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SCS ENGINEERS

August 19, 2011
File No. 04211003.03

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

Subject: Second Quarter 2011 Monitoring, Hidden Valley Landfill

Dear David:

The following provides a summary of monitoring activities performed at the closed Hidden Valley Landfill during the Second Quarter (April through June) of 2011.

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 April 25, May 31, and June 17. All gas probe measurements this quarter were less than 5 percent methane by volume, with the exception of GP-3D, GP-11, GP-13A, and GP-15A, on at least one occasion. After each of these readings, LRI personnel were notified and adjustments were made to the landfill gas extraction system to recapture the gas. Additional monitoring was subsequently performed by LRI staff until methane concentrations decreased to less than 5 percent by volume. On-site buildings were monitored for the presence of landfill gas on April 25. No methane detections were reported in the buildings. A summary of monitoring data for the landfill gas probes and on-site buildings is enclosed.

The groundwater monitoring program followed the Hidden Valley Landfill Groundwater Compliance Monitoring Plan (February 2001) and was a quarterly event. Groundwater samples were collected by SCS Engineers (SCS) on April 19 through April 21. 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).

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 Second Quarter of 2011 were validated and input into the Washington Department of Ecology Environmental Information Management (EIM) system.

Depths to water measurements were collected on April 21. 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 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 Field Sampling Data Sheets are attached. Laboratory reports for Second Quarter 2011 groundwater monitoring were provided under separate cover. Groundwater sample results are similar to previous dry-season results. An update of time series plots and groundwater statistics will be included with the 2011 Annual Report. A quality assurance review of the Second Quarter 2011 analytical data is attached.

The landfill cover system and the condensate recirculation system were inspected on April 25. 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). The new system includes a Perennial Energy flare rated for 15 million BTU per hour and a flow rate range 50 to 500 standard cubic feet per minute (scfm), assuming 50 percent methane. Since start-up, the flow rate at the new flare has been approximately 350-375 scfm at approximately 28.5 to 30 percent methane.

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 and 2010 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

State of Washington
Hydrogeologist
1751
Licensed Geologist
KEVIN G. LAKEY

Attachment: Data Summary Tables (Tables 1 through 8)
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)
Jody Snyder, LRI (w/o enclosure)
Wes Gavett, WCI (w/o enclosure)

Groundwater Data Validation Report
Second Quarter 2011
Hidden Valley Landfill

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

Surrogate Recovery. Surrogate recoveries were within USEPA guidelines.

Matrix Spike. Matrix spike recoveries were within USEPA guidelines, with the following exceptions:

- Carbon tetrachloride and tetrachloroethene in batch 280-65020 were reported with a matrix spike (MS) recovery below the acceptable limits. The associated data were below the allowable relative percent difference (RPD) of 20 percent and flagged with an "F" by TestAmerica. No further action was taken.

- Ammonia in batches 280-65001, 280-65636 and 280-65427 were reported with a MS and matrix spike duplicate (MSD) recovery below the 90 percent acceptable limit. The associated data were flagged with an "F" by TestAmerica. No further action was taken.

- In lot number F1D220572-001, sulfate was reported with a higher than acceptable recovery percentage. The associated data were flagged with an "N" by TestAmerica. No further action was taken.

- Manganese in batch 280-64152 had a higher than allowable MSD recovery. The associated data were flagged with an "F" by TestAmerica. No further action was taken.

- In batch 280-48570, barium, manganese, and zinc were reported with MS and/or MSD values outside acceptable limits. Barium and manganese were re-tested providing similar results. The associated data for barium and manganese were flagged with a "4", and the data for zinc were flagged with an "F" by TestAmerica. No further action was taken.

Blanks. One field blank was included this quarter. De-ionized water (catalogue # W210.10.44) from Integra Chemical in Kent, Washington, was used to prepare the field blank by pumping the water through an unused bladder in the submersible bladder-pump. Trichloroethene and ammonia were detected in the field blank at a concentration of 0.66 µg/L, and 0.18 mg/L, respectively. No other detections of trichloroethene were reported. No other 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-13S. 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.

Data Assessment. The data are considered acceptable for entry into the database. Ammonia test results for samples collected from monitoring wells without dedicated equipment with concentrations within 5 times the detected blank concentration were flagged with a "B."

Table 1. 2011 Performance Monitoring Data

2011 Performance Monitoring Data Main Sump and Side Slope Liner Areas Hidden Valley Landfill, Pierce County, Washington				
Month	Cell 1 Monthly Leachate Volume (gallons)	Cell 2 Monthly Leachate Volume (gallons)	Cell 2 Monthly Leakage Flow[(a)] (gallons/month)	Monthly Rainfall (inches)
January	22,438	12,017	320	9.9
February	44,148	7,305	0	4.4
March	37,193	3,309	1,083	12.4
April	41,457	6,789	421	8.5
May	13,670	3,399	0	5.8
June	25,381	6,819	794	3.1

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

Table 2
Water Level Elevations
April 21, 2011
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	22.10	438.59
MW-11S	516.44	76.50	439.94
MW-11D	516.56	NM	NM
MW-11D(2)	515.53	84.80	430.73
MW-12S	489.94	59.20	430.74
MW-12D	489.97	59.00	430.97
MW-13S	448.81	17.70	431.11
MW-13D	448.94	18.02	430.92
MW-14S	477.95	40.46	437.49
MW-14D	477.98	42.95	435.03
MW-14R	476.84	114.16	362.68
MW-15S	498.76	67.20	431.56
MW-15D	498.52	71.89	426.63
MW-17S	552.44	123.50	428.94
MW-18S	538.40	126.03	412.37
MW-18D	539.00	124.33	414.67
MW-19S	485.71	50.08	435.63
MW-19D	485.82	51.48	434.34
MW-20R	469.43	105.17	364.26
MW-22U	545.92	NM	NM
MW-22L	546.07	NM	NM
MW-23S	448.34	16.56	431.78
MW-23D	448.25	18.43	429.82
MW-25S	527.80	116.22	411.58
MW-25D	527.52	115.60	411.92
MW-26R	481.81	NM	NM
MW-27S	531.81	97.60	434.21
MW-27D	531.92	98.10	433.82
MW-28S	466.87	37.43	429.44
FMW-01	542.59	135.80	406.79
FMW-02	536.40	129.16	407.24
BC-4S	526.68	118.69	407.99
BC-4D	526.94	NM	NM

Notes:
(NM) = not measured

Table 3
Field Parameters
April 2011 (Second Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

Sample ID	Sample Number	Sample Date	Method	pH	Conductance (µS)	Temperature (° C)
MW-10S	HVL-042011-10	04/20/11	DP	6.43	134	9.5
MW-10D	HVL-042011-11	04/20/11	DP	6.46	151	9.9
MW-11S	HVL-041911-02	04/19/11	SP	5.80	252	14.9
MW-11D(2)	HVL-041911-03	04/19/11	SP	6.56	214	14.3
MW-13S	HVL-041911-05	04/19/11	SP	6.09	401	18.0
MW-13D	HVL-041911-07	04/19/11	DP	6.50	342	17.2
MW-14S	HVL-042111-13	04/21/11	DP	5.92	122	12.0
MW-14D	HVL-042111-12	04/21/11	DP	6.17	153	12.2
MW-17S	HVL-042011-09	04/20/11	SP	6.02	473	20.3
MW-28S	HVL-042111-14	04/21/11	SP	6.25	161	11.7
FMW-01	HVL-041911-01	04/19/11	SP	6.25	282	12.3
FMW-02	HVL-042011-08	04/20/11	SP	6.11	478	16.7
Water Supply Well, P. Bunyan	HVL-042111-15	04/21/11	Grab	6.57	274	10.4
Water Supply Well, Corliss	HVL-042111-16	04/21/11	Grab	6.81	215	32.7

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

Table 4
Inorganic Parameters (mg/L)
April 2011 (Second Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	Cleanup Levels	MW-10D	MW-10S	MW-11D(2)	MW-11S	MW-13D	MW-13S	MW-14D	MW-14S	MW-17S	MW-28S	FMW-01	FMW-02
			Background											
Alkalinity	5	—	54	47	110	45	150	120	56	37	180	65	100	160
Bicarbonate Alkalinity	5	—	54	47	110	45	150	120	56	37	180	65	100	160
Chloride	0.2-4.0	250[(b)]	6.0	5.6	5.9	13.2	17.4	31.4	6.4	6.6	25.1	7.6	19.1	23.1
Ammonia as Nitrogen	0.10	—	*	*	0.12 B	0.17 B	*	0.24 B	1.60	0.18	1.9 B	0.1 B	0.13 B	0.11 B
Nitrate as Nitrogen	0.50	10[(a)]	1.1	0.96	2.0	**10.0**	1.7	6.0	*	1.70	4.4	1.0	3.4	9.2
Sulfate	0.5-10.0	250[(b)]	9.9	8.6	5.4	23.3	15.4	25.7	9.4	8.4	9.0	3.8	17.9	19.1
Total Dissolved Solids	10	500[(b)]	99	88	140	180	210	270	99	85	280	110	180	300
Total Organic Carbon	1.0	—	*	*	*	1.2	1.0	1.6	1.4	1.2	2.8	*	1.2	1.7

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)
April 2011 (Second Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	Cleanup Levels	MW-10D (Background)	MW-10S (Background)	MW-11D(2)	MW-11S	MW-13D	MW-13S	MW-14D	MW-14S	MW-17S	MW-28S	FMW-01	FMW-02
Arsenic	0.1000	—	*	*	*	*	*	*	*	*	*	*	*	*
Iron	0.200	0.30(b)	*	*	*	*	*	*	*	*	*	*	*	*
Manganese	0.001	0.05(b)	*	*	*	0.007	*	0.003	**0.510**	**0.056**	**1.300**	*	*	**0.084**

Notes:
Parameter concentrations that are greater than cleanup levels are shown in **bold**
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)
(b) indicates Secondary Drinking Water Standard

Table 6
Volatile Organic Compounds (µg/L)
April 2011 (Second Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	Cleanup Levels	MW-10D	MW-10S	MW-11D(2)	MW-11S	MW-13D	MW-13S	MW-14D	MW-14S	MW-17S	MW-28S	FMW-01	FMW-02
			Background											
Tetrachloroethene	0.5	5.0[(a)]	*	*	0.53	*	*	*	*	*	*	*	*	*

Notes:

Analyses performed by TestAmerica, Arvada, Colorado

Volatile organic compounds not listed were not present at concentrations exeeding the MRL

Freon 12 = Dichlorodifluoromethane

(µg/L) = micrograms per liter

(*) indicates not reported at or above the MRL (Method Reporting Limit)

(a) indicates Primary Drinking Water standard

Table 7
Duplicate Samples
April 2011 (Second Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	MW-13S	DUP (MW-13S)	RPD (%)
Volatile Organics (µg/L)				
No Detections	—	*	*	—
Dissolved Metals (mg/L)				
Arsenic	0.005	*	*	—
Iron	0.20	*	*	—
Manganese	0.001	3.30	3.00	10
Inorganic Parameters (mg/L)				
Alkalinity	5	120	120	0
Bicarbonate Alkalinity	5	120	120	0
Ammonia as Nitrogen	0.10	**	**	**
Total Organic Carbon	1.0	**	**	**
Chloride	4.0	31.4	31.7	1
Nitrate as Nitrogen	0.2	6.0	6.1	2
Total Dissolved Solids	10	270	260	4
Sulfate	0.5	25.7	26.3	2

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)
(**) = indicates less than 5X the MRL
(—) = not applicable

Table 8
Water Supply Wells
April 2011 (Second Quarter) Groundwater Monitoring
Hidden Valley Landfill, Pierce County, Washington

	MRL	Paul Bunyan	Corliss
Volatile Organics (µg/L)			
No Detections	—	*	*
Total Metals (mg/L)			
Iron	0.200	*	*
Manganese	0.001	*	0.003
Zinc	0.010	0.011	0.029
Inorganic Parameters (mg/L)			
Chloride	0.2-4.0	4.4	6.1
Ammonia as Nitrogen	0.10	*	*
Nitrate as Nitrogen	0.5	1.6	1.4
Nitrite as Nitrogen	0.5	*	*
Sulfate	0.5	9.7	8.7
Chemical Oxygen Demand (COD)	20	*	*
Total Organic Carbon (TOC)	1.0	*	*
Color	5.0	*	*

Notes:

Analyses performed by TestAmerica, Arvada, Colorado

Volatile organic compounds not listed were not present at concentrations exceeding the MRL

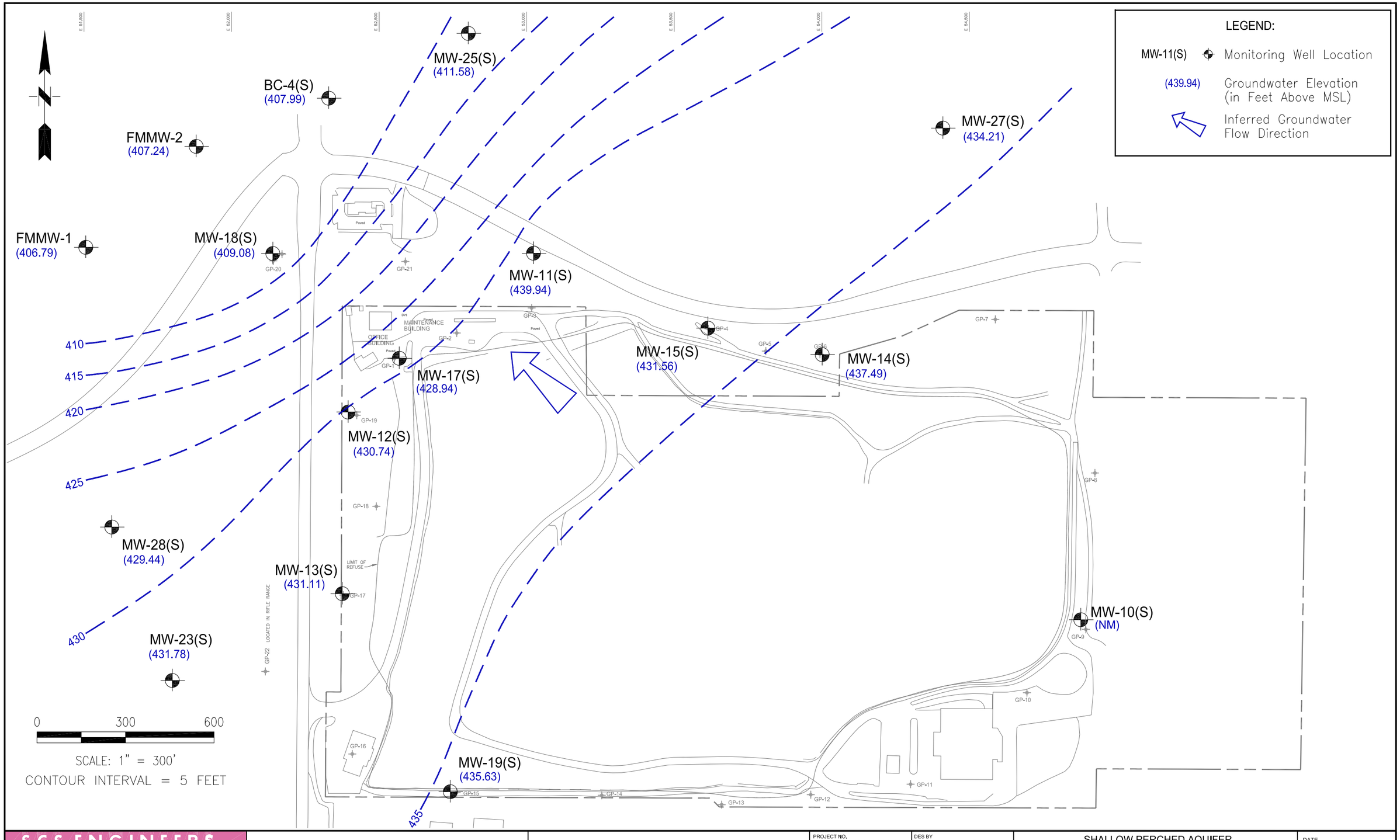
Color reported in color units

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)



SCS ENGINEERS
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PROJECT NO. 042110003.03	DES BY SA	SHALLOW PERCHED AQUIFER WATER LEVEL MAP APRIL 11, 2011 HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	DATE JULY 2011
SCALE AS SHOWN	CHK BY ES		FIGURE 1
CAD FILE FIGURE 1	APP BY KGL		

LEGEND:

MW-14(D) — Monitoring Well Location

(435.03) — Groundwater Elevation (in Feet Above MSL)

Inferred Groundwater Flow Direction

∗ Not used for Contouring

MW-25(D) (411.92)

MW-27(D) (433.82)

MW-18(D) (414.67)

MW-11D(2) (430.73)

MW-15(D) ∗ (426.63)

MW-14(D) (435.03)

MW-12(D) (430.97)

MW-13(D) (430.92)

MW-10(D) (438.59)

MW-23(D) (429.82)

MW-19(D) (426.03)

415 420 425 430 435

E 51,500 E 52,000 E 52,500 E 53,000 E 53,500 E 54,000 E 54,500

N 27,000 N 26,500 N 26,000 N 25,500 N 25,000

GP-1 GP-2 GP-3 GP-4 GP-5 GP-6 GP-7 GP-8 GP-9 GP-10 GP-11 GP-12 GP-13 GP-14 GP-15 GP-16 GP-17 GP-18 GP-19 GP-21 GP-22

OFFICE BUILDING

MAINTENANCE BUILDING

Paved

LIMIT OF REFUSE

RECYCLING CENTER

GAS TO ENERGY FACILITY

LEACHATE PRETREATMENT FACILITY

TRANSFER STATION

0 300 600

SCALE: 1" = 300'

CONTOUR INTERVAL = 5 FEET

SCS ENGINEERS

Environmental Consultants and Contractors

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Bellevue, Washington 98005

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PROJECT NO. 042110003.03	DES BY SA
SCALE AS SHOWN	CHK BY ES
CAD FILE FIGURE 2	APP BY KGL

UPPER REGIONAL AQUIFER
WATER LEVEL MAP
APRIL 11, 2011

HIDDEN VALLEY LANDFILL
PIERCE COUNTY, WASHINGTON

DATE JULY 2011

FIGURE 2

E 51,500
E 52,000
E 52,500
E 53,000
E 53,500
E 54,000
E 54,500
N 27,000
N 26,500
N 26,000
N 25,500
N 25,000
N 24,500

BC-4(R)
(NM)

365
360

GP-21
GP-20
GP-3
GP-2
GP-1
GP-4
GP-5
GP-6
GP-7
GP-19
GP-18
GP-17
GP-8
GP-9
GP-10
GP-22
GP-16
GP-15
GP-14
GP-13
GP-12
GP-11

Dirt
Paved
MAINTENANCE BUILDING
OFFICE BUILDING
LIMIT OF REFUSE
RECYCLING CENTER
GAS TO ENERGY FACILITY
LEACHATE PRETREATMENT FACILITY
TRANSFER STATION

MW-14(R)
(362.68)

MW-20(R)
(364.26)

LEGEND:

MW-14(R) Monitoring Well Location

(362.68) Groundwater Elevation (in Feet Above MSL)

Inferred Groundwater Flow Direction

0 300 600

SCALE: 1" = 300'

CONTOUR INTERVAL = 5 FEET

SCS ENGINEERS
Environmental Consultants and Contractors
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PROJECT NO. 04211003.03	DES BY KGL	LOWER REGIONAL AQUIFER WATER LEVEL MAP APRIL 11, 2011 HIDDEN VALLEY LANDFILL PIERCE COUNTY, WASHINGTON	DATE JULY 2011
SCALE AS SHOWN	CHK BY KGL		FIGURE 3
CAD FILE FIGURE 3	APP BY KGL		

Hidden Valley Landfill
Month of Apr-11

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	16.51	4.17	0	0	0	0	31,451	28.84	29,964
1	16.59	4.26	0	0	0	0	32,636	28.47	30,402
2	16.77	4.52	0	0	0	0	30,413	27.73	28,121
3	17.24	5.26	0	0	4,141	0	26,245	26.84	28,316
4	17.51	5.73	0	0	0	0	22,658	26.52	25,642
5	17.90	6.30	0	0	1,155	0	23,616	27.41	26,558
6	18.03	6.52	0	0	16	0	31,222	29.22	29,306
7	18.11	6.78	0	0	0	0	25,920	28.38	27,588
8	18.50	7.25	0	0	2,386	0	31,959	28.93	32,888
9	18.59	7.47	0	0	2,892	0	32,401	29.04	30,637
10	18.85	7.86	0	0	1,513	0	26,695	28.26	25,380
11	19.03	8.08	0	0	0	0	16,255	29.24	22,102
12	15.12	8.64	44	0	688	3,659	23,278	37.29	28,375
13	15.20	8.64	0	0	4,495	0	30,926	38.64	33,308
14	15.42	8.86	0	0	4,190	0	28,143	37.52	30,764
15	15.77	9.30	0	0	0	0	33,391	37.07	33,507
16	15.99	9.43	0	0	0	0	26,619	35.76	27,288
17	16.20	9.73	0	0	2,863	0	26,425	34.47	31,955
18	16.38	9.95	0	0	0	0	28,492	35.00	27,652
19	16.72	10.47	0	0	0	0	30,165	36.67	29,886
20	12.81	10.56	44	0	4,936	3,131	20,097	35.60	27,589
21	13.07	10.77	0	0	0	0	29,790	36.95	30,890
22	13.55	11.42	0	0	0	0	22,328	35.23	30,965
23	13.73	11.64	0	0	2,893	0	32,386	36.66	35,744
24	14.16	12.25	0	0	9	0	29,653	36.61	28,815
25	14.12	12.42	0	0	1,281	0	23,418	36.08	25,798
26	14.51	13.03	0	0	297	0	20,601	35.30	27,607
27	14.77	13.60	0	0	0	0	32,810	36.51	34,978
28	14.86	4.04	0	777	1,974	0	26,950	36.07	30,080
29	15.12	4.21	0	0	2,869	0	34,498	36.25	37,732
30	15.51	4.65	0	0	2,859	0	27,381	35.21	30,456
			Total Gallons:	**777**	**41,457**	**6,789**	**827,371**		**890,329**
				Cell 2 Leak	Cell 1 Leachate	Cell 2 Leachate	304th Influent		Treatment Discharge

Hidden Valley Landfill Hour Meters Totalizers

Apr-11

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.
31	35,921	43	2923	16	0.00	17.32	6034696	3,946,780	98185	88,592,879	77,187,724
1	35,939	31	2923	16	0.00	17.80	6034696	3,946,780	98185	88,625,515	77,218,126
2	35,956	25	2923	16	0.00	16.90	6034696	3,946,780	98185	88,655,928	77,246,247
3	35,973	60	2923	16	0.00	17.58	6038837	3,946,780	98185	88,682,173	77,274,563
4	35,990	7	2923	16	0.00	16.12	6038837	3,946,780	98185	88,704,831	77,300,204
5	36,006	16	2923	16	0.00	16.15	6039992	3,946,780	98185	88,728,447	77,326,762
6	36,022	59	2923	16	0.00	16.72	6040008	3,946,780	98185	88,759,669	77,356,068
7	36,039	11	2923	16	0.00	16.20	6040008	3,946,780	98185	88,785,589	77,383,656
8	36,058	8	2923	16	0.00	18.95	6042394	3,946,780	98185	88,817,548	77,416,544
9	36,075	43	2923	16	0.00	17.58	6045285	3,946,780	98185	88,849,949	77,447,181
10	36,090	41	2923	16	0.00	14.97	6046799	3,946,780	98185	88,876,644	77,472,561
11	36,103	17	2923	16	0.00	12.60	6046799	3,946,780	98185	88,892,899	77,494,663
12	36,115	58	2924	39	1.38	12.68	6047487	3,950,439	98185	88,916,177	77,523,038
13	36,130	20	2924	39	0.00	14.37	6051982	3,950,439	98185	88,947,103	77,556,347
14	36,143	60	2924	39	0.00	13.67	6056172	3,950,439	98185	88,975,246	77,587,110
15	36,159	4	2924	39	0.00	15.07	6056172	3,950,439	98185	89,008,637	77,620,618
16	36,171	47	2924	39	0.00	12.72	6056172	3,950,439	98185	89,035,257	77,647,906
17	36,187	14	2924	39	0.00	15.45	6059035	3,950,439	98185	89,061,682	77,679,861
18	36,200	24	2924	39	0.00	13.17	6059035	3,950,439	98185	89,090,173	77,707,512
19	36,213	59	2924	39	0.00	13.58	6059035	3,950,439	98185	89,120,338	77,737,399
20	36,226	54	2925	50	1.18	12.92	6063972	3,953,569	98185	89,140,435	77,764,987
21	36,240	50	2925	50	0.00	13.93	6063972	3,953,569	98185	89,170,225	77,795,878
22	36,255	29	2925	50	0.00	14.65	6063972	3,953,569	98185	89,192,553	77,826,843
23	36,271	44	2925	50	0.00	16.25	6066865	3,953,569	98185	89,224,940	77,862,587
24	36,284	51	2925	50	0.00	13.12	6066874	3,953,569	98185	89,254,593	77,891,402
25	36,296	46	2925	50	0.00	11.92	6068154	3,953,569	98185	89,278,010	77,917,200
26	36,309	48	2925	50	0.00	13.03	6068451	3,953,569	98185	89,298,611	77,944,807
27	36,325	46	2925	50	0.00	15.97	6068451	3,953,569	98185	89,331,421	77,979,785
28	36,339	40	2926	6	0.27	13.90	6070426	3,953,569	98962	89,358,371	78,009,865
29	36,357	1	2926	6	0.00	17.35	6073295	3,953,569	98962	89,392,869	78,047,597
30	36,371	26	2926	6	0.00	14.42	6076153	3,953,569	98962	89,420,250	78,078,053
					Total	**Gallons**	**41,457**	**6,789**	**777**	**827,371**	**890,329**
							Cell 1 Leachate	Cell 2 Leachate	Cell 2 Leak	304th Influent	Treatment Discharge

Hidden Valley Landfill
Month of May-11

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
30	15.51	4.65	0	0	2,859	0	27,381	35.21	30,456
1	15.94	5.17	0	0	726	0	25,689	34.22	27,514
2	15.81	4.95	0	0	1,002	0	23,434	33.80	27,106
3	11.64	5.30	44	0	1,069	3,399	26,104	34.08	32,443
4	12.16	5.82	0	0	0	0	16,557	32.39	24,778
5	12.21	5.82	0	0	0	0	20,875	32.64	29,082
6	12.68	6.30	0	0	2,062	0	21,015	32.39	26,304
7	12.77	6.30	0	0	0	0	16,259	31.21	23,094
8	12.94	6.30	0	0	834	0	19,404	31.37	28,072
9	13.25	6.56	0	0	1,836	0	20,708	30.76	29,806
10	13.68	6.95	0	0	0	0	14,793	30.40	22,769
11	13.55	6.82	0	0	0	0	21,442	30.90	26,238
12	14.16	7.34	0	0	0	0	17,432	33.33	23,432
13	14.33	7.51	0	0	0	0	19,602	39.11	39,304
14	14.73	7.91	0	0	0	0	21,454	39.48	32,175
15	14.68	7.82	0	0	0	0	15,531	38.30	27,691
16	15.12	8.21	0	0	0	0	16,309	38.03	38,715
17	15.16	8.12	0	0	0	0	16,782	37.19	38,416
18	15.38	8.47	0	0	0	0	21,113	36.76	41,718
19	15.64	8.60	0	0	0	0	19,920	37.32	35,562
20	15.81	8.82	0	0	0	0	19,158	36.33	34,439
21	16.16	9.25	0	0	0	0	18,011	35.26	28,667
22	16.33	9.51	0	0	1,489	0	17,852	34.63	33,215
23	16.46	9.73	0	0	0	0	16,572	40.56	25,672
24	16.85	10.16	0	0	0	0	18,550	45.71	34,878
25	16.72	10.12	0	0	0	0	20,018	45.88	35,830
26	17.24	10.77	0	0	0	0	19,051	44.68	32,306
27	17.29	10.90	0	0	0	0	15,591	43.34	24,876
28	17.51	11.16	0	0	0	0	13,931	42.72	25,544
29	17.81	11.64	0	0	0	0	19,254	42.67	34,133
30	17.90	11.90	0	0	0	0	17,940	42.51	31,541
31	18.07	12.29	0	0	4,652	0	18,357	42.12	34,711
			Total Gallons:	**0**	**13,670**	**3,399**	**588,708**		**950,028**
				Cell 2 Leak	Cell 1 Leachate	Cell 2 Leachate	304th Influent		Treatment Discharge

Hidden Valley Landfill Hour Meters Totalizers

May-11

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.
30	36,371	26	2926	6	0.00	14.42	6076153	3,953,569	98962	89,420,250	78,078,053
1	36,384	50	2926	6	0.00	13.40	6076879	3,953,569	98962	89,445,940	78,105,567
2	36,398	12	2926	6	0.00	13.37	6077881	3,953,569	98962	89,469,374	78,132,673
3	36,414	4	2927	24	1.30	15.87	6078950	3,956,968	98962	89,495,478	78,165,116
4	36,426	49	2927	24	0.00	12.75	6078950	3,956,968	98962	89,512,035	78,189,894
5	36,441	40	2927	24	0.00	14.85	6078950	3,956,968	98962	89,532,910	78,218,976
6	36,455	12	2927	24	0.00	13.53	6081012	3,956,968	98962	89,553,925	78,245,280
7	36,467	32	2927	24	0.00	12.33	6081012	3,956,968	98962	89,570,184	78,268,374
8	36,482	27	2927	24	0.00	14.92	6081846	3,956,968	98962	89,589,588	78,296,446
9	36,498	36	2927	24	0.00	16.15	6083682	3,956,968	98962	89,610,296	78,326,252
10	36,511	5	2927	24	0.00	12.48	6083682	3,956,968	98962	89,625,089	78,349,022
11	36,525	14	2927	24	0.00	14.15	6083682	3,956,968	98962	89,646,531	78,375,259
12	36,536	57	2927	24	0.00	11.72	6083682	3,956,968	98962	89,663,963	78,398,691
13	36,553	42	2927	24	0.00	16.75	6083682	3,956,968	98962	89,683,564	78,437,995
14	36,567	17	2927	24	0.00	13.58	6083682	3,956,968	98962	89,705,019	78,470,170
15	36,579	20	2927	24	0.00	12.05	6083682	3,956,968	98962	89,720,550	78,497,861
16	36,596	18	2927	24	0.00	16.97	6083682	3,956,968	98962	89,736,859	78,536,575
17	36,613	31	2927	24	#N/A	17.22	6083682	3,956,968	98962	89,753,641	78,574,991
18	36,632	26	2927	24	#N/A	18.92	6083682	3,956,968	98962	89,774,753	78,616,709
19	36,648	19	2927	24	#N/A	15.88	6083682	3,956,968	98962	89,794,673	78,652,271
20	36,664	7	2927	24	#N/A	15.80	6083682	3,956,968	98962	89,813,832	78,686,709
21	36,677	40	2927	24	#N/A	13.55	6083682	3,956,968	98962	89,831,842	78,715,376
22	36,693	39	2927	24	#N/A	15.98	6085171	3,956,968	98962	89,849,694	78,748,591
23	36,704	12	2927	24	#N/A	10.55	6085171	3,956,968	98962	89,866,267	78,774,262
24	36,716	55	2927	24	#N/A	12.72	6085171	3,956,968	98962	89,884,817	78,809,141
25	36,729	56	2927	24	0.00	13.02	6085171	3,956,968	98962	89,904,835	78,844,971
26	36,741	59	2927	24	0.00	12.05	6085171	3,956,968	98962	89,923,885	78,877,276
27	36,751	33	2927	24	0.00	9.57	6085171	3,956,968	98962	89,939,477	78,902,152
28	36,761	31	2927	24	0.00	9.97	6085171	3,956,968	98962	89,953,408	78,927,696
29	36,774	51	2927	24	0.00	13.33	6085171	3,956,968	98962	89,972,662	78,961,829
30	36,787	13	2927	24	0.00	12.37	6085171	3,956,968	98962	89,990,602	78,993,370
31	36,800	57	2927	24	0.00	13.73	6089823	3,956,968	98962	90,008,958	79,028,081
					Total	**Gallons**	**13,670**	**3,399**	**0**	**588,708**	**950,028**
							Cell 1 Leachate	Cell 2 Leachate	Cell 2 Leak	304th Influent	Treatment Discharge

Hidden Valley Landfill

Month of Jun-11

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	18.07	12.29	0	0	4,652	0	18,357	42.12	34,711
1	18.29	12.86	0	0	4,945	0	17,752	42.32	34,406
2	18.42	13.29	0	0	0	0	10,760	41.20	28,758
3	18.55	13.64	0	0	4,920	0	13,983	41.26	28,884
4	18.85	14.33	0	0	3,443	0	10,424	41.94	21,639
5	19.03	14.90	0	0	1,709	0	5,282	40.53	21,276
6	19.11	15.59	0	0	0	0	6,092	39.54	25,302
7	10.86	16.12	44	0	6,885	6,819	8,489	38.51	35,542
8	11.25	16.77	0	0	0	0	6,555	37.43	27,290
9	11.55	17.07	0	0	0	0	7,167	37.04	28,634
10	11.86	17.90	0	0	0	0	6,838	36.36	28,978
11	12.16	18.55	0	0	0	0	4,590	36.32	19,542
12	12.34	19.29	0	0	0	0	5,737	36.00	24,374
13	12.47	19.94	0	0	0	0	12,763	37.09	25,999
14	12.86	20.15	0	0	0	0	25,593	38.24	34,800
15	13.03	20.72	0	0	0	0	29,019	37.12	36,972
16	13.34	21.50	0	0	0	0	28,702	36.46	30,258
17	13.60	0.04	0	1471	1,912	0	28,322	36.49	28,717
18	13.68	0.13	0	0	0	0	18,361	35.30	20,862
19	14.12	0.13	0	0	0	0	16,855	34.56	22,256
20	14.20	0.17	0	0	0	0	16,154	34.16	20,394
21	14.42	0.65	0	0	0	0	26,488	33.71	33,646
22	14.55	0.65	0	0	0	0	29,738	33.46	34,902
23	15.03	1.65	0	0	924	0	26,946	31.52	31,200
24	15.20	1.26	0	0	643	0	37,533	35.02	34,708
25	15.42	1.65	0	0	0	0	21,631	36.50	23,032
26	15.77	1.82	0	0	0	0	25,141	36.13	22,944
27	15.85	2.30	0	0	0	0	22,638	34.09	32,349
28	15.85	2.61	0	0	0	0	25,664	33.51	37,897
29	16.07	3.39	0	0	0	0	19,610	32.50	34,290
30	16.46	3.48	0	0	0	0	33,072	34.75	38,955
			Total Gallons:	**1,471**	**25,381**	**6,819**	**547,898**		**868,807**
				Cell 2 Leak	Cell 1 Leachate	Cell 2 Leachate	304th Influent		Treatment Discharge

Hidden Valley Landfill Hour Meters Totalizers

Jun-11

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.
31	36,800	57	2927	24	0.00	13.73	6089823	3,956,968	98962	90,008,958	79,028,081
1	36,814	30	2927	24	0.00	13.55	6094767	3,956,968	98962	90,026,710	79,062,487
2	36,826	8	2927	24	0.00	11.63	6094767	3,956,968	98962	90,037,470	79,091,245
3	36,837	48	2927	24	0.00	11.67	6099687	3,956,968	98962	90,051,454	79,120,129
4	36,846	24	2927	24	0.00	8.60	6103130	3,956,968	98962	90,061,878	79,141,768
5	36,855	9	2927	24	0.00	8.75	6104840	3,956,968	98962	90,067,159	79,163,044
6	36,865	49	2927	24	0.00	10.67	6104840	3,956,968	98962	90,073,252	79,188,347
7	36,881	12	2929	59	2.58	15.38	6111724	3,963,787	98962	90,081,741	79,223,889
8	36,893	21	2929	59	0.00	12.15	6111724	3,963,787	98962	90,088,295	79,251,179
9	36,906	14	2929	59	0.00	12.88	6111725	3,963,787	98962	90,095,463	79,279,813
10	36,919	31	2929	59	0.00	13.28	6111725	3,963,787	98962	90,102,301	79,308,791
11	36,928	29	2929	59	0.00	8.97	6111725	3,963,787	98962	90,106,891	79,328,333
12	36,939	46	2929	59	0.00	11.28	6111725	3,963,787	98962	90,112,628	79,352,706
13	36,951	27	2929	59	0.00	11.68	6111725	3,963,787	98962	90,125,391	79,378,705
14	36,966	37	2929	59	0.00	15.17	6111725	3,963,787	98962	90,150,984	79,413,505
15	36,983	13	2929	59	0.00	16.60	6111725	3,963,787	98962	90,180,003	79,450,477
16	36,997	3	2929	59	0.00	13.83	6111725	3,963,787	98962	90,208,705	79,480,735
17	37,010	10	2930	29	0.50	13.12	6113637	3,963,787	100433	90,237,027	79,509,452
18	37,020	1	2930	29	0.00	9.85	6113637	3,963,787	100433	90,255,388	79,530,314
19	37,030	45	2930	29	0.00	10.73	6113637	3,963,787	100433	90,272,243	79,552,570
20	37,040	42	2930	29	0.00	9.95	6113637	3,963,787	100433	90,288,397	79,572,964
21	37,057	20	2930	29	0.00	16.63	6113637	3,963,787	100433	90,314,885	79,606,610
22	37,074	43	2930	29	0.00	17.38	6113637	3,963,787	100433	90,344,623	79,641,512
23	37,091	13	2930	29	0.00	16.50	6114561	3,963,787	100433	90,371,569	79,672,712
24	37,107	44	2930	29	0.00	16.52	6115204	3,963,787	100433	90,409,102	79,707,420
25	37,118	15	2930	29	0.00	10.52	6115204	3,963,787	100433	90,430,732	79,730,452
26	37,128	50	2930	29	0.00	10.58	6115204	3,963,787	100433	90,455,873	79,753,396
27	37,144	39	2930	29	0.00	15.82	6115204	3,963,787	100433	90,478,511	79,785,745
28	37,163	30	2930	29	0.00	18.85	6115204	3,963,787	100433	90,504,175	79,823,642
29	37,181	5	2930	29	0.00	17.58	6115204	3,963,787	100433	90,523,784	79,857,932
30	37,199	46	2930	29	0.00	18.68	6115204	3,963,787	100433	90,556,857	79,896,888
					Total	**Gallons**	**25,381**	**6,819**	**1,471**	**547,898**	**868,807**
							Cell 1 Leachate	Cell 2 Leachate	Cell 2 Leak	304th Influent	Treatment Discharge

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SCS ENGINEERS

April 22, 2011
File No. 04211003.03

Subject: Hidden Valley Landfill Second Quarter Ground Water Sampling

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Hidden Valley Landfill
Second Quarter Groundwater Monitoring
April 2011
4/19/2011 to 4/21/2011

Notes/Sampling Decoding:

- Dedicated pumps were used for purging and sampling wells MW-10S, -10D, -13D, -14S, and -14D.
- The SamplePro pump was used to for purging and sampling wells MW-11S, -11D2, -13S, -17S, -28S, FMW-1, and FMW-2.
- The water supply wells were sampled as direct grab samples.
- A field duplicate was collected at MW-13S.
- A complete round of waters levels was completed on 4/21/2011.
- All meters were calibrated prior to sampling.
- Field Blank samples were filled with D.I. water from Intergra Chemical (Catalouge # W210.10.44).

Sample Number	**Well Number**
HVL-041911-01	FMW-1
HVL-041911-02	MW-11S
HVL-041911-03	MW-11D(2)
HVL-041911-04	Field Blank
HVL-041911-05	MW-13S
HVL-041911-06	DUP(MW-13S)
HVL-041911-07	MW-13D
HVL-042011-08	FMW-2

HVL-042011-09	MW-17S
HVL-042011-10	MW-10S
HVL-042011-11	MW-10D
HVL-042111-12	MW-14D
HVL-042111-13	MW-14S
HVL-042111-14	MW-28S
HVL-042111-15	WS-Paul Bunyon
HVL-042111-16	WS-Corliss

Q2 11

location	easting	northing	TOC	DTW
BC-4(R)	52360.27	27000.61		DRY
BC-4(S)	52329.06	27011.44	526.88	118.69
FMMW-1	51506	26506	542.59	135.80
FMMW-2	51880	26848	536.4	129.16
MW-10(D)	54877.49	25243.81	460.69	22.10
MW-10(S)	54877.49	25243.81	460.17	obstructed
MW-11(S)	53023	26486	516.44	76.50
MW-11D(2)	53023	26486	515.53	84.80
MW-12(D)	52395.06	25947.78	489.97	59.00
MW-12(S)	52395.06	25947.78	489.94	59.20
MW-13(D)	52375.06	25332.17	448.94	18.02
MW-13(S)	52375.06	25332.18	448.81	17.70
MW-14(R)	54000	26134	476.84	114.16
MW-14(D)	54000	26134	477.98	42.95
MW-14(S)	54001.14	26142.4	477.95	40.46
MW-15(D)	53614	26242.09	498.52	71.89
MW-15(S)	53614	26232.1	498.76	67.20
MW-17(S)	52568	26130	552.44	123.50
MW-18(D)	52149	26459	539.00	124.33
MW-18(S)	52139.66	26485.1	538.40	126.03
MW-19(D)	52740	24658	485.82	51.48

TOTAL DEPTH ~146

MW-19(S)	52741	24661	485.71	50.08
MW-20(R)	53950.6	24618.87	469.43	105.17
MW-23(S)	51799	25038	449.92	16.56
~~MW-25(D)~~ MW 23 D	52804	27254	526.66	18.43
~~MW-25(S)~~	52802	27231	526.54	
MW-27(D)	54430	26910	531.92	98.10
MW-27(S)	54410	26910	531.81	97.60
MW-28(S)	51594	25558	466.87	37.43

MW 25S 116.27

MW 25D 115.60

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI	Date: 4/ 19 /2011	Purging Method: SP
Project No.: 04211003.03	Well I.D.: FMW-1	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 19 11-01	
Site Location: Puyallup, WA	Weather: Clear	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time: 825	DTW: ~~165.80~~ 135.81	Total Depth: 154	TOS:	Intake: ~150	BOS:

Parameters:

Time	826	840	843	846	849							
Temperature (°C)	10.79	10.53	11.23	11.87	12.34							
Conductance (µS)	282	285	283	282	282							
Dissolved O_2 (mg/L)	7.32	5.99	6.37	6.12	5.72							
pH (units)	5.59	6.21	6.23	6.26	6.25							
ORP (mV)	325	311	309	311	310							
Turbidity		1.30	1.32	0.39	0.34							
Depth to Water												
Controller Refill	8	22										
Controller Discharge	6	8										
Controller psi	100	100										
Flow (Q)	200	150										
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	*	HNO_3

Notes: * lab filter diss metals

Sampled By WC

Signature _____

No. of Bottles 7

- Had to pull pump @ 830 long pause in water delivery, Checked That Inj were in and bladder not ruptured
- Running low on gas called it at 849

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI	Date: 4/ 19 /2011	Purging Method: SP
Project No.: 04211003.03	Well I.D.: [redacted] MW-11S	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 19 11- 02	
Site Location: Puyallup, WA	Weather: CLEAR	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time: 1001	DTW: 86.35	Total Depth: 105	TOS:	Intake: ~100	BOS:

Parameters:

Time	1002	1005	1008	1011	1014							
Temperature (°C)	12.72	14.62	15.00	14.97	14.90							
Conductance (µS)	243	252	253	253	252							
Dissolved O_2 (mg/L)	6.17	0.74	0.52	0.42	0.38							
pH (units)	6.45	5.91	5.85	5.82	5.80							
ORP (mV)	280	301	308	317	318							
Turbidity	2.00	1.70	1.14	0.67								
Depth to Water												
Controller Refill	8											
Controller Discharge	7											
Controller psi	70											
Flow (Q)	400											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	*	HNO_3

Notes: * LAB FILTER DISS METALS

Sampled By WC

Signature _____

No. of Bottles 7

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI	Date: 4/ 19 /2011	Purging Method: SP
Project No.: 04211003.03	Well I.D.: MW-11 D(2)	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 19 11-03	
Site Location: Puyallup, WA	Weather:	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time: 1142	DTW: 84.68	Total Depth: 147	TOS:	Intake: ~ 140	BOS:

Parameters:

Time	1145	1153	1156	1158	1202	1205	1208	1211	1215			
Temperature (°C)	14.66	14.70	14.85	14.71	14.61	14.32	14.32	14.37	14.31			
Conductance (µS)	216	214	216	214	215	216	215	213	214			
Dissolved O_2 (mg/L)	5.96	6.00	5.87	5.78	5.71	5.69	5.24	5.24	5.48			
pH (units)	6.43	6.57	6.56	6.56	6.55	6.54	6.56	6.55	6.56			
ORP (mV)	299	297	295	296	294	293	293	293	295			
Turbidity	474	200	134	125	109	45.3	29.7	45.4	16.3			
Depth to Water												
Controller Refill	8											
Controller Discharge	7											
Controller psi	90											
Flow (Q)	300											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	* 1	*	HNO_3

Notes: Change of CO_2 tank at 1150

Sampled By WC

Signature

No. of Bottles 7

* LAB FILTER DISS METALS

Nearing empty for CO_2 final at 1215

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI - HVL	Date: 4/ 19 /2011	Purging Method: SP/FB
Project No.: 04211003.03	Well I.D.: FB	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 19 11- 04	
Site Location: Puyallup, WA	Weather: CLEAR	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time:	DTW: —	Total Depth: —	TOS: —	Intake: —	BOS: —

Parameters:

Time	1215											
Temperature (°C)	10.15											
Conductance (µS)	5											
Dissolved O_2 (mg/L)	9.83											
pH (units)	7.94											
ORP (mV)	218											
Turbidity												
Depth to Water												
Controller Refill												
Controller Discharge												
Controller psi												
Flow (Q)												
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	*	HNO_3

Notes: * LAB FILTER DISS METALS

Sampled By SA

Signature

No. of Bottles 7

BLANK FILLED w/ DI WATER FROM INTEGRA CHEMICAL

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI - HVL	Date: 4/ 19 /2011	Purging Method: SP
Project No.: 04211003.03	Well I.D.: MW 13S	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04[redacted]19 11- 05	
Site Location: Puyallup, WA	Weather: clear	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time:	DTW:	Total Depth:	TOS:	Intake:	BOS:
1237	17.05	57		~53	57

Parameters:

Time	1239	1244	1247	1250	1253							
Temperature (°C)	17.90	18.04	17.85	17.93	17.98							
Conductance (µS)	368	395	397	400	401							
Dissolved O_2 (mg/L)	1.78	0.52	0.36	0.28	0.24							
pH (units)	6.13	6.11	6.10	6.07	6.09							
ORP (mV)	309	311	314	314	315							
Turbidity	2.28	1.52	1.40	0.63	0.61							
Depth to Water												
Controller Refill	8											
Controller Discharge	7											
Controller psi	60											
Flow (Q)	500											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	*	HNO_3

Notes: Dup [redacted] Taken as Sample 6

Sampled By LUC

Signature

No. of Bottles 7

* LAB FILTER DISS METALS

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI - HVL	Date: 4/ 19 /2011	Purging Method: DP
Project No.: 04211003.03	Well I.D.: MW - 13D	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 19 11- 07	
Site Location: Puyallup, WA	Weather: CLEAR	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time: 1315	DTW: 17.60	Total Depth: DEDICATED	TOS:	Intake:	BOS:

Parameters:

Time	1316	1320	1323	1326	1329	1332	1335					
Temperature (°C)	17.51	16.65	17.06	17.17	17.18	17.20	17.17					
Conductance (µS)	292	342	341	342	342	341	342					
Dissolved O_2 (mg/L)	2.88	2.37	1.82	1.19	1.05	0.96	1.00					
pH (units)	6.58	6.50	6.51	6.51	6.50	6.50	6.50					
ORP (mV)	303	305	304	303	302	301	300					
Turbidity	0.73	1.53	0.75	0.57	0.33							
Depth to Water												
Controller Refill	8											
Controller Discharge	7											
Controller psi	40											
Flow (Q)	400											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	*	HNO_3

Notes: * LAB FILTER DISS METALS

Sampled By WC

Signature _____

No. of Bottles 7

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI - HVL	Date: 4/ 20 /2011	Purging Method: SP
Project No.: 04211003.03	Well I.D.: FMW-02	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 20 11- 08	
Site Location: Puyallup, WA	Weather:	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time: 1021	DTW: 129.10	Total Depth: 149	TOS:	Intake: ~145	BOS:

Parameters:

Time	1024	1027	1030	1033								
Temperature (°C)	15.45	16.62	16.66	16.70								
Conductance (µS)	475	477	478	478								
Dissolved O_2 (mg/L)	1.50	0.58	0.48	0.42								
pH (units)	6.21	6.15	6.11	6.11								
ORP (mV)	261	261	262	263								
Turbidity	0.60	0.48	0.66									
Depth to Water												
Controller Refill	8											
Controller Discharge	7											
Controller psi	90											
Flow (Q)	350											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	Y	HNO_3

Notes:

Sampled By WC

Signature _____

No. of Bottles 7

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI – HVL	Date: 4/ 20 /2011	Purging Method: SP
Project No.: 04211003.03	Well I.D.: MW-17S	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 20 11- 09	
Site Location: Puyallup, WA	Weather: CLEAR	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time: 1111	DTW: 123.41	Total Depth: 155	TOS:	Intake:	BOS:

Parameters:

Time	1113	1116	1120	1123	1126							
Temperature (°C)	18.49	19.99	20.14	20.05	20.30							
Conductance (µS)	477	475	471	472	473							
Dissolved O_2 (mg/L)	1.54	0.58	0.42	0.36	0.31							
pH (units)	6.06	6.04	6.05	6.05	6.02							
ORP (mV)	298	290	286	285	283							
Turbidity	0.24	0.15	0.23	0.16								
Depth to Water												
Controller Refill	7.5											
Controller Discharge	7.5											
Controller psi	90											
Flow (Q)	400											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	Y	HNO_3

Notes:

Sampled By WC

Signature _____

No. of Bottles 7

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600 Fax: 425 746-6747

Client: LRI - HVL	Date: 4/ 20 /2011	Purging Method: ~~SP~~ DP
Project No.: 04211003.03	Well I.D.: MW-10S	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 2011- 10	
Site Location: Puyallup, WA	Weather:	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information: Obstructed @ 8ft

Purge Time: 1155	DTW:	Total Depth: DEDICATED	TOS:	Intake:	BOS:

Parameters:

Time	1157	1200	1203	1206	1209							
Temperature (°C)	9.80	9.45	9.50	9.49	9.46							
Conductance (µS)	138	134	133	134	134							
Dissolved O_2 (mg/L)	8.34	7.81	7.73	7.72	7.68							
pH (units)	6.82	6.70	6.49	6.44	6.43							
ORP (mV)	288	292	298	301	303							
Turbidity	1.17	0.89	0.81	0.79								
Depth to Water												
Controller Refill	9											
Controller Discharge	6											
Controller psi	30											
Flow (Q)	400											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	Y	HNO_3

Notes:

Sampled By we

Signature _____

No. of Bottles 7

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI - HVL	Date: 4/ 20 /2011	Purging Method: ~~SP~~ DP
Project No.: 04211003.03	Well I.D.: MW - 10D	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 20 11- 10	
Site Location: Puyallup, WA	Weather:	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time:	DTW:	Total Depth:	TOS:	Intake:	BOS:
1222	22.78	DEDICATED			

Parameters:

Time	~~1224~~	1229	1232	1235								
Temperature (°C)	~~13.75~~	9.85	9.88	9.89								
Conductance (µS)	~~135~~	155	152	151								
Dissolved O_2 (mg/L)		7.49	7.58	7.52								
pH (units)		6.41	6.44	6.46								
ORP (mV)		301	301	302								
Turbidity		0.52	1.53	1.22								
Depth to Water												
Controller Refill	9											
Controller Discharge	6											
Controller psi	35											
Flow (Q)	360											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	ml			HNO_3

Notes: Bubbles in water stream, leaky hook up

Sampled By _____

Signature _____

No. of Bottles _____

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI - HVL	Date: 4/ 21 /2011	Purging Method: DP
Project No.: 04211003.03	Well I.D.: MW-14D	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 21 11- 12	
Site Location: Puyallup, WA	Weather:	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time: 1043	DTW: 42.95	Total Depth: DEDICATED	TOS:	Intake:	BOS:

Parameters:

Time	1053	1056	1059	1102								
Temperature (°C)	12.25	12.18	12.16	12.20								
Conductance (µS)	153	154	153	153								
Dissolved O_2 (mg/L)	0.36	0.35	0.31	0.29								
pH (units)	6.10	6.13	6.14	6.17								
ORP (mV)	296	291	286	284								
Turbidity	1.19	0.55	0.63									
Depth to Water												
Controller Refill	7											
Controller Discharge	8											
Controller psi	45											
Flow (Q)	480											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	Y	HNO_3

Notes: CwC

Sampled By _____

Signature _____

No. of Bottles 7

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client:	Date: 4/ 21 /2011	Purging Method: DP
Project No.: 04211003.03	Well I.D.: MW-14 S	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 21 11- 13	
Site Location: Puyallup, WA	Weather: Rain and hail	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time:	DTW:	Total Depth:	TOS:	Intake:	BOS:
1118	40.46	DEDICATED			

Parameters:

Time	1122	1125	1129	1132								
Temperature (°C)	12.12	12.03	12.10	12.01								
Conductance (µS)	122	121	122	122								
Dissolved O_2 (mg/L)	2.22	1.94	1.91	1.96								
pH (units)	5.97	5.94	5.94	5.92								
ORP (mV)	292	296	300	303								
Turbidity	1.86	0.86	0.71									
Depth to Water												
Controller Refill	7											
Controller Discharge	8											
Controller psi	30											
Flow (Q)	400											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	Y	HNO_3

Notes: Bubbles in water stream, poor tube hook up
Needs replacement
When using filter leak resulted in not enough pressure to force water through filter

Sampled By GC

Signature

No. of Bottles

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI - [redacted] HVL	Date: 4/ 21 /2011	Purging Method: SP
Project No.: 04211003.03	Well I.D.: MW - 28 S	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 21 11- 14	
Site Location: Puyallup, WA	Weather:	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time:	DTW:	Total Depth:	TOS:	Intake:	BOS:
1450	37.43	45			

Parameters:

Time	1455	1500	1503	1506	1509							
Temperature (°C)	11.90	11.69	11.67	11.64	11.65							
Conductance (µS)	160	161	161	161	161							
Dissolved O_2 (mg/L)	7.81	7.75	7.75	7.72	7.74							
pH (units)	6.33	6.27	6.27	6.25	6.25							
ORP (mV)	261	275	279	284	287							
Turbidity	36.0	15.4	8.47	6.39	3.87							
Depth to Water												
Controller Refill	8											
Controller Discharge	7											
Controller psi	30											
Flow (Q)	300											
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	ml		N	HNO_3
Red Poly, Dissolved	500 ml	1	Y	HNO_3

Notes:

Sampled By WC

Signature _____

No. of Bottles 7

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600 Fax: 425 746-6747

Client: LRI - HVL	Date: 4/ 21 /2011	Purging Method: Grab
Project No.: 04211003.03	Well I.D.: WS-PB	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 21 11- 15	
Site Location: Puyallup, WA	Weather: CLEAR	
Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5		

Well Information:

Purge Time: 1545	DTW: —	Total Depth:	TOS:	Intake:	BOS:

Parameters:

Time	1545											
Temperature (°C)	10.41											
Conductance (µS)	0.274											
Dissolved O_2 (mg/L)	6.14											
pH (units)	6.57											
ORP (mV)	323											
Turbidity												
Depth to Water												
Controller Refill												
Controller Discharge												
Controller psi												
Flow (Q)												
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	500 ml	1	N	HNO_3
Red Poly, Dissolved	ml			HNO_3

Notes:

Sampled By LC

Signature _____

No. of Bottles 7

- SAMPLE TAKEN FROM ATTACHED PLASTIC FLOW SPLITTER.

FIELD SAMPLING DATA SHEET

SCS ENGINEERS
2405 140th Avenue, NE Suite A101
Bellevue, WA 98005
Phone: 425 746-4600
Fax: 425 746-6747

Client: LRI – HVL	Date: 4/ 21 /2011	Purging Method: GRAB
Project No.: 04211003.03	Well I.D.: WS-Corliss	
Site Name: Hidden Valley Landfill (HVL)	Sample I.D.: HVL-04 21 11- 16	
Site Location: Puyallup, WA Stabilization Parameters: pH/DO ± 0.2, SpC ± 10%, Temp ± 5°C, Turb. ± 10% or ≤ 5	Weather: CLEAR	

Well Information:

Purge Time:	DTW:	Total Depth:	TOS:	Intake:	BOS:

Parameters:

Time	1550											
Temperature (°C)	32.70											
Conductance (µS)	215											
Dissolved O_2 (mg/L)	3.32											
pH (units)	6.81											
ORP (mV)	304											
Turbidity												
Depth to Water												
Controller Refill												
Controller Discharge												
Controller psi												
Flow (Q)												
Volume Purged (gal)												

Bottles:	Container		Filtered	Preservative
	Volume	Number	(Y/N)	
VOA Glass	40 ml	3	N	HCl
White Poly	1000 ml	1	N	None
White Poly	250 ml	1	N	None
Yellow Glass Amber	500 ml	1	N	H2SO4
Red Poly, Total	500 ml	1	N	HNO_3
Red Poly, Dissolved	ml			HNO_3

Notes:

Sampled By SA

Signature

No. of Bottles 7

– GRAB SAMPLE TAKEN AFTER WATER HAD REACHED A CONSISTANT TEMPERATURE.

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04211003.02

PCRCD dba LRI

April 25, 2011

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	25-Apr	7:51	5.60	0.0	4.6	0.9			
GP-1B	25-Apr	7:55	0.07	0.0	3.8	18.0			
GP-1C	25-Apr	8:00	0.00	0.0	1.2	20.7			
GP-2A	25-Apr	8:10	0.06	0.0	12.4	4.2			
GP-2B	25-Apr	8:15	0.23	0.0	0.3	21.5			
GP-3S	25-Apr	8:27	0.02	0.0	5.4	13.1			
GP-3M	25-Apr	8:31	0.17	0.0	2.9	9.6			
GP-3D	25-Apr	8:47	0.23	3.7	11.7	0.4	3.2		
GP-4A	25-Apr	8:55	0.06	0.0	0.5	21.5			
GP-4B	25-Apr	8:58	0.14	0.0	0.3	21.6			
GP-5A	25-Apr	9:02	0.05	0.0	0.4	21.4			
GP-5B	25-Apr	9:05	0.05	0.0	0.3	20.9			
GP-6	25-Apr	9:09	0.04	0.0	0.3	21.4			
GP-7S	25-Apr	9:16	0.00	0.0	0.4	21.3			
GP-7D	25-Apr	9:19	0.00	0.0	0.4	21.2			
GP-8A	25-Apr	9:27	0.13	0.0	1.3	20.6			
GP-8B	25-Apr	9:29	0.09	0.0	0.9	18.8			
GP-9	25-Apr	9:34	0.21	0.0	1.6	18.1			
GP-10	25-Apr	9:40	-10.08	0.0	0.4	21.2			
GP-11	25-Apr	9:46	0.10	0.2	2.2	15.6			
GP-12	25-Apr	9:55	0.00	0.0	5.2	2.9			
GP-13A	25-Apr	10:23	-0.59	18.6	11.3	0.0	20.7		
GP-13B	25-Apr	10:27	-3.78	0.0	0.6	21.4			
GP-14S	25-Apr	10:33	-0.01	0.0	14.1	8.1	0.3		
GP-14D	25-Apr	10:36	-0.03	0.0	18.5	0.0			
GP-15A	25-Apr	11:13	-0.07	7.5	12.4	0.6	8.3		
GP-15B	25-Apr	11:16	-0.04	0.0	9.4	0.7			
GP-16A	25-Apr	11:25	-0.07	0.0	1.1	19.4	0.4		
GP-16B	25-Apr	11:28	0.00	0.0	1.0	19.7			
GP-17	25-Apr	11:35	0.34	0.0	0.2	21.4			
GP-18	25-Apr	11:40	0.23	0.1	2.6	19.6			
GP-19	25-Apr	11:51	-0.09	0.0	0.2	21.4			
LFG-1	25-Apr	10:43	-0.03	1.0	15.9	0.0	1.2		
LFG-2	25-Apr	10:53	0.00	15.6	21.7	0.0	33.4		
LFG-3	25-Apr	10:59	-0.03	2.9	17.4	0.0	2.9		

General Data

Monitored by: SEA

Instruments: GEM 2000

Calibration Date:

Weather Conditions

Sky Cover: Partly Cloudy

Wind / Rain / Snow:

Temperature (^{o}F): 42

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

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04211003.02

PCRCD dba LRI

May 31, 2011

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	31-May	11:09	0.01	0.0	4.4	1.9			
GP-1B	31-May	11:14	0.01	0.0	4.0	17.1			
GP-1C	31-May	11:18	-0.01	0.0	1.2	20.4			
GP-2A	31-May	16:31	-0.03	0.0	2.6	17.6			
GP-2B	31-May	16:34	0.01	0.0	0.4	21.4			
GP-3S	31-May	12:14	0.00	0.0	11.2	4.4			
GP-3M	31-May	12:17	0.01	0.0	2.9	10.8			
GP-3D	31-May	12:39	0.00	9.0	14.2	1.1	9.2		
GP-4A	31-May	10:15	0.01	0.0	0.4	20.8			
GP-4B	31-May	10:19	0.04	0.0	0.2	20.8			
GP-5A	31-May	12:52	0.00	0.0	0.6	20.5			
GP-5B	31-May	12:55	0.00	0.0	0.5	19.9			
GP-6	31-May	10:27	0.02	0.0	0.6	20.4			
GP-7S	31-May	10:36	0.02	0.0	1.0	20.3			
GP-7D	31-May	10:41	0.00	0.0	1.0	18.9			
GP-8A	31-May	13:05	0.01	0.0	4.8	14.4			
GP-8B	31-May	13:08	0.47	0.0	1.3	19.4			
GP-9	31-May	13:17	0.01	0.0	1.5	18.6			
GP-10	31-May	13:27	0.01	0.0	0.6	20.5			
GP-11	31-May	13:34	0.02	0.0	0.2	21.2			
GP-12	31-May	13:49	0.02	0.0	9.8	1.2			
GP-13A	31-May	14:37	0.02	22.5	12.3	0.2	24.7		
GP-13B	31-May	14:42	0.15	0.0	0.3	21.1	0.6		
GP-14S	31-May	14:53	0.03	0.0	10.9	12.0			
GP-14D	31-May	14:57	0.03	0.0	15.9	1.5			
GP-15A	31-May	15:07	0.04	2.4	12.4	2.7	2.5		
GP-15B	31-May	15:11	0.04	0.0	8.3	6.4			
GP-16A	31-May	15:51	0.01	0.0	0.6	20.9			
GP-16B	31-May	15:54	0.10	0.0	0.5	20.9			
GP-17	31-May	16:05	-0.08	0.0	5.3	15.8			
GP-18	31-May	16:20	0.00	0.0	4.3	17.3			
GP-19	31-May	16:12	0.00	0.0	0.3	21.3			
LFG-1	31-May	15:22	0.05	0.4	13.9	0.9	0.5		
LFG-2	31-May	15:29	0.03	19.0	21.7	0.0	20.1		
LFG-3	31-May	15:38	0.05	0.9	15.3	0.6	1.0		

General Data

Monitored by: WC

Instruments: GEM 2000

Calibration Date:

Weather Conditions

Sky Cover: Partly Cloudy

Wind / Rain / Snow:

Temperature (^{o}F): 53

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

Landfill Gas Probe Monitoring

SCS Engineers

Hidden Valley Landfill

04211003.02

PCRCD dba LRI

June 17, 2011

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	17-Jun	8:33	0.06	0.0	4.5	1.6			
GP-1B	17-Jun	8:39	0.06	0.0	5.7	14.2			
GP-1C	17-Jun	8:45	-0.05	0.0	1.1	20.1			
GP-2A	17-Jun	14:04	-0.01	0.0	1.2	19.0			
GP-2B	17-Jun	14:06	0.03	0.0	0.4	20.6			
GP-3S	17-Jun	9:05	0.02	0.0	12.6	1.2			
GP-3M	17-Jun	9:09	0.01	0.0	2.9	11.4			
GP-3D	17-Jun	9:27	0.04	9.3	14.7	0.9	9.5		
GP-4A	17-Jun	9:48	0.03	0.0	0.5	20.1			
GP-4B	17-Jun	9:50	0.03	0.0	0.2	20.2			
GP-5A	17-Jun	9:57	0.01	0.0	0.5	19.9			
GP-5B	17-Jun	10:04	0.02	0.0	3.4	13.2			
GP-6	17-Jun	10:09	0.04	0.0	0.7	20.0			
GP-7S	17-Jun	10:17	0.00	0.0	0.7	20.0			
GP-7D	17-Jun	10:20	0.01	0.0	0.8	19.4			
GP-8A	17-Jun	10:50	0.02	0.0	3.4	18.2			
GP-8B	17-Jun	10:53	0.02	0.0	1.5	20.2			
GP-9	17-Jun	11:00	0.00	0.0	1.9	17.9			
GP-10	17-Jun	11:07	0.00	0.0	0.6	20.7			
GP-11	17-Jun	11:20	0.01	5.1	7.0	0.0			
GP-12	17-Jun	11:30	0.00	0.4	11.1	0.0			
GP-13A	17-Jun	12:25	0.05	16.4	8.2	6.7	22		
GP-13B	17-Jun	11:51	0.02	0.0	0.1	20.6	0.0		
GP-14S	17-Jun	12:37	-12.36	0.0	17.4	5.1			
GP-14D	17-Jun	12:39	-0.01	0.0	16.6	0.3			
GP-15A	17-Jun	12:47	0.00	2.6	12.9	0.8	2.8		
GP-15B	17-Jun	12:53	0.01	0.0	7.7	6.0			
GP-16A	17-Jun	13:22	0.01	0.0	0.8	20.1			
GP-16B	17-Jun	13:27	0.01	0.0	1.0	18.6			
GP-17	17-Jun	13:38	-0.01	0.0	5.5	15.0			
GP-18	17-Jun	13:43	0.00	0.0	4.0	17.1			
GP-19	17-Jun	13:48	0.00	0.0	2.6	18.8			
LFG-1	17-Jun	13:01	0.03	0.3	13.1	1.6	0.5		
LFG-2	17-Jun	13:05	0.07	15.9	20.5	0.0	26		
LFG-3	17-Jun	13:11	0.03	1.0	15.2	0.1	1.2		

General Data

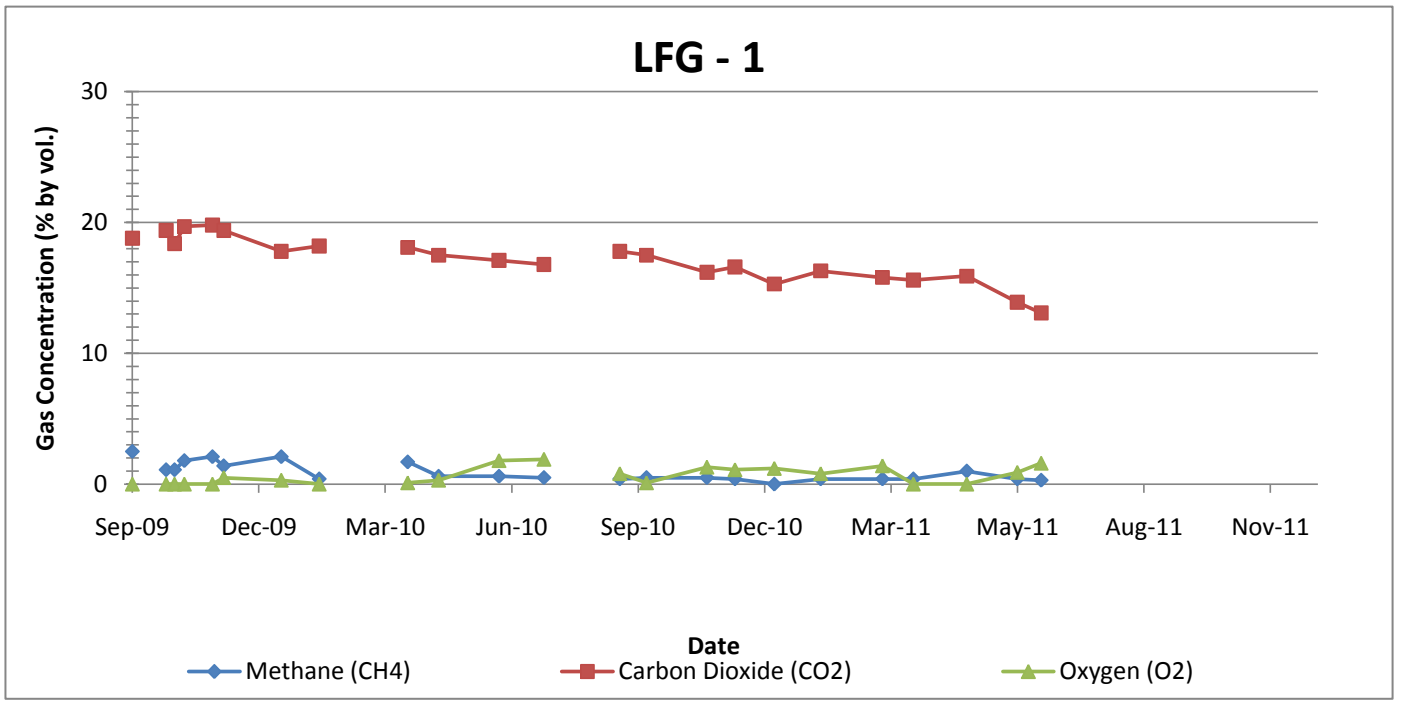
		Weather Conditions	
Monitored by:	WC	Sky Cover:	Clear
Instruments:	GEM 2000	Wind / Rain / Snow:	
Calibration Date:	17-Jun-11	Temperature (^{o}F):	68

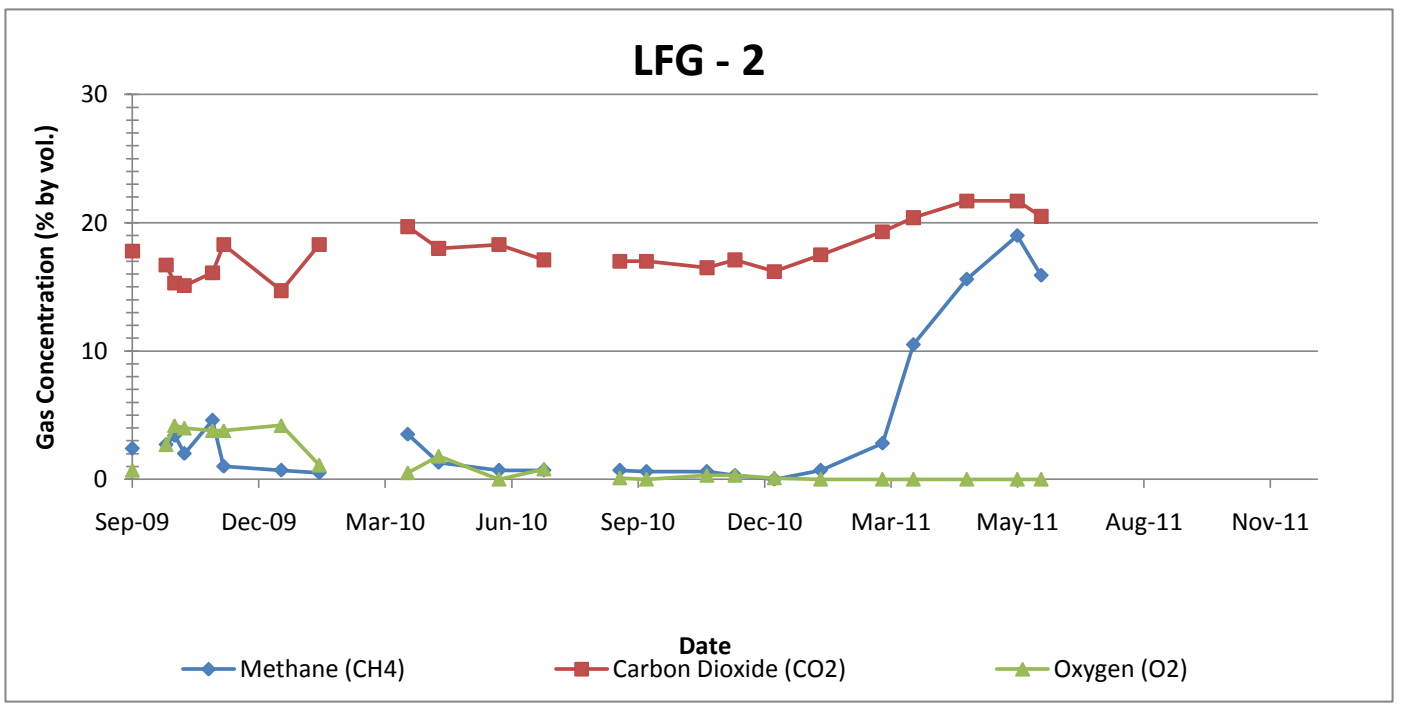
Notes

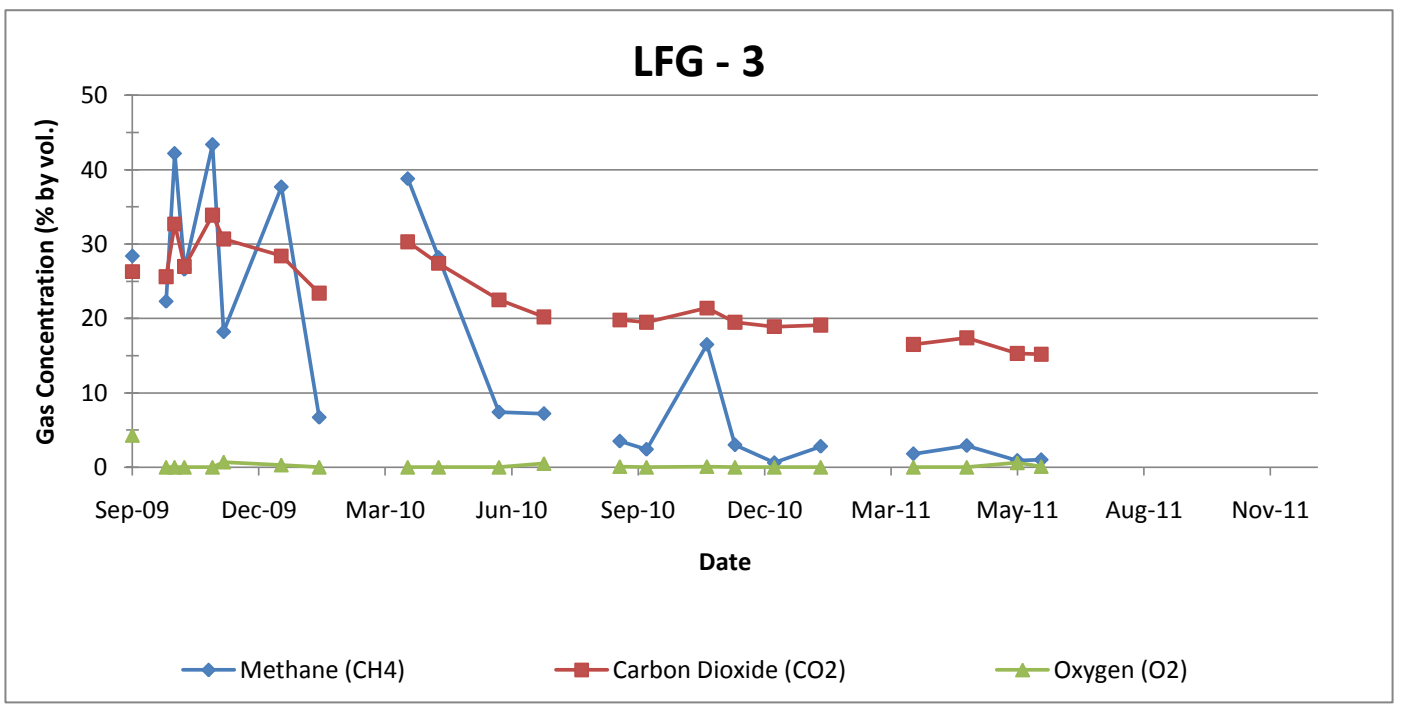
1. Measurement for spike concentrations of CH4 and CO2 are recorded if observed during sampling

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

Hidden Valley Landfill
Subsurface Oxidation Area Evaluation







Facility Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: SAM ADLINGTON

Signature: [signature]

Date: 4/25/2011

Weather: RAIN/HAIL

Items	Yes	No	Comments
Cover System			
Settlement Depressions (sinkholes)		X	
Cracking of Cover Soils		X	
Inadequate Cover Soil or Rock		X	
Standing Water	X		WATER IN RIP/RAP CHANNELS NOT FLOWING
Vegetation			
Bare or Sparsely Vegetated Areas		X	
Areas of Dying Vegetation		X	
Large Root Vegetation (ex. Bushes)		X	
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		DEBRIS IN DRAIN NEAR TRANSFER CENTER
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		CRACKS IN PIPING NEAR CS1
Pump or Meter Issues		X	
Foaming at Pump		X	

Other Remarks:

Condensate Recirculation Inspection Checklist

Hidden Valley Landfill, Pierce County, Washington

Name: Sam Aoungton Date: 4/25/11

Signature: [signature] Weather: RAIN

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	FIRST IN PIC SERIES
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	Y	
Sump No. 10	N	Pump removed by paul

Other Remarks: none Picture of Standing Water