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June 12, 2012
File No. 04212004.03

Mr. David Bosch
Environmental Health Specialist
Tacoma-Pierce County Health Department
3629 South D Street
Tacoma, Washington 98418-6813

Subject: First Quarter 2012 Monitoring, Hidden Valley Landfill

Dear David:

The following provides a summary of monitoring activities performed at the closed Hidden Valley Landfill during the First Quarter (January through March) of 2012.

Monthly rainfall totals and monthly leachate volumes pumped from Cell 1 (main sump), Cell 2 (side slope sump), and the leak detection sump (leakage flow), are summarized in Table 1. Leachate and leakage flow are recorded on a daily basis using a programmable logic controller. Leakage volumes from the side slope liner leak detection system are based on meter readings recorded by on-site personnel. Rainfall totals were recorded with an on-site rain gauge.

Landfill gas monitoring was performed on January 23, February 24, and March 16. All gas probe measurements this quarter were less than 5 percent methane by volume, with the exception of GP-13A in February and in March. After each of these readings, LRI personnel were notified and adjustments were made to the landfill gas extraction system to recapture the gas. On-site buildings were monitored for the presence of landfill gas on February 24. No methane detections were reported within the buildings. A summary of monitoring data for the landfill gas probes, barometric pressure trends, and on-site buildings is enclosed.

First Quarter 2012 groundwater monitoring was the annual sampling event as described in the Hidden Valley Landfill Groundwater Compliance Monitoring Plan (February 2001). Groundwater samples were collected by SCS Engineers (SCS) on January 24 through January 30. Low-flow sampling techniques were used to purge and collect samples from the monitoring wells. Field quality control samples consisted of one duplicate sample and one field blank. Water supply well samples were collected at Corliss Resources, Inc. (Corliss) and the Paul Bunyan Rifle & Sportsman Club (Paul Bunyan). A leachate sample and a sample from the side-slope liner leak detection system were collected. The hydraulic gradient control system beneath the main leachate collection sump did not accumulate fluids and require pumping, therefore, fluids from this system were not sampled.

Samples were shipped to TestAmerica Laboratories, Inc. in Arvada, Colorado via FedEx the same day as collected. Groundwater data generated from the Hidden Valley Landfill during the

First Quarter of 2012 were validated and input into the Washington Department of Ecology Environmental Information Management (EIM) system.

Depths to water measurements were collected on January 26. Figures 1 through 3 display water level contour maps for; the shallow perched aquifer, upper regional aquifer, and the lower regional aquifer, respectively.

Groundwater field data and laboratory test results are summarized on the following tables: Table 1 , 2012 Performance Monitoring Data; Table 2, Water Level Elevations; Table 3, Field Parameters; Table 4, Inorganic Parameters; Table 5, Dissolved Metals; Table 6, Volatile Organic Compounds; Table 7, Duplicate Samples; and Table 8, Water Supply Wells; Table 9, Side Slope liner Monitoring. Field Sampling Data Sheets are attached. Laboratory reports for First Quarter 2012 groundwater monitoring were provided under separate cover. Groundwater sample results are similar to previous wet-season results. An update of time series plots and groundwater statistics will be included with the 2012 Annual Report. A quality assurance review of the First Quarter 2012 analytical data is attached.

Detections of acetone (46 µg/L) and 2-butanone (110 µg/L) were reported in the sample from the Paul Bunyan water supply well. The Tacoma-Pierce County Health Department was notified. This sampling point was altered between the Fourth Quarter 2011 sampling event and the First Quarter 2012 sampling event. Previously, the sample port was a faucet at ground level. During the First Quarter event, it was found to have been extended up several feet. The VOC detections are likely due to construction activities at the faucet. A photograph of the new completion is included in the Field Sampling Data Sheets enclosure.

The landfill cover system and the condensate recirculation system were inspected on January 24. The inspections found minor maintenance issues which are detailed on the attached forms and are being addressed by LRI staff.

A new landfill gas flare and blower system began operation at the Hidden Valley landfill on March 16, 2011 (see the 2011 First Quarter Monitoring Report). A flare source test was completed on September 9, 2011. A source test report was finalized and issued on November 4, 2011. Test results indicate that the flare passed all regulatory requirements.

A portion of the landfill gas extraction system (gas wells N42, N43, N60, N61, N62, and N54) on the south slope of the landfill was taken off-line in early September 2009 to help mitigate a suspected subsurface smoldering fire (see 2009, 2010 and 2011 Annual Reports for further discussion). These extraction wells remain off-line.

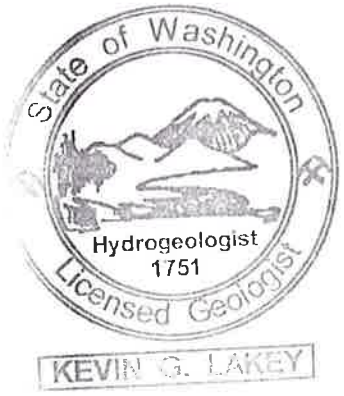
Three temporary gas probes (LFG-1, LFG-2, and LFG-3) were installed in the vicinity of the suspected subsurface fire in September 2009. Probes LFG-1 and LFG-2 are located just outside the waste on the south side of the first sinkhole. Probe LFG-3 is located within the waste, north of the first sinkhole. These probes are monitored monthly for methane, carbon dioxide, and oxygen. A chart of gas trends at the temporary probes is included with the landfill gas monitoring results.

LRI and SCS are continuing to inspect the sinkhole repair area and south slope for stabilization, slope erosion, and odors. These inspections include weekly visual surveys by LRI personnel and monthly inspections by SCS personnel. Final repair of the composite geomembrane cover will occur after site inspection and monitoring data suggest the subsurface fire is extinguished. These criteria include increasing concentrations of methane and carbon dioxide in landfill gas probes and extraction wells, stabilization of the sinkhole area and south slope, and an absence of burning odors.

If you have any questions regarding the monitoring results, please call at (425) 289-5447.

Sincerely,

Kevin Lakey, PE, LHG
Project Director
SCS ENGINEERS



Attachment: Data Summary Tables (Tables 1 through 9)
Groundwater Contour Maps (Figures 1 through 3)

Enclosure: Hidden Valley Leachate Treatment System Data
Field Sampling Data Sheets
Landfill Gas Monitoring Results
Site Inspection Forms
CD with .pdf of complete report

cc: Mohsen Kourehdar, Ecology
Rebecca Lawson, Ecology (w/o enclosure)
George Duvendack, LRI
Jody Snyder, LRI (w/o enclosure)
Wes Gavett, WCI (w/o enclosure)

Groundwater Data Validation Report
First Quarter 2012
Hidden Valley Landfill

Holding Times. All analyses were performed within quality control (QC) holding times.

Surrogate Recovery. Surrogate recoveries were within USEPA guidelines.

Laboratory Control Samples (LCS). All Laboratory Control Samples were within established control limits

Matrix Spike and Matrix Spike Duplicate (MS/MSD). Matrix spike recoveries were within USEPA guidelines, with the following exceptions:

- Trichloroethene in batch 280-24955-1, Total Cyanide in batch 280-24953-1 were reported with an MS/MSD recovery outside the acceptable limits. No further action was taken.

- Ammonia in batches 280-24955-1, 280-25106-1, 280-25133-1, 280-25054-1, 280-25016-1, 280-25053-1, and 280-24953-1 was reported with a MS/MSD recovery below the lower control acceptable limit. This indices the possible presence of a matrix interference. No further action was taken.

- Total Antimony in batch 280-24953-1 was reported with a MS/MSD recovery above the upper control acceptable limit. This indices the possible presence of a matrix interference. No further action was taken.

- Dissolved Manganese in lot numbers 280-24955-1, 280-25133-1, 280-25016-1, Total Barium in lot number 280-24953-1, was reported outside the acceptable recovery percentage, because the sample concentration was greater than four times the spike amount. No further action was taken.

Blanks. One field blank was included this quarter. Laboratory Grade De-ionized water from TestAmerica Laboratory, in Tacoma, Washington, was used to prepare the field blank by pumping the water through an unused bladder in the submersible bladder-pump. No VOCs, dissolved metals, or inorganic compounds were reported in the field blank or laboratory method blanks.

Duplicate Samples. A field duplicate sample was collected from well MW-15S. All test results greater than five times the method reporting limit (MRL) were within 20 percent RPD.

Quantitation Limits. The reporting limits for all analyses were within the limits specified in the 2001 Groundwater Compliance Monitoring Plan.

Completeness. Samples were analyzed as requested. Leachate samples for coliform testing were delivered to the laboratory, but not analyzed within holding times. Additional leachate samples for coliform testing were subsequently collected on May 8, 2012.

Data Assessment. The data are considered acceptable for entry into the database.

Table 1
2012 Performance Monitoring Data
Main Sump and Side Slope Liner Areas
Hidden Valley Landfill, Pierce County, Washington

Month	Cell 1 Monthly Leachate Volume (b) (gallons)	Cell 2 Monthly Leachate Volume (gallons)	Cell 2 Monthly Leakage Flow (a) (gallons/month)	Monthly Rainfall (inches)
January	29840	0	994	4.80
February	9834	—	0	3.70
March	8799	—	630	5.80

Notes:

(—) Leachate volume was unavailable due to PLC error

(a) Leakage is based on the volume of fluid pumped from the leak detection sump as recorded by LRI staff.

(b) Cell 1 monthly volumes for Februrary and March are from comibed site and PLC data

Table 2
Water Level Elevations
January 26, 2012
Hidden Valley Landfill, Pierce County, Washington

Well Number	Well Casing Elevation	Depth to Water	Water Level Elevation
MW-10S	460.17	NM	NM
MW-10D	460.69	31.05	429.64
MW-11S	516.44	92.36	424.08
MW-11D	516.56	92.64	423.92
MW-11D(2)	515.53	93.50	422.03
MW-12S	489.94	64.67	425.27
MW-12D	489.97	67.77	422.20
MW-13S	448.81	24.91	423.90
MW-13D	448.94	25.25	423.69
MW-14S	477.95	49.01	428.94
MW-14D	477.98	52.26	425.72
MW-14R	476.84	119.50	357.34
MW-15S	498.76	74.90	423.86
MW-15D	498.52	81.40	417.12
MW-17S	552.44	129.14	423.30
MW-18S	538.40	131.57	406.83
MW-18D	539.00	131.66	407.34
MW-19S	485.71	54.46	431.25
MW-19D	485.82	59.53	426.29
MW-20R	469.43	108.96	360.47
MW-22U	545.92	137.37	408.55
MW-22L	546.07	142.65	403.42
MW-23S	448.34	126.20	322.14
MW-23D	448.25	25.11	423.14
MW-25S	527.80	19.80	508.00
MW-25D	527.52	124.10	403.42
MW-26R	481.81	65.52	416.29
MW-27S	531.81	107.79	424.02
MW-27D	531.92	107.77	424.15
MW-28S	466.87	42.20	424.67
FMW-01	542.59	137.80	404.79
FMW-02	536.40	145.79	390.61
BC-4S	526.68	126.06	400.62
BC-4D	526.94	159.90	367.04

Notes:
(NM) = not measured

Table 3
Field Parameters
January 2012 (First Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

Sample ID	Sample Number	Sample Date	Method	pH	Conductance (µS)	Temperature (° C)
MW-10S	HVL-012412-04	01/24/12	DP	6.49	155	12.5
MW-10D	HVL-012412-03	01/24/12	DP	6.49	130	12.1
MW-11S	HVL-012512-12	01/25/12	SP	5.92	206	14.5
MW-11D(2)	HVL-012512-13	01/25/12	SP	6.81	224	14.0
MW-12S	HVL-013012-28	01/30/12	DP	5.76	466	19.1
MW-12D	HVL-013012-27	01/30/12	DP	6.70	329	17.0
MW-13S	HVL-012712-22	01/27/12	SP	6.29	255	17.2
MW-13D	HVL-013012-29	01/30/12	DP	6.65	270	17.0
MW-14S	HVL-012412-02	01/24/12	SP	6.16	67	10.3
MW-14D	HVL-012412-01	01/24/12	SP	6.33	185	11.4
MW-14R	HVL-012712-21	01/27/12	SP	6.82	128	6.0
MW-15S	HVL-012512-14	01/25/12	SP	5.95	299	14.7
MW-15D	HVL-012612-16	01/26/12	SP	6.67	318	12.7
MW-17S	HVL-012512-11	01/25/12	SP	6.28	424	18.8
MW-18S	HVL-012512-09	01/25/12	SP	6.38	369	15.2
MW-18D	HVL-012512-10	01/25/12	SP	6.81	280	14.6
MW-20R	HVL-012412-05	01/24/12	SP	6.90	259	9.8
MW-23S	HVL-012612-19	01/26/12	SP	6.17	209	11.2
MW-25S	HVL-012512-08	01/25/12	SP	6.77	74	8.8
MW-26R	HVL-013012-26	01/30/12	DP	6.38	69	10.0
MW-28S	HVL-012612-20	01/26/12	SP	6.39	233	10.5
FMW-01	HVL-012712-24	01/27/12	SP	6.33	342	12.9
FMW-02	HVL-012712-25	01/27/12	SP	6.06	408	15.4
Water Supply Well, P. Bunyan	HVL-012612-18	01/26/12	Grab	7.26	245	6.4
Water Supply Well, Corliss	HVL-012612-17	01/26/12	Grab	7.17	222	7.0
Leak Detection, Side Slope	HVL-012412-07	01/24/12	Grab	7.65	17,000	18.0
Leachate, East Area	HVL-012412-06	01/24/12	Grab	7.62	15,000	15.5

Notes:
The groundwater cleanup level for specific conductance is 700 (µS).
(µS) = microsiemens
(°C) = degrees Celcius
(Grab) = collected from sampling point
(SP) = submersible bladder-pump (non-dedicated)
(DP) = dedicated bladder-pump

Table 4
Inorganic Parameters (mg/L)
January 2012 (First Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	Cleanup Levels	MW-10D	MW-10S	MW-11D(2)	MW-11S	MW-12D	MW-12S	MW-13D	MW-13S	MW-14D	MW-14R	MW-14S	MW-15D	MW-15S	MW-17S	MW-18D	MW-18S	MW-20R	MW-23S	MW-25S	MW-26R	MW-28S	FMW-01	FMW-02
			Background																						
Alkalinity	5	—	66	72	100	48	160	30	120	87	80	49	25	160	78	150	130	120	48	78	120	42	14	120	110
Bicarbonate Alkalinity	5	—	66	72	100	48	160	30	120	87	80	49	25	160	78	150	130	120	48	78	120	42	14	120	110
Chloride	0.2-4.0	250[(b)]	11.7	10.6	5.7	16.7	9.8	10.9	10.1	13.0	10.2	1.7	2.1	12.7	18.0	14.5	10.0	14.9	1.6	11.9	8.2	2.3	15.4	19.4	17.0
Ammonia as Nitrogen	0.10	—	*	*	*	*	*	0.76	*	*	3.70	*	*	*	3.20	4.50	*	*	*	*	*	0.30	*	*	0.28
Nitrate as Nitrogen	0.50	10[(a)]	0.57	0.80	1.8	4.4	1.1	**43.0**	0.73	0.65	*	*	1.1	0.59	9.8	**11.0**	1.7	**11.0**	*	0.93	1.8	*	3.0	1.4	**13.0**
Sulfate	0.5-10.0	250[(b)]	9.9	9.0	5.5	11.6	5.1	5.9	12.6	11.2	10.5	3.8	4.6	8.2	11.3	4.8	5.0	6.2	2.9	16.7	6.4	*	17.2	15.8	8.9
Total Dissolved Solids	10	500[(b)]	96	110	140	130	190	350	170	140	120	98	56	200	210	260	180	240	85	150	170	52	160	190	250
Total Organic Carbon	1.0	—	1.4	1.5	*	*	*	1.5	*	1.1	1.7	*	2.1	1.0	1.7	1.9	*	1.3	*	*	*	1.0	*	*	1.5

Notes:
Parameter concentrations that are greater than cleanup levels are shown in **bold**
Analyses performed by TestAmerica, Arvada, Colorado
(mg/L) = milligrams per liter
(*) indicates not reported at or above the MRL (Method Reporting Limit)
(—) indicates not analyzed or not applicable
(a) indicates Primary Drinking Water Standard
(b) indicates Secondary Drinking Water Standard

Table 5
Dissolved Metals (mg/L)
January 2012 (First Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	Cleanup Levels	MW-10D	MW-10S	MW-11D(2)	MW-11S	MW-12D	MW-12S	MW-13D	MW-13S	MW-14D	MW-14R	MW-14S	MW-15D	MW-15S	MW-17S	MW-18D	MW-18S	MW-20R	MW-23S	MW-25S	MW-26R	MW-28S	FMW-01	FMW-02
			Background																						
Arsenic	0.015	—	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Iron	0.200	0.30[(b)]	*	*	*	*	*	*	*	*	**2.50**	*	*	*	*	*	*	*	*	*	*	**0.75**	*	*	*
Manganese	0.001	0.05[(b)]	*	0.006	*	*	*	**0.440**	*	0.002	**0.920**	*	0.003	**0.079**	**0.910**	**0.920**	*	*	*	0.023	*	**0.260**	*	*	**0.110**

Notes:
Parameter concentrations that are greater than cleanup levels are shown in **bold**
(b) indicates Secondary Drinking Water Standard
Analyses performed by TestAmerica, Arvada, Colorado
Metals not listed were not present at concentrations exeeding the MRL
(mg/L) = milligrams per liter
(*) indicates not reported at or above the MRL (Method Reporting Limit)
(—) indicates not analyzed or not applicable

Table 6
Volatile Organic Compounds (µg/L)
January 2012 (First Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	Cleanup Levels	MW-10D	MW-10S	MW-11D(2)	MW-11S	MW-12D	MW-12S	MW-13D	MW-13S	MW-14D	MW-14R	MW-14S	MW-15D	MW-15S	MW-17S	MW-18D	MW-18S	MW-20R	MW-23S	MW-25S	MW-26R	MW-28S	FMW-01	FMW-02
			Background																						
m,p-Xylenes	0.5	—	*	*	*	*	*	*	*	*	*	0.75	*	*	*	*	*	*	*	*	*	*	*	0.50	0.52
Tetrachloroethene	0.5	5.0[(a)]	*	*	*	*	*	*	*	*	*	*	*	0.64	*	*	*	*	*	*	*	*	*	*	*
Toluene	0.5	—	*	*	*	*	*	*	*	*	*	0.76	*	*	*	*	*	*	*	*	*	*	*	*	*
Trichloroethene	0.5	—	*	*	0.96	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Notes:
Analyses performed by TestAmerica, Arvada, Colorado
Volatile organic compounds not listed were not present at concentrations exeeding the MRL
(a) indicates Primary Drinking Water Standard
(µg/L) = micrograms per liter
(*) indicates not reported at or above the MRL (Method Reporting Limit)
(—) indicates not analyzed or not applicable

Table 7
Duplicate Samples
January 2012 (First Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	MW-15S	DUP (MW-15S)	RPD (%)
Volatile Organics (µg/L)				
No Detections	—	*	*	—
Dissolved Metals (mg/L)				
Arsenic	0.015	*	*	—
Iron	0.20	*	*	—
Manganese	0.001	0.910	0.860	6
Inorganic Parameters (mg/L)				
Alkalinity	5	78	78	0
Bicarbonate Alkalinity	5	78	78	0
Ammonia as Nitrogen	0.10	3.2	3.1	3
Total Organic Carbon	1.0	1.7	1.6	6
Chloride	4.0	18.0	18.2	1
Nitrate as Nitrogen	2.5	*	*	—
Total Dissolved Solids	10	210	190	10
Sulfate	0.5	11.3	11.3	0

Notes:
Analyses performed by TestAmerica, Arvada, Colorado
Analytes not listed were not present at concentrations exceeding the MRL
RPD = relative percent difference
µg/L = micrograms per liter
mg/L = milligrams per liter
(*) = not reported at or above the MRL (Method Reporting Limit)
(—) = not applicable

Table 8
Water Supply Wells
January 2012 (First Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

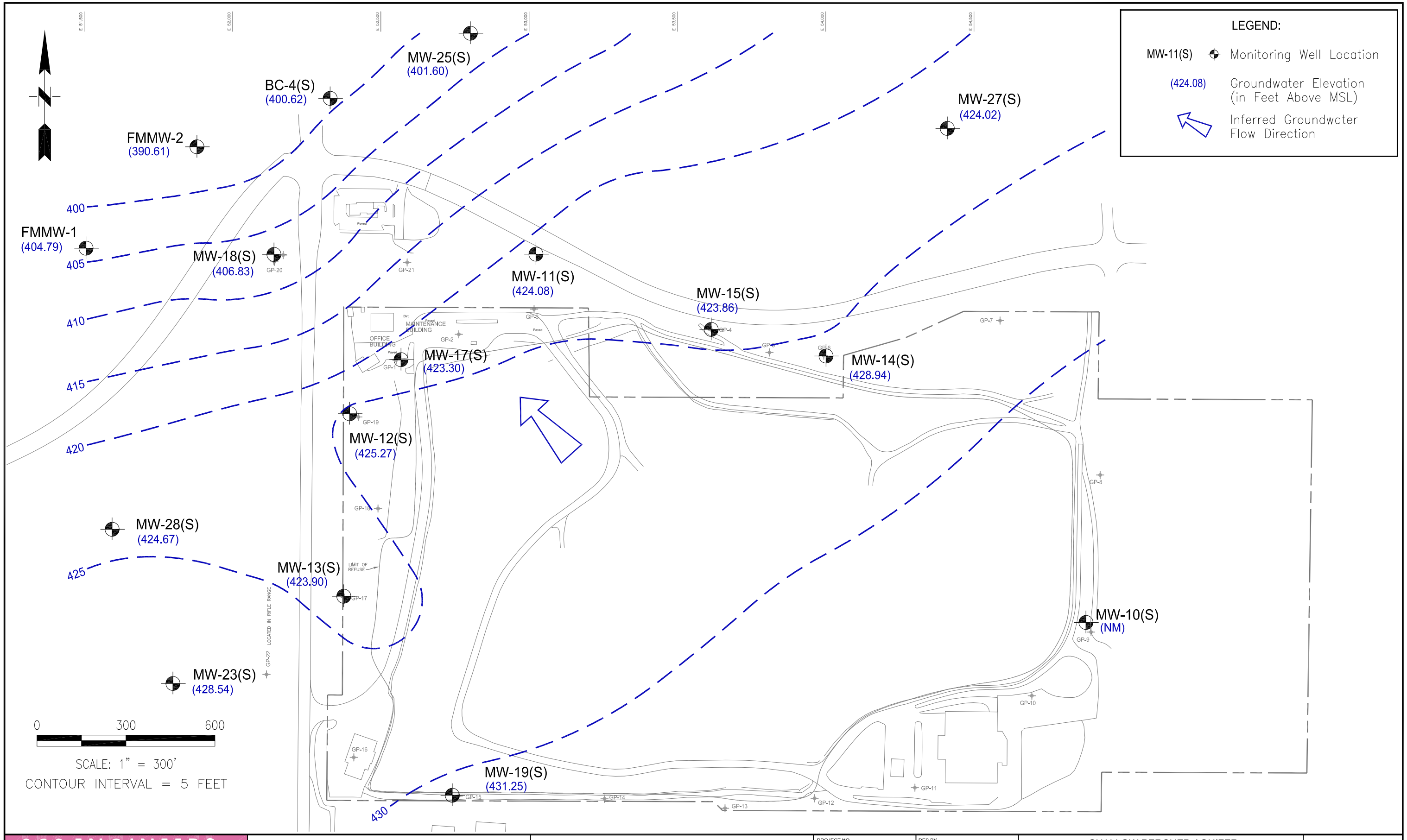
	MRL	Paul Bunyan	Corliss
Volatile Organics (µg/L)			
Acetone	6	46	*
2-Butanone	10	110	*
Total Metals (mg/L)			
Arsenic	0.005	*	*
Iron	0.200	*	*
Manganese	0.001	0.019	0.003
Zinc	0.010	0.020	0.013
Inorganic Parameters (mg/L)			
Chloride	0.2 - 4.0	4.4	8.0
Ammonia as Nitrogen	0.1	*	*
Nitrate as Nitrogen	0.5	1.8	1.8
Nitrite as Nitrogen	0.5	*	*
Sulfate	0.5	9.3	12.4
Chemical Oxygen Demand (COD)	5.0	24.0	6.3
Total Organic Carbon (TOC)	1.0	3.4	*
Color	5.0	*	*

Notes:
Analyses performed by TestAmerica, Arvada, Colorado
Volatile organic compounds not listed were not present at concentrations exceeding the MRL
Color reported in color units
µg/L = micrograms per liter
mg/L = milligrams per liter
(—) = not applicable or not analyzed
(*) = not reported at or above the MRL (Method Reporting Limit)

Table 9
Side Slope Liner Monitoring
January 2012 (First Quarter)
Hidden Valley Landfill, Pierce County, Washington

	MRL	Leak Detection-Side Slope	Leachate-East Area
Volatile Organics (µg/L)			
Acetone	10	18	13
Benzene	0.5	1.4	1.5
Carbon Disulfide	0.5	0.63	*
1,4-Dichlorobenzene	0.5	0.63	*
cis-1,2-dichloroethene	0.5	2.60	*
Ethylbenzene	1.0	*	1.0
m,p-Xylenes	0.5	1.2	0.73
o-Xylenes	0.5	0.69	0.52
Toluene	0.5	2.9	3.8
Total Metals (mg/L)			
Antimony	0.010	0.15	0.08
Arsenic	0.025	0.20	0.12
Barium	0.005	0.48	0.57
Calcium	0.200	12.0	16.0
Chromium	0.010	0.08	0.08
Cobalt	0.010	0.04	0.02
Copper	0.010	0.06	0.10
Iron	0.200	3.0	4.4
Lead	0.005	0.01	0.01
Magnesium	0.200	21.0	19.0
Manganese	0.005	0.18	0.27
Nickel	0.010	0.50	0.46
Potassium	30	450	440
Sodium	1.0	6000	5800
Vanadium	0.010	0.15	0.18
Zinc	0.050	*	0.14
Inorganic Parameters (mg/L)			
Alkalinity	10	7800	7800
Bicarbonate Alkalinity	10	6400	7800
Chloride	200	4030	3830
Ammonia as Nitrogen	10.0	620	590
Sulfate	5.0	82.6	*
Chemical Oxygen Demand	100	2900	3000
Total Dissolved Solids	200	13000	15000
Total Organic Carbon	50	1100	980
Biochemical Oxygen Demand	50	99	52
Cyanide, total	0.01	*	*
Coliform, total**	2	5000	4
Field Parameters			
pH	—	7.65	7.62
Conductance (µS)	—	17,000	15,000
Temperature (°C)	—	18.0	15.5

Notes:
Analyses performed by TestAmerica, Arvada, Colorado
Volatile organic compounds not listed were not present at concentrations exceeding the MRL
(mg/L) = micrograms per liter
(mg/L) = milligrams per liter
(µS) = microsiemens
(°C) = degrees celcius
(—) = not applicable or not analyzed
(*) = not reported at or above the MRL (Method Reporting Limit)
(**) = total coliform results are from samples taken on May 8, 2012.



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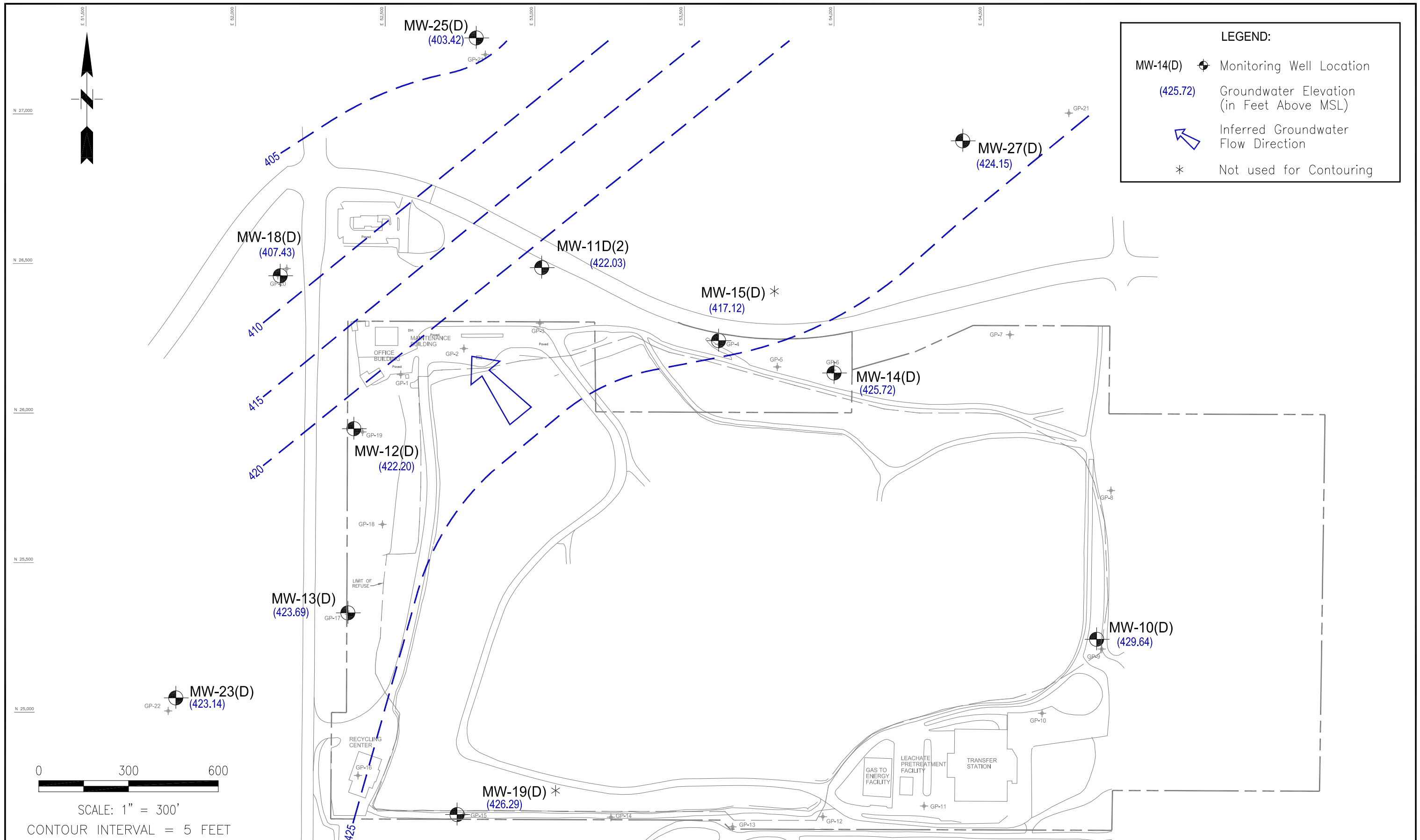
PROJECT NO. 04212004.03	DES BY SA	SHALLOW PERCHED AQUIFER WATER LEVEL MAP JANUARY 26, 2012	DATE APRIL 2012
SCALE AS SHOWN	CHK BY ES		FIGURE 1
CAD FILE FIGURE 1	APP BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	



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2405 140th Avenue NE, Suite 107
Bellevue, Washington 98005
(425) 746-4600 FAX: (425) 746-6747

PROJECT NO. 04212004.03	DES BY SA	UPPER REGIONAL AQUIFER WATER LEVEL MAP JANUARY 26, 2012	DATE APRIL 2012
SCALE AS SHOWN	CHK BY ES		FIGURE 2
CAD FILE FIGURE 2	APP BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	

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PROJECT NO. 04212004.00	DES BY KGL	LOWER REGIONAL AQUIFER WATER LEVEL MAP JANUARY 26, 2012	DATE APRIL 2012
SCALE AS SHOWN	CHK BY KGL	HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	FIGURE 3
CAD FILE FIGURE 3	APP BY KGL		

Hidden Valley Landfill
Month of Jan-12

Day	Leachate Level	Cell 2 Leak Level	Cell 2 Daily Avg. GPM	Cell 2 Leak GPD	Cell 1 Influent GPD	Cell 2 Influent GPD	304th Influent GPD	Treatment Discharge Avg GPM	Treatment Discharge GPD
31	11.95	11.47	0	0	0	0	5,599	38.64	23,496
1	12.38	12.29	0	0	0	0	5,319	37.80	22,456
2	12.12	12.38	0	1070	0	0	5,685	37.88	24,015
3	12.81	12.86	0	0	0	0	5,320	38.04	22,522
4	12.73	13.16	0	0	12	0	4,655	37.66	19,734
5	13.20	13.12	0	0	0	0	5,379	36.42	22,871
6	13.29	13.42	0	0	4,183	0	8,304	36.12	22,215
7	13.55	13.77	0	0	2,236	0	5,292	34.44	22,555
8	13.81	13.86	0	0	535	0	5,016	31.62	21,726
9	13.86	13.86	0	0	0	0	5,707	29.60	22,144
10	14.16	13.94	0	0	1,573	0	4,801	30.61	19,836
11	14.33	14.42	0	0	0	0	5,351	30.61	22,379
12	14.38	14.59	0	0	0	0	5,201	30.27	21,674
13	14.86	14.94	0	0	1,863	0	5,399	30.72	22,550
14	14.94	14.81	0	0	2,456	0	5,631	29.48	23,468
15	14.86	14.99	0	0	1,367	0	5,632	31.66	23,837
16	15.42	15.42	0	0	1,569	0	4,891	33.52	20,649
17	15.42	15.55	0	0	0	0	4,490	32.94	18,939
18	15.81	15.99	0	0	1,399	0	2,340	31.36	9,910
20	16.33	16.16	0	0	0	0	3,461	28.21	13,285
21	15.94	16.29	0	0	0	0	5,387	31.83	23,142
22	16.07	16.33	0	0	0	0	4,686	30.26	19,460
23	16.64	16.38	0	0	0	0	5,142	29.17	21,235
24	16.20	16.85	0	583	555	0	4,537	29.01	18,622
25	17.24	16.90	0	0	0	0	4,809	28.36	20,134
26	16.85	17.55	0	0	12,092	0	4,989	29.60	21,577
27	17.33	17.24	0	0	0	0	5,924	28.77	24,801
28	17.68	17.20	0	0	0	0	5,332	28.30	22,386
29	17.64	18.03	0	0	0	0	5,159	29.02	21,533
30	17.90	5.30	0	0	0	0	5,545	30.29	23,203
31	18.20	5.56	0	0	0	0	5,213	30.48	22,005
			Total Gallons:	**1,653**	**29,840**	**0**	**154,598**		**634,863**
				Cell 2 Leak	Cell 1 Leachate	Cell 2 Leachate	304th Influent		Treatment Discharge

Hidden Valley Landfill Hour Meters Totalizers

Jan-12

	Discharge Pump 12		Cell 2 Influent Pump		Cell 2 Daily	Pump 12 Daily	Cell 1 Leachate	Cell 2 Leachate	Cell 2 Leak	304th Influent	Treatment Discharge
Day	(hr)	(min)	(hr)	(min)	Hours	Hours	Total Gals.	Total Gals.	Total Gals.	Total Gals.	Total Gals.
31	39,305	30	2943	60	0.00	10.13	6222885	3,996,495	103482	92,841,654	84,927,668
1	39,315	24	2943	60	0.00	9.90	6222885	3,996,495	103482	92,846,973	84,950,124
2	39,325	58	2944	22	0.37	10.57	6222885	3,996,495	104552	92,852,658	84,974,139
3	39,335	50	2944	22	0.00	9.87	6222885	3,996,495	104552	92,857,978	84,996,661
4	39,344	34	2944	22	0.00	8.73	6222898	3,996,495	104552	92,862,633	85,016,395
5	39,355	2	2944	22	0.00	10.47	6222898	3,996,495	104552	92,868,012	85,039,265
6	39,365	17	2944	22	0.00	10.25	6227081	3,996,495	104552	92,876,316	85,061,480
7	39,376	12	2944	22	0.00	10.92	6229316	3,996,495	104552	92,881,608	85,084,035
8	39,387	39	2944	22	0.00	11.45	6229851	3,996,495	104552	92,886,624	85,105,761
9	39,400	7	2944	22	0.00	12.47	6229851	3,996,495	104552	92,892,330	85,127,905
10	39,410	55	2944	22	0.00	10.80	6231424	3,996,495	104552	92,897,131	85,147,741
11	39,423	6	2944	22	0.00	12.18	6231424	3,996,495	104552	92,902,482	85,170,120
12	39,435	2	2944	22	0.00	11.93	6231424	3,996,495	104552	92,907,683	85,191,794
13	39,447	16	2944	22	0.00	12.23	6233288	3,996,495	104552	92,913,082	85,214,344
14	39,460	32	2944	22	0.00	13.27	6235744	3,996,495	104552	92,918,713	85,237,811
15	39,473	5	2944	22	0.00	12.55	6237110	3,996,495	104552	92,924,346	85,261,648
16	39,483	21	2944	22	0.00	10.27	6238679	3,996,495	104552	92,929,237	85,282,297
17	39,492	56	2944	22	0.00	9.58	6238679	3,996,495	104552	92,933,726	85,301,236
18	39,498	12	2944	22	0.00	5.27	6240078	3,996,495	104552	92,936,067	85,311,146
20	39,506	3	2944	22	0.00	7.85	6240078	3,996,495	104552	92,939,528	85,324,432
21	39,518	10	2944	22	0.00	12.12	6240078	3,996,495	104552	92,944,915	85,347,574
22	39,528	53	2944	22	0.00	10.72	6240078	3,996,495	104552	92,949,601	85,367,034
23	39,541	1	2944	22	0.00	12.13	6240078	3,996,495	104552	92,954,743	85,388,269
24	39,551	43	2944	36	0.23	10.70	6240633	3,996,496	105135	92,959,280	85,406,891
25	39,563	33	2944	36	0.00	11.83	6240633	3,996,496	105135	92,964,089	85,427,025
26	39,575	42	2944	36	0.00	12.15	6252725	3,996,496	105135	92,969,078	85,448,602
27	39,590	4	2944	36	0.00	14.37	6252725	3,996,496	105135	92,975,003	85,473,403
28	39,603	15	2944	36	0.00	13.18	6252725	3,996,496	105135	92,980,335	85,495,790
29	39,615	37	2944	36	0.00	12.37	6252725	3,996,496	105135	92,985,494	85,517,323
30	39,628	23	2944	36	0.00	12.77	6252725	3,996,496	105135	92,991,038	85,540,525
31	39,640	25	2944	36	0.00	12.03	6252725	3,996,496	105135	92,996,252	85,562,531
					Total	**Gallons**	**29,840**	**0**	**1,653**	**154,598**	**634,863**
							Cell 1 Leachate	Cell 2 Leachate	Cell 2 Leak	304th Influent	Treatment Discharge

Hidden Valley Landfill
Month of Feb-12

Day	Leachate Level	Cell 2 Leak Level	Cell 2 Daily Avg. GPM	Cell 2 Leak GPD	Cell 1 Influent GPD	Cell 2 Influent GPD	304th Influent GPD	Treatment Discharge Avg GPM	Treatment Discharge GPD
31	18.20	5.56	0	0	0	0	5,213	30.48	22,005
1	17.94	5.73	0	0	0	0	5,057	30.82	21,325
2	18.29	5.69	18	85	1,096	72	4,999	31.61	21,274
3	18.42	6.34	0	0	0	0	5,349	30.90	22,402
4	18.59	6.69	0	0	0	0	5,257	30.08	22,051
5	18.85	7.12	0	0	0	0	5,368	29.08	22,187
6	18.98	7.56	0	0	0	0	4,901	28.78	20,174
7	18.98	7.60	0	0	0	0	5,273	28.41	22,220
8	6.95	17.56	—	—	—	—	—	—	—
9	7.15	17.71	—	—	—	—	—	—	—
10	7.43	17.90	—	—	—	—	—	—	—
11	7.56	18.05	—	—	—	—	—	—	—
12	7.76	11.90	—	—	—	—	—	—	—
13	7.91	12.45	—	—	—	—	—	—	—
14	8.23	13.10	—	—	—	—	—	—	—
15	8.40	13.70	—	—	—	—	—	—	—
16	8.51	14.90	—	—	—	—	—	—	—
17	8.70	17.50	—	—	—	—	—	—	—
18	8.95	16.10	—	—	—	—	—	—	—
19	8.97	16.15	—	—	—	—	—	—	—
20	9.10	16.25	—	—	—	—	—	—	—
21	9.14	16.43	—	—	—	—	—	—	—
22	9.29	16.53	—	—	—	—	—	—	—
23	9.34	16.80	—	—	—	—	—	—	—
24	9.58	16.97	—	—	—	—	—	—	—
25	9.95	17.05	—	—	—	—	—	—	—
26	10.51	17.43	—	—	—	—	—	—	—
27	10.56	17.43	—	—	—	—	—	—	—
28	10.56	17.43	—	—	—	—	—	—	—
29	10.56	17.43	—	—	—	—	—	—	—
		Total Gallons:	—	—	—	—			—
			Cell 2 Leak	Cell 1 Leachate	Cell 2 Leachate	304th Influent			Treatment Discharge

Notes

PLC malfunction between Feb 8 and March 19, 2012. Data recorded during this period by site personell are presented for Leachte Level, Cell 2 Leak Level, and Cell 1 Leachate.

Hidden Valley Landfill Hour Meters Totalizers

Feb-12

Day	Discharge Pump 12 (hr)	(min)	Cell 2 Influent Pump (hr)	(min)	Cell 2 Daily Hours	Pump 12 Daily Hours	Cell 1 Leachate Total Gals.	Cell 2 Leachate Total Gals.	Cell 2 Leak Total Gals.	304th Influent Total Gals.	Treatment Discharge Total Gals.
31	39,640	25	2944	36	0.00	12.03	861700	3,996,496	105135	92,996,252	85,562,531
1	39,651	57	2944	36	0.00	11.53	861700	3,996,496	105135	93,001,309	85,583,856
2	39,663	10	2944	40	0.07	11.22	861700	3,996,567	105221	93,006,308	85,605,130
3	39,675	15	2944	40	0.00	12.08	862797	3,996,567	105221	93,011,657	85,627,531
4	39,687	28	2944	40	0.00	12.22	862797	3,996,567	105221	93,016,914	85,649,582
5	39,700	11	2944	40	0.00	12.72	862797	3,996,567	105221	93,022,282	85,671,770
6	39,711	52	2944	40	0.00	11.68	862797	3,996,567	105221	93,027,184	85,691,943
7	39,724	54	2944	40	0.00	13.03	862797	3,996,567	105221	93,032,457	85,714,163
8	—	—	—	—	—	—	862797	—	—	—	—
9	—	—	—	—	—	—	862797	—	—	—	—
10	—	—	—	—	—	—	862797	—	—	—	—
11	—	—	—	—	—	—	865276	—	—	—	—
12	—	—	—	—	—	—	865276	—	—	—	—
13	—	—	—	—	—	—	865278	—	—	—	—
14	—	—	—	—	—	—	865278	—	—	—	—
15	—	—	—	—	—	—	865278	—	—	—	—
16	—	—	—	—	—	—	865278	—	—	—	—
17	—	—	—	—	—	—	867313	—	—	—	—
18	—	—	—	—	—	—	868255	—	—	—	—
19	—	—	—	—	—	—	868588	—	—	—	—
20	—	—	—	—	—	—	868748	—	—	—	—
21	—	—	—	—	—	—	869059	—	—	—	—
22	—	—	—	—	—	—	869059	—	—	—	—
23	—	—	—	—	—	—	869059	—	—	—	—
24	—	—	—	—	—	—	869059	—	—	—	—
25	—	—	—	—	—	—	869059	—	—	—	—
26	—	—	—	—	—	—	869059	—	—	—	—
27	—	—	—	—	—	—	871534	—	—	—	—
28	—	—	—	—	—	—	871534	—	—	—	—
29	—	—	—	—	—	—	871534	—	—	—	—
					Total	**Gallons**	**9,834**	—	—	—	—
							Cell 1 Leachate	Cell 2 Leachate	Cell 2 Leak	304th Influent	Treatment Discharge

Notes

PLC malfunction between Feb 8 and March 19, 2012. Data recorded during this period by site personell are presented for Leachte Level, Cell 2 Leak Level, and Cell 1 Leachate.

Hidden Valley Landfill

Month of **Mar-12**

Day	Leachate Level	Cell 2 Leak Level	Cell 2 Daily Avg. GPM	Cell 2 Leak GPD	Cell 1 Influent GPD	Cell 2 Influent GPD	304th Influent GPD	Treatment Discharge Avg GPM	Treatment Discharge GPD
1	10.56	17.66	—	—	—	—	—	—	—
2	10.71	17.78	—	—	—	—	—	—	—
3	10.85	18.01	—	—	—	—	—	—	—
4	10.93	18.45	—	—	—	—	—	—	—
5	5.56	18.25	—	—	—	—	—	—	—
6	5.61	16.5	—	—	—	—	—	—	—
7	5.75	16.65	—	—	—	—	—	—	—
8	6.1	10.11	—	—	—	—	—	—	—
9	6.43	9.66	—	—	—	—	—	—	—
10	6.96	9.75	—	—	—	—	—	—	—
11	7.05	9.99	—	—	—	—	—	—	—
12	7.47	10.19	—	—	—	—	—	—	—
13	7.9	5.4	—	—	—	—	—	—	—
14	8.15	5.75	—	—	—	—	—	—	—
15	8.46	5.89	—	—	—	—	—	—	—
16	8.74	6.1	—	—	—	—	—	—	—
17	9.1	6.50	—	—	—	—	—	—	—
18	9.35	6.99	—	—	—	—	—	—	—
19	9.80	7.15	—	—	—	—	—	—	—
20	17.51	10.38	23	NA	NA	NA	NA	35.86	NA
21	17.98	10.95	0	0	0	0	5,732	28.48	24,831
22	18.11	11.51	0	0	0	0	5,580	27.63	24,259
23	18.29	11.90	0	0	0	0	5,269	27.11	22,937
24	18.50	12.55	0	0	0	0	4,890	27.51	21,373
25	18.50	13.12	0	0	0	0	5,944	27.43	25,974
26	18.81	13.73	0	0	0	0	5,843	26.77	25,137
27	18.77	14.51	0	0	0	0	5,723	26.10	24,871
28	19.20	15.16	0	0	0	0	5,355	24.89	23,399
29	19.20	15.99	0	0	0	0	5,203	23.93	23,044
30	19.42	16.68	0	0	0	0	5,172	23.21	23,135
31	19.33	17.77	0	0	0	0	5,085	22.83	23,151
		Total Gallons:		—	—	—	—		—
				Cell 2 Leak	Cell 1 Leachate	Cell 2 Leachate	304th Influent		Treatment Discharge

Notes

PLC malfunction between Feb 8 and March 19, 2012. Data recorded during this period by site personell are presented for Leachte Level, Cell 2 Leak Level, and Cell 1 Leachate.

Hidden Valley Landfill Hour Meters Totalizers

Mar-12

Day	Discharge Pump 12 (hr)	Discharge Pump 12 (min)	Cell 2 Influent Pump (hr)	Cell 2 Influent Pump (min)	Cell 2 Daily Hours	Pump 12 Daily Hours	Cell 1 Leachate Total Gals.	Cell 2 Leachate Total Gals.	Cell 2 Leak Total Gals.	304th Influent Total Gals.	Treatment Discharge Total Gals.
1	—	—	—	—	—	—	871534	—	—	—	—
2	—	—	—	—	—	—	871534	—	—	—	—
3	—	—	—	—	—	—	871534	—	—	—	—
4	—	—	—	—	—	—	871534	—	—	—	—
5	—	—	—	—	—	—	871534	—	—	—	—
6	—	—	—	—	—	—	871534	—	—	—	—
7	—	—	—	—	—	—	871534	—	—	—	—
8	—	—	—	—	—	—	876123	—	—	—	—
9	—	—	—	—	—	—	878218	—	—	—	—
10	—	—	—	—	—	—	878536	—	—	—	—
11	—	—	—	—	—	—	878536	—	—	—	—
12	—	—	—	—	—	—	878536	—	—	—	—
13	—	—	—	—	—	—	878536	—	—	—	—
14	—	—	—	—	—	—	880333	—	—	—	—
15	—	—	—	—	—	—	880333	—	—	—	—
16	—	—	—	—	—	—	880333	—	—	—	—
17	—	—	—	—	—	—	880333	—	—	—	—
18	—	—	—	—	—	—	880333	—	—	—	—
19	—	—	—	—	—	—	880333	—	—	—	—
20	40,256	10	2948	2	NA	NA	880333	4,004,435	106385	93,243,187	86,622,620
21	40,270	42	2948	2	0.00	14.53	880333	4,004,435	106385	93,248,919	86,647,451
22	40,285	20	2948	2	0.00	14.63	880333	4,004,435	106385	93,254,500	86,671,710
23	40,299	26	2948	2	0.00	14.10	880333	4,004,435	106385	93,259,768	86,694,648
24	40,312	23	2948	2	0.00	12.95	880333	4,004,435	106385	93,264,658	86,716,021
25	40,328	10	2948	2	0.00	15.78	880333	4,004,435	106385	93,270,602	86,741,994
26	40,343	49	2948	2	0.00	15.65	880333	4,004,435	106385	93,276,445	86,767,131
27	40,359	42	2948	2	0.00	15.88	880333	4,004,435	106385	93,282,168	86,792,002
28	40,375	22	2948	2	0.00	15.67	880333	4,004,435	106385	93,287,523	86,815,401
29	40,391	25	2948	2	0.00	16.05	880333	4,004,435	106385	93,292,726	86,838,446
30	40,408	2	2948	2	0.00	16.62	880333	4,004,435	106385	93,297,898	86,861,581
31	40,424	56	2948	2	0.00	16.90	880333	4,004,435	106385	93,302,983	86,884,732
					Total	**Gallons**	**8,799**	—	—	—	—
							Cell 1 Leachate	Cell 2 Leachate	Cell 2 Leak	304th Influent	Treatment Discharge

Notes

PLC malfunction between Feb 8 and March 19, 2012. Data recorded during this period by site personell are presented for Leachte Level, Cell 2 Leak Level, and Cell 1 Leachate.

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SCS ENGINEERS

March 15, 2012
File No. 04211004.06
Staff: Emily Smart, Wayne Chang

Subject: Hidden Valley Landfill First Quarter 2012 Ground Water Sampling

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Hidden Valley Landfill
First Quarter Groundwater Monitoring
January 2012
1/24/2012 to 1/30/2012

Notes/Sampling Decoding:

- Dedicated pumps were used for purging and sampling wells MW-10S, -10D, -12S, -12D, -13D, -14S, -14D, -20R, and -26R.
- Non-dedicated SamplePro pump was used for purging and sampling wells MW-11S, -11D2, -13S, -14R, -15S, -15D, -17S, -18S, -18D, -23S, -25S, -28S, FMW-1, and FMW-2.
- The water supply wells (Paul Bunyon and Corliss) were sampled as direct grab samples.
- A field duplicate sample was collected at well MW-15S.
- A complete round of waters levels was completed on 1/26/12.
- Field water quality meters were calibrated prior to sampling.
- Field blank sample was filled with deionized water from TestAmerica Laboratories.

Sample Number	**Well Number**
HVL-012412-01	MW-14D
HVL-012412-02	MW-14S
HVL-012412-03	MW-10D
HVL-012412-04	MW-10S
HVL-012412-05	MW-20R
HVL-012412-06	Leachate
HVL-012412-07	Leak Detection Side slope
HVL-012512-08	MW-25S

HVL-012512-09	MW-18S
HVL-012512-10	MW-18D
HVL-012512-11	MW-17S
HVL-012512-12	MW-11S
HVL-012512-13	MW-11D2
HVL-012512-14	MW-15S
HVL-012512-15	DUP-MW-15S
HVL-012612-16	MW-15D
HVL-012612-17	Corliss Water Supply
HVL-012612-18	Bunyon Water Supply
HVL-012612-19	MW-23S
HVL-012612-20	MW-28S
HVL-012712-21	MW-14R
HVL-012712-22	MW-13S
HVL-012712-23	Field Blank
HVL-012712-24	FM-1
HVL-012712-25	FM-2
HVL-013012-26	MW-26R
HVL-013012-27	MW-12D
HVL-013012-28	MW-12S
HVL-013012-29	MW-13D

Paul Bunyan Water Supply Well, new completion.

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GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH 7	pH4	DO	Turbidity	Comments/Exceptions
Date	1/24/12					
Time	0920					
Weather (sky or precip, temp)						
Barometric Pressure (*)						
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	0.445	7	4.01	100% or ~8.5	800, 100, 20, <0.1	
Pre-Cal Reading	446	7.17	432	99.99%	945, 10.12	
Post Cal Reading	445	7.00	4.01	Fail	0.42	
Descrepancy				—		
Calib. Successful?				Fail		
Calibration by						
Instrument Type, ID	MP20	MP20	MP20	MP20	HACH 2100P	
Calibration Location						

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

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GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH 7	pH4	DO	Turbidity	Comments/Exceptions
Date	1.25.11	~	~	~	~	
Time	0647	0650	0653	0700 ~~0645~~		
Weather (sky or precip, temp)	~	~	~	~	~	
Barometric Pressure (*)	~				~	
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	0.445	7	4.01	100% or ~8.5	800, 100, 20, <0.1	
Pre-Cal Reading	0.547 362	6.92	4.02	~~100%~~		
Post Cal Reading	.445	7.00	4.01	9.85 ~~100%~~		
Descrepancy	n	n	n	C7.86		
Calib. Successful?	y	~		~~9.85~~		
Calibration by	CMS	~				
Instrument Type, ID	MP20	MP20	MP20	MP20	HACH 2100P	
Calibration Location						

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

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GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH 7	pH4	DO	Turbidity	Comments/Exceptions
Date	1/26/12					
Time						
Weather (sky or precip, temp)						
Barometric Pressure (*)						
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	0.445	7	4.01	100% or ~8.5	800, 100, 20, <0.1	
Pre-Cal Reading	460	7.15	4.03	7.27		
Post Cal Reading	445	7.00	4.01	8.50		
Descrepancy						
Calib. Successful?						
Calibration by	CC					
Instrument Type, ID	MP20	MP20	MP20	MP20	HACH 2100P	
Calibration Location						

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

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GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH 7	pH4	DO	Turbidity	Comments/Exceptions
Date	1/27/12					
Time						
Weather (sky or precip, temp)						
Barometric Pressure (*)						
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	0.445	7	4.01	100% or ~8.5	800, 100, 20, <0.1	
Pre-Cal Reading	4.00	7.06	3.96	9.95		
Post Cal Reading	4.45	7.00	4.01	8.50		
Descrepancy						
Calib. Successful?						
Calibration by	BC					
Instrument Type, ID	MP20	MP20	MP20	MP20	HACH 2100P	
Calibration Location						

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

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GROUNDWATER SAMPLING INSTRUMENT CALIBRATION DOCUMENTATION FORM

	Conductivity	pH 7	pH4	DO	Turbidity	Comments/Exceptions
Date	1/30/2012					
Time						
Weather (sky or precip, temp)	Overcast					
Barometric Pressure (*)						
Type of Calibration	Standard	Standard	Standard	Standard	Standard	
Standard Value	0.445	7	4.01	100% or ~8.5	800, 100, 20, <0.1	
Pre-Cal Reading	490	6.78	3.82	7.91		
Post Cal Reading	445	7.00	4.01			
Descrepancy						
Calib. Successful?						
Calibration by						
Instrument Type, ID	MP20	MP20	MP20	MP20	HACH 2100P	
Calibration Location	MW26R					

* If Direct Reading is Unavailable, Assume pressure = 760 mm - 2.5 (altitude in ft/100)

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-13
Sample ID: HVL-01 30 12- 29
Date: 01/30/12
Weather: Cloudy

24.28 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 40

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:
Start 1212

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol
1215	24.28	17.00	314	1.15	6.66	97	0.33	300
1218		17.02	279	1.45	6.65	98		
1221	24.28	16.90	272	1.47	6.65	100	0.10	
1224		16.99	269	1.64	6.65	101		
1227	24.28	16.97	270	1.61	6.65	103	0.05	
1230		16.97	270	1.61	6.65	103		

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-12D
Sample ID: HVL-01230 12-27
Date: 01/30/12
Weather: Cloudy

66.98 DTW
____ TOS
____ Intake
____ BOS
____ Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 45

Sampling Method: Grab Bail
Other: ____ Deploy Dedicated

Notes:
Start 1020

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1023	67.00	15.47	291	2.54	6.68	41	0.26	260
1026		16.51	300	1.68	6.63	43	0.16	
1029	67.00	16.77	313	1.59	6.65	45	0.20	
1032		16.95	323	1.47	6.69	46	0.16	
1035	67.00	16.99	329	1.42	6.70	47	0.08	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-12S
Sample ID: HVL-01 30 12- 28
Date: 01/30/12
Weather: Cloudy

64.28 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 45

Sampling Method: Grab Bail (Dedicated)
Other: Deploy

Notes: Start 1111

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1116		12.49	472	5.35	6.44	87	1.31	
1120	64.31	17.76	461	2.10	6.00	107		
1123		19.03	463	1.24	5.80	115	0.60	
1126		19.02	465	0.76	5.77	126		
1129	64.30	18.93	466	0.78	5.75	130		
1132		19.13	466	0.74	5.76	130	0.48	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang (Printed Name) Wayne Chang (Signature)

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-26
Sample ID: HVL-01 30 12-26
Date: 01/30/12
Weather: Cloudy

63.88 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 65

Sampling Method: Grab Bail
Other: Deploy (Dedicated)

Notes: Leak in air and water line Can not operate discharge at ~~discharge~~ full pressure
Start 0830

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? (Y) N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0833		9.90	95	2.54	6.42	-112	3.76	200
0836	64.23	9.99	633	1.85	6.33	-112		
0839		10.01	632	1.70	6.43	-114	2.97	
0842	65.88	10.02	601	1.95	6.40	-115	3.34	
0845		10.01	633	1.61	6.34	-120		
0848		10.02	655	1.58	6.42	-124	1.64	
0851	65.80	10.03	699	1.53	6.38	-129	1.20	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Dayne Chang
Printed Name

Dayne Chang
Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: Field Blank
Sample ID: HVL-01 27 12- 23
Date: 01/ 27/12
Weather: Sunny Clear

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1300	—	16.34	4	2.69	7.76	66		

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: FM-[redacted] 2
Sample ID: HVL-01 27 12- 25
Date: 01/27/12
Weather: Sun.

137.61 DTW
144 TOS
159 Intake
154 BOS
Total Depth

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure 95

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
(1000 ml Poly) 500 ml Poly (250 ml Poly) 125 ml Poly
(500 ml HNO3 x2) (500 ml H2SO4 x2) 40 ml VOA (x3) x6 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1421	bel. w	Purg						
1424		14.44	409	1.29	6.10	111	3.61	200
1427	137.61	15.13	408	0.62	6.09	127		
1430		15.29	410	0.50	6.07	126	1.08	
1433		15.26	408	0.43	6.06	125		

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: FM-1
Sample ID: HVL-01 21 12- [illegible] 24
Date: 01/ 21 /12
Weather: Sun, cold

145.57 DTW
[illegible] DTW
144 TOS
159 Intake
154 BOS
Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 95

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1321	begin	purge						
1324		11.79	320	5.30	6.36	116	1.53	300
1327		12.24	339	4.74	6.33	115		
1330	145.58	12.66	342	4.62	6.33	119		
1333		12.90	342	4.59	6.33	119	1.23	300

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-13S
Sample ID: HVL-01 27 12- 22
Date: 01/ 27 /12
Weather: Overcast

24.70 DTW
____ TOS
____ Intake
____ BOS
____ Total Depth

CONTROL SETTINGS:
Refill ____
Discharge ____
Pressure ____

Sampling Method: Grab Bail
Other: ____ Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1223	bel in	purge						
1226		16.70	324	3.44	6.41	71	0.58	400
1229	24.65	17.19	324	2.93	6.34	79		
1232		17.20	325	2.85	6.31	87		
1235	24.70	17.23	325	2.84	6.29	92	0.28	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Emily Smart
Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-14R
Sample ID: HVL-01 27 12- 21
Date: 01/27/12
Weather: sun, cold

119.97 DTW
____ TOS
____ Intake
____ BOS
____ Total Depth

CONTROL SETTINGS:
Refill ~~14~~ 18
Discharge ~~13~~ 12
Pressure 105

Sampling Method: Grab Bail
Other: ____ Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly (1) 500 ml Poly (1) 250 ml Poly (1) 125 ml Poly
500 ml HNO3 (x2) 500 ml H2SO4 (x2) 40 ml VOA (x3) x6 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0950		Begin purge						
0954		4.45	991	4.69	5.12	194		50
0958	119.95	5.49	193	3.40	6.21	134		
1004		5.44	1533	3.01	6.49	122	6.45	
1010		5.26	1499	2.75	6.60	114		
1016		5.20	1260	2.46	6.73	104	2.66	
1019	119.98	5.53	1291	2.08	6.75	100		
1022		5.69	1299	2.04	6.76	100		
1025		6.01	1288	1.88	6.82	92	3.26	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW285
Sample ID: HVL-01 20 12- 20
Date: 01/ 20 /12
Weather: p. sunny

42.20 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 7
Discharge 8
Pressure 30

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1410	begin purge							
1413		9.69	229	8.07	6.52	100	52.41	300
1416	42.40	10.34	233	7.95	6.42	100	61.02	
1419	42.55	10.46	233	7.96	6.39			
Filling bottles	43.05							
	43.20							

Observations (color, odor, anomalies, etc)

Water level dropping. Limited water available for sampling.

Disregarding turbidity stabilization

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-155
Sample ID: HVL-01 25 12- 14
Date: 01/25/12
Weather:

74.90 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 75
Discharge 75
Pressure 10

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:
1000 ml Poly
500 ml Poly
250 ml Poly
125 ml Poly
500 ml HNO3 x2
500 ml H2SO4 x2
40 ml VOA x3 x6
1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0923	Begin	purge						
0929		14.63	297	1.63	6.01	105	0.46	400
0932		14.69	297	2.91	5.99	103		
0935	74.90	14.70	299	3.00	5.94	104	0.32	
0938	74.89	14.65	299	2.88	5.95	104		

Observations (color, odor, anomalies, etc)
FD HVL-012512-15

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

SCS ENGINEERS
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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-23S
Sample ID: HVL-01 2612- 19
Date: 01/ /12
Weather:

19.80 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill ~~4.5~~ 8.5
Discharge ~~4.5~~ 4.5
Pressure 20

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:
25.11 23D

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
~~1329~~	begin	Purge						
1332		10.95	~~222~~ 214	0.75	6.53	93	5.62	450
1335	19.82	11.17		0.47	6.30	104		
1338		11.17	212	0.48	6.21	111	2.87	
1341	19.80	11.22	209	0.52	6.17	113	1.20	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

SCS ENGINEERS
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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: Brown Water Supply
Sample ID: HVL-01 01- 12- 18
Date: 01/ 01 /12
Weather: clear

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: (Grab) Bail
Other: Deploy Dedicated

Notes:

Filtered? Y (N)
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1315		6.35	245	5.43	7.28	177		

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

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Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: Caries Water Spray
Sample ID: HVL-01 20 12-17
Date: 01/20/12
Weather: Sun/Part

DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill
Discharge
Pressure

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1247		6.95	322	7.07	7.17	89	4.51	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-15D
Sample ID: HVL-01[illegible] 12-[illegible]
Date: 01/[illegible]/12
Weather:

81.40 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 7.5
Discharge 7.5
Pressure 10

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 (x2)	500 ml H2SO4 x2	40 ml VOA (x3) x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1000	below in	purge						
1009		12.95	315	1.49	6.49	94	146.4	
1012	81.32	13.32	317	0.73	6.56	93	72.37	
1015		13.43	319	0.49	6.62	90		
1018		13.33	320	0.45	6.62	89	43.04	
1021	81.28	13.35	319	0.41	6.64	88	28.41	
1024	81.25	13.28	319	0.38	6.64	87	15.97	
1027	81.23	13.37	320	0.36	6.65	86	16.67	
1030		13.29	319	0.35	6.65	85	12.01	
1033	81.22	13.49	320	0.33	6.65	85	9.00	
1036		13.50	319	0.37	6.65	84	6.86	
1039		13.53	318	0.31	6.66	85	6.29	
1042		13.32	320	0.31	6.67	85	5.85	
1045	81.12	12.75	318	0.32	6.67	84	4.31	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-402
Sample ID: HVL-01 25 12- ~~9~~ 13
Date: 01/ /12
Weather:

94.40 DTW
137 TOS
Intake
147 BOS
Total Depth

CONTROL SETTINGS:
Refill 5
Discharge 10
Pressure 85

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1401	bailer	Purge						
1419	93.42	13.95	224	4.67	6.77	129	109.90	
1425		13.99	224	4.66	6.91	122	35.60	
1428		13.99	225	4.51	6.85	103	28.05	~350
1431	93.42	13.92	225	4.24	6.82	110	14.53	
1434		13.97	225	4.21	6.82	114	11.33	
1437	93.43	13.94	224	4.20	6.81	119	4.05	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

SCS ENGINEERS
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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-14D
Sample ID: HVL-01 24 12-01
Date: 01/24/12
Weather: Rain

52.50 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 40

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:
Start 1000

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:
1000 ml Poly | 500 ml Poly | 250 ml Poly | 125 ml Poly
500 ml HNO3 x2 | 500 ml H2SO4 x2 | 40 ml VOA x3 x6 | 1000 ml Amber
125 ml NaOH

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1005		11.09	169		6.11	72	5.72	
1008		11.29	184		6.27	4	1.60	
1011		11.34	185		6.29	-1	0.81	
1014		11.35	185		6.32	-4		
1017		11.39	185		6.33	-6		

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chan
Printed Name

Wayne Chan
Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-145
Sample ID: HVL-01 2412-02
Date: 01/24/12
Weather: Rain

49.47 DTW
____ TOS
____ Intake
____ BOS
____ Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 25

Sampling Method: Grab Bail
Other: ____ Deploy Dedicated

Notes:
Start 1045

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1048		10.48	106		6.30	94	2.91	
1051		10.15	78		6.26	108	4.42	
1054		10.12	73		6.23	112	5.91	
1057		10.22	69		6.19	120	6.41	
1100		10.25	67		6.16	123	4.67	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

SCS ENGINEERS
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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-10D
Sample ID: HVL-01 24 12- 03
Date: 01/24 /12
Weather: Cloudy

31.28 DTW
____ TOS
____ Intake
____ BOS
____ Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 40

Sampling Method: Grab Bail
Other: ____ Deploy Dedicated

Notes:
Start 1150

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1153		12.36	126		6.45	128	0.05	240
1156		12.35	125		6.49	129	0.06	
1159		12.25	142		6.46	129	0.11	
1202		12.20	152		6.48	129	0.07	
1205		12.12	157		6.49	130	0.02	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-10S
Sample ID: HVL-01 24 12- 04
Date: 01/24 /12
Weather: cloudy

Blocked — DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 8
Discharge 7
Pressure 20

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:
Start 1228

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1231		12.39	156		6.53	128	0.07	
1234		12.42	156		6.51	130	0.10	
1237		12.43	157		6.51	133	0.05	
1240		12.42	156		6.49	134	0.01	
1243		12.48	156		6.48	135	0.06	
1246		12.47	155		6.49	137	0.02	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

SCS ENGINEERS
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Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-20
Sample ID: HVL-01 24 12- 05
Date: 01/24/12
Weather: Cloudy

107.48 DTW
____ TOS
____ Intake
____ BOS
____ Total Depth

CONTROL SETTINGS:
Refill ____
Discharge ____
Pressure ____

Sampling Method: Grab Bail
Other: ____ Deploy Dedicated

Notes:
start
1329

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1331		10.24	88		6.62	145	0.15	
1334		10.01	88		6.36	151	0.01	
1337		9.87	87		6.47	144	0.03	
1340		9.83	87		6.72	136	0.07	
1343		9.87	87		6.86	128		
1346		9.80	87		6.90	127		

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Wayne Chang
Printed Name

Wayne Chang
Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-11S
Sample ID: HVL-01 25 12- 12
Date: 01/25/12
Weather:

91.52 DTW
TOS
Intake
BOS
Total Depth

CONTROL SETTINGS:
Refill 75
Discharge 75
Pressure 65

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? (Y) N
Locked? Y (N)
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 (x2)	500 ml H2SO4 x2	40 ml VOA (x3) x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1332	beg in	purge						~400
1335		14.21	206	3.27	6.01	147		
1338	91.50	14.35	207	3.24	6.04	154	0.24	
1341		14.51	207	3.20	5.93	155		
1344	91.48	14.47	206	3.00	5.92	153	0.19	

Observations (color, odor, anomalies, etc)
Checked calibration of pH due to low readings. It is accurate.

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart (Printed Name) Emily Smart (Signature)

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-25S
Sample ID: HVL-01 25 12- 03
Date: 01/25/12
Weather:

146.32 DTW
129 TOS
Intake
139 BOS
Total Depth

CONTROL SETTINGS:
Refill 8.5
Discharge 6.5
Pressure 90

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
0855	begin purge							
0858		10.02	276	6.09	7.00	82		
0905	126.34	9.35	262	3.38	6.76	72	3.10	85mL
0911		8.82	260	2.92	6.77	68		
0915	124.34	8.42	260	2.87	6.78	71		
0918	126.30	8.76	259	2.76	6.79	74	3.24	100mL

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: MW-18D
Sample ID: HVL-01 25 12- 10
Date: 01/25/12
Weather:

132.93 DTW
144.5 TOS
Intake
1745 BOS
Total Depth

CONTROL SETTINGS:
Refill 16
Discharge 14
Pressure 95

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly		125 ml Poly
500 ml HNO3 (x2)	500 ml H2SO4 x2	40 ml VOA (x3)	x6	1000 ml Amber
125 ml NaOH				

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1047	Start							
1054		13.27	201	3.09	6.93	84	77.21	~300
1057		14.32	200	2.33	6.83	92	57.68	
1100		14.53	200	2.08	6.80	97	45.12	
1103	131.94	14.50	200	2.00	6.82	99	40.61	
1106		14.51	201	2.03	6.81	101	35.30	
1109		14.61	201	1.94	6.79	102	63.31	
1112	131.90	14.61	200	1.95	6.81	104	2.27	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: mw-175
Sample ID: HVL-01 25 12- 03 11
Date: 01/25/12
Weather:

129.14 DTW
115 TOS
~150 Intake
155 BOS
Total Depth

CONTROL SETTINGS:
Refill 9
Discharge 6
Pressure 95

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? Y N
Locked? Y N
Water in Protector? Y N
Damage? Y N

Sample Containers:

1000 ml Poly	500 ml Poly	250 ml Poly	125 ml Poly
500 ml HNO3 x2	500 ml H2SO4 x2	40 ml VOA x3 x6	1000 ml Amber
125 ml NaOH			

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1240	Start purge							
1243	129.14	17.56	427	0.91	6.32	131	0.36	
1246		18.38	425	0.61	6.29	130		
1249		19.70	422	0.50	6.29	130		
1252	129.13	18.91	424	0.50	6.28	130	0.34	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

SCS ENGINEERS
2405 140th ave NE #107
Bellevue, WA 98005 (425) 746-4600

Groundwater Sampling Data Sheet

Project #: 04211003.03
Site: Hidden Valley Landfill
Well ID: mw-19S
Sample ID: HVL-01 25 12-09
Date: 01/25/12
Weather: Over Cast

131.70 DTW
139 TOS
Intake
149 BOS
Total Depth

CONTROL SETTINGS:
Refill 11
Discharge 9
Pressure 35

Sampling Method: Grab Bail
Other: Deploy Dedicated

Notes:

Filtered? (Y) N
Locked? (Y) N
Water in Protector? Y (N)
Damage? Y (N)

Sample Containers:
1000 ml Poly
~~500 ml HNO3~~ (x2)
125 ml NaOH
500 ml Poly
(500 ml H2SO4 x2)
250 ml Poly
40 ml VOA (x3 x6)
125 ml Poly
1000 ml Amber

TIME	DTW	Temp.	Sp.Cond.	DO	pH	Eh	Turbidity	Q / Vol.
1143	begin	Purge						
1149		14.77	0.362	4.49	6.51	114	2.14	~400
1152	131.40	15.03	306	2.50	6.45	124	0.54	
1155	131.70	15.03	304	2.39	6.39	129	0	
1158		15.23	309	2.30	6.30	130	0.17	

Observations (color, odor, anomalies, etc)

Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 0.5°C, Turb. ± 10% or ≤ 5

SAMPLER: Emily Smart
Printed Name

Signature

Hidden Valley Landfill

Water Level Data

Date: 1/26/12

Measured by: ES & GC

	PVC Elevation	Depth to Water	Water Level Elevation	Time	Comments
MW-10S	460.17	——			
MW-10D	460.69	31.05			
MW-11S	516.44	92.36			
MW-11D	516.56	92.64			
MW-11D(2)	515.53	93.50			
MW-12S	489.94	64.67			
MW-12D	489.97	67.77			
MW-13S	448.81	24.91			
MW-13D	448.94	25.25			
MW-14S	477.95	49.01			
MW-14D	477.98	52.26			
MW-14R	476.84	119.50			
MW-15S	498.76	74.90			
MW-15D	498.52	81.40			
MW-17S	552.44	129.14			
MW-18S	546.88	131.57			
MW-18D	546.01	131.66			
MW-19S	485.71	54.46			
MW-19D	485.82	59.53			
MW-20R	469.43	108.96			
MW-22U	545.92	137.37			
MW-22L	546.07	142.65			
MW-23S	449.92	19.80			
MW-23D	449.96	25.11			
MW-25S	526.54	126.20			
MW-25D	526.66	124.10			
MW-26R	481.81	65.52			
MW-27S	531.81	107.79			
MW-27D	531.92	107.77			
MW-28S	466.87	42.20			
FMMW-1	542.59	137.80			
FMMW-2	536.40	145.79			
BC-4S	526.88	126.06			
BC-4D	526.94	159.90			

Firing Range - Thursdays - typically after 2 PM.
Doug - (253) 846-6767
Larry - works there too
Gate code - 5043271 or 45625

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04212004.02

PCRCD dba LRI

January 23, 2012

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	23-Jan	11:27	-0.04	0.0	4.9	2.3			
GP-1B	23-Jan	11:31	-0.02	0.0	9.1	11.8			
GP-1C	23-Jan	11:37	-0.13	0.0	10.2	9.8			
GP-2A	23-Jan	11:50	-0.07	0.7	16.5	1.1			
GP-2B	23-Jan	11:55	0.09	0.0	0.5	21.1			
GP-3S	23-Jan	12:05	0.00	0.0	4.2	14.6			
GP-3M	23-Jan	12:09	0.00	0.0	2.5	13.2			
GP-3D	23-Jan	12:13	-0.01	0.0	9.5	9.9			
GP-4A	23-Jan	12:22	0.00	0.0	0.2	21.2			
GP-4B	23-Jan	12:25	0.05	0.0	0.5	20.6			
GP-5A	23-Jan	12:34	0.00	0.0	0.1	21.4			
GP-5B	23-Jan	12:37	0.00	0.0	0.1	21.3			
GP-6	23-Jan	12:44	0.01	0.0	0.1	21.4			
GP-7S	23-Jan	12:51	0.18	0.0	0.2	20.6			
GP-7D	23-Jan	12:54	0.00	0.0	0.2	20.6			
GP-8A	23-Jan	13:07	0.00	0.0	0.3	20.5			
GP-8B	23-Jan	13:12	0.00	0.0	0.1	20.7			
GP-9	23-Jan	13:19	0.00	0.0	1.6	17.8			
GP-10	23-Jan	13:29	0.02	0.0	0.1	20.8			
GP-11	23-Jan	13:40	0.01	0.0	0.6	20.5			
GP-12	23-Jan	13:58	-6.13	0.0	0.4	20.4			
GP-13A	23-Jan	14:12	0.17	2.4	12.0	0.1			
GP-13B	23-Jan	14:18	0.11	0.0	0.3	20.4			
GP-14S	23-Jan	14:39	0.13	0.0	8.1	14.6			
GP-14D	23-Jan	14:43	0.01	0.0	16.1	2.6			
GP-15A	23-Jan	15:06	0.00	0.0	3.0	13.4			
GP-15B	23-Jan	15:09	0.00	0.0	10.1	4.4			
GP-16A	23-Jan	15:21	0.04	0.0	1.1	20.0			
GP-16B	23-Jan	15:23	0.10	0.0	0.8	20.1			
GP-17	23-Jan	15:34	-0.19	0.0	3.3	17.9			
GP-18	23-Jan	15:38	-0.01	0.0	1.5	20.4			
GP-19	23-Jan	15:44	0.00	0.0	0.3	20.8			
LFG-1	23-Jan	14:51	0.00	0.0	15.1	2.7			
LFG-2	23-Jan	14:54	0.05	3.2	19.8	0.0	35.6		
LFG-3	23-Jan	14:58	0.00	0.2	17.3	0.2			

General Data

		Weather Conditions	
Monitored by:	WC	Sky Cover:	Overcast
Instruments:	GEM 2000	Wind / Rain / Snow:	Rain
Calibration Date:	23-Jan-12	Temperature (^{o}F):	40

Notes

1. Measurement for spike concentrations of CH4 and CO2 are recorded if observed during sampling

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured -	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04212004.02

PCRCD dba LRI

February 24, 2012

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	24-Feb	8:15	0.18	0.0	4.7	2.6			
GP-1B	24-Feb	8:19	0.15	0.0	7.9	13.4			
GP-1C	24-Feb	8:23	0.16	0.0	7.1	13.7			
GP-2A	24-Feb	8:31	0.18	2.1	16.4	1.2			
GP-2B	24-Feb	8:35	0.03	0.0	0.5	21.3			
GP-3S	24-Feb	8:40	0.07	0.0	3.8	13.8			
GP-3M	24-Feb	8:43	0.07	0.0	2.6	11.7			
GP-3D	24-Feb	8:46	0.05	0.0	10.1	3.0			
GP-4A	24-Feb	8:52	0.00	0.0	0.3	21.6			
GP-4B	24-Feb	8:55	0.05	0.0	0.2	21.6			
GP-5A	24-Feb	9:00	-0.01	0.0	0.2	21.6			
GP-5B	24-Feb	9:02	-0.01	0.0	0.1	21.7			
GP-6	24-Feb	9:08	-0.04	0.0	0.2	21.7			
GP-7S	24-Feb	9:14	0.00	0.0	0.3	21.6	0.4		
GP-7D	24-Feb	9:17	0.00	0.0	0.3	21.4			
GP-8A	24-Feb	9:26	0.27	0.0	0.3	21.7			
GP-8B	24-Feb	9:28	0.25	0.0	0.2	21.7			
GP-9	24-Feb	9:33	0.17	0.0	1.5	19.1			
GP-10	24-Feb	9:38	0.00	0.0	0.2	21.7			
GP-11	24-Feb	9:43	0.00	0.0	1.3	20.2			
GP-12	24-Feb	9:48	-0.02	0.0	2.9	12.5			
GP-13A	24-Feb	9:57	0.30	10.8	12.9	0.0	11.3		
GP-13B	24-Feb	10:01	0.01	0.0	0.5	21.7	0.4		
GP-14S	24-Feb	10:07	0.01	0.0	18.7	5.2			
GP-14D	24-Feb	10:09	0.00	0.0	17.6	0.4			
GP-15A	24-Feb	10:30	-0.06	0.0	2.5	17.4			
GP-15B	24-Feb	10:32	-0.04	0.0	10.6	4.0			
GP-16A	24-Feb	10:38	-0.01	0.0	2.7	18.7			
GP-16B	24-Feb	10:41	0.07	0.0	3.2	18.4			
GP-17	24-Feb	10:47	0.22	0.0	2.6	18.5			
GP-18	24-Feb	10:51	0.00	0.0	0.9	20.8			
GP-19	24-Feb	10:56	0.20	0.0	2.6	19.2			
LFG-1	24-Feb	10:15	0.00	0.0	13.1	6.0			
LFG-2	24-Feb	10:21	0.08	24.3	25.1	0.0	17.9		
LFG-3	24-Feb	10:25	0.00	0.4	16.6	0.7			

General Data

Weather Conditions

Monitored by:	S. Adlington	Sky Cover:	Overcast
Instruments:	GEM 2000	Wind / Rain / Snow:	None
Calibration Date:	24-Feb-12	Temperature (^{o}F):	45

Notes

1. Measurement for spike concentrations of CH4 and CO2 are recorded if observed during sampling

GP = Gas Probe	CH_4 = Methane	S = shallow	A= shallow
NM = Not measured -	CO_2 = Carbon Dioxide	M = medium	B = medium
equipment malfunction	O_2 = Oxygen	D = deep	C = deep

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04212004.02

PCRCD dba LRI

March 16, 2012

Location Reference Designation	Date	Time	Pressure (in. H_2O)	CH_4 (% vol.)	CO_2 (% vol.)	O_2 (% vol.)	Comments: Spike CH4 *Note 1* (% vol.)	Comments: Spike CO2 *Note 1* (% vol.)	Comments: Other
Gas Probes									
GP-1A	16-Mar	14:35	0.30	0.0	4.5	3.6			
GP-1B	16-Mar	14:37	0.17	0.0	7.8	13.1			
GP-1C	16-Mar	14:40	0.00	0.0	8.8	12.0			
GP-2A	16-Mar	14:47	0.00	1.7	16.6	1.2	1.8		
GP-2B	16-Mar	14:50	0.03	0.0	0.6	20.8			
GP-3S	16-Mar	12:07	0.20	0.0	5.1	10.6			
GP-3M	16-Mar	12:10	0.00	0.0	2.8	9.5			
GP-3D	16-Mar	12:14	0.01	1.8	12.9	1.4	1.8		
GP-4A	16-Mar	12:21	-0.01	0.0	0.3	20.4			
GP-4B	16-Mar	12:23	0.11	0.0	0.3	20.4			
GP-5A	16-Mar	12:29	0.01	0.0	0.1	20.5			
GP-5B	16-Mar	12:32	0.00	0.0	0.1	20.6			
GP-6	16-Mar	12:36	0.02	0.0	0.1	20.6			
GP-7S	16-Mar	12:41	0.03	0.0	0.6	20.0			
GP-7D	16-Mar	12:44	0.02	0.0	0.4	20.3			
GP-8A	16-Mar	12:58	0.03	0.0	0.3	20.3			
GP-8B	16-Mar	13:00	0.04	0.0	0.1	20.4			
GP-9	16-Mar	13:06	0.01	0.0	1.5	17.9			
GP-10	16-Mar	13:11	0.01	0.0	0.2	20.4			
GP-11	16-Mar	13:16	0.00	0.0	1.4	18.0			
GP-12	16-Mar	13:26	0.01	0.0	1.1	17.7			
GP-13A	16-Mar	13:35	0.17	8.5	11.3	0.1	8.7		
GP-13B	16-Mar	11:18	0.01	0.0	0.4	20.3			
GP-14S	16-Mar	13:54	0.00	0.0	18.7	4.9			
GP-14D	16-Mar	13:56	0.00	0.0	17.4	0.5			
GP-15A	16-Mar	14:00	0.00	0.0	1.8	16.8			
GP-15B	16-Mar	14:02	0.00	0.0	10.2	4.5			
GP-16A	16-Mar	14:07	0.00	0.0	1.9	18.8			
GP-16B	16-Mar	14:10	0.44	0.0	1.8	18.7			
GP-17	16-Mar	14:17	0.00	0.0	1.8	19.3			
GP-18	16-Mar	14:21	0.00	0.0	0.9	20.0			
GP-19	16-Mar	14:25	0.00	0.0	2.2	18.7			
LFG-1	16-Mar	13:42	0.02	0.0	13.2	3.6			
LFG-2	16-Mar	13:47	0.09	15.7	22.6	0.0	16.3		
LFG-3	16-Mar	13:50	0.04	0.5	13.4	4.4	0.5		

General Data

		Weather Conditions	
Monitored by:	W. Chang	Sky Cover:	Overcast
Instruments:	GEM 2000	Wind / Rain / Snow:	None
Calibration Date:	16-Mar-12	Temperature (^{o}F):	47

Notes

1. Measurement for spike concentrations of CH4 and CO2 are recorded if observed during sampling

GP = Gas Probe

NM = Not measured - equipment malfunction

CH_4 = Methane

CO_2 = Carbon Dioxide

O_2 = Oxygen

S = shallow

M = medium

D = deep

A= shallow

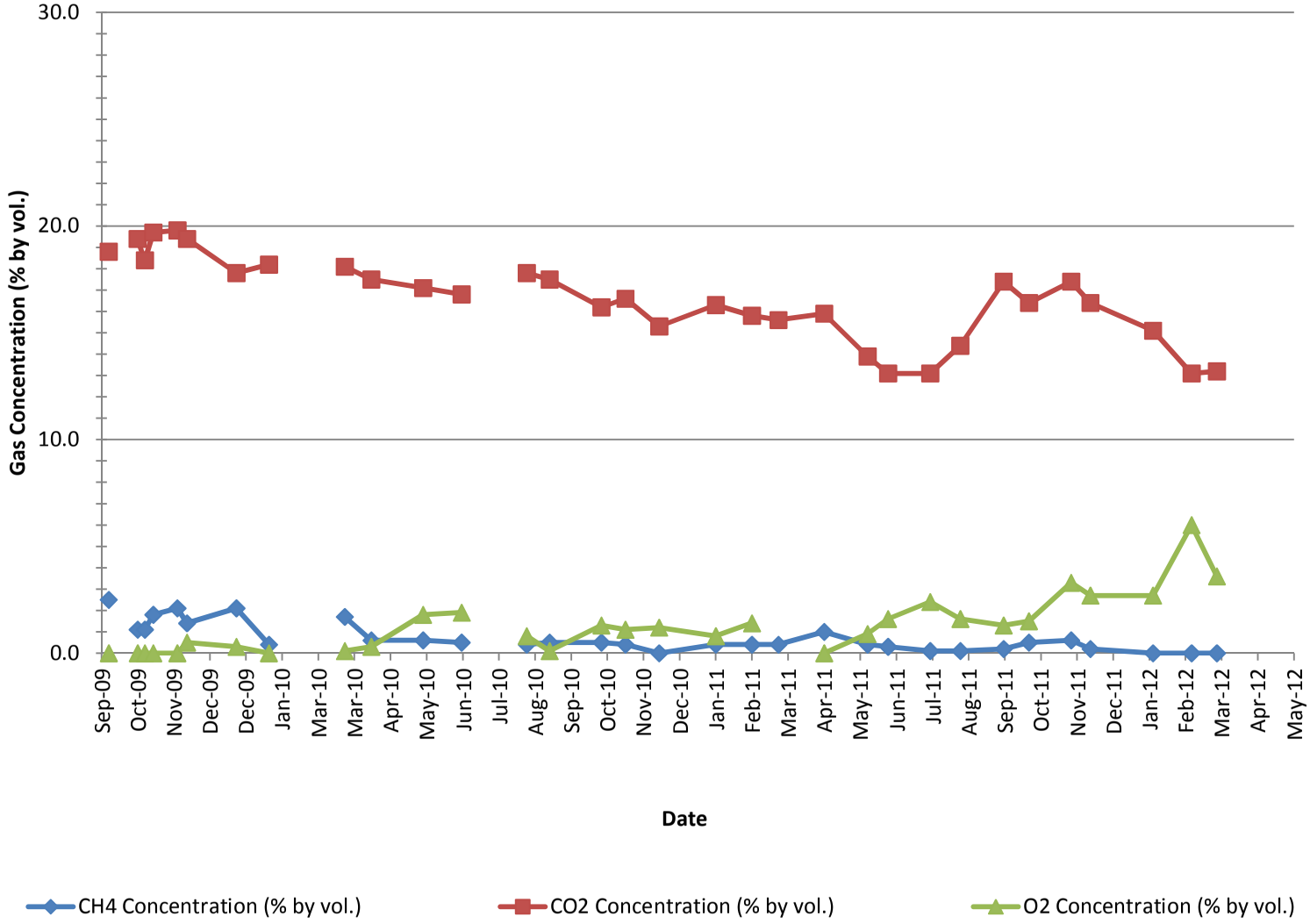
B = medium

C = deep

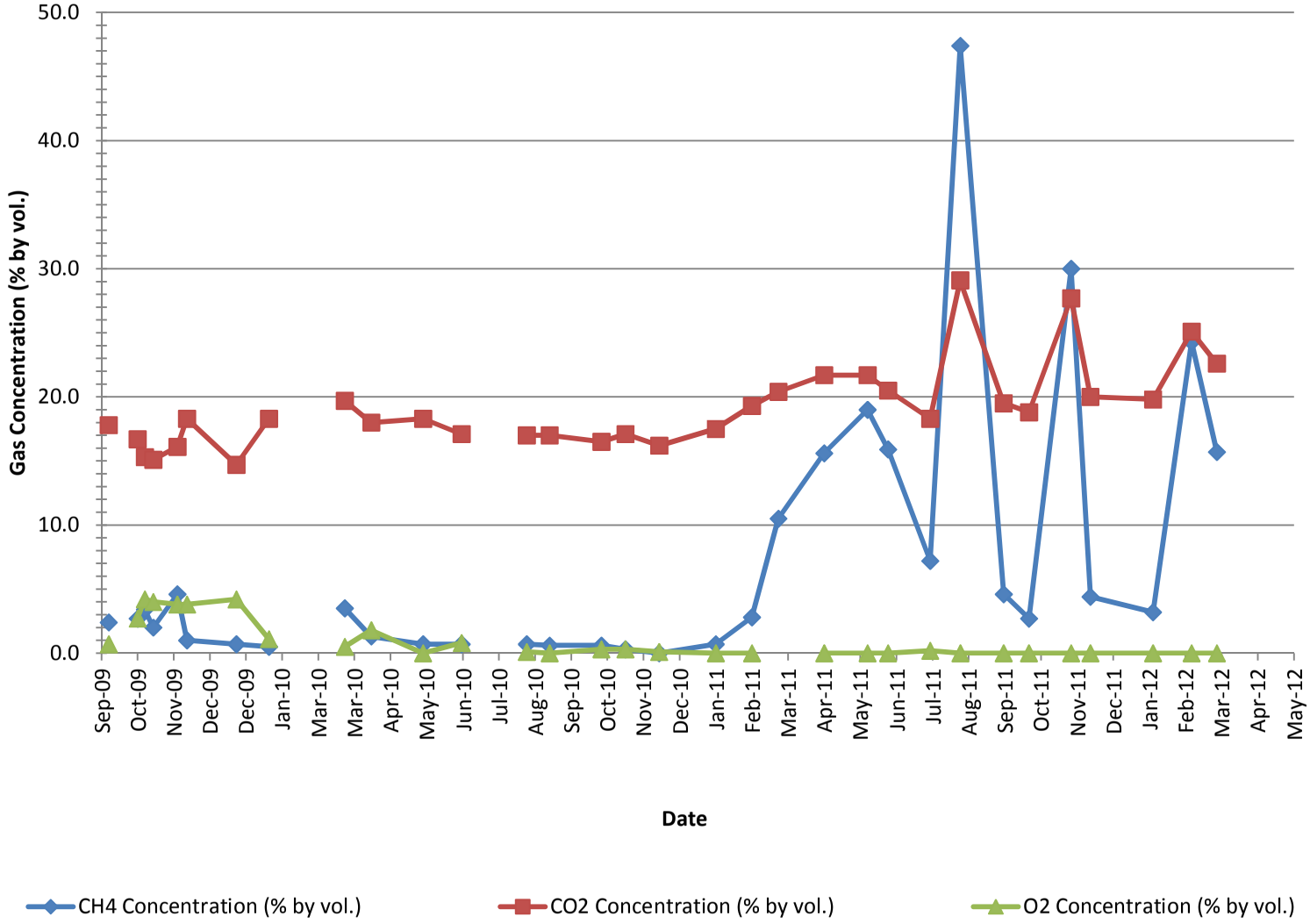
LFG-1, LFG-2, and LFG-3 Monitoring Results

	CH4 Concentration (% by vol.)			CO2 Concentration (% by vol.)			O2 Concentration (% by vol.)		
Date	**LFG-1**	**LFG-2**	**LFG-3**	**LFG-1**	**LFG-2**	**LFG-3**	**LFG-1**	**LFG-2**	**LFG-3**
8-Sep-09	2.5	2.4	28.4	18.8	17.8	26.3	0.0	0.7	4.3
22-Sep-09									
2-Oct-09	1.1	2.7	22.3	19.4	16.7	25.6	0.0	2.7	0.0
8-Oct-09	1.1	3.4	42.2	18.4	15.3	32.7	0.0	4.2	0.0
15-Oct-09	1.8	2.0	26.6	19.7	15.1	27.0	0.0	4.0	0.0
4-Nov-09	2.1	4.6	43.4	19.8	16.1	33.9	0.0	3.8	0.0
12-Nov-09	1.4	1.0	18.2	19.4	18.3	30.7	0.5	3.8	0.7
23-Dec-09	2.1	0.7	37.7	17.8	14.7	28.4	0.3	4.2	0.3
19-Jan-10	0.4	0.5	6.7	18.2	18.3	23.4	0.0	1.1	0.0
18-Feb-10									
23-Mar-10	1.7	3.5	38.8	18.1	19.7	30.3	0.1	0.5	0.0
14-Apr-10	0.6	1.3	28.2	17.5	18.0	27.4	0.3	1.8	0.0
27-May-10	0.6	0.7	7.4	17.1	18.3	22.5	1.8	0.0	0.0
28-Jun-10	0.5	0.7	7.2	16.8	17.1	20.2	1.9	0.8	0.5
27-Jul-10									
21-Aug-10	0.4	0.7	3.5	17.8	17.0	19.8	0.8	0.1	0.1
9-Sep-10	0.5	0.6	2.4	17.5	17.0	19.5	0.1	0.0	0.0
22-Oct-10	0.5	0.6	16.5	16.2	16.5	21.4	1.3	0.3	0.1
11-Nov-10	0.4	0.3	3.0	16.6	17.1	19.5	1.1	0.3	0.0
9-Dec-10	0.0	0.0	0.6	15.3	16.2	18.9	1.2	0.1	0.0
25-Jan-11	0.4	0.7	2.8	16.3	17.5	19.1	0.8	0.0	0.0
24-Feb-11	0.4	2.8		15.8	19.3		1.4	0.0	
18-Mar-11	0.4	10.5	1.8	15.6	20.4	16.5			
25-Apr-11	1.0	15.6	2.9	15.9	21.7	17.4	0.0	0.0	0.0
31-May-11	0.4	19.0	0.9	13.9	21.7	15.3	0.9	0.0	0.6
17-Jun-11	0.3	15.9	1.0	13.1	20.5	15.2	1.6	0.0	0.1
22-Jul-11	0.1	7.2	0.7	13.1	18.3	14.3	2.4	0.2	0.9
16-Aug-11	0.1	47.4	1.3	14.4	29.1	15.3	1.6	0.0	0.3
21-Sep-11	0.2	4.6	0.3	17.4	19.5	16.3	1.3	0.0	0.0
12-Oct-11	0.5	2.7	0.4	16.4	18.8	16.0	1.5	0.0	0.6
16-Nov-11	0.6	30.0	0.7	17.4	27.7	17.5	3.3	0.0	0.0
2-Dec-11	0.2	4.4	0.6	16.4	20.0	17.5	2.7	0.0	0.0
23-Jan-12	0.0	3.2	0.2	15.1	19.8	17.3	2.7	0.0	0.2
24-Feb-12	0.0	24.3	0.4	13.1	25.1	16.6	6.0	0.0	0.7
16-Mar-12	0.0	15.7	0.5	13.2	22.6	13.4	3.6	0.0	4.4

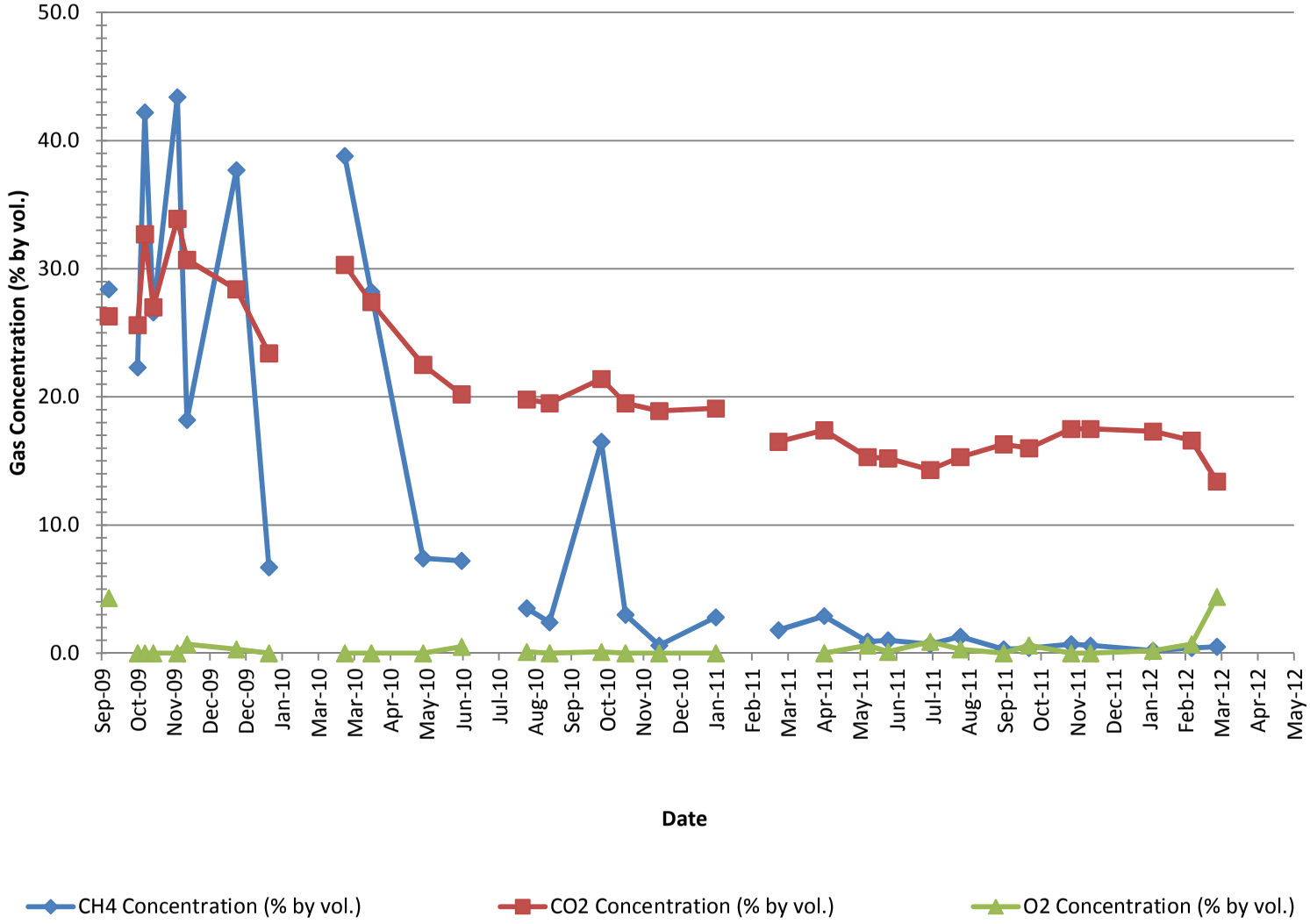
LFG-1


30.0
20.0
10.0
0.0
Gas Concentration (% by vol.)
Sep-09
Oct-09
Nov-09
Dec-09
Dec-09
Jan-10
Mar-10
Mar-10
Apr-10
May-10
Jun-10
Jul-10
Aug-10
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12
Apr-12
May-12
Date
CH4 Concentration (% by vol.)
CO2 Concentration (% by vol.)
O2 Concentration (% by vol.)

LFG-2


50.0
40.0
30.0
20.0
10.0
0.0
Gas Concentration (% by vol.)
Sep-09
Oct-09
Nov-09
Dec-09
Dec-09
Jan-10
Mar-10
Mar-10
Apr-10
May-10
Jun-10
Jul-10
Aug-10
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12
Apr-12
May-12
Date
CH4 Concentration (% by vol.)
CO2 Concentration (% by vol.)
O2 Concentration (% by vol.)

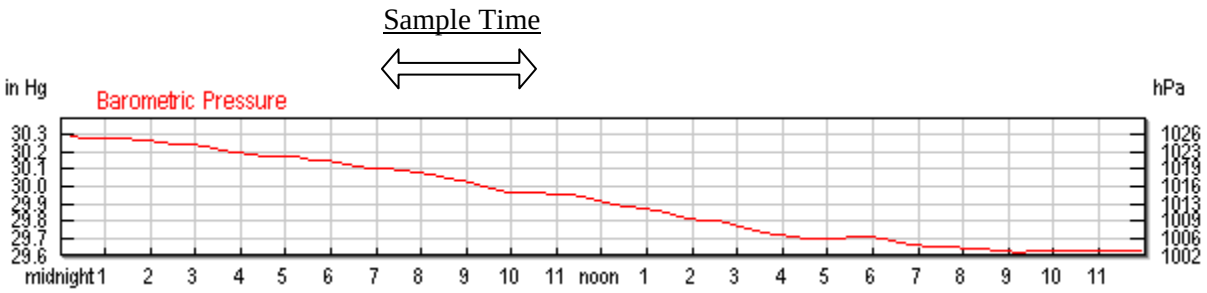
LFG-3


50.0
40.0
30.0
20.0
10.0
0.0
Gas Concentration (% by vol.)
Sep-09
Oct-09
Nov-09
Dec-09
Dec-09
Jan-10
Mar-10
Mar-10
Apr-10
May-10
Jun-10
Jul-10
Aug-10
Sep-10
Oct-10
Nov-10
Dec-10
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12
Apr-12
May-12
Date
CH4 Concentration (% by vol.)
CO2 Concentration (% by vol.)
O2 Concentration (% by vol.)

Barometric Pressure Trend
Hidden Valley Landfill
February 2012

Barometric Pressure Trend for February 2012

Barometric Pressure Trend for February 24, 2012

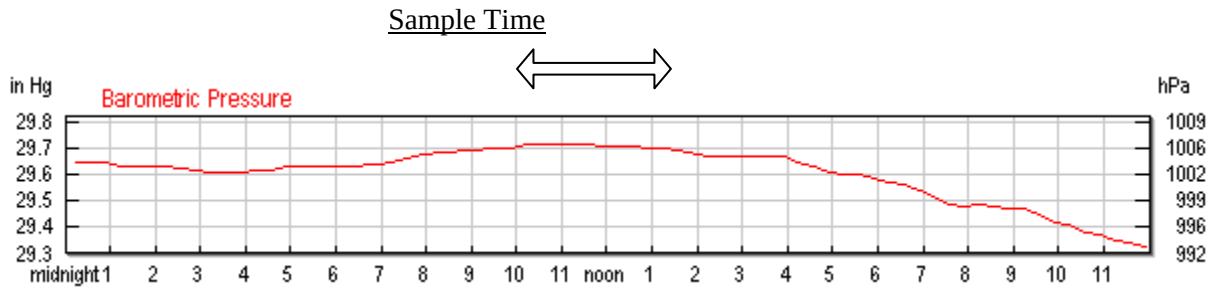


Source: KPLU Airport

Barometric Pressure Trend
Hidden Valley Landfill
March 2012

Barometric Pressure Trend for March 2012

Barometric Pressure Trend for March 16, 2012



Source : KPLU Airport

Facility Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Wayne Chang

Date: 02/24/12

Signature: Wayne Chang

Weather: Overcast 46° F

Items	Yes	No	Comments
Cover System			
Settlement Depressions	X		
Cracking of Cover Soils		X	
Inadequate Cover Soil or Rock		X	
Standing Water		X	
Vegetation			
Bare or Sparsely Vegetated Areas		X	
Areas of Dying Vegetation		X	
Large Root Vegetation (ex. Bushes)	X		Scotch Broom bushes located in various locations on landfill. Also a few blackberry bushes.
Stormwater Conveyance System			
Ditch Obstructions or Flat Areas		X	
Culvert Obstructions		X	
Catch Basin Debris or Silt Accumulation	X		
Stormwater Basin Debris or Silt		X	
Cover Erosion			
Gullies and/or Erosion Scars		X	
Presence of Seeps		X	
Vector Control			
Evidence of Ground Burrows		X	
Leachate Collection & Leak Detection Systems			
Piping or Valve Issues		X	
Pump or Meter Issues		X	
Foaming at Pump		X	

Condensate Recirculation Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Wayne Chang

Date: 02/23/12

Signature:

Weather: Overcast 46°F

Instructions: Inspect each sump for pump operation and condensate fluid level, which should be below the overflow drainage pipe. Note any unusual observations such as soil staining or air leaks in the comments section.

Sump	Operation per Design (Y or N)	Comments
Sump No. 1	Y	
Sump No. 2	Y	
Sump No. 3	Y	
Sump No. 4	Y	
Sump No. 5	Y	
Sump No. 6	Y	
Sump No. 7	Y	
Sump No. 8	Y	
Sump No. 9	–	Could not open sump due to vacuum on lid.
Sump No. 10	Y	

Other Remarks: none

Hidden Valley Landfill
Landfill Gas Monitoring of On-site Buildings

Project Number: 04211003.02

Date: 2/24/2012
Weather Conditions:
Instrument: GAS TEC PID
Measured By: SAM ADLINGTON

The atmosphere inside buildings at the landfill were monitored for possible intrusion of methane gas. Per WAC 173-351, concentrations of methane in on-site structures must not exceed 25% of the lower explosive limit (LEL). If off-site gas migration is suspected, concentrations of methane in off-site structures must not exceed 100 ppm methane.

The areas monitored included:
- The general overall work area
- Floor drains
- Underground conduit protrusions
- Closed areas where landfill gas could collect, such as under cupboards and inside closets

The gas detection instrument must be calibrated using calibration gas containing methane equal to 50 % LEL. Calibration must be performed before and after the survey is completed.

Checked boxes indicate that the survey revealed **no detectable methane**.

- [x] Main Office - individual office spaces, storage areas and within open crawl-space area.
- [x] Repair Shop – survey atmosphere conditions throughout (lower height levels).
- [x] Pay/Scale Booth – interior of building.
- [x] Recycle Building – throughout facility and water drainage areas.
- [x] Leachate Treatment Building – all lower level office spaces, restrooms, water drainage system and storage/equipment areas.
- [x] Gas to Energy Building – central monitoring/control room, engine room and storage cabinets.
- [x] Transfer Station Building – throughout entire building and lower levels.

Signature