(January 1, 2014 to March 31, 2014)

Groundwater Within Channel Cc2

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Arsenic	(mg/L)	MW-5D	2/5/2014	0.0842	SGW1
		MW-9	2/3/2014	0.00225	SGW1
		MW-20	2/13/2014	0.0013	SGW1
Iron	(mg/L)	MW-5D	2/5/2014	8.43	SGW2
		MW-21	2/14/2014	0.321	SGW2
Manganese	(mg/L)	MW-2	2/3/2014	0.117	SGW2
		MW-5D	2/5/2014	0.587	SGW2
		MW-20	2/13/2014	0.264	SGW2
		MW-21	2/14/2014	0.23	SGW2
Vinyl Chloride	(mg/L)	MW-2	2/3/2014	0.0807	SGW1
		MW-5D	2/5/2014	2.97	F1, SGW1
		MW-21	2/14/2014	0.115	SGW1

Groundwater Below Cc2

Parameter	Site ID	Sample Date	Sample Value	Standard(s) Exceeded
There were no exceedances in Cc2 for this period.				

Table 7

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES

(April 1, 2014 to June 30, 2014)

Groundwater Within Channel Cc2

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Arsenic	(mg/L)	MW-5D	5/9/2014	0.096	F1, SGW1
		MW-9	5/2/2014	0.00241	SGW1
		MW-20	5/12/2014	0.00161	SGW1
Iron	(mg/L)	MW-5D	5/9/2014	7.87	SGW2
		MW-21	5/12/2014	0.36	SGW2
Manganese	(mg/L)	MW-2	5/13/2014	0.125	SGW2
		MW-5D	5/9/2014	0.574	SGW2
		MW-20	5/12/2014	0.327	SGW2
		MW-21	5/12/2014	0.351	SGW2
Vinyl Chloride	(mg/L)	MW-2	5/13/2014	0.0752	SGW1
		MW-5D	5/9/2014	3.07	F1, SGW1
		MW-21	5/12/2014	0.132	SGW1

Groundwater Below Cc2

Parameter	Site ID	Sample Date	Sample Value	Standard(s) Exceeded
There were no exceedances in Cc2 for this period.				

Table 7

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES

(July1, 2014 to September 31, 2014)

Groundwater Within Channel Cc2

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Arsenic	(mg/L)	MW-2	08/04/14	0.00105	SGW1
		MW-9	08/05/14	0.00229	SGW1
		MW-20	08/04/14	0.00147	SGW1
		MW-21	08/07/14	0.00103	SGW1
		MW-5D	08/07/14	0.0935	F1, SGW1
Iron	(mg/L)	MW-5D	8/7/2014	8.28	SGW2
		MW-21	8/7/2014	0.457	SGW2
Manganese	(mg/L)	MW-2	8/4/2014	0.124	SGW2
		MW-5D	8/5/2014	0.514	SGW2
		MW-20	8/7/2014	0.337	SGW2
		MW-21	8/7/2014	0.378	SGW2
Vinyl Chloride	(mg/L)	MW-2	8/4/2014	0.147	SGW1
		MW-5D	8/5/2014	3.1	F1, SGW1
		MW-21	8/7/2014	0.147	SGW1

Groundwater Below Cc2

Parameter	Site ID	Sample Date	Sample Value	Standard(s) Exceeded
There were no exceedances below Cc2 for this period.				

Table 7

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES

(October 1, 2014 to December 31, 2014)

Groundwater Within Channel Cc2

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Arsenic	(mg/L)	MW-5D	11/03/14	0.0858	F1, SGW1
		MW-9	12/05/14	0.00235	SGW1
		MW-20	11/17/14	0.00135	SGW1
Iron	(mg/L)	MW-5D	11/3/2014	8.81	SGW2
		MW-21	11/14/2014	0.407	SGW2
Manganese	(mg/L)	MW-2	11/3/2014	0.0995	SGW2
		MW-5D	11/3/2014	0.542	SGW2
		MW-20	11/17/2014	0.138	SGW2
		MW-21	11/14/2014	0.242	SGW2
Vinyl Chloride	(mg/L)	MW-2	11/3/2014	0.096	SGW1
		MW-5D	11/3/2014	4.78	SGW1
		MW-21	11/14/2014	0.164	SGW1

Groundwater Below Cc2

Parameter	Site ID	Sample Date	Sample Value	Standard(s) Exceeded
There were no exceedances below Cc2 for this period.				

See Analytical Data Qualifier Page for Data Qualifier Information.

Table 8

VASHON LANDFILL GW SUMMARY OF PREDICTION LIMIT EXCEEDANCES

(January 1, 2014 to March 31, 2014)

Interwell

Groundwater Within Channel Cc2

Parameter		Site ID	Sample Date	Sample Value	Limit Value
Conductance	(umhos/cm)	MW-2	02/03/14	340	194
		MW-5D	02/05/14	230	194
		MW-21	02/14/14	280	194
Alkalinity	(mg/L)	MW-2	02/03/14	197	80
		MW-5D	02/05/14	155	80
		MW-21	02/14/14	144	80
Arsenic		MW-5D	02/05/14	0.096	0.005
Barium	(mg/L)	MW-5D	02/05/14	0.0125	0.0102
Calcium	(mg/L)	MW-2	02/03/14	24.7	16.9448
		MW-5D	2/5/2014	21.2	16.94
		MW-21	02/14/14	19.2	16.94
Chloride	(mg/L)	MW-9	02/03/14	5.15	4.09
Iron	(mg/L)	MW-5D	02/05/14	8.49	0.51
Magnesium	(mg/L)	MW-2	02/03/14	28.4	13
		MW-5D	02/05/14	16.1	13
		MW-21	02/03/14	19.6	13
Manganese	(mg/L)	MW-5D	02/05/14	0.556	0.401
Nitrate	(mg/L)	MW-2	02/03/14	0.191	0.11
		MW-9	2/3/2014	0.206	0.11
Sodium	(mg/L)	MW-2	02/03/14	9.09	8.44
		MW-5D	02/05/14	13.6	8.44
		MW-21	2/14/2014	9.44	8.44
Total Dissolved Solids	(mg/L)	MW-2	02/03/14	235	154
		MW-5D	02/05/14	209	154
		MW-21	02/14/14	195	154
Total Solids	(mg/L)	MW-2	02/03/14	249	154
		MW-5D	2/5/2014	222	154
		MW-21	02/14/14	198	154
Total Suspended Solids	(mg/L)	MW-5D	02/05/14	16.3	9.7
Vanadium	(mg/L)	MW-2	02/03/14	0.00386	0.002
		MW-9	02/03/14	0.00493	0.002

Table 8

VASHON LANDFILL GW SUMMARY OF PREDICTION LIMIT EXCEEDANCES

(April 1, 2014 to June 30, 2014)

Interwell

Groundwater Within Channel Cc2

Parameter		Site ID	Sample Date	Sample Value	Limit Value
Conductance	(umhos/cm)	MW-2	5/13/2014	330	194
		MW-5D	5/9/2014	240	194
		MW-21	5/12/2014	290	194
Alkalinity	(mg/L)	MW-2	5/13/2014	196	80
		MW-5D	5/9/2014	133	80
		MW-21	5/12/2014	155	80
Arsenic		MW-5D	5/9/2014	0.086	0.005
Barium	(mg/L)	MW-2	5/13/2014	0.01	0.0099
		MW-5D	5/9/2014	0.0109	0.0099
		MW-21	05/12/14	0.0099	0.0099
Calcium	(mg/L)	MW-2	5/13/2014	25	16.80
		MW-5D	5/9/2014	19	16.80
		MW-21	05/12/14	21	16.8
Chloride	(mg/L)	MW-9	5/2/2014	4.28	4.09
		MW-21	5/12/2014	4.19	4.09
Iron	(mg/L)	MW-5D	5/9/2014	7.87	0.51
Magnesium	(mg/L)	MW-2	5/13/2014	30.2	13.30
		MW-5D	5/9/2014	15.9	13.30
		MW-21	05/12/14	22.6	13.3
Manganese	(mg/L)	MW-5D	5/9/2014	0.503	0.319
		MW-21	5/12/2014	0.35	0.319
Nitrate	(mg/L)	MW-2	5/13/2014	0.191	0.11
		MW-9	5/2/2014	0.207	0.11
Sodium	(mg/L)	MW-2	05/13/14	9.84	7.9
		MW-5D	5/9/2014	10.3	7.9
		MW-21	5/12/2014	14	7.9
Total Dissolved Solids	(mg/L)	MW-2	5/13/2014	235	149
		MW-5D	5/9/2014	209	149
		MW-21	5/12/2014	195	149
Total Solids	(mg/L)	MW-2	5/13/2014	249	161
		MW-5D	5/9/2014	222	161
		MW-21	5/12/2014	198	161
Total Suspended Solids	(mg/L)	MW-5D	05/09/14	16.3	9.7
Vanadium	(mg/L)	MW-2	5/13/2014	0.00397	0.002
		MW-9	5/2/2014	0.00489	0.002

Table 8

VASHON LANDFILL GW SUMMARY OF PREDICTION LIMIT EXCEEDANCES

(July1, 2014 to September 31, 2014)

Interwell

Groundwater Within Channel Cc2

Parameter		Site ID	Sample Date	Sample Value	Limit Value
Conductance	(umhos/cm)	MW-2	8/4/2014	325	194
		MW-5D	8/7/2014	210	194
		MW-21	8/7/2014	250	194
Alkalinity	(mg/L)	MW-2	8/4/2014	190	80
		MW-5D	8/7/2014	137	80
		MW-21	8/7/2014	157	80
Arsenic		MW-5D	8/7/2014	0.094	0.005
Barium	(mg/L)	MW-2	8/4/2014	0.00993	0.0099
		MW-5D	8/7/2014	0.0113	0.0099
		MW-21	08/07/14	0.0101	0.0099
Calcium	(mg/L)	MW-2	8/4/2014	25.1	16.80
		MW-5D	8/7/2014	19.1	16.80
		MW-21	08/07/14	20.7	16.8
Chloride	(mg/L)	MW-9	8/5/2014	4.42	4.09
Iron	(mg/L)	MW-5D	8/7/2014	8.28	0.51
Magnesium	(mg/L)	MW-2	8/4/2014	29.4	13.3
		MW-5D	8/7/2014	16.9	13.30
		MW-21	8/7/2014	24.8	13.3
Manganese	(mg/L)	MW-5D	08/07/14	0.514	0.319
		MW-20	8/4/2014	0.337	
		MW-21	8/7/2014	0.378	0.319
Nitrate	(mg/L)	MW-2	08/04/14	0.528	0.11
		MW-9	8/5/2014	0.225	0.11
Sodium	(mg/L)	MW-2	8/4/2014	9.59	7.9
		MW-5D	08/07/14	11.5	7.9
		MW-21	8/7/2014	9.38	7.9
Total Dissolved Solids	(mg/L)	MW-2	8/4/2014	246	149
		MW-5D	08/07/14	208	149
		MW-21	8/7/2014	208	149
Total Solids	(mg/L)	MW-2	8/4/2014	255	161
		MW-5D	08/07/14	218	161
		MW-21	08/07/14	220	161
Vanadium	(mg/L)	MW-2	8/4/2014	0.00402	0.002
		MW-9	8/5/2014	0.00502	0.002

Table 8

VASHON LANDFILL GW SUMMARY OF PREDICTION LIMIT EXCEEDANCES

(October 1, 2014 to December 31, 2014)

Interwell

Groundwater Within Channel Cc2

Parameter		Site ID	Sample Date	Sample Value	Limit Value
Conductance	(umhos/cm)	MW-2	11/3/2014	300	194
		MW-5D	11/3/2014	240	194
		MW-21	11/14/2014	250	194
Alkalinity	(mg/L)	MW-2	11/3/2014	188	80
		MW-5D	11/3/2014	142	80
		MW-21	11/14/2014	179	80
Arsenic		MW-5D	11/3/2014	0.086	0.005
Barium	(mg/L)	MW-5D	11/3/2014	0.0137	0.0099
		MW-21	11/14/2014	0.0104	0.0099
Calcium	(mg/L)	MW-2	11/3/2014	23.2	16.80
		MW-5D	11/3/2014	22	16.80
		MW-21	11/14/14	22.5	16.8
Chloride	(mg/L)	MW-9	12/05/14	4.89	4.09
Iron	(mg/L)	MW-5D	11/3/2014	8.81	0.51
Magnesium	(mg/L)	MW-2	11/3/2014	25.4	13.3
		MW-5D	11/3/2014	14.4	13.3
		MW-21	11/14/2014	25.3	13.3
Manganese	(mg/L)	MW-5D	11/3/2014	0.542	0.32
		MW-20	11/3/2014		
		MW-21	11/14/2014		0.319
Nitrate	(mg/L)	MW-2	11/3/2014	0.934	0.11
		MW-9	12/5/2014	0.217	0.11
		MW-21	11/14/14	0.256	0.11
Sodium	(mg/L)	MW-2	11/3/2014	8.33	7.9
		MW-5D	11/3/2014	11.5	7.9
		MW-21	11/14/14	9.26	7.9
Sulfate	(mg/L)	MW-21	11/14/2014	18.7	18
Total Dissolved Solids	(mg/L)	MW-2	11/3/2014	225	149
		MW-5D	11/3/2014	216	149
		MW-21	11/14/2014	222	149
Total Solids	(mg/L)	MW-2	11/3/2014	261	161
		MW-5D	11/3/2014	232	161
		MW-21	11/14/2014	231	161
Vanadium	(mg/L)	MW-2	11/03/14	0.00394	0.002
		MW-9	12/5/2014	0.00474	0.002

Table 9

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS

(January 1, 2014 to March 31, 2014)

Groundwater Within & Below Channel Cc2

Parameter	Site ID	Date	ug/L
Benzene	MW-5D	02/05/14	0.32T
CIS, 1,2-Dichloroethene	MW-5D	02/05/14	6.6
	MW-21	02/14/14	0.938
Dichloroflouromethane	MW-2	02/03/14	6.14
	MW-5D	02/05/14	1.06
	MW-21	02/14/14	2.14
Trans-1,2-Dichloroethene	MW-5D	02/05/14	0.24 T
Trichloro-flouro-methane	MW-2	02/03/14	2.24
	MW-21	02/14/14	0.724
Vinyl Chloride	MW-2	02/03/14	0.0807
	MW-5D	02/05/14	2.97
	MW-21	02/14/14	0.115

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS

(January 1, 2014 to March 31, 2014)

Detections in Blanks

Component	Site ID	Date	ug/L
Acetone	VTRP140212L	02/11/14	10.6
	VTRP140213C	02/12/14	8.91
	VTRP140214C	02/13/14	12.3
Methlynene Chloride	VTRP140214C	02/13/14	0.21 T

Table 9

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS

(April 1, 2014 to June 30, 2014)

Groundwater Within & Below Channel Cc2

Parameter	Site ID	Date	ug/L
Acetone	MW-2	05/13/14	4.97
Benzene	MW-5D	05/09/14	0.49
CIS, 1,2-Dichloroethene	MW-5D	05/09/14	7.6
	MW-21	05/12/14	0.82
Dichloroflouromethane	MW-2	05/13/14	5.76
	MW-5D	05/09/14	1.4
	MW-21	05/12/14	2.51
Trans-1,2-Dichloroethene	MW-5D	05/13/14	0.32 T
Trichloro-flouro-methane	MW-2	05/13/14	2.28
	MW-21	05/12/14	0.724
Vinyl Chloride	MW-2	05/13/14	0.0752
	MW-5D	05/09/14	3.07
	MW-21	05/12/14	0.132

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS

(April 1, 2014 to June 30, 2014)

Detections in Blanks

Component	Site ID	Date	ug/L
NO VOA DETECTIONS			

Table 9

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS

(July1, 2014 to September 30, 2014)

Groundwater Within & Below Channel Cc2

Parameter	Site ID	Date	ug/L
Benzene	MW-5D	08/07/14	0.25
CIS, 1,2-Dichloroethene	MW-5D	08/07/14	6.97
	MW-21	08/07/14	0.92
Dichloroflouromethane	MW-2	08/04/14	12.2
	MW-5D	08/07/14	2.39
	MW-21	08/07/14	4.26
Trans-1,2-Dichloroethene	MW-5D	08/07/14	01/00/00
Trichloro-flouro-methane	MW-2	08/04/14	3.14
	MW-21	08/07/14	0.876
Vinyl Chloride	MW-2	08/04/14	0.147
	MW-5D	08/07/14	3.1
	MW-21	08/07/14	0.157

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS

(July 1, 2013 to September 30, 2013)

Detections in Blanks

Component	Site ID	Date	ug/L
NO VOA DETECTIONS			

Table 9

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS

(October 1, 2013 to December 31, 2013)

Groundwater Within & Below Channel Cc2

Parameter	Site ID		ug/L
Benzene	MW-5D	11/03/14	0.484
CIS, 1,2-Dichloroethene	MW-5D	11/03/14	9.37
	MW-21	11/14/14	0.605
Dichloroflouromethane	MW-2	11/03/14	6.64
	MW-5D	11/03/14	1.57
	MW-21	11/14/14	3.26
Trans-1,2-Dichloroethene	MW-5D	11/03/14	0.31
Trichloro-flouro-methane	MW-2	11/03/14	3.22
	MW-21	11/14/14	1.3
Vinyl Chloride	MW-2	11/03/14	0.096
	MW-5D	11/03/14	4.78
	MW-21	11/14/14	0.164

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS

(October 1, 2014 to December 31, 2014)

Detections in Blanks

Component	Site ID	Date	ug/L
NO VOA DETECTIONS			

Table 11

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES
(January 1, 2014 to March 31, 2014)

Groundwater Within & Adjacent to Channel Cc1

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Arsenic	(mg/L)	MW-10	02/03/14	0.00163	SGW1
		MW-13	02/11/14	0.0016	SGW1

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES
(April 1, 2014 to June 30, 2014)

Groundwater Within & Adjacent to Channel Cc1

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Arsenic	(mg/L)	MW-10	05/08/14	0.00176	SGW1
		MW-13	05/07/14	0.00183	SGW1

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES
(July1, 2014 to September 31, 2014)

Groundwater Within & Adjacent to Channel Cc1

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Arsenic	(mg/L)	MW-10	08/04/14	0.00167	SGW1
		MW-13	08/08/14	0.00168	SGW1

VASHON LANDFILL GW SUMMARY OF EXCEEDANCES
(October 1, 2014 to December 31, 2014)

Groundwater Within & Adjacent to Channel Cc1

Parameter		Site ID	Sample Date	Sample Value	Standard(s) Exceeded
Arsenic	(mg/L)	MW-13	11/14/14	0.00167	SGW1

See Analytical Data Qualifier Page for Data Qualifier Information.

Table 12

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS
(January 1, 2014 to March 31, 2014)

Groundwater Within & Adjacent to Channel Cc1

Component	Site ID	Date	ug/L
Acetone	MW-10	02/03/14	5.23
Chloromethane	MW-10	02/03/14	0.24 T

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS
(April 1, 2014 to June 30, 2014)

Groundwater Within & Adjacent to Channel Cc1

Component	Site ID	Date	ug/L
No VOA Detections			

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS
(July 1, 2013 to September 30, 2013)

Groundwater Within & Adjacent to Channel Cc1

Component	Site ID	Date	ug/L
Acetone	MW-10	8/3/2012	4.24 L

VASHON LANDFILL GW VOLATILE ORGANIC COMPOUND DETECTIONS
(October 1, 2013 to December 31, 2013)

Groundwater Within & Adjacent to Channel Cc1

Component	Site ID	Date	ug/L
NO VOA DETECTIONS			

Table 13

VASHON ISLAND LANDFILL SEEPS/SURFACE WATER
(January 1, 2014 to March 31, 2014)

SUMMARY OF SURFACE WATER QUALITY CRITERIA EXCEEDANCES

Parameter		Site ID	Sample Date	Sample Value	Reg. Limit	Standard(s) Exceeded
Ammonia	mg/L	SW-E	03/06/14	0.0227	0.0057	FC, SSWC
Iron	mg/L	SW-W1	03/19/14	10.2	1	FC
		SW-W2	03/19/14	3.42	1	FC
		SW-W3	03/19/14	2.03	1	FC
		SW-E	03/06/14	3.37	1	FC
Lead		SW-W1	03/19/14	0.00327	0.0022	FC, SSWC
		SW-E	03/06/14	0.002	0.0011	FC, SSWC
Turbidity	mg/L	SW-W1	03/19/14	18.6	5	FC, FA, SSWC
		SW-W2	03/19/14	26.7	5	FC, FA, SSWC
		SW-W3	03/19/14	18	5	FC, FA, SSWC
		SW-E	03/06/14	50.7	5	FC, FA, SSWC
Dissolved Oxygen	mg/L	SW-W1	03/19/14	5.51	8	FC, SSWC

FC Federal Chronic Surface Water Criteria

FA Federal Acute Surface Water Criteria

SSWC State ChronicSurface Water Criteria

SSWA State Acute Surface Water Criteria

* Total Metals

See Analytical Data Qualifier Page for Data Qualifier Information

See Analytical Data Qualifier Page for Data Qualifier Information

Table 13

VASHON ISLAND LANDFILL SEEPS/SURFACE WATER

(April 1, 2014 to June 30, 2014)

SUMMARY OF SURFACE WATER QUALITY CRITERIA EXCEEDANCES

Parameter		Site ID	Sample Date	Sample Value	Reg. Limit	Standard(s) Exceeded
Ammonia	mg/L	SW-E	5/29/2014	0.024	0.0057	FC, SSWC
Iron	mg/L	SW-W1	06/18/14	16.8	1	FC
		SW-W2	06/18/14	27.9	1	FC
		SW-W3	06/18/14	1.1	1	FC
Lead		SW-W1	06/18/14	0.0024	0.0022	FC, SSWC
Turbidity	mg/L	SW-W1	06/18/14	50.2	5	FC, FA, SSWC
		SW-W2	6/18/2014	59.2	5	FC, FA, SSWC
		SW-W3	6/18/2014	18	5	FC, FA, SSWC
		SW-E	5/29/2014	8.95	5	FC, FA, SSWC

FC Federal Chronic Surface Water Criteria

FA Federal Acute Surface Water Criteria

SSWC State ChronicSurface Water Criteria

SSWA State Acute Surface Water Criteria

* Total Metals

See Analytical Data Qualifier Page for Data Qualifier Information

Table 13

VASHON ISLAND LANDFILL SEEPS/SURFACE WATER

(July 1, 2014 to September 30, 2014)

SUMMARY OF SURFACE WATER QUALITY CRITERIA EXCEEDANCES

Parameter		Site ID	Sample Date	Sample Value	Reg. Limit	Standard(s) Exceeded
Iron	mg/L	SW-W1	09/17/14	3.33	1	FC
		SW-W2	09/17/14	2.99	1	FC
		SW-W3	09/17/14	1.44	1	FC
Turbidity	mg/L	SW-W2	09/17/14	14.8	5	FC, FA, SSWC

FC Federal Chronic Surface Water Criteria

FA Federal Acute Surface Water Criteria

SSWC State ChronicSurface Water Criteria

SSWA State Acute Surface Water Criteria

* Total Metals

See Analytical Data Qualifier Page for Data Qualifier Information

Table 13

VASHON ISLAND LANDFILL SEEPS/SURFACE WATER

(October 1, 2014 to December 31, 2014)

SUMMARY OF SURFACE WATER QUALITY CRITERIA EXCEEDANCES

Parameter		Site ID	Sample Date	Sample Value	Reg. Limit	Standard(s) Exceeded
Ammonia	mg/L	SW-W1	12/17/14	0.133	0.0056	FC, FA, SSWC,SSWA
		SW-W2	12/17/14	0.019	0.009	FC, SSWC
		SW-W3	12/17/14	0.0558	0.0039	FC, FA, SSWC,SSWA
		SW-E	12/22/14	0.024	0.0078	FC, SSWC
Iron	mg/L	SW-W1	12/17/2014	2.91	1	FC
		SW-W2	12/17/2014	1.88	1	FC

FC Federal Chronic Surface Water Criteria

FA Federal Acute Surface Water Criteria

SSWC State ChronicSurface Water Criteria

SSWA State Acute Surface Water Criteria

* Total Metals

See Analytical Data Qualifier Page for Data Qualifier Information

Vashon Island Closed Landfill
Calculated Prediction Limits through 2012

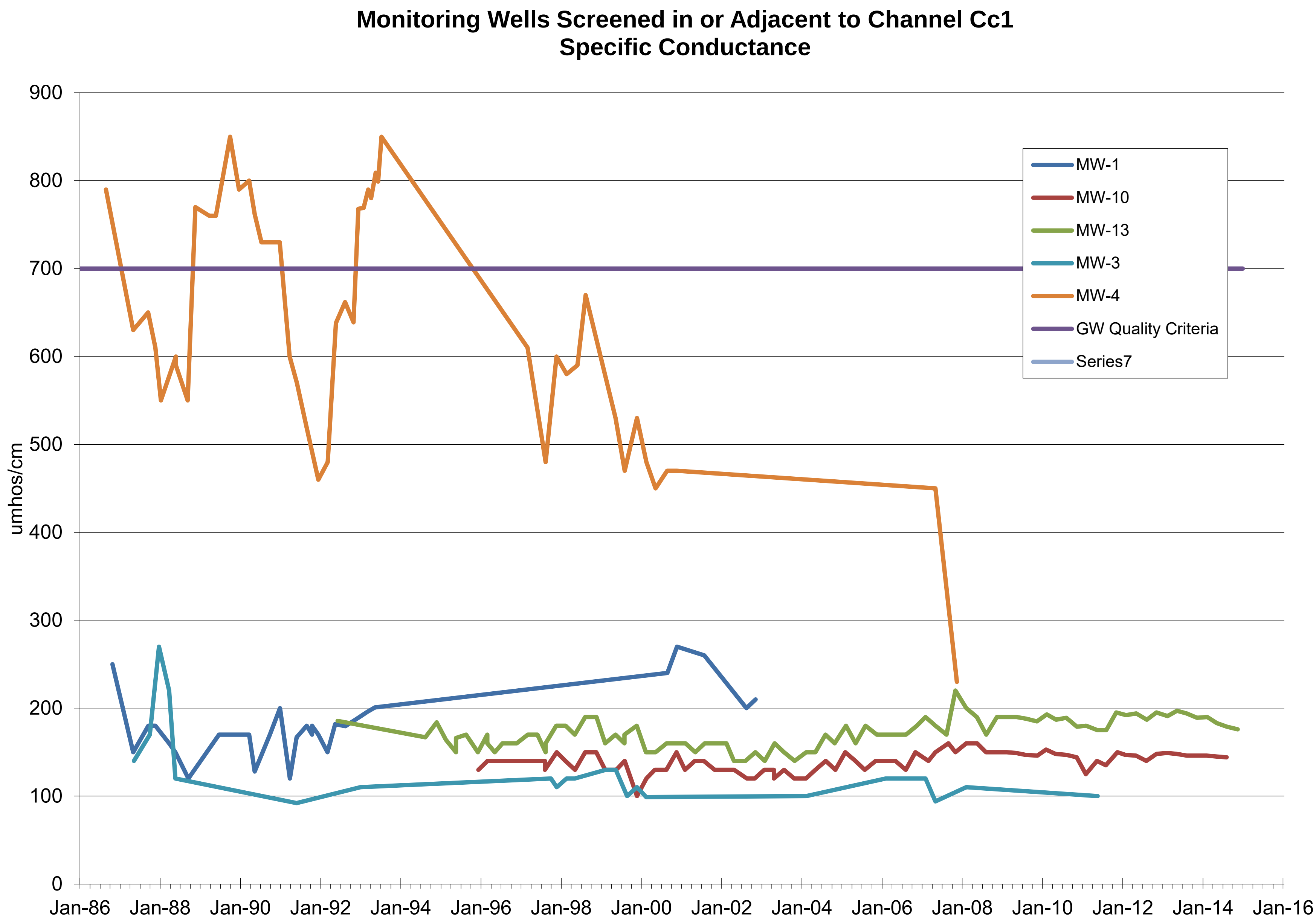
Parameter	Unit	Prediction Limits for MW-7 Lower Prediction Limit	Prediction Limits for MW-7 Upper Prediction Limit	Prediction Limits for MW-20 Lower Prediction Limit	Prediction Limits for MW-20 Upper Prediction Limit	Prediction Limits for MW-12 Lower Prediction Limit	Prediction Limits for MW-12 Upper Prediction Limit	Prediction Limits for MW-19 Lower Prediction Limit	Prediction Limits for MW-19 Upper Prediction Limit	Prediction Limits for MW-26 Lower Prediction Limit	Prediction Limits for MW-26 Upper Prediction Limit	Prediction Limits for MW-27 Lower Prediction Limit	Prediction Limits for MW-27 Upper Prediction Limit	Prediction Limits for MW-29 Lower Prediction Limit	Prediction Limits for MW-29 Upper Prediction Limit
pH (Field)	(std. Units)	6.98	8.09	7.36	8.67	7.06	7.93	7.16	8.18	7.74	8.62	6.49	7.25	7.19	7.96
Conductance (Field)	(μmho/cm)		190		194		185		230		195		290		230
Alkalinity, Total (CaCO3)	(mg/L)		100		80		64		110		86		78		140
Ammonia, (NH3)	(mg/L)		0.100		0.1		0.06		0.17		0.31		0.46		0.03
Antimony, dissolved	(mg/L)		0.0005		0.0005		0.0005		0.0005		0.0005		0.0005		0.0005
Arsenic, dissolved	(mg/L)		0.010		0.005		0.0056		0.027		0.0034		0.0013		0.008
Barium, dissolved	(mg/L)		0.014		0.010		0.011		0.064		0.019		0.048		0.012
Beryllium, dissolved	(mg/L)		0.0005		0.0005		0.0005		0.0005		0.0005		0.0005		0.0005
Cadmium, dissolved	(mg/L)		0.001		0.001		0.001		0.002		0.001		0.003		0.002
Calcium, dissolved	(mg/L)		17.39		16.94		13.00		19.86		18.53		17.00		23.00
Chloride	(mg/L)		5		4.09		5		6.7		9.11		5.62		5.6
Chromium, dissolved	(mg/L)		0.0030		0.0030		0.0030		0.0030		0.0030		0.0030		0.0030
Cobalt, dissolved	(mg/L)		0.002		0.002		0.0020		0.002		0.002		0.002		0.002
Copper, dissolved	(mg/L)		0.012		0.002		0.001		0.001		0.001		0.0026		0.001
Iron, dissolved	(mg/L)		0.220		0.51		0.42		0.23		0.20		0.3		0.94
Lead, dissolved	(mg/L)		0.005		0.0005		0.005		0.0005		0.0005		0.0005		0.0005
Magnesium, dissolved	(mg/L)		10.00		13.00		9.25		18.09		7.93		12.81		15.68
Manganese, dissolved	(mg/L)		0.19		0.40		0.14		1.35		0.08		0.002		0.11
Mercury, dissolved	(mg/L)		0.0001		0.00007		0.00007		0.0001		0.0003		0.00007		0.00007
Nickel, dissolved	(mg/L)		0.005		0.005		0.005		0.011		0.005		0.005		0.005
Nitrate- Nitrogen, (NO3 as N)	(mg/L)		0.34		0.11		1.90		0.81		0.08		6.64		0.08
Potassium, dissolved	(mg/L)		3.60		2.72		2.30		2.90		3.39		1.55		2.47
Selenium, dissolved	(mg/L)		0.0005		0.012		0.005		0.005		0.005		0.005		0.005
Silver, dissolved	(mg/L)		0.002		0.002		0.002		0.011		0.002		0.002		0.002
Sodium, dissolved	(mg/L)		7.11		8.44		6.07		7.98		9.77		7.48		7.29
Sulfate (SO4)	(mg/L)		11		18		11		22		14		11		18
Thallium, dissolved	(mg/L)		0.001		0.001		0.001		0.001		0.001		0.001		0.001
Total Dissolved Solids	(mg/L)		160		154		141		186		450		147		176
Total Organic Carbon	(mg/L)		2		1.6		2.4		18.4		2.1		1.1		1.5
Total Solids	(mg/L)		152		154		150		196		450		158		186
Total Suspended Solids	(mg/L)		17		9.7		7		4		9		3		19
Vanadium, dissolved	(mg/L)		0.005		0.002		0.500		0.0036		0.001		0.0033		0.001
Zinc, dissolved	(mg/L)		0.009		0.02		0.009		0.066		0.052		0.016		1.7

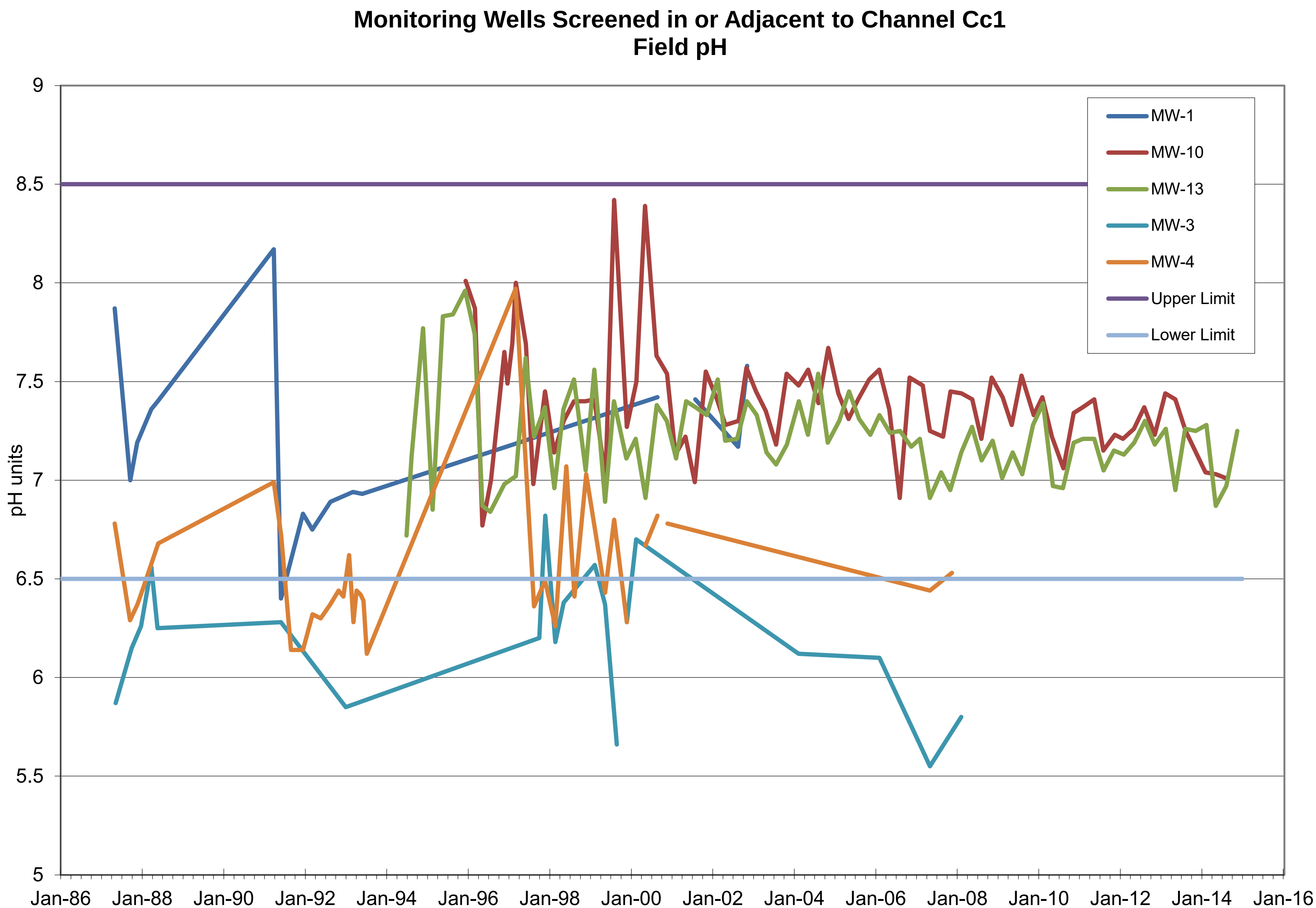
Vashon Island Closed Landfill
Calculated Prediction Limits through 2013

Parameter	Unit	Prediction Limits for MW-7		Prediction Limits for MW-20		Prediction Limits for MW-12		Prediction Limits for MW-19		Prediction Limits for MW-26		Prediction Limits for MW-27		Prediction Limits for MW-29	
		Lower Prediction Limit	Upper Prediction Limit	Lower Prediction Limit	Upper Prediction Limit	Lower Prediction Limit	Upper Prediction Limit	Lower Prediction Limit	Upper Prediction Limit	Lower Prediction Limit	Upper Prediction Limit	Lower Prediction Limit	Upper Prediction Limit	Lower Prediction Limit	Upper Prediction Limit
pH (Field)	(std. Units)	7.36	8.56	7.41	8.66	7.01	7.92	7.12	8.19	7.70	8.63	6.49	7.25	7.19	7.93
Conductance (Field)	(μmho/cm)		190		194		161		240		195		198		244
Alkalinity, Total (CaCO3)	(mg/L)		100		80		64		123		83		78		140
Ammonia, (NH3)	(mg/L)		0.33		0.1		0.06		0.16		0.31		0.46		0.03
Antimony, dissolved	(mg/L)		0.0005		0.0005		0.0005		0.0005		0.0005		0.0005		0.0005
Arsenic, dissolved	(mg/L)		0.009		0.005		0.0056		0.027		0.0034		0.0013		0.008
Barium, dissolved	(mg/L)		0.014		0.010		0.011		0.064		0.019		0.048		0.011
Beryllium, dissolved	(mg/L)		0.0005		0.0005		0.0005		0.0005		0.0005		0.0005		0.0005
Cadmium, dissolved	(mg/L)		0.001		0.001		0.001		0.001		0.001		0.003		0.002
Calcium, dissolved	(mg/L)		17.31		16.83		13.00		18.95		18.30		17.00		23.00
Chloride	(mg/L)		5.00		4.09		4.07		37.6		9.11		6.10		5.6
Chromium, dissolved	(mg/L)		0.0030		0.0030		0.0030		0.0030		0.0030		0.0030		0.0030
Cobalt, dissolved	(mg/L)		0.002		0.002		0.0020		0.002		0.002		0.002		0.002
Copper, dissolved	(mg/L)		0.002		0.002		0.001		0.001		0.001		0.0026		0.001
Iron, dissolved	(mg/L)		0.22		0.51		0.42		0.23		0.20		0.3		0.87
Lead, dissolved	(mg/L)		0.005		0.0005		0.005		0.0005		0.0005		0.0005		0.0005
Magnesium, dissolved	(mg/L)		10.00		13.30		9.50		18.09		7.89		12.76		15.63
Manganese, dissolved	(mg/L)		0.19		0.32		0.14		1.35		0.08		0.002		0.123
Mercury, dissolved	(mg/L)		0.0001		0.00007		0.00007		0.0001		0.0003		0.00007		0.00007
Nickel, dissolved	(mg/L)		0.005		0.005		0.005		0.011		0.005		0.005		0.005
Nitrate- Nitrogen, (NO3 as N)	(mg/L)		0.34		0.11		1.90		0.81		0.09		6.50		0.08
Potassium, dissolved	(mg/L)		3.26		2.69		2.11		2.92		3.41		1.53		2.46
Selenium, dissolved	(mg/L)		0.0005		0.012		0.005		0.005		0.005		0.005		0.005
Silver, dissolved	(mg/L)		0.002		0.002		0.002		0.011		0.002		0.002		0.002
Sodium, dissolved	(mg/L)		7.05		7.90		6.17		8.09		9.90		7.39		7.26
Sulfate (SO4)	(mg/L)		18.7		18		11		21		14		12		18
Thallium, dissolved	(mg/L)		0.001		0.001		0.001		0.001		0.001		0.001		0.001
Total Dissolved Solids	(mg/L)		160		149		152		182		450		148		179
Total Organic Carbon	(mg/L)		1.83		2.33		2.4		18.4		2.1		1.29		2.43
Total Solids	(mg/L)		154		161		150		192		450		159		190
Total Suspended Solids	(mg/L)		17		9.7		7		4		9		3		19
Vanadium, dissolved	(mg/L)		0.005		0.002		0.006		0.0036		0.001		0.0034		0.001
Zinc, dissolved	(mg/L)		0.009		0.02		0.009		0.066		0.052		0.016		1.7

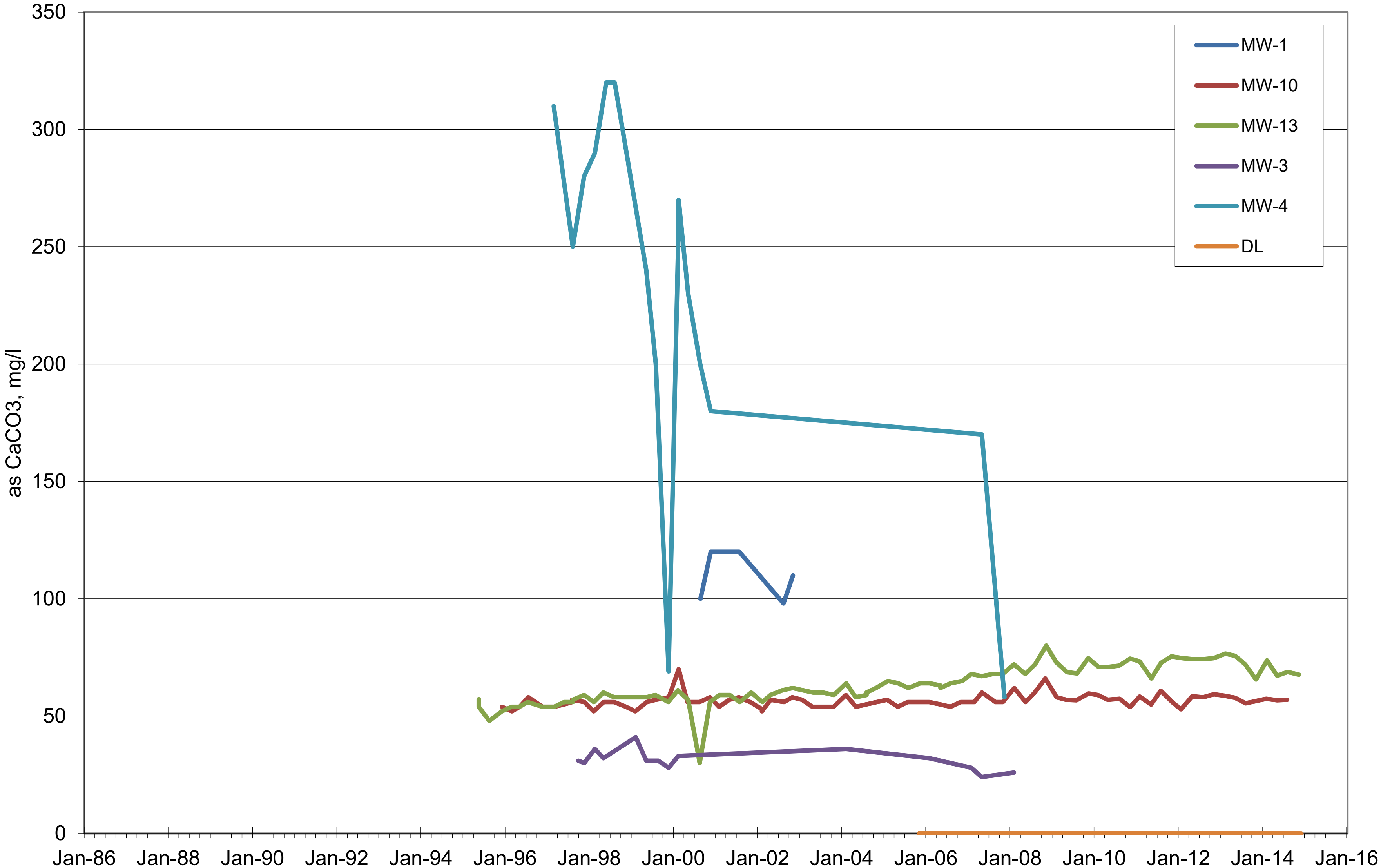
Appendix C

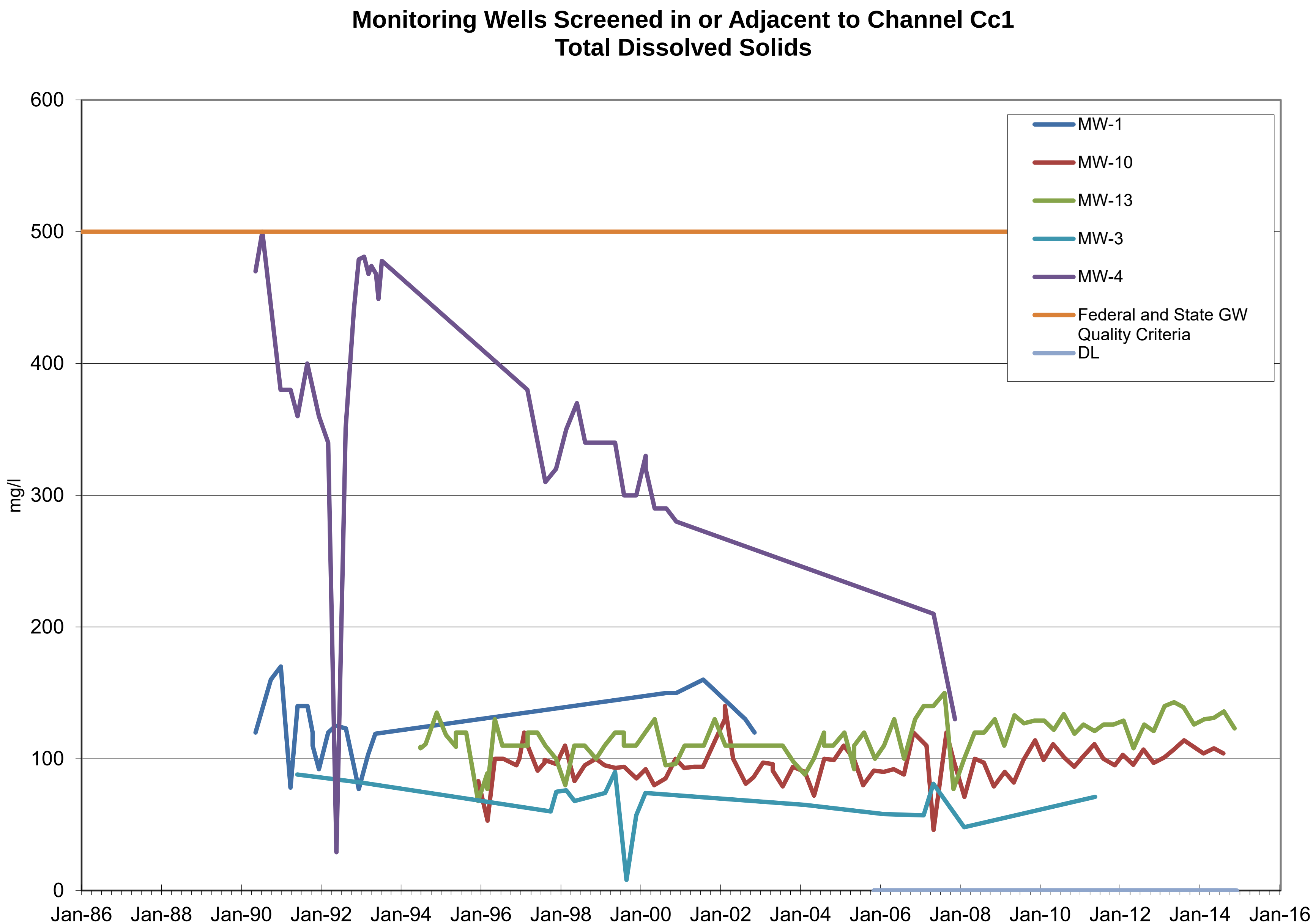
Time Concentration Plots for Groundwater in and Adjacent to Channel Cc1


Monitoring Wells Screened in or Adjacent to Channel Cc1
Specific Conductance
umhos/cm
900
800
700
600
500
400
300
200
100
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
GW Quality Criteria
Series7


Monitoring Wells Screened in or Adjacent to Channel Cc1
Field pH
pH units
9
8.5
8
7.5
7
6.5
6
5.5
5
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
Upper Limit
Lower Limit

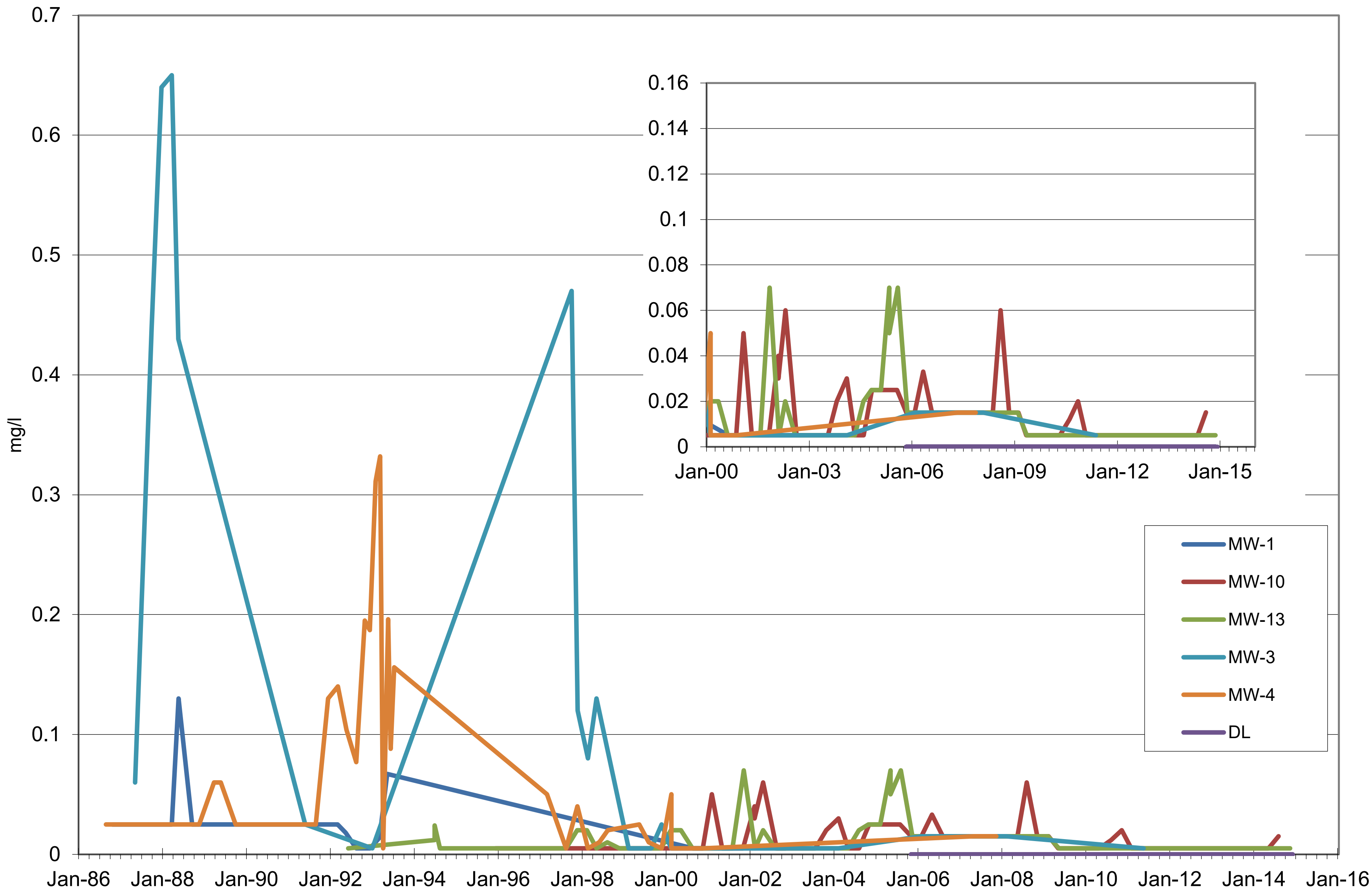
Monitoring Wells Screened in or Adjacent to Channel Cc1
Alkalinity



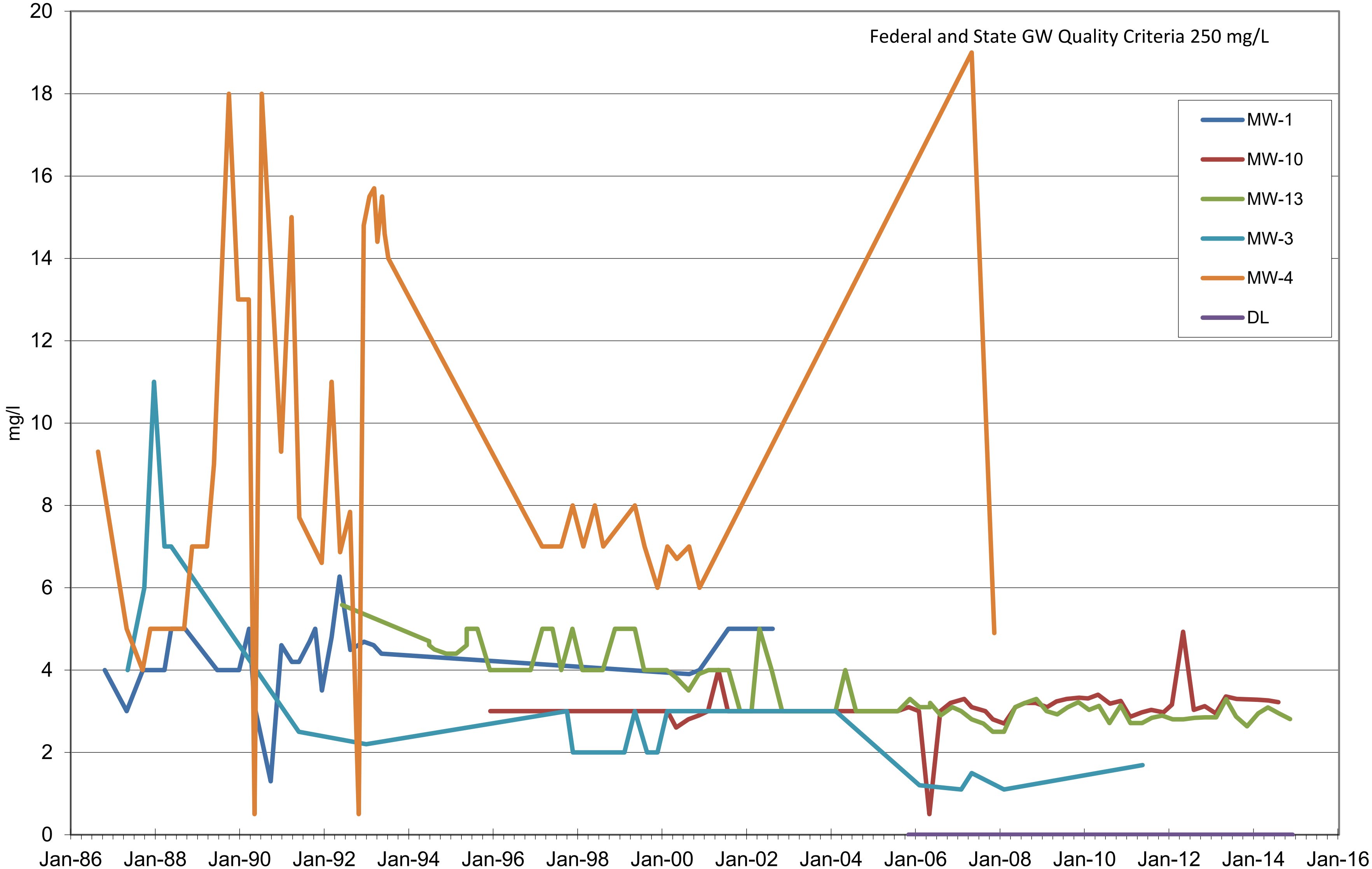


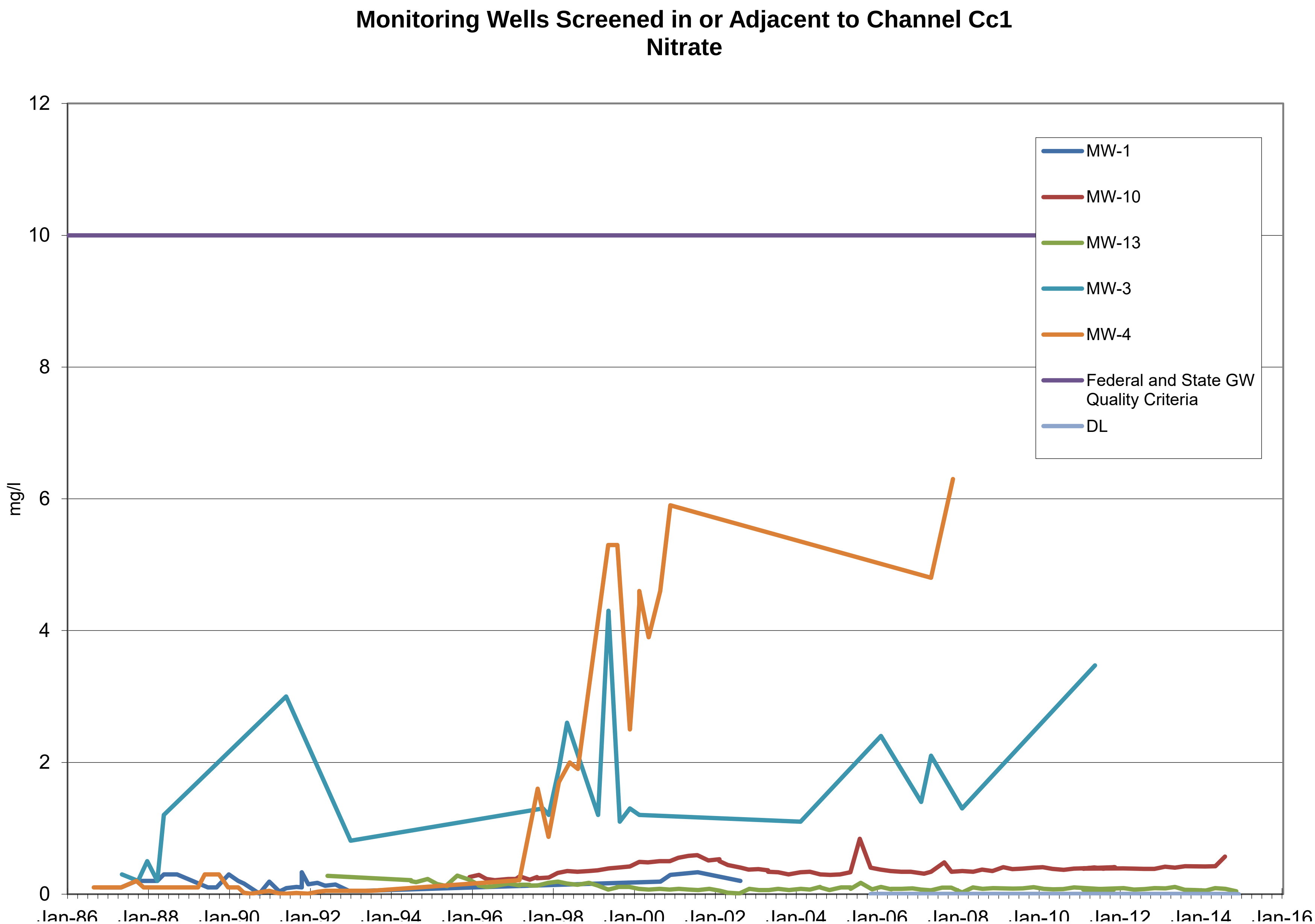
Monitoring Wells Screened in or Adjacent to Channel Cc1
Total Dissolved Solids
mg/l
600
500
400
300
200
100
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
Federal and State GW Quality Criteria
DL

Monitoring Wells Screened in or Adjacent to Channel Cc1
Ammonia

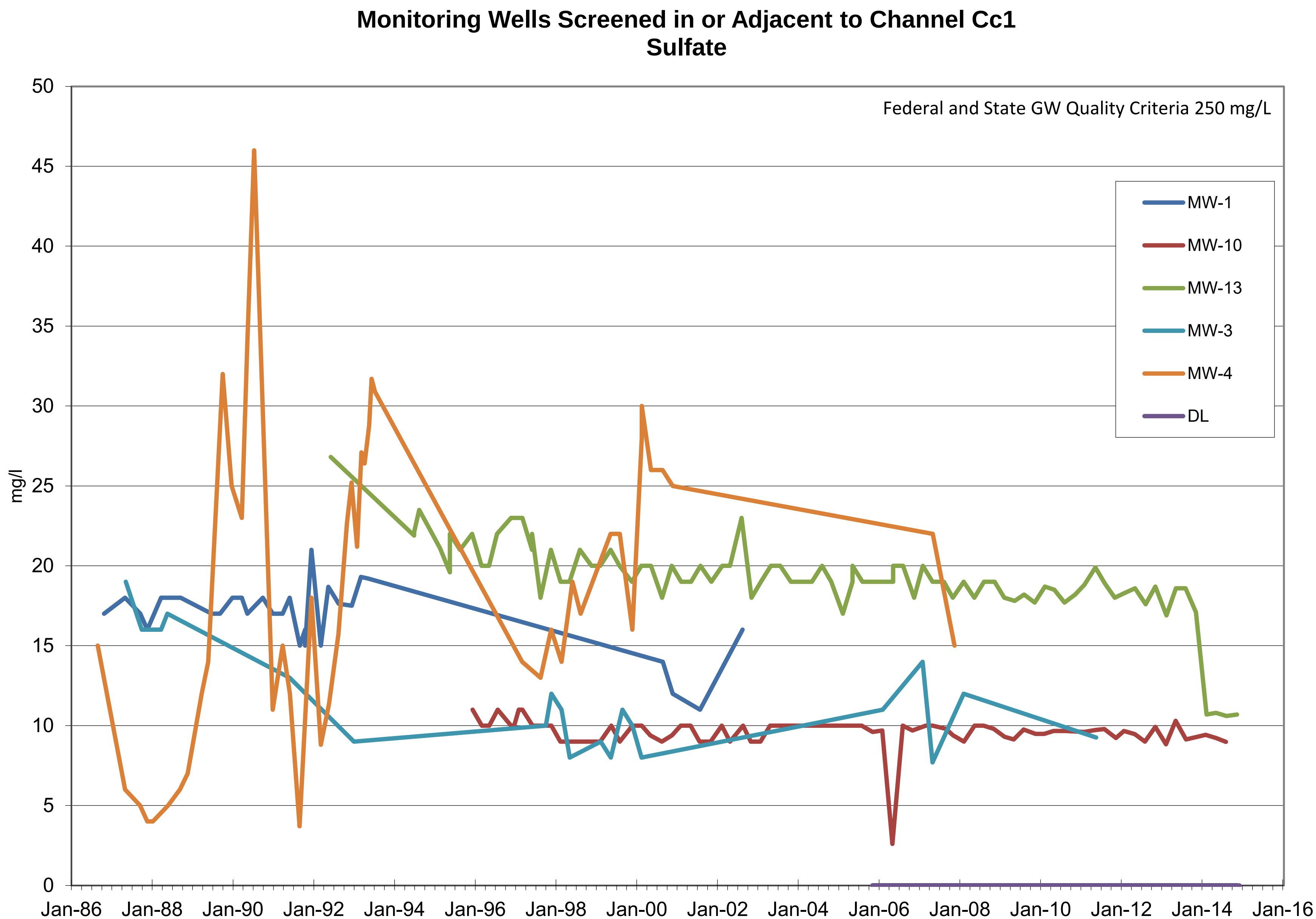


Monitoring Wells Screened in or Adjacent to Channel Cc1
Chloride

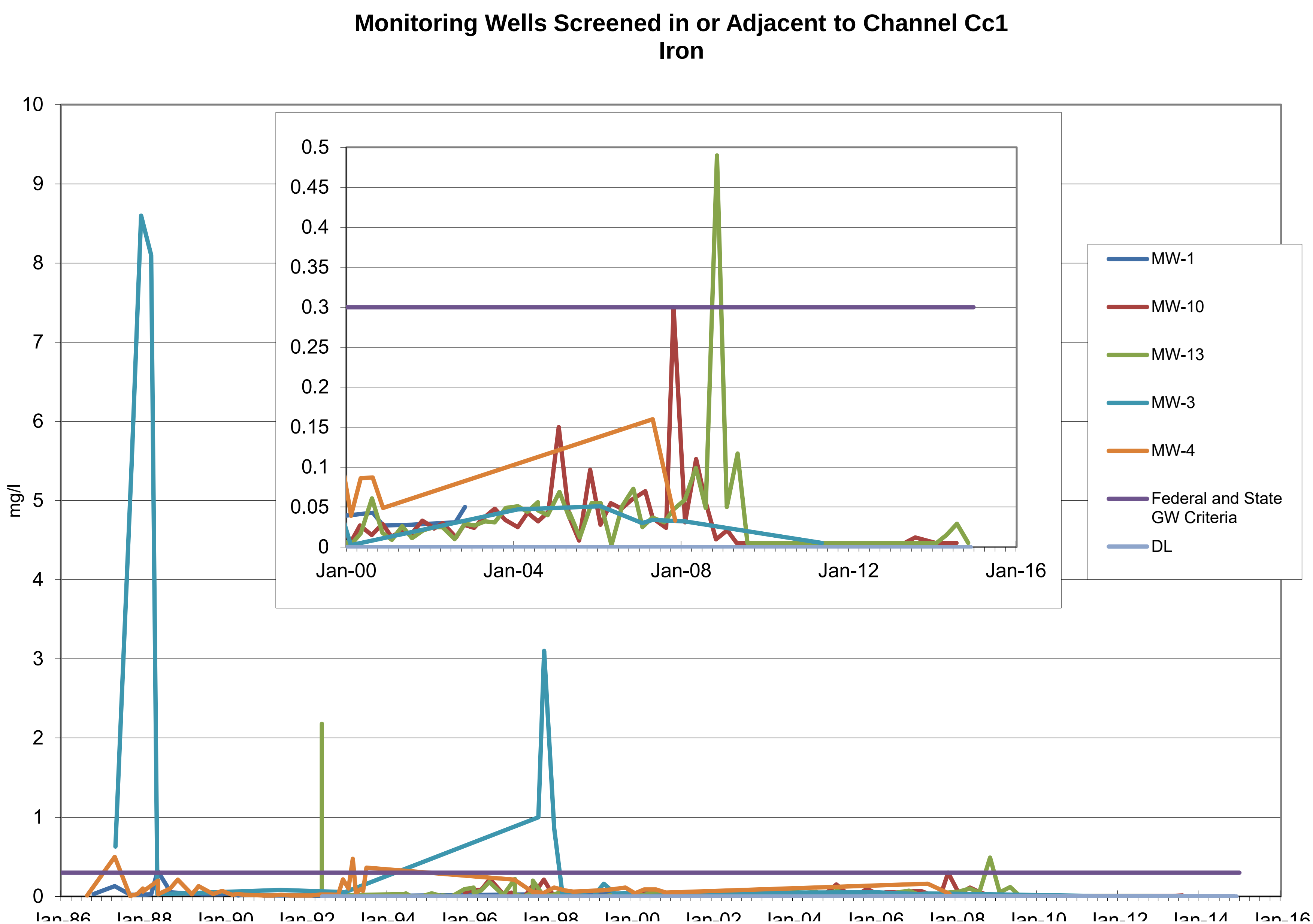




Monitoring Wells Screened in or Adjacent to Channel Cc1
Nitrate
mg/l
0
2
4
6
8
10
12
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
Federal and State GW Quality Criteria
DL

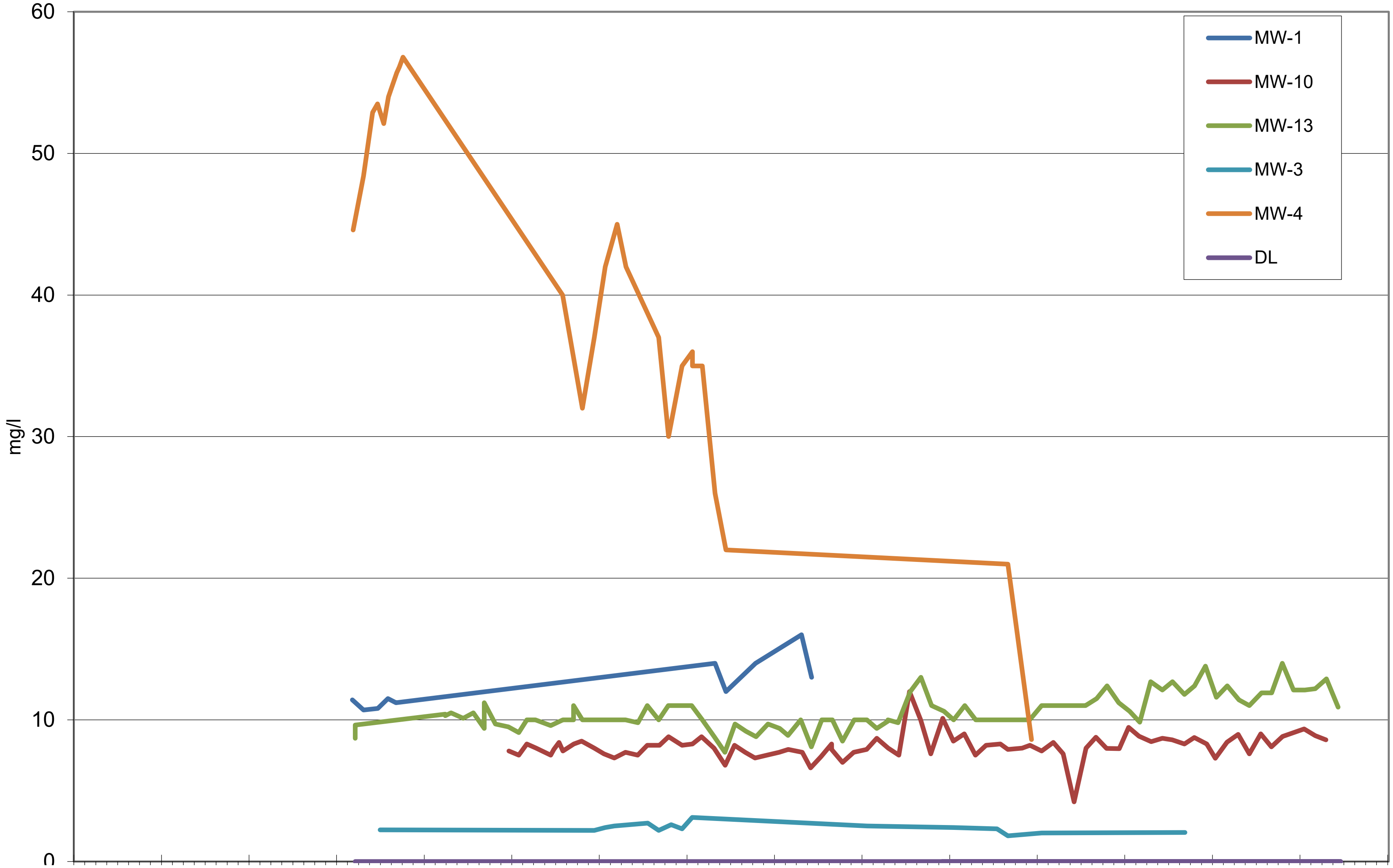


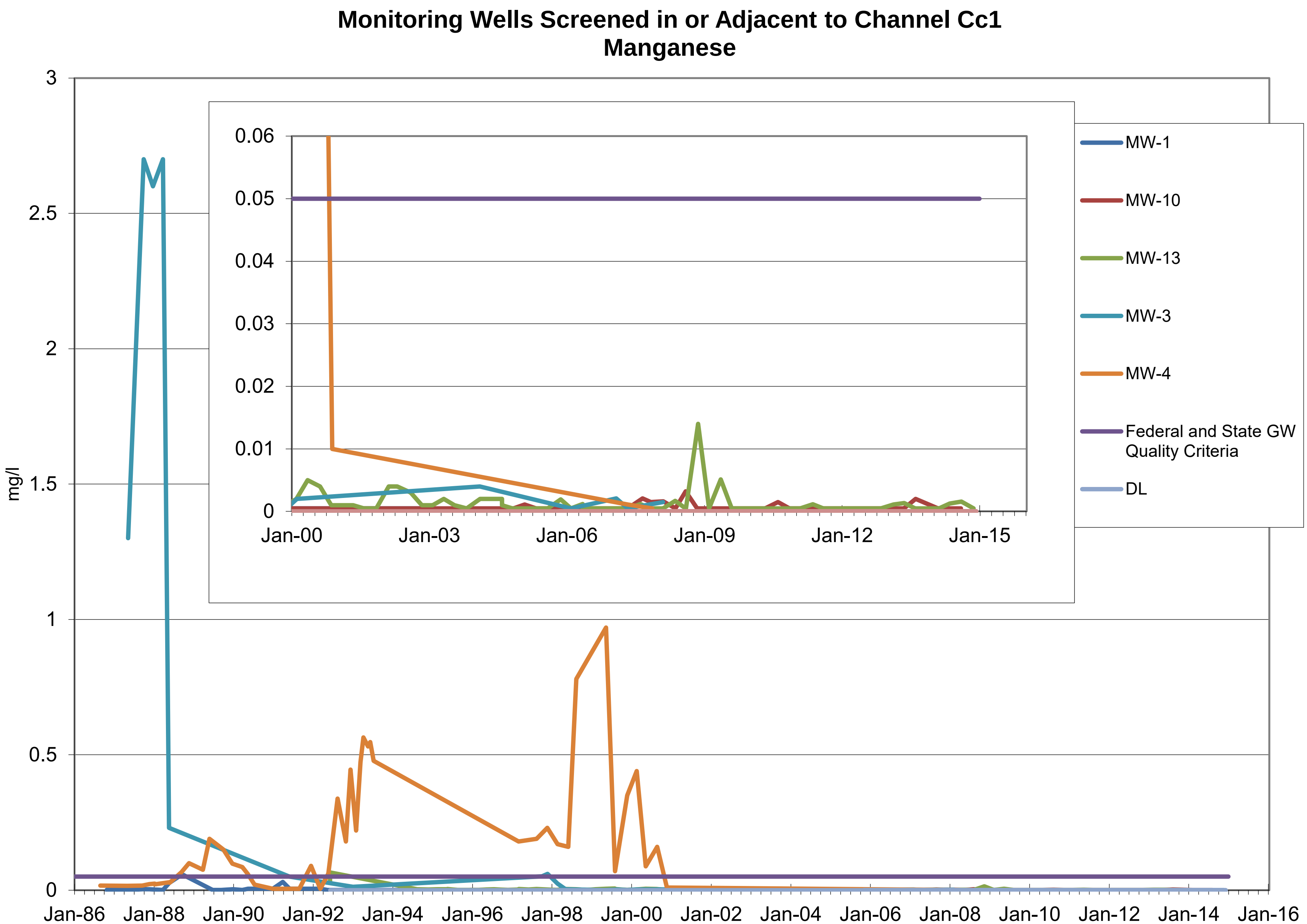
Monitoring Wells Screened in or Adjacent to Channel Cc1
Sulfate
Federal and State GW Quality Criteria 250 mg/L
mg/l
0
5
10
15
20
25
30
35
40
45
50
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
DL



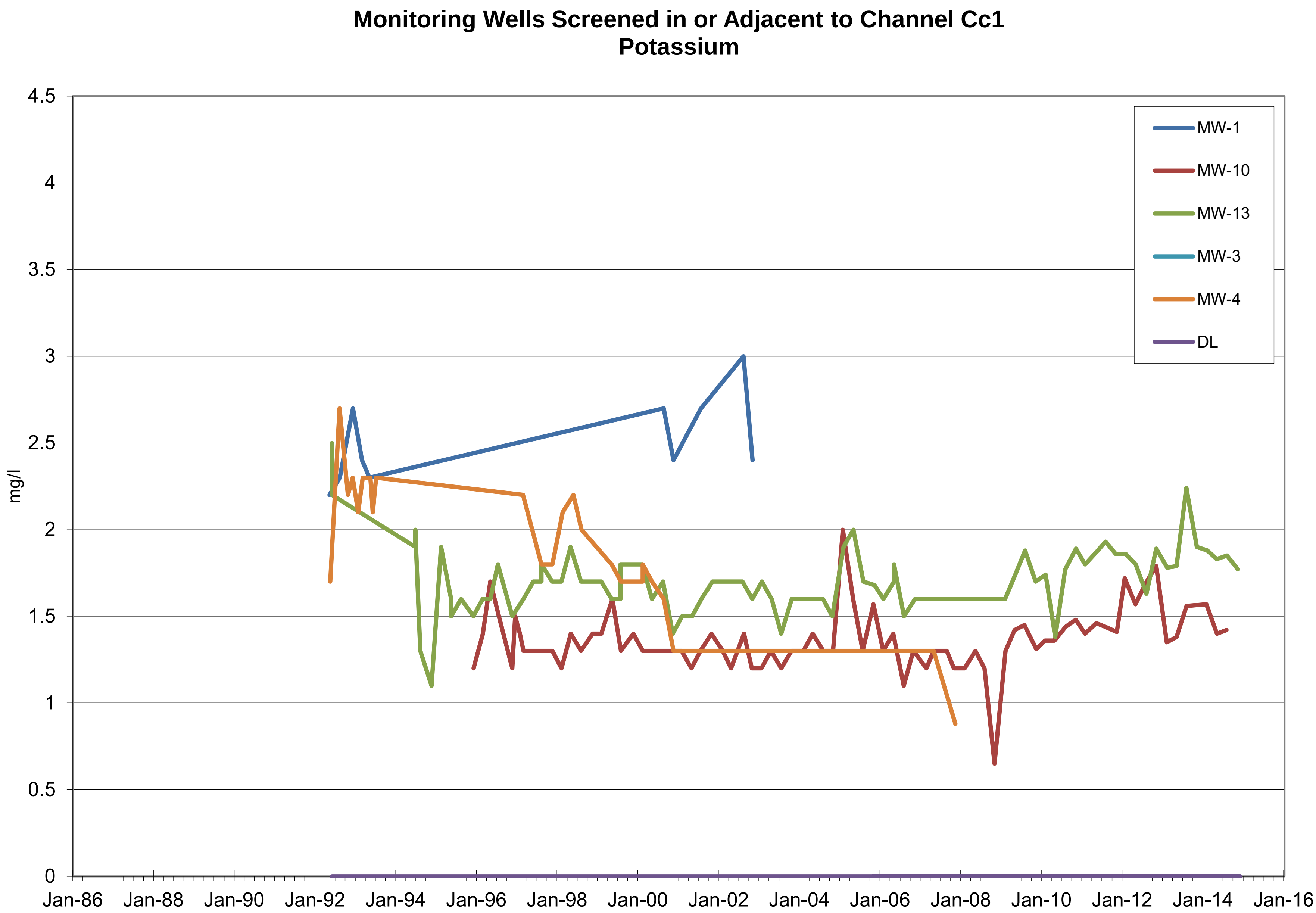
Monitoring Wells Screened in or Adjacent to Channel Cc1
Iron
mg/l
10
9
8
7
6
5
4
3
2
1
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jan-00
Jan-04
Jan-08
Jan-12
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
Federal and State GW Criteria
DL

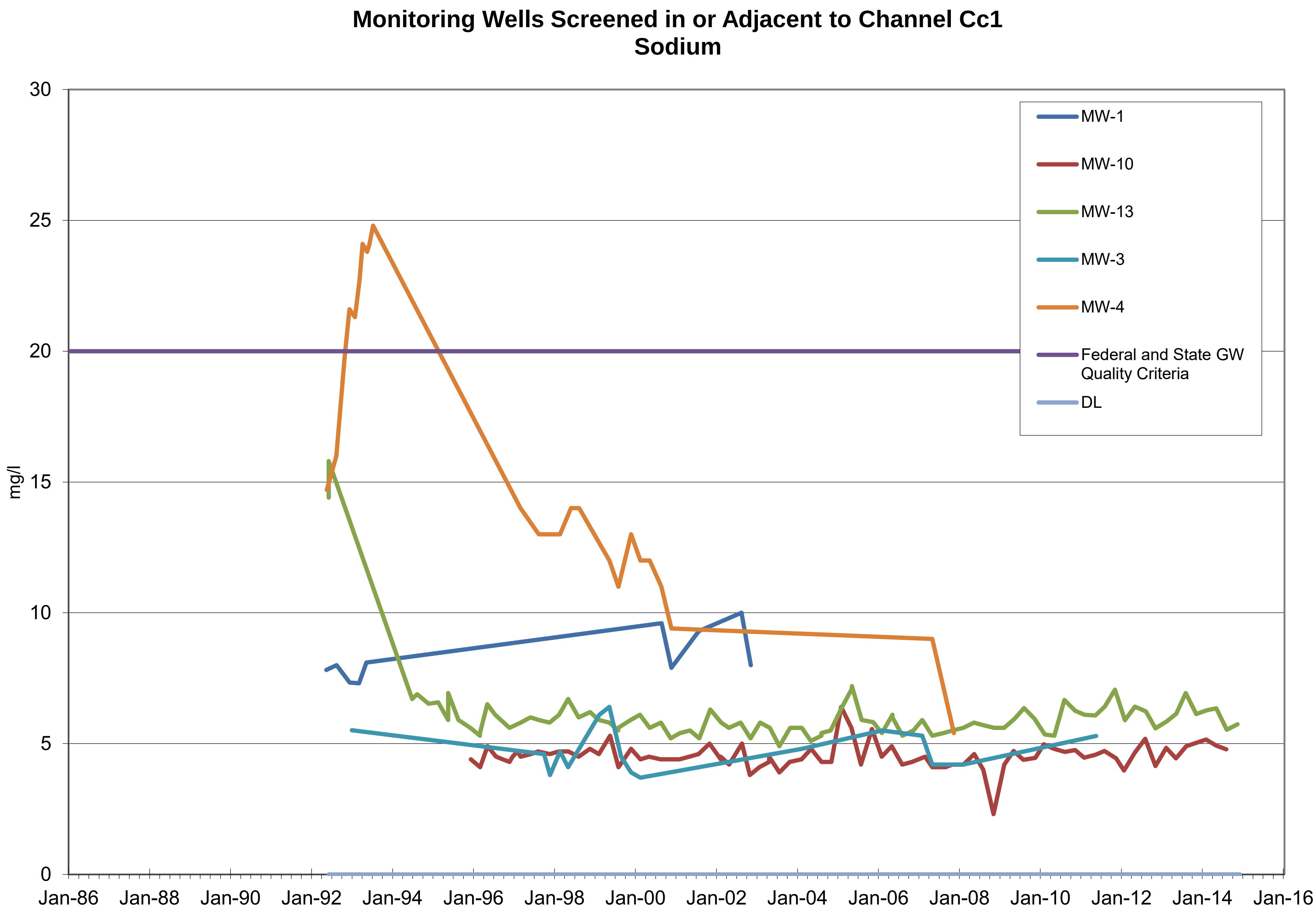
Monitoring Wells Screened in or Adjacent to Channel Cc1
Magnesium



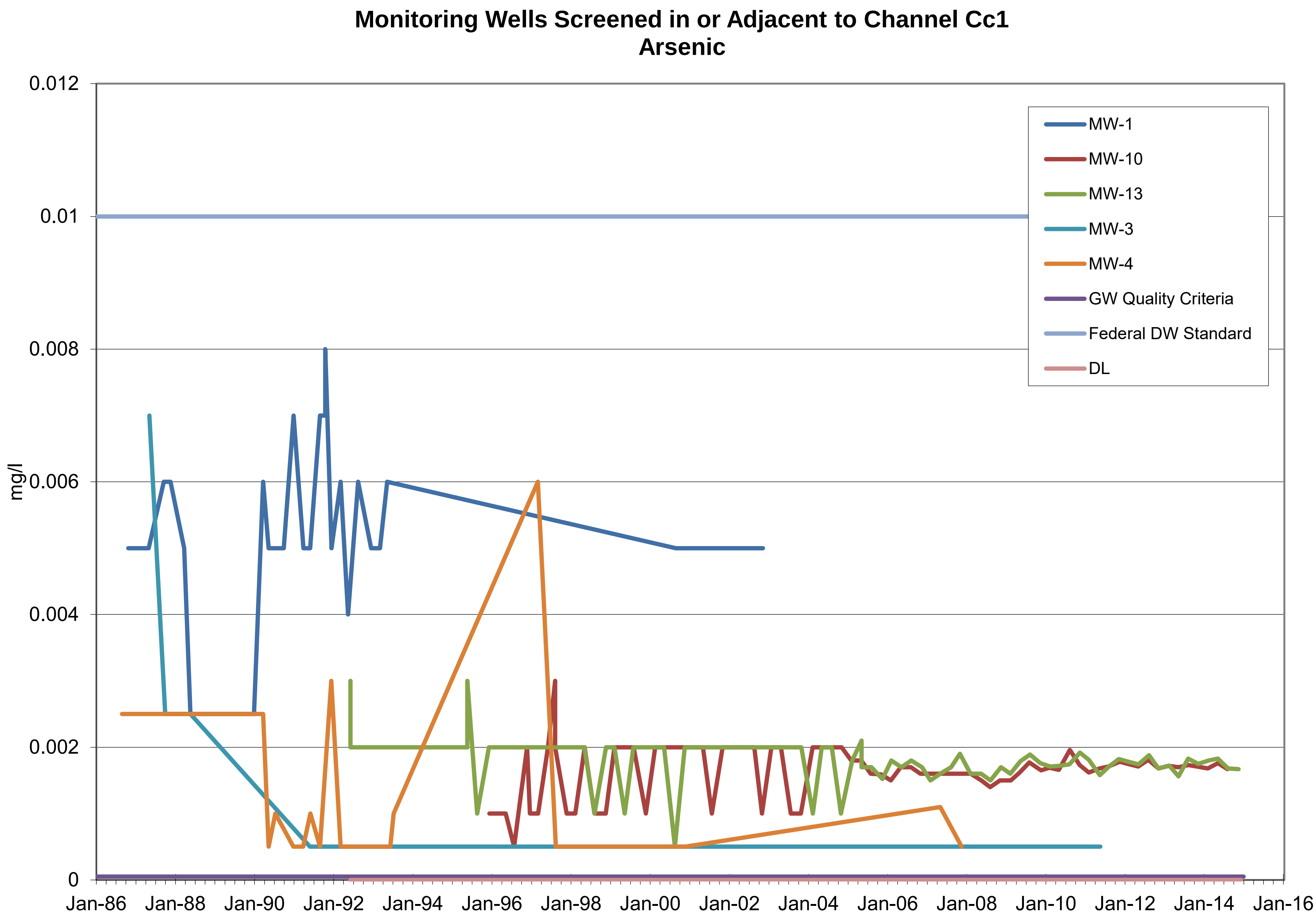


Monitoring Wells Screened in or Adjacent to Channel Cc1
Manganese
mg/l
3
2.5
2
1.5
1
0.5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
0.06
0.05
0.04
0.03
0.02
0.01
0
Jan-00
Jan-03
Jan-06
Jan-09
Jan-12
Jan-15
MW-1
MW-10
MW-13
MW-3
MW-4
Federal and State GW Quality Criteria
DL

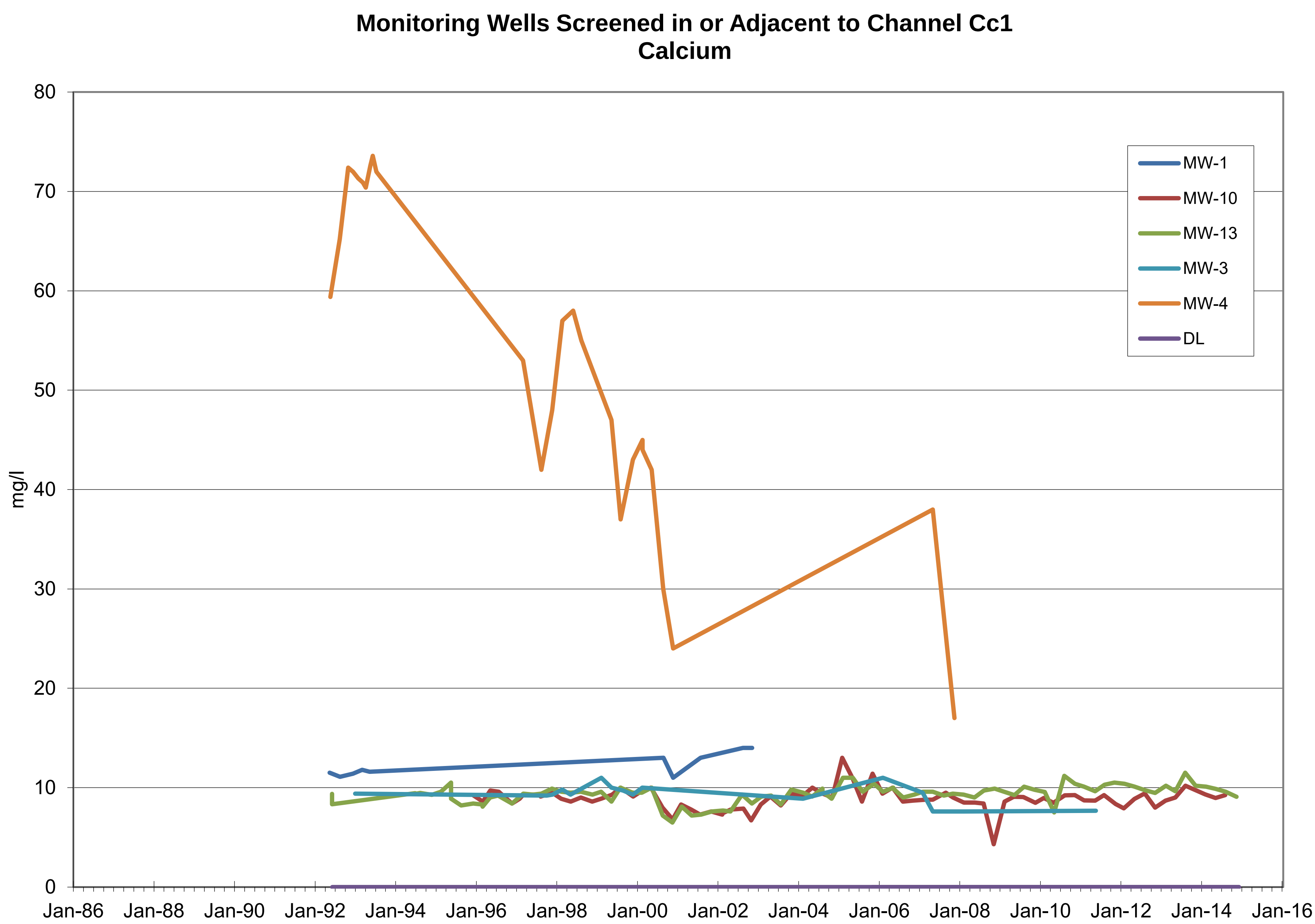

Monitoring Wells Screened in or Adjacent to Channel Cc1
Potassium
mg/l
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
DL



Monitoring Wells Screened in or Adjacent to Channel Cc1
Sodium
mg/l
30
25
20
15
10
5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
Federal and State GW Quality Criteria
DL



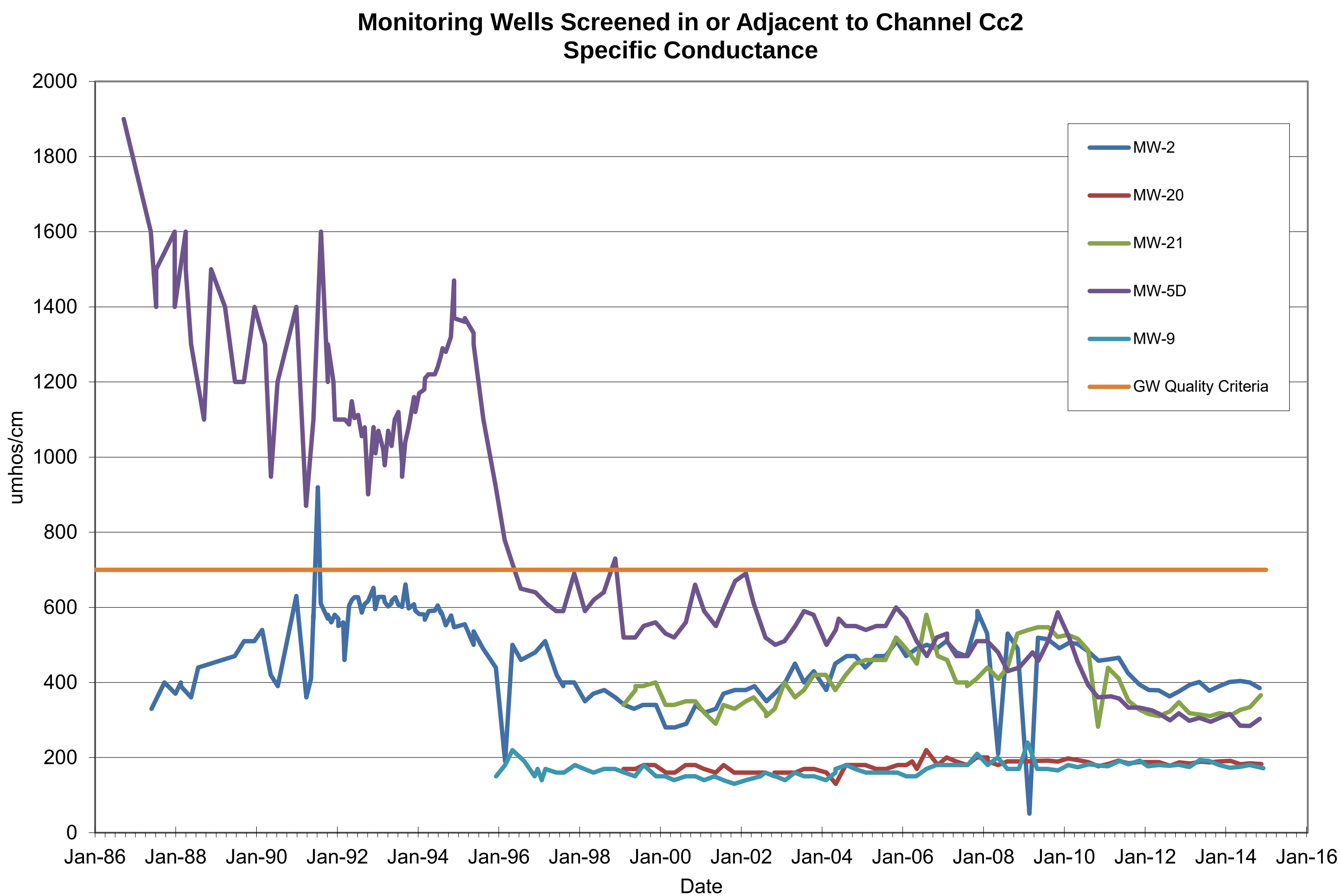
Monitoring Wells Screened in or Adjacent to Channel Cc1
Arsenic
mg/l
0.012
0.01
0.008
0.006
0.004
0.002
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
GW Quality Criteria
Federal DW Standard
DL



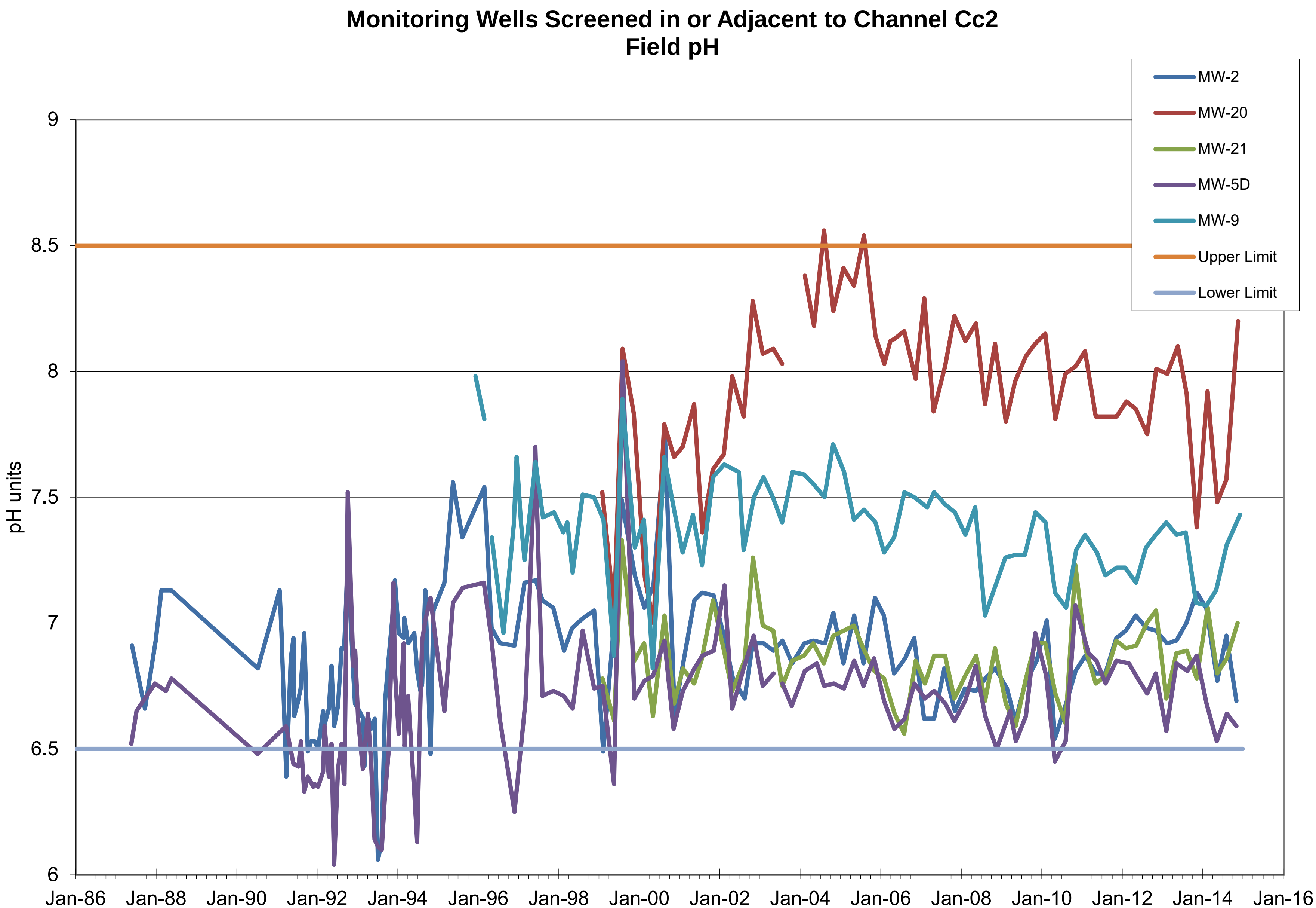
Monitoring Wells Screened in or Adjacent to Channel Cc1
Calcium
mg/l
80
70
60
50
40
30
20
10
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-1
MW-10
MW-13
MW-3
MW-4
DL

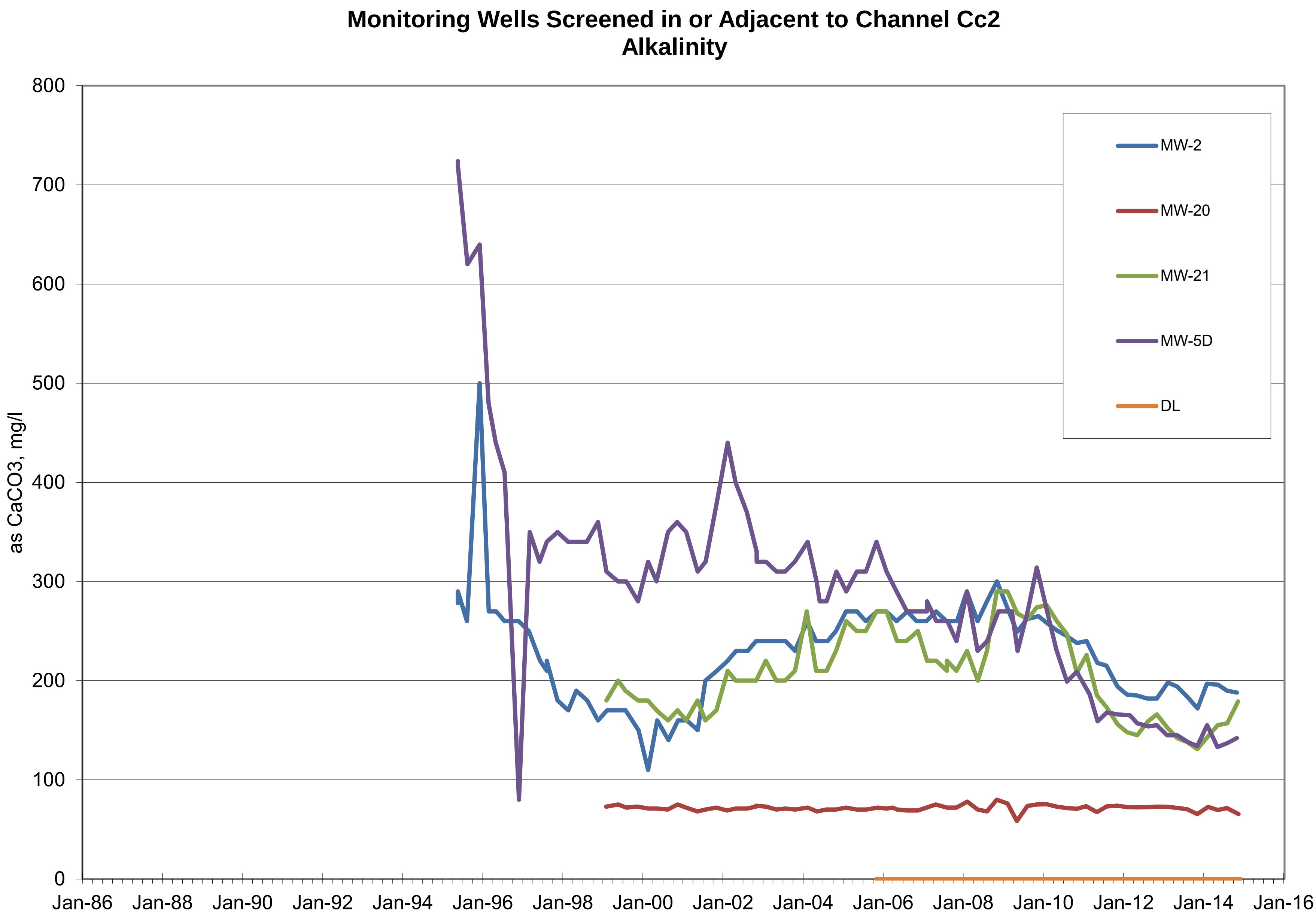
Appendix D

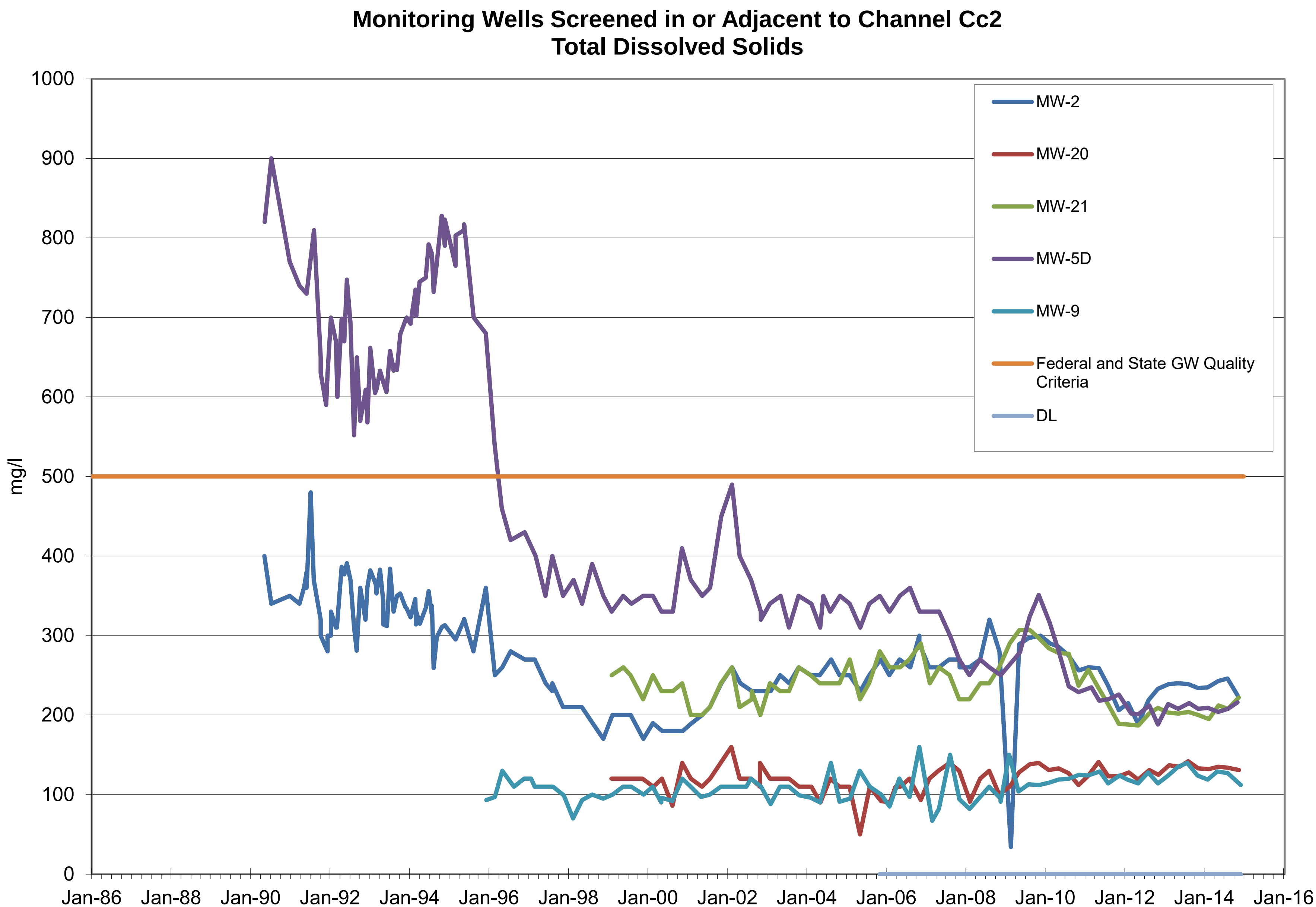
Time Concentration Plots for Groundwater in Channel Cc2



Monitoring Wells Screened in or Adjacent to Channel Cc2
Specific Conductance
umhos/cm
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-2
MW-20
MW-21
MW-5D
MW-9
GW Quality Criteria

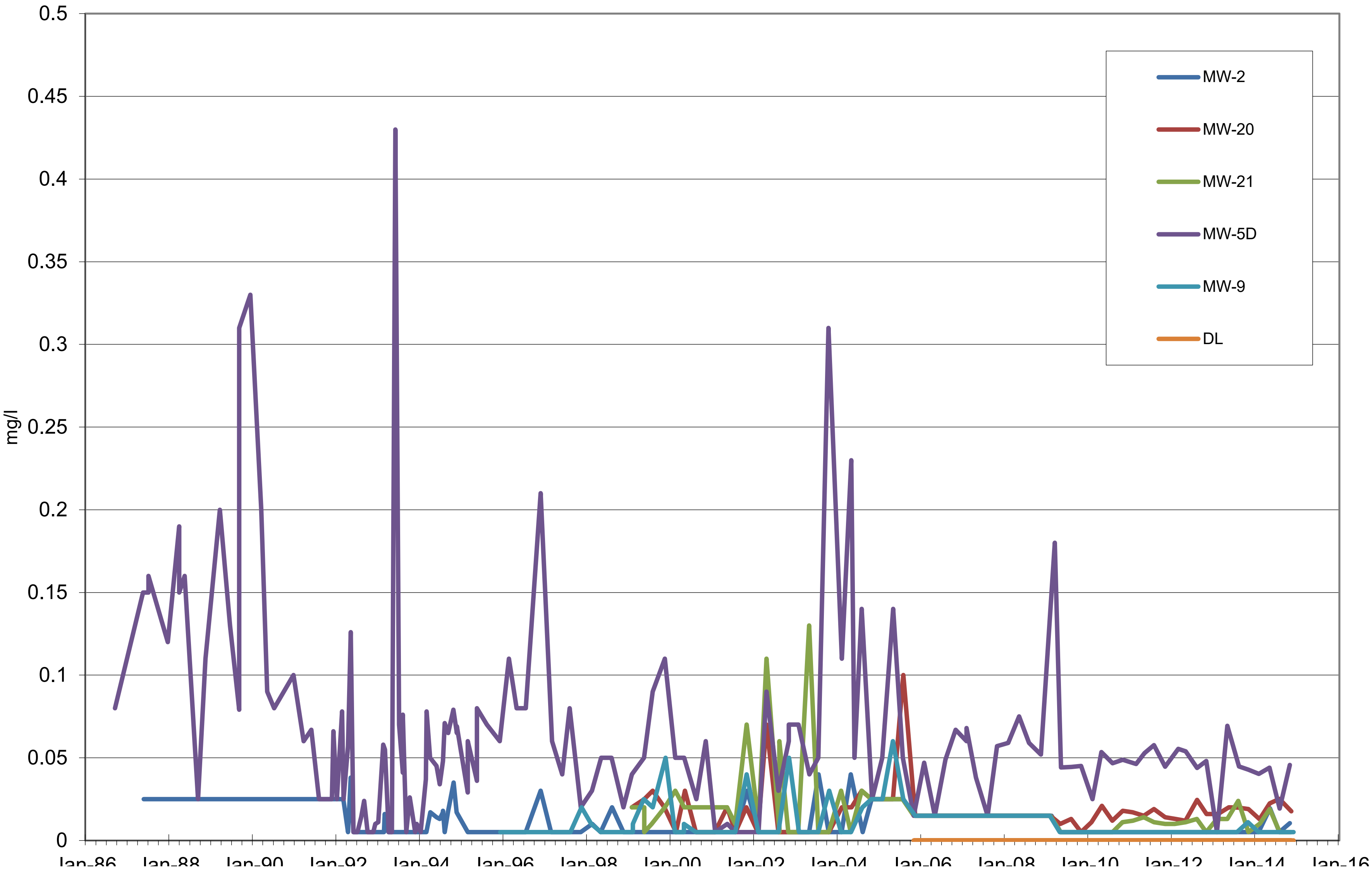

Monitoring Wells Screened in or Adjacent to Channel Cc2
Field pH
MW-2
MW-20
MW-21
MW-5D
MW-9
Upper Limit
Lower Limit
pH units
9
8.5
8
7.5
7
6.5
6
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16

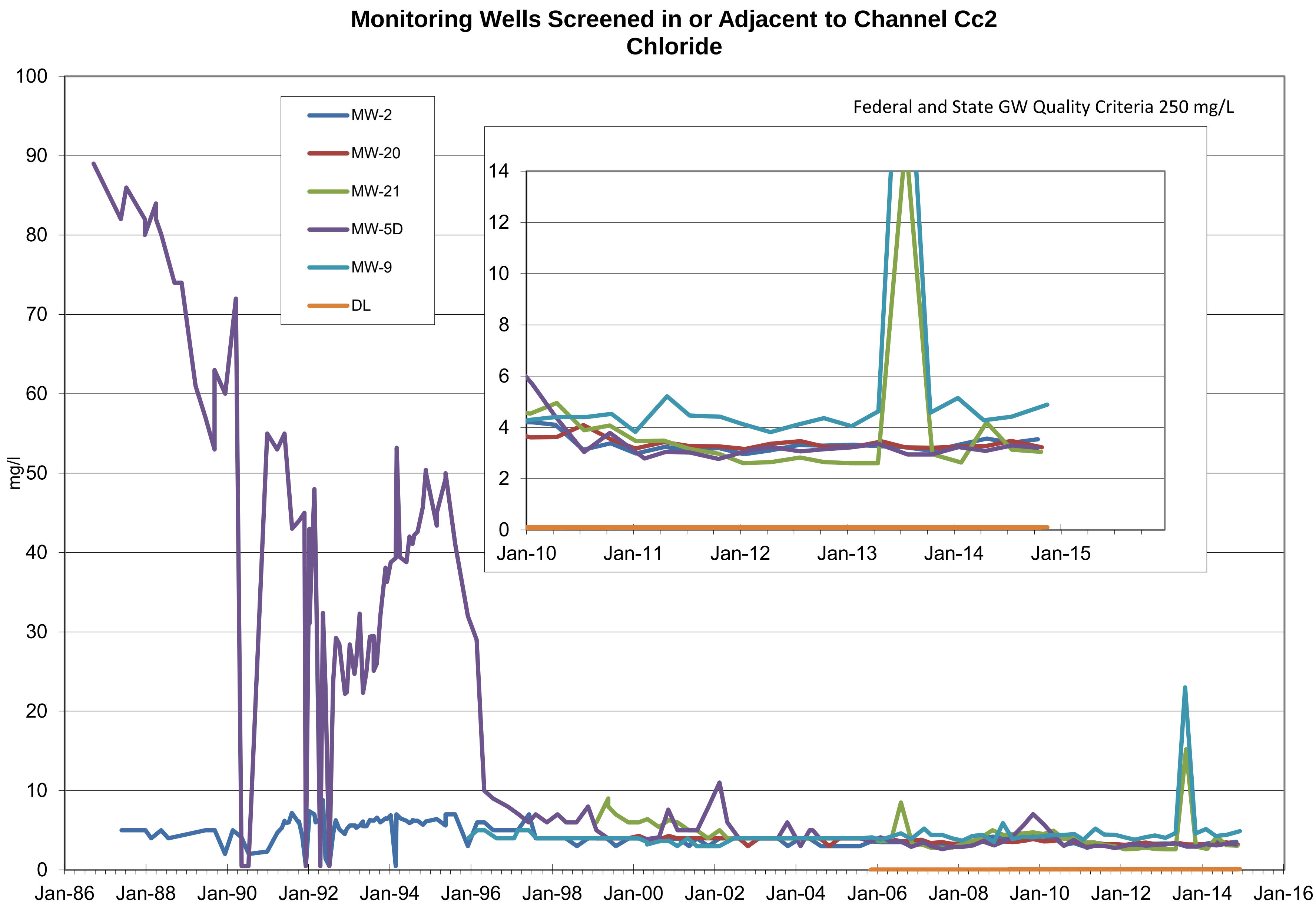

Monitoring Wells Screened in or Adjacent to Channel Cc2
Alkalinity
as CaCO3, mg/l
800
700
600
500
400
300
200
100
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
DL



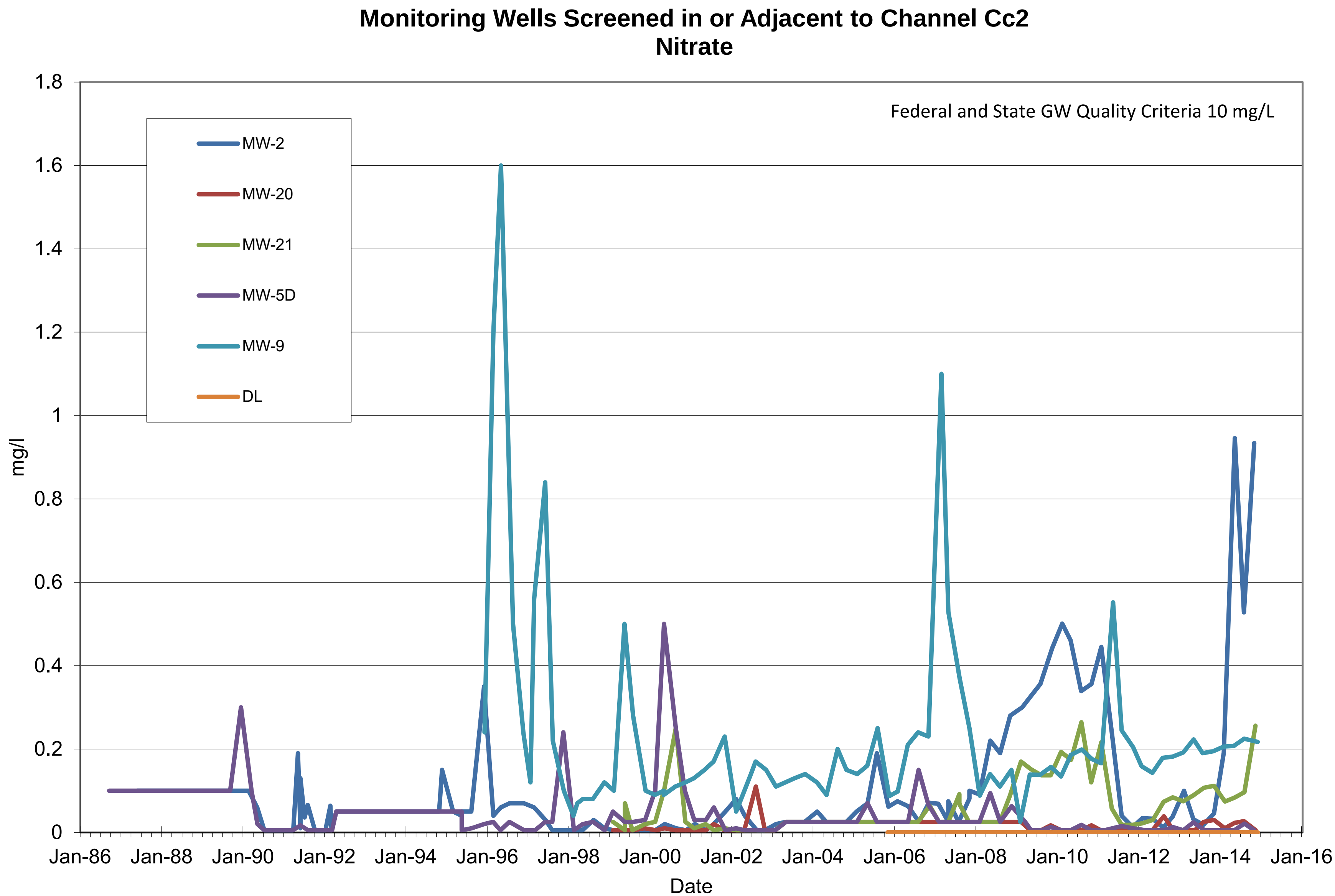
Monitoring Wells Screened in or Adjacent to Channel Cc2
Total Dissolved Solids
mg/l
1000
900
800
700
600
500
400
300
200
100
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
Federal and State GW Quality Criteria
DL

Monitoring Wells Screened in or Adjacent to Channel Cc2
Ammonia

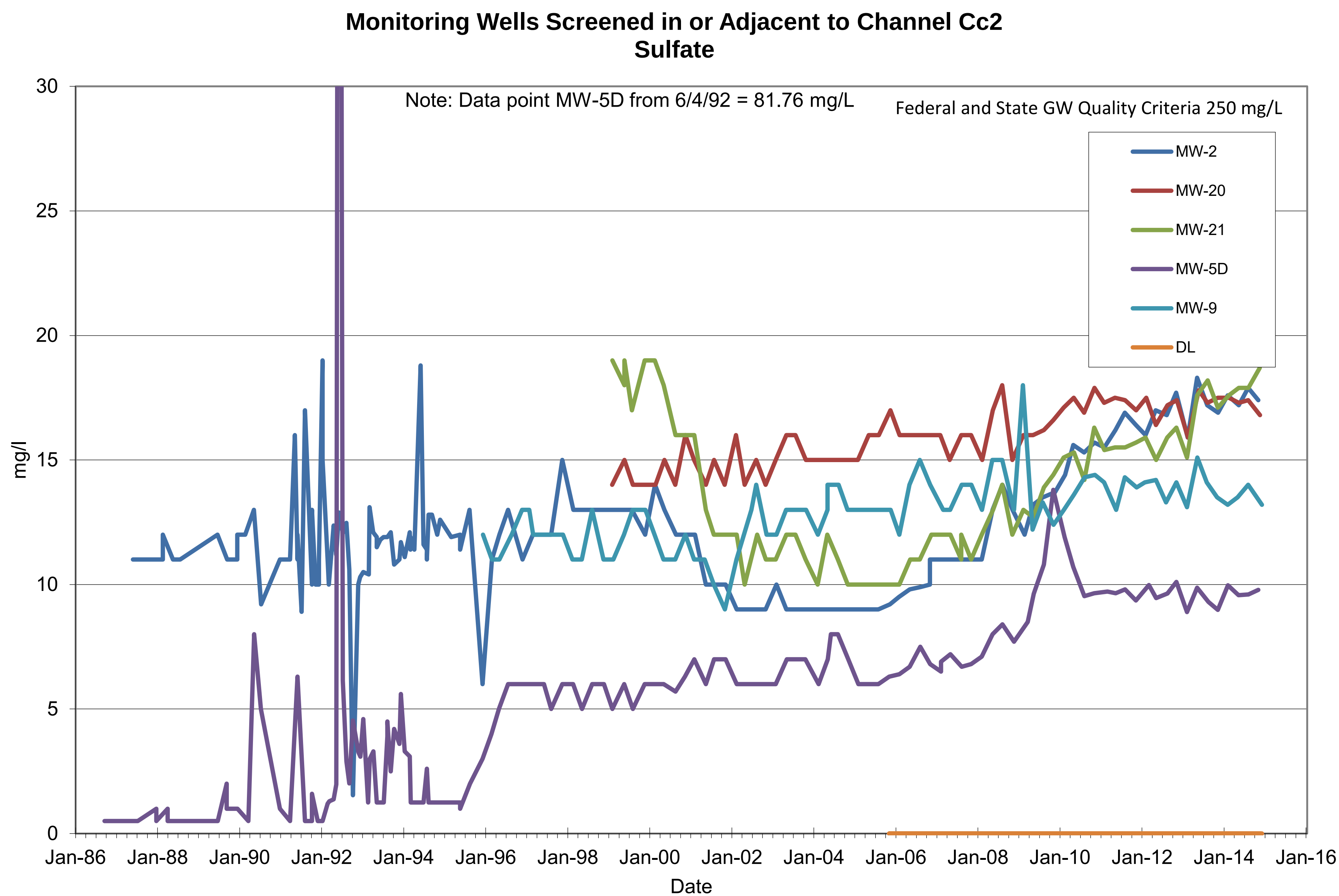




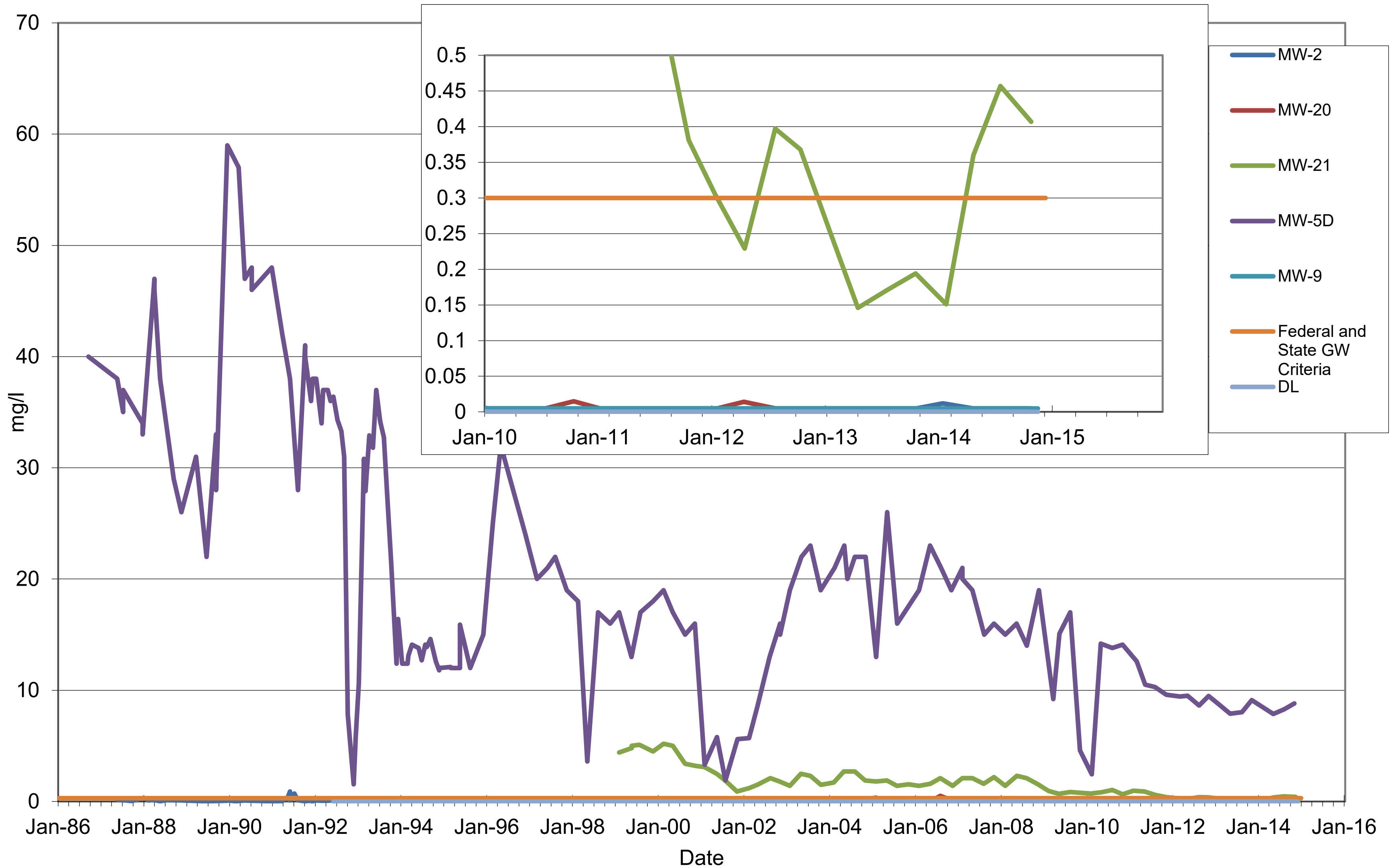
Monitoring Wells Screened in or Adjacent to Channel Cc2
Chloride
Federal and State GW Quality Criteria 250 mg/L
MW-2
MW-20
MW-21
MW-5D
MW-9
DL
mg/l
100
90
80
70
60
50
40
30
20
10
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
14
12
10
8
6
4
2
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15

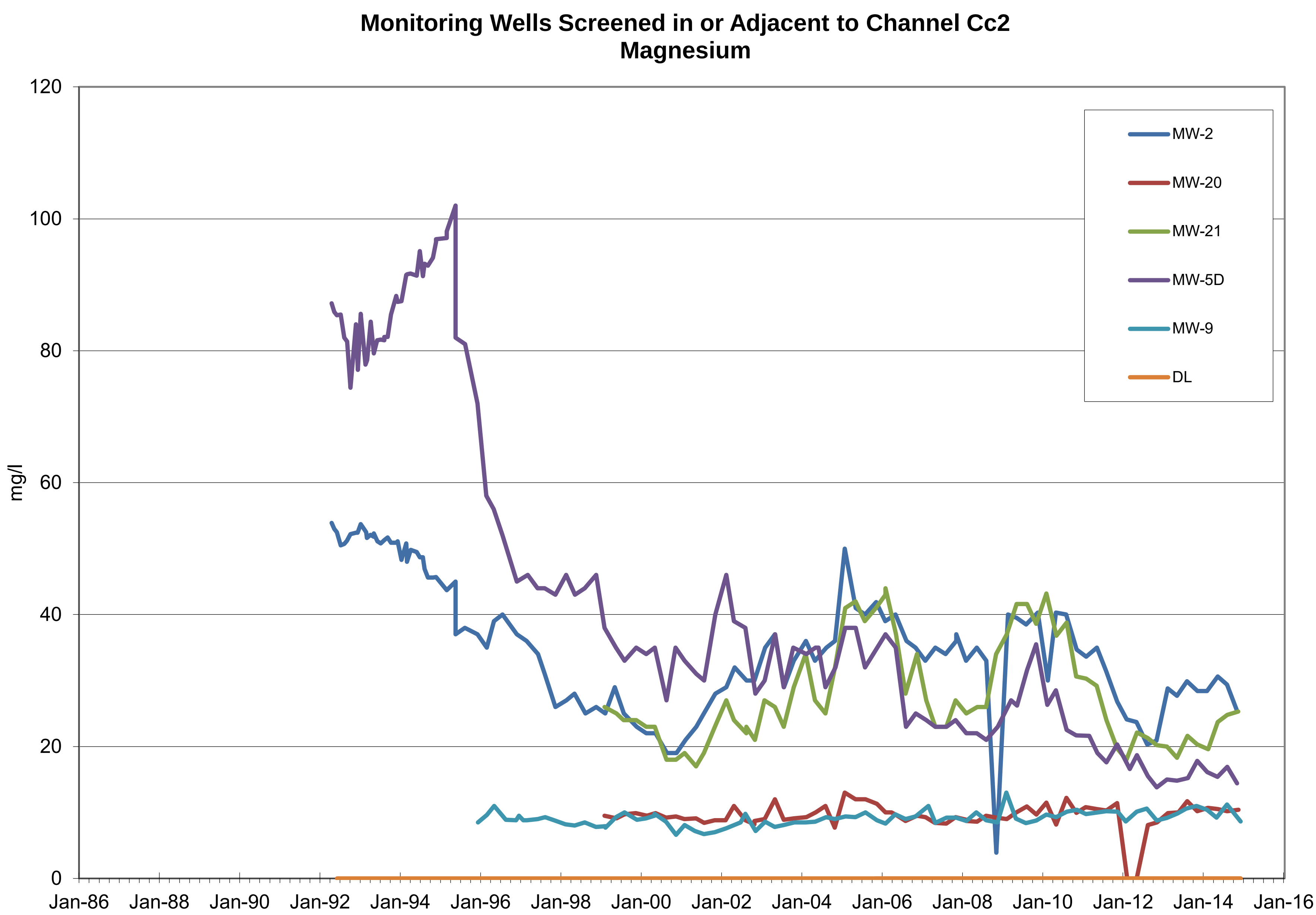


Monitoring Wells Screened in or Adjacent to Channel Cc2
Nitrate
Federal and State GW Quality Criteria 10 mg/L
MW-2
MW-20
MW-21
MW-5D
MW-9
DL
mg/l
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date

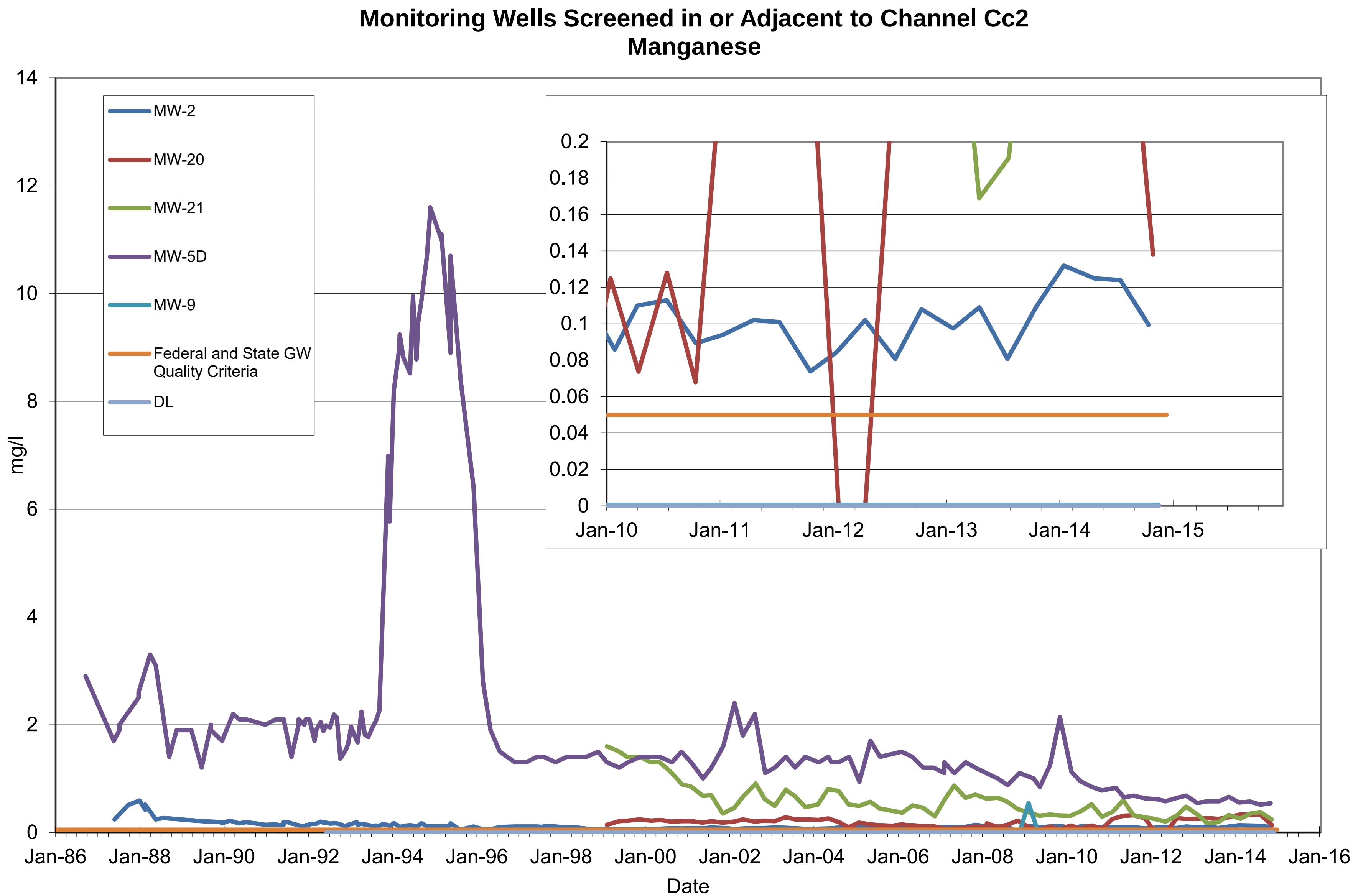

Monitoring Wells Screened in or Adjacent to Channel Cc2
Sulfate
Note: Data point MW-5D from 6/4/92 = 81.76 mg/L
Federal and State GW Quality Criteria 250 mg/L
MW-2
MW-20
MW-21
MW-5D
MW-9
DL
mg/l
30
25
20
15
10
5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date

Monitoring Wells Screened in or Adjacent to Channel Cc2
Iron

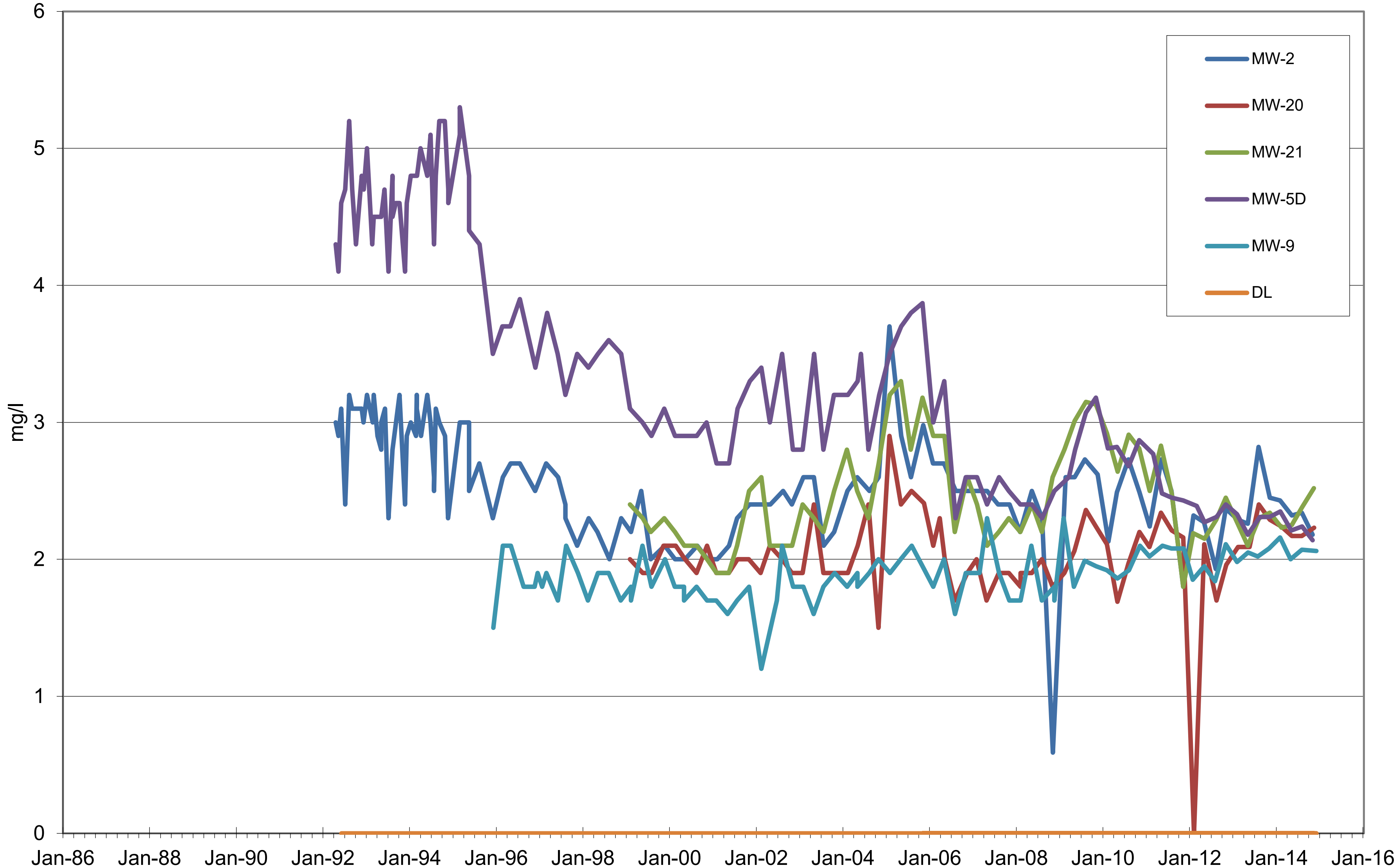


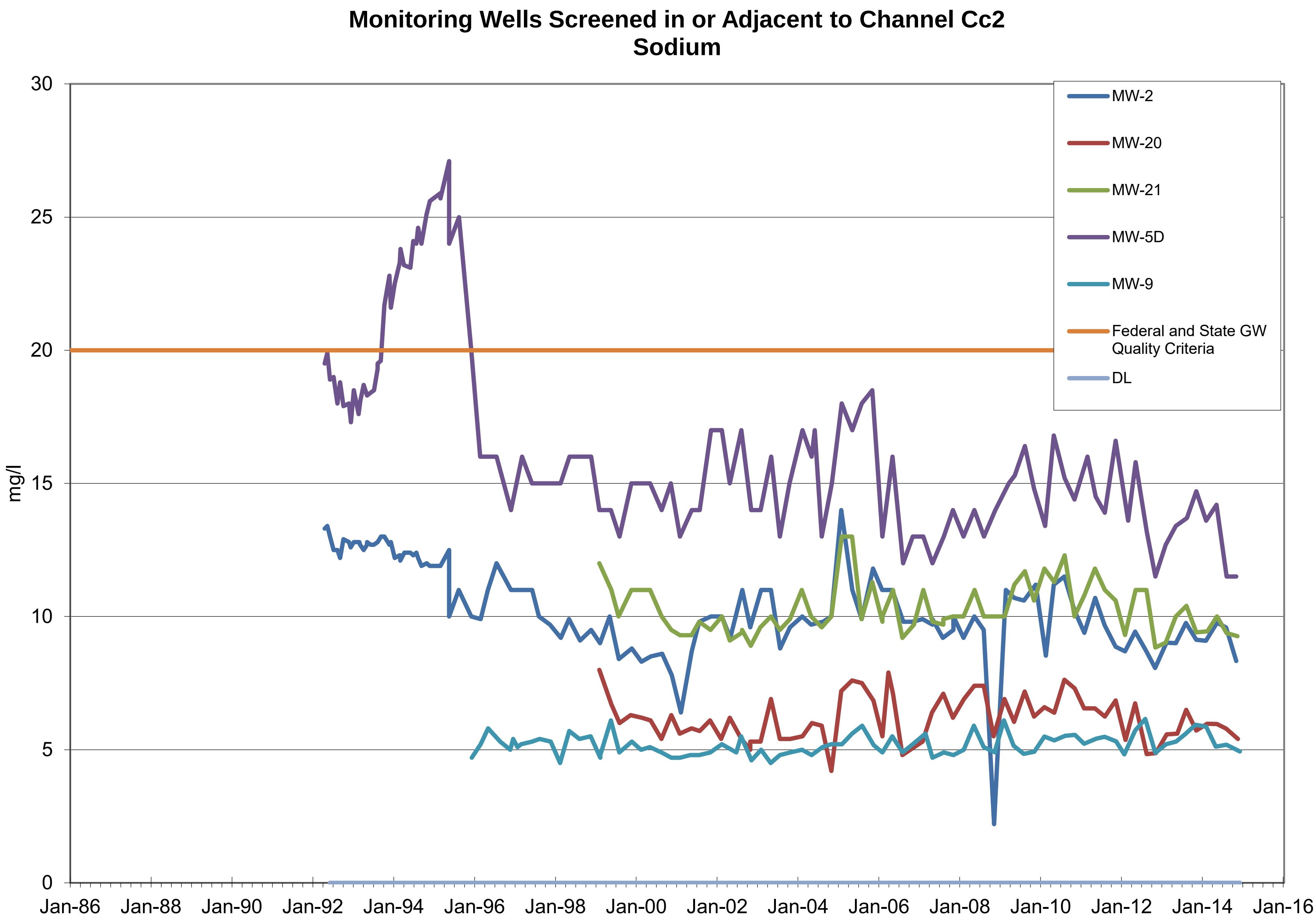


Monitoring Wells Screened in or Adjacent to Channel Cc2
Magnesium
mg/l
0
20
40
60
80
100
120
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL

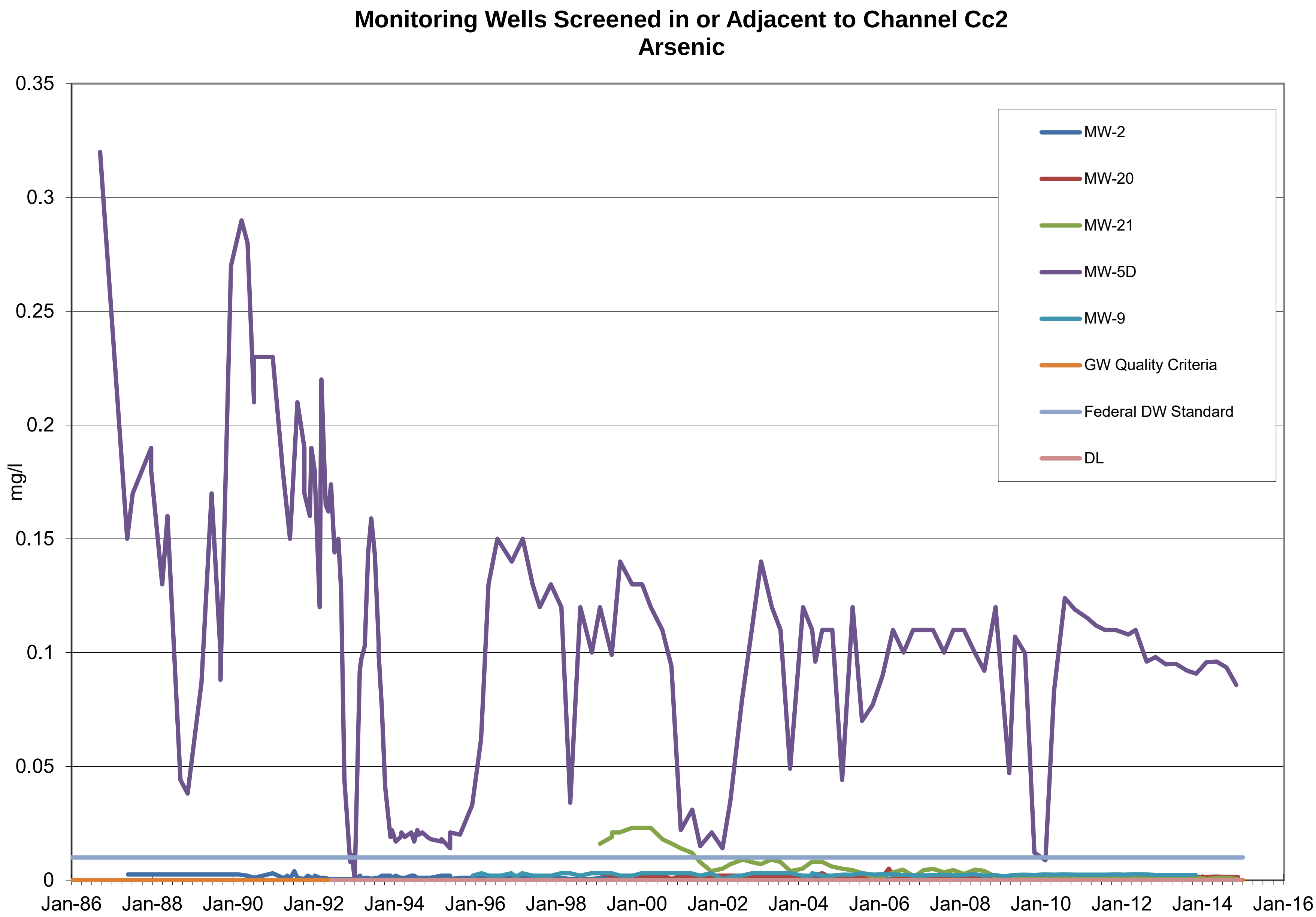

Monitoring Wells Screened in or Adjacent to Channel Cc2
Manganese
mg/l
Date
MW-2
MW-20
MW-21
MW-5D
MW-9
Federal and State GW Quality Criteria
DL
0
2
4
6
8
10
12
14
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15

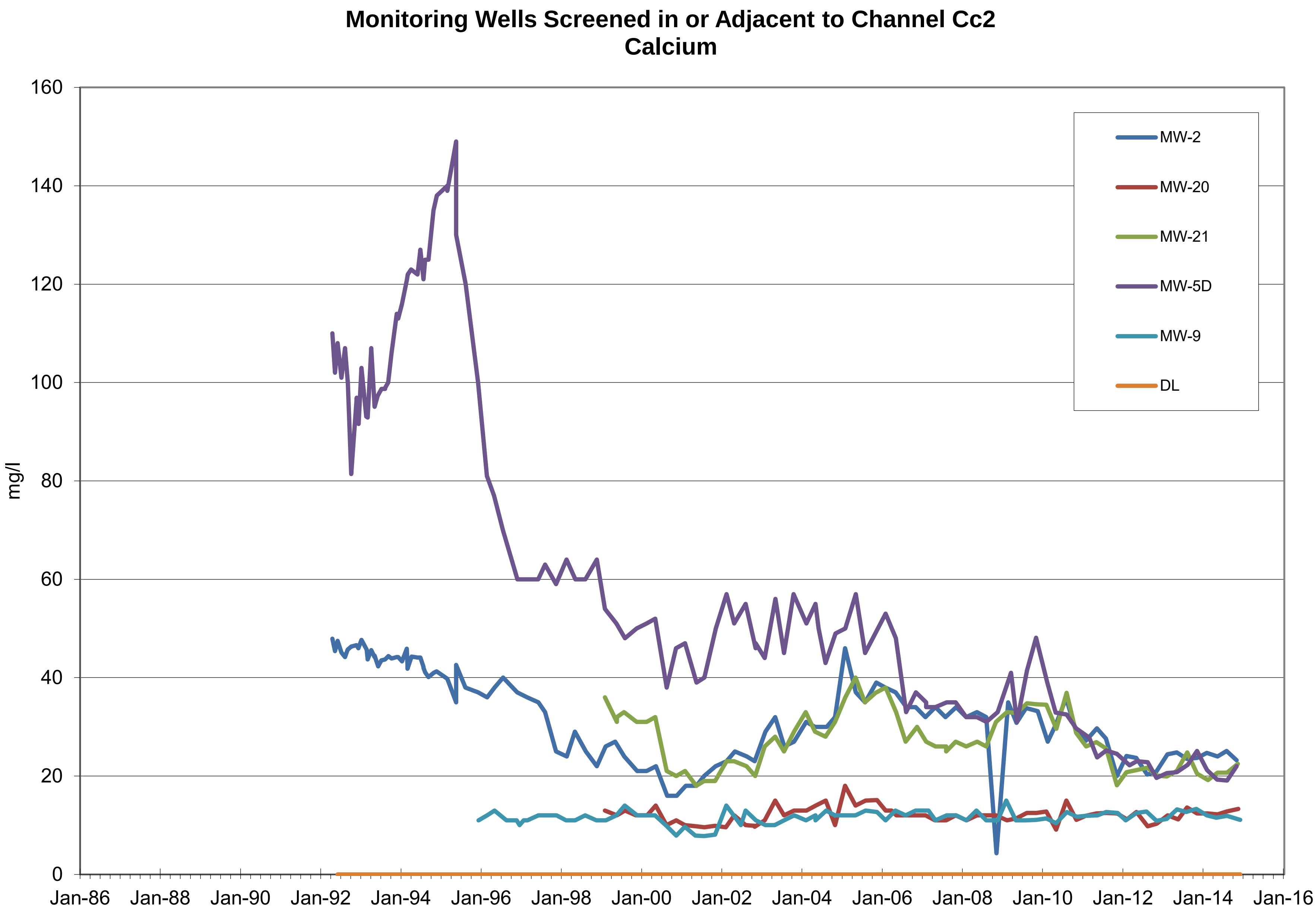
Monitoring Wells Screened in or Adjacent to Channel Cc2
Potassium

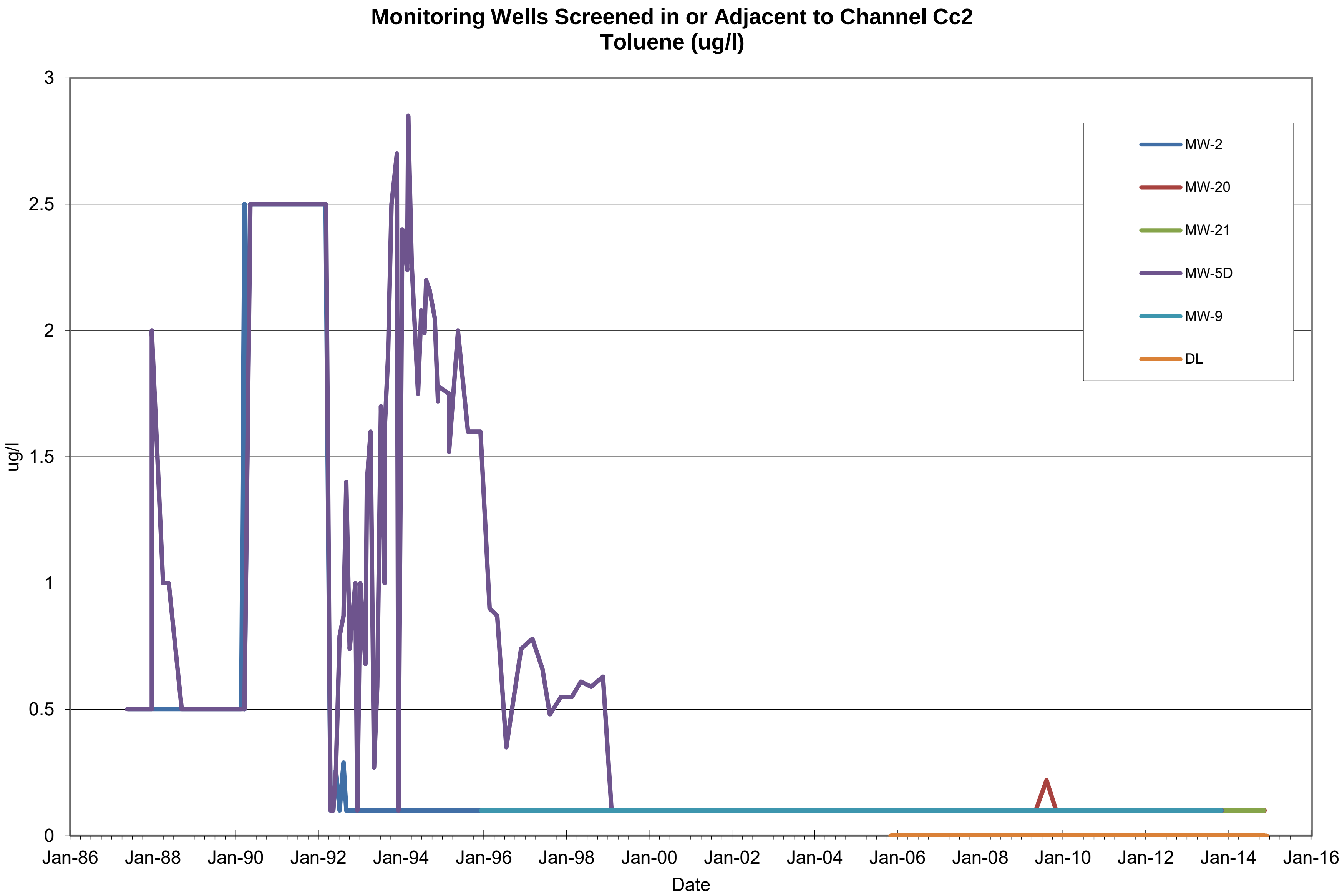




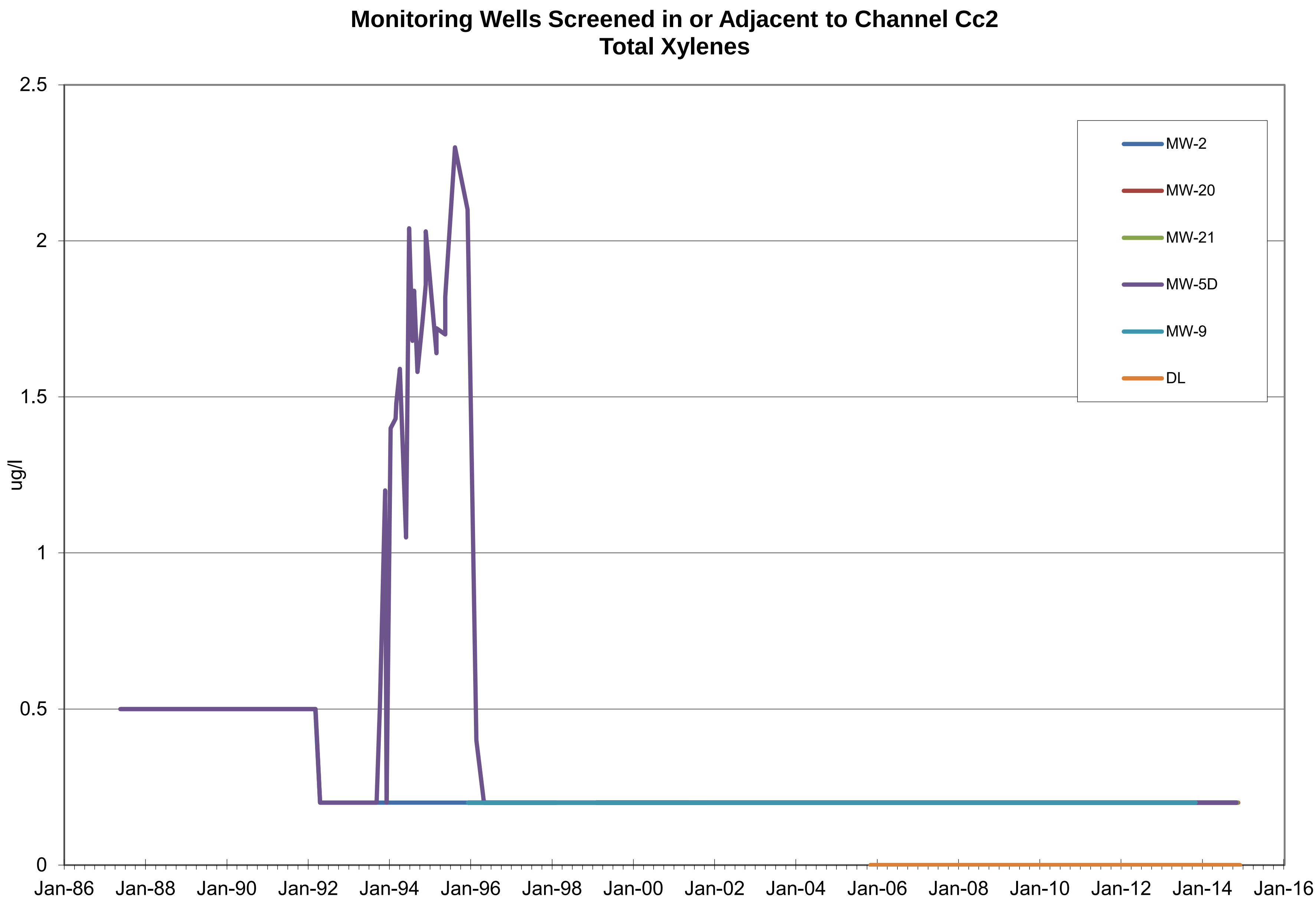
Monitoring Wells Screened in or Adjacent to Channel Cc2
Sodium
mg/l
30
25
20
15
10
5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
Federal and State GW Quality Criteria
DL

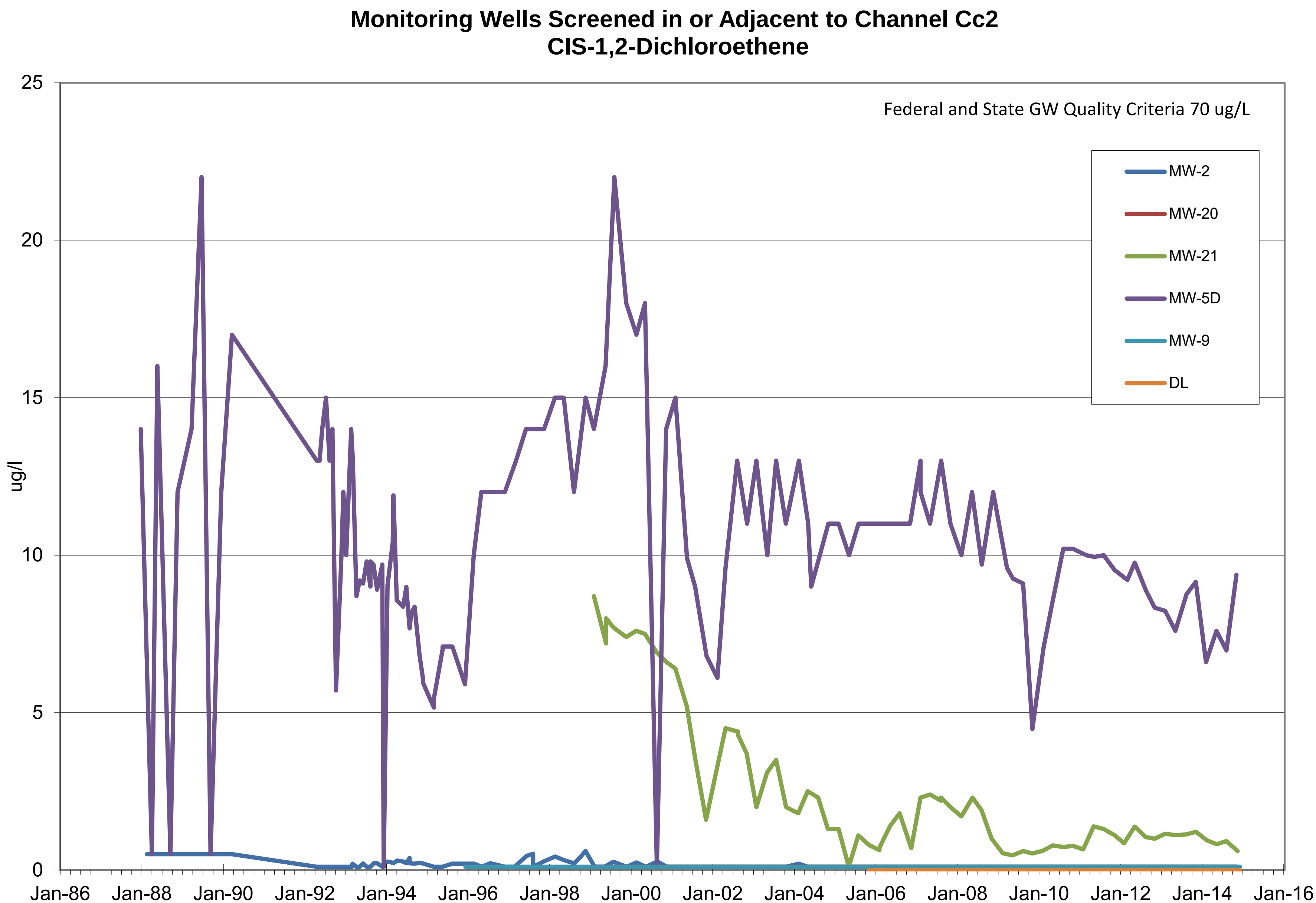

Monitoring Wells Screened in or Adjacent to Channel Cc2
Arsenic
mg/l
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
GW Quality Criteria
Federal DW Standard
DL

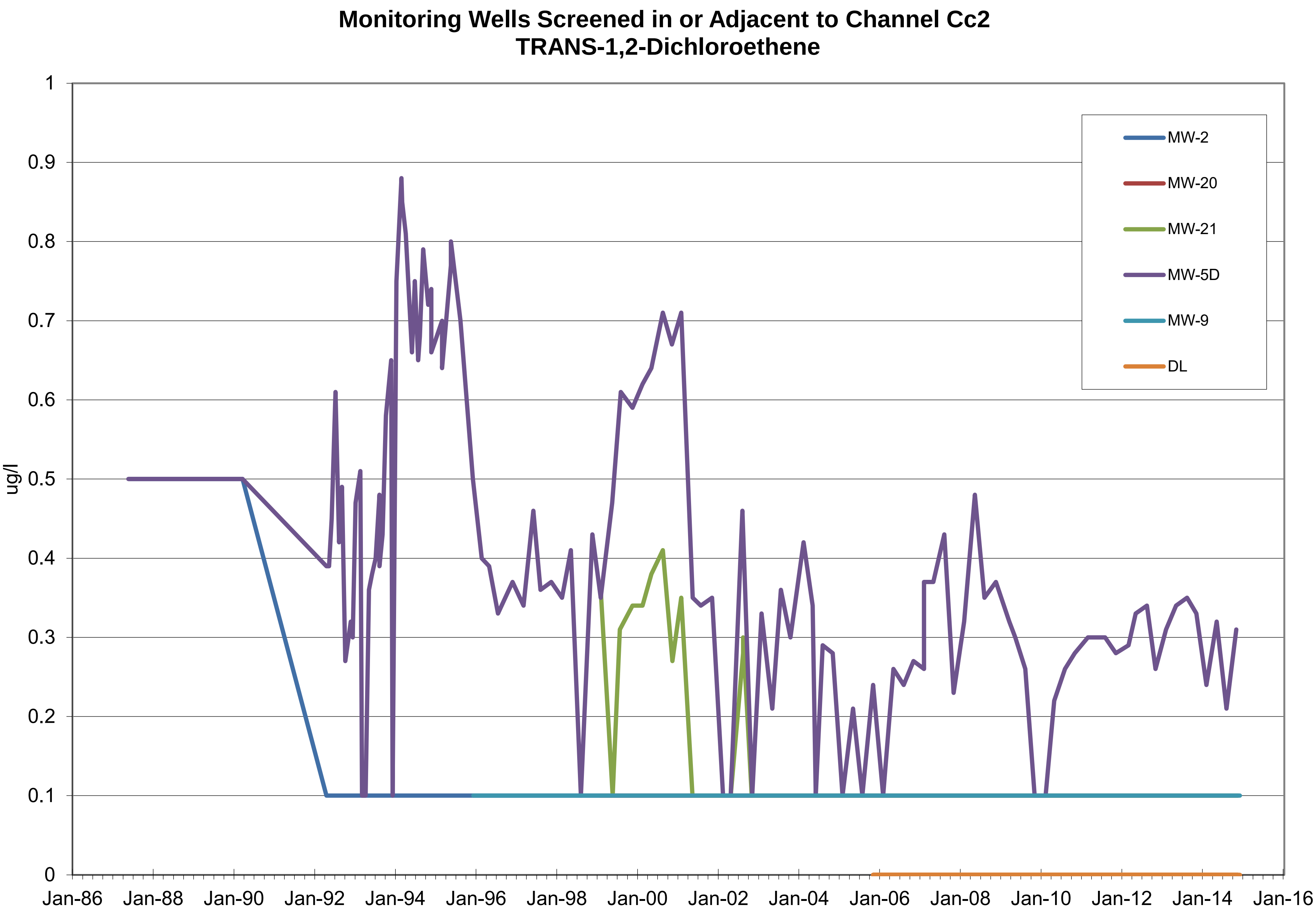

Monitoring Wells Screened in or Adjacent to Channel Cc2
Calcium
mg/l
0
20
40
60
80
100
120
140
160
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL



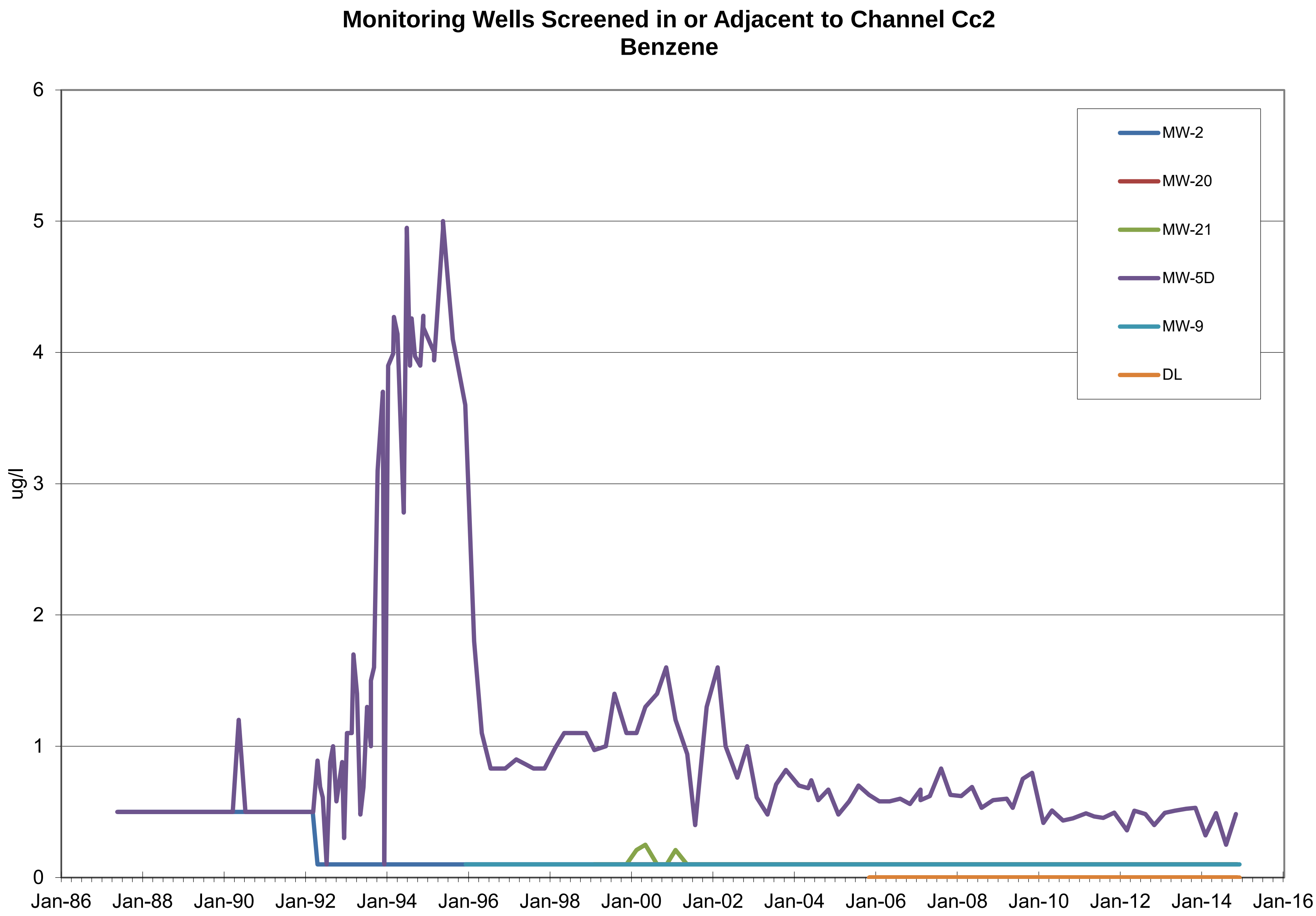
Monitoring Wells Screened in or Adjacent to Channel Cc2
Toluene (ug/l)
ug/l
3
2.5
2
1.5
1
0.5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-2
MW-20
MW-21
MW-5D
MW-9
DL


Monitoring Wells Screened in or Adjacent to Channel Cc2
Total Xylenes
ug/l
2.5
2
1.5
1
0.5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL

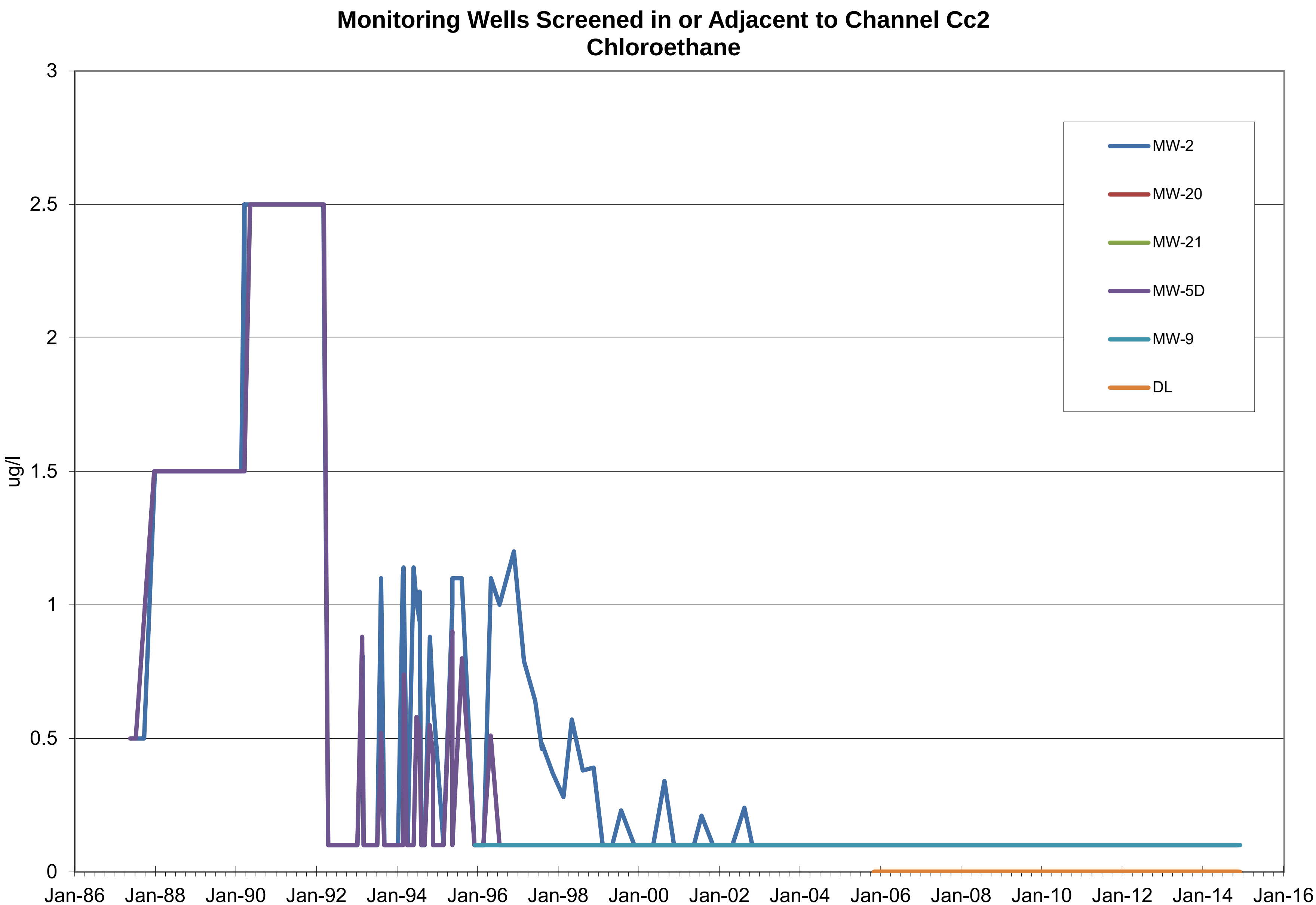

Monitoring Wells Screened in or Adjacent to Channel Cc2
CIS-1,2-Dichloroethene
Federal and State GW Quality Criteria 70 ug/L
MW-2
MW-20
MW-21
MW-5D
MW-9
DL
ug/l
25
20
15
10
5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16



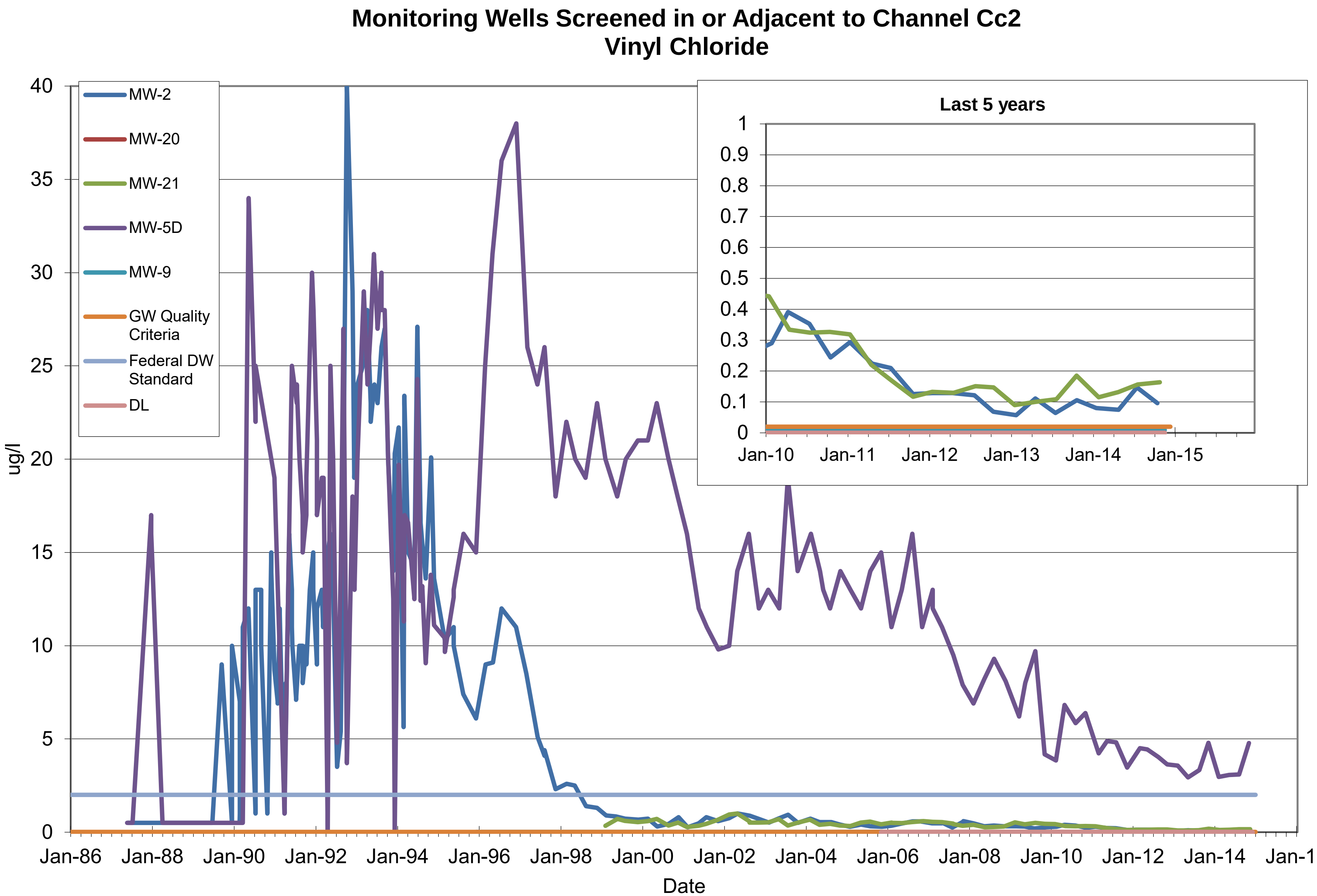
Monitoring Wells Screened in or Adjacent to Channel Cc2
TRANS-1,2-Dichloroethene
ug/l
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL



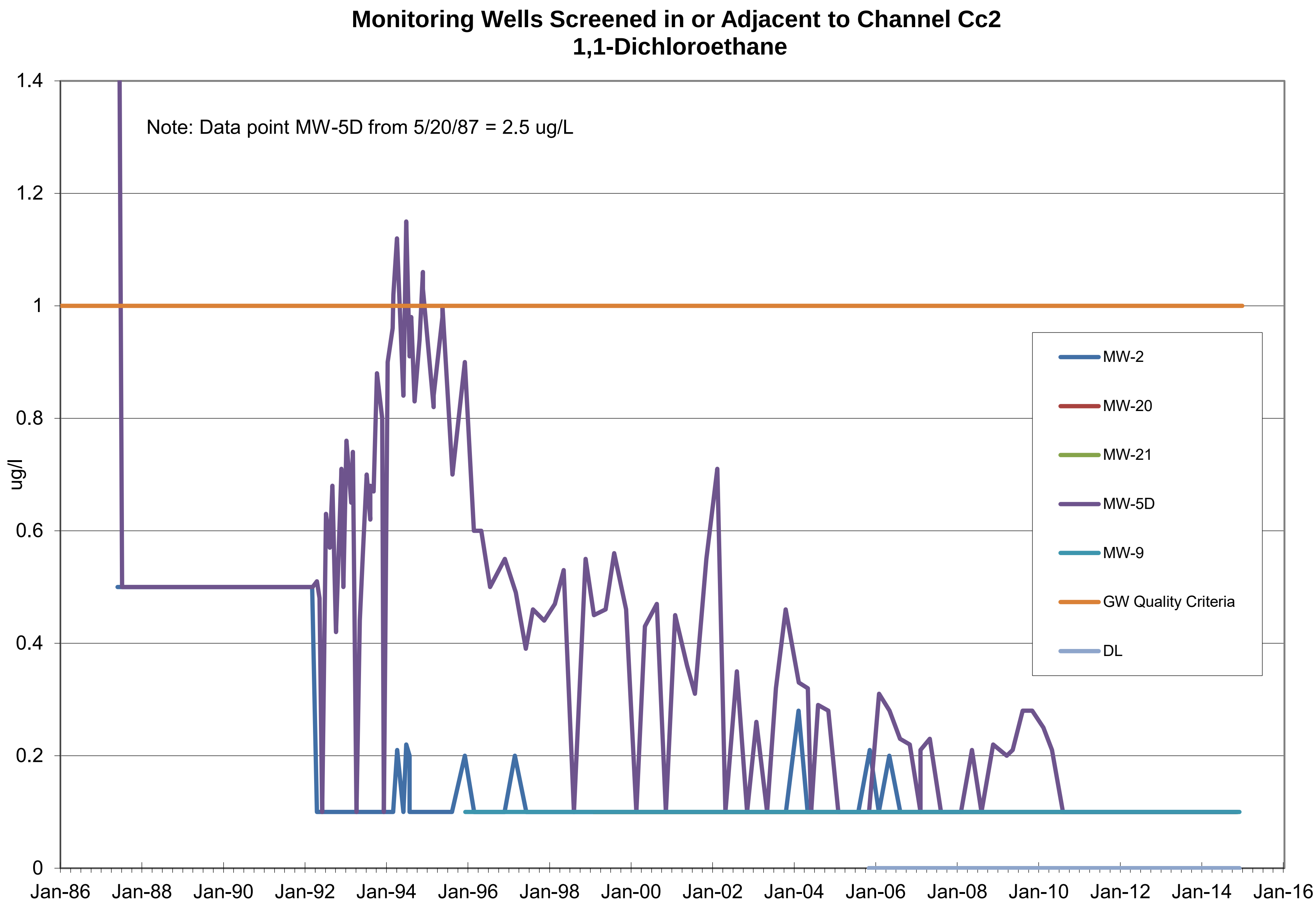
Monitoring Wells Screened in or Adjacent to Channel Cc2
Benzene
ug/l
0
1
2
3
4
5
6
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL



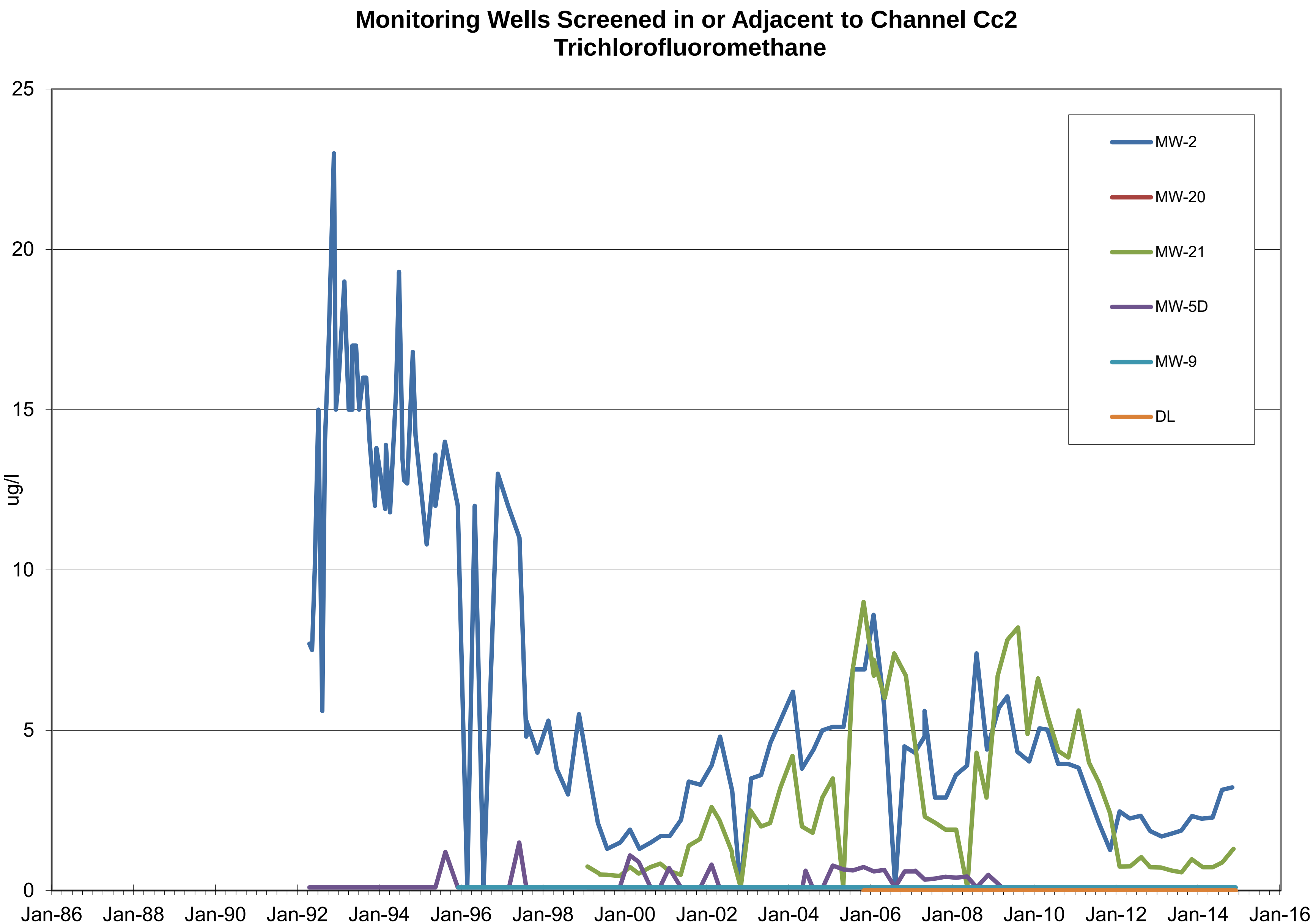
Monitoring Wells Screened in or Adjacent to Channel Cc2
Chloroethane
ug/l
3
2.5
2
1.5
1
0.5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL



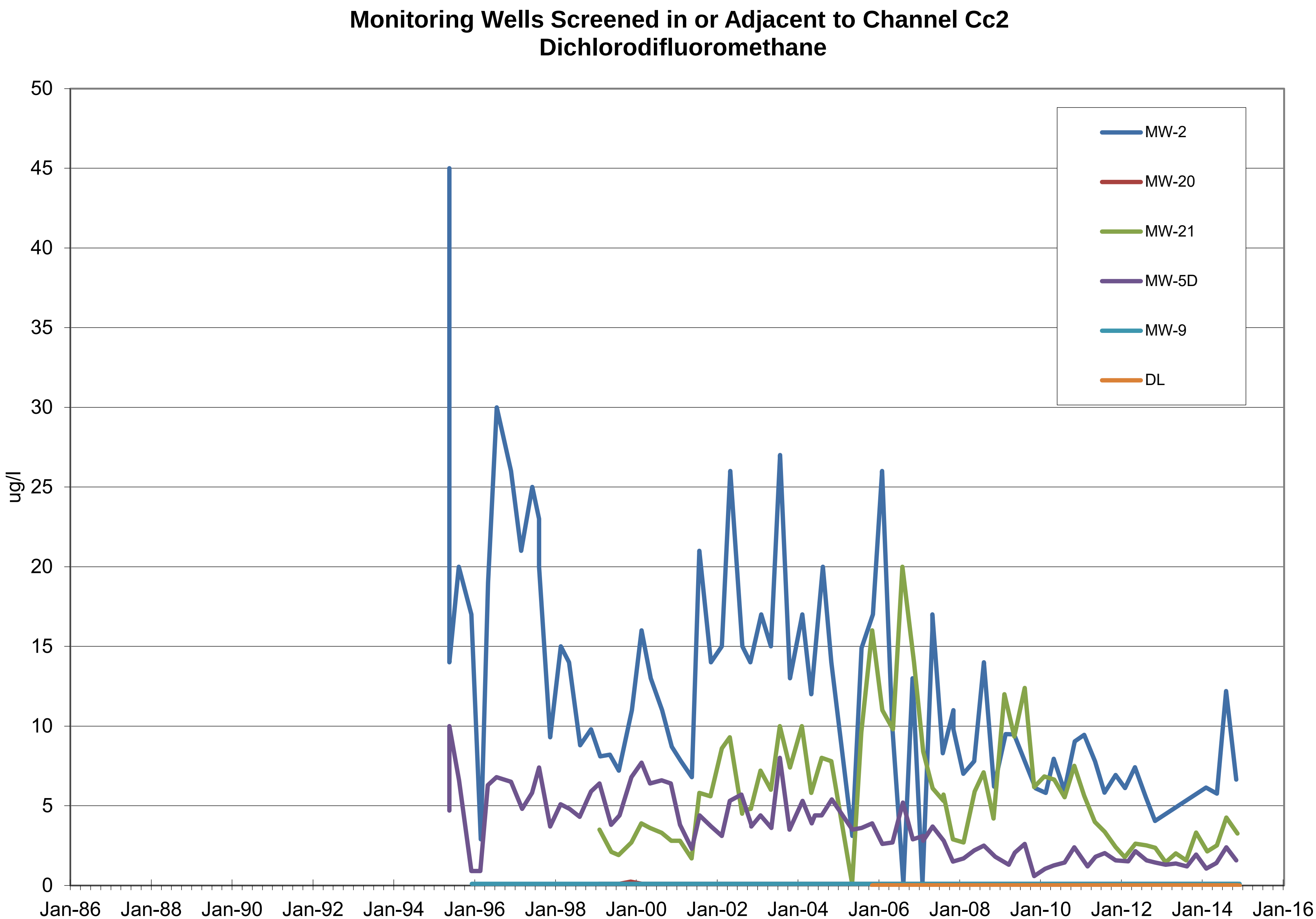
Monitoring Wells Screened in or Adjacent to Channel Cc2
Vinyl Chloride
MW-2
MW-20
MW-21
MW-5D
MW-9
GW Quality Criteria
Federal DW Standard
DL
Last 5 years
ug/l
Date
0
5
10
15
20
25
30
35
40
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15



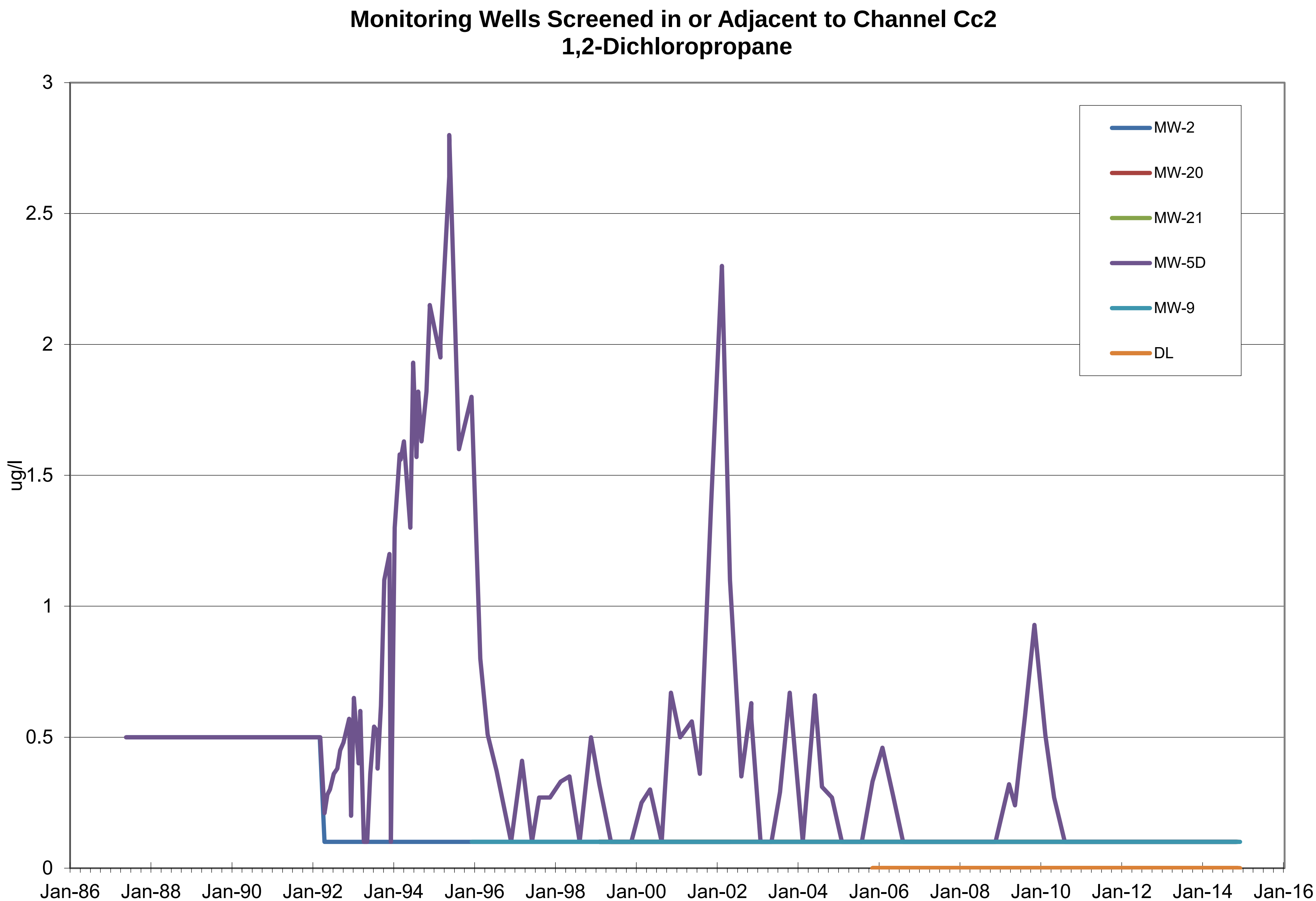
Monitoring Wells Screened in or Adjacent to Channel Cc2
1,1-Dichloroethane
Note: Data point MW-5D from 5/20/87 = 2.5 ug/L
ug/l
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
GW Quality Criteria
DL

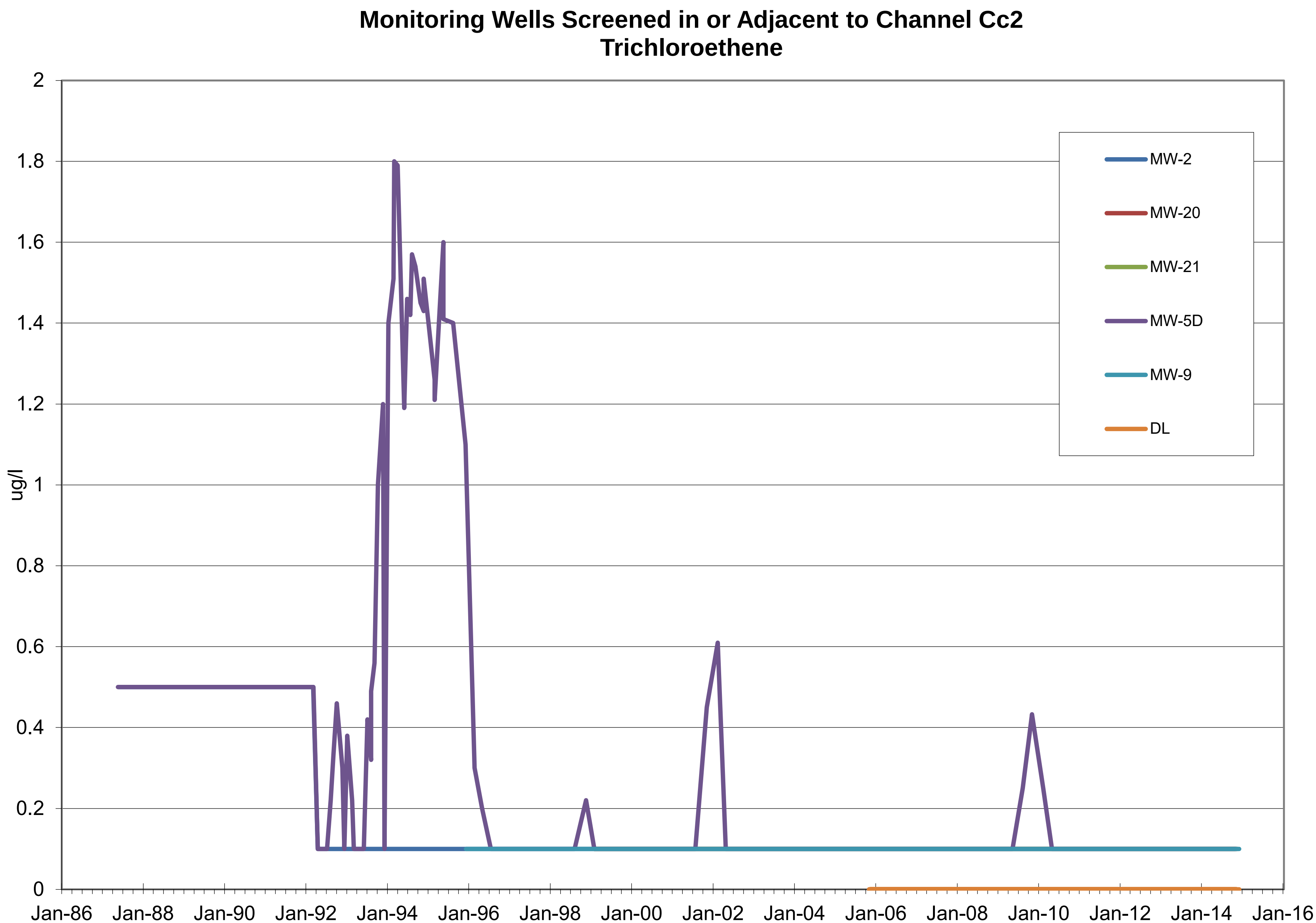


Monitoring Wells Screened in or Adjacent to Channel Cc2
Trichlorofluoromethane
ug/l
0
5
10
15
20
25
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL



Monitoring Wells Screened in or Adjacent to Channel Cc2
Dichlorodifluoromethane
ug/l
50
45
40
35
30
25
20
15
10
5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL

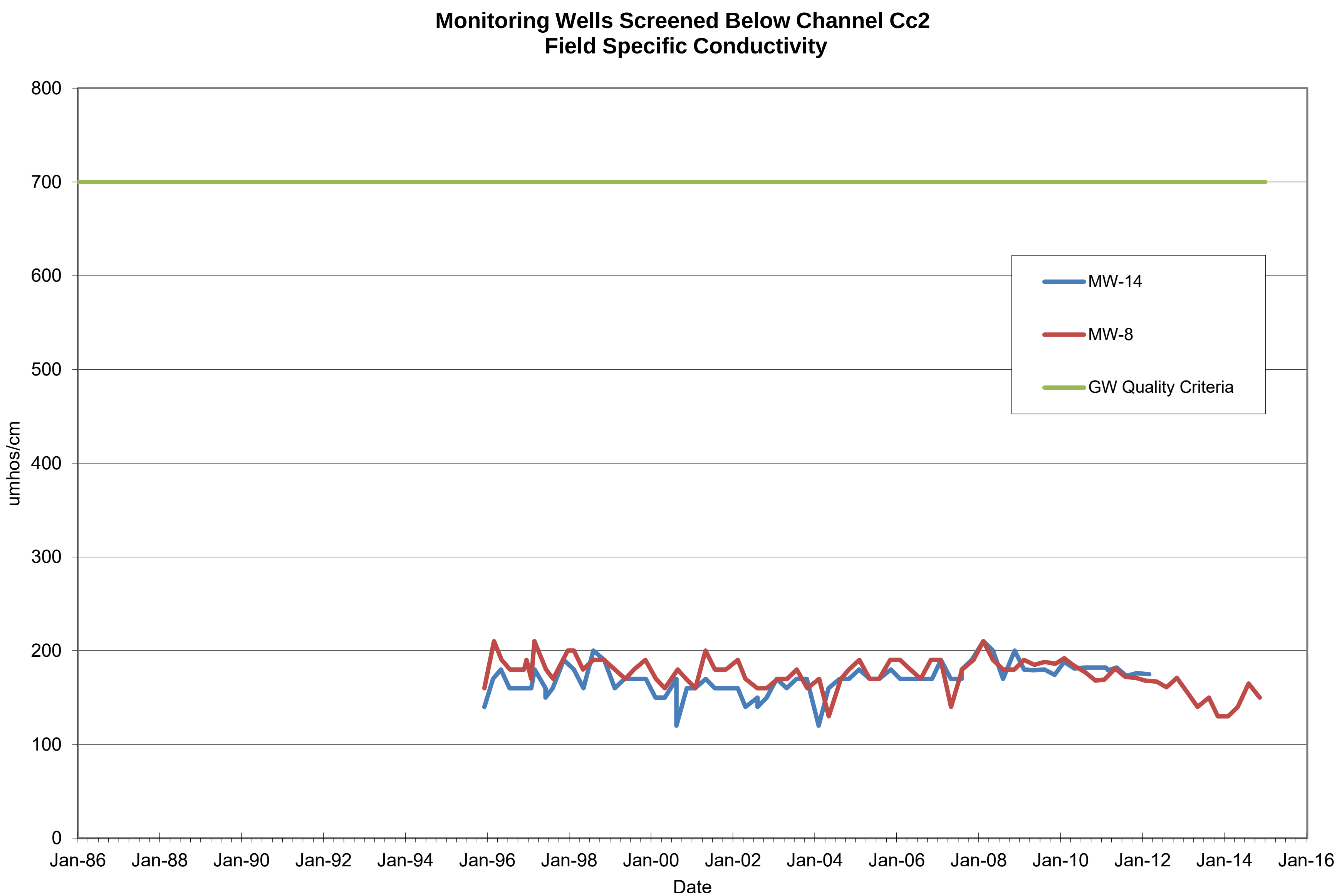

Monitoring Wells Screened in or Adjacent to Channel Cc2
1,2-Dichloropropane
ug/l
3
2.5
2
1.5
1
0.5
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL

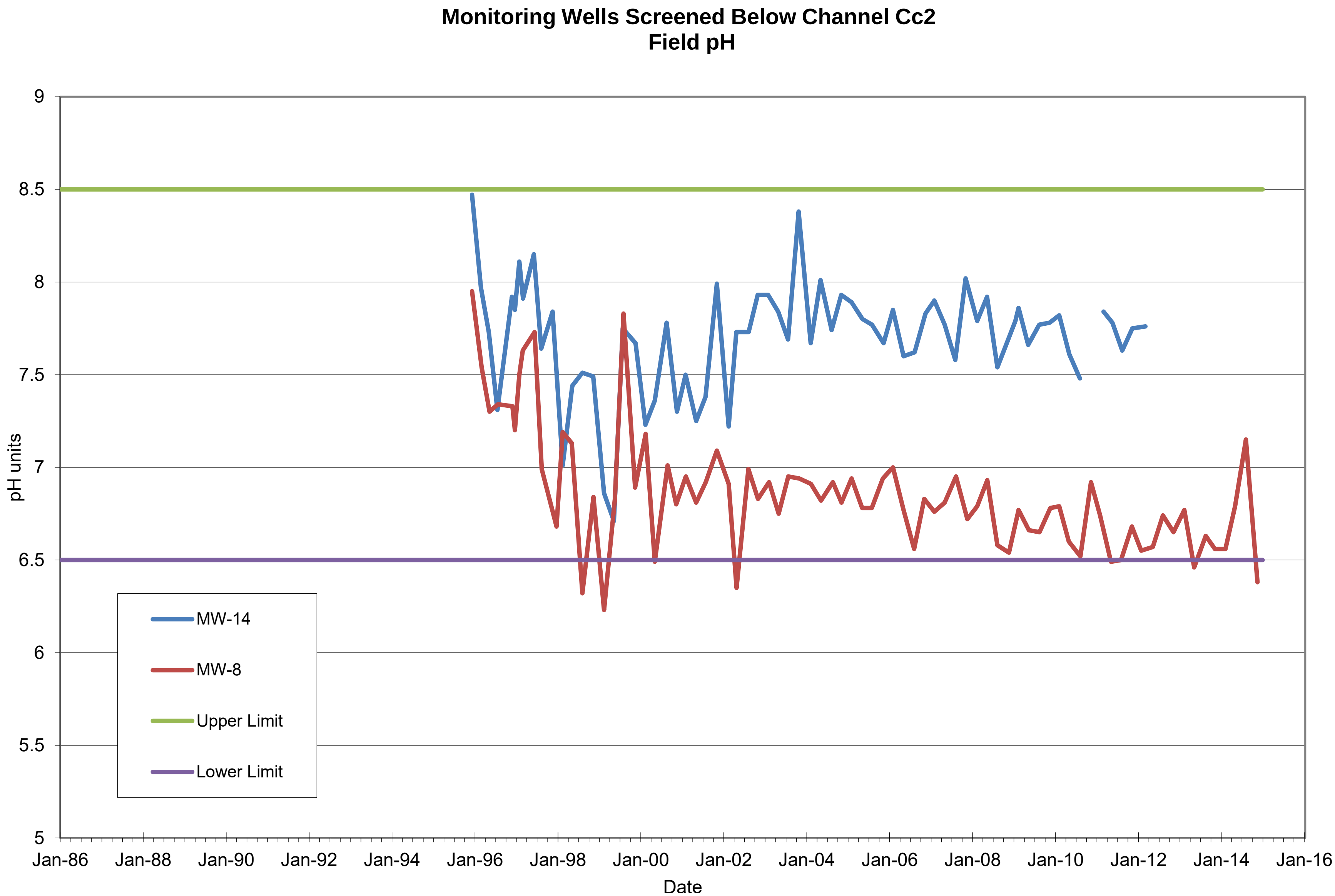


Monitoring Wells Screened in or Adjacent to Channel Cc2
Trichloroethene
ug/l
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-2
MW-20
MW-21
MW-5D
MW-9
DL

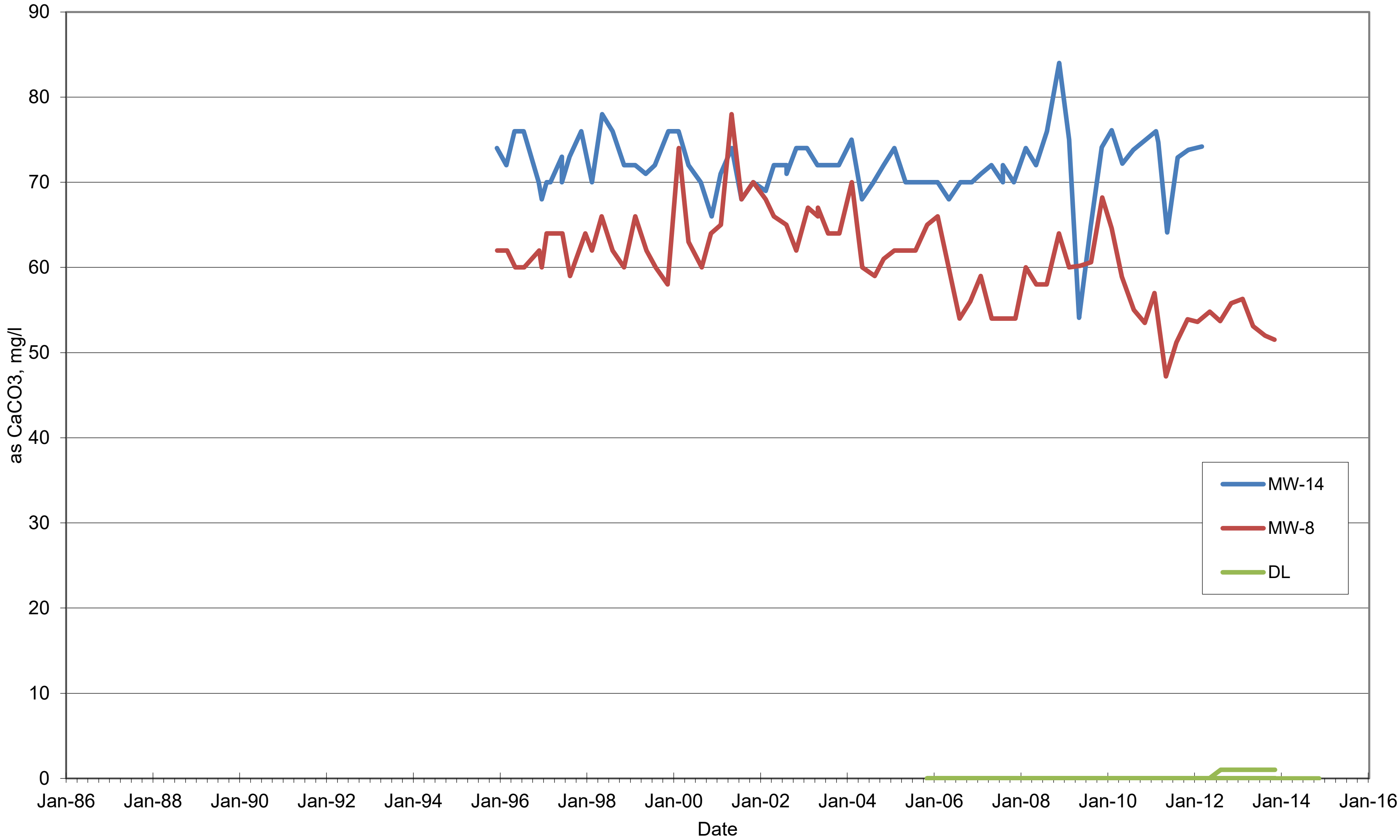
Appendix E

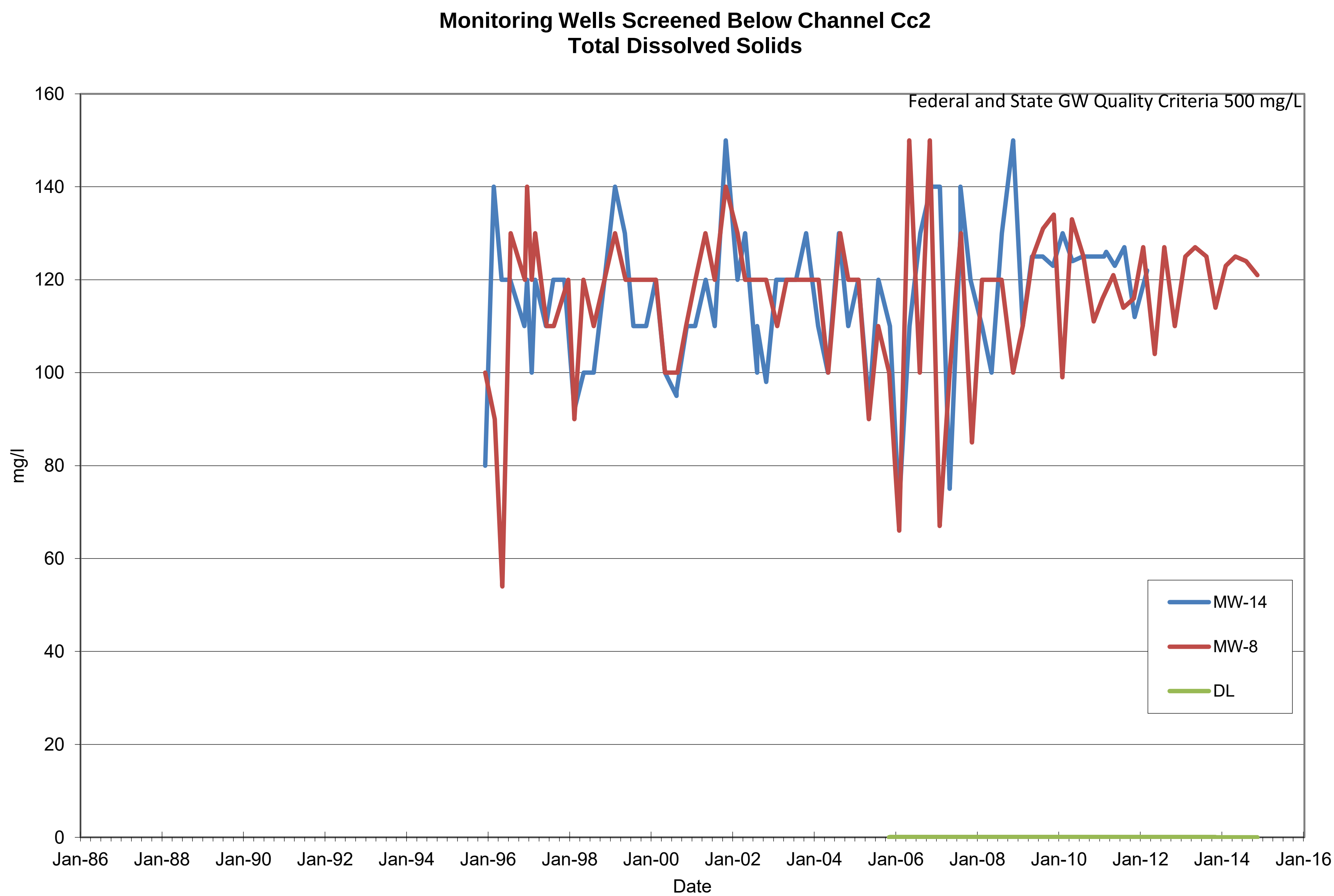
Time Concentration Plots for Groundwater beneath Channel Cc2


Monitoring Wells Screened Below Channel Cc2
Field Specific Conductivity
umhos/cm
800
700
600
500
400
300
200
100
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
GW Quality Criteria

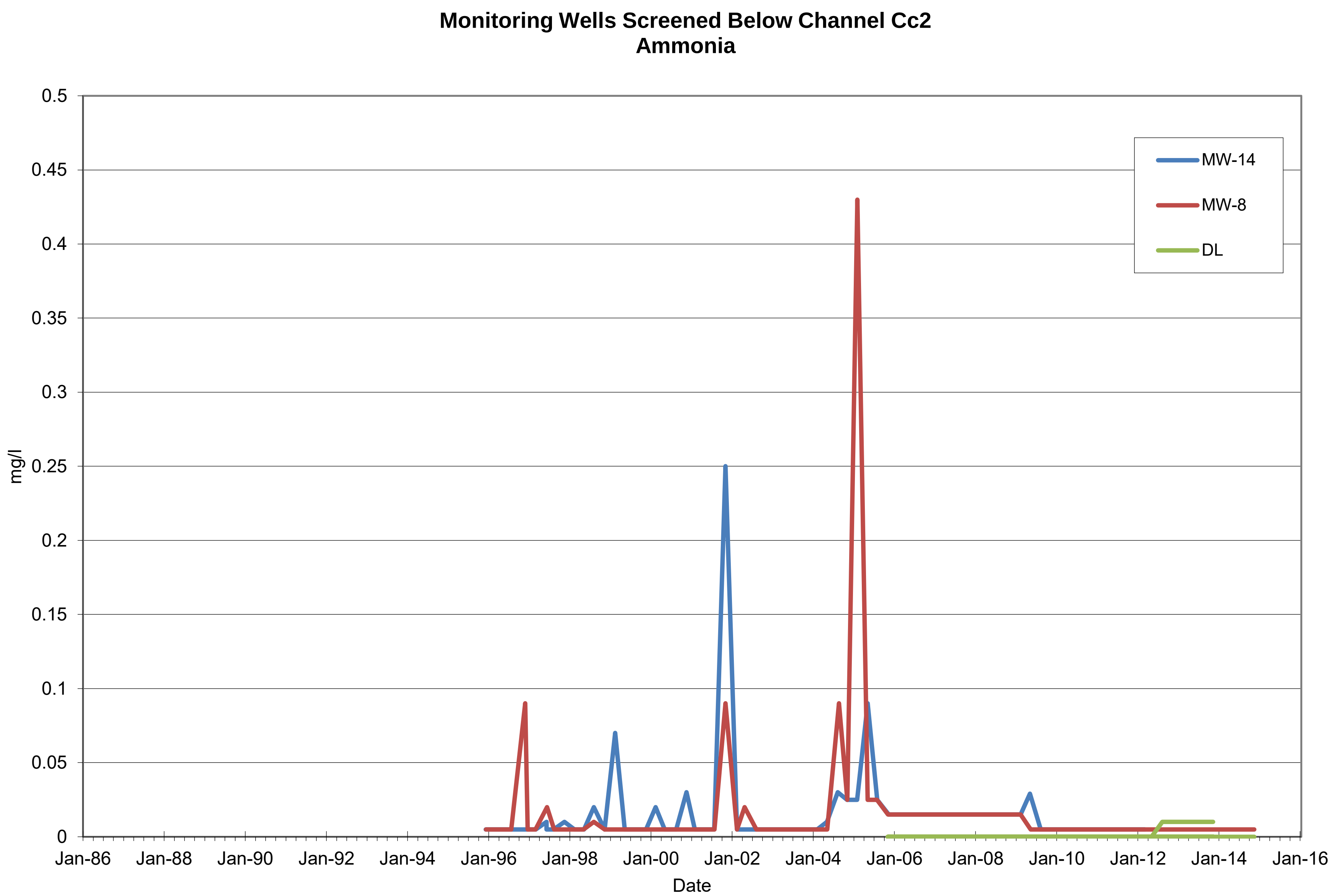

Monitoring Wells Screened Below Channel Cc2
Field pH
9
8.5
8
7.5
7
6.5
6
5.5
5
pH units
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
Upper Limit
Lower Limit

Monitoring Wells Screened Below Channel Cc2
Alkalinity



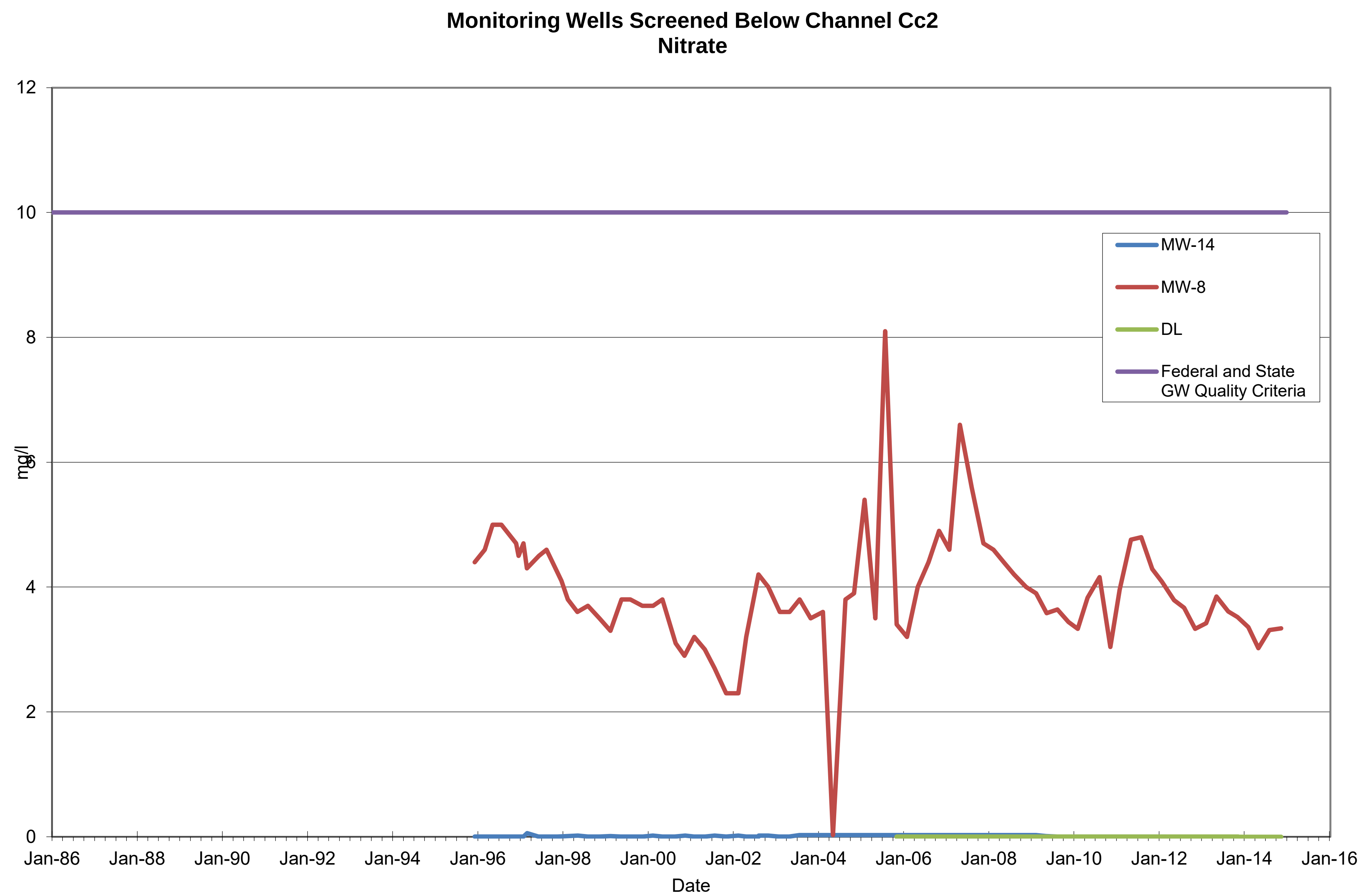


Monitoring Wells Screened Below Channel Cc2
Total Dissolved Solids
Federal and State GW Quality Criteria 500 mg/L
mg/l
0
20
40
60
80
100
120
140
160
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
DL

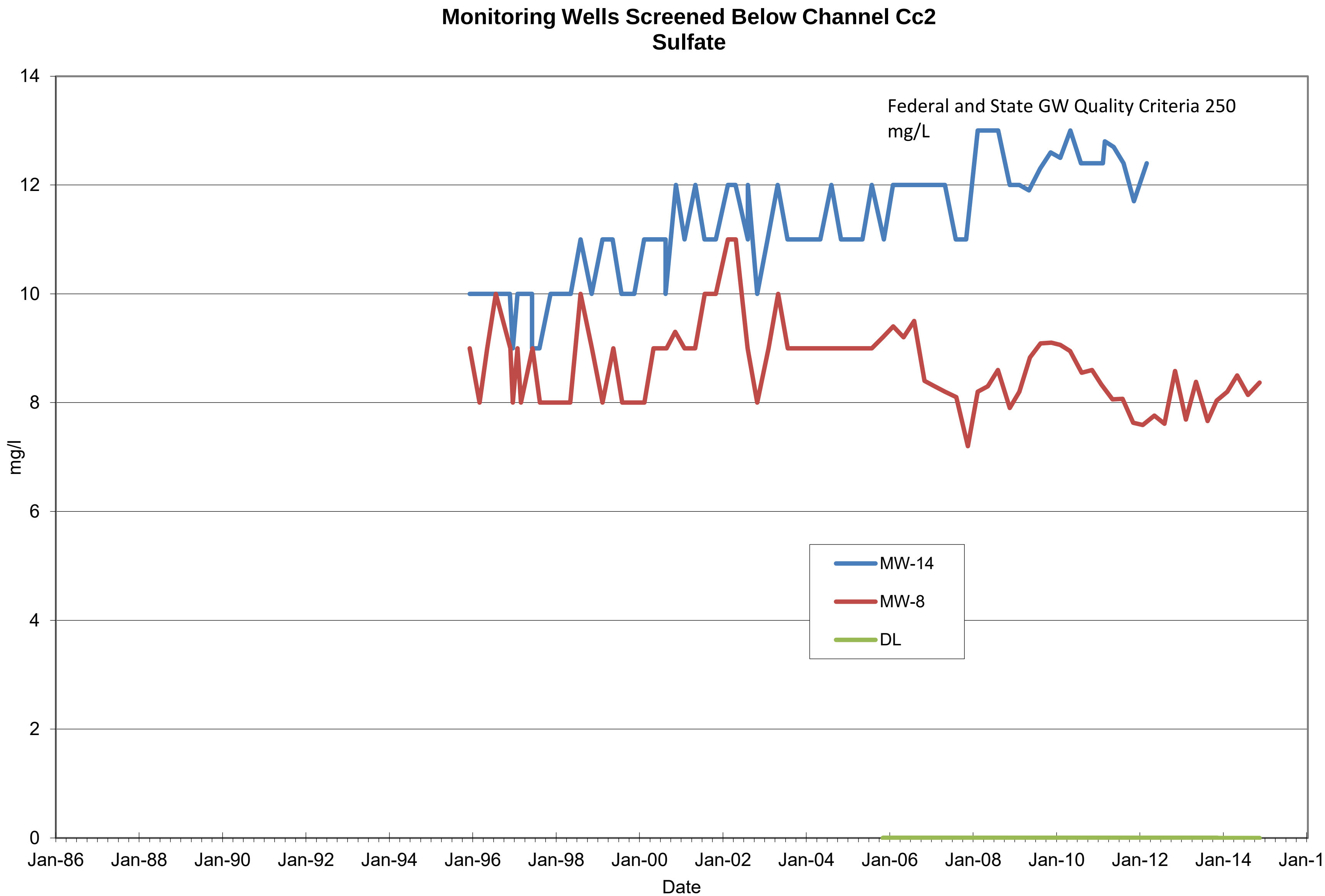


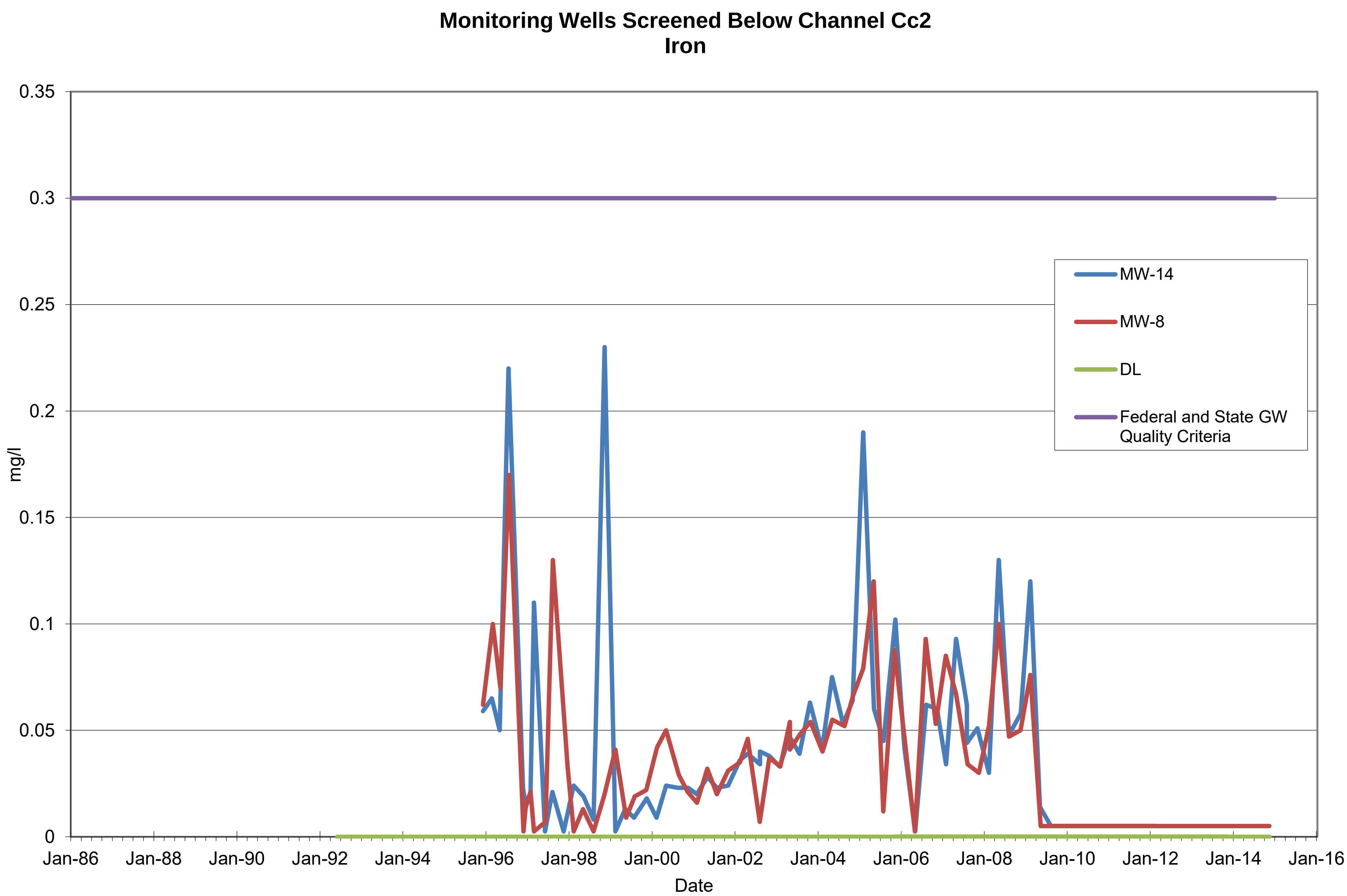
Monitoring Wells Screened Below Channel Cc2
Ammonia
mg/l
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
DL

Monitoring Wells Screened Below Channel Cc2
Chloride

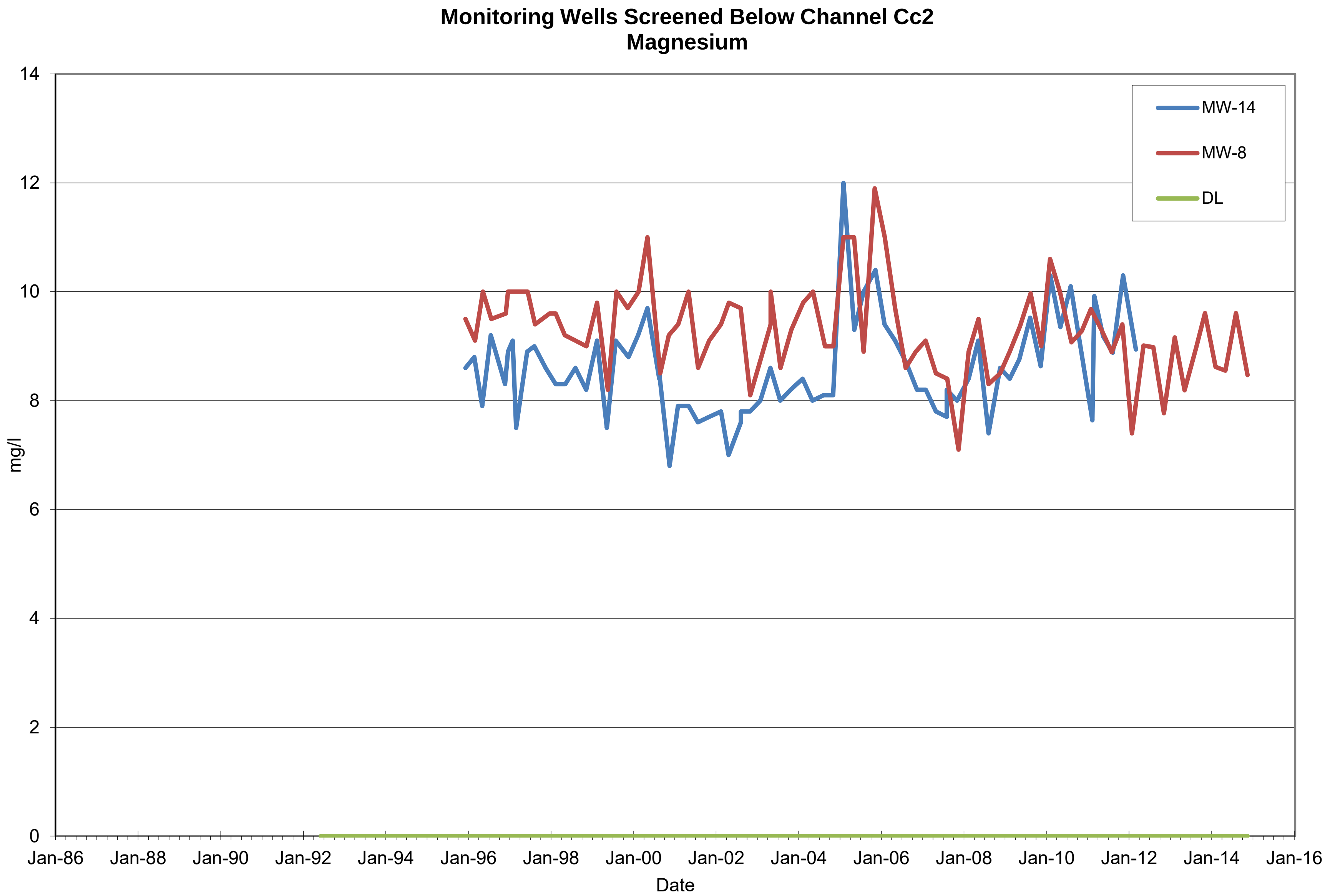


Monitoring Wells Screened Below Channel Cc2
Nitrate
mg/l
12
10
8
6
4
2
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
DL
Federal and State GW Quality Criteria

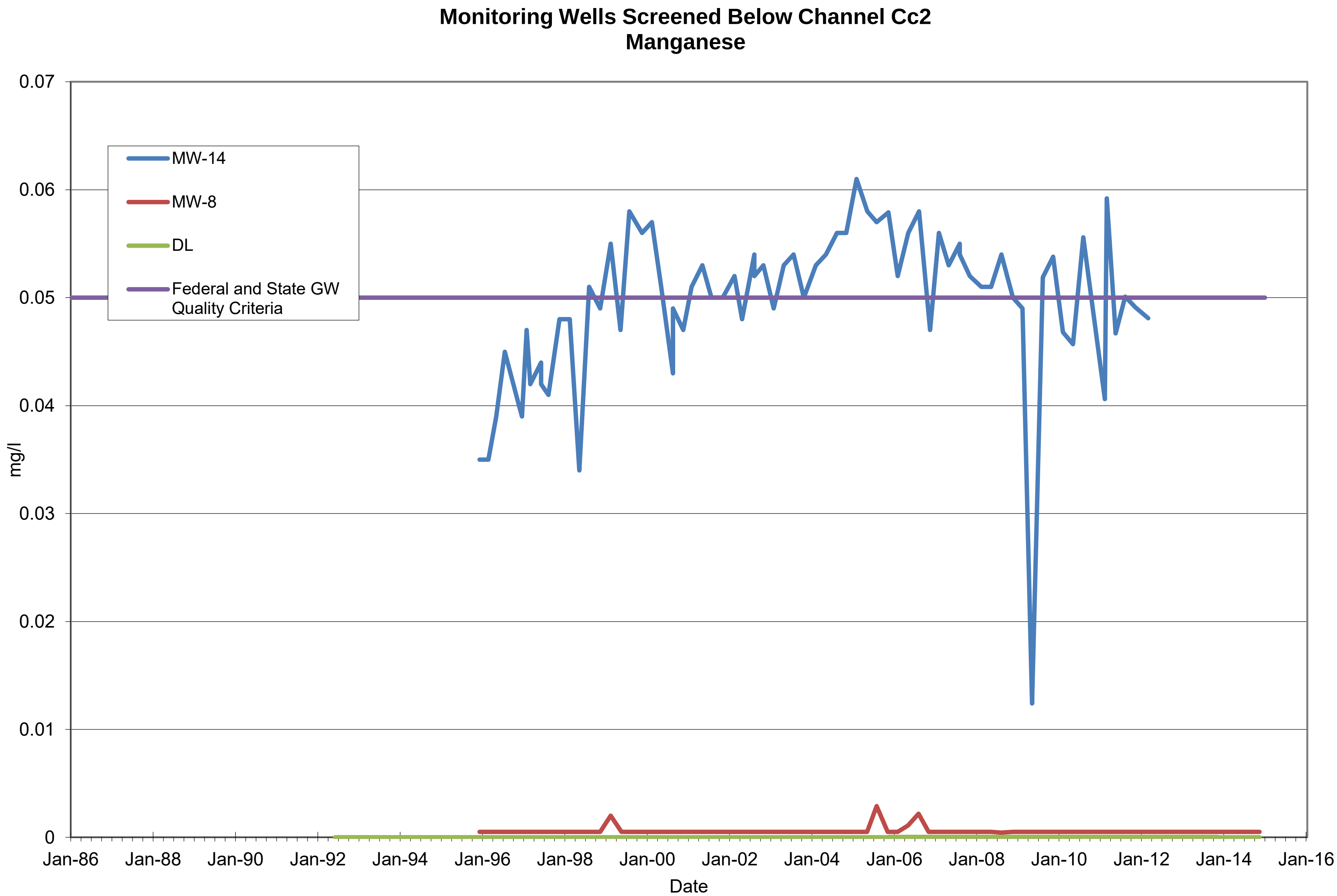

Monitoring Wells Screened Below Channel Cc2
Sulfate
Federal and State GW Quality Criteria 250 mg/L
mg/l
14
12
10
8
6
4
2
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
DL

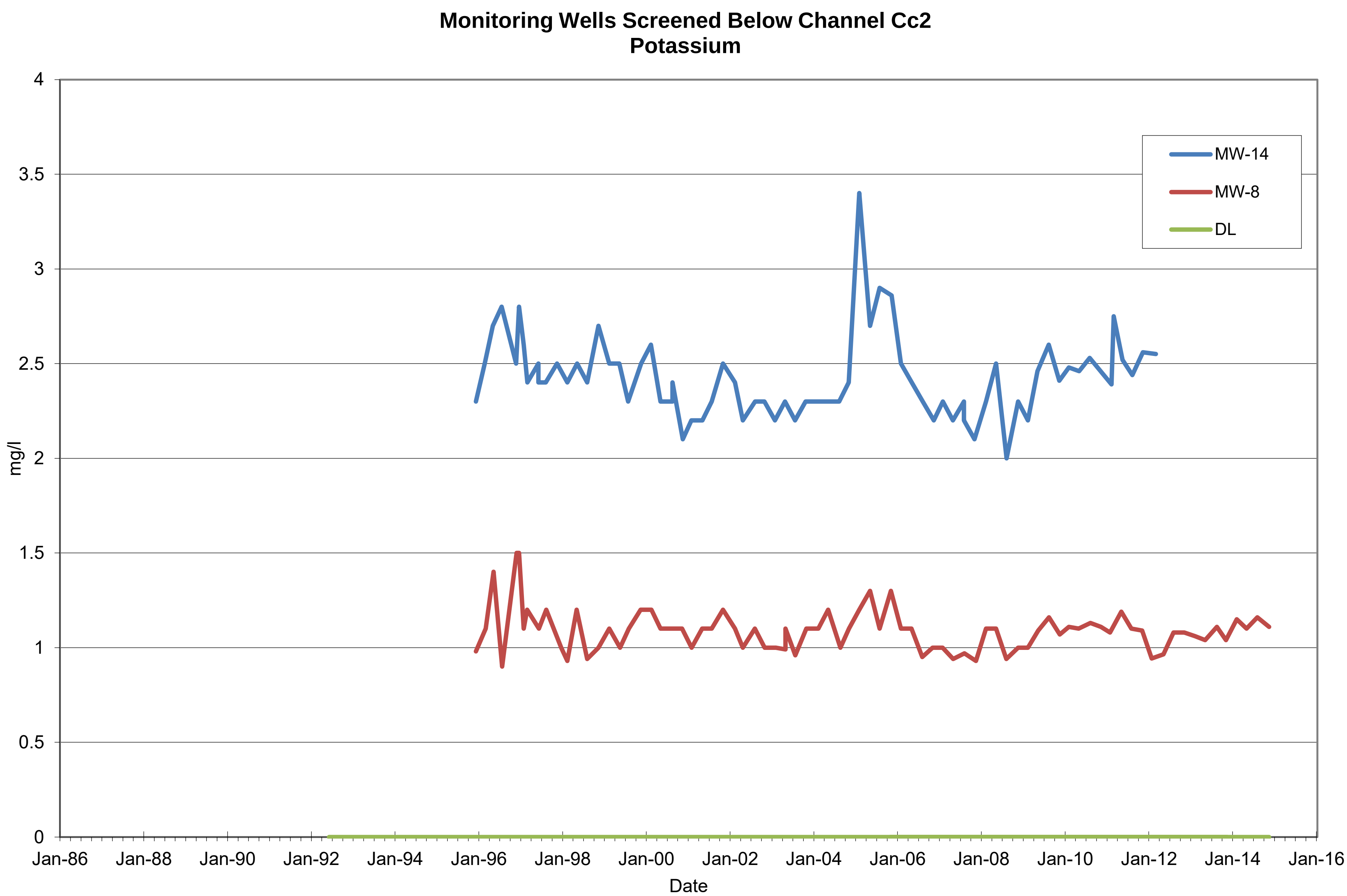


Monitoring Wells Screened Below Channel Cc2
Iron
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
mg/l
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
DL
Federal and State GW Quality Criteria

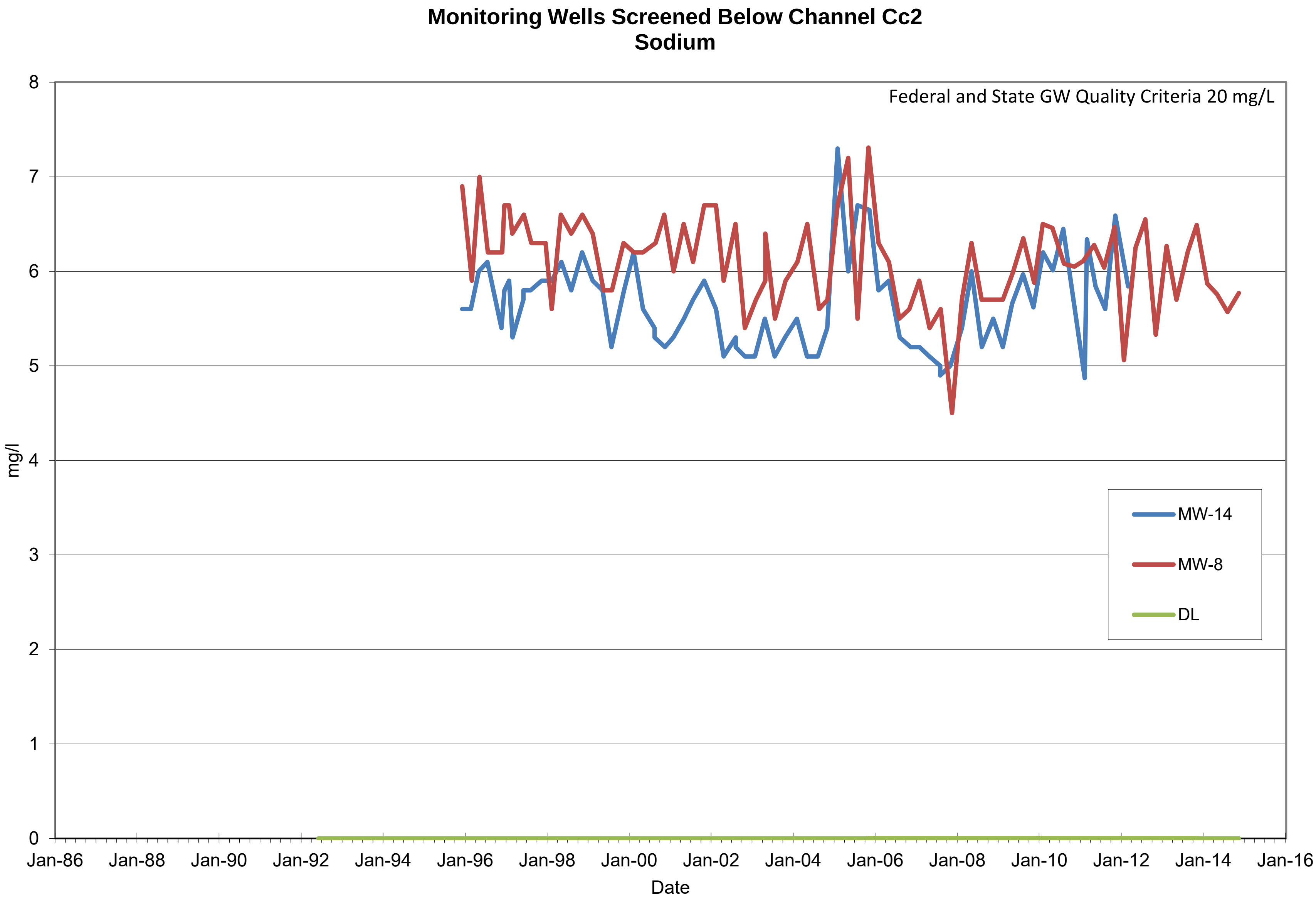


Monitoring Wells Screened Below Channel Cc2
Magnesium
mg/l
0
2
4
6
8
10
12
14
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
DL

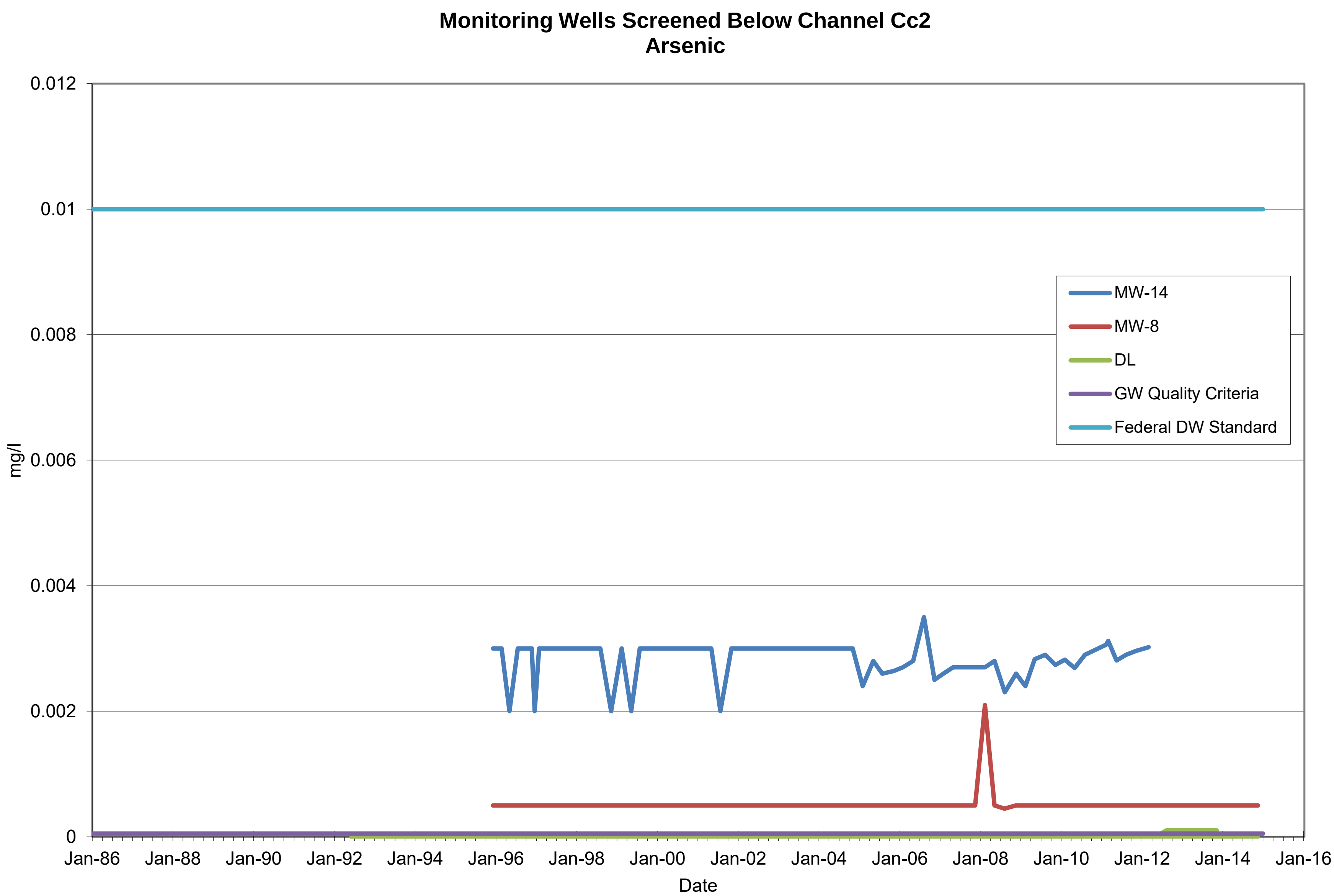

Monitoring Wells Screened Below Channel Cc2
Manganese
MW-14
MW-8
DL
Federal and State GW Quality Criteria
mg/l
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date

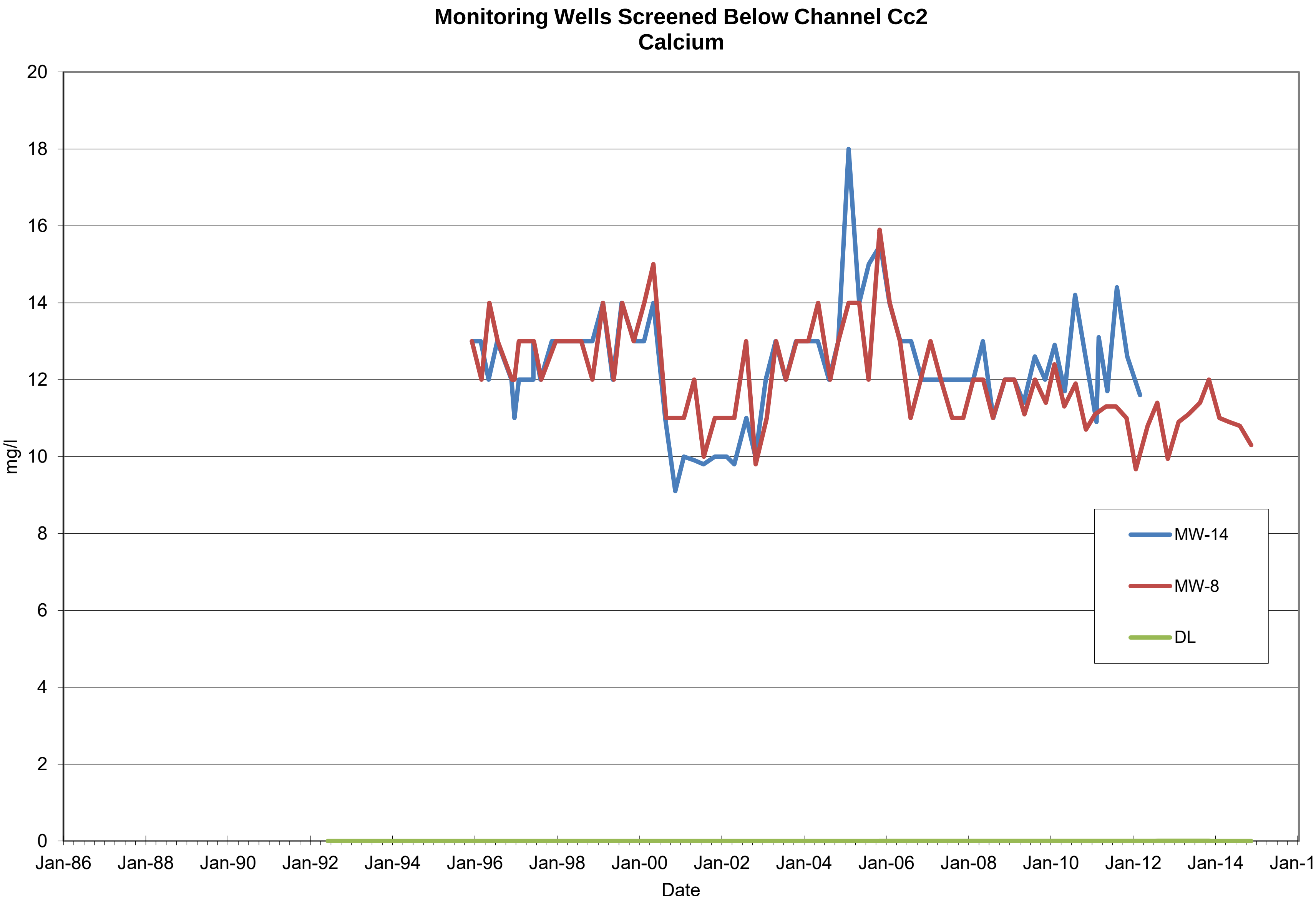


Monitoring Wells Screened Below Channel Cc2
Potassium
mg/l
4
3.5
3
2.5
2
1.5
1
0.5
0
MW-14
MW-8
DL
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date



Monitoring Wells Screened Below Channel Cc2
Sodium
Federal and State GW Quality Criteria 20 mg/L
mg/l
Date
MW-14
MW-8
DL
0
1
2
3
4
5
6
7
8
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16


Monitoring Wells Screened Below Channel Cc2
Arsenic
mg/l
0.012
0.01
0.008
0.006
0.004
0.002
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
DL
GW Quality Criteria
Federal DW Standard

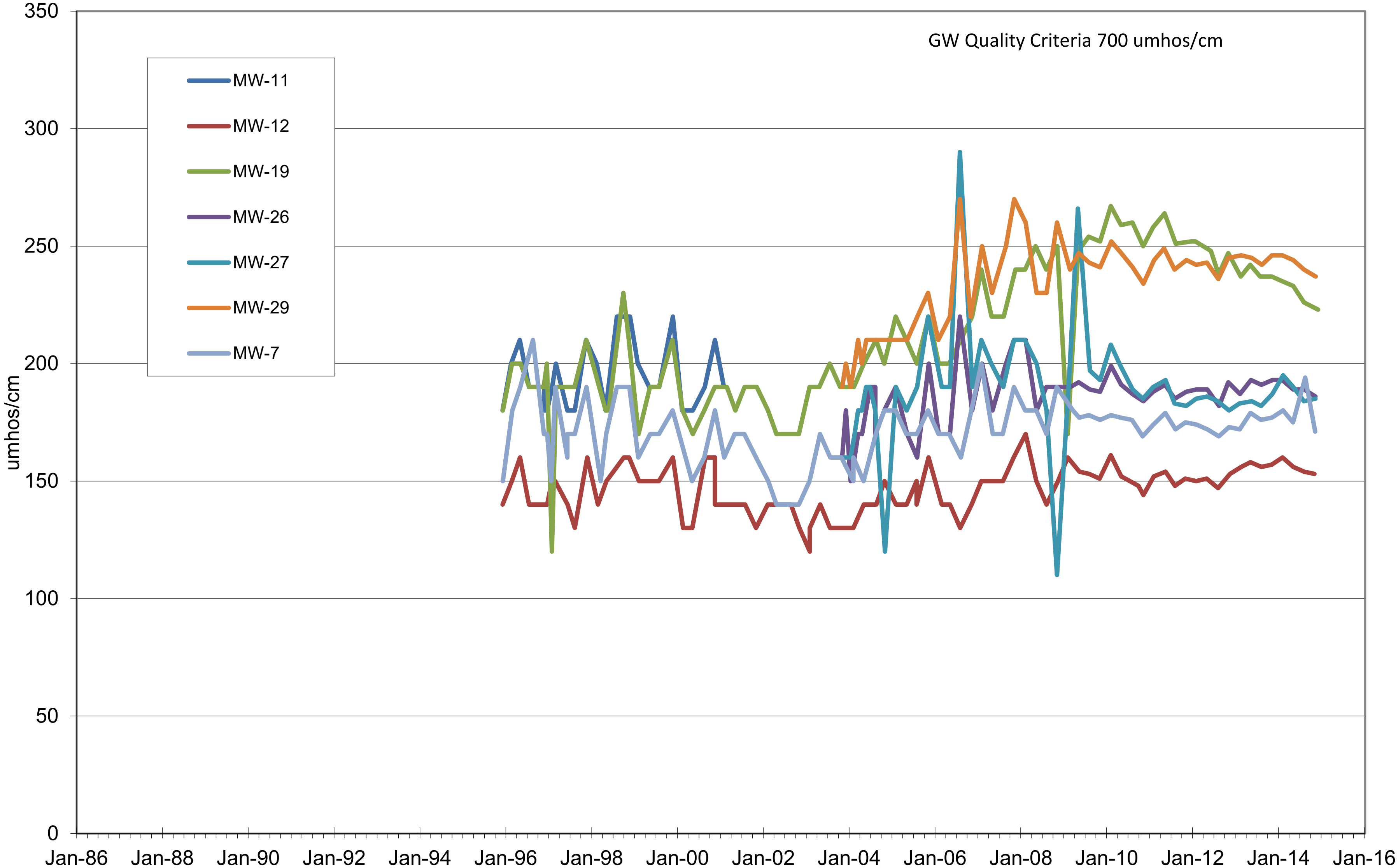


Monitoring Wells Screened Below Channel Cc2
Calcium
mg/l
20
18
16
14
12
10
8
6
4
2
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date
MW-14
MW-8
DL

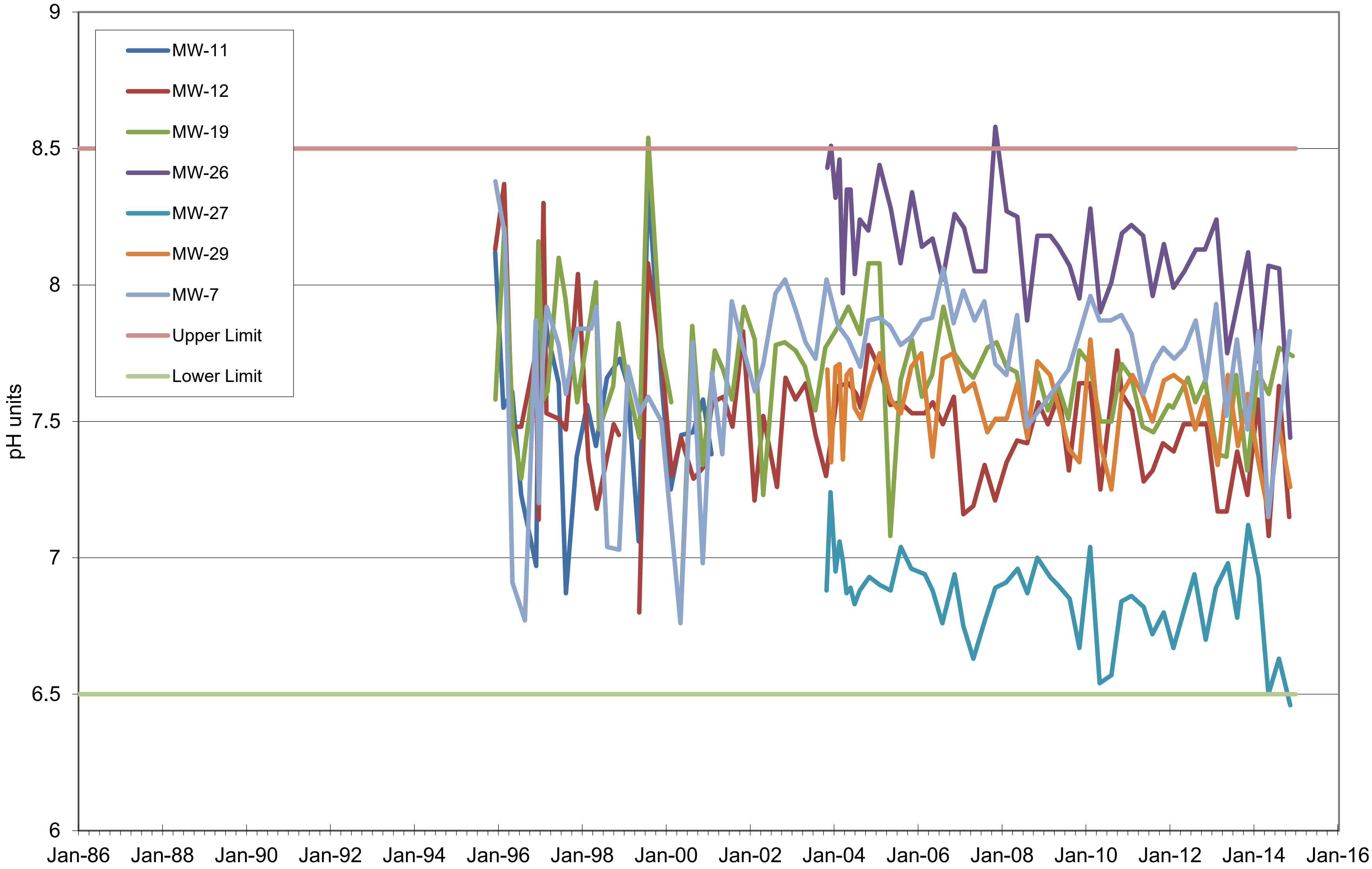
Appendix F

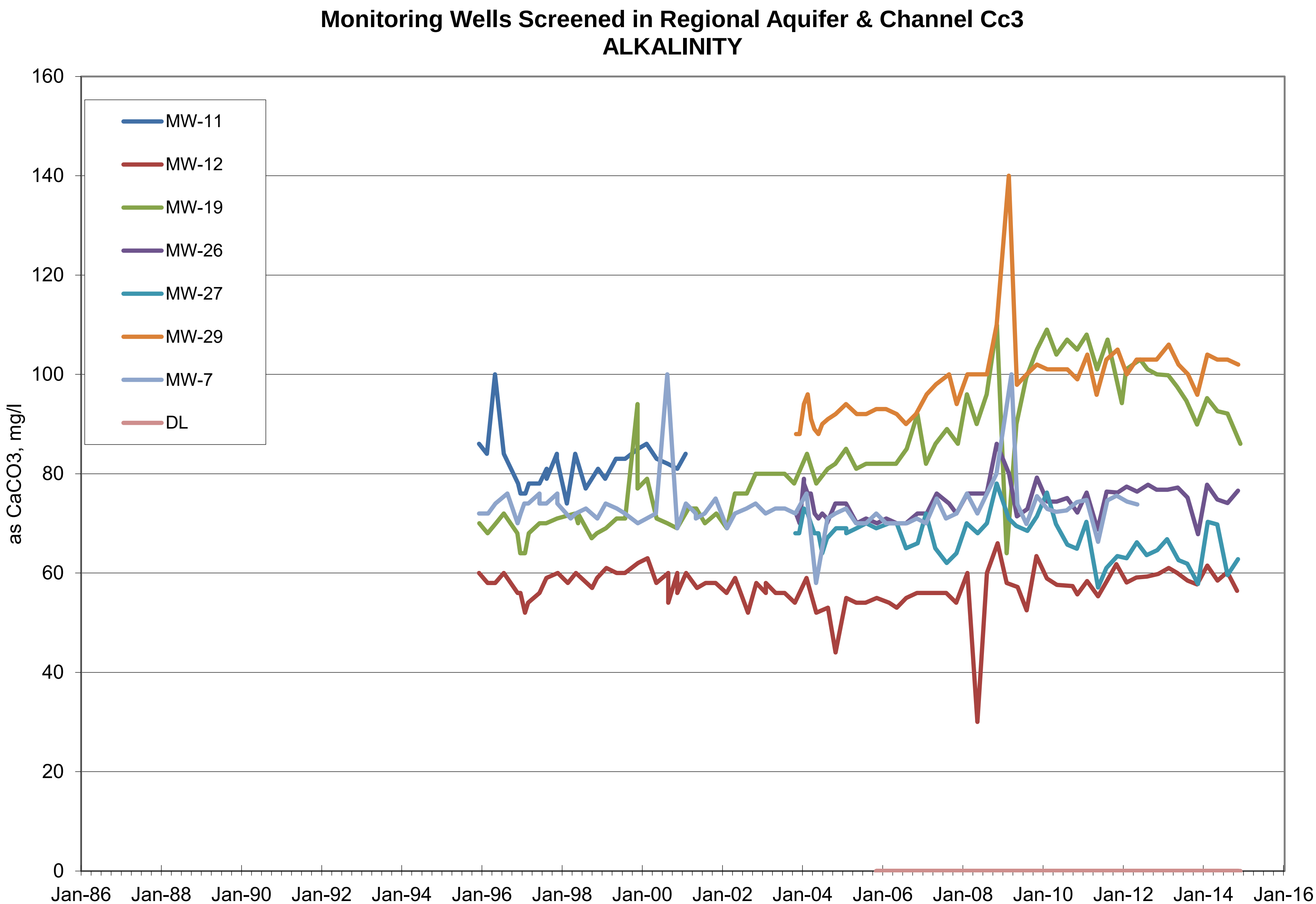
Time Concentration Plots for Regional Aquifer and Channel Cc3

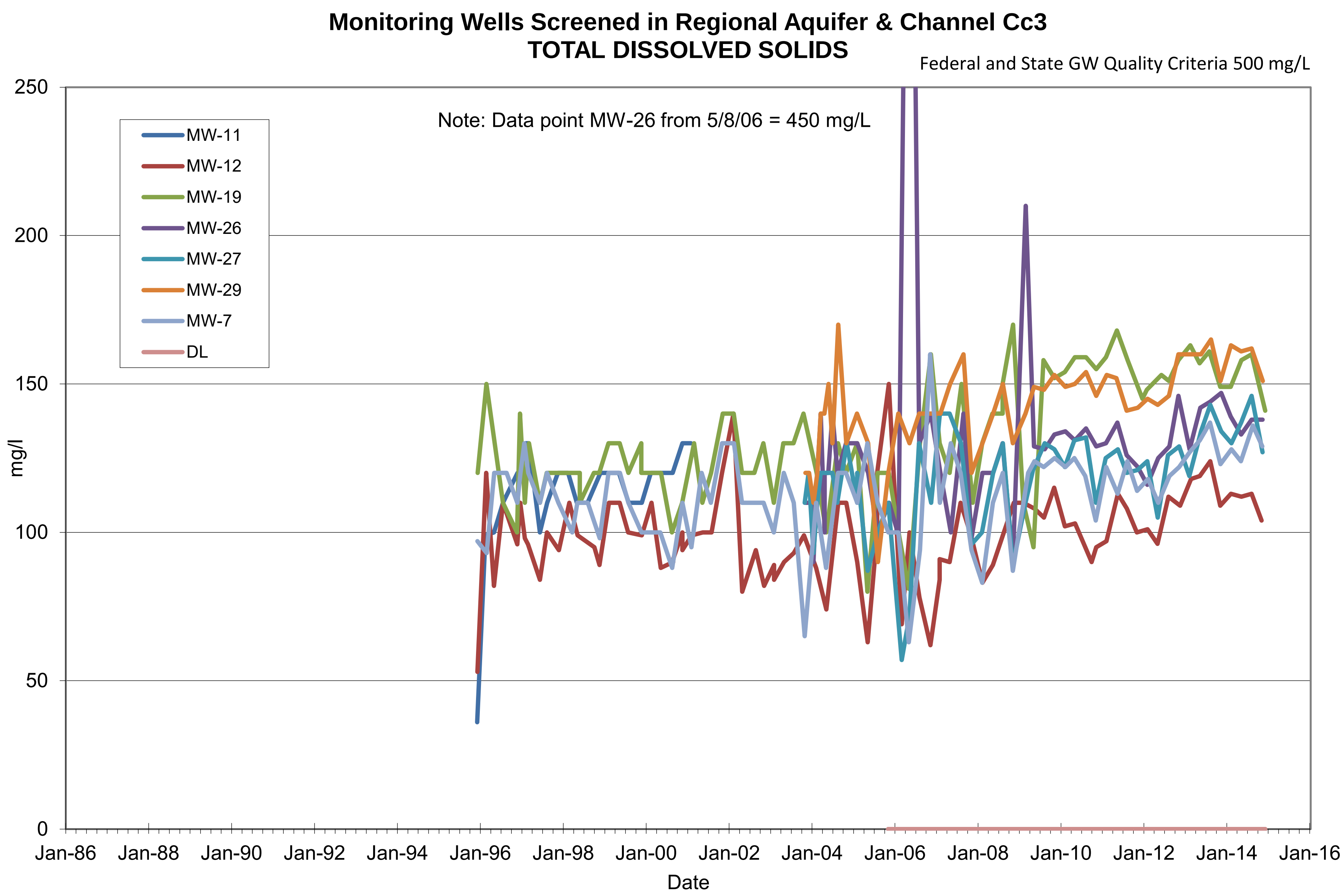
Monitoring Wells Screened in Regional Aquifer & Channel Cc3
Specific Conductance

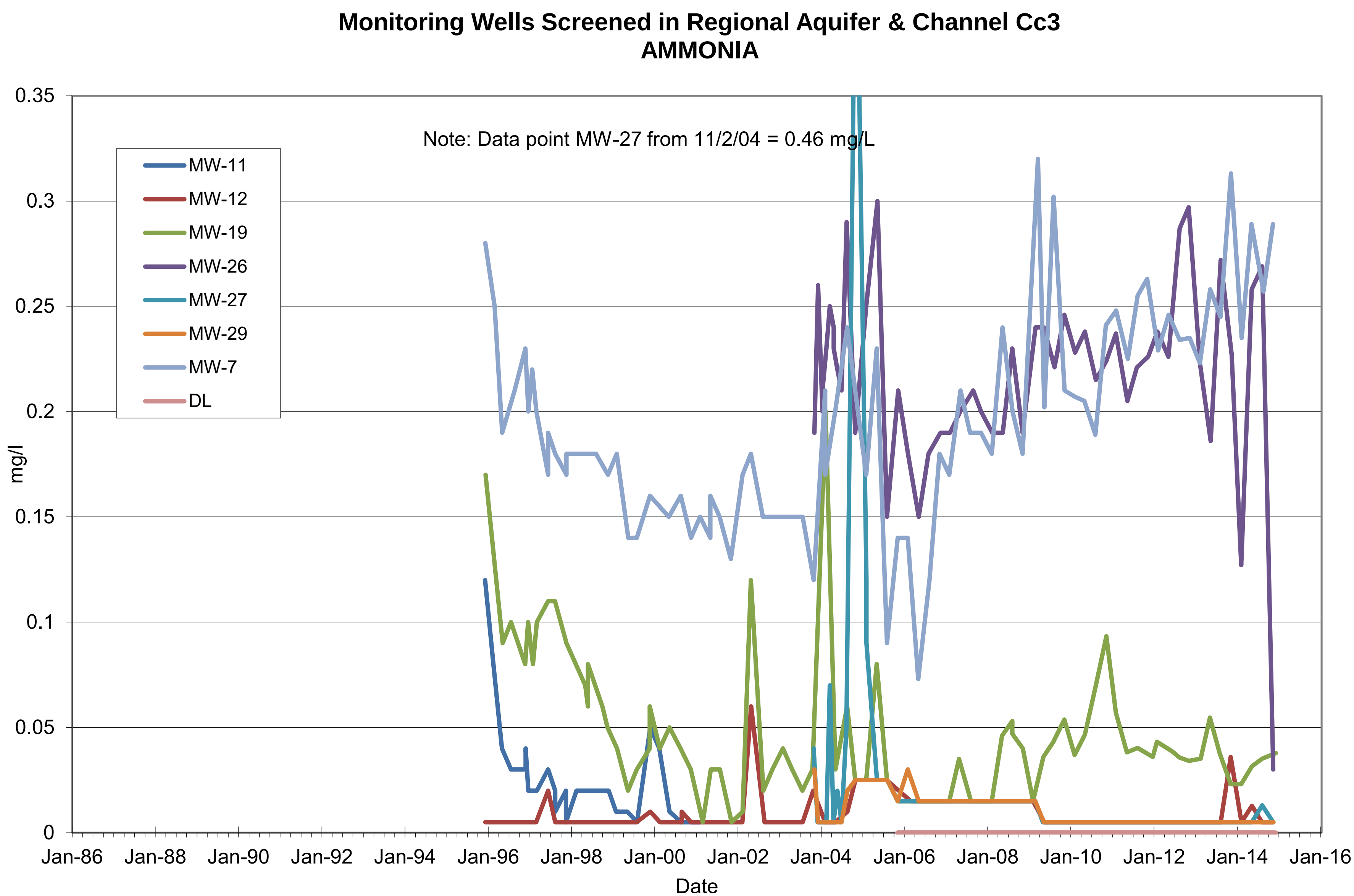


Monitoring Wells Screened in Regional Aquifer & Channel Cc3
Field pH

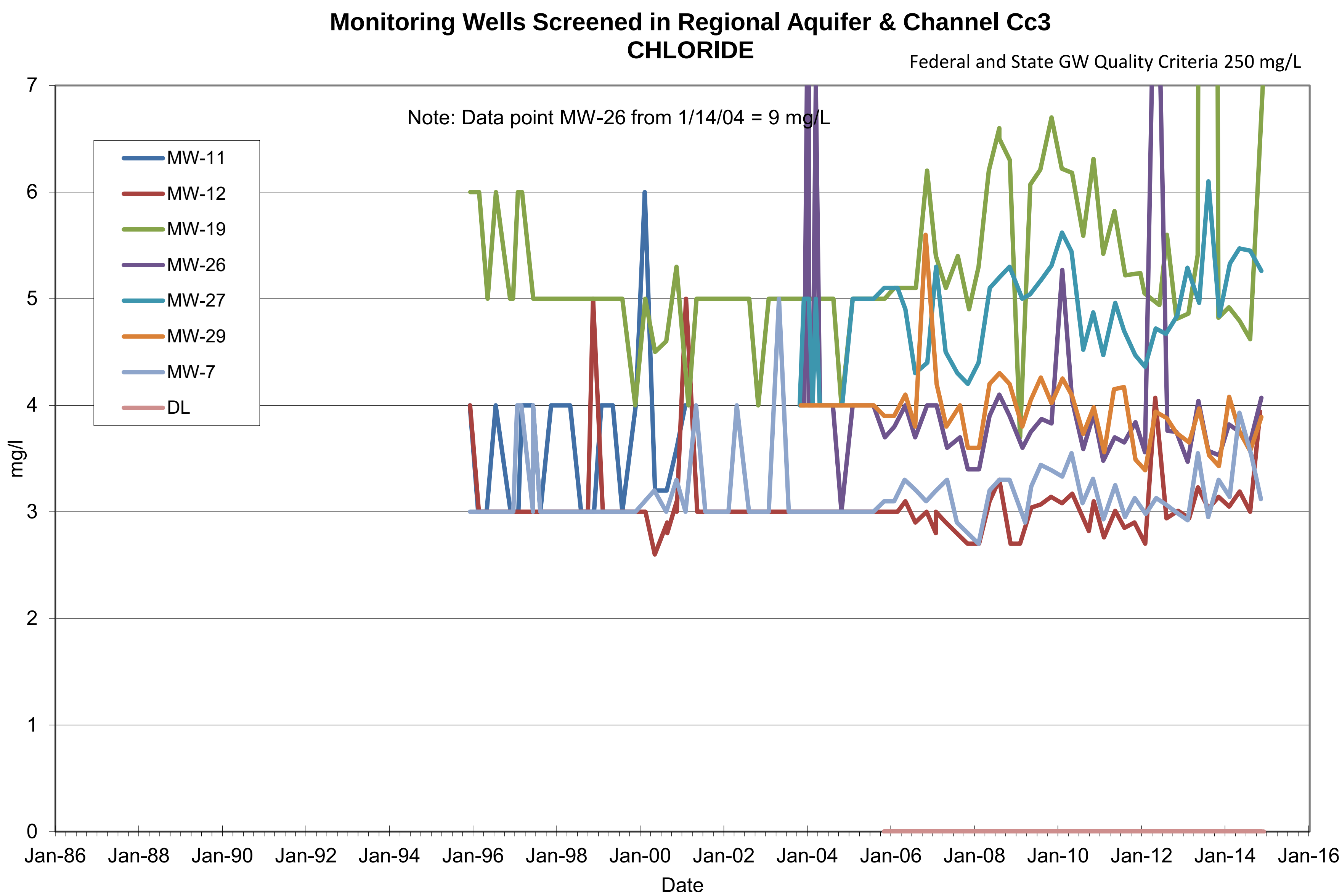


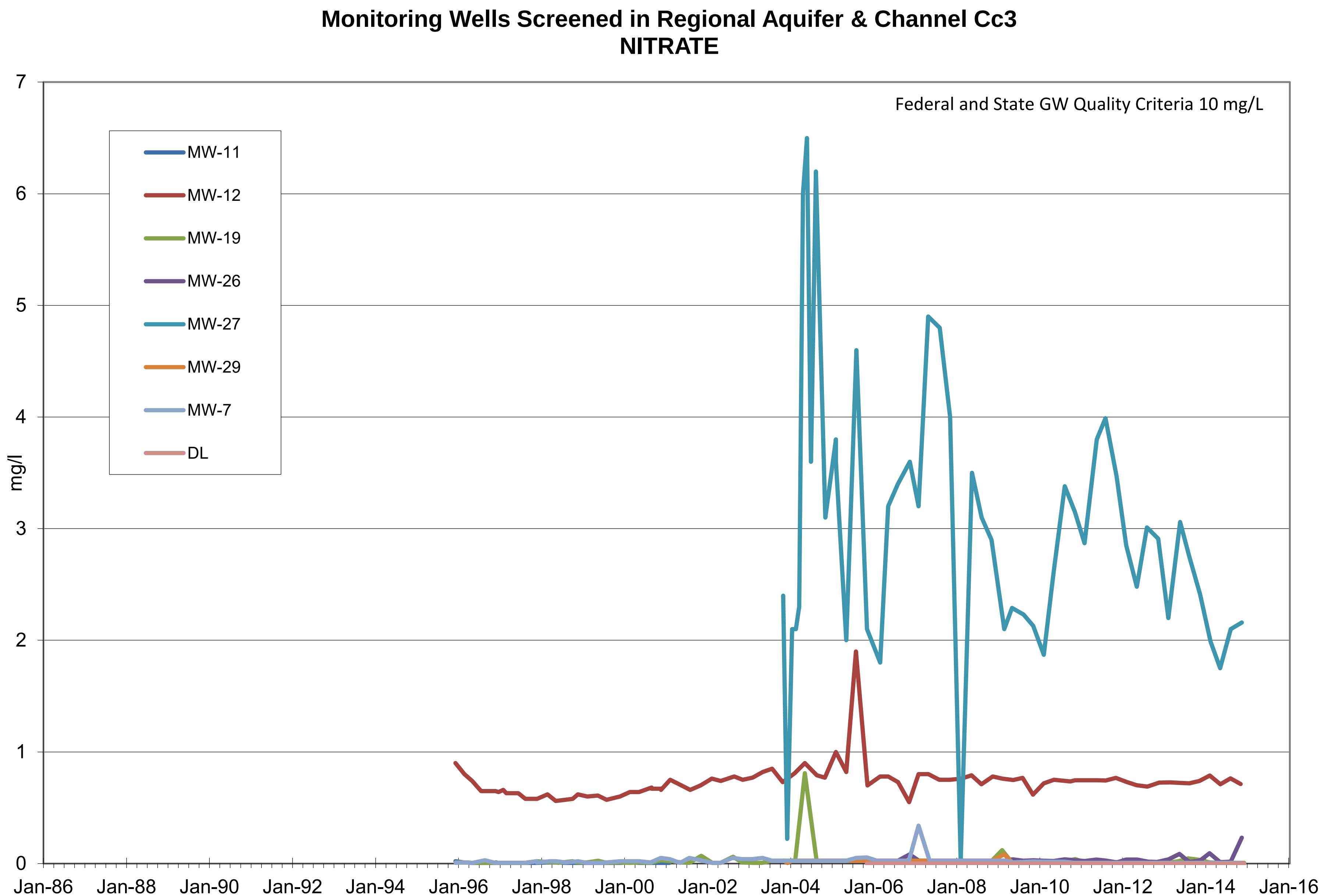

Monitoring Wells Screened in Regional Aquifer & Channel Cc3
ALKALINITY
as CaCO3, mg/l
160
140
120
100
80
60
40
20
0
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
DL
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16


Monitoring Wells Screened in Regional Aquifer & Channel Cc3
TOTAL DISSOLVED SOLIDS
Federal and State GW Quality Criteria 500 mg/L
Note: Data point MW-26 from 5/8/06 = 450 mg/L
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
DL
250
200
150
100
50
0
mg/l
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date



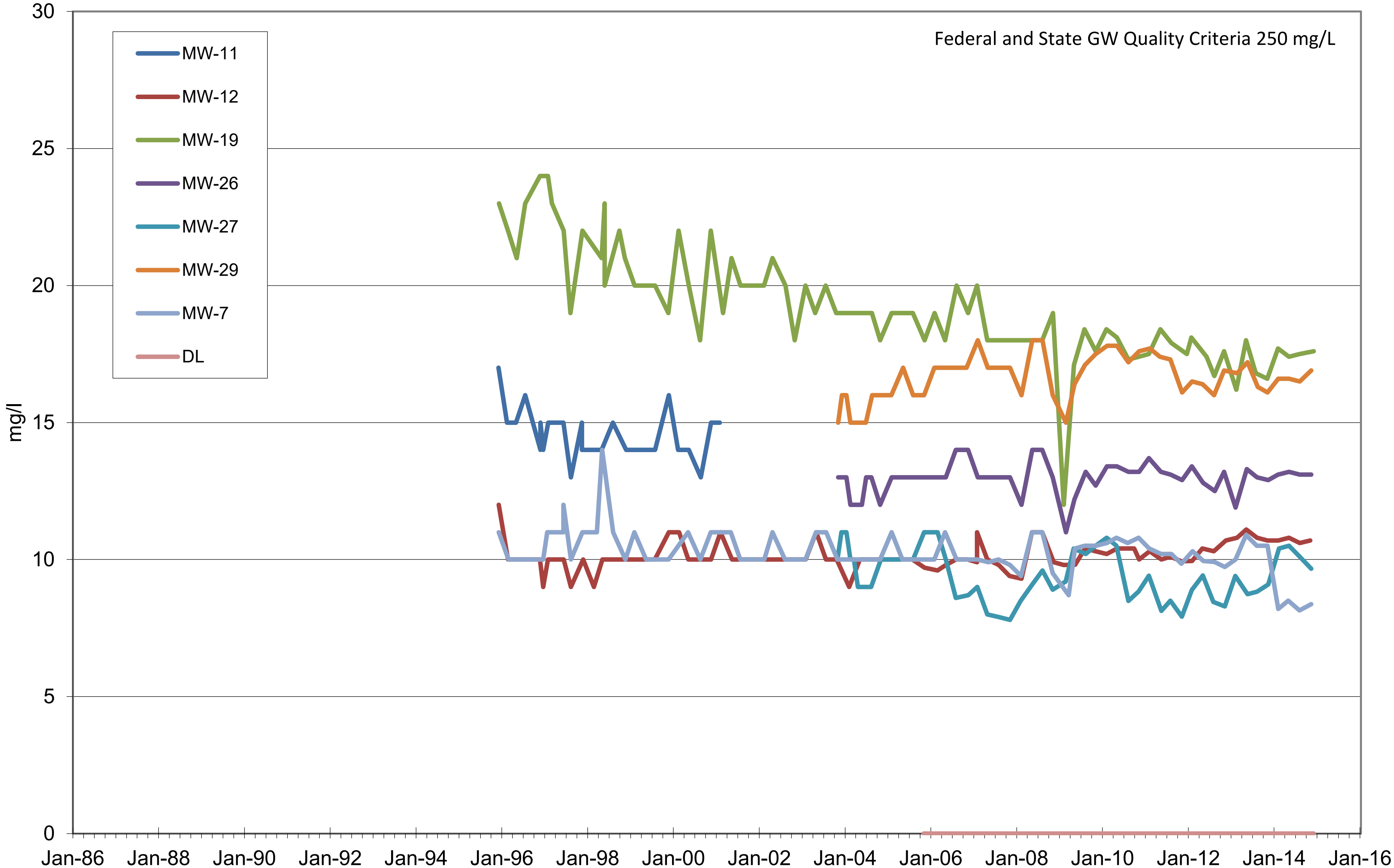
Monitoring Wells Screened in Regional Aquifer & Channel Cc3
AMMONIA
Note: Data point MW-27 from 11/2/04 = 0.46 mg/L
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
DL
mg/l
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date


Monitoring Wells Screened in Regional Aquifer & Channel Cc3
CHLORIDE
Federal and State GW Quality Criteria 250 mg/L
Note: Data point MW-26 from 1/14/04 = 9 mg/L
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
DL
mg/l
0
1
2
3
4
5
6
7
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
Date

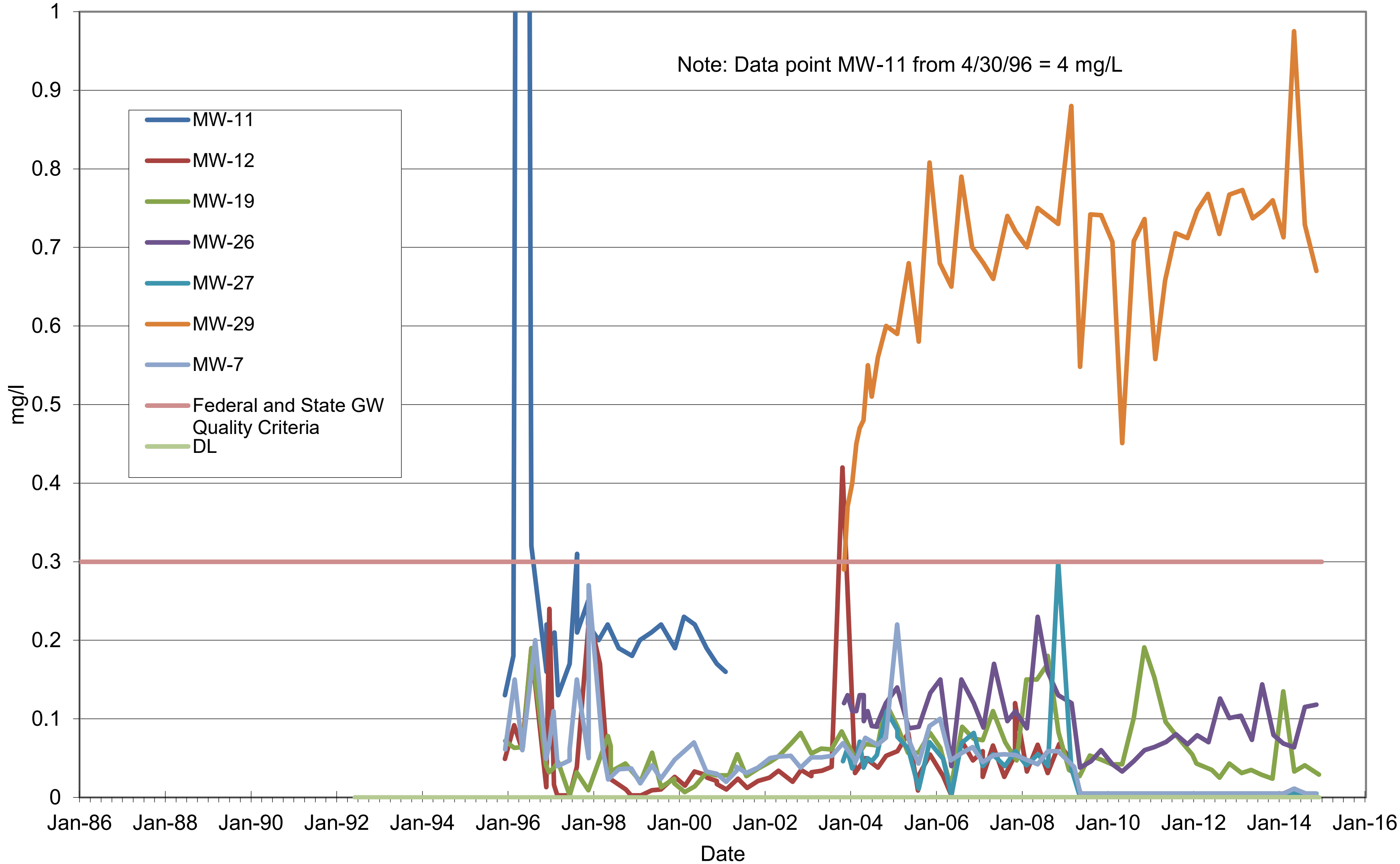


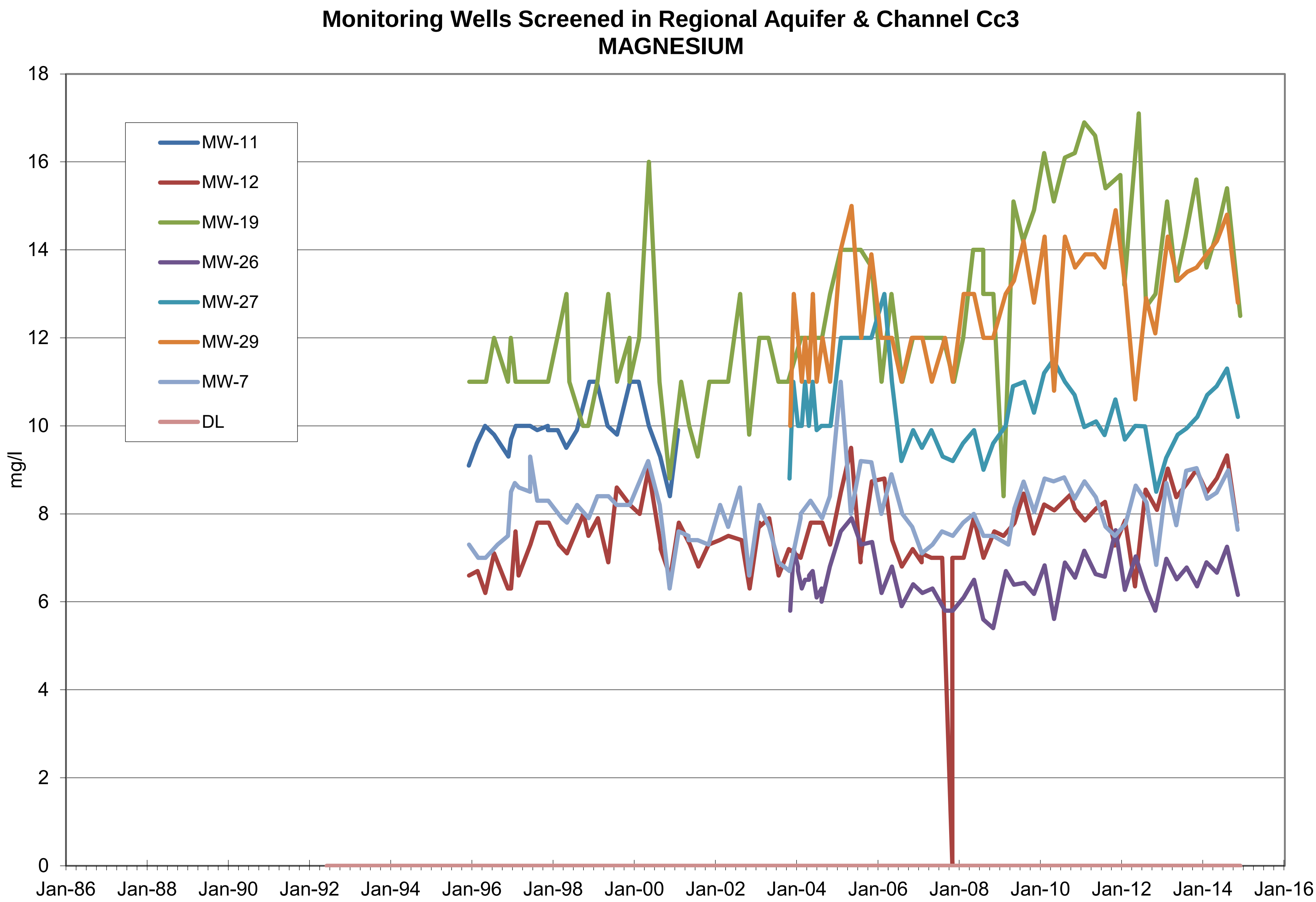
Monitoring Wells Screened in Regional Aquifer & Channel Cc3
NITRATE
Federal and State GW Quality Criteria 10 mg/L
mg/l
0
1
2
3
4
5
6
7
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
DL

Monitoring Wells Screened in Regional Aquifer & Channel Cc3
SULFATE



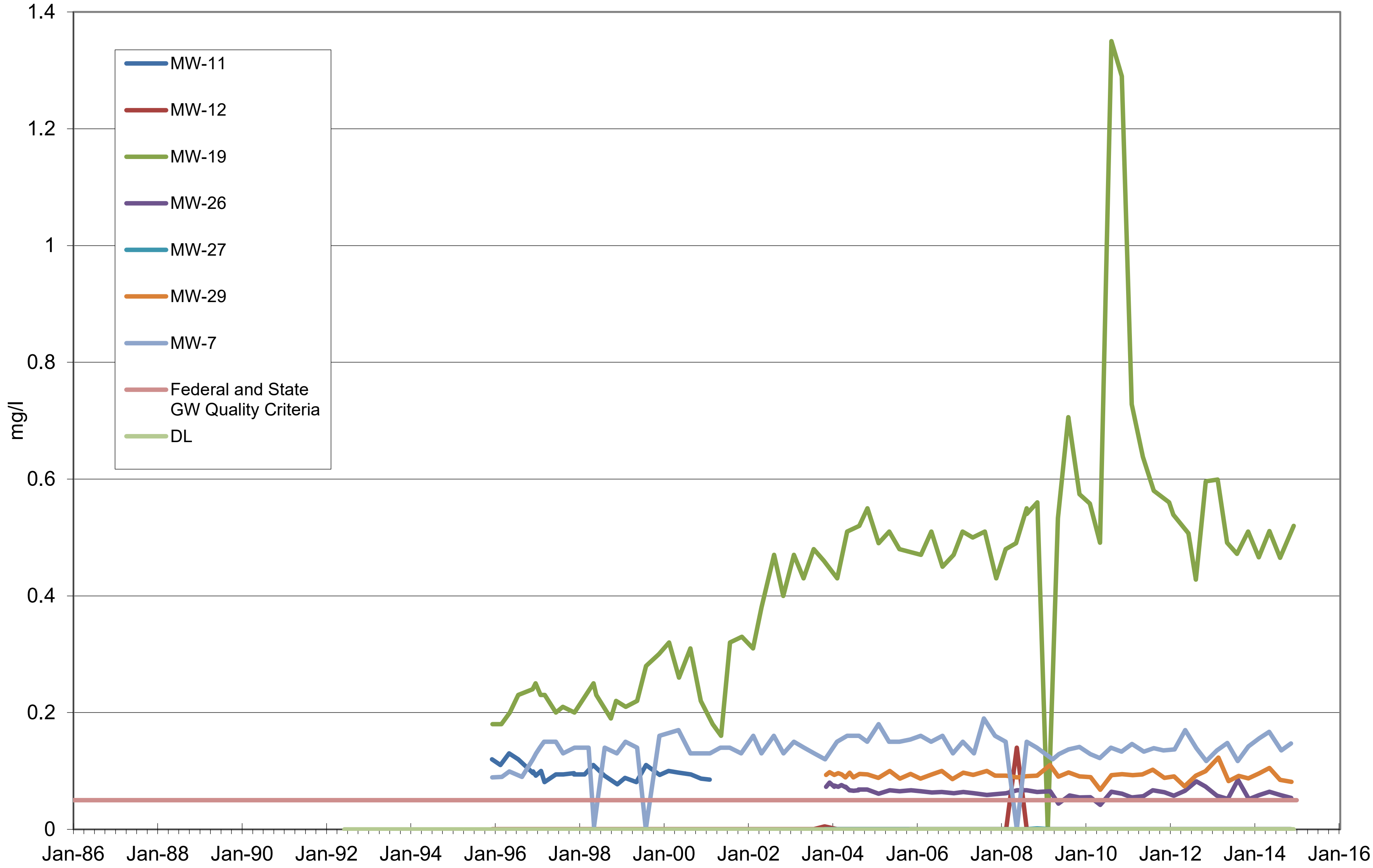
Monitoring Wells Screened in Regional Aquifer & Channel Cc3
IRON



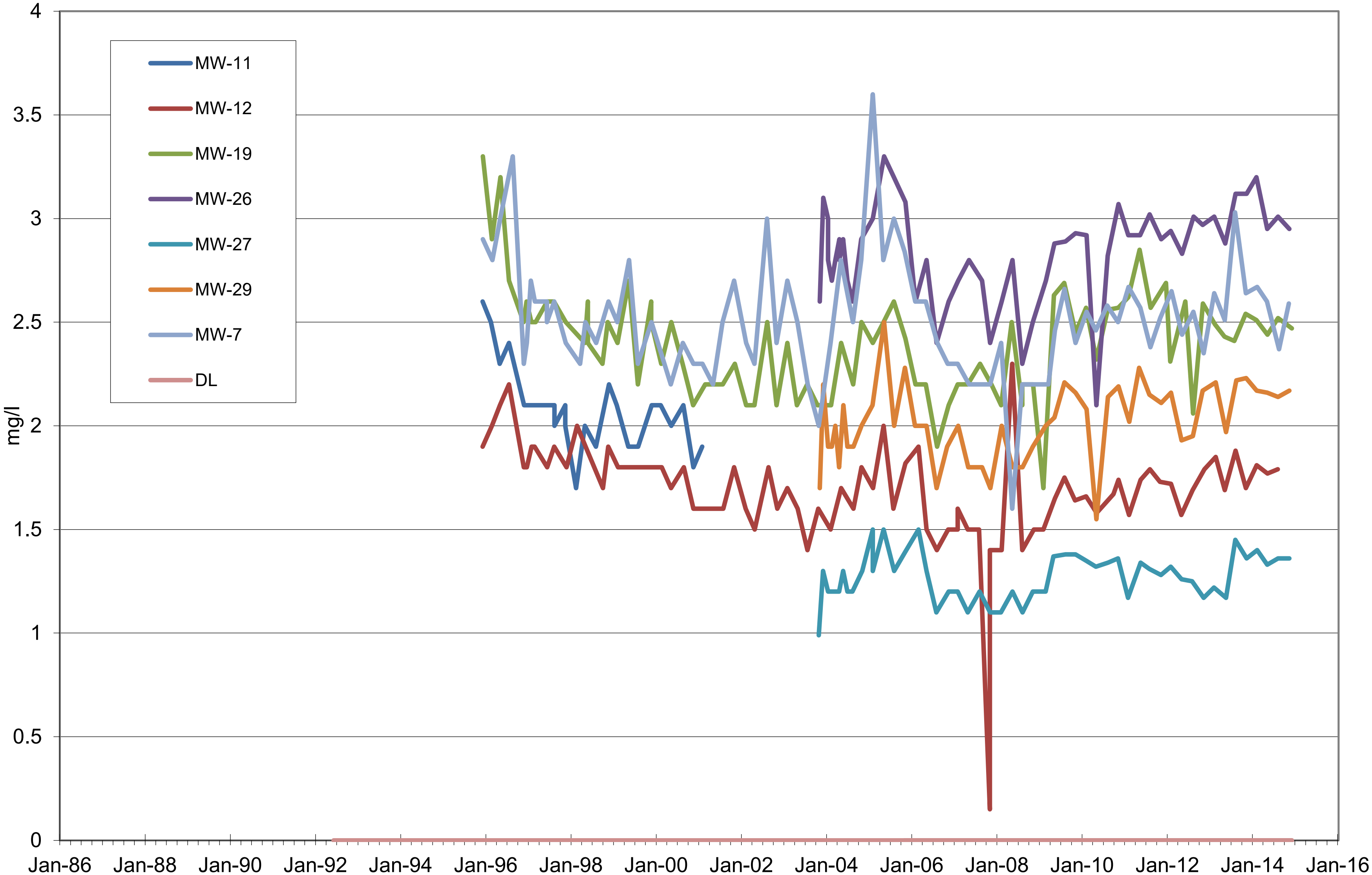


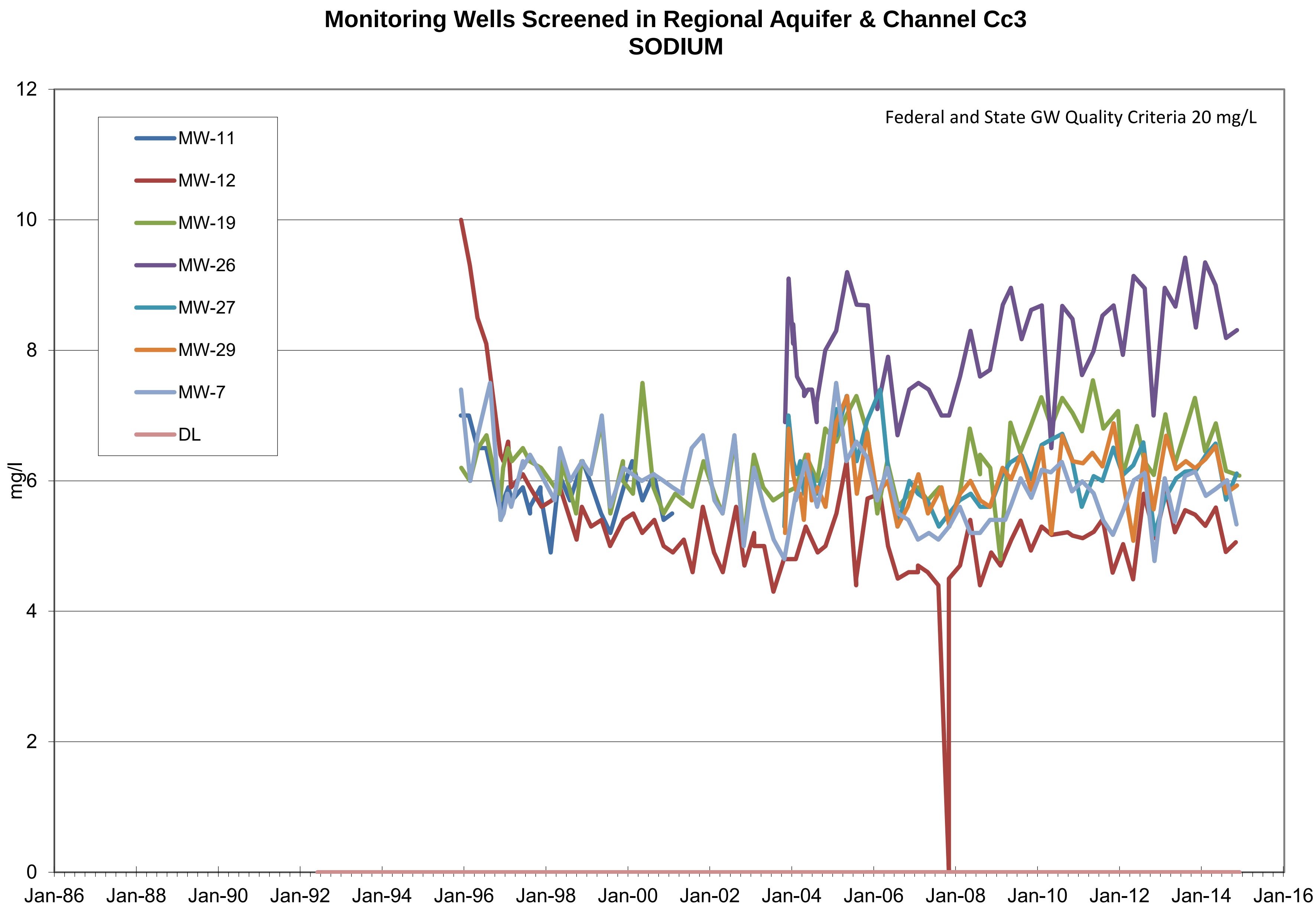
Monitoring Wells Screened in Regional Aquifer & Channel Cc3
MAGNESIUM
mg/l
18
16
14
12
10
8
6
4
2
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
DL

Monitoring Wells Screened in Regional Aquifer & Channel Cc3
MANGANESE

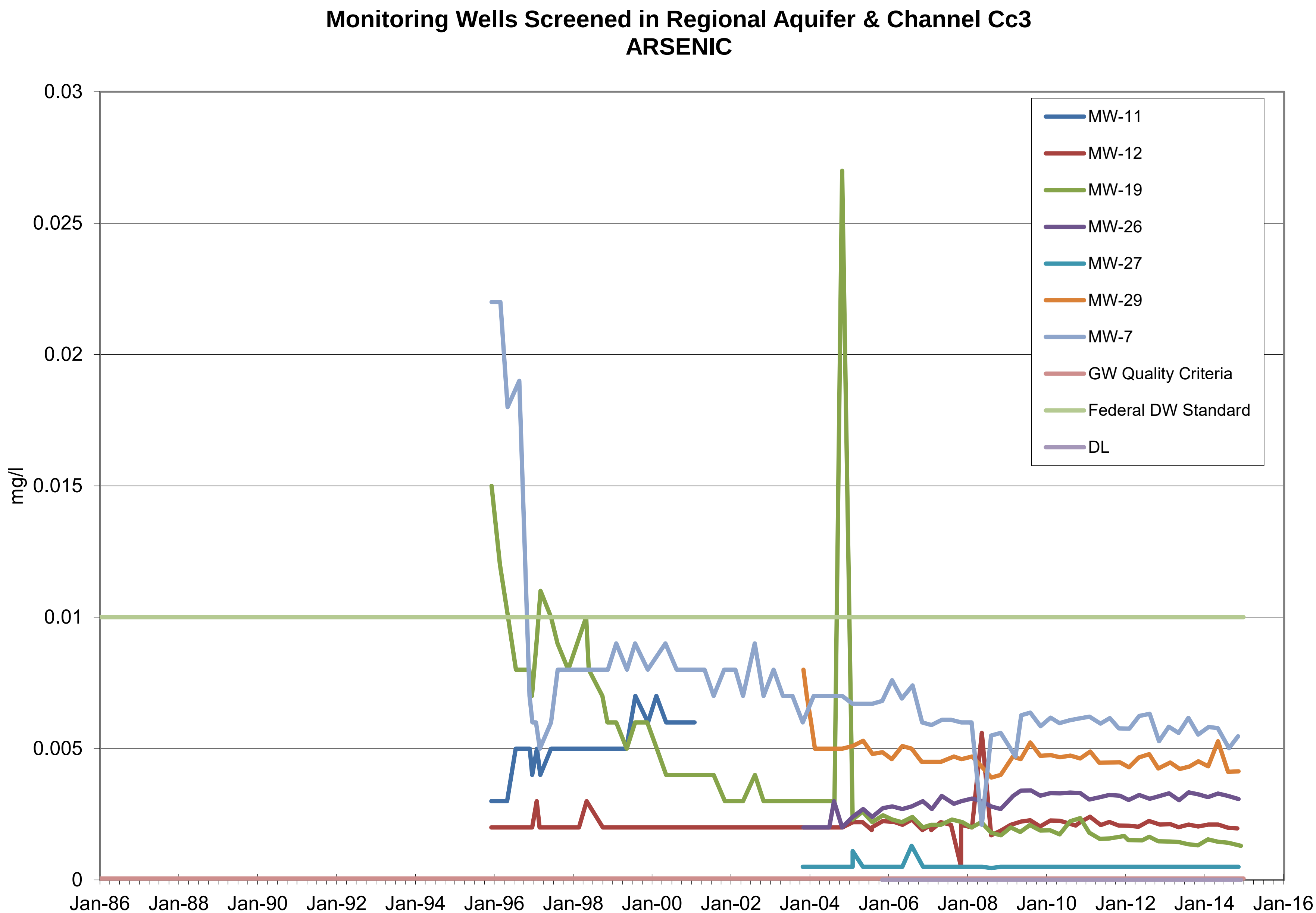


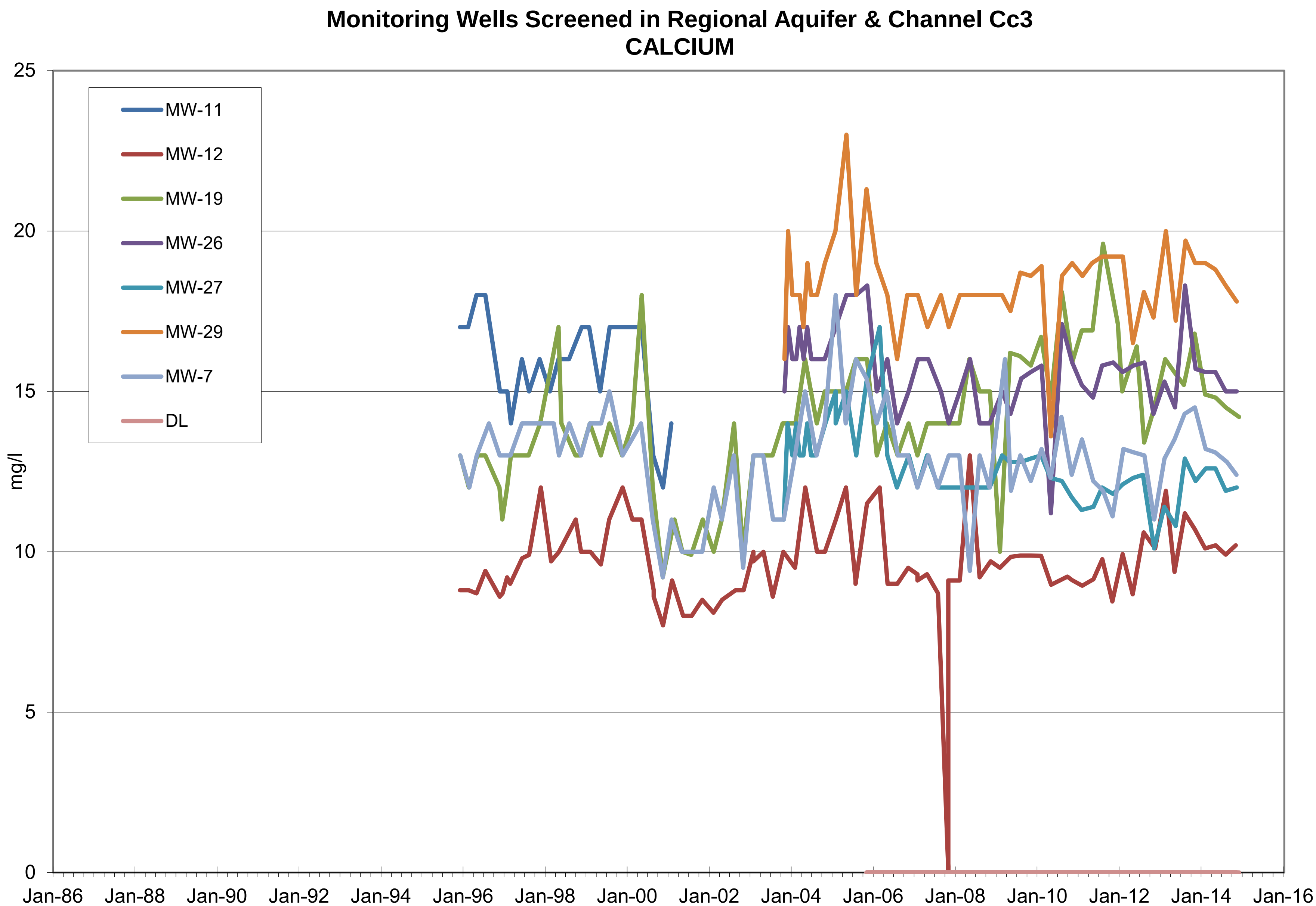
Monitoring Wells Screened in Regional Aquifer & Channel Cc3
POTASSIUM





Monitoring Wells Screened in Regional Aquifer & Channel Cc3
SODIUM
Federal and State GW Quality Criteria 20 mg/L
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
DL
mg/l
0
2
4
6
8
10
12
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16


Monitoring Wells Screened in Regional Aquifer & Channel Cc3
ARSENIC
mg/l
0.03
0.025
0.02
0.015
0.01
0.005
0
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
GW Quality Criteria
Federal DW Standard
DL



Monitoring Wells Screened in Regional Aquifer & Channel Cc3
CALCIUM
mg/l
25
20
15
10
5
0
MW-11
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
DL
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Jan-16

Appendix G

Groundwater Velocity Calculations and Potentiometric Maps

King County

Water and Land Resources Division
Department of Natural Resources and Parks
King Street Center, KSC-NR-0600
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
206-477-4800
TTY Relay: 711

Memorandum

To: Dan Swope
King County Solid Waste Division

From: Sevin Bilir
King County Water & Land Resources Division

Re: **Potentiometric Groundwater Surface Mapping & Groundwater Velocity Calculations**
First Quarter 2014 Results
Vashon Island Landfill, King County, Washington
Project No. 1033601- Task 29.14.137.45

Date: May15, 2014

King County Water & Land Resources Division (KCWLRD) submits this letter report on groundwater conditions during the first quarter of 2014 for the Cc2 perched zone and the regional aquifer beneath the Vashon Island Landfill (landfill), in accordance with the *Proposal for Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations* (KCWLRD, 2013). King County Solid Waste Division (KCSWD) personnel measured groundwater elevations at the landfill on January 29, 2014. These measurements were received by KCWLRD on April 21, 2014 and were used to:

1. Evaluate the potentiometric groundwater surface elevation for the Cc2 perched zone and the regional aquifer;
2. Determine the groundwater flow direction and horizontal gradient for the Cc2 perched zone and the regional aquifer; and
3. Calculate the groundwater velocity of the Cc2 perched zone and the regional aquifer.

There have been no significant changes in the interpreted groundwater conditions since the report submitted for the fourth quarter of the 2013 monitoring event.

Groundwater Elevation Data

KCSWD attempted groundwater level measurements at 22 monitoring wells during the first quarter of 2014. These wells were completed in the Cc2 perched zone, regional aquifer, and in other zones as referred to in *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004). Table 1 lists the well identifications, locations, well details, measured groundwater levels and calculated groundwater elevations for the Cc2 perched zone, regional aquifer, and wells in other perched zones.

Cc2 Perched Zone

Three separate perching zones are identified in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004) within the Unit C deposits. Only the southern portion of the of the Cc2 middle channel deposit perched zone was identified as laterally extensive. Groundwater in this perched zone is measured by wells MW-2, MW-5D, MW-9, MW-20, and MW-21. Monitoring well MW-9 is hydraulically separated from the rest of the wells in the Cc2 perched zone, as described in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004). Figure 1 shows well locations, groundwater elevations, groundwater potentiometric surface contours, and interpreted groundwater flow direction in the Cc2 perched zone for the January 29, 2014 measurement event.

Regional Aquifer

Wells MW-7, MW-12, MW-19, MW-25, MW-26, MW-27, MW-28 and MW-29 are reported to be in screened in or in hydraulic communication with the regional aquifer (B&H/UES, 2004). The regional aquifer includes the deepest channel deposit in Unit C (designated Cc3), and water-bearing Units D and F. Units D and F are separated by Unit E which is a semi-continuous, variably saturated aquitard (B&H/UES, 2004).

Wells MW-7, MW-12 and MW-19 measured water levels at least 15 feet above the top of the screen and may be influenced by vertical gradients in the regional aquifer. Well MW-27, completed in Unit Cc3, is identified in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004) to be measuring a groundwater mound in the regional aquifer water table. The mounding phenomenon is reported as likely due to local recharge from perched zones above.

The water level in monitoring well MW-28 was reported as "dry". MW-28 is completed in the regional aquifer and has historically been dry. This well was not used for this analysis.

Figure 2 shows well locations, groundwater elevations, groundwater potentiometric surface contours, and interpreted groundwater flow direction in the regional aquifer for the January 29, 2014 measurement event.

Direction of Groundwater Flow

Figures 1 and 2 shows groundwater potentiometric surface contours and interpreted groundwater flow directions in the Cc2 perched zone and regional aquifer, respectively, based on the January 29, 2014 measurements. Groundwater elevations indicate that groundwater in the southern Cc2 perched zone generally flowed southwest (Figure 1). Based on the current limited understanding of the regional aquifer, groundwater in the regional aquifer generally flowed radially away from MW-27 (Figure 2). Flow from MW-27 westward cannot be confirmed because there are no wells completed in the regional aquifer to the west of MW-27.

Groundwater Parameters

Horizontal groundwater velocity was calculated using the following formula:

where: $$v = \frac{1}{n_{eff}} K \frac{\Delta H}{\Delta L}$$

v = Groundwater velocity [L/t]
n_{eff} = Effective porosity [dimensionless]
K = Hydraulic conductivity [L/t]
$\frac{\Delta H}{\Delta L}$ = Hydraulic gradient [L/L]

Horizontal groundwater velocity was calculated for the Cc2 perched zone and regional aquifer below the landfill. The hydraulic conductivity and effective porosity values were based on the ranges referred to in the *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation - Vashon Island Landfill* (Aspect, 2010). The hydraulic gradient was determined from the potentiometric surface maps (Figures 1 and 2). The hydraulic gradients were approximately 0.01 and 0.036 ft/ft within the Cc2 perched zone and Cc3 regional aquifer, respectively.

Table 2 presents a summary of the groundwater parameters used to calculate a groundwater velocity from the first quarter 2014 data. On January 29, 2014, average horizontal groundwater velocity within the Cc2 perched zone was 0.002 feet per day (ft/d) and the average groundwater velocity in the regional aquifer was 1.3 ft/d.

References

Aspect Consulting (Aspect). 2010. *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill.* Unpublished. January 10.

Berryman & Henigar in association with Udaloy Environmental Services (B&H/UES). 2004. *Vashon Island Landfill Hydrogeologic Report Update.* December.

King County Water & Land Resources Division (KCWLRD). 2013. *Proposal for Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations.* Unpublished.

Thank you for the opportunity to provide hydrogeologic services to the KCSWD. Please contact me if you have any questions.

Sincerely,

Sevin Bilir, WA LHG
Environmental Scientist III
King County Water & Land Resources Division

<u>Attachments</u>

Table 1: Groundwater Elevations – First Quarter 2014
Table 2: Groundwater Parameters – First Quarter 2014
Figure 1: Groundwater Potentiometric Surface Map – First Quarter 2014 - Cc2 Perched Zone
Figure 2: Groundwater Potentiometric Surface Map – First Quarter 2014 - Regional Aquifer

Table 1: Groundwater Elevations – First Quarter 2014

Vashon Island Landfill
King County, Washington

	Well Identification	Easting	Northing	Top of Casing Elevation (feet MSL)	Top of Screen Elevation (feet)	scrn length	Bottom of Screen Elevation (feet)	Januray 29, 2014 Measured Depth to Water (feet)	Januray 29, 2014 Groundwater Elevations (feet MSL)
Wells Completed in Cc2 Perched Zone	MW-2	1227788.52	162365.3	314.28	233.58	5.00	228.58	73.83	240.45
	MW-5D	1227642.9	162566.95	357.2	240.86	11.00	229.86	117.40	239.80
	MW-9	1227723.22	163526.88	402.57	233.64	10.00	223.64	165.78	236.79
	MW-20	1228173	162566.16	367.21	237.57	4.30	233.27	122.39	244.82
	MW-21	1227647.37	162339.91	345.66	243.17	9.40	233.77	106.53	239.13
Wells Completed in Cc3 Regional Aquifer	MW-7	1228427.31	162811.01	373.25	151.09	10.00	141.09	191.39	181.86
	MW-12	1227800.7	162374.89	312.39	139.62	10.00	129.62	142.30	170.09
	MW-19	1227724.63	163534.76	403.83	141.10	10.00	131.10	245.03	158.80
	MW-25	1228627.702	163748.5939	399.22	148.78	14.10	134.68	243.26	155.96
	MW-26	1227909.874	163770.4284	403.4	155.12	14.10	141.02	246.75	156.65
	MW-27	1227779.749	163147.519	383.06	194.27	14.20	180.07	188.10	194.96
	MW-28	1228115.81	163843.5839	395.59	173.91	14.40	159.51	DRY	DRY
	MW-29	1228375.064	163680.914	410.57	169.80	14.80	155.00	245.03	165.54
Wells Completed in Other Perched Zones	MW-1	1228443.72	163596.5	403.6	284.48	10.00	274.48	124.70	278.90
	MW-3	1227789.56	162373.91	314.87	277.90	5.00	272.90	41.47	273.40
	MW-4	1227559.38	162957.79	374.21	273.08	10.00	263.08	105.38	268.83
	MW-5S	1227642.9	162566.95	356.63	281.86	10.00	271.86	84.43	272.20
	MW-8	1227664.94	163216.78	383.42	213.24	10.00	203.24	176.25	207.17
	MW-10	1227868.03	163837.42	407.51	262.34	10.00	252.34	144.60	262.91
	MW-13	1228427.45	162842.29	374.07	264.00	5.00	259.00	99.92	274.15
	MW-14	1227569.04	162959.54	375.68	212.62	10.00	202.62	151.24	224.44
	MW-24	1228427.78	162831.38	373.93	291.50	10.00	281.50	88.90	285.03

Notes:

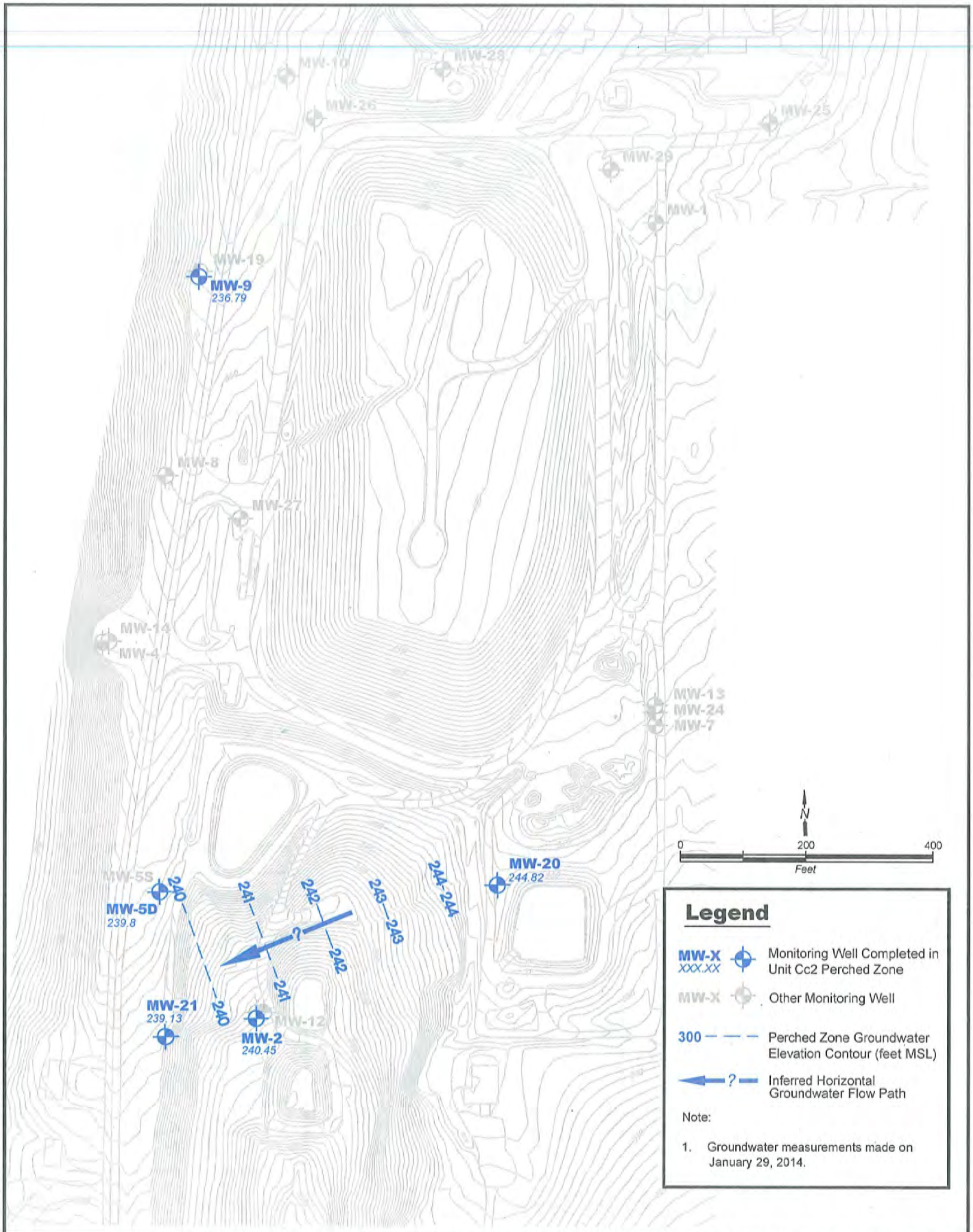
1. Water level measurements made by KCSWD personnel.
2. Northing & Easting coordinates are Washington North State Plane Coordinates in WGS84
3. Elevations reported in feet above Mean Sea Level based on the National Geodetic Vertical Datum, 1929.
4. NM, not measured due to broken well or broken pump.
5. DRY, no water detected or water depth measured below base of screen.

Table 2: Groundwater Parameters – First Quarter 2014
Vashon Island Landfill
King County, Washington

Water Bearing Zone Beneath the Landfill	Horizontal Hydraulic Conductivity (K) Range	(cm/s)	(ft/d)	Horizontal Hydraulic Gradient (DH/DL) (ft/ft)	Effective Porosity (n_{eff})	Horizontal Groundwater Velocity (v) (ft/d)	General Groundwater Flow Direction
Southern Cc2 Perched Zone	Low	1.90E-06	0.01	0.010	30%	0.0003	Southwest
	High	1.60E-04	0.45	0.010	20%	0.023	
	Average	1.70E-05	0.05	0.010	25%	0.002	
Cc3 Regional Aquifer	Low	1.00E-03	3	0.036	30%	0.36	Radially away from MW-27
	High	1.00E-02	28	0.036	20%	5.0	
	Average	3.20E-03	9	0.036	25%	1.3	

Notes

1. Horizontal hydraulic conductivity values and effective porosity values from
Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill (Aspect, 2010)
2. Average hydraulic conductivity values are the geometric mean of the high and low values.
3. Horizontal hydraulic gradients based on average of gradients calculated between monitoring well with highest groundwater elevation and other monitoring wells shown on Figures 1 and 2.



King County

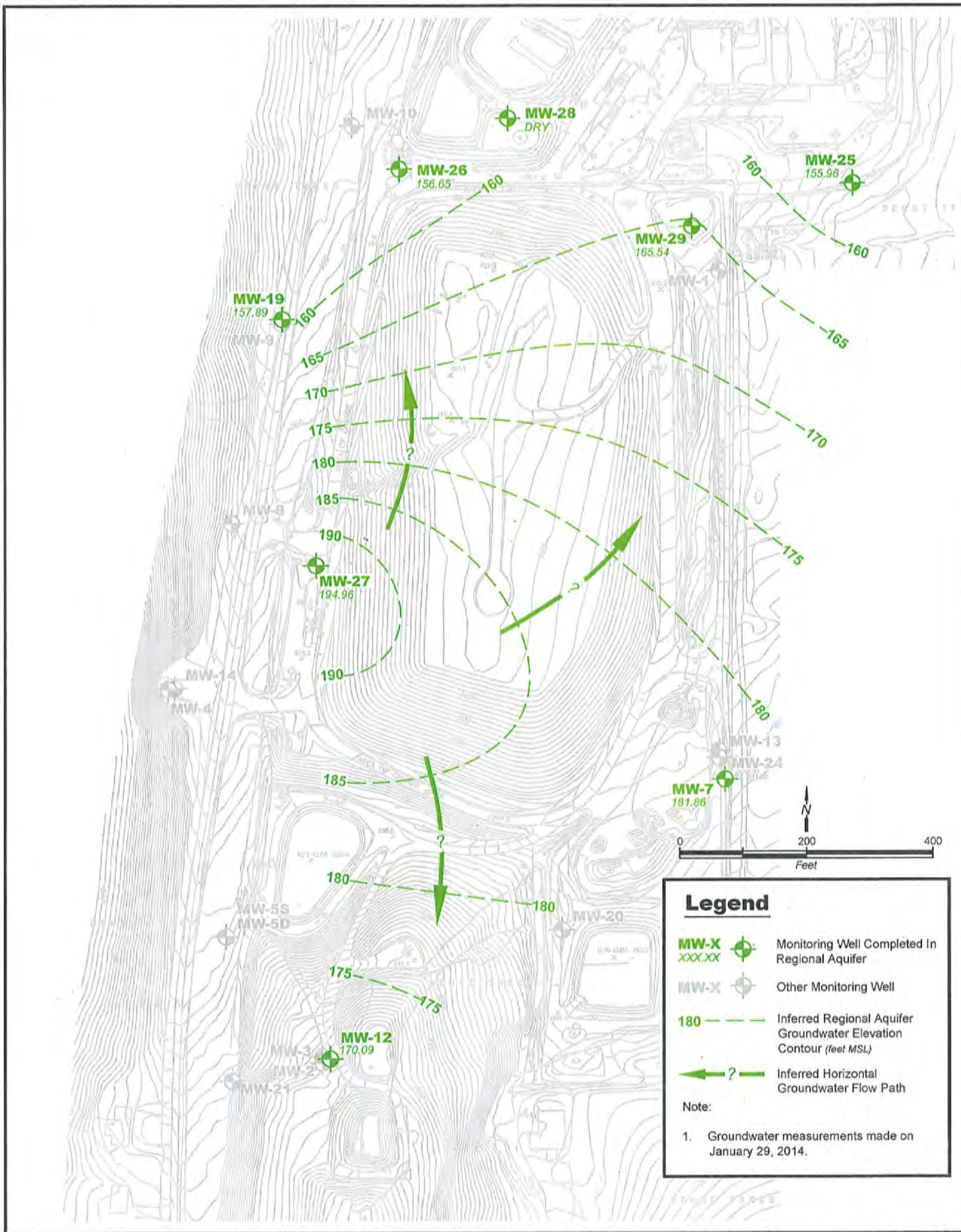
Groundwater Potentiometric Surface Map
First Quarter 2014 - Cc2 Perched Zone

Vashon Island Landfill

King County, Washington

DATE: April 2014	PROJECT NO. 1033601
DESIGNED BY: SB	
DRAWN BY: LT	FIGURE NO. 1
REVISED BY: SB	

Vashon_1Q2014_rcc2perched.dwg



King County

Groundwater Potentiometric Surface Map
First Quarter 2014 - Regional Aquifer

Vashon Island Landfill

King County, Washington

DATE	April 2014
DESIGNED BY	SB
DRAWN BY	LT
REVISED BY	SB
PROJECT NO.	1033601
FIGURE NO.	2

Vashon_1Q2014_regional.dwg

King County

Water and Land Resources Division

Department of Natural Resources and Parks
King Street Center, KSC-NR-0600
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855

206-477-4800

TTY Relay: 711

Memorandum

To: Dan Swope
King County Solid Waste Division

From: Sevin Bilir
King County Water & Land Resources Division

Re: **Potentiometric Groundwater Surface Mapping & Groundwater Velocity Calculations**
Second Quarter 2014 Results
Vashon Island Landfill, King County, Washington
Project No. 1033601- Task 29.14.137.45

Date: August 25, 2014

King County Water & Land Resources (KCWLR) Division submits this letter report on groundwater conditions during the second quarter of 2014 for the Cc2 perched zone and the regional aquifer beneath the Vashon Island Landfill (landfill), in accordance with the *Proposal for Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations* (KCWLR Division, 2013). King County Solid Waste Division (KCSWD) personnel measured groundwater elevations at the landfill on May 2, 2014. These measurements were received by KCWLR Division on July 31, 2014 and were used to:

1. Evaluate the potentiometric groundwater surface elevation for the Cc2 perched zone and the regional aquifer;

2. Determine the groundwater flow direction and horizontal gradient for the Cc2 perched zone and the regional aquifer; and

3. Calculate the groundwater velocity of the Cc2 perched zone and the regional aquifer.

There have been no significant changes in the interpreted groundwater conditions since the report submitted for the first quarter of the 2014 monitoring event.

Groundwater Elevation Data

KCSWD attempted groundwater level measurements at 22 monitoring wells during the second quarter of 2014. These wells were completed in the Cc2 perched zone, regional aquifer, and in other zones as referred to in *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004). Table 1 lists the well identifications, locations, well details, measured groundwater levels and calculated groundwater elevations for the Cc2 perched zone, regional aquifer, and wells in other perched zones.

Cc2 Perched Zone

Three separate perching zones are identified in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004) within the Unit C deposits. Only the southern portion of the of the Cc2 middle channel deposit perched zone was identified as laterally extensive. Groundwater in this perched zone is measured by wells MW-2, MW-5D, MW-9, MW-20, and MW-21. Monitoring well MW-9 is hydraulically separated from the rest of the wells in the Cc2 perched zone, as described in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004). Figure 1 shows well locations, groundwater elevations, groundwater potentiometric surface contours, and interpreted groundwater flow direction in the Cc2 perched zone for the May 2, 2014 measurement event.

Regional Aquifer

Wells MW-7, MW-12, MW-19, MW-25, MW-26, MW-27, MW-28 and MW-29 are reported to be in screened in or in hydraulic communication with the regional aquifer (B&H/UES, 2004). The regional aquifer includes the deepest channel deposit in Unit C (designated Cc3), and water-bearing Units D and F. Units D and F are separated by Unit E which is a semi-continuous, variably saturated aquitard (B&H/UES, 2004).

Wells MW-7, MW-12 and MW-19 measured water levels at least 15 feet above the top of the screen and may be influenced by vertical gradients in the regional aquifer. Well MW-27, completed in Unit Cc3, is identified in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004) to be measuring a groundwater mound in the regional aquifer water table. The mounding phenomenon is reported as likely due to local recharge from perched zones above.

The water level in monitoring well MW-28 was reported as “dry”. MW-28 is completed in the regional aquifer and has historically been dry. This well was not used for this analysis.

Figure 2 shows well locations, groundwater elevations, groundwater potentiometric surface contours, and interpreted groundwater flow direction in the regional aquifer for the May 2, 2014 measurement event.

Direction of Groundwater Flow

Figures 1 and 2 shows groundwater potentiometric surface contours and interpreted groundwater flow directions in the Cc2 perched zone and regional aquifer, respectively, based on the May 2, 2014 measurements. Groundwater elevations indicate that groundwater in the southern Cc2 perched zone generally flowed southwest (Figure 1). Based on the current limited understanding of the regional aquifer, groundwater in the regional aquifer generally flowed radially away from MW-27 (Figure 2). Flow from MW-27 westward cannot be confirmed because there are no wells completed in the regional aquifer to the west of MW-27.

Groundwater Parameters

Horizontal groundwater velocity was calculated using the following formula:

where: $$v = \frac{1}{n_{eff}} K \frac{\Delta H}{\Delta L}$$

v = Groundwater velocity [L/t]
n_{eff} = Effective porosity [dimensionless]
K = Hydraulic conductivity [L/t]
$\frac{\Delta H}{\Delta L}$ = Hydraulic gradient [L/L]

Horizontal groundwater velocity was calculated for the Cc2 perched zone and regional aquifer below the landfill. The hydraulic conductivity and effective porosity values were based on the ranges referred to in the *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation - Vashon Island Landfill* (Aspect, 2010). The hydraulic gradient was determined from the potentiometric surface maps (Figures 1 and 2). The hydraulic gradients were approximately 0.005 and 0.039 ft/ft within the Cc2 perched zone and Cc3 regional aquifer, respectively.

Table 2 presents a summary of the groundwater parameters used to calculate a groundwater velocity from the second quarter 2014 data. On May 2, 2014, average horizontal groundwater velocity within the Cc2 perched zone was 0.001 feet per day (ft/d) and the average groundwater velocity in the regional aquifer was 1.4 ft/d.

References

Aspect Consulting (Aspect). 2010. *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill*. Unpublished. January 10.

Berryman & Henigar in association with Udaloy Environmental Services (B&H/UES). 2004. *Vashon Island Landfill Hydrogeologic Report Update*. December.

King County Water & Land Resources Division (KCWLRD). 2013. *Proposal for Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations*. Unpublished.

Thank you for the opportunity to provide hydrogeologic services to the KCSWD. Please contact me if you have any questions.

Sincerely,

Sevin Bilir, WA LHG
Environmental Scientist III
King County Water & Land Resources Division

<u>Attachments</u>

Table 1: Groundwater Elevations – Second Quarter 2014
Table 2: Groundwater Parameters – Second Quarter 2014
Figure 1: Groundwater Potentiometric Surface Map – Second Quarter 2014 - Cc2 Perched Zone
Figure 2: Groundwater Potentiometric Surface Map – Second Quarter 2014 - Regional Aquifer

Table 1: Groundwater Elevations – Second Quarter 2014

Vashon Island Landfill

King County, Washington

	Well Identification	Easting	Northing	Top of Casing Elevation (feet MSL)	Top of Screen Elevation (feet)	scrn length	Bottom of Screen Elevation (feet)	May 2, 2014 Measured Depth to Water (feet)	May 2, 2014 Groundwater Elevations (feet MSL)
Wells Completed in Cc2 Perched Zone	MW-2	1227788.52	162365.3	314.28	233.58	5.00	228.58	73.92	240.36
	MW-5D	1227642.9	162566.95	357.2	240.86	11.00	229.86	117.50	239.70
	MW-9	1227723.22	163526.88	402.57	233.64	10.00	223.64	165.62	236.95
	MW-20	1228173	162566.16	367.21	237.57	4.30	233.27	122.54	244.67
	MW-21	1227647.37	162339.91	345.66	243.17	9.40	233.77	106.65	239.01
Wells Completed in Cc3 Regional Aquifer	MW-7	1228427.31	162811.01	373.25	151.09	10.00	141.09	191.65	181.60
	MW-12	1227800.7	162374.89	312.39	139.62	10.00	129.62	142.54	169.85
	MW-19	1227724.63	163534.76	403.83	141.10	10.00	131.10	245.87	157.96
	MW-25	1228627.702	163748.5939	399.22	148.78	14.10	134.68	243.65	155.57
	MW-26	1227909.874	163770.4284	403.4	155.12	14.10	141.02	247.49	155.91
	MW-27	1227779.749	163147.519	383.06	194.27	14.20	180.07	188.44	194.62
	MW-28	1228115.81	163843.5839	395.59	173.91	14.40	159.51	DRY	DRY
	MW-29	1228375.064	163680.914	410.57	169.80	14.80	155.00	244.49	166.08
Wells Completed in Other Perched Zones	MW-1	1228443.72	163596.5	403.6	284.48	10.00	274.48	126.59	277.01
	MW-3	1227789.56	162373.91	314.87	277.90	5.00	272.90	40.90	273.97
	MW-4	1227559.38	162957.79	374.21	273.08	10.00	263.08	106.45	267.76
	MW-5S	1227642.9	162566.95	356.63	281.86	10.00	271.86	DRY	DRY
	MW-8	1227664.94	163216.78	383.42	213.24	10.00	203.24	176.32	207.10
	MW-10	1227868.03	163837.42	407.51	262.34	10.00	252.34	145.15	262.36
	MW-13	1228427.45	162842.29	374.07	264.00	5.00	259.00	100.33	273.74
	MW-14	1227569.04	162959.54	375.68	212.62	10.00	202.62	151.00	224.68
	MW-24	1228427.78	162831.38	373.93	291.50	10.00	281.50	88.80	285.13

Notes:

1. Water level measurements made by KCSWD personnel.
2. Northing & Easting coordinates are Washington North State Plane Coordinates in WGS84
3. Elevations reported in feet above Mean Sea Level based on the National Geodetic Vertical Datum, 1929.
4. DRY, no water detected or water depth measured below base of screen.

Table 2: Groundwater Parameters – Second Quarter 2014

Vashon Island Landfill

King County, Washington

Water Bearing Zone Beneath the Landfill	Horizontal Hydraulic Conductivity (*K*) Range	(cm/s)	(ft/d)	Horizontal Hydraulic Gradient (DH/DL) (ft/ft)	Effective Porosity (n_{eff})	Horizontal Groundwater Velocity (*v*) (ft/d)	General Groundwater Flow Direction
Southern Cc2 Perched Zone	Low	1.90E-06	0.01	0.005	30%	0.0002	Southwest
	High	1.60E-04	0.45	0.005	20%	0.011	
	Average	1.70E-05	0.05	0.005	25%	0.001	
Cc3 Regional Aquifer	Low	1.00E-03	3	0.039	30%	0.39	Radially away from MW-27
	High	1.00E-02	28	0.039	20%	5.5	
	Average	3.20E-03	9	0.039	25%	1.4	

Notes

1. Horizontal hydraulic conductivity values and effective porosity values from *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill (Aspect, 2010)*
2. Average hydraulic conductivity values are the geometric mean of the high and low values.
3. Horizontal hydraulic gradients based on average of gradients calculated between monitoring well with highest groundwater elevation and other monitoring wells shown on Figures 1 and 2.

King County

Groundwater Potentiometric Surface Map

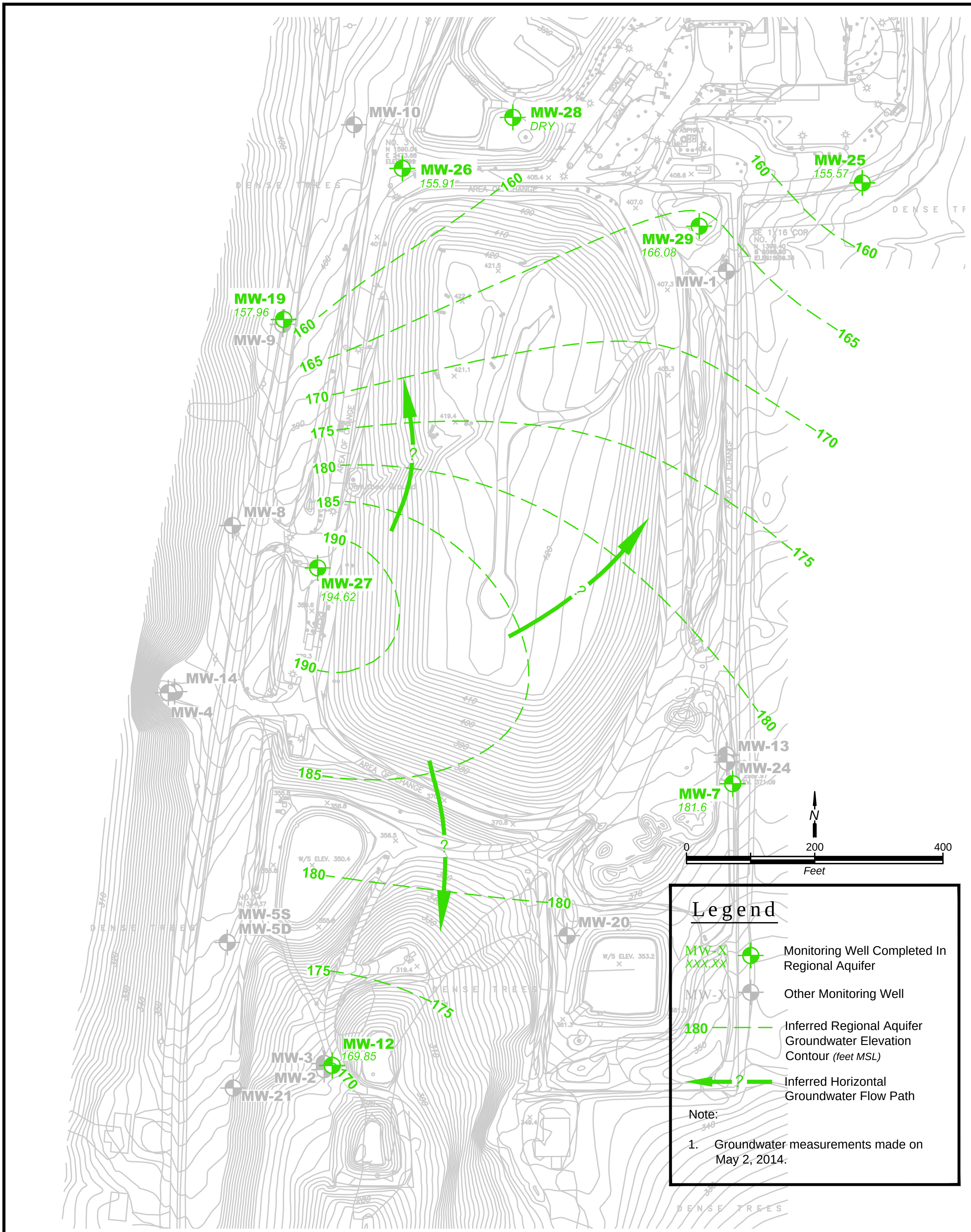
Second Quarter 2014 - Cc2 Perched Zone

Vashon Island Landfill

King County, Washington

DATE: August 2014	PROJECT NO. 1033601
DESIGNED BY: SB	
DRAWN BY: LT	FIGURE NO. 1
REVISED BY: SB	

Vashon_2Q2014_rcc2perched.dwg



King County

Groundwater Potentiometric Surface Map
Second Quarter 2014 - Regional Aquifer

Vashon Island Landfill

King County, Washington

DATE: August 2014	PROJECT NO. 1033601
DESIGNED BY: SB	
DRAWN BY: LT	FIGURE NO. 2
REVISED BY: SB	

Vashon_2Q2014_regional.dwg

King County
Water and Land Resources Division
Department of Natural Resources and Parks
King Street Center
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
206-477-4800 Fax 206-296-0192
TTY Relay: 711

Memorandum

November 26, 2014

TO: Dan Swope, Engineer II, Engineering Services Section, Solid Waste Division, Department of Natural Resources and Parks (DNRP)

FM: Sevin Bilir, Environmental Scientist III, Science and Technical Support Section, Water and Land Resources Division, DNRP

RE: Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations
Second Quarter 2014 Results
Vashon Island Landfill, King County, Washington
Project No. 1033601 – Task 29.14.137.45

King County King County Water and Land Resources Division (KCWLR Division) submits this memorandum report on groundwater conditions during the third quarter of 2014 for the Cc2 perched zone and the regional aquifer beneath the Vashon Island Landfill (landfill), in accordance with the *Proposal for Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations* (KCWLR Division, 2013). King County Solid Waste Division (KCSWD) personnel measured groundwater elevations at the landfill on August 4, 2014. These measurements were received by KCWLR Division on November 24, 2014 and were used to:

1. Evaluate the potentiometric groundwater surface elevation for the Cc2 perched zone and the regional aquifer;
2. Determine the groundwater flow direction and horizontal gradient for the Cc2 perched zone and the regional aquifer; and
3. Calculate the groundwater velocity of the Cc2 perched zone and the regional aquifer.

There have been no significant changes in the interpreted groundwater conditions since the report submitted for the second quarter of the 2014 monitoring event.

Groundwater Elevation Data

KCSWD attempted groundwater level measurements at 21 monitoring wells during the third quarter of 2014. These wells were completed in the Cc2 perched zone, regional aquifer, and in other zones as referred to in *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES,

2004). Table 1 lists the well identifications, locations, well details, measured groundwater levels and calculated groundwater elevations for the Cc2 perched zone, regional aquifer, and wells in other perched zones.

Cc2 Perched Zone

Three separate perching zones are identified in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004) within the Unit C deposits. Only the southern portion of the of the Cc2 middle channel deposit perched zone was identified as laterally extensive. Groundwater in this perched zone is measured by wells MW-2, MW-5D, MW-9, MW-20, and MW-21. Monitoring well MW-9 is hydraulically separated from the rest of the wells in the Cc2 perched zone, as described in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004). Figure 1 shows well locations, groundwater elevations, groundwater potentiometric surface contours, and interpreted groundwater flow direction in the Cc2 perched zone for the August 4, 2014 measurement event.

Regional Aquifer

Wells MW-7, MW-12, MW-19, MW-25, MW-26, MW-27, MW-28, and MW-29 are reported to be in screened in or in hydraulic communication with the regional aquifer (B&H/UES, 2004). The regional aquifer includes the deepest channel deposit in Unit C (designated Cc3), and water-bearing Units D and F. Units D and F are separated by Unit E which is a semi-continuous, variably saturated aquitard (B&H/UES, 2004).

Wells MW-7, MW-12 and MW-19 measured water levels at least 15 feet above the top of the screen and may be influenced by vertical gradients in the regional aquifer. Well MW-27, completed in Unit Cc3, is identified in the Vashon Island Landfill Hydrogeologic Report Update (B&H/UES, 2004) to be measuring a groundwater mound in the regional aquifer water table. The mounding phenomenon is reported as likely due to local recharge from perched zones above.

The water level in monitoring well MW-28 was reported as "dry." MW-28 is completed in the regional aquifer and has historically been dry. This well was not used for this analysis.

Figure 2 shows well locations, groundwater elevations, groundwater potentiometric surface contours, and interpreted groundwater flow direction in the regional aquifer for the August 4, 2014 measurement event.

Direction of Groundwater Flow

Figures 1 and 2 shows groundwater potentiometric surface contours and interpreted groundwater flow directions in the Cc2 perched zone and regional aquifer, respectively, based on the August 4, 2014 measurements. Groundwater elevations indicate that groundwater in the southern Cc2 perched zone generally flowed southwest (Figure 1). Based on the current limited understanding of the regional aquifer, groundwater in the regional aquifer generally flowed radially away from MW-27 (Figure 2). Flow from MW-27 westward cannot be confirmed because there are no wells completed in the regional aquifer to the west of MW-27.

Groundwater Parameters

Horizontal groundwater velocity was calculated using the following formula:

$$\text{where: } v = \frac{1}{n_{eff}} K \frac{\Delta H}{\Delta L}$$

v = Groundwater velocity [L/t]
n_{eff} = Effective porosity [dimensionless]
K = Hydraulic conductivity [L/t]
$\frac{\Delta H}{\Delta L}$ = Hydraulic gradient [L/L]

Horizontal groundwater velocity was calculated for the Cc2 perched zone and regional aquifer below the landfill. The hydraulic conductivity and effective porosity values were based on the ranges referred to in the *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill* (Aspect, 2010). The hydraulic gradient was determined from the potentiometric surface maps (Figures 1 and 2). The hydraulic gradients were approximately 0.010 and 0.037 ft/ft within the Cc2 perched zone and Cc3 regional aquifer, respectively.

Table 2 presents a summary of the groundwater parameters used to calculate a groundwater velocity from the third quarter 2014 data. On August 4, 2014, average horizontal groundwater velocity within the Cc2 perched zone was 0.002 feet per day (ft/d) and the average groundwater velocity in the regional aquifer was 1.3 ft/d.

References

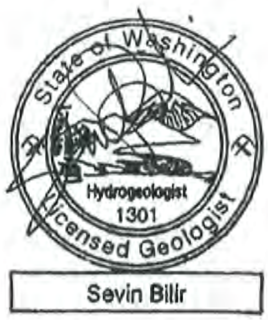
Aspect Consulting (Aspect). 2010. *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill*. Unpublished. January 10.

Berryman & Henigar in association with Udaloy Environmental Services (B&H/UES). 2004. *Vashon Island Landfill Hydrogeologic Report Update*. December.

King County Water & Land Resources Division (KCWLR Division). 2013. *Proposal for Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations*. Unpublished.

Thank you for the opportunity to provide hydrogeologic services to the KCSWD. If you have any questions, please feel free to contact met at 206-477-4646 or sevin.bilir@kingcounty.gov.

Sincerely,



Sevin Bilir, WA LHG
Environmental Scientist III
King County Water and Land Resources Division

Enclosures:

- Table 1: Groundwater Elevations – Third Quarter 2014
- Table 2: Groundwater Parameters – Third Quarter 2014
- Figure 1: Groundwater Potentiometric Surface Map – Third Quarter 2014 - Cc2 Perched Zone
- Figure 2: Groundwater Potentiometric Surface Map – Third Quarter 2014 - Regional Aquifer

Table 1: Groundwater Elevations – Third Quarter 2014

Vashon Island Landfill
King County, Washington

	Well Identification	Easting	Northing	Top of Casing Elevation (feet MSL)	Top of Screen Elevation (feet)	scm length	Bottom of Screen Elevation (feet)	August 4, 2014 Measured Depth to Water (feet)	August 4, 2014 Groundwater Elevations (feet MSL)
Wells Completed in Cc2 Perched Zone	MW-2	1227788.52	162365.3	314.28	233.58	5.00	228.58	74.05	240.23
	MW-5D	1227642.9	162566.95	357.2	240.86	11.00	229.86	117.67	239.53
	MW-9	1227723.22	163526.88	402.57	233.64	10.00	223.64	165.77	236.80
	MW-20	1228173	162566.16	367.21	237.57	4.30	233.27	122.65	244.56
	MW-21	1227647.37	162339.91	345.66	243.17	9.40	233.77	106.69	238.97
Wells Completed in Cc3 Regional Aquifer	MW-7	1228427.31	162811.01	373.25	151.09	10.00	141.09	191.88	181.37
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	MW-26	1227909.874	163770.4284	403.4	155.12	14.10	141.02	247.46	155.94
	MW-27	1227779.749	163147.519	383.06	194.27	14.20	180.07	188.23	194.83
	MW-28	1228115.81	163843.5839	395.59	173.91	14.40	159.51	Dry	Dry
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	MW-3	1227789.56	162373.91	314.87	277.90	5.00	272.90	42.17	272.70
	MW-4	1227559.38	162957.79	374.21	273.08	10.00	263.08	106.42	267.79
	MW-5S	1227642.9	162566.95	356.63	281.86	10.00	271.86	Dry	Dry
	MW-8	1227664.94	163216.78	383.42	213.24	10.00	203.24	176.28	207.14
	MW-10	1227868.03	163837.42	407.51	262.34	10.00	252.34	145.08	262.43
	MW-13	1228427.45	162842.29	374.07	264.00	5.00	259.00	100.23	273.84
	MW-14	1227569.04	162959.54	375.68	212.62	10.00	202.62	151.57	224.11
	MW-24	1228427.78	162831.38	373.93	291.50	10.00	281.50	88.13	285.80

Notes:

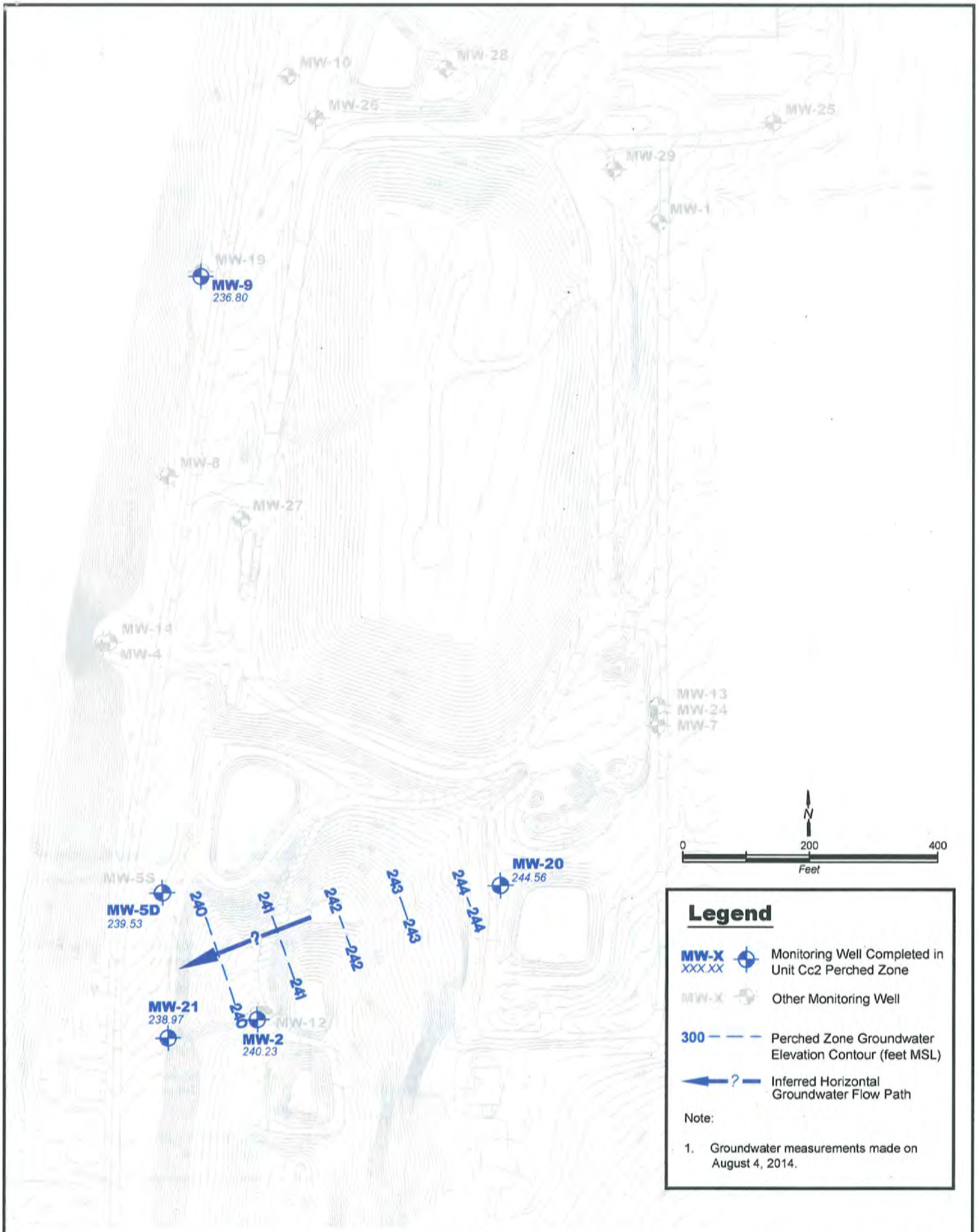
1. Water level measurements made by KCSWD personnel.
2. Northing & Easting coordinates are Washington North State Plane Coordinates in WGS84
3. Elevations reported in feet above Mean Sea Level based on the National Geodetic Vertical Datum, 1929.
4. DRY, no w ater detected or w ater depth measured below base of screen.
5. NM, not measured due to broken w ell or broken pump.

Table 2: Groundwater Parameters: Third Quarter 2014
Vashon Island Landfill
King County, Washington

Water Bearing Zone Beneath the Landfill	Horizontal Hydraulic Conductivity (K) Range	(cm/s)	(ft/d)	Horizontal Hydraulic Gradient (DH/DL) (ft/ft)	Effective Porosity (n_{eff})	Horizontal Groundwater Velocity (v) (ft/d)	General Groundwater Flow Direction
Southern Cc2 Perched Zone	Low	1.90E-06	0.01	0.010	30%	0.0003	Southwest
	High	1.60E-04	0.45	0.010	20%	0.023	
	Average	1.70E-05	0.05	0.010	25%	0.002	
Cc3 Regional Aquifer	Low	1.00E-03	3	0.037	30%	0.37	Radially away from MW-27
	High	1.00E-02	28	0.037	20%	5.2	
	Average	3.20E-03	9	0.037	25%	1.3	

Notes

1. Horizontal hydraulic conductivity values and effective porosity values from
Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill (Aspect, 2010)
2. Average hydraulic conductivity values are the geometric mean of the high and low values.
3. Horizontal hydraulic gradients based on average of gradients calculated between monitoring well with highest groundwater elevat and other monitoring wells shown on Figures 1 and 2.



Legend

MW-X XXX.XX — Monitoring Well Completed in Unit Cc2 Perched Zone

MW-X — Other Monitoring Well

300 — — — Perched Zone Groundwater Elevation Contour (feet MSL)

? — Inferred Horizontal Groundwater Flow Path

Note:

1. Groundwater measurements made on August 4, 2014.

King County

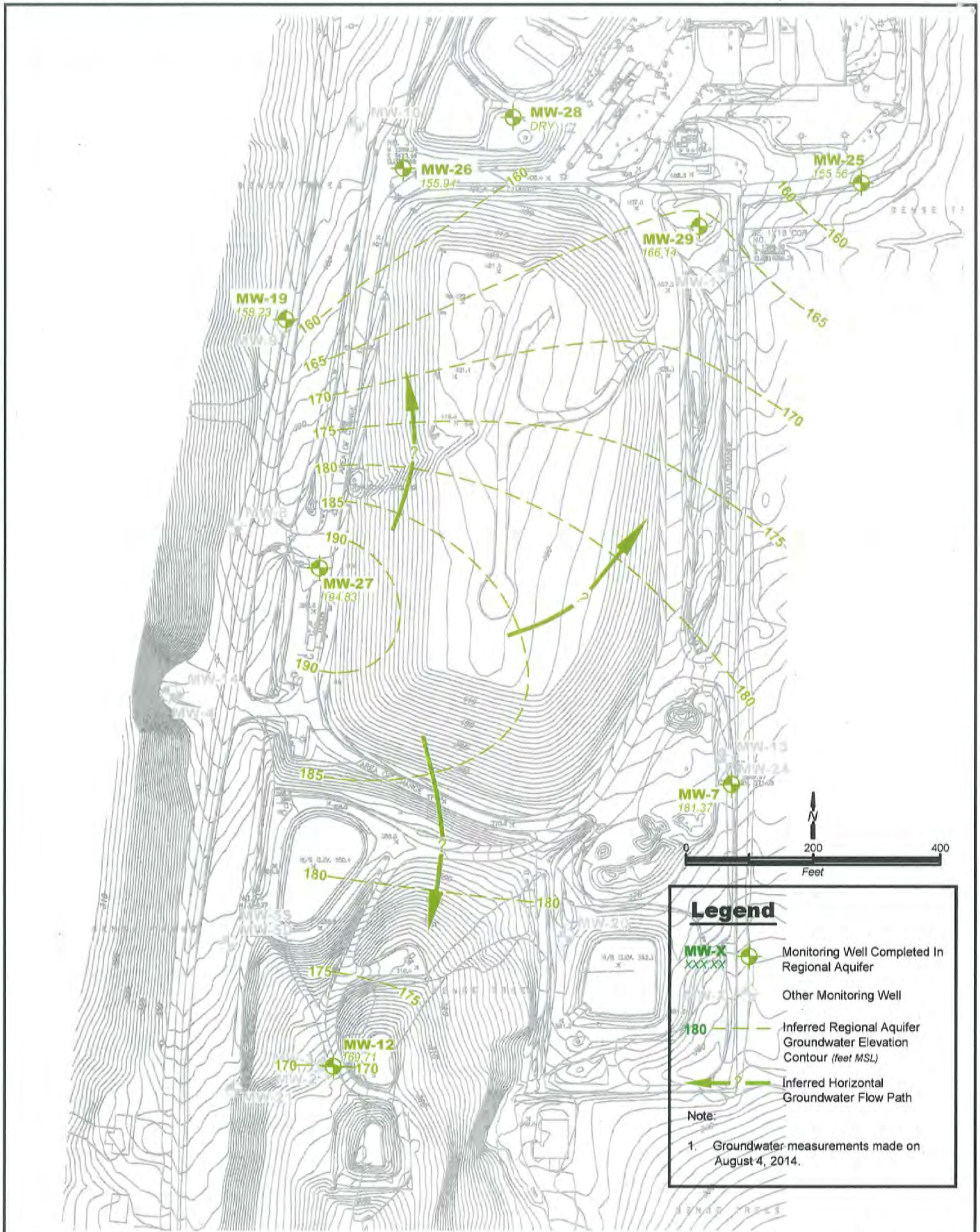
Groundwater Potentiometric Surface Map
Third Quarter 2014 - Cc2 Perched Zone

Vashon Island Landfill

King County, Washington

DATE	PROJECT NO.
August 2014	1033601
DESIGNED BY SB	FIGURE NO.
DRAWN BY LT	1
REVISED BY SB	

Vashon_3Q2014_rcc3perched.dwg



King County

Groundwater Potentiometric Surface Map
Third Quarter 2014 - Regional Aquifer
Vashon Island Landfill
King County, Washington

DATE November 2014	PROJECT NO.	1033601
DESIGNED BY SB		
DRAWN BY LT	FIGURE NO.	2
REVISED BY SB		

Vashon_3Q2014_regional.dwg

King County
Water and Land Resources Division
Department of Natural Resources and Parks
King Street Center
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
206-477-4800 Fax 206-296-0192
TTY Relay: 711

Memorandum

February 4, 2015

TO: Dan Swope, Engineer II, Engineering Services Section, Solid Waste Division, Department of Natural Resources and Parks (DNRP)

FM: Sevin Bilir, Environmental Scientist III, Science and Technical Support Section, Water and Land Resources Division, DNRP

RE: Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations
Fourth Quarter 2014 Results
Vashon Island Landfill, King County, Washington
Project No. 1033601 – Task 29.14.137.45

King County King County Water and Land Resources Division (KCWLR Division) submits this memorandum report on groundwater conditions during the fourth quarter of 2014 for the Cc2 perched zone and the regional aquifer beneath the Vashon Island Landfill (landfill), in accordance with the *Proposal for Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations* (KCWLR Division, 2013). King County Solid Waste Division (KCSWD) personnel measured groundwater elevations at the landfill on October 31, 2014. These measurements were received by KCWLR Division on January 7, 2015 and were used to:

1. Evaluate the potentiometric groundwater surface elevation for the Cc2 perched zone and the regional aquifer;
2. Determine the groundwater flow direction and horizontal gradient for the Cc2 perched zone and the regional aquifer; and
3. Calculate the groundwater velocity of the Cc2 perched zone and the regional aquifer.

There have been no significant changes in the interpreted groundwater conditions since the report submitted for the third quarter of the 2014 monitoring event.

Groundwater Elevation Data

KCSWD attempted groundwater level measurements at 21 monitoring wells during the fourth quarter of 2014. These wells were completed in the Cc2 perched zone, regional aquifer, and in other zones as referred to in *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES,

2004). Table 1 lists the well identifications, locations, well details, measured groundwater levels and calculated groundwater elevations for the Cc2 perched zone, regional aquifer, and wells in other perched zones.

Cc2 Perched Zone

Three separate perching zones are identified in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004) within the Unit C deposits. Only the southern portion of the of the Cc2 middle channel deposit perched zone was identified as laterally extensive. Groundwater in this perched zone is measured by wells MW-2, MW-5D, MW-9, MW-20, and MW-21. Monitoring well MW-9 is hydraulically separated from the rest of the wells in the Cc2 perched zone, as described in the *Vashon Island Landfill Hydrogeologic Report Update* (B&H/UES, 2004). Figure 1 shows well locations, groundwater elevations, groundwater potentiometric surface contours, and interpreted groundwater flow direction in the Cc2 perched zone for the October 31, 2014 measurement event.

Regional Aquifer

Wells MW-7, MW-12, MW-19, MW-25, MW-26, MW-27, MW-28, and MW-29 are reported to be in screened in or in hydraulic communication with the regional aquifer (B&H/UES, 2004). The regional aquifer includes the deepest channel deposit in Unit C (designated Cc3), and water-bearing Units D and F. Units D and F are separated by Unit E which is a semi-continuous, variably saturated aquitard (B&H/UES, 2004).

Wells MW-7, MW-12 and MW-19 measured water levels at least 15 feet above the top of the screen and may be influenced by vertical gradients in the regional aquifer. Well MW-27, completed in Unit Cc3, is identified in the Vashon Island Landfill Hydrogeologic Report Update (B&H/UES, 2004) to be measuring a groundwater mound in the regional aquifer water table. The mounding phenomenon is reported as likely due to local recharge from perched zones above.

The water level in monitoring well MW-28 was reported as “dry.” MW-28 is completed in the regional aquifer and has historically been dry. This well was not used for this analysis.

Figure 2 shows well locations, groundwater elevations, groundwater potentiometric surface contours, and interpreted groundwater flow direction in the regional aquifer for the October 31, 2014 measurement event.

Direction of Groundwater Flow

Figures 1 and 2 shows groundwater potentiometric surface contours and interpreted groundwater flow directions in the Cc2 perched zone and regional aquifer, respectively, based on the October 31, 2014 measurements. Groundwater elevations indicate that groundwater in the southern Cc2 perched zone generally flowed southwest (Figure 1). Based on the current limited understanding of the regional aquifer, groundwater in the regional aquifer generally flowed radially away from MW-27 (Figure 2). Flow from MW-27 westward cannot be confirmed because there are no wells completed in the regional aquifer to the west of MW-27.

Groundwater Parameters

Horizontal groundwater velocity was calculated using the following formula:

$$\text{where: } v = \frac{1}{n_{eff}} K \frac{\Delta H}{\Delta L}$$

v = Groundwater velocity [L/t]
n_{eff} = Effective porosity [dimensionless]
K = Hydraulic conductivity [L/t]
$\frac{\Delta H}{\Delta L}$ = Hydraulic gradient [L/L]

Horizontal groundwater velocity was calculated for the Cc2 perched zone and regional aquifer below the landfill. The hydraulic conductivity and effective porosity values were based on the ranges referred to in the *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill* (Aspect, 2010). The hydraulic gradient was determined from the potentiometric surface maps (Figures 1 and 2). The hydraulic gradients were approximately 0.010 and 0.040 ft/ft within the Cc2 perched zone and Cc3 regional aquifer, respectively.

Table 2 presents a summary of the groundwater parameters used to calculate a groundwater velocity from the fourth quarter 2014 data. On October 31, 2014, average horizontal groundwater velocity within the Cc2 perched zone was 0.002 feet per day (ft/d) and the average groundwater velocity in the regional aquifer was 1.4 ft/d.

References

Aspect Consulting (Aspect). 2010. *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill*. Unpublished. January 10.

Berryman & Henigar in association with Udaloy Environmental Services (B&H/UES). 2004. *Vashon Island Landfill Hydrogeologic Report Update*. December.

King County Water & Land Resources Division (KCWLR Division). 2013. *Proposal for Potentiometric Groundwater Surface Maps & Groundwater Velocity Calculations*. Unpublished.

Thank you for the opportunity to provide hydrogeologic services to the KCSWD. If you have any questions, please feel free to contact met at 206-477-4646 or sevin.bilir@kingcounty.gov.

Sincerely,

Sevin Bilir, WA LHG
Environmental Scientist III
King County Water and Land Resources Division

Enclosures:

- Table 1: Groundwater Elevations – Fourth Quarter 2014
- Table 2: Groundwater Parameters – Fourth Quarter 2014
- Figure 1: Groundwater Potentiometric Surface Map – Fourth Quarter 2014 - Cc2 Perched Zone
- Figure 2: Groundwater Potentiometric Surface Map – Fourth Quarter 2014 - Regional Aquifer

Table 1: Groundwater Elevations – Fourth Quarter 2014

Vashon Island Landfill
King County, Washington

	Well Identification	Easting	Northing	Top of Casing Elevation (feet MSL)	Top of Screen Elevation (feet)	scrn length	Bottom of Screen Elevation (feet)	October 31, 2014 Measured Depth to Water (feet)	October 31, 2014 Groundwater Elevations (feet MSL)
Wells Completed in Cc2 Perched Zone	MW-2	1227788.52	162365.3	314.28	233.58	5.00	228.58	74.30	239.98
	MW-5D	1227642.9	162566.95	357.2	240.86	11.00	229.86	117.89	239.31
	MW-9	1227723.22	163526.88	402.57	233.64	10.00	223.64	166.11	236.46
	MW-20	1228173	162566.16	367.21	237.57	4.30	233.27	122.88	244.33
	MW-21	1227647.37	162339.91	345.66	243.17	9.40	233.77	106.96	238.70
Wells Completed in Cc3 Regional Aquifer	MW-7	1228427.31	162811.01	373.25	151.09	10.00	141.09	192.11	181.14
	MW-12	1227800.7	162374.89	312.39	139.62	10.00	129.62	142.86	169.53
	MW-19	1227724.63	163534.76	403.83	141.10	10.00	131.10	245.82	158.01
	MW-25	1228627.702	163748.5939	399.22	148.78	14.10	134.68	243.54	155.68
	MW-26	1227909.874	163770.4284	403.4	155.12	14.10	141.02	247.41	155.99
	MW-27	1227779.749	163147.519	383.06	194.27	14.20	180.07	188.44	194.62
	MW-28	1228115.81	163843.5839	395.59	173.91	14.40	159.51	Dry	Dry
	MW-29	1228375.064	163680.914	410.57	169.80	14.80	155.00	244.42	166.15
Wells Completed in Other Perched Zones	MW-1	1228443.72	163596.5	403.6	284.48	10.00	274.48	Dry	Dry
	MW-3	1227789.56	162373.91	314.87	277.90	5.00	272.90	Dry	Dry
	MW-4	1227559.38	162957.79	374.21	273.08	10.00	263.08	106.68	267.53
	MW-5S	1227642.9	162566.95	356.63	281.86	10.00	271.86	Dry	Dry
	MW-8	1227664.94	163216.78	383.42	213.24	10.00	203.24	176.53	206.89
	MW-10	1227868.03	163837.42	407.51	262.34	10.00	252.34	145.20	262.31
	MW-13	1228427.45	162842.29	374.07	264.00	5.00	259.00	100.57	273.50
	MW-14	1227569.04	162959.54	375.68	212.62	10.00	202.62	151.82	223.86
	MW-24	1228427.78	162831.38	373.93	291.50	10.00	281.50	88.74	285.19

Notes:

1. Water level measurements made by KCSWD personnel.
2. Northing & Easting coordinates are Washington North State Plane Coordinates in WGS84
3. Elevations reported in feet above Mean Sea Level based on the National Geodetic Vertical Datum, 1929.
4. DRY, no w ater detected or w ater depth measured below base of screen.

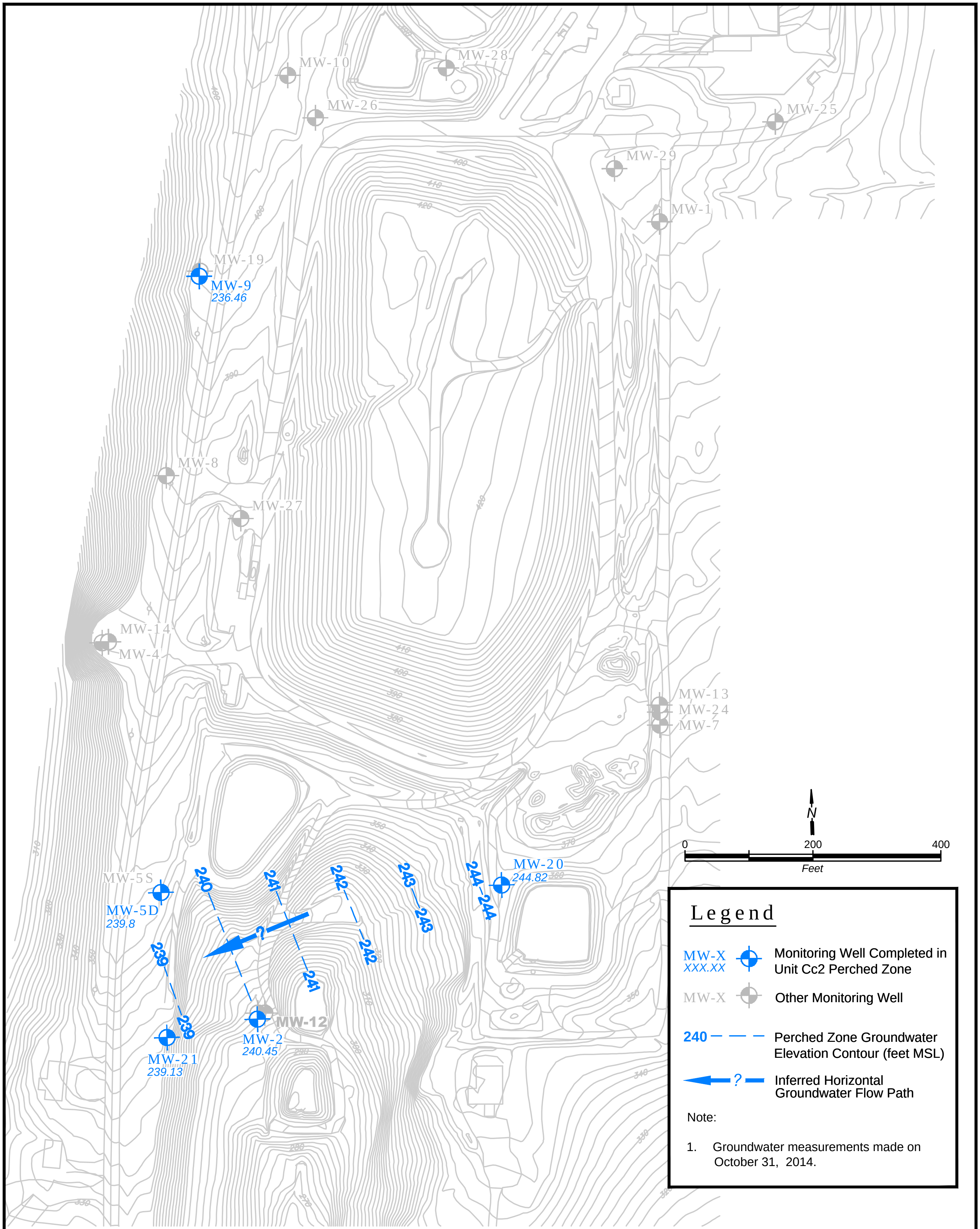
Table 2: Groundwater Parameters: Fourth Quarter 2014

Vashon Island Landfill
King County, Washington

Water Bearing Zone Beneath the Landfill	Horizontal Hydraulic Conductivity (K)			Horizontal Hydraulic Gradient (DH/DL)	Effective Porosity (n_{eff})	Horizontal Groundwater Velocity (v)	General Groundwater Flow Direction
	Range	(cm/s)	(ft/d)	(ft/ft)		(ft/d)	
Southern Cc2 Perched Zone	Low	1.90E-06	0.01	0.010	30%	0.0003	Southwest
	High	1.60E-04	0.45	0.010	20%	0.023	
	Average	1.70E-05	0.05	0.010	25%	0.002	
Cc3 Regional Aquifer	Low	1.00E-03	3	0.040	30%	0.40	Radially away from MW-27
	High	1.00E-02	28	0.040	20%	5.5	
	Average	3.20E-03	9	0.040	25%	1.4	

Notes

1. Horizontal hydraulic conductivity values and effective porosity values from *Potentiometric Groundwater Surface Mapping and Groundwater Velocity Calculation – Vashon Island Landfill (Aspect, 2010)*
2. Average hydraulic conductivity values are the geometric mean of the high and low values.
3. Horizontal hydraulic gradients based on average of gradients calculated between monitoring well with highest groundwater elevation and other monitoring wells shown on Figures 1 and 2.



King County

Groundwater Potentiometric Surface Map

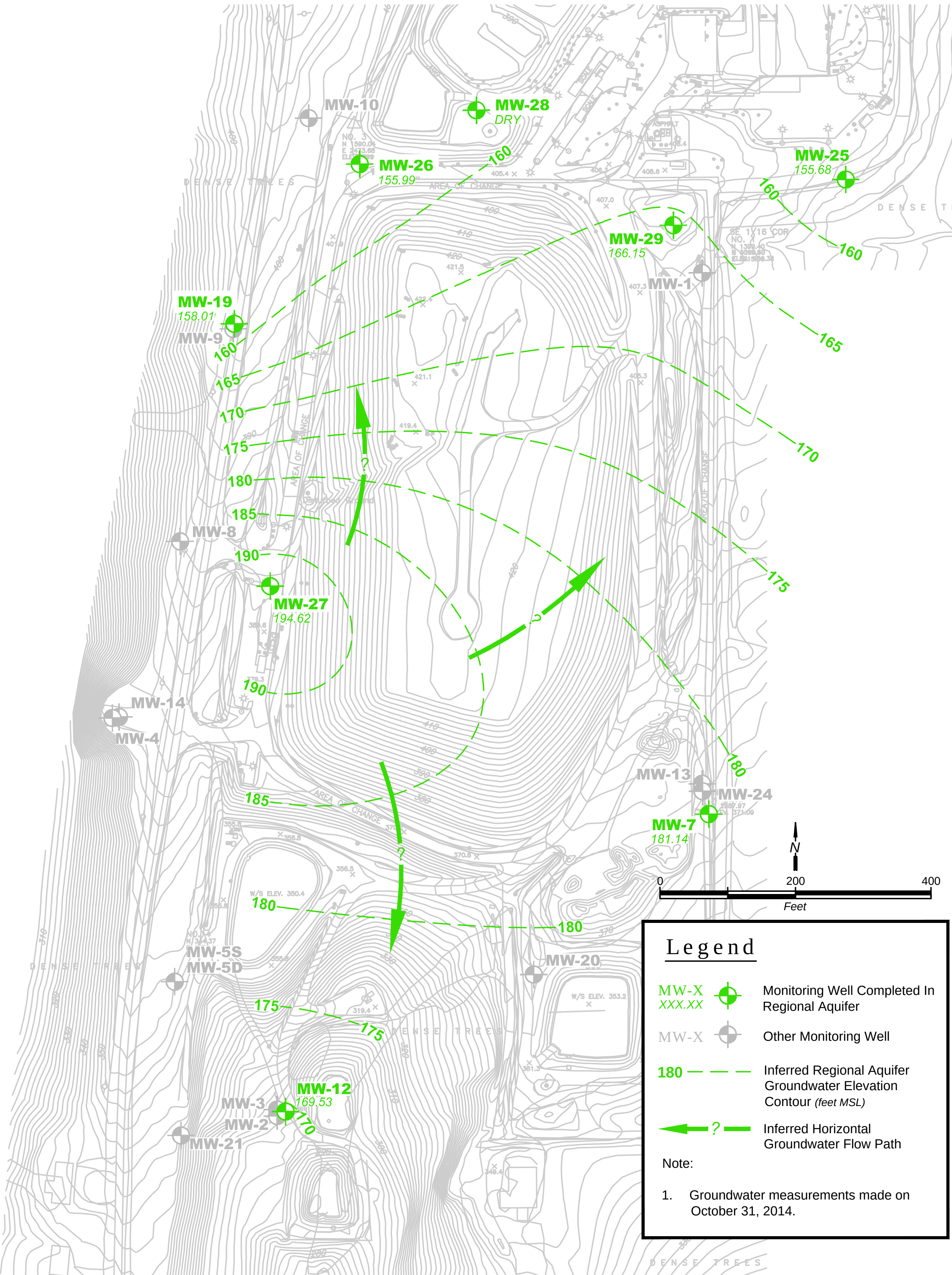
Fourth Quarter 2014 - Cc2 Perched Zone

Vashon Island Landfill

King County, Washington

DATE: January 2015	PROJECT NO. 1033601
DESIGNED BY: SB	
DRAWN BY: KK	FIGURE NO. 1
REVISED BY: SB	

Vashon_4Q2014_rcc3perched.dwg



King County

Groundwater Potentiometric Surface Map

Fourth Quarter 2014 - Regional Aquifer

Vashon Island Landfill

King County, Washington

DATE: January 2015	PROJECT NO. 1033601
DESIGNED BY: SB	
DRAWN BY: KK	FIGURE NO. 2
REVISED BY: SB	

Vashon_4Q2014_regional.dwg

Appendix H

Monitoring Well Keys

VASHON MONITORING WELLS RENAMING SCHEME

New Name	Old Names		
MW-1	MW-1	MW-1A	
MW-2	MW-2	MW-2B	
MW-3	MW-3	MW-3A	
MW-4	MW-4	MW-4A	
MW-5S	MW-5S	MW-5A	
MW-5D	MW-5D	MW-5B	
MW-6S	MW-6S	MW-6A	Decommissioned
MW-6D	MW-6D	MW-6B	Decommissioned
MW-7	MW-7C		
MW-8	MW-8B		
MW-9	MW-9B		
MW-10	MW-10A	MW-10B	
MW-11	MW-1C		Decommissioned
MW-12	MW-2C		
MW-13	MW-P3		
MW-14	MW-4B		
MW-19	MW-9C		
MW-24	MW-P4		
MW-20			
MW-21			
MW-25			
MW-26			
MW-27			
MW-28			
MW-29			

Appendix I

Groundwater Chemistry Data

Vashon Island Closed Landfill

Environmental Data

The Vashon Island Closed Landfill Groundwater Monitoring Data are available as Portable Document Format (PDF) files. To view PDF files you must have Adobe® Acrobat® Reader® software. With the Adobe® Acrobat® Reader® software**,** you can review and print PDF files across a broad range of hardware and operating systems.

Filename	**Description**
GWConv.pdf	This file contains qualified data for Groundwater Conventional Parameters, such as pH, specific conductance, nitrate, chloride, etc…
GWMetalsRads_(Dissolved).pdf	This file contains qualified data for Groundwater Dissolved Metal Parameters such as arsenic, iron, manganese, radium 226/228 etc…
GWTotal_Metals.pdf	This file contains qualified data for Groundwater Total Metal Parameters
GWVoas.pdf	This file contains qualified data for Groundwater Volatile Organic Compound Parameters, such as dichloroethane, methylene chloride, vinyl chloride, total xylenes, etc…
GWPestherb.pdf	This file contains qualified data for Groundwater Pesticide and Herbicide Parameters such as aroclor, endrin, 4,4'-DDT, toxaphene, etc…
GWField.pdf	This file contains qualified data for Groundwater Field Parameters such as pH, specific conductance, temperature, etc…
GWWaterLevels.pdf	This file contains Groundwater Levels
SWConv.pdf	This file contains qualified data for Surface Water Conventional Parameters, such as pH, specific conductance, nitrate, chloride, etc…
SWMetals.pdf	This file contains qualified data for Surface Water Metal Parameters such as arsenic, iron, manganese, radium 226/228 etc…

SWVoas.pdf	This file contains qualified data for Surface Water Volatile Organic Compound Parameters, such as dichloroethane, methylene chloride, vinyl chloride, total xylenes, etc…
SWPestherb.pdf	This file contains qualified data for Surface Water Pesticide and Herbicide Parameters such as aroclor, endrin, 4,4’-DDT, toxaphene, etc…
SWField.pdf	This file contains qualified data for Surface Water Field Parameters such as pH, specific conductance, temperature, etc…
LSConv.pdf	This file contains qualified data for Leachate Conventional Parameters, such as pH, specific conductance, nitrate, chloride, FOGs, etc…
LSMetals.pdf	This file contains qualified data for total and dissolved metals as well as radioactive parameters measured for in Leachate
LSVoas.pdf	This file contains qualified data for Leachate Volatile Organic Compound Parameters, such as dichloroethane, methylene chloride, vinyl chloride, total xylenes, etc…
LSPestherb.pdf	This file contains qualified data for Leachate Pesticide and Herbicide Parameters such as aroclor, endrin, 4,4’-DDT, toxaphene, etc…
LSField.pdf	This file contains qualified data for Leachate Field Parameters such as pH, specific conductance, temperature, etc…

King County Solid Waste Division
Environmental Field Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Conductance (Field) (μmhos/cm)	Temperature (°C)	Depth to Water (feet)	Ground-Water Elevation (feet above msl)
MW-1	1/29/2014					124.7	278.9
MW-2	1/29/2014					73.83	240.45
MW-2	2/3/2014	WV2-140203-	7.06	340	9.3	74.15	240.13
MW-3	1/29/2014					41.47	273.4
MW-4	1/29/2014					105.38	268.83
MW-5D	1/29/2014					117.4	239.8
MW-5D	2/5/2014	WV5D140205-	6.68	230	9.5	117.22	239.98
MW-5S	1/29/2014					84.43	272.2
MW-7	1/29/2014					191.39	181.86
MW-7	2/10/2014	WV7-140210-	7.83	155	10.3	192.09	181.16
MW-8	1/29/2014					176.25	207.17
MW-8	2/5/2014	WV8-140205-	6.56	130	9.1	176.1	207.32
MW-9	1/29/2014					165.78	236.79
MW-9	2/3/2014	WV9-140203-	7.07	140	9.3	165.8	236.77
MW-10	1/29/2014					144.6	262.91
MW-10	2/3/2014	WV10140203-	7.04	120	9.5	145.12	262.39
MW-12	1/29/2014					142.3	170.09
MW-12	2/6/2014	WV12140206-	7.58	140	9.2	142.6	169.79
MW-13	1/29/2014					99.92	274.15
MW-13	2/11/2014	WV13140211-	7.28	165	10.4	100.67	273.4
MW-19	1/29/2014					245.03	158.8
MW-19	2/4/2014	WV19140204-	7.68	205	9.5	245.9	157.93
MW-19	2/7/2014					245.9	157.93
MW-20	1/29/2014					122.39	244.82
MW-20	2/13/2014	WV20140213-	7.92	170	10.7	122.8	244.41
MW-21	1/29/2014					106.53	239.13
MW-21	2/14/2014	WV21140214-	7.06	280	10	106.65	239.01
MW-26	1/29/2014					246.75	156.65
MW-26	2/4/2014	WV26140204-	7.72	150	9.1	247.38	156.02
MW-27	1/29/2014					188.1	194.96
MW-27	2/11/2014	WV27140211-	6.93	165	11.1	188.71	194.35
MW-29	1/29/2014					245.03	165.54
MW-29	2/6/2014	WV29140206-	7.36	180	9.3	244.91	165.66
MW-30	3/19/2014					5.41	230.31
MW-31	3/19/2014					7.73	197.91
MW-32	3/19/2014					20.98	233.74
DW-85	2/12/2014	WV85140212-	7.54	140	9.8		
DW-PA	2/12/2014	WVPA140212-	6.84	160	9.3		
FIELD BLANK	2/14/2014	WV21140214F	7.79	4.6	15.1		

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	ALKALINITY, TOTAL (AS CACO3) mg/l	AMMONIA AS N mg/l	CHLORIDE mg/l	NITRATE mg/l	SPECIFIC CONDUCTANCE umhos/cm	SULFATE mg/l	TOTAL DISSOLVED mg/l	TOTAL ORGANIC mg/l	TOTAL SOLIDS mg/l	TOTAL SUSPENDED mg/l
MW-2	2/3/2014	WV2-140203-	197	< 0.01 U	3.31	0.191	401	17.6	235	< 1 U	249	< 1 U
MW-5D	2/5/2014	WV5D140205-	155	0.0403	3.23	< 0.01 U	316	9.97	209	1.71	222	16.3
MW-7	2/10/2014	WV7-140210-	74.9	0.235	3.14	< 0.01 U	180	10.5	128	< 1 U	132	< 1 U
MW-8	2/5/2014	WV8-140205-	56.7	< 0.01 U	6.23	3.36	172	8.2	123	< 1 U	130	< 1 U
MW-9	2/3/2014	WV9-140203-	67.3	< 0.01 U	5.15	0.206	173	13.2	119 H	< 1 U	126	< 1 U
MW-10	2/3/2014	WV10140203-	57.4	< 0.01 U	3.28	0.418	146	9.43	104	< 1 U	110	< 1 U
MW-12	2/6/2014	WV12140206-	61.5	< 0.01 U	3.05	0.788	160	10.7	113	< 1 U	117	< 1 U
MW-13	2/11/2014	WV13140211-	73.7	< 0.01 U	2.95	0.0546	190	16.9	130	< 1 U	137	5
MW-19	2/4/2014	WV19140204-	95.2	0.0231	4.92	0.01 T	235	17.7	149	< 1 U	157	1.1
MW-20	2/13/2014	WV20140213-	72.8	0.0129	3.26	0.01 T	191	17.5	132	< 1 U	136	< 1 U
MW-21	2/14/2014	WV21140214-	144	0.0102	2.63	0.074	313	17.6	195	1.18	198	1
MW-26	2/4/2014	WV26140204-	77.8	0.127	3.82	0.0933	193	13.1	139	< 1 U	142	< 1 U
MW-27	2/11/2014	WV27140211-	70.3	< 0.01 U	5.33	1.99	195	10.4	130	< 1 U	131	< 1 U
MW-29	2/6/2014	WV29140206-	104	< 0.01 U	4.08	< 0.01 U	246	16.6	163	< 1 U	162	4.15
FIELD BLANK	2/14/2014	WV21140214F	4.2 T	< 0.01 U	< 0.1 U	0.0571	9.21	< 0.1 U	< 5 U	< 1 U	< 5 U	< 1 U
PRIVATE WELLS												
DW-85	2/12/2014	WV85140212-	71.5	0.246	2.72	< 0.01 U	155	2.5	107	< 1 U	110	< 1 U
DW-PA	2/12/2014	WVPA140212-	71.2	< 0.01 U	5.75	0.851	193	13.7	129	< 1 U	132	< 1 U

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Site	Date	Sample ID	Antimony, dissolved	Antimony, total	Arsenic, dissolved	Arsenic, total	Barium, dissolved	Barium, total	Beryllium, dissolved	Beryllium, total	Cadmium, dissolved	Cadmium, total	Calcium, dissolved	Calcium, total
MW-2	2/3/2014	WV2-140203-	< 0.001 U	< 0.001 U	0.00114	< 0.001 U	0.00972	0.00991	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	24.7	25.6
MW-5D	2/5/2014	WV5D140205-	< 0.001 U	< 0.001 U	0.0957	0.0842	0.0125	0.0128	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	21.2	21.8
MW-7	2/10/2014	WV7-140210-	< 0.001 U	< 0.001 U	0.00582	0.00504	0.0114	0.0121	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	13.2	13.8
MW-8	2/5/2014	WV8-140205-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.00352	0.00364	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	11	9.51
MW-9	2/3/2014	WV9-140203-	< 0.001 U	< 0.001 U	0.00234	0.00225	0.00332	0.00338	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12	8.51
MW-10	2/3/2014	WV10140203-	< 0.001 U	< 0.001 U	0.00168	0.00163	0.00332	0.00343	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	9.33	8.23
MW-12	2/6/2014	WV12140206-	< 0.001 U	< 0.001 U	0.00211	0.00189	0.00407	0.00407	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	10.1	7.97
MW-13	2/11/2014	WV13140211-	< 0.001 U	< 0.001 U	0.0018	0.0016	0.00543	0.00609	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	10.1	8.72
MW-19	2/4/2014	WV19140204-	< 0.001 U	< 0.001 U	0.00154	0.00156	0.0168	0.0181	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	14.9	15.6
MW-20	2/13/2014	WV20140213-	< 0.001 U	< 0.001 U	0.0015	0.0013	0.0032	0.00312	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.4	11.6
MW-21	2/14/2014	WV21140214-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.00834	0.00864	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	19.2	19.1
MW-26	2/4/2014	WV26140204-	< 0.001 U	< 0.001 U	0.00315	0.00294	0.00956	0.00991	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	15.6	16.5
MW-27	2/11/2014	WV27140211-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.00402	0.00404	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.6	12.5
MW-29	2/6/2014	WV29140206-	< 0.001 U	< 0.001 U	0.00432	0.00718	0.00988	0.0117	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	19	19.9
FIELD BLANK	2/14/2014	WV21140214F	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U
DW-85	2/12/2014	WV85140212-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.00937	0.00923	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	13.2	12.4
DW-PA	2/12/2014	WVPA140212-	< 0.001 U	< 0.001 U	0.00133	0.00126	0.00389	0.00392	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.7	12.1

Site	Date	Sample ID	Chromium, dissolved	Chromium, total	Cobalt, dissolved	Cobalt, total	Copper, dissolved	Copper, total	Iron, dissolved	Iron, total	Lead, dissolved	Lead, total	Magnesium, dissolved	Magnesium, total
MW-2	2/3/2014	WV2-140203-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.012 T	< 0.01 U	< 0.001 U	< 0.001 U	28.4	29.8
MW-5D	2/5/2014	WV5D140205-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	8.49	8.43	< 0.001 U	< 0.001 U	16.1	15.3
MW-7	2/10/2014	WV7-140210-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.017 T	< 0.001 U	< 0.001 DU	8.34	8.07
MW-8	2/5/2014	WV8-140205-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.013 T	< 0.001 U	< 0.001 U	8.62	8.91
MW-9	2/3/2014	WV9-140203-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.014 T	< 0.001 U	< 0.001 U	10.4	9.46
MW-10	2/3/2014	WV10140203-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.012 T	< 0.001 U	< 0.001 U	9.36	8.78
MW-12	2/6/2014	WV12140206-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	8.49	8.25
MW-13	2/11/2014	WV13140211-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.0673	< 0.001 U	< 0.001 DU	12.1	12
MW-19	2/4/2014	WV19140204-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.135	0.262	< 0.001 U	< 0.001 U	13.6	14.2
MW-20	2/13/2014	WV20140213-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	10.7	9.74
MW-21	2/14/2014	WV21140214-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.151	0.321	< 0.001 U	< 0.001 U	19.6	19.7
MW-26	2/4/2014	WV26140204-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.0686	0.14	< 0.001 U	< 0.001 U	6.9	6.56
MW-27	2/11/2014	WV27140211-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 DU	10.7	10.3
MW-29	2/6/2014	WV29140206-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.713	1.73	< 0.001 U	< 0.001 U	13.9	13.8
FIELD BLANK	2/14/2014	WV21140214F	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	< 0.015 U	< 0.015 U
DW-85	2/12/2014	WV85140212-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	0.00455	0.0611	0.063	< 0.001 U	< 0.001 U	6.27	5.74
DW-PA	2/12/2014	WVPA140212-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	0.0265	0.0494	< 0.01 U	0.016 T	< 0.001 U	0.00164	10.9	10.4

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Site	Date	Sample ID	Manganese, dissolved	Manganese, total	Mercury, dissolved	Mercury, total	Nickel, dissolved	Nickel, total	Potassium, dissolved	Potassium, total	Selenium, dissolved	Selenium, total	Silver, dissolved	Silver, total
MW-2	2/3/2014	WV2-140203-	0.132	0.117	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.43	2.4	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-5D	2/5/2014	WV5D140205-	0.556 D	0.587	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.35	2.27	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-7	2/10/2014	WV7-140210-	0.156	0.197	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.67	2.12 D	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-8	2/5/2014	WV8-140205-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.15	1.11	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-9	2/3/2014	WV9-140203-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.16 D	2.03	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-10	2/3/2014	WV10140203-	< 0.001 U	0.00119	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.57 D	1.45	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-12	2/6/2014	WV12140206-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.81	1.67	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-13	2/11/2014	WV13140211-	< 0.001 U	0.00325	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.88	1.48 D	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-19	2/4/2014	WV19140204-	0.466 D	0.505	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.51	2.47	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-20	2/13/2014	WV20140213-	0.331	0.264	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.24	2.09	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-21	2/14/2014	WV21140214-	0.254	0.23	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.23	2.16	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-26	2/4/2014	WV26140204-	0.0585	0.0527	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	3.2	3.02	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-27	2/11/2014	WV27140211-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.4	1.07 D	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-29	2/6/2014	WV29140206-	0.0957	0.0922	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.17	2.08	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
FIELD BLANK	2/14/2014	WV21140214F	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	< 0.3 U	< 0.3 U	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
DW-85	2/12/2014	WV85140212-	0.054	0.0466	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.61	2.45	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
DW-PA	2/12/2014	WVPA140212-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.64	1.55	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U

Site	Date	Sample ID	Sodium, dissolved	Sodium, total	Thallium, dissolved	Thallium, total	Vanadium, dissolved	Vanadium, total	Zinc, dissolved	Zinc, total
MW-2	2/3/2014	WV2-140203-	9.09	9.57	< 0.001 U	< 0.001 U	0.00386	0.00388	< 0.004 U	< 0.004 U
MW-5D	2/5/2014	WV5D140205-	13.6	13.3	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-7	2/10/2014	WV7-140210-	5.77	5.59	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-8	2/5/2014	WV8-140205-	5.87	6.16	< 0.001 U	< 0.001 U	0.00222	0.00228	< 0.004 U	< 0.004 U
MW-9	2/3/2014	WV9-140203-	5.86	5.37	< 0.001 U	< 0.001 U	0.00493	0.00477	< 0.004 U	< 0.004 U
MW-10	2/3/2014	WV10140203-	5.16	4.93	< 0.001 U	< 0.001 U	0.00424	0.00407	< 0.004 U	< 0.004 U
MW-12	2/6/2014	WV12140206-	5.31	5.24	< 0.001 U	< 0.001 U	0.00455	0.00466	< 0.004 U	< 0.004 U
MW-13	2/11/2014	WV13140211-	6.28	6.23	< 0.001 U	< 0.001 U	0.00491	0.00592	< 0.004 U	< 0.004 U
MW-19	2/4/2014	WV19140204-	6.45	6.81	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-20	2/13/2014	WV20140213-	5.97	5.53	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-21	2/14/2014	WV21140214-	9.44	9.34	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-26	2/4/2014	WV26140204-	9.35	9.17	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-27	2/11/2014	WV27140211-	6.4	6.3	< 0.001 U	< 0.001 U	0.0025	0.00285	< 0.004 U	< 0.004 U
MW-29	2/6/2014	WV29140206-	6.33	6.44	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
FIELD BLANK	2/14/2014	WV21140214F	0.422	0.35	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
DW-85	2/12/2014	WV85140212-	5.77	5.39	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	0.00597
DW-PA	2/12/2014	WVPA140212-	6.35	6.12	< 0.001 U	< 0.001 U	0.0025	0.00245	0.0119	0.0133

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Site	Date	Sample ID	1,1,1,2-TETRA-CHLORO-ETHANE 630-20-6 (µg/L)	1,1,1-TRI-CHLORO-ETHANE 71-55-6 (µg/L)	1,1,2,2-TETRA-CHLORO-ETHANE 79-34-5 (µg/L)	1,1,2-TRICHLORO-ETHANE 79-00-5 (µg/L)	1,1-DICHLOROETHANE 75-34-3 (µg/L)	1,1-DICHLOROETHENE 75-35-4 (µg/L)	1,2,3-TRICHLORO-PROPANE 96-18-4 (µg/L)	1,2-DIBROMO-3-CHLORO-PROPANE 96-12-8 (µg/L)	1,2-DIBROMO-ETHANE 106-93-4 (µg/L)	1,2-DICHLOROBENZENE 95-50-1 (µg/L)	1,2-DICHLORO-ETHANE 107-06-2 (µg/L)	1,2-DICHLOROPROPANE 78-87-5 (µg/L)
MW-2	2/3/2014	WV2-140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	2/5/2014	WV5D140205-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	2/10/2014	WV7-140210-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	2/3/2014	WV9-140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	2/3/2014	WV10140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	2/6/2014	WV12140206-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	2/11/2014	WV13140211-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	2/4/2014	WV19140204-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	2/13/2014	WV20140213-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	2/14/2014	WV21140214-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	2/4/2014	WV26140204-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	2/11/2014	WV27140211-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	2/6/2014	WV29140206-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
FIELD BLANK	2/14/2014	WV21140214F	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-85	2/12/2014	WV85140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-PA	2/12/2014	WVPA140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	1/7/2014	VTRP140108T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	1/31/2014	VTRP140203C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140203B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140204B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140204C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/4/2014	VTRP140205B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/4/2014	VTRP140206C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/5/2014	VTRP140206B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/6/2014	VTRP140210C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/10/2014	VTRP140211C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/11/2014	VTRP140212L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/12/2014	VTRP140213C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/13/2014	VTRP140214C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/5/2014	VTRP140306B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

King County Solid Waste Division
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Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	1,4-DICHLOROBENZENE 106-46-7 (µg/L)	2-BUTANONE 78-93-3 (µg/L)	2-HEXANONE 591-78-6 (µg/L)	4-METHYL-2-PENTANONE 108-10-1 (µg/L)	ACETONE 67-64-1 (µg/L)	ACRYLONITRILE 107-13-1 (µg/L)	BENZENE 71-43-2 (µg/L)	BROMOCHLOROMETHANE 74-97-5 (µg/L)	BROMODICHLOROMETHANE 75-27-4 (µg/L)	BROMOFORM 75-25-2 (µg/L)	BROMOMETHANE 74-83-9 (µg/L)	CARBON DISULFIDE 75-15-0 (µg/L)
MW-2	2/3/2014	WV2-140203-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	2/5/2014	WV5D140205-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	0.32 T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	2/10/2014	WV7-140210-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	2/3/2014	WV9-140203-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	2/3/2014	WV10140203-	< 0.2 U	< 4 U	< 4 U	< 4 U	5.23	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	2/6/2014	WV12140206-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	2/11/2014	WV13140211-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	2/4/2014	WV19140204-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	2/13/2014	WV20140213-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	2/14/2014	WV21140214-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	2/4/2014	WV26140204-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	2/11/2014	WV27140211-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	2/6/2014	WV29140206-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
FIELD BLANK	2/14/2014	WV21140214F	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-85	2/12/2014	WV85140212-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-PA	2/12/2014	WVPA140212-	< 0.2 U	< 4 U	< 4 U	< 4 U	4.1	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	1/7/2014	VTRP140108T	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	1/31/2014	VTRP140203C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140203B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140204B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140204C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/4/2014	VTRP140205B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/4/2014	VTRP140206C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/5/2014	VTRP140206B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/6/2014	VTRP140210C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/10/2014	VTRP140211C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/11/2014	VTRP140212L	< 0.2 U	< 4 U	< 4 U	< 4 U	10.6	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/12/2014	VTRP140213C	< 0.2 U	< 4 U	< 4 U	< 4 U	8.91	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/13/2014	VTRP140214C	< 0.2 U	< 4 U	< 4 U	< 4 U	12.3	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/5/2014	VTRP140306B	< 0.2 U	41.2	< 4 U	< 4 U	16 B	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

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Site	Date	Sample ID	CARBON TETRA-CHLORIDE 56-23-5 (µg/L)	CHLORO-BENZENE 108-90-7 (µg/L)	CHLORO-DIBROMO-METHANE 124-48-1 (µg/L)	CHLORO-ETHANE 75-00-3 (µg/L)	CHLORO-FORM 67-66-3 (µg/L)	CHLORO-METHANE 74-87-3 (µg/L)	CIS-1,2-DICHLORO-ETHENE 156-59-2 (µg/L)	CIS-1,3-DICHLORO PROPENE 10061-01-5 (µg/L)	DIBROMO METHANE 74-95-3 (µg/L)	DICHLORO DIFLUORO METHANE 75-71-8 (µg/L)	ETHYL-BENZENE 100-41-4 (µg/L)	M & P XYLENE MPX (µg/L)	METHYL IODIDE 74-88-4 (µg/L)
MW-2	2/3/2014	WV2-140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	6.14	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	2/5/2014	WV5D140205-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	6.6	< 0.2 U	< 0.2 U	1.06	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	2/10/2014	WV7-140210-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	2/3/2014	WV9-140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	2/3/2014	WV10140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.24 T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	2/6/2014	WV12140206-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	2/11/2014	WV13140211-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	2/4/2014	WV19140204-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	2/13/2014	WV20140213-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	2/14/2014	WV21140214-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.938	< 0.2 U	< 0.2 U	2.14	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	2/4/2014	WV26140204-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	2/11/2014	WV27140211-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	2/6/2014	WV29140206-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
FIELD BLANK	2/14/2014	WV21140214F	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-85	2/12/2014	WV85140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-PA	2/12/2014	WVPA140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	1/7/2014	VTRP140108T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	1/31/2014	VTRP140203C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140203B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140204B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/3/2014	VTRP140204C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/4/2014	VTRP140205B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/4/2014	VTRP140206C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/5/2014	VTRP140206B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/6/2014	VTRP140210C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/10/2014	VTRP140211C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/11/2014	VTRP140212L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/12/2014	VTRP140213C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	2/13/2014	VTRP140214C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/5/2014	VTRP140306B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

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Site	Date	Sample ID	METHYLENE CHLORIDE 75-09-2 (µg/L)	O-XYLENE 95-47-6 (µg/L)	STYRENE 100-42-5 (µg/L)	TETRA-CHLORO-ETHENE 127-18-4 (µg/L)	TOLUENE 108-88-3 (µg/L)	TRANS-1,2-DICHLOROETHENE 156-60-5 (µg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (µg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (µg/L)	TRICHLORO-ETHENE 79-01-6 (µg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (µg/L)	VINYL ACETATE 108-05-4 (µg/L)	VINYL CHLORIDE 75-01-4 (µg/L)
MW-2	2/3/2014	WV2-140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	2.24	< 0.2 U	0.0807
MW-5D	2/5/2014	WV5D140205-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.24 T	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	2.97
MW-7	2/10/2014	WV7-140210-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-9	2/3/2014	WV9-140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-10	2/3/2014	WV10140203-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-12	2/6/2014	WV12140206-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-13	2/11/2014	WV13140211-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-19	2/4/2014	WV19140204-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-20	2/13/2014	WV20140213-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-21	2/14/2014	WV21140214-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	0.724	< 0.2 U	0.115
MW-26	2/4/2014	WV26140204-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-27	2/11/2014	WV27140211-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-29	2/6/2014	WV29140206-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
FIELD BLANK	2/14/2014	WV21140214F	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
DW-85	2/12/2014	WV85140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
DW-PA	2/12/2014	WVPA140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	0.23 T	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	1/7/2014	VTRP140108T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	1/31/2014	VTRP140203C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/3/2014	VTRP140203B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/3/2014	VTRP140204B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/3/2014	VTRP140204C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/4/2014	VTRP140205B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/4/2014	VTRP140206C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/5/2014	VTRP140206B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/6/2014	VTRP140210C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/10/2014	VTRP140211C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/11/2014	VTRP140212L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/12/2014	VTRP140213C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	2/13/2014	VTRP140214C	0.21 T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	3/5/2014	VTRP140306B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Surface Water Field Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Conductance (Field) (mmho/cm)	DO (Field) (mg/L)	Temperature (Field) (oC)	Turbidity (Field) (NTU)
SW-W1	3/19/2014	SVW1140319Q	8.2	204.8	5.51	8.24	18.6
SW-W2	3/19/2014	SVW2140319Q	8.73	624	10.32	8.32	26.7
SW-W3	3/19/2014	SVW3140319Q	8.23	264	10	9.06	18
SW-E	3/6/2014	SVE-140306Q	6.87	110	12.63	9.4	50.7

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from Januray 1, 2014 to March 31, 2014
Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	ALKALINITY, TOTAL (as CaCO3) mg/l	AMMONIA as N mg/l	BIOLOGICAL OXYGEN DEMAND mg/l	CHEMICAL OXYGEN DEMAND mg/l	CHLORIDE mg/l	COLIFORMS, FECAL cfu/100ml	COLIFORMS, TOTAL cfu/100ml	CYANIDE mg/l	FLUORIDE mg/l	HARDNESS mg/l
SW-W1	3/19/2014	SVW1140319Q	75.2	0.0104	2.83 L	61.5	4.83	40	50	< 0.02 U	< 0.1 U	89
SW-W2	3/19/2014	SVW2140319Q	319	< 0.01 U	2.83 L	20 T	19.7	2 C	5	< 0.02 U	< 0.1 U	308
SW-W3	3/19/2014	SVW3140319Q	116	< 0.01 U	2.83 L	24	7.22	1	2	< 0.02 U	< 0.1 U	115
SW-E	3/6/2014	SVE-140306Q	38.4	0.0227	< 2 U	29.7	5.71	15	19	< 0.02 U	< 0.1 U	51.1

Site	Date	Sample ID	NITRATE mg/l	NITRATE + NITRITE as N mg/l	PHOSPHORUS, SOLUBLE REACTIVE mg/l	SPECIFIC CONDUCTANCE umhos/cm	SULFATE mg/l	TOTAL DISSOLVED SOLIDS mg/l	TOTAL KJELDAHL NITROGEN mg/l	TOTAL ORGANIC CARBON mg/l	TOTAL ORGANIC HALIDES (TOX) mg/l	TOTAL SOLIDS mg/l
SW-W1	3/19/2014	SVW1140319Q	3.48	3.48	0.0245	213	9.33	154	1.55	20.1		274
SW-W2	3/19/2014	SVW2140319Q	0.422	0.422	0.0125	641	11.2	383	0.453	7.96		513
SW-W3	3/19/2014	SVW3140319Q	0.949	0.949	0.0498	276	10.7	181	0.528	6.73		233
SW-E	3/6/2014	SVE-140306Q	2.77	2.77	0.0188	134	6.17	115	0.595	10.6		207

Site	Date	Sample ID	TOTAL SUSPENDED SOLIDS mg/l	TURBIDITY ntu
SW-W1	3/19/2014	SVW1140319Q	202	62.3
SW-W2	3/19/2014	SVW2140319Q	120	11.4
SW-W3	3/19/2014	SVW3140319Q	48.2	20.7
SW-E	3/6/2014	SVE-140306Q	90.5	46.8

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	Aluminum, dissolved (mg/L)	Aluminum, total (mg/L)	Antimony, dissolved (mg/L)	Antimony, total (mg/L)	Arsenic, dissolved (mg/L)	Arsenic, total (mg/L)	Barium, dissolved (mg/L)	Barium, total (mg/L)	Beryllium, dissolved (mg/L)	Beryllium, total (mg/L)	Cadmium, dissolved (mg/L)	Cadmium, total (mg/L)
SW-W1	3/19/2014	SVW1140319Q	< 0.02 U	1.21	< 0.001 U	< 0.001 U	0.00164	0.0124	< 0.001 DL	0.0259	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U
SW-W2	3/19/2014	SVW2140319Q	< 0.02 U	0.332	< 0.001 U	< 0.001 U	0.00131	0.00325	0.00272 D	0.0169	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U
SW-W3	3/19/2014	SVW3140319Q	< 0.02 U	0.608	< 0.001 U	< 0.001 U	0.0025	0.00474	0.00338 D	0.0127	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U
SW-E	3/6/2014	SVE-140306Q	0.104	2.81	< 0.001 U	< 0.001 U	0.00112	0.00218	0.00844	0.0302	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U

Site	Date	Sample ID	Calcium, dissolved (mg/L)	Calcium, total (mg/L)	Chromium, dissolved (mg/L)	Chromium, total (mg/L)	Cobalt, dissolved (mg/L)	Cobalt, total (mg/L)	Copper, dissolved (mg/L)	Copper, total (mg/L)	Iron, dissolved (mg/L)	Iron, total (mg/L)	Lead, dissolved (mg/L)	Lead, total (mg/L)
SW-W1	3/19/2014	SVW1140319Q	14.7	15.5	< 0.005 U	0.00526	< 0.003 U	0.00468	< 0.002 U	0.00404	0.0946	10.2	< 0.001 U	0.00327
SW-W2	3/19/2014	SVW2140319Q	50.3	53.7 D	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.019 T	3.42	< 0.001 U	< 0.001 U
SW-W3	3/19/2014	SVW3140319Q	20.6	20	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.0764	2.03	< 0.001 U	< 0.001 U
SW-E	3/6/2014	SVE-140306Q	8.47	8.96	< 0.005 U	0.00741	< 0.003 U	< 0.003 U	< 0.002 U	0.00522	0.139	3.37	< 0.001 U	0.002

Site	Date	Sample ID	Magnesium, dissolved (mg/L)	Magnesium, total (mg/L)	Manganese, dissolved (mg/L)	Manganese, total (mg/L)	Mercury, dissolved (mg/L)	Mercury, total (mg/L)	Nickel, dissolved (mg/L)	Nickel, total (mg/L)	Potassium, dissolved (mg/L)	Potassium, total (mg/L)	Selenium, dissolved (mg/L)	Selenium, total (mg/L)
SW-W1	3/19/2014	SVW1140319Q	11.5	12.2	0.345	4.62 D		< 0.0001 U	< 0.01 U	0.0144	1.12	1.22	< 0.001 U	< 0.001 U
SW-W2	3/19/2014	SVW2140319Q	41.1	42.2	0.016	1.15 D		< 0.0001 U	< 0.01 U	< 0.01 U	3.15	3.29	< 0.001 U	< 0.001 U
SW-W3	3/19/2014	SVW3140319Q	15.9	15.9	0.242	0.947 D		< 0.0001 U	< 0.01 U	< 0.01 U	2.08	2.09	< 0.001 U	< 0.001 U
SW-E	3/6/2014	SVE-140306Q	6.56	6.98	0.0121	0.101			< 0.01 U	< 0.01 U	1.73	1.88	< 0.001 U	< 0.001 U

Site	Date	Sample ID	Silver, dissolved (mg/L)	Silver, total (mg/L)	Sodium, dissolved (mg/L)	Sodium, total (mg/L)	Thallium, dissolved (mg/L)	Thallium, total (mg/L)	Tin, dissolved (mg/L)	Tin, total (mg/L)	Vanadium, dissolved (mg/L)	Vanadium, total (mg/L)	Zinc, dissolved (mg/L)	Zinc, total (mg/L)
SW-W1	3/19/2014	SVW1140319Q	< 0.003 U	< 0.003 U	6.11	6.03	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	0.00672	< 0.004 U	0.00939 D
SW-W2	3/19/2014	SVW2140319Q	< 0.003 U	< 0.003 U	13.6	13.6	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 DU
SW-W3	3/19/2014	SVW3140319Q	< 0.003 U	< 0.003 U	7.66	7.38	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	0.00298	< 0.004 U	< 0.004 DU
SW-E	3/6/2014	SVE-140306Q	< 0.003 U	< 0.003 U	4.99	4.85	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	0.00214	0.00942	< 0.004 U	0.00819

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014

Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	1,1,1,2-TETRA-CHLORO- 630-20-6 (µg/L)	1,1,1-TRI-CHLORO-ETHANE 71-55-6 (µg/L)	1,1,2,2-TETRA-CHLORO-ETHANE 79-34-5 (µg/L)	1,1,2-TRI-CHLORO-ETHANE 79-00-5 (µg/L)	1,1-DICHLORO-ETHANE 75-34-3 (µg/L)	1,1-DICHLORO-ETHENE 75-35-4 (µg/L)	1,2,3-TRI-CHLORO-PROPANE 96-18-4 (µg/L)	1,2-DIBROMO-3-CHLORO-PROPANE 96-12-8 (µg/L)	1,2-DIBROMO-ETHANE 106-93-4 (µg/L)	1,2-DICHLORO-BENZENE 95-50-1 (µg/L)	1,2-DICHLORO-ETHANE 107-06-2 (µg/L)	1,2-DICHLORO-PROPANE 78-87-5 (µg/L)	1,4-DICHLORO-BENZENE 106-46-7 (µg/L)
SW-W1	3/19/2014	SVW1140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	3/19/2014	SVW2140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	3/19/2014	SVW3140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-E	3/6/14	SVE-140306Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/5/14	VTRP140306B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/18/14	VTRP140319-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	2-BUTANONE 78-93-3 (mg/L)	2-HEXANONE 591-78-6 (mg/L)	4-METHYL-2-PENTANONE 108-10-1 (mg/L)	ACETONE 67-64-1 (mg/L)	ACRYLO-NITRILE 107-13-1 (mg/L)	BENZENE 71-43-2 (mg/L)	BROMO-CHLORO- 74-97-5 (mg/L)	BROMO-DICHLORO- 75-27-4 (mg/L)	BROMOFORM 75-25-2 (mg/L)	BROMO-METHANE 74-83-9 (mg/L)	CARBON DISULFIDE 75-15-0 (mg/L)	CARBON TETRA- 56-23-5 (mg/L)	CHLORO-BENZENE 108-90-7 (mg/L)
SW-W1	3/19/2014	SVW1140319Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	3/19/2014	SVW2140319Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	3/19/2014	SVW3140319Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-E	3/6/2014	SVE-140306Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/5/2014	VTRP140306B	41.2	< 4 U	< 4 U	16 B	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/18/2014	VTRP140319-	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	CHLORO-DIBROMO-METHANE 124-48-1 (mg/L)	CHLORO-ETHANE 75-00-3 (mg/L)	CHLOROFORM 67-66-3 (mg/L)	CHLORO-METHANE 74-87-3 (mg/L)	CIS-1,2-DICHLORO-ETHENE 156-59-2 (mg/L)	CIS-1,3-DICHLORO-PROPENE 10061-01-5 (mg/L)	DIBROMO-METHANE 74-95-3 (mg/L)	DICHLORO-DIFLUORO-METHANE 75-71-8 (mg/L)	ETHYL-BENZENE 100-41-4 (mg/L)	M & P XYLENE MPX (mg/L)	METHYL IODIDE 74-88-4 (mg/L)	METHYLENE CHLORIDE 75-09-2 (mg/L)	O-XYLENE 95-47-6 (mg/L)
SW-W1	3/19/2014	SVW1140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	3/19/2014	SVW2140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	3/19/2014	SVW3140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-E	3/6/2014	SVE-140306Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/5/2014	VTRP140306B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	3/18/2014	VTRP140319-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	STYRENE 100-42-5 (mg/L)	TETRA-CHLORO-ETHENE 127-18-4 (mg/L)	TOLUENE 108-88-3 (mg/L)	TRANS-1,2-DICHLORO-ETHENE 156-60-5 (mg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (mg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (mg/L)	TRICHLORO-ETHENE 79-01-6 (mg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (mg/L)	VINYL ACETATE 108-05-4 (mg/L)	VINYL CHLORIDE 75-01-4 (mg/L)
SW-W1	3/19/2014	SVW1140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
SW-W2	3/19/2014	SVW2140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
SW-W3	3/19/2014	SVW3140319Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	0.0427
SW-E	3/6/2014	SVE-140306Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	3/5/2014	VTRP140306B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	3/18/2014	VTRP140319-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	2,4,5-T 93-76-5 (µg/L)	2,4,5-TP 93-76-5 (µg/L)	2,4-D 94-75-7 (µg/L)	Dinoseb 88-85-7 (µg/L)	Endrin 72-20-8 (µg/L)	Lindane 58-89-9 (µg/L)	Methoxy-chlor 72-43-5 (µg/L)	Toxaphene 8001-35-2 (µg/L)
SW-W1	3/19/2014	SVW1140319Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-W2	3/19/2014	SVW2140319Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-W3	3/19/2014	SVW3140319Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-E	3/6/2014	SVE-140306Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Leachate Field Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Temperature (°C)	Conductance (Field) (μmho/cm)
LS-B	1/8/2014	LVB-140108Q	8.88	12.5	2100
LS-LVT	3/12/2014	LVT-140312P	8.28	9.6	215
LS-PS1	1/8/2014	LVP-140108Q	8	6.8	205
DW-85	2/12/2014	WV85140212-	7.54	9.8	140
DW-PA	2/12/2014	WVPA140212-	6.84	9.3	160

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	ALKALINITY, TOTAL (AS CACO3) (mg/l)	AMMONIA AS N (mg/l)	BIOLOGICAL OXYGEN DEMAND (mg/l)	CHEMICAL OXYGEN DEMAND (mg/l)	CHLORIDE (mg/l)	COLIFORMS, FECAL (cfu/100ml)	COLIFORMS, TOTAL (cfu/100ml)	CYANIDE (mg/l)	FLUORIDE (mg/l)
LS-B	1/8/14	LVB-140108Q	107	< 0.01 U	< 2 U	38.4	379	< 1 U	< 1 U	< 0.02 U	0.16 T
LS-PS1	1/8/14	LVP-140108Q	73.2	0.024 T	< 2 U	9.7 T	18.8	< 1 U	2	< 0.02 U	< 0.1 U
DW-85	2/12/14	WV85140212-	71.5	0.246			2.72				
DW-PA	2/12/2014	WVPA140212-	71.2	< 0.01 U			5.75				

Site	Date	Sample ID	NITRATE + NITRITE AS N (mg/l)	PHOSPHORUS, SOLUBLE REACTIVE (umhos/cm)	SPECIFIC CONDUCTANCE (mg/l)	SULFATE (mg/l)	SULFIDE, TOTAL (mg/l)	TOTAL FATS, OILS & GREASE (mg/l)	TOTAL KJELDAHL NITROGEN (mg/l)	TOTAL ORGANIC CARBON (mg/l)	TOTAL ORGANIC HALIDES (mg/l)
LS-B	1/8/14	LVB-140108Q		0.025 T	2780	614	< 0.01 U	< 2 U	1.16	17	
LS-PS1	1/8/14	LVP-140108Q		< 0.01 U	296	34.4	< 0.01 U	< 2 U	0.494	4.51	
DW-85	2/12/14	WV85140212-	< 0.01 U		155	2.5				< 1 U	
DW-PA	2/12/2014	WVPA140212-	0.851		193	13.7				< 1 U	

Site	Date	Sample ID	TOTAL SUSPENDED SOLIDS (mg/l)	TOTAL VOLATILE SOLIDS (mg/l)	VOLATILE SUSPENDED SOLIDS (mg/l)
LS-B	1/8/14	LVB-140108Q	1 T	625	1.4 T
LS-PS1	1/8/14	LVP-140108Q	< 1 U	59.2	< 1 U
DW-85	2/12/14	WV85140212-	< 1 U		
DW-PA	2/12/14	WVPA140212-	< 1 U		

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	Aluminum, total (mg/L)	Antimony, total (mg/L)	Arsenic, total (mg/L)	Barium, total (mg/L)	Beryllium, total (mg/L)	Cadmium, total (mg/L)	Calcium, total (mg/L)	Chromium, total (mg/L)	Cobalt, total (mg/L)	Copper, total (mg/L)	Iron, total (mg/L)
LS-B	1/8/2014	LVB-140108Q	< 0.02 U	< 0.001 U	< 0.001 U	0.0503	< 0.001 U	< 0.002 U	202	< 0.005 U	< 0.003 U	0.0041 T	< 0.01 U
LS-LVT	3/12/2014	LVT-140312P			< 0.001 U			< 0.002 U		< 0.005 U		< 0.002 U	
LS-PS1	1/8/2014	LVP-140108Q	0.14 T	< 0.001 U	< 0.001 U	0.0123	< 0.001 U	< 0.002 U	28.1	< 0.005 U	< 0.003 U	0.0042 T	0.18 T
DW-85	2/12/2014	WV85140212-		< 0.001 U	< 0.001 U	0.00923	< 0.001 U	< 0.002 U	12.4	< 0.005 U	< 0.003 U	0.00455	0.063
DW-PA	2/12/2014	WVPA140212-		< 0.001 U	0.00126	0.00392	< 0.001 U	< 0.002 U	12.1	< 0.005 U	< 0.003 U	0.0494	0.016 T

Site	Date	Sample ID	Lead, total (mg/L)	Magnesium, total (mg/L)	Manganese, total (mg/L)	Mercury, total (mg/L)	Nickel, total (mg/L)	Potassium, total (mg/L)	Selenium, total (mg/L)	Silver, total (mg/L)	Sodium, total (mg/L)	Thallium, total (mg/L)	Tin, total (mg/L)
LS-B	1/8/2014	LVB-140108Q	< 0.001 U	120	< 0.001 U	< 0.0001 U	0.0511	32.5	< 0.001 U	< 0.003 U	246	< 0.001 U	< 0.01 U
LS-LVT	3/12/2014	LVT-140312P	< 0.001 U				< 0.01 U			< 0.003 U			
LS-PS1	1/8/2014	LVP-140108Q	< 0.001 U	8.58	0.0449	< 0.0001 U	< 0.01 U	3.38	< 0.001 U	< 0.003 U	15.3	< 0.001 U	< 0.01 U
DW-85	2/12/2014	WV85140212-	< 0.001 U	5.74	0.0466	< 0.0001 U	< 0.01 U	2.45	< 0.001 U	< 0.003 U	5.39	< 0.001 U	
DW-PA	2/12/2014	WVPA140212-	0.00164	10.4	< 0.001 U	< 0.0001 U	< 0.01 U	1.55	< 0.001 U	< 0.003 U	6.12	< 0.001 U	

Site	Date	Sample ID	Vanadium, total (mg/L)	Zinc, total (mg/L)
LS-B	1/8/2014	LVB-140108Q	< 0.002 U	0.013 T
LS-LVT	3/12/2014	LVT-140312P		0.0054 T
LS-PS1	1/8/2014	LVP-140108Q	< 0.002 U	0.0088 T
DW-85	02/12/14	WV85140212-	< 0.002 U	0.00597
DW-PA	2/12/2014	WVPA140212-	0.00245	0.0133

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	1,1,1,2-TETRACHLOROETHANE ug/l N	1,1,1-TRICHLOROETHANE ug/l N	1,1,2,2-TETRACHLOROETHANE ug/l N	1,1,2-TRICHLOROETHANE ug/l N	1,1-DICHLOROETHANE ug/l N	1,1-DICHLOROETHENE ug/l N	1,1-DICHLOROPROPENE ug/l N	1,2,3-TRICHLOROPROPANE ug/l N	1,2-DIBROMO-3-CHLOROPROPANE ug/l N	1,2-DIBROMOETHANE ug/l N	1,2-DICHLOROBENZENE ug/l N	1,2-DICHLOROETHANE ug/l N	1,2-DICHLOROPROPANE ug/l N
LS-B	01/08/14	LVB-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
LS-PS1	01/08/14	LVP-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-85	02/12/14	WV85140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U		< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-PA	02/12/14	WVPA140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U		< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	01/07/14	VTRP140108T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	03/18/14	VTRP140319-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U		< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	1,3-DICHLOROBENZENE 541-73-1 (µg/L)	1,3-DICHLOROPROPANE 142-28-9 (µg/L)	1,4-DICHLOROBENZENE 106-46-7 (µg/L)	2,2-DICHLOROPROPANE 594-20-7 (µg/L)	2-BUTANONE 78-93-3 (µg/L)	2-HEXANONE 591-78-6 (µg/L)	2-METHYL-1-PROPANOL 78-83-1 (µg/L)	3-CHLOROPROPENE 107-05-1 (µg/L)	4-METHYL-2-PENTANONE 108-10-1 (µg/L)	ACETONE 67-64-1 (µg/L)	ACETONITRILE 75-05-8 (µg/L)	ACROLEIN 107-02-8 (µg/L)	ACRYLONITRILE 107-13-1 (µg/L)
LS-B	01/08/14	LVB-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U	< 4 U	< 100 U	< 10 U	< 4 U	< 4 U	< 100 U	< 10 U	< 0.07 U
LS-PS1	01/08/14	LVP-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U	< 4 U	< 100 U	< 10 U	< 4 U	4.06	< 100 U	< 10 U	< 0.07 U
DW-85	02/12/14	WV85140212-			< 0.2 U		< 4 U	< 4 U			< 4 U	< 4 U			< 0.07 U
DW-PA	02/12/14	WVPA140212-			< 0.2 U		< 4 U	< 4 U			< 4 U	4.1			< 0.07 U
VOA TRIP BLANK	01/07/14	VTRP140108T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U	< 4 U	< 100 U	< 10 U	< 4 U	< 4 U	< 100 U	< 10 U	< 0.07 U
VOA TRIP BLANK	03/18/14	VTRP140319-			< 0.2 U		< 4 U	< 4 U			< 4 U	< 4 U			< 0.07 U

Site	Date	Sample ID	BENZENE 71-43-2 (µg/L)	BROMOCHLOROMETHANE 74-97-5 (µg/L)	BROMODICHLOROMETHANE 75-27-4 (µg/L)	BROMOFORM 75-25-2 (µg/L)	BROMOMETHANE 74-83-9 (µg/L)	CARBON DISULFIDE 75-15-0 (µg/L)	CARBON TETRACHLORIDE 56-23-5 (µg/L)	CHLOROBENZENE 108-90-7 (µg/L)	CHLORODIBROMOMETHANE 124-48-1 (µg/L)	CHLOROETHANE 75-00-3 (µg/L)	CHLOROFORM 67-66-3 (µg/L)	CHLOROMETHANE 74-87-3 (µg/L)	CHLOROPRENE 126-99-8 (µg/L)
LS-B	01/08/14	LVB-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U
LS-PS1	01/08/14	LVP-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U
DW-85	02/12/14	WV85140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	
DW-PA	02/12/14	WVPA140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	
VOA TRIP BLANK	01/07/14	VTRP140108T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U
VOA TRIP BLANK	03/18/14	VTRP140319-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	

Site	Date	Sample ID	CIS-1,2-DICHLOROETHENE 156-59-2 (µg/L)	CIS-1,3-DICHLOROPROPENE 10061-01-5 (µg/L)	DIBROMOMETHANE 74-95-3 (µg/L)	DICHLORODIFLUOROMETHANE 75-71-8 (µg/L)	ETHYLBENZENE 100-41-4 (µg/L)	M & P XYLENE MPX (µg/L)	METHYL IODIDE 74-88-4 (µg/L)	METHYL METHACRYLATE 80-62-6 (µg/L)	METHYLACRYLONITRILE 126-98-7 (µg/L)	METHYLENE CHLORIDE 75-09-2 (µg/L)	O-XYLENE 95-47-6 (µg/L)	PROPRIONITRILE 107-12-0 (µg/L)	STYRENE 100-42-5 (µg/L)
LS-B	01/08/14	LVB-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 U	< 0.2 U	< 0.2 U	< 60 U	< 0.2 U
LS-PS1	01/08/14	LVP-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.37 T	< 0.2 U	< 2 U	< 5 U	< 0.2 U	0.2 T	< 60 U	< 0.2 U
DW-85	02/12/14	WV85140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U			< 0.2 U	< 0.2 U		< 0.2 U
DW-PA	02/12/14	WVPA140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U			< 0.2 U	< 0.2 U		< 0.2 U
VOA TRIP BLANK	01/07/14	VTRP140108T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 U	< 0.2 U	< 0.2 U	< 60 U	< 0.2 U
VOA TRIP BLANK	03/18/14	VTRP140319-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U			< 0.2 U	< 0.2 U		< 0.2 U

Site	Date	Sample ID	TETRACHLOROETHENE 127-18-4 (µg/L)	TOLUENE 108-88-3 (µg/L)	TRANS-1,2-DICHLOROETHENE 156-60-5 (µg/L)	TRANS-1,3-DICHLOROPROPENE 10061-02-6 (µg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (µg/L)	TRICHLOROETHENE 79-01-6 (µg/L)	TRICHLOROFLUOROMETHANE 75-69-4 (µg/L)	VINYL ACETATE 108-05-4 (µg/L)	VINYL CHLORIDE 75-01-4 (µg/L)
LS-B	01/08/14	LVB-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
LS-PS1	01/08/14	LVP-140108Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
DW-85	02/12/14	WV85140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
DW-PA	02/12/14	WVPA140212-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	0.23 T	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	01/07/14	VTRP140108T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	03/18/14	VTRP140319-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from January 1, 2014 to March 31, 2014
Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	2,4,5-T	2,4,5-TP SILVEX	2,4-D	4,4'DDD	4,4'DDE	4,4'DDT	ALDRIN	ALPHA BHC	ALPHA CHLORDANE	AROCLOR 1016	AROCLOR 1221
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	1/8/2014	LVB-140108Q	< 2 U	< 1 U	< 5 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.01 U	< 0.01 U
LS-PS1	1/8/2014	LVP-140108Q	< 2 U	< 1 U	< 5 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.01 U	< 0.01 U

Site	Date	Sample ID	AROCLOR 1232	AROCLOR 1242	AROCLOR 1248	AROCLOR 1254	AROCLOR 1260	BETA BHC	DELTA BHC	DIELDRIN	DINOSEB	ENDOSULFAN I	ENDOSULFAN II
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	1/8/2014	LVB-140108Q	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.025 U	< 0.1 U	< 0.1 U	< 1 U	< 0.1 U	< 0.1 U
LS-PS1	1/8/2014	LVP-140108Q	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.025 U	< 0.1 U	< 0.1 U	< 1 U	< 0.1 U	< 0.1 U

Site	Date	Sample ID	ENDOSULFAN SULFATE	ENDRIN	ENDRIN ALDEHYDE	HEPTACHLOR	HEPTACHLOR EPOXIDE	ISODRIN	LINDANE(GAMMA BHC)	METHOXYCHLOR	TOXAPHENE
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	1/8/2014	LVB-140108Q	< 0.5 U	< 0.1 U	< 0.2 U	< 0.025 U	< 0.025 U	< 10 U	< 0.025 U	< 2 U	< 2.5 U
LS-PS1	1/8/2014	LVP-140108Q	< 0.5 U	< 0.1 U	< 0.2 U	< 0.025 U	< 0.025 U	< 10 U	< 0.025 U	< 2 U	< 2.5 U

King County Solid Waste Division
Environmental Field Data
Data Collected from April 1, 2014 to June 30, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Conductance (Field) (μmhos/cm)	Temperature (^oC)	Depth to Water (feet)	Ground-Water Elevation (feet above msl)
MW-1	5/2/2014					126.59	277.01
MW-2	5/2/2014					73.92	240.36
MW-2	5/13/2014	WV2-140513-	6.77	330	10.4	73.98	240.3
MW-3	5/2/2014					40.9	273.97
MW-4	5/2/2014					106.45	267.76
MW-5D	5/2/2014					117.5	239.7
MW-5D	5/9/2014	WV5D140509-	6.53	240	10.3	117.59	239.61
MW-5S	5/2/2014					85	271.63
MW-7	5/2/2014					191.65	181.6
MW-7	5/6/2014	WV7-140506-	7.15	140	10.5	191.75	181.5
MW-8	5/2/2014	WV8-140502-	6.79	140	10.6	176.32	207.1
MW-8	5/2/2014					176.32	207.1
MW-9	5/2/2014	WV9-140502-	7.13	145	10.3	165.62	236.95
MW-9	5/2/2014					165.62	236.95
MW-10	5/2/2014					145.15	262.36
MW-10	5/8/2014	WV10140508-	7.03	120	9.8	144.95	262.56
MW-12	5/2/2014					142.54	169.85
MW-12	5/9/2014	WV12140509-	7.08	130	9.5	142.55	169.84
MW-13	5/2/2014					100.33	273.74
MW-13	5/7/2014	WV13140507-	6.87	150	10.3	100.45	273.62
MW-14	5/2/2014					151	224.68
MW-19	5/2/2014					245.87	157.96
MW-19	5/9/2014	WV19140509-	7.6	190	10	245.75	158.08
MW-20	5/2/2014					122.54	244.67
MW-20	5/12/2014	WV20140512-	7.48	170	11	122.69	244.52
MW-21	5/2/2014					106.65	239.01
MW-21	5/12/2014	WV21140512-	6.8	290	9.8	106.25	239.01
MW-24	5/2/2014					88.8	285.13
MW-25	5/2/2014					243.65	155.57
MW-26	5/2/2014					247.49	155.91
MW-26	5/8/2014	WV26140508-	8.07	155	9.9	247.31	156.09
MW-27	5/2/2014					188.44	194.62
MW-27	5/7/2014	WV27140507-	6.5	150	12	188.36	194.7
MW-28	5/2/2014					236.61	158.98
MW-29	5/2/2014					244.49	166.08
MW-29	5/8/2014	WV29140508-	7.16	190	10.2	244.22	166.35

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Site	Date	Sample ID	ALKALINITY, TOTAL (AS CACO3) mg/l	AMMONIA AS N mg/l	CHLORIDE mg/l	NITRATE mg/l	SPECIFIC CONDUCTANCE umhos/cm	SULFATE mg/l	TOTAL DISSOLVED mg/l	TOTAL ORGANIC mg/l	TOTAL SOLIDS mg/l	TOTAL SUSPENDED mg/l
MW-2	5/13/2014	WV2-140513-	196	0.0195	3.56	0.946	404	17.2	243	1.63	251	< 1 U
MW-5D	5/9/2014	WV5D140509-	133	0.044	3.08	< 0.01 U	285	9.57	204	1.6	205	< 1 U
MW-7	5/6/2014	WV7-140506-	73.3	0.289	3.93	0.127	175	11.4	124	< 1 U	130	< 1 U
MW-8	5/2/2014	WV8-140502-	57	< 0.01 U	4.66	3.02	170	8.5	125	< 1 U	122	< 1 U
MW-9	5/2/2014	WV9-140502-	67.8	< 0.01 U	4.28	0.207	175	13.5	129	< 1 U	135	< 1 U
MW-10	5/8/2014	WV10140508-	56.7	< 0.01 U	3.26	0.424	145	9.22	108	< 1 U	99	< 1 U
MW-10	5/8/2014	WV10140508D	56	< 0.01 U	3.26	0.378	143	9.26	114	< 1 U	121	< 1 U
MW-12	5/9/2014	WV12140509-	58.5	0.0128	3.19	0.711	156	10.8	112	< 1 U	112	< 1 U
MW-13	5/7/2014	WV13140507-	67.2	< 0.01 U	3.09	0.0892 B	183	14.5	131	< 1 U	141	5.3
MW-19	5/9/2014	WV19140509-	92.6	0.0315	4.79	< 0.01 U	233	17.4	158	< 1 U	158	< 1 U
MW-20	5/12/2014	WV20140512-	69.6	0.0224	3.28	0.023 T	182	17.3	135	< 1 U	137	< 1 U
MW-21	5/12/2014	WV21140512-	155	0.019	4.19	0.0837	327	17.9	212	< 1 U	218	< 1 U
MW-26	5/8/2014	WV26140508-	74.8	0.258	3.75	0.013 T	189	13.2	133	< 1 U	137	< 1 U
MW-27	5/7/2014	WV27140507-	69.8	< 0.01 U	5.47	1.75	190	10.5	137	< 1 U	128	< 1 U
MW-29	5/8/2014	WV29140508-	103	< 0.01 U	3.75	< 0.01 U	244	16.6	161	< 1 U	162	9.08

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Site	Date	Sample ID	Antimony, dissolved	Antimony, total	Arsenic, dissolved	Arsenic, total	Barium, dissolved	Barium, total	Beryllium, dissolved	Beryllium, total	Cadmium, dissolved	Cadmium, total	Calcium, dissolved	Calcium, total
MW-2	5/13/2014	WV2-140513-	< 0.001 U	< 0.001 U	0.00109	< 0.001 U	0.00953	0.01	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	24	25
MW-5D	5/9/2014	WV5D140509-	< 0.001 U	< 0.001 U	0.096	0.0861	0.0111	0.0109	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	19.3	19
MW-7	5/6/2014	WV7-140506-	< 0.001 U	< 0.001 U	0.00578	0.00535	0.0114	0.0118	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	13.1	13.1
MW-8	5/2/2014	WV8-140502-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.00352	0.00363	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	10.9	11.2
MW-9	5/2/2014	WV9-140502-	< 0.001 U	< 0.001 U	0.00241	0.00231	0.0033	0.00346	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	11.5	11.8
MW-10	5/8/2014	WV10140508-	< 0.001 U	< 0.001 U	0.00176	0.0016	0.00328	0.00331	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	8.97	8.78
MW-10	5/8/2014	WV10140508D	< 0.001 U	< 0.001 U	0.00167	0.00164	0.00323	0.00333	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	8.71	8.91
MW-12	5/9/2014	WV12140509-	< 0.001 U	< 0.001 U	0.00211	0.00199	0.0042	0.0041	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	10.2	9.84
MW-13	5/7/2014	WV13140507-	< 0.001 U	< 0.001 U	0.00183	0.00169	0.00549	0.00585	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	9.89	9.87
MW-19	5/9/2014	WV19140509-	< 0.001 U	< 0.001 U	0.00145	0.00139	0.0165	0.017	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	14.8	14.8
MW-20	5/12/2014	WV20140512-	< 0.001 U	< 0.001 U	0.00161	0.00143	0.00336	0.00376	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.2	12.3
MW-21	5/12/2014	WV21140512-	< 0.001 U	< 0.001 U	0.00106	0.0012	0.00976	0.0099	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	20.7	21
MW-26	5/8/2014	WV26140508-	< 0.001 U	< 0.001 U	0.00329	0.00309	0.00933	0.00963	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	15.6	15.9
MW-27	5/7/2014	WV27140507-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.0041	0.0041	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.6	12.5
MW-29	5/8/2014	WV29140508-	< 0.001 U	< 0.001 U	0.00528	0.0107	0.0103	0.0132	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	18.8	19.1

Site	Date	Sample ID	Chromium, dissolved	Chromium, total	Cobalt, dissolved	Cobalt, total	Copper, dissolved	Copper, total	Iron, dissolved	Iron, total	Lead, dissolved	Lead, total	Magnesium, dissolved	Magnesium, total
H	5/13/2014	WV2-140513-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	30.6	30.9
MW-5D	5/9/2014	WV5D140509-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	7.87	7.87	< 0.001 U	< 0.001 U	15.4	15.2
MW-7	5/6/2014	WV7-140506-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.011 T	0.018 T	< 0.001 U	< 0.001 U	8.48	8.64
MW-8	5/2/2014	WV8-140502-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	8.55	9.34
MW-9	5/2/2014	WV9-140502-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.015 T	< 0.001 U	< 0.001 U	9.21	10.3
MW-10	5/8/2014	WV10140508-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.012 T	< 0.001 U	< 0.001 U	8.88	8.87
MW-10	5/8/2014	WV10140508D	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	8.46	8.76
MW-12	5/9/2014	WV12140509-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	8.81	8.58
MW-13	5/7/2014	WV13140507-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.015 T	0.062	< 0.001 U	< 0.001 U	12.2	12.5
MW-19	5/9/2014	WV19140509-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.033 T	0.103	< 0.001 U	< 0.001 U	14.4	14.6
MW-20	5/12/2014	WV20140512-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.021 T	< 0.001 U	< 0.001 U	10.5	10.4
MW-21	5/12/2014	WV21140512-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.36	0.505	< 0.001 U	< 0.001 U	23.7	22.6
MW-26	5/8/2014	WV26140508-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.0639	0.147	< 0.001 U	< 0.001 U	6.66	7.11
MW-27	5/7/2014	WV27140507-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	10.9	11
MW-29	5/8/2014	WV29140508-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.975	3.19	< 0.001 U	< 0.001 U	14.2	14.4

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Site	Date	Sample ID	Manganese, dissolved	Manganese, total	Mercury, dissolved	Mercury, total	Nickel, dissolved	Nickel, total	Potassium, dissolved	Potassium, total	Selenium, dissolved	Selenium, total	Silver, dissolved	Silver, total
MW-2	5/13/2014	WV2-140513-	0.125	0.12	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.32	2.45	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-5D	5/9/2014	WV5D140509-	0.574	0.503	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.21	2.22	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-7	5/6/2014	WV7-140506-	0.167	0.175	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.6	2.6	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-8	5/2/2014	WV8-140502-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.1	1.14	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-9	5/2/2014	WV9-140502-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2	2.05	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-10	5/8/2014	WV10140508-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.4	1.43	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-10	5/8/2014	WV10140508D	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.4	1.46	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-12	5/9/2014	WV12140509-	< 0.001 U	< 0.001 DU	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.77	1.77	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-13	5/7/2014	WV13140507-	0.00126	0.00428	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.83	1.85	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-19	5/9/2014	WV19140509-	0.511	0.471	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.44	2.48	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-20	5/12/2014	WV20140512-	0.327	0.296	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.17	2.21	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-21	5/12/2014	WV21140512-	0.351	0.35	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.25	2.39	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-26	5/8/2014	WV26140508-	0.0645	0.0626	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.95	3.06	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-27	5/7/2014	WV27140507-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.33	1.38	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-29	5/8/2014	WV29140508-	0.105	0.114	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.16	2.15	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U

Site	Date	Sample ID	Sodium, dissolved	Sodium, total	Thallium, dissolved	Thallium, total	Vanadium, dissolved	Vanadium, total	Zinc, dissolved	Zinc, total
MW-2	5/13/2014	WV2-140513-	9.77	9.84	< 0.001 U	< 0.001 U	0.00391	0.00397	< 0.004 U	< 0.004 U
MW-5D	5/9/2014	WV5D140509-	14.2	14	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-7	5/6/2014	WV7-140506-	5.87	5.98	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-8	5/2/2014	WV8-140502-	5.76	6.29	< 0.001 U	< 0.001 U	0.00229	0.0024	< 0.004 U	< 0.004 U
MW-9	5/2/2014	WV9-140502-	5.11	5.72	< 0.001 U	< 0.001 U	0.00474	0.00489	< 0.004 U	< 0.004 U
MW-10	5/8/2014	WV10140508-	4.92	4.9	< 0.001 U	< 0.001 U	0.00399	0.00412	< 0.004 U	< 0.004 U
MW-10	5/8/2014	WV10140508D	4.74	4.88	< 0.001 U	< 0.001 U	0.00385	0.00413	< 0.004 U	< 0.004 U
MW-12	5/9/2014	WV12140509-	5.59	5.45	< 0.001 U	< 0.001 U	0.00481	0.00493	< 0.004 U	< 0.004 U
MW-13	5/7/2014	WV13140507-	6.35	6.55	< 0.001 U	< 0.001 U	0.00512	0.00546	< 0.004 U	< 0.004 U
MW-19	5/9/2014	WV19140509-	6.88	6.97	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-20	5/12/2014	WV20140512-	5.96	5.99	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-21	5/12/2014	WV21140512-	10	10.3	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-26	5/8/2014	WV26140508-	9	9.58	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-27	5/7/2014	WV27140507-	6.57	6.58	< 0.001 U	< 0.001 U	0.00258	0.0027	< 0.004 U	< 0.004 U
MW-29	5/8/2014	WV29140508-	6.53	6.6	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U

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Site	Date	Sample ID	1,1,1,2-TETRA-CHLORO-ETHANE 630-20-6 (µg/L)	1,1,1-TRI-CHLORO-ETHANE 71-55-6 (µg/L)	1,1,2,2-TETRA-CHLORO-ETHANE 79-34-5 (µg/L)	1,1,2-TRICHLORO-ETHANE 79-00-5 (µg/L)	1,1-DICHLORO ETHANE 75-34-3 (µg/L)	1,1-DICHLORO ETHENE 75-35-4 (µg/L)	1,2,3-TRICHLORO-PROPANE 96-18-4 (µg/L)	1,2-DIBROMO-3-CHLORO-PROPANE 96-12-8 (µg/L)	1,2-DIBROMO-ETHANE 106-93-4 (µg/L)	1,2-DICHLORO BENZENE 95-50-1 (µg/L)	1,2-DICHLORO-ETHANE 107-06-2 (µg/L)	1,2-DICHLORO PROPANE 78-87-5 (µg/L)
MW-2	5/13/2014	WV2-140513-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	5/9/2014	WV5D140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	5/6/2014	WV7-140506-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-8	5/2/2014	WV8-140502-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	5/2/2014	WV9-140502-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	5/8/2014	WV10140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	5/8/2014	WV10140508D	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	5/9/2014	WV12140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	5/7/2014	WV13140507-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	5/9/2014	WV19140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	5/12/2014	WV20140512-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	5/12/2014	WV21140512-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	5/8/2014	WV26140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	5/7/2014	WV27140507-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	5/8/2014	WV29140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	4/28/2014	VTRP140502C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/6/2014	VTRP140507B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/7/2014	VTRP140508B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/7/2014	VTRP140509C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/8/2014	VTRP140509B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/9/2014	VTRP140512B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/12/2014	VTRP140513B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/13/2014	VTRP140514T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	1,4-DICHLORO BENZENE 106-46-7 (µg/L)	2-BUTANONE 78-93-3 (µg/L)	2-HEXANONE 591-78-6 (µg/L)	4-METHYL-2-PENTANONE 108-10-1 (µg/L)	ACETONE 67-64-1 (µg/L)	ACRYLO-NITRILE 107-13-1 (µg/L)	BENZENE 71-43-2 (µg/L)	BROMO-CHLORO-METHANE 74-97-5 (µg/L)	BROMO-DICHLORO-METHANE 75-27-4 (µg/L)	BROMOFORM 75-25-2 (µg/L)	BROMO-METHANE 74-83-9 (µg/L)	CARBON DISULFIDE 75-15-0 (µg/L)
MW-2	5/13/2014	WV2-140513-	< 0.2 U	< 4 U	< 4 U	< 4 U	4.97	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	5/9/2014	WV5D140509-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	0.49	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	5/6/2014	WV7-140506-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-8	5/2/2014	WV8-140502-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	5/2/2014	WV9-140502-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	5/8/2014	WV10140508-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	5/8/2014	WV10140508D	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	5/9/2014	WV12140509-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	5/7/2014	WV13140507-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	5/9/2014	WV19140509-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	5/12/2014	WV20140512-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	5/12/2014	WV21140512-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	5/8/2014	WV26140508-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	5/7/2014	WV27140507-	< 0.2 U	< 4 U	< 4 U	< 4 U	4.1	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	5/8/2014	WV29140508-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	4/28/2014	VTRP140502C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/6/2014	VTRP140507B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/7/2014	VTRP140508B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/7/2014	VTRP140509C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/8/2014	VTRP140509B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/9/2014	VTRP140512B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/12/2014	VTRP140513B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/13/2014	VTRP140514T	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from April 1, 2014 to June 30, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	CARBON TETRA-CHLORIDE 56-23-5 (µg/L)	CHLORO-BENZENE 108-90-7 (µg/L)	CHLORO-DIBROMO-METHANE 124-48-1 (µg/L)	CHLORO-ETHANE 75-00-3 (µg/L)	CHLORO-FORM 67-66-3 (µg/L)	CHLORO-METHANE 74-87-3 (µg/L)	CIS-1,2-DICHLORO-ETHENE 156-59-2 (µg/L)	CIS-1,3-DICHLORO PROPENE 10061-01-5 (µg/L)	DIBROMO METHANE 74-95-3 (µg/L)	DICHLORO DIFLUORO METHANE 75-71-8 (µg/L)	ETHYL-BENZENE 100-41-4 (µg/L)	M & P XYLENE MPX (µg/L)	METHYL IODIDE 74-88-4 (µg/L)
MW-2	5/13/2014	WV2-140513-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	5.76	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	5/9/2014	WV5D140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	7.6	< 0.2 U	< 0.2 U	1.4	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	5/6/2014	WV7-140506-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-8	5/2/2014	WV8-140502-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	5/2/2014	WV9-140502-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	5/8/2014	WV10140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	5/8/2014	WV10140508D	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	5/9/2014	WV12140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	5/7/2014	WV13140507-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	5/9/2014	WV19140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	5/12/2014	WV20140512-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	5/12/2014	WV21140512-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.82	< 0.2 U	< 0.2 U	2.51	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	5/8/2014	WV26140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	5/7/2014	WV27140507-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	5/8/2014	WV29140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	4/28/2014	VTRP140502C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/6/2014	VTRP140507B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/7/2014	VTRP140508B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/7/2014	VTRP140509C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/8/2014	VTRP140509B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/9/2014	VTRP140512B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/12/2014	VTRP140513B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	5/13/2014	VTRP140514T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

King County Solid Waste Division
Environmental Monitoring Data
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Vashon Landfill --- Groundwater Analysis Data
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Site	Date	Sample ID	METHYLENE CHLORIDE 75-09-2 (μg/L)	O-XYLENE 95-47-6 (μg/L)	STYRENE 100-42-5 (μg/L)	TETRA-CHLORO-ETHENE 127-18-4 (μg/L)	TOLUENE 108-88-3 (μg/L)	TRANS-1,2-DICHLOROETHENE 156-60-5 (μg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (μg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (μg/L)	TRICHLORO-ETHENE 79-01-6 (μg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (μg/L)	VINYL ACETATE 108-05-4 (μg/L)	VINYL CHLORIDE 75-01-4 (μg/L)
MW-2	5/13/2014	WV2-140513-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	2.28	< 0.2 U	0.0752
MW-5D	5/9/2014	WV5D140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.32 T	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	3.07
MW-7	5/6/2014	WV7-140506-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-8	5/2/2014	WV8-140502-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-9	5/2/2014	WV9-140502-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-10	5/8/2014	WV10140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-10	5/8/2014	WV10140508D	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-12	5/9/2014	WV12140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-13	5/7/2014	WV13140507-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-19	5/9/2014	WV19140509-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-20	5/12/2014	WV20140512-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-21	5/12/2014	WV21140512-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	0.724	< 0.2 U	0.132
MW-26	5/8/2014	WV26140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-27	5/7/2014	WV27140507-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-29	5/8/2014	WV29140508-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	4/28/2014	VTRP140502C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	5/6/2014	VTRP140507B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	5/7/2014	VTRP140508B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	5/7/2014	VTRP140509C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	5/8/2014	VTRP140509B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	5/9/2014	VTRP140512B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	5/12/2014	VTRP140513B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	5/13/2014	VTRP140514T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
Environmental Monitoring Data
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Vashon Landfill --- Surface Water Field Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Conductance (Field) (mmho/cm)	DO (Field) (mg/L)	Temperature (Field) (oC)	Turbidity (Field) (NTU)
SW-W1	6/18/2014	SVW1140618Q	7.79	169.32	9.74	12.3	50.2
SW-W2	6/18/2014	SVW2140618Q	7.71	556.94	10.17	12.88	59.9
SW-W3	6/18/2014	SVW3140618Q	8.07	285.59	10.25	11.58	0
SW-E	5/29/2014	SVE-140529Q	7.19	190	12.08	11.1	8.95

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Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	ALKALINITY, TOTAL (as CaCO3) mg/l	AMMONIA as N mg/l	BIOLOGICAL OXYGEN DEMAND mg/l	CHEMICAL OXYGEN DEMAND mg/l	CHLORIDE mg/l	COLIFORMS, FECAL cfu/100ml	COLIFORMS, TOTAL cfu/100ml	CYANIDE mg/l	FLUORIDE mg/l	HARDNESS mg/l
SW-W1	6/18/2014	SVW1140618Q	81.3	0.014 T	< 2 U	20.2	0.014	9	690	< 0.02 U	< 0.1 U	91.2
SW-W2	6/18/2014	SVW2140618Q	352	< 0.01 U	< 2 U	20 T	0.005	19 C	290	< 0.02 U	< 0.1 U	502
SW-W3	6/18/2014	SVW3140618Q	145	< 0.01 U	< 2 U	15 T	0.005	21	60	< 0.02 U	< 0.1 U	138
SW-E	5/29/2014	SVE-140529Q	93	0.024	1	12	0.024	34	80	0.01	0.05	92.9

Site	Date	Sample ID	NITRATE mg/l	NITRATE + NITRITE as N mg/l	PHOSPHORUS, SOLUBLE REACTIVE mg/l	SPECIFIC CONDUCTANCE umhos/cm	SULFATE mg/l	TOTAL DISSOLVED SOLIDS mg/l	TOTAL KJELDAHL NITROGEN mg/l	TOTAL ORGANIC CARBON mg/l	TOTAL ORGANIC HALIDES (TOX) mg/l	TOTAL SOLIDS mg/l
SW-W1	6/18/2014	SVW1140618Q	2.39	0.208	0.0156	693	8.99	148	0.385	5.55		502
SW-W2	6/18/2014	SVW2140618Q	0.208	0.396	0.0588	334	10.5	426	0.14 T	3.95		242
SW-W3	6/18/2014	SVW3140618Q	0.396	0.846	0.0425	223	12.2	218	0.222	3.83		189
SW-E	5/29/2014	SVE-140529Q	0.846	0.846	0.0425	223	10.5	164	0.222	3.83		189

Site	Date	Sample ID	TOTAL SUSPENDED SOLIDS mg/l	TURBIDITY ntu
SW-W1	6/18/2014	SVW1140618Q	161	36.4
SW-W2	6/18/2014	SVW2140618Q	21.8	8.7
SW-W3	6/18/2014	SVW3140618Q	17.7	9.31
SW-E	5/29/2014	SVE-140529Q	17.7	9.31

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Site	Date	Sample ID	Aluminum, dissolved (mg/L)	Aluminum, total (mg/L)	Antimony, dissolved (mg/L)	Antimony, total (mg/L)	Arsenic, dissolved (mg/L)	Arsenic, total (mg/L)	Barium, dissolved (mg/L)	Barium, total (mg/L)	Beryllium, dissolved (mg/L)	Beryllium, total (mg/L)	Cadmium, dissolved (mg/L)	Cadmium, total (mg/L)
SW-W1	6/18/2014	SVW1140618Q	< 0.02 U	2.39 D	< 0.001 U	< 0.001 U	0.00271	0.0346	< 0.001 U	0.0407	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U
SW-W2	6/18/2014	SVW2140618Q	< 0.02 U	4.45 D	< 0.001 U	< 0.001 U	0.00154	0.014	0.00345	0.335	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U
SW-W3	6/18/2014	SVW3140618Q	< 0.02 U	0.301	< 0.001 U	< 0.001 U	0.00291	0.0046	0.0046	0.0101	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U
SW-E	5/29/2014	SVE-140529Q	< 0.02 U	0.279	< 0.001 U	< 0.001 U	0.00194 D	0.00217	0.00507 D	0.00847	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U

Site	Date	Sample ID	Calcium, dissolved (mg/L)	Calcium, total (mg/L)	Chromium, dissolved (mg/L)	Chromium, total (mg/L)	Cobalt, dissolved (mg/L)	Cobalt, total (mg/L)	Copper, dissolved (mg/L)	Copper, total (mg/L)	Iron, dissolved (mg/L)	Iron, total (mg/L)	Lead, dissolved (mg/L)	Lead, total (mg/L)
SW-W1	6/18/2014	SVW1140618Q	13.3	14.9	< 0.005 U	0.00673	< 0.003 U	0.00581	< 0.002 U	0.00394	0.192	16.8	< 0.001 U	0.0024
SW-W2	6/18/2014	SVW2140618Q	55.3	121 D	< 0.005 U	0.00911	< 0.003 U	0.00649	< 0.002 U	0.00698	0.02 T	27.9	< 0.001 U	0.00308
SW-W3	6/18/2014	SVW3140618Q	21.6	23	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.038 T	1.1	< 0.001 U	< 0.001 U
SW-E	5/29/2014	SVE-140529Q	15 D	14.7	< 0.005 U	< 0.005 U	< 0.003 DU	< 0.003 U	< 0.002 U	< 0.002 U	0.04 DT	0.581	< 0.001 U	< 0.001 U

Site	Date	Sample ID	Magnesium, dissolved (mg/L)	Magnesium, total (mg/L)	Manganese, dissolved (mg/L)	Manganese, total (mg/L)	Mercury, dissolved (mg/L)	Mercury, total (mg/L)	Nickel, dissolved (mg/L)	Nickel, total (mg/L)	Potassium, dissolved (mg/L)	Potassium, total (mg/L)	Selenium, dissolved (mg/L)	Selenium, total (mg/L)
SW-W1	6/18/2014	SVW1140618Q	13.1	13.1	0.469	5.89 D	< 0.0001 U	< 0.01 U	0.0196	1	1.33	< 0.001 U	< 0.001 U	< 0.003 U
SW-W2	6/18/2014	SVW2140618Q	52.2	48.4	0.0421 D	17.9 D	< 0.0001 U	< 0.01 U	0.0356	3.12	3.44	< 0.001 U	< 0.001 U	< 0.003 U
SW-W3	6/18/2014	SVW3140618Q	21.8	19.6	0.421	0.998 D	< 0.0001 U	< 0.01 U	< 0.01 U	2.22	2.48	< 0.001 U	< 0.001 U	< 0.003 U
SW-E	5/29/2014	SVE-140529Q	12.4 D	13.6	0.0119 D	0.0709	< 0.0001 U	< 0.01 DU	< 0.01 U	1.88	2.03	< 0.001 U	< 0.001 U	< 0.003 U

Site	Date	Sample ID	Silver, dissolved (mg/L)	Silver, total (mg/L)	Sodium, dissolved (mg/L)	Sodium, total (mg/L)	Thallium, dissolved (mg/L)	Thallium, total (mg/L)	Tin, dissolved (mg/L)	Tin, total (mg/L)	Vanadium, dissolved (mg/L)	Vanadium, total (mg/L)	Zinc, dissolved (mg/L)	Zinc, total (mg/L)
SW-W1	6/18/2014	SVW1140618Q	< 0.003 U	7.1	6.76	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	0.00825 D	< 0.004 U	0.0164	0.002
SW-W2	6/18/2014	SVW2140618Q	< 0.003 U	16.6	15	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	0.0122 D	< 0.004 U	0.0216	0.002
SW-W3	6/18/2014	SVW3140618Q	< 0.003 U	9.06	8.24	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	< 0.002 DU	< 0.004 U	< 0.004 U	0.00819
SW-E	5/29/2014	SVE-140529Q	< 0.003 U	6.04 D	6.69	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	0.00258 D	0.00391	< 0.004 U	< 0.004 U	0.00939

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Site	Date	Sample ID	1,1,1,2-TETRA-CHLORO- 630-20-6 (µg/L)	1,1,1-TRI-CHLORO-ETHANE 71-55-6 (µg/L)	1,1,2,2-TETRA-CHLORO-ETHANE 79-34-5 (µg/L)	1,1,2-TRI-CHLORO-ETHANE 79-00-5 (µg/L)	1,1-DICHLORO-ETHANE 75-34-3 (µg/L)	1,1-DICHLORO-ETHENE 75-35-4 (µg/L)	1,2,3-TRI-CHLORO-PROPANE 96-18-4 (µg/L)	1,2-DIBROMO-3-CHLORO-PROPANE 96-12-8 (µg/L)	1,2-DIBROMO-ETHANE 106-93-4 (µg/L)	1,2-DICHLORO-BENZENE 95-50-1 (µg/L)	1,2-DICHLORO-ETHANE 107-06-2 (µg/L)	1,2-DICHLORO-PROPANE 78-87-5 (µg/L)	1,4-DICHLORO-BENZENE 106-46-7 (µg/L)
SW-W1	6/18/2014	SVW1140618Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	6/18/2014	SVW2140618Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	6/18/2014	SVW3140618Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-E	5/29/14	SVE-140529Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	2-BUTANONE 78-93-3 (mg/L)	2-HEXANONE 591-78-6 (mg/L)	4-METHYL-2-PENTANONE 108-10-1 (mg/L)	ACETONE 67-64-1 (mg/L)	ACRYLO-NITRILE 107-13-1 (mg/L)	BENZENE 71-43-2 (mg/L)	BROMO-CHLORO- 74-97-5 (mg/L)	BROMO-DICHLORO- 75-27-4 (mg/L)	BROMOFORM 75-25-2 (mg/L)	BROMO-METHANE 74-83-9 (mg/L)	CARBON DISULFIDE 75-15-0 (mg/L)	CARBON TETRA- 56-23-5 (mg/L)	CHLORO-BENZENE 108-90-7 (mg/L)
SW-W1	6/18/2014	SVW1140618Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	6/18/2014	SVW2140618Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	6/18/2014	SVW3140618Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-E	5/29/2014	SVE-140529Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	CHLORO-DIBROMO-METHANE 124-48-1 (mg/L)	CHLORO-ETHANE 75-00-3 (mg/L)	CHLOROFORM 67-66-3 (mg/L)	CHLORO-METHANE 74-87-3 (mg/L)	CIS-1,2-DICHLORO-ETHENE 156-59-2 (mg/L)	CIS-1,3-DICHLORO-PROPENE 10061-01-5 (mg/L)	DIBROMO-METHANE 74-95-3 (mg/L)	DICHLORO-DIFLUORO-METHANE 75-71-8 (mg/L)	ETHYL-BENZENE 100-41-4 (mg/L)	M & P XYLENE MPX (mg/L)	METHYL IODIDE 74-88-4 (mg/L)	METHYLENE CHLORIDE 75-09-2 (mg/L)	O-XYLENE 95-47-6 (mg/L)
SW-W1	6/18/2014	SVW1140618Q	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	6/18/2014	SVW2140618Q	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	6/18/2014	SVW3140618Q	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-E	5/29/2014	SVE-140529Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	STYRENE 100-42-5 (mg/L)	TETRA-CHLORO-ETHENE 127-18-4 (mg/L)	TOLUENE 108-88-3 (mg/L)	TRANS-1,2-DICHLORO-ETHENE 156-60-5 (mg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (mg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (mg/L)	TRICHLORO-ETHENE 79-01-6 (mg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (mg/L)	VINYL ACETATE 108-05-4 (mg/L)	VINYL CHLORIDE 75-01-4 (mg/L)
SW-W1	6/18/2014	SVW1140618Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 GU
SW-W2	6/18/2014	SVW2140618Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 GU
SW-W3	6/18/2014	SVW3140618Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	0.0354 G
SW-E	5/29/2014	SVE-140529Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

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Site	Date	Sample ID	2,4,5-T 93-76-5 (µg/L)	2,4,5-TP 93-76-5 (µg/L)	2,4-D 94-75-7 (µg/L)	Dinoseb 88-85-7 (µg/L)	Endrin 72-20-8 (µg/L)	Lindane 58-89-9 (µg/L)	Methoxy-chlor 72-43-5 (µg/L)	Toxaphene 8001-35-2 (µg/L)
SW-W1	6/18/2014	SVW1140618Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-W2	6/18/2014	SVW2140618Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-W3	6/18/2014	SVW3140618Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-E	5/29/2014	SVE-140529Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U

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Site	Date	Sample ID	pH (Field) (std. Units)	Temperature (°C)	Conductance (Field) (µmho/cm)
LS-B	4/9/2014	LVB-140409Q	7.47	12.8	2100
LS-LVT	6/20/2014	LVT-140620P	8.49	17.7	240
LS-PS1	5/14/2014	LVP-140514Q	8.45	16.8	265

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Site	Date	Sample ID	ALKALINITY, TOTAL (AS CACO3) (mg/l)	AMMONIA AS N (mg/l)	BIOLOGICAL OXYGEN DEMAND (mg/l)	CHEMICAL OXYGEN DEMAND (mg/l)	CHLORIDE (mg/l)	COLIFORMS, FECAL (cfu/100ml)	COLIFORMS, TOTAL (cfu/100ml)	CYANIDE (mg/l)	FLUORIDE (mg/l)
LS-B	4/9/14	LVB-140409Q	100	14.3 J	3.84	62.8	383	< 1 U	< 1 U	< 0.02 U	0.13 T
LS-PS1	5/14/14	LVP-140514Q	86	< 0.01 U	7.24	17 T	17.6	2	130	< 0.02 U	0.17 T

Site	Date	Sample ID	NITRATE + NITRITE AS N (mg/l)	PHOSPHORUS, SOLUBLE REACTIVE (umhos/cm)	SPECIFIC CONDUCTANCE (mg/l)	SULFATE (mg/l)	SULFIDE, TOTAL (mg/l)	TOTAL FATS, OILS & GREASE (mg/l)	TOTAL KJELDAHL NITROGEN (mg/l)	TOTAL ORGANIC CARBON (mg/l)	TOTAL ORGANIC HALIDES (mg/l)
LS-B	4/9/14	LVB-140409Q	73.9	0.0357	2830	634	< 0.01 U	< 2 U	1.21 J	13.7	
LS-PS1	5/14/14	LVP-140514Q	0.309	< 0.01 U	283	27.4	< 0.01 U	< 2 U	0.687	5	

Site	Date	Sample ID	TOTAL SUSPENDED SOLIDS (mg/l)	TOTAL VOLATILE SOLIDS (mg/l)	VOLATILE SUSPENDED SOLIDS (mg/l)
LS-B	4/9/14	LVB-140409Q	< 1 U	685	< 1 U
LS-PS1	5/14/14	LVP-140514Q	8.86	61.2	4.6

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Site	Date	Sample ID	Aluminum, total (mg/L)	Antimony, total (mg/L)	Arsenic, total (mg/L)	Barium, total (mg/L)	Beryllium, total (mg/L)	Cadmium, total (mg/L)	Calcium, total (mg/L)	Chromium, total (mg/L)	Cobalt, total (mg/L)	Copper, total (mg/L)	Iron, total (mg/L)
LS-B	4/9/2014	LVB-140409Q	< 0.02 U	< 0.001 U	< 0.001 U	0.0546	< 0.001 U	< 0.002 U	208	< 0.005 U	0.0034 T	< 0.002 U	< 0.01 U
LS-PS1	5/14/2014	LVP-140514Q	0.15 T	< 0.001 U	< 0.001 U	0.00896	< 0.001 U	< 0.002 U	32	< 0.005 U	< 0.003 U	< 0.002 U	0.433
LS-LVT	6/20/2014	LVT-140620P			< 0.001 U			< 0.002 U		< 0.005 U		0.005 T	

Site	Date	Sample ID	Lead, total (mg/L)	Magnesium, total (mg/L)	Manganese, total (mg/L)	Mercury, total (mg/L)	Nickel, total (mg/L)	Potassium, total (mg/L)	Selenium, total (mg/L)	Silver, total (mg/L)	Sodium, total (mg/L)	Thallium, total (mg/L)	Tin, total (mg/L)
LS-B	4/9/2014	LVB-140409Q	< 0.001 U	124	< 0.001 U	< 0.0001 U	0.0559	31.6	< 0.001 U	< 0.003 U	247	< 0.001 U	< 0.01 U
LS-PS1	5/14/2014	LVP-140514Q	< 0.001 U	7.62	0.102	< 0.0001 U	< 0.01 U	2.63	< 0.001 U	< 0.003 U	12.9	< 0.001 U	< 0.01 U
LS-LVT	6/20/2014	LVT-140620P	< 0.001 U				< 0.01 U			< 0.003 U			

Site	Date	Sample ID	Vanadium, total (mg/L)	Zinc, total (mg/L)
LS-B	4/9/2014	LVB-140409Q	< 0.002 U	0.013 T
LS-PS1	5/14/2014	LVP-140514Q	< 0.002 U	0.024 T
LS-LVT	06/20/14	LVT-140620P		0.0085 T

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Site	Date	Sample ID	1,1,1,2-TETRACHLOROETHANE ug/l N	1,1,1-TRICHLOROETHANE ug/l N	1,1,2,2-TETRACHLOROETHANE ug/l N	1,1,2-TRICHLOROETHANE ug/l N	1,1-DICHLOROETHANE ug/l N	1,1-DICHLOROETHENE ug/l N	1,1-DICHLOROPROPENE ug/l N	1,2,3-TRICHLOROPROPANE ug/l N	1,2-DIBROMO-3-CHLOROPROPANE ug/l N	1,2-DIBROMOETHANE ug/l N	1,2-DICHLOROBENZENE ug/l N	1,2-DICHLOROETHANE ug/l N	1,2-DICHLOROPROPANE ug/l N
LS-B	04/09/14	LVB-140409Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
LS-PS1	05/14/14	LVP-140514Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	1,3-DICHLORO-BENZENE 541-73-1 (µg/L)	1,3-DICHLORO-PROPANE 142-28-9 (µg/L)	1,4-DICHLORO-BENZENE 106-46-7 (µg/L)	2,2-DICHLORO-PROPANE 594-20-7 (µg/L)	2-BUTANONE 78-93-3 (µg/L)	2-HEXANONE 591-78-6 (µg/L)	2-METHYL-1-PROPANOL 78-83-1 (µg/L)	3-CHLORO-PROPENE 107-05-1 (µg/L)	4-METHYL-2-PENTANONE 108-10-1 (µg/L)	ACETONE 67-64-1 (µg/L)	ACETONITRILE 75-05-8 (µg/L)	ACROLEIN 107-02-8 (µg/L)	ACRYLO-NITRILE 107-13-1 (µg/L)
LS-B	04/09/14	LVB-140409Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U	< 4 U	< 100 U	< 10 U	< 4 U	36 T	< 100 U	< 10 U	< 0.07 U
LS-PS1	05/14/14	LVP-140514Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 GU	< 4 U	< 100 U	< 10 U	< 4 U	< 4 U	< 100 U	< 10 U	< 0.07 GU

Site	Date	Sample ID	BENZENE 71-43-2 (µg/L)	BROMO-CHLORO-METHANE 74-97-5 (µg/L)	BROMO-DICHLORO-METHANE 75-27-4 (µg/L)	BROMOFORM 75-25-2 (µg/L)	BROMO-METHANE 74-83-9 (µg/L)	CARBON DISULFIDE 75-15-0 (µg/L)	CARBON TETRA-CHLORIDE 56-23-5 (µg/L)	CHLORO-BENZENE 108-90-7 (µg/L)	CHLORO-DIBROMO-METHANE 124-48-1 (µg/L)	CHLORO-ETHANE 75-00-3 (µg/L)	CHLOROFORM 67-66-3 (µg/L)	CHLORO-METHANE 74-87-3 (µg/L)	CHLOROPRENE 126-99-8 (µg/L)
LS-B	04/09/14	LVB-140409Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U
LS-PS1	05/14/14	LVP-140514Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U

Site	Date	Sample ID	CIS-1,2-DICHLORO-ETHENE 156-59-2 (µg/L)	CIS-1,3-DICHLORO-PROPENE 10061-01-5 (µg/L)	DIBROMO-METHANE 74-95-3 (µg/L)	DICHLORO-DIFLUORO-METHANE 75-71-8 (µg/L)	ETHYL-BENZENE 100-41-4 (µg/L)	M & P XYLENE MPX (µg/L)	METHYL IODIDE 74-88-4 (µg/L)	METHYL METHA-CRYLATE 80-62-6 (µg/L)	METHYL-ACRYLO-NITRILE 126-98-7 (µg/L)	METHYLENE CHLORIDE 75-09-2 (µg/L)	O-XYLENE 95-47-6 (µg/L)	PROPRIO-NITRILE 107-12-0 (µg/L)	STYRENE 100-42-5 (µg/L)
LS-B	04/09/14	LVB-140409Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 U	< 0.2 U	< 0.2 U	< 60 U	< 0.2 U
LS-PS1	05/14/14	LVP-140514Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 GU	< 0.2 U	< 0.2 U	< 60 GU	< 0.2 U

Site	Date	Sample ID	TETRA-CHLORO-ETHENE 127-18-4 (µg/L)	TOLUENE 108-88-3 (µg/L)	TRANS-1,2-DICHLORO-ETHENE 156-60-5 (µg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (µg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (µg/L)	TRICHLORO-ETHENE 79-01-6 (µg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (µg/L)	VINYL ACETATE 108-05-4 (µg/L)	VINYL CHLORIDE 75-01-4 (µg/L)
LS-B	04/09/14	LVB-140409Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
LS-PS1	05/14/14	LVP-140514Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from April 1, 2014 to June 30, 2014
Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	2,4,5-T ug/l	2,4,5-TP SILVEX ug/l	2,4-D ug/l	4,4'DDD ug/l	4,4'DDE ug/l	4,4'DDT ug/l	ALDRIN ug/l	ALPHA BHC ug/l	ALPHA CHLORDANE ug/l	AROCLOR 1016 ug/l	AROCLOR 1221 ug/l
LS-B	4/9/2014	LVB-140409Q	< 2 U	< 1 U	< 5 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.01 U	< 0.01 U
LS-PS1	5/14/2014	LVP-140514Q	< 2 U	< 1 U	< 5 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.01 U	< 0.01 U

Site	Date	Sample ID	AROCLOR 1232 ug/l	AROCLOR 1242 ug/l	AROCLOR 1248 ug/l	AROCLOR 1254 ug/l	AROCLOR 1260 ug/l	BETA BHC ug/l	DELTA BHC ug/l	DIELDRIN ug/l	DINOSEB ug/l	ENDOSULFAN I ug/l	ENDOSULFAN II ug/l
LS-B	4/9/2014	LVB-140409Q	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.025 U	< 0.1 U	< 0.1 U	< 1 U	< 0.1 U	< 0.1 U
LS-PS1	5/14/2014	LVP-140514Q	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.025 U	< 0.1 U	< 0.1 U	< 1 U	< 0.1 U	< 0.1 U

Site	Date	Sample ID	ENDOSULFAN SULFATE ug/l	ENDRIN ug/l	ENDRIN ALDEHYDE ug/l	HEPTACHLOR ug/l	HEPTACHLOR EPOXIDE ug/l	ISODRIN ug/l	LINDANE(GAMMA BHC) ug/l	METHOXYCHLOR ug/l	TOXAPHENE ug/l
LS-B	4/9/2014	LVB-140409Q	< 0.5 U	< 0.1 U	< 0.2 U	< 0.025 U	< 0.025 U	< 10 U	< 0.025 U	< 2 U	< 2.5 U
LS-PS1	05/14/14	LVP-140514Q	< 0.5 U	< 0.1 U	< 0.2 U	< 0.025 U	< 0.025 U	< 10 U	< 0.025 U	< 2 U	< 2.5 U

King County Solid Waste Division
Environmental Field Data
Data Collected from July 1, 2014 to September 30, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Conductance (Field) (μmhos/cm)	Temperature (^oC)	Depth to Water (feet)	Ground-Water Elevation (feet above msl)
MW-1	8/4/2014						
MW-2	8/4/2014	WV2-140804-	6.95	325	10.4	74.05	240.23
MW-3	8/4/2014					42.17	272.7
MW-4	8/4/2014					106.42	267.79
MW-5D	8/4/2014					117.67	239.53
MW-5D	8/7/2014	WV5D140807-	6.64	210	10.8	116.58	240.62
MW-7	8/4/2014					191.88	181.37
MW-7	8/18/2014	WV7-140818-	7.53	140	11.9	191.82	181.43
MW-8	8/4/2014					176.28	207.14
MW-8	8/5/2014	WV8-140805-	7.15	165	10.9	176.35	207.07
MW-9	8/4/2014					165.77	236.8
MW-9	8/5/2014	WV9-140805-	7.31	165	10.6	165.95	236.62
MW-10	8/4/2014	WV10140804-	7.01	115	10.7	145.08	262.43
MW-12	8/4/2014					142.68	169.71
MW-12	8/7/2014	WV12140807-	7.63	140	10	142.71	169.68
MW-13	8/4/2014					100.23	273.84
MW-13	8/8/2014	WV13140808-	6.97	130	11.1	100.35	273.72
MW-14	8/4/2014					151.57	224.11
MW-19	8/4/2014					245.6	158.23
MW-19	8/8/2014	WV19140808-	7.77	205	10.8	245.91	157.92
MW-20	8/4/2014	WV20140804-	7.57	150	11.9	122.65	244.56
MW-21	8/4/2014					106.69	238.97
MW-21	8/7/2014	WV21140807-	6.86	250	10	106.75	238.91
MW-24	8/4/2014					88.13	285.8
MW-25	8/4/2014	WV20140512-				243.66	155.56
MW-26	8/4/2014					247.46	155.94
MW-26	8/8/2014	WV26140808-	8.06	200	11.4	247.53	155.87
MW-27	8/4/2014					188.23	194.83
MW-27	8/8/2014	WV27140808-	6.63	140	12.2	188.33	194.73
MW-29	8/4/2014					244.43	166.14
MW-29	8/8/2014	WV29140808-	7.48	265	12	242.45	168.12
MW-30	9/17/2014					6.3	229.42
MW-31	9/17/2014					8.41	197.23
MW-32	9/17/2014					21.68	233.04
FIELD BLAN	8/8/2014	WV19140808F	8.16	6.3	19		
Offsite private wells							
DW-85	9/18/2014	WV85140918-	7.67	120	12.2		
DW-PA	9/18/2014	WVPA140918-	6.92	170	13		

King County Solid Waste Division
Environmental Monitoring Data
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Vashon Landfill --- Groundwater Analysis Data
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Site	Date	Sample ID	ALKALINITY, TOTAL (AS CACO3) mg/l	AMMONIA AS N mg/l	CHLORIDE mg/l	NITRATE mg/l	SPECIFIC CONDUCTANCE umhos/cm	SULFATE mg/l	TOTAL DISSOLVED mg/l	TOTAL ORGANIC mg/l	TOTAL SOLIDS mg/l	TOTAL SUSPENDED mg/l
MW-2	8/4/2014	WV2-140804-	190	< 0.01 U	3.4	0.528	400	17.9	246	< 1 U	255	< 1 U
MW-5D	8/7/2014	WV5D140807-	137	0.0193	3.3	0.021 T	284	9.6	208	1.36	218	4.13
MW-7	8/18/2014	WV7-140818-	77.5	0.257	3.53	0.018 T	194	10.3	136	< 1 U	138	< 1 U
MW-8	8/5/2014	WV8-140805-	55.9	< 0.01 U	4.67	3.31	169	8.14	124	< 1 U	133	< 1 U
MW-9	8/5/2014	WV9-140805-	69.5	< 0.01 U	4.42	0.225	180	14	127	< 1 U	134	< 1 U
MW-10	8/4/2014	WV10140804-	56.9	0.0151	3.22	0.57	144	8.99	104	< 1 U	108	< 1 U
MW-12	8/7/2014	WV12140807-	60.2	< 0.01 U	3	0.763	154	10.6	113	< 1 U	116	< 1 U
MW-13	8/8/2014	WV13140808-	68.8	< 0.01 U	2.95	0.0794	179	14.9	136	< 1 U	148	9.77
MW-19	8/8/2014	WV19140808-	92.1	0.0351	4.62	< 0.01 U	226	17.5	160	< 1 U	160	1.32
MW-20	8/4/2014	WV20140804-	71.5	0.0252	3.47	0.027 T	185	17.4	134	< 1 U	138	1.09
MW-21	8/7/2014	WV21140807-	157	< 0.01 U	3.13	0.0964	334	17.9	208	< 1 U	220	< 1 U
MW-26	8/8/2014	WV26140808-	74.1	0.269	3.65	0.016 T	189	13.1	138	< 1 U	142	< 1 U
MW-27	8/8/2014	WV27140808-	59.6	0.013 T	5.45	2.1	184	10.1	146	< 1 U	148	< 1 U
MW-29	8/8/2014	WV29140808-	103	< 0.01 U	3.57	< 0.01 U	240	16.5	162	< 1 U	173	5.54
FIELD BLANK	8/8/2014	WV19140808F	8.43	< 0.01 U	< 0.1 U	0.033 T	10.9	< 0.1 U	< 5 U	< 1 U	< 5 U	< 1 U
Offsite Wells												
DW-85	9/18/14	WV85140918-	60.9	0.275	2.79	< 0.01 U	150	2.65	113	< 1 U	112	< 1 U
DW-PA	9/18/2014	WVPA140918-	67.6	< 0.01 U	5.79	1.14	190	12.7	154	< 1 U	150	< 1 U

King County Solid Waste Division
Environmental Monitoring Data
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Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	Antimony, dissolved	Antimony, total	Arsenic, dissolved	Arsenic, total	Barium, dissolved	Barium, total	Beryllium, dissolved	Beryllium, total	Cadmium, dissolved	Cadmium, total	Calcium, dissolved	Calcium, total
MW-2	8/4/2014	WV2-140804-	< 0.001 U	< 0.001 U	0.00105	< 0.001 U	0.00993	0.00949	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	25.1	24.4
MW-5D	8/7/2014	WV5D140807-	< 0.001 U	< 0.001 U	0.0935	0.0919 D	0.0113	0.012	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	19.1	18.8
MW-7	8/18/2014	WV7-140818-	< 0.001 U	< 0.001 U	0.00501	0.00521	0.0112	0.0114 D	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 DU	12.8	13.7
MW-8	8/5/2014	WV8-140805-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 DU	0.00349	0.00356	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	10.8	10.7
MW-9	8/5/2014	WV9-140805-	< 0.001 U	< 0.001 U	0.00229	0.00227 D	0.00342	0.00353	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	11.9	11.9
MW-10	8/4/2014	WV10140804-	< 0.001 U	< 0.001 U	0.00167	0.00154	0.00333	0.00323	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	9.26	8.71
MW-12	8/7/2014	WV12140807-	< 0.001 U	< 0.001 U	0.00199	0.00204 D	0.00403	0.00413	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	9.91	9.82
MW-13	8/8/2014	WV13140808-	< 0.001 U	< 0.001 U	0.00168	0.0019 D	0.00515	0.0063	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	9.58	9.42
MW-19	8/8/2014	WV19140808-	< 0.001 U	< 0.001 U	0.00142	0.00176 D	0.0162	0.0183	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	14.5	14.5
MW-20	8/4/2014	WV20140804-	< 0.001 U	< 0.001 U	0.00147	0.00139	0.00381	0.00506	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.8	12.2
MW-21	8/7/2014	WV21140807-	< 0.001 U	< 0.001 U	0.00103	0.00126 D	0.0101	0.0105	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	20.7	20.8
MW-26	8/8/2014	WV26140808-	< 0.001 U	< 0.001 U	0.0032	0.00315 D	0.00888	0.00928	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	15	15.2
MW-27	8/8/2014	WV27140808-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 DU	0.00391	0.004	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	11.9	12
MW-29	8/8/2014	WV29140808-	< 0.001 U	< 0.001 U	0.00411	0.00985 D	0.00981	0.0129	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	18.3	18.5
FIELD BLANK	8/8/2014	WV19140808F	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 DU	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U
Offsite Private Wells														
DW-85	9/18/2014	WV85140918-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.00897	0.0102	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	13.3	14.1
DW-PA	9/18/2014	WVPA140918-	< 0.001 U	< 0.001 U	0.00147	0.00145	0.00374	0.00425	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.5	13.8

Site	Date	Sample ID	Chromium, dissolved	Chromium, total	Cobalt, dissolved	Cobalt, total	Copper, dissolved	Copper, total	Iron, dissolved	Iron, total	Lead, dissolved	Lead, total	Magnesium, dissolved	Magnesium, total
MW-2	8/4/2014	WV2-140804-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	29.4	28.6
MW-5D	8/7/2014	WV5D140807-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	8.28	8.3	< 0.001 U	< 0.001 U	16.9	17.8
MW-7	8/18/2014	WV7-140818-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 DU	< 0.002 U	< 0.002 U	< 0.01 U	0.013 T	< 0.001 U	< 0.001 U	8.99	8.16
MW-8	8/5/2014	WV8-140805-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.016 T	< 0.001 U	< 0.001 U	9.61	10
MW-9	8/5/2014	WV9-140805-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.026 T	< 0.001 U	< 0.001 U	11.2	11.3
MW-10	8/4/2014	WV10140804-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.017 T	< 0.001 U	< 0.001 U	8.58	8.19
MW-12	8/7/2014	WV12140807-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	9.33	9.61
MW-13	8/8/2014	WV13140808-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.029 T	0.166	< 0.001 U	< 0.001 U	12.9	13.1
MW-19	8/8/2014	WV19140808-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.041 T	0.339	< 0.001 U	< 0.001 U	15.4	16
MW-20	8/4/2014	WV20140804-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.043 T	< 0.001 U	< 0.001 U	10.2	9.99
MW-21	8/7/2014	WV21140807-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.457	0.687	< 0.001 U	< 0.001 U	24.8	25.7
MW-26	8/8/2014	WV26140808-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.115	0.143	< 0.001 U	< 0.001 U	7.25	7.55
MW-27	8/8/2014	WV27140808-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	11.3	11.7
MW-29	8/8/2014	WV29140808-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.729	2.68	< 0.001 U	< 0.001 U	14.8	15.9
DW-85	9/18/2014	WV85140918-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.063	0.0706	< 0.001 U	< 0.001 DU	6.39	6
DW-PA	9/18/2014	WVPA140918-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	0.00977	0.0419	< 0.01 U	0.015 T	< 0.001 U	0.00128 D	11	11.1
FIELD BLANK	8/8/2014	WV19140808F	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	< 0.015 U	< 0.015 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from July 1, 2014 to September 30, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	Manganese, dissolved	Manganese, total	Mercury, dissolved	Mercury, total	Nickel, dissolved	Nickel, total	Potassium, dissolved	Potassium, total	Selenium, dissolved	Selenium, total	Silver, dissolved	Silver, total
MW-2	8/4/2014	WV2-140804-	0.124	0.121	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.34	2.34 D	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-5D	8/7/2014	WV5D140807-	0.514 D	0.557	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.24	2.49	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-7	8/18/2014	WV7-140818-	0.135	0.168 D	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.37	2.58 D	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 DU
MW-8	8/5/2014	WV8-140805-	< 0.001 DU	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.16	1.23	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-9	8/5/2014	WV9-140805-	< 0.001 DU	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.07	2.23	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-10	8/4/2014	WV10140804-	< 0.001 U	0.00178	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.42	1.41 D	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-12	8/7/2014	WV12140807-	< 0.001 DU	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.79	1.93	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-13	8/8/2014	WV13140808-	0.00157 D	0.00781	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.85	2.01	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-19	8/8/2014	WV19140808-	0.465 D	0.547	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.52	2.69	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-20	8/4/2014	WV20140804-	0.337	0.392	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.17	2.12 D	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-21	8/7/2014	WV21140807-	0.378 D	0.404	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.38	2.56	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-26	8/8/2014	WV26140808-	0.0587 D	0.0689	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	3.01	3.28	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-27	8/8/2014	WV27140808-	< 0.001 DU	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.36	1.47	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-29	8/8/2014	WV29140808-	0.0847 D	0.107	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.14	2.36	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
DW-85	9/18/2014	WV85140918-	0.0494	0.0482 D	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.32	2.35	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
DW-PA	9/18/2014	WVPA140918-	< 0.001 U	0.00266 D	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.48	1.43	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
FIELD BLANK	8/8/2014	WV19140808F	< 0.001 DU	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	< 0.3 U	< 0.3 U	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U

Site	Date	Sample ID	Sodium, dissolved	Sodium, total	Thallium, dissolved	Thallium, total	Vanadium, dissolved	Vanadium, total	Zinc, dissolved	Zinc, total
MW-2	8/4/2014	WV2-140804-	9.59	9.28	< 0.001 U	< 0.001 U	0.00402	0.00384	< 0.004 U	< 0.004 U
MW-5D	8/7/2014	WV5D140807-	11.5	13.7	< 0.001 DU	< 0.001 U	< 0.002 DU	< 0.002 DU	< 0.004 U	< 0.004 U
MW-7	8/18/2014	WV7-140818-	6.01	5.66	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-8	8/5/2014	WV8-140805-	5.57	6.3	< 0.001 DU	< 0.001 U	0.00252 D	0.00217 D	< 0.004 U	< 0.004 U
MW-9	8/5/2014	WV9-140805-	5.19	5.94	< 0.001 DU	< 0.001 U	0.00502 D	0.00433 D	< 0.004 U	< 0.004 U
MW-10	8/4/2014	WV10140804-	4.78	4.56	< 0.001 U	< 0.001 U	0.00412	0.00396	< 0.004 U	< 0.004 U
MW-12	8/7/2014	WV12140807-	4.91	5.62	< 0.001 DU	< 0.001 U	0.00506 D	0.00454 D	< 0.004 U	< 0.004 U
MW-13	8/8/2014	WV13140808-	5.53	6.55	< 0.001 DU	< 0.001 U	0.00546 D	0.00517 D	< 0.004 U	< 0.004 U
MW-19	8/8/2014	WV19140808-	6.15	7.11	< 0.001 DU	< 0.001 U	< 0.002 DU	< 0.002 DU	< 0.004 U	< 0.004 U
MW-20	8/4/2014	WV20140804-	5.79	5.65	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-21	8/7/2014	WV21140807-	9.38	10.7	< 0.001 DU	< 0.001 U	< 0.002 DU	< 0.002 DU	< 0.004 U	< 0.004 U
MW-26	8/8/2014	WV26140808-	8.19	9.56	< 0.001 DU	< 0.001 U	< 0.002 DU	< 0.002 DU	< 0.004 U	< 0.004 U
MW-27	8/8/2014	WV27140808-	5.71	6.61	< 0.001 DU	< 0.001 U	0.00277 D	0.00238 D	< 0.004 U	< 0.004 U
MW-29	8/8/2014	WV29140808-	5.81	6.56	< 0.001 DU	< 0.001 U	< 0.002 DU	< 0.002 DU	< 0.004 U	< 0.004 U
DW-85	9/18/2014	WV85140918-	5.83	5.6	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U	< 0.004 DU	0.00932
DW-PA	9/18/2014	WVPA140918-	6.42	6.45	< 0.001 U	< 0.001 DU	0.00273	0.00322	< 0.004 DU	0.0044
FIELD BLANK	8/8/2014	WV19140808F	0.332	0.359	< 0.001 DU	< 0.001 U	< 0.002 DU	< 0.002 DU	< 0.004 U	< 0.004 U

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Site	Date	Sample ID	1,1,1,2-TETRA-CHLORO-ETHANE 630-20-6 (µg/L)	1,1,1-TRI-CHLORO-ETHANE 71-55-6 (µg/L)	1,1,2,2-TETRA-CHLORO-ETHANE 79-34-5 (µg/L)	1,1,2-TRICHLORO-ETHANE 79-00-5 (µg/L)	1,1-DICHLORO ETHANE 75-34-3 (µg/L)	1,1-DICHLORO ETHENE 75-35-4 (µg/L)	1,2,3-TRICHLORO-PROPANE 96-18-4 (µg/L)	1,2-DIBROMO-3-CHLORO-PROPANE 96-12-8 (µg/L)	1,2-DIBROMO-ETHANE 106-93-4 (µg/L)	1,2-DICHLORO BENZENE 95-50-1 (µg/L)	1,2-DICHLORO ETHANE 107-06-2 (µg/L)	1,2-DICHLORO PROPANE 78-87-5 (µg/L)
MW-2	8/4/2014	WV2-140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	8/7/2014	WV5D140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	8/18/2014	WV7-140818-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-8	8/5/2014	WV8-140805-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	8/5/2014	WV9-140805-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	8/4/2014	WV10140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	8/7/2014	WV12140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	8/8/2014	WV13140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	8/8/2014	WV19140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	8/4/2014	WV20140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	8/7/2014	WV21140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	8/8/2014	WV26140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	8/8/2014	WV27140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	8/8/2014	WV29140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
FIELD BLANK	8/8/2014	WV19140808F	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Offsite Private Wells														
DW-85	9/18/2014	WV85140918-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-PA	9/18/2014	WVPA140918-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	6/17/2014	VTRP140618-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140804B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140804C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140807C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/4/2014	VTRP140805C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/6/2014	VTRP140807B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/15/2014	VTRP140818B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/16/2014	VTRP140917-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

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Site	Date	Sample ID	1,4-DICHLORO BENZENE 106-46-7 (µg/L)	2-BUTANONE 78-93-3 (µg/L)	2-HEXANONE 591-78-6 (µg/L)	4-METHYL-2-PENTANONE 108-10-1 (µg/L)	ACETONE 67-64-1 (µg/L)	ACRYLO-NITRILE 107-13-1 (µg/L)	BENZENE 71-43-2 (µg/L)	BROMO-CHLORO-METHANE 74-97-5 (µg/L)	BROMO-DICHLORO-METHANE 75-27-4 (µg/L)	BROMOFORM 75-25-2 (µg/L)	BROMO-METHANE 74-83-9 (µg/L)	CARBON DISULFIDE 75-15-0 (µg/L)
MW-2	8/4/2014	WV2-140804-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	8/7/2014	WV5D140807-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	0.25 T	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	8/18/2014	WV7-140818-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-8	8/5/2014	WV8-140805-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	8/5/2014	WV9-140805-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	8/4/2014	WV10140804-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	8/7/2014	WV12140807-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	8/8/2014	WV13140808-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	8/8/2014	WV19140808-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	8/4/2014	WV20140804-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	8/7/2014	WV21140807-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	8/8/2014	WV26140808-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	8/8/2014	WV27140808-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	8/8/2014	WV29140808-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
FIELD BLANK	8/8/2014	WV19140808F	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Offsite Private Wells														
DW-85	9/18/2014	WV85140918-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-PA	9/18/2014	WVPA140918-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	6/17/2014	VTRP140618-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140804B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140804C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140807C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/4/2014	VTRP140805C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/6/2014	VTRP140807B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808C	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/15/2014	VTRP140818B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/16/2014	VTRP140917-	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918B	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918L	< 0.2 U	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from July 1, 2014 to September 30, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	CARBON TETRA-CHLORIDE 56-23-5 (µg/L)	CHLORO-BENZENE 108-90-7 (µg/L)	CHLORO-DIBROMO-METHANE 124-48-1 (µg/L)	CHLORO-ETHANE 75-00-3 (µg/L)	CHLORO-FORM 67-66-3 (µg/L)	CHLORO-METHANE 74-87-3 (µg/L)	CIS-1,2-DICHLORO-ETHENE 156-59-2 (µg/L)	CIS-1,3-DICHLORO PROPENE 10061-01-5 (µg/L)	DIBROMO METHANE 74-95-3 (µg/L)	DICHLORO DIFLUORO METHANE 75-71-8 (µg/L)	ETHYL-BENZENE 100-41-4 (µg/L)	M & P XYLENE MPX (µg/L)	METHYL IODIDE 74-88-4 (µg/L)
MW-2	8/4/2014	WV2-140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	12.2	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	8/7/2014	WV5D140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	6.97	< 0.2 U	< 0.2 U	2.39	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	8/18/2014	WV7-140818-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-8	8/5/2014	WV8-140805-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	8/5/2014	WV9-140805-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-10	8/4/2014	WV10140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	8/7/2014	WV12140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	8/8/2014	WV13140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	8/8/2014	WV19140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	8/4/2014	WV20140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	8/7/2014	WV21140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.92	< 0.2 U	< 0.2 U	4.26	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	8/8/2014	WV26140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	8/8/2014	WV27140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	8/8/2014	WV29140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
FIELD BLANK	8/8/2014	WV19140808F	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
Offsite Private Wells															
DW-85	9/18/2014	WV85140918-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
DW-PA	9/18/2014	WVPA140918-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	6/17/2014	VTRP140618-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 GU	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140804B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140804C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/1/2014	VTRP140807C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/4/2014	VTRP140805C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/6/2014	VTRP140807B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/7/2014	VTRP140808C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	8/15/2014	VTRP140818B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/16/2014	VTRP140917-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

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Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	METHYLENE CHLORIDE 75-09-2 (µg/L)	O-XYLENE 95-47-6 (µg/L)	STYRENE 100-42-5 (µg/L)	TETRA-CHLORO-ETHENE 127-18-4 (µg/L)	TOLUENE 108-88-3 (µg/L)	TRANS-1,2-DICHLOROETHENE 156-60-5 (µg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (µg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (µg/L)	TRICHLORO-ETHENE 79-01-6 (µg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (µg/L)	VINYL ACETATE 108-05-4 (µg/L)	VINYL CHLORIDE 75-01-4 (µg/L)
MW-2	8/4/2014	WV2-140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	3.14	< 0.2 U	0.147
MW-5D	8/7/2014	WV5D140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	0.21 T	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	3.1
MW-7	8/18/2014	WV7-140818-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-8	8/5/2014	WV8-140805-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-9	8/5/2014	WV9-140805-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-10	8/4/2014	WV10140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-12	8/7/2014	WV12140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-13	8/8/2014	WV13140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-19	8/8/2014	WV19140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-20	8/4/2014	WV20140804-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-21	8/7/2014	WV21140807-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	0.876	< 0.2 U	0.157
MW-26	8/8/2014	WV26140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-27	8/8/2014	WV27140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-29	8/8/2014	WV29140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
FIELD BLANK	8/8/2014	WV19140808F	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
Offsite Private Wells														
DW-85	9/18/2014	WV85140918-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
DW-PA	9/18/2014	WVPA140918-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	6/17/2014	VTRP140618-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 GU
VOA TRIP BLANK	8/1/2014	VTRP140804B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	8/1/2014	VTRP140804C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	8/1/2014	VTRP140807C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	8/4/2014	VTRP140805C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	8/6/2014	VTRP140807B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	8/7/2014	VTRP140808-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	8/7/2014	VTRP140808B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	8/7/2014	VTRP140808C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	8/15/2014	VTRP140818B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	9/16/2014	VTRP140917-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	9/17/2014	VTRP140918B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	9/17/2014	VTRP140918L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

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Site	Date	Sample ID	pH (Field) (std. Units)	Conductance (Field) (mmho/cm)	DO (Field) (mg/L)	Temperature (Field) (oC)	Turbidity (Field) (NTU)
SW-W1	9/17/2014	SVW1140917Q	8.06	199.7	8.39	15.12	5.8
SW-W2	9/17/2014	SVW2140917Q	7.5	605.4	9.79	14	14.5
SW-W3	9/17/2014	SVW3140917Q	6.83	292	9.68	13.36	8.1
SW-E	9/18/2014	SVE-140918Q	7.68	180	11.37	13.2	8.95
EQUIPMENT BL/	9/17/2014	SVU1140917E	8.49	2.332		16.41	0
EQUIPMENT BL/	9/17/2014	SVU1M140917E	8.49	2.332		16.41	0

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Vashon Landfill --- Surface Water Analysis Data
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Site	Date	Sample ID	ALKALINITY, TOTAL (as CaCO3) mg/l	AMMONIA as N mg/l	BIOLOGICAL OXYGEN DEMAND mg/l	CHEMICAL OXYGEN DEMAND mg/l	CHLORIDE mg/l	COLIFORMS, FECAL cfu/100ml	COLIFORMS, TOTAL cfu/100ml	CYANIDE mg/l	FLUORIDE mg/l	HARDNESS mg/l
SW-W1	9/17/2014	SVW1140917Q	90	0.015 T	< 2 U	36.4	5.42	6	200	< 0.02 U	< 0.1 U	105
SW-W2	9/17/2014	SVW2140917Q	370	< 0.01 U	< 2 U	20.4	24.6	9	< 1 CU	< 0.02 U	< 0.1 U	385
SW-W3	9/17/2014	SVW3140917Q	86.6	< 0.01 U	< 2 U	16 T	10.6	9	< 1 CU	< 0.02 U	< 0.1 U	174
SW-E	9/18/2014	SVE-140918Q	95.7	0.0105	< 2 U	13 T	6.17	32	290	< 0.02 U	< 0.1 U	106

Site	Date	Sample ID	NITRATE mg/l	NITRATE + NITRITE as N mg/l	PHOSPHORUS, SOLUBLE REACTIVE mg/l	SPECIFIC CONDUCTANCE umhos/cm	SULFATE mg/l	TOTAL DISSOLVED SOLIDS mg/l	TOTAL KJELDAHL NITROGEN mg/l	TOTAL ORGANIC CARBON mg/l	TOTAL ORGANIC HALIDES (TOX) mg/l	TOTAL SOLIDS mg/l
SW-W1	9/17/2014	SVW1140917Q	1.45	1.45	0.0526	224	9.95	178	0.545	7.73		243
SW-W2	9/17/2014	SVW2140917Q	0.12	0.12	0.0195	707	10.5	474	0.332	6.05		529
SW-W3	9/17/2014	SVW3140917Q	0.206	0.206	0.0649	346	13	245	0.16 T	3.53		279
SW-E	9/18/2014	SVE-140918Q	0.676	0.676	0.0509	231	10.3	172	0.258	3.06		194

Site	Date	Sample ID	TOTAL SUSPENDED SOLIDS mg/l	TURBIDITY ntu
SW-W1	9/17/2014	SVW1140917Q	75	14
SW-W2	9/17/2014	SVW2140917Q	27.6	8.21
SW-W3	9/17/2014	SVW3140917Q	28.8	17
SW-E	9/18/2014	SVE-140918Q	12.1	5.52

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Site	Date	Sample ID	Aluminum, dissolved (mg/L)	Aluminum, total (mg/L)	Antimony, dissolved (mg/L)	Antimony, total (mg/L)	Arsenic, dissolved (mg/L)	Arsenic, total (mg/L)	Barium, dissolved (mg/L)	Barium, total (mg/L)	Beryllium, dissolved (mg/L)	Beryllium, total (mg/L)	Cadmium, dissolved (mg/L)	Cadmium, total (mg/L)
SW-W1	9/17/2014	SVW1140917Q	< 0.02 DU	0.3	< 0.001 U	< 0.001 U	0.00285	0.00722	< 0.001 U	0.00825	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U
SW-W2	9/17/2014	SVW2140917Q	< 0.02 DU	0.19	< 0.001 U	< 0.001 U	0.00156	0.00349	0.00358	0.0139	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U
SW-W3	9/17/2014	SVW3140917Q	< 0.02 DU	0.333	< 0.001 U	< 0.001 U	0.00352	0.00544	0.00583	0.0137	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U
SW-E	9/18/2014	SVE-140918Q	< 0.02 DU	0.189	< 0.001 U	< 0.001 U	0.00222	0.00233	0.00475	0.00707	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U
FIELD BLANK	8/8/2014	WV19140808F			< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 DU	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 DU	< 0.002 U	< 0.002 U

Site	Date	Sample ID	Calcium, dissolved (mg/L)	Calcium, total (mg/L)	Chromium, dissolved (mg/L)	Chromium, total (mg/L)	Cobalt, dissolved (mg/L)	Cobalt, total (mg/L)	Copper, dissolved (mg/L)	Copper, total (mg/L)	Iron, dissolved (mg/L)	Iron, total (mg/L)	Lead, dissolved (mg/L)	Lead, total (mg/L)
SW-W1	9/17/2014	SVW1140917Q	16.7	18.4	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.126	3.33	< 0.001 U	0.00108 D
SW-W2	9/17/2014	SVW2140917Q	62.5	65.4	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.026 T	2.99	< 0.001 U	< 0.001 DU
SW-W3	9/17/2014	SVW3140917Q	28.1	30.1	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.0505	1.44	< 0.001 U	< 0.001 DU
SW-E	9/18/2014	SVE-140918Q	16.7	17.7	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.0505	0.383	< 0.001 U	< 0.001 DU

Site	Date	Sample ID	Magnesium, dissolved (mg/L)	Magnesium, total (mg/L)	Manganese, dissolved (mg/L)	Manganese, total (mg/L)	Mercury, dissolved (mg/L)	Mercury, total (mg/L)	Nickel, dissolved (mg/L)	Nickel, total (mg/L)	Potassium, dissolved (mg/L)	Potassium, total (mg/L)	Selenium, dissolved (mg/L)	Selenium, total (mg/L)
SW-W1	9/17/2014	SVW1140917Q	14.2	14.4	0.338	1.45 D		< 0.0001 U	< 0.01 U	< 0.01 U	1.38	1.18	< 0.001 U	< 0.001 U
SW-W2	9/17/2014	SVW2140917Q	56.6	54	0.0562	0.864 D		< 0.0001 U	< 0.01 U	< 0.01 U	3.41	3.2	< 0.001 U	< 0.001 U
SW-W3	9/17/2014	SVW3140917Q	23.8	24	0.513 D	1.14 D		< 0.0001 U	< 0.01 U	< 0.01 U	2.56	2.46	< 0.001 U	< 0.001 U
SW-E	9/18/2014	SVE-140918Q	14.5	14.9	0.013	0.0627 D		< 0.0001 U	< 0.01 U	< 0.01 U	2.09	1.98	< 0.001 U	< 0.001 U

Site	Date	Sample ID	Silver, dissolved (mg/L)	Silver, total (mg/L)	Sodium, dissolved (mg/L)	Sodium, total (mg/L)	Thallium, dissolved (mg/L)	Thallium, total (mg/L)	Tin, dissolved (mg/L)	Tin, total (mg/L)	Vanadium, dissolved (mg/L)	Vanadium, total (mg/L)	Zinc, dissolved (mg/L)	Zinc, total (mg/L)
SW-W1	9/17/2014	SVW1140917Q	< 0.003 U	< 0.003 U	7.36	7.28	< 0.001 U	< 0.001 DU	< 0.01 U	< 0.01 U	< 0.002 U	0.00235	< 0.004 DU	< 0.004 U
SW-W2	9/17/2014	SVW2140917Q	< 0.003 U	< 0.003 U	18.1	17.2	< 0.001 U	< 0.001 DU	< 0.01 U	< 0.01 U	< 0.002 U	< 0.002 U	< 0.004 DU	< 0.004 U
SW-W3	9/17/2014	SVW3140917Q	< 0.003 U	< 0.003 U	9.77	10	< 0.001 U	< 0.001 DU	< 0.01 U	< 0.01 U	< 0.002 U	< 0.002 U	< 0.004 DU	< 0.004 U
SW-E	9/18/2014	SVE-140918Q	< 0.003 U	< 0.003 U	7.09	7.25	< 0.001 U	< 0.001 DU	< 0.01 U	< 0.01 U	0.00232	0.00335	< 0.004 DU	< 0.004 U

King County Solid Waste Division
Environmental Monitoring Data
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Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	1,1,1,2-TETRA-CHLORO- 630-20-6 (µg/L)	1,1,1-TRI-CHLORO-ETHANE 71-55-6 (µg/L)	1,1,2,2-TETRA-CHLORO-ETHANE 79-34-5 (µg/L)	1,1,2-TRI-CHLORO-ETHANE 79-00-5 (µg/L)	1,1-DICHLORO-ETHANE 75-34-3 (µg/L)	1,1-DICHLORO-ETHENE 75-35-4 (µg/L)	1,2,3-TRI-CHLORO-PROPANE 96-18-4 (µg/L)	1,2-DIBROMO-3-CHLORO-PROPANE 96-12-8 (µg/L)	1,2-DIBROMO-ETHANE 106-93-4 (µg/L)	1,2-DICHLORO-BENZENE 95-50-1 (µg/L)	1,2-DICHLORO-ETHANE 107-06-2 (µg/L)	1,2-DICHLORO-PROPANE 78-87-5 (µg/L)	1,4-DICHLORO-BENZENE 106-46-7 (µg/L)
SW-E	9/18/2014	SVE-140918Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W1	9/17/2014	SVW1140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	9/17/2014	SVW2140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	9/17/14	SVW3140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/16/14	VTRP140917-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/14	VTRP140918B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/14	VTRP140918L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	2-BUTANONE 78-93-3 (mg/L)	2-HEXANONE 591-78-6 (mg/L)	4-METHYL-2-PENTANONE 108-10-1 (mg/L)	ACETONE 67-64-1 (mg/L)	ACRYLO-NITRILE 107-13-1 (mg/L)	BENZENE 71-43-2 (mg/L)	BROMO-CHLORO- 74-97-5 (mg/L)	BROMO-DICHLORO- 75-27-4 (mg/L)	BROMOFORM 75-25-2 (mg/L)	BROMO-METHANE 74-83-9 (mg/L)	CARBON DISULFIDE 75-15-0 (mg/L)	CARBON TETRA- 56-23-5 (mg/L)	CHLORO-BENZENE 108-90-7 (mg/L)
SW-E	9/18/2014	SVE-140918Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W1	9/17/2014	SVW1140917Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	9/17/2014	SVW2140917Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	9/17/2014	SVW3140917Q	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/16/2014	VTRP140917-	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918B	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918L	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	CHLORO-DIBROMO-METHANE 124-48-1 (mg/L)	CHLORO-ETHANE 75-00-3 (mg/L)	CHLOROFORM 67-66-3 (mg/L)	CHLORO-METHANE 74-87-3 (mg/L)	CIS-1,2-DICHLORO-ETHENE 156-59-2 (mg/L)	CIS-1,3-DICHLORO-PROPENE 10061-01-5 (mg/L)	DIBROMO-METHANE 74-95-3 (mg/L)	DICHLORO-DIFLUORO-METHANE 75-71-8 (mg/L)	ETHYL-BENZENE 100-41-4 (mg/L)	M & P XYLENE MPX (mg/L)	METHYL IODIDE 74-88-4 (mg/L)	METHYLENE CHLORIDE 75-09-2 (mg/L)	O-XYLENE 95-47-6 (mg/L)
SW-E	9/18/2014	SVE-140918Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W1	9/17/2014	SVW1140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	9/17/2014	SVW2140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	9/17/2014	SVW3140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/16/2014	VTRP140917-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	9/17/2014	VTRP140918L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	STYRENE 100-42-5 (mg/L)	TETRA-CHLORO-ETHENE 127-18-4 (mg/L)	TOLUENE 108-88-3 (mg/L)	TRANS-1,2-DICHLORO-ETHENE 156-60-5 (mg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (mg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (mg/L)	TRICHLORO-ETHENE 79-01-6 (mg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (mg/L)	VINYL ACETATE 108-05-4 (mg/L)	VINYL CHLORIDE 75-01-4 (mg/L)
SW-E	9/18/2014	SVE-140918Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
SW-W1	9/17/2014	SVW1140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
SW-W2	9/17/2014	SVW2140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
SW-W3	9/17/2014	SVW3140917Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	0.0594
VOA TRIP BLANK	9/16/2014	VTRP140917-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	9/17/2014	VTRP140918B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	9/17/2014	VTRP140918L	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
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Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	2,4,5-T 93-76-5 (µg/L)	2,4,5-TP 93-76-5 (µg/L)	2,4-D 94-75-7 (µg/L)	Dinoseb 88-85-7 (µg/L)	Endrin 72-20-8 (µg/L)	Lindane 58-89-9 (µg/L)	Methoxy-chlor 72-43-5 (µg/L)	Toxaphene 8001-35-2 (µg/L)
SW-W1	9/17/2014	SVW1140917Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-W2	9/17/2014	SVW2140917Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-W3	9/17/2014	SVW3140917Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-E	9/18/2014	SVE-140918Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U

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Vashon Landfill --- Leachate Field Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Temperature (°C)	Conductance (Field) (μmho/cm)
LS-B	9/29/2014	LVB-140929Q	7.41	16.4	1900
LS-PS1	9/29/2014	LVP-140929Q	7.21	17.2	280

King County Solid Waste Division
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Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	ALKALINITY, TOTAL (AS CACO3) (mg/l)	AMMONIA AS N (mg/l)	BIOLOGICAL OXYGEN DEMAND (mg/l)	CHEMICAL OXYGEN DEMAND (mg/l)	CHLORIDE (mg/l)	COLIFORMS, FECAL (cfu/100ml)	COLIFORMS, TOTAL (cfu/100ml)	CYANIDE (mg/l)	FLUORIDE (mg/l)
LS-B	9/29/14	LVB-140929Q	118	< 0.01 U	8.08	49.6	408	< 1 U	< 1 U	< 0.02 U	0.19 T
LS-PS1	9/29/14	LVP-140929Q	74.4	0.0257	< 2 U	22	33.9	12	170	< 0.02 U	< 0.1 U

Site	Date	Sample ID	NITRATE + NITRITE AS N (mg/l)	PHOSPHORUS, SOLUBLE REACTIVE (umhos/cm)	SPECIFIC CONDUCTANCE (mg/l)	SULFATE (mg/l)	SULFIDE, TOTAL (mg/l)	TOTAL FATS, OILS & GREASE (mg/l)	TOTAL KJELDAHL NITROGEN (mg/l)	TOTAL ORGANIC CARBON (mg/l)	TOTAL ORGANIC HALIDES (mg/l)
LS-B	9/29/14	LVB-140929Q	98.2	0.0182	3320	732	< 0.01 U	< 2 U	0.89	15.1	
LS-PS1	9/29/14	LVP-140929Q	1.5	< 0.01 U	352	53.4	0.012 T	< 2 U	0.553	5.93	

Site	Date	Sample ID	TOTAL SUSPENDED SOLIDS (mg/l)	TOTAL VOLATILE SOLIDS (mg/l)	VOLATILE SUSPENDED SOLIDS (mg/l)
LS-B	9/29/14	LVB-140929Q	6.3	853	1.3
LS-PS1	9/29/14	LVP-140929Q	1.6 T	110	1.4 T

King County Solid Waste Division
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Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	Aluminum, total (mg/L)	Antimony, total (mg/L)	Arsenic, total (mg/L)	Barium, total (mg/L)	Beryllium, total (mg/L)	Cadmium, total (mg/L)	Calcium, total (mg/L)	Chromium, total (mg/L)	Cobalt, total (mg/L)	Copper, total (mg/L)	Iron, total (mg/L)
LS-B	9/29/2014	LVB-140929Q	< 0.02 U	< 0.001 U	< 0.001 U	0.0602	< 0.001 U	< 0.002 U	229	< 0.005 U	0.0035 T	< 0.002 U	< 0.01 U
LS-PS1	9/29/2014	LVP-140929Q	< 0.02 U	< 0.001 U	< 0.001 U	0.0316	< 0.001 U	< 0.002 U	25.7	< 0.005 U	< 0.003 U	< 0.002 U	< 0.01 U

Site	Date	Sample ID	Lead, total (mg/L)	Magnesium, total (mg/L)	Manganese, total (mg/L)	Mercury, total (mg/L)	Nickel, total (mg/L)	Potassium, total (mg/L)	Selenium, total (mg/L)	Silver, total (mg/L)	Sodium, total (mg/L)	Thallium, total (mg/L)	Tin, total (mg/L)
LS-B	9/29/2014	LVB-140929Q	< 0.001 U	139	0.0055 T	< 0.0001 U	0.0511	37.6	< 0.001 U	< 0.003 U	283	< 0.001 U	< 0.01 U
LS-PS1	9/29/2014	LVP-140929Q	< 0.001 U	12.4	0.0644	< 0.0001 U	< 0.01 U	5.25	< 0.001 U	< 0.003 U	22.4	< 0.001 U	< 0.01 U

Site	Date	Sample ID	Vanadium, total (mg/L)	Zinc, total (mg/L)
LS-B	9/29/2014	LVB-140929Q	< 0.002 U	0.013 T
LS-PS1	9/29/2014	LVP-140929Q	< 0.002 U	0.0255

King County Solid Waste Division
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Data Collected from July 1, 2014 to September 30, 2014
Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	1,1,1,2-TETRACHLOROETHANE ug/l N	1,1,1-TRICHLOROETHANE ug/l N	1,1,2,2-TETRACHLOROETHANE ug/l N	1,1,2-TRICHLOROETHANE ug/l N	1,1-DICHLOROETHANE ug/l N	1,1-DICHLOROETHENE ug/l N	1,1-DICHLOROPROPENE ug/l N	1,2,3-TRICHLOROPROPANE ug/l N	1,2-DIBROMO-3-CHLOROPROPANE ug/l N	1,2-DIBROMOETHANE ug/l N	1,2-DICHLOROBENZENE ug/l N	1,2-DICHLOROETHANE ug/l N	1,2-DICHLOROPROPANE ug/l N
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	09/26/14	VTRP140929B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	1,3-DICHLORO-BENZENE 541-73-1 (μg/L)	1,3-DICHLORO-PROPANE 142-28-9 (μg/L)	1,4-DICHLORO-BENZENE 106-46-7 (μg/L)	2,2-DICHLORO-PROPANE 594-20-7 (μg/L)	2-BUTANONE 78-93-3 (μg/L)	2-HEXANONE 591-78-6 (μg/L)	2-METHYL-1-PROPANOL 78-83-1 (μg/L)	3-CHLORO-PROPENE 107-05-1 (μg/L)	4-METHYL-2-PENTANONE 108-10-1 (μg/L)	ACETONE 67-64-1 (μg/L)	ACETONITRILE 75-05-8 (μg/L)	ACROLEIN 107-02-8 (μg/L)	ACRYLO-NITRILE 107-13-1 (μg/L)
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U	< 4 U	< 100 U	< 10 U	< 4 U	36 T	< 100 U	< 10 U	< 0.07 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 GU	< 4 U	< 100 U	< 10 U	< 4 U	< 4 U	< 100 U	< 10 U	< 0.07 GU
VOA TRIP BLANK	09/26/14	VTRP140929B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U	< 4 U	< 100 U	< 10 U	< 4 U	< 4 U	< 100 U	< 10 U	< 0.07 U

Site	Date	Sample ID	BENZENE 71-43-2 (μg/L)	BROMO-CHLORO-METHANE 74-97-5 (μg/L)	BROMO-DICHLORO-METHANE 75-27-4 (μg/L)	BROMOFORM 75-25-2 (μg/L)	BROMO-METHANE 74-83-9 (μg/L)	CARBON DISULFIDE 75-15-0 (μg/L)	CARBON TETRA-CHLORIDE 56-23-5 (μg/L)	CHLORO-BENZENE 108-90-7 (μg/L)	CHLORO-DIBROMO-METHANE 124-48-1 (μg/L)	CHLORO-ETHANE 75-00-3 (μg/L)	CHLOROFORM 67-66-3 (μg/L)	CHLORO-METHANE 74-87-3 (μg/L)	CHLOROPRENE 126-99-8 (μg/L)
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U
VOA TRIP BLANK	09/26/14	VTRP140929B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U

Site	Date	Sample ID	CIS-1,2-DICHLORO-ETHENE 156-59-2 (μg/L)	CIS-1,3-DICHLORO-PROPENE 10061-01-5 (μg/L)	DIBROMO-METHANE 74-95-3 (μg/L)	DICHLORO-DIFLUORO-METHANE 75-71-8 (μg/L)	ETHYL-BENZENE 100-41-4 (μg/L)	M & P XYLENE MPX (μg/L)	METHYL IODIDE 74-88-4 (μg/L)	METHYL METHA-CRYLATE 80-62-6 (μg/L)	METHYL-ACRYLO-NITRILE 126-98-7 (μg/L)	METHYLENE CHLORIDE 75-09-2 (μg/L)	O-XYLENE 95-47-6 (μg/L)	PROPRIO-NITRILE 107-12-0 (μg/L)	STYRENE 100-42-5 (μg/L)
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 U	< 0.2 U	< 0.2 U	< 60 U	< 0.2 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 GU	< 0.2 U	< 0.2 U	< 60 GU	< 0.2 U
VOA TRIP BLANK	09/26/14	VTRP140929B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 U	< 0.2 U	< 0.2 U	< 60 U	< 0.2 U

Site	Date	Sample ID	TETRA-CHLORO-ETHENE 127-18-4 (μg/L)	TOLUENE 108-88-3 (μg/L)	TRANS-1,2-DICHLORO-ETHENE 156-60-5 (μg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (μg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (μg/L)	TRICHLORO-ETHENE 79-01-6 (μg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (μg/L)	VINYL ACETATE 108-05-4 (μg/L)	VINYL CHLORIDE 75-01-4 (μg/L)
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	09/26/14	VTRP140929B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from July 1, 2014 to September 30, 2014
Vashon Landfill --- Leachate Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	2,4,5-T	2,4,5-TP SILVEX	2,4-D	4,4'DDD	4,4'DDE	4,4'DDT	ALDRIN	ALPHA BHC	ALPHA CHLORDANE	AROCLOR 1016	AROCLOR 1221
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	9/29/2014	LVB-140929Q	< 2 U	< 1 U	< 5 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.01 U	< 0.01 U
LS-PS1	9/29/2014	LVP-140929Q	< 2 U	< 1 U	< 5 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.01 U	< 0.01 U

Site	Date	Sample ID	AROCLOR 1232	AROCLOR 1242	AROCLOR 1248	AROCLOR 1254	AROCLOR 1260	BETA BHC	DELTA BHC	DIELDRIN	DINOSEB	ENDOSULFAN I	ENDOSULFAN II
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	9/29/2014	LVB-140929Q	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.025 U	< 0.1 U	< 0.1 U	< 1 U	< 0.1 U	< 0.1 U
LS-PS1	9/29/2014	LVP-140929Q	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.025 U	< 0.1 U	< 0.1 U	< 1 U	< 0.1 U	< 0.1 U

Site	Date	Sample ID	ENDOSULFAN SULFATE	ENDRIN	ENDRIN ALDEHYDE	HEPTACHLOR	HEPTACHLOR EPOXIDE	ISODRIN	LINDANE(GAMMA BHC)	METHOXYCHLOR	TOXAPHENE
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	9/29/2014	LVB-140929Q	< 0.5 U	< 0.1 U	< 0.2 U	< 0.025 U	< 0.025 U	< 10 U	< 0.025 U	< 2 U	< 2.5 U
LS-PS1	09/29/14	LVP-140929Q	< 0.5 U	< 0.1 U	< 0.2 U	< 0.025 U	< 0.025 U	< 10 U	< 0.025 U	< 2 U	< 2.5 U

King County Solid Waste Division
Environmental Field Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Conductance (Field) (μmhos/cm)	Temperature (^{o}C)	Depth to Water (feet)	Ground-Water Elevation (feet above msl)
MW-1	10/31/2014						
MW-2	10/31/2014					74.3	239.98
MW-2	11/3/2014	WV2-141103-	300	6.69	9.9	74.3	239.98
MW-3	10/31/2014					42.27	272.6
MW-3	11/4/2014					42.29	272.58
MW-4	10/31/2014					106.68	267.53
MW-5D	10/31/2014					117.89	239.31
MW-5D	11/3/2014	WV5D141103-	240	6.59	10.4	117.73	239.47
MW-7	10/31/2014					192.11	181.14
MW-7	11/10/2014	WV7-140818-	140	7.53	11.9	192.36	180.89
MW-8	10/31/2014					176.53	206.89
MW-8	11/14/2014	WV8-140805-	165	7.15	10.9	176.54	206.88
MW-9	10/31/2014					166.11	236.46
MW-9	12/5/2014	WV9-140805-	165	7.31	10.6	166.03	236.54
MW-10	10/31/2014	WV10140804-	115	7.01	10.7	145.2	262.31
MW-12	10/31/2014					142.86	169.53
MW-12	11/4/2014	WV12141104-	130	7.15	9.5	142.88	169.51
MW-13	10/31/2014					100.57	273.5
MW-13	11/14/2014	WV13141114-	160	7.25	10.7	100.69	273.38
MW-14	10/31/2014					151.82	223.86
MW-19	10/31/2014					245.82	158.01
MW-19	12/5/2014	WV19141205-	190	7.74	9.7	245.73	158.1
MW-20	10/31/2014					122.88	244.33
MW-20	11/17/2014	WV20140804-	150	7.57	11.9	123.06	244.15
MW-21	10/31/2014					106.96	238.7
MW-21	11/14/2014	WV21140807-	250	6.86	10	107.03	238.63
MW-24	10/31/2014					88.74	285.19
MW-25	10/31/2014	WV20140512-				243.54	155.68
MW-26	10/31/2014					247.41	155.99
MW-26	11/13/2014	WV26140808-	200	8.06	11.4	247.35	156.05
MW-27	10/31/2014					188.44	194.62
MW-27	11/13/2014	WV27141113-	160	6.46	10.9	188.34	194.72
MW-29	10/31/2014					244.42	166.15
MW-29	11/14/2014	WV29141114-	190	7.26	9.6	244.34	166.23

Offsite private wells

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	ALKALINITY, TOTAL (AS CACO3) mg/l	AMMONIA AS N mg/l	CHLORIDE mg/l	NITRATE mg/l	SPECIFIC CONDUCTANCE umhos/cm	SULFATE mg/l	TOTAL DISSOLVED mg/l	TOTAL ORGANIC mg/l	TOTAL SOLIDS mg/l	TOTAL SUSPENDED mg/l
MW-2	11/3/2014	WV2-141103-	188	0.0105	3.54	0.934	385	17.4	225	< 1 U	261	< 1 U
MW-5D	11/3/2014	WV5D141103-	142	0.0456	3.2	< 0.01 U	303	9.78	216	1.37	232	4.43
MW-7	11/10/2014	WV7-141110-	69.6	0.289	3.12	< 0.01 U	171	10.6	129	< 1 U	133	< 1 U
MW-8	11/14/2014	WV8-141114-	56.5	< 0.01 U	4.9	3.34	168	8.37	121	< 1 U	128	< 1 U
MW-9	12/5/2014	WV9-141205-	67.2	< 0.01 U	4.89	0.217	172	13.2	112	< 1 U	117	< 1 U
MW-10			56.9	0.0151	3.22	0.57	144	8.99	104	< 1 U	108	< 1 U
MW-12	11/4/2014	WV12141104-	56.4	< 0.01 U	3.94	0.713	153	10.7	104	< 1 U	115	< 1 U
MW-13	11/14/2014	WV13141114-	67.6	< 0.01 U	2.81	0.0441	176	16.6	123	< 1 U	137	13
MW-19	12/5/2014	WV19141205-	86	0.0378	7.19	< 0.01 U	223	17.6	141	< 1 U	139	< 1 U
MW-20	11/17/2014	WV20141117-	65.5	0.0177	3.22	< 0.01 U	183	16.8	131	< 1 U	142	< 1 U
MW-21	11/14/2014	WV21141114-	179	< 0.01 U	3.05	0.256	366	18.7	222	< 1 U	231	< 1 U
MW-26	11/13/2014	WV26141113-	76.6	0.03 T	4.07	0.232	186	13.1	138	< 1 U	143	< 1 U
MW-27	11/13/2014	WV27141113-	62.8	< 0.01 U	5.26	2.16	185	9.67	127	< 1 U	136	< 1 U
MW-29	11/14/2014	WV29141114-	102	< 0.01 U	3.89	< 0.01 U	237	16.9	151	< 1 U	166	2.18

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	Antimony, dissolved	Antimony, total	Arsenic, dissolved	Arsenic, total	Barium, dissolved	Barium, total	Beryllium, dissolved	Beryllium, total	Cadmium, dissolved	Cadmium, total	Calcium, dissolved	Calcium, total
MW-2	11/3/2014	WV2-141103-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.00966	0.0099	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	23.2	25
MW-5D	11/3/2014	WV5D141103-	< 0.001 U	< 0.001 U	0.0858	0.0895	0.0137	0.0123	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	22	22.8
MW-7	11/10/2014	WV7-141110-	< 0.001 U	< 0.001 U	0.00547	0.00547	0.0107	0.0126	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.4	13.7
MW-7	11/10/2014	WV7-141110D	< 0.001 U	< 0.001 U	0.00553	0.00557	0.0108	0.0127	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12.5	13.8
MW-8	11/14/2014	WV8-141114-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.00326	0.00355	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	10.3	11.2
MW-9	12/5/2014	WV9-141205-	< 0.001 U	< 0.001 U	0.00235	0.00225	0.00335	0.00335	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	11.1	10.9
MW-12	11/4/2014	WV12141104-	< 0.001 U	< 0.001 U	0.00196	0.00196	0.00455	0.00417	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	10.2	10.2
MW-13	11/14/2014	WV13141114-	< 0.001 U	< 0.001 U	0.00167	0.00171	0.00458	0.00565	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	9.08	9.95
MW-19	12/5/2014	WV19141205-	< 0.001 U	< 0.001 U	0.0013	0.00153	0.0166	0.0169	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	14.2	13.9
MW-20	11/17/2014	WV20141117-	< 0.001 U	< 0.001 U	0.00135	0.00154	0.00493	0.00536	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	13.3	13.3
MW-21	11/14/2014	WV21141114-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.0104	0.0116	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	22.5	24.5
MW-26	11/13/2014	WV26141113-	< 0.001 U	< 0.001 U	0.00308	0.00321	0.00999	0.0116	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	15	16.7
MW-27	11/13/2014	WV27141113-	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	0.0037	0.00407	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	12	12.8
MW-29	11/14/2014	WV29141114-	< 0.001 U	< 0.001 U	0.00413	0.00682	0.00894	0.0115	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	17.8	20
Field Blank	12/18/2014	LVT-141218F				< 0.001 U						< 0.002 U		

Site	Date	Sample ID	Chromium, dissolved	Chromium, total	Cobalt, dissolved	Cobalt, total	Copper, dissolved	Copper, total	Iron, dissolved	Iron, total	Lead, dissolved	Lead, total	Magnesium, dissolved	Magnesium, total
MW-2	11/3/2014	WV2-141103-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	25.4	28.2
MW-5D	11/3/2014	WV5D141103-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	8.81	8.63	< 0.001 U	< 0.001 U	14.4	15.4
MW-7	11/10/2014	WV7-141110-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.017 T	< 0.001 U	< 0.001 U	7.64	7.86
MW-7	11/10/2014	WV7-141110D	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.017 T	< 0.001 U	< 0.001 U	7.78	7.97
MW-8	11/14/2014	WV8-141114-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.012 T	< 0.001 U	< 0.001 U	8.47	8.27
MW-9	12/5/2014	WV9-141205-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.013 T	< 0.001 U	< 0.001 U	8.65	8.54
MW-12	11/4/2014	WV12141104-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.014 T	< 0.001 U	< 0.001 U	7.79	7.92
MW-13	11/14/2014	WV13141114-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.08	< 0.001 U	< 0.001 U	10.9	10.7
MW-19	12/5/2014	WV19141205-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.029 T	0.174	< 0.001 U	< 0.001 U	12.5	12.2
MW-20	11/17/2014	WV20141117-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	0.0752	< 0.001 U	< 0.001 U	10.4	9.86
MW-21	11/14/2014	WV21141114-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.407	0.545	< 0.001 U	< 0.001 U	25.3	24.8
MW-26	11/13/2014	WV26141113-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.118	0.202	< 0.001 U	< 0.001 U	6.16	6.23
MW-27	11/13/2014	WV27141113-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	< 0.01 U	< 0.01 U	< 0.001 U	< 0.001 U	10.2	9.76
MW-29	11/14/2014	WV29141114-	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.67	1.62	< 0.001 U	< 0.001 U	12.8	13.1
Field Blank	12/18/2014	LVT-141218F		< 0.005 U				< 0.002 U				< 0.001 U		

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	Manganese, dissolved	Manganese, total	Mercury, dissolved	Mercury, total	Nickel, dissolved	Nickel, total	Potassium, dissolved	Potassium, total	Selenium, dissolved	Selenium, total	Silver, dissolved	Silver, total
MW-2	11/3/2014	WV2-141103-	0.0995	0.109	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.18	2.44	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-5D	11/3/2014	WV5D141103-	0.542	0.558	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.14	2.36	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-7	11/10/2014	WV7-141110-	0.147	0.175 D	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.59	2.7	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-7	11/10/2014	WV7-141110D	0.149	0.17 D	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.64	2.72	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-8	11/14/2014	WV8-141114-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.11	1.21	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-9	12/5/2014	WV9-141205-	< 0.001 DU	< 0.001 DU	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.06	2.06	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-12	11/4/2014	WV12141104-	< 0.001 U	< 0.001 DU	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.63	1.76	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-13	11/14/2014	WV13141114-	< 0.001 U	0.00336	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.77	1.95	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-19	12/5/2014	WV19141205-	0.52	0.458	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.47	2.47	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-20	11/17/2014	WV20141117-	0.138	0.146	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.23	2.48	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-21	11/14/2014	WV21141114-	0.242	0.257	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.52	2.74	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-26	11/13/2014	WV26141113-	0.0538	0.0617	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.95	3.25	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-27	11/13/2014	WV27141113-	< 0.001 U	< 0.001 U	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	1.36	1.48	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
MW-29	11/14/2014	WV29141114-	0.0813	0.106	< 0.0001 U	< 0.0001 U	< 0.01 U	< 0.01 U	2.17	2.34	< 0.001 U	< 0.001 U	< 0.003 U	< 0.003 U
Field Blank	12/18/2014	LVT-141218F						< 0.01 U						< 0.003 U

Site	Date	Sample ID	Sodium, dissolved	Sodium, total	Thallium, dissolved	Thallium, total	Vanadium, dissolved	Vanadium, total	Zinc, dissolved	Zinc, total
MW-2	11/3/2014	WV2-141103-	8.33	9.13	< 0.001 U	< 0.001 U	0.00394	0.00395	< 0.004 U	< 0.004 U
MW-5D	11/3/2014	WV5D141103-	11.5	12.5	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-7	11/10/2014	WV7-141110-	5.33	5.52	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-7	11/10/2014	WV7-141110D	5.44	5.52	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-8	11/14/2014	WV8-141114-	5.77	5.64	< 0.001 U	< 0.001 U	0.00225	0.00237	< 0.004 U	< 0.004 U
MW-9	12/5/2014	WV9-141205-	4.93	5.22 D	< 0.001 U	< 0.001 U	0.00474	0.00455 D	< 0.004 U	< 0.004 U
MW-12	11/4/2014	WV12141104-	5.06	5.02	< 0.001 U	< 0.001 U	0.00495	0.00471	< 0.004 U	< 0.004 U
MW-13	11/14/2014	WV13141114-	5.74	5.66	< 0.001 U	< 0.001 U	0.00467	0.00522	< 0.004 U	< 0.004 U
MW-19	12/5/2014	WV19141205-	6.08	6.09 D	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 DU	< 0.004 U	< 0.004 U
MW-20	11/17/2014	WV20141117-	5.4	5.33	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 DU	< 0.004 U
MW-21	11/14/2014	WV21141114-	9.26	9.16	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-26	11/13/2014	WV26141113-	8.31	8.49	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
MW-27	11/13/2014	WV27141113-	6.11	5.87	< 0.001 U	< 0.001 U	0.0026	0.00274	< 0.004 U	< 0.004 U
MW-29	11/14/2014	WV29141114-	5.93	6.09	< 0.001 U	< 0.001 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U
Field Blank	12/18/2014	LVT-141218F								< 0.004 U

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Site	Date	Sample ID	1,1,1,2-TETRA-CHLORO-ETHANE 630-20-6 (µg/L)	1,1,1-TRI-CHLORO-ETHANE 71-55-6 (µg/L)	1,1,2,2-TETRA-CHLORO-ETHANE 79-34-5 (µg/L)	1,1,2-TRICHLOR O-ETHANE 79-00-5 (µg/L)	1,1-DICHLORO ETHANE 75-34-3 (µg/L)	1,1-DICHLORO ETHENE 75-35-4 (µg/L)	1,2,3-TRICHLOR O-PROPANE 96-18-4 (µg/L)	1,2-DIBROMO-3-CHLORO-PROPANE 96-12-8 (µg/L)	1,2-DIBROMO-ETHANE 106-93-4 (µg/L)	1,2-DICHLORO BENZENE 95-50-1 (µg/L)	1,2-DICHLOR O-ETHANE 107-06-2 (µg/L)	1,2-DICHLORO PROPANE 78-87-5 (µg/L)	1,4-DICHLOR OBENZEN E 106-46-7 (µg/L)	2-BUTANONE 78-93-3 (µg/L)
MW-2	11/3/2014	WV2-141103-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-5D	11/3/2014	WV5D141103-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-7	11/10/2014	WV7-141110-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-7	11/10/2014	WV7-141110D	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-8	11/14/2014	WV8-141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-9	12/5/2014	WV9-141205-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-12	11/4/2014	WV12141104-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-13	11/14/2014	WV13141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-19	12/5/2014	WV19141205-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-20	11/17/2014	WV20141117-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-21	11/14/2014	WV21141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-26	11/13/2014	WV26141113-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-27	11/13/2014	WV27141113-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
MW-29	11/14/2014	WV29141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	10/31/14	VTRP141103B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	11/3/14	VTRP141104B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	11/4/14	VTRP141113B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	11/6/14	VTRP141110C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	11/10/14	VTRP141114C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	11/13/14	VTRP141114B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	11/14/14	VTRP141117C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	11/17/14	VTRP141118C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U
VOA TRIP BLANK	12/3/14	VTRP141205B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U

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Site	Date	Sample ID	2- HEXANONE 591-78-6 (µg/L)	4-METHYL-2- PENTANONE 108-10-1 (µg/L)	ACETONE 67-64-1 (µg/L)	ACRYLO- NITRILE 107-13-1 (µg/L)	BENZENE 71-43-2 (µg/L)	BROMO- CHLORO- METHANE 74-97-5 (µg/L)	BROMO- DICHLORO- METHANE 75-27-4 (µg/L)	BROMOFOR M 75-25-2 (µg/L)	BROMO- METHANE 74-83-9 (µg/L)	CARBON DISULFIDE 75-15-0 (µg/L)	CARBON TETRA- CHLORIDE 56-23-5 (µg/L)	CHLORO- BENZENE 108-90-7 (µg/L)	CHLORO- DIBROMO- METHANE 124-48-1 (µg/L)
MW-2	11/3/2014	WV2-141103-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	11/3/2014	WV5D141103-	< 4 U	< 4 U	< 4 U	< 0.07 U	0.484	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	11/10/2014	WV7-141110-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	11/10/2014	WV7-141110D	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-8	11/14/2014	WV8-141114-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	12/5/2014	WV9-141205-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	11/4/2014	WV12141104-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	11/14/2014	WV13141114-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	12/5/2014	WV19141205-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	11/17/2014	WV20141117-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	11/14/2014	WV21141114-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	11/13/2014	WV26141113-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	11/13/2014	WV27141113-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	11/14/2014	WV29141114-	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	10/31/14	VTRP141103B	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/3/14	VTRP141104B	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/4/14	VTRP141113B	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/6/14	VTRP141110C	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/10/14	VTRP141114C	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/13/14	VTRP141114B	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/14/14	VTRP141117C	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/17/14	VTRP141118C	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	12/3/14	VTRP141205B	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

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Site	Date	Sample ID	CHLORO-ETHANE 75-00-3 (µg/L)	CHLORO-FORM 67-66-3 (µg/L)	CHLORO-METHANE 74-87-3 (µg/L)	CIS-1,2-DICHLORO-ETHENE 156-59-2 (µg/L)	CIS-1,3-DICHLORO PROPENE 10061-01-5 (µg/L)	DIBROMO METHANE 74-95-3 (µg/L)	DICHLORO DIFLUORO METHANE 75-71-8 (µg/L)	ETHYL-BENZENE 100-41-4 (µg/L)	M & P XYLENE MPX (µg/L)	METHYL IODIDE 74-88-4 (µg/L)	METHYLENE CHLORIDE 75-09-2 (µg/L)	O-XYLENE 95-47-6 (µg/L)	STYRENE 100-42-5 (µg/L)	TETRA-CHLORO-ETHENE 127-18-4 (µg/L)
MW-2	11/3/2014	WV2-141103-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	6.64	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-5D	11/3/2014	WV5D141103-	< 0.2 U	< 0.2 U	< 0.2 U	9.37	< 0.2 U	< 0.2 U	1.57	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	11/10/2014	WV7-141110-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-7	11/10/2014	WV7-141110D	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-8	11/14/2014	WV8-141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-9	12/5/2014	WV9-141205-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-12	11/4/2014	WV12141104-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-13	11/14/2014	WV13141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-19	12/5/2014	WV19141205-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-20	11/17/2014	WV20141117-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-21	11/14/2014	WV21141114-	< 0.2 U	< 0.2 U	< 0.2 U	0.605	< 0.2 U	< 0.2 U	3.26	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-26	11/13/2014	WV26141113-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-27	11/13/2014	WV27141113-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
MW-29	11/14/2014	WV29141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	10/31/14	VTRP141103B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/3/14	VTRP141104B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/4/14	VTRP141113B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/6/14	VTRP141110C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/10/14	VTRP141114C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/13/14	VTRP141114B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/14/14	VTRP141117C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	11/17/14	VTRP141118C	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	12/3/14	VTRP141205B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Groundwater Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	TOLUENE 108-88-3 (µg/L)	TRANS-1,2-DICHLOROETHENE 156-60-5 (µg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (µg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (µg/L)	TRICHLORO-ETHENE 79-01-6 (µg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (µg/L)	VINYL ACETATE 108-05-4 (µg/L)	VINYL CHLORIDE 75-01-4 (µg/L)
MW-2	11/3/2014	WV2-141103-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	3.22	< 0.2 U	0.096
MW-5D	11/3/2014	WV5D141103-	< 0.2 U	0.31 T	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	4.78
MW-7	11/10/2014	WV7-141110-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-7	11/10/2014	WV7-141110D	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-8	11/14/2014	WV8-141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-9	12/5/2014	WV9-141205-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-12	11/4/2014	WV12141104-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-13	11/14/2014	WV13141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-19	12/5/2014	WV19141205-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-20	11/17/2014	WV20141117-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-21	11/14/2014	WV21141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	1.3	< 0.2 U	0.164
MW-26	11/13/2014	WV26141113-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-27	11/13/2014	WV27141113-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
MW-29	11/14/2014	WV29141114-	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	10/31/14	VTRP141103B	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	11/3/14	VTRP141104B	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	11/4/14	VTRP141113B	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	11/6/14	VTRP141110C	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	11/10/14	VTRP141114C	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	11/13/14	VTRP141114B	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	11/14/14	VTRP141117C	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	11/17/14	VTRP141118C	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	12/3/14	VTRP141205B	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Surface Water Field Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Conductance (Field) (mmho/cm)	DO (Field) (mg/L)	Temperature (Field) (oC)	Turbidity (Field) (NTU)
SW-W1	12/17/2014	SVW1141217Q	7.38	194	11.65	4.41	18.6
SW-W2	12/17/2014	SVW2141217Q	7.59	674	12.43	4.3	19.2
SW-W3	12/17/2014	SVW3141217Q	7.11	330	12.21	5.49	15.9
SW-E	12/22/2014	SVE-141222Q	7.39	160	12.08	8.9	14.3
EQUIPMENT BL/	12/17/2014	SVU1141217E	7.42	131		5.88	1
EQUIPMENT BL/	12/17/2014	SVU1M141217E	7.42	131		5.88	1

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from July 1, 2014 to September 30, 2014
Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	ALKALINITY, TOTAL (as CaCO3) mg/l	AMMONIA as N mg/l	BIOLOGICAL OXYGEN DEMAND mg/l	CHEMICAL OXYGEN DEMAND mg/l	CHLORIDE mg/l	COLIFORMS, FECAL cfu/100ml	COLIFORMS, TOTAL cfu/100ml	CYANIDE mg/l	FLUORIDE mg/l	HARDNESS mg/l
SW-W1	9/17/2014	SVW1140917Q	90	0.015 T	< 2 U	36.4	5.42	6	200	< 0.02 U	< 0.1 U	105
SW-W2	9/17/2014	SVW2140917Q	370	< 0.01 U	< 2 U	20.4	24.6	9	< 1 CU	< 0.02 U	< 0.1 U	385
SW-W3	9/17/2014	SVW3140917Q	86.6	< 0.01 U	< 2 U	16 T	10.6	9	< 1 CU	< 0.02 U	< 0.1 U	174
SW-E	9/18/2014	SVE-140918Q	95.7	0.0105	< 2 U	13 T	6.17	32	290	< 0.02 U	< 0.1 U	106

Site	Date	Sample ID	NITRATE mg/l	NITRATE + NITRITE as N mg/l	PHOSPHORUS, SOLUBLE REACTIVE mg/l	SPECIFIC CONDUCTANCE umhos/cm	SULFATE mg/l	TOTAL DISSOLVED SOLIDS mg/l	TOTAL KJELDAHL NITROGEN mg/l	TOTAL ORGANIC CARBON mg/l	TOTAL ORGANIC HALIDES (TOX) mg/l	TOTAL SOLIDS mg/l
SW-W1	9/17/2014	SVW1140917Q	1.45	1.45	0.0526	224	9.95	178	0.545	7.73		243
SW-W2	9/17/2014	SVW2140917Q	0.12	0.12	0.0195	707	10.5	474	0.332	6.05		529
SW-W3	9/17/2014	SVW3140917Q	0.206	0.206	0.0649	346	13	245	0.16 T	3.53		279
SW-E	9/18/2014	SVE-140918Q	0.676	0.676	0.0509	231	10.3	172	0.258	3.06		194

Site	Date	Sample ID	TOTAL SUSPENDED SOLIDS mg/l	TURBIDITY ntu
SW-W1	9/17/2014	SVW1140917Q	75	14
SW-W2	9/17/2014	SVW2140917Q	27.6	8.21
SW-W3	9/17/2014	SVW3140917Q	28.8	17
SW-E	9/18/2014	SVE-140918Q	12.1	5.52

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	Aluminum, dissolved (mg/L)	Aluminum, total (mg/L)	Antimony, dissolved (mg/L)	Antimony, total (mg/L)	Arsenic, dissolved (mg/L)	Arsenic, total (mg/L)	Barium, dissolved (mg/L)	Barium, total (mg/L)	Beryllium, dissolved (mg/L)	Beryllium, total (mg/L)	Cadmium, dissolved (mg/L)	Cadmium, total (mg/L)
SW-W1	12/17/2014	SVW1141217Q	< 0.02 DU	0.285 D	< 0.001 U	< 0.001 U	0.00274	0.00584	< 0.001 DU	0.00721	< 0.001 DU	< 0.001 U	< 0.002 U	< 0.002 U
SW-W2	12/17/2014	SVW2141217Q	< 0.02 DU	0.122 D	< 0.001 U	< 0.001 U	0.00119	0.00266	0.00265 D	0.00814	< 0.001 DU	< 0.001 U	< 0.002 U	< 0.002 U
SW-W3	12/17/2014	SVW3141217Q	< 0.02 DU	0.186 D	< 0.001 U	< 0.001 U	0.00307	0.00459	0.00549 D	0.00969	< 0.001 DU	< 0.001 U	< 0.002 U	< 0.002 U
SW-E	12/22/2014	SVE-141222Q	0.0221 D	0.479	< 0.001 U	< 0.001 U	0.00162	0.00187	0.00555	0.00927	< 0.001 DU	< 0.001 U	< 0.002 U	< 0.002 U

Site	Date	Sample ID	Calcium, dissolved (mg/L)	Calcium, total (mg/L)	Chromium, dissolved (mg/L)	Chromium, total (mg/L)	Cobalt, dissolved (mg/L)	Cobalt, total (mg/L)	Copper, dissolved (mg/L)	Copper, total (mg/L)	Iron, dissolved (mg/L)	Iron, total (mg/L)	Lead, dissolved (mg/L)	Lead, total (mg/L)
SW-W1	9/17/2014	SVW1140917Q	14.2	16	< 0.005 U	< 0.005 U	< 0.003 DU	< 0.003 U	< 0.002 U	< 0.002 U	0.316	2.91	< 0.001 U	< 0.001 U
SW-W2	9/17/2014	SVW2140917Q	49.2	53.8	< 0.005 U	< 0.005 U	< 0.003 DU	< 0.003 U	< 0.002 U	< 0.002 U	0.02 T	1.88	< 0.001 U	< 0.001 U
SW-W3	9/17/2014	SVW3140917Q	21.9	23.8	< 0.005 U	< 0.005 U	< 0.003 DU	< 0.003 U	< 0.002 U	< 0.002 U	0.0757	0.989	< 0.001 U	< 0.001 U
SW-E	9/18/2014	SVE-140918Q	10.9	13.5	< 0.005 U	< 0.005 U	< 0.003 U	< 0.003 U	< 0.002 U	< 0.002 U	0.0614	0.635	< 0.001 U	< 0.001 U

Site	Date	Sample ID	Magnesium, dissolved (mg/L)	Magnesium, total (mg/L)	Manganese, dissolved (mg/L)	Manganese, total (mg/L)	Mercury, dissolved (mg/L)	Mercury, total (mg/L)	Nickel, dissolved (mg/L)	Nickel, total (mg/L)	Potassium, dissolved (mg/L)	Potassium, total (mg/L)	Selenium, dissolved (mg/L)	Selenium, total (mg/L)
SW-W1	9/17/2014	SVW1140917Q	12	14.5	0.381	1.23	< 0.0001 U	< 0.01 U	< 0.01 U	1.07	1.14	< 0.001 U	< 0.001 U	< 0.003 U
SW-W2	9/17/2014	SVW2140917Q	40.6	48.7	0.0261	0.438	< 0.0001 U	< 0.01 U	< 0.01 U	3.05	3.2	< 0.001 U	< 0.001 U	< 0.003 U
SW-W3	9/17/2014	SVW3140917Q	18.5	22.7	0.492	0.794	< 0.0001 U	< 0.01 U	< 0.01 U	2.16	2.36	< 0.001 U	< 0.001 U	< 0.003 U
SW-E	9/18/2014	SVE-140918Q	11.5	11.9	0.00924	0.0458	< 0.0001 U	< 0.01 U	< 0.01 U	1.98 D	1.87	< 0.001 U	< 0.001 U	< 0.003 U

Site	Date	Sample ID	Silver, dissolved (mg/L)	Silver, total (mg/L)	Sodium, dissolved (mg/L)	Sodium, total (mg/L)	Thallium, dissolved (mg/L)	Thallium, total (mg/L)	Tin, dissolved (mg/L)	Tin, total (mg/L)	Vanadium, dissolved (mg/L)	Vanadium, total (mg/L)	Zinc, dissolved (mg/L)	Zinc, total (mg/L)
SW-W1	9/17/2014	SVW1140917Q	< 0.003 U	6.23	7.24	< 0.001 DU	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	0.00201	< 0.004 U	< 0.004 U	-0.004
SW-W2	9/17/2014	SVW2140917Q	< 0.003 U	13.4	15.4	< 0.001 DU	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U	-0.004
SW-W3	9/17/2014	SVW3140917Q	< 0.003 U	8.04	9.33	< 0.001 DU	< 0.001 U	< 0.01 U	< 0.01 U	< 0.002 U	< 0.002 U	< 0.004 U	< 0.004 U	-0.004
SW-E	9/18/2014	SVE-140918Q	< 0.003 U	6.31	6.55	< 0.001 U	< 0.001 U	< 0.01 U	< 0.01 U	0.00212	0.00339	< 0.004 U	< 0.004 U	-0.004

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014

Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	1,1,1,2-TETRA-CHLORO- 630-20-6 (µg/L)	1,1,1-TRI-CHLORO-ETHANE 71-55-6 (µg/L)	1,1,2,2-TETRA-CHLORO-ETHANE 79-34-5 (µg/L)	1,1,2-TRI-CHLORO-ETHANE 79-00-5 (µg/L)	1,1-DICHLORO-ETHANE 75-34-3 (µg/L)	1,1-DICHLORO-ETHENE 75-35-4 (µg/L)	1,2,3-TRI-CHLORO-PROPANE 96-18-4 (µg/L)	1,2-DIBROMO-3-CHLORO-PROPANE 96-12-8 (µg/L)	1,2-DIBROMO-ETHANE 106-93-4 (µg/L)	1,2-DICHLORO-BENZENE 95-50-1 (µg/L)	1,2-DICHLORO-ETHANE 107-06-2 (µg/L)	1,2-DICHLORO-PROPANE 78-87-5 (µg/L)	1,4-DICHLORO-BENZENE 106-46-7 (µg/L)
SW-E	12/22/2014	SVE-141222Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W1	12/17/2014	SVW1141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	12/17/2014	SVW2141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	12/17/14	SVW3141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	12/16/14	VTRP141217-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	12/19/14	VTRP141222B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	2-BUTANONE 78-93-3 (mg/L)	2-HEXANONE 591-78-6 (mg/L)	4-METHYL-2-PENTANONE 108-10-1 (mg/L)	ACETONE 67-64-1 (mg/L)	ACRYLO-NITRILE 107-13-1 (mg/L)	BENZENE 71-43-2 (mg/L)	BROMO-CHLORO- 74-97-5 (mg/L)	BROMO-DICHLORO- 75-27-4 (mg/L)	BROMOFORM 75-25-2 (mg/L)	BROMO-METHANE 74-83-9 (mg/L)	CARBON DISULFIDE 75-15-0 (mg/L)	CARBON TETRA- 56-23-5 (mg/L)	CHLORO-BENZENE 108-90-7 (mg/L)
SW-E	12/22/2014	SVE-141222Q	< 4 U	< 4 U	< 4 U	8.8 T	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W1	12/17/2014	SVW1141217Q	< 4 U	< 4 U	< 4 U	5.6 T	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	12/17/2014	SVW2141217Q	< 4 U	< 4 U	< 4 U	8.2 T	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	12/17/2014	SVW3141217Q	< 4 U	< 4 U	< 4 U	5.2 T	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	12/16/2014	VTRP141217-	< 4 U	< 4 U	< 4 U	< 4 U	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	12/19/2014	VTRP141222B	< 4 U	< 4 U	< 4 U	4 T	< 0.07 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	CHLORO-DIBROMO-METHANE 124-48-1 (mg/L)	CHLORO-ETHANE 75-00-3 (mg/L)	CHLOROFORM 67-66-3 (mg/L)	CHLORO-METHANE 74-87-3 (mg/L)	CIS-1,2-DICHLORO-ETHENE 156-59-2 (mg/L)	CIS-1,3-DICHLORO-PROPENE 10061-01-5 (mg/L)	DIBROMO-METHANE 74-95-3 (mg/L)	DICHLORO-DIFLUORO-METHANE 75-71-8 (mg/L)	ETHYL-BENZENE 100-41-4 (mg/L)	M & P XYLENE MPX (mg/L)	METHYL IODIDE 74-88-4 (mg/L)	METHYLENE CHLORIDE 75-09-2 (mg/L)	O-XYLENE 95-47-6 (mg/L)
SW-E	12/22/2014	SVE-141222Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W1	12/17/2014	SVW1141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W2	12/17/2014	SVW2141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
SW-W3	12/17/2014	SVW3141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	12/16/2014	VTRP141217-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
VOA TRIP BLANK	12/19/2014	VTRP141222B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	STYRENE 100-42-5 (mg/L)	TETRA-CHLORO-ETHENE 127-18-4 (mg/L)	TOLUENE 108-88-3 (mg/L)	TRANS-1,2-DICHLORO-ETHENE 156-60-5 (mg/L)	TRANS-1,3-DICHLORO-PROPENE 10061-02-6 (mg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (mg/L)	TRICHLORO-ETHENE 79-01-6 (mg/L)	TRICHLORO-FLUORO-METHANE 75-69-4 (mg/L)	VINYL ACETATE 108-05-4 (mg/L)	VINYL CHLORIDE 75-01-4 (mg/L)
SW-E	12/22/2014	SVE-141222Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
SW-W1	12/17/2014	SVW1141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
SW-W2	12/17/2014	SVW2141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
SW-W3	12/17/2014	SVW3141217Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	0.0495
VOA TRIP BLANK	12/16/2014	VTRP141217-	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
VOA TRIP BLANK	12/19/2014	VTRP141222B	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Surface Water Analysis Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	2,4,5-T 93-76-5 (µg/L)	2,4,5-TP 93-76-5 (µg/L)	2,4-D 94-75-7 (µg/L)	Dinoseb 88-85-7 (µg/L)	Endrin 72-20-8 (µg/L)	Lindane 58-89-9 (µg/L)	Methoxy-chlor 72-43-5 (µg/L)	Toxaphene 8001-35-2 (µg/L)
SW-W1	12/17/2014	SVW1141217Q	< 2 U	< 1 U	< 5 U	< 1 GU	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-W2	12/17/2014	SVW2141217Q	< 2 U	< 1 U	< 5 U	< 1 GU	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-W3	12/17/2014	SVW3141217Q	< 2 U	< 1 U	< 5 U	< 1 GU	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U
SW-E	12/22/2014	SVE-141222Q	< 2 U	< 1 U	< 5 U	< 1 U	< 0.1 U	< 0.025 U	< 2 U	< 2.5 U

King County Solid Waste Division
Environmental Monitoring Data
Data Collected from October 1, 2014 to December 31, 2014
Vashon Landfill --- Leachate Field Data
Contact Person: Sendy Jimenez (206) 296-4411

Site	Date	Sample ID	pH (Field) (std. Units)	Temperature (°C)	Conductance (Field) (µmho/cm)
LS-B	11/18/2014	LVB-141118Q	7.47	7.3	2150
LS-LVT	12/18/2014	LVT-141218P	8.4	8.5	285
LS-PS1	11/18/2014	LVP-141118Q	7.37	3.3	295

King County Solid Waste Division
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Site	Date	Sample ID	ALKALINITY, TOTAL (AS CACO3) (mg/l)	AMMONIA AS N (mg/l)	BIOLOGICAL OXYGEN DEMAND (mg/l)	CHEMICAL OXYGEN DEMAND (mg/l)	CHLORIDE (mg/l)	COLIFORMS, FECAL (cfu/100ml)	COLIFORMS, TOTAL (cfu/100ml)	CYANIDE (mg/l)	FLUORIDE (mg/l)
LS-B	11/18/14	LVB-141118Q	110	< 0.01 U	6.19	36.8	378	4	50	< 0.02 U	0.12 T
LS-PS1	11/18/14	LVP-141118Q	99.2	0.014 T	4.72	24.4	26.4	6	120	< 0.02 U	< 0.1 U

Site	Date	Sample ID	NITRATE + NITRITE AS N (mg/l)	PHOSPHORUS, SOLUBLE REACTIVE (umhos/cm)	SPECIFIC CONDUCTANCE (mg/l)	SULFATE (mg/l)	SULFIDE, TOTAL (mg/l)	TOTAL FATS, OILS & GREASE (mg/l)	TOTAL KJELDAHL NITROGEN (mg/l)	TOTAL ORGANIC CARBON (mg/l)	TOTAL ORGANIC HALIDES (mg/l)
LS-B	9/29/14	LVB-140929Q	91.9	0.0121	2960	677	< 0.01 U	2 BT	1.12	14.9	
LS-PS1	9/29/14	LVP-140929Q	0.913	< 0.01 U	357	35.5	< 0.01 U	< 2 U	1.23	8.18	

Site	Date	Sample ID	TOTAL SUSPENDED SOLIDS (mg/l)	TOTAL VOLATILE SOLIDS (mg/l)	VOLATILE SUSPENDED SOLIDS (mg/l)
LS-B	9/29/14	LVB-140929Q	23.3	779	5.18
LS-PS1	9/29/14	LVP-140929Q	21.6	87.3	14.6

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Site	Date	Sample ID	Aluminum, total (mg/L)	Antimony, total (mg/L)	Arsenic, total (mg/L)	Barium, total (mg/L)	Beryllium, total (mg/L)	Cadmium, total (mg/L)	Calcium, total (mg/L)	Chromium, total (mg/L)	Cobalt, total (mg/L)	Copper, total (mg/L)	Iron, total (mg/L)
LS-B	11/18/2014	LVB-141118Q	< 0.02 U	< 0.001 U	< 0.001 U	0.0556	< 0.001 U	< 0.002 U	208	< 0.005 U	0.004 T	0.0052 T	0.513
LS-PS1	11/18/2014	LVP-141118Q	0.27 T	< 0.001 U	< 0.001 U	0.0287	< 0.001 U	< 0.002 U	35	< 0.005 U	< 0.003 U	0.0041 T	0.627
LS-LVT	12/18/2014	LVT-141218P			< 0.001 U			< 0.002 U		< 0.005 U		< 0.002 U	

Site	Date	Sample ID	Lead, total (mg/L)	Magnesium, total (mg/L)	Manganese, total (mg/L)	Mercury, total (mg/L)	Nickel, total (mg/L)	Potassium, total (mg/L)	Selenium, total (mg/L)	Silver, total (mg/L)	Sodium, total (mg/L)	Thallium, total (mg/L)	Tin, total (mg/L)
LS-B	11/18/2014	LVB-141118Q	< 0.001 U	124	0.0591	< 0.0001 U	0.0498	33.4	< 0.001 U	< 0.003 U	243	< 0.001 U	< 0.01 U
LS-PS1	11/18/2014	LVP-141118Q	< 0.001 U	11.5	0.26	< 0.0001 U	< 0.01 U	4.51	< 0.001 U	< 0.003 U	19.2	< 0.001 U	< 0.01 U
LS-LVT	12/18/2014	LVT-141218P	< 0.001 U				< 0.01 U			< 0.003 U			

Site	Date	Sample ID	Vanadium, total (mg/L)	Zinc, total (mg/L)
LS-B	11/18/2014	LVB-141118Q	< 0.002 U	0.02 T
LS-PS1	11/18/2014	LVP-141118Q	< 0.002 U	0.015 T
LS-LVT	12/18/2014	LVT-141218P		0.0096 T

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Site	Date	Sample ID	1,1,1,2-TETRACHLOROETHANE ug/l N	1,1,1-TRICHLOROETHANE ug/l N	1,1,2,2-TETRACHLOROETHANE ug/l N	1,1,2-TRICHLOROETHANE ug/l N	1,1-DICHLOROETHANE ug/l N	1,1-DICHLOROETHENE ug/l N	1,1-DICHLOROPROPENE ug/l N	1,2,3-TRICHLOROPROPANE ug/l N	1,2-DIBROMO-3-CHLOROPROPANE ug/l N	1,2-DIBROMOETHANE ug/l N	1,2-DICHLOROBENZENE ug/l N	1,2-DICHLOROETHANE ug/l N	1,2-DICHLOROPROPANE ug/l N
LS-B	11/18/14	LVB-141118Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U
LS-PS1	11/18/14	LVP-141118Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 1 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Site	Date	Sample ID	1,3-DICHLOROBENZENE 541-73-1 (µg/L)	1,3-DICHLOROPROPANE 142-28-9 (µg/L)	1,4-DICHLOROBENZENE 106-46-7 (µg/L)	2,2-DICHLOROPROPANE 594-20-7 (µg/L)	2-BUTANONE 78-93-3 (µg/L)	2-HEXANONE 591-78-6 (µg/L)	2-METHYL-1-PROPANOL 78-83-1 (µg/L)	3-CHLOROPROPENE 107-05-1 (µg/L)	4-METHYL-2-PENTANONE 108-10-1 (µg/L)	ACETONE 67-64-1 (µg/L)	ACETONITRILE 75-05-8 (µg/L)	ACROLEIN 107-02-8 (µg/L)	ACRYLONITRILE 107-13-1 (µg/L)
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U	< 4 U	< 100 U	< 10 U	< 4 U	< 4 U	< 100 U	< 10 U	< 0.07 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 4 U	< 4 U	< 100 U	< 10 U	< 4 U	< 4 U	< 100 U	< 10 U	< 0.07 U

Site	Date	Sample ID	BENZENE 71-43-2 (µg/L)	BROMOCHLOROMETHANE 74-97-5 (µg/L)	BROMODICHLOROMETHANE 75-27-4 (µg/L)	BROMOFORM 75-25-2 (µg/L)	BROMOMETHANE 74-83-9 (µg/L)	CARBON DISULFIDE 75-15-0 (µg/L)	CARBON TETRACHLORIDE 56-23-5 (µg/L)	CHLOROBENZENE 108-90-7 (µg/L)	CHLORODIBROMOMETHANE 124-48-1 (µg/L)	CHLOROETHANE 75-00-3 (µg/L)	CHLOROFORM 67-66-3 (µg/L)	CHLOROMETHANE 74-87-3 (µg/L)	CHLOROPRENE 126-99-8 (µg/L)
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 20 U

Site	Date	Sample ID	CIS-1,2-DICHLOROETHENE 156-59-2 (µg/L)	CIS-1,3-DICHLOROPROPENE 10061-01-5 (µg/L)	DIBROMOMETHANE 74-95-3 (µg/L)	DICHLORODIFLUOROMETHANE 75-71-8 (µg/L)	ETHYLBENZENE 100-41-4 (µg/L)	M & P XYLENE MPX (µg/L)	METHYL IODIDE 74-88-4 (µg/L)	METHYL METHACRYLATE 80-62-6 (µg/L)	METHYLACRYLONITRILE 126-98-7 (µg/L)	METHYLENE CHLORIDE 75-09-2 (µg/L)	O-XYLENE 95-47-6 (µg/L)	PROPRIONITRILE 107-12-0 (µg/L)	STYRENE 100-42-5 (µg/L)
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 U	4.16	< 0.2 U	< 60 U	< 0.2 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 2 U	< 5 U	2.2 T	< 0.2 U	< 60 U	< 0.2 U

Site	Date	Sample ID	TETRACHLOROETHENE 127-18-4 (µg/L)	TOLUENE 108-88-3 (µg/L)	TRANS-1,2-DICHLOROETHENE 156-60-5 (µg/L)	TRANS-1,3-DICHLOROPROPENE 10061-02-6 (µg/L)	TRANS-1,4-DICHLORO-2-BUTENE 110-57-6 (µg/L)	TRICHLOROETHENE 79-01-6 (µg/L)	TRICHLOROFLUOROMETHANE 75-69-4 (µg/L)	VINYL ACETATE 108-05-4 (µg/L)	VINYL CHLORIDE 75-01-4 (µg/L)
LS-B	09/29/14	LVB-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U
LS-PS1	09/29/14	LVP-140929Q	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 100 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.02 U

King County Solid Waste Division
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Vashon Landfill --- Leachate Analysis Data
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Site	Date	Sample ID	2,4,5-T	2,4,5-TP SILVEX	2,4-D	4,4'DDD	4,4'DDE	4,4'DDT	ALDRIN	ALPHA BHC	ALPHA CHLORDANE	AROCLOR 1016	AROCLOR 1221
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	11/18/2014	LVB-141118Q	< 2 U	< 1 U	< 5 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.01 U	< 0.01 U
LS-PS1	11/18/2014	LVP-141118Q	< 2 U	< 1 U	< 5 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.01 U	< 0.01 U

Site	Date	Sample ID	AROCLOR 1232	AROCLOR 1242	AROCLOR 1248	AROCLOR 1254	AROCLOR 1260	BETA BHC	DELTA BHC	DIELDRIN	DINOSEB	ENDOSULFAN I	ENDOSULFAN II
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	11/18/2014	LVB-141118Q	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.025 U	< 0.1 U	< 0.1 U	< 1 U	< 0.1 U	< 0.1 U
LS-PS1	11/18/2014	LVP-141118Q	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.025 U	< 0.1 U	< 0.1 U	< 1 U	< 0.1 U	< 0.1 U

Site	Date	Sample ID	ENDOSULFAN SULFATE	ENDRIN	ENDRIN ALDEHYDE	HEPTACHLOR	HEPTACHLOR EPOXIDE	ISODRIN	LINDANE(GAMMA BHC)	METHOXYCHLOR	TOXAPHENE
			ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
LS-B	11/18/2014	LVB-141118Q	< 0.5 U	< 0.1 U	< 0.2 U	< 0.025 U	< 0.025 U	< 10 U	< 0.025 U	< 2 U	< 2.5 U
LS-PS1	11/18/2014	LVP-141118Q	< 0.5 U	< 0.1 U	< 0.2 U	< 0.025 U	< 0.025 U	< 10 U	< 0.025 U	< 2 U	< 2.5 U

Appendix J

Ion Balance Calculations and Trilinear Diagrams

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 2

Regional Aquifer & Channel Cc3

Site ID			**MW-12**			**MW-19**			**MW-26**			**MW-27**			**MW-29**			**MW-7**		
Date			2/6/2014			2/4/2014			2/4/2014			2/11/2014			2/6/2014			2/10/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.6			7.7			7.7			6.9			7.4			7.8		
Conductance			140			205			150			165			180			155		
TDSobs			113			149			139			130			163			128		
Calcium	40.1	2	8.0	0.3977	28.9	15.6	0.7784	34.4	16.5	0.8234	43.5	12.5	0.6238	34.3	19.9	0.993	39.8	13.8	0.6886	40.1
Magnesium	24.3	2	8.5	0.6986	50.8	13.6	1.1191	49.4	6.9	0.5678	30.0	10.7	0.8805	48.4	13.9	1.1438	45.8	8.3	0.6863	40.0
Potassium	39.1	1	1.8	0.0463	3.4	2.5	0.0642	2.8	3.2	0.0818	4.3	1.4	0.0358	2.0	2.2	0.0555	2.2	2.7	0.0683	4.0
Sodium	23.0	1	5.3	0.231	16.8	6.5	0.2806	12.4	9.4	0.4067	21.5	6.4	0.2784	15.3	6.3	0.2753	11.0	5.8	0.251	14.6
Iron	55.8	2	0.005	0.0002	0.01	0.135	0.0048	0.21	0.069	0.0025	0.13	0.005	0.0002	0.01	0.713	0.0255	1.02	0.005	0.0002	0.01
Manganese	54.9	2	0.001	2E-05	0.00	0.466	0.017	0.75	0.059	0.0021	0.11	0.001	2E-05	0.00	0.096	0.0035	0.14	0.156	0.0057	0.33
Ammonia-N	14.0	1	0.005	0.0004	0.03	0.023	0.0016	0.07	0.127	0.0091	0.48	0.005	0.0004	0.02	0.005	0.0004	0.01	0.235	0.0168	0.98
Total Cations (meq/L)				**1.4**			**2.3**			**1.9**			**1.8**			**2.5**			**1.7**	
Anions																				
Alkalinity, Total			61.5			95.2			77.8			70.3			104			74.9		
Carbonate	60.0	2	0.1401	0.0047	0.3	0.2727	0.0091	0.4	0.2443	0.0081	0.4	0.036	0.0012	0.1	0.143	0.0048	0.2	0.3025	0.0101	0.6
Bicarbonate	61.0	1	74.75	1.2251	76.8	115.59	1.8946	78.6	94.42	1.5476	79.7	85.69	1.4046	73.4	126.59	2.0749	81.7	90.76	1.4877	82.4
Chloride	35.5	1	3.1	0.086	5.4	4.9	0.1388	5.8	3.8	0.1077	5.5	5.3	0.1503	7.9	4.1	0.1151	4.5	3.1	0.0886	4.9
Nitrate-N	14.0	1	0.788	0.0563	3.527	0.010	0.0007	0.030	0.093	0.0067	0.343	1.990	0.1421	7.420	0.005	0.0004	0.014	0.005	0.0004	0.020
Sulfate	96.1	2	10.7	0.2228	14.0	17.7	0.3685	15.3	13.1	0.2728	14.0	10.4	0.2165	11.3	16.6	0.3456	13.6	10.5	0.2186	12.1
Total Anions (meq/L)				**1.6**			**2.4**			**1.9**			**1.9**			**2.5**			**1.8**	
Total Ions (meq/L)				**3.0**			**4.7**			**3.8**			**3.7**			**5.0**			**3.5**	
Cation/Anion Ratio				**0.86**			**0.94**			**0.97**			**0.95**			**0.98**			**0.95**	
Percent Difference				**-7.4**			**-3.1**			**-1.3**			**-2.6**			**-0.9**			**-2.5**	
TRILINEAR DIAGRAM DATA																				
sum (Ca, Mg, Na+K)				1.37			2.24			1.88			1.82			2.47			1.69	
Calcium					28.95			34.72			43.80			34.30			40.24			40.65
Magnesium					50.86			49.91			30.21			48.42			46.35			40.51
Sodium + Potassium					20.19			15.38			25.99			17.28			13.41			18.85
sum (SO_4, Cl, HCO_3+CO_3)				1.54			2.41			1.94			1.77			2.54			1.80	
Sulfate					14.479			15.285			14.087			12.215			13.605			12.112
Chloride					5.591			5.756			5.565			8.481			4.530			4.907
Bicarbonate + Carbonate					79.929			78.959			80.349			79.304			81.865			82.981

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 6

Groundwater Within and BelowChannel Cc2

Site ID			MW-2			MW-20			MW-21			MW-5D			MW-8			MW-9		
Date			2/3/2014			2/13/2014			2/14/2014			2/5/2014			2/5/2014			2/3/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.1			7.9			7.1			6.7			6.6			7.1		
Conductance			340			170			280			230			130			140		
TDSobs			235			132			195			209			123			119		
Calcium	40.1	2	25.6	1.2774	31.3	11.6	0.5788	32.3	19.1	0.9531	31.3	21.8	1.0878	32.1	9.5	0.4746	32.3	8.5	0.4247	26.7
Magnesium	24.3	2	28.4	2.337	57.3	10.7	0.8805	49.2	19.6	1.6128	52.9	16.1	1.3248	39.1	8.6	0.7093	48.3	10.4	0.8558	53.8
Potassium	39.1	1	2.4	0.0622	1.5	2.2	0.0573	3.2	2.2	0.057	1.9	2.4	0.0601	1.8	1.2	0.0294	2.0	2.2	0.0552	3.5
Sodium	23.0	1	9.1	0.3954	9.7	6.0	0.2597	14.5	9.4	0.4106	13.5	13.6	0.5916	17.4	5.9	0.2553	17.4	5.9	0.2549	16.0
Iron	55.8	2	0.012	0.0004	0.01	0.005	0.0002	0.01	0.151	0.0054	0.18	8.490	0.304	8.96	0.005	0.0002	0.01	0.005	0.0002	0.01
Manganese	54.9	2	0.132	0.0048	0.12	0.331	0.012	0.67	0.254	0.0092	0.30	0.556	0.0202	0.60	0.001	2E-05	0.00	0.001	2E-05	0.00
Ammonia-N	14.0	1	0.005	0.0004	0.01	0.013	0.0009	0.05	0.010	0.0007	0.02	0.040	0.0029	0.08	0.005	0.0004	0.02	0.005	0.0004	0.02
Total Cations (meq/L)				**4.1**			**1.8**			**3.0**			**3.4**			**1.5**			**1.6**	
Anions																				
Alkalinity, Total			197			72.8			144			155			56.7			67.3		
Carbonate	60.0	2	0.1359	0.0045	0.1	0.3612	0.012	0.6	0.0993	0.0033	0.1	0.0446	0.0015	0.0	0.0124	0.0004	0.0	0.0475	0.0016	0.1
Bicarbonate	61.0	1	240.06	3.9349	89.2	88.08	1.4437	75.5	175.48	2.8763	86.5	189.01	3.098	91.2	69.15	1.1334	65.9	82.01	1.3442	75.5
Chloride	35.5	1	3.3	0.0934	2.1	3.3	0.092	4.8	2.6	0.0742	2.2	3.2	0.0911	2.7	6.2	0.1757	10.2	5.2	0.1453	8.2
Nitrate-N	14.0	1	0.191	0.0136	0.309	0.010	0.0007	0.037	0.074	0.0053	0.159	0.005	0.0004	0.011	3.360	0.2399	13.945	0.206	0.0147	0.826
Sulfate	96.1	2	17.6	0.3664	8.3	17.5	0.3644	19.0	17.6	0.3664	11.0	10.0	0.2076	6.1	8.2	0.1707	9.9	13.2	0.2748	15.4
Total Anions (meq/L)				**4.4**			**1.9**			**3.3**			**3.4**			**1.7**			**1.8**	
Total Ions (meq/L)				**8.5**			**3.7**			**6.4**			**6.8**			**3.2**			**3.4**	
Cation/Anion Ratio				**0.92**			**0.94**			**0.92**			**1.00**			**0.85**			**0.89**	
Percent Difference				**-3.9**			**-3.3**			**-4.3**			**-0.1**			**-7.9**			**-5.6**	
TRILINEAR DIAGRAM DATA																				
sum (Ca, Mg, Na+K)				4.07			1.78			3.03			3.06			1.47			1.59	
Calcium					31.37			32.59			31.42			35.50			32.31			26.70
Magnesium					57.39			49.57			53.17			43.23			48.30			53.80
Sodium + Potassium					11.24			17.84			15.42			21.27			19.39			19.50
sum (SO_4, Cl, HCO_3+CO_3)				4.40			1.91			3.32			3.40			1.48			1.77	
Sulfate					8.330			19.056			11.037			6.109			11.534			15.564
Chloride					2.122			4.809			2.234			2.681			11.871			8.226
Bicarbonate + Carbonate					89.548			76.135			86.729			91.210			76.595			76.210

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 10

Groundwater Within or Adjacent to Channel Cc1

Site ID				**MW-10**			**MW-13**	
Date				2/3/2014			2/11/2014	
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.0			7.3		
Conductance			120			165		
TDSobs			104			130		
Calcium	40.1	2	8.2	0.4107	28.4	8.7	0.4351	24.8
Magnesium	24.3	2	9.4	0.7702	53.3	12.1	0.9957	56.8
Potassium	39.1	1	1.6	0.0402	2.8	1.9	0.0481	2.7
Sodium	23.0	1	5.2	0.2244	15.5	6.3	0.2732	15.6
Iron	55.8	2	0.005	0.0002	0.01	0.005	0.0002	0.01
Manganese	54.9	2	0.001	2E-05	0.00	0.001	2E-05	0.00
Ammonia-N	14.0	1	0.005	0.0004	0.02	0.005	0.0004	0.02
Total Cations (meq/L)				**1.4**			**1.8**	
Anions								
Alkalinity, Total			57.4			73.7		
Carbonate	60.0	2	0.038	0.0013	0.1	0.0843	0.0028	0.1
Bicarbonate	61.0	1	69.95	1.1466	78.2	89.74	1.471	76.9
Chloride	35.5	1	3.3	0.0925	6.3	3.0	0.0832	4.4
Nitrate-N	14.0	1	0.418	0.0298	2.035	0.055	0.0039	0.204
Sulfate	96.1	2	9.4	0.1963	13.4	16.9	0.3519	18.4
Total Anions (meq/L)				**1.5**			**1.9**	
Total Ions (meq/L)				**2.9**			**3.7**	
Cation/Anion Ratio				**0.99**			**0.92**	
Percent Difference				**-0.7**			**-4.4**	
TRILINEAR DIAGRAM DATA								
sum (Ca, Mg, Na+K)				1.45			1.75	
Calcium					28.41			24.84
Magnesium					53.28			56.83
Sodium + Potassium					18.31			18.34
sum (SO_4, Cl, HCO_3+CO_3)				1.44			1.91	
Sulfate					13.666			18.434
Chloride					6.440			4.359
Bicarbonate + Carbonate					79.894			77.207

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 14

Private Wells

Site ID			DW-85			DW-PA		
Date								
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.5			6.8		
Conductance			140			160		
TDSobs			107			129		
Calcium	40.1	2	12.4	0.6188	42.0	12.1	0.6038	33.2
Magnesium	24.3	2	6.3	0.5159	35.0	10.9	0.8969	49.3
Potassium	39.1	1	2.6	0.0668	4.5	1.6	0.0419	2.3
Sodium	23.0	1	5.8	0.251	17.0	6.4	0.2762	15.2
Iron	55.8	2	0.061	0.0022	0.15	0.005	0.0002	0.01
Manganese	54.9	2	0.054	0.002	0.13	0.001	2E-05	0.00
Ammonia-N	14.0	1	0.246	0.0176	1.19	0.005	0.0004	0.02
Total Cations (meq/L)				**1.5**			**1.8**	
Anions								
Alkalinity, Total			71.5			71.2		
Carbonate	60.0	2	0.1486	0.005	0.3	0.0296	0.001	0.1
Bicarbonate	61.0	1	86.93	1.4248	91.4	86.80	1.4228	73.6
Chloride	35.5	1	2.7	0.0767	4.9	5.8	0.1622	8.4
Nitrate-N	14.0	1	0.005	0.0004	0.023	0.851	0.0608	3.145
Sulfate	96.1	2	2.5	0.0521	3.3	13.7	0.2852	14.8
Total Anions (meq/L)				**1.6**			**1.9**	
Total Ions (meq/L)				**3.0**			**3.8**	
Cation/Anion Ratio				**0.95**			**0.94**	
Percent Difference				**-2.8**			**-3.0**	
TRILINEAR DIAGRAM DATA								
sum (Ca, Mg, Na+K)				1.45			1.82	
Calcium					42.60			33.20
Magnesium					35.52			49.31
Sodium + Potassium					21.88			17.49
sum (SO_4, Cl, HCO_3+CO_3)				1.56			1.87	
Sulfate					3.340			15.244
Chloride					4.923			8.667
Bicarbonate + Carbonate					91.738			76.089

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 2

Regional Aquifer & Channel Cc3

Site ID			MW-12			MW-19			MW-26			MW-27			MW-29			MW-7		
Date			5/9/2014			5/9/2014			5/8/2014			5/7/2014			5/8/2014			5/6/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.1			7.6			8.1			6.5			0.0			7.2		
Conductance			156			233			189			190			190			140		
TDSobs			112			158			133			137			161			124		
Calcium	40.1	2	9.8	0.491	33.2	14.8	0.7385	31.7	15.9	0.7934	41.8	12.5	0.6238	33.7	19.1	0.9531	36.7	13.1	0.6537	38.4
Magnesium	24.3	2	8.6	0.706	47.7	14.6	1.2014	51.6	7.1	0.5851	30.8	11.0	0.9052	48.9	14.4	1.1849	45.6	8.5	0.6978	41.0
Potassium	39.1	1	1.8	0.0453	3.1	2.5	0.0634	2.7	3.1	0.0783	4.1	1.4	0.0353	1.9	2.2	0.055	2.1	2.6	0.0665	3.9
Sodium	23.0	1	5.5	0.2371	16.0	7.0	0.3032	13.0	9.6	0.4167	21.9	6.6	0.2862	15.5	6.6	0.2871	11.0	5.9	0.2553	15.0
Iron	55.8	2	0.005	0.0002	0.01	0.103	0.0037	0.16	0.147	0.0053	0.28	0.005	0.0002	0.01	3.190	0.1142	4.40	0.011	0.0004	0.02
Manganese	54.9	2	0.001	2E-05	0.00	0.471	0.0171	0.74	0.063	0.0023	0.12	0.001	2E-05	0.00	0.114	0.0042	0.16	0.167	0.0061	0.36
Ammonia-N	14.0	1	0.013	0.0009	0.06	0.032	0.0022	0.10	0.258	0.0184	0.97	0.005	0.0004	0.02	0.005	0.0004	0.01	0.289	0.0206	1.21
Total Cations (meq/L)				**1.5**			**2.3**			**1.9**			**1.9**			**2.6**			**1.7**	
Anions																				
Alkalinity, Total			58.5			92.6			74.8			69.8			103			73.3		
Carbonate	60.0	2	0.0422	0.0014	0.1	0.2208	0.0074	0.3	0.5224	0.0174	0.9	0.0133	0.0004	0.0	6E-09	2E-10	0.0	0.0622	0.0021	0.1
Bicarbonate	61.0	1	71.28	1.1684	76.1	112.52	1.8444	78.5	90.19	1.4784	78.7	85.13	1.3953	73.7	125.66	2.0597	82.0	89.30	1.4637	80.3
Chloride	35.5	1	3.2	0.09	5.9	4.8	0.1351	5.8	3.8	0.1058	5.6	5.5	0.1543	8.1	3.8	0.1058	4.2	3.9	0.1109	6.1
Nitrate-N	14.0	1	0.711	0.0508	3.306	0.005	0.0004	0.015	0.013	0.0009	0.049	1.750	0.1249	6.598	0.005	0.0004	0.014	0.127	0.0091	0.497
Sulfate	96.1	2	10.8	0.2249	14.6	17.4	0.3623	15.4	13.2	0.2748	14.6	10.5	0.2186	11.5	16.6	0.3456	13.8	11.4	0.2374	13.0
Total Anions (meq/L)				**1.5**			**2.3**			**1.9**			**1.9**			**2.5**			**1.8**	
Total Ions (meq/L)				**3.0**			**4.7**			**3.8**			**3.7**			**5.1**			**3.5**	
Cation/Anion Ratio				**0.96**			**0.99**			**1.01**			**0.98**			**1.03**			**0.93**	
Percent Difference				**-1.8**			**-0.4**			**0.6**			**-1.1**			**1.7**			**-3.5**	
TRILINEAR DIAGRAM DATA																				
sum (Ca, Mg, Na+K)				1.48			2.31			1.87			1.85			2.48			1.67	
Calcium					33.19			32.02			42.35			33.71			38.43			39.07
Magnesium					47.72			52.09			31.23			48.92			47.78			41.70
Sodium + Potassium					19.08			15.89			26.42			17.37			13.79			19.23
sum (SO_4, Cl, HCO_3+CO_3)				1.48			2.35			1.88			1.77			2.51			1.81	
Sulfate					15.146			15.422			14.647			12.360			13.764			13.085
Chloride					6.061			5.751			5.637			8.723			4.212			6.111
Bicarbonate + Carbonate					78.794			78.826			79.716			78.916			82.024			80.804

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 6

Groundwater Within and BelowChannel Cc2

Site ID			MW-2			MW-20			MW-21			MW-5D			MW-8			MW-9		
Date			5/13/2014			5/12/2014			5/12/2014			5/9/2014			5/2/2014			5/2/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			6.8			7.5			6.8			6.5			6.8			7.1		
Conductance			404			182			327			285			170			175		
TDSobs			243			135			212			204			125			129		
Calcium	40.1	2	25.0	1.2475	29.1	12.3	0.6138	34.1	21.0	1.0479	30.4	19.0	0.9481	29.9	11.2	0.5589	34.3	11.8	0.5888	33.9
Magnesium	24.3	2	30.9	2.5427	59.3	10.4	0.8558	47.6	22.6	1.8597	53.9	15.2	1.2508	39.5	9.3	0.7686	47.1	10.3	0.8476	48.8
Potassium	39.1	1	2.5	0.0627	1.5	2.2	0.0565	3.1	2.4	0.0611	1.8	2.2	0.0568	1.8	1.1	0.0292	1.8	2.1	0.0524	3.0
Sodium	23.0	1	9.8	0.428	10.0	6.0	0.2606	14.5	10.3	0.448	13.0	14.0	0.609	19.2	6.3	0.2736	16.8	5.7	0.2488	14.3
Iron	55.8	2	0.005	0.0002	0.00	0.021	0.0008	0.04	0.505	0.0181	0.52	7.870	0.2818	8.90	0.005	0.0002	0.01	0.015	0.0005	0.03
Manganese	54.9	2	0.120	0.0044	0.10	0.296	0.0108	0.60	0.350	0.0127	0.37	0.503	0.0183	0.58	0.001	2E-05	0.00	0.001	2E-05	0.00
Ammonia-N	14.0	1	0.020	0.0014	0.03	0.022	0.0016	0.09	0.019	0.0014	0.04	0.044	0.0031	0.10	0.005	0.0004	0.02	0.005	0.0004	0.02
Total Cations (meq/L)				**4.3**			**1.8**			**3.4**			**3.2**			**1.6**			**1.7**	
Anions																				
Alkalinity, Total			196			69.6			155			133			57			67.8		
Carbonate	60.0	2	0.0694	0.0023	0.1	0.126	0.0042	0.2	0.0588	0.002	0.1	0.0271	0.0009	0.0	0.0211	0.0007	0.0	0.0549	0.0018	0.1
Bicarbonate	61.0	1	238.98	3.9171	88.1	84.66	1.3876	75.2	188.98	3.0976	86.1	162.20	2.6587	90.2	69.50	1.1391	68.5	82.60	1.354	76.4
Chloride	35.5	1	3.6	0.1004	2.3	3.3	0.0925	5.0	4.2	0.1182	3.3	3.1	0.0869	2.9	4.7	0.1314	7.9	4.3	0.1207	6.8
Nitrate-N	14.0	1	0.946	0.0675	1.519	0.023	0.0016	0.089	0.084	0.006	0.166	0.005	0.0004	0.012	3.020	0.2156	12.958	0.207	0.0148	0.834
Sulfate	96.1	2	17.2	0.3581	8.1	17.3	0.3602	19.5	17.9	0.3727	10.4	9.6	0.1993	6.8	8.5	0.177	10.6	13.5	0.2811	15.9
Total Anions (meq/L)				**4.4**			**1.8**			**3.6**			**2.9**			**1.7**			**1.8**	
Total Ions (meq/L)				**8.7**			**3.6**			**7.0**			**6.1**			**3.3**			**3.5**	
Cation/Anion Ratio				**0.96**			**0.97**			**0.96**			**1.08**			**0.98**			**0.98**	
Percent Difference				**-1.8**			**-1.3**			**-2.1**			**3.6**			**-1.0**			**-1.0**	
TRILINEAR DIAGRAM DATA																				
sum (Ca, Mg, Na+K)				4.28			1.79			3.42			2.86			1.63			1.74	
Calcium					29.14			34.35			30.67			33.10			34.28			33.89
Magnesium					59.40			47.90			54.43			43.66			47.15			48.78
Sodium + Potassium					11.46			17.75			14.90			23.24			18.57			17.34
sum (SO_4, Cl, HCO_3+CO_3)				4.38			1.84			3.59			2.95			1.45			1.76	
Sulfate					8.180			19.528			10.380			6.764			12.220			15.992
Chloride					2.294			5.016			3.292			2.949			9.076			6.869
Bicarbonate + Carbonate					89.526			75.456			86.328			90.287			78.704			77.139

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 10

Groundwater Within or Adjacent to Channel Cc1

Site ID			**MW-10**			**MW-13**		
Date			5/8/2014			5/7/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.0			6.9		
Conductance			145			183		
TDSobs			108			131		
Calcium	40.1	2	8.8	0.4381	30.9	9.9	0.4925	26.5
Magnesium	24.3	2	8.9	0.7299	51.5	12.5	1.0286	55.4
Potassium	39.1	1	1.4	0.0366	2.6	1.9	0.0473	2.5
Sodium	23.0	1	4.9	0.2131	15.0	6.6	0.2849	15.4
Iron	55.8	2	0.012	0.0004	0.03	0.062	0.0022	0.12
Manganese	54.9	2	0.001	2E-05	0.00	0.004	0.0002	0.01
Ammonia-N	14.0	1	0.005	0.0004	0.03	0.005	0.0004	0.02
Total Cations (meq/L)				**1.4**			**1.9**	
Anions								
Alkalinity, Total			56.7			67.2		
Carbonate	60.0	2	0.037	0.0012	0.1	0.0299	0.001	0.1
Bicarbonate	61.0	1	69.10	1.1326	78.2	81.92	1.3428	77.2
Chloride	35.5	1	3.3	0.092	6.4	3.1	0.0872	5.0
Nitrate-N	14.0	1	0.424	0.0303	2.090	0.089	0.0064	0.366
Sulfate	96.1	2	9.2	0.192	13.3	14.5	0.3019	17.4
Total Anions (meq/L)				**1.4**			**1.7**	
Total Ions (meq/L)				**2.9**			**3.6**	
Cation/Anion Ratio				**0.98**			**1.07**	
Percent Difference				**-1.0**			**3.2**	
TRILINEAR DIAGRAM DATA								
sum (Ca, Mg, Na+K)				1.42			1.85	
Calcium					30.90			26.57
Magnesium					51.48			55.50
Sodium + Potassium					17.61			17.93
sum (SO_4, Cl, HCO_3+CO_3)				1.42			1.73	
Sulfate					13.540			17.422
Chloride					6.486			5.030
Bicarbonate + Carbonate					79.974			77.548

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 2

Regional Aquifer & Channel Cc3

Site ID			MW-12			MW-19			MW-26			MW-27			MW-29			MW-7		
Date			8/7/2014			8/8/2014			8/8/2014			8/8/2014			8/8/2014			8/18/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.6			7.8			8.1			6.6			7.5			7.5		
Conductance			140			205			200			140			265			140		
TDSobs			113			160			138			146			162			136		
Calcium	40.1	2	9.8	0.49	31.1	14.5	0.7236	29.5	15.2	0.7585	39.8	12.0	0.5988	31.7	18.5	0.9232	34.5	13.7	0.6836	40.4
Magnesium	24.3	2	9.6	0.7908	50.2	16.0	1.3166	53.7	7.6	0.6213	32.6	11.7	0.9628	51.0	15.9	1.3084	48.9	8.2	0.6715	39.7
Potassium	39.1	1	1.9	0.0494	3.1	2.7	0.0688	2.8	3.3	0.0839	4.4	1.5	0.0376	2.0	2.4	0.0604	2.3	2.6	0.066	3.9
Sodium	23.0	1	5.6	0.2445	15.5	7.1	0.3093	12.6	9.6	0.4158	21.8	6.6	0.2875	15.2	6.6	0.2853	10.7	5.7	0.2462	14.5
Iron	55.8	2	0.005	0.0002	0.01	0.339	0.0121	0.49	0.143	0.0051	0.27	0.005	0.0002	0.01	2.680	0.096	3.58	0.013	0.0005	0.03
Manganese	54.9	2	0.001	2E-05	0.00	0.547	0.0199	0.81	0.069	0.0025	0.13	0.001	2E-05	0.00	0.107	0.0039	0.15	0.168	0.0061	0.36
Ammonia-N	14.0	1	0.005	0.0004	0.02	0.035	0.0025	0.10	0.269	0.0192	1.01	0.013	0.0009	0.05	0.005	0.0004	0.01	0.257	0.0183	1.08
Total Cations (meq/L)				**1.6**			**2.5**			**1.9**			**1.9**			**2.7**			**1.7**	
Anions																				
Alkalinity, Total			60.2			92.1			74.1			59.6			103			77.5		
Carbonate	60.0	2	0.1538	0.0051	0.3	0.3243	0.0108	0.5	0.5059	0.0169	0.9	0.0153	0.0005	0.0	0.1865	0.0062	0.2	0.1574	0.0052	0.3
Bicarbonate	61.0	1	73.13	1.1987	76.7	111.70	1.8309	78.4	89.37	1.4649	78.8	72.68	1.1913	69.8	125.28	2.0535	82.0	94.23	1.5445	82.8
Chloride	35.5	1	3.0	0.0846	5.4	4.6	0.1303	5.6	3.7	0.103	5.5	5.5	0.1537	9.0	3.6	0.1007	4.0	3.5	0.0996	5.3
Nitrate-N	14.0	1	0.763	0.0545	3.484	0.005	0.0004	0.015	0.016	0.0011	0.061	2.100	0.1499	8.789	0.005	0.0004	0.014	0.018	0.0013	0.069
Sulfate	96.1	2	10.6	0.2207	14.1	17.5	0.3644	15.6	13.1	0.2728	14.7	10.1	0.2103	12.3	16.5	0.3435	13.7	10.3	0.2145	11.5
Total Anions (meq/L)				**1.6**			**2.3**			**1.9**			**1.7**			**2.5**			**1.9**	
Total Ions (meq/L)				**3.1**			**4.8**			**3.8**			**3.6**			**5.2**			**3.6**	
Cation/Anion Ratio				**1.01**			**1.05**			**1.03**			**1.11**			**1.07**			**0.91**	
Percent Difference				**0.4**			**2.4**			**1.3**			**5.1**			**3.3**			**-4.9**	
TRILINEAR DIAGRAM DATA																				
sum (Ca, Mg, Na+K)				1.57			2.42			1.88			1.89			2.58			1.67	
Calcium					31.12			29.92			40.36			31.74			35.82			41.00
Magnesium					50.22			54.44			33.06			51.03			50.77			40.27
Sodium + Potassium					18.66			15.63			26.59			17.23			13.41			18.72
sum (SO_4, Cl, HCO_3+CO_3)				1.51			2.34			1.86			1.56			2.50			1.86	
Sulfate					14.624			15.595			14.684			13.516			13.720			11.506
Chloride					5.607			5.578			5.543			9.881			4.022			5.342
Bicarbonate + Carbonate					79.769			78.827			79.773			76.603			82.258			83.151

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 6

Groundwater Within and BelowChannel Cc2

Site ID			MW-2			MW-20			MW-21			MW-5D			MW-8			MW-9		
Date			8/4/2014			8/4/2014			8/7/2014			8/7/2014			8/5/2014			8/5/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.0			7.6			6.9			6.6			7.2			7.3		
Conductance			325			150			250			210			165			165		
TDSobs			246			134			208			208			124			127		
Calcium	40.1	2	24.4	1.2176	30.1	12.2	0.6088	34.8	20.8	1.0379	27.9	18.8	0.9381	27.7	10.7	0.5339	32.1	11.9	0.5938	32.3
Magnesium	24.3	2	28.6	2.3534	58.3	10.0	0.8221	47.0	25.7	2.1148	56.8	17.8	1.4647	43.3	10.0	0.8229	49.5	11.3	0.9298	50.5
Potassium	39.1	1	2.3	0.0598	1.5	2.1	0.0542	3.1	2.6	0.0655	1.8	2.5	0.0637	1.9	1.2	0.0315	1.9	2.2	0.057	3.1
Sodium	23.0	1	9.3	0.4037	10.0	5.7	0.2458	14.1	10.7	0.4654	12.5	13.7	0.5959	17.6	6.3	0.274	16.5	5.9	0.2584	14.0
Iron	55.8	2	0.005	0.0002	0.00	0.043	0.0015	0.09	0.687	0.0246	0.66	8.300	0.2972	8.79	0.016	0.0006	0.03	0.026	0.0009	0.05
Manganese	54.9	2	0.121	0.0044	0.11	0.392	0.0143	0.82	0.404	0.0147	0.40	0.557	0.0203	0.60	0.001	2E-05	0.00	0.001	2E-05	0.00
Ammonia-N	14.0	1	0.005	0.0004	0.01	0.025	0.0018	0.10	0.005	0.0004	0.01	0.019	0.0014	0.04	0.005	0.0004	0.02	0.005	0.0004	0.02
Total Cations (meq/L)				**4.0**			**1.7**			**3.7**			**3.4**			**1.7**			**1.8**	
Anions																				
Alkalinity, Total			190			71.5			157			137			55.9			69.5		
Carbonate	60.0	2	0.1018	0.0034	0.1	0.1592	0.0053	0.3	0.0684	0.0023	0.1	0.036	0.0012	0.0	0.0474	0.0016	0.1	0.0852	0.0028	0.2
Bicarbonate	61.0	1	231.59	3.796	88.2	86.91	1.4245	75.3	191.40	3.1372	87.0	167.07	2.7384	90.3	68.10	1.1163	67.4	84.62	1.387	76.1
Chloride	35.5	1	3.4	0.0959	2.2	3.5	0.0979	5.2	3.1	0.0883	2.4	3.3	0.0931	3.1	4.7	0.1317	8.0	4.4	0.1247	6.8
Nitrate-N	14.0	1	0.528	0.0377	0.875	0.027	0.0019	0.102	0.096	0.0069	0.191	0.021	0.0015	0.049	3.310	0.2363	14.276	0.225	0.0161	0.882
Sulfate	96.1	2	17.9	0.3727	8.7	17.4	0.3623	19.1	17.9	0.3727	10.3	9.6	0.1999	6.6	8.1	0.1695	10.2	14.0	0.2915	16.0
Total Anions (meq/L)				**4.3**			**1.9**			**3.6**			**3.0**			**1.7**			**1.8**	
Total Ions (meq/L)				**8.3**			**3.6**			**7.3**			**6.4**			**3.3**			**3.7**	
Cation/Anion Ratio				**0.94**			**0.92**			**1.03**			**1.11**			**1.00**			**1.01**	
Percent Difference				**-3.2**			**-3.9**			**1.6**			**5.4**			**0.2**			**0.5**	
TRILINEAR DIAGRAM DATA																				
sum (Ca, Mg, Na+K)				4.03			1.73			3.68			3.06			1.66			1.84	
Calcium					30.18			35.17			28.18			30.63			32.12			32.29
Magnesium					58.33			47.50			57.41			47.83			49.50			50.56
Sodium + Potassium					11.49			17.33			14.41			21.54			18.38			17.15
sum (SO_4, Cl, HCO_3+CO_3)				4.27			1.89			3.60			3.03			1.42			1.81	
Sulfate					8.732			19.169			10.351			6.591			11.943			16.141
Chloride					2.247			5.179			2.452			3.069			9.283			6.903
Bicarbonate + Carbonate					89.021			75.652			87.197			90.339			78.774			76.956

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 10

Groundwater Within or Adjacent to Channel Cc1

Site ID			**MW-10**			**MW-13**		
Date			8/4/2014			8/8/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.0			7.0		
Conductance			115			130		
TDSobs			104			136		
Calcium	40.1	2	8.7	0.4346	32.3	9.4	0.4701	24.9
Magnesium	24.3	2	8.2	0.6739	50.1	13.1	1.078	57.0
Potassium	39.1	1	1.4	0.0361	2.7	2.0	0.0514	2.7
Sodium	23.0	1	4.6	0.1983	14.8	6.6	0.2849	15.1
Iron	55.8	2	0.017	0.0006	0.05	0.166	0.0059	0.31
Manganese	54.9	2	0.002	6E-05	0.00	0.008	0.0003	0.02
Ammonia-N	14.0	1	0.015	0.0011	0.08	0.005	0.0004	0.02
Total Cations (meq/L)				**1.3**			**1.9**	
Anions								
Alkalinity, Total			56.9			68.8		
Carbonate	60.0	2	0.035	0.0012	0.1	0.0386	0.0013	0.1
Bicarbonate	61.0	1	69.35	1.1367	78.0	83.86	1.3745	77.4
Chloride	35.5	1	3.2	0.0908	6.2	3.0	0.0832	4.7
Nitrate-N	14.0	1	0.570	0.0407	2.794	0.079	0.0057	0.319
Sulfate	96.1	2	9.0	0.1872	12.9	14.9	0.3102	17.5
Total Anions (meq/L)				**1.5**			**1.8**	
Total Ions (meq/L)				**2.8**			**3.7**	
Cation/Anion Ratio				**0.92**			**1.07**	
Percent Difference				**-4.0**			**3.2**	
TRILINEAR DIAGRAM DATA								
sum (Ca, Mg, Na+K)				1.34			1.88	
Calcium					32.36			24.95
Magnesium					50.18			57.21
Sodium + Potassium					17.45			17.85
sum (SO_4, Cl, HCO_3+CO_3)				1.42			1.77	
Sulfate					13.220			17.535
Chloride					6.415			4.703
Bicarbonate + Carbonate					80.365			77.762

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 14

Private Wells

Site ID			DW-85			DW-PA		
Date								
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.7			6.9		
Conductance			120			170		
TDSobs			113			154		
Calcium	40.1	2	14.1	0.7036	46.1	13.8	0.6886	35.9
Magnesium	24.3	2	6.0	0.4937	32.4	11.1	0.9134	47.6
Potassium	39.1	1	2.4	0.0601	3.9	1.4	0.0366	1.9
Sodium	23.0	1	5.6	0.2436	16.0	6.5	0.2806	14.6
Iron	55.8	2	0.071	0.0025	0.17	0.015	0.0005	0.03
Manganese	54.9	2	0.048	0.0018	0.12	0.003	1E-04	0.01
Ammonia-N	14.0	1	0.275	0.0196	1.29	0.005	0.0004	0.02
Total Cations (meq/L)				**1.5**			**1.9**	
Anions								
Alkalinity, Total			60.9			67.6		
Carbonate	60.0	2	0.1705	0.0057	0.4	0.0338	0.0011	0.1
Bicarbonate	61.0	1	73.95	1.2121	89.7	82.40	1.3507	72.6
Chloride	35.5	1	2.8	0.0787	5.8	5.8	0.1633	8.8
Nitrate-N	14.0	1	0.005	0.0004	0.026	1.140	0.0814	4.374
Sulfate	96.1	2	2.7	0.0552	4.1	12.7	0.2644	14.2
Total Anions (meq/L)				**1.4**			**1.9**	
Total Ions (meq/L)				**2.9**			**3.8**	
Cation/Anion Ratio				**1.13**			**1.03**	
Percent Difference				**6.0**			**1.6**	
TRILINEAR DIAGRAM DATA								
sum (Ca, Mg, Na+K)				1.50			1.92	
Calcium					46.87			35.88
Magnesium					32.89			47.59
Sodium + Potassium					20.23			16.52
sum (SO_4, Cl, HCO_3+CO_3)				1.35			1.78	
Sulfate					4.082			14.859
Chloride					5.822			9.177
Bicarbonate + Carbonate					90.096			75.963

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 2

Regional Aquifer & Channel Cc3

Site ID			MW-12			MW-19			MW-26		
Date			11/4/2014			12/5/2014			11/13/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			7.2			7.7			7.4		
Conductance			130			190			160		
TDSobs			104			141			138		
Calcium	40.1	2	10.2	0.509	36.0	14.2	0.7086	33.9	15.0	0.7485	44.0
Magnesium	24.3	2	7.8	0.641	45.4	12.5	1.0286	49.3	6.2	0.5069	29.8
Potassium	39.1	1	1.6	0.0417	3.0	2.5	0.0632	3.0	3.0	0.0755	4.4
Sodium	23.0	1	5.1	0.2201	15.6	6.1	0.2645	12.7	8.3	0.3615	21.3
Iron	55.8	2	0.005	0.0002	0.01	0.029	0.001	0.05	0.118	0.0042	0.25
Manganese	54.9	2	0.001	2E-05	0.00	0.520	0.0189	0.91	0.054	0.002	0.12
Ammonia-N	14.0	1	0.005	0.0004	0.03	0.038	0.0027	0.13	0.030	0.0021	0.13
Total Cations (meq/L)				**1.4**			**2.1**			**1.7**	
Anions											
Alkalinity, Total			56.4			86			76.6		
Carbonate	60.0	2	0.0478	0.0016	0.1	0.2827	0.0094	0.4	0.1265	0.0042	0.2
Bicarbonate	61.0	1	68.71	1.1262	74.5	104.35	1.7103	74.7	93.19	1.5276	78.9
Chloride	35.5	1	3.9	0.1111	7.3	7.2	0.2028	8.9	4.1	0.1148	5.9
Nitrate-N	14.0	1	0.713	0.0509	3.365	0.005	0.0004	0.016	0.232	0.0166	0.856
Sulfate	96.1	2	10.7	0.2228	14.7	17.6	0.3664	16.0	13.1	0.2728	14.1
Total Anions (meq/L)				**1.5**			**2.3**			**1.9**	
Total Ions (meq/L)				**2.9**			**4.4**			**3.6**	
Cation/Anion Ratio				**0.93**			**0.91**			**0.88**	
Percent Difference				**-3.4**			**-4.6**			**-6.5**	
TRILINEAR DIAGRAM DATA											
sum (Ca, Mg, Na+K)				1.41			2.06			1.69	
Calcium					36.05			34.32			44.23
Magnesium					45.40			49.82			29.95
Sodium + Potassium					18.54			15.87			25.82
sum (SO_4, Cl, HCO_3+CO_3)				1.46			2.29			1.92	
Sulfate					15.241			16.009			14.211
Chloride					7.603			8.860			5.981
Bicarbonate + Carbonate					77.156			75.131			79.808

Site ID			MW-27			MW-29			MW-7		
Date			11/13/2014			11/14/2014			11/10/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			6.5			7.3			7.8		
Conductance			160			190			160		
TDSobs			127			151			129		
Calcium	40.1	2	12.0	0.5988	34.4	17.8	0.8882	38.9	12.4	0.6188	39.4
Magnesium	24.3	2	10.2	0.8393	48.3	12.8	1.0533	46.2	7.6	0.6287	40.0
Potassium	39.1	1	1.4	0.0348	2.0	2.2	0.0555	2.4	2.6	0.0662	4.2
Sodium	23.0	1	6.1	0.2658	15.3	5.9	0.2579	11.3	5.3	0.2318	14.8
Iron	55.8	2	0.005	0.0002	0.01	0.670	0.024	1.05	0.005	0.0002	0.01
Manganese	54.9	2	0.001	2E-05	0.00	0.081	0.003	0.13	0.147	0.0054	0.34
Ammonia-N	14.0	1	0.005	0.0004	0.02	0.005	0.0004	0.02	0.289	0.0206	1.31
Total Cations (meq/L)				**1.7**			**2.3**			**1.6**	
Anions											
Alkalinity, Total			62.8			102			69.6		
Carbonate	60.0	2	0.0109	0.0004	0.0	0.1114	0.0037	0.1	0.2811	0.0094	0.6
Bicarbonate	61.0	1	76.59	1.2554	71.3	124.21	2.036	81.4	84.34	1.3824	81.3
Chloride	35.5	1	5.3	0.1484	8.4	3.9	0.1097	4.4	3.1	0.088	5.2
Nitrate-N	14.0	1	2.160	0.1542	8.763	0.005	0.0004	0.014	0.005	0.0004	0.021
Sulfate	96.1	2	9.7	0.2013	11.4	16.9	0.3519	14.1	10.6	0.2207	13.0
Total Anions (meq/L)				**1.8**			**2.5**			**1.7**	
Total Ions (meq/L)				**3.5**			**4.8**			**3.3**	
Cation/Anion Ratio				**0.99**			**0.91**			**0.92**	
Percent Difference				**-0.6**			**-4.6**			**-3.9**	
TRILINEAR DIAGRAM DATA											
sum (Ca, Mg, Na+K)				1.74			2.25			1.55	
Calcium					34.44			39.39			40.04
Magnesium					48.27			46.71			40.68
Sodium + Potassium					17.29			13.90			19.29
sum (SO_4, Cl, HCO_3+CO_3)				1.61			2.50			1.70	
Sulfate					12.540			14.068			12.979
Chloride					9.241			4.387			5.175
Bicarbonate + Carbonate					78.219			81.546			81.846

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Table 6

Groundwater Within and BelowChannel Cc2

Site ID			**MW-2**			**MW-20**			**MW-21**			**MW-5D**			**MW-8**			**MW-9**		
Date			11/3/2014			11/17/2014			11/14/2014			11/3/2014			11/14/2014			12/5/2014		
Cations	MW	n	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)	mg/L	meq/L	%(meq)
pH			6.7			8.2			7.0			6.6			6.4			7.4		
Conductance			300			170			305			240			150			150		
TDSobs			225			131			222			216			121			112		
Calcium	40.1	2	23.2	1.1577	31.5	13.3	0.6637	36.5	22.5	1.1228	30.4	22.0	1.0978	34.6	10.3	0.514	34.5	11.1	0.5539	36.1
Magnesium	24.3	2	25.4	2.0901	56.9	10.4	0.8558	47.1	25.3	2.0819	56.3	14.4	1.1849	37.3	8.5	0.697	46.7	8.7	0.7118	46.4
Potassium	39.1	1	2.2	0.0558	1.5	2.2	0.057	3.1	2.5	0.0645	1.7	2.1	0.0547	1.7	1.1	0.0284	1.9	2.1	0.0527	3.4
Sodium	23.0	1	8.3	0.3623	9.9	5.4	0.2349	12.9	9.3	0.4028	10.9	11.5	0.5002	15.7	5.8	0.251	16.8	4.9	0.2144	14.0
Iron	55.8	2	0.005	0.0002	0.00	0.005	0.0002	0.01	0.407	0.0146	0.39	8.810	0.3155	9.93	0.005	0.0002	0.01	0.005	0.0002	0.01
Manganese	54.9	2	0.100	0.0036	0.10	0.138	0.005	0.28	0.242	0.0088	0.24	0.542	0.0197	0.62	0.001	2E-05	0.00	0.001	2E-05	0.00
Ammonia-N	14.0	1	0.011	0.0007	0.02	0.018	0.0013	0.07	0.005	0.0004	0.01	0.046	0.0033	0.10	0.005	0.0004	0.02	0.005	0.0004	0.02
Total Cations (meq/L)				**3.7**			**1.8**			**3.7**			**3.2**			**1.5**			**1.5**	
Anions																				
Alkalinity, Total			188			65.5			179			142			56.5			67.2		
Carbonate	60.0	2	0.0554	0.0018	0.0	0.6146	0.0205	1.2	0.1075	0.0036	0.1	0.0332	0.0011	0.0	0.0081	0.0003	0.0	0.1085	0.0036	0.2
Bicarbonate	61.0	1	229.25	3.7576	87.6	78.66	1.2893	73.6	218.16	3.5759	87.8	173.17	2.8385	90.6	68.91	1.1296	67.2	81.76	1.3402	75.6
Chloride	35.5	1	3.5	0.0999	2.3	3.2	0.0908	5.2	3.1	0.086	2.1	3.2	0.0903	2.9	4.9	0.1382	8.2	4.9	0.1379	7.8
Nitrate-N	14.0	1	0.934	0.0667	1.555	0.005	0.0004	0.020	0.256	0.0183	0.449	0.005	0.0004	0.011	3.340	0.2385	14.187	0.217	0.0155	0.874
Sulfate	96.1	2	17.4	0.3623	8.4	16.8	0.3498	20.0	18.7	0.3893	9.6	9.8	0.2036	6.5	8.4	0.1743	10.4	13.2	0.2748	15.5
Total Anions (meq/L)				**4.3**			**1.8**			**4.1**			**3.1**			**1.7**			**1.8**	
Total Ions (meq/L)				**8.0**			**3.6**			**7.8**			**6.3**			**3.2**			**3.3**	
Cation/Anion Ratio				**0.86**			**1.04**			**0.91**			**1.01**			**0.89**			**0.87**	
Percent Difference				**-7.8**			**1.9**			**-4.9**			**0.7**			**-6.0**			**-7.2**	
TRILINEAR DIAGRAM DATA																				
sum (Ca, Mg, Na+K)				3.67			1.81			3.67			2.84			1.49			1.53	
Calcium					31.58			36.64			30.58			38.69			34.49			36.14
Magnesium					57.02			47.25			56.70			41.76			46.77			46.44
Sodium + Potassium					11.40			16.12			12.72			19.56			18.75			17.43
sum (SO_4, Cl, HCO_3+CO_3)				4.22			1.75			4.05			3.13			1.44			1.76	
Sulfate					8.582			19.983			9.602			6.498			12.083			15.646
Chloride					2.365			5.189			2.122			2.881			9.583			7.852
Bicarbonate + Carbonate					89.053			74.828			88.276			90.621			78.335			76.502

Ion Balance Calculations
Trilinear Data
Vashon Island Landfill Groundwater

Ba

Table 10

Groundwater Within or Adjac

Site ID			MW-13		
Date			11/14/2014		
Cations	MW	n	mg/L	meq/L	%(meq)
pH			7.3		
Conductance			160		
TDSobs			123		
Calcium	40.1	2	9.1	0.4531	27.5
Magnesium	24.3	2	10.9	0.8969	54.5
Potassium	39.1	1	1.8	0.0453	2.8
Sodium	23.0	1	5.7	0.2497	15.2
Iron	55.8	2	0.005	0.0002	0.01
Manganese	54.9	2	0.001	2E-05	0.00
Ammonia-N	14.0	1	0.005	0.0004	0.02
Total Cations (meq/L)				**1.6**	
Anions					
Alkalinity, Total			67.6		
Carbonate	60.0	2	0.0722	0.0024	0.1
Bicarbonate	61.0	1	82.33	1.3494	75.8
Chloride	35.5	1	2.8	0.0793	4.5
Nitrate-N	14.0	1	0.044	0.0031	0.177
Sulfate	96.1	2	16.6	0.3456	19.4
Total Anions (meq/L)				**1.8**	
Total Ions (meq/L)				**3.4**	
Cation/Anion Ratio				**0.92**	
Percent Difference				**-3.9**	
TRILINEAR DIAGRAM DATA					
sum (Ca, Mg, Na+K)				1.64	
Calcium					27.54
Magnesium					54.53
Sodium + Potassium					17.93
sum (SO_4, Cl, HCO_3+CO_3)				1.78	
Sulfate					19.453
Chloride					4.461
Bicarbonate + Carbonate					76.085

Figure 1. Vashon Landfill

Channel Cc3 Wells First Quarter 2014

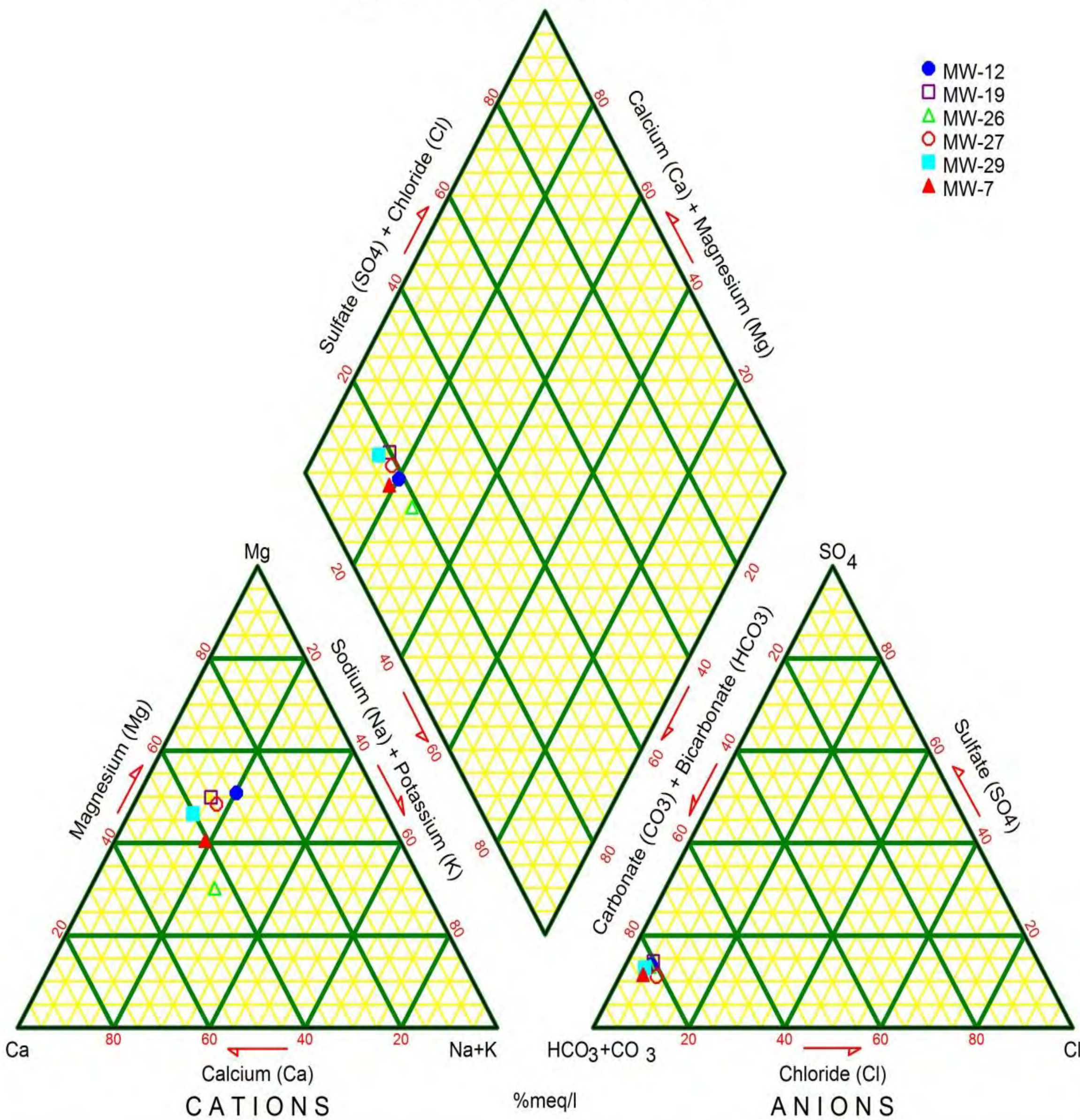
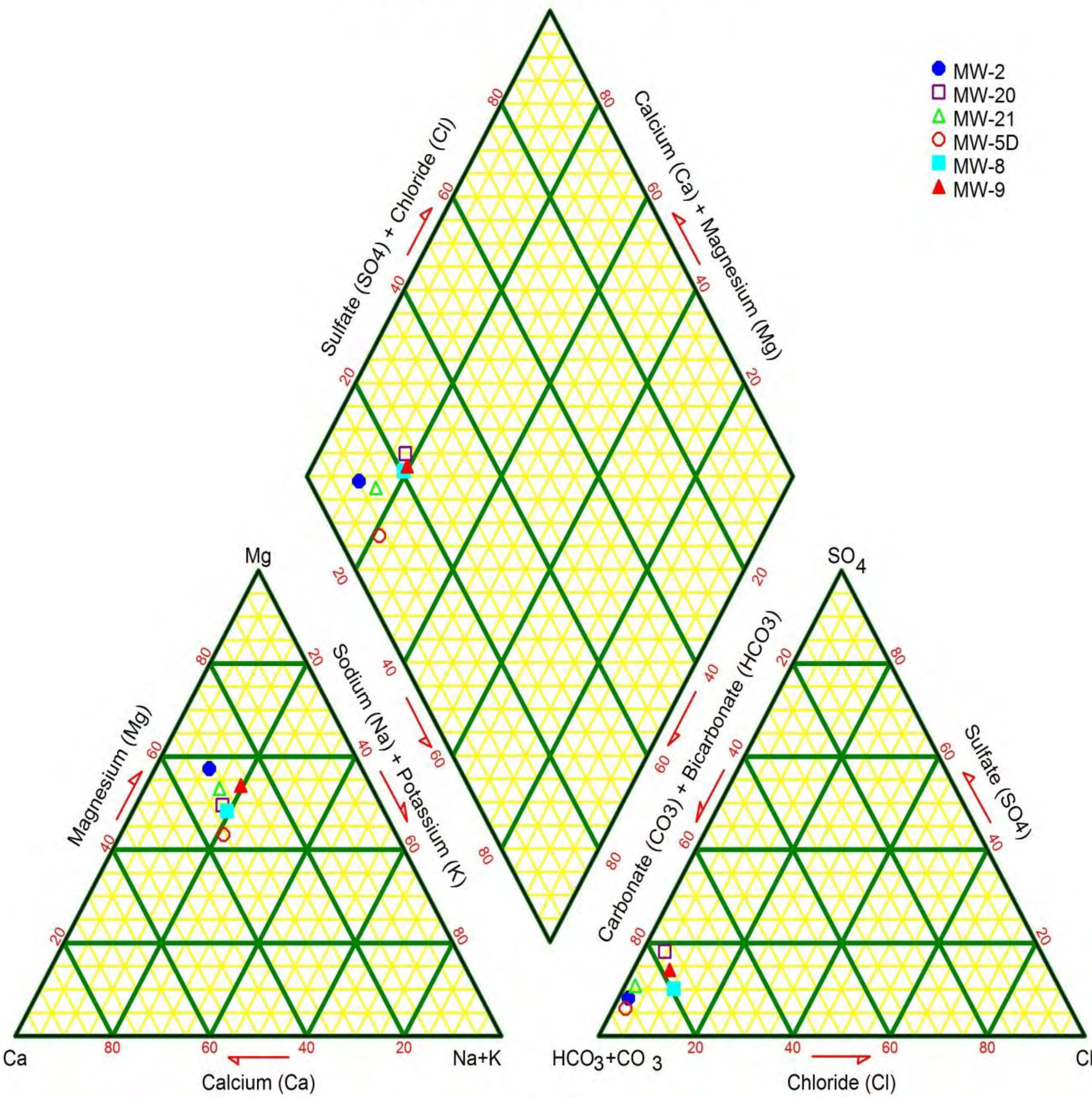


Figure 2. Vashon Landfill

Channel Cc2 Wells First Quarter 2014



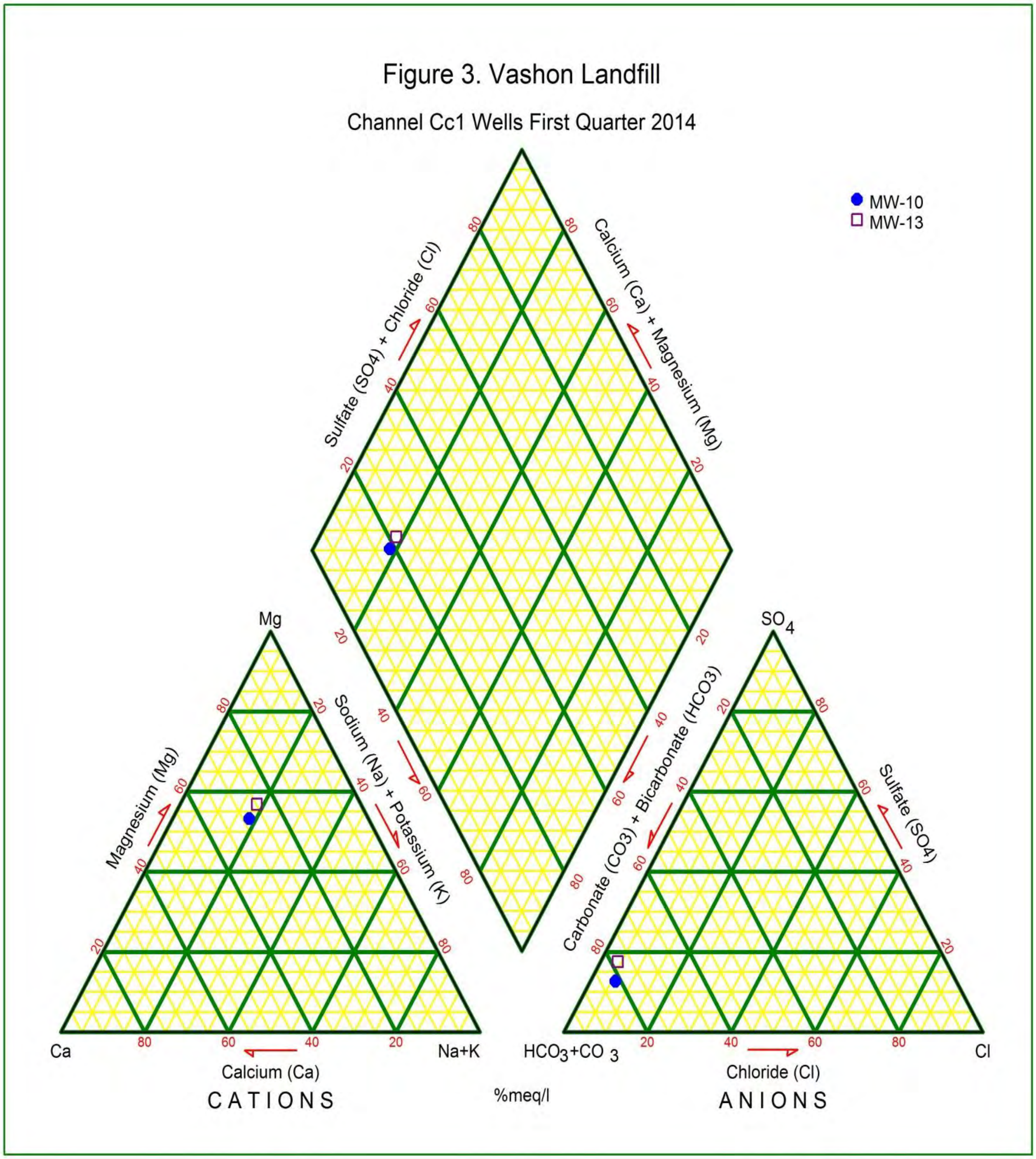


Figure 3. Vashon Landfill
Channel Cc1 Wells First Quarter 2014
MW-10
MW-13
Sulfate (SO4) + Chloride (Cl)
Calcium (Ca) + Magnesium (Mg)
Mg
Magnesium (Mg)
Sodium (Na) + Potassium (K)
Ca
Na+K
Calcium (Ca)
CATIONS
%meq/l
SO4
Carbonate (CO3) + Bicarbonate (HCO3)
Sulfate (SO4)
HCO3+CO 3
Cl
Chloride (Cl)
ANIONS

Figure 5. Vashon Landfill

Private Wells First Quarter 2014

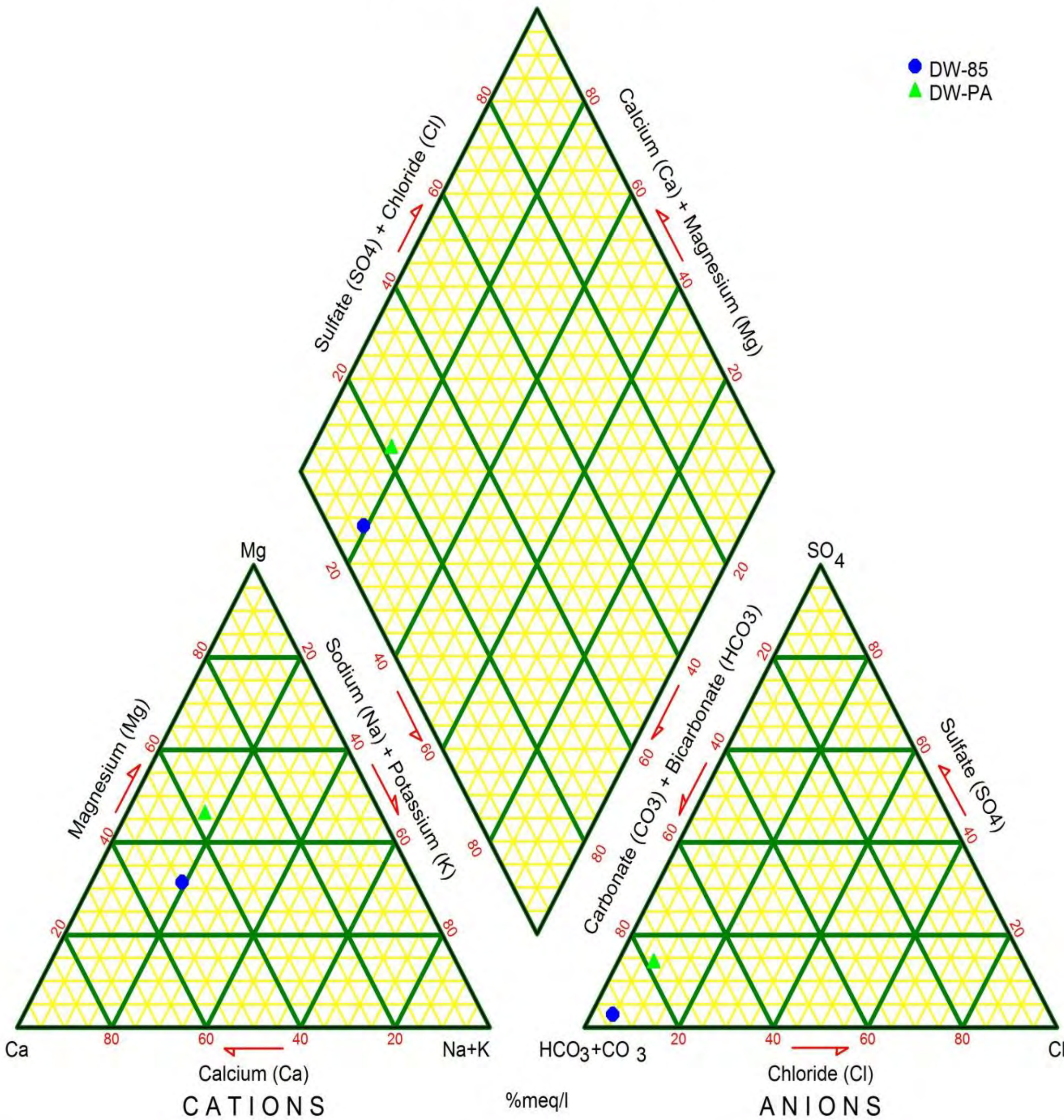
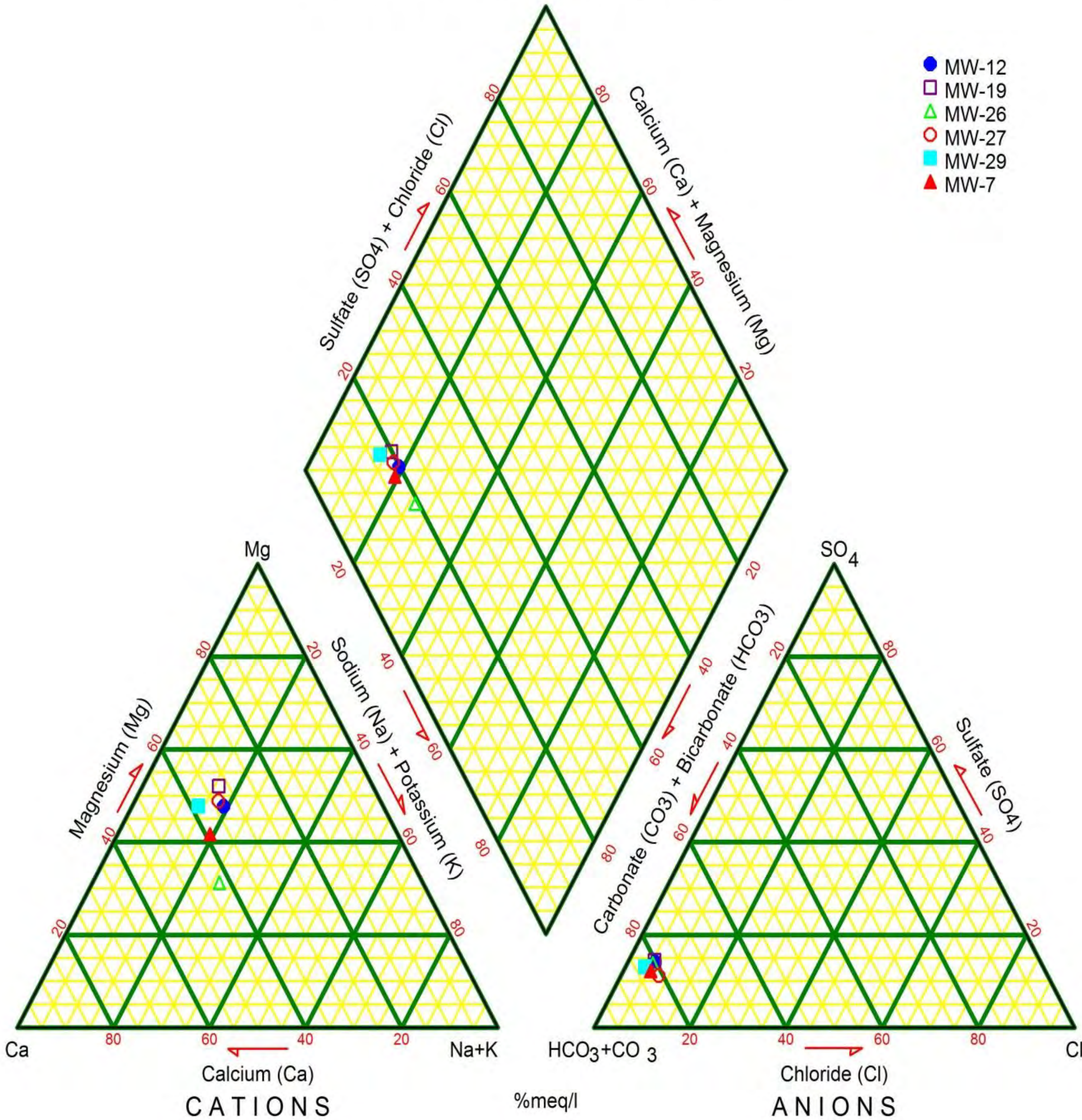


Figure 1. Vashon Landfill

Channel Cc3 Wells Second Quarter 2014



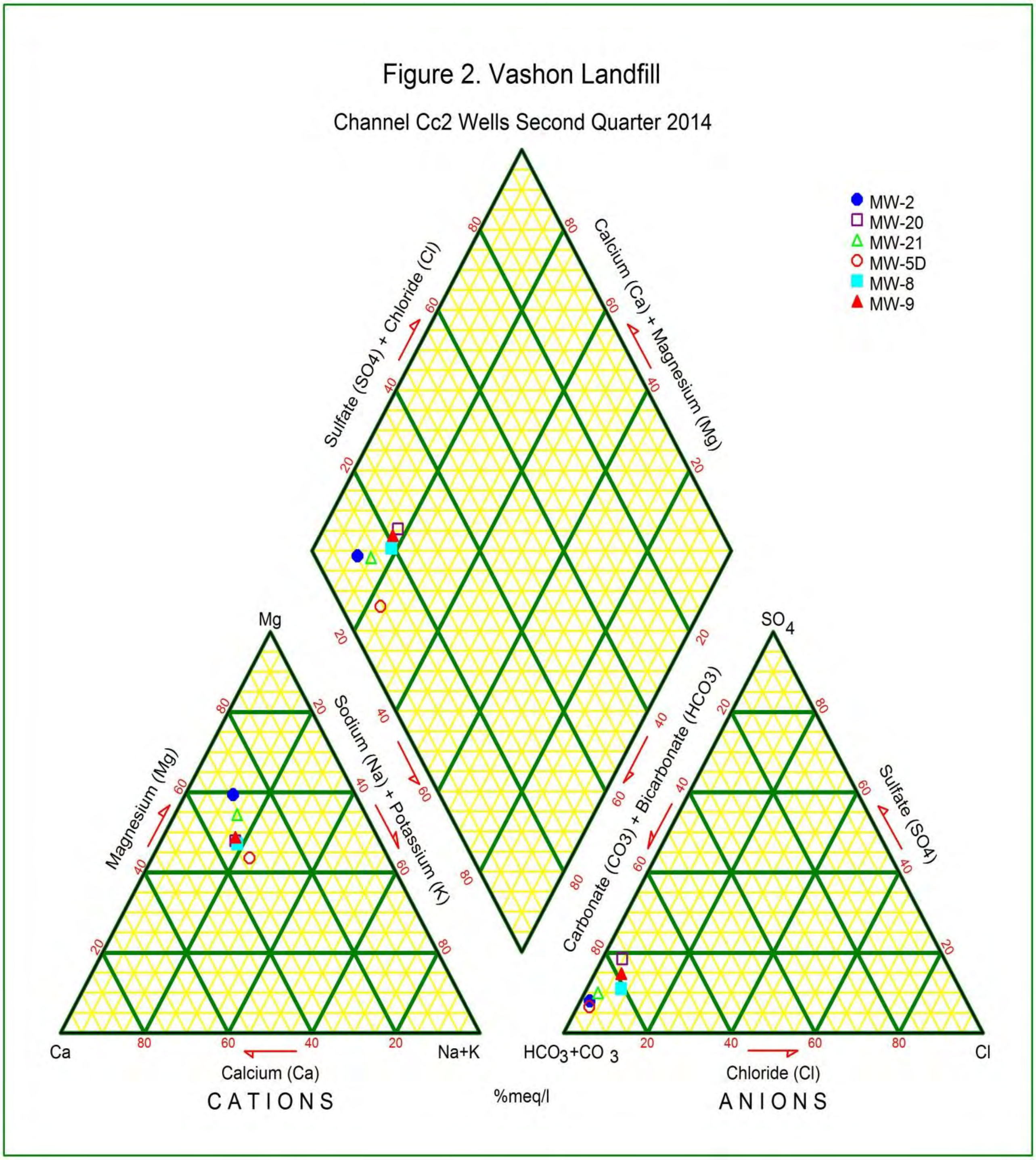


Figure 2. Vashon Landfill
Channel Cc2 Wells Second Quarter 2014
MW-2
MW-20
MW-21
MW-5D
MW-8
MW-9
Sulfate (SO4) + Chloride (Cl)
Calcium (Ca) + Magnesium (Mg)
Mg
Magnesium (Mg)
Sodium (Na) + Potassium (K)
Ca
Na+K
Calcium (Ca)
CATIONS
%meq/l
SO4
Carbonate (CO3) + Bicarbonate (HCO3)
Sulfate (SO4)
HCO3+CO3
Cl
Chloride (Cl)
ANIONS

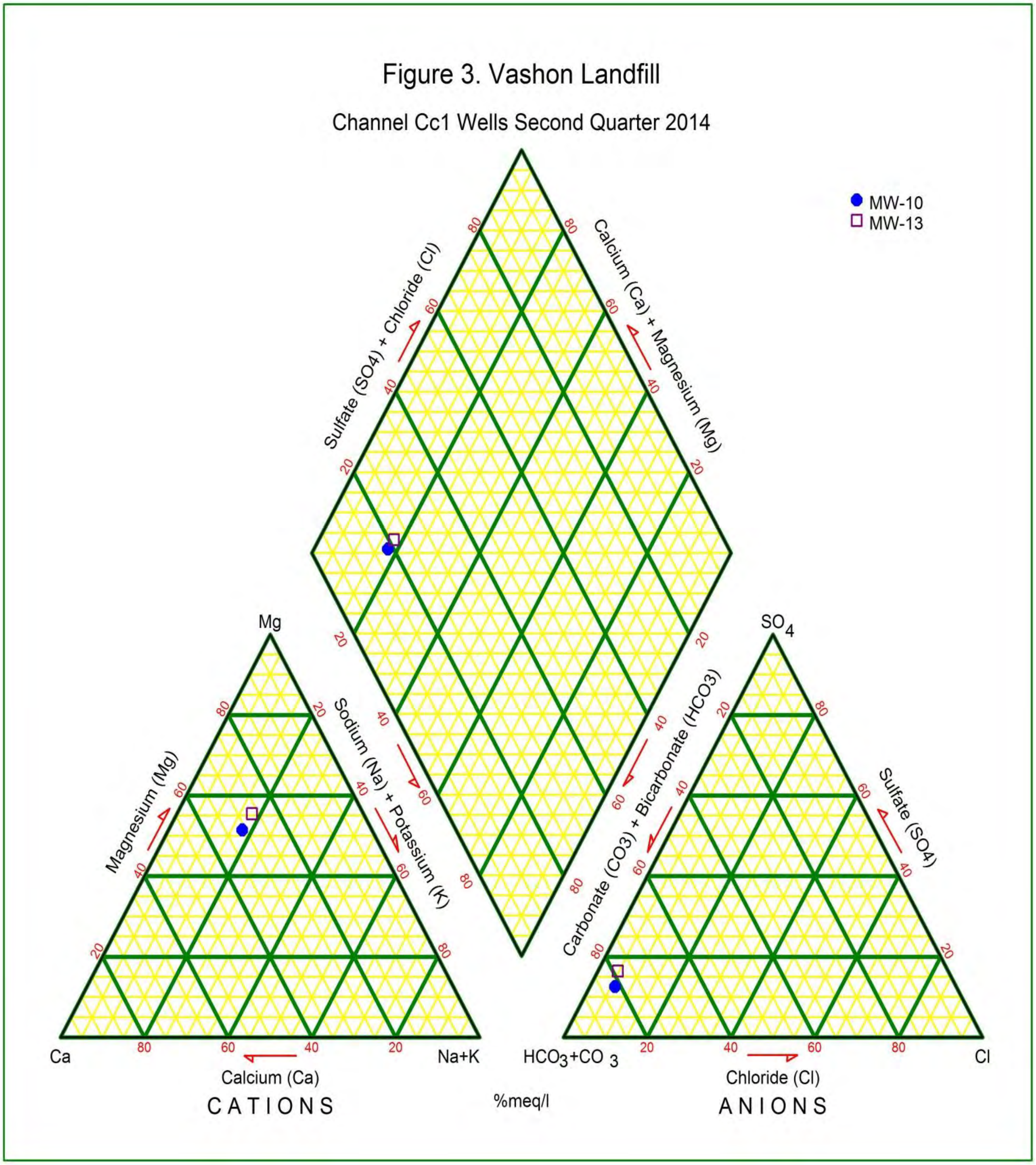


Figure 3. Vashon Landfill
Channel Cc1 Wells Second Quarter 2014
MW-10
MW-13
Sulfate (SO4) + Chloride (Cl)
Calcium (Ca) + Magnesium (Mg)
Carbonate (CO3) + Bicarbonate (HCO3)
Sodium (Na) + Potassium (K)
Mg
Magnesium (Mg)
Ca
Na+K
Calcium (Ca)
CATIONS
%meq/l
SO4
Sulfate (SO4)
HCO3+CO 3
Cl
Chloride (Cl)
ANIONS
20
40
60
80

Figure 1. Vashon Landfill

Channel Cc3 Wells third Quarter 2014

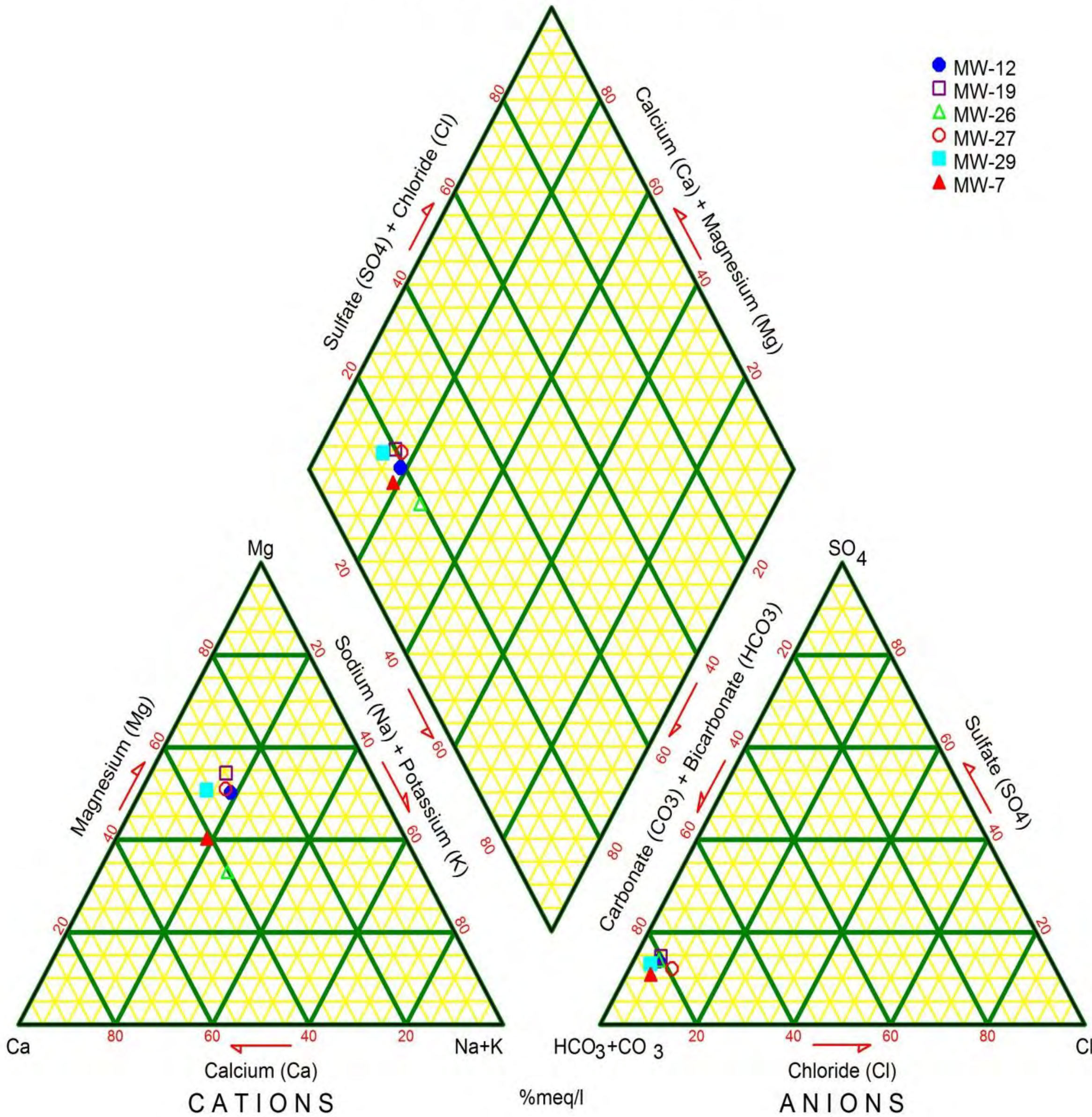


Figure 2. Vashon Landfill

Channel Cc2 Wells third Quarter 2014

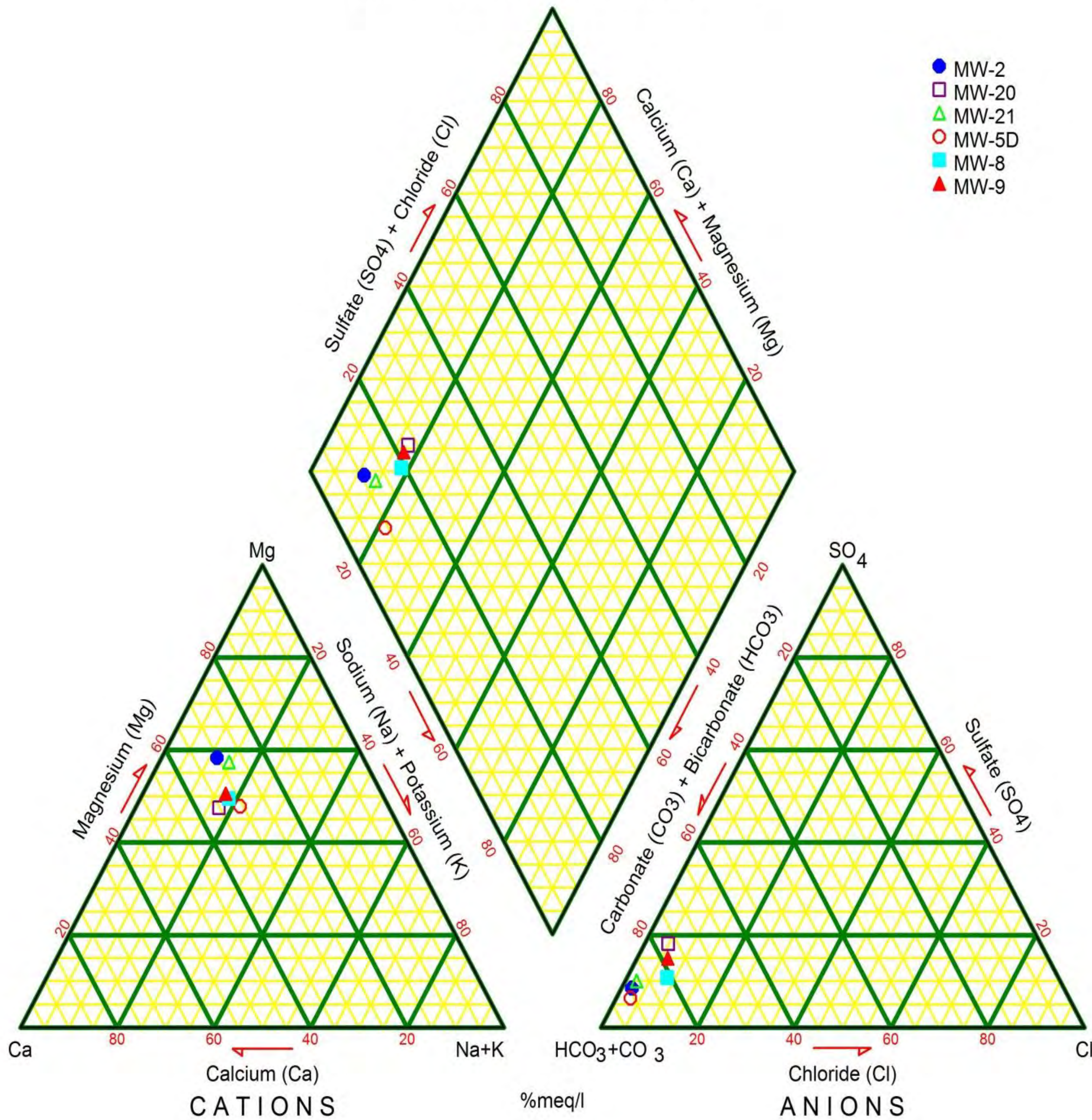


Figure 3. Vashon Landfill

Channel Cc1 Wells third Quarter 2014

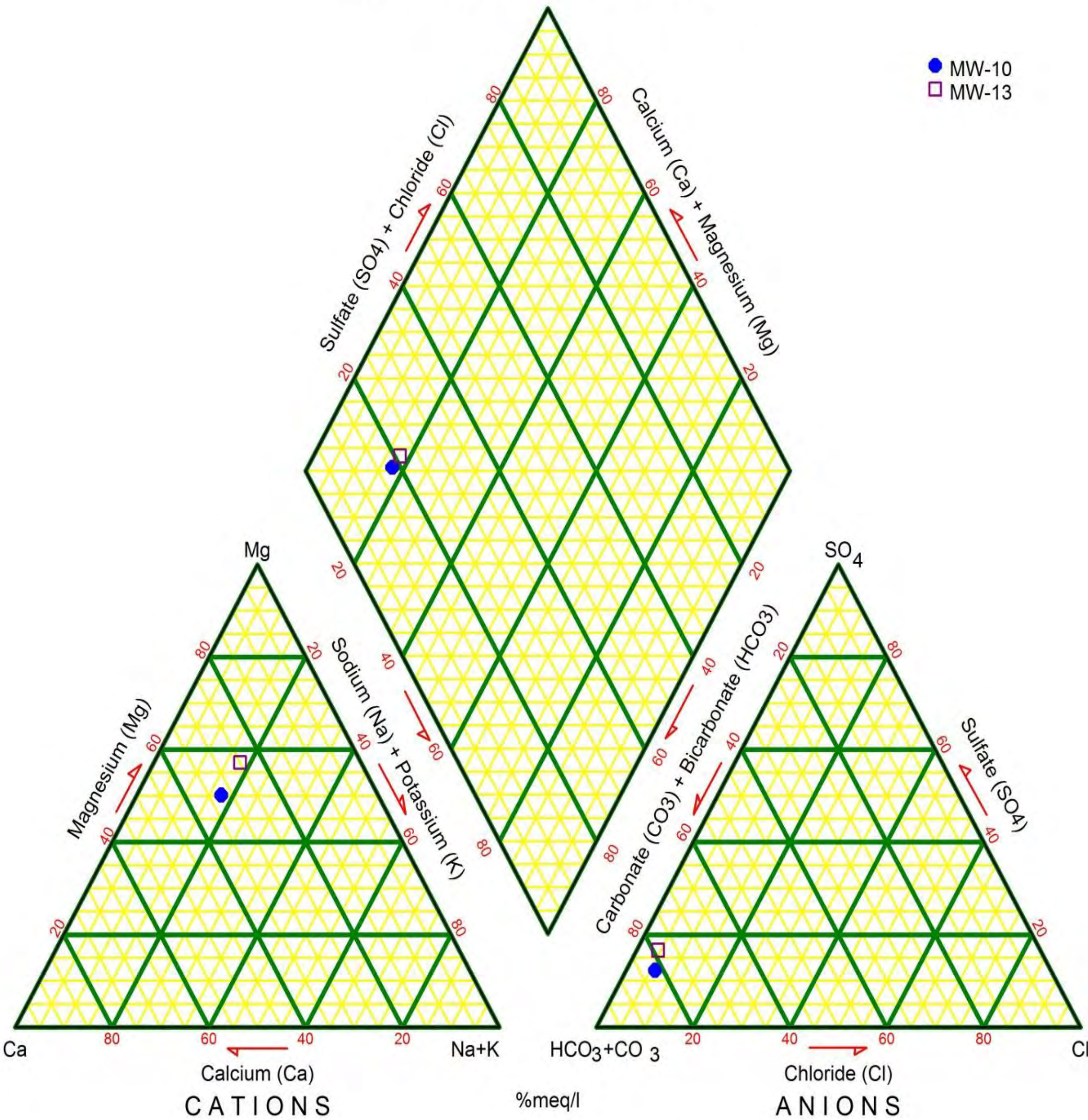
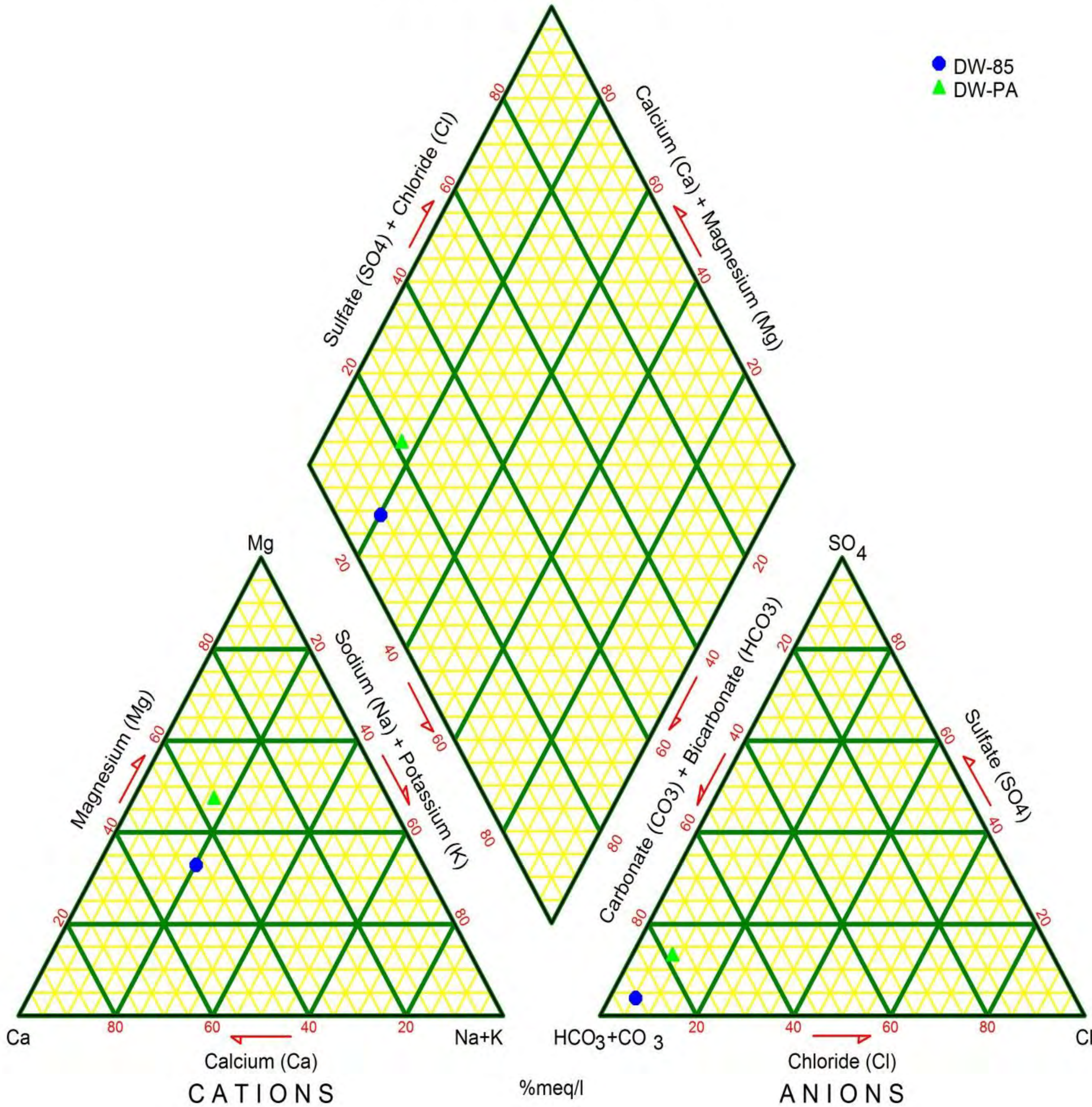


Figure 5. Vashon Landfill

Private Wells third Quarter 2014



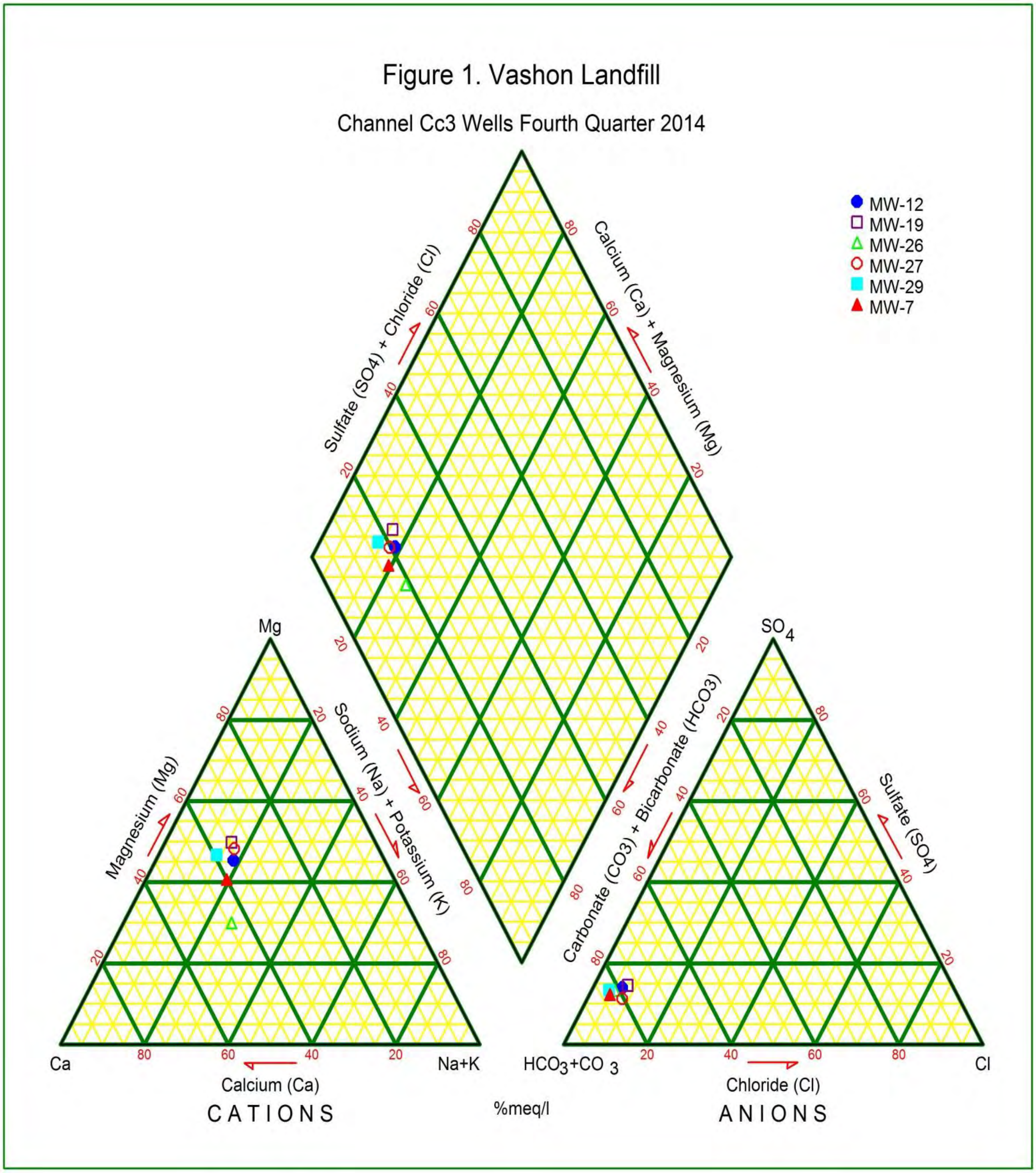


Figure 1. Vashon Landfill
Channel Cc3 Wells Fourth Quarter 2014
MW-12
MW-19
MW-26
MW-27
MW-29
MW-7
Sulfate (SO4) + Chloride (Cl)
Calcium (Ca) + Magnesium (Mg)
Carbonate (CO3) + Bicarbonate (HCO3)
Sodium (Na) + Potassium (K)
Magnesium (Mg)
Sulfate (SO4)
Mg
SO4
Ca
Na+K
HCO3+CO3
Cl
Calcium (Ca)
Chloride (Cl)
CATIONS
%meq/l
ANIONS

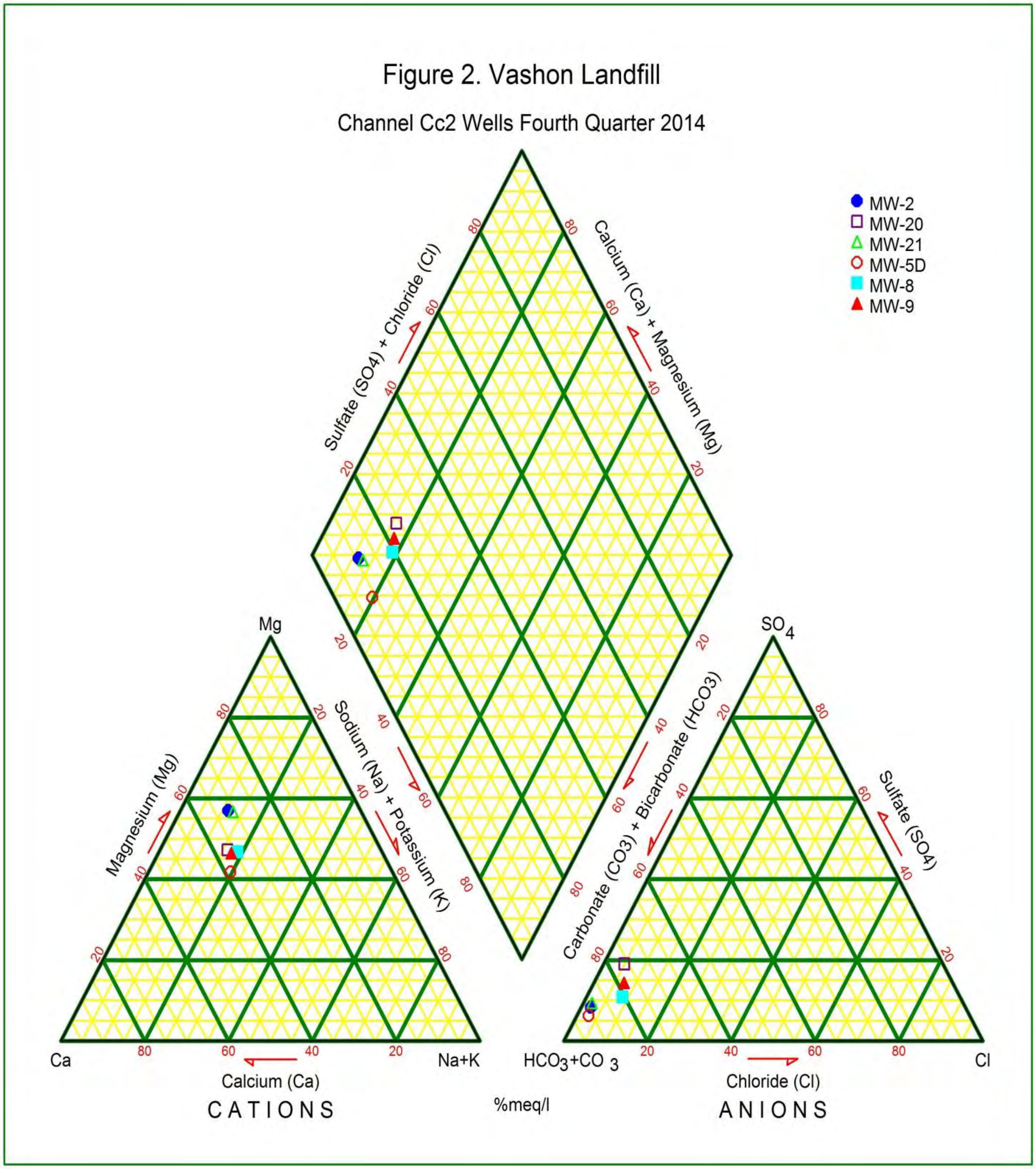


Figure 2. Vashon Landfill
Channel Cc2 Wells Fourth Quarter 2014
MW-2
MW-20
MW-21
MW-5D
MW-8
MW-9
Sulfate (SO4) + Chloride (Cl)
Calcium (Ca) + Magnesium (Mg)
Mg
Magnesium (Mg)
Sodium (Na) + Potassium (K)
Ca
Na+K
Calcium (Ca)
CATIONS
%meq/l
SO4
Carbonate (CO3) + Bicarbonate (HCO3)
Sulfate (SO4)
HCO3+CO 3
Cl
Chloride (Cl)
ANIONS

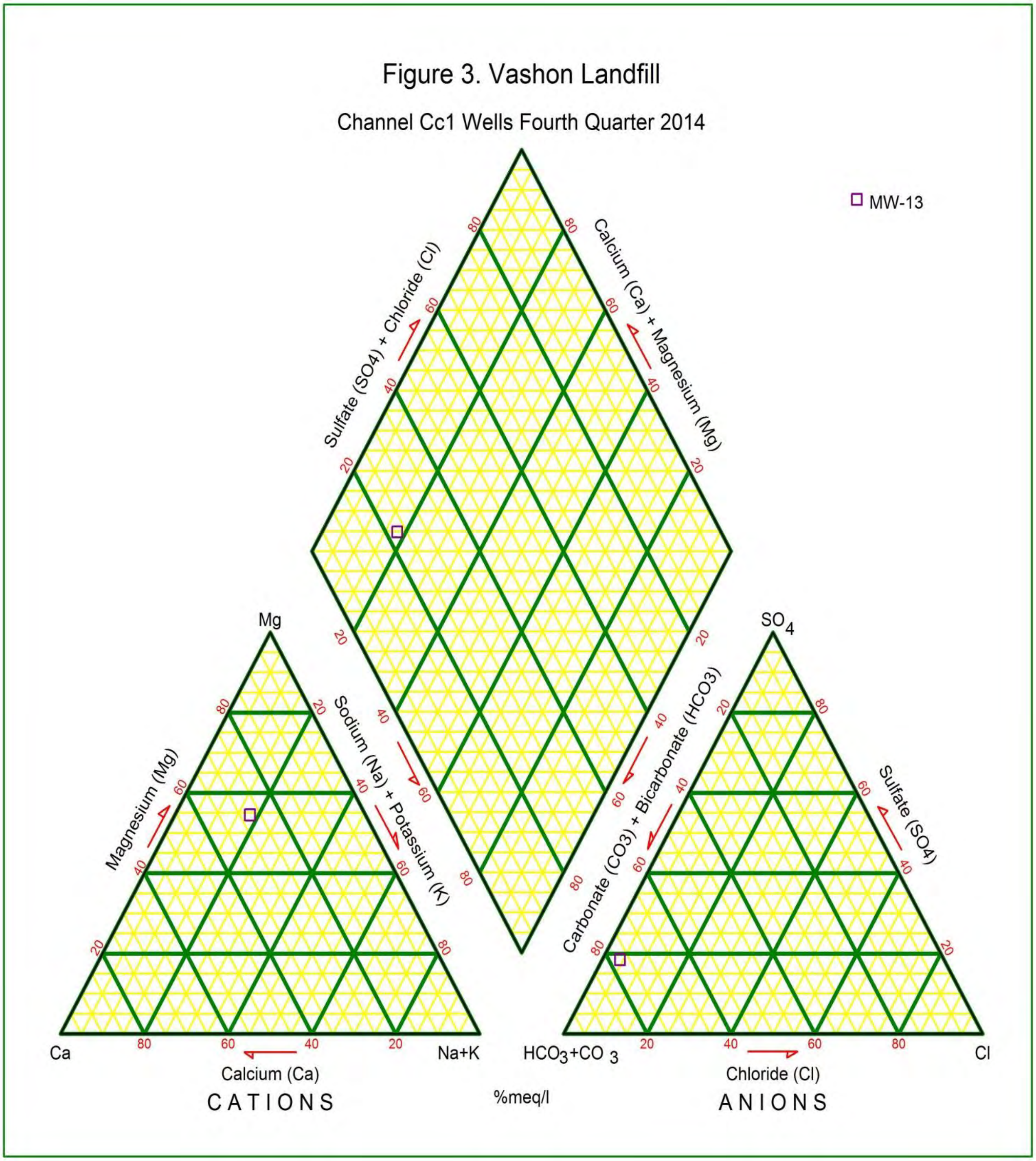


Figure 3. Vashon Landfill
Channel Cc1 Wells Fourth Quarter 2014
MW-13
Sulfate (SO4) + Chloride (Cl)
Calcium (Ca) + Magnesium (Mg)
Carbonate (CO3) + Bicarbonate (HCO3)
Sodium (Na) + Potassium (K)
Mg
Magnesium (Mg)
Ca
Na+K
Calcium (Ca)
CATIONS
%meq/l
SO_4
Sulfate (SO4)
HCO_3+CO 3
Cl
Chloride (Cl)
ANIONS
20
40
60
80

Appendix K

Gas Monitoring Data

King County Solid Waste Division

Environmental Monitoring Data

Data Collected January 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
AM-1	1/28/2014 13:12	0.0		0.1	21.0	0
AM-2	1/28/2014 11:46	0.0		0.1	21.0	0.01
AM-3	1/28/2014 11:36	0.0		0.2	21.0	-2.61
AM-4	1/28/2014 12:21	0.0		0.1	21.0	-0.02
AM-5	1/28/2014 12:33	0.0		0.1	21.0	-0.01
AM-6	1/28/2014 12:58	0.0		0.1	21.0	0
AM-7	1/28/2014 13:24	0.0		0.1	21.0	0
AM-8	1/28/2014 13:32	0.0		0.1	21.0	0
AM-CB	1/28/2014 11:48	0.0		0.1	21.0	0
GP-1	1/28/2014 12:42	0.0		1	19.8	0.3
GP-2	1/28/2014 13:26	0.0		2.2	17.9	0.23
MW-5	1/28/2014 12:55	0.0		2.1	18.6	0.15
MW-13	1/28/2014 12:29	0.0		0.2	20.9	0.02
MW-24	1/28/2014 12:31	0.0		1.2	19.3	0.33
NP-1D	1/28/2014 12:07	0.0		0.3	20.6	0.3
NP-1I	1/28/2014 12:09	0.0		0.1	21.0	0.36
NP-1S	1/28/2014 12:05	0.0		2.4	17.2	0.19
NP-2D	1/28/2014 12:19	0.0		0.2	20.9	0.45
NP-2I	1/28/2014 12:17	0.0		0.2	20.3	0.31
NP-2S	1/28/2014 12:15	0.0		1.7	18.9	0.18
NP-3D	1/28/2014 12:27	0.0		2.0	17.3	0.29
NP-3I	1/28/2014 12:25	0.0		3.0	17.1	0.28
NP-3S	1/28/2014 12:23	0.0		1.9	17.9	0.13
NP-4D	1/28/2014 12:40	0.0		0.8	19.0	0.3
NP-4I	1/28/2014 12:38	0.0		1.5	19.1	0.29
NP-4S	1/28/2014 12:36	0.0		2.7	18.3	0.15
NP-5D	1/28/2014 12:52	0.0		3.0	17.0	0.49
NP-5I	1/28/2014 12:51	0.0		2.6	18.2	0.3
NP-5S	1/28/2014 12:49	0.0		3.6	17.1	0.15
NP-6D	1/28/2014 13:07	0.0		0.2	20.9	0.57
NP-6I	1/28/2014 13:05	0.0		0.2	20.9	0.17
NP-6S	1/28/2014 13:04	0.0		4.6	17.0	0.03
NP-7D	1/28/2014 13:21	0.0		1.9	18.8	0.14
NP-7I	1/28/2014 13:19	0.0		0.2	20.9	0.31
NP-7S	1/28/2014 13:17	0.0		0.1	21.0	0.62
NP-8D	1/28/2014 11:44	0.0		0.4	19.8	0.51
NP-8I	1/28/2014 11:42	0.0		0.3	21.0	0.4
NP-8S	1/28/2014 11:40	0.0		6.0	8.5	-0.3

King County Solid Waste Division

Environmental Monitoring Data

Data Collected February 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
Coeast	2/4/2014 12:46	0.0		0.1	21	-0.28
AM-1	2/4/2014 13:13	0.0		0.1	21.0	-0.7
AM-2	2/4/2014 14:23	0.0		2.1	19.9	-0.02
AM-5	2/4/2014 13:05	0.0		0.1	20.9	-0.03
MW-13	2/25/2014 10:31	0.0		0.1	20.7	0.03
MW-24	2/4/2014 13:24	0.0		1.9	18.7	-1.7
NP-1D	2/4/2014 13:49	0.0		0.1	21.0	-2.37
NP-1I	2/4/2014 13:47	0.0		0.1	20.9	0.01
NP-1S	2/4/2014 13:45	0.0		1.9	19.5	0.18
NP-2D	2/4/2014 13:40	0.0		0.1	21.0	-2.16
NP-2I	2/4/2014 13:39	0.0		0.2	21.0	-2.1
NP-2S	2/4/2014 13:36	0.0		1.8	20.6	0.74
NP-3D	2/4/2014 13:32	0.0		1.9	19.3	-1.73
NP-3I	2/4/2014 13:29	0.0		2.8	19.1	-1.7
NP-3S	2/4/2014 13:27	0.0		1.8	19.6	0.08
NP-4D	2/4/2014 13:20	0.0		0.3	21.0	-1.55
NP-4I	2/4/2014 13:18	0.0		1.6	21.0	-0.83
NP-4S	2/4/2014 13:16	0.0		2.5	20.5	-0.24
NP-5D	2/4/2014 13:01	0.0		3.1	18.4	-0.22
NP-5I	2/4/2014 12:59	0.0		2.8	19.6	-0.07
NP-5S	2/4/2014 12:58	0.0		3.6	18.8	0
NP-6D	2/4/2014 14:19	0.0		0.1	21.0	-0.67
NP-6I	2/4/2014 14:17	0.0		0.1	21.0	-0.29
NP-6S	2/4/2014 14:15	0.0		4.6	18.8	0
NP-7D	2/4/2014 14:08	0.0		0.8	21.0	-0.03
NP-7I	2/4/2014 14:06	0.0		0.2	20.9	-1.31
NP-7S	2/4/2014 14:04	0.0		0.1	21.0	-1.35
NP-8D	2/4/2014 13:59	0.0		0.5	20.1	-2.23
NP-8I	2/4/2014 13:57	0.0		0.6	21.0	-2.13
NP-8S	2/4/2014 13:55	0.0		10.0	1.6	-0.9

King County Solid Waste Division

Environmental Monitoring Data

Data Collected March 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
Coeast	3/3/2014 12:58	0.0		0.1	21	0.05
AM-1	3/3/2014 11:52	0.0		0.5	20.5	0.05
AM-2	3/3/2014 12:32	0.0		2.3	17.7	0.21
MW-5	3/3/2014 12:12	0.0		0.1	21.0	-0.01
MW-13	3/3/2014 12:21	0.0		0.1	21.0	0.03
MW-24	3/3/2014 12:24	0.0		0.9	19.9	-0.38
NP-1D	3/3/2014 11:26	0.0		0.2	19.3	0.02
NP-1I	3/3/2014 11:25	0.0		0.2	20.5	0
NP-1S	3/3/2014 11:23	0.0		1.1	19.4	1.77
NP-2D	3/3/2014 11:33	0.0		0.1	20.9	0.17
NP-2I	3/3/2014 11:31	0.0		0.2	19.8	-0.09
NP-2S	3/3/2014 11:30	0.0		0.1	20.8	0.05
NP-3D	3/3/2014 11:39	0.0		1.9	18.0	-0.27
NP-3I	3/3/2014 11:38	0.0		2.9	17.0	-0.29
NP-3S	3/3/2014 11:36	0.0		0.8	19.9	0.35
NP-4D	3/3/2014 11:48	0.0		0.6	19.7	-0.22
NP-4I	3/3/2014 11:47	0.0		1.5	19.2	0
NP-4S	3/3/2014 11:45	0.0		3.0	17.9	9.95
NP-5D	3/3/2014 12:04	0.0		2.9	17.2	0.02
NP-5I	3/3/2014 12:02	0.0		2.6	18.3	0.07
NP-5S	3/3/2014 12:00	0.0		3.5	17.4	0.07
NP-6D	3/3/2014 12:39	0.0		0.2	21.0	0.13
NP-6I	3/3/2014 12:37	0.0		0.2	21.0	0.11
NP-6S	3/3/2014 12:36	0.0		3.4	17.9	0.19
NP-7D	3/3/2014 12:47	0.0		2.7	17.5	0.36
NP-7I	3/3/2014 12:45	0.0		0.2	21.0	-0.55
NP-7S	3/3/2014 12:43	0.0		0.1	21.0	-0.09
NP-8D	3/3/2014 12:56	0.0		0.7	16.7	0.12
NP-8I	3/3/2014 12:55	0.0		0.7	20.0	0.05
NP-8S	3/3/2014 12:53	0.0		4.0	7.2	2.73

King County Solid Waste Division

Environmental Monitoring Data

Data Collected April 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
AM-1	4/7/2014 13:56	0.0		0.0	21.0	0
AM-2	4/7/2014 13:27	0.0		0.0	20.8	-0.01
AM-3	4/7/2014 13:17	0.0		0	20.6	0
AM-4	4/7/2014 13:01	0.0		0	20.8	0
AM-5	4/7/2014 12:48	0.0		0	21.0	0.01
AM-6	4/7/2014 12:22	0.0		0.1	20.8	0
AM-7	4/7/2014 13:37	0.0		0	21.0	0
AM-8	4/7/2014 14:02	0.0		0	21.0	0
AM-CB	4/7/2014 13:20	0.0		0	20.6	0
GP-1	4/7/2014 12:37	0.0		0	20.8	0.26
GP-2	4/7/2014 13:40	0.0		2	17.8	0.26
MW-5	4/7/2014 12:32	0.0		1.9	17.9	-16.18
MW-13	4/7/2014 12:51	0.0		0.0	21.0	0.01
MW-24	4/7/2014 12:53	0.0		1.6	17.0	0
NP-1D	4/7/2014 13:14	0.0		0.0	20.6	-0.8
NP-1I	4/7/2014 13:13	0.0		0.0	20.4	0.26
NP-1S	4/7/2014 13:11	0.0		0.4	20.1	1.43
NP-2D	4/7/2014 13:07	0.0		0.0	20.7	-0.12
NP-2I	4/7/2014 13:06	0.0		0.0	20.3	-0.34
NP-2S	4/7/2014 13:04	0.0		0.1	20.6	0.12
NP-3D	4/7/2014 12:59	0.0		2.2	16.9	0
NP-3I	4/7/2014 12:58	0.0		2.6	16.9	0
NP-3S	4/7/2014 12:56	0.0		0.3	20.6	0.57
NP-4D	4/7/2014 12:44	0.0		1.0	17.6	0.19
NP-4I	4/7/2014 12:43	0.0		1.0	19.5	0.25
NP-4S	4/7/2014 12:41	0.0		2.8	17.8	0.99
NP-5D	4/7/2014 12:30	0.0		2.6	17.3	0.51
NP-5I	4/7/2014 12:28	0.0		2.2	18.4	0.39
NP-5S	4/7/2014 12:27	0.0		2.8	17.4	0.21
NP-6D	4/7/2014 13:34	0.0		0.0	20.8	0.52
NP-6I	4/7/2014 13:33	0.0		0.1	20.8	0.37
NP-6S	4/7/2014 13:31	0.0		3.7	16.4	0.04
NP-7D	4/7/2014 13:50	0.0		0.6	19.9	0.14
NP-7I	4/7/2014 13:48	0.0		0.0	21.0	-0.24
NP-7S	4/7/2014 13:46	0.0		0.0	21.0	0.21
NP-8D	4/7/2014 13:25	0.0		0.6	16.0	-0.19
NP-8I	4/7/2014 13:24	0.0		0.8	17.2	-0.65
NP-8S	4/7/2014 13:22	0.0		0.5	18.6	-6.18

King County Solid Waste Division

Environmental Monitoring Data

Data Collected May 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
Coeast	5/13/2014 10:11	0.0		0.1	20.8	-0.3
AM-1	5/13/2014 10:14	0.0		0.0	20.7	-0.02
AM-2	5/13/2014 10:16	0.0		0.0	20.7	-2.04
AM-5	5/13/2014 10:18	0.0		0.0	20.7	-2.08
MW-13	5/13/2014 11:14	0.0		0.0	20.7	-0.15
MW-24	5/13/2014 11:16	0.0		2.7	17.1	-0.14
NP-1D	5/13/2014 11:18	0.0		2.1	18.4	-0.26
NP-1I	5/13/2014 11:19	0.0		2.4	17.4	-0.36
NP-1S	5/13/2014 11:27	0.0		0.0	20.8	-0.64
NP-2D	5/13/2014 11:29	0.0		2.5	17.4	-0.87
NP-2I	5/13/2014 11:31	0.0		0.8	19.6	-0.71
NP-2S	5/13/2014 11:32	0.0		1.1	17.2	-1.06
NP-3D	5/13/2014 11:51	0.0		0.0	13.7	0.07
NP-3I	5/13/2014 11:55	0.0		0.8	18.8	-0.22
NP-3S	5/13/2014 11:57	0.0		2.6	16.4	-1.25
NP-4D	5/13/2014 11:59	0.0		2.1	16.5	-1.25
NP-4I	5/13/2014 12:00	0.0		2.1	16.5	0
NP-4S	5/13/2014 12:03	0.0		0.1	20.2	0.06
NP-5D	5/13/2014 12:06	0.0		0.0	20.0	-1.67
NP-5I	5/13/2014 12:08	0.0		0.0	20.5	-1.67
NP-5S	5/13/2014 12:13	0.0		0.3	20.1	-0.26
NP-6D	5/13/2014 12:14	0.0		0.0	20.4	0.02
NP-6I	5/13/2014 12:16	0.0		0.0	20.4	-1.99
NP-6S	5/13/2014 12:21	0.0		0.0	20.4	-1.27
NP-7D	5/13/2014 12:23	0.0		0.0	20.3	-1.27
NP-7I	5/13/2014 12:24	0.0		1.8	16.0	-0.04
NP-7S	5/13/2014 12:28	0.0		3.3	15.4	0
NP-8D	5/13/2014 12:30	0.0		0.0	20.5	-0.24
NP-8I	5/13/2014 12:31	0.0		0.0	20.5	-0.5
NP-8S	5/13/2014 12:35	0.0		1.9	17.3	0.04

King County Solid Waste Division

Environmental Monitoring Data

Data Collected June 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
Coeast	6/13/2014 13:05	0.0		0.1	21	-0.16
AM-1	6/13/2014 11:54	0.0		1.1	19.5	-0.46
AM-2	6/13/2014 13:00	0.0		1.9	18.1	-0.25
MW-5	6/13/2014 11:48	0.0		0.1	21.0	-0.12
MW-13	6/13/2014 12:06	0.0		0.1	21.0	0
MW-24	6/13/2014 13:10	0.0		0.3	20.9	-0.74
NP-1D	6/13/2014 12:28	0.0		0.1	21.0	-0.42
NP-1I	6/13/2014 12:27	0.0		0.2	20.0	-0.2
NP-1S	6/13/2014 12:25	0.0		1.6	17.6	0.8
NP-2D	6/13/2014 12:21	0.0		0.4	19.6	-0.59
NP-2I	6/13/2014 12:19	0.0		0.2	20.1	-0.6
NP-2S	6/13/2014 12:17	0.0		0.2	21.0	0
NP-3D	6/13/2014 12:13	0.0		2.0	17.5	-0.72
NP-3I	6/13/2014 12:11	0.0		2.9	17.1	-0.76
NP-3S	6/13/2014 12:09	0.0		1.8	18.1	-0.08
NP-4D	6/13/2014 12:02	0.0		1.3	17.1	-0.79
NP-4I	6/13/2014 12:00	0.0		1.5	19.1	-0.55
NP-4S	6/13/2014 11:58	0.0		3.0	16.8	-0.22
NP-5D	6/13/2014 11:46	0.0		2.7	17.5	-0.42
NP-5I	6/13/2014 11:44	0.0		2.8	18.3	-0.23
NP-5S	6/13/2014 11:42	0.0		3.5	16.7	-0.08
NP-6D	6/13/2014 12:55	0.0		0.1	21.0	-0.75
NP-6I	6/13/2014 12:54	0.0		0.2	20.9	-0.32
NP-6S	6/13/2014 12:52	0.0		3.9	14.7	0.02
NP-7D	6/13/2014 12:46	0.0		2.5	16.0	-0.09
NP-7I	6/13/2014 12:45	0.0		0.3	20.9	-0.74
NP-7S	6/13/2014 12:43	0.0		0.1	21.0	-0.64
NP-8D	6/13/2014 12:36	0.0		0.6	15.9	-0.34
NP-8I	6/13/2014 12:34	0.0		0.2	21.0	-0.46
NP-8S	6/13/2014 12:32	0.0		3.3	15.4	0.12

King County Solid Waste Division

Environmental Monitoring Data

Data Collected July 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
AM-1	7/15/2014 12:36	0.0		0.0	21.1	0.01
AM-2	7/15/2014 10:26	0.0		0.1	20.9	0
AM-3	7/15/2014 10:37	0.0		0	20.7	0
AM-4	7/15/2014 10:55	0.0		0	20.7	0
AM-5	7/15/2014 11:07	0.0		0	20.7	0
AM-6	7/15/2014 11:22	0.0		0	20.9	0.02
AM-7	7/15/2014 11:55	0.0		0	21.1	0.02
AM-8	7/15/2014 12:40	0.0		0	21.1	0.02
AM-CB	7/15/2014 10:34	0.0		0	20.7	0
GP-1	7/15/2014 11:21	0.0		0.1	20.9	0.17
GP-2	7/15/2014 11:53	0.0		1.5	18.5	0.39
MW-5	7/15/2014 11:34	0.0		1.2	20.1	0.11
MW-13	7/15/2014 11:03	0.0		0.1	20.3	0.03
MW-24	7/15/2014 11:05	0.0		0.1	20.4	-0.01
NP-1D	7/15/2014 10:43	0.0		0.0	20.7	-0.55
NP-1I	7/15/2014 10:41	0.0		0.1	20.2	0.13
NP-1S	7/15/2014 10:40	0.0		1.9	16.8	0.18
NP-2D	7/15/2014 10:52	0.0		0.0	20.7	0.01
NP-2I	7/15/2014 10:51	0.0		0.1	19.8	-0.11
NP-2S	7/15/2014 10:49	0.0		0.1	20.4	0.01
NP-3D	7/15/2014 11:01	0.0		2.3	17.3	-0.03
NP-3I	7/15/2014 10:59	0.0		2.8	16.6	-0.03
NP-3S	7/15/2014 10:58	0.0		1.9	17.7	0.01
NP-4D	7/15/2014 11:17	0.0		1.2	16.8	-0.07
NP-4I	7/15/2014 11:15	0.0		1.1	19.1	0.01
NP-4S	7/15/2014 11:13	0.0		2.8	17.2	0.12
NP-5D	7/15/2014 11:31	0.0		2.4	17.5	0.26
NP-5I	7/15/2014 11:30	0.0		2.3	18.6	0.15
NP-5S	7/15/2014 11:28	0.0		3.4	17.3	0.22
NP-6D	7/15/2014 12:01	0.0		0.0	21.1	0.24
NP-6I	7/15/2014 12:00	0.0		0.1	21.0	0.22
NP-6S	7/15/2014 11:58	0.0		3.7	15.7	0.06
NP-7D	7/15/2014 11:46	0.0		2.3	16.3	0.1
NP-7I	7/15/2014 11:45	0.0		0.2	21.0	0.11
NP-7S	7/15/2014 11:43	0.0		0.0	21.2	0.1
NP-8D	7/15/2014 10:31	0.0		0.1	20.7	-0.53
NP-8I	7/15/2014 10:30	0.0		0.1	20.6	-0.38
NP-8S	7/15/2014 10:28	0.0		0.1	20.7	0.03

King County Solid Waste Division

Environmental Monitoring Data

Data Collected August 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
Coeast	8/19/2014 13:36	0.0		0	20.1	0.12
AM-1	8/19/2014 12:40	0.0		0.7	19.9	0.34
AM-2	8/19/2014 13:47	0.0		1.4	17.8	0.06
AM-5	8/19/2014 12:28	0.0		1.8	19.2	0.01
MW-13	8/19/2014 13:11	0.0		0.0	19.9	0.02
MW-24	8/19/2014 12:51	0.0		0.5	19.7	0.58
NP-1D	8/19/2014 13:32	0.0		0.4	15.9	1.39
NP-1I	8/19/2014 13:30	0.0		0.4	16.0	0.75
NP-1S	8/19/2014 13:28	0.0		1.9	16.1	0.04
NP-2D	8/19/2014 13:25	0.0		0.4	18.1	1.15
NP-2I	8/19/2014 13:23	0.0		0.1	19.2	0.86
NP-2S	8/19/2014 13:21	0.0		1.0	18.4	0.14
NP-3D	8/19/2014 13:17	0.0		1.9	16.9	0.82
NP-3I	8/19/2014 13:15	0.0		2.6	16.1	0.8
NP-3S	8/19/2014 13:14	0.0		1.8	17.3	0.3
NP-4D	8/19/2014 12:47	0.0		1.2	17.0	0.54
NP-4I	8/19/2014 12:45	0.0		1.2	19.3	0.33
NP-4S	8/19/2014 12:43	0.0		2.5	18.7	0.24
NP-5D	8/19/2014 12:34	0.0		2.4	17.6	0.12
NP-5I	8/19/2014 12:32	0.0		2.5	18.5	0.04
NP-5S	8/19/2014 12:30	0.0		3.4	17.5	0.17
NP-6D	8/19/2014 13:53	0.0		0.0	20.6	0.35
NP-6I	8/19/2014 13:52	0.0		0.0	20.4	0.04
NP-6S	8/19/2014 13:50	0.0		4.2	16.0	0.04
NP-7D	8/19/2014 14:06	0.0		2.4	16.8	0.01
NP-7I	8/19/2014 14:04	0.0		0.1	20.7	0.29
NP-7S	8/19/2014 14:03	0.0		0.0	21.0	0.85
NP-8D	8/19/2014 13:42	0.0		0.0	20.0	1.62
NP-8I	8/19/2014 13:41	0.0		2.4	14.8	1.11
NP-8S	8/19/2014 13:39	0.0		8.3	1.5	0.21

King County Solid Waste Division

Environmental Monitoring Data

Data Collected September 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
Coeast	9/9/2014 12:49	0.0		0	20.5	-0.18
AM-1	9/9/2014 12:11	0.0		0.0	20.7	-1.11
AM-2	9/9/2014 13:08	0.0		1.5	18.5	-0.14
MW-5	9/9/2014 12:06	0.0		0.0	20.6	-0.13
MW-13	9/9/2014 12:25	0.0		0.0	20.8	0
MW-24	9/9/2014 12:23	0.0		0.1	20.7	-2.14
NP-1D	9/9/2014 12:46	0.0		0.0	20.6	-2.75
NP-1I	9/9/2014 12:44	0.0		0.0	20.6	-1.86
NP-1S	9/9/2014 12:42	0.0		2.3	16.5	-0.1
NP-2D	9/9/2014 12:38	0.0		0.0	20.7	-2.59
NP-2I	9/9/2014 12:36	0.0		0.1	19.7	-2.51
NP-2S	9/9/2014 12:34	0.0		1.2	19.2	0.04
NP-3D	9/9/2014 12:31	0.0		2.2	17.7	-2.25
NP-3I	9/9/2014 12:29	0.0		3.0	16.7	-2.2
NP-3S	9/9/2014 12:27	0.0		1.9	18.2	-0.15
NP-4D	9/9/2014 12:18	0.0		1.5	16.5	-2.21
NP-4I	9/9/2014 12:16	0.0		1.4	19.0	-1.29
NP-4S	9/9/2014 12:14	0.0		2.7	18.5	-0.53
NP-5D	9/9/2014 12:03	0.0		2.8	16.9	-0.59
NP-5I	9/9/2014 12:02	0.0		2.8	18.0	-0.3
NP-5S	9/9/2014 12:00	0.0		3.7	17.2	-0.06
NP-6D	9/9/2014 13:04	0.0		0.0	20.6	-1.17
NP-6I	9/9/2014 13:02	0.0		0.1	20.5	-0.36
NP-6S	9/9/2014 13:00	0.0		4.7	16.5	0.06
NP-7D	9/9/2014 13:16	0.0		2.7	17.0	0.12
NP-7I	9/9/2014 13:14	0.0		0.1	20.6	-1.6
NP-7S	9/9/2014 13:12	0.0		0.0	20.8	-1.78
NP-8D	9/9/2014 12:56	0.0		0.0	20.5	-2.29
NP-8I	9/9/2014 12:54	0.0		0.0	20.5	-2.42
NP-8S	9/9/2014 12:52	0.0		0.0	20.5	-0.2

King County Solid Waste Division

Environmental Monitoring Data

Data Collected October 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
AM-1	10/6/2014 14:44	0.0		0.0	21.6	0
AM-2	10/6/2014 14:14	0.0		0.0	21.2	0
AM-3	10/6/2014 14:04	0.0		0	21.4	0
AM-4	10/6/2014 13:43	0.0		0	21.3	0
AM-5	10/6/2014 13:28	0.0		0	21.3	0
AM-6	10/6/2014 13:10	0.0		0	21.3	0
AM-7	10/6/2014 14:38	0.0		0	21.6	0
AM-8	10/6/2014 14:57	0.0		0	21.6	0
AM-CB	10/6/2014 14:07	0.0		0	21.4	0
GP-1	10/6/2014 13:18	0.0		0.3	20.8	0.38
GP-2	10/6/2014 14:40	0.0		1.5	18.8	0.22
MW-5	10/6/2014 13:00	0.0		2.6	17.7	0.09
MW-13	10/6/2014 13:34	0.0		0.0	21.3	-0.01
MW-24	10/6/2014 13:31	0.0		0.6	19.9	0.67
NP-1D	10/6/2014 14:02	0.0		0.0	21.3	1.11
NP-1I	10/6/2014 14:00	0.0		0.0	21.1	0.8
NP-1S	10/6/2014 13:58	0.0		2.1	17.0	0.06
NP-2D	10/6/2014 13:52	0.0		0.1	20.8	0.91
NP-2I	10/6/2014 13:50	0.0		0.1	20.5	0.86
NP-2S	10/6/2014 13:47	0.0		0.0	21.1	0.03
NP-3D	10/6/2014 13:40	0.0		1.8	18.1	0.75
NP-3I	10/6/2014 13:38	0.0		2.6	17.1	0.7
NP-3S	10/6/2014 13:36	0.0		1.7	18.8	0.08
NP-4D	10/6/2014 13:24	0.0		1.3	16.9	0.71
NP-4I	10/6/2014 13:22	0.0		0.8	19.9	0.43
NP-4S	10/6/2014 13:21	0.0		2.2	19.3	0.19
NP-5D	10/6/2014 13:06	0.0		2.5	17.4	0.29
NP-5I	10/6/2014 13:04	0.0		2.5	18.5	0.14
NP-5S	10/6/2014 13:02	0.0		3.3	17.9	0.03
NP-6D	10/6/2014 14:34	0.0		0.1	21.4	0.59
NP-6I	10/6/2014 14:32	0.0		0.1	21.3	0.13
NP-6S	10/6/2014 14:30	0.0		4.5	17.4	0.03
NP-7D	10/6/2014 14:52	0.0		2.7	18.1	0.17
NP-7I	10/6/2014 14:50	0.0		0.1	21.3	0.35
NP-7S	10/6/2014 14:48	0.0		0.0	21.5	0.64
NP-8D	10/6/2014 14:12	0.0		0.6	15.0	0.92
NP-8I	10/6/2014 14:11	0.0		2.6	15.6	1.21
NP-8S	10/6/2014 14:09	0.0		10.9	4.3	0.21

King County Solid Waste Division

Environmental Monitoring Data

Data Collected Nov 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
Coeast	11/4/2014 12:17	0.0		0.1	21	-0.2
AM-1	11/4/2014 11:46	0.0		0.1	21.0	-0.74
AM-2	11/4/2014 12:41	0.0		1.7	19.2	-0.24
AM-5	11/4/2014 11:36	0.0		0.1	21.0	-0.22
MW-13	11/4/2014 11:56	0.0		0.1	21.0	0.08
MW-24	11/4/2014 11:55	0.0		0.9	19.8	-1.43
NP-1D	11/4/2014 12:15	0.0		0.1	21.0	-1.71
NP-1I	11/4/2014 12:13	0.0		0.1	21.0	-1.27
NP-1S	11/4/2014 12:11	0.0		2.6	17.5	0.08
NP-2D	11/4/2014 12:08	0.0		0.1	21.0	-1.68
NP-2I	11/4/2014 12:06	0.0		0.2	20.8	-1.73
NP-2S	11/4/2014 12:05	0.0		1.7	19.7	-0.07
NP-3D	11/4/2014 12:01	0.0		2.2	17.8	-1.48
NP-3I	11/4/2014 12:00	0.0		3.1	17.4	-1.47
NP-3S	11/4/2014 11:58	0.0		2.0	18.7	0.24
NP-4D	11/4/2014 11:51	0.0		1.6	16.9	-1.16
NP-4I	11/4/2014 11:49	0.0		1.2	19.8	-0.88
NP-4S	11/4/2014 11:48	0.0		2.4	19.3	-0.39
NP-5D	11/4/2014 11:41	0.0		3.0	17.6	-0.72
NP-5I	11/4/2014 11:40	0.0		2.7	18.7	-0.39
NP-5S	11/4/2014 11:38	0.0		3.6	17.7	-0.11
NP-6D	11/4/2014 12:38	0.0		0.4	21.0	-1.21
NP-6I	11/4/2014 12:36	0.0		0.5	21.0	-0.63
NP-6S	11/4/2014 12:34	0.0		4.9	17.0	-0.04
NP-7D	11/4/2014 12:31	0.0		3.3	18.6	-0.25
NP-7I	11/4/2014 12:29	0.0		0.2	21.0	-1.77
NP-7S	11/4/2014 12:27	0.0		0.1	21.0	-1.55
NP-8D	11/4/2014 12:23	0.0		0.1	21.0	-1.76
NP-8I	11/4/2014 12:21	0.0		2.7	15.7	-1.76
NP-8S	11/4/2014 12:19	0.0		3.8	14.5	-0.02

King County Solid Waste Division

Environmental Monitoring Data

Data Collected December 2014

Vashon Landfill--Gas Testing Results

Sample Location	Sample Date/Time	CH4		CO2	Vol O2	Relative Pressure
		%Vol	%LEL	%Vol	%Vol	in. H2O
Coeast	12/10/2014 10:50	0.0		0.1	20.1	0
AM-1	12/10/2014 11:11	0.0		2.6	16.9	2.31
AM-2	12/10/2014 12:13	0.0		1.8	17.7	0.21
MW-5	12/10/2014 11:01	0.0		3.0	16.8	0.32
MW-13	12/10/2014 11:22	0.0		0.1	20.3	0.02
MW-24	12/10/2014 11:20	0.0		1.4	16.8	4.54
NP-1D	12/10/2014 11:53	0.0		0.1	20.2	5.85
NP-1I	12/10/2014 11:51	0.0		0.6	17.7	0.75
NP-1S	12/10/2014 11:50	0.0		2.1	16.9	9.55
NP-2D	12/10/2014 11:47	0.0		0.5	18.1	5.36
NP-2I	12/10/2014 11:45	0.0		0.2	19.7	5.06
NP-2S	12/10/2014 11:43	0.0		1.1	18.9	0.05
NP-3D	12/10/2014 11:28	0.0		1.9	16.7	4.73
NP-3I	12/10/2014 11:26	0.0		2.4	17.1	4.68
NP-3S	12/10/2014 11:24	0.0		1.3	18.5	5.29
NP-4D	12/10/2014 11:17	0.0		1.4	15.9	4.56
NP-4I	12/10/2014 11:15	0.0		1.2	18.7	2.68
NP-4S	12/10/2014 11:14	0.0		2.9	17.3	7.07
NP-5D	12/10/2014 11:06	0.0		2.6	17.0	1.07
NP-5I	12/10/2014 11:05	0.0		2.4	17.8	0.54
NP-5S	12/10/2014 11:03	0.0		3.2	16.5	0.25
NP-6D	12/10/2014 12:10	0.0		1.8	18.0	2.14
NP-6I	12/10/2014 12:09	0.0		0.4	20.1	0.52
NP-6S	12/10/2014 12:07	0.0		4.1	15.1	0.07
NP-7D	12/10/2014 12:21	0.0		2.8	17.0	0.95
NP-7I	12/10/2014 12:19	0.0		0.2	20.2	2.41
NP-7S	12/10/2014 12:17	0.0		0.1	20.3	3.48
NP-8D	12/10/2014 10:56	0.0		0.2	19.9	5.26
NP-8I	12/10/2014 10:54	0.0		2.7	14.3	5.2
NP-8S	12/10/2014 10:53	0.0		8.0	4.4	3.19

Appendix L
Inspection Survey Reports

Public Health
Seattle & King County

PUBLIC HEALTH - SEATTLE & KING COUNTY Downtown Office 401 - 5th Ave., Ste 1100 Seattle, WA 98104 206-263-9566	**PURPOSE OF VISIT:** Routine Inspection/Field Review of a Closed Landfill sites establishment (PE=1002)
ESTABLISHMENT INFORMATION: **VASHON LANDFILL** VASHON LANDFILL 18900 SW WESTSIDE HWY SW VASHON ISLAND, WA 98070 206-296-4385 **Program Record:** PR0015723	**INSPECTION INFORMATION:** **Date of Inspection:** Tuesday, January 21, 2014 **Time In:** 12:32 pm **Time Out:** 1:19 pm **Inspector:** Edward Davis **Result:** **SATISFACTORY**

VIOLATIONS OBSERVED (if any)

OVERALL INSPECTION COMMENTS:

Fences: A section of fence has been damaged by what appears to be a fallen tree southwest of the south detention pond.
King County Park staff working on park related property indicated that several horizontal bars for fencing in the northeast portion of the fenced surrounding the property controled by Solid Waste Division. As these park employees indicated that King County Solid Waste would be informed regarding their observations, they were referred to Ann Holmes and Dan Swope as the contact persons.

Ed Davis

Ed Davis
HEI III

PIC Phone #: **Email:**

PUBLIC HEALTH - SEATTLE & KING COUNTY
Downtown Office
401 - 5th Ave., Ste 1100
Seattle, WA 98104
206-263-9566

PURPOSE OF VISIT:
Routine Inspection/Field Review of a Closed Landfill sites establishment (PE=1002)

ESTABLISHMENT INFORMATION:

VASHON LANDFILL
VASHON LANDFILL
18900 SW WESTSIDE HWY SW
VASHON ISLAND, WA 98070
206-296-4385

Program Record: PR0015723

INSPECTION INFORMATION:

Date of Inspection: Monday, March 31, 2014

Time In: 2:15 pm **Time Out:** 2:43 pm

Inspector: Edward Davis

Result: SATISFACTORY

VIOLATIONS OBSERVED (if any)

OVERALL INSPECTION COMMENTS:

No violations were observed or detected during the inspection.

Ed Davis
HEI III

PIC Phone #: 206-477-5223 **Email:** emily.robbins@kingcounty.gov; pam.badger@kingcounty.gov

Public Health
Seattle & King County

PUBLIC HEALTH - SEATTLE & KING COUNTY	PURPOSE OF VISIT:
Downtown Office 401 - 5th Ave., Ste 1100 Seattle, WA 98104 206-263-9566	Routine Inspection/Field Review of a Closed Landfill sites establishment (PE=1002)
ESTABLISHMENT INFORMATION:	**INSPECTION INFORMATION:**
VASHON LANDFILL VASHON LANDFILL 18900 SW WESTSIDE HWY SW VASHON ISLAND, WA 98070 206-296-4385 **Program Record:** PR0015723	**Date of Inspection:** Friday, May 16, 2014 **Time In:** 10:48 am **Time Out:** 11:30 am **Inspector:** Edward Davis **Result:** SATISFACTORY

VIOLATIONS OBSERVED (if any)

OVERALL INSPECTION COMMENTS:

The landfill site appears due for seasonal mowing.
No violations were observed or detected in connection with this field inspection.

Ed Davis

Ed Davis
HEI III

PIC Phone #: 206-477-5223

Email: emily.robbins@kingcounty.gov; pamela.badger@kingcounty.gov

Public Health
Seattle & King County

PUBLIC HEALTH - SEATTLE & KING COUNTY Downtown Office 401 - 5th Ave., Ste 1100 Seattle, WA 98104 206-263-9566	**PURPOSE OF VISIT:** Routine Inspection/Field Review of a Closed Landfill sites establishment (PE=1002)
ESTABLISHMENT INFORMATION: **VASHON LANDFILL** VASHON LANDFILL 18900 SW WESTSIDE HWY SW VASHON ISLAND, WA 98070 206-296-4385 **Program Record:** PR0015723	**INSPECTION INFORMATION:** **Date of Inspection:** Wednesday, July 23, 2014 **Time In:** 11:20 am **Time Out:** 11:47 am **Inspector:** Edward Davis **Result:** **SATISFACTORY**

VIOLATIONS OBSERVED (if any)

OVERALL INSPECTION COMMENTS:

Advise scheduling follow-up summer mowing activities prior to the next routine inspection (i.e. approximately 30 days or less).
No problems were observed with fences or well casings

Ed Davis

Ed Davis
HEI III

PIC Phone #: 206-477-5223 **Email:** emily.robbins@kingcounty.gov; pamela.badger@kingcounty.gov

Appendix M
Vashon Annual Financial Summary

King County Solid Waste Division
Vashon Island Closed Landfill - 2015-2016 Financial Summary

Account Description	2015	2016
PCM Budget: Routine Maintenance, Operations, Compliance Reporting, Public Response		
SWD LABOR	$107,178	$110,393
MISC OPERATING SUPPLIES	$6	$6
CONSULTANT SERVICES	$14,116	$14,540
OTHER CONTRACTUAL PROF SVCS	$57,019	$58,729
UTILITIES SURFACE WATER UTILITY	$8	$8
DISPOSAL	$15,347	$15,776
SERVICES REPAIR MAINTENANCE	$27	$28
TAXES ASSESSMENTS MISC	$5	$5
LICENSES FEES PERMITS	$7,809	$8,044
EQUIPMENT USAGE	$35,755	$36,828
LABORATORY ANALYSIS	$87,022	$89,632
PCM Budget Subtotal	$163,239	$168,136

CIP Budget: Env Investigation, Eng Control Systems Maintenance, GW Montirong Network Maintenance

Project Balance Transfer	$1,631,955
2015/2016 Budget Addition	$311,358
Project Budget Subtotal	$1,943,313