

# ALTAMONT ENVIRONMENTAL, INC.

ENGINEERING, HYDROGEOLOGY, RISK MANAGEMENT

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September 28, 2001

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Mr. Jim Patterson  
NCDENR  
852 Merrimon Ave.  
Asheville, North Carolina 28804

Subject: Landfill Gas Mitigation Plan  
Phase I - Passive and Active Pilot-Scale Tests  
Closed Jackson County Municipal Solid Waste Landfill  
Jackson County, North Carolina

Dear Mr. Patterson:

Altamont Environmental, Inc., on behalf of Jackson County, has prepared a Landfill Gas (LFG) Mitigation Plan for the closed municipal solid waste (MSW) landfill near Dillsboro. This plan was submitted to the operating record on September 28, 2001. The plan is based on satisfying two objectives:

- Developing a LFG mitigation program based on protocols that take into account health and safety issues related to LFG and
- Controlling the flow of LFG at the Dillsboro facility so that property line monitoring points demonstrate that the facility is in compliance with the North Carolina Department of Environment and Natural Resources (DENR) Solid Waste Management Rules (Title 15A, NCAC, Subchapter 13B).

The LFG Mitigation Plan incorporates the following elements:

- Definition of areas requiring gas mitigation.
- Determination of whether the existing vents will be effective components of a LFG control system.
- Evaluation of whether modifications to the passive venting system have a high probability of significantly improving LFG capture.
- Plan for passive LFG collection pilot-scale test.
- Plan for active LFG collection pilot-scale test.
- Planning for Benefit-Cost Evaluation.
- Phase II Design and Implementation

## BACKGROUND

Jackson County has conducted two types of landfill gas (LFG) monitoring at the closed MSW landfill near Dillsboro, North Carolina. The landfill location is shown on Figure 1. The first program was initiated in approximately 1996 and is related to compliance with the landfill permit conditions. As such, it is a continuing effort. The second LFG program was initiated in January 1999 as part of a groundwater quality assessment. In the second program, Altamont Environmental, Inc. (formerly known as the Fletcher Group of North Carolina) measures LFG concentrations at onsite monitoring locations using the closed-loop protocol recommended by DENR. The measurements are collected on a monthly basis. The Monitoring Well, Vent, and Gas Probe Location Map is included as Figure 2.

In January 1999, LFG was detected in concentrations greater than the Lower Explosive Limit (LEL) for methane at several locations on County property and in the groundwater monitoring well on adjacent property that at the time was owned by Western Builders. Between March 15 and 19, 1999, the Fletcher Group oversaw installation of LFG probes in 18 locations near the landfill. These probes were installed as part of the effort to characterize groundwater quality in the vicinity of landfill. LFG concentrations were measured in each of the probes monthly between installation and March 2000.

Jackson County awarded a contract to McGill Associates (McGill) of Asheville, North Carolina on March 24, 1999 for design and construction of LFG control structures. These structures were installed between March 29 and April 9, 1999. Since installation of these structures, LFG measurements in some areas have remained consistently greater than the LEL. As a result, the County has requested that Altamont Environmental, Inc. (Altamont), provide engineering services related to mitigation of LFG for the Dillsboro facility.

Overall, LFG management will be completed in two phases:

### *Phase I - Design and Conduct Pilot-Scale Tests*

This phase, which is described in this document, includes activities that will be used to evaluate two options for recovery of LFG. As discussed in Tasks 4 and 5, one pilot-scale test will be based on passive recovery techniques and one pilot-scale test will be used to evaluate alternate active recovery techniques. In addition, if the passive test is unsuccessful, it will be converted to a pilot-scale test of active recovery techniques. Figure 3 includes a schematic of the Decision Flow Diagram used to setup the pilot-scale tests.

### *Phase II - Design and Implementation of a Full-Scale LFG Mitigation System*

The type and extent of the system will be based on the findings and conclusions of Phase I.

Phase I has been initiated and Tasks 1 and 2, as described in the following sections, have been completed. The findings derived from those activities are described in the following section and will be used to complete the balance of the tasks described in this document.

## PHASE I TASKS

### TASK 1: DETERMINE WHICH AREAS REQUIRE LFG CONTROL

**a) Compare current and historic LFG monitoring data to regulatory requirements.**

The Solid Waste Management Rules (Subchapter 13B, Section .1626(4)(a)) require that LFG concentrations not exceed the LEL for methane at the facility property boundary. The Time versus Concentration graphs included in Appendix A indicate that this criterion has been consistently exceeded at the following property line monitoring locations: GP-2, MW-1, GP-3, GP-5, GP-6, and MW-4. In addition, MW-5 has shown an increasing trend in methane concentrations, with methane exceeding compliance limits in 12 of the last 13 monitoring events. Although other LFG monitoring locations contain concentrations of methane greater than the DENR criteria, they are not property line monitoring points.

**b) Identify areas where LFG mitigation is required.**

The six monitoring locations in which consistently high concentrations of LFG have been measured can be segregated into two general areas. One such area is along the north-central portion of the landfill. The second area is in the southwestern portion of the landfill.

### TASK 2: DETERMINE WHETHER THE EXISTING VENTS WILL BE EFFECTIVE COMPONENTS OF A LFG CONTROL SYSTEM

**a) Obtain vent as-built drawings (if available) from McGill Associates.**

The Jackson County Manager contacted McGill Associates to obtain the referenced drawings as well as those describing construction of the passive venting trenches installed in 1999. None of the information was available.

**b) If drawings are not available, develop similar information through interviews with knowledgeable onsite personnel.**

The Fletcher Group interviewed Mr. Verlon Coggins on November 9, 2000. Mr. Coggins observed a portion of the vents as they were being installed when the landfill was closed. Mr. Coggins stated that the vents were installed using a backhoe for the related excavation. He estimated that the total depth of the vents was less than 20-feet. Mr. Coggins did not have any information pertaining to the radius of granular fill surrounding the vent pipes or the depths of the screened intervals.

**c) If interviews provide inadequate information, measure diameter and depth of at least two LFG vents by cutting off rain guards, measuring the dimensions, and replacing the rain guard.**

On November 9, 2000, Altamont environmental technicians measured the diameters and depths of 16 LFG vents. Table 1 includes these measurements. In summary, the vents were constructed of four-inch diameter polyvinyl chloride (PVC) piping. The depths of the vents installed by McGill Associates ranged between 3.4-feet and 6.25-feet. Mr. Coggins installed one vent at a later undocumented date. The depth of that vent was 13.2-feet. The screened intervals in Vents No. 2 and 3 were measured and found to be three-feet in length. Visual inspections of the remaining vents indicated similar construction. Data collected on November 9, 2000 are presented in Table 1.

**d) Obtain historic topography to determine the original contours of the site.**

Historic topography was taken from an U.S. Geological Survey (USGS) 7.5-minute map prepared in 1940 (Note: Portions of the map were photorevised in 1978). Historic topography is shown on Figure 2. County personnel determined through interviews with adjacent property owners (Mr. Curtis Sutton) that fill began at the facility in April 1971.

**e) Obtain current cap configuration through use of existing McGill Associates map.**

In approximately January 1999 McGill Associates provided a topographic map to Altamont. The map shows the final grade elevations that were established after closure of the landfill. The current cap configuration, as presented by McGill Associates, is shown on Figure 2.

**f) Estimate the thickness of fill.**

The thickness of fill was estimated by overlaying the two referenced maps. Comparison of the original topography to the final elevations indicates that solid waste was filled to thicknesses ranging upwards to approximately 100-feet. As shown in Figure 2, three ravines were located on the site. Ridge-like features separated the three ravines. If these ridges are underlain by competent bedrock, as would be expected, then the structures may influence the currently observed direction of LFG flow towards GP-5 and MW-4. As noted previously, these are two of the four locations where the LFG concentration exceeded 100 percent of the LEL of methane.

**g) Quantify LFG flowing through vents using vane anemometer to measure velocities.**

During activities at the site on November 9, 2000, Altamont used a Dwyer Thermal Anemometer Series 470 to measure the velocity of LFG flowing through the 16 vents. Prior to taking these measurements, the U-shaped rain guard was removed from each vent so that gas flow would not be impeded. The rain guards were replaced after the measurements were obtained. The LFG velocities were used to calculate gas flow through the vents. Table 1 includes the velocity measurements and the calculated values of flow. Passive flow rates through the vents ranged from 0 to 8.72 cubic feet per minute (cfm).

**TASK 3: EVALUATE WHETHER MODIFICATIONS TO THE PASSIVE VENTING SYSTEM HAVE A HIGH PROBABILITY OF SIGNIFICANTLY IMPROVING LFG CAPTURE**

**a) Vents will be deemed adequate if they are screened through at least 75 percent of the estimated thickness of refuse.**

Two types of passive venting have been installed at the landfill: vertical and horizontal. As described in Task 2c, the vertical vents apparently include three-foot long screens. Table 1 includes a summary of the waste thicknesses in the vicinity of each vertical vent. According to industry guidelines (Reference: Landfill Control Technologies (LCT) "Landfill Gas Engineering Design Seminar;" 1994) the horizontal to vertical permeability ratios can range from 2:1 to 10:1. As a result, active collection systems are typically constructed using vertical vents screened through approximately 75 percent of the total waste thickness. Passive collection systems require even greater penetration of the waste. However, in an effort to use existing vertical vents at the Dillsboro landfill, this project has assumed that vertical vents would be adequate if they extend through at least 75 percent of the estimated waste thickness. None of the vertical vents appear to meet this criterion.

Comparison of the original and final elevations indicates that upper portions of the property were graded. Grading is suggested in vent locations where the final elevation is lower than the original elevation (See Table 1). Typically, the purpose of grading unconsolidated material in the upper portion of the landfill property would have been to excavate cover material for use on the lower portions of the landfill. In any case, the available information is not sufficient to estimate a thickness of fill in the vicinity of Vent Numbers 1, 2, 10, and 13. As a result, the adequacy of these vents is unknown.

McGill Associates installed horizontal trench vents through sections of the landfill cap during March and April 1999. A site plan prepared by McGill (attached) indicates the approximate locations of these trench vents. LCT states that horizontal recovery trench depths should be "a minimum of 25-foot or depth of backhoe reach." As-built depths of the McGill trenches are unknown. The "Miscellaneous Details" (attached) drawn by McGill indicate that the trench bottoms were installed 6.5-feet below the surface of the cap. However, Vent Nos. 14, 15, and 16, which are connected to the trenches installed by McGill (located on the southerly portion of the landfill), extend only 48-inches below the surface of the cap. As shown in Table 1, the LFG concentrations measured in these three vents were zero. These data, taken together, suggest that the existing vents are not adequate for inclusion in a passive LFG mitigation system.

**b) Evaluate the potential effectiveness of properly installed new passive vents.**

Waste deposition at the landfill was not continuously observed by County personnel during the early years of operation at the Dillsboro landfill. The County began active management of fill and cover operations in approximately 1975. Consequently, information about variables (e.g., compaction, waste type, waste permeability, interim cover thickness, etc.) that affect the usefulness of passive vents is unknown. The potential adequacy of new passive vents in the landfill can be properly assessed only through use of a pilot-scale study.

**TASK 4: DESIGN AND CONDUCT A PASSIVE LFG COLLECTION PILOT-SCALE TEST**

**a) Select area for passive test.**

As stated in Task 1b, two areas require gas mitigation. The area in which MW-1 and GP- 2 are located contains a 240-foot passive gas trench vent. Since this trench has apparently not been effective in the passive mode, Altamont will determine whether the trench can be modified and included as a key element in the active pilot-scale gas recovery study. This activity will be described in Task 5 of this management plan.

The remaining area requiring gas mitigation includes GP-5 and MW-5. MW-5 has shown a marked increase in methane concentrations since March 2000. In addition, GP-5 is in an area where properly constructed passive vents have not been installed. By the process of elimination, this particular area of the landfill is best suited for implementing the pilot-scale study of passive gas collection.

**b) Establish pilot-scale test objectives**

The objective of the pilot-scale study of passive venting is to determine whether vertical vents alone, under passive conditions, have the potential to adequately reduce methane concentrations at the property line in the vicinity of GP-5.

**c) Design test vent/extraction well**

Figure 4 shows a schematic diagram of the LFG Vent/Extraction Well. Estimates were obtained from two drilling companies for the test vent/extraction well construction included in this plan. One of the drillers is capable of drilling borehole diameters of 13- and 24-inches. The other driller can install a 16-inch borehole. The selected diameter will be based on a benefit:cost analysis and driller availability.

The test of passive venting will be conducted after installing the following structures:

- Installation of three vertical vents (4-inch diameter PVC casings with 13- to 24-inch diameter boreholes) approximately 200-feet apart and through approximately 25-feet of waste.
- Gas probes to evaluate the zone of influence.

**d) Establish methodology.**

This portion of the pilot-scale test will be conducted entirely under passive conditions. The proposed layout of the vents is shown in Figure 2. As stated, Figure 3 shows the Decision Flow Diagram for these and other activities to be included in the pilot-scale study. As indicated, the probes will be allowed to vent freely after construction.

**e) Determine parameters to be measured.**

Measurements will be made on various parameters daily for two weeks: measure specific parameters (i.e., gas flow, methane, oxygen, and carbon dioxide) daily for one week while LFG is allowed to vent freely through the new passive vents.

**f) Determine how the pilot-scale test results will be used in design of an active system.**

If the pilot-scale test results indicate that passive venting can significantly affect the concentration of LFG, then the data collected during the test will be used to design a full-scale passive system. Data from the pilot-scale test will be evaluated to determine whether extraction well criteria (e.g., borehole diameter, depth, screened interval, etc.) should be modified for full-scale application. The passive vents will be constructed so that they can be converted to active extraction wells if passive venting is determined to be inadequate. The conversion would be completed by placing a gas wellhead on the riser and piping the wells together.

**TASK 5: DESIGN AND CONDUCT AN ACTIVE LFG COLLECTION PILOT-SCALE TEST**

**a) Select area for active test.**

As shown in Task 4a, the area near MW-1 and GP-2 (North Area) will be the location for the active test. In addition, if the passive test described in Task 4 (South Area) does not provide adequate gas mitigation, then an active test will also be conducted in that area. The test will be conducted by applying a vacuum to the gas vents/extraction wells installed by McGill in 1999.

**b) Establish pilot-scale test objectives**

*North Area:* The active pilot-scale test will be conducted to determine if the performance of existing passive collection trenches can be improved by applying a vacuum.

*South Area:* In addition, as shown in the Decision Flow Diagram for the South Area (Figure 3), if the passive pilot-scale test in that area does not provide adequate gas mitigation, the vents installed in that area will be converted to use as an active collection system.

**c) Design test vent/extraction well**

*North Area:* The active pilot-scale test in the North Area will utilize existing trench vents. No new construction is anticipated.

*South Area:* The vents installed as part of the passive pilot-scale test will be constructed in a manner that will allow them to be converted for use in an active system, if necessary.

**d) Establish methodology (e.g., pipe together existing vents and apply vacuum, isolate critically located vents by piping together and apply vacuum, install new LFG wells for test, etc.).**

*North Area:* The active pilot-scale test in this area will utilize three existing LFG recovery trenches. These trenches are individually vented through vents V-1 and V-13 (shown on Figure 2). Table 2 shows information related to trench length, historic gas concentrations, and nearby monitoring point. The test will include the following steps:

- Locate a power pole in the vicinity, or mobilize an adequate generator (240 volts, 20 amps).
- Attach a wellhead to each vent.
- Pipe together the three trenches using four-inch black corrugated drainpipe laid along the surface of the landfill.
- Setup a trailer-mounted blower capable of delivering 150-cubic feet per minute (cfm).
- After starting the vacuum, adjust the airflow at each vent using the wellhead valves. (Note: The amount of vacuum will be determined by measuring the percent methane at each wellhead and adjusting the valves so that the airflow is optimized across the three trenches.)
- The vacuum will be applied to the trenches for two weeks.

*South Area:* The active pilot-scale test in this area will utilize the three vents installed as part of the passive pilot-scale test. As indicated in Task 5b, the vents will be converted to extraction wells. EPA Method 2E, *Determination of Landfill Gas; Gas Production Flow Rate*, (Federal Register Volume 61, No. 49, March 12, 1996) will be used as a guidance in conducting the active extraction test. The short term testing portion of the method will be implemented. The test will involve the following tasks:

- Extend power into the area.
- Attach a wellhead to each extraction well.
- Pipe together the three extraction wells using four-inch black corrugated drainpipe laid along the surface of the landfill.
- Setup a trailer-mounted blower capable of delivering 150-cubic feet per minute (cfm).

- Install shallow and deep pressure probes around each extraction well. Deep probes will be placed at distances of 50, 100, and 150 feet from the extraction well to measure radius of influence. Shallow probes will be placed 10 feet from the extraction well to monitor for infiltration. The exact number and placement of pressure probes will be based on accessibility.

Conduct short term testing, as specified in EPA Method 2E, using the blower to draw a vacuum on each extraction well. The vacuum is increased incrementally while temperature and nitrogen content are measured in the shallow probes to determine the maximum vacuum at which infiltration does not occur. The test will continue under maximum vacuum while measuring pressures in the deep probes to determine the maximum radius of influence.

**e) Determine parameters to be measured.**

*North Area:* Measurements of various parameters will be made daily for two weeks. Gas flow through the three vents will be evaluated with respect to pressure and the concentrations of methane, oxygen, and carbon dioxide. In addition, pressure, methane, oxygen, and carbon dioxide will also be measured in monitoring points GP-1, GP-2, GP-3, and MW-1.

*South Area:* Measurements of various parameters will be made daily for up to two weeks. Gas flow through the vents will be evaluated with respect to pressure, temperature, and the concentrations of methane, oxygen, nitrogen, and carbon dioxide.

**f) Determine how the pilot-scale test results will be used in design of an active system.**

*North Area:* The active test results in this area will be used to determine whether the existing horizontal LFG recovery trenches can be utilized in an active collection system. If the results indicate potential to attain compliance levels, then the trenches will be included in the design of a long-term system to be implemented in the North Area.

*South Area:* The active test results in this area will be used to determine the maximum vacuum that can be applied without inducing infiltration of ambient air and the maximum radius of influence that can be attained on each well. The results will be used in the design of a long-term system to be implemented in the South Area. In addition, the benefits and associated costs of extending the active system will also be evaluated. The purpose of such an extension would be to improve the LFG compliance record at MW-4, MW-5, and GP-6.

**TASK 6: PREPARE A BENEFIT-COST EVALUATION**

The results of the passive and active pilot-scale tests will be used in an evaluation of the benefits and costs of achieving compliance.

**TASK 7: SUBMIT LONG-TERM LFG MITIGATION PLAN TO DENR**

After completion of the activities described in this document, Altamont will submit a complete report of the findings, conclusions, and recommendations.

**TASK 8: COMPLETE PHASE II - DESIGN AND IMPLEMENTATION OF A FULL-SCALE SYSTEM**

Mr. Jim Patterson  
September 28, 2001  
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As shown in the following Schedule, this task will be completed immediately following submittal of the long-term plan to DENR.

## SCHEDULE

As shown in the attached Table 3, many of the activities described in this plan have been completed. All other tasks can be completed in approximately nine weeks. Additional scheduling information is shown on the decision diagram (Figure 3).

Mr. Patterson, Altamont understands that as a matter of policy, DENR will not approve a LFG mitigation plan. However, if you have questions or would like additional information regarding the LFG-related activities planned for the Dillsboro landfill, please contact Altamont at your convenience.

Sincerely,



James S. McElduff, P.E.

Attachments: Tables 1 through 3  
Figures 1 through 4  
Appendix A (LFG monitoring data and charts)  
Appendix B (McGill Associates Drawings)

cc: Mr. Ken Westmoreland - Jackson County Manager  
Mr. Mark Poindexter - NCDENR, Division of Waste Management

TABLE 1

LANDFILL VENT DATA SUMMARY  
 CLOSED JACKSON COUNTY MUNICIPAL SOLID WASTE LANDFILL  
 JACKSON COUNTY, NORTH CAROLINA

SEPTEMBER 28, 2000

Vent No.	Vent Depth (feet below ground surface)	Final Grade Elevations (MSL)	Original Grade Elevations (MSL)	Estimate Fill Thickness (feet)	Adequate for Maximum Capture?	Vent Diameter (inches)	Area (square inches)	Area (feet squared)	Velocity (ft/min)	Flow (cfm)	Methane (%)	Carbon Dioxide (%)	Oxygen (%)
1	4.20	2145	2170	-25	Unknown	4.00	12.56	0.09	75	6.54	39.5	26.7	4.2
2	6.25	2142	2173	-31	Unknown	4.00	12.56	0.09	0	0.00	2.5	3.5	17.0
3	6.20	2143	2100	43	No	4.00	12.56	0.09	20	1.74	60.1	40.0	0.4
4	4.45	2160	2112	48	No	4.00	12.56	0.09	50	4.36	59.5	39.5	0.1
5	6.00	2163	2090	73	No	4.00	12.56	0.09	60	5.23	57.2	40.8	0.1
6	5.50	2170	2086	84	No	4.00	12.56	0.09	65	5.67	59.4	40.6	0.1
7	5.20	2179	2155	24	No	4.00	12.56	0.09	70	6.11	59.0	40.9	0.1
8	6.00	2179	2129	50	No	4.00	12.56	0.09	40	3.49	58.7	41.4	0.1
9	5.10	2161	2140	21	No	4.00	12.56	0.09	75	6.54	57.7	42.3	0.1
10	13.20	2145	2155	-10	Unknown	4.00	12.56	0.09	70	6.11	59.1	39.3	0.0
11	4.00	2180	2160	20	No	4.00	12.56	0.09	45	3.93	58.9	40.4	0.1
12	4.70	2188	2166	22	No	4.00	12.56	0.09	100	8.72	44.1	31.8	4.4
13	3.40	2178	2180	-2	Unknown	4.00	12.56	0.09	70	6.11	31.8	24.4	0.0
14	4.00	2135	2044	91	No	4.00	12.56	0.09	NM	0.00	0.0	0.5	20.4
15	4.00	2068	2040	28	No	4.00	12.56	0.09	NM	0.00	0.0	0.0	20.0
16	4.00	2082	2045	37	No	4.00	12.56	0.09	NM	0.00	0.0	0.0	20.0

- Notes:
1. Screened interval measured in vents 2 and 3. Length is 3 feet.
  2. Visual inspection of other vents indicates similar construction.
  3. NM = not measured. No methane concentrations detected in vents 14, 15, or 16, therefore no velocity readings taken.
  4. Vents 14, 15, and 16 are tied to McGill trench.
  5. Flow and concentration measurements were recorded on November 9, 2000.

TABLE 2

LANDFILL TRENCH DATA SUMMARY  
 CLOSED JACKSON COUNTY MUNICIPAL SOLID WASTE LANDFILL  
 JACKSON COUNTY, NORTH CAROLINA

SEPTEMBER 28, 2001

Trench ID	Trench Length (feet)	Vent Connection No.	Methane Concentration Range in Vent, November 9, 2000 (%)	Nearest Monitoring Location(s)	Distance to Nearest Monitoring Location (feet)	Historical Methane Concentration Range in Nearest Monitoring Location (%)
A	240	V-13	31.8	GP-02	30	35-85
B	250	V-1	39.5	GP-03	<10	3-50
C	200	V-16	0.0	GP-05	45	0-68
D	185	V-16	0.0	MW-5	10	0-69
E	100	V-15	0.0	GP-06	45	2-80
F	200	V-14	0.0	GP-07	40	0-3
G	60	V-10	59.1	GP-01	80	0-22

- Notes: 1. Trenches A through F were installed by McGill, depths unknown.  
 2. Trench G was installed by the county - exact location, length, and depth are unknown.

**TABLE 3**

**LANDFILL GAS COMPLIANCE SCHEDULE  
CLOSED JACKSON COUNTY MUNICIPL SOLID WASTE LANDFILL  
DILLSBORO, NORTH CAROLINA**

**SEPTEMBER 28, 2001**

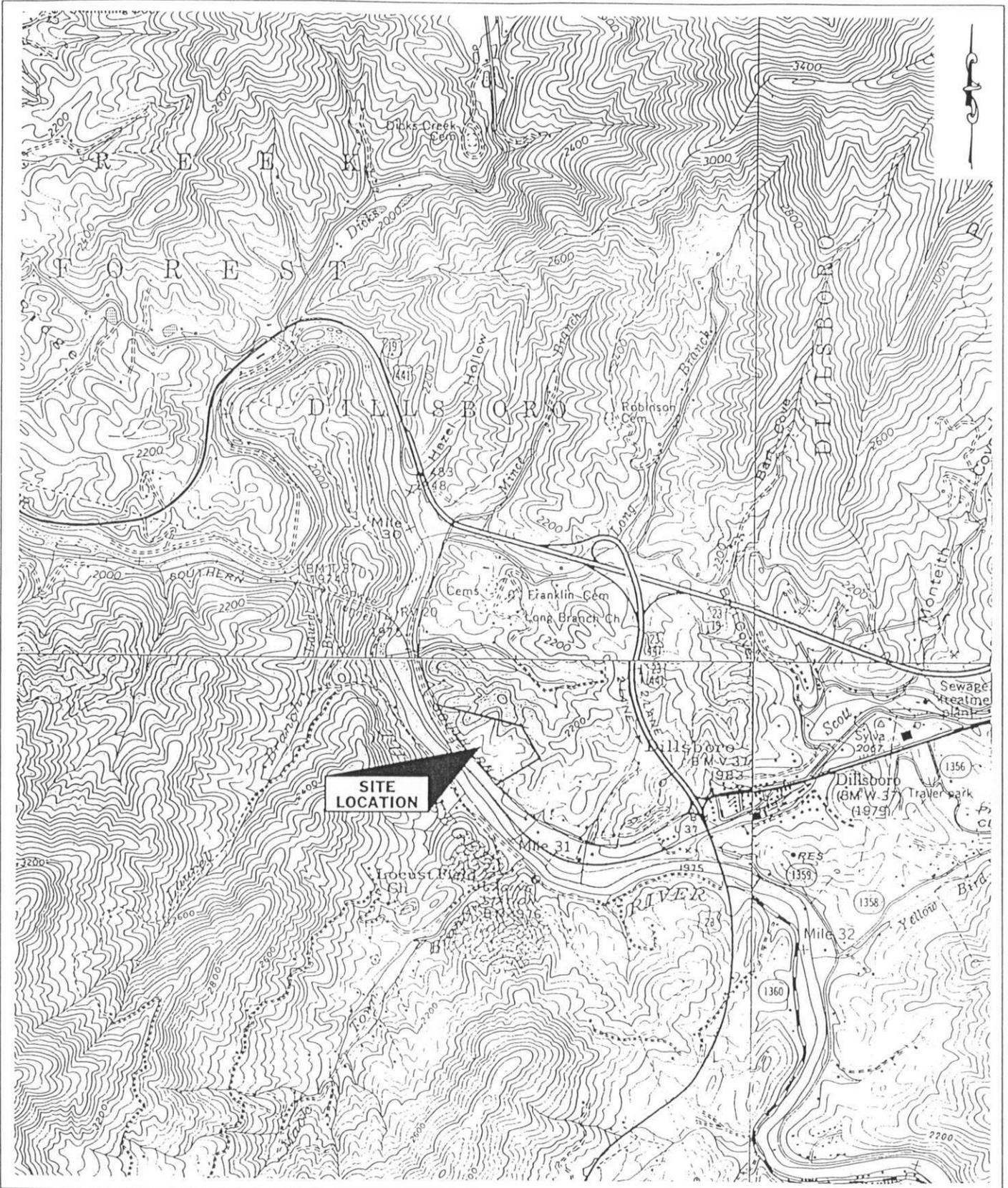
<i>TASKS</i>	<i>SCHEDULE</i>
PHASE I TASKS	
TASK 1: DETERMINE WHICH AREAS REQUIRE LFG CONTROL	Nov. 17, 2000
a) Compare current and historic LFG monitoring data to regulatory requirements.	
b) Identify areas where LFG mitigation is required.	
TASK 2: DETERMINE WHETHER THE EXISTING VENTS WILL BE EFFECTIVE COMPONENTS OF A LFG CONTROL SYSTEM	DEC. 16, 2000
a) Obtain vent as-built drawings (if available) from McGill Associates.	
b) If drawings are not available, develop similar information through interviews with knowledgeable onsite personnel.	
c) If interviews provide inadequate information, measure diameter and depth of at least two LFG vents by cutting off rain guards, measuring the dimensions, and replacing the rain guard.	
d) Obtain historic topography to determine the original contours of the site.	
e) Obtain current cap configuration through use of existing McGill Associates map.	
f) Estimate the thickness of fill.	
g) Quantify LFG flowing through vents using vane anemometer to measure velocities.	
TASK 3: EVALUATE WHETHER MODIFICATIONS TO THE PASSIVE VENTING SYSTEM HAVE A HIGH PROBABILITY OF SIGNIFICANTLY IMPROVING LFG CAPTURE	JAN. 19, 2001
a) Vents will be deemed adequate if they are screened through at least 75 percent of the estimated thickness of refuse.	
b) Evaluate the potential effectiveness of properly installed new passive vents.	

**TABLE 3 (CONTINUED)**

**LANDFILL GAS COMPLIANCE SCHEDULE  
CLOSED JACKSON COUNTY MUNICIPAL SOLID WASTE LANDFILL  
DILLSBORO, NORTH CAROLINA**

**SEPTEMBER 28, 2001**

<i>TASKS</i>	<i>SCHEDULE</i>
PHASE I TASKS (CONTINUED)	
TASK 4: DESIGN & CONDUCT A PASSIVE LFG COLLECTION PILOT-SCALE TEST	DEC. 14, 2001
a) Select area for passive test.	
b) Establish pilot-scale test objectives	
c) Design test vent/extraction well	
d) Establish methodology.	
e) Determine parameters to be measured.	
f) Determine how the pilot-scale test results will be used in design of an active system.	
TASK 5: DESIGN & CONDUCT AN ACTIVE LFG COLLECTION PILOT-SCALE TEST	DEC. 14, 2001
a) Select area for active test.	
Establish pilot-scale test objectives	
b) Design test vent/extraction well	
c) Establish methodology (e.g., pipe together existing vents and apply vacuum, isolate critically located vents by piping together and apply vacuum, install new LFG wells for test, etc.).	
d) Determine parameters to be measured.	
e) Determine how the pilot-scale test results will be used in design of an active system.	
TASK 6: PREPARE A BENEFIT-COST EVALUATION	DEC. 28, 2001
TASK 7: SUBMIT LONG-TERM LFG MITIGATION PLAN TO DENR	JAN. 11, 2002
TASK 8: COMPLETE PHASE II - DESIGN AND IMPLEMENTATION OF A FULL-SCALE SYSTEM	MARCH 15, 2002



**SITE LOCATION**

FIGURE 1  
 SITE LOCATION MAP  
 JACKSON COUNTY LANDFILL  
 JACKSON COUNTY, NORTH CAROLINA  
 GREENS CREEK, WHITTIER, SYLVA NORTH & SYLVA SOUTH  
 NORTH CAROLINA U.S.G.S. QUADRANGLES

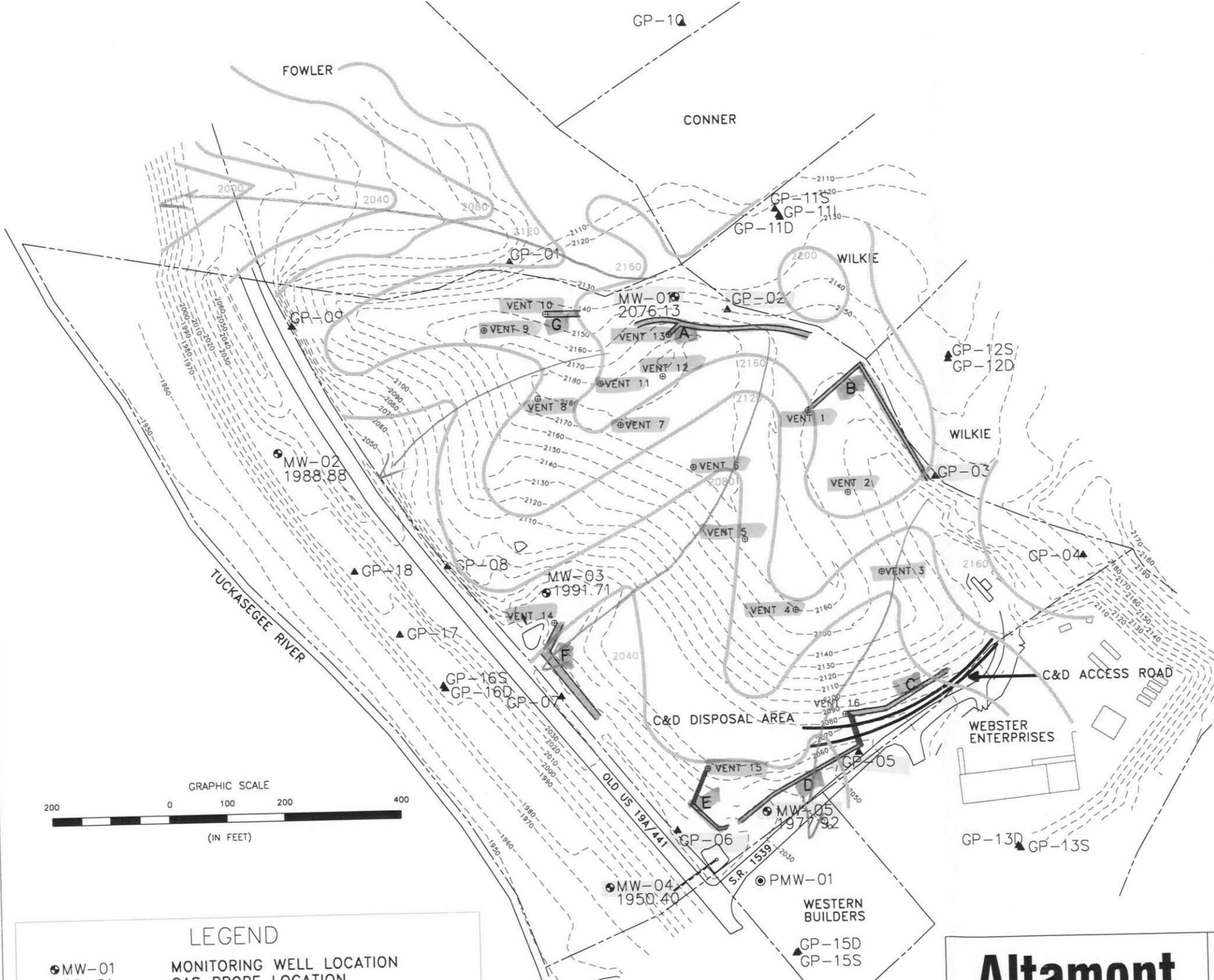
**Altamont**  
**Environmental, Inc.**  
 ENGINEERING, HYDROGEOLOGY, RISK MANAGEMENT

78½ PATTON AVENUE  
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 PHONE 828-281-3350

DRAWN BY: JOHN CHASE DATE: 05-01-01  
 PROJECT MANAGER: JIM MCELDOUFF  
 CLIENT: JACKSON COUNTY  
 FILE: AVL/H/PROJECTS/JACKSON/2006.12/FIGURE 1

COUNTOUR INTERVALS: 40 FEET  
 MAP DATES: 1940, 1967, 1967,  
 & 1946  
 PHOTO REVISIONS: 1976, 1976,  
 1976, & 1990





GP-1Q

FOWLER

CONNER

WILKIE

WILKIE

TUCKASEGEE RIVER

C&D ACCESS ROAD

C&D DISPOSAL AREA

WEBSTER ENTERPRISES

OLD US 19A/441

S.R. 1539

WESTERN BUILDERS

GRAPHIC SCALE  
200 0 100 200 400  
(IN FEET)

LEGEND

● MW-01  
● MW-02  
● MW-03  
● MW-04  
● MW-05  
▲ GP-01  
▲ GP-02  
▲ GP-03  
▲ GP-04  
▲ GP-05  
▲ GP-06  
▲ GP-07  
▲ GP-08  
▲ GP-09  
▲ GP-10  
▲ GP-11  
▲ GP-12  
▲ GP-13  
▲ GP-14  
▲ GP-15  
▲ GP-16  
▲ GP-17  
▲ GP-18  
▲ GP-18S  
▲ GP-16S  
▲ GP-16D

MONITORING WELL LOCATION  
GAS PROBE LOCATION

**Altamont**

WEEK 1

WEEKS 2 & 3

WEEKS 4 & 5

**NORTH AREA**

**SUMMARY:**  
USE EXISTING  
TRENCHES AS  
BASIS OF ACTIVE  
EXTRACTION  
SYSTEM

START

PIPE  
TRENCHES  
TOGETHER

APPLY VACUUM AND  
MONITOR IN  
ACTIVE  
MODE FOR  
TWO WEEKS

**SOUTH AREA**

**SUMMARY:**  
CONSTRUCT  
PASSIVE VENTS  
THAT CAN BE  
CONVERTED TO  
ACTIVE  
EXTRACTION  
WELLS IF  
NECESSARY

START

INSTALL  
LANDFILL GAS  
EXTRACTION  
WELLS

MONITOR IN  
PASSIVE  
MODE UNTIL  
ENDPOINT IS  
REACHED OR  
COMPLIANCE  
LEVELS  
ACHIEVED

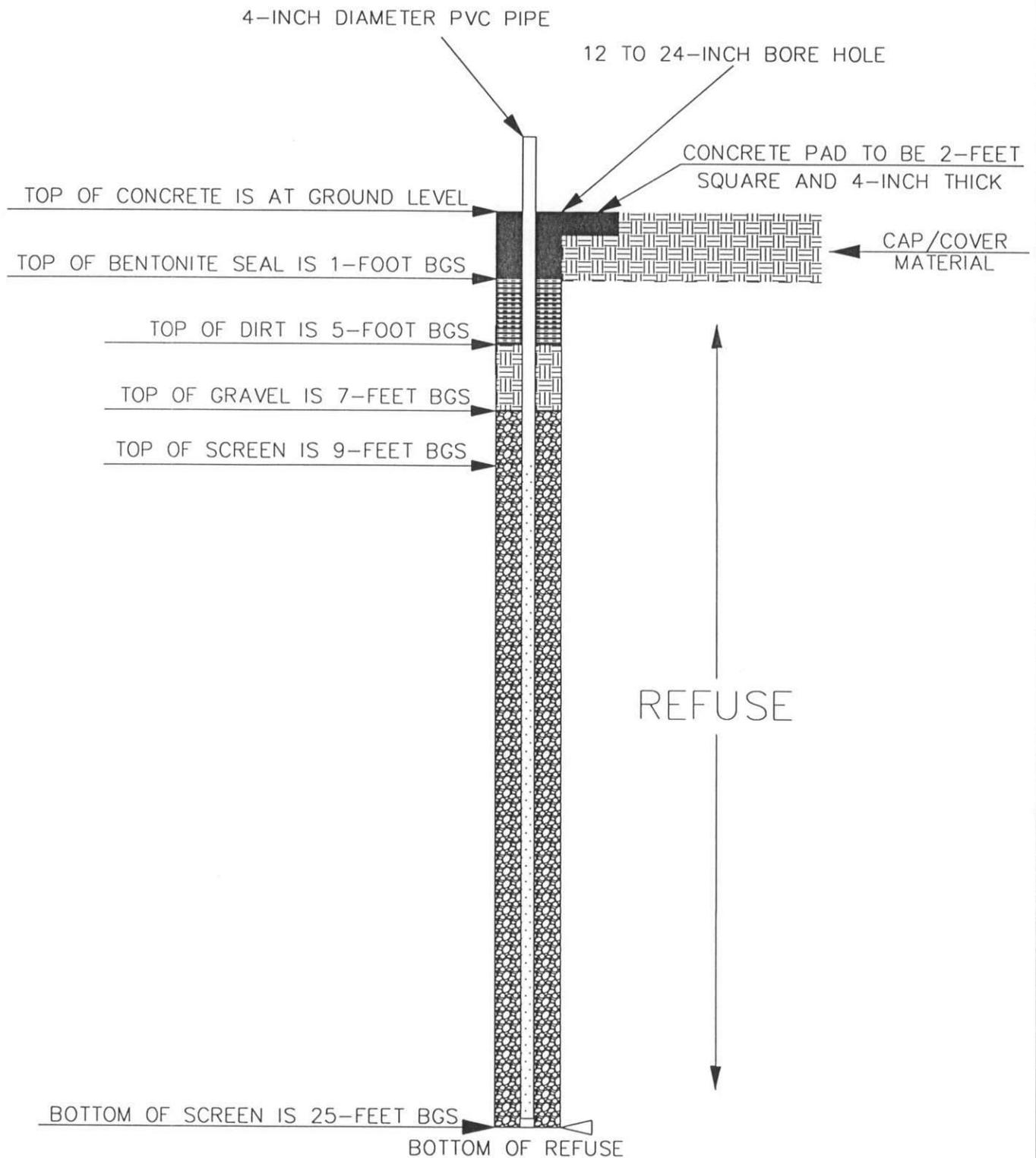
ACHIEVE  
COMPLIANCE

YES

NO

EVALUATE  
ACTIVE  
EXTRACTION  
USING EPA  
METHOD 2E,  
SHORT TERM  
TESTING, AS  
GUIDANCE

NOTES:



NOTES:

BGS MEANS BELOW GROUND SURFACE

FIBROUS MATERIAL BETWEEN DIRT AND GRAVEL TO KEEP DIRT OUT OF GRAVEL.

FIGURE 4

LANDFILL GAS TEST VENT/EXTRACTION WELL SCHEMATIC  
 JACKSON COUNTY LANDFILL  
 DILLSBORO, NORTH CAROLINA

**Altamont**  
**Environmental, Inc.**  
 ENGINEERING, HYDROGEOLOGY, RISK MANAGEMENT

78½ PATTON AVENUE  
 ASHEVILLE, NORTH CAROLINA  
 PHONE 828-281-3350

DRAWN BY: JOHN CHASE  
 PROJECT MANAGER: JIM MCELDOFF  
 CLIENT: JACKSON COUNTY DATE: 09-18-01  
 FILE: AVL/H:/PROJECTS/JACKSON/204005/TEST VENT DIAGRAM

NO SCALE

**APPENDIX A**

**LANDFILL GAS MONITORING DATA AND CHARTS**

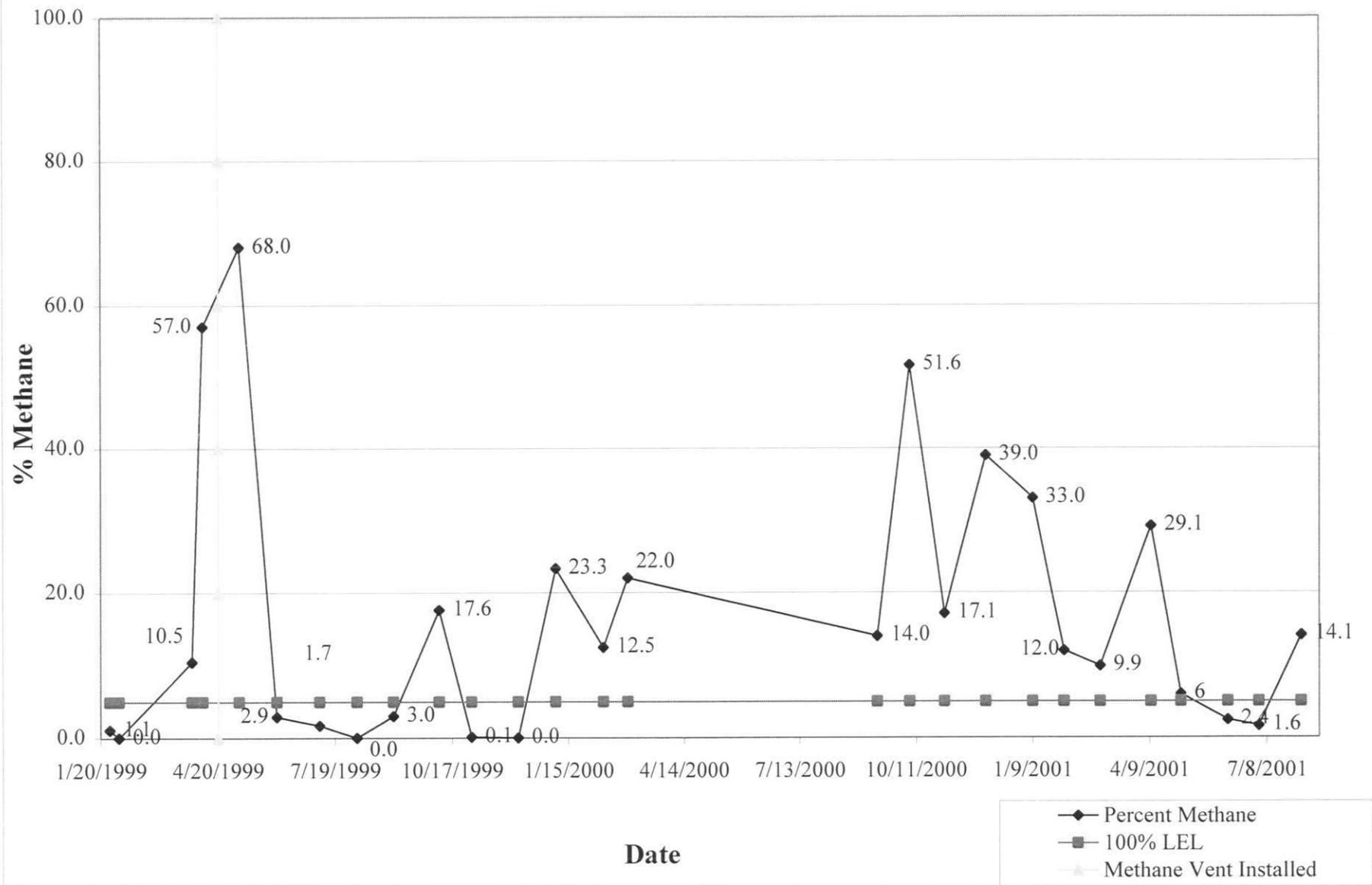
## Jackson County Landfill Dillsboro, North Carolina

Monitoring Point	Date	Time	LEL Meter % LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum ("H2O)	Notes
MW-1	1/27/1999	11:50	24	1.1	1.4	20.4	Not measured	
	2/3/1999	14:45	0	0.0	0.0	20.4	Not measured	No cap due to pumping test
	3/25/1999	11:35						Needs pressure cap
	3/31/1999	14:10	210	10.5	7.8	17.2	0.13	Pressure cap installed, Readings recorded at 180 seconds, DTW = 94.60' TOC
	4/8/1999	10:00	>1000 @ 26 seconds	Peaked @ 65.0 @ 60 seconds 57.0 @ 180 seconds	39.1	5.5	0.11	Readings recorded at 180 seconds
	5/6/1999	9:45	>1000 @ 30 seconds	68.0	32.0	6.3	0.00	Readings recorded at 180 seconds
	6/4/1999	8:55	58	2.9	1.9	19.5	0.00	Readings recorded at 180 seconds
	7/7/1999	9:45	34	1.7	1.1	20.2	0.00	Readings recorded at 180 seconds
	8/5/1999	9:00	0	0.0	0.0	20.5	-0.02	Readings recorded after 2 purge volumes, DTW = 92.82 ft @ 11:15
	9/2/1999	12:25	60	3.0	2.0	19.1	0.10	Readings recorded after 2 purge volumes, DTW = 92.70 ft
	10/7/1999	9:40	352	17.6	13.2	14.0	0.06	Readings recorded after 2 purge volumes
	11/1/1999	11:40	2	0.1	0.3	21.0	0.15	Readings recorded after 2 purge volumes
	12/7/1999	10:00	0	0.0	0.0	19.8	0.03	Readings recorded after 2 purge volumes
	1/5/2000	13:15	466	23.3	15.5	12.9	0.12	Readings recorded after 2 purge volumes
	2/11/2000	9:50	250	12.5	8.0	16.3	0.10	Readings recorded after 2 purge volumes
	3/1/2000	9:35	Peaked @ 600 @ 30 seconds, 440 stable	22.0	14.0	15.1	0.50	Readings recorded after 2 purge volumes
	9/11/2000	13:30	280	14.0	3.0	18.8	0.05	Readings recorded after 2 purge volumes
	10/6/2000	12:05	>1000	51.6	34.6	3.3	0.01	Readings recorded after 2 purge volumes
	11/2/2000	10:15	342	17.1	11.5	15.2	-0.04	Readings recorded after 2 purge volumes
	12/4/2000	9:10	780	39.0	25.1	7.3	0.10	Readings recorded after 2 purge volumes
	1/9/2001	9:05	660	33.0	22.6	8.5	-0.02	Readings recorded after 2 purge volumes
	2/2/2001	9:40	240	12.0	7.9	16.7	0.15	Readings recorded after 2 purge volumes
	3/2/2001	8:45	198	9.9	6.1	17.0	0.25	Readings recorded after 2 purge volumes
4/10/2001	12:30	582	29.1	18.9	9.8	0.00	Readings recorded after 2 purge volumes	
5/3/2001	11:05	120	6.0	4.3	18.2	0.02	Readings recorded after 2 purge volumes	
6/8/2001	9:05	48	2.4	NA	20.1	0.08	Readings recorded after 2 purge volumes	
7/2/2001	9:50	32	1.6	1.6	19	0	Readings recorded after 2 purge volumes	
8/3/2001	9:35	282	14.1	10.2	15.2	0.03	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

Percent Methane in MW-1



**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum ("H2O)	Notes
MW-2	1/27/1999	16:30	0		0.0	0.0	20.8	Not measured	
	2/3/1999	13:46	0		0.0	0.0	19.8	Not measured	
	3/25/1999	13:16							Needs pressure cap
	4/1/1999	10:30	Did not record		0.0	0.0	20.6	0.65	Pressure cap installed (3/31/99), Readings stable at 120 seconds, DTW = 25.70' TOC
	4/8/1999	14:20	Did not record		0.0	0.0	20.6	-0.01	Slight vacuum--readings recorded at 180 seconds
	5/6/1999	14:20	Did not record		0.0	0.4	19.9	0.00	Readings recorded at 180 seconds
	6/4/1999	12:25	12		0.6	0.4	20.0	0.00	Readings recorded at 180 seconds
	7/7/1999	13:40	4		0.2	0.3	20.9	0.00	Readings recorded at 180 seconds
	8/5/1999	13:50	0		0.0	0.1	20.9	0.03	Readings recorded after 2 purge volumes, DTW = 26.33 ft @ 15:25
	9/2/1999	-	-	-	-	-	-	-	Not Measured, water above screen, DTW=26.83 ft
	10/7/1999	-	-	-	-	-	-	-	Not Measured, water above screen
	11/1/1999	-	-	-	-	-	-	-	Not Measured, water above screen
	12/7/1999	-	-	-	-	-	-	-	Not Measured, water above screen
	1/5/2000	-	-	-	-	-	-	-	Not Measured, water above screen
	2/11/2000	-	-	-	-	-	-	-	Not measured, water above screen
3/1/2000	-	-	-	-	-	-	-	Not measured, water above screen	
9/11/2000	-	-	-	-	-	-	-	Not measured, water above screen	

Not Measured = readings not taken

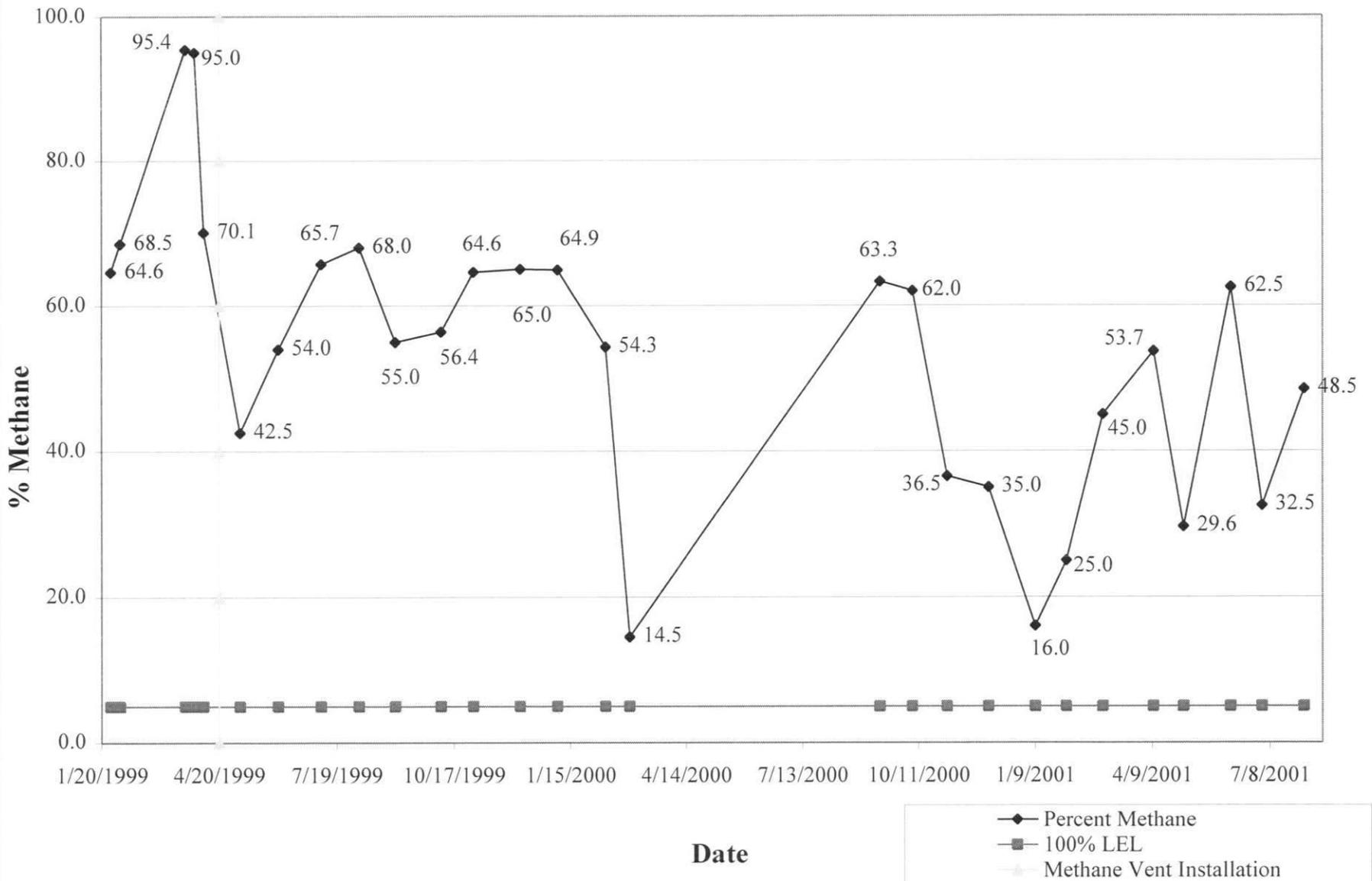
**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
MW-3	1/27/1999	16:10	>1000		64.6	26.6	0.6	Not measured	
	2/3/1999	13:53	>1000		68.5	27.7	0.0	Not measured	
	3/25/1999	13:00	>1000 @ 15 seconds		95.4	33.1	0.9	0.23	High pressure - peak reading recorded at 24 seconds
	4/1/1999	10:00	>1000 @ 20 seconds		95.0	34.9	0.2	0.15	Readings recorded at 180 seconds, DTW = 51.61' TOC
	4/8/1999	13:50	>1000 @ 15 seconds		70.1	26.8	4.4	0.30	Readings recorded at 180 seconds
	5/6/1999	13:50	850		42.5	15.9	7.2	0.15	Readings recorded at 180 seconds
	6/4/1999	11:55	>1000 @ 23 seconds		54.0	21.2	3.9	0.14	Readings recorded at 180 seconds
	7/7/1999	13:00	>1000 @ 60 seconds		65.7	23.9	3.0	0.25	Readings recorded at 180 seconds
	8/5/1999	13:20	>1000 @ 35 seconds		68.0	24.9	1.0	0.20	Readings recorded after 2 purge volumes, DTW = 52.20 ft @ 15:30
	9/2/1999	16:40	>1000 @ 22 seconds		55.0	20.4	2.9	0.19	Readings recorded after 2 purge volumes, DTW = 52.55 ft
	10/7/1999	12:50	>1000 @ 36 seconds		56.4	22.9	2.8	0.20	Readings recorded after 2 purge volumes
	11/1/1999	14:50	>1000 @ 25 seconds		64.6	25.6	0.9	0.26	Readings recorded after 2 purge volumes
	12/7/1999	13:05	>1000 @ 20 seconds		65.0	25.6	1.6	0.25	Readings recorded after 2 purge volumes
	1/5/2000	15:25	>1000 @ 36 seconds		64.9	27.0	0.7	0.12	Readings recorded after 2 purge volumes
	2/11/2000	11:40	>1000 @ 30 seconds		54.3	23.5	2.4	0.12	Readings recorded after 2 purge volumes
	3/1/2000	12:00	290		14.5	6.2	17.1	0.45	Readings recorded after 2 purge volumes
	9/11/2000	15:20	>1000 @ 45 seconds		63.3	23.0	1.1	0.25	Readings recorded after 2 purge volumes
	10/6/2000	14:00	>1000		62.0	23.9	1.8	0.05	Readings recorded after 2 purge volumes
	11/2/2000	12:30	730		36.5	21.9	5.9	0.15	Readings recorded after 2 purge volumes
	12/4/2000	10:35	700		35.0	19.0	7.6	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:25	320		16.0	10.3	13.3	0.00	Readings recorded after 2 purge volumes
	2/2/2001	11:10	500		25.0	10.7	12.4	0.00	Readings recorded after 2 purge volumes
	3/2/2001	10:45	900		45.0	24.4	2.0	0.10	Readings recorded after 2 purge volumes
	4/10/2001	11:40	>1000		53.7	22.1	3.0	0.03	Readings recorded after 2 purge volumes
	5/3/2001	10:45	592		29.6	13.7	10.5	0.05	Readings recorded after 2 purge volumes
	6/8/2001	10:40	>1000		62.5	NA	0.2	0.10	Readings recorded after 2 purge volumes
7/2/2001	11:25	650		32.5	15.3	8.1	0.00	Readings recorded after 2 purge volumes	
8/3/2001	9:00	970		48.5	29	0.4	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

Percent Methane in MW-3



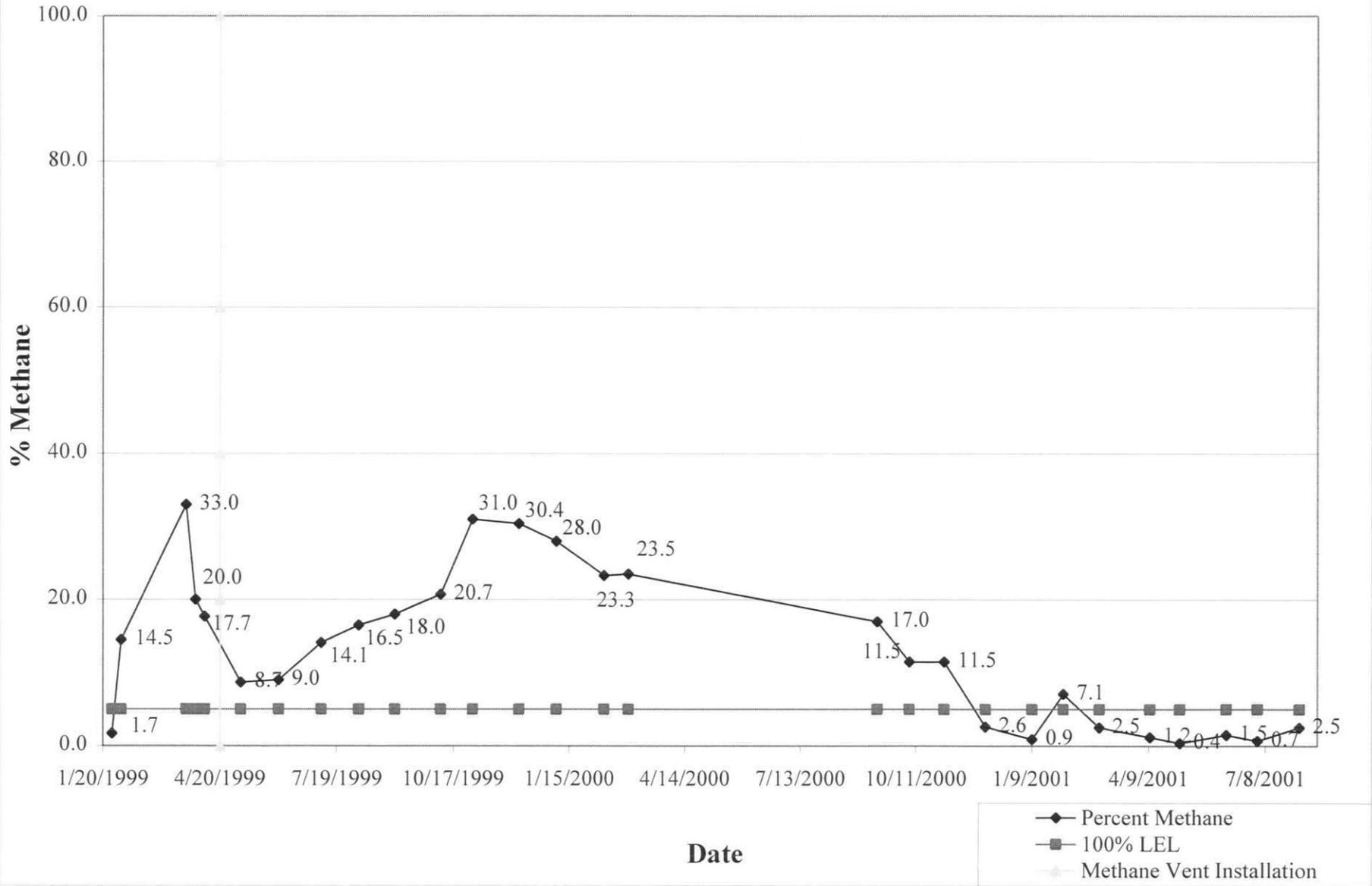
## Jackson County Landfill Dillsboro, North Carolina

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
MW-4	1/27/1999	16:35	34		1.7	2.4	19.5	Not measured	
	2/3/1999	15:50	286		14.5	17.0	12.1	Not measured	
	3/25/1999	14:05	748 @ 30 seconds, 680 steady		35.0 + @ 30 seconds - 33.0+/- steady	40.8	4.6	0.02	Can watch pressure fluctuate - peak gas reading recorded at 30 seconds then drops
	4/1/1999	11:15	400		20.0	27.9	9.6	0.30	Readings recorded at 180 seconds, DTW = 22.90' TOC
	4/8/1999	15:10	Peaked @ 520 @ 40 seconds, 350 @ 180 seconds		17.7	23.4	11.4	0.00	Readings recorded at 180 seconds
	5/6/1999	14:50	178		8.7	7.8	15.4	0.00	Readings recorded at 180 seconds
	6/4/1999	12:55	180		9.0	8.0	15.3	0.00	Readings recorded at 180 seconds
	7/7/1999	14:30	28		14.1	13.2	13.7	0.00	Readings recorded at 18.5 minutes
	8/5/1999	14:30	330		16.5	13.4	13.3	0.00	Readings recorded after 2 purge volumes, DTW = 29.00 ft @ 15:50
	9/2/1999	17:50	360		18.0	19.5	8.7	0.00	Readings recorded after 2 purge volumes, DTW = 29.71 ft
	10/7/1999	13:45	414		20.7	22.1	9.0	0.00	Readings recorded after 2 purge volumes
	11/1/1999	15:40	620		31.0	34.3	2.9	0.00	Readings recorded after 2 purge volumes
	12/7/1999	13:50	608		30.4	36.0	2.5	0.00	Readings recorded after 2 purge volumes
	1/5/2000	16:05	560		28.0	30.0	3.2	0.00	Readings recorded after 2 purge volumes
	2/11/2000	11:00	466		23.3	31.5	3.8	0.00	Readings recorded after 2 purge volumes
	3/1/2000	11:30	470		23.5	34	3.1	0.00	Readings recorded after 2 purge volumes
	9/11/2000	15:50	350		17	19.5	8.6	0.00	Readings recorded after 2 purge volumes
	10/6/2000	13:45	230		11.5	13.8	12	0.00	Readings recorded after 2 purge volumes
	11/2/2000	13:00	230		11.5	18.2	11.5	0.00	Readings recorded after 2 purge volumes
	12/4/2000	11.:15	50		2.6	4	18	0.00	Readings recorded after 2 purge volumes
	1/9/2001	11:05	18		0.9	2.7	18.4	0.00	Readings recorded after 2 purge volumes
	2/2/2001	12:00	142		7.1	16.0	11.1	0.00	Readings recorded after 2 purge volumes
	3/2/2001	11:10	50		2.5	5.8	16.6	0.00	Readings recorded after 2 purge volumes
4/10/2001	11:00	24		1.2	3.4	17.8	0.00	Readings recorded after 2 purge volumes	
5/3/2001	13:00	8		0.4	0.3	19.2	0.00	Readings recorded after 2 purge volumes	
6/8/2001	11:00	30		1.5	NA	18.5	0.00	Readings recorded after 2 purge volumes	
7/2/2001	11:50	14		0.7	0.6	18.9	0.00	Readings recorded after 2 purge volumes	
8/3/2001	11:10	50		2.5	3	17.9	0	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

### Percent Methane in MW-4



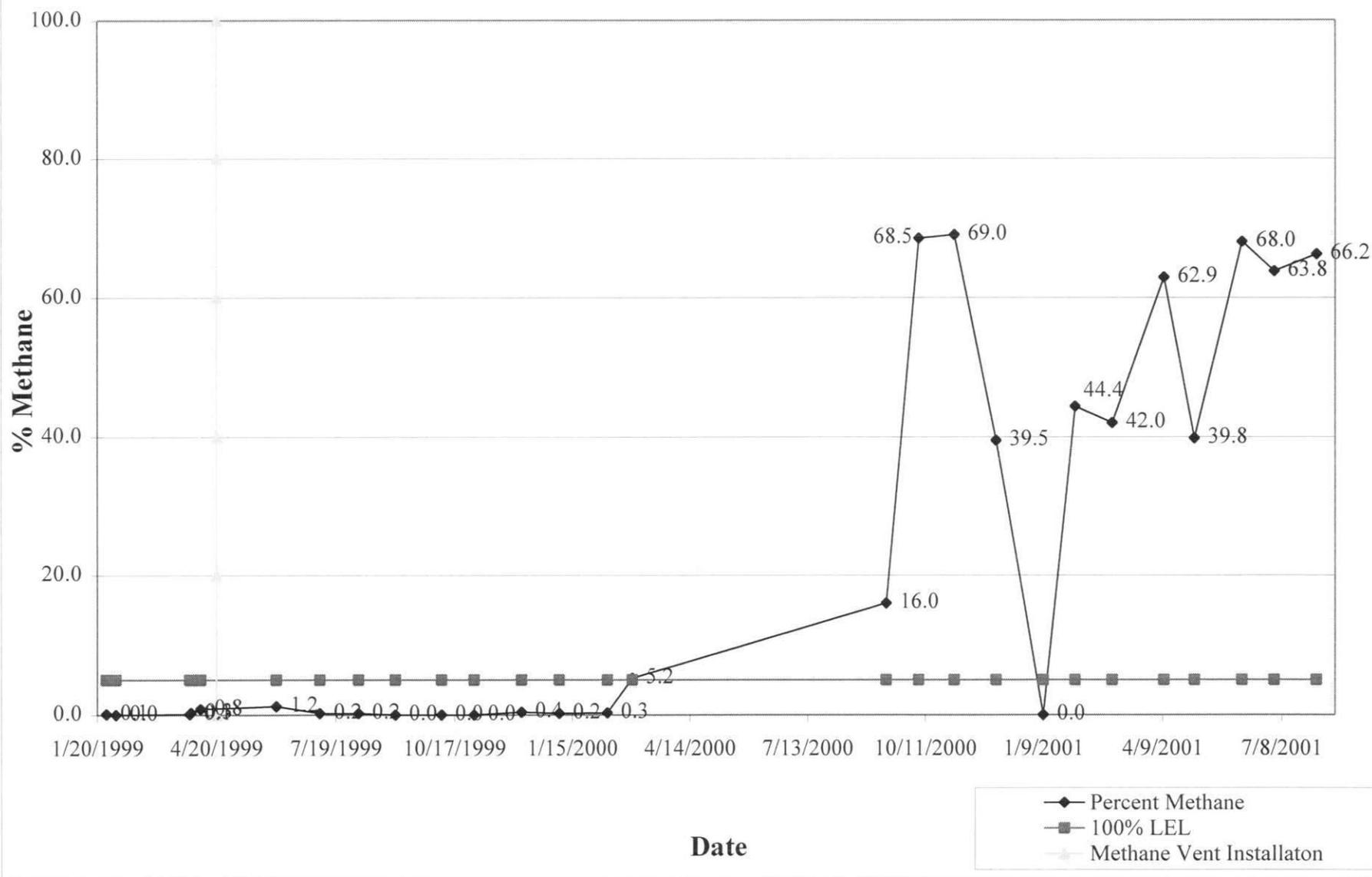
**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum	Notes
MW-5	1/27/1999	15:40	2		0.1	0.2	20.3	Not measured	Screened entirely below the water table
	2/3/1999	14:24	0		0.0	0.0	21.0	Not measured	
	3/25/1999	14:20							Needs pressure cap, Did not check
	3/31/1999	16:20	Peaked @ 66 @ 20 seconds		0.1	0.6	20.2	0.10	Pressure cap installed
	4/1/1999	9:30	6.0		0.3	0.4	20.3	0.12	Readings recorded at 180 seconds, DTW = 48.24'
	4/8/1999	12:40	16.0		0.8	0.5	20.0	0.16	Readings recorded at 180 seconds
	5/6/1999	12:45	24.0		1.2	1.5	19.5	0.00	Readings recorded at 180 seconds
	6/4/1999	10:55	Peaked @ 118 @ 20seconds, 24 @ 180 seconds		1.2	0.9	19.6	0.00	Readings recorded at 180 seconds
	7/7/1999	12:10	4		0.2	0.0	20.7	0.02	Readings recorded at 180 seconds
	8/5/1999	12:50	4		0.2	0.0	20.8	0.00	Readings recorded after 2 purge volumes, DTW = 48.22 ft @ 16:00
	9/2/1999	15:20	0		0.0	0.0	19.9	0.01	Readings recorded after 2 purge volumes, DTW = 48.40 ft
	10/7/1999	11:55	Peaked @ 4 @ 5 seconds		0.0	0.3	19.3	0.00	Readings recorded after 2 purge volumes
	11/1/1999	13:45	0		0.0	0.0	21.1	0.00	Water above the screen
	12/7/1999	12:15	8		0.4	0.1	19.1	0.00	Readings recorded after 2 purge volumes
	1/5/2000	14:45	4		0.2	0.0	19.9	0.00	Readings recorded after 2 purge volumes
	2/11/2000	10:25	6		0.3	0.1	20.0	0.00	Readings recorded after 2 purge volumes
	3/1/2000	10:50	Peaked @ 400, 104 stable		5.2	3.4	20.5	0.01	Readings recorded after 2 purge volumes
	9/11/2000	14:40	320		16.0	7.3	16.1	0.25	Readings recorded after 2 purge volumes
	10/6/2000	13:15	>1000		68.5	31.4	0.7	0.18	Readings recorded after 2 purge volumes
	11/2/2000	12:05	>1000		69.0	35.8	2.3	0.30	Readings recorded after 2 purge volumes
	12/4/2000	10:25	790		39.5	18.5	9.5	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:38	0		0.0	0.0	19.6	0.00	Readings recorded after 2 purge volumes
	2/2/2001	10:55	888		44.4	25.8	3.7	0.00	Readings recorded after 2 purge volumes
	3/2/2001	10:10	840		42.0	20.1	7.8	0.25	Readings recorded after 2 purge volumes
	4/10/2001	11:50	>1000		62.9	31.7	0.6	0.25	Readings recorded after 2 purge volumes
	5/3/2001	12:10	786		39.8	19.8	7.9	0.25	Readings recorded after 2 purge volumes
	6/8/2001	10:10	>1000		68.0	NA	0.4	0.12	Readings recorded after 2 purge volumes
7/2/2001	10:55	>1000		63.8	33.7	0.9	0.18	Readings recorded after 2 purge volumes	
8/3/2001	10:35	>1000		66.2	33	0.4	0.25	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

### Percent Methane in MW-5



## Jackson County Landfill Dillsboro, North Carolina

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 1	1/27/1999	14:20	0		0.0	8.4	3.1	Not measured	
	2/3/1999	14:51	0		0.0	5.8	10.6	Not measured	
	3/25/1999								Did not check
	3/31/1999	11:44	246		12.8	15.5	0.0	0.00	Readings recorded @ 180 seconds, locked 3/31/99
	4/8/1999	9:45	428		21.2	17.3	0.0	0.01	Readings recorded at 180 seconds
	5/6/1999	9:30	440		22.0	18.0	0.0	0.00	Readings recorded at 180 seconds
	6/4/1999	8:45	90		4.5	17.5	0.0	0.00	Readings recorded at 180 seconds
	7/7/1999	9:30	396		19.8	25.1	0.3	0.00	Readings recorded at 180 seconds
	8/5/1999	8:45	26		1.3	21.5	0.4	0.00	Readings recorded at 2 purge volumes
	9/2/1999	12:15	0		0.0	9.2	11.9	0.00	Readings recorded at 2 purge volumes
	10/7/1999	9:30	0		0.0	11.6	11.3	0.00	Readings recorded after 2 purge volumes
	11/1/1999	11:30	0		0.0	11.2	11.6	0.00	Readings recorded after 2 purge volumes
	12/7/1999	9:45	0		0.0	7.0	13.5	0.00	Readings recorded after 2 purge volumes
	1/5/2000	13:00	16		0.8	1.3	21.0	0.00	Readings recorded after 2 purge volumes
	2/11/2000	8:45	198		9.9	19.9	0.6	0.00	Readings recorded after 2 purge volumes
	3/1/2000	9:30	212		10.6	21.0	0.2	0.00	Readings recorded after 2 purge volumes
	9/11/2000	13:20	0		0.0	9.5	12.7	0.00	Snags around probe, smell of gas @ toe of slope
	10/6/2000	12:00	0		0.0	11.0	10.9	0.00	Readings recorded after 2 purge volumes
	11/2/2000	10:00	0		0.0	7.7	14.9	0.00	Readings recorded after 2 purge volumes
	12/4/2000	9:00	0		0.0	14.2	4.2	0.00	Readings recorded after 2 purge volumes
	1/9/2001	9:00	16		0.8	18.5	2.0	0.00	Readings recorded after 2 purge volumes
	2/2/2001	9:30	32		1.6	16.8	1.7	0.00	Readings recorded after 2 purge volumes
	3/2/2001	8:30	108		5.4	17.4	0.2	0.00	Readings recorded after 2 purge volumes
	4/10/2001	12:20	184		9.2	22.2	0.4	0.00	Readings recorded after 2 purge volumes
5/3/2001	11:00	0		0	15	7.1	0.00	Readings recorded after 2 purge volumes	
6/8/2001	9:00	0		0	NA	8.1	0.00	Readings recorded after 2 purge volumes	
7/2/2001	9:45	0		0	15.3	5.2	0	Readings recorded after 2 purge volumes	
8/3/2001	9:30	0		0	15	6.5	0	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.



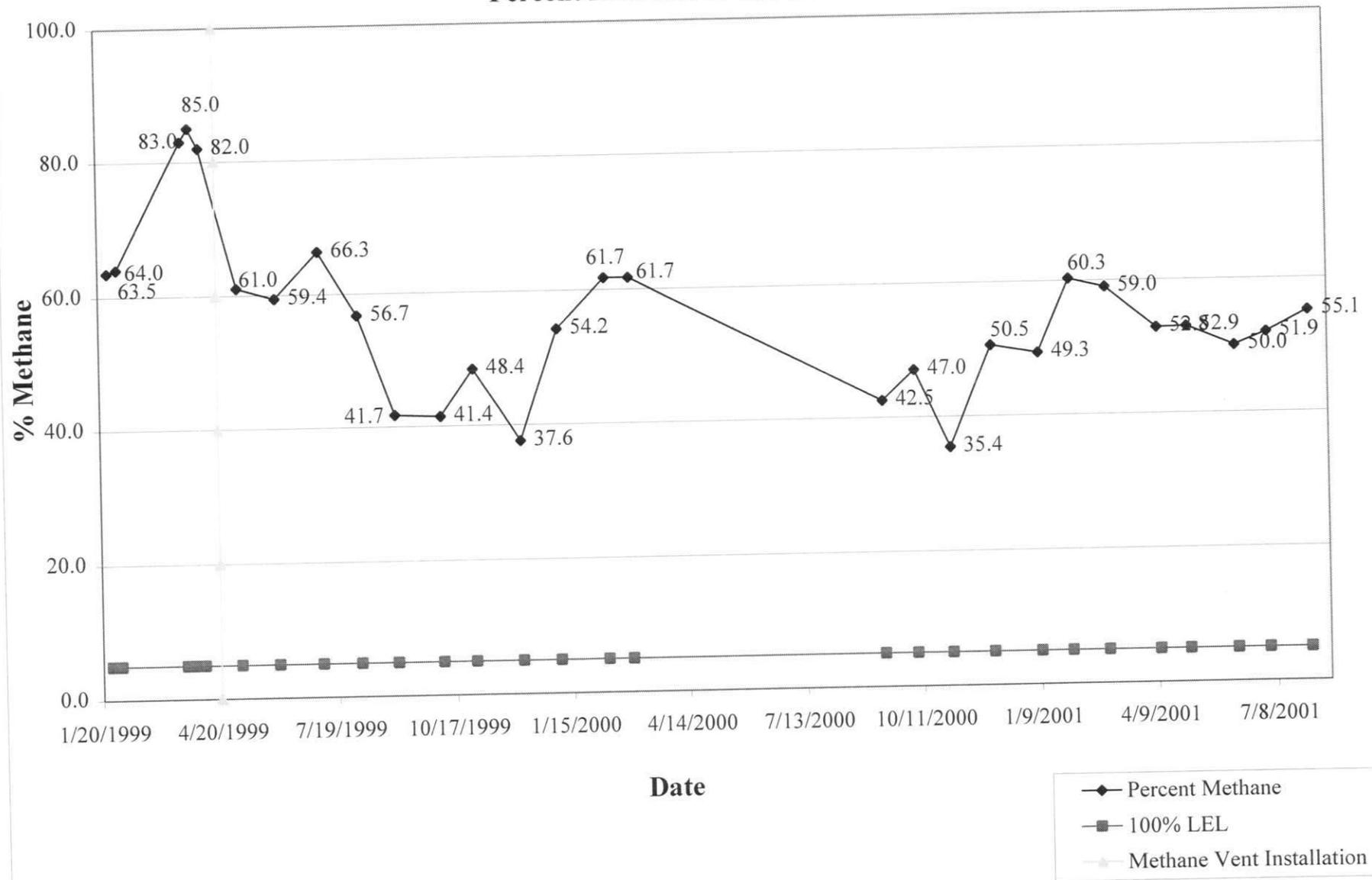
## Jackson County Landfill Dillsboro, North Carolina

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum ("H2O)	Notes
Gas Probe 2	1/27/1999	14:50	>1000		63.5	39.8	0.0	Not measured	
	2/3/1999	15:00	>1000		64.0	40.6	0.0	Not measured	
	3/25/1999	11:42	>1000 @ 20 seconds		83.0	53.5	0.0	0.00	Peak at 40 seconds - then stable
	3/31/1999	12:05	>1000 @ 18 seconds		85.0	55.6	0.0	0.00	Checked for vacuum, readings recorded at 180 seconds, locked on 3/31/99
	4/8/1999	10:10	>1000 @ 25 seconds		82.0	58.0	0.0	0.00	Readings recorded at 180 seconds
	5/6/1999	10:00	>1000 @ 40 seconds		61.0	44.7	0.0	0.00	Readings recorded at 180 seconds
	6/4/1999	9:05	>1000 @ 23 seconds		59.4	42.3	0.0	0.00	Readings recorded at 180 seconds
	7/7/1999	10:00	>1000 @ 70 seconds		66.3	33.6	0.2	0.00	Readings recorded at 180 seconds
	8/5/1999	9:15	>1000 @ 42 seconds		56.7	39.9	0.0	0.00	Readings recorded after 2 purge volumes
	9/2/1999	12:40	834		41.7	35.5	0.3	0.00	Readings recorded after 2 purge volumes
	10/7/1999	10:00	828		41.4	35.2	0.2	0.00	Readings recorded after 2 purge volumes
	11/1/1999	11:50	980		48.4	37.0	0.0	0.00	Readings recorded after 2 purge volumes
	12/7/1999	10:15	752		37.6	23.9	6.3	0.00	Readings recorded after 2 purge volumes
	1/5/2000	13:30	>1000 @ 24 seconds		54.2	39.0	0.7	0.00	Readings recorded after 2 purge volumes
	2/11/2000	9:05	>1000 @ 25 seconds		61.7	37.8	0.5	0.00	Readings recorded after 2 purge volumes
	3/1/2000	9:40	>1000 @ 32 seconds		61.7	40.2	1.7	0.01	Readings recorded after 2 purge volumes
	9/11/2000	13:35	850		42.5	35.6	0.0	0.00	Readings recorded after 2 purge volumes
	10/6/2000	12:10	940		47.0	36.0	0.2	0.00	Readings recorded after 2 purge volumes
	11/2/2000	10:20	708		35.4	30.3	4.2	0.00	Readings recorded after 2 purge volumes
	12/4/2000	9:15	>1000		50.5	34.1	1.0	0.00	Readings recorded after 2 purge volumes
	1/9/2001	9:15	986		49.3	34.4	1.2	0.00	Readings recorded after 2 purge volumes
	2/2/2001	9:45	>1000		60.3	38.8	0.3	0.00	Readings recorded after 2 purge volumes
	3/2/2001	8:50	>1000		59.0	39.1	1.6	0.00	Readings recorded after 2 purge volumes
	4/10/2001	12:35	>1000		52.8	38.1	1.0	0.00	Readings recorded after 2 purge volumes
	5/3/2001	11:10	>1000		52.9	39.3	0.5	0.00	Readings recorded after 2 purge volumes
	6/8/2001	9:10	>1000		50.0	NA	0.6	0.00	Readings recorded after 2 purge volumes
7/2/2001	9:55	>1000		51.9	39.8	0.7	0.00	Readings recorded after 2 purge volumes	
8/3/2001	9:40	>1000		55.1	38.0	0.4	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

### Percent Methane in Gas Probe 2



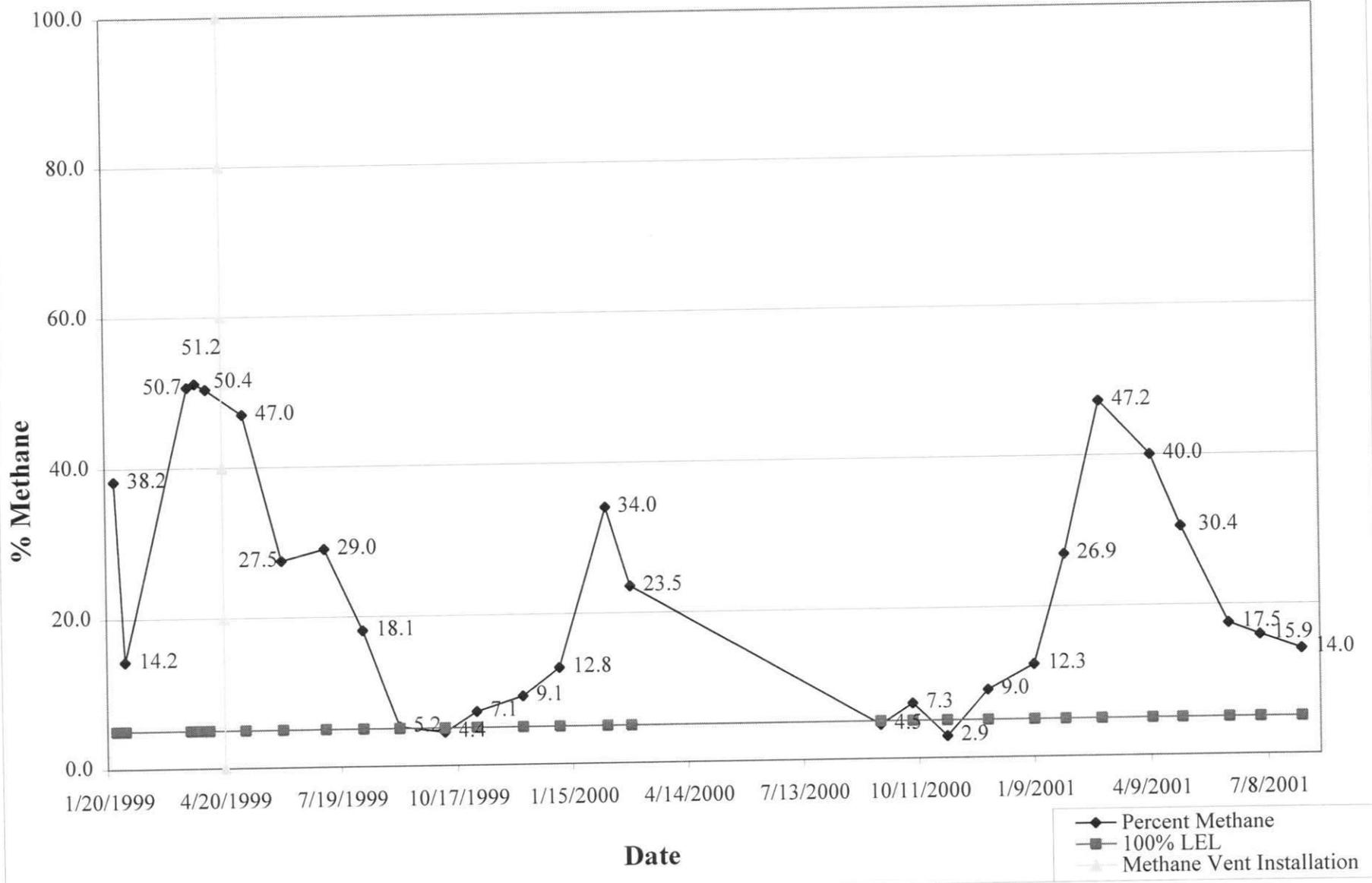
**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 3	1/27/1999	15:00		766	38.2	29.8	0.0	Not measured	
	2/3/1999	15:07		282	14.2	9.5	13.8	Not measured	
	3/25/1999	11:53		>1000 @ 60 seconds	50.7	41.0	1.1	-0.02	Vacuum - peak @ 70 seconds - then stable
	3/31/1999	12:20		>1000 @ 48 seconds	Peaked @ 53.5 @ 110 seconds, 51.2 @ 180	37.6	1.9	0.00	Readings recorded at 180 seconds, Locked on 3/31/99
	4/8/1999	10:20		>1000 @ 40 seconds	50.4	40.8	2.0	0.10	Readings recorded at 180 seconds
	5/6/1999	10:15		940	47.0	36.5	0.0	0.00	Readings recorded at 180 seconds
	6/4/1999	9:15		550	27.5	28.6	2.6	0.00	Readings recorded at 180 seconds
	7/7/1999	10:10		580	29.0	32.4	2.0	0.00	Readings recorded at 180 seconds
	8/5/1999	9:30		362	18.1	26.1	2.5	0.00	Readings recorded after 2 purge volumes
	9/2/1999	12:50		104	5.2	18.7	4.4	0.00	Readings recorded after 2 purge volumes
	10/7/1999	10:10		88	4.4	17.6	5.9	0.00	Readings recorded after 2 purge volumes
	11/1/1999	12:00		142	7.1	20.1	3.9	0.00	Readings recorded after 2 purge volumes
	12/7/1999	10:30		182	9.1	13.9	8.9	0.00	Readings recorded after 2 purge volumes
	1/5/2000	13:40		256	12.8	22.3	3.8	0.00	Readings recorded after 2 purge volumes
	2/11/2000	9:10		680	34.0	27.6	1.7	0.00	Readings recorded after 2 purge volumes
	3/1/2000	9:45		470	23.5	19.5	9.2	0.00	Readings recorded after 2 purge volumes
	9/11/2000	13:40		90	4.5	20.2	3.5	0.00	Readings recorded after 2 purge volumes
	10/6/2000	12:15		147	7.3	21.1	3.2	0.00	Readings recorded after 2 purge volumes
	11/2/2000	10:30		58	2.9	16.1	8.2	0.00	Readings recorded after 2 purge volumes
	12/4/2000	9:20		180	9.0	18.1	5.4	0.00	Readings recorded after 2 purge volumes
	1/9/2001	9:20		246	12.3	17.2	7.8	0.00	Readings recorded after 2 purge volumes
	2/2/2001	9:50		538	26.9	25.5	2.9	0.00	Readings recorded after 2 purge volumes
	3/2/2001	8:55		944	47.2	30.8	0.8	0.00	Readings recorded after 2 purge volumes
	4/10/2001	12:55		800	40.0	30.0	1.6	0.00	Readings recorded after 2 purge volumes
	5/3/2001	11:30		608	30.4	29.4	2.2	0.00	Readings recorded after 2 purge volumes
	6/8/2001	9:15		350	17.5	na	2.0	0.00	Readings recorded after 2 purge volumes
7/2/2001	10:10		318	15.9	23.6	2.8	0.00	Readings recorded after 2 purge volumes	
8/3/2001	10:00		280	14.0	24.5	2.3	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

Percent Methane in Gas Probe 3



**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 4	1/27/1999	15:10	0		0.0	0.5	20.0	Not measured	
	2/3/1999	15:15	0		0.0	0.6	19.8	Not measured	
	3/25/1999								Did not check
	3/31/1999	12:35	Did not record		1.8 @ 20 seconds 0.0 @ 160 seconds	0.6	20.6	0.00	Reading recorded at 160 seconds
	4/8/1999	10:30	Peaked @ 34 @ 20 seconds		0.0	0.9	19.7	0.00	Readings recorded at 180 seconds
	5/6/1999	10:30	16.0		0.8	1.1	9.2	0.00	Readings recorded at 180 seconds
	6/4/1999	9:25	Peaked @ 24 @ 20 seconds, 6 @ 180 seconds		0.3	1.1	19.4	0.00	Readings recorded at 180 seconds
	7/7/1999	10:20	2		0.1	1.8	18.7	0.00	Readings recorded at 180 seconds
	8/5/1999	9:45	2		0.1	1.3	19.7	0.00	Readings recorded after 2 purge volumes
	9/2/1999	13:00	0		0.0	0.5	19.3	0.00	Readings recorded after 2 purge volumes
	10/7/1999	10:20	Peaked @ 6 @ 15 seconds		0.0	0.8	19.3	0.00	Readings recorded after 2 purge volumes
	11/1/1999	12:10	Peaked @ 20 @ 30 seconds		0.0	0.9	20.7	0.00	Readings recorded after 2 purge volumes
	12/7/1999	10:40	Peaked @ 46 @ 20 seconds		0.0	0.5	19.3	0.00	Readings recorded after 2 purge volumes
	1/5/2000	13:45	6		0.3	0.6	19.5	0.00	Readings recorded after 2 purge volumes
	2/11/2000	9:15	Peaked @ 84 @ 25 seconds		0	0.3	19.5	0.00	Readings recorded after 2 purge volumes
	3/1/2000	9:50	Peaked @ 80 @ 30 seconds, 0 stable		0	0.9	22.1	0.00	Readings recorded after 2 purge volumes
	9/11/2000	13:45	0		0	0.9	19.4	0	Readings recorded after 2 purge volumes
	10/6/2000	12:20	0		0	1.3	19	0	Readings recorded after 2 purge volumes
	11/2/2000	10:40	0		0	0.6	20.4	0	Readings recorded after 2 purge volumes
	12/4/2000	9:25	0		0	2	17.9	0	Readings recorded after 2 purge volumes
	1/9/2001	9:25	0		0	0.4	20.0	0	Readings recorded after 2 purge volumes
	2/2/2001	9:55	0		0	0.5	20.0	0	Readings recorded after 2 purge volumes
	3/2/2001	9:00	0		0	0.8	19.3	0	Readings recorded after 2 purge volumes
4/10/2001	12:50	0		0	0.8	19.2	0	Readings recorded after 2 purge volumes	
5/3/2001	11:25	0		0	0.5	20.3	0	Readings recorded after 2 purge volumes	
6/8/2001	9:20	0		0	na	20	0	Readings recorded after 2 purge volumes	
7/2/2001	10:15	0		0	0.2	19.6	0	Readings recorded after 2 purge volumes	
8/3/2001	9:55	0		0	1.4	19	0	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

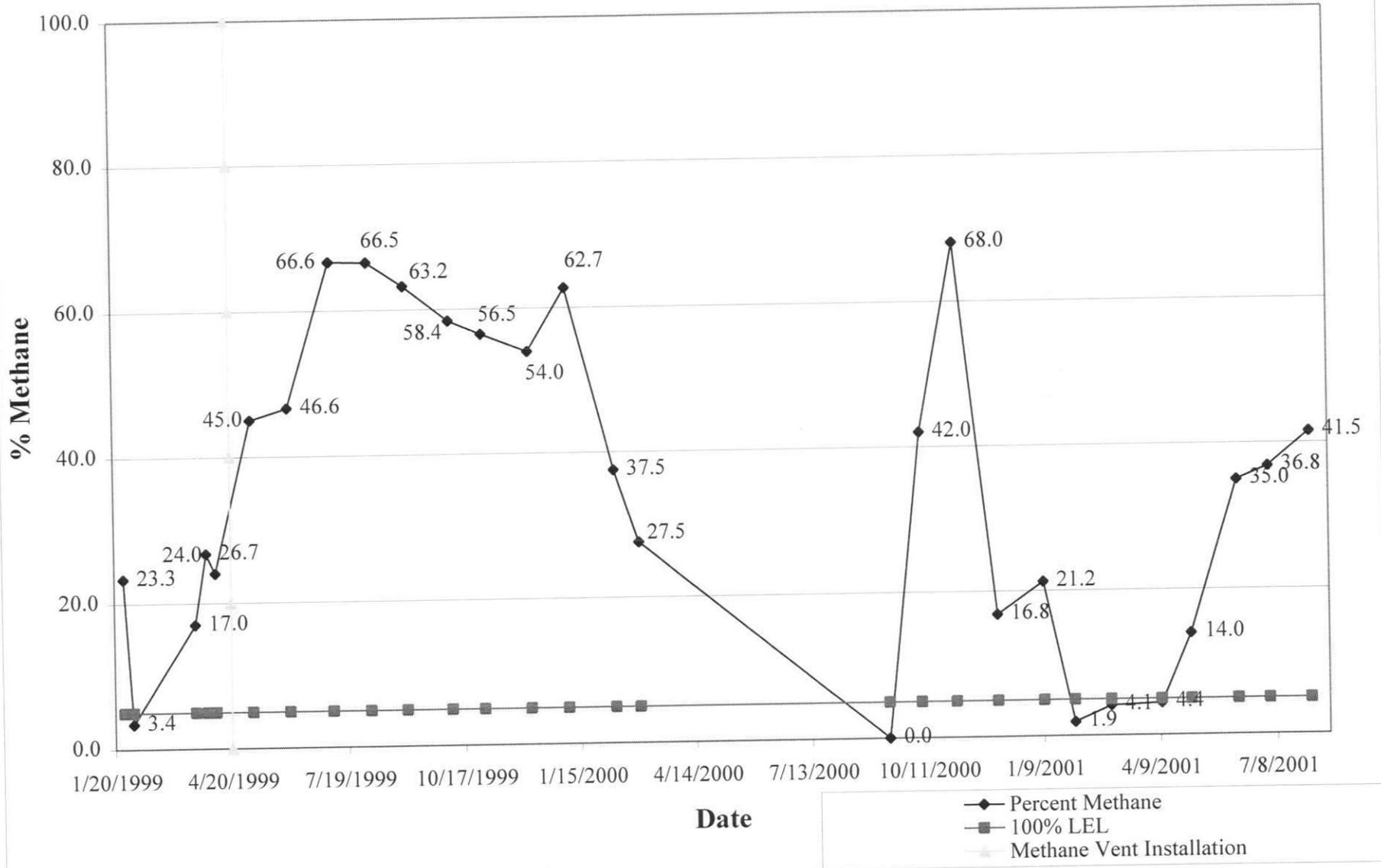
## Jackson County Landfill Dillsboro, North Carolina

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 5	1/27/1999	15:20	480		23.3	6.4	4.7	Not measured	
	2/3/1999	14:27	50		3.4	0.7	19.0	Not measured	
	3/23/1999	16:00	386		19.1 / 17.0	5.0	7.1	Did not check	50 seconds peak / steady
	3/25/1999	15:25						-0.24	Strong vacuum
	3/31/1999	15:15	Did not record					-0.90	Strong vacuum
	4/1/1999	9:00	536		26.7	7.2	2.7	2.00	Readings recorded at 180 seconds
	4/8/1999	12:30	484		24.0	8.8	0.4	-0.26	Vacuum - readings recorded at 180 seconds
	5/6/1999	12:35	900		45.0	11.2	0.0	>5.000	Pressure, readings recorded at 180 seconds
	6/4/1999	10:45	920		46.6	12.4	0.9	2.50	Pressure, readings recorded at 180seconds
	7/7/1999	12:00	>1000 @ 60 seconds		66.6	15.5	0.3	>5.0	Pressure, readings recorded at 180 seconds
	8/5/1999	12:00	>1000 @ 30 seconds		66.5	16.9	0.1	0.04	Readings recorded after 2 purge volumes
	9/2/1999	15:15	>1000 @ 28 seconds		63.2	25.4	0.4	0.05	Readings recorded after 2 purge volumes
	10/7/1999	11:45	>1000 @ 25 seconds		58.4	22.9	0.0	-0.26	Readings recorded after 2 purge volumes
	11/1/1999	13:30	> 1000 @ 20 seconds		56.5	19.3	0.2	0.00	Readings recorded after 2 purge volumes
	12/7/1999	12:00	>1000 @ 22 seconds		54.0	0.7	0.0	2.00	Readings recorded after 2 purge volumes
	1/5/2000	14:40	>1000 @ 44 seconds		62.7	12.4	0.0	2.50	Readings recorded after 2 purge volumes
	2/11/2000	10:15	750		37.5	4.9	4.3	0.06	Readings recorded after 2 purge volumes
	3/1/2000	10:45	550		27.5	6.7	0.4	0.50	Readings recorded after 2 purge volumes
	9/11/2000	14:35	0		0	0.8	20.8	0.00	Readings recorded after 2 purge volumes
	10/6/2000	13:10	840		42	18.4	2.5	0.00	Readings recorded after 2 purge volumes
	11/2/2000	12:00	>1000		68	26.5	3.9	0.04	Readings recorded after 2 purge volumes
	12/4/2000	10:20	336		16.8	13.3	4.2	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:20	424		21.2	10.9	3	0.00	Readings recorded after 2 purge volumes
	2/2/2001	10:50	38		1.9	2.5	15.5	0.00	Readings recorded after 2 purge volumes
	3/2/2001	10:00	82		4.1	8.3	2	0.00	Readings recorded after 2 purge volumes
	4/10/2001	12:00	88		4.4	4.5	9.2	0.00	Readings recorded after 2 purge volumes
	5/3/2001	12:10	280		14.0	6.9	4.9	0.00	Readings recorded after 2 purge volumes
	6/8/2001	10:05	700		35.0	na	0.2	0.05	Readings recorded after 2 purge volumes
7/2/2001	10:50	736		36.8	13.8	0.4	0.01	Readings recorded after 2 purge volumes	
8/3/2001	10:30	830		41.5	16.5	2.4	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

### Percent Methane in Gas Probe 5



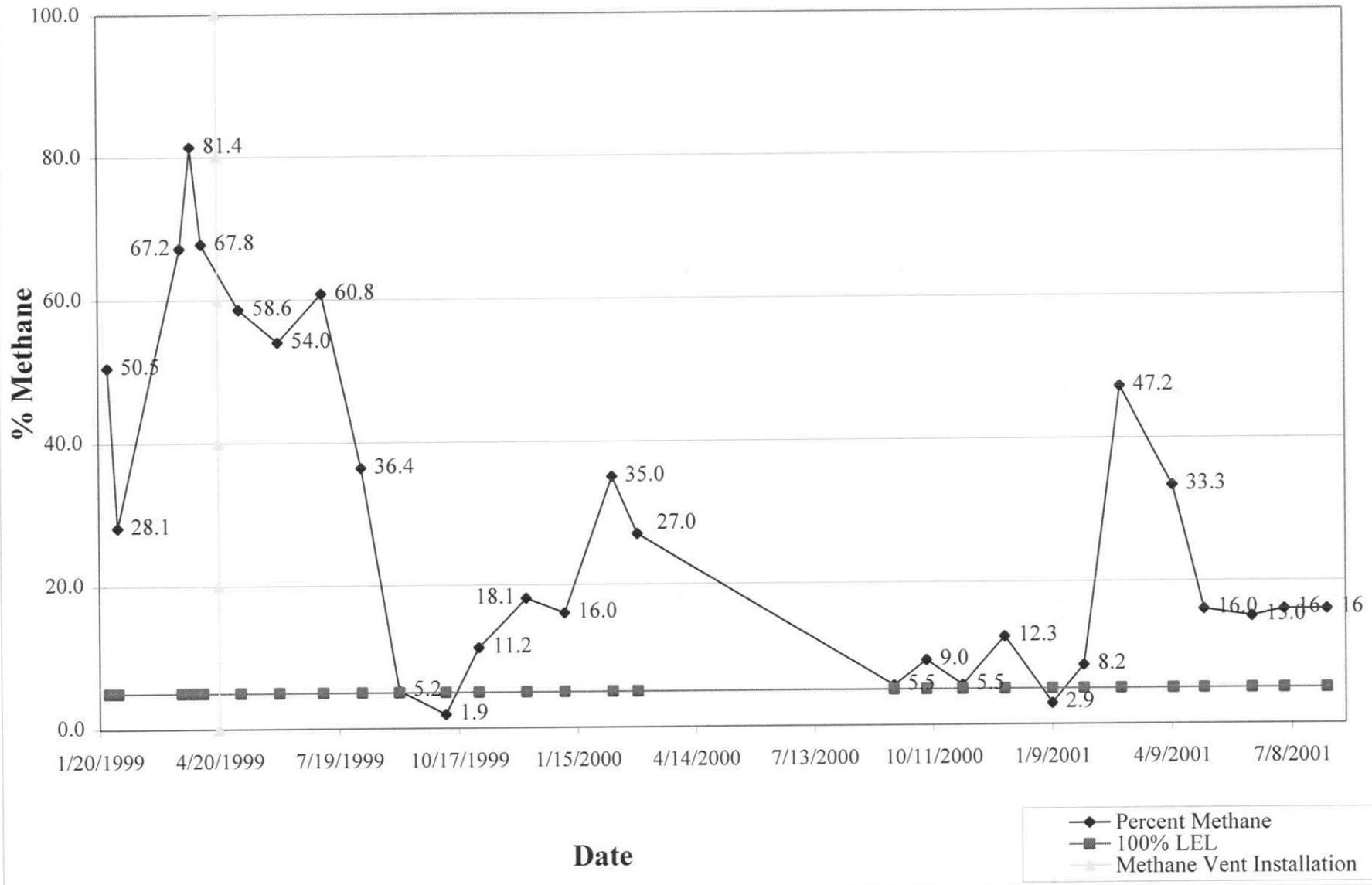
**Jackson County Landfill  
Dillsboro, North Carolina**

Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H20)	Notes
99 16:00	>1000		50.5	25.2	1.9	Not measured	
99 14:07	562		28.1	23.1	1.7	Not measured	
99 16:17	>1000 @ 19 seconds		67.2	42.9	0.9	Not measured	Over 1000% LEL in 19 seconds - peak reading recorded 60 seconds
99 15:55						0.00	GP-6 checked twice - no pressure or vacuum
99 16:10	>1000 @ 26 seconds		81.4	37.7	0.1	0.00	Readings recorded at 180 seconds
99 12:50	>1000 @ 20 seconds		67.8	44.0	0.1	0.00	Readings recorded at 180 seconds
99 12:50	>1000 @ 36 seconds		58.6	34.4	0.0	0.00	Readings recorded at 180 seconds
99 11:05	>1000 @ 37 seconds		54.0	33.1	0.0	0.00	Readings recorded at 180 seconds
99 12:20	>1000 @ 60 seconds		60.8	38.8	0.2	0.00	Readings recorded at 180 seconds
99 13:00			36.4	30.7	0.2	0.00	Readings recorded after 2 purge volumes
99 15:30			5.2	17.6	3.3	0.00	Readings recorded after 2 purge volumes
99 12:00			1.9	15.4	5.3	0.00	Readings recorded after 2 purge volumes
99 13:55			11.2	19.9	0.1	0.00	Readings recorded after 2 purge volumes
99 12:25			18.1	22.8	0.0	0.00	Readings recorded after 2 purge volumes
99 14:50			16.0	23.1	1.7	0.00	Readings recorded after 2 purge volumes
00 10:30			35.0	23.8	1.4	0.00	Readings recorded after 2 purge volumes
00 11:00			27.0	17.6	7.5	0.00	Readings recorded after 2 purge volumes
00 14:45			5.5	18.6	2.3	0.00	Readings recorded after 2 purge volumes
00 13:20			9.0	21.3	0.5	0.00	Readings recorded after 2 purge volumes
00 12:10			5.5	17.3	6.1	0.00	Readings recorded after 2 purge volumes
00 10:30			12.3	19.4	1.4	0.00	Readings recorded after 2 purge volumes
00 10:42			2.9	12.9	11.5	0.00	Readings recorded after 2 purge volumes
00 11:00			8.2	18	1.6	0.00	Readings recorded after 2 purge volumes
00 10:15			47.2	25.7	0	0.00	Readings recorded after 2 purge volumes
00 11:55			33.3	26.4	0.4	0.00	Readings recorded after 2 purge volumes
00 12:15			16.0	24.8	0.6	0.00	Readings recorded after 2 purge volumes
00 10:15			15.0	na	2.7	0.00	Readings recorded after 2 purge volumes
00 11:00			16	22.3	0.4	0	Readings recorded after 2 purge volumes
00 10:40			16	20	7.2	0	Readings recorded after 2 purge volumes

Readings not taken

90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

### Percent Methane in Gas Probe 6



**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 7	1/27/1999	16:05	0		0.0	0.9	19.8	Not measured	
	2/3/1999	14:00	0		0.0	1.0	18.6	Not measured	
	3/23/1999	16:08	Did not record		0.0	2.2	18.5	Not measured	Steady at 60 seconds
	3/25/1999							0.00	No pressure or vacuum
	4/1/1999	9:45	Did not record		0.0	0.20 Peak, 0.00 stable	20.5	0.00	Readings recorded at 120 seconds
	4/8/1999	13:40	Peaked @ 6 @ 20 seconds		0.0	3.8	16.2	0.00	Readings recorded at 180 seconds
	5/6/1999	13:40	Peaked @ 60 @ 20 seconds		3.0	0.0	19.5	0.06	Readings recorded at 180 seconds
	6/4/1999	11:45	14		0.7	5.8	13.0	0.00	Readings recorded at 180 seconds
	7/7/1999	13:10	6		0.3	7.6	13.2	0.00	Readings recorded at 180 seconds
	8/5/1999	13:10	6		0.3	9.9	11.5	0.00	Readings recorded after 2 purge volumes
	9/2/1999	16:30	Peaked @ 18 @ 25 secs, 0 @ 204 seconds		0.0	6.7	13.6	0.00	Readings recorded after 2 purge volumes
	10/7/1999	12:40	Peaked @ 12 @ 25 seconds		0.0	7.7	13.0	0.00	Readings recorded after 2 purge volumes
	11/1/1999	14:30	2		0.1	6.4	14.9	0.00	Readings recorded after 2 purge volumes
	12/7/1999	13:10	Peaked @ 56 @ 20 seconds		0.0	1.7	18.8	0.00	Readings recorded after 2 purge volumes
	1/5/2000	15:20	0		0.0	0.0	20.1	0.00	Readings recorded after 2 purge volumes
	2/11/2000	11:50	0		0.0	1.0	18	0.00	Readings recorded after 2 purge volumes
	3/1/2000	12:05	0		0.0	0.5	21.6	0.00	Readings recorded after 2 purge volumes
	9/11/2000	15:25	0		0.0	1	19.2	0.00	Readings recorded after 2 purge volumes
	10/6/2000	14:05	0		0.0	2.1	18.3	0.00	Readings recorded after 2 purge volumes
	11/2/2000	12:15	6		0.3	1.7	18.2	0.00	Readings recorded after 2 purge volumes
	12/4/2000	10:40	0		0.0	1.2	18.8	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:25	0		0.0	0.2	19.6	0.00	Readings recorded after 2 purge volumes
	2/2/2001	11:05	0		0.0	1.8	18.9	0.00	Readings recorded after 2 purge volumes
	3/2/2001	10:40	0		0.0	1.3	18.4	0.00	Readings recorded after 2 purge volumes
	4/10/2001	11:45	0		0.0	0.7	20.1	0.00	Readings recorded after 2 purge volumes
	5/3/2001	12:40	0		0.0	4.9	15.5	0.00	Readings recorded after 2 purge volumes
6/8/2001	10:45	0		0.0	na	16.2	0.00	Readings recorded after 2 purge volumes	
7/2/2001	11:30	4		0.2	2.5	15.3	0.00	Readings recorded after 2 purge volumes	
8/3/2001	9:15	0		0	7.6	10.9	0	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 8	1/27/1999	16:15	0		0.0	1.4	19.3	Not measured	
	2/3/1999	13:37	0		0.0	2.4	15.6	Not measured	
	3/23/1999	16:22	26/ 0		1.3/ 0.0	0.4	20.6	Not measured	Peak reading at 20 seconds - drops back to 0 methane by 45 seconds
	3/25/1999								Did not check
	4/1/1999	10:10	Did not record		2.2@20seconds	2.0	11.3	0.00	Readings recorded at 180 seconds
	4/8/1999	14:00	Peaked @ 18 @ 11 seconds		0.0	0.0	20.6	0.00	Readings recorded at 180 seconds
	5/6/1999	14:00	2		0.1	3.2	9.2	0.00	Readings recorded at 180 seconds
	6/4/1999	12:05	Peaked @ 108 @ 20 seconds, 12 @ 180 seconds		0.6	0.3	19.7	0.00	Readings recorded at 180 seconds
	7/7/1999	13:20	6		0.3	1.8	15.4	0.00	Readings recorded at 180 seconds
	8/5/1999	13:30	6		0.3	0.0	20.9	0.00	Readings recorded after 2 purge volumes
	9/2/1999	17:00	0		0.0	0.0	19.7	0.00	Readings recorded after 2 purge volumes
	10/7/1999	13:00	Peaked @ 6 @ 20 seconds		0.0	3.5	13.0	0.00	Readings recorded after 2 purge volumes
	11/1/1999	14:40	2		0.1	3.6	14.3	0.00	Readings recorded after 2 purge volumes
	12/7/1999	13:15	0		0.0	4.8	12.1	0.00	Readings recorded after 2 purge volumes
	1/5/2000	15:30	2		0.1	2.9	16.0	0.00	Readings recorded after 2 purge volumes
	2/11/2000	13:35	0		0.0	0.0	20.2	0.00	Readings recorded after 2 purge volumes
	3/1/2000	11:55	0		0.0	0.0	22.8	0.00	Readings recorded after 2 purge volumes
	9/11/2000	15:30	0		0.0	0.1	20.5	0.00	Readings recorded after 2 purge volumes
	10/6/2000	14:10	0		0.0	0.0	20.1	0.00	Readings recorded after 2 purge volumes
	11/2/2000	12:20	2		0.1	1.0	18.6	0.00	Readings recorded after 2 purge volumes
	12/4/2000	10:45	0		0.0	4.0	14.5	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:30	0		0.0	0.5	19.5	0.00	Readings recorded after 2 purge volumes
	2/2/2001	11:15	0		0.0	0.4	20.2	0.00	Readings recorded after 2 purge volumes
	3/2/2001	10:55	0		0.0	1.8	16.7	0.00	Readings recorded after 2 purge volumes
	4/10/2001	11:30	0		0.0	0.0	20.6	0.00	Readings recorded after 2 purge volumes
	5/3/2001	12:45	0		0.0	0.3	19.6	0.00	Readings recorded after 2 purge volumes
	6/8/2001	10:50	0		0.0	na	18.1	0.00	Readings recorded after 2 purge volumes
	7/2/2001	11:35	0		0.0	0.0	19.7	0.00	Readings recorded after 2 purge volumes
8/3/2001	9:05	0		0.0	2.3	16.3	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum	Notes
Gas Probe 9	1/27/1999	16:25	0		0.0	0.0	20.4	Not measured	
	2/3/1999	13:33	0		0.0	0.1	20.3	Not measured	
	3/23/1999	16:30	Did not record		0.0	0.0	20.8	Not measured	60 seconds - steady
	3/25/1999								Did not check
	4/1/1999	10:20	Did not record		0.0	0.2	20.5	0.00	Stable at 120 seconds
	4/8/1999	14:10	Did not record		Peaked @ 0.2 @ 10 seconds	0.2	20.2	0.00	Readings recorded at 180 seconds
	5/6/1999	14:10	Did not record		0.0	0.7	18.5	0.00	Readings recorded at 180 seconds
	6/4/1999	12:15	12		0.6	0.3	18.4	0.00	Readings recorded at 180 seconds
	7/7/1999	13:30	4		0.2	0.5	18.9	0.00	Readings recorded at 180 seconds
	8/5/1999	13:40	0		0.0	0.7	19.1	0.00	Readings recorded after 2 purge volumes
	9/2/1999	17:10	0		0.0	0.1	18.3	0.00	Readings recorded after 2 purge volumes
	10/7/1999	13:10	0		0.0	0.1	19.0	0.00	Readings recorded after 2 purge volumes
	11/1/1999	15:00	0		0.0	0.0	19.6	0.00	Readings recorded after 2 purge volumes
	12/7/1999	13:20	0		0.0	0.1	19.5	0.00	Readings recorded after 2 purge volumes
	1/5/2000	15:35	0		0.0	0.0	19.9	0.00	Readings recorded after 2 purge volumes
	2/11/2000	11:30	0		0.0	0.1	19.9	0.00	Readings recorded after 2 purge volumes
	3/1/2000	11:50	0		0.0	0.1	22.2	0.00	Readings recorded after 2 purge volumes
	9/11/2000	15:35	0		0.0	0	20.8	0.00	Readings recorded after 2 purge volumes
	10/6/2000	14:15	0		0.0	0	20	0.00	Readings recorded after 2 purge volumes
	11/2/2000	12:25	0		0.0	0	20.8	0.00	Readings recorded after 2 purge volumes
	12/4/2000	10:50	0		0.0	0	20	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:33	0		0.0	0	20	0.00	Readings recorded after 2 purge volumes
	2/2/2001	11:20	0		0.0	0	20.5	0.00	Readings recorded after 2 purge volumes
	3/2/2001	11:00	0		0.0	0	20	0.00	Readings recorded after 2 purge volumes
	4/10/2001	11:35	0		0.0	0	20.4	0.00	Readings recorded after 2 purge volumes
	5/3/2001	12:50	0		0.0	0	20.4	0.00	Readings recorded after 2 purge volumes
	6/8/2001	10:55	0		0.0	na	20.2	0.00	Readings recorded after 2 purge volumes
	7/2/2001	11:40	0		0.0	0	19.8	0.00	Readings recorded after 2 purge volumes
8/3/2001	9:10	0		0.0	1	17.9	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum	Notes
Gas Probe 10	3/17/1999	15:00	Did not record		0.0	0.0	19.8	Did not check	Reading collected during installation
	3/25/1999	14:40	Did not record		0.01 @ 20 seconds	1.4	20.3	Did not record	No pressure - peak @ 20 seconds - Did not record LEL
	4/1/1999	11:35	Did not record		0.0	0.0	20.3	0.00	Stable at 120 seconds
	4/8/1999	11:40	Did not record		0.0	Peaked @ 0.20 @ 20 seconds	20.0	0.00	Stable at 120 seconds
	5/6/1999	11:30	Did not record		Peaked @ 0.1 @ 20 seconds	0.0	19.9	0.00	Readings recorded at 180 seconds
	6/4/1999	10:10	6		0.3	0.0	20.1	0.00	Readings recorded at 180 seconds
	7/7/1999	11:10	2		0.1	0.0	20.5	0.00	Readings recorded at 180 seconds
	8/5/1999	10:50	2		0.1	0.0	20.7	0.00	Readings recorded after 2 purge volumes
	9/2/1999	14:15	0		0.0	0.0	20.0	0.00	Readings recorded after 2 purge volumes
	10/7/1999	11:05	0		0.0	0.0	19.9	0.00	Readings recorded after 2 purge volumes
	11/1/1999	12:50	0		0.0	0.0	20.0	0.00	Readings recorded after 2 purge volumes
	12/7/1999	11:25	0		0.0	0.0	19.8	0.00	Readings recorded after 2 purge volumes
	1/5/2000	14:20	0		0.0	0.1	20.5	0.00	Readings recorded after 2 purge volumes
	2/11/2000	9:55	0		0.0	0.0	20.0	0.00	Readings recorded after 2 purge volumes
	3/1/2000	10:20	0		0.0	0.0	22.5	0.00	Readings recorded after 2 purge volumes
	9/11/2000	14:15	0		0.0	0.1	20.5	0.00	Readings recorded after 2 purge volumes
	10/6/2000	12:50	0		0.0	0.0	20	0.00	Readings recorded after 2 purge volumes
	11/2/2000	11:25	2		0.1	0.0	20.8	0.00	Readings recorded after 2 purge volumes
	12/4/2000	10:00	0		0.0	0.1	20	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:00	0		0.0	0.0	20.2	0.00	Readings recorded after 2 purge volumes
2/2/2001	10:30	0		0.0	0.0	20.4	0.00	Readings recorded after 2 purge volumes	
3/2/2001	9:40	0		0.0	0.0	20	0.00	Readings recorded after 2 purge volumes	
4/10/2001	13:15	0		0.0	0.0	20.4	0.00	Readings recorded after 2 purge volumes	
5/3/2001	11:50	0		0.0	0.0	20.4	0.00	Readings recorded after 2 purge volumes	
6/8/2001	9:50	0		0.0	na	20.2	0.00	Readings recorded after 2 purge volumes	
7/2/2001	10:30	0		0.0	0.0	19.8	0.00	Readings recorded after 2 purge volumes	
8/3/2001	9:25	0		0.0	0.5	19	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

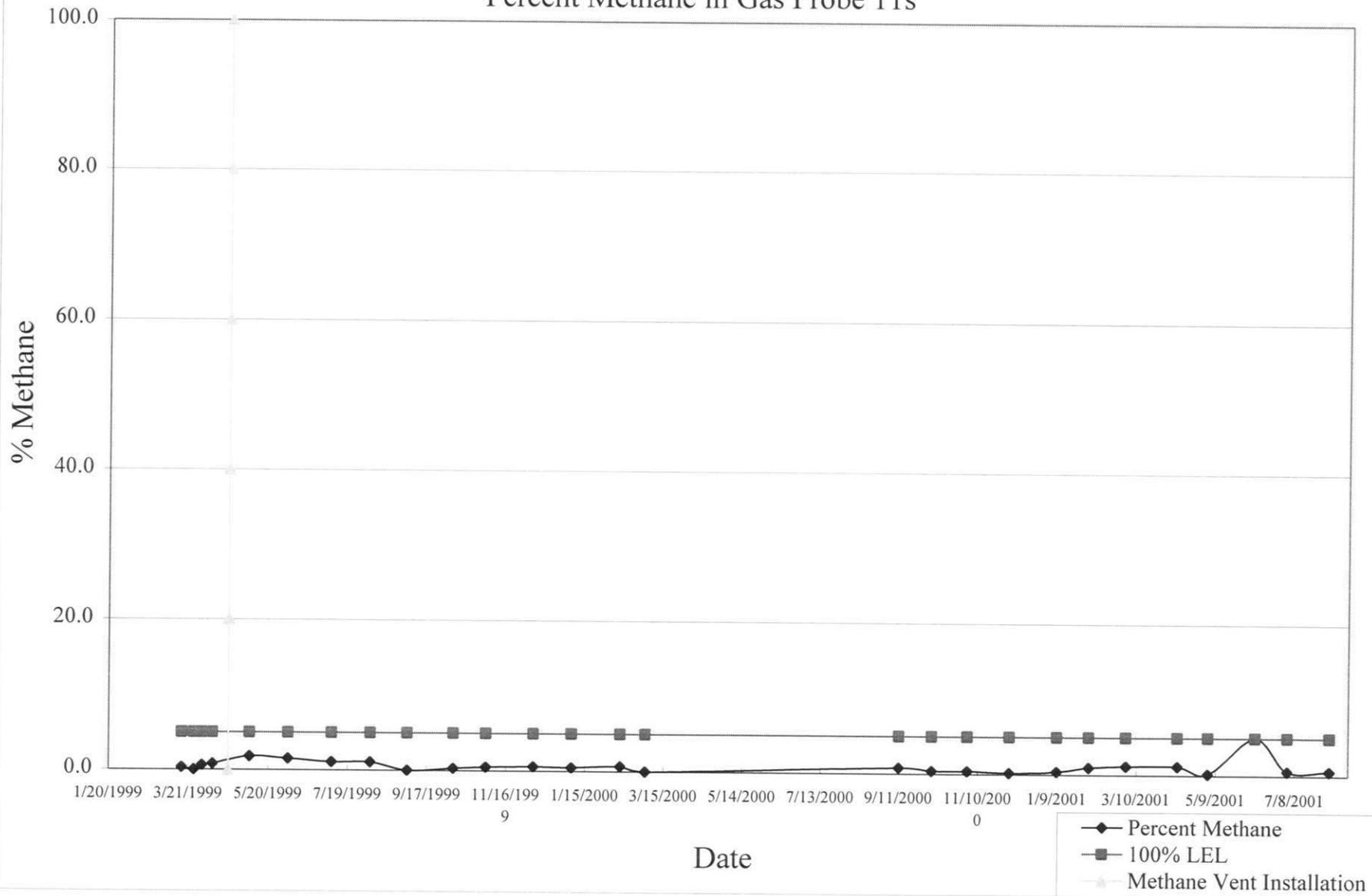
**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum	Notes
Gas Probe 11s	3/16/1999	15:05	6		0.3	0.3	20.2	---	Reading collected during installation of the deep probe GP-11d
	3/25/1999	11:26	Did not record		0.0	0.0	20.6	0.010+/-	Readings recorded at 180 seconds
	3/31/1999	13:45	12		0.6	8.0	19.5	0.00	Readings recorded at 180 seconds
	4/8/1999	11:00	16		0.8	0.6	19.4	0.00	Readings recorded at 180 seconds
	5/6/1999	11:00	36		1.8	0.8	18.9	0.00	Readings recorded at 180 seconds
	6/4/1999	9:55	30		1.5	1.3	18.2	0.00	Readings recorded at 180 seconds
	7/7/1999	10:45	22		1.1	1.9	17.8	0.00	Readings recorded at 180 seconds
	8/5/1999	10:15	22		1.1	2.9	17.7	0.00	Readings recorded after 2 purge volumes
	9/2/1999	13:40	0		0.0	0.0	19.9	0.00	Readings recorded after 2 purge volumes
	10/7/1999	10:45	6		0.3	1.1	19.2	0.00	Readings recorded after 2 purge volumes
	11/1/1999	12:35	10		0.5	1.2	20.1	0.00	Readings recorded after 2 purge volumes
	12/7/1999	11:05	12		0.6	0.9	18.8	0.00	Readings recorded after 2 purge volumes
	1/5/2000	14:00	10		0.5	0.5	19.4	0.00	Readings recorded after 2 purge volumes
	2/11/2000	9:35	14		0.7	0.9	19	0.00	Readings recorded after 2 purge volumes
	3/1/2000	10:05	0		0.0	0.2	22.6	0.00	Readings recorded after 2 purge volumes
	9/11/2000	14:00	16		0.8	1.4	19.1	0.00	Readings recorded after 2 purge volumes
	10/6/2000	12:35	8		0.4	1.3	18.8	0.00	Readings recorded after 2 purge volumes
	11/2/2000	11:05	8		0.4	0.7	20.1	0.00	Readings recorded after 2 purge volumes
	12/4/2000	9:40	4		0.2	0.5	19.6	0.00	Readings recorded after 2 purge volumes
	1/9/2001	9:40	8		0.4	0.9	19.1	0.00	Readings recorded after 2 purge volumes
2/2/2001	10:10	20		1.0	1.1	18.7	0.00	Readings recorded after 2 purge volumes	
3/2/2001	9:20	24		1.2	1	18.3	0.00	Readings recorded after 2 purge volumes	
4/10/2001	13:00	24		1.2	0.9	18.1	0.00	Readings recorded after 2 purge volumes	
5/3/2001	11:35	4		0.2	0.2	19.8	0.00	Readings recorded after 2 purge volumes	
6/8/2001	9:35	10		5.0	na	18.7	0.00	Readings recorded after 2 purge volumes	
7/2/2001	10:20	12		0.6	1.7	17.1	0.00	Readings recorded after 2 purge volumes	
8/3/2001	10:05	12		0.6	1.7	18.4	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

Percent Methane in Gas Probe 11s



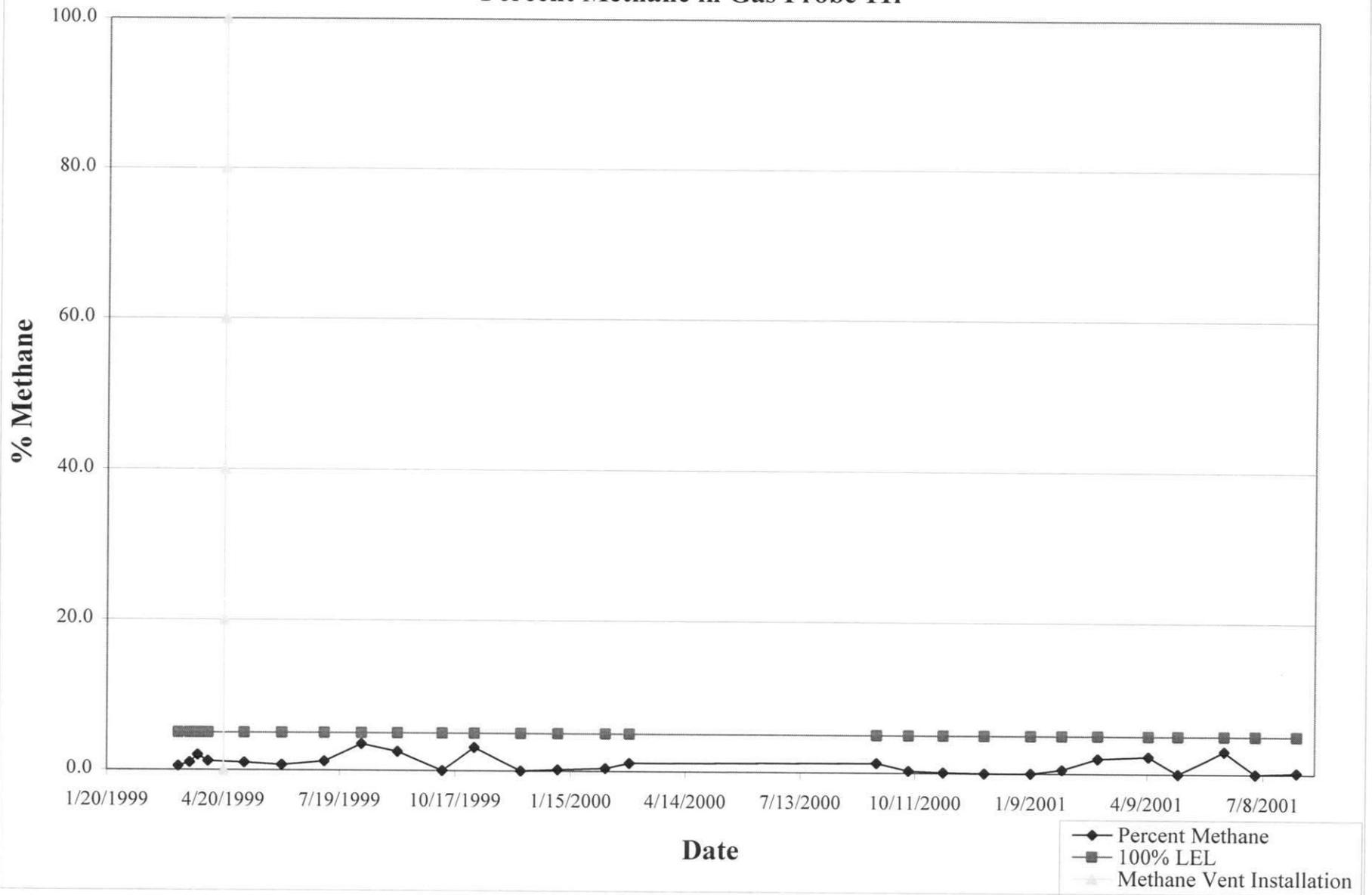
## Jackson County Landfill Dillsboro, North Carolina

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum ("H2O)	Notes
Gas Probe 11i	3/16/1999	16:30	10		0.5	0.6	20.0	---	Readings collected during installation of the deep probe GP-11d
	3/25/1999	11:15	20		1.0	0.5	19.8	0.00	LEL begins climbing at 60 seconds- 180 seconds climbing slowly
	3/31/1999	13:50	42		2.0	1.0	19.1	0.17	Readings recorded at 180 seconds
	4/8/1999	11:05	24		1.2	0.5	19.3	0.00	Readings recorded at 180 seconds
	5/6/1999	11:10	20		1.0	0.0	18.9	0.00	Readings recorded at 180 seconds
	6/4/1999	10:00	14		0.7	0.0	18.5	0.02	Readings recorded at 180 seconds
	7/7/1999	10:50	24		1.2	0.0	17.8	-0.04	Vacuum - reading recorded at 180 seconds
	8/5/1999	10:25	70		3.5	1.0	18.2	0.00	Readings recorded after 2 purge volumes
	9/2/1999	13:50	50		2.5	0.5	17.6	0.15	Readings recorded after 2 purge volumes
	10/7/1999	10:50	0		0.0	0.6	19.7	-0.01	Readings recorded after 2 purge volumes
	11/1/1999	12:40	62		3.1	1.6	18.8	0.12	Readings recorded after 2 purge volumes
	12/7/1999	11:10	0		0.0	0.5	19.4	0.30	Readings recorded after 2 purge volumes
	1/5/2000	14:05	4		0.2	0.6	19.4	0.07	Readings recorded after 2 purge volumes
	2/11/2000	9:40	8		0.4	0.9	19.2	-0.02	Readings recorded after 2 purge volumes
	3/1/2000	10:10	22		1.1	0.9	21.6	0.07	Readings recorded after 2 purge volumes
	9/11/2000	14:05	26		1.3	0.8	19.2	0.00	Readings recorded after 2 purge volumes
	10/6/2000	12:40	6		0.3	0.9	19.2	0.00	Readings recorded after 2 purge volumes
	11/2/2000	11:10	2		0.1	0.3	20.4	0.00	Readings recorded after 2 purge volumes
	12/4/2000	9:45	0		0.0	0.3	19.7	0.00	Readings recorded after 2 purge volumes
	1/9/2001	9:45	0		0.0	0.3	19.8	0.00	Readings recorded after 2 purge volumes
	2/2/2001	10:15	10		0.5	0.9	19.0	0.03	Readings recorded after 2 purge volumes
	3/2/2001	9:25	40		2.0	1.5	17.7	0.00	Readings recorded after 2 purge volumes
	4/10/2001	13:05	46		2.3	1.2	17.4	0.09	Readings recorded after 2 purge volumes
	5/3/2001	11:40	0		0.0	0.1	20.2	0.04	Readings recorded after 2 purge volumes
	6/8/2001	9:40	6		3.0	na	19.2	0.03	Readings recorded after 2 purge volumes
	7/2/2001	10:23	0		0.0	1.6	17.7	0.00	Readings recorded after 2 purge volumes
8/3/2001	10:10	4		0.2	0.8	19.2	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

### Percent Methane in Gas Probe 11i



**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 11d	3/17/1999	8:30	0		0.0	0.2	20.9	Not Measured	Readings collected during installation of the deep probe GP-11d
	3/25/1999	11:03	0		0.0	0.0	20.8	-0.02	Vacuum - reading recorded at 180 seconds
	3/31/1999	13:55	Did not record		0.0	0.1	20.6	0.25	Readings recorded at 180 seconds
	4/8/1999	11:15	Did not record		0.0	0.0	20.6	0.00	Readings recorded at 180 seconds
	5/6/1999	11:20	10		0.5	0.0	20.2	0.13	Readings recorded at 180 seconds
	6/4/1999	10:05	8		0.4	0.0	20.4	0.00	Readings recorded at 180 seconds
	7/7/1999	10:55	4		0.2	0.0	20.9	-0.03	Vacuum - readings recorded at 180 seconds
	8/5/1999	10:35	2		0.1	0.0	20.6	0.00	Readings recorded after 2 purge volumes
	9/2/1999	14:00	0		0.0	0.0	19.8	0.10	Readings recorded after 2 purge volumes
	10/7/1999	10:55	0		0.0	0.0	20.2	-0.01	Readings recorded after 2 purge volumes
	11/1/1999	12:45	0		0.0	0.0	21.0	0.12	Readings recorded after 2 purge volumes
	12/7/1999	11:15	0		0.0	0.0	19.8	0.00	Readings recorded after 2 purge volumes
	1/5/2000	14:10	0		0.0	0.0	20.1	0.06	Readings recorded after 2 purge volumes
	2/11/2000	9:45	0		0.0	0.0	20.1	-0.02	Readings recorded after 2 purge volumes
	3/1/2000	10:15	0		0.0	0.1	22.7	0.11	Readings recorded after 2 purge volumes
	9/11/2000	14:10	0		0.0	0.0	20.5	0.10	Readings recorded after 2 purge volumes
	10/6/2000	12:50	0		0.0	0.0	20	0.00	Readings recorded after 2 purge volumes
	11/2/2000	11:15	2		0.1	0.0	20.9	0.00	Readings recorded after 2 purge volumes
	12/4/2000	9:50	0		0.0	0.0	20	0.00	Readings recorded after 2 purge volumes
	1/9/2001	9:50	0		0.0	0.0	20.1	0.00	Readings recorded after 2 purge volumes
	2/2/2001	10:20	0		0.0	0.0	20.5	0.00	Readings recorded after 2 purge volumes
	3/2/2001	9:30	0		0.0	0.0	20.2	0.00	Readings recorded after 2 purge volumes
	4/10/2001	13:10	0		0.0	0.2	19.8	0.00	Readings recorded after 2 purge volumes
5/3/2001	11:45	0		0.0	0.0	20.5	0.00	Readings recorded after 2 purge volumes	
6/8/2001	9:45	0		0.0	na	20	0.00	Readings recorded after 2 purge volumes	
7/2/2001	10:25	0		0.0	0.0	19.3	0.00	Readings recorded after 2 purge volumes	
8/3/2001	10:15	0		0.0	0.2	19.8	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum ("H2O)	Notes
Gas Probe 12s	3/17/1999	9:45	0		0.0	0.0	20.0	Did not check	Installed on 3/16/99
	3/25/1999	14:55	0		0.0	0.0	20.5	Did not check	Readings recorded at 120 seconds - very steady
	4/1/1999	11:50	Did not record		0.0	0.10 @ 60 seconds	20.5	0.00	Readings recorded at 180 seconds
	4/8/1999	10:40	Did not record		0.0	0.0	20.6	0.00	Stable at 120 seconds
	5/6/1999	10:40	2		0.1	0.0	20.2	0.00	Readings recorded at 180 seconds
	6/4/1999	9:35	4		0.2	0.0	20.5	0.00	Readings recorded at 180 seconds
	7/7/1999	10:30	2		0.1	0.0	20.7	0.00	Readings recorded at 180 seconds
	8/5/1999	9:55	2		0.1	0.0	20.6	0.00	Readings recorded after 2 purge volumes
	9/2/1999	13:10	0		0.0	0.8	18.7	0.00	Readings recorded after 2 purge volumes
	10/7/1999	10:30	0		0.0	0.8	19.5	0.00	Readings recorded after 2 purge volumes
	11/1/1999	12:20	0		0.0	1.3	20.3	0.00	Readings recorded after 2 purge volumes
	12/7/1999	10:50	0		0.0	0.6	19.2	0.00	Readings recorded after 2 purge volumes
	1/5/2000	13:50	0		0.0	0.1	19.9	0.00	Readings recorded after 2 purge volumes
	2/11/2000	9:20	0		0.0	0.7	19.0	0.00	Readings recorded after 2 purge volumes
	3/1/2000	9:55	0		0.0	0.1	22.9	0.00	Readings recorded after 2 purge volumes
	9/11/2000	13:50	0		0.0	1.0	19.0	0.00	Readings recorded after 2 purge volumes
	10/6/2000	12:25	0		0.0	1.4	18.8	0.00	Readings recorded after 2 purge volumes
	11/2/2000	10:50	2		0.1	0.6	20.4	0.00	Readings recorded after 2 purge volumes
	12/4/2000	9:30	0		0.0	0.6	19.4	0.00	Readings recorded after 2 purge volumes
	1/9/2001	9:30	0		0.0	0.2	19.8	0.00	Readings recorded after 2 purge volumes
	2/2/2001	10:00	0		0.0	0.3	19.8	0.00	Readings recorded after 2 purge volumes
	3/2/2001	9:05	0		0.0	0.2	19.4	0.00	Readings recorded after 2 purge volumes
	4/10/2001	12:40	0		0.0	0.3	18.9	0.00	Readings recorded after 2 purge volumes
5/3/2001	11:15	0		0.0	0.1	20.3	0.00	Readings recorded after 2 purge volumes	
6/8/2001	9:25	0		0.0	na	19.5	0.00	Readings recorded after 2 purge volumes	
7/2/2001	10:00	0		0.0	0.5	18.9	0.00	Readings recorded after 2 purge volumes	
8/3/2001	9:45	0		0.0	1.3	18.4	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum ("H2O)	Notes
Gas Probe 12d	3/17/1999	9:50	0		0.0	0.4	19.7	Did not check	Installed on 3/16/99
	3/25/1999	14:50	0		0.0	0.06 @ 10seconds, 0.02	19.2	Did not check	Readings recorded at 180 seconds
	4/1/1999	11:55	Did not record		0.0	0.4	19.2	0.30	Readings recorded at 180 seconds
	4/8/1999	10:55	Did not record		0.0	0.6	18.7	-0.30	Vacuum - readings stable at 120 seconds
	5/6/1999	10:50	Did not record		0.0	0.1	19.3	0.00	Readings recorded at 180 seconds
	6/4/1999	9:45	4		0.2	0.1	19.6	0.00	Readings recorded at 180 seconds
	7/7/1999	10:35	2		0.1	0.0	20.3	0.00	Readings recorded at 180 seconds
	8/5/1999	10:05	2		0.1	0.5	19.1	-0.01	Readings recorded after 2 purge volumes
	9/2/1999	13:20	0		0.0	0.1	18.2	0.10	Readings recorded after 2 purge volumes
	10/7/1999	10:40	0		0.0	0.3	19.4	0.00	Readings recorded after 2 purge volumes
	11/1/1999	12:25	0		0.0	1.0	18.5	0.00	Readings recorded after 2 purge volumes
	12/7/1999	11:00	0		0.0	0.0	19.5	0.00	Readings recorded after 2 purge volumes
	1/5/2000	13:55	0		0.0	1.0	17.4	0.00	Readings recorded after 2 purge volumes
	2/11/2000	9:25	0		0.0	0.0	20.0	0.00	Readings recorded after 2 purge volumes
	3/1/2000	10:00	0		0.0	0.1	22.8	0.00	Readings recorded after 2 purge volumes
	9/11/2000	13:55	0		0.0	0.6	19.5	0.00	Readings recorded after 2 purge volumes
	10/6/2000	12:30	0		0.0	0.7	19.2	0.00	Readings recorded after 2 purge volumes
	11/2/2000	10:55	2		0.1	0	20.7	0.00	Readings recorded after 2 purge volumes
	12/4/2000	9:35	0		0.0	0.3	20	0.00	Readings recorded after 2 purge volumes
	1/9/2001	9:35	0		0.0	0.1	20	0.00	Readings recorded after 2 purge volumes
	2/2/2001	10:05	0		0.0	1	16.8	-0.03	Readings recorded after 2 purge volumes
	3/2/2001	9:10	0		0.0	1.2	16	0.00	Readings recorded after 2 purge volumes
	4/10/2001	12:45	0		0.0	0.5	19.3	0.00	Readings recorded after 2 purge volumes
5/3/2001	11:20	0		0.0	0	20.2	0.00	Readings recorded after 2 purge volumes	
6/8/2001	9:30	0		0.0	na	20.1	0.00	Readings recorded after 2 purge volumes	
7/2/2001	0:00	0		0.0	0.1	19.8	0.00	Readings recorded after 2 purge volumes	
8/3/2001	9:50	0		0.0	0.8	19.2	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

## Jackson County Landfill Dillsboro, North Carolina

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum ("H2O)	Notes
Gas Probe 13s	3/16/1999	8:00	0		0.0	0.2	20.6	Did not check	Installed on 3/15/99
	3/23/1999	15:45	0		0.0	0.0	20.6	Not measured	120 seconds
	3/25/1999	15:40						0.04	Pressure
	3/31/1999	14:50	Did not record		0.0	0.5	20.0	0.01	Readings recorded at 180 seconds
	4/8/1999	12:10	Did not record		Peaked @ 0.5 @ 5 seconds	0.3	20.1	0.06	Readings recorded at 180 seconds
	5/6/1999	12:25	4		0.2	0.5	19.5	0.00	Readings recorded at 180 seconds
	6/4/1999	10:25	8		0.4	0.6	19.3	0.04	Readings recorded at 180 seconds
	7/7/1999	11:45	2		0.1	0.8	19.2	0.00	Readings recorded at 180 seconds
	8/5/1999	11:30	2		0.1	1.5	18.8	0.02	Readings recorded after 2 purge volumes
	9/2/1999	14:50	0		0.0	0.7	18.8	0.00	Readings recorded after 2 purge volumes
	10/7/1999	11:20	0		0.0	0.8	19.3	0.01	Readings recorded after 2 purge volumes
	11/1/1999	13:15	0		0.0	0.9	20.5	0.05	Readings recorded after 2 purge volumes
	12/7/1999	11:45	0		0.0	0.5	19.5	0.30	Readings recorded after 2 purge volumes
	1/5/2000	14:30	2		0.1	0.5	19.7	0.00	Readings recorded after 2 purge volumes
	2/11/2000	10:05	0		0.0	0.2	19.8	0.00	Readings recorded after 2 purge volumes
	3/10/2000	10:30	0		0.0	0.1	22.7	0.00	Readings recorded after 2 purge volumes
	9/11/2000	14:25	0		0.0	0.2	20.2	0.03	Readings recorded after 2 purge volumes
	10/6/2000	13:00	0		0.0	0.3	19.8	0.00	Readings recorded after 2 purge volumes
	11/2/2000	11:40	0		0.0	0	20.8	0.03	Readings recorded after 2 purge volumes
	12/4/2000	10:10	0		0.0	0.1	20	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:10	0		0.0	0	19.8	0.00	Readings recorded after 2 purge volumes
	2/2/2001	10:40	0		0.0	0.4	19.8	0.00	Readings recorded after 2 purge volumes
	3/2/2001	9:50	0		0.0	0.2	19.6	0.00	Readings recorded after 2 purge volumes
4/10/2001	12:05	0		0.0	0	20.3	0.00	Readings recorded after 2 purge volumes	
5/3/2001	12:00	0		0.0	0	20.4	0.02	Readings recorded after 2 purge volumes	
6/8/2001	9:55	0		0.0	na	20.2	0.00	Readings recorded after 2 purge volumes	
7/2/2001	10:40	0		0.0	0	19.4	0.00	Readings recorded after 2 purge volumes	
8/3/2001	10:20	0		0.0	0.8	19.4	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 13d	3/16/1999	8:05	0		0.0	0.0	20.9	Did not check	installed on 3/15/99
	3/23/1999	15:48	0		0.0	0.1	20.4	Not measured	120 seconds
	3/25/1999	15:50						0.17	Pressure
	3/31/1999	14:45	Did not record		0.0	0.3	20.2	0.06	Readings recorded at 180 seconds, DTW reading taken 4/1/99 = 32.25' TOC
	4/8/1999	12:15	2		0.1	0.2	20.1	0.25	Readings recorded at 180 seconds
	5/6/1999	12:20	2		0.1	0.2	19.9	0.20	Readings recorded at 180 seconds
	6/4/1999	10:30	14		0.7	0.2	19.8	0.06	Readings recorded at 180 seconds
	7/7/1999	11:50	4		0.2	0.2	20.4	0.03	Readings recorded at 180 seconds
	8/5/1999	11:45	4		0.2	0.5	19.6	0.05	Readings recorded after 2 purge volumes, DTW = 32.10 ft @ 15:00
	9/2/1999	15:00	0		0.0	0.1	18.6	0.10	Readings recorded after 2 purge volumes, DTW = 32.90 ft
	10/7/1999	11:30	0		0.0	0.1	19.7	0.06	Readings recorded after 2 purge volumes
	11/1/1999	13:20	0		0.0	0.7	20.2	0.15	Readings recorded after 2 purge volumes
	12/7/1999	11:50	0		0.0	0.4	19.5	0.13	Readings recorded after 2 purge volumes
	1/5/2000	14:35	4		0.2	0.6	19.4	0.03	Readings recorded after 2 purge volumes
	2/11/2000	10:10	0		0.0	0.3	19.5	0.01	Readings recorded after 2 purge volumes
	3/1/2000	10:35	0		0.0	0.5	22.1	0.12	Readings recorded after 2 purge volumes
	9/11/2000	14:30	0		0.0	0.2	20.3	0.10	Readings recorded after 2 purge volumes
	10/6/2000	13:05	0		0.0	0.1	19.9	0.00	Readings recorded after 2 purge volumes
	11/2/2000	11:45	2		0.1	0.0	20.8	0.09	Readings recorded after 2 purge volumes
	12/4/2000	10:15	0		0.0	0.1	20.1	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:15	0		0.0	0.0	19.7	0.00	Readings recorded after 2 purge volumes
	2/2/2001	10:45	0		0.0	0.3	20.1	0.00	Readings recorded after 2 purge volumes
	3/2/2001	9:55	0		0.0	0.9	18.0	0.00	Readings recorded after 2 purge volumes
	4/10/2001	12:10	0		0.0	0.0	20.6	0.00	Readings recorded after 2 purge volumes
	5/3/2001	12:05	0		0.0	0.3	19.1	0.00	Readings recorded after 2 purge volumes
	6/8/2001	10:00	0		0.0	na	20.1	0.00	Readings recorded after 2 purge volumes
7/2/2001	10:45	0		0.0	0.0	19.6	0.00	Readings recorded after 2 purge volumes	
8/3/2001	10:25	0		0.0	1.5	16.5	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

## Jackson County Landfill Dillsboro, North Carolina

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure /Vacuum ("H2O)	Notes
Gas Probe 14s	3/16/1999	8:20	0		0.0	1.8	19.1	Did not check	Installed on 3/15/99
	3/23/1999	15:21	0		0.0	1.7	18.8	Not measured	120 seconds
	3/25/1999	13:15						-0.01	Slight vacuum
	3/31/1999	15:30	Did not record		0.0	2.4	17.3	0.00	Readings recorded at 180 seconds
	4/8/1999	13:00	Peaked @ 26 @ 20 seconds		0.0	1.9	18.8	0.00	Readings recorded at 180 seconds
	5/6/1999	13:00	Peaked @ 200 @ 25 seconds		Peaked @ 10.0 @ 25 seconds	1.6	17.9	0.00	Readings recorded at 180 seconds
	6/4/1999	11:20	14		0.7	2.1	17.6	0.00	Readings recorded at 180 seconds
	7/7/1999	12:30	Peaked @ 66 @ 40 seconds, 4 @ 180 seconds		0.2	2.9	17.5	0.00	Readings recorded at 180 seconds
	8/5/1999	12:10	4		0.2	3.0	17.7	-0.01	Readings recorded after 2 purge volumes
	9/2/1999	15:45	0		0.0	1.8	17.6	0.00	Readings recorded after 2 purge volumes
	10/7/1999	12:10	Peaked @ 6 @ 15 seconds		0.0	2.8	17.3	0.00	Readings recorded after 2 purge volumes
	11/1/1999	14:00	0		0.0	3.0	17.9	0.00	Readings recorded after 2 purge volumes
	12/7/1999	12:30	Peaked @ 24 @ 10 seconds		0.0	2.9	16.8	0.00	Readings recorded after 2 purge volumes
	1/5/2000	15:00	0		0.0	0.9	19.3	0.00	Readings recorded after 2 purge volumes
	2/11/2000	10:45	0		0.0	2.3	16.2	0.00	Readings recorded after 2 purge volumes
	3/1/2000	11:15	Peaked @ 70 @ 15 seconds		0.0	1.6	20.9	0.00	Readings recorded after 2 purge volumes
	9/11/2000	15:05	6		0.3	2.6	18.0	0.00	Readings recorded after 2 purge volumes
	10/6/2000	13:35	0		0.0	3.2	16.9	0.00	Readings recorded after 2 purge volumes
	11/2/2000	12:35	4		0.2	0.9	19.7	0.00	Readings recorded after 2 purge volumes
	12/4/2000	11:05	0		0.0	5.0	15.3	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:55	0		0.0	0.2	19.8	0.00	Readings recorded after 2 purge volumes
	2/2/2001	11:40	0		0.0	2.5	18.1	-0.03	Readings recorded after 2 purge volumes
	3/2/2001	10:20	0		0.0	0.2	19.6	0.00	Readings recorded after 2 purge volumes
4/10/2001	11:20	0		0.0	1.7	19.6	0.00	Readings recorded after 2 purge volumes	
5/3/2001	12:20	0		0.0	0.8	19.3	0.00	Readings recorded after 2 purge volumes	
6/8/2001	10:30	0		0.0	na	20	0.00	Readings recorded after 2 purge volumes	
7/2/2001	11:15	0		0.0	0.5	19.1	0.00	Readings recorded after 2 purge volumes	
8/3/2001	10:45	0		0.0	3.0	17.1	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 14d	3/16/1999	8:15	0		0.0	4.0	16.3	Did not check	Installed on 3/15/99 - reading collected at 330 seconds
	3/23/1999	14:05	0		0.0	3.8	15.5	Did not check	250 seconds
	3/25/1999	13:12						0.03	
	3/31/1999	15:35	Did not record		0.0	3.4	17.1	0.00	Readings recorded at 180 seconds, DTW reading taken 4/1/99 = 21.80' TOC
	4/8/1999	13:10	Did not record		0.0	3.0	17.2	0.00	Readings recorded at 180 seconds
	5/6/1999	13:10	2		0.1	2.5	17.7	0.00	Readings recorded at 180 seconds
	6/4/1999	11:25	12		0.6	2.4	17.4	-0.01	Vacuum, readings recorded at 180 seconds
	7/7/1999	12:35	4		0.2	2.9	17.3	0.00	Readings recorded at 180 seconds
	8/5/1999	12:20	2		0.1	4.4	15.6	0.00	Readings recorded after 2 purge volumes, DTW = 21.40 ft @ 15:15
	9/2/1999	15:55	0		0.0	4.1	15.3	0.00	Readings recorded after 2 purge volumes, DTW = 21.30 ft
	10/7/1999	12:15	0		0.0	2.5	17.6	0.00	Readings recorded after 2 purge volumes
	11/1/1999	14:10	2		0.1	5.1	16.2	0.00	Readings recorded after 2 purge volumes
	12/7/1999	12:40	0		0.0	4.8	15.7	0.00	Readings recorded after 2 purge volumes
	1/5/2000	15:05	2		0.1	1.5	18.7	0.00	Readings recorded after 2 purge volumes
	2/11/2000	10:50	0		0.0	4.4	15.1	0.00	Readings recorded after 2 purge volumes
	3/1/2000	11:20	0		0.0	2.7	19.8	0.01	Readings recorded after 2 purge volumes
	9/11/2000	15:10	8		0.4	3.7	16.5	0.00	Readings recorded after 2 purge volumes
	10/6/2000	13:40	0		0.0	3.5	16.8	0.00	Readings recorded after 2 purge volumes
	11/2/2000	12:40	4		0.2	1.4	19.3	0.00	Readings recorded after 2 purge volumes
	12/4/2000	11:10	0		0.0	2.6	16.6	0.00	Readings recorded after 2 purge volumes
	1/9/2001	11:00	0		0.0	2.1	17.7	0.00	Readings recorded after 2 purge volumes
	2/2/2001	11:45	0		0.0	4.9	15.1	-0.01	Readings recorded after 2 purge volumes
	3/2/2001	10:25	0		0.0	2.2	18.8	0.00	Readings recorded after 2 purge volumes
4/10/2001	11:25	0		0.0	4.0	16.8	0.00	Readings recorded after 2 purge volumes	
5/3/2001	12:25	0		0.0	1.2	19.2	0.00	Readings recorded after 2 purge volumes	
6/8/2001	10:35	0		0.0	na	20.1	0.00	Readings recorded after 2 purge volumes	
7/2/2001	11:20	0		0.0	1.5	18.1	0.00	Readings recorded after 2 purge volumes	
8/3/2001	10:50	0		0.0	1.6	18.9	0.00	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

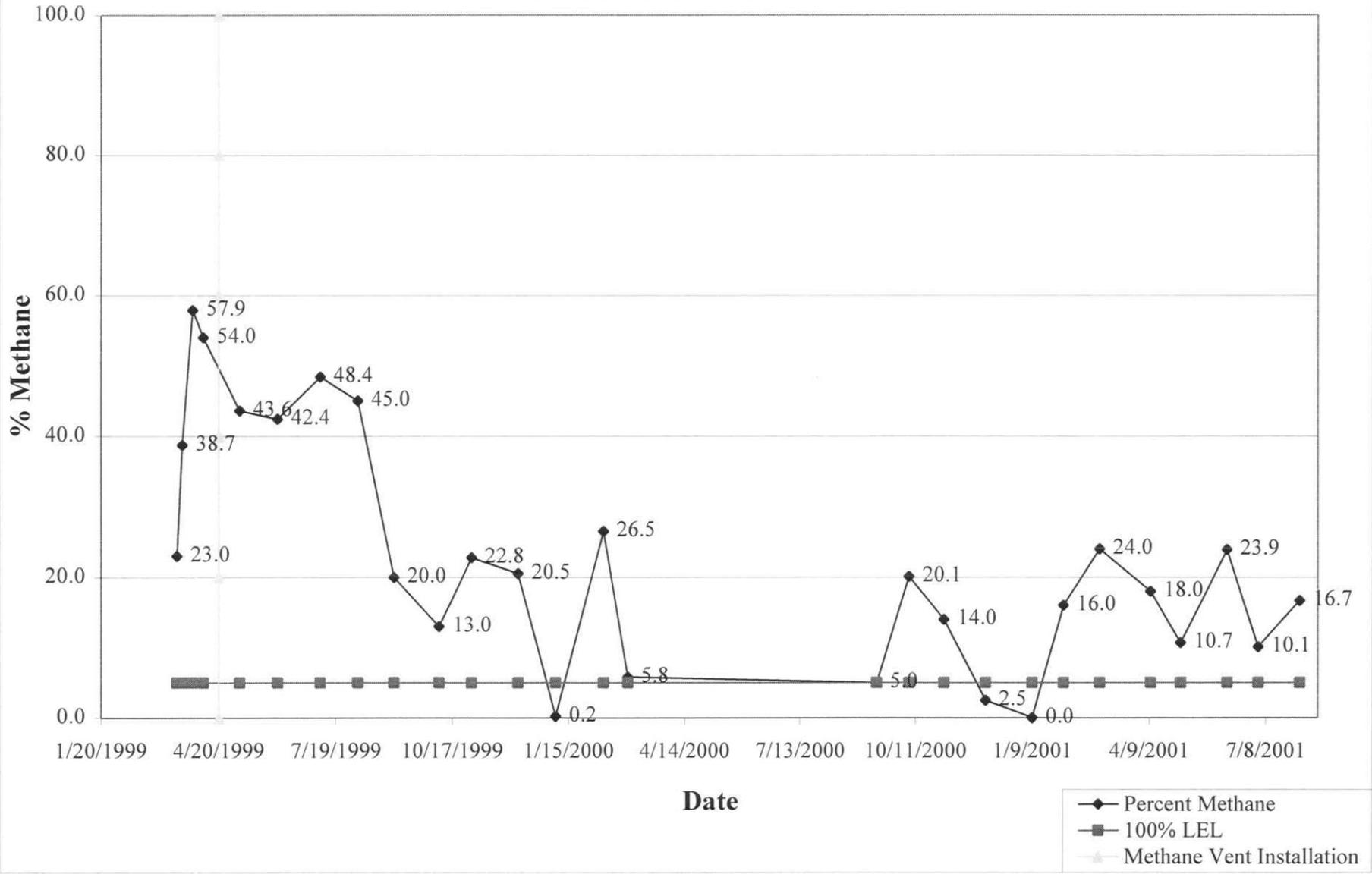
**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 15s	3/19/1999	9:40	470		23.0	11.9	10.6	-	Installed on 3/19/99 - checked one hour after installation
	3/23/1999	15:30	784		38.7	24.8	2.8	Not measured	120 seconds - methane still increasing
	3/25/1999	15:07	-		-	-	-	0.21	-
	3/31/1999	16:05	>1000 @ 20 seconds		57.9	28.6	0.0	0.22	Readings recorded at 180 seconds
	4/8/1999	13:15	>1000 @ 62 seconds		54.0	31.2	0.2	0.18	Readings recorded at 180 seconds
	5/6/1999	13:15	872		43.6	27.9	0.2	0.15	Readings recorded at 180 seconds
	6/4/1999	11:10	848		42.4	30.5	0.3	0.10	Readings recorded at 180 seconds
	7/7/1999	12:40	968		48.4	37.1	0.3	0.10	Pressure, readings recorded at 4.5 minutes
	8/5/1999	12:30	900		45.0	35.0	0.2	0.08	Readings recorded after 2 purge volumes, pressure
	9/2/1999	16:05	400		20.0	23.9	4.4	0.10	Readings recorded after 2 purge volumes, pressure
	10/7/1999	12:25	260		13.0	28.9	0.2	0.05	Readings recorded after 2 purge volumes
	11/1/1999	14:15	456		22.8	27.4	0.2	0.17	Readings recorded after 2 purge volumes
	12/7/1999	12:50	410		20.5	22.2	1.0	0.15	Readings recorded after 2 purge volumes
	1/5/2000	15:10	4		0.2	0.1	19.9	0.05	Readings recorded after 2 purge volumes
	2/11/2000	10:35	530		26.5	19.6	0.6	-0.01	Readings recorded after 2 purge volumes
	3/1/2000	11:05	Peaked @ 170 @ 20 secs, 116 stable		5.8	5.0	17.6	0.09	Readings recorded after 2 purge volumes
	9/11/2000	14:55	100		5	5.0	18	0.07	Readings recorded after 2 purge volumes
	10/6/2000	13:25	402		20.1	26.5	1.5	0.04	Readings recorded after 2 purge volumes
	11/2/2000	12:45	280		14	23.5	4.3	0.08	Readings recorded after 2 purge volumes
	12/4/2000	10:55	50		2.5	3.3	16.8	0	Readings recorded after 2 purge volumes
	1/9/2001	10:45	0		0	0.0	19.7	-0.2	Readings recorded after 2 purge volumes
	2/2/2001	11:25	320		16	16.0	2	0.03	Readings recorded after 2 purge volumes
	3/2/2001	10:30	480		24	18.6	0.8	0.01	Readings recorded after 2 purge volumes
4/10/2001	11:10	360		18	18.0	0.6	0.07	Readings recorded after 2 purge volumes	
5/3/2001	12:30	204		10.7	15.9	1	0.08	Readings recorded after 2 purge volumes	
6/8/2001	10:20	478		23.9	na	12.1	0.15	Readings recorded after 2 purge volumes	
7/2/2001	11:05	202		10.1	20.7	2.1	0.01	Readings recorded after 2 purge volumes	
8/3/2001	10:55	334		16.7	21.4	6.1	0.1	Readings recorded after 2 purge volumes	

Not Measured = readings not taken

NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

Percent Methane in Gas Probe 15s

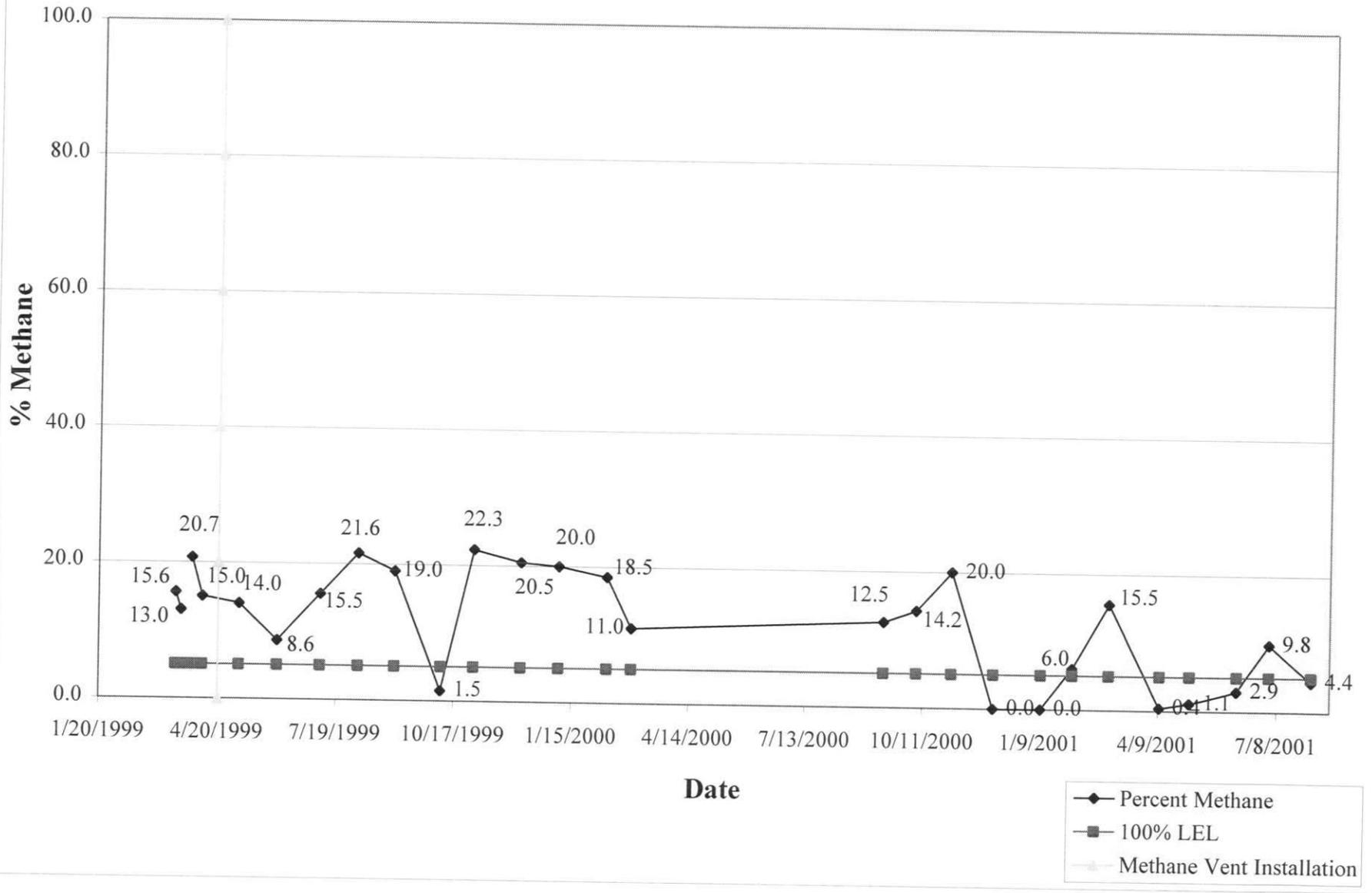


**Jackson County Landfill  
Dillsboro, North Carolina**

Monitoring Point	Date	Time	LEL Meter	% LEL	% Methane	% CO2	% O2	Probe Pressure / Vacuum ("H2O)	Notes
Gas Probe 15d	3/19/1999	9:30	314		15.6	1.5	7.9		Installed on 3/18/99
	3/23/1999	15:35	264		13.0	1.7	11.0	Not measured	120 seconds
	3/25/1999	15:05						0.22	24 at 120 seconds
	3/31/1999	16:00	422		20.7	13.6	3.7	0.20	Readings recorded at 180 seconds, DTW reading taken 4/1/99 = 46.28' TOC
	4/8/1999	13:20	300		15.0	12.4	6.2	0.14	Readings recorded at 180 seconds
	5/6/1999	13:20	280		14.0	10.2	6.5	0.02	Readings recorded at 180 seconds
	6/4/1999	11:15	172		8.6	5.2	12.1	0.09	Pressure, readings recorded at 180 seconds
	7/7/1999	12:50	310		15.5	9.9	6.5	0.09	Pressure, readings recorded at 180 seconds
	8/5/1999	12:40	432		21.6	14.4	0.6	0.10	Readings recorded after 2 purge volumes, DTW = 46.23 ft @ 15:20
	9/2/1999	16:15	380		19.0	14.1	0.8	0.14	Readings recorded after 2 purge volumes, DTW = 46.25 ft
	10/7/1999	12:35	30		1.5	1.5	17.9	0.10	Readings recorded after 2 purge volumes
	11/1/1999	14:20	446		22.3	15.5	0.5	0.20	Readings recorded after 2 purge volumes
	12/7/1999	13:00	410		20.5	15.1	1.1	0.20	Readings recorded after 2 purge volumes
	1/5/2000	15:15	400		20.0	16.0	0.5	0.06	Readings recorded after 2 purge volumes
	2/11/2000	10:40	370		18.5	15.0	0.9	-0.04	Readings recorded after 2 purge volumes
	3/1/2000	11:10	220		11.0	10.2	9.7	0.08	Readings recorded after 2 purge volumes
	9/11/2000	15:00	250		12.5	11	6.0	0.07	Readings recorded after 2 purge volumes
	10/6/2000	13:30	284		14.2	11.5	5.7	0.10	Readings recorded after 2 purge volumes
	11/2/2000	12:50	400		20.0	15.6	3.6	0.15	Readings recorded after 2 purge volumes
	12/4/2000	11:00	0		0.0	0.0	20.1	0.00	Readings recorded after 2 purge volumes
	1/9/2001	10:50	0		0.0	0.0	19.5	-0.15	Readings recorded after 2 purge volumes
	2/2/2001	11:30	120		6.0	7.1	11.0	0.04	Readings recorded after 2 purge volumes
	3/2/2001	10:35	310		15.5	15.5	0.5	0.04	Readings recorded after 2 purge volumes
	4/10/2001	11:15	8		0.4	0.6	20.3	0.09	Readings recorded after 2 purge volumes
	5/3/2001	12:35	22		1.1	1.1	8.6	0.12	Readings recorded after 2 purge volumes
	6/8/2001	10:25	58		2.9	na	16.8	0.05	Readings recorded after 2 purge volumes
	7/2/2001	11:10	196		9.8	10.1	6.9	-0.03	Readings recorded after 2 purge volumes
	8/3/2001	11:00	88		4.4	3.5	15.2	0.11	Readings recorded after 2 purge volumes

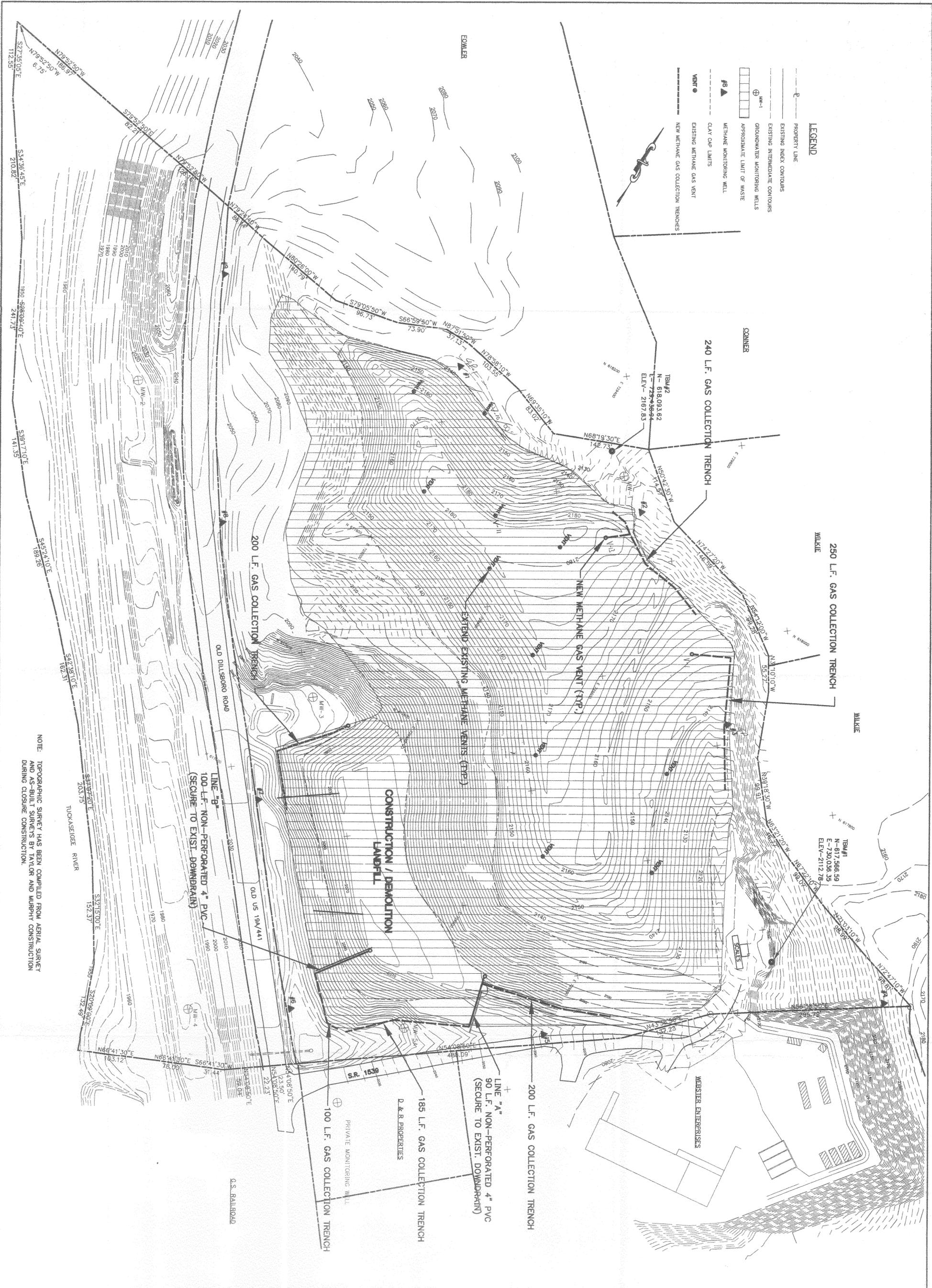
Not Measured = readings not taken  
 NA means that the GA90 was not set up to read CO2 and CES-landtec could not set up that function over the phone.

### Percent Methane in Gas Probe 15d



**APPENDIX B**

**MCGILL ASSOCIATES DRAWINGS  
METHANE GAS VENTING SITE PLAN AND  
MISCELLANEOUS DETAILS**



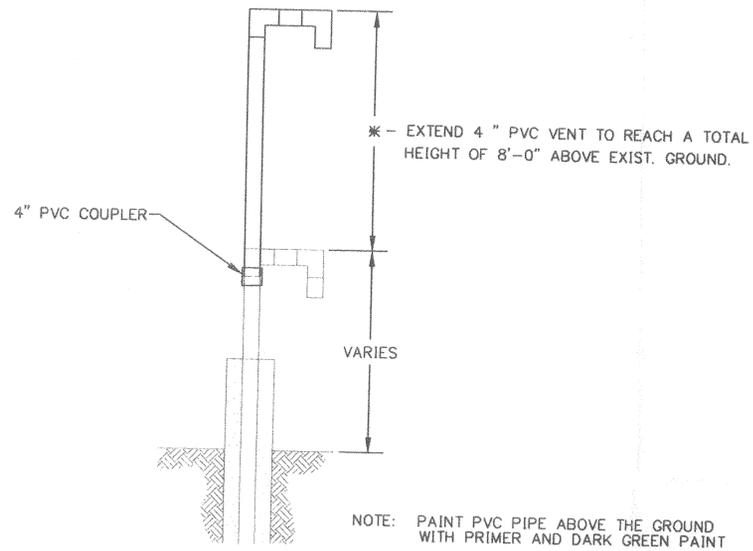
**LEGEND**

- PROPERTY LINE
- - - EXISTING INTERMEDIATE CONTOURS
- - - EXISTING MONITORING WELLS
- ⊕ MW-1 GROUNDWATER MONITORING WELLS
- APPROXIMATE LIMIT OF WASTE
- ▲ METHANE MONITORING WELL
- ▲ CLAY CAP LIMITS
- ▲ EXISTING METHANE GAS VENT
- ▲ NEW METHANE GAS COLLECTION TRENCHES

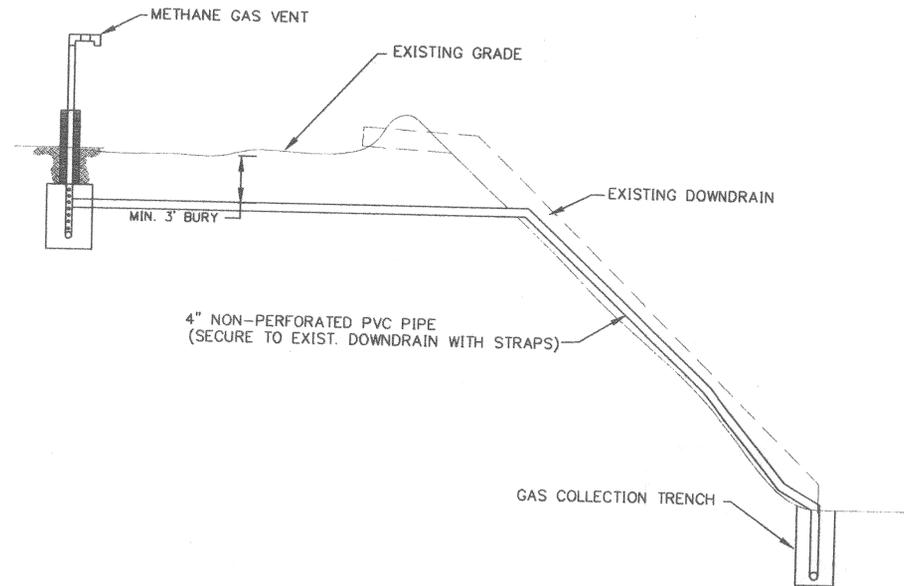


NOTE: TOPOGRAPHIC SURVEY HAS BEEN COMPILED FROM AERIAL SURVEY AND AS-BUILT SURVEYS BY TAYLOR AND MURPHY CONSTRUCTION DURING CLOSURE CONSTRUCTION.

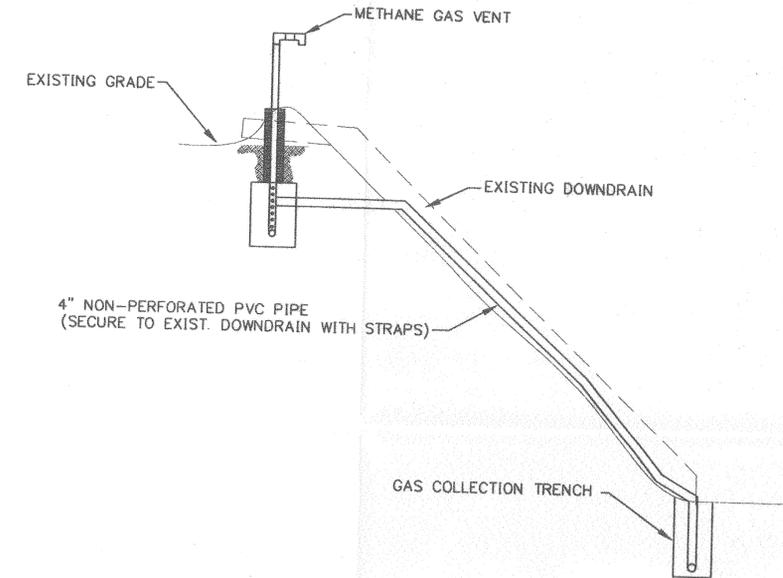
<p><b>1</b> OF <b>2</b></p>	<p><b>SHEET</b></p>	<p><b>METHANE GAS VENTING SITE PLAN</b></p>	<p>JOB NO.: 99 DATE: FEB. 1999 SCALE: 1" = 60' REVISION:</p>	<p><b>METHANE GAS VENTING SYSTEM</b> <b>JACKSON COUNTY LANDFILL</b> JACKSON COUNTY, NORTH CAROLINA</p>		<p>55 BROAD STREET ASHEVILLE, NC PH. (828) 252-0575 FAX (828) 252-2518</p>	
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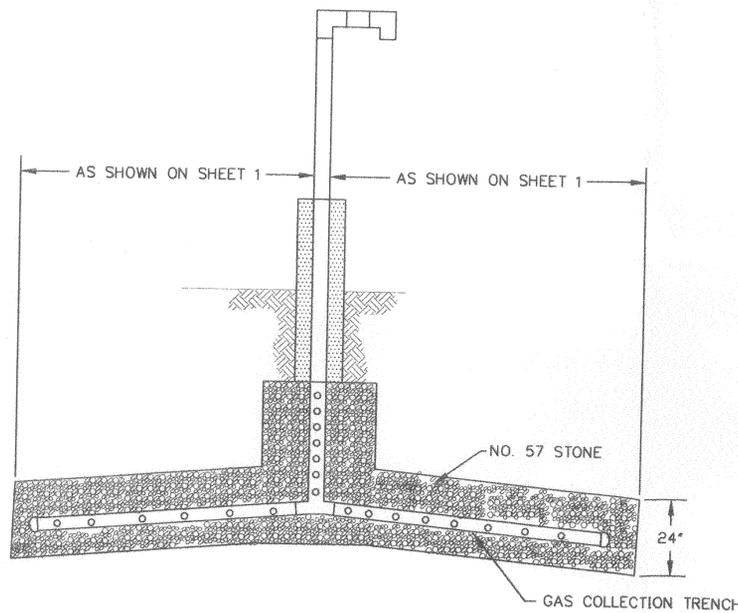
**EXISTING GAS VENT EXTENSION**



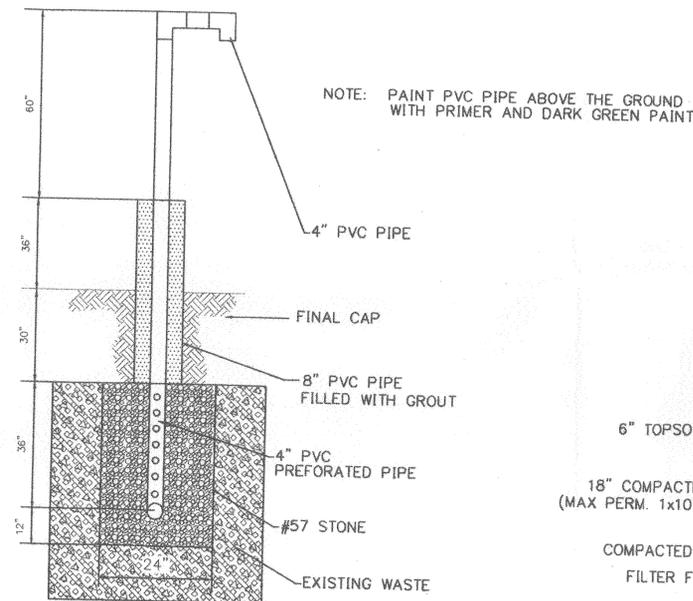
**CONNECTION DETAIL LINE 'A'**



**CONNECTION DETAIL LINE 'B'**

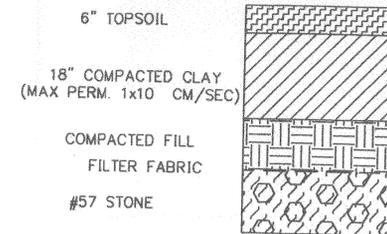


**SECTION A**



**SECTION B**

**METHANE GAS VENT AND GAS COLLECTION TRENCH**



**TRENCH REPAIR**

**CONSTRUCTION NOTES:**

1. ALL SOLID WASTE EXCAVATED DURING CONSTRUCTION SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF AT A PERMITTED MUNICIPAL SOLID WASTE FACILITY.
2. ALL TRENCHES SHALL BE REPAIRED AS SHOWN IN THE TRENCH REPAIR DETAIL. THE TOP TWO FEET OF REPLACEMENT SOIL SHALL CONSIST OF 18" OF 1x10-5 PERMEABILITY CLAY SOIL BELOW 6" OF TOPSOIL.
3. PORTIONS OF THE PROJECT ARE LOCATED WITHIN THE LIMITS OF THE ACTIVE JACKSON COUNTY CONSTRUCTION/DEMOLITION LANDFILL. ACCESS TO THE LANDFILL CANNOT BE RESTRICTED DURING HOURS OF OPERATIONS.
4. METHANE GAS IS PRESENT IN THE AREA OF CONSTRUCTION. NO SMOKING IS ALLOWED WITHIN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL TAKE PRECAUTIONS AS NEEDED TO PROTECT THE SAFETY OF PERSONNEL.
5. ALL DISTURBED AREAS OF CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH VEGETATION SCHEDULE DESCRIBED BELOW.

**EROSION CONTROL**

- General: All erosion control measures are to be performed in strict accordance with requirements of the North Carolina Department of Environment, Health and Natural Resources, Division of Land Resources, Land Quality Section. The following construction sequence shall be complied with for all work.
- 1 - Install all erosion control measures as required by the North Carolina Department of Environment, Health and Natural Resources, Division of Land Resources, Land Quality Section.
  - 2 - Seed and mulch denuded area within 30 days after finished grades are established. Seed and soil amendments shall be placed on a prepared seedbed at the following rates per acre:
 

Lime	4,000 Lbs.
Fertilizer (10-10-10)	1,000 Lbs.
KY-31 Fescue	100 Lbs.
Straw Mulch	60-80 Bales

For summer seeding add to the above:

German Millet	10 Lbs.
Sudangrass	15 Lbs.

For winter seeding add to the above:

Rye Grain	15 Lbs.
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For steep slopes add to the above:

Sericea Lespedeza	40 Lbs.
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If hydroseeding is used, wood cellulose may be substituted for straw mulch at the rate of 1,000 lbs. per acre.

All seeding shall be maintained, watered, etc., until a permanent vegetative ground cover is established over all disturbed areas.
  - 3 - Maintain soil erosion control measures until permanent ground cover is established.