



July 13, 2011

Ms. Saara Ali
Bureau of Landfill and Recycling Management
NJDEP – DIVISION OF SOLID AND HAZARDOUS WASTE
401 East State Street, P.O. Box 414
Trenton, New Jersey 08625-0414

Re: Quarterly Landfill Gas Survey – 2nd Quarter 2011
Legler Landfill, Facility No. 1511A
Jackson Township, Ocean County, New Jersey
FPA No. 08E004A

Dear Ms. Ali:

INTRODUCTION

This report presents the testing procedures and analytical results of the Quarterly Landfill Gas (LFG) survey conducted by French & Parrello Associates, P.A. (FPA) on July 12, 2011, at Legler Landfill and surrounding properties, Jackson Township, Ocean County, New Jersey. The subject landfill is identified as New Jersey Department of Environmental Protection (NJDEP) Facility No. 1511A.

BACKGROUND

As part of the Closure and Post-Closure Plan Approval dated February 21, 1996, and Corrective Action Plan dated March 2002, methane gas surveys are to be conducted around the landfill perimeter to monitor potential lateral, offsite gas migration. Since 2000, methane gas concentrations have increased in the western portion and southwestern corner of the landfill. As a result, the NJDEP directed Jackson Township to perform quarterly offsite gas surveys to monitor methane gas migration.

Pursuant to the NJDEP letter received April 1, 2009, monitoring is required to be conducted during days of falling barometric pressure in order to accurately monitor gas migration. Barometric pressure data was gathered from the Rutgers Weather and Climate Network station located in Cream Ridge, NJ, approximately 13.5 miles from the Subject Property. Although the barometric pressure did not consistently fall, there was a decreasing trend over the course of 24-hours; and due to the barometric trends through the second quarter, this event was conducted several days past the completion of the second quarter. FPA is scheduled to conduct a third event this year during the next three months, and will conduct said event during a period of falling barometric pressure.



Pursuant to the NJDEP letter dated June 23, 2010, the delineation protocol has been modified. Gas sampling points between each well are no longer required; however, whenever methane gas is detected within one of the onsite gas monitoring wells, three additional sampling points are required. One point is required 25 feet on either side of the well and the third point is required 25 feet behind (offsite) of the well. In the event methane gas is detected in one of the delineation samples, the same delineation protocol is to continue until methane gas is no longer detected. Delineation samples were collected on the boundary of Block 37, Lot 1, and Block 38, Lot 16.02, and expanded outward from the onsite sampling points.

LANDFILL GAS TESTING PROCEDURES

Gas sampling was performed at 46 gas sampling locations: 23 gas monitoring wells, 21 temporary gas sampling points (GSPs) and two flares. The wells were sampled immediately after removing the locked, metal protective cap by inserting a dedicated three-foot section of 3/16-inch diameter white polyethylene tubing through a pre-drilled hole in the plastic well cap. The tubing was attached to the LANDTEC GEM-2000 Gas Extraction Monitor (GEM-2000) which instantaneously analyzed the LFG.

GSP samples were collected utilizing an AMS Soil Sampling Kit. A slam bar and soil gas probe were utilized to penetrate the soil to an approximate depth of two and one-half feet. Dedicated 3/16-inch inside diameter, polyethylene tubing was pre-fed through the probe, and the GEM-2000 was utilized to instantaneously analyze LFG. GSPs are located primarily along the property boundary 25 feet on each side of the wells containing detectable concentrations of methane gas. On February 4, 2008, four-inch PVC ball valves equipped with fabricated conversion nipples were installed on the Flares. These valves ensure a sealed connection to the LANDTECH GEM-2000 while sampling.

Offsite gas sampling was conducted on Block 38, Lots 15 and 16.02, as well as Block 37, Lot 1. Samples were collected in 25-foot intervals behind the onsite locations where methane LELs were detected above 0%. Offsite sampling included 8 GSP locations. Each gas sample was analyzed for percent methane, percent oxygen, percent carbon dioxide and methane LEL. Sampling locations are displayed on Drawing No. 1.

GAS TESTING RESULTS

Onsite Gas Testing Results

Methane gas was detected in 10 locations onsite, seven of which were in excess of the 25 percent LEL: Well #13, Well #17, Well #19, GSP #19a, GSP #19b, GSP #19bb, and Flare Two (F-2). (Survey results are presented in Table No. 1). A comparison of the most recent monitoring results with the historical results shows no indication of additional methane migration. Changes



in onsite methane gas concentrations, since September 2006, are presented in Table No. 2 and graphically on Figure No. 1. Changes in onsite LEL, since September 2006, are presented in Table No. 3, and graphically on Figure No. 2.

OFFSITE GAS MONITORING RESULTS

During the July 2011 gas monitoring event, methane gas was not detected at offsite locations. Field analysis results of the offsite gas survey are presented in Table No. 4. A comparison of the most recent monitoring results with the historical results indicates an overall decreasing trend of LELs. Changes in offsite methane gas concentrations, since April 2009, are presented in Table No. 5, and graphically on Figure No. 3. Changes in offsite LEL, since April 2009, are presented in Table No. 6 and graphically on Figure No. 4.

CONCLUSIONS AND RECOMMENDATIONS

Pursuant to the NJDEP letter received April 1, 2009, FPA conducted the second quarter gas monitoring event on a day with falling barometric pressure. Barometric pressure data is presented in Table No. 7. The most current quarterly gas survey indicates a decreasing trend in LELs when compared to historic surveys. LELs were not detected above the acceptable regulatory percentage in offsite sampling locations during the July 12, 2011 monitoring event.

Should you have any questions or comments, please do not hesitate to contact us.

Very truly yours,

FRENCH & PARRELLO ASSOCIATES, P.A.

Bryan Heller
Project Coordinator, Environmental Services

cc: Dan Burke – *Jackson Township Engineer*

DRAWINGS

TABLES

TABLE 1
July 12, 2011 - ONSITE GAS SURVEY RESULTS
 LEGLER LANDFILL (FACILITY No. 1511A)
 JACKSON TOWNSHIP, OCEAN COUNTY, NEW JERSEY

Well No./ Gas Sampling Point	Percent Methane	Percent Lower Explosive Limit	Percent Carbon Dioxide	Percent Oxygen	Comments
Well-1	0.0%	0.0%	0.4%	18.7%	
Well-2	0.0%	0.0%	2.0%	17.1%	
Well-3	0.0%	0.0%	0.1%	20.1%	
Well-4	0.0%	0.0%	0.2%	19.9%	
Well-5	0.0%	0.0%	0.7%	19.0%	
Well-6	0.0%	0.0%	1.2%	16.8%	
Well-7	0.0%	0.0%	2.4%	15.0%	
Well-8	0.0%	0.0%	0.1%	19.3%	
Well-9	0.0%	0.0%	4.4%	13.5%	
Well-10	0.0%	0.0%	7.2%	10.4%	
Well-11	0.0%	0.0%	4.4%	15.4%	
Well-12	0.0%	0.0%	8.1%	11.4%	
Well-13	21.2%	424.0%	18.1%	0.0%	
GSP-13a	0.0%	0.0%	0.3%	19.2%	
GSP-13b	0.0%	0.0%	0.1%	19.6%	
Well-14	0.0%	0.0%	12.8%	7.1%	
Well-15	0.8%	16.0%	2.6%	4.2%	
GSP-15a	0.0%	0.0%	0.5%	18.8%	
GSP-15b	0.0%	0.0%	1.1%	18.1%	
Well-16	0.0%	0.0%	1.2%	7.2%	
Well-17	9.6%	192.0%	17.3%	0.4%	
GSP-17a	0.0%	0.0%	1.7%	17.7%	
GSP-17b	0.0%	0.0%	0.8%	18.9%	
Well-18	1.1%	22.0%	17.9%	0.8%	
GSP-18b	0.0%	0.0%	1.5%	17.6%	
Well-19	9.9%	198.0%	19.5%	0.1%	
GSP-19a	21.4%	428.0%	14.2%	4.5%	
GSP-19aa	0.0%	0.0%	0.0%	19.3%	
GSP-19b	50.5%	1010.0%	22.1%	0.6%	
GSP-19bb	46.6%	932.0%	21.9%	0.6%	
GSP-19bbb	0.0%	0.0%	14.5%	4.8%	
Well-20	0.0%	0.0%	9.9%	10.1%	
Well-21	0.0%	0.0%	3.7%	19.0%	
Well-22	0.0%	0.0%	0.4%	19.2%	
Well-23	0.0%	0.0%	7.1%	9.6%	
Flare (F-1)	0.1%	2.0%	3.3%	15.0%	
Flare (F-2)	42.6%	852.0%	23.5%	0.8%	

Notes:

Background methane levels approximately 0.1% methane

Bold values exceed regulatory acceptable levels (25% LEL)

TABLE 4
July 12, 2011 - OFFSITE GAS SURVEY RESULTS
 LEGLER LANDFILL (FACILITY No. 1511A)
 JACKSON TOWNSHIP, OCEAN COUNTY, NEW JERSEY

Well No./ Gas Sampling Point	Percent Methane	Percent Lower Explosive Limit	Percent Carbon Dioxide	Percent Oxygen	Comments
GSP-13c	--	0.0%	--	--	*
GSP-15c	0.0%	0.0%	0.5%	19.0%	
GSP-17c	0.0%	0.0%	0.7%	18.6%	
GSP-18c	0.0%	0.0%	0.5%	18.8%	
GSP-18bc	0.0%	0.0%	0.6%	18.7%	
GSP-19c	0.0%	0.0%	0.5%	19.8%	
GSP-19ac	0.0%	0.0%	0.5%	19.8%	
GSP-19bc	0.0%	0.0%	0.7%	18.6%	
GSP-19bbc	0.0%	0.0%	0.7%	18.5%	
GSP-19bbbc	0.0%	0.0%	0.6%	18.7%	

Notes:

* - Due to a large berm located offsite behind Well-13, sampling at the GSP # 13c location could not be conducted.

Bold values exceed regulatory acceptable levels (25% LEL)

TABLE 5
 OFFSITE METHANE GAS CONCENTRATIONS FROM APRIL 2009 TO JULY 2011
 LEGLER LANDFILL (FACILITY No. 1511A)
 JACKSON TOWNSHIP, OCEAN COUNTY, NEW JERSEY

Gas Monitoring Well/ Gas Sampling Point	% CH4 (4-09)	% CH4 (9-09)	% CH4 (12-09)	% CH4 (2-10)	% CH4 (4-10)	% CH4 (7-10)	% CH4 (11-10)	% CH4 (3-11)	% CH4 (7-11)
GSP-8a (25) (GSP-8ac)	NS	NS	NS	0.0%	0.0%	NS	NS	0.0%	NS
Well-10 (25) (GSP-10c)	NS	NS	0.0%	0.0%	0.0%	NS	NS	0.0%	NS
Well-12 (25) (GSP-12c)	0.0%	0.0%	0.2%	0.0%	2.0%	0.0%	0.0%	0.0%	NS
Well-12 (50)	NS	NS	NS	NS	0.0%	NS	NS	NS	NS
Well-13 (25) (GSP-13c)	--	--	--	--	--	--	--	--	--
Well-14 (25) (GSP-14c)	NS	NS	NS	NS	NS	NS	NS	NS	NS
GSP-15a (25)	NS	NS	NS	0.0%	NS	NS	NS	NS	NS
Well-15 (25) (GSP-15c)	0.0%	NS	0.0%	NS	0.0%	NS	NS	0.0%	0.0%
GSP-16a (25)	NS	NS	0.0%	NS	NS	NS	NS	NS	NS
Well-16 (25) (GSP-16c)	NS	NS	NS	NS	0.0%	NS	NS	0.0%	NS
Well-17 (25) (GSP-17c)	0.0%	0.0%	0.0%	0.0%	0.0%	NS	NS	0.0%	0.0%
Well-18 (25) (GSP-18c)	NS	NS	0.1%	NS	0.0%	NS	NS	0.0%	0.0%
GSP-18a (25)	NS	NS	NS	0.0%	NS	NS	NS	NS	0.0%
Well-19 (25) (GSP # 19c)	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GSP-19a (25) (GSP # 19ac)	NS	NS	NS	NS	NS	NS	0.0%	NS	0.0%
GSP-19b (25) (GSP # 19bc)	NS	NS	NS	NS	NS	0.0%	0.0%	0.0%	0.0%
GSP-19bb (25) (GSP # 19bbc)	NS	NS	NS	NS	NS	NS	0.0%	0.0%	0.0%
GSP-19bbb (25) (GSP # 19bbbc)	NS	NS	NS	NS	NS	NS	0.0%	NS	0.0%

Note:

-- - Not Sampled

* - Due to a large berm located offsite behind Well-13, sampling at the GSP-13 (25') location could not be
 NS - On-site readings were 0.0% during this event; therefore, no offsite readings were required.

TABLE 6
OFFSITE LOWER EXPLOSIVE LIMITS FROM APRIL 2009 TO JULY 2011
 LEGLER LANDFILL (FACILITY No. 1511A)
 JACKSON TOWNSHIP, OCEAN COUNTY, NEW JERSEY

Gas Monitoring Well/ Gas Sampling Point	LEL (4-09)	LEL (9-09)	LEL (12-09)	LEL (2-10)	LEL (4-10)	LEL (7-10)	LEL (11-10)	LEL (3-11)	LEL (7-11)
GSP-8a (25') (GSP-8ac)	NS	NS	NS	0.0%	0.0%	NS	NS	0.0%	NS
Well-10 (25') (GSP-10c)	NS	NS	0.0%	0.0%	0.0%	NS	NS	0.0%	NS
Well-12 (25') (GSP-12c)	0.0%	0.0%	1.0%	0.0%	40.0%	0.0%	0.0%	0.0%	NS
Well-12 (50')	NS	NS	NS	NS	0.0%	NS	NS	NS	NS
Well-13 (25') (GSP-13c)	**	**	**	**	**	**	**	**	**
Well-14 (25') (GSP-14c)	NS	NS	NS	NS	NS	NS	NS	0.0%	NS
GSP-15a (25')	NS	NS	NS	0.0%	NS	NS	NS	NS	NS
Well-15 (25') (GSP-15c)	0.0%	NS	NS	NS	0.0%	NS	NS	NS	NS
Well-16 (25') (GSP-16c)	NS	NS	0.0%	NS	0.0%	NS	NS	0.0%	0.0%
Well-17 (25') (GSP-17c)	0.0%	NS	0.0%	NS	0.0%	NS	NS	0.0%	NS
Well-18 (25') (GSP-18c)	NS	NS	1.0%	NS	0.0%	NS	NS	0.0%	0.0%
GSP-18a (25') (GSP-18ac)	NS	NS	NS	NS	NS	NS	NS	0.0%	0.0%
GSP-18b (25') (GSP-18bc)	NS	NS	NS	NS	NS	NS	NS	0.0%	0.0%
Well-19 (25') (GSP-19c)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GSP-19a (25') (GSP-19ac)	NS	NS	NS	NS	NS	NS	0.0%	NS	0.0%
GSP-19b (25') (GSP-19bc)	NS	NS	NS	NS	NS	0.0%	0.0%	NS	0.0%
GSP-19bb (25') (GSP-19bbc)	NS	NS	NS	NS	NS	NS	0.0%	0.0%	0.0%
GSP-19bbb (25') (GSP-19bbbc)	NS	NS	NS	NS	NS	NS	0.0%	NS	0.0%

Note:

NS - Not Sampled

Bold values exceed regulatory acceptable levels (25% LEL)

* - Due to a large berm located offsite behind Well-13, sampling at the GSP-13 (25') location could not be

** - On-site readings were 0.0% at GSP-15; therefore, no offsite reading.

TABLE 7
MARCH 2011 - BAROMETRIC PRESSURE DATA
 LEGLER LANDFILL (FACILITY No. 1511A)
 JACKSON TOWNSHIP, OCEAN COUNTY, NEW JERSEY

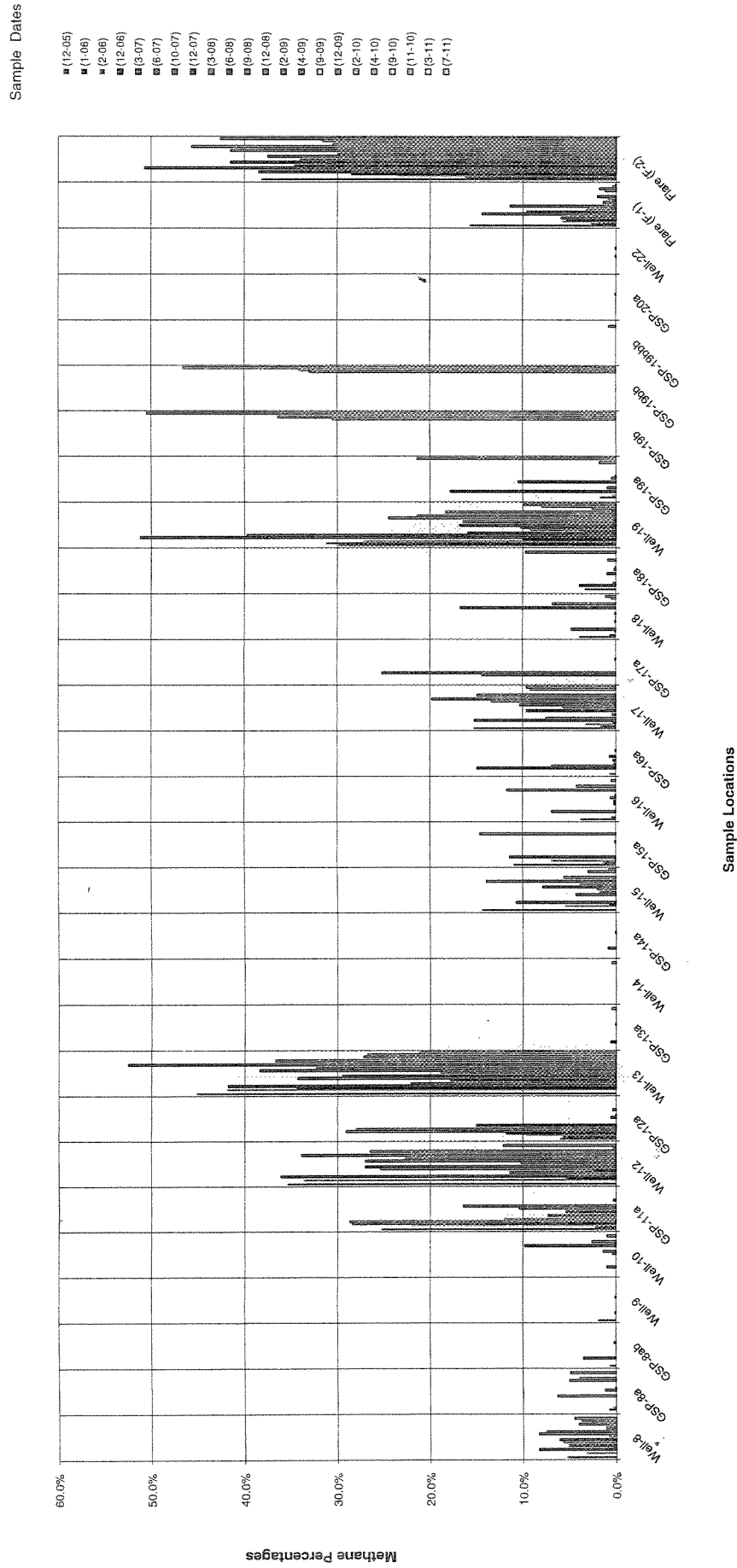
Weather Station Location	State	Date & Time	Time Interval	Temperature	Precipitation	Wind Speed	Wind Direction	Barometric Pressure
Cream Ridge	NJ	7/11/2011 10:00	24 hours prior	83	0	0	WSW	29.94
Cream Ridge	NJ	7/11/2011 22:00	12 hours prior	80	0	7	S	29.76
Cream Ridge	NJ	7/12/2011 0:00	10 hours prior	78	0	8	S	29.72
Cream Ridge	NJ	7/12/2011 2:00	8 hours prior	77	0	1	SSW	29.72
Cream Ridge	NJ	7/12/2011 4:00	6 hours prior	76	0	4	WSW	29.69
Cream Ridge	NJ	7/12/2011 6:00	4 hours prior	74	0	1	SW	29.69
Cream Ridge	NJ	7/12/2011 8:00	2 hours prior	80	0	5	NW	29.71
Cream Ridge	NJ	7/12/2011 10:00	During Monitoring	83	0	9	WNW	29.71
Cream Ridge	NJ	7/12/2011 11:00	During Monitoring	85	0	9	W	29.69
Cream Ridge	NJ	7/12/2011 12:00	During Monitoring	87	0	5	NW	29.68
Cream Ridge	NJ	7/12/2011 13:00	During Monitoring	87	0	4	WNW	29.66
Cream Ridge	NJ	7/12/2011 14:00	During Monitoring	89	0	11	WNW	29.66
Cream Ridge	NJ	7/12/2011 15:00	During Monitoring	91	0	15	NW	29.64
Cream Ridge	NJ	7/12/2011 16:00	During Monitoring	91	0	6	NW	29.64

Notes:

Bold Cells indicate the times which FPA conducted the gas monitoring event

FIGURES

Figure 1
Changes in Onsite Methane Concentrations

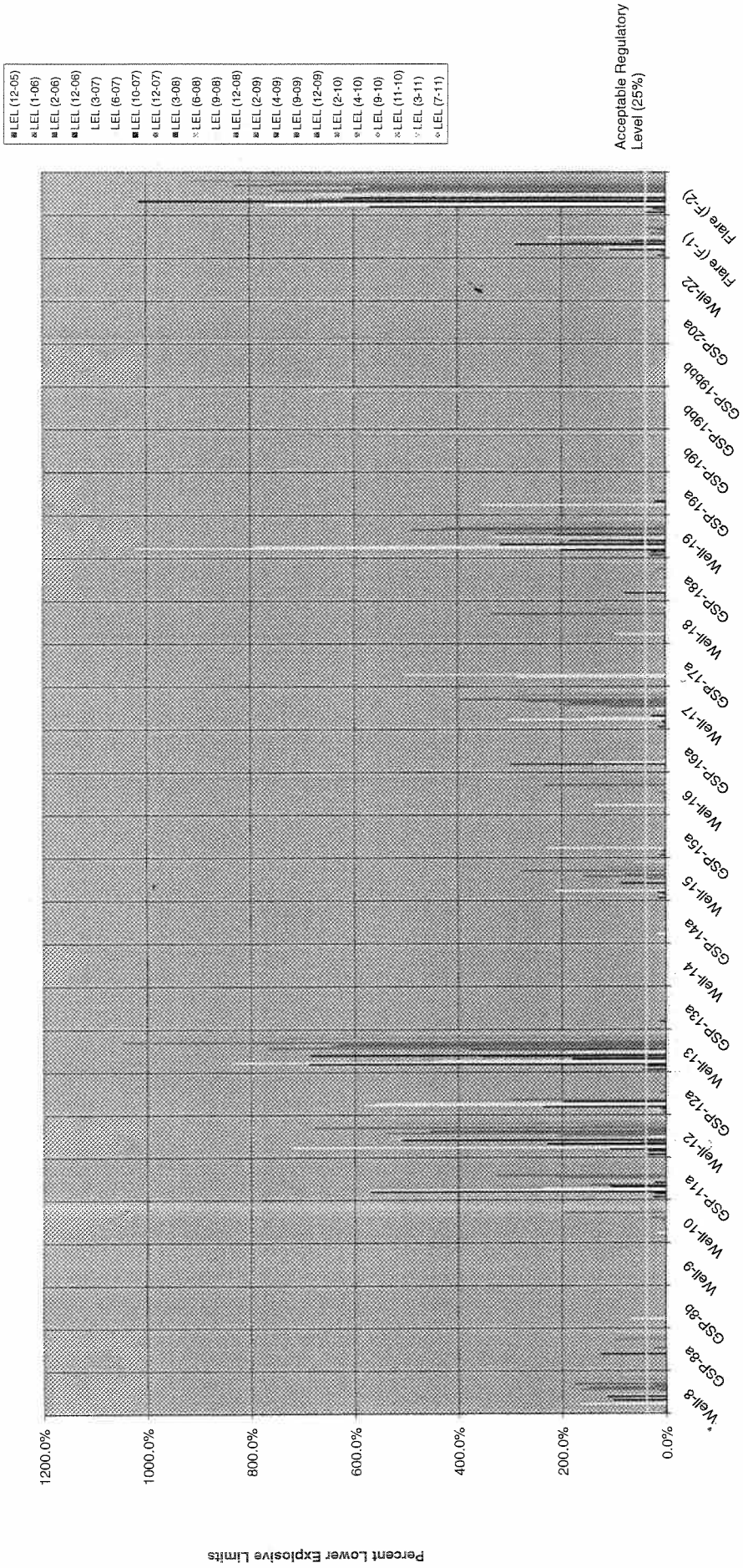


Sample Dates

Sample Locations

Methane Percentages

Figure 2
Changes in Onsite Lower Explosive Limits



Sample Locations

Acceptable Regulatory Level (25%)

Figure 3
Changes in Offsite Methane Concentrations

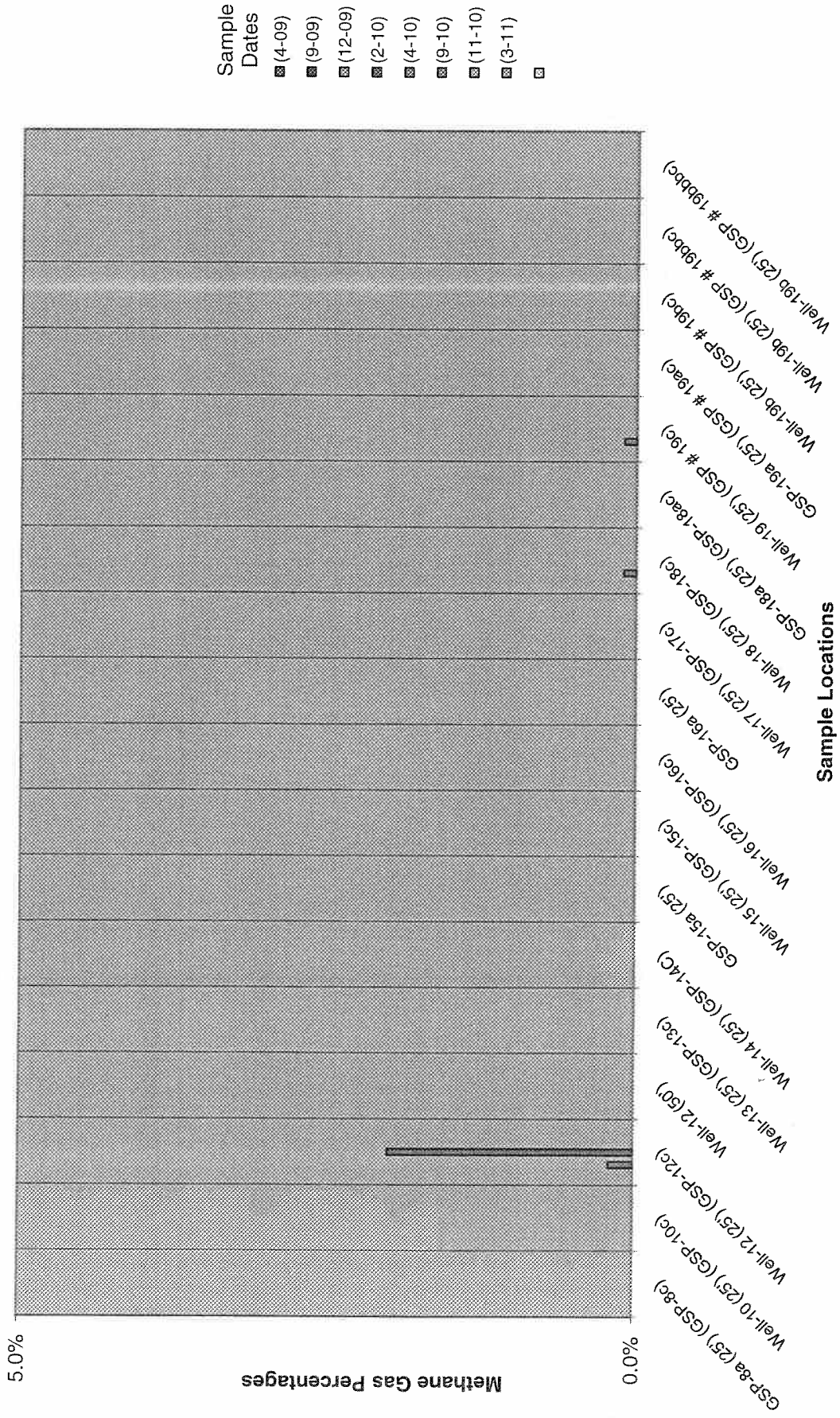


Figure 4
Changes in Offsite Lower Explosive Limits

