FIFTH YEAR REPORT
ON THE LEACHATE COLLECTION
AND
LANDFILL GAS EXTRACTION SYSTEMS

BLACKWELL FOREST PRESERVE LANDFILL SITE
DUPAGE COUNTY, ILLINOIS

MWH File No. 2090764

Prepared for:

Forest Preserve District of
DuPage County, Illinois

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Prepared For:

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Prepared by: Rudolf H. Stein, Geologist — Date: 9/3/2003

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ACRONYMS AND ABBREVIATIONS

amsl	Above Mean Sea Level
AOC	Administrative Order by Consent
ASTM	American Society for Testing and Materials
DV	Deep Vents
EW	Extraction Well
FPD	Forest Preserve District of DuPage County
ft/yr	Feet per year
HRS	Hazard Ranking System
IEPA	Illinois Environmental Protection Agency
LCS	Leachate Collection System
LFG	Landfill Gas
LS	Lift Station
MCL	Maximum Contaminant Levels
N	Nitrate
NPL	National Priorities List
O&M	Operations and Maintenance
PVC	Polyvinyl Chloride
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SV	Shallow Vents
SVOC	Semi-Volatile Organic Compound
TDS	Total Dissolved Solids
TNMOC	Total Non-Methane Organic Compounds
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency
UAO	Unilateral Administrative Order
VOC	Volatile Organic Compound
WWTP	Wastewater Treatment Plant

1.0 INTRODUCTION

This Fifth Year Report has been prepared by MWH on behalf of the Forest Preserve District (FPD) of DuPage County, Illinois, and presents a summary of the operations and maintenance (O&M) activities undertaken from May 2002 through April 2003 on various response actions previously constructed at the Blackwell Landfill in DuPage County, Illinois. The response actions were constructed in 1997 and 1998, and were required by Administrative Order by Consent (AOC), Docket No. V-W-'96-C-341, between the United States Environmental Protection Agency (U.S. EPA) and the FPD. The response actions included repair of the existing landfill cover and installation of a leachate collection system (LCS) and landfill gas (LFG) venting system. A summary of O&M activities from initial construction of the response action in 1997 and 1998 through April 2003 is provided in the following reports:

- First Year Report on the Leachate Collection System and Landfill Gas Extraction System (Montgomery Watson, 1999c);
- Second Year Report on the Leachate Collection System and Landfill Gas Extraction System (Montgomery Watson, 2000c);
- Third Year Report on the Leachate Collection System and Landfill Gas Extraction System (Montgomery Watson Harza, 2001b);
- Fourth Year Report on the Leachate Collection System and Landfill Gas Extraction System (Montgomery Watson Harza, 2002e)

The Fifth Year Report meets the reporting requirements outlined in the February 1999 Final O&M Plan (Montgomery Watson, 1999a), modifications provided in the First and Second Year Reports on the Leachate Collection System and Landfill Gas Extractions Systems (Montgomery Watson, 1999c and 2000c), and the April 9, 1999 Unilateral Administrative Order (UAO), Docket No. V-W-'99-C-541. The UAO requires an evaluation of the effectiveness of the current leachate and landfill gas extraction systems to manage leachate and gas throughout the site.

1.1 BACKGROUND

The Blackwell Landfill is located within the Blackwell Forest Preserve approximately six miles southwest of downtown Wheaton, Illinois in Section 26, Township 39 North, Range 9 East, DuPage County, Illinois (Figure 1). The Blackwell Forest Preserve encompasses 1,200 acres of woodlands, grasslands, wetlands and lakes, with the landfill covering approximately 40 acres in the central part of the preserve (Figure 2).

1.1.1 Landfill Construction

The Blackwell Landfill is located adjacent to an abandoned gravel pit that was purchased by the FPD in 1960 with the intent to create a large hill that could be used by the public for recreational purposes. The FPD began construction of the landfill in 1965 and accepted the final load of refuse in 1973.

Plans for the landfill, as well as photographs taken during the landfill construction, provide an understanding of the landfill construction. The landfill was laid out over an approximate 35-acre area. It was constructed on top of the existing ground surface, rather than being excavated into the ground. The first step was to put down a two-foot layer of clay to act as the basal liner. A series of 8 to 9 foot high berms was laid out to define eight major disposal areas, each three to five acres in size. These initial cells were then filled with a multitude of small refuse cells. Five to ten scavenger trucks would come in each working day and deposit refuse. In general, the refuse would be covered with available soil at the end of each day.

The daily cover was obtained from the area to the east of the landfill that is now Silver Lake. As the FPD excavated the lake, it would sell the sand and gravel for off-site construction to help defray the costs of landfill construction. Therefore, daily cover generally consisted of the low permeability, fine-grained material that lacked the commercial value of the sand and gravel. When completed, each major cell had been filled with approximately one-half refuse and one-half daily cover.

When each of the cells had been filled, it was capped off with a two-foot clay layer that formed the basal liner for the next cell. After the first level of cells was completed, new berms were placed to construct another series of cells. To enhance the ultimate stability of the hill, the new berms were offset from the berms below. Although a photographic history of construction was kept, as-built drawings were not maintained, so there is no specific map available for the locations of the berms or the cells. However, the result has been described by FPD officials as a "honey-comb" structure of small refuse cells surrounded by soil, and the photographic record supports this description.

By the time final contouring and landscaping was completed in 1975, forty to sixty feet of clay had been placed on top of refuse on the southwest side of the landfill to create Mount Hoy. Mount Hoy was finished at the final target elevation of approximately 840 feet above mean sea level (amsl), approximately 140 feet above the surrounding natural topography. Other areas of the landfill were covered with 2 to 15 feet of predominantly clay cover. In some areas, a vegetative cover of varying sand, gravel and clay composition was placed. A final layer of clayey topsoil (minimum of 4 to 6 inches thick) was installed and vegetated. The 2001 topography of the site is shown in Figure 3.

The Blackwell Landfill contains approximately 1.5 million cubic yards of refuse classified as general household refuse and light industrial waste, and includes an equal volume of natural fill.

1.1.2 Regulatory History

In March 1986, the U.S. EPA evaluated the Site using the Hazard Ranking System (HRS). A composite score of 35.57 (above the 28.5 threshold for National Priorities List (NPL) listing) was assigned, with the following scores assigned to each potential route: Surface Water 0.0; Air 0.0; and Groundwater 61.54. The Site was proposed for inclusion on the NPL in the Federal Register, Volume 53, Number 122, dated June 24, 1988. The Site received final listing on the NPL in the Federal Register, Volume 55, Number 35, dated February 21, 1990.

Subsequent to the final listing on the NPL, a Remedial Investigation/Feasibility Study (RI/FS) was performed at the landfill. The Final RI Report (Warzyn, 1994) was submitted to the U.S. EPA in 1994, while the Draft FS Report (Montgomery Watson, 1995) was submitted in 1995.

On March 7, 1996, the U.S. EPA and FPD agreed to an AOC, Docket No. V-W-'96-C-341, which specified response actions that the FPD would conduct at the Site. These response actions have been completed, or are part of ongoing O&M. They included:

- Delineation of the limits of waste at the landfill edges;
- Cap characterization to delineate areas which did not have two feet of low permeability soil over refuse;
- Repair of those portions of the landfill cover that had less than two feet of low permeability soil over refuse;
- Regrading to promote surface water drainage off the landfill;
- Installation of a leachate collection system;
- Installation of a passive LFG venting system;
- Treatment of landfill leachate[1]; and
- Monitoring of groundwater and system performance.

On September 30, 1998, the U.S. EPA issued the Record of Decision (ROD) for the Blackwell Landfill. The ROD requires long term O&M of the previously completed response actions, long-term monitoring, monitored natural attenuation of groundwater, and possible augmentation of the LCS and LFG venting system.

[1] Leachate is collected in a holding tank and is transported to the Wheaton Sanitary District Waste Water Treatment Plant for disposal.

On April 9, 1999, the U.S. EPA issued a UAO, Docket No. V-W-'99-C-541 to the FPD. This UAO directed the FPD to perform the selected remedial action described in the ROD and set forth the requirements for implementation of the remedial action.

1.2 REPORT PRESENTATION

The report is presented in the following seven sections:

- This Section 1 presents the purpose of the Fifth Year Report and describes the current conditions at the Blackwell Landfill;
- Section 2 describes general O&M activities conducted on the landfill;
- Section 3 describes O&M activities conducted on the landfill cover;
- Section 4 describes the operation of the LCS and summarizes O&M data;
- Section 5 describes the operation of the LFG venting system and summarizes O&M data;
- Section 6 briefly describes the Long-Term Groundwater Monitoring Program; and
- Section 7 evaluates the leachate and LFG data, and provides evaluations for future O&M inspections and monitoring.

2.0 GENERAL O&M

2.1 DESCRIPTION

General O&M at the Blackwell Landfill from May 2002 through April 2003 was similar to the O&M conducted during previous years and involved the inspection and maintenance of security measures around the LCS and LFG components (i.e., fencing, warning signs, vaults and vault covers), upkeep of access roads related to the LCS and LFG system, and control of vegetation around LCS and LFG components.

2.2 INSPECTION AND MAINTENANCE RECORDS

The general inspection and maintenance requirements are outlined in the February 1999 Final O&M Plan, and included the following:

- Verifying that site security measures such as fencing, vaults and gates restricted unauthorized access to system components, and repairing these security measures, as necessary;
- Maintaining site access roads, as necessary;
- Maintaining vegetation and trimming excess vegetation that hid, inhibited access or potentially could damage system components; and
- Repairing erosion of areas adjacent to the landfill, as necessary.

The inspection, maintenance, monitoring and leachate disposal activities were documented on forms on an as-needed basis. Copies of the forms are provided in Appendix A-1 through A-5.

The general O&M of the landfill was generally routine, with no significant problems to note. The site security measures remained intact with no vandalism or security breaches noted. Access roads and vegetation are in good condition, and no erosion was noted in adjacent areas to the landfill.

3.0 LANDFILL COVER O&M

3.1 DESCRIPTION

Routine O&M of the landfill cover system includes inspection of the landfill surface, vegetative conditions and surface water drainage features.

3.2 INSPECTION AND MAINTENANCE RECORDS

The landfill cover inspection and maintenance requirements are outlined in the February 1999 Final O&M Plan, with modifications provided in the First Year Report. Inspections were undertaken to identify necessary repairs in the landfill cover system, including:

- Ponding of surface water as a result of landfill settlement or vehicular rutting;
- Stressed or dead vegetation as a result of LFG migration through the cover soils;
- Erosion of the landfill cover or surface water drainage features;
- Siltation of drainage ways;
- Excessive vegetation growth near LCS components and LFG vents;
- Bubbling of LFG through the landfill topsoil during the spring or summer following a one inch or greater rainfall event; and
- Tension cracks on the surface of the landfill cover caused by landfill settlement.

Inspections of the landfill cover were conducted during the bimonthly monitoring of leachate levels in LFG vents and extraction wells. The inspection activities are documented on forms provided in Appendix A-1 through A-3 and A-5.

The Final O&M Plan also required cover inspections following a 10-year, 24-hour rainfall event. There were no such rainfall events recorded by the nearby DuPage County Airport from May 2002 to April 2003.

Except as noted in Section 3.4, the inspections of the landfill cover were generally routine, with no significant problems. No surface water ponding or areas of stressed or dead vegetation were noted. There was no excessive vegetation growth near vents and wells. Minor erosional ruts were observed during site inspections made throughout the Year Five; however, these ruts were shallow and the clay cap was not exposed.

3.3 SITE REGRADING ACTIVITIES

By 2002, ongoing landfill settlement had created a prominent dip beneath the Tube Run that interfered with winter recreation activities. A Proposed Regrading Plan for the Tube Run Area (MWH, March 2002c) was submitted to the U.S. EPA to regrade the Tube Run and promote surface water drainage and enhance recreational use. The U.S. EPA approved the Plan on June 23, 2002, and the FPD completed the regrading activities between June and September 2002 (Figure 3).

3.4 LFG EMISSION AREA

In June 2001 following a rainfall event, LFG was observed bubbling through the landfill cover on the north side of the landfill between LFG vents deep vent (DV)-8 and shallow vent (SV)-4 (Figure 4). A Proposed Landfill Gas Investigation Plan (Montgomery Watson Harza, December 2001c) was submitted to the U.S. EPA for the assessment of ambient air quality. The U.S. EPA approved the Plan in February 28, 2002, and ambient air samples were collected on May 13, 2002. The analytical results were submitted as part of the May 2002 Monthly Status Report.

Since the LFG emission area had also experienced landfill settlement, the FPD proposed that the area be regraded as part of the site regrading activities outlined in Section 3.3 above. The U.S. EPA approved the regrading of this area in a July 23, 2002 letter. To date, these regrading activities have controlled further LFG emissions from the area.

3.5 PRAIRIE RESTORATION ACTIVITIES

As part of the Phase I Restoration Plan for the Revegetation of the Blackwell Forest Preserve Landfill (Montgomery Watson, 2000b), in 2001 the FPD began the conversion of vegetation on the Blackwell Landfill from Eurasian grasses to native Illinois grasses. A herbicide was applied to kill or stunt the growth of existing vegetation, a prairie seed mixture was drilled into the landfill cover and the vegetation was mowed by the fall. The prairie restoration activities are summarized in the First Year Restoration Monitoring Report (MWH, 2002a).

The Restoration Plan for the Revegetation of the landfill continued in June and July 2002 with mowing and spot herbicide application. In September 2002, the vegetation was mowed and raked, an erosion control blanket was installed in select areas and the prairie seed mixture was drilled or spread on the landfill in other select areas where vegetation growth was sparse. The results of the 2002 prairie restoration activities are summarized in the Second Year Restoration Monitoring Report (MWH, 2002a) and indicate that restoration activities are progressing as planned.

3.6 WATER SEEP

On May 14, 2001, MWH verbally informed the U.S. EPA that a water seep was discovered on the north side of the Blackwell Landfill (Figure 4). MWH subsequently collected water samples from this area to determine if the water posed a risk to human health or the environment. Analytical results suggested that the seep did not contain landfill leachate.

In a June 14, 2001 letter, MWH proposed additional investigative activities aimed at locating the sand and gravel layers that were the probable source of the water seep on the north side of the Blackwell Landfill (Figure 4) (Montgomery Watson, 2001c). With U.S. EPA approval, on June 12, 2001 MWH conducted a limited test trenching program on October 9, 2001 aimed at locating the source of the seep. MWH provided the results of the test trenching program to the U.S. EPA in a December 28, 2001 letter and concluded that the seep water was surface water that had infiltrated through the vegetative soil cover above the compacted clay cap. In general, the water appeared to be migrating down the landfill along the top of the clay cap (Montgomery Watson Harza, 2001d).

Based on information developed from the limited test trenching investigation, the FPD voluntarily proposed to construct a water collection trench to collect the seep water, and to discharge it to the existing leachate collection system holding tank. Design details were provided in the December 28, 2001 letter to the U.S. EPA (Montgomery Watson Harza, 2001d). With February 19, 2002 approval from the U.S. EPA, construction on the water collection trench commenced in May 2002 and was completed in June 2002. Records of the construction and quality assurance efforts utilized during construction are provided in the Construction Completion Report for the Surface Water Collection Trench (MWH, 2002d).

4.0 LEACHATE COLLECTION SYSTEM O&M

4.1 DESCRIPTION

The LCS was put into operation in December 1997. The system includes nine leachate extraction wells and two lift stations which pump leachate into a common underground conveyance pipe system. The conveyance system then transports the leachate to a leachate holding tank where it is eventually loaded onto tanker trailers for offsite disposal. The components of the LCS are described below. Greater details are provided in the February 1999 Final O&M Plan.

Extraction Wells

The LCS incorporates nine extraction wells (EW-1, EW-1A, and EW-2 through EW-8) located in the areas that previously had the highest indicated leachate head levels. The well pipes are installed within 3-foot diameter boreholes, and are constructed of 6-inch diameter Schedule 120 polyvinyl chloride (PVC) pipe. The lower two-thirds of the well pipes are perforated and the boreholes are backfilled with stone. The wells are used to extract leachate and to allow LFG to flow through the passive gas venting system. A wellhead assembly connects the LFG and leachate discharges from each well to its respective conveyance piping system. The extraction well locations are shown on Figure 4. A description of the LFG venting system is described in Section 5.0 of this report.

Leachate levels within each extraction well are estimated with a well pipe bubbler system and are checked by inserting a liquid level tape into each well.

Lift Stations

Lift station (LS)01 collects stormwater by gravity from existing manhole MH-20 and condensate from dripleg DL01 that may form in the gas conveyance pipe. Lift station LS02 was converted from existing manhole MH-3 and collected liquids from the North Stormwater Collection System trench. However, lift station LS02 did not pump during the second or third year of operations and the pump was subsequently removed in Year Three. Lift Station LS03 was installed in Year Four as part of the surface water seep mitigation (see section 3.4). A collection trench, installed downhill and west of EW-3, supplies surface water infiltration to the lift station which is then transported to the leachate holding tank.

Leachate Well Pumps

The nine extraction wells and two lift stations are fitted with pneumatic leachate extraction pumps that are capable of pumping a maximum of 2 to 4 gallons per minute, depending upon the model of pump installed. Except for one pump, the pneumatic pumps are manufactured by Clean Environment. A description of the Clean Environment pumps is provided in the Second Year Report (Montgomery Watson, 2000c). Blackhawk Environmental Company manufactures the other pump. This pump was installed following system startup since it had higher pumping capacity and superior solids handling capabilities. This pump is currently located in EW-8, and will continue to cycle at the rate set in the field, even if the extraction

well goes dry. Addendum No. 1 of the O&M Plan (Montgomery Watson, 1999b), submitted to the U.S. EPA on February 8, 1999, provides details on the Blackhawk pneumatic pump.

The volume of leachate pumped from each well is recorded remotely with a pump-stroke (i.e. cycle) counter within each wellhead/lift station and in the compressor station control building. Pump operation can be visually determined by observing the cycle counters.

Leachate Holding Tank

A 10,000-gallon double-wall steel-reinforced STI-P3® leachate holding tank is installed below grade near the compressor/control building north of the landfill to temporarily store extracted leachate and condensate. The tank provides monitoring capabilities for the interstice (space between the double walls) in the event moisture is detected. The collected leachate is loaded, on an as-needed basis, into a tank truck and hauled to the Wheaton Sanitary District Wastewater Treatment Plant (WWTP) in Wheaton, Illinois for disposal under permit.

Compressor/Control Building

The compressor/control building located north of the landfill contains the air compressor system and system controls. The compressor system includes a desiccant air dryer to maintain dry supply air to the leachate extraction pumps and to minimize freezing situations. The system controls include manual and automatic LCS system controls, holding tank liquid level alarms, leak detection indicators, and compressor and dryer status indicators.

Operation of the LCS

The LCS began operation in early December 1997. Following initial startup of the LCS, the system operated continuously with automatic shut down when the holding tank became full. Tanker trailers are scheduled in advance to collect and dispose of the leachate at the Wheaton WWTP.

4.2 INSPECTION AND MAINTENANCE RECORDS

The LCS inspection and maintenance requirements are outlined in the February 1999 Final O&M Plan (Montgomery Watson, 1999a), with modifications provided in the First Year Report. The inspection and maintenance requirements include the following:

- Routinely verifying proper integrity and operation of system components;
- Recording system performance data, including pump-stroke counters;
- Scheduling leachate testing, load-out, and treatment;
- Responding to alarm conditions; and
- Performing maintenance and scheduling system repairs, or modifications.

The inspection, monitoring, and maintenance activities are documented on forms on an as-needed basis. Copies of the forms are provided in Appendix A-1 through A-5.

The components of the LCS were inspected on a bimonthly, quarterly, semi-annual, annual, and as-needed basis in accordance with the schedule provided in Table 7. The control station and leachate holding tank were routinely inspected and monitored by the O&M operators, while components of the leachate extraction wells and lift stations were inspected on a bimonthly basis. Components of the control station, leachate holding tank, leachate extraction wells and lift stations found to be functioning improperly were immediately attended to and rectified by the O&M operators. Any work conducted on these components was logged using the appropriate O&M maintenance forms (Appendix A-3).

In addition, the following O&M activities were conducted:

- Leachate head levels were measured in the leachate extraction wells and LFG vents on a bimonthly basis;

- Filters and lubricants within the compressor and dryer systems were replaced on a quarterly, annual, or as-required basis; and

- Leachate samples were submitted for required analytical testing on a quarterly basis. The results of these analyses are attached in Appendix B.

Maintenance of the LCS was generally routine. It consisted of maintaining pump operation and changing oil and filters and lubricating the air compressor and air dryer on a regular basis. The non-routine maintenance of note, and maintenance that was not originally anticipated, is as follows:

- New belts were installed in the air compressor;
- Air compressor motor starter relay replaced;
- The Sensaphone® unit was repaired;
- At different times during Year Five, the pumps at EW-1, EW-1A, EW-3, EW-5, EW-6, EW-8, LS01 and LS03 were not operating. In each case the pumps were changed out, cleaned, serviced and replaced.

4.3 LANDFILL AREAS

The Blackwell Landfill has been sub-divided into fifteen Landfill Areas[2] for the purpose of presentation of data (Figure 5). The leachate elevation and extraction data for each of the fifteen Landfill Areas are shown on Drawings 1 through 15.

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[2] Fifteen Zones-of-Influence around extraction wells were established in the First Year Report on the Leachate Collection System and Landfill Gas Extraction System. The zones were established for the purpose of identifying areas on the landfill that share similar leachate characteristics, such as:

- Areas whose leachate levels appear to be directly influenced by LCS operations;
- Areas whose leachate levels do not appear to be directly influenced by current LCS operations, although the leachate levels may be influenced by other factors; and

4.4 LEACHATE LEVELS

The leachate levels within the extraction wells and LFG vents were measured on a bimonthly basis by inserting a liquid level tape into each well or LFG vent. In order to ensure that these leachate levels were at equilibrium with the surrounding landfill formation, and in accordance with the requirements of the Final O&M Plan, the leachate levels were measured a minimum of two days after the LCS pneumatic pumps were temporarily shut-off. A trendline analysis has been performed for each leachate extraction well and LFG vent to determine whether leachate levels have been increasing or decreasing.

The leachate levels in the twenty-five LFG vents and nine extraction wells are summarized in Drawings 1 to 15 and in Table 1. In general, the leachate level trends observed during the previous four years continued in Year Fifth (May 2002 through April 2003). Specific trends are discussed in Section 7 of this report.

4.5 LEACHATE DISPOSAL

4.5.1 Leachate Disposal

The volume of leachate removed from the leachate holding tank and disposed of at the Wheaton WWTP is documented on Leachate Disposal Logs included in Appendix A-5. As well, the cumulative cycles on the pneumatic extraction pumps within each extraction well and lift station (recorded on the pump-stroke counter within the control building) are documented on Site Visit Operating Logs on each day that leachate was disposed of at the Wheaton WWTP. Copies of the Site Visit Operating Logs are provided in Appendix A-1.

The volume of leachate removed from the extraction wells and lift stations was calculated based upon the disposal history and number of recorded pump cycles. A daily summary of the disposed leachate volumes from initial start up of the LCS in 1997 through April 2003 is provided in Table 2, while the cumulative volume of leachate removed from the landfill is presented in Drawing 16. Table 2 and Drawing 16 indicate that approximately 2,823,630 gallons of leachate was disposed of from startup of the system through April 2003.

The volume of leachate disposed of to the Wheaton WWTP and the number of leachate shipments during the previous five years is summarized below. This table indicates that leachate extraction in Year Five was significantly less than in previous years.

- One area whose liquid elevations correspond to groundwater elevations in nearby groundwater monitoring wells.

With five years of monitoring data now available, it appears that the leachate elevations in most extraction wells and vents are acting independently. Therefore, the term "Zones of Influence" is no longer considered appropriate, and the term "Landfill Areas" has been substituted.

Year	Volume Shipped (gal.)	% Change from Previous Year	Number of Leachate Shipments to WWTP
1 (12/97 to 4/99)	910,000	NA	108
2 (5/99 to 4/00)	460,000	-50%	58
3 (5/00 to 4/01)	646,000	40%	82
4 (5/01 to 4/02)	523,000	-24%	65
5 (5/02 to 4/03)	290,600	-44%	45

4.5.2 Extraction Wells

The yearly volumes of leachate removed from the nine extraction wells are summarized in Table 3. The cumulative volume of removed leachate, sorted by volume, is summarized in Table 4. These tables indicate that the nine extraction wells have removed approximately 2,057,600 gallons of leachate since the LCS was put into operation. As well, Table 4 indicates that nearly 25% of leachate removed by the extraction wells were removed by one of the nine wells (i.e., EW-8), extracting 706,853 gallons by the end of April 2003. In comparison, the least productive extraction well (i.e., EW-4) produced, 28,066 gallons and accounted for 1.0% of the total leachate volume removed by the extraction wells. The pumping trend for the most and least productive extraction wells is consistent since Year Two.

The performances of the nine extraction wells are summarized in Drawings 3, 4, 5, 9, 10, 11, 14, and 15. These drawings present the cumulative volume of leachate removed from the wells over time, as well as the equilibrium leachate levels within the wells. These figures indicate that rates of leachate removal are variable, with higher leachate removal rates observed in the spring and summer, and lower removal rates observed in the fall and winter.

4.5.3 Lift Stations

Approximately 766,000 gallons of stormwater and condensate have been recovered from lift stations LS01 and LS02 since the LCS began operation in December 1997 (see Table 2 and Drawing 13). This volume currently represents approximately 27% of the total volume of leachate removed from the landfill. However, lift station LS02 has been dry since April 1998 and lift station LS01 went dry during several periods, as shown in Drawing 13.

4.6 ANALYTICAL DATA

Leachate samples were collected from the leachate holding tank and were analyzed for the metals, general water quality parameters and organic toxic pollutants listed in the leachate disposal permit (Permit No. 1995-EE-4467 and 2000-EE-0837) with the Wheaton WWTP. The leachate samples were analyzed according to the following schedule:

Period	Date	Analytical Parameters
1st tank volume	12/17/97	Metals, water quality parameters, and organic toxic pollutants
2nd tank volume	01/23/98	Metals, and water quality parameters
3rd tank volume	02/12/98	Metals, water quality parameters, and organic toxic pollutants

Period	Date	Analytical Parameters
	06/02/98	Metals, and water quality parameters
	09/03/98	Metals, water quality parameters, and organic toxic pollutants
	12/10/98	Metals, and water quality parameters
	03/24/99	Metals, water quality parameters, and organic toxic pollutants
	07/28/99	Metals, and water quality parameters
	12/14/99	Metals, water quality parameters, and organic toxic pollutants
	04/04/00[3]	Metals, water quality parameters, and organic toxic pollutants
	07/12/00	Metals, water quality parameters, and organic toxic pollutants
	10/10/00	Metals, and water quality parameters
	01/31/01	Metals, water quality parameters, and organic toxic pollutants
	04/19/01	Metals, and water quality parameters
	07/18/01	Metals, water quality parameters, and organic toxic pollutants
	10/30/01	Metals, and water quality parameters
	01/17/02	Metals, water quality parameters, and organic toxic pollutants
	04/02/02	Metals, and water quality parameters
	07/24/02	Metals, water quality parameters, and organic toxic pollutants
	10/23/02	Metals, and water quality parameters
	01/30/03	Metals, water quality parameters, and organic toxic pollutants
	04/16/03	Metals, and water quality parameters
Metals:		Arsenic, Barium, Boron, Cadmium, Chromium (total), Copper, Iron (total), Lead[4], Manganese, Mercury, Nickel, Selenium, Silver, Zinc
Conventional Water Quality Parameters:		Ammonia (as N), BOD, COD, Cyanide, Oil and Grease, pH, Phenols, Total Dissolved Solids (TDS), Total Suspended Solids (TSS)
Organic Toxic Pollutants:		Volatiles, acid compounds, base/neutrals, and pesticides as defined in 40 CFR 122

The FPD's original leachate disposal permit with the Wheaton WWTP expired August 1, 2000. The FPD filed a permit renewal application with the Illinois Environmental Protection Agency (IEPA) in Spring 2000, and received a new Permit No. 2000-EE-0837 dated July 24, 2000 which expires on June 30, 2005.

The leachate analytical results are summarized in Table 5, with the leachate analytical results during the fifth year of LCS operations provided in Appendix B. The data indicates some variation in analyte concentrations between the sampling events. Only four volatile organic compounds (VOCs) (i.e., acetone, 2-butanone, 4-methyl-2-pentanone, and toluene) and three semivolatile organic compounds (SVOCs) (i.e., benzoic acid, phenol, and 3- and 4 methylphenol) have been detected in leachate during Year Five.

[3] Leachate analytical parameters are based on the more inclusive IEPA Form N (Waste Characterization) requirements.

[4] Not analyzed December 1999.

5.0 LANDFILL GAS O&M

5.1 DESCRIPTION

Historically, LFG venting occurred through 30 partially capped 2-inch and 4-inch diameter LFG vents that were installed in the 1980's on the Blackwell Landfill. In 1997, nine gas extraction wells[5] were installed that conveyed LFG via gas header pipes to a 15-foot high passive vent stack constructed on top of Mount Hoy. The LCS and LFG systems were augmented in 2000 and, as part of the augmentation, 12 of the 2-inch and 4-inch diameter LFG vents were connected to the main vent stack by new gas header pipes. An additional 13 LFG vents were capped[6] as part of the augmentation. Following augmentation, the main vent stack was the sole source of LFG emissions.

5.2 INSPECTION AND MAINTENANCE RECORDS

The LFG inspection and maintenance requirements are outlined in the February 1999 Final O&M Plan, with modifications provided in the First and Second Year Reports. The inspection and maintenance requirements include the following:

- Routinely verifying proper integrity and operation of system components;
- Recording system performance data;
- Scheduling LFG testing; and
- Performing maintenance, and scheduling system repairs or modifications.

The inspection, monitoring and maintenance activities are documented on forms on an as-needed basis. Copies of the applicable O&M forms are provided in Appendices A-2, A-3, and A-5.

The components of the LFG extraction system were inspected on a weekly, monthly, quarterly, semi-annual, annual, and as-needed basis in accordance with the schedule provided in Table 7. The main vent stack was inspected by the O&M operator on a weekly basis, while components of the LFG extraction wells were inspected on a monthly basis. No components of the main vent stack or LFG extraction wells were found to be functioning improperly.

[5] The nine extraction wells served a dual purpose of extracting both leachate and LFG.

[6] Prior to augmentation 30 LFG vents and 6 inactive flare vents existed. LFG vents SV-3, SV-10, DV-1, DV-2, and DV-12 and inactive flare vents FV-1, FV-2, FV-3, FV-4, FV-5, and FV-6 were abandoned as a part of the August 2000 LCS and LFG augmentation.

5.3 FIELD AND ANALYTICAL DATA

The LFG was monitored bimonthly with field instruments at the main vent stack[7] and LFG vents since March 2001. LFG is also monitored monthly since January 1998 for gas composition, static pressure, velocity, flow rate and temperature. This data is provided in Tables C-1, C-2, C-3, C-4 and C-5 (Appendix C).

In addition, four sampling events were conducted during the Fifth Year of LFG venting system operation to monitor LFG quality, as follows:

Date	Sample Name
6/27/02	BW-LFGSTACK-22A
9/26/02	BW-LFGSTACK-23A
1/7/03	BW-LFGSTACK-24A
4/11/03	BW-LFGSTACK-25A

LFG samples were collected from the main vent stack using 6-Liter Passivated Summa canisters for laboratory analysis. One LFG sample and one duplicate were collected during each sampling event; however, only one sample was analyzed and the duplicate was held in case problems with the sample arose.

The Summa canister samples were analyzed for fixed gases including methane, carbon dioxide, oxygen, and nitrogen in accordance with American Society for Testing and Materials (ASTM) Method D1946, and for total non-methane organic compounds (TNMOC), as methane, in accordance with U.S. EPA Modified Method 25C. The analytical results for historic and recent LFG sampling events are summarized in Table 6. The analytical reports for the Fifth Year of LFG operations are provided in Appendix D. In general, landfill gas quality has remained constant over the past five years of sampling.

5.4 LFG EMISSIONS

Gas emissions from the LFG vents have been monitored on a bimonthly basis since March 2001 and monthly since January 1998. The monitoring consisted of using field instruments to measure LFG flow velocities at the main vent stack and the LFG vents and to measure static gas pressure at the extraction wells and LFG vents. The Fifth Year bimonthly static pressure data and velocity for the main vent stack and for the gas vents are summarized in Landfill Gas Vent Monitoring Forms (Appendices A-2 and A-5), and on Tables C-3 and C-4 (Appendix C).

The gas velocity at the main vent stack was converted to flow rate by multiplying the gas velocities by the cross-sectional area of the stack. A summary of the calculated flow rates is provided in Tables C-5 (Appendix C). The variation in gas flow rate over time is presented

[7] Static pressure is not measured at the main vent stack. The main vent stack is open to the atmosphere.

in Drawing 17. LFG emissions from the main vent stack increased following augmentation of the LFG system in August 2000, which resulted in the connection of twelve LFG vents to the main venting system.

The variation in static LFG pressures in the extraction wells and LFG vents are presented in Table C-3 and in Drawings 18 through 20. The static pressures in the extraction wells exhibit low variability over time, with measured static pressures generally less than 1.0 inch of water, with two exceptions. During three O&M monitoring events in Year Five, LFG pressures greater than 1.0 inch of water were measured in extraction well EW-7. Also in Year Five, LFG pressures greater than 1.0 inch of water were measured once in extraction well EW-6. The LFG vents show greater variation in static gas pressure and have pressures in the range of 0.5 to 8 inches of water.

The variation in methane content is shown in Drawings 21 through 23. In most wells and vents methane content showed little variability (e.g., EW-4, SV-4, and DV-17) although there was some variability in others (e.g., EW-1A, SV-12, and DV-4). Overall, none of the wells or vents showed any discernable trends in methane content. Methane content in the main vent stack (Drawing 21) also shows little variability. Overall, the maximum methane content has been between 60% and 80% of the total LFG in most wells and vents, including the main vent stack.

5.5 LFG TRIGGER LEVELS

At the request of the U.S. EPA, the FPD conducted a trigger level evaluation and LFG emission modeling to determine whether LFG emissions posed a risk to recreational users of the Blackwell Landfill. The information derived from the evaluation was used to prepare the Landfill Gas Trigger Level Report (MWH 2003a) which presents trigger levels for possible additional remedial actions should LFG concentrations or flow rates increase in the future at the Blackwell Site. The report is currently being revised to incorporate comments provided by the U.S. EPA.

6.0 GROUNDWATER MONITORING

6.1 DESCRIPTION

Since the start of the Blackwell Landfill Remedial Investigation in 1991, fourteen rounds of groundwater monitoring have been conducted at the site, as follows:

Round	Date
Remedial Investigation	
First Round	September 1991
Second Round	January 1992
Feasibility Study	
First Round	June 1995
Quarterly Groundwater Monitoring Program[8]	
First Round	November 1997
Second Round	July 1998
Third Round	October 1998
Fourth Round	February 1999
Fifth Round	May 1999
Sixth Round	August 1999
Seventh Round	November 1999
Eighth Round	February 2000
Long-Term Groundwater Monitoring Program	
First Round	March 2001
Second Round	December 2001
Third Round	September 2002
Fourth Round	June 2003

The Long-Term Groundwater Monitoring Program is described in the Revised Long-Term Groundwater Monitoring Program (Montgomery Watson, 2001a) and was approved by the U.S. EPA in a January 22, 2001 letter. Details of these sampling events can be found in the corresponding standalone reports (Montgomery Watson, 1998-2000, Montgomery Watson, 2001b, MWH, 2002b and MWH 2002f). Future sampling events will occur as follows:

Long-Term Monitoring Round	Sampling Period
Fifth	March 2004

Following the fifth sampling event, the FPD will evaluate the groundwater results and recommend possible modifications, if any, to the groundwater monitoring program. The results of this evaluation and recommendations will be submitted to the U.S. EPA for review.

[8] Two-Year Groundwater Monitoring Program is described in the Revised PreDesign Investigation Report (Montgomery Watson, July 1997).

7.0 EVALUATIONS AND RECOMMENDATIONS

7.1 EVALUATION OF LCS

7.1.1 Trendline Analysis

The LCS consists of nine extraction wells, three lift stations, and 25 LFG vents that are used to monitor leachate levels. Leachate levels have been measured in the wells and vents on a monthly basis from January 1998 to March 2001, and on a bimonthly basis ever since. In addition, leachate levels were historically measured in the LFG vents during the remedial investigation.

In order to evaluate the overall effectiveness of the LCS, a trendline analysis was performed over the entire period of data collection. For evaluative purposes, this analysis consisted of fitting a linear trendline to leachate elevation data with a downward trend indicated by a negative slope and an upward trend indicated by a positive slope. Trendline slopes are expressed in units of feet per year (ft/yr). The results of the trendline analysis are presented in Drawings 1 to 15. For evaluation purposes, a "flat" leachate level trendline slope was defined as:

$$-0.1 \text{ ft/year} \leq \text{slope} \leq 0.1 \text{ ft/year}$$

In general, leachate elevations in the Blackwell Landfill over the past five years of LSC operation are declining. However, upward or flat leachate level trends occur in landfill areas previously thought to be influenced by groundwater levels (e.g., SV-8, SV-9, and DV-17) and in areas where the LCS apparently has no influence on leachate levels (e.g., DV-5 and DV-16). A summary of the trends in leachate elevations is depicted in Figure 5.

The decreases in leachate levels in the Blackwell Landfill are attributed to the remedial actions that were undertaken on the landfill during 1997 and 1998. The LCS operations from the nine extraction wells and two lift stations have currently removed over 2,823,600 gallons of leachate. As well, cap repairs and regrading have increased surface water drainage and decreased infiltration.

7.1.2 Augmentation Requirements - Record of Decision

The previous year-end Reports on the Leachate Collection System and Landfill Gas Extraction System provided an evaluation of the criteria that would require augmentation of the LCS and LFG systems outlined in the September 30, 1998 ROD. This evaluation has been repeated below using the combined five years of data for LCS operations.

The September 30, 1998 ROD for the Blackwell Landfill describes the objectives of the LCS and provides guidelines for system augmentation. The LCS objectives and augmentation requirements are as follows:

- Section VI.C, page 31 of the ROD states that the objective of the LCS is to manage the threat of leachate migration and exposure through active leachate collection and off-site treatment and disposal.

- Section VII, page 37 of the ROD states that if data demonstrates that the leachate system is not effective in managing leachate, the system could be augmented with up to nine additional leachate extraction wells. Ineffective management of leachate was defined as leachate posing a direct exposure threat, or groundwater not being remediated in a reasonable amount of time. The groundwater cleanup goals are U.S. EPA Maximum Contaminant Levels (MCLs) and Illinois Class I Drinking Water Standards.

- Section VII, page 38 of the ROD provides the general criteria to be used to decide whether groundwater was being remediated in a reasonable amount of time. These criteria include existing contaminant levels, trends in contaminant concentrations, potential reduction in restoration time frames to less than 30 years, and potential for the contaminants in groundwater to meet regulatory standards and/or asymptotic levels throughout the plume.

An evaluation of the O&M data indicates that the LCS meets the objectives set out by the September 30, 1998 ROD. Inspections of the Blackwell Landfill indicate that leachate seeps are not occurring at the landfill, and in five years of LCS operations, over 2,920,000 gallons of leachate have been collected and treated off-site. In addition, during groundwater monitoring events conducted over the past six years, analytical results have been consistent with past monitoring results and show a general trend of decreasing number of volatile organic compounds (VOCs). Analytical results presented in standalone groundwater sampling reports (summarized in Section 6.0) indicate a overall decrease in VOC concentrations.

The results of these groundwater monitoring events are summarized in the Revised Long-Term Groundwater Monitoring Program (Montgomery Watson, 2001a) and the First, Second and Third Round Long-Term Groundwater Monitoring Reports (Montgomery Watson, 2001b MWH, 2002b and MWH 2002f). Thus, no ROD criteria have been exceeded that would require augmentation of the LCS system.

7.1.3 Augmentation Requirements - O&M Plan

The previous Year-End Reports on the Leachate Collection System and Landfill Gas Extraction System provided evaluations of the modification and augmentation requirements which were outlined in the February 1999 Final O&M Plan for the Blackwell Landfill. This evaluation has been repeated below using the combined five years of data for LCS operations.

The February 1999 O&M Plan provided guidelines for modification or augmentation of the LCS that may include: increasing extraction rates in some areas, decreasing extraction rates or shutting down extraction in other areas, converting some of the previously installed LFG

vents to extraction wells, or constructing one or more new extraction wells. The specified criteria for system modification or augmentation are provided below:

Criteria #1: Extraction wells that generate a small amount of leachate, in comparison to the total volume extracted from the landfill, would be proposed for removal or abandonment.

Two extraction wells (EW-1A and EW-4) have produced only 2.5% of the total volume of leachate removed from the landfill. As outlined in previous reports, these two wells are candidates for removal. However, the FPD has voluntarily decided to continue pumping these two wells.

Criteria #2: Extraction wells which generate a large volume leachate, and which demonstrate a decreasing trend in leachate levels in the well and surrounding monitoring wells and vents, would continue to be operated. However, if the drop in leachate levels are small in comparison to theoretical volume of extractable leachate (i.e., large volumes of leachate are extracted from an extraction well without a corresponding decrease in leachate levels in that same well), additional extraction wells may be installed in the general area.

In general, the extraction wells have shown decreasing trends in leachate levels (only EW-1A has an upward trend in leachate elevations). The average yearly volume of leachate extracted has decreased in five of the nine extraction wells, and in lift station LS01 (Table 3). Despite the fact that the volume of leachate extracted is decreasing, leachate levels trends are also decreasing. Therefore, the FPD will continue pumping these extraction wells. On the basis of the current data, no additional extraction wells are recommended for the Blackwell Landfill.

Criteria #3: Extraction wells which *initially* generate a large volume of leachate and show a significant drop in leachate levels in the extraction well, but which are surrounded by monitoring wells and vents which do not show any appreciable drop in their leachate levels, will be considered to be in an area with non-extractable leachate. These extraction wells will be proposed for removal or abandonment.

No extraction wells meet this criterion. The Year Two Report recommended that lift station LS02 be removed because it did not pump during the second or third year of operations. The pump in LS02 was subsequently removed.

In summary, no modifications to the LCS operations are recommended for the upcoming year.

7.2 EVALUATION OF LANDFILL GAS

7.2.1 LFG Augmentation

The September 30, 1998 ROD provides for the possible augmentation of the LFG extraction system, with the installation of up to nine dual leachate and LFG extraction wells. The 1999 UAO also requires that the LFG extraction system manage the threat of landfill gas buildup, potential landfill gas migration and exposure.

The LFG extraction system was evaluated in the Work Plan for the Landfill Gas Recreational Use Evaluation (Montgomery Watson, March 2000a). Following this evaluation, modifications to the LFG extraction system were recommended, including connecting selected LFG vents to the main LFG venting system, capping other selected LFG vents, and abandoning the remaining LFG vents. The U.S. EPA approved these modifications in a March 24, 2000 letter. Construction of these modifications was completed in August 2000.

At the request of the U.S. EPA, the FPD prepared the Landfill Gas Trigger Level Report (MWH 2003a) which presented trigger levels for possible additional remedial actions should LFG concentrations or flow rates increase in the future at the Blackwell Site. The report is currently being revised to incorporate comments provided by the U.S. EPA.

No further augmentation of the LFG extraction system is recommended at this time.

7.2.2 Thermal Treatment

The February 1999 Final O&M Plan specifies that a flare would be installed on the main vent stack if the quantity of total non-methane organic compounds (TNMOC) exceeds set limits. The TNMOC limits are eight pounds per hour (35 IAC 218.301), and 25 tons per year (5.71 pounds per hour) of total VOCs in a severe ozone non-attainment area.

The calculated TNMOC emissions for the fifth year of O&M operations are summarized in Table C-6 through C-16 in Appendix C, and indicate a range of 0.25 to 0.42 pounds of TNMOC per hour. In comparison, the emissions range during previous years of O&M operations were, in pounds of TNMOC per hour, 0.29 to 1.21 (First Year), 0.37 to 0.89 (Second Year), 0.22 to 0.64 (Third Year) and 0.20 to 0.36 (Fourth Year). Considering that the worst case scenario TNMOC emissions are below the limits set forth in the Final O&M Plan, modifications to the LFG venting system are not required.

7.2.3 Passive vs. Active Gas Extraction

The February 1999 Final O&M Plan specifies that an active LFG extraction system would be installed if there was evidence of uncontrolled LFG releases through or around the landfill cover. Evidence of uncontrolled LFG releases were defined as odors in areas with no gas vents, stressed vegetation, gas releases from monitoring wells located outside of the landfill perimeter, or gas bubbling through saturated topsoil following a rainfall event.

In June 2001 following a rainfall event, LFG was observed bubbling through the landfill cover on the north side of the landfill in between LFG vents DV-8 and SV-4 (Figure 4).

Ambient air samples were collected from the area in accordance an U.S. EPA approved work plan, and the analytical results were submitted as part of the May 2002 Monthly Status Report. As part of the Regrading Plan for the Tube Run Area, additional clay cap soil was added to the LFG Escape Area, between June and September 2002 (Figure 3). Monitoring of this Area will continue during bimonthly O&M activities.

No additional uncontrolled LFG releases were identified in Year Five. At this time, the FPD and MWH do not recommend conversion of the passive LFG venting system to an active system.

7.3 O&M MONITORING FREQUENCY

The February 1999 Final O&M Plan specified the initial frequency of O&M monitoring for the various remedial actions completed at the landfill with the monitoring frequency varying from weekly, monthly, quarterly, and semi-annually depending upon the remedial component. The First Year and Second Year Reports on the Leachate Collection System and Landfill Gas Extraction System slightly modified the O&M monitoring frequency. No modifications were made in the Third Year Report. After the fourth year of O&M operations, the characteristics of the remedial components at the Blackwell Landfill are reasonably well known.

Over the past five years there has been little variability in LFG pressure (see Drawings 18 to 20) or in methane content (see Drawings 21-23) at the majority of the individual wells and vents. As well, there are no discernable trends in either LFG pressure or methane content. Maximum methane contents have consistently remained between 60-80% of the total LFG over the past six years, and LFG static pressures have been in the range of 0.5 to 8 inches of water. Thus, continued measurement of these parameters at a reduced frequency would still allow the FPD to determine whether maximum LFG pressures or methane contents were increasing. Therefore, following two modifications to the LFG O&M activities are recommended:

- Reduce the frequency of LFG monitoring at individual wells and vents from bimonthly to semi-annually (i.e., twice per year); and

- Monitor LFG flowrate at the main vent stack on a quarterly basis to coincide with the quarterly LFG sampling program already in place.

8.0 REFERENCES

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TABLES

TABLES

Table 1
Leachate Levels
Blackwell Landfill NPL Site
DuPage County, Illinois

Date	SV-1	SV-2	SV-3	SV-4	SV-5	SV-6	SV-7	SV-8	SV-9	SV-11	SV-12	DV-1	DV-2	DV-3	DV-4	DV-5	DV-6	DV-7	DV-8	DV-9	DV-10	DV-11
6/21/1996	735.02	720.05	728.71	725.71	719.15	736.29	731.14	710.71	710.86	738.03	761.77	NM	752.29	736.05	701.9	695.82	730.83	747.44	723.54	719.12	739.01	750.32
7/23/1996	735.07	717.9	725.26	722.86	718.71	735.37	730.74	710.06	710.26	737.03	761.07	NM	751.54	736.05	704.91	696.12	730.06	746.84	722.89	720.07	738.71	750.72
10/21/1996	734.25	719.4	722.5	NA	715.86	732.77	729.84	710.86	711.11	737.63	762.17	NM	747.59	735.27	700.81	696.55	724.76	NA	722.39	715.19	735.97	747.29
11/19/1997	734.12	719.92	723.16	723.08	717.21	734.17	732.32	710.94	711.25	739.08	762.12	NM	746.79	735	699.56	695.74	746.91	749.79	724.84	719.72	734.73	746.75
1/15/1998	734.97	719.54	727.71	722.36	719.16	735.97	733.69	711.01	711.21	739.88	762.06	NM	752.09	735.25	701.51	695.87	726.36	746.54	724.34	718.82	738.76	751.42
2/18/1998	735.27	719.35	729.06	724.36	720.66	737.27	734.19	711.96	711.46	739.18	762.02	NM	753.84	735.05	703.01	695.67	725.86	750.19	725.09	720.97	737.26	753.17
3/10/1998	735.07	719	728.76	723.41	719.66	736.27	733.48	711.46	710.86	738.63	762.07	NM	753.39	734.65	703.46	696.72	724.21	754.94	723.99	720.17	735.76	751.77
4/14/1998	735.49	719.13	728.43	723.15	720.77	736.32	734.38	712.08	711.57	739.16	762.05	NM	748.46	735.55	705.3	696.75	724.16	NA	724.74	722.08	737.04	750.96
5/13/1998	735.62	713.6	727.06	723.61	720.01	735.87	734.24	711.81	711.46	739.16	762.12	NM	745.94	735.7	706.31	696.52	724.01	753.14	724.09	720.22	737.17	745.47
6/17/1998	734.57	719	725.76	720.66	718.96	735.17	729.04	711.61	711.36	739.03	762.07	NM	743.59	735.3	703.86	695.47	722.11	747.84	723.89	719.52	736.56	748.42
7/15/1998	734.37	719.14	725.31	720.68	720.11	730.67	734.24	711.76	711.56	739.02	762.12	NM	742.69	735.29	703.16	695.67	722.15	NA	724.17	719.7	738.7	742.57
8/11/1998	734.07	719	722.96	720.66	718.01	729.72	727.89	711.61	711.56	739.08	762.07	NM	740.74	735.35	702.16	695.52	721.06	746.89	724.09	718.97	735.41	740.32
9/15/1998	733.92	718.95	721.31	720.81	717.11	729.57	727.39	711.56	711.46	739.18	762.07	NM	741.04	735.15	701.61	695.47	720.66	747.34	723.69	717.87	732.66	740.92
10/16/1998	733.97	719.1	721.26	720.71	716.51	728.97	727.34	711.66	711.56	739.08	762.1	NM	741.89	735.3	701.01	695.67	721.16	747.24	723.39	717.37	733.51	741.87
11/17/1998	734.07	719.05	722.31	721.91	716.76	729.97	726.59	711.66	711.41	739.28	762.12	NM	744.74	731.65	702.31	696.92	722.11	747.14	722.49	719.52	734.86	744.62
12/21/1998	734.26	719.18	723.16	720.84	716.8	730.03	726.19	711.79	711.88	738.42	760.87	NM	741.08	734.28	702.03	695.61	721.81	745.01	722.33	716.97	735.03	740.89
1/12/1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2/17/1999	734.51	719.25	726.08	720.92	717.95	731.76	730.99	712.39	711.88	738.68	760.91	NM	747.1	733.98	705.2	696.21	721.96	745.07	724.39	719.52	734.88	747.12
3/24/1999	734.31	719.18	726.01	720.97	718	731.86	730.59	712.44	711.78	738.52	760.91	NM	750.64	733.73	705.02	695.79	720.7	745.07	722.53	718.37	735.78	749.82
4/16/1999	734.66	719.3	727.46	720.77	718.55	732.81	730.79	712.94	712.23	739.26	760.93	NM	751.29	733.73	704.24	697.21	720.51	745.12	724.38	719.42	739.48	750.5
5/17/1999	734.56	719.15	727.48	721.37	718.8	731.71	730.74	713.09	712.13	738.93	760.98	NM	752.29	733.98	706.5	697.01	720.01	745.12	724.63	719.22	737.03	751.42
6/22/1999	734.41	719.25	725.68	720.97	718.4	731.86	733.39	712.89	712.08	738.53	760.96	NM	750.99	733.98	705.55	696.26	721.01	745.17	721.93	718.07	734.03	752.27
7/22/1999	734.11	719.35	727.43	720.92	717.38	NA	730.31	712.83	712.17	738.38	760.86	NM	751.14	731.98	705.6	695.73	721.49	747.27	723.56	717.19	737.73	752.37
8/25/1999	732.16	717.3	721.53	721.02	714.45	729.56	728.44	710.84	710.23	738.81	760.93	NM	743.74	731.78	701.25	693.91	719.51	745.47	720.78	714.37	729.18	743.27
9/29/1999	732.56	717.3	720.03	720.62	713.8	726.26	727.69	712.64	711.93	736.63	759.06	NM	737.64	731.63	699.05	696.63	721.21	745.77	720.55	713.32	731.98	737.2
10/27/1999	731.91	719	719.68	716.62	713.4	726.21	725.09	710.49	709.83	737.13	759.11	NM	737.34	731.38	698.9	694.01	717.56	745.62	719.48	713.12	726.48	736.97
12/1/1999	731.92	717.2	720.08	720.62	713.05	725.15	728.14	710.44	710.13	736.83	759.08	NM	736.16	731.2	699.5	693.78	718.41	745.75	717.63	712.49	726.08	736.05
12/29/1999	731.81	717.55	720.08	719.22	713.2	726.51	726.29	710.48	710.33	737.08	759.11	NM	736.14	731.18	699.07	694.15	717.76	745.1	719.18	713.22	728.38	736.15
1/25/2000	731.61	717.35	720.08	719.22	713.25	726.01	726.54	710.17	709.93	736.78	759.06	NM	736.54	730.98	699.05	694.11	719.26	745.22	718.73	713.02	727.78	736.42
2/29/2000	731.91	717.25	720.63	725.07	714.8	726.81	730.84	710.46	710.13	736.78	759.11	NM	739.84	731.38	699.05	695.16	719.61	745.77	720.33	718.17	728.23	739.42
3/24/2000	730.91	717.4	720.08	725.32	713.35	725.33	726.14	712.39	711.95	735.53	757.84	NM	740.51	729.81	699.06	696.26	714.13	745.82	719.69	716.97	726.41	740.92
4/28/2000	733.91	719.2	724.67	NA	717.49	730.21	732.77	712.32	711.71	738.69	759.71	NM	NA	732.72	702.9	697.9	717.31	NA	723.51	719.65	725.26	743.67
5/29/2000	734.11	719.2	722.13	720.77	716.7	729.69	727.04	712.49	711.73	738.63	760.91	NM	744.94	732.88	701.65	697.11	717.35	NA	722.98	715.97	721.63	743.92
6/29/2000	734.26	719.6	722.41	725.88	717.38	731.76	729.59	712.63	711.83	738.68	760.91	NM	742.16	732.85	701.98	695.94	717.41	NA	724.03	717.57	721.11	741.56
7/27/2000	734.16	719.4	721.68	719.92	716.67	730.13	729.79	712.69	711.93	739.13	761.01	NM	740.09	732.92	701.31	696.29	717.58	NA	722.91	716.17	722.73	739.84
9/28/2000	NA	719.33	NA	727.31	715.84	727.86	729.28	712.28	711.72	738.36	760.92	NM	NA	732.92	700.38	NA	716.66	740.59	723.45	716.59	723.25	738.25
10/26/2000	733.99	719.36	NA	725.8	715.79	729.11	729.21	711.58	711.97	738.73	760.97	NM	NA	733.17	700.03	702.02	717.01	NA	722.48	715.38	721.4	738.55
11/30/2000	734.07	719.74	NA	725.16	NA	727.21	728.89	712.43	711.82	738.78	760.92	NM	NA	733.22	700.55	701.25	716.51	NA	723.68	718.71	721.7	740.2
12/20/2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1/24/2001	NA	716.14	NA	NA	NA	NA	NA	712.73	NA	NA	760.97	NM	NA	733.62	699.73	702.10	NA	NA	NA	717.41	NA	NA
2/20/2001	734.14	717.72	NA	720.46	717.29	729.56	728.21	713.03	712.02	NA	760.97	NM	NA	732.97	704.25	701.55	716.76	NA	726.93	718.86	721.55	745.7
3/21/2001	734.34	NA	NA	NA	NA	727.56	729.31	713.2	710.07	738.78	760.87	NM	NA	733.37	705.05	702.15	716.76	NA	727.63	722.46	723.75	745
5/31/2001	734.29	719.44	NA	726.16	718.34	728.96	729.11	713.13	713.02	738.68	760.92	NM	NA	732.92	703.4	701.75	716.76	NA	727.18	718.71	723.25	744.5
7/12/2001	734.34	719.24	NA	721.62	716.15	728.72	729.31	713.58	712.22	739.18	761.14	NM	NA	733.30	702.05	NM	716.98	NA	722.43	716.41	722.90	738.97
9/20/2001	735.23	719.84	NA	727.36	716.99	728.31	726.91	713.51	714.91	739.00	761.17	NM	NA	732.86	701.72	699.45	716.98	NA	727.12	718.93	724.60	737.88
11/7/2001	734.39	719.84	NA	727.73	717.5	730.11	727.86	713.83	712.28	739.63	756.2	NM	NA	733.49	703.66	699.1	717.01	NA	722.45	716.81	723.12	744.85
1/17/2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/28/2002	734.37	720.44	NA	724.46	718.24	729.26	733.43	714.38	712.59	740.13	761.22	NM	NA	733.25	703.55	698.65	717.31	NA	724.74	717.55	723.32	749.95
5/31/2002	734.24	721.34	NA	723.44	718.57	730.36	733.46	715.03	712.62	740.38	761.23	NM	NA	733.42	704.75	698.65	718.36	NA	726.11	717.56	724.5	750.8
7/11/2002	734.79	720.64	NA	724.96	717.49	729.96	728.31	714.25	712.37	739.18	761.22	NM	NA	733.41	703.5	NA	717.46	NA	726.38	718.31	725.65	746.6
9/26/2002	734.19	NA	NA	722.55	715.33	728.86	732.5	714.18	712.74	739.38	761.32	NM	NA	733.42	700.55	NA	717.91	NA	723.13	714.93	722.64	739.19
11/21/2002	733.86	721.24	NA	722.26	714.24	727.94	730.41	713.88	712.76	739.13	761.27	NM	NA	732.42	699.65	NA	718.06	NA	719.43	713.68	721.15	748.25
1/30/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	718.06	NA	719.43	713.68	721.15	748.25
4/3/2003	733.64	720.99	NA	726.51	712.84	727.61	730.71	713.25	712.22	740.37	761.37	NA	NA	731.63	700.3	NA	NA	NA	721.23	717.01	724.6	737.65

Table 1
Leachate Levels
Blackwell Landfill NPL Site
DuPage County, Illinois

Date	DV-12	DV-13	DV-14	DV-15	DV-16	DV-17	DV-18	EW-1	EW-1A	EW-2	EW-3	EW-4	EW-5	EW-6	EW-7	EW-8
6/21/1996	700.67	712.85	NA	NA	NA	NA	NA	714.45	709.73	714.84	724.63	713.48	755.91	712.99	720.01	750.71
7/23/1996	704.65	711.7	720.1	700.76	700.84	707.19	NA	714.25	709.73	716.24	727.53	713.28	756.31	714.29	719.21	750.31
10/21/1996	700.38	712.63	716.7	698.61	NA	708.16	727.94	719.85	715.18	721.54	731.43	NA	760.71	720.89	725.11	749.21
11/19/1997	NM	712.45	717.65	701.11	702.33	713.43	NA	716.55	713.1	720.94	730.21	NA	NA	719.38	723.98	746.23
1/15/1998	NM	712.67	717.5	699.06	702.04	706.46	728.54	NA	709.83	719.54	734.06	NA	749.91	719.39	723.81	751.21
2/18/1998	NM	713.6	717.75	700.31	702.09	706.59	729.14	715.08	713.78	722.49	733.73	NA	736.76	719.14	723.41	753.21
3/10/1998	NM	712.65	717.15	700.61	701.89	706.29	728.84	713.58	713.73	713.59	731.4	NA	738.61	717.69	721.21	NA
4/14/1998	NM	713.42	717.46	701.32	702.04	706.87	731.84	714.71	713.8	724.44	732.76	NA	752.84	719.54	722.01	749.82
5/13/1998	NM	713.2	717.3	701.91	701.89	706.94	732.89	716.48	711.83	719.44	725.8	NA	740.36	716.99	719.26	744.61
6/17/1998	NM	713.15	717.25	700.66	702.29	707.09	NA	714.58	712.73	720.94	726.93	NA	739.96	720.19	724.66	744.81
7/15/1998	NM	712.95	717.4	700.8	701.99	707.34	NA	714.68	712.08	720.62	727.28	NA	725.41	720.19	718.16	742.79
8/11/1998	NM	713	717.55	699.61	701.94	707.29	729.14	714.73	710.81	716.86	725.8	NA	732.81	719.79	717.71	741.14
9/15/1998	NM	712.9	718.05	699.11	701.94	707.14	727.74	714.53	710.78	717.74	725.48	709.5	734.51	716.24	716.21	740.76
10/16/1998	NM	713.1	718.35	698.86	NA	705.29	728.99	714.58	710.38	716.54	724.38	NA	736.06	718.79	715.21	741.21
11/17/1998	NM	713	718.55	699.66	701.84	707.04	728.59	714.48	713.63	717.79	726.53	NA	734.26	719.19	717.21	744.66
12/21/1998	NM	713.03	718.76	699.5	702.07	706.96	736.99	714.42	711.68	717.02	726.27	NA	734.25	713.54	715.64	NA
1/12/1999	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2/17/1999	NM	713.43	718.48	701.4	702.07	706.96	738.89	714.53	713.68	721.59	732.03	NA	736.86	716.24	717.81	NA
3/24/1999	NM	713.76	718.03	701.25	702.07	706.91	739.99	714.52	713.76	723.75	732.03	NA	730.52	715.23	717.41	NA
4/16/1999	NM	714.43	718.13	701.45	702.07	707.11	740.09	714.6	713.41	720.99	732.92	NA	736.54	716.84	716.86	NA
5/17/1999	NM	713.93	717.78	702.05	702.17	707.51	740.59	NA	711.58	716.34	732.53	NA	734.16	716.49	713.11	NA
6/22/1999	NM	713.73	717.63	701.55	702.07	707.51	739.99	714.51	713.68	725.04	731.98	NA	735.81	715.94	714.41	NA
7/22/1999	NM	NA	717.88	NA	702.13	707.56	740.78	714.73	NA	715.84	732.33	NA	735.01	716.74	720.11	NA
8/25/1999	NM	713.63	718.33	697.1	702.02	705.61	740.44	714.58	710.98	724.24	726.93	NA	731.56	713.87	713.41	NA
9/29/1999	NM	711.23	716.48	698.1	701.07	707.51	739.04	715.83	NA	719.7	732.08	NA	726.51	716.09	714.51	NA
10/27/1999	NM	711.18	716.68	696.5	702.07	705.61	740.19	714.51	710.48	721.84	733.83	NA	727.41	717.99	709.61	NA
12/1/1999	NM	710.68	716.49	696.5	702.07	705.66	741.59	714.36	709.43	717.13	727.82	713.01	716.21	712.28	NA	NA
12/29/1999	NM	711.4	716.93	696.58	702.05	705.68	740.89	714.33	710.98	713.89	729.88	NA	710.41	717.11	714.31	NA
1/25/2000	NM	710.78	716.63	696.5	702.07	705.21	741.94	714.83	713.03	723.14	731.63	NA	724.61	712.14	714.36	NA
2/29/2000	NM	711.28	716.33	696.6	702.07	705.21	741.24	714.93	713.83	723.04	728.13	712.31	726.61	713.19	713.21	NA
3/24/2000	NM	710.43	717.98	692.9	702.07	707.1	740.24	712.61	708.64	713.55	722.53	NA	720.02	714.44	710.99	NA
4/28/2000	NM	713.88		700.2	702.07	706.9	742.84	714.36	711.8	714.22	730.43	NA	722.68	710.31	712.89	NA
5/29/2000	NM	713.63	717.68	699.3	702.07	707.1	742.74	713.86	711.85	717.07	726.93	NA	723.02	711.99	712.69	NA
6/29/2000	NM	713.82	717.73	699.28	702.08	707.13	742.84	715.31	711.2	715.87	729.9	NA	730.1	711.19	712.6	NA
7/27/2000	NM	714.13	717.98	699	702.17	707.31	742.78	715.19	711.9	716.92	727.05	NA	722.5	712.95	712.63	NA
9/28/2000	NM	712.39	714.76	696.37	701.8	706.92	741.33	714.56	713.4	713.78	727.4	NA	717.5	717.09	713.7	NA
10/26/2000	NM	713.09	714.27	697.92	702.05	707.22	741.78	714.71	711.2	720.84	728.3	NA	722.72	712.21	712.47	NA
11/30/2000	NM	712.69	714.57	698.47	702.05	706.97	741.43	714.76	712.05	717.82	722.38	NA	NA	715.08	712.54	NA
12/20/2000	NM	NA	NA	NA	NA	NA	NA	715.81	713.35	722.82	722.93	NA	NA	713.58	712.39	NA
1/24/2001	NM	713.64	NA	698.22	714.95	706.97	741.53	715.61	713.03	720.62	725.18	NA	725.02	713.68	713.89	NA
2/20/2001	NM	713.84	713.72	701.02	719.95	707.07	741.73	714.81	713.35	720.02	NA	NA	723.47	715.58	711.69	NA
3/21/2001	NM	713.79	717.92	701.37	722.55	NA	741.58	NA	NA	720.02	727.33	NA	NA	NA	NA	NA
5/31/2001	NM	712.29	715.92	702.47	720.15	709.32	744.83	713.16	713.35	718.17	728.33	NA	723.32	717.28	712.39	NA
7/12/2001	NM	715.04	717.54	699.57	712.02	707.87	741.63	760.52	713.26	717.38	728.61	NA	723.32	718.43	712.45	NA
9/20/2001	NM	714.39	717.93	698.50	706.07	707.87	742.23	712.71	NA	716.20	723.93	NA	731.32	715.08	712.59	NA
11/7/2001	NM	715.72	718.37	700.97	708.15	708.22	742.99	712.56	713.45	717.98	726.92	NA	725.17	720.28	712.44	NA
1/17/2002	NA	NA	NA	NA	NA	NA	NA	714.78	713.2	716.17	724.33	NA	728.26	719.28	712.39	NA
3/28/2002	NM	718.52	719.32	700.82	716.16	708.57	743.22	713.26	713.55	717.95	726.23	NA	726.67	719.98	712.29	NA
5/31/2002	NM	717.24	718.52	701.53	717.3	708.82	743.38	713.61	713.71	715.97	730.11	NA	726.37	720.41	712.34	NA
7/11/2002	NM	715.9	717.87	700.82	712.55	708.62	742.78	715.01	713.82	716.42	728.48	NA	726.77	720.33	712.34	NA
9/26/2002	NM	715.99	718.32	698.63	708.13	709.02	742.83	715.91	713.46	716.9	724.38	NA	724.47	Dry	712.39	NA
11/21/2002	NM	715.24	718.82	697.87	707.05	708.67	739.78	717.36	713.33	717.07	723.38	NA	726.77	721.48	712.37	NA
1/30/2003	NM	715.24	718.82	697.87	707.05	708.67	739.78	717.36	713.33	717.07	723.38	NA	726.77	721.48	712.37	NA
4/3/2003	NM	714.29	718.55	697.69	724.65	708.07	742.63	721.66	711.82	715.5	718.03	NA	725.93	720.93	712.19	NA

Notes:

1. NA = not analyzed for particular date
2. NM = not measured as a part of O&M activities
3. Due to new wellhead configuration, leachate level can not be measured in EW-8.
4. Leachate elevations measured on 1-12-99, collected during hostile weather conditions, were omitted from this table due to suspect inaccuracies caused by temperature related equipment failure.
5. Several SVs and DVs were frozen shut on 1-24-01 and could not be sampled.
6. Leachate elevations were not measured at SVs or DVs on 12-20-00, 1-17-02 and 1-30-03 due to frozen flush mount vaults.

Table 2
Leachate Disposal - Daily Basis
Blackwell Landfill NPL Site
DuPage County, Illinois

Date	EW1	EW1A	EW2	EW3	EW4	EW5	EW6	EW7	EW8	LS01	LS02	Extraction Wells (gallons)	Lift Stations (gallons)	Cumulative Totals		
														Total EW (gallons)	Total LS (gallons)	Total LCS (gallons)
4/4/2002	1567	373	1476	1146	90	530	1	345	2193	2279	0	7721	2279	1797949	699579	2,497,528
4/11/2002	1201	235	1108	1109	56	270	0	285	2487	3248	0	6752	3248	1804701	702827	2,507,528
4/18/2002	666	374	1206	1270	65	340	0	317	3316	1947	0	7553	1947	1812255	704774	2,517,028
4/25/2002	0	447	1606	1820	77	555	0	414	2713	2368	0	7632	2368	1819886	707142	2,527,028
5/2/2002	289	284	829	531	43	301	3	209	2574	937	0	5063	937	1824949	708079	2,533,028
5/9/2002	498	208	689	697	32	211	4	185	5492	782	0	8018	782	1832967	708861	2,541,828
5/16/2002	43	222	825	0	37	228	1	223	2169	1952	0	3748	1952	1836715	710814	2,547,528
5/23/2002	177	0	1071	1555	47	270	0	278	1747	4853	0	5147	4853	1841862	715667	2,557,528
5/30/2002	55	0	95	29	4	25	0	20	68	203	0	297	203	1842159	715870	2,558,028
6/6/2002	328	4	929	664	47	349	0	266	5453	1961	0	8039	1961	1850198	717831	2,568,028
6/13/2002	1235	154	1431	1625	93	463	0	435	3679	885	0	9115	885	1859313	718716	2,578,028
6/20/2002	941	0	1095	1136	67	155	0	348	4457	1803	0	8197	1803	1867509	720519	2,588,028
6/25/2002	427	206	478	260	27	219	0	161	4484	3738	0	6262	3738	1873771	724257	2,598,028
6/27/2002	181	74	246	160	16	77	0	84	2176	1987	0	3013	1987	1876785	726244	2,603,028
7/2/2002	0	59	663	422	56	0	0	320	5143	3336	0	6664	3336	1883448	729580	2,613,028
7/9/2002	421	139	441	299	41	394	0	235	4238	2191	0	6209	2191	1889657	731772	2,621,428
7/16/2002	665	100	508	560	61	363	0	271	5338	2135	0	7865	2135	1897522	733907	2,631,428
7/18/2002	158	1	93	18	12	102	0	68	2099	2448	0	2552	2448	1900074	736354	2,636,428
7/25/2002	608	1	416	537	48	324	589	267	4410	2300	0	7200	2300	1907274	738655	2,645,928
8/1/2002	458	0	270	516	29	220	221	156	1677	1953	0	3547	1953	1910821	740607	2,651,428
8/8/2002	889	68	422	730	49	384	268	284	702	1204	0	3796	1204	1914617	741811	2,656,428
8/13/2002	1016	263	500	794	63	407	626	308	4743	1280	0	8720	1280	1923337	743091	2,666,428
8/20/2002	964	250	4	794	154	3	508	335	4947	2041	0	7959	2041	1931296	745132	2,676,428
8/22/2002	77	125	625	914	61	630	9	286	5739	1533	0	8467	1533	1939763	746665	2,686,428
8/27/2002	122	61	11	378	33	216	0	225	5076	1377	0	6123	1377	1945886	748043	2,693,928
8/29/2002	328	93	0	275	22	199	0	164	2111	808	0	3192	808	1949078	748851	2,697,928
9/3/2002	598	136	355	559	42	345	5	286	5132	1041	0	7459	1041	1956536	749892	2,706,428
9/5/2002	168	41	46	22	10	72	0	78	1877	187	0	2313	187	1958849	750079	2,708,928
9/12/2002	625	159	165	288	41	297	0	262	6499	665	0	8335	665	1967185	750744	2,717,928
9/19/2002	435	76	141	494	40	315	18	222	5773	487	0	7513	487	1974697	751231	2,725,928
9/24/2002	0	29	74	235	27	153	0	125	3210	149	0	3851	149	1978549	751380	2,729,928
10/3/2002	599	41	179	601	64	370	499	287	4273	487	0	6913	487	1985462	751867	2,737,328
10/10/2002	0	0	73	130	25	138	0	121	4354	160	0	4840	160	1990302	752026	2,742,328
10/17/2002	183	0	122	253	38	247	0	214	3294	149	0	4351	149	1994653	752175	2,746,828
10/24/2002	76	0	69	183	23	139	0	119	3354	38	0	3962	38	1998615	752213	2,750,828
10/31/2002	18	0	67	169	22	118	0	113	3251	42	0	3758	42	2002373	752255	2,754,628
11/7/2002	123	0	58	155	32	128	0	109	3182	15	0	3785	15	2006159	752270	2,758,428
11/14/2002	24	0	46	85	28	109	1	85	2603	20	0	2980	20	2009139	752290	2,761,428
12/5/2002	273	0	188	543	22	390	4	382	5694	5	0	7495	5	2016634	752294	2,768,928
12/19/2002	322	1	509	1197	334	1084	0	1046	0	8	0	4492	8	2021126	752303	2,773,428
1/2/2003	467	44	332	1207	361	1106	0	1072	0	11	0	4589	11	2025714	752314	2,778,028
1/16/2003	0	4	474	1255	334	711	0	1210	0	12	0	3988	12	2029703	752326	2,782,028
2/6/2003	517	2	363	677	207	608	0	1085	1540	1	0	4999	1	2034702	752326	2,787,028
2/27/2003	314	0	141	943	143	69	0	789	96	5	0	2495	5	2037197	752332	2,789,528
3/27/2003	474	118	446	1183	302	1185	0	1289	0	2	0	4998	2	2042195	752333	2,794,528
4/10/2003	262	339	1671	848	276	681	6	1296	911	3710	0	6290	3710	2048485	756043	2,804,528
4/17/2003	438	347	654	1021	182	0	397	378	68	2015	0	3485	2015	2051971	758058	2,810,028
4/23/2003	0	379	911	1853	418	0	0	758	0	4681	0	4319	4681	2056289	762739	2,819,028
5/1/2003	136	49	67	244	1	88	13	84	3630	289	0	4311	289	2060600	763028	2,823,628

Table 3
Leachate Disposal - Yearly Basis
Blackwell Landfill NPL Site
DuPage County, Illinois

	Leachate Removal from Individual Extraction Wells (gallons)							
	Startup	Year 1	Year 2	Year 3	Year 4	Year 5		
Extraction Well	Dec. 1997 - Feb. 1998	Mar. 1998 - Apr. 1999	May 1999 - Apr. 2000	May 2000 - Apr. 2001	May 2001 - Apr. 2002	May 2002 - Apr. 2003	Cumulative Total	Yearly Average
EW-1	1,000	46,709	24,808	16,062	45,179	15,639	149,397	29,679
EW-1A	606	8,705	4,546	12,111	13,342	3,792	43,102	8,499
EW-2	1,184	36,912	37,593	57,086	52,926	17,961	203,662	40,496
EW-3	4,769	95,292	74,923	142,702	71,233	26,508	415,426	82,131
EW-4	959	2,995	4,520	12,607	3,012	3,972	28,066	5,421
EW-5	2,340	32,483	41,489	32,424	22,798	13,592	145,125	28,557
EW-6	1,727	34,764	13,931	13,054	5,480	3,171	72,126	14,080
EW-7	4,337	182,254	41,147	30,411	19,389	16,328	293,865	57,906
EW-8	2,789	185,847	93,605	145,992	143,932	134,688	706,853	140,813
Subtotal (per Extraction Well)	19,712	625,960	336,560	462,449	377,291	235,651	2,057,623	407,582
LS-01	11,890	226,162	124,649	174,511	136,609	54,949	728,770	143,376
LS-02	13,736	23,503	0	0	0	0	37,239	4,701
Subtotal (per Lift Station)	25,626	249,665	124,649	174,511	136,609	54,949	766,009	148,077
Total	45,338	875,625	461,209	636,960	513,900	290,600	2,823,632	555,659

Table 4

Cumulative Leachate Removal
(Sorted by Extracted Leachate Volume)
Blackwell Landfill NPL Site
DuPage County, Illinois

Extraction Wells/Lift Stations	Total Volume Removed[1] (gallons)	Average Extraction Rate[2] (gallons/month)	Contribution to Total (%)	Cumulative Volume Extracted (gallons)	Cumulative Contribution to Total (%)
LS-01	728,770	11,563	25.8	728,770	25.8
EW-8	706,853	11,356	25.0	1,435,622	50.8
EW-3	415,426	6,624	14.7	1,851,048	65.6
EW-7	293,865	4,670	10.4	2,144,913	76.0
EW-2	203,662	3,266	7.2	2,348,575	83.2
EW-1	149,397	2,394	5.3	2,497,973	88.5
EW-5	145,125	2,303	5.1	2,643,098	93.6
EW-6	72,126	1,135	2.6	2,715,224	96.2
EW-1A	43,102	685	1.5	2,758,326	97.7
LS-02	37,239	379	1.3	2,795,566	99.0
EW-4	28,066	437	1.0	2,823,632	100.0
TOTAL	2,823,632	44,811	100.0	2,823,632	100.0

Notes:
1. Cumulative leachate volumes are from December 1, 1997 to April 30, 2003.
2. During routine pumping.

RHS/mbm/WGB/jmf
J:\209\0762 Blackwell\2090764n20.xls\Cumulative EW
2090762.028101

Table 5
Leachate Analytical Results
Blackwell Landfill NPL Site
DuPage County, Illinois

Parameter	Units	Samples																								
		LLSV8-01	LLDV5-01	Average	BW-LCS-01	BW-LCS-02	BW-LCS-03	BW-LCS-04	BW-LCS-05	BW-LCS-06	BW-LCS-07	BW-LCS-08	BW-LCS-09	BW-LCS-10	BW-LCS-11	BW-LCS-12	BW-LCS-13	BW-LCS-14	BW-LCS-15	BW-LCS-16	BW-LCS-17	BW-LCS-18	BW-LCS-19	BW-LCS-20	BW-LCS-21	BW-LCS-22
		Sep-91	Sep-91	Sep-91	Dec-97	Jan-98	Feb-98	Jun-98	Sep-98	Dec-98	Mar-99	Jul-99	Dec-99	Apr-00	Jul-00	Oct-00	Jan-01	Apr-01	Jul-01	Oct-01	Jan-02	Apr-02	Jul-02	Oct-02	Jan-03	Apr-03
Conventionals																										
BOD_5	mg/L	NA	NA	NA	11,000	10,000	1,530	14,200	29,100	5,940	13,700	3,980	10,700	311	871	4,760	502	448	888	1,460	303	3,040	1,050	595	38	6,880
COD	mg/L	NA	NA	NA	15,000	13,300	1,990	19,900	22,900	7,920	22,600	4,440	16,000	969	1,450	5,900	1,080	730	1,590	1,900	1,060	4,080	3,800	1,030	865	7,360
Nitrogen Ammonia	mg/L	464	395	429.5	427	339	58.1	770	1,100	210	739	180	590	140	66.8	380	88	61	190	140	480	280	190	260	570	220
Oil & Grease	mg/L	NA	NA	NA	526	153	<1	486	<1	31	3	2	9	3	<1	226	6	4	<1	3	<1	20	3	38	<5	125
pH @ 25 °C	mg/L	NA	NA	NA	6.69	6.61	6.44	6.72	6.72	6.42	6.71	7.03	6.85	7.02	6.94	7.53	6.87	7.61	7.72	6.92	7.4	7.01	7.31	7.5	7.95	6.85
Phenol	mg/L	NA	NA	NA	0.44	1.76	0.43	3.09	5.7	1.46	3.2	0.7	2.5	0.28	0.18	0.83	0.13	0.13	0.37	0.54	0.18	0.96	1.25	0.35	0.05	1.61
Total Dissolved Solids	mg/L	12,700	5,690	9,195	13,200	11,400	2,550	18,260	21,000	6,850	23,300	4,920	16,900	3,290	3,490	6,780	2,440	2,460	4,101	3,970	6,130	6,820	6,000	4,770	7,580	7,330
Total Suspended Solids	mg/L	NA	NA	NA	417	476	224	2,040	215	264	1160	200	827	185	48	206	102	35	145	548	22	843	103	54	16	243
Cyanide	mg/L	ND	0.007	0.0035	NA	0.014	<0.005	<0.025	<0.025	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005
Fluoride	mg/L	NA	NA	NA	NA	NA	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hardness	mg/L	NA	NA	NA	NA	NA	1330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate+Nitrite	mg/L	3.18	0.06	1.62	NA	NA	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	mg/L	NA	NA	NA	NA	NA	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	725	41	383	NA	NA	192	NA	NA	NA	NA	NA	NA	NA	NA	NA	140	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics																										
Arsenic	mg/L	0.045	0.045	0.045	0.008	<0.002	<0.002	<0.002	<0.004	<0.002	<0.004	NA	<0.04	<0.002	0.004	0.004	<0.002	<0.02	<0.002	<0.002	0.003	0.003	0.011	0.006	0.009	0.008
Barium	mg/L	0.612	0.32	0.466	0.273	0.304	0.178	2.02	0.918	0.192	0.578	NA	0.625	0.377	0.218	0.073	0.262	0.069	0.045	0.144	0.161	0.306	0.547	0.265	0.056	0.338
Boron	mg/L	NA	NA	NA	4.8	3.87	1.24	6.32	7.15	2.26	7.71	NA	6.29	1.65	1.07	3.15	1.06	0.52	0.06	1.34	2.9	1.4	2.91	2.88	3.86	2.4
Cadmium	mg/L	0.026	0.007	0.0165	0.082	0.051	0.008	0.18	0.049	0.037	0.062	NA	0.092	0.006	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/L	0.022	0.144	0.083	0.008	0.01	0.871	0.07	0.022	0.005	0.018	NA	0.021	0.007	0.004	0.009	0.004	0.003	0.008	0.006	0.016	0.012	0.015	0.017	0.016	0.008
Chromium, Hexavalent	mg/L	NA	NA	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium, Trivalent	mg/L	NA	NA	NA	NA	NA	0.871	NA	NA	NA	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/L	ND	0.069	0.0345	<0.01	<0.01	0.025	<0.001	<0.002	<0.01	<0.002	NA	0.297	<0.001	<0.001	0.076	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	mg/L	2,120	182	1,151	550	542	89.6	792	552	451	1,010	NA	1,300	68.7	3.3	49	45.5	11.3	4.59	82.4	20.5	121	172	49.2	5.11	290
Lead	mg/L	0.03	0.396	0.213	0.1	0.066	0.014	0.534	0.138	0.05	0.109	NA	NA	0.027	0.009	0.003	0.004	<0.002	0.003	<0.002	0.008	0.008	0.012	0.006	0.006	0.01
Manganese	mg/L	30.6	2.86	16.73	8.5	8.72	1.82	13.4	8.71	8.7	14.6	NA	13.8	1.45	2.13	2.15	1.66	0.594	0.062	2.18	0.0131	1.18	3.57	0.371	0.018	6.12
Mercury	mg/L	ND	0.002	0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.001	NA	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L	0.233	0.186	0.2095	0.131	0.109	0.352	0.218	0.167	0.085	0.214	NA	0.167	0.036	0.023	0.062	0.013	0.012	0.004	0.029	0.063	0.03	0.04	0.054	0.088	0.038
Selenium	mg/L	NA	NA	NA	<0.02	<0.02	<0.02	<0.002	<0.004	<0.02	<0.004	NA	<0.04	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002
Silver	mg/L	0.03	ND	0.015	<0.001	<0.001	<0.01	<0.001	<0.002	<0.001	<0.002	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001
Zinc	mg/L	60.5	1.48	30.99	19.9	18.5	2.6	11.2	3.09	16.5	23.8	NA	28.8	2.93	0.5	0.454	0.364	0.19	0.035	0.144	0.248	0.812	1.32	0.65	0.086	1.52
Volatile Organic Compounds																										
Acetone	ug/L	10,000	49	5,025	2,420	NA	442	NA	12,600	NA	7,710	NA	6,300	NA	NA	NA	NA	NA	428	NA	177	NA	903	NA	78	NA
Acrolein	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100	<100	NA	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100	<100	NA	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	ug/L	160	27	93.5	26.1 J	NA	25.5	NA	36.2	NA	32	NA	18.01	8.4	5.3	NA	8.6	NA	<5	NA	<5	NA	<5	NA	<5	NA
Bromodichloromethane	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<1	NA	<1	NA
Bromoform	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<1	NA	<1	NA
Bromomethane	ug/L	NA	NA	NA	<100	NA	<10	NA	<10	NA	<10	NA	<10	<10	<10	NA	<10	NA	<10	NA	<10	NA	<5	NA	<5	NA
2-Butanone	ug/L	NA	NA	NA	7,410	NA	854	NA	24,300	NA	17,000	NA	22,100	NA	NA	NA	NA	NA	815	NA	180	NA	1,910	NA	<10	NA
Carbon disulfide	ug/L	ND	ND	ND	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
Carbon tetrachloride	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
Chlorobenzene	ug/L	ND	ND	ND	10.6 J	NA	124	NA	20.4	NA	11	NA	<5	25.2	<5	NA	25.8	NA	<5	NA	9.3	NA	<5	NA	<5	NA
Chlorodibromomethane	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<1	NA	<1	NA
Chloroethane	ug/L	NA	NA	NA	<100	NA	<10	NA	23.4	NA	12	NA	<10	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
2-Chloroethylvinyl ether	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	<10	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<1	NA	<1	NA
Chloromethane	ug/L	NA	NA	NA	<100	NA	<10	NA	<10	NA	<10	NA	<10	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
1,1-Dichloroethane	ug/L	180	3	91.5	<50	NA	10.3	NA	9.2	NA	9	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
1,2-Dichloroethane	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
1,1-Dichlorethene	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
cis-1,2-Dichloroethene	ug/L	NA	NA	NA	116	NA	99.2	NA	43	NA	88	NA	45.2	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
trans-1,2-Dichloroethene	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
1,2-Dichloroethene (total)	ug/L	280	7	143.5	NA	NA	NA	NA	NA	NA	NA	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	ug/L	ND	ND	ND	<50	NA	14.2	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
cis-1,3-Dichloropropene	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<1	NA	<1	NA
trans-1,3-Dichloropropene	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<1	NA	<1	NA
Ethyl Benzene	ug/L	84	130	107	38.4 J	NA	27.6	NA	38.5	NA	48	NA	42.8	7.2	<5	NA	7.6	NA	<5	NA	<5	NA	<5	NA	<5	NA
2-Hexanone	ug/L	NA	NA	NA	<100	NA	<10	NA	29.6	NA	24	NA	<10	NA	NA	NA	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA
4-Methyl-2-pentanone	ug/L	1,100	28	564	144	NA	61.4	NA	544	NA	472	NA	353	NA	NA	NA	NA	NA	26.4	NA	13.5	NA	50	NA	<10	NA
Methylene chloride	ug/L	NA	NA	NA	<50	NA	41.5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA

Table 5
Leachate Analytical Results
Blackwell Landfill NPL Site
DuPage County, Illinois

Parameter	Units	Samples																								
		LLSV8-01	LLDV5-01	Average	BW-LCS-01	BW-LCS-02	BW-LCS-03	BW-LCS-04	BW-LCS-05	BW-LCS-06	BW-LCS-07	BW-LCS-08	BW-LCS-09	BW-LCS-10	BW-LCS-11	BW-LCS-12	BW-LCS-13	BW-LCS-14	BW-LCS-15	BW-LCS-16	BW-LCS-17	BW-LCS-18	BW-LCS-19	BW-LCS-20	BW-LCS-21	BW-LCS-22
		Sep-91	Sep-91	Sep-91	Dec-97	Jan-98	Feb-98	Jun-98	Sep-98	Dec-98	Mar-99	Jul-99	Dec-99	Apr-00	Jul-00	Oct-00	Jan-01	Apr-01	Jul-01	Oct-01	Jan-02	Apr-02	Jul-02	Oct-02	Jan-03	Apr-03
Volatile Organic Compounds (Continued)																										
Styrene	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	<5	NA
1,1,2,2-Tetrachloroethane	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
Tetrachloroethene	ug/L	ND	ND	ND	<50	NA	<5	NA	<5	NA	5	NA	17.8	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
Toluene	ug/L	1,800	49	924.5	197	NA	117	NA	119	NA	192	NA	113	30.2	11.7	NA	24.6	NA	<5	NA	<5	NA	8.1	NA	<5	NA
1,1,1-Trichloroethane	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
1,1,2-Trichloroethane	ug/L	NA	NA	NA	<50	NA	<5	NA	<5	NA	<5	NA	<5	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
Trichloroethene	ug/L	170	ND	85	23.7 J	NA	11.1	NA	6.2	NA	19	NA	15.4	<5	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA	<5	NA
Vinyl Acetate	ug/L	NA	NA	NA	<100	NA	<10	NA	<10	NA	<10	NA	<10	NA	NA	NA	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA
Vinyl Chloride	ug/L	ND	ND	ND	<100	NA	<10	NA	<10	NA	<10	NA	<10	<10	<10	NA	<10	NA	<2	NA	<2	NA	<2	NA	<2	NA
Xylenes (total)	ug/L	260	400	330	175	NA	95.8	NA	186	NA	<5	NA	228	NA	NA	NA	NA	NA	<5	NA	<5	NA	<5	NA	<5	NA
Semivolatile Organic Compounds																										
Acenaphthene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Acenaphthylene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Anthracene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Benzidine	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Benzo[a]anthracene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Benzo[b]fluoranthene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Benzo[k]fluoranthene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Benzo[g,h,i]perylene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Benzo[a]pyrene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	NA	NA	<10	NA	<10	NA	<10	NA
Benzoic Acid	ug/L	NA	NA	NA	<250	NA	<50	NA	3,990	NA	15,400	NA	3,130	NA	NA	NA	NA	NA	<50	NA	346	NA	730	NA	<50	NA
Benzyl Alcohol	ug/L	NA	NA	NA	<100	NA	<20	NA	<400	NA	<600	NA	<200	NA	NA	NA	NA	NA	<20	NA	<20	NA	<20	NA	<20	NA
bis(2-chloroethoxy)methane	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
bis(2-chloroethyl) ether	ug/L	ND	ND	ND	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
bis(2-chloroisopropyl) ether	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
bis(2-ethylhexyl) phthalate	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<6	NA	<10	NA	<10	NA	<5	NA
4-Bromophenyl-phenylether	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Butylbenzylphthalate	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
4-Chloroaniline	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	NA	NA	NA	NA	NA	<20	NA	<10	NA	<10	NA	<10	NA
4-Chloro-3-methylphenol	ug/L	ND	34	17	<100	NA	<20	NA	<400	NA	<600	NA	<200	<20	<20	NA	<20	NA	<10	NA	<20	NA	<20	NA	<20	NA
2-Chloronaphthalene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
2-Chlorophenol	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
4-Chlorophenyl-phenylether	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Chrysene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	NA	NA	<10	NA	<10	NA	<10	NA
Dibenz[a,h]anthracene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	NA	NA	<10	NA	<10	NA	<10	NA
Dibenzofuran	ug/L	ND	ND	ND	<50	NA	<10	NA	<200	NA	<300	NA	<100	NA	NA	NA	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA
1,2-Dichlorobenzene	ug/L	ND	4	2	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
1,3-Dichlorobenzene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
1,4-Dichlorobenzene	ug/L	ND	940	470	<50	NA	<10	NA	<200	NA	<300	NA	<100	27	12	NA	17	NA	<10	NA	<10	NA	<10	NA	<10	NA
3,3-Dichlorobenzidine	ug/L	NA	NA	NA	<100	NA	<20	NA	<400	NA	<600	NA	<200	<20	<20	NA	<20	NA	<20	NA	<20	NA	<20	NA	<20	NA
2,4-Dichlorophenol	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Diethylphthalate	ug/L	ND	33	16.5	<50	NA	147	NA	<200	NA	<300	NA	<100	<10	12	NA	<10	NA	55	NA	17	NA	<10	NA	<10	NA
2,4-Dimethylphenol	ug/L	ND	10	5	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Dimethylphthalate	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	55	NA	<10	NA	<10	NA	<10	NA
Di-n-butylphthalate	ug/L	ND	ND	ND	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
4,6-Dinitro-2-methylphenol	ug/L	NA	NA	NA	<250	NA	<50	NA	<1,000	NA	<1,500	NA	<500	<50	<50	NA	<50	NA	<50	NA	<50	NA	<50	NA	<50	NA
2,4-Dinitrophenol	ug/L	NA	NA	NA	<250	NA	<50	NA	<1,000	NA	<1,500	NA	<500	<50	<50	NA	<50	NA	<50	NA	<50	NA	<50	NA	<50	NA
2,4-Dinitrotoluene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
2,6-Dinitrotoluene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
1,2-Diphenylhydrazine	ug/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	<10	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Fluoranthene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Fluorene	ug/L	ND	ND	ND	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Hexachlorobenzene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	NA	NA	<10	NA	<10	NA	<10	NA
Hexachlorobutadiene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Hexachlorocyclopentadiene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Hexachloroethane	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<5	NA
Ideno[1,2,3-cd]pyrene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	NA	NA	<10	NA	<10	NA	<10	NA
Isophorone	ug/L	ND	ND	ND	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
2-Methylnaphthalene	ug/L	ND	ND	ND	<50	NA	<10	NA	<200	NA	<300	NA	<100	NA	NA	NA	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA
2-Methylphenol	ug/L	ND	ND	ND	<50	NA	<10	NA	<200	NA	<300	NA	<100	<50	<50	NA	<50	NA	<10	NA	<10	NA	<10	NA	<10	NA

Table 5
Leachate Analytical Results
Blackwell Landfill NPL Site
DuPage County, Illinois

Parameter	Units	Samples																								
		LLSV8-01	LLDV5-01	Average	BW-LCS-01	BW-LCS-02	BW-LCS-03	BW-LCS-04	BW-LCS-05	BW-LCS-06	BW-LCS-07	BW-LCS-08	BW-LCS-09	BW-LCS-10	BW-LCS-11	BW-LCS-12	BW-LCS-13	BW-LCS-14	BW-LCS-15	BW-LCS-16	BW-LCS-17	BW-LCS-18	BW-LCS-19	BW-LCS-20	BW-LCS-21	BW-LCS-22
		Sep-91	Sep-91	Sep-91	Dec-97	Jan-98	Feb-98	Jun-98	Sep-98	Dec-98	Mar-99	Jul-99	Dec-99	Apr-00	Jul-00	Oct-00	Jan-01	Apr-01	Jul-01	Oct-01	Jan-02	Apr-02	Jul-02	Oct-02	Jan-03	Apr-03
Semivolatile Organic Compounds (Continued)																										
3&4-Methylphenol	ug/L	17,000	5	8,503	229	NA	275	NA	10,100	NA	7,640	NA	6,870	157	380	NA	168	NA	101	NA	224	NA	410	NA	<10	NA
Naphthalene	ug/L	ND	960	480	<50	NA	<10	NA	866	NA	<300	NA	<100	15	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
2-Nitroaniline	ug/L	NA	NA	NA	<250	NA	<50	NA	<1,000	NA	<1,500	NA	<500	NA	NA	NA	NA	NA	<50	NA	<50	NA	<50	NA	<50	NA
3-Nitroaniline	ug/L	NA	NA	NA	<250	NA	<50	NA	<1,000	NA	<1,500	NA	<500	NA	NA	NA	NA	NA	<50	NA	<50	NA	<50	NA	<50	NA
4-Nitroaniline	ug/L	NA	NA	NA	<100	NA	<20	NA	<400	NA	<600	NA	<200	NA	NA	NA	NA	NA	<20	NA	<20	NA	<20	NA	<20	NA
Nitrobenzene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
2-Nitrophenol	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
4-Nitrophenol	ug/L	NA	NA	NA	<250	NA	<50	NA	<1,000	NA	<1,500	NA	<500	<50	<50	NA	<50	NA	<50	NA	<50	NA	<50	NA	<50	NA
N-Nitrosodimethylamine	ug/L	ND	ND	ND	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
N-Nitroso-di-n-propylamine	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
n-Nitrosodiphenylamine	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Pentachlorophenol	ug/L	ND	ND	ND	<250	NA	<50	NA	<1,000	NA	<1,500	NA	<500	<50	<50	NA	<50	NA	NA	NA	<50	NA	<50	NA	<50	NA
Phenanthrene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Phenol	ug/L	ND	ND	ND	124	NA	111	NA	1,620	NA	1,900	NA	1,280	23	32	NA	25	NA	100	NA	23	NA	118	NA	<10	NA
Pyrene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Pyridine	ug/L	NA	NA	NA	<250	NA	NA	NA	NA	NA	NA	NA	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
2,4,5-Trichlorophenol	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	NA	NA	NA	NA	NA	<10	NA	<10	NA	<10	NA	<10	NA
2,4,6-Trichlorophenol	ug/L	NA	NA	NA	<50	NA	<10	NA	<200	NA	<300	NA	<100	<10	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA	<10	NA
Pesticides																										
Aldrin	ug/L	NA	NA	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.5	NA	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
alpha-BHC	ug/L	NA	NA	NA	<0.05	NA	<0.05	NA	NA	NA	<0.5	NA	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
beta-BHC	ug/L	NA	NA	NA	<0.05	NA	<0.05	NA	NA	NA	<0.5	NA	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
delta-BHC	ug/L	NA	NA	NA	<0.05	NA	<0.05	NA	NA	NA	<0.5	NA	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
Lindane (gamma-BHC)	ug/L	NA	NA	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.5	NA	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
alpha-Chlordane	ug/L	NA	NA	NA	<0.50	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.50	<0.5	<0.5	NA	<0.5	NA	<0.50	NA	<0.50	NA	<0.50	NA	<0.50	NA
gamma-Chlordane	ug/L	NA	NA	NA	<0.50	NA	<0.5	NA	<0.5	NA	<0.5	NA	<0.50	<0.5	<0.5	NA	<0.5	NA	<0.50	NA	<0.50	NA	<0.50	NA	<0.50	NA
4,4'-DDD	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
4,4'-DDE	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
4,4'-DDT	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
Dieldrin	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
Endosulfan I	ug/L	NA	NA	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.5	NA	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
Endosulfan II	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
Endosulfan sulfate	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
Endrin	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
Endrin aldehyde	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
Endrin ketone	ug/L	NA	NA	NA	<0.10	NA	<0.1	NA	<0.1	NA	<1	NA	<0.10	<0.10	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA	<0.10	NA
Heptachlor	ug/L	NA	NA	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.5	NA	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
Heptachlor epoxide	ug/L	NA	NA	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.5	NA	<0.05	<0.05	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
Methoxychlor	ug/L	NA	NA	NA	<0.5	NA	<0.5	NA	<0.5	NA	<5	NA	<0.50	<0.50	<0.50	NA	<0.50	NA	<0.50	NA	<0.50	NA	<0.50	NA	<0.50	NA
Toxaphene	ug/L	NA	NA	NA	<1	NA	<1	NA	<1	NA	<10	NA	<1.0	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	<1.0	NA	<1.0	NA	<1.0	NA

Notes:
NA: No analysis
ND: Not detected.
J: Data flag indicates an estimated value.

Table 6
Landfill Gas Analytical Results
Blackwell Landfill NPL Site
DuPage County, Illinois

Sample Identification	Sample Collection Date	Atmospheric Pressure (in. Hg)	ASTM D1945/1946			U.S. EPA Modified Method 25C	
			% of CO_2 (%-v/v)	% of O_2 (%-v/v)	% of N_2 (%-v/v)	Methane ppm-c	Total Non-Methane Organic Compounds, as Methane ppm-c
FPD-LFGSTACK-01	September 15, 1998	29.97	33	0.51	1.90	550,000	1,400
BW-LFGSTACK-02	September 23, 1998	30.23	36	0.51	2.00	570,000	400
BW-LFGSTACK-03	October 27, 1998	30.14	35	0.53	2.00	570,000	900
BW-LFGSTACK-04	October 28, 1998	29.99	35	0.53	2.00	570,000	710
BW-LFGSTACK-05	November 24, 1998	30.14	39	0.47	2.30	570,000	39
BW-LFGSTACK-06	November 25, 1998	29.76	38	0.96	3.40	560,000	22
BW-LFGSTACK-07	March 24, 1999	30.20	34	0.93	5.00	580,000	1,200
BW-LFGSTACK-08	March 31, 1999	29.43	34	1.10	4.60	580,000	1,200
BW-LFGSTACK-09A	August 13, 1999	29.7	34	0.98	2.70	650,000	1,100
BW-LFGSTACK-10A	August 18, 1999	30.08	33	0.76	2.30	650,000	1,200
BW-LFGSTACK-11A	January 4, 2000	29.92	37	0.71	ND	690,000	1,700
BW-LFGSTACK-12A	January 14, 2000	30.72	35	2.80	8.30	630,000	1,500
BW-LFGSTACK-13A	June 19, 2000	30.11	34	0.20	8.30	640,000	1,900
BW-LFGSTACK-14A	June 28, 2000	30.02	31	0.60	12.00	590,000	830
BW-LFGSTACK-15A	October 16, 2000	30.18	34	0.73	7.20	640,000	1,900
BW-LFGSTACK-16A	January 4, 2001	29.97	33	0.60	7.20	600,000	1,300
BW-LFGSTACK-17A	April 2, 2001	30.17	33	0.21	8.10	590,000	1,300
BW-LFGSTACK-18A	June 29, 2001	30.06	32	0.19	5.90	620,000	1,000
BW-LFGSTACK-19A	October 4, 2001	30.02	34	0.22	3.80	620,000	1,700
BW-LFGSTACK-20A	December 12, 2001	30.02	33	0.35	6.20	600,000	1,700
BW-LFGSTACK-21A	April 3, 2002	30.29	32	ND	12.00	570,000	1,400
BW-LFGSTACK-22A	June 27, 2002	29.83	33	0.18	12.00	590,000	1,500
BW-LFGSTACK-23A	September 26, 2002	29.86	30	ND	9.00	570,000	1,400
BW-LFGSTACK-24A	January 7, 2003	29.98	30	1.80	18.00	510,000	960
BW-LFGSTACK-25A	April 11, 2003	29.95	31	2.50	13.00	520,000	1,000
Averages	-	30	34	0.80	6.63	593,200	1,170

Notes:
in. Hg: Inches mercury.
%-v/v: Percent by volume.
ppm-c: Parts per million - carbon
ND: Not detected

RHS/mbm/WGB/jmf
J:\209\0764 Blackwell\2090764n22.xls\Table 6
2090764.028101

Table 7
Inspection, Monitoring, and Maintenance Schedule
Blackwell Landfill Site

The frequencies will be modified as experience with the systems dictate. The following forms are available for use during inspection, monitoring, and maintenance activities:

- Site Visit Operating Log
- Leachate Disposal Log
- Leachate and LFG Monitoring Form
- Maintenance and Repair Record Form
- Inspection Reporting Form
- Gas Vent Monitoring Form
- Replacement Equipment and Parts Log

AS-NEEDED BASIS

• Landfill Cover (following 10 yr., 24 hr rainfall event)	- Inspect for erosion, cracks - Inspect for water ponding - Inspect for siltation of drainage ways - Inspect for gas bubbling through landfill topsoil
• Control Building (following disposal of leachate)	- Record pump counter readings - Record depth of leachate in holding tank (before and after disposal)
• Site Conditions	- Document date and time - Document weather conditions - Conduct general inspection (fence, locks, sign, etc.)
• Main Vent Stack	- Inspect valve settings - Conduct general inspection (fence, locks, signs, etc.)

WEEKLY BASIS

• Control Building	- Visually check building exterior alarm lights - Visually check panel indicator lights - Check heater thermostat setting and status - Visually check building vents and fans - Inspect compressor and dryer operation - Drain water traps on compressor and dryer
• Leachate Holding Tank	- Inspect valve settings - Check volume in tank - General inspection - Visually check tank, leak detection, and dripleg riser condition

Table 7
Inspection, Monitoring, and Maintenance Schedule
Blackwell Landfill Site

BI-MONTHLY

- Leachate Extraction Wells (wellheads)
  - Measure leachate level during period of high atmospheric pressure
  - Document pump cycle counts
  - Conduct general inspection
  - Adjust needle valve if the extraction rate is to be modified. Check air supply pressure
  - Check air pump pressure
  - Check level sensor air pressure
  - Inspect flow meter operation
  - Check air supply and pump discharge valve settings
- Leachate Lift Stations
  - Document pump cycle counts
  - Conduct general inspection
  - Verify pump operation
  - Check position of manual isolation valve
- LFG Vents
  - Measure leachate level during period of high atmospheric pressure
  - Conduct general inspection
- Main Vent Stack
  - Conduct general inspection
  - Check manual valve position

SEMI-ANNUALLY

- Leachate Extraction Wells (wellheads)
  - Measure percent methane (CH_4)
  - Measure percent oxygen (O_2)
  - Measure percent carbon dioxide (CO_2)
  - Measure static pressure
- Leachate Lift Stations
  - Measure percent methane (CH_4)
  - Measure percent oxygen (O_2)
  - Measure percent carbon dioxide (CO_2)
  - Measure static pressure
- LFG Vents
  - Measure percent methane (CH_4)
  - Measure percent oxygen (O_2)
  - Measure percent carbon dioxide (CO_2)
  - Measure static pressure
  - Measure gas flow rate
  - Measure gas temperature
- Main Vent Stack
  - Measure percent methane (CH4)
  - Measure percent oxygen (O_2)
  - Measure percent carbon dioxide (CO_2)
  - Measure gas flow rate
  - Measure gas temperature

Table 7
Inspection, Monitoring, and Maintenance Schedule
Blackwell Landfill Site

Monitoring Location	Bi-Monthly O&M Activities		Semi-Annual O&M Activities	Connected to LCS and LFG extraction system[1]
	Abandoned[1]	Monitor Leachate Levels[1]	Monitor LFG[1, 2]	
SV-1		X		
SV-2		X		
SV-3	X			
SV-4		X	X	X
SV-5		X	X	X
SV-6		X		
SV-7		X		
SV-8		X	X	X
SV-9		X	X	X
SV-10	X			
SV-11		X		
SV-12		X		
DV-1	X			
DV-2	X			
DV-3		X		
DV-4		X		
DV-5[3]		X	X	X
DV-6		X		
DV-7[4]				
DV-8		X	X	X
DV-9		X	X	X
DV-10		X	X	X
DV-11		X	X	
DV-12	X			
DV-13		X		
DV-14		X		
DV-15[3]		X	X	X
DV-16[3]		X	X	X
DV-17		X	X	X
DV-18		X	X	X
EW-1[5]		X	X	X
EW-1A[5]		X	X	X
EW-2[5]		X	X	X
EW-3[5]		X	X	X
EW-4[5,6]			X	X
EW-5[5]		X	X	X
EW-6[5]		X	X	X
EW-7[5]		X	X	X
EW-8[5,7]				X
LS01[5]			X	X
LS02[8]				X
Main Vent[9]			X	X

Table 7
Inspection, Monitoring, and Maintenance Schedule
Blackwell Landfill Site

Notes:

1. "X" indicates data collection or action taken.
2. LFG monitoring includes static pressure, flow velocity, temperature, and composition (i.e., % CH_4, CO_2, and O_2)
3. Leachate level not measured. LFG vents DV-5, DV-15 and DV-16 measure groundwater levels.
4. Leachate level in DV-7 not measured due to obstruction.
5. LFG flow velocity and temperature are not measured at extraction wells or lift stations. Pump cycle counts documented.
6. Due to the configuration of EW-4, leachate levels are difficult or impossible to collect.
7. Due to the configuration of EW-8, leachate levels and LFG parameters are not collected. Leachate levels and LFG parameters from DV-11 are assumed to be similar to EW-8.
8. The pneumatic pump from LS02 was removed. No O&M data collected.
9. Static pressure is not measured at the main vent stack. The main vent stack is open to the atmosphere.

QUARTERLY

• Compressor/Dryer Systems	- Inspect and clean filters. Lubricate, if necessary
• Leachate Holding Tank	- Conduct required analytical testing
• Control Station	- Remove water from condensate trap on supply air line
• Site Inspection	- Inspect fenced areas (main vent stack, tank and compressor station) - Inspect posted signs and notices - Inspect access, including roads, to LCS and LFG system components - Inspect flush-mount vaults - Inspect for excessive or improper vegetation in, or around, LCS or LFG system components
• Landfill Gas Sampling (at main vent stack)	- Conduct required LFG analytical testing - Measure gas flow rate
• Landfill Cover	- Inspect for erosion, cracks - Inspect for water ponding - Inspect for siltation of drainage ways - Inspect for stressed or dead vegetation

SEMI-ANNUALLY

• Leachate Holding Tank	- Conduct required analytical testing
• Driplegs DL01 and DL02	- Check liquid levels in "u" traps if an active LFG extraction system is installed.

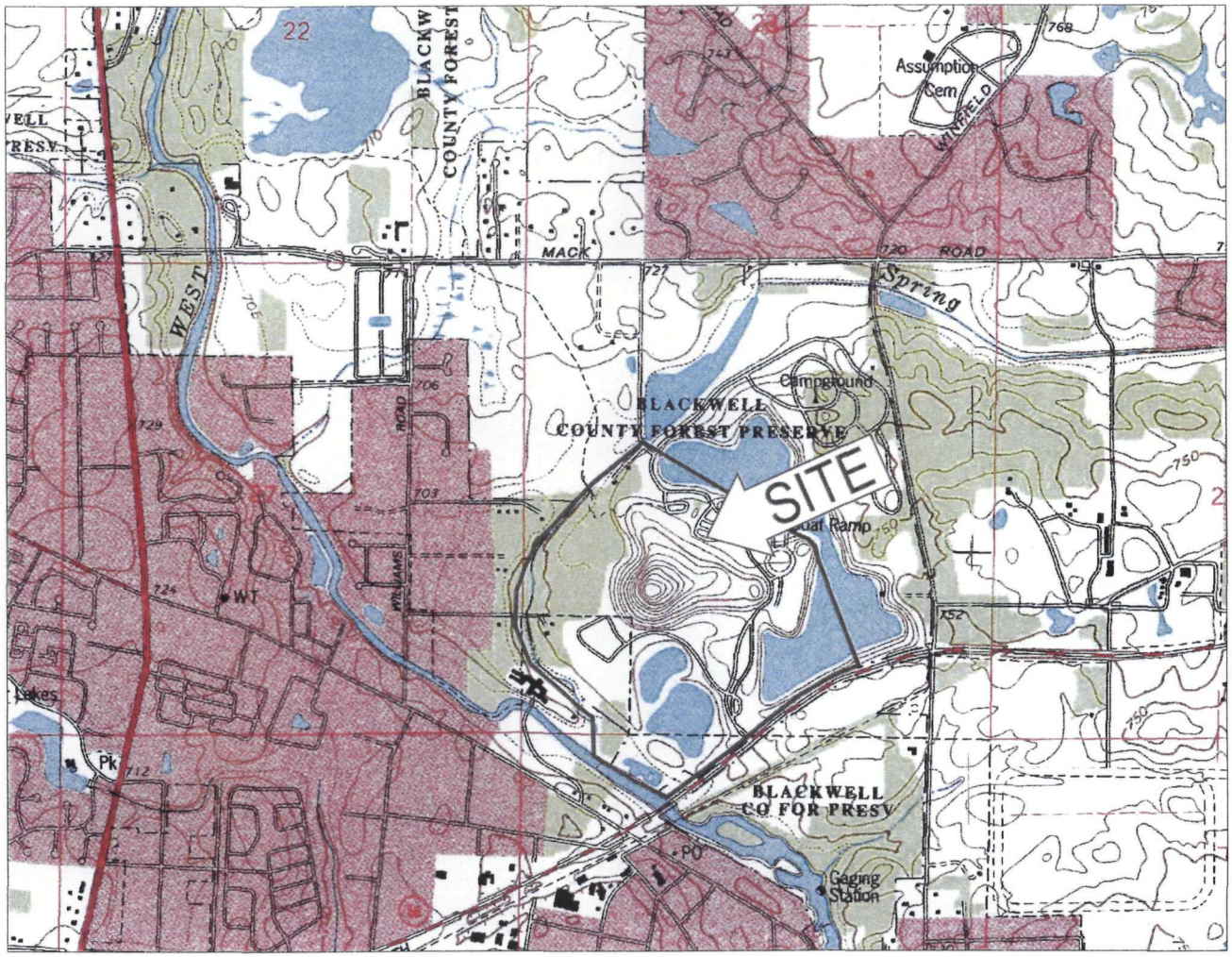
Table 7
Inspection, Monitoring, and Maintenance Schedule
Blackwell Landfill Site

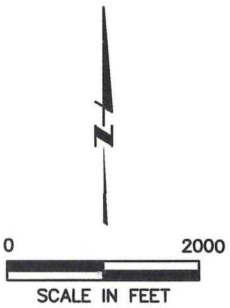
ANNUALLY

• Compressor/Dryer Systems	- Perform annual maintenance as necessary
• All Valves	- Confirm valve operation by operating throughout entire range of motion several times
• Leachate Holding Tank	- Inspect liquid level floats, interlocked controls and warning lights operation - Inspect moisture probes (leak detection riser and tank interstice
• Padlocks, Gates, Doors, etc.	- Lubricate with grease and verify working condition
• Lift Station LS01 (if system is made inoperable by shutting off air supply valve)	- Bleed out condensate in air supply line

FIGURES

FIGURES





BASE MAP DEVELOPED FROM THE
NAPERVILLE, ILLINOIS 7.5 MINUTE
U.S.G.S. TOPOGRAPHIC QUADRANGLE MAP
DATED: 1993

MWH	BLACKWELL LANDFILL NPL SITE DUPAGE COUNTY, ILLINOIS	SITE LOCATION	FIGURE 1

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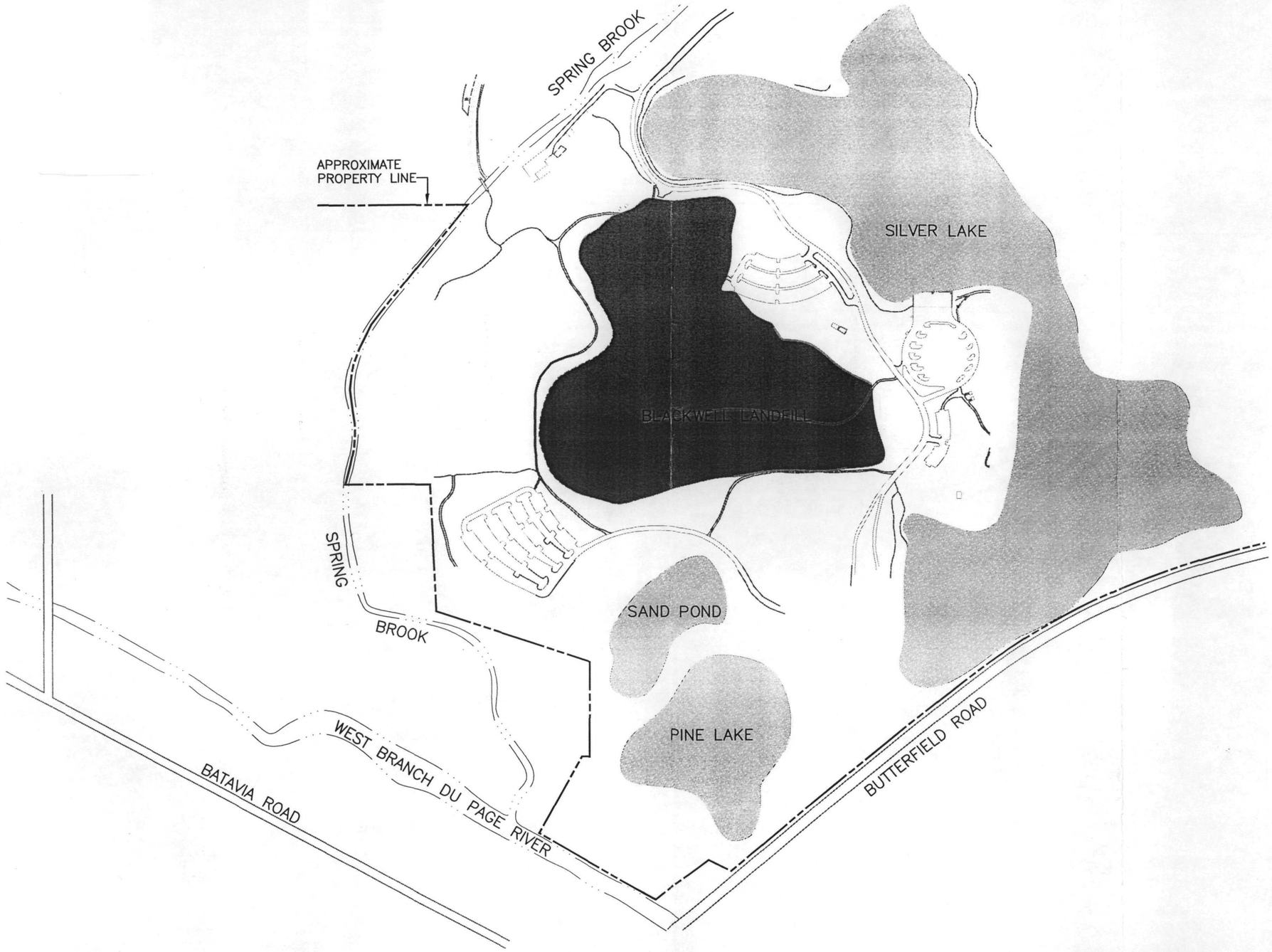

MWH	BLACKWELL LANDFILL NPL SITE DU PAGE COUNTY, ILLINOIS	SITE FEATURES MAP	FIGURE 2

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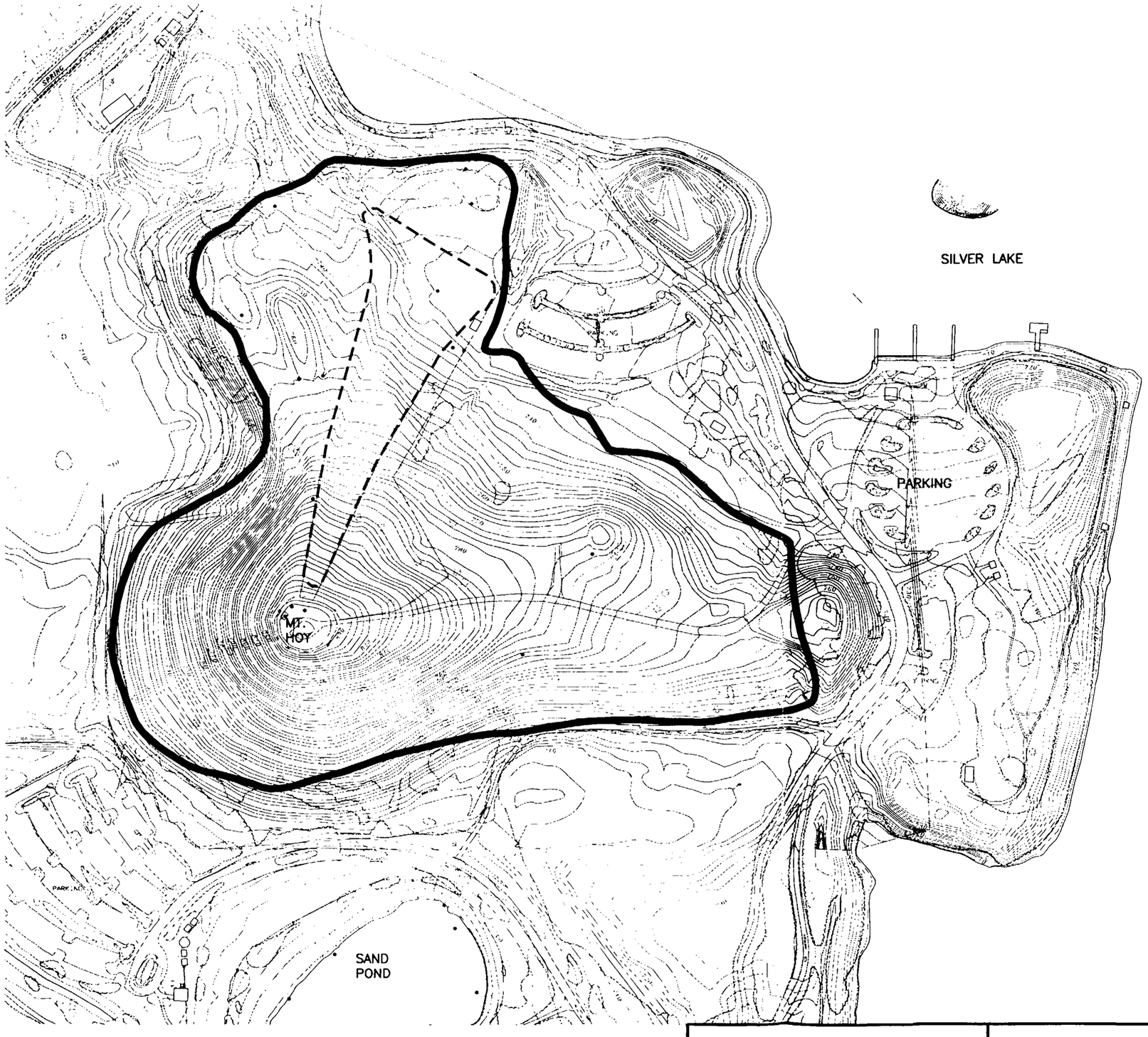

0 250
SCALE IN FEET

LEGEND

- BUILDING
- PAVED ROAD
- TREE
- BRUSHLINE
- WATER OUTLINE
- FENCE
- INDEX CONTOUR
- LIMITS OF REFUSE
- APPROXIMATE AREA OF REGRADED TUBE RUN (COMPLETED FALL 2002)

NOTES:

1. TOPOGRAPHIC CONTOURS AND LIMITS OF TREES GENERATED BY AERO-METRIC, INC. SHEBOYGAN, WISCONSIN, BASED ON NOVEMBER 2001 PHOTOGRAPHY.
2. AN AERIAL SURVEY IS SCHEDULED FOR WINTER 2003/2004. THE RESULTS OF THE SURVEY WILL BE USED TO PRODUCE AN UPDATED CONTOUR MAP.

MWH	BLACKWELL LANDFILL NPL SITE DUPAGE COUNTY, ILLINOIS	TOPOGRAPHIC MAP (2001)	FIGURE 3

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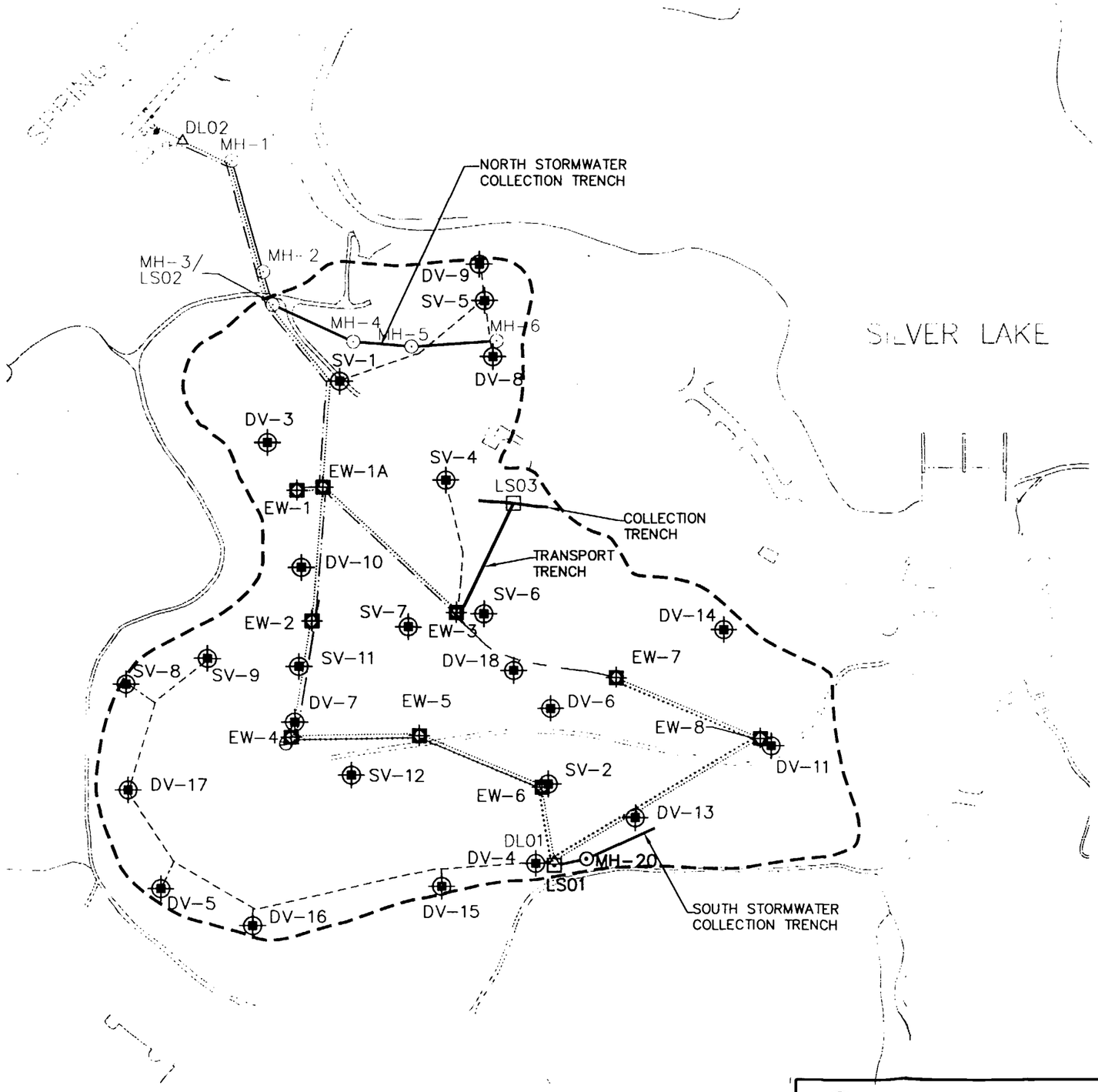

LEGEND

- DV-9 — VENT PIPE LOCATION AND NUMBER
- MH-20 — MANHOLE LOCATION AND NUMBER WITH LIQUID CUTOFF TRENCH AND PIPE
- EW-6 — LEACHATE EXTRACTION WELL/GAS VENT LOCATION AND NUMBER
- LIMITS OF REFUSE BASED ON GEOPHYSICAL TESTING AND SOIL BORINGS
- LS01 — LIFT STATION LOCATION AND NUMBER
- LEACHATE PRESSURE CONVEYANCE PIPE AND CONTROL WIRE
- LEACHATE GRAVITY CONVEYANCE PIPE
- GAS HEADER PIPE
- DL01 — DRIPLEG LOCATION AND NUMBER
- COLLECTION TRENCH COMPONENTS

N

0 250
SCALE IN FEET

NOTES

1. APPROXIMATE LIMITS OF REFUSE HAVE BEEN ESTIMATED BASED ON INFORMATION PRESENTED IN THE PREDESIGN REPORT, APRIL 1997.

MWH	BLACKWELL LANDFILL NPL SITE DUPAGE COUNTY, ILLINOIS	LCS AND LFG SYSTEMS	FIGURE 4

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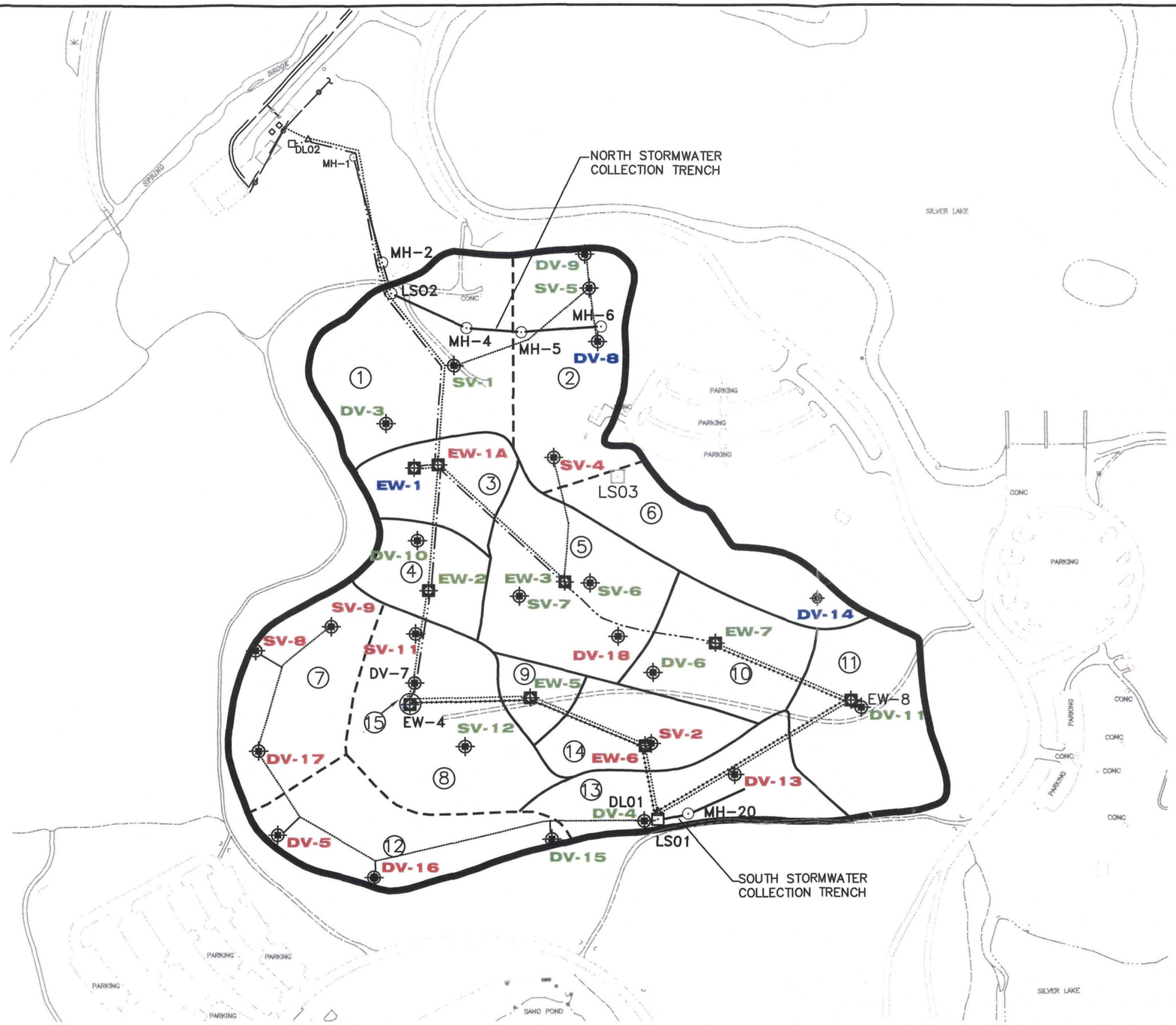

LEGEND

- DV-8 — MONITORING WELL LOCATION AND NUMBER VENT PIPE LOCATION AND NUMBER
- MH-6 — MANHOLE LOCATION AND NUMBER WITH LIQUID CUTOFF TRENCH AND PIPE
- EW-1 — LEACHATE EXTRACTION WELL/GAS VENT LOCATION AND NUMBER
- LS01 — LIFT STATION LOCATION AND NUMBER
- LIMITS OF REFUSE TESTING AND SOIL BORINGS
- LEACHATE PRESSURE CONVEYANCE PIPE
- LEACHATE GRAVITY CONVEYANCE PIPE
- APPROXIMATE GAS HEADER PIPE
- DV-16 — EXTRACTION WELL OR VENT WITH INCREASING LEACHATE LEVEL TREND
- EW-1A — EXTRACTION WELL OR VENT WITH FLAT LEACHATE LEVEL TREND
- EW-1 — EXTRACTION WELL OR VENT WITH DECREASING LEACHATE LEVEL TREND
- EW-4 — EXTRACTION WELL OR VENT WHERE LEACHATE LEVELS ARE NO LONGER MEASURED
- (1) — LANDFILL AREA NUMBER

NOTES

1. BASE MAP DEVELOPED FROM AERIAL SURVEY TOPOGRAPHIC MAP BY AERO-METRIC ENGINEERING PROJECT NO. 109222, APRIL 3 AND 5, 1992.
2. FLAT LEACHATE LEVEL TRENDS ARE DEFINED AS HAVING LEACHATE LEVEL TRENDLINE SLOPES = -0.1 FT/YR $\leq X \leq 0.1$ FT/YR.

N

0 250
SCALE IN FEET

SCALE			FIGURE
1" = 250'	MWH	BLACKWELL LANDFILL NPL SITE DUPAGE COUNTY, ILLINOIS	LEACHATE LEVEL TRENDS FIFTH YEAR OF LCS OPERATIONS	5

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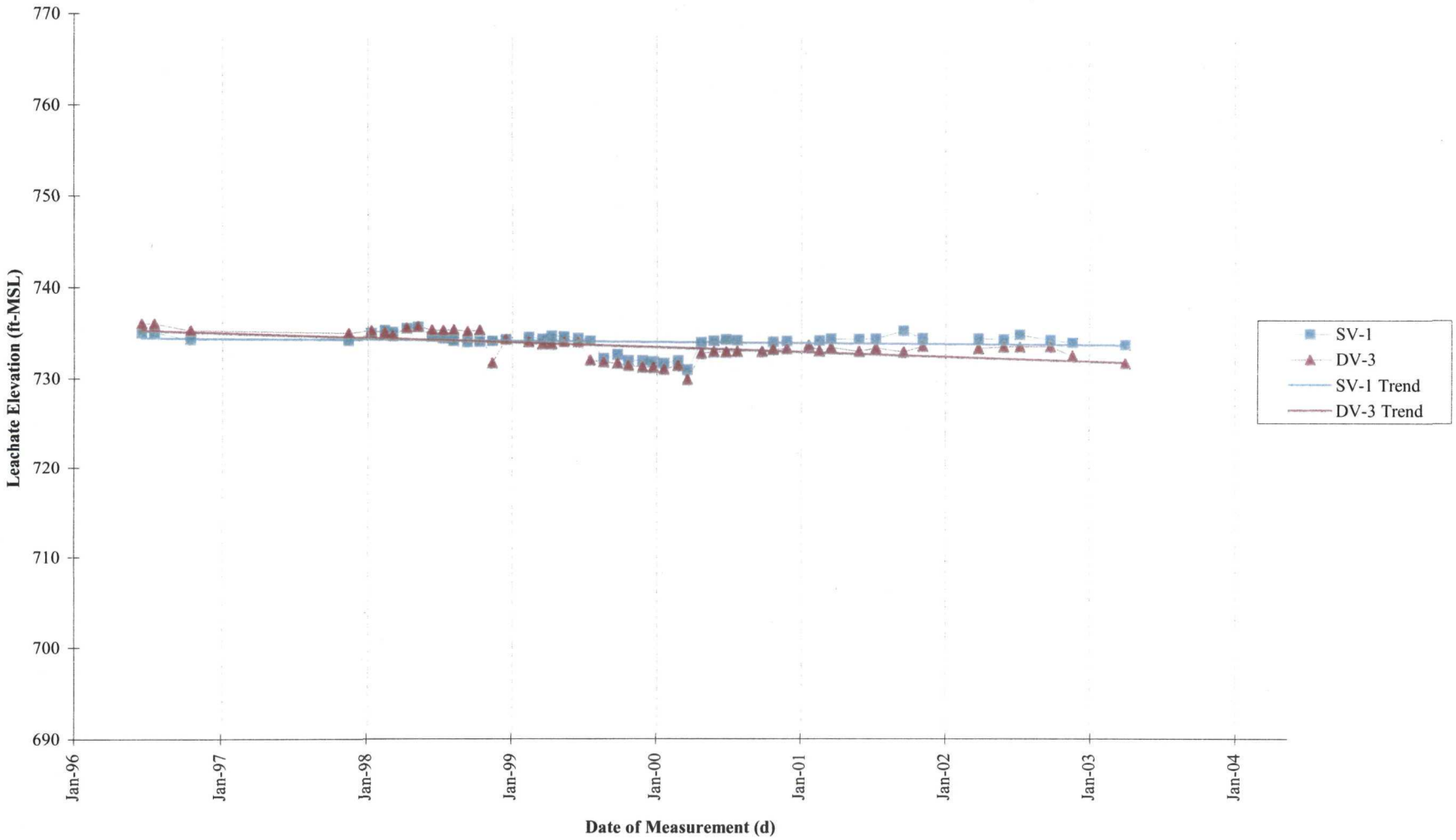
DRAWINGS

DRAWINGS

NOTE: THE SLOPES LISTED ON DRAWINGS 1 TO 15 ARE THE SLOPES OF THE FITTED LINEAR TRENDLINES
(NOTE: SLOPES ARE CONSIDERED FLAT WHEN SLOPE IS
-0.1 ft/yr $\leq$ SLOPE $\leq +0.1$ ft/yr)

Drawing 1
Leachate Elevations in Landfill Area 1
Blackwell Landfill NPL Site



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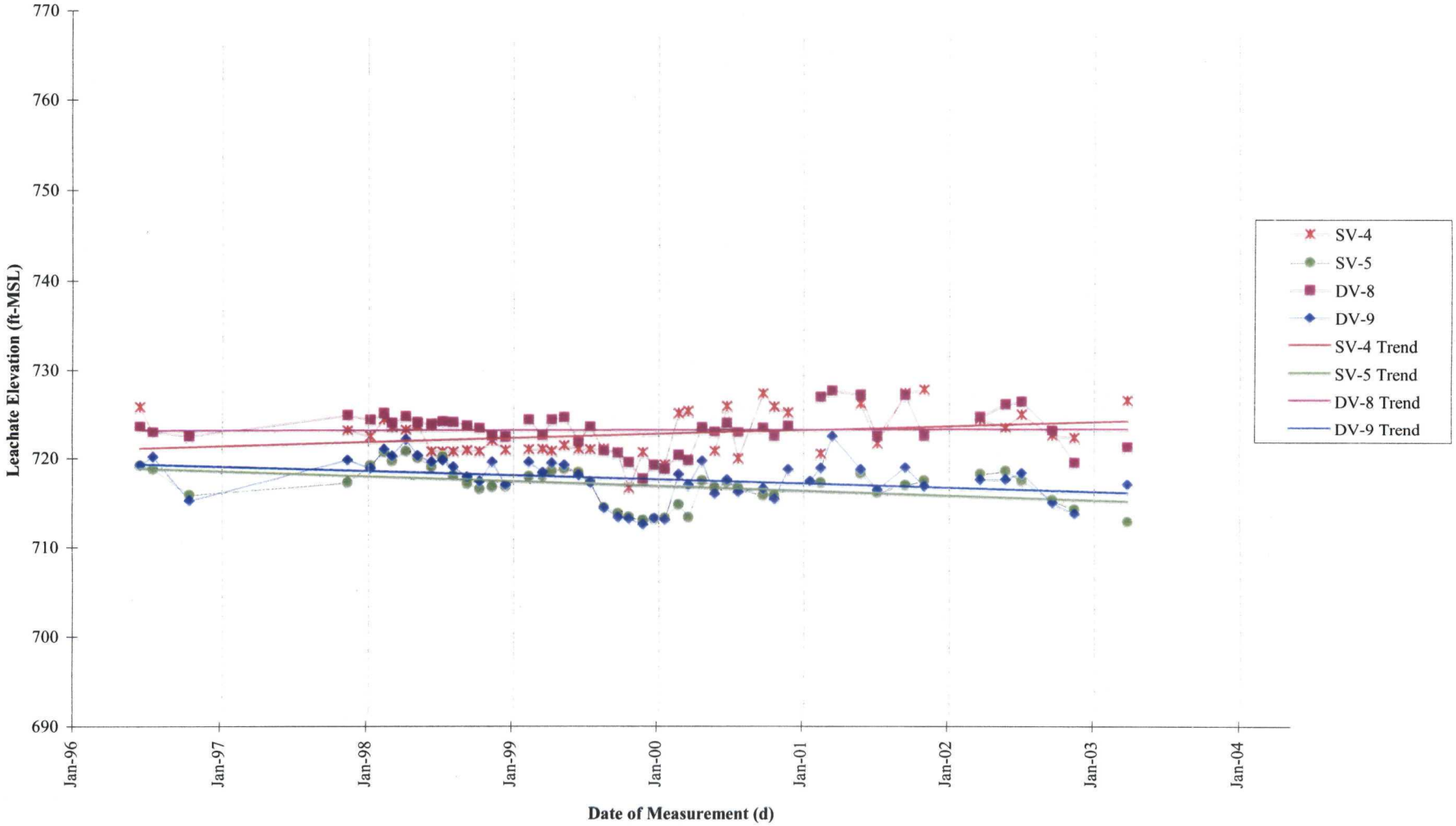
Drawing 2
Leachate Elevations in Landfill Area 2
Blackwell Landfill NPL Site



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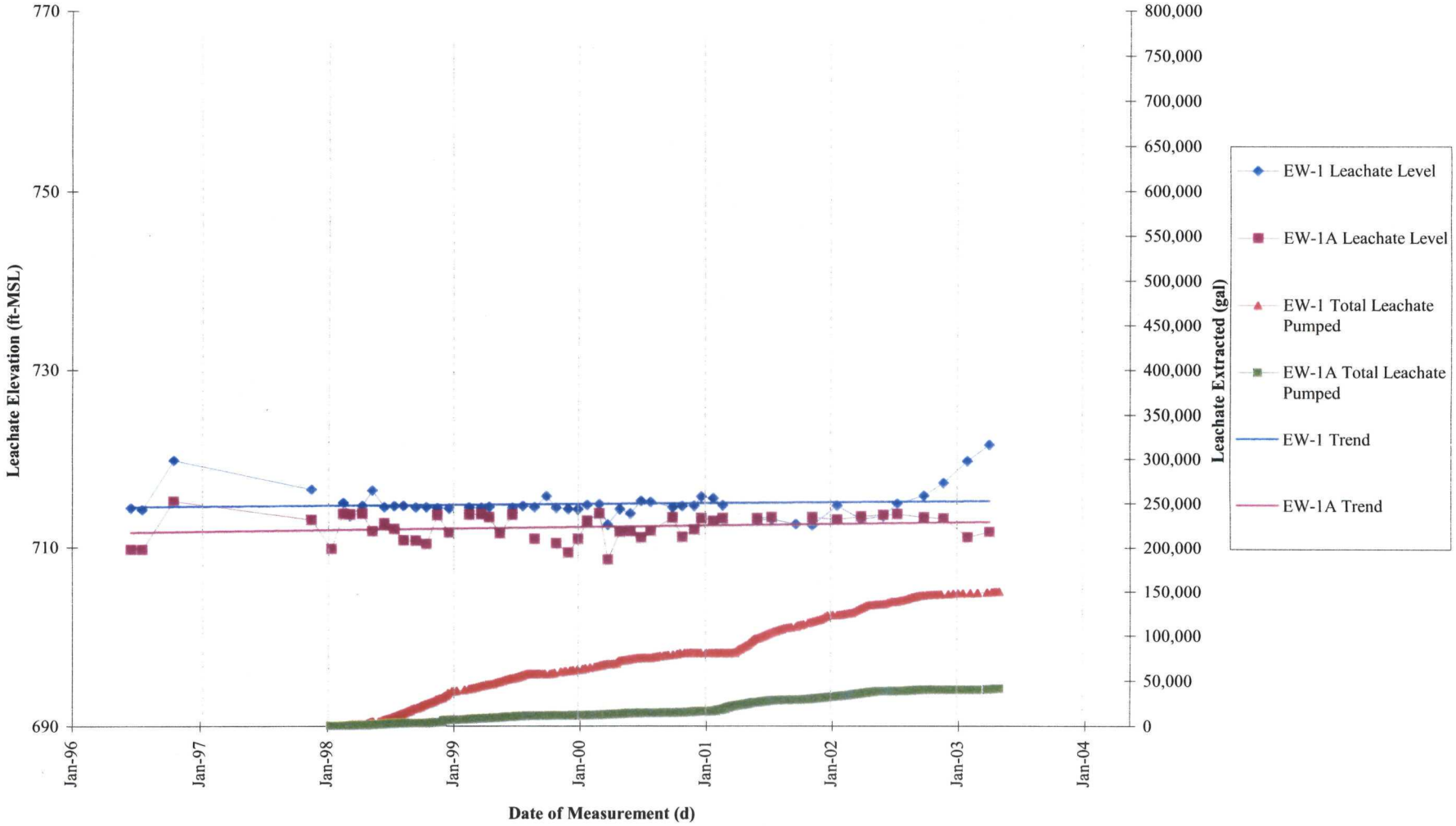
Drawing 3
Leachate Elevations in Landfill Area 3
Blackwell Landfill NPL Site



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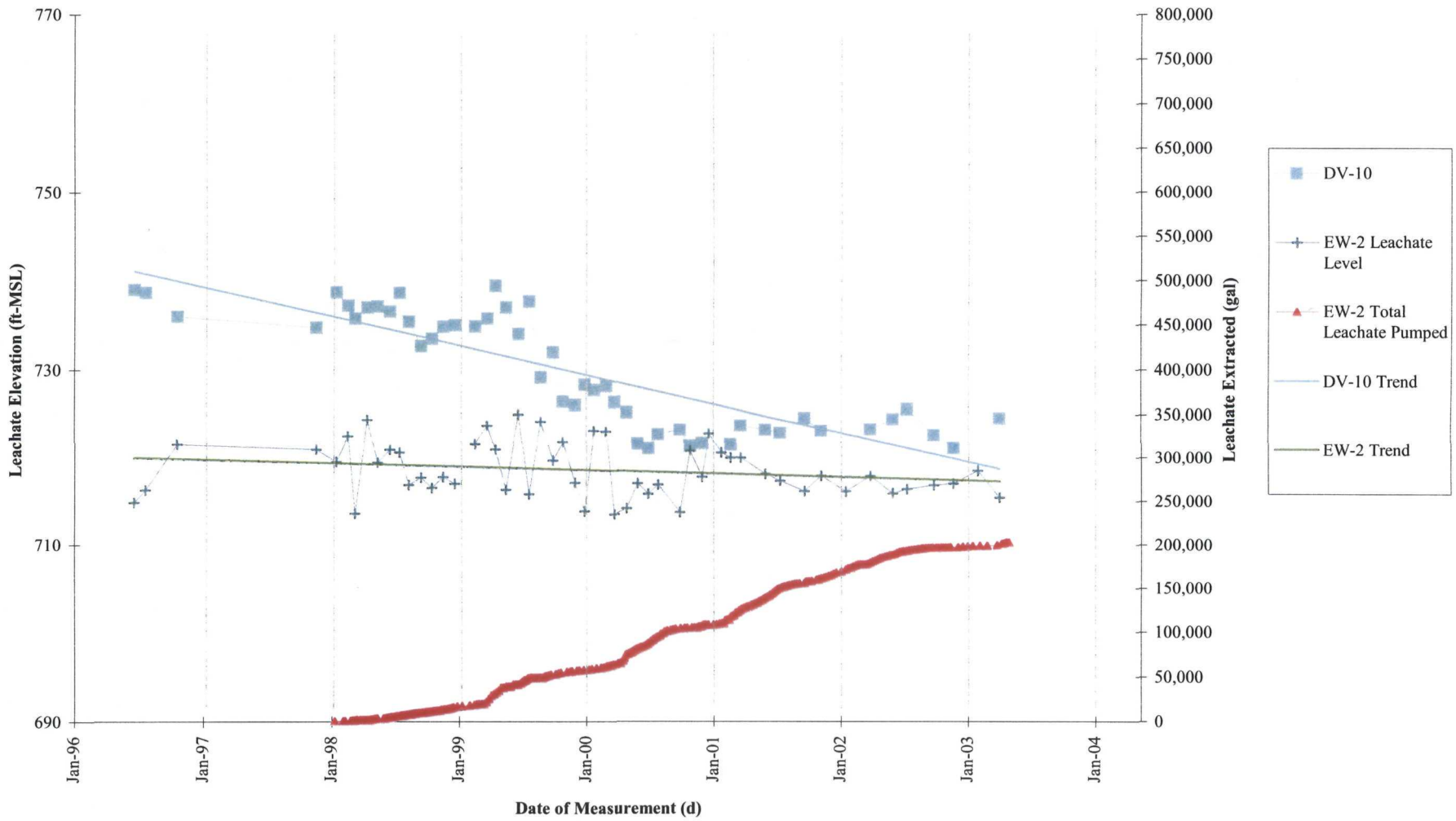
Drawing 4
Leachate Elevations in Landfill Area 4
Blackwell Landfill NPL Site



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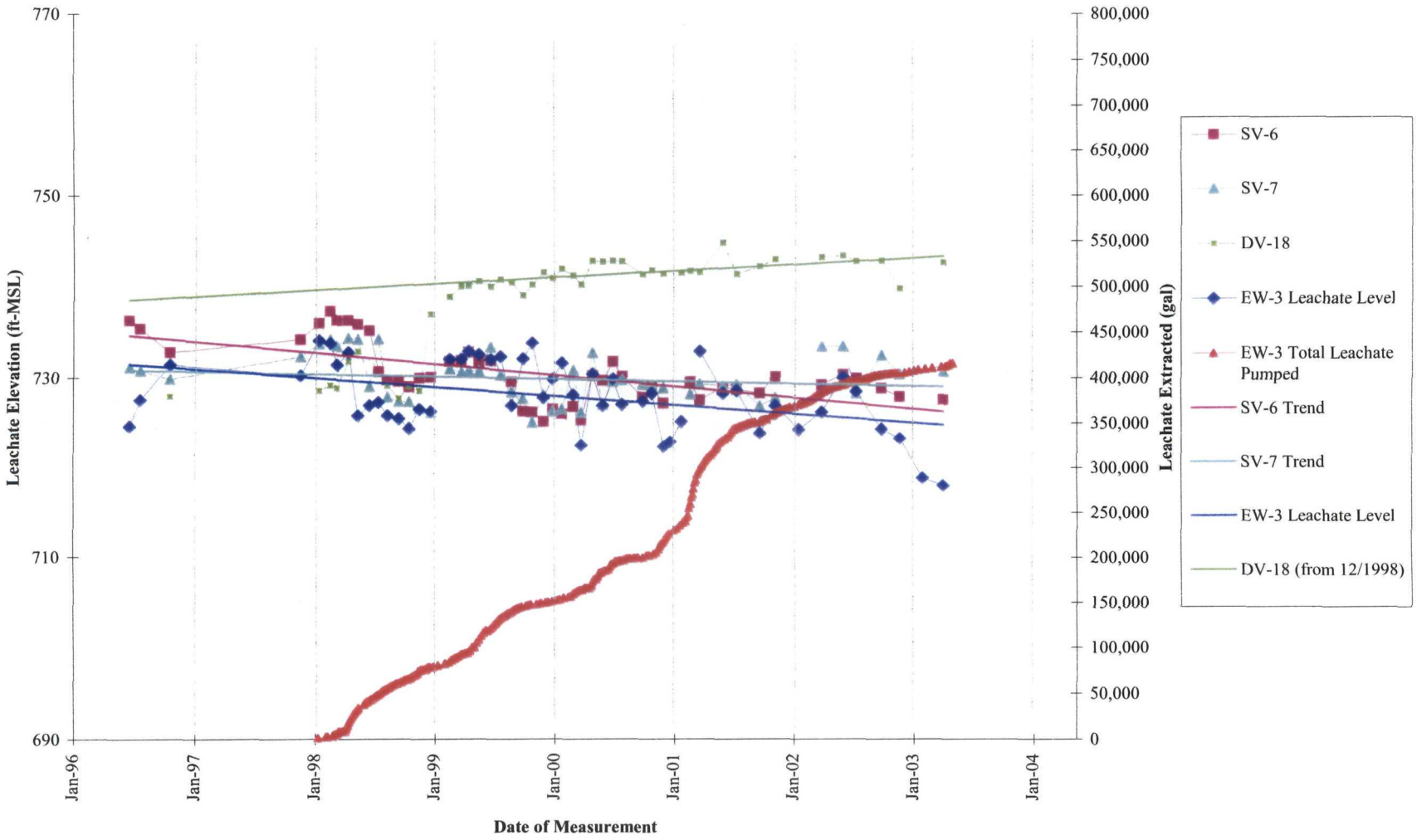
Drawing 5
Leachate Elevations in Landfill Area 5
Blackwell Landfill NPL Site



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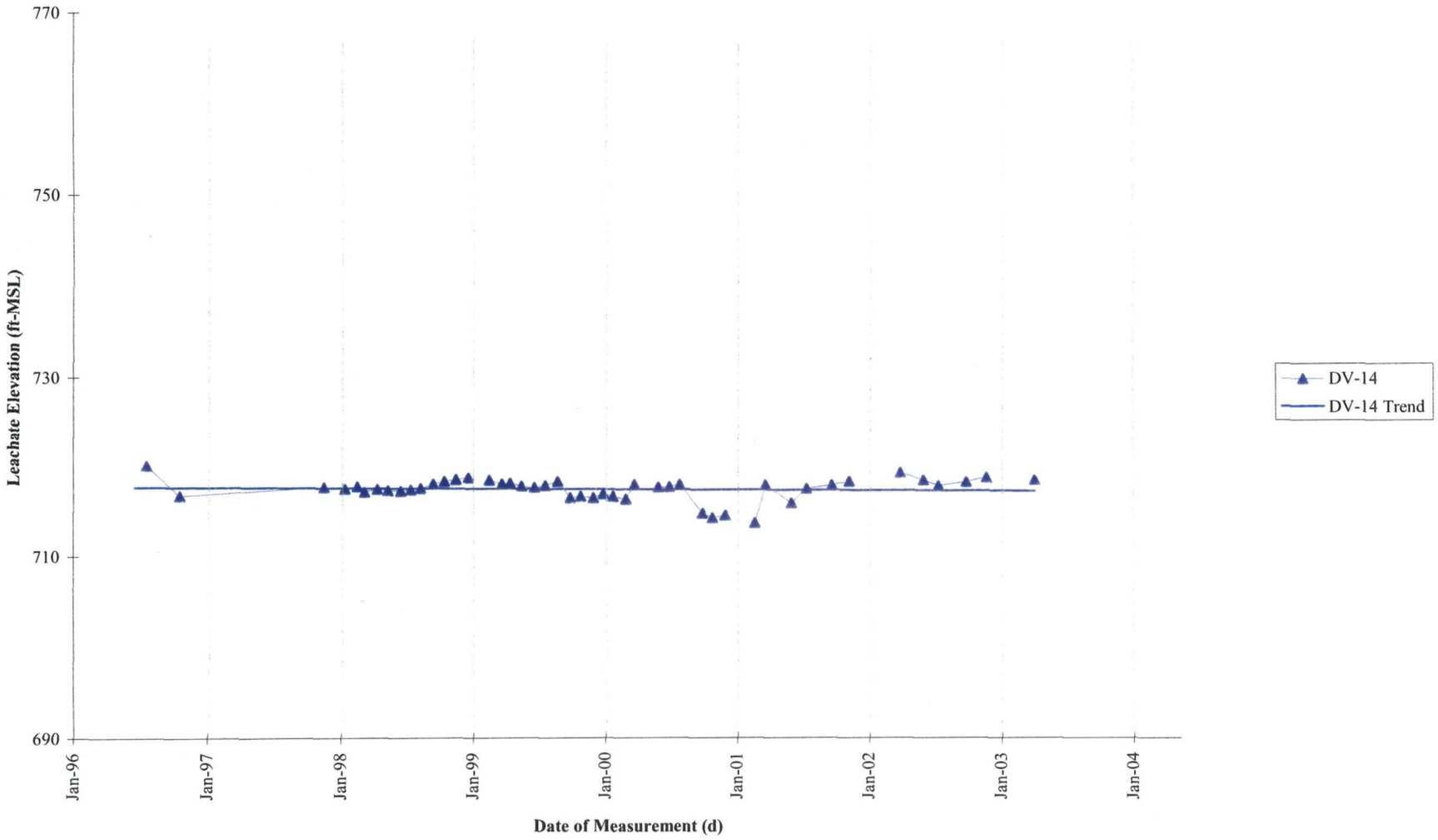
Drawing 6
Leachate Elevations in Landfill Area 6
Blackwell Landfill NPL Site



RHS/mbm/WGB
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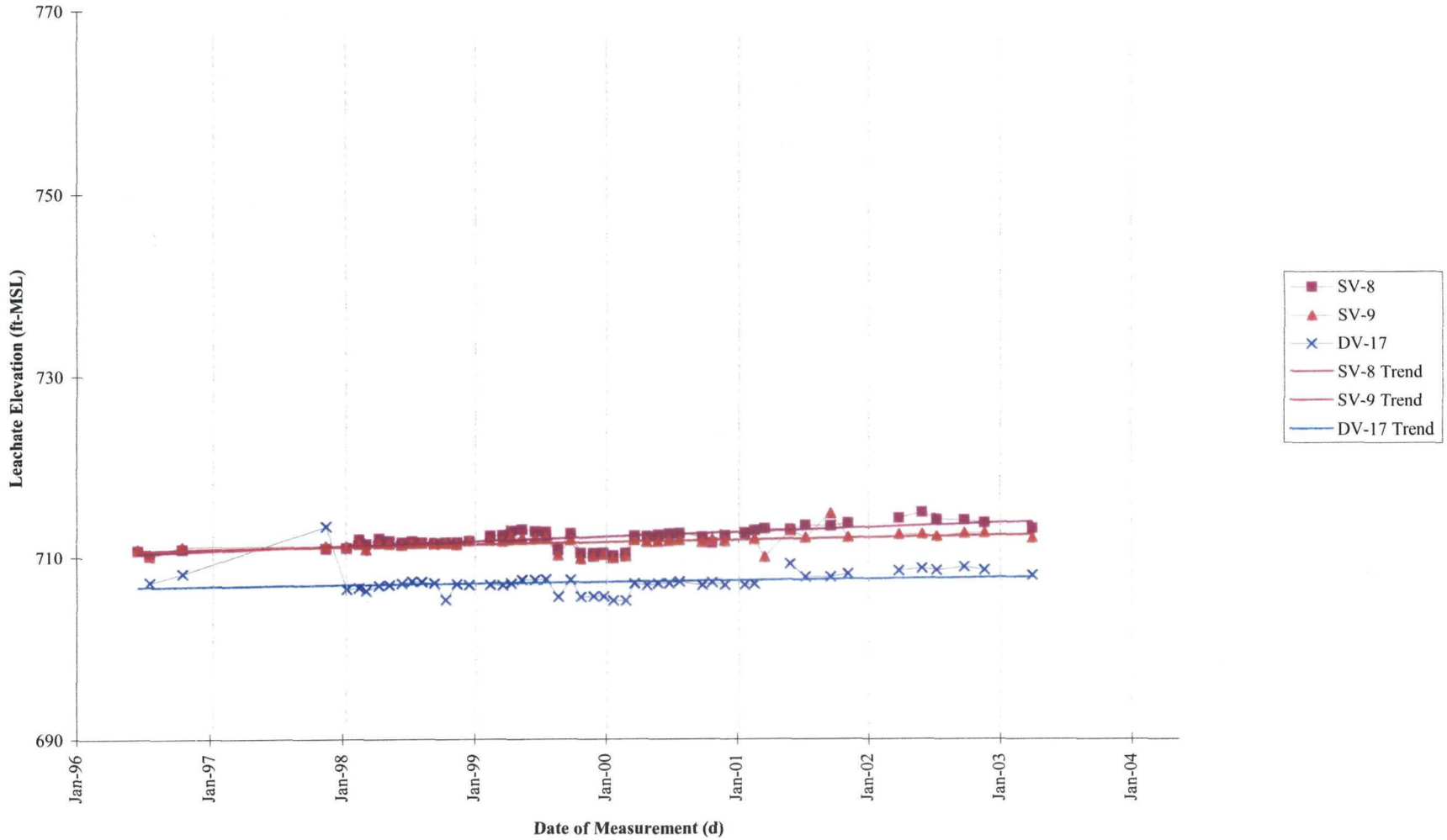
Drawing 7
Leachate Elevations in Landfill Area 7
Blackwell Landfill NPL Site



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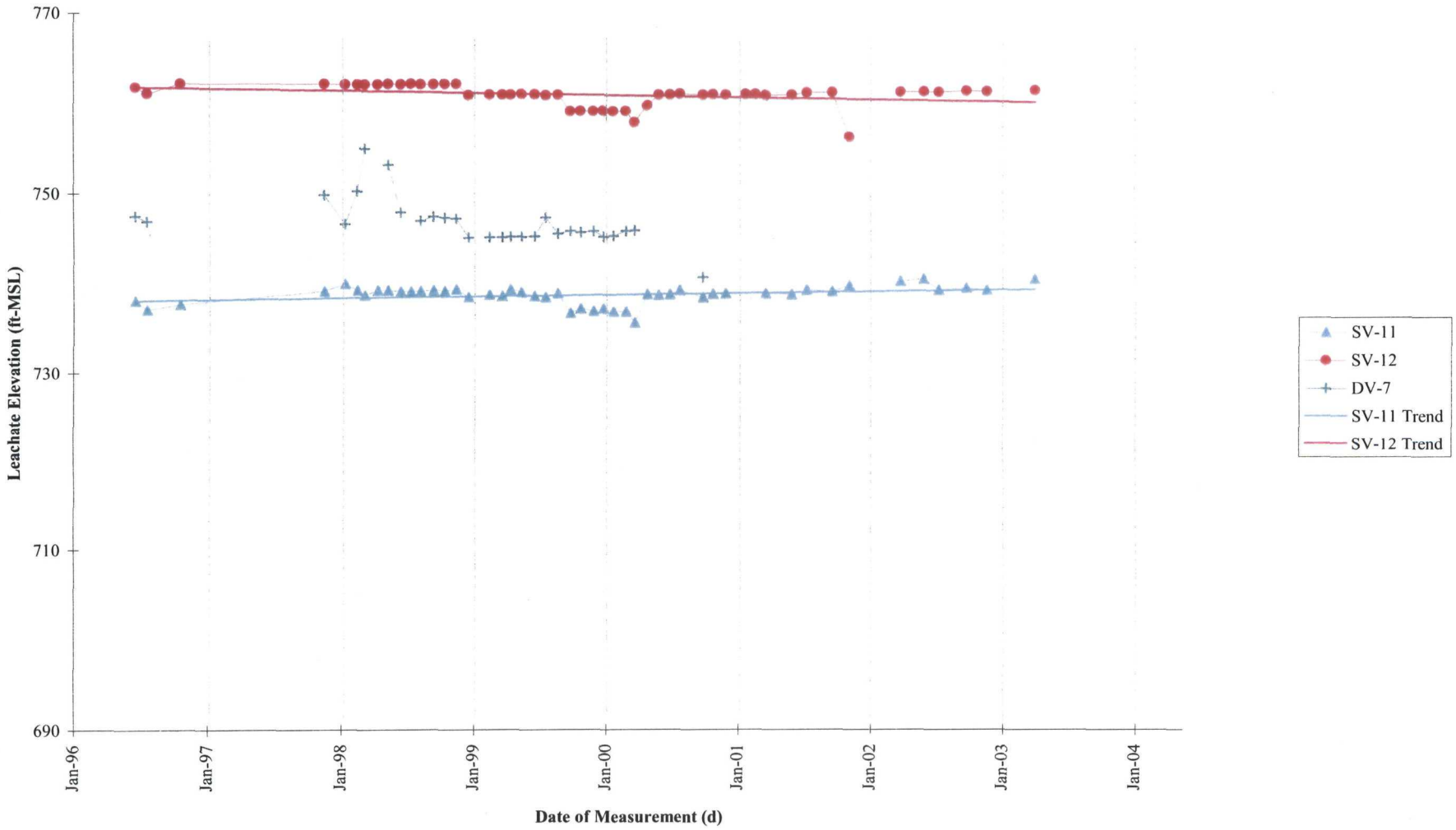
Drawing 8
Leachate Elevations in Landfill Area 8
Blackwell Landfill NPL Site



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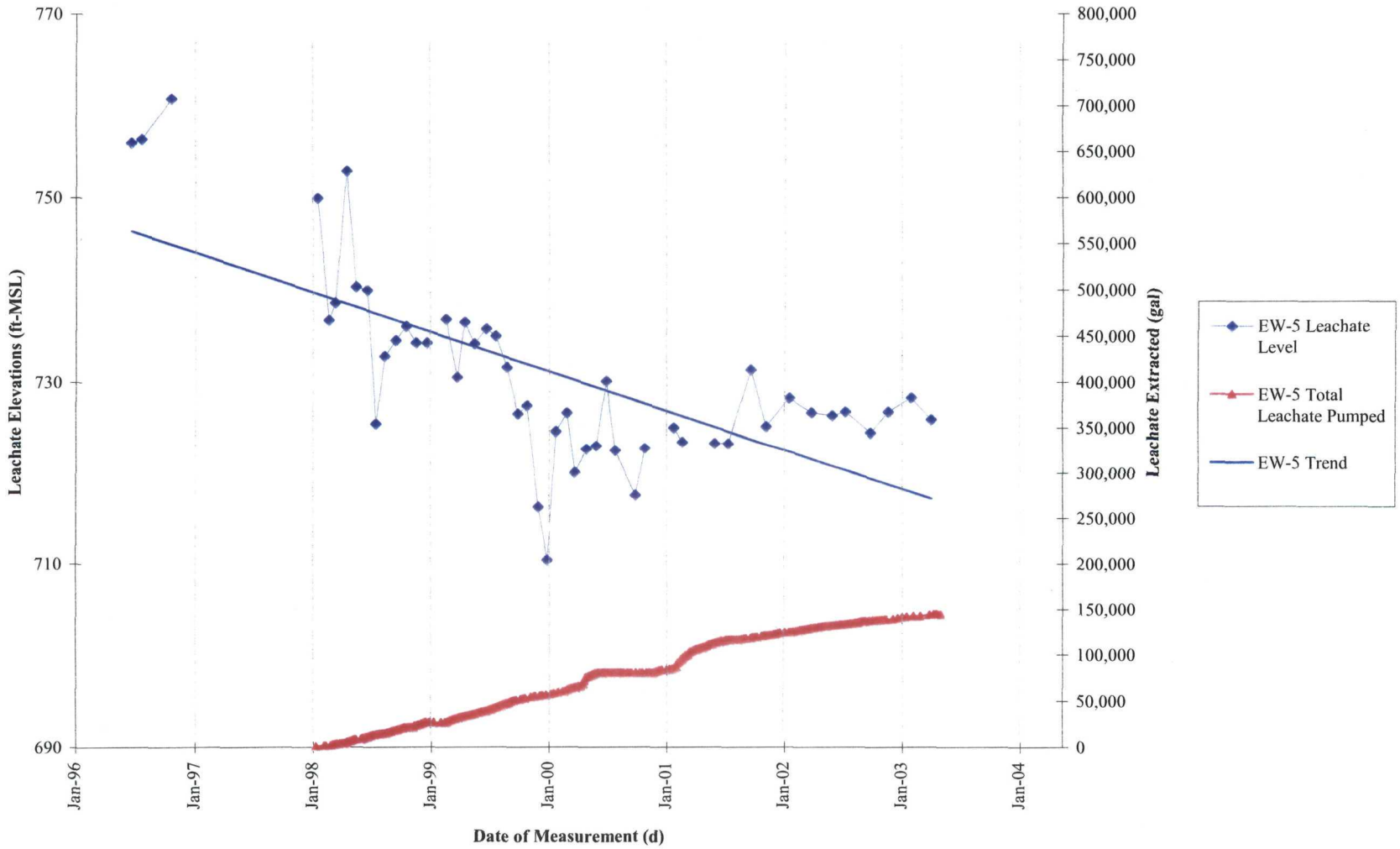
Drawing 9
Leachate Elevations in Landfill Area 9
Blackwell Landfill NPL Site



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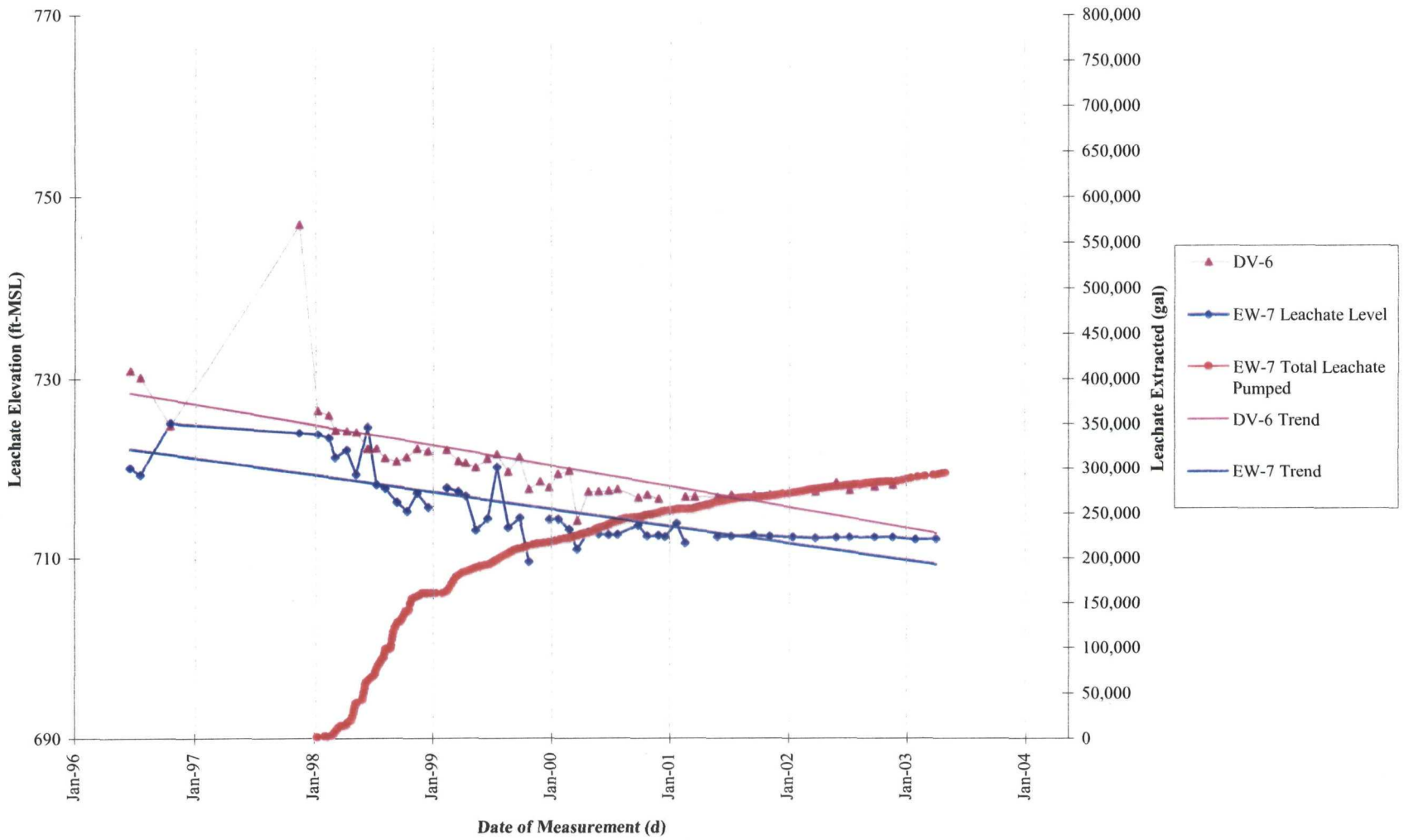
Drawing 10
Leachate Elevations in Landfill Area 10
Blackwell Landfill NPL Site



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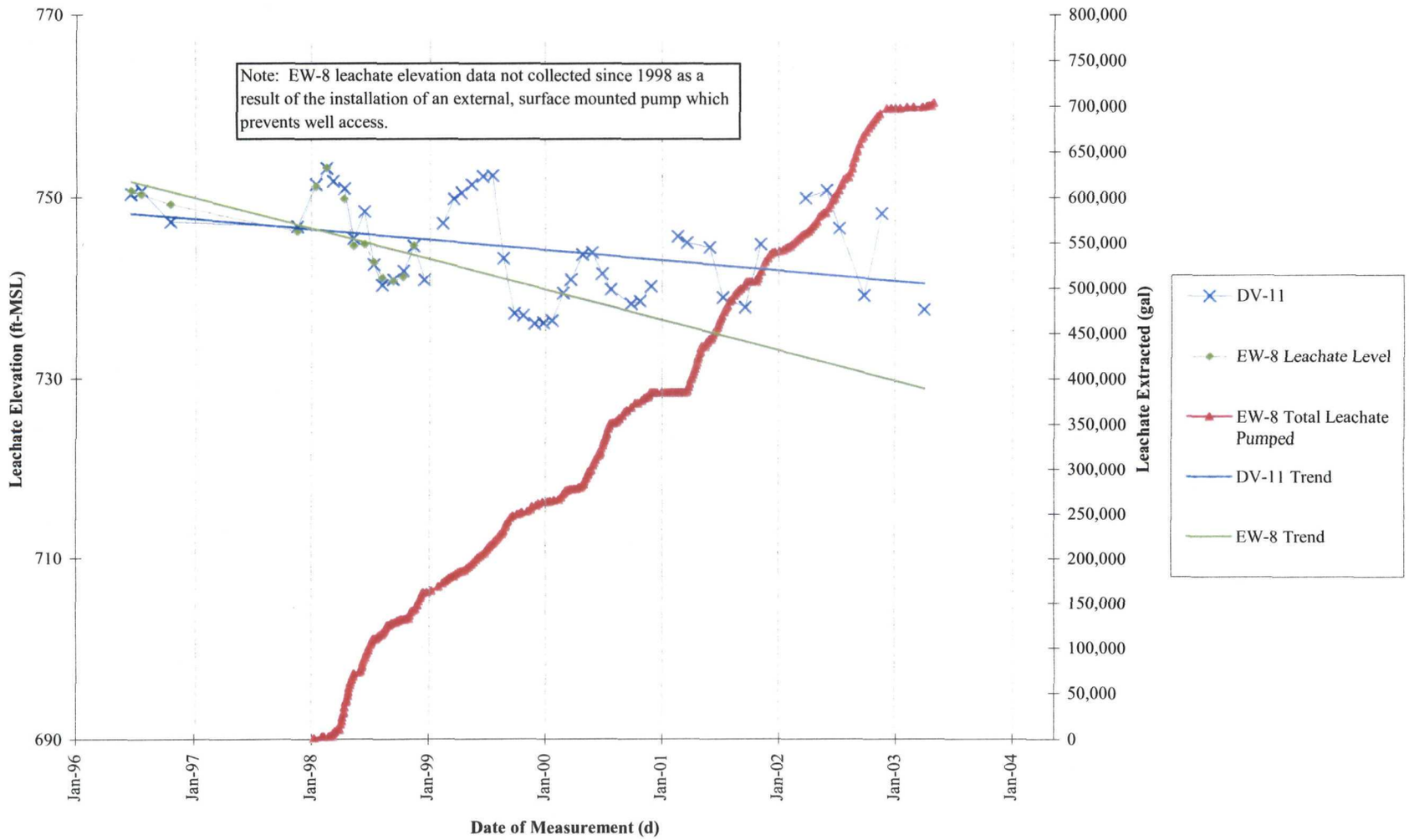
Drawing 11
Leachate Elevations in Landfill Area 11
Blackwell Landfill NPL Site



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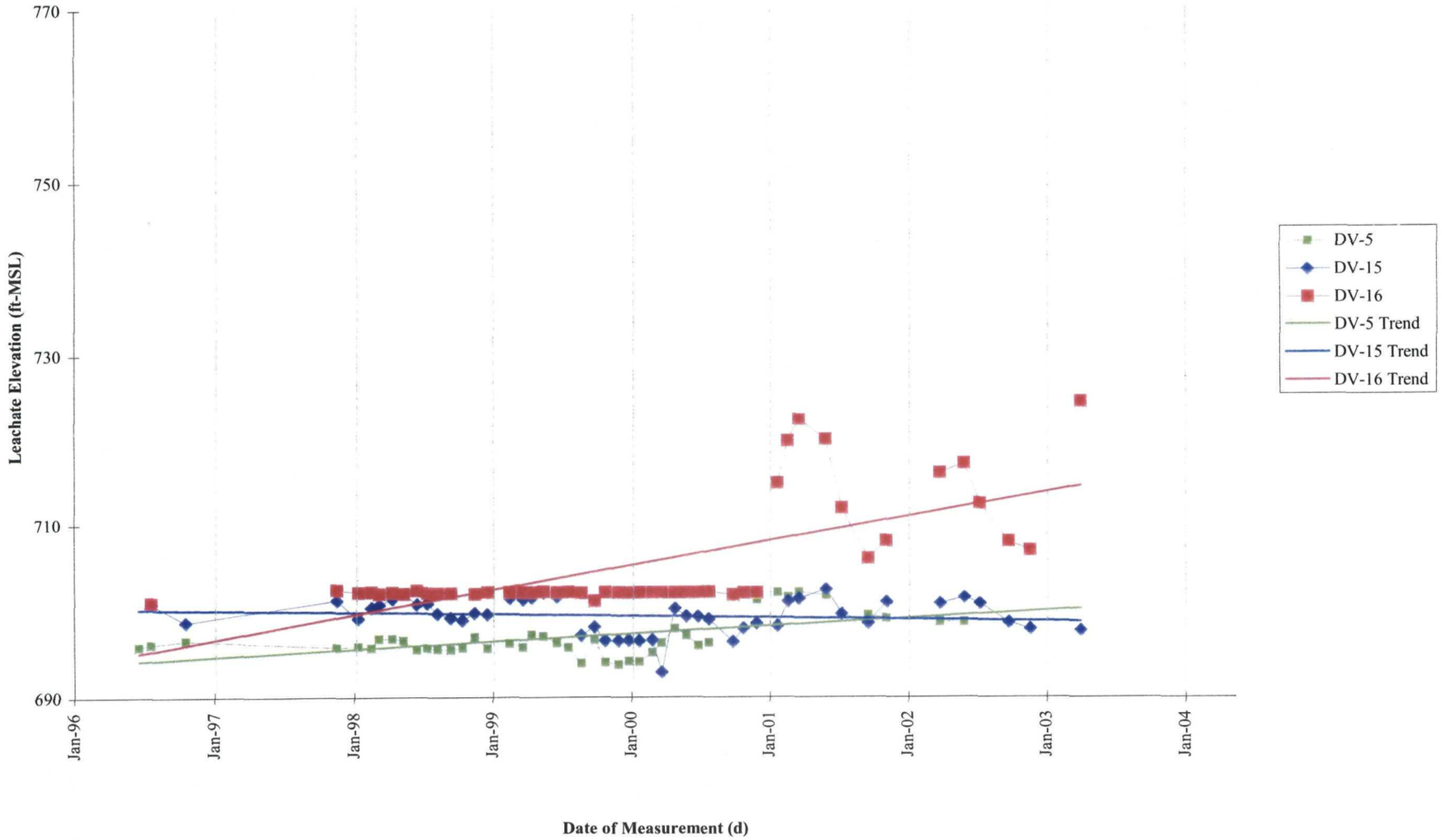
Drawing 12
Leachate Elevations in Landfill Area 12
Blackwell Landfill NPL Site



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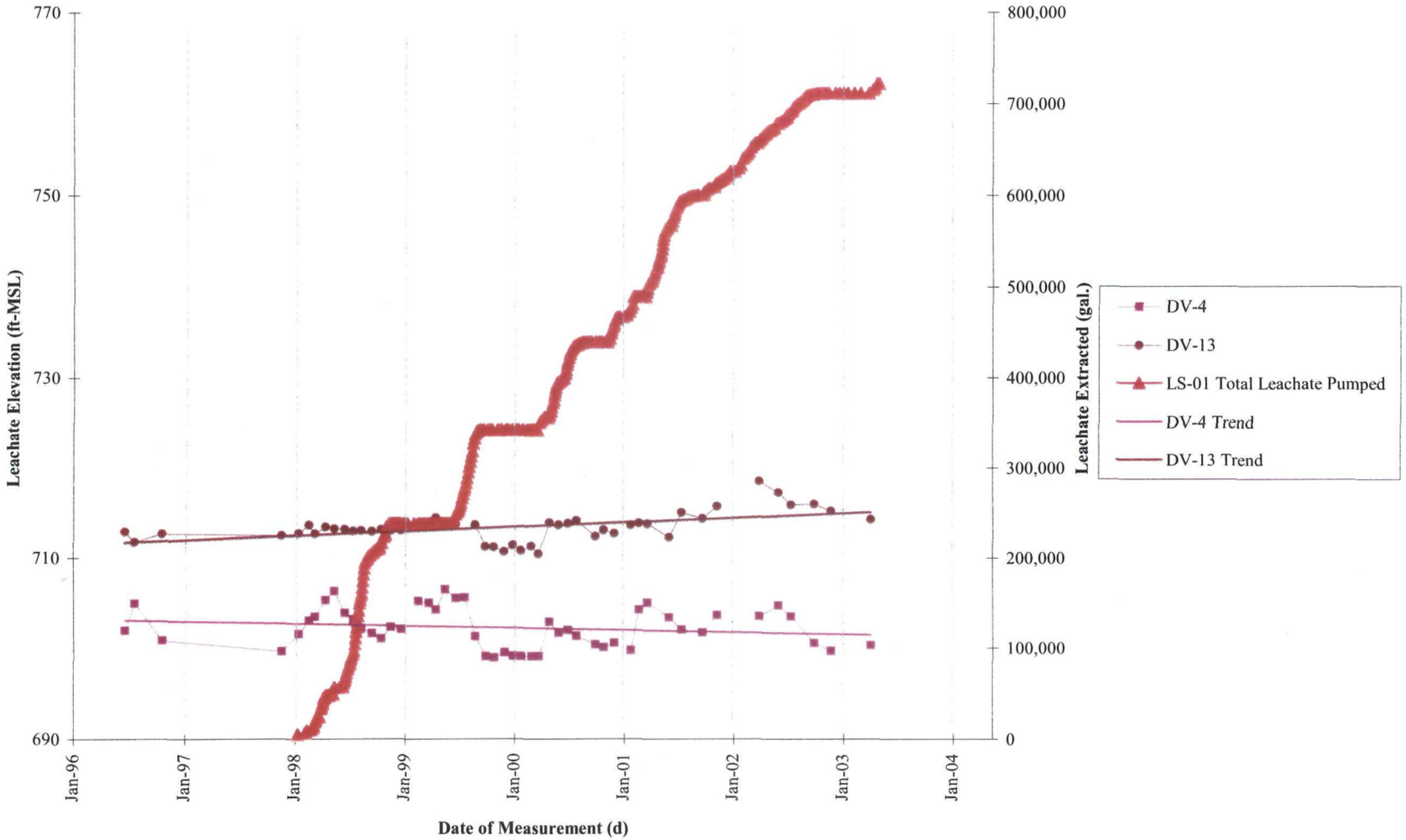
Drawing 13
Leachate Elevations in Landfill Area 13
Blackwell Landfill NPL Site



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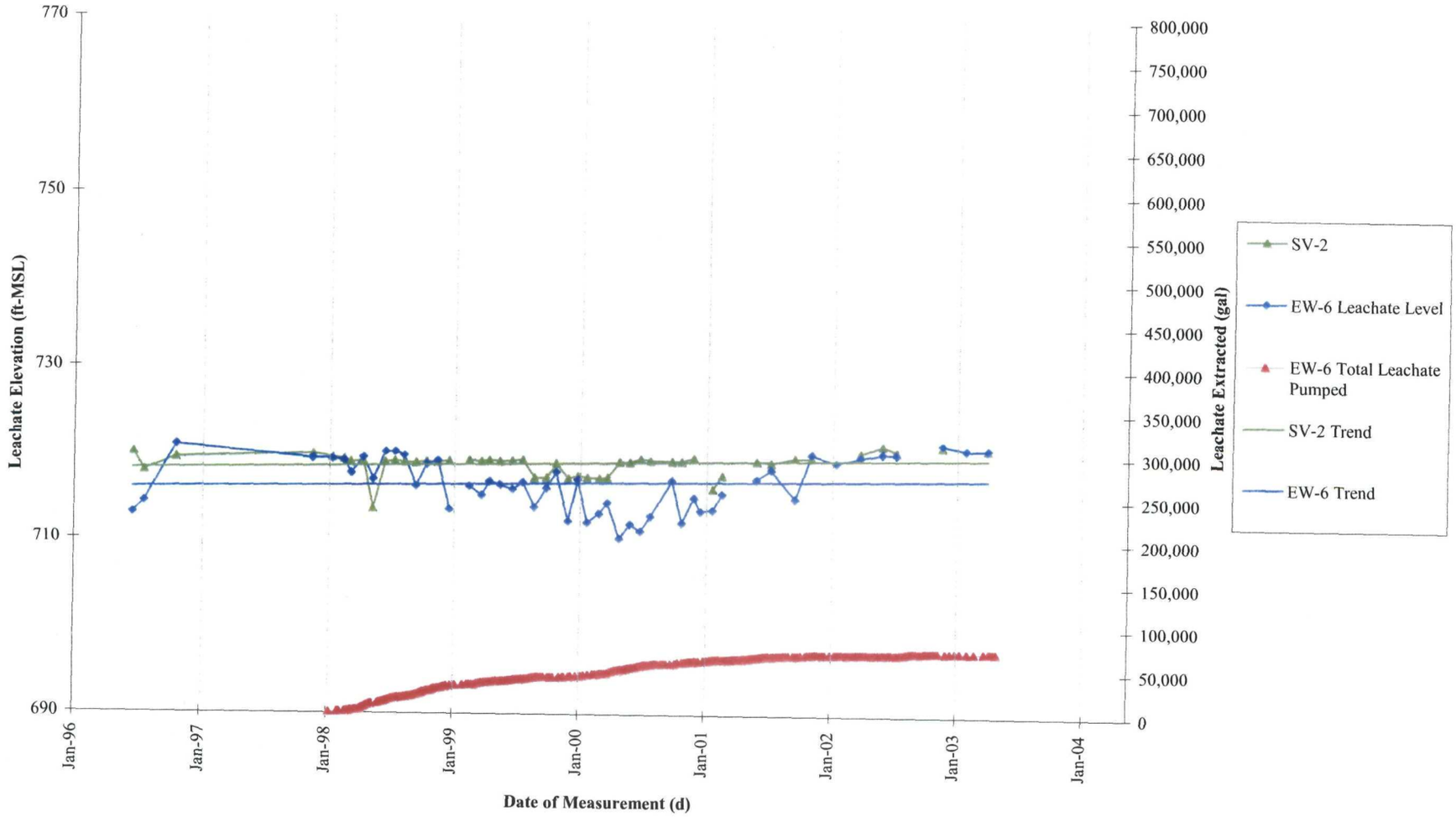
Drawing 14
Leachate Elevations in Landfill Area 14
Blackwell Landfill NPL Site



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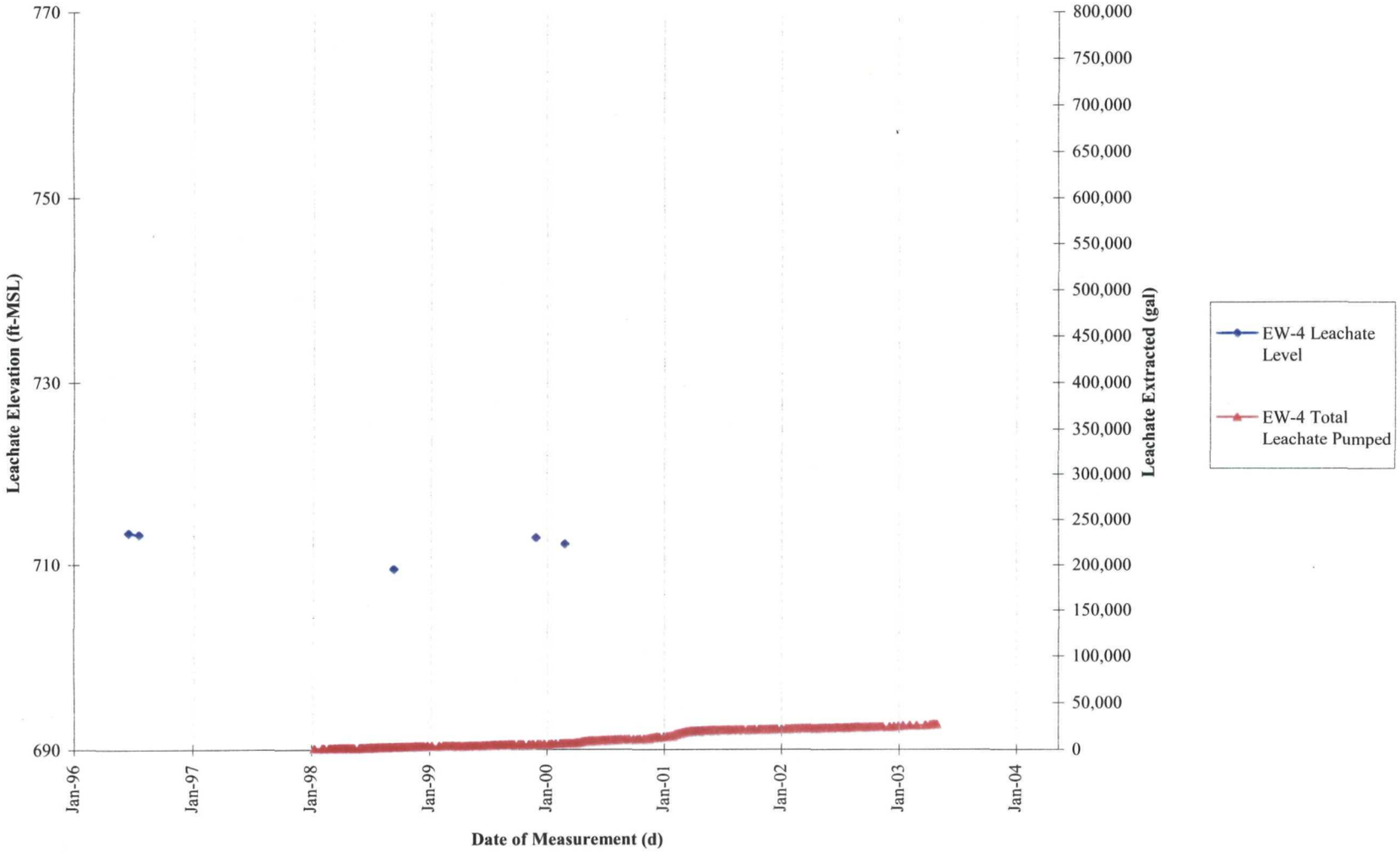
Drawing 15
Leachate Elevations in Landfill Area 15
Blackwell Landfill NPL Site



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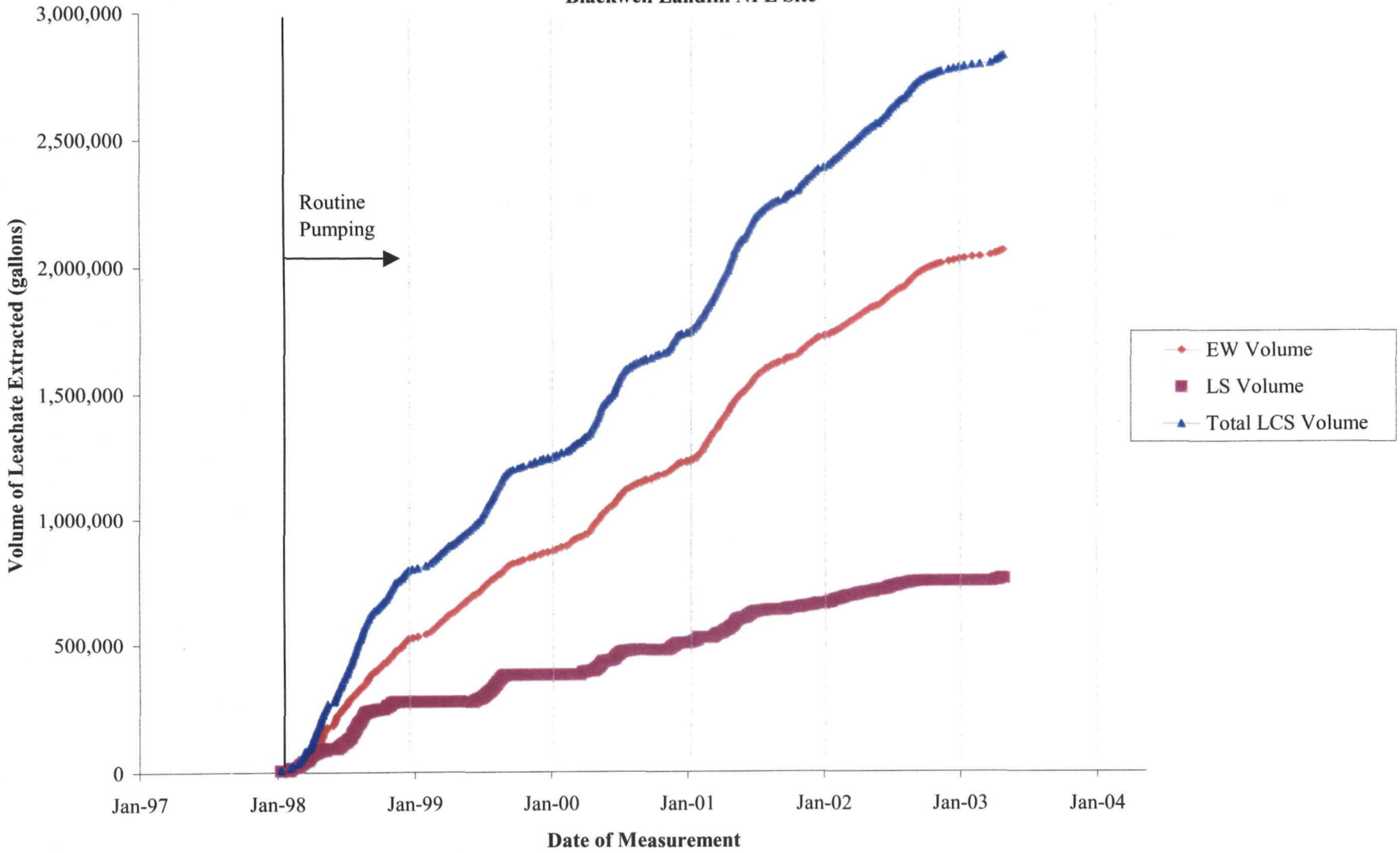
Drawing 16
Leachate Pumping Volume
Blackwell Landfill NPL Site



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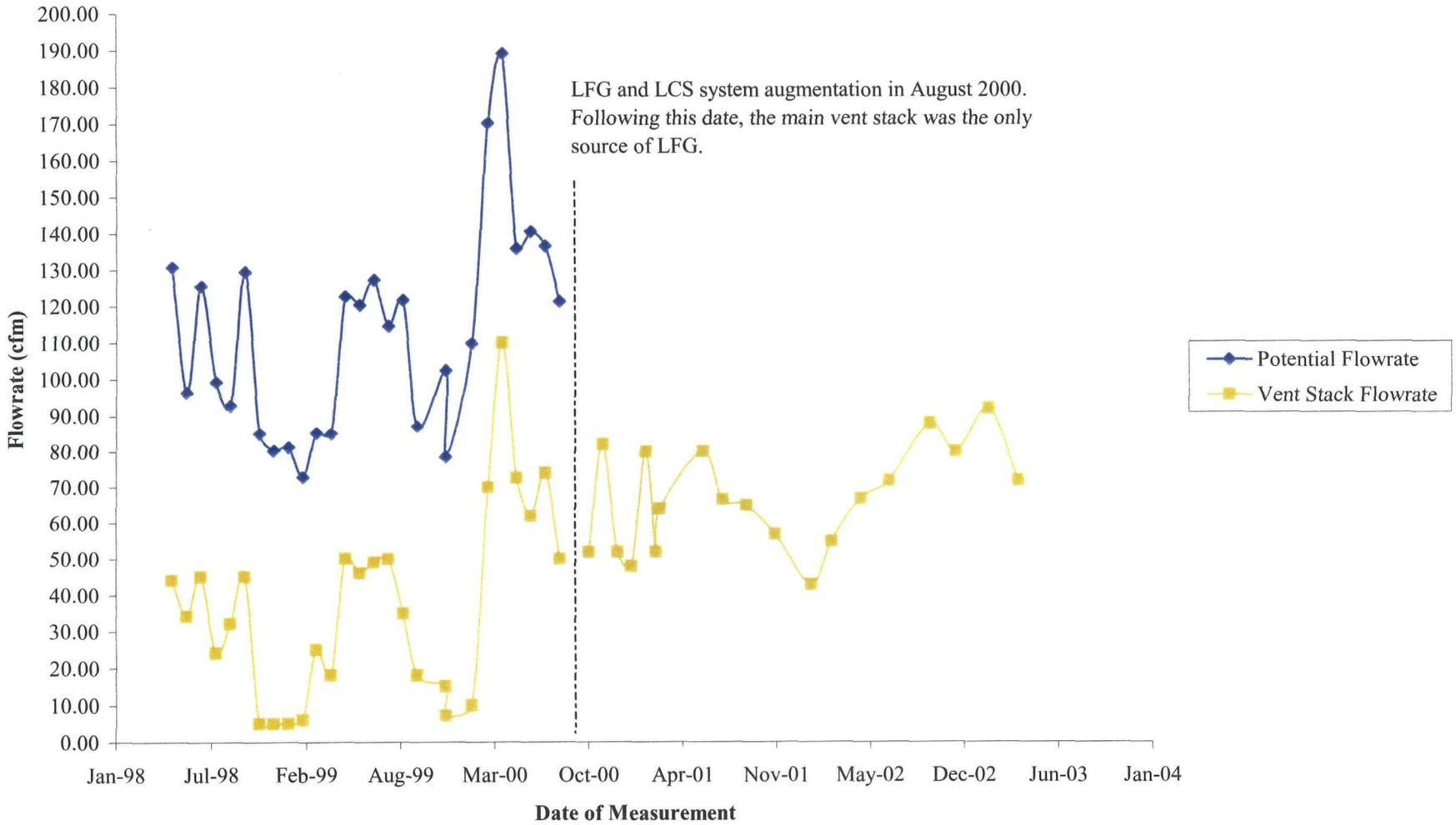
Drawing 17
LFG Flowrate
Blackwell Landfill NPL Site



RHS/mbm/WGB
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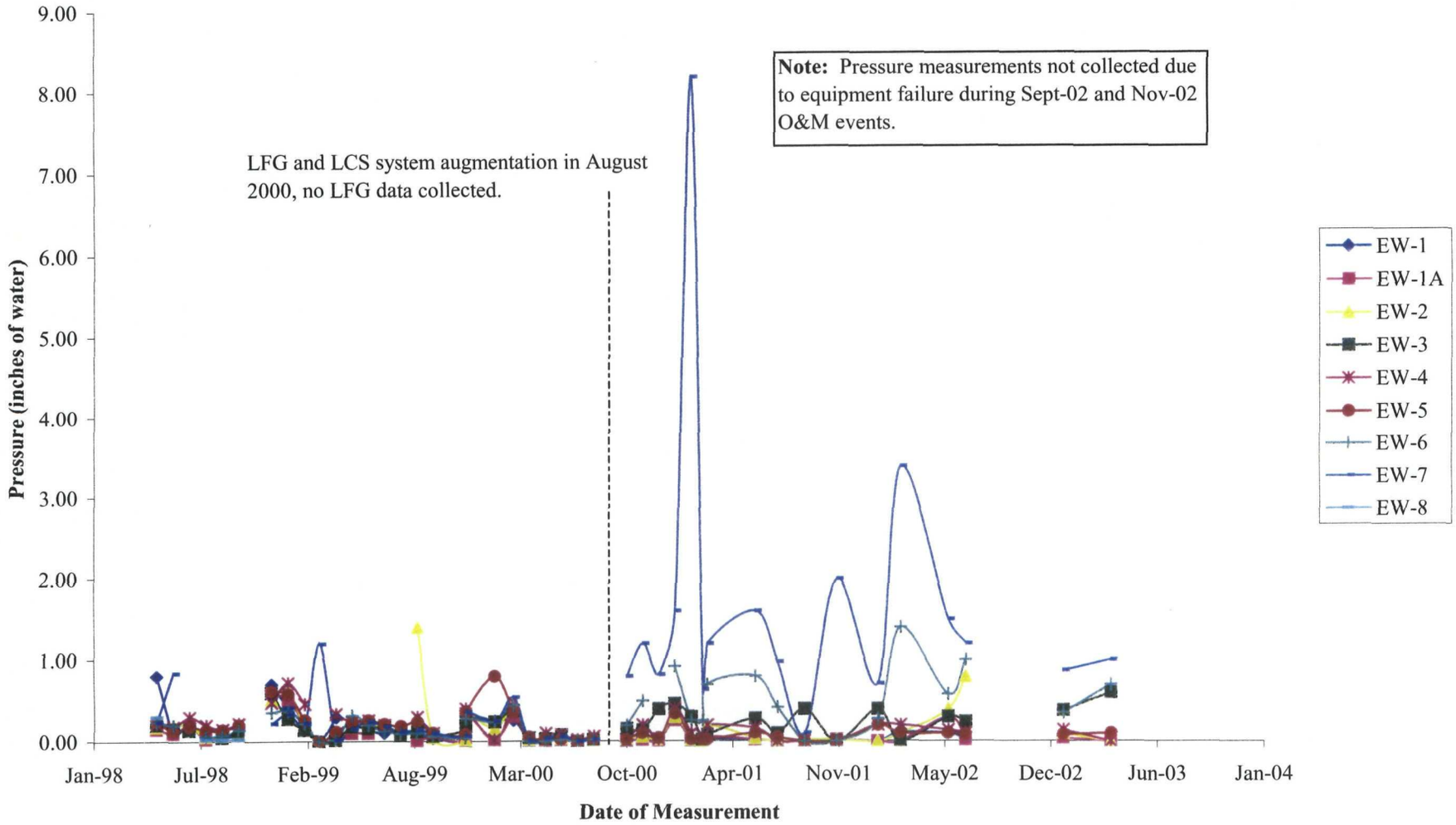
2090764.018101

Drawing 18
Static LFG Pressure - Extraction Wells
Blackwell Landfill NPL Site



RHS/mbm/WGB
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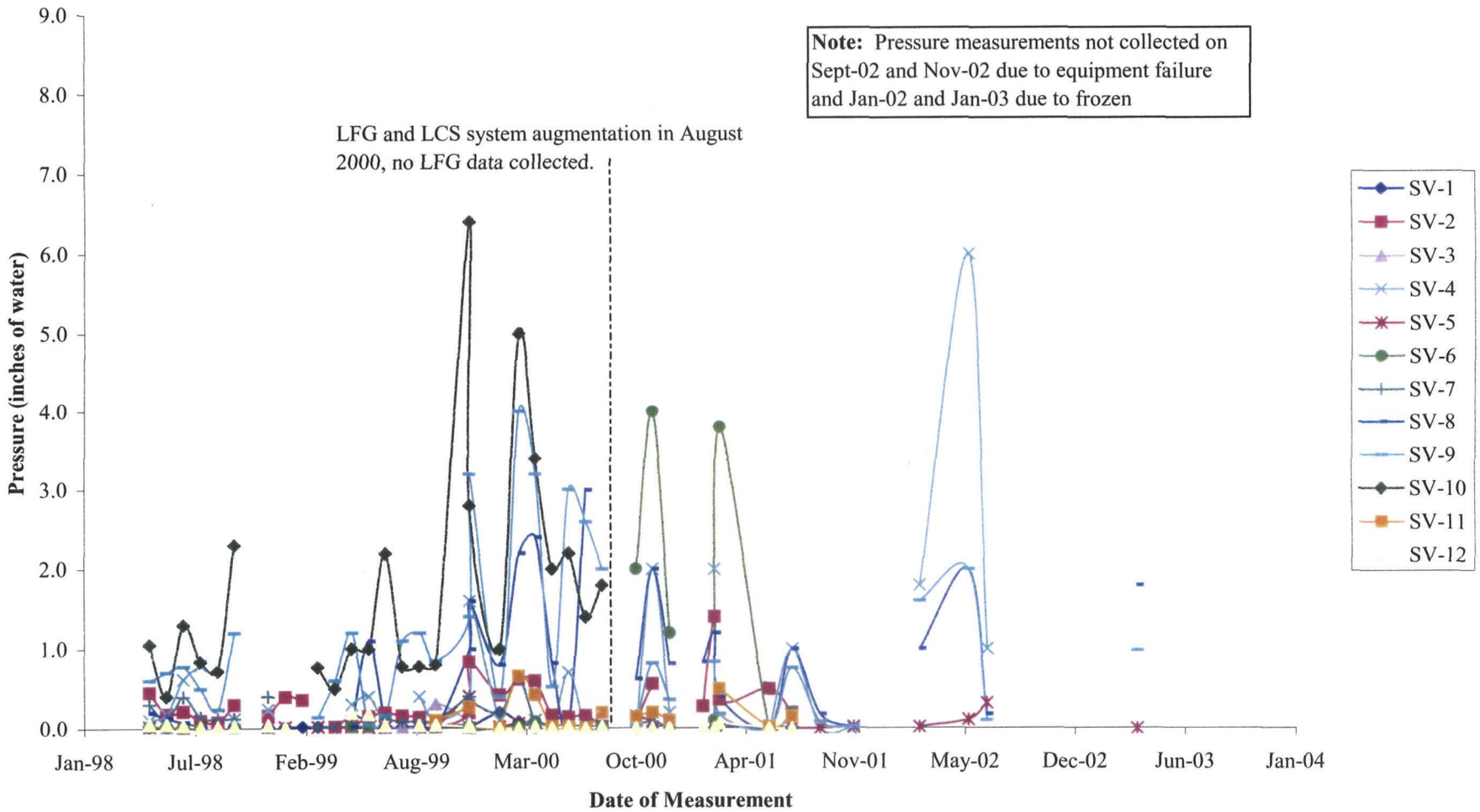
2090764.018101

Drawing 19
Static LFG Pressures - Shallow Gas Vents
Blackwell Landfill NPL Site



RHS/mbm/WGB
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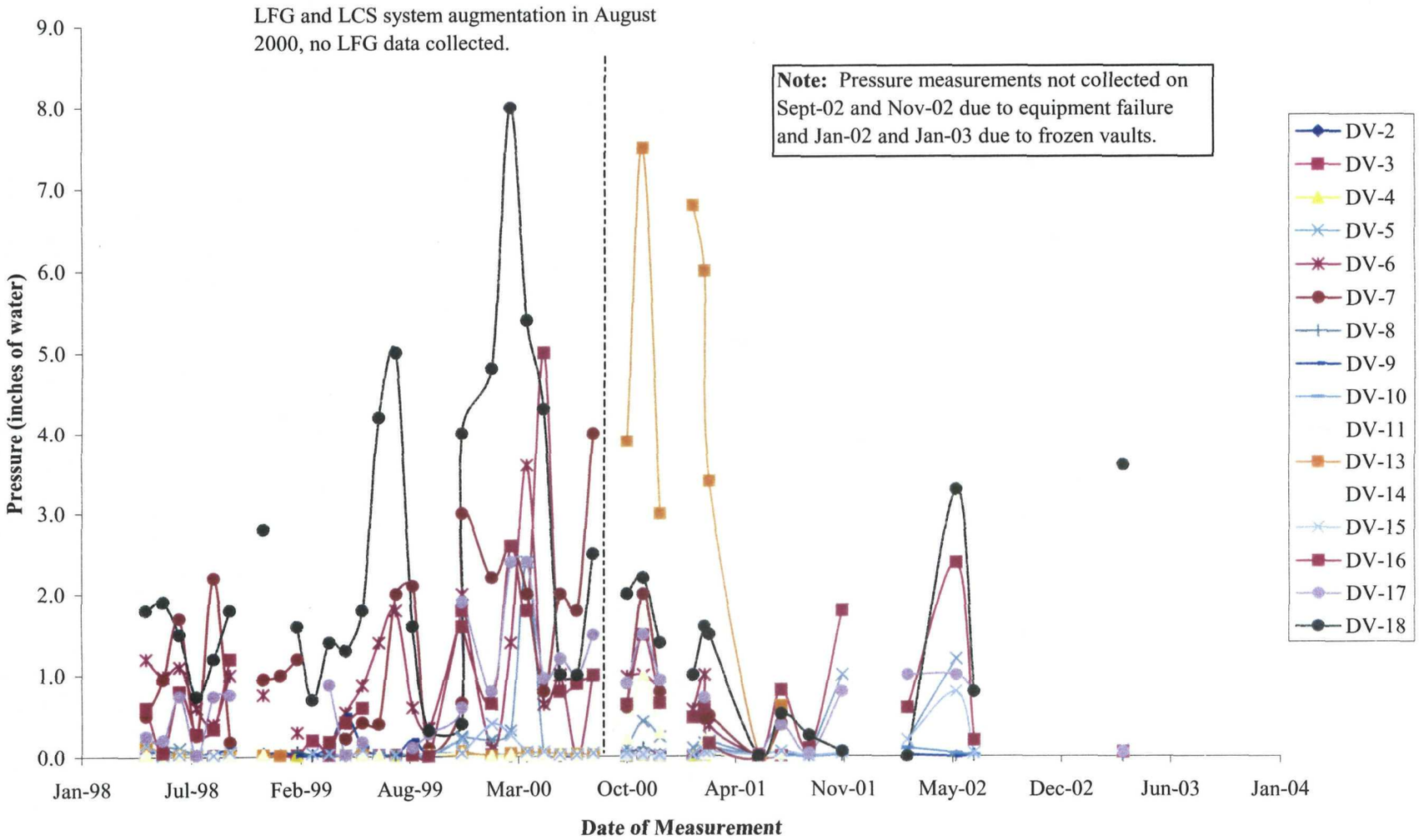
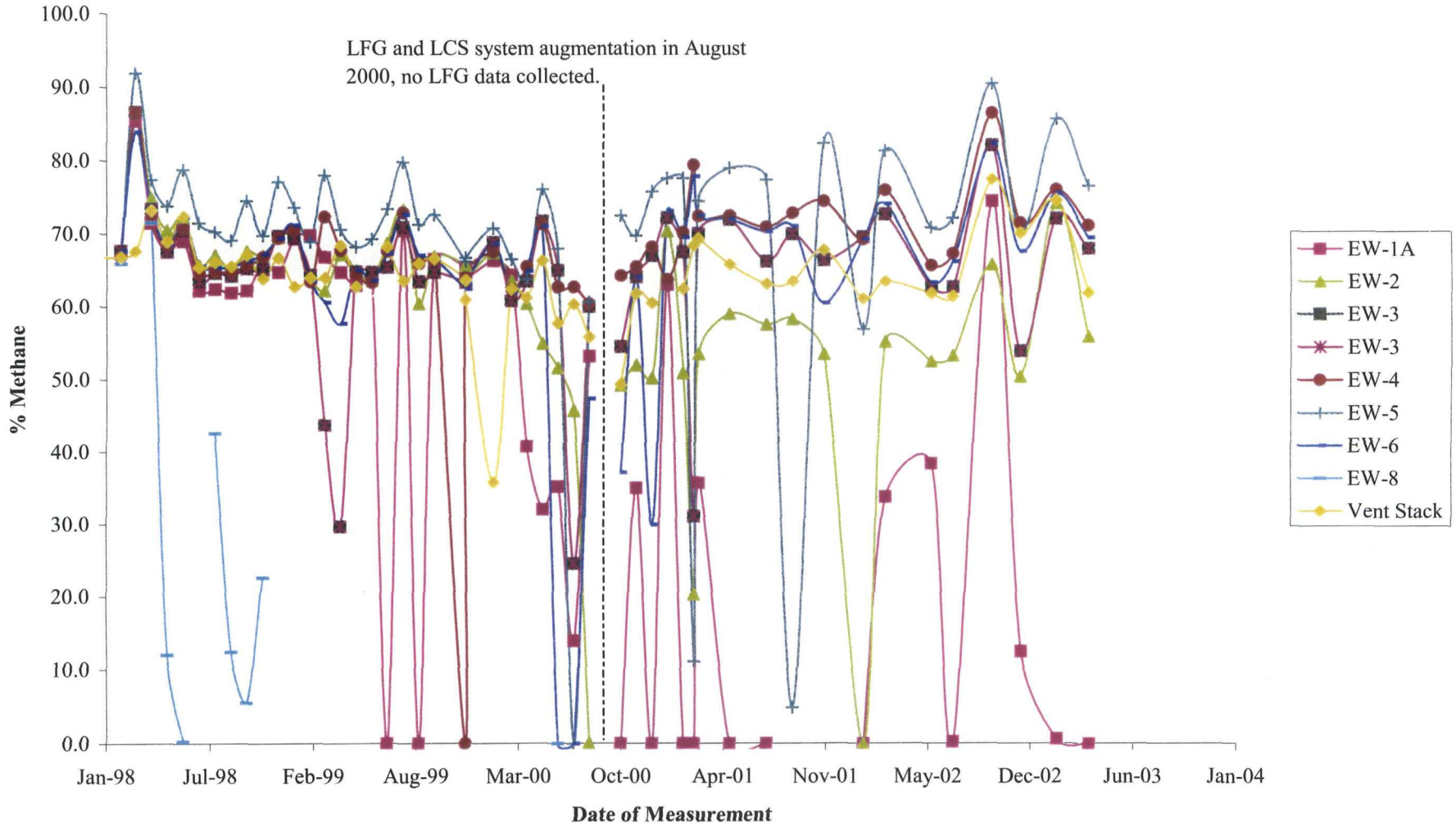
2090764.018101

Drawing 20
Static LFG Pressures - Deep Gas Vents
Blackwell Landfill NPL Site



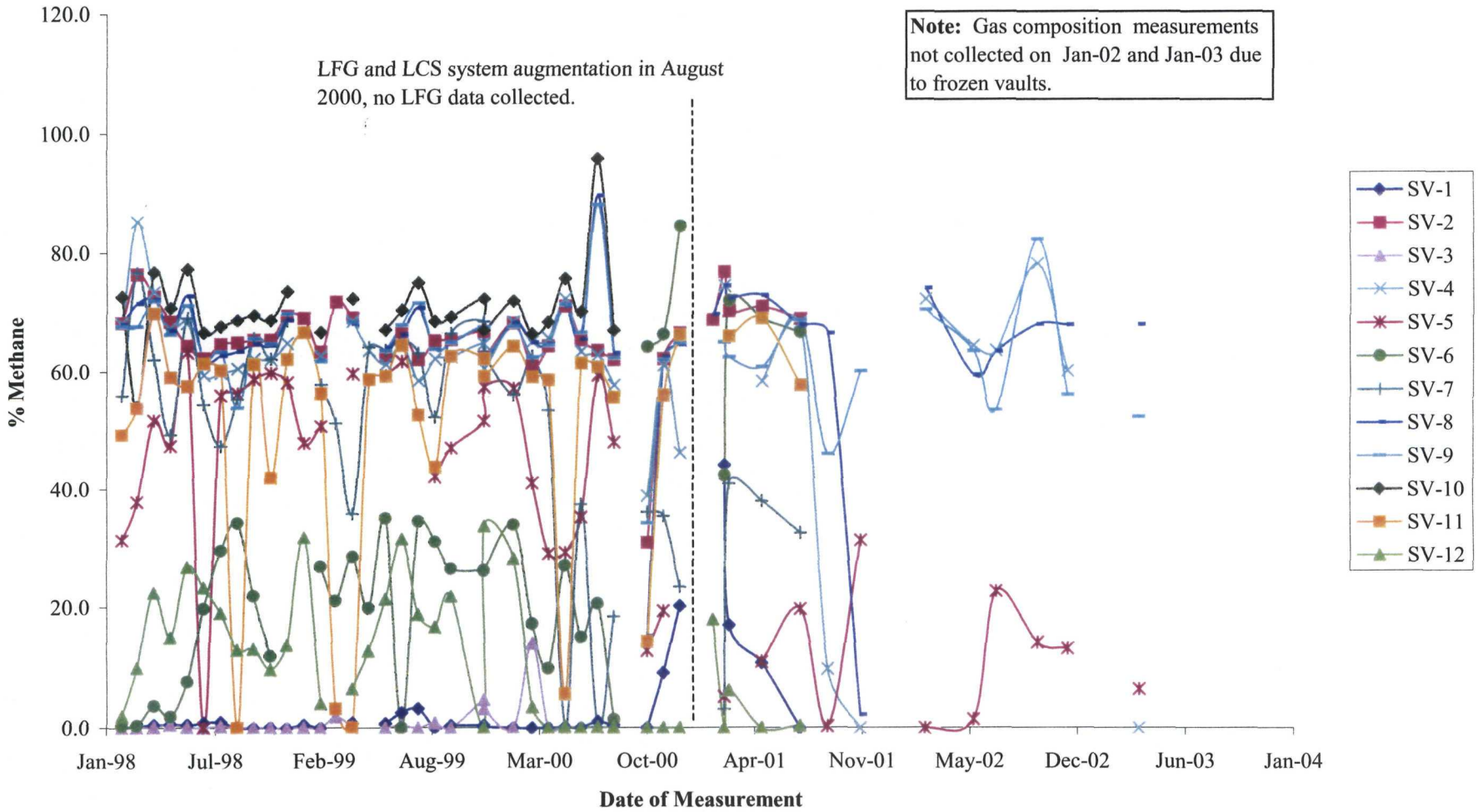
RHS/mbm/WGB
J:\209\0764 Blackwell\2090764n26.xls\DV Pressures
2090764.018101

Drawing 21
Methane Content - Extraction Wells
Blackwell Landfill NPL Site



RHS/mbm/WGB
J:\209\0764 Blackwell\2090764n26.xls\EW CH4
2090764.018101

Drawing 22
Methane Content - Shallow Gas Vents
Blackwell Landfill NPL Site



RHS/mbm/WGB
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2090764.018101

Gas
compositio
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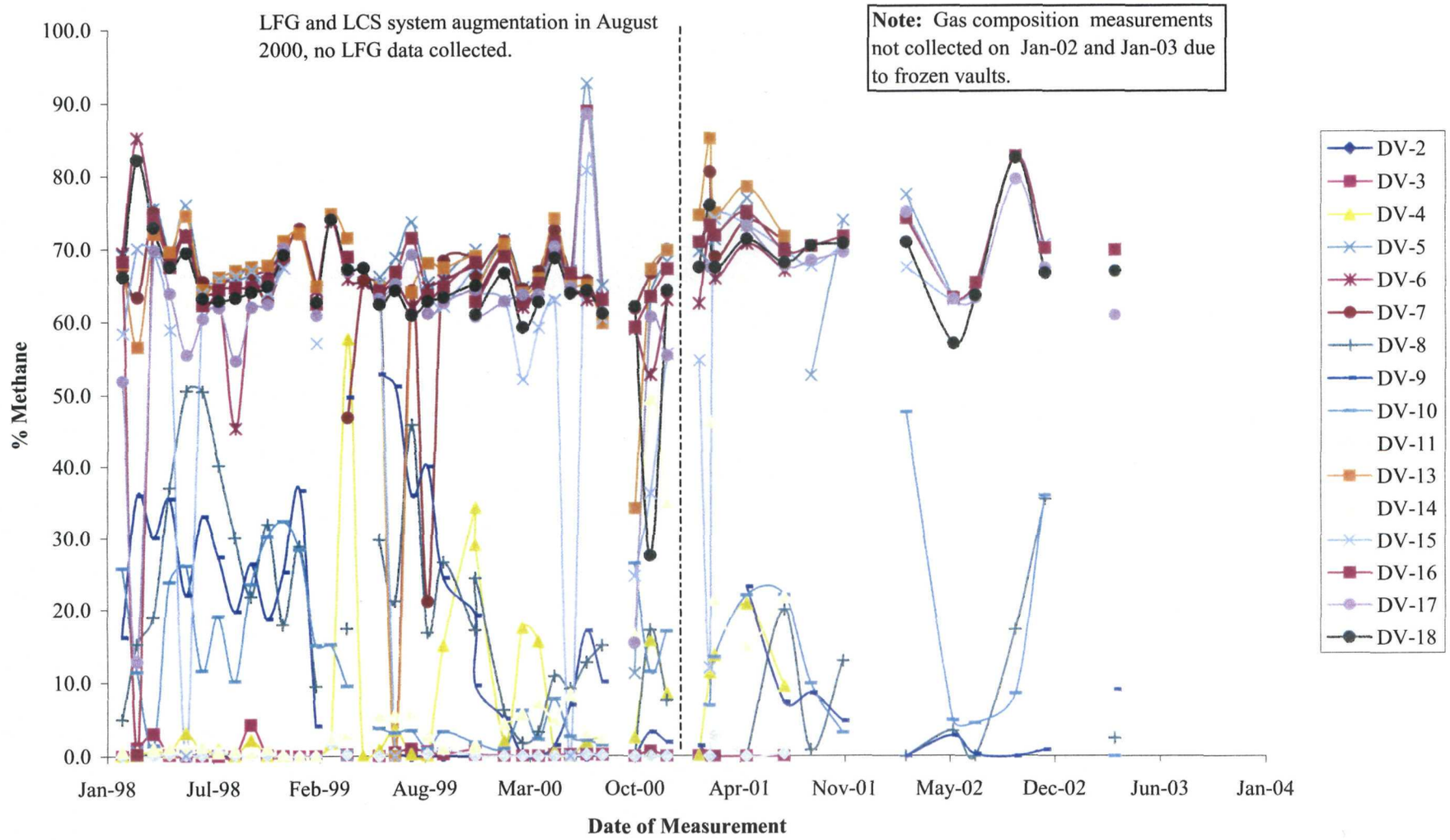
Drawing 23
Methane Content - Deep Gas Vents
Blackwell Landfill NPL Site



RHS/mbm/WGB
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A

APPENDIX A

INSPECTION, MAINTENANCE, MONITORING AND DISPOSAL LOGS

APPENDIX A-1

SITE VISIT OPERATING LOGS
MAY 2002 TO APRIL 2003

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 5/2/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	Shipped 6000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	708235				1143
EW01A	215865				4766
EW02	1035472				15819
EW03	1753042				15991
EW04	113104				734
EW05	476846				4845
EW06	213510				103
EW07	531220				4247
EW08	6729871				25212
LS01	2388884				17945
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 5/9/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	(On) or Off	8:00 SHIPPED
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	719672				69
EW01A	220631				3598
EW02	1051291				1340
EW03	1769033				5
EW04	113838				605
EW05	481691				3696
EW06	213613				16
EW07	535467				3614
EW08	6981897				7045
LS01	2406829				3169
LS02					

5/11 & 5/12 2.5" RAINFALL

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 5/16/02

Time	LCS System	Remarks (Reason for System on or off)
800	On or Off	SHIPPED 5700
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	720365				2586
EW01A	224229				0
EW02	1064694				15603
EW03	1769038				22667
EW04	114443				683
EW05	485387				3941
EW06	213629				2
EW07	539081				4057
EW08	7052348				50933
LS01	2438527				70726
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 5/23/02

Time	LCS System	Remarks (Reason for System on or off)
800 A	On or Off	SHIPPED 10000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	722951				981
EW01A	224229				18
EW02	1080297				14885
EW03	1791705				5142
EW04	115126				732
EW05	489328				4475
EW06	213631				2
EW07	543138				3639
EW08	7103281				24293
LS01	2509253				3606
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 5/30/02

Time	LCS System	Remarks (Reason for System on or off)
700 Am	On or Off	testing
900 Am	On or Off	Shipped 500
200 Pm	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	732759				5445
EW01A	224247				67
EW02	1095182				17446
EW03	1796847				11043
EW04	115858				782
EW05	493803				5795
EW06	213633				0
EW07	546777				4418
EW08	7127574				18130
LS01	2545320				3260
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 6/6/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	
[illegible]	On or Off	[illegible] 10,000 G.
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: 7:30 Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	738204	[illegible]			109
EW01A	224314	[illegible]			0
EW02	1112628	1125608			12785
EW03	1807890	1822856			13265
EW04	116640	[illegible]			778
EW05	499598	[illegible]			1805
EW06	213633	[illegible]			0
EW07	551195	[illegible]			4063
EW08	7308880	7376695			104112
LS01	2577927	[illegible]			21066
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 6/20/02

Time	LCS System	Remarks (Reason for System on or off)
700 AM	On or Off	Shipping 10000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	760569				7753
EW01A	225728				3744
EW02	1138593				8671
EW03	1836121				4722
EW04	118272				481
EW05	505666				3969
EW06	213635				0
EW07	559267				2924
EW08	7480757				16278
LS01	2607142				67845
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 6-25-02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	Shipped 10000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	768322				15
EW01A	229472				57
EW02	1147264				3965
EW03	1840843				3489
EW04	118753				325
EW05	509635				0
EW06	213635				0
EW07	562191				1398
EW08	7643540				60806
LS01	2674987				34237
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 6-27-02

Time	LCS System	Remarks (Reason for System on or off)
800	On or Off	Shipped 5000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values
EW01	769855			0
EW01A	229529			531
EW02	1151229			7
EW03	1844332			3818
EW04	119078			507
EW05	509635			0
EW06	213635			0
EW07	563589			2895
EW08	7704346			42948
LS01	2709224			30150
LS02				

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 7/2/02

Time	LCS System	Remarks (Reason for System on or off)
820	On or Off	Shipped 10000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	769855				77
EW01A	230060				2582
EW02	1157222				8173
EW03	1848150				5543
EW04	119585				764
EW05	509635				7314
EW06	213635				0
EW07	566484				4365
EW08	7797294				157216
LS01	2739374				40644
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 7/9/02

Time	LCS System	Remarks (Reason for System on or off)
800 A	On or Off	Shipped 3400
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	777654				8242
EW01A	232642				1234
EW02	1165395				6300
EW03	1853693				6940
EW04	120349				750
EW05	516949				4495
EW06	213635				0
EW07	570849				3360
EW08	7954510				13233
LS01	2780018				2646
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 7/16/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	Shipped 10000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	785896				32
EW01A	233876				29
EW02	1171695				1920
EW03	1860633				363
EW04	121099				255
EW05	521444				2092
EW06	213635				0
EW07	574209				1397
EW08	8086848				86308
LS01	2806480				50316
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 7/18/02

Time	LCS System	Remarks (Reason for System on or off)
900 A	(On) or Off	Shipped 5000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	789145				1004
EW01A	233905				14
EW02	1173615				6877
EW03	1860996				8879
EW04	121354				797
EW05	523536				5359
EW06	213635				9746
EW07	575606				4408
EW08	8173156				145875
LS01	2856796				38039
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 7/25/02

Time	LCS System	Remarks (Reason for System on or off)
830	On or Off	Shipped 9500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	799194				129
EW01A	233919				0
EW02	1180492				7536
EW03	1869875				14428
EW04	122151				810
EW05	528895				6150
EW06	223381				6190
EW07	580014				4356
EW08	8319031				9372
LS01	2894835				5458
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 8/1/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	SHIPPED 5500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	812001				1295
EW01A	233919				989
EW02	1188028				6156
EW03	1884304				10645
EW04	122961				710
EW05	535045				5592
EW06	229571				3901
EW07	584370				4138
EW08	8412760				20468
LS01	2949418				17545
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 8/8/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	SHIPPED 5000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	824952				691
EW01A	234908				1815
EW02	1194184				3445
EW03	1894949				5468
EW04	123671				437
EW05	540637				2805
EW06	233478				4314
EW07	588508				2124
EW08	8433228				6536
LS01	2966963				8821
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 8/13/02

Time	LCS System	Remarks (Reason for System on or off)
800 Am	On or Off	10000 Shipped
900 Am	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	831951				5212
EW01A	236723				1351
EW02	1197629				22
EW03	1900417				4292
EW04	124108				833
EW05	543442				15
EW06	237792				2746
EW07	590632				1813
EW08	8498589				5348
LS01	2975784				11031
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RAY Date: 8/20/02

Time	LCS System	Remarks (Reason for System on or off)
800A	On or Off	SHIPPED 100000
830A	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	837163				491
EW01A	238074				805
EW02	1197651				4025
EW03	1904709				5885
EW04	124941				391
EW05	543457				4053
EW06	240538				60
EW07	592445				1840
EW08	8552070				73870
LS01	2986815				9866
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 08/22/02

Time	LCS System	Remarks (Reason for System on or off)
100 PM	On or Off	SHIPPED 10000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	837657				2116
EW01A	238879				1060
EW02	1201676				191
EW03	1910594				656
EW04	125332				581
EW05	547510				3754
EW06	240598				6
EW07	594285				390
EW08	8625942				1762
LS01	2996681				2391
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 8/27/02

Time	LCS System	Remarks (Reason for System on or off)
830	On or Off	Shipped 7500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	839773				3
EW01A	239939				88
EW02	1201867				0
EW03	1917154				263
EW04	125913				20
EW05	551264				189
EW06	240604				0
EW07	598188				157
EW08	8802204				403
LS01	3020595				712
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RD Date: 8/29/02

Time	LCS System	Remarks (Reason for System on or off)
900	On or Off	Shipped 4000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	842906				790
EW01A	240826				179
EW02	1201867				469
EW03	1919784				738
EW04	126120				55
EW05	553162				456
EW06	240604				70
EW07	599758				377
EW08	8842548				135
LS01	3028318				137
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 9/3/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	8500 SHIPPED
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	850812				3
EW01A	242617				76
EW02	1206557				85
EW03	1927172				42
EW04	126672				19
EW05	557725				13
EW06	240674				0
EW07	603531				146
EW08	8978177				70
LS01	3042079				35
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 9/5/02

Time	LCS System	Remarks (Reason for System on or off)
800 Am	On or Off	Shipped 2500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	853964				120
EW01A	243379				307
EW02	1207413				318
EW03	1927593				557
EW04	126867				796
EW05	559078				57
EW06	240674				0
EW07	604992				506
EW08	9048706				2514
LS01	3045586				1285
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 9/12/02

Time	LCS System	Remarks (Reason for System on or off)
800 am	(On) or Off	9000 Shipped
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	866054				9[illegible]
EW01A	246456				168
EW02	1210596				3148
EW03	1933163				1100
EW04	127663				887
EW05	564827				701[illegible]
EW06	240674				400
EW07	610056				4951
EW08	9300157				2572
LS01	3058444				1086
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 9/19/02

Time	LCS System	Remarks (Reason for System on or off)
700 Am	On or Off	Shipped 8000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values
EW01	875742			0
EW01A	248139			783
EW02	1213744			2016
EW03	1944167			642
EW04	1285550			728
EW05	571841			4191
EW06	241074			0
EW07	615007			343
EW08	9557445			1757
LS01	3069306			4066
LS02				

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 9/24/02

	Time	LCS System	Remarks (Reason for System on or off)
9/24/02	800 AM	On or Off	Off For Testing Shipped 4000
9/24/02	100 PM	On or Off	System on
		On or Off	
		On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	875742				1[illegible]
EW01A	248922				693
EW02	1215760				305
EW03	1950591				1027
EW04	129278				1101
EW05	576032				63[illegible]
EW06	241074				852
EW07	618437				490
EW08	9733208				1460
LS01	3073372				83[illegible]
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 10/3/01

Time	LCS System	Remarks (Reason for System on or off)
800 A	On or Off	Shipped 7400
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	885982				0
EW01A	249615				0
EW02	1218813				2817
EW03	1960868				499
EW04	130379				970
EW05	582361				530
EW06	249599				0
EW07	623342				4647
EW08	9879277				5351
LS01	3081696				6140
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 10/10/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	SHIPPED 5000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	895982				41
EW01A	249615				2
EW02	1221630				2729
EW03	1965865				565
EW04	131349				853
EW05	587670				552
EW06	249599				0
EW07	627989				4771
EW08	10214463				1471
LS01	3087836				333
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 10/17/02

Time	LCS System	Remarks (Reason for System on or off)
830 AM	On or Off	SHIPPED 4500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	890067				2908
EW01A	249617				2
EW02	1224359				264
EW03	1971516				702
EW04	132202				876
EW05	593197				532
EW06	249599				1
EW07	632760				456
EW08	10361644				257
LS01	3091174				1445
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 10/24/02

Time	LCS System	Remarks (Reason for System on or off)
800 Am	On or Off	Shipped 4000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	892975				7
EW01A	249619				0
EW02	1227007				286
EW03	1978538				719
EW04	133078				955
EW05	598540				503
EW06	249600				5
EW07	637328				480
EW08	10619124				2774
LS01	3092619				179
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 10/31/02

Time	LCS System	Remarks (Reason for System on or off)
700 A	On or Off	Shipped 3800
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	893753				549
EW01A	249619				1
EW02	1229870				256
EW03	1985729				6905
EW04	134033				1412
EW05	603576				5716
EW06	249605				2
EW07	642137				4848
EW08	10896557				2830
LS01	3094410				654
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 11/07/02

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	Shipped 3800
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	899248				11
EW01A	249620				0
EW02	1232438				306
EW03	1992634				4216
EW04	135445				139
EW05	609288				541
EW06	249607				45
EW07	646985				422
EW08	11180479				2595
LS01	3095064				1006
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 11/4/02

Time	LCS System	Remarks (Reason for System on or off)
830A	Off or Off	Shipped 3000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	900422				919
EW01A	249620				6
EW02	1234744				632
EW03	1996850				183
EW04	136835				755
EW05	614700				131
EW06	249652				133
EW07	651210				128
EW08	11440000				384
LS01	3096020				155
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 12/5/02

Time	LCS System	Remarks (Reason for System on or off)
700Am	On or Off	Shipped 7500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	909619				3
EW01A	249626				5
EW02	1241076				4765
EW03	2015161				1121
EW04	137590				313
EW05	627858				1015
EW06	249785				0
EW07	664102				9799
EW08	11824143				0
LS01	3096225				78
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 12/19/02

Time	LCS System	Remarks (Reason for System on or off)
800 Am	On or Off	Shipped 4500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	912635				415
EW01A	249631				39
EW02	1245841				296
EW03	2026375				107
EW04	140723				321
EW05	638015				985
EW06	249785				0
EW07	673901				955
EW08	11824143				0
LS01	3096303				100
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 01/02/03

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	SHIPPED 4600
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	916794				0
EW01A	250023				34
EW02	1248803				364
EW03	2037128				965
EW04	143939				256
EW05	647869				546
EW06	249785				0
EW07	683453				930
EW08	11824143				0
LS01	3096403				89
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 1/16/03

Time	LCS System	Remarks (Reason for System on or off)
800am	On or Off	Shipped 4000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	916794				653
EW01A	250057				22
EW02	1252450				458
EW03	2046784				856
EW04	146506				262
EW05	653338				769
EW06	249785				0
EW07	692757				1372
EW08	11824143				389
LS01	3096492				11
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 2/6/03

Time	LCS System	Remarks (Reason for System on or off)
800 Am	On or Off	Shipped 5000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	923327				4
EW01A	250079				0
EW02	1257036				217
EW03	2055349				145
EW04	149129				221
EW05	661033				106
EW06	249785				0
EW07	706484				121
EW08	11863099				295
LS01	3096503				78
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 2/27/03

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	Shipped 2500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	928169				677
EW01A	250079				169
EW02	1259208				637
EW03	2069906				107
EW04	151344				432
EW05	662102				1694
EW06	249785				6
EW07	718669				1843
EW08	11866051				0
LS01	3096581				25
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 3/27/03

Time	LCS System	Remarks (Reason for System on or off)
800 Am	On or Off	Shipped 5000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	
EW01	934943				16
EW01A	251773				215
EW02	1265581				105
EW03	2086828				537
EW04	155667				1750
EW05	679045				4318
EW06	249791				35
EW07	737101				8210
EW08	1186605				115
LS01	3096606				235.
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 4/10/03

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	TANK FULL
10:30	On or Off	SHIPPED 10000
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	936607				247.
EW01A	253925				196
EW02	1276177				369
EW03	2092206				577
EW04	157417				103
EW05	683363				2
EW06	249826				2243
EW07	745317				2138
EW08	11877597				768
LS01	3120126				1139
LS02					

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 4/17/03

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	Shipped 5500
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	939082				0
EW01A	255890				1088
EW02	1279876				261
EW03	2097979				531
EW04	158449				1198
EW05	683365				0
EW06	252069				0
EW07	747455				2174
EW08	11878365				0
LS01	3131522				1342
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 4/23/03

Time	LCS System	Remarks (Reason for System on or off)
800 AM	On or Off	SHIPPED 9000
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	Time: ____ Pump Stroke Counter Values	
EW01	939082				290
EW01A	256978				104
EW02	1282488				1429
EW03	2103294				521
EW04	159647				21
EW05	683365				1882
EW06	252069				276
EW07	749629				1794
EW08	11878365				1553
LS01	3144948				6190
LS02					

LCS Holding Tank:

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

Time: ____ Depth of Fluid: ____ Volume of Liquid: ____

MONTGOMERY WATSON

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

(Complete this form for every site visit to document operation of the leachate collection and LFG venting systems at the Blackwell Landfill Site.)

Monitored By: RB Date: 5/1/03

Time	LCS System	Remarks (Reason for System on or off)
9:30	On or Off	Shipped 4600
	On or Off	
	On or Off	
	On or Off	

I. Leachate Collection System (LCS)

Pump	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values	Time: _____ Pump Stroke Counter Values
EW01	941990			
EW01A	258023			1995
EW02	1283917			948
EW03	2108507			0
EW04	159668			871
EW05	685247			0
EW06	252345			25
EW07	251423			171
EW08	12033764			539
LS01	3151138			1
LS02				

LCS Holding Tank:

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

Time: _____ Depth of Fluid: _____ Volume of Liquid: _____

APPENDIX A-2

INSPECTION REPORTING FORMS
MAY 2002 TO APRIL 2003

MWH
MONTGOMERY WATSON HARZA

INSPECTION REPORTING FORM
BLACKWELL LANDFILL SITE

Date: 5/30/02 Time (start): 8:20 Time (end): 15:30

Monitored By: M. Mesarch / R. Stein

To obtain climatic weather information call Midwest Climate Center at (217) 244-8226, fax (217) 244-0220

Temperature (°F) and Time: 73 @ 8:00 / 81 @ 12:00 / 84 @ 16:00

Average Wind Speed (mph) and Direction toward: 9 (NW) / 14 (NNW) / 13 (NNW)

Barometric Pressure (~~in Hg~~ mbar): 1011 / 1009 / 1007 Trend: (F) S R (circle one)

Humidity (%): 76 / 55 / 48

Rainfall: Track daily totals per O'Hare Airport (attached data when available).

Complete this form following scheduled O&M monitoring events to document operation of the Leachate Collection and LFG venting systems at the Blackwell Landfill Site.

I. Leachate Collection System (LCS): General

Time	LCS System	Remarks (Reason for System on or off)
8:00	On or (Off)	O+M (off 2 days beforehand)
12:00	(On) or Off	Finished @ EW's.
	On or Off	
	On or Off	

Pump	Control Building Pump Stroke Counter Values	Multiply by 0.135 (Conversion Factor)	Cumulative Pumped Volumes (gallons)
EW01	732,759		
EW01A	224,247		
EW02	1,095,182		
EW03	1,796,847		
EW04	115,858		
EW05	443,803		
EW06	213,633		
EW07	546,777		
EW08	7,127,574		
LS01	2,545,320		
LS02			

Alarm Panel Alarms	Status (Circle One)		If Unsatisfactory, Explain
Tank Annular Space	Satisfactory	Unsatisfactory	_____
Leak Detection Riser	Satisfactory	Unsatisfactory	_____
Tank High Level (75%)	Satisfactory	Unsatisfactory	_____
Tank High Level (90%)	Satisfactory	Unsatisfactory	_____

Interlock Alarms	Status (Circle One)		If Unsatisfactory, Explain
Leak Detection	Satisfactory	Unsatisfactory	_____
High Level	Satisfactory	Unsatisfactory	_____
Air Dryer	Satisfactory	Unsatisfactory	_____
Compressor	Satisfactory	Unsatisfactory	_____

Building Inside Temperature (°F): 78 Heater Thermostat Setting (°F): 64

Status of Intake Fan (circle one): On Off

General Notes/Comments (building, tank risers, fence, etc.): _____

LCS Holding Tank

Depth of fluid (in.)				
full:	_____	_____	_____	_____
partial:	_____	_____	_____	_____
empty:	_____	_____	_____	_____
Was tank emptied	yes / no	yes / no	yes / no	yes / no
Volume of leachate in tank (gallons) (full / partial / empty)	_____	_____	_____	_____

II. Leachate Collection System: Monitoring of Extraction Well Equipment

Pump Location	Pump System Extraction Vault Remote Pump-Stroke Values	Pump System Control Building Pump-Stroke Values	Depth to Leachate (ft)	Status of Wellhead Components and Vault Structures *
EW01	481,511		41.5	
EW01A	356,088		38.64	
EW02	757,827		76.75	
EW03	409,138		38.82	
EW04	181,144		—	
EW05	152,371		82.95	
EW06	761,786		44.97	
EW07	220,852		60.65	
EW08	824,678		—	
LS01	2,545,320		—	
LS02	—		—	

System Operational: Yes or (No) off for O+M

Compare pump stroke counters in the extraction well vaults to those recorded in the control building (note major differences):

III. Landfill Gas (LFG) Venting System

Location	Static Pressure (in. wc)	LFG Velocity (fpm)	LFG Flow (cfm)	Gas Composition Readings (with Portable Instrument) Methane (%)	Carbon Dioxide (%)	Oxygen (%)
Vent Stack	–	335		61.8	32.3	1.4
EW01	0.1	–	–	~~41.5~~ 61.4	36.0	1.4
EW01A	0.03	–	–	38.5	20.6	1.4
EW02	0.04	–	–	52.5	29.0	1.5
EW03	0.03	–	–	62.7	35.3	1.4
EW04	0.14	–	–	65.7	30.5	1.3
EW05	0.10	–	–	70.5	25.3	1.4
EW06	0.58	–	–	63.3	33.8	1.3
EW07	1.5	–	–	65.0	35.4	1.1
EW08	–	–	–	–	–	–

To calculate LFG flow (cfm) multiply LFG velocity (fpm) by the inside cross-sectional area of the vent stack pipe.

General Comments (stack, fence, etc.): _____

IV. System Integrity Status:

Leachate Collection System

Component	Satisfactory	Unsatisfactory	Remarks
Leachate Holding Tank	X		
Leak Detection Riser	X		
Leachate Loadout and Disposal	X		
System Control and Telemetry	X		
Wells/Pumps	X		
Lift Station/Pumps	X		

Component	Satisfactory	Unsatisfactory	Remarks
Compressor System	X		
Air Dryer	X		

Landfill Gas System

Component	Satisfactory	Unsatisfactory	Remarks
Vent Stack	X		
Driplegs	X		
Wells			Top pipe @ SV-2 not fastened securely

Landfill Cap Repair Areas

Component	Satisfactory	Unsatisfactory	Remarks
Landfill Cap Soils	X		
Vegetative Cover	X		
General Drainage	X		

Site Security

Component	Satisfactory	Unsatisfactory	Remarks
Access Roads Conditions	X		
Site Fencing, Gates	X		
Posted Sign and Notices	X		

Additional Comments: _____

Signature: Matthew Mesarch **Title:** Engineer

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MWH
MONTGOMERY WATSON HARZA

SITE VISIT OPERATING LOG
BLACKWELL LANDFILL SITE

Date: 7/11/02 Time (start): 8:00 Time (end): 15:30

Monitored By: M. Mesarch / R. Stein

To obtain climatic weather information call Midwest Climate Center at (217) 244-8226, fax (217) 244-0220

Temperature (°F) and Time: 67.5 - 72.5 °F FROM 800 - 1530

Average Wind Speed (mph) and Direction toward: 8 - 15 mph

Barometric Pressure (in. Hg): 30.2 in / 1021.0 mb Trend: (F) S R (circle one)

Humidity (%): 45 - 50 %

Rainfall: Track daily totals per O'Hare Airport (attached data when available).

Complete this form following scheduled O&M monitoring events to document operation of the Leachate Collection and LFG venting systems at the Blackwell Landfill Site.

I. Leachate Collection System (LCS): General

Time	LCS System	Remarks (Reason for System on or off)
08 00	On or (Off)	off for routine O+M
15:30	(On) or Off	O+M completed
	On or Off	
	On or Off	

Pump	Control Building Pump Stroke Counter Values	Multiply by 0.135 (Conversion Factor)	Cumulative Pumped Volumes (gallons)
EW01	777,898		
EW01A	232,674		
EW02	1,165,583		
EW03	1,853,693		
EW04	120,363		
EW05	516,949		
EW06	213,635		
EW07	570,919		
EW08	7,957,427		
LS01	2,782,690		
LS02	–		

Alarm Panel Alarms	Status (Circle One)		If Unsatisfactory, Explain
Tank Annular Space	Satisfactory	Unsatisfactory	_____
Leak Detection Riser	Satisfactory	Unsatisfactory	_____
Tank High Level (75%)	Satisfactory	Unsatisfactory	_____
Tank High Level (90%)	Satisfactory	Unsatisfactory	_____

Interlock Alarms	Status (Circle One)		If Unsatisfactory, Explain
Leak Detection	Satisfactory	Unsatisfactory	_____
High Level	Satisfactory	Unsatisfactory	_____
Air Dryer	Satisfactory	Unsatisfactory	_____
Compressor	Satisfactory	Unsatisfactory	_____

Building Inside Temperature (°F): 74° _____ Heater Thermostat Setting (°F): _____

Status of Intake Fan (circle one): On Off

General Notes/Comments (building, tank risers, fence, etc.): _____

_____

_____

LCS Holding Tank

Depth of fluid (in.)				
full:	_____	_____	_____	_____
partial:	_____	_____	_____	_____
empty:	_____	_____	_____	_____
Was tank emptied	yes / no	yes / no	yes / no	yes / no
Volume of leachate in tank (gallons) (full / partial / empty)	_____	_____	_____	_____

II. Leachate Collection System: Monitoring of Extraction Well Equipment

Pump Location	Pump System Extraction Vault Remote Pump-Stroke Values	Pump System Control Building Pump-Stroke Values	Depth to Leachate (ft)	Status of Wellhead Components and Vault Structures *
EW01	541,172		40.1	
EW01A	368,477		38.53	
EW02	828,123		76.3	
EW03	466,246		40.45	
EW04	185,646		–	
EW05	178,605		82.55	
EW06	761,790		45.05	
EW07	244,972		60.65	
EW08	845,115		–	
LS01	930,870		–	
LS02	–		–	

System Operational: Yes or (No) Down for O+M

Compare pump stroke counters in the extraction well vaults to those recorded in the control building (note major differences):

III. Landfill Gas (LFG) Venting System

Location	Static Pressure (in. wc)	LFG Velocity (fpm)	LFG Flow (cfm)	Gas Composition Readings (with Portable Instrument) Methane (%)	Carbon Dioxide (%)	Oxygen (%)
Vent Stack	NA ~~0.02~~	~~*~~ 360		61.4	33.3	0.0
EW01	0.02	NA	N.A	0.0	0.0 ~~20.7~~	20.7
EW01A	~~0.8~~ 0.02			0.3	0.0	20.7
EW02	~~0.24~~ 0.8			53.3	29.2	0.4
EW03	~~0.1~~ 0.24			62.7	34.9	0.7
EW04	~~0.08~~ 0.1			67.3	34.0	0.0
EW05	~~1.0~~ 0.08			72.2	28.0	0.0
EW06	~~1.2~~ 1.0			66.2	35.5	0.0
EW07	~~1~~ 1.2			66.1	36.0	0.0
EW08	–			–	–	–

To calculate LFG flow (cfm) multiply LFG velocity (fpm) by the inside cross-sectional area of the vent stack pipe.

General Comments (stack, fence, etc.): _____

IV. System Integrity Status:

Leachate Collection System

Component	Satisfactory	Unsatisfactory	Remarks
Leachate Holding Tank	X		
Leak Detection Riser	X		
Leachate Loadout and Disposal	X		
System Control and Telemetry	X		
Wells/Pumps	X		Some erosional damage near EW-06 EW-1A had some water in vault
Lift Station/Pumps	X		

Component	Satisfactory	Unsatisfactory	Remarks
Compressor System	X		
Air Dryer	X		

Landfill Gas System

Component	Satisfactory	Unsatisfactory	Remarks
Vent Stack	X		
Driplegs	X		
Wells	X		

Landfill Cap Repair Areas

Component	Satisfactory	Unsatisfactory	Remarks
Landfill Cap Soils	X		Erosional rut near SV-6
Vegetative Cover	X		
General Drainage	X		

Site Security

Component	Satisfactory	Unsatisfactory	Remarks
Access Roads Conditions	X		
Site Fencing, Gates	X		
Posted Sign and Notices	X		

Additional Comments: _____

_____

_____

_____

Signature:_____ **Title:**_____

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MWH
MONTGOMERY WATSON HARZA

INSPECTION REPORTING FORM
BLACKWELL LANDFILL SITE

Date: 9/26/02 Time (start): 900 Time (end): 1600

Monitored By: ADAM MC QUEEN / ALEX ELLWOOD / MATT MESARCH

To obtain climatic weather information call Midwest Climate Center at (217) 244-8226, fax (217) 244-0220

Temperature (°F) and Time: 61.4° - 75.9°F FROM 900 - 1600

Average Wind Speed (mph) and Direction toward: 9.2 - 11.5 MPH FROM SW

Barometric Pressure (in. Hg): 29.91 IN / 1012.9 hPA Trend: (P) S R (circle one)

Humidity (%): 70 - 50% FROM 900 - 1600

Rainfall: Track daily totals per O'Hare Airport (attached data when available).

Complete this form following scheduled O&M monitoring events to document operation of the Leachate Collection and LFG venting systems at the Blackwell Landfill Site.

I. Leachate Collection System (LCS): General

Time	LCS System	Remarks (Reason for System on or off)
	On or (Off)	OFF FOR ROUTINE O&M
	(On) or Off	O&M COMPLETED
	On or Off	
	On or Off	

Pump	Control Building Pump Stroke Counter Values	Multiply by 0.135 (Conversion Factor)	Cumulative Pumped Volumes (gallons)
EW01	875742	0.135	118225
EW01A	248922		33604
EW02	1215760		164128
EW03	1950591		263330
EW04	129278		17453
EW05	576032		77764
EW06	241074		32595
EW07	618437		83489
EW08	9733208		1313983
LS01	3073372		414905
LS02			

Alarm Panel Alarms	Status (Circle One)		If Unsatisfactory, Explain
Tank Annular Space	Satisfactory	Unsatisfactory	_____
Leak Detection Riser	Satisfactory	Unsatisfactory	_____
Tank High Level (75%)	Satisfactory	Unsatisfactory	_____
Tank High Level (90%)	Satisfactory	Unsatisfactory	_____

Interlock Alarms	Status (Circle One)		If Unsatisfactory, Explain
Leak Detection	Satisfactory	Unsatisfactory	_____
High Level	Satisfactory	Unsatisfactory	_____
Air Dryer	Satisfactory	Unsatisfactory	_____
Compressor	Satisfactory	Unsatisfactory	_____

Building Inside Temperature (°F): 74° Heater Thermostat Setting (°F): _____

Status of Intake Fan (circle one): On Off

General Notes/Comments (building, tank risers, fence, etc.): _____

LCS Holding Tank

Depth of fluid (in.)				
full:	_____	_____	_____	_____
partial:	_____	_____	_____	_____
empty:	_____	_____	_____	_____
Was tank emptied	yes / no	yes / no	yes / no	yes / no
Volume of leachate in tank (gallons) (full / partial / empty)	_____	_____	_____	_____

II. Leachate Collection System: Monitoring of Extraction Well Equipment

Pump Location	Pump System Extraction Vault Remote Pump-Stroke Values	Pump System Control Building Pump-Stroke Values	Depth to Leachate (ft)	Status of Wellhead Components and Vault Structures *
EW01	391841	875742		
EW01A	646790	248922		
EW02	878364	1215760		
EW03	563251	1950591		
EW04	194561	129278		
EW05	247375	576032		
EW06	799165	241074		
EW07	292479	618437		
EW08	151281	9733208		
LS01	250214	3073372		
LS02				

System Operational: Yes or No

Compare pump stroke counters in the extraction well vaults to those recorded in the control building (note major differences):

Component	Satisfactory	Unsatisfactory	Remarks
Compressor System	X		
Air Dryer	X		

Landfill Gas System

Component	Satisfactory	Unsatisfactory	Remarks
Vent Stack	X		
Driplegs	X		
Wells	X		

Landfill Cap Repair Areas

Component	Satisfactory	Unsatisfactory	Remarks
Landfill Cap Soils	X		
Vegetative Cover	X		
General Drainage	X		

Site Security

Component	Satisfactory	Unsatisfactory	Remarks
Access Roads Conditions	X		
Site Fencing, Gates	X		
Posted Sign and Notices	X		

Additional Comments: _____

Signature: [illegible] Title: ASST. GEOLOGIST

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MWH
MONTGOMERY WATSON HARZA

INSPECTION REPORTING FORM
BLACKWELL LANDFILL SITE

Date: 11/21/02 Time (start): 0830 Time (end): 1600

Monitored By: ROY STEIN / STELLA WILLIAMS

To obtain climatic weather information call Midwest Climate Center at (217) 244-8226, fax (217) 244-0220

Temperature (°F) and Time: 32°F - 39°F FROM 0830-1600

Average Wind Speed (mph) and Direction toward: 11.4-18.4 mph FROM N/NW

Barometric Pressure (in. Hg): 29.8 IN / 1008.3 mb Trend: F S (R) (circle one)

Humidity (%): 90%

Rainfall: Track daily totals per O'Hare Airport (attached data when available).

Complete this form following scheduled O&M monitoring events to document operation of the Leachate Collection and LFG venting systems at the Blackwell Landfill Site.

I. Leachate Collection System (LCS): General

Time	LCS System	Remarks (Reason for System on or off)
0830	On or (Off)	OFF FOR ROUTINE O&M
1230	(On) or Off	O&M AT EWs COMPLETE
	On or Off	
	On or Off	

Pump	Control Building Pump Stroke Counter Values	Multiply by 0.135 (Conversion Factor)	Cumulative Pumped Volumes (gallons)
EW01	904809		122149
EW01A	249620		336987
EW02	1236361		166909
EW03	2002024		270273
EW04	136838		18473
EW05	617737		83394
EW06	249785		33721
EW07	654437		88349
EW08	1160732		156699
LS01	3096165		417982
LS02	367125		49562

Alarm Panel Alarms	Status (Circle One)	If Unsatisfactory, Explain
Tank Annular Space	Satisfactory Unsatisfactory	
Leak Detection Riser	Satisfactory Unsatisfactory	
Tank High Level (75%)	Satisfactory Unsatisfactory	
Tank High Level (90%)	Satisfactory Unsatisfactory	

Interlock Alarms	Status (Circle One)	If Unsatisfactory, Explain
Leak Detection	Satisfactory Unsatisfactory	
High Level	Satisfactory Unsatisfactory	
Air Dryer	Satisfactory Unsatisfactory	
Compressor	Satisfactory Unsatisfactory	

Building Inside Temperature (°F): 65 Heater Thermostat Setting (°F): 70°

Status of Intake Fan (circle one): On Off

General Notes/Comments (building, tank risers, fence, etc.): _____

LCS Holding Tank

Depth of fluid (in.)				
full:				
partial:				
empty:				
Was tank emptied	yes / no	yes / no	yes / no	yes / no
Volume of leachate in tank (gallons) (full / partial / empty)				

II. Leachate Collection System: Monitoring of Extraction Well Equipment

Pump Location	Pump System Extraction Vault Remote Pump-Stroke Values	Pump System Control Building Pump-Stroke Values	Depth to Leachate (ft)	Status of Wellhead Components and Vault Structures *
EW01	680913		37.75	
EW01A	410716		39.02	
EW02	899054		75.65	
EW03	615499		45.55	
EW04	202120		—	
EW05	296570		82.55	
EW06	808985		43.90	
EW07	328474		60.62	
EW08	938159		—	
LS01	219031		—	
LS02	—		—	

System Operational: Yes or No

Compare pump stroke counters in the extraction well vaults to those recorded in the control building (note major differences):

III. Landfill Gas (LFG) Venting System

Location	Static Pressure (in. wc)	LFG Velocity (fpm)	LFG Flow (cfm)	Gas Composition Readings (with Portable Instrument) Methane (%)	Carbon Dioxide (%)	Oxygen (%)
Vent Stack	NA	400		70.1	32.2	0.1
EW01	NM	NA	NA	44.2	29.6	5.8
EW01A				12.5	8.3	13.5
EW02				50.4	27.7	0.9
EW03				53.9	29.6	4.8
EW04				71.5	32.0	0.9
EW05				70.1	34.1	2.8
EW06				67.6	34.5	0.5
EW07				64.7	33.7	1.7
EW08				—	—	—

To calculate LFG flow (cfm) multiply LFG velocity (fpm) by the inside cross-sectional area of the vent stack pipe.

General Comments (stack, fence, etc.): _____

IV. System Integrity Status:

Leachate Collection System

Component	Satisfactory	Unsatisfactory	Remarks
Leachate Holding Tank	X		
Leak Detection Riser	X		
Leachate Loadout and Disposal	X		
System Control and Telemetry	X		
Wells/Pumps	X		
Lift Station/Pumps	X		

Component	Satisfactory	Unsatisfactory	Remarks
Compressor System	X		
Air Dryer	X		

Landfill Gas System

Component	Satisfactory	Unsatisfactory	Remarks
Vent Stack	X		SV-2 CASING BROKEN
Driplegs	X		
Wells	X		

Landfill Cap Repair Areas

Component	Satisfactory	Unsatisfactory	Remarks
Landfill Cap Soils	X		
Vegetative Cover	X		
General Drainage	X		SMALL EROSIONAL CHANNEL AND HOLES NEAR SV-6

Site Security

Component	Satisfactory	Unsatisfactory	Remarks
Access Roads Conditions	X		
Site Fencing, Gates	X		
Posted Sign and Notices	X		SIGNS ON GWS ARE TAMPERED

Additional Comments: _____

Signature: [signature] Title: ASSOC. GEOLOGIST

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MWH
MONTGOMERY WATSON HARZA

INSPECTION REPORTING FORM
BLACKWELL LANDFILL SITE

Date: 1/30/03 Time (start): 830 Time (end): 1400

Monitored By: R. STEIN AND C. SMITH

Conditions	Bright Sun	Clear	Partly Cloudy	Overcast	Heavy Clouds	
Temperature	<32	32-50	50-70	70-85	>85	
Wind	Still	Moderate	High	Direction (from): North/South/East/West		
Precipitation	None	Light	Moderate	Heavy	Rain	Snow
Humidity	Dry	Moderate	Humid	Relative %:_____		
Barometric Pressure	Low	Moderate	High	In. Hg: _____ or hPA: _____		

To obtain climatic weather information logon to http://www.wunderground.com.

I. Leachate Collection System (LCS): General

Time	LCS System	Remarks (Reason for System on or off)
830	On or Off	ROUTINE O&M ACTIVITIES
	On or Off	
	On or Off	
	On or Off	

Alarm Panel Alarms	Status (Circle One)		If Unsatisfactory, Explain
Tank Annular Space	Satisfactory	Unsatisfactory	_____
Leak Detection Riser	Satisfactory	Unsatisfactory	_____
Tank High Level (75%)	Satisfactory	Unsatisfactory	_____
Tank High Level (90%)	Satisfactory	Unsatisfactory	_____

Interlock Alarms	Status (Circle One)		If Unsatisfactory, Explain
Leak Detection	Satisfactory	Unsatisfactory	_____
High Level	Satisfactory	Unsatisfactory	_____
Air Dryer	Satisfactory	Unsatisfactory	_____
Compressor	Satisfactory	Unsatisfactory	_____

Pump	Control Building Pump Stroke Counter Values	Cumulative Pumped Volume in Gallons (Multiply by 0.135)	Extraction Vault Pump Stroke Counter Values	Depth to Leachate (ft)
EW01	916794	123767	693993	35.3
EW01A	250079	33761	420930	41.15
EW02	1253369	169205	916095	74.15
EW03	2055340	277471	668810	50.04
EW04	148104	19994	202121	NM
EW05	653338	88201	340153	81.00
EW06	249785	33721	809674	44.5
EW07	701608	94717	375645	60.85
EW08	11863095	1601518	NA	NM
LS01	3096497	418027	219854	NM
LS02	367126	49562	NM	NM

Building Inside Temperature (°F): 78° AND 40°F IN COMPRESSOR ROOM Heater Thermostat Setting (°F): 71°F

Status of Intake Fan (circle one): On (Off)

General Notes/Comments (building, tank risers, fence, etc.):

COMPRESSOR ROOM WAS VERY COLD (40°F).

II. Landfill Gas (LFG) Venting System

Gas Composition Readings (with Portable Instrument)

Location	Static Pressure (in. wc)	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Status of Wellhead Components and Vault Structures*
EW01	0.04	72.0	29.6	2.1	GOOD
EW01A	0.04	0.7	0.0	20.7	GOOD
EW02	0.10	74.2	28.0	1.5	GOOD
EW03	0.38	72.1	28.3	3.8	GOOD
EW04	0.14	76.1	27.3	1.8	GOOD
EW05	0.08	85.7	22.5	1.3	GOOD
EW06	0.35	75.5	29.2	1.1	GOOD
EW07	0.82	72.0	28.6	3.7	GOOD
EW08	NM	NM	NM	NM	COUNTER MISSING

Location	LFG Velocity (fpm)	LFG Flow (cfm)	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Temperature (°F)
Vent Stack	~~37.3~~		74.6	28.3	2.1	37.3

To calculate LFG flow (cfm) multiply LFG velocity (fpm) by the inside cross-sectional area of the vent stack pipe.

III. System Integrity Status:

Leachate Collection System

Component	Satisfactory	Unsatisfactory	Remarks
Leachate Holding Tank	✓		
Leak Detection Riser	✓		
Leachate Loadout and Disposal	✓		
System Control and Telemetry	✓		
Wells/Pumps	✓		
Lift Station/Pumps	✓		
Compressor System	✓		COMPRESSOR ROOM COLD (40°F)
Air Dryer	✓		

Landfill Gas System

Component	Satisfactory	Unsatisfactory	Remarks
Vent Stack	✓		VENT VAULTS FROZEN SHUT
Driplegs	✓		
Wells	✓		N

Landfill Cap Repair Areas

Component	Satisfactory	Unsatisfactory	Remarks
Landfill Cap Soils	✓		SNOW COVERED
Vegetative Cover	✓		
General Drainage	✓		

Site Security

Component	Satisfactory	Unsatisfactory	Remarks
Access Roads Conditions	✓		
Site Fencing, Gates	✓		
Posted Sign and Notices	✓		

Additional Comments: _____

Signature: _____ **Title:** _____

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MWH
MONTGOMERY WATSON HARZA

INSPECTION REPORTING FORM
BLACKWELL LANDFILL SITE

Date: 4/3/2003 Time (start): 0800 Time (end): 1500

Monitored By: RUDOLF STEIN / MATT MESARCH

Conditions	Bright Sun	Clear	Partly Cloudy	Overcast	Heavy Clouds	
Temperature	<32	32-50	50-70	70-85	>85	
Wind	Still	Moderate	High	Direction (from): North/South/East/West		
Precipitation	None	Light	Moderate	Heavy	Rain	Snow
Humidity	Dry	Moderate	Humid	Relative %: 100		
Barometric Pressure	Low	Moderate	High	In. Hg: 29.74 or hPA: 1007		

To obtain climatic weather information logon to http://www.wunderground.com.

I. Leachate Collection System (LCS): General

Time	LCS System	Remarks (Reason for System on or off)
0800	On or Off	OFF 3 DAYS PRIOR TO DATE (POL O&M)
	On or Off	
1200	On or Off	O&M COMPLETE
	On or Off	

Alarm Panel Alarms	Status (Circle One)		If Unsatisfactory, Explain
Tank Annular Space	Satisfactory	Unsatisfactory	
Leak Detection Riser	Satisfactory	Unsatisfactory	
Tank High Level (75%)	Satisfactory	Unsatisfactory	
Tank High Level (90%)	Satisfactory	Unsatisfactory	

Interlock Alarms	Status (Circle One)		If Unsatisfactory, Explain
Leak Detection	Satisfactory	Unsatisfactory	
High Level	Satisfactory	Unsatisfactory	
Air Dryer	Satisfactory	Unsatisfactory	
Compressor	Satisfactory	Unsatisfactory	

Pump	Control Building Pump Stroke Counter Values	Cumulative Pumped Volume in Gallons (Multiply by 0.135)	Extraction Vault Pump Stroke Counter Values	Depth to Leachate (ft)
EW01	935319	126268	716671	33.45
EW01A	252947	187368	436437	40.53
EW02	1271390	171638	934092	77.22
EW03	2090231	282181	703670	50.90
EW04	156710	21156	202123	—
EW05	682721	92167	375971	83.39
EW06	249798	33723	810735	44.45
EW07	741554	100110	415579	60.80
EW08	11876447	160170	99499	—
LS01	3096686	418053	220379	—
LS02	—	—	—	—

Building Inside Temperature (°F): 72 Heater Thermostat Setting (°F): 65

Status of Intake Fan (circle one): On Off

General Notes/Comments (building, tank risers, fence, etc.):

II. Landfill Gas (LFG) Venting System

Gas Composition Readings (with Portable Instrument)

Location	Static Pressure (in. wc)	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Status of Wellhead Components and Vault Structures*
EW01	0.0	65.4	40.6	0.0	OK
EW01A	0.0	0.0	0.0	20.9	OK
EW02	0.0	55.9	32.8	0.0	OK
EW03	0.6	68.0	40.1	0.0	OK
EW04	0.0	71.2	37.6	0.0	OK
EW05	0.1	76.6	31.0	1.2	OK
EW06	0.7	69.5	39.0	0.0	OK
EW07	1.0	70	39.8	0.0	OK
EW08	—	—	—	—	OK

Location	LFG Velocity (fpm)	LFG Flow (cfm)	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Temperature (°F)
Vent Stack	360	72.07	61.9	35.5	0.0	50

To calculate LFG flow (cfm) multiply LFG velocity (fpm) by the inside cross-sectional area of the vent stack pipe.

III. System Integrity Status:

Leachate Collection System

Component	Satisfactory	Unsatisfactory	Remarks
Leachate Holding Tank	✓		
Leak Detection Riser	✓		
Leachate Loadout and Disposal	✓		
System Control and Telemetry	✓		
Wells/Pumps	✓		
Lift Station/Pumps	✓		
Compressor System	✓		
Air Dryer	✓		

Landfill Gas System

Component	Satisfactory	Unsatisfactory	Remarks
Vent Stack	✓		
Driplegs	✓		
Wells	✓		

Landfill Cap Repair Areas

Component	Satisfactory	Unsatisfactory	Remarks
Landfill Cap Soils	✓		
Vegetative Cover	✓		
General Drainage	✓		

Site Security

Component	Satisfactory	Unsatisfactory	Remarks
Access Roads Conditions	✓		
Site Fencing, Gates	✓		
Posted Sign and Notices	✓		

Additional Comments: THREE GAS VENTS/VAULTS WERE SLIGHTLY DAMAGED SINCE THE PREVIOUS O&M ROUND.

DV-5 — VENT CAP STUCK IN RISER 1 FOOT BELOW TOP OF RISER/CASING.

DV-16 — VAULT LID AJAR, VALVE BROKEN (PULLED FROM VALVE CASING), VAULT FLOODED.

DV-17 — VALVE JAMMED, COULD NOT OPEN/CLOSE.

Signature: Rudolph A. Ho

Title: PROFESSIONAL GEOLOGIST

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APPENDIX A-3

MAINTENANCE AND REPAIR RECORD FORMS
MAY 2002 TO APRIL 2003

Maintenance Record No.:2002-11

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 05-16-02
Date Problem was Observed: 05-16-02

BRIEF DESCRIPTION OF PROBLEM

Low grease in compressor motor

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 05-16-02

MAINTENANCE or REPAIR PERFORMED

Grease compressor motor

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 05-16-02

Inspector's Signature: Ray Babowice

Maintenance Record No.:2002-12

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 05-21-02
Date Problem was Observed: 05-21-02

BRIEF DESCRIPTION OF PROBLEM

Check valve in LS-1 malfunctioning

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 05-21-02

MAINTENANCE or REPAIR PERFORMED

Replace check valve

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 05-16-02

Inspector's Signature: Ray Babowice

Maintenance Record No.:2002-13

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 06-20-02
Date Problem was Observed: 06-20-02

BRIEF DESCRIPTION OF PROBLEM

Pump in EW-3 not working

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 06-20-02

MAINTENANCE or REPAIR PERFORMED

Float was sticking cleaned pump

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 06-20-02

Inspector's Signature:

Maintenance Record No.:2002-14

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 06-25-02
Date Problem was Observed: 06-25-02

BRIEF DESCRIPTION OF PROBLEM

Pump in LS-3 not working

Person or Contractor Completing Maintenance or Repair: Blackhawk

Completion Date: 06-25-02

MAINTENANCE or REPAIR PERFORMED

Pneumatic switch repaired

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 06-25-02

Inspector's Signature:

Maintenance Record No.:2002-15

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 07-15-02
Date Problem was Observed: 07-15-02

BRIEF DESCRIPTION OF PROBLEM

Cracked pipe nipple in EW-5

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 07-15-02

MAINTENANCE or REPAIR PERFORMED

Replaced pipe nipple

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 07-15-02

Inspector's Signature:

Maintenance Record No.:2002-16

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 07-23-02
Date Problem was Observed: 07-23-02

BRIEF DESCRIPTION OF PROBLEM

Pump in EW-6 not working

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 07-23-02

MAINTENANCE or REPAIR PERFORMED

Cleaned and rebuild pump

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 07-23-02

Inspector's Signature:

Maintenance Record No.:2002-17

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 07-23-02
Date Problem was Observed: 07-23-02

BRIEF DESCRIPTION OF PROBLEM

Exhaust valve on Pump head in EW-6 not working

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 07-23-02

MAINTENANCE or REPAIR PERFORMED

Replaced valve

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 07-23-02

Inspector's Signature:

Maintenance Record No.:2002-18

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 07-25-02
Date Problem was Observed: 07-25-02

BRIEF DESCRIPTION OF PROBLEM

Pump in EW-8 stops cycling

Person or Contractor Completing Maintenance or Repair: Blackhawk

Completion Date: 07-29-02

MAINTENANCE or REPAIR PERFORMED

Pneumatic switch repaired

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 07-29-02

Inspector's Signature: Ray Babowice

Maintenance Record No.:2002-19

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 08-06-02
Date Problem was Observed: 08-06-02

BRIEF DESCRIPTION OF PROBLEM

EW-01A Check valve and discharge line clogged

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 08-06-02

MAINTENANCE or REPAIR PERFORMED

Check valve and discharge line cleaned

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 08-06-02

Inspector's Signature: Ray Babowice

Maintenance Record No.:2002-20

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 08-13-02
Date Problem was Observed: 08-13-02

BRIEF DESCRIPTION OF PROBLEM

Compressor will not start

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 08-14-02

MAINTENANCE or REPAIR PERFORMED

Coil and Aux. Contact on motor starter relay replaced

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 08-14-02

Inspector's Signature: Ray Babowice

Maintenance Record No.:2002-21

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 09-05-02
Date Problem was Observed: 09-05-02

BRIEF DESCRIPTION OF PROBLEM

Normal maintenance of compressor

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 09-05-02

MAINTENANCE or REPAIR PERFORMED

Changed the compressor oil and filter, air filter

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 09-05-02

Inspector's Signature:

Maintenance Record No.:2002-22

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 10-09-02
Date Problem was Observed: 10-09-02

Blackhawk pump in EW-8 not working

Person or Contractor Completing Maintenance or Repair: Blackhawk

Completion Date: 10/9/02

MAINTENANCE or REPAIR PERFORMED

New pump

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 10-09-02

Inspector's Signature:

Maintenance Record No.:2002-23

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 10-15-02
Date Problem was Observed: 10-15-02

EW-3 stopped

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 10/15/02

MAINTENANCE or REPAIR PERFORMED

Cleaned air valve

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 10-15-02

Inspector's Signature: Ray Babowice

Maintenance Record No.:2002-24

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 10-22-02
Date Problem was Observed: 10-22-02

General maintenance of drain trap

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 10/22/02

MAINTENANCE or REPAIR PERFORMED

Cleaned trap

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 10-22-02

Inspector's Signature: Ray Babowice

Maintenance Record No.:2002-25

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 11-04-02
Date Problem was Observed: 11-04-02

EW-1 stopped

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 11/04/02

MAINTENANCE or REPAIR PERFORMED

Float repaired

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 11-04-02

Inspector's Signature:

Maintenance Record No.:2003-02

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 02-10-03
Date Problem was Observed: 02-10-03

BRIEF DESCRIPTION OF PROBLEM

EW-01 not working

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 02-10-03

MAINTENANCE or REPAIR PERFORMED

Float stuck,Free up float pump is now working

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 02-10-03

Inspector's Signature:

Maintenance Record No.:2003-1

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 02-10-03
Date Problem was Observed: 02-10-03

BRIEF DESCRIPTION OF PROBLEM

Normal maintenance of compressor

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 02-10-03

MAINTENANCE or REPAIR PERFORMED

Changed the compressor oil and filter, air filter

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 02-10-03

Inspector's Signature:

Maintenance Record No.:2003-03

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 03-04-03
Date Problem was Observed: 03-04-03

BRIEF DESCRIPTION OF PROBLEM

Belts on compressor making noise

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 03-04-03

MAINTENANCE or REPAIR PERFORMED

Installed new belts

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 03-04-03

Inspector's Signature: Ray Babowice

Maintenance Record No.:2003-04

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 03-04-03
Date Problem was Observed: 03-04-03

BRIEF DESCRIPTION OF PROBLEM

Compressor motor bearings need grease

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 03-04-03

MAINTENANCE or REPAIR PERFORMED

Greased bearings

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 03-04-03

Inspector's Signature:

Maintenance Record No.:2003-05

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 03-24-03
Date Problem was Observed: 03-24-03

BRIEF DESCRIPTION OF PROBLEM

A ¾ inch pipe fitting broken at EW-1

Person or Contractor Completing Maintenance or Repair: Ray

Completion Date: 03-24-03

MAINTENANCE or REPAIR PERFORMED

Installed a new pipe fitting

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 03-24-03

Inspector's Signature: Ray Babowice

Maintenance Record No.:2003-06

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 04-10-03
Date Problem was Observed: 03-18-03

BRIEF DESCRIPTION OF PROBLEM

Sensaphone 2000 will not connect via computer

Person or Contractor Completing Maintenance or Repair: Phonetics,Inc.

Completion Date: 04-10-03

MAINTENANCE or REPAIR PERFORMED

Phonetics repaired the unit for a power surge from phone line

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 04-10-03

Inspector's Signature:

Maintenance Record No.:2003-07

BLACKWELL LANDFILL SITE
MAINTENANCE and REPAIR RECORD FORM

Inspector's Name: RAY BABOWICE
Date of the Record: 04-24-03
Date Problem was Observed: 04-07-03

BRIEF DESCRIPTION OF PROBLEM

Blackhawk pump in LS-3 has low discharge pressure.

Person or Contractor Completing Maintenance or Repair: RAY BABOWICE
Blackhawk Env.

Completion Date: 04-23-03

MAINTENANCE or REPAIR PERFORMED

Foot valve Replaced by blackhawk

VERIFICATION OF COMPLETION

Inspector's Name: RAY BABOWICE
Verification of Completion Date: 04-24-03

Inspector's Signature:

APPENDIX A-4

LEACHATE DISPOSAL LOGS
MAY 2002 TO APRIL 2003

LEACHATE DISPOSAL LOG
BLACKWELL LANDFILL SITE

Item No.	Date	Waste Manifest Number	Total Quantity (gal)	Transporter Company Name	Generator Representative's Name	Generator Representative's Signature
1	3/14/02	7592949 7592950	9800	ADVance	RB	
	Comments					
2	3/21/02	7592951	5000	ADVance	RB	
	Comments					
3	3/28/02	7592952 7592953	10000	JOHN ADVance	RB	
	Comments					
4	4/04/02	7592954 7592955	10000	SCOTT ADVance	RB	
	Comments					
5	4/11/02	7592956 7592957	10000	ADVance	RB	
	Comments					
6	4/18/02	7592958 2959	7,500	ADVANCE	JOH	
	Comments					
7	4/25/02	7592960 7592961	10000	ADVance	RB	
	Comments					
8	5/02/02	7592962	6000	ADVance	RB	
	Comments					
9	5/9/02	7592963 7592964	8800	ADVance	RB	
	Comments					

LEACHATE DISPOSAL LOG
BLACKWELL LANDFILL SITE

Item No.	Date	Waste Manifest Number	Total Quantity (gal)	Transporter Company Name	Generator Representative's Name	Generator Representative's Signature
1	5/16/02	7592965	5700	ADVANCE	RB	
	Comments					
2	5/23/02	7592966 7592967	10000	ADVANCE	RB	
	Comments					
3	5/30/02	7592968	5000	ADVANCE	RB	
	Comments					
4	6/06/02	7592969 7592970	10000	ADVANCE	RB	
	Comments					
5	6/13/02	7592971 72	10000	ADVANCE	RB	
	Comments					
6	6/20/02	7592973 7592974	10000	ADVANCE	RB	
	Comments					
7	6/25/02	7592975 7592976	10000	ADVANCE	RB	
	Comments					
8	6/27/02	7592977	5000	ADVANCE	RB	
	Comments					
9	7/2/02	7592978 7592979	10000	ADVANCE	RB	
	Comments					

LEACHATE DISPOSAL LOG
BLACKWELL LANDFILL SITE

Item No.	Date	Waste Manifest Number	Total Quantity (gal)	Transporter Company Name	Generator Representative's Name	Generator Representative's Signature
1	7/9/02	7592980 7592981	8400	ADVance	RB	
	Comments					
2	7/16/02	7592982 7592983	10000	ADVance	RB	
	Comments					
3	7/18/02	7592984	5000	ADVance	RB	
	Comments					
4	7/25/02	7592985 7592986	9500	ADVance	RB	
	Comments					
5	8/1/02	7592987	5500	ADVance	RB	
	Comments					
6	8/8/02	7592988	5000	ADVance	RB	
	Comments					
7	8/13/02	7592989 7592990	10000	ADVance	RB	
	Comments					
8	8/20/02	7592991 7592992	10000	ADVance	RB	
	Comments					
9	8/22/02	7592993 7592994	10000	ADVance	RB	
	Comments					

LEACHATE DISPOSAL LOG
BLACKWELL LANDFILL SITE

Item No.	Date	Waste Manifest Number	Total Quantity (gal)	Transporter Company Name	Generator Representative's Name	Generator Representative's Signature
1	8/27/02	7592995 7592996	7500	ADVANCE	RB	
	Comments					
2	8/29/02	7592997	4000	ADVANCE	RB	
	Comments					
3	9/3/02	7592998 7592999	8500	ADVANCE	RB	
	Comments					
4	9/5/02	7593000	2500	ADVANCE	RB	
	Comments					
5	9/12/02	9714502 9714501	9000	ADVANCE	RB	
	Comments New Run of manifest					
6	9/19/02	9714503 9714504	8000	ADVANCE	RB	
	Comments					
7	9/24/02	9714505	4000	ADVANCE	JA	
	Comments					
8	10/3/02	9714506 9714507	7400	ADVANCE	RB	
	Comments 9714508 VOID					
9	10/10/02	9714509	5000	ADVANCE	RB	
	Comments					

LEACHATE DISPOSAL LOG
BLACKWELL LANDFILL SITE

Item No.	Date	Waste Manifest Number	Total Quantity (gal)	Transporter Company Name	Generator Representative's Name	Generator Representative's Signature
1	10/17/02	9714510	4500	ADVANCE	RB	
	Comments					
2	10/24/02	9714511	4000	ADVANCE	RB	
	Comments					
3	10/31/02	9714512	3800	ADVANCE	RB	
	Comments					
4	11/7/02	9714513	3800	ADVANCE	RB	
	Comments					
5	11/14/02	9714514	3000	ADVANCE	RB	
	Comments					
6	12/5/02	9714516 9714515	7500	ADVANCE	RB	
	Comments					
7	12/19/02	9714517	4500	ADVANCE	RB	
	Comments					
8						
	Comments					
9						
	Comments					

LEACHATE DISPOSAL LOG
BLACKWELL LANDFILL SITE

Item No.	Date	Waste Manifest Number	Total Quantity (gal)	Transporter Company Name	Generator Representative's Name	Generator Representative's Signature
1	1/2/03	9714518	4600	ADVANCE	RAY	
	Comments					
2	1/16/03	9714519	4000	ADVANCE	RAY	
	Comments					
3	2/6/03	9714520	5000	ADVANCE	RAY	
	Comments					
4	2/27/03	9714521	2500	ADVANCE	RAY	
	Comments					
5	3/27/03	9714522	5000	ADVANCE	RAY	
	Comments					
6	4/10/03	9714523 9714524	10000	ADVANCE	RAY	
	Comments					
7	4/15/03	9714525	5500	ADVANCE	RAY	
	Comments					
8	4/24/03	9714526 9714527	9000	ADVANCE	RAY	
	Comments					
9	5/1/03	9714528	4600	ADVANCE	RAY	
	Comments					

APPENDIX A-5

LANDFILL GAS VENT MONITORING FORMS
MAY 2002 TO APRIL 2003

Gas Vent Monitoring Form
Blackwell Landfill Site

Date: 5/30/2002
Time: 0830-1530
Monitored By: MBM/RHS

Temperature(° F) and Time: 70 - 86
Humidity (%): 83 - 45%
Barometric Pressure (in. Hg): 29.8 (steady)

Vent Number	TOC Elevation	Measured Well Depth (feet)	Depth to Liquid (feet)	Liquid Elevation (feet)	Gas Readings			Vent Readings						NOTES
					%CH_4	%CO_2	%O_2	I.D. (ft)	Velocity (fpm)	Volume (ft^3/min)	% of Total	Static Pressure (in. H_2O)	Temperature (°F)	
SV-1	739.39	16.00	5.15	734.24	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-2	766.04	53.25	44.70	721.34	NM	NM	NM	0.172	NM	NM	NM	NM	NM	The PVC pipe was unscrewed from the metal riser pipe, thus the liquid level was measured to the top of the metal pipe. The elevation is not correct.
SV-4	741.36	27.15	17.92	723.44	64.40	34.70	1.20	0.172	55	1.28	1.0	6	83.4	
SV-5	725.74	27.00	7.17	718.57	1.50	0.90	20.20	0.172	60	1.40	1.0	0.11	78	
SV-6	760.46	45.70	30.10	730.36	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-7	781.01	64.70	47.55	733.46	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-8	723.03	25.20	8.00	715.03	59.50	32.00	2.50	0.172	35	0.82	0.6	2	89.1	
SV-9	748.77	50.00	36.15	712.62	63.50	33.40	1.60	0.172	40	0.93	0.7	2	92.6	
SV-11	807.38	91.40	67.00	740.38	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
SV-12	823.82	83.80	62.59	761.23	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-3	749.72	36.75	16.30	733.42	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-4	723.25	27.10	18.50	704.75	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-5	720.35	29.00	21.70	698.65	63.20	34.60	1.50	0.172	270	6.29	4.7	1.2	81.1	
DV-6	775.56	68.25	57.20	718.36	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-7	829.62	86.90	NM	NA	NM	NM	NM	0.336	NM	NM	NM	NM	NM	DV-7 is not measured because the water level is too deep
DV-8	728.73	27.60	2.62	726.11	3.50	0.90	19.80	0.336	35	3.09	2.3	0	78.8	
DV-9	723.56	22.40	6.00	717.56	2.80	1.60	19.30	0.336	25	2.21	1.7	0	80.3	
DV-10	765.05	67.40	40.55	724.50	4.90	2.70	18.70	0.336	25	2.21	1.7	0.04	86.3	
DV-11	753.50	34.75	2.70	750.80	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-13	746.29	53.60	29.05	717.24	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-14	738.22	33.10	19.70	718.52	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-15	736.17	43.00	34.64	701.53	62.90	35.30	1.40	0.336	215	19.00	14.2	0.8	80	
DV-16	733.85	34.00	16.55	717.30	63.30	33.50	1.20	0.336	74	6.54	4.9	2.4	88.5	
DV-17	729.07	37.20	20.25	708.82	63.10	35.60	1.40	0.336	220	19.44	14.5	1	89.3	
DV-18	775.13	54.20	31.75	743.38	57.00	36.40	1.50	0.336	40	3.53	2.6	3.3	83.7	
EW-1	755.11	43.85	41.50	713.61	61.40	36.00	1.40	NA	NA	NA	NA	0.10	NA	counter 481511
EW-1A	752.35	42.50	38.64	713.71	38.50	20.60	1.40	NA	NA	NA	NA	0.03	NA	counter 356088
EW-2	792.72	81.50	76.75	715.97	52.50	29.00	1.50	NA	NA	NA	NA	0.04	NA	counter 757827
EW-3	768.93	62.40	38.82	730.11	62.70	35.30	1.40	NA	NA	NA	NA	0.03	NA	counter 409138
EW-4	836.16	NM	NA	NA	65.70	30.90	1.30	NA	NA	NA	NA	0.14	NA	counter 181144
EW-5	809.32	89.90	82.95	726.37	70.90	25.30	1.40	NA	NA	NA	NA	0.10	NA	counter 152371
EW-6	765.38	64.60	44.97	720.41	63.30	33.80	1.30	NA	NA	NA	NA	0.58	NA	counter 761786
EW-7	772.99	63.10	60.65	712.34	65.00	35.40	1.10	NA	NA	NA	NA	1.50	NA	counter 220852
EW-8	759.43	43.70	NM	NA	NM	NM	NM	NA	NA	NA	NA	NM	NA	counter 702518
Main Vent					61.8	32.3	1.4	0.505	335	67.07	50.1	NM	75.5	No static pressure because vent stack is open to the atmosphere

No velocity in lift stations or extraction wells due pipe size constrictions

Notes:
1) TOC - Top of Casing as of 10/05/00
2) O_2 - Oxygen Percentage
3) CH_4 - Methane Percentage
4) CO_2 - Carbon Dioxide Percentage
5) NA - Not Applicable
6) NM - Not Measured

TOTAL VOLUME (ft^3/min)= 133.80

**I.D. based on 2" Schedule 40 and 4" Schedule 40 PVC pipe
LFG is 6" Schedule 40 galvantized steel pipe based on As-Built drawing

Additional Information

	depth	CH4	CO2	O2
LS01				
DL01N				
DL01S				
DL02N				
DL02S				

counter = 702518

Gas Vent Monitoring Form
Blackwell Landfill Site

Date: 7/11/2002
Time: 0800 - 1530
Monitored By: MBM/RHS

Temperature(° F) and Time: 66 - 75
Humidity (%): 45%
Barometric Pressure (in. Hg): 30.18 (steady)

Vent	TOC	Measured Well Depth	Depth to Liquid	Liquid Elevation	Gas Readings			Vent Readings						
Number	Elevation	(feet)	(feet)	(feet)	%CH_4	%CO_2	%O_2	I.D. (ft)	Velocity (fpm)	Volume (ft^3/min)	% of Total	Static Pressure (in. H_2O)	Temperature (°F)	NOTES
SV-1	739.39	16.00	4.60	734.79	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-2	766.04	53.25	45.40	720.64	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-4	741.36	27.15	16.40	724.96	63.60	37.90	0.00	0.172	40	0.93	0.8	1	88.8	
SV-5	725.74	27.00	8.25	717.49	22.80	16.00	13.10	0.172	12	0.28	0.3	0.32	79	Vault was full of water
SV-6	760.46	45.70	30.50	729.96	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-7	781.01	64.70	52.70	728.31	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-8	723.03	25.20	8.78	714.25	63.40	38.10	0.00	0.172	35	0.82	0.7	0.18	81.8	
SV-9	748.77	50.00	36.40	712.37	53.60	30.70	3.70	0.172	32	0.75	0.7	0.1	82	
SV-11	807.38	91.40	68.20	739.18	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
SV-12	823.82	83.80	62.60	761.22	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-3	749.72	36.75	16.31	733.41	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-4	723.25	27.10	19.75	703.50	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-5	720.35	29.00	NM	NA	NM	NM	NM	0.172	NM	NA	NA	NM	NM	Well cap fell down casing, did not measure parameters this month
DV-6	775.56	68.25	58.10	717.46	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-7	829.62	86.90	NM	NA	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Water level is too deep, can not measure with liquid level tape
DV-8	728.73	27.60	2.35	726.38	0.00	0.00	20.80	0.336	15	1.33	1.2	0.02	77	Vault was full of water
DV-9	723.56	22.40	5.25	718.31	0.30	0.10	20.60	0.336	0	0.00	0.0	0.02	80	
DV-10	765.05	67.40	39.40	725.65	4.50	2.10	19.40	0.336	45	3.98	3.6	0.02	80.5	
DV-11	753.50	34.75	6.90	746.60	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-13	746.29	53.60	30.39	715.90	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-14	738.22	33.10	20.35	717.87	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-15	736.17	43.00	35.35	700.82	64.60	36.70	0.00	0.336	35	3.09	2.8	0.04	84	
DV-16	733.85	34.00	21.30	712.55	65.40	36.00	0.00	0.336	74	6.54	5.9	0.02	79.7	
DV-17	729.07	37.20	20.45	708.62	63.30	37.70	0.00	0.336	180	15.90	14.4	0.8	75.8	
DV-18	775.13	54.20	32.35	742.78	63.60	37.80	0.20	0.336	55	4.86	4.4	0.8	88.5	
EW-1	755.11	43.85	40.10	715.01	0.00	0.00	20.70	NA	NA	NA	NA	0.02	NA	counter 541,172
EW-1A	752.35	42.50	38.53	713.82	0.30	0.00	20.70	NA	NA	NA	NA	0.02	NA	counter 368,477
EW-2	792.72	81.50	76.30	716.42	53.30	29.20	0.40	NA	NA	NA	NA	0.8	NA	counter 828,123
EW-3	768.93	62.40	40.45	728.48	62.70	34.90	0.70	NA	NA	NA	NA	0.24	NA	counter 466,246
EW-4	836.16	NM	NM	NA	67.30	34.00	0.00	NA	NA	NA	NA	0.1	NA	counter 185,646
EW-5	809.32	89.90	82.55	726.77	72.20	28.00	0.00	NA	NA	NA	NA	0.08	NA	counter 178,605
EW-6	765.38	64.60	45.05	720.33	66.20	35.50	0.00	NA	NA	NA	NA	1	NA	counter 761,790
EW-7	772.99	63.10	60.65	712.34	66.10	36.00	0.00	NA	NA	NA	NA	1.2	NA	counter 244,972
EW-8	759.43	43.70	NM	NA	NM	NM	NM	NA	NA	NA	NA	NA	NA	counter 845,115
Main Vent					61.4	33.3	0.0	0.505	360	72.07	65.2	NM	76.8	No static pressure because vent stack is open to the atmosphere

No velocity in lift stations or extraction wells due pipe size constrictions

Notes:
1) TOC - Top of Casing as of 10/05/00
2) O_2 - Oxygen Percentage
3) CH_4 - Methane Percentage
4) CO_2 - Carbon Dioxide Percentage
5) NA - Not Applicable
6) NM - Not Measured

TOTAL VOLUME (ft^3/min)= 110.54

**I.D. based on 2" Schedule 40 and 4" Schedule 40 PVC pipe
LFG is 6" Schedule 40 galvantized steel pipe based on As-Built drawing

Additional Information

	depth	CH4	CO2	O2
LS01	NM	NM	NM	NM
DL01N				
DL01S				
DL02N				
DL02S				

counter = 930,870

Gas Vent Monitoring Form
Blackwell Landfill Site

Date: 9/26/2002
Time: 0900 - 1600
Monitored By: AM/APE

Temperature(° F): 53 - 73
Humidity (%): 88 - 38%
Barometric Pressure (in. Hg): 29.9 (Falling)

Vent	TOC	Measured Well Depth	Depth to Liquid	Liquid Elevation	Gas Readings			Vent Readings						
Number	Elevation	(feet)	(feet)	(feet)	%CH_4	%CO_2	%O_2	I.D. (ft)	Velocity (fpm)	Volume (ft^3/min)	% of Total	Static Pressure (in. H_2O)	Temperature (°F)	NOTES
SV-1	739.39	16.00	5.20	734.19	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Pressure monitor not functioning properly
SV-2	766.04	53.25	NM	NA	NM	NM	NM	0.172	NM	NM	NM	NM	NM	PVC riser pipe broken, could not measure water level
SV-4	741.36	27.15	18.81	722.55	78.20	49.60	0.20	0.172	32	0.75	0.7	NM	85	
SV-5	725.74	27.00	10.41	715.33	14.20	8.20	16.60	0.172	3	0.07	0.1	NM	71.4	
SV-6	760.46	45.70	31.60	728.86	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-7	781.01	64.70	48.51	732.50	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-8	723.03	25.20	8.85	714.18	68.00	49.00	0.00	0.172	40	0.93	0.9	NM	86	
SV-9	748.77	50.00	36.03	712.74	82.30	45.60	0.10	0.172	26	0.61	0.6	NM	90.2	
SV-11	807.38	91.40	68.00	739.38	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault full of water
SV-12	823.82	83.80	62.50	761.32	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-3	749.72	36.75	16.30	733.42	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-4	723.25	27.10	22.70	700.55	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-5	720.35	29.00	NM	NA	NM	NM	NM	0.172	NM	NA	NA	NM	NM	Valve fell into riser pipe, could not retrieve, no measurements taken
DV-6	775.56	68.25	57.65	717.91	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-7	829.62	86.90	NM	NA	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-8	728.73	27.60	5.60	723.13	17.30	10.20	15.20	0.336	3	0.27	0.2	NM	74.6	Vault full of water
DV-9	723.56	22.40	8.63	714.93	0.00	0.00	20.20	0.336	2	0.18	0.2	NM	80.1	
DV-10	765.05	67.40	42.41	722.64	8.50	3.90	18.00	0.336	3	0.27	0.2	NM	79.6	
DV-11	753.50	34.75	14.31	739.19	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-13	746.29	53.60	30.30	715.99	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-14	738.22	33.10	19.90	718.32	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-15	736.17	43.00	37.54	698.63	82.40	44.50	0.20	0.336	23	2.03	1.9	NM	87.3	
DV-16	733.85	34.00	25.72	708.13	82.70	41.70	0.00	0.336	110	9.72	8.9	NM	77	Vault full of water
DV-17	729.07	37.20	20.05	709.02	79.60	42.00	0.00	0.336	50	4.42	4.0	NM	87.5	
DV-18	775.13	54.20	32.30	742.83	82.50	44.70	0.00	0.336	24	2.12	1.9	NM	84	
EW-1	755.11	43.85	39.20	715.91	74.50	46.80	0.30	NA	NA	NA	NA	NM	NA	counter 646790
EW-1A	752.35	42.50	38.89	713.46	41.80	25.60	0.00	NA	NA	NA	NA	NM	NA	counter 391841
EW-2	792.72	81.50	75.82	716.90	65.80	34.90	0.00	NA	NA	NA	NA	NM	NA	counter 878364
EW-3	768.93	62.40	44.55	724.38	82.10	45.90	0.00	NA	NA	NA	NA	NM	NA	counter 563251
EW-4	836.16			836.16	86.50	38.90	0.00	NA	NA	NA	NA	NM	NA	counter 194561
EW-5	809.32	89.90	84.85	724.47	90.50	33.90	0.10	NA	NA	NA	NA	NM	NA	counter 247375
EW-6	765.38	64.60	Dry	NA	82.30	43.10	0.30	NA	NA	NA	NA	NM	NA	counter 799165
EW-7	772.99	63.10	60.60	712.39	83.70	43.20	0.00	NA	NA	NA	NA	NM	NA	counter 292479
EW-8	759.43	43.70	NM	NA	NM	NM	NM	NA	NA	NA	NA	NM	NA	counter 151281
Main Vent					77.5	33.9	0.1	0.505	440	88.09	80.5	NM	74.7	No static pressure because vent stack is open to the atmosphere

Notes:
1) TOC - Top of Casing as of 10/05/00
2) O_2 - Oxygen Percentage
3) CH_4 - Methane Percentage
4) CO_2 - Carbon Dioxide Percentage
5) NA - Not Applicable
6) NM - Not Measured

No velocity in lift stations or extraction wells due pipe size constrictions

TOTAL VOLUME (ft^3/min)= 109.44

**I.D. based on 2" Schedule 40 and 4" Schedule 40 PVC pipe
LFG is 6" Schedule 40 galvantized steel pipe based on As-Built drawing

Additional Information

	depth	CH4	CO2	O2	
LS01	NM	77.5	33.9	0.1	counter = 200214
DL01N					p=.02
DL01S					
DL02N					
DL02S					

Gas Vent Monitoring Form
Blackwell Landfill Site

Date: 11/21/2002
Time: 0830 - 1600
Monitored By: RHS/SJW

Temperature(° F): 32 - 39
Humidity (%): 90%
Barometric Pressure (in. Hg): 29.8 (Rising)

Vent	TOC	Measured Well Depth	Depth to Liquid	Liquid Elevation	Gas Readings			Vent Readings						
Number	Elevation	(feet)	(feet)	(feet)	%CH_4	%CO_2	%O_2	I.D. (ft)	Velocity (fpm)	Volume (ft^3/min)	% of Total	Static Pressure (in. H_2O)	Temperature (°F)	NOTES
SV-1	739.39	16.00	5.53	733.86	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Velometer had water spilled on it and would not work. Therefore no pressure,
SV-2	766.04	53.25	44.80	721.24	NM	NM	NM	0.172	NM	NM	NM	NM	NM	temperature, or velocity readings were taken in this round. MWH did return the
SV-4	741.36	27.15	19.10	722.26	60.20	35.30	2.20	0.172	NM	NM	NM	NM	NM	next day to measure pressure and temperature at the main vent stack.
SV-5	725.74	27.00	11.50	714.24	13.20	13.50	14.60	0.172	NM	NM	NM	NM	NM	
SV-6	760.46	45.70	32.52	727.94	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-7	781.01	64.70	50.60	730.41	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-8	723.03	25.20	9.15	713.88	67.90	39.00	1.60	0.172	NM	NM	NM	NM	NM	
SV-9	748.77	50.00	36.01	712.76	56.20	30.20	4.50	0.172	NM	NM	NM	NM	NM	
SV-11	807.38	91.40	68.25	739.13	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
SV-12	823.82	83.80	62.55	761.27	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-3	749.72	36.75	17.30	732.42	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-4	723.25	27.10	23.60	699.65	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-5	720.35	29.00	NM	NA	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Valve fell into riser pipe, could not retrieve, no measurements taken
DV-6	775.56	68.25	57.50	718.06	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-7	829.62	86.90	NM	NA	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-8	728.73	27.60	9.30	719.43	35.5	22.90	9.25	0.336	NM	NM	NM	NM	NM	
DV-9	723.56	22.40	9.88	713.68	0.90	0.80	20.70	0.336	NM	NM	NM	NM	NM	
DV-10	765.05	67.40	43.90	721.15	36.00	25.20	8.20	0.336	NM	NM	NM	NM	NM	
DV-11	753.50	34.75	5.25	748.25	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-13	746.29	53.60	31.05	715.24	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-14	738.22	33.10	19.40	718.82	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-15	736.17	43.00	38.30	697.87	70.70	33.70	2.60	0.336	NM	NM	NM	NM	NM	
DV-16	733.85	34.00	26.80	707.05	70.20	35.10	4.70	0.336	NM	NM	NM	NM	NM	Vault full of water
DV-17	729.07	37.20	20.40	708.67	67.40	39.70	1.80	0.336	NM	NM	NM	NM	NM	
DV-18	775.13	54.20	35.35	739.78	66.70	26.40	0.00	0.336	NM	NM	NM	NM	NM	
EW-1	755.11	43.85	37.75	717.36	44.20	29.60	5.80	NA	NA	NA	NA	NA	NA	counter 680913
EW-1A	752.35	42.50	39.02	713.33	12.50	8.30	13.50	NA	NA	NA	NA	NA	NA	counter 410716
EW-2	792.72	81.50	75.65	717.07	50.40	27.70	0.90	NA	NA	NA	NA	NA	NA	counter 899054
EW-3	768.93	62.40	45.55	723.38	53.90	29.60	4.80	NA	NA	NA	NA	NA	NA	counter 615499
EW-4	836.16			836.16	71.50	32.00	0.90	NA	NA	NA	NA	NA	NA	counter 202120
EW-5	809.32	89.90	82.55	726.77	70.10	34.10	2.80	NA	NA	NA	NA	NA	NA	counter 296570
EW-6	765.38	64.60	43.90	721.48	67.60	34.50	0.50	NA	NA	NA	NA	NA	NA	counter 808985
EW-7	772.99	63.10	60.62	712.37	64.70	33.70	1.70	NA	NA	NA	NA	NA	NA	counter 328474
EW-8	759.43	43.70	NM	NA	NM	NM	NM	NA	NA	NA	NA	NA	NA	counter 938159

Main Vent	70.1	32.2	0.1	0.505	400	80.08	100.0	NM	47.7	No static pressure because vent stack is open to the atmosphere

No velocity in lift stations or extraction wells due pipe size constrictions

TOTAL VOLUME (ft^3/min)= 80.08

Notes:
1) TOC - Top of Casing as of 10/05/00
2) O_2 - Oxygen Percentage
3) CH_4 - Methane Percentage
4) CO_2 - Carbon Dioxide Percentage
5) NA - Not Applicable
6) NM - Not Measured

**I.D. based on 2" Schedule 40 and 4" Schedule 40 PVC pipe
LFG is 6" Schedule 40 galvantized steel pipe based on As-Built drawing

Additional Information

	depth	CH4	CO2	O2	
LS01	NM	0.06	4.3	18.1	counter = 219031
DL01N					p=.02
DL01S					
DL02N					
DL02S					

Gas Vent Monitoring Form
Blackwell Landfill Site

Date: 1/30/2003
Time: 0800 - 1300
Monitored By: RSH/MBM

Temperature(° F): 7 - 20
Humidity (%): 90%
Barometric Pressure (in. Hg): 30.1 (steady)

Vent	TOC	Measured Well Depth	Depth to Liquid	Liquid Elevation	Gas Readings			Vent Readings						
Number	Elevation	(feet)	(feet)	(feet)	%CH_4	%CO_2	%O_2	I.D. (ft)	Velocity (fpm)	Volume (ft^3/min)	% of Total	Static Pressure (in. H_2O)	Temperature (°F)	NOTES
SV-1	739.39	16.00	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
SV-2	766.04	53.25	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
SV-4	741.36	27.15	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
SV-5	725.74	27.00	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
SV-6	760.46	45.70	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
SV-7	781.01	64.70	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
SV-8	723.03	25.20	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
SV-9	748.77	50.00	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
SV-11	807.38	91.40	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
SV-12	823.82	83.80	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-3	749.72	36.75	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
DV-4	723.25	27.10	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
DV-5	720.35	29.00	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
DV-6	775.56	68.25	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	Vault frozen
DV-7	829.62	86.90	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-8	728.73	27.60	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-9	723.56	22.40	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-10	765.05	67.40	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-11	753.50	34.75	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-13	746.29	53.60	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-14	738.22	33.10	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-15	736.17	43.00	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-16	733.85	34.00	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-17	729.07	37.20	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
DV-18	775.13	54.20	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	Vault frozen
EW-1	755.11	43.85	35.30	719.81	72.00	29.60	2.10	NA	NA	NA	NA	0.04	NA	counter 693993
EW-1A	752.35	42.50	41.15	711.20	0.70	0.00	20.70	NA	NA	NA	NA	0.04	NA	counter 420930
EW-2	792.72	81.50	74.15	718.57	74.20	28.00	1.50	NA	NA	NA	NA	0.1	NA	counter 916095
EW-3	768.93	62.40	50.04	718.89	72.10	28.30	3.80	NA	NA	NA	NA	0.38	NA	counter 668810
EW-4	836.16	NM	NM	NM	76.10	27.30	1.80	NA	NA	NA	NA	0.14	NA	counter 202121
EW-5	809.32	89.90	81.00	728.32	85.70	22.50	1.30	NA	NA	NA	NA	0.08	NA	counter 340153
EW-6	765.38	64.60	44.50	720.88	75.50	29.20	1.30	NA	NA	NA	NA	0.35	NA	counter 809674
EW-7	772.99	63.10	60.85	712.14	72.00	28.60	1.10	NA	NA	NA	NA	0.82	NA	counter 375645
EW-8	759.43	43.70	NM	NA	NM	NM	3.70	NA	NA	NA	NA	NA	NA	counter NM
Main Vent					74.6	28.3	2.1	0.505	460	92.09	100.0	NM	37.3	No static pressure because vent stack is open to the atmosphere

No velocity in lift stations or extraction wells due pipe size constrictions

Notes:
1) TOC - Top of Casing as of 10/05/00
2) O_2 - Oxygen Percentage
3) CH_4 - Methane Percentage
4) CO_2 - Carbon Dioxide Percentage
5) NA - Not Applicable
6) NM - Not Measured

TOTAL VOLUME (ft^3/min)= 92.09

**I.D. based on 2" Schedule 40 and 4" Schedule 40 PVC pipe
LFG is 6" Schedule 40 galvantized steel pipe based on As-Built drawing

Additional Information

	depth	CH4	CO2	O2	
LS01	NM	0.2	3.3	18.6	counter = 219854
DL01N					p=.02
DL01S					
DL02N					
DL02S					

Gas Vent Monitoring Form
Blackwell Landfill Site

Date: 4/3/2003
Time: 0800 - 1500
Monitored By: RHS/MBM

Temperature(° F): 38 - 55
Humidity (%): 100%
Barometric Pressure (in. Hg): 29.74 (steady)

Vent	TOC	Measured Well Depth	Depth to Liquid	Liquid Elevation	Gas Readings			Vent Readings						
Number	Elevation	(feet)	(feet)	(feet)	%CH_4	%CO_2	%O_2	I.D. (ft)	Velocity (fpm)	Volume (ft^3/min)	% of Total	Static Pressure (in. H_2O)	Temperature (°F)	NOTES
SV-1	739.39	16.00	5.75	733.64	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-2	766.04	53.25	45.05	720.99	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-4	741.36	27.15	14.85	726.51	0.00	0.00	20.80	0.172	50	1.16	1.0	0	54.6	
SV-5	725.74	27.00	12.90	712.84	6.50	3.20	18.60	0.172	15	0.35	0.3	0	56.9	
SV-6	760.46	45.70	32.85	727.61	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-7	781.01	64.70	50.30	730.71	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
SV-8	723.03	25.20	9.78	713.25	68.00	39.00	0.00	0.172	70	1.63	1.4	1.8	50	
SV-9	748.77	50.00	36.55	712.22	52.40	27.00	2.40	0.172	54	1.26	1.1	0.98	40	
SV-11	807.38	91.40	67.01	740.37	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
SV-12	823.82	83.80	62.45	761.37	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-3	749.72	36.75	18.09	731.63	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-4	723.25	27.10	22.95	700.30	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-5	720.35	29.00	NM	NM	NM	NM	NM	0.172	NM	0.00	0.0	NM	NM	Vent cap jammed in riser one foot below TOC
DV-6	775.56	68.25	NM	NM	NM	NM	NM	0.172	NM	NM	NM	NM	NM	
DV-7	829.62	86.90	NM	NM	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-8	728.73	27.60	7.50	721.23	2.5	1.50	19.50	0.336	10	0.88	0.8	0	55.5	
DV-9	723.56	22.40	6.55	717.01	9.00	4.90	17.80	0.336	15	1.33	1.2	0	56	
DV-10	765.05	67.40	40.45	724.60	0.00	0.00	20.90	0.336	40	3.53	3.1	0.02	57.1	
DV-11	753.50	34.75	15.85	737.65	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-13	746.29	53.60	32.00	714.29	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-14	738.22	33.10	19.67	718.55	NM	NM	NM	0.336	NM	NM	NM	NM	NM	
DV-15	736.17	43.00	38.48	697.69	70.00	38.00	0.00	0.336	57	5.04	4.5	0.08	60	
DV-16	733.85	34.00	9.20	724.65	89.90	35.30	0.00	0.336	166	14.67	13.0	0.06	52	Vent valve pulled from assembly, vault flooded
DV-17	729.07	37.20	21.00	708.07	60.90	34.60	0.30	0.336	70	6.19	5.5	0.06	50	Valve inoperable
DV-18	775.13	54.20	32.50	742.63	66.90	40.90	0.00	0.336	50	4.42	3.9	3.6	62	
EW-1	755.11	43.85	33.45	721.66	65.40	40.60	0.00	NA	NA	NA	NA	NA	NA	counter 716671
EW-1A	752.35	42.50	40.53	711.82	0.00	0.00	20.90	NA	NA	NA	NA	NA	NA	counter 436437
EW-2	792.72	81.50	77.22	715.50	55.90	32.80	0.00	NA	NA	NA	NA	NA	NA	counter 934092
EW-3	768.93	62.40	50.90	718.03	68.00	40.10	0.00	NA	NA	NA	NA	NA	NA	counter 703670
EW-4	836.16			836.16	71.20	37.60	0.00	NA	NA	NA	NA	NA	NA	counter 202123
EW-5	809.32	89.90	83.39	725.93	76.60	31.00	1.20	NA	NA	NA	NA	NA	NA	counter 375971
EW-6	765.38	64.60	44.45	720.93	69.50	39.00	0.00	NA	NA	NA	NA	NA	NA	counter 810735
EW-7	772.99	63.10	60.80	712.19	70.00	39.80	0.00	NA	NA	NA	NA	NA	NA	counter 415579
EW-8	759.43	43.70	NM	NA	NM	NM	NM	NA	NA	NA	NA	NA	NA	counter 99499
Main Vent					61.9	35.5	0.0	0.505	360	72.07	64.0	NM	50	No static pressure because vent stack is open to the atmosphere

Notes:
1) TOC - Top of Casing as of 10/05/00
2) O_2 - Oxygen Percentage
3) CH_4 - Methane Percentage
4) CO_2 - Carbon Dioxide Percentage
5) NA - Not Applicable
6) NM - Not Measured

No velocity in lift stations or extraction wells due pipe size constrictions

TOTAL VOLUME (ft^3/min)= 112.52

**I.D. based on 2" Schedule 40 and 4" Schedule 40 PVC pipe
LFG is 6" Schedule 40 galvanized steel pipe based on As-Built drawing

Additional Information

	depth	CH4	CO2	O2	
LS01	NM	0.2	2.2	19.3	counter = 220379
DL01N					p=.02
DL01S					
DL02N					
DL02S					

B

APPENDIX B

LEACHATE ANALYTICAL RESULTS
MAY 2002 TO APRIL 2003

First Environmental Laboratories, Inc.
1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233
IEPA Certification #100292

August 1, 2002

Mr. Walter Buettner
MONTGOMERY WATSON
27755 Diehl Road, Suite 300
Warrenville, IL 60555

Project ID: Blackwell Landfill
First Environmental File ID: 63706-07
Date Received: July 24th, 2002

Dear Mr. Buettner:

The above referenced samples were analyzed as requested on the enclosed chain of custody record.

Analyses were performed in accordance with the methods found in the USEPA publications: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, December 1996 and Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Revised March 1983. Specific method references are listed on the Analytical Report.

All analyses were performed within established holding times, and all Quality Control criteria as outlined in the methods have been met. All QA/QC documentation, and raw data will remain on file for future reference.

I thank you for the opportunity to be of service and look forward to working with you again in the future. Should you have any questions regarding the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

William H. Mottashed
Project Manager

First Environmental Laboratories, Inc.
1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233
IEPA Certification #100292

Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	07/24/02
Sample Number:	63706	Date Taken:	07/24/02
Sample Description:	BW-LCS-19	Time Taken:	15:20
Lab File ID:	63706-07	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Volatile Organic Compounds Method 5030B/8260B			
Analysis Date: 07/25-29/02			
Acetone	903	ug/L	
Benzene	< 5.0	ug/L	
Bromodichloromethane	< 1.0	ug/L	
Bromoform	< 1.0	ug/L	
Bromomethane	< 5.0	ug/L	
2-Butanone	1,910	ug/L	
Carbon disulfide	< 5.0	ug/L	
Carbon tetrachloride	< 5.0	ug/L	
Chlorobenzene	< 5.0	ug/L	
Chlorodibromomethane	< 1.0	ug/L	
Chloroethane	< 10.0	ug/L	
Chloroform	< 1.0	ug/L	
Chloromethane	< 10.0	ug/L	
1,1-Dichloroethane	< 5.0	ug/L	
1,2-Dichloroethane	< 5.0	ug/L	
1,1-Dichloroethene	< 5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	ug/L	
1,2-Dichloropropane	< 5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	ug/L	
Ethyl benzene	< 5.0	ug/L	
2-Hexanone	< 10.0	ug/L	
4-Methyl-2-pentanone	50.0	ug/L	
Methylene chloride	< 5.0	ug/L	
Styrene	< 5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	ug/L	
Tetrachloroethene	< 5.0	ug/L	
Toluene	8.1	ug/L	
1,1,1-Trichloroethane	< 5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	ug/L	
Trichloroethene	< 5.0	ug/L	
Vinyl Acetate	< 10.0	ug/L	
Vinyl Chloride	< 2.0	ug/L	
Xylenes (total)	< 5.0	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	07/24/02
Sample Number:	63706	Date Taken:	07/24/02
Sample Description:	BW-LCS-19	Time Taken:	15:20
Lab File ID:	63706-07	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Base-Neutral/Acid Compounds Method 3510C/8270C			
Preparation Date: 07/26/02			
Analysis Date: 07/29/02			
Acenaphthene	< 10	ug/L	
Acenaphthylene	< 10	ug/L	
Anthracene	< 10	ug/L	
Benzidine	< 10	ug/L	
Benzo[a]anthracene	< 10	ug/L	
Benzo[b]fluoranthene	< 10	ug/L	
Benzo[k]fluoranthene	< 10	ug/L	
Benzo[g,h,i]perylene	< 10	ug/L	
Benzo[a]pyrene	< 10	ug/L	
Benzoic Acid	730	ug/L	
Benzyl Alcohol	< 20	ug/L	
bis(2-chloroethoxy)methane	< 10	ug/L	
bis(2-chloroethyl)ether	< 10	ug/L	
bis(2-chloroisopropyl)ether	< 10	ug/L	
bis(2-ethylhexyl)phthalate	< 10	ug/L	
4-Bromophenyl-phenylether	< 10	ug/L	
Butylbenzylphthalate	< 10	ug/L	
4-Chloroaniline	< 10	ug/L	
4-Chloro-3-methylphenol	< 20	ug/L	
2-Chloronaphthalene	< 10	ug/L	
2-Chlorophenol	< 10	ug/L	
4-Chlorophenyl-phenylether	< 10	ug/L	
Chrysene	< 10	ug/L	
Dibenz[a,h]anthracene	< 10	ug/L	
Dibenzofuran	< 10	ug/L	
1,2-Dichlorobenzene	< 10	ug/L	
1,3-Dichlorobenzene	< 10	ug/L	
1,4-Dichlorobenzene	< 10	ug/L	
3,3-Dichorobenzidine	< 20	ug/L	
2,4-Dichlorophenol	< 10	ug/L	
Diethylphthalate	< 10	ug/L	
2,4-Dimethylphenol	< 10	ug/L	
Dimethylphthalate	< 10	ug/L	
Di-n-butylphthalate	< 10	ug/L	
4,6-Dinitro-2-methylphenol	< 50	ug/L	
2,4-Dinitrophenol	< 50	ug/L	
2,4-Dinitrotoluene	< 10	ug/L	
2,6-Dinitrotoluene	< 10	ug/L	
Di-n-octylphthalate	< 10	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	07/24/02
Sample Number:	63706	Date Taken:	07/24/02
Sample Description:	BW-LCS-19	Time Taken:	15:20
Lab File ID:	63706-07	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Fluoranthene	< 10	ug/L	
Fluorene	< 10	ug/L	
Hexachlorobenzene	< 10	ug/L	
Hexachlorobutadiene	< 10	ug/L	
Hexachlorocyclopentadiene	< 10	ug/L	
Hexachloroethane	< 10	ug/L	
Indeno[1,2,3-cd]pyrene	< 10	ug/L	
Isophorone	< 10	ug/L	
2-Methylnaphthalene	< 10	ug/L	
2-Methylphenol	< 10	ug/L	
3&4-Methylphenol	410	ug/L	
Naphthalene	< 10	ug/L	
2-Nitroaniline	< 50	ug/L	
3-Nitroaniline	< 50	ug/L	
4-Nitroaniline	< 20	ug/L	
Nitrobenzene	< 10	ug/L	
2-Nitrophenol	< 10	ug/L	
4-Nitrophenol	< 50	ug/L	
N-Nitrosodimethylamine	< 10	ug/L	
N-Nitroso-di-n-propylamine	< 10	ug/L	
n-Nitrosodiphenylamine	< 10	ug/L	
Pentachlorophenol	< 50	ug/L	
Phenanthrene	< 10	ug/L	
Phenol	118	ug/L	
Pyrene	< 10	ug/L	
1,2,4-Trichlorobenzene	< 10	ug/L	
2,4,5-Trichlorophenol	< 10	ug/L	
2,4,6-Trichlorophenol	< 10	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	07/24/02
Sample Number:	63706	Date Taken:	07/24/02
Sample Description:	BW-LCS-19	Time Taken:	15:20
Lab File ID:	63706-07	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Pesticides/PCBs Method 3510C/8081A/8082			
Preparation Date: 07/26/02			
Analysis Date: 07/28/02			
Aldrin	< 0.05	ug/L	
Aroclor 1016	< 0.50	ug/L	
Aroclor 1221	< 0.50	ug/L	
Aroclor 1232	< 0.50	ug/L	
Aroclor 1242	< 0.50	ug/L	
Aroclor 1248	< 0.50	ug/L	
Aroclor 1254	< 0.50	ug/L	
Aroclor 1260	< 0.50	ug/L	
alpha-BHC	< 0.05	ug/L	
beta-BHC	< 0.05	ug/L	
delta-BHC	< 0.05	ug/L	
Lindane (gamma-BHC)	< 0.05	ug/L	
alpha-Chlordane	< 0.50	ug/L	
gamma-Chlordane	< 0.50	ug/L	
4,4'-DDD	< 0.10	ug/L	
4,4'-DDE	< 0.10	ug/L	
4,4-DDT	< 0.10	ug/L	
Dieldrin	< 0.10	ug/L	
Endosulfan I	< 0.05	ug/L	
Endosulfan II	< 0.10	ug/L	
Endosulfan sulfate	< 0.10	ug/L	
Endrin	< 0.10	ug/L	
Endrin aldehyde	< 0.10	ug/L	
Endrin ketone	< 0.10	ug/L	
Heptachlor	< 0.05	ug/L	
Heptachlor epoxide	< 0.05	ug/L	
Methoxychlor	< 0.50	ug/L	
Toxaphene	< 1.0	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	07/24/02
Sample Number:	63706	Date Taken:	07/24/02
Sample Description:	BW-LCS-19	Time Taken:	15:20
Lab File ID:	63706-07	Date Reported:	04/11/00

Analyte	Result	Units	Date Analyzed	Method
BOD-5 Day	1,050	mg/L	07/25/02	405.1
COD	3,800	mg/L	07/26/02	410.4
Cyanide	0.006	mg/L	07/26/02	335.2
Ammonia Nitrogen as N	190	mg/L	07/29/02	350.1 R2.0
Oil & Grease	3	mg/L	07/26/02	1664A
pH @ 25°C	7.31	units	7/24/02 16:15	150.1
Phenol	1.25	mg/L	07/29/02	420.1
Total Dissolved Solids	6,000	mg/L	07/29/02	160.1
Total Suspended Solids	103	mg/L	07/29/02	160.2
Arsenic	0.011	mg/L	07/29/02	200.7R4.4
Barium	0.547	mg/L	07/29/02	200.7R4.4
Boron	2.91	mg/L	07/29/02	200.7R4.4
Cadmium	<0.001	mg/L	07/29/02	200.7R4.4
Chromium, Total	0.015	mg/L	07/29/02	200.7R4.4
Copper	<0.001	mg/L	07/29/02	200.7R4.4
Iron	172	mg/L	07/29/02	200.7R4.4
Lead	0.012	mg/L	07/29/02	200.7R4.4
Manganese	3.57	mg/L	07/29/02	200.7R4.4
Mercury	<0.0005	mg/L	07/26/02	245.1R3.0
Nickel	0.040	mg/L	07/29/02	200.7R4.4
Selenium	<0.002	mg/L	07/29/02	200.7R4.4
Silver	<0.001	mg/L	07/29/02	200.7R4.4
Zinc	1.32	mg/L	07/29/02	200.7R4.4

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	07/24/02
Sample Number:	63707	Date Taken:	07/24/02
Sample Description:	Trip Blank	Time Taken:	15:20
Lab File ID:	63706-07	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Volatile Organic Compounds Method 5030B/8260B			
Analysis Date: 07/25/02			
Acetone	< 10.0	ug/L	
Benzene	< 5.0	ug/L	
Bromodichloromethane	< 1.0	ug/L	
Bromoform	< 1.0	ug/L	
Bromomethane	< 5.0	ug/L	
2-Butanone	< 10.0	ug/L	
Carbon disulfide	< 5.0	ug/L	
Carbon tetrachloride	< 5.0	ug/L	
Chlorobenzene	< 5.0	ug/L	
Chlorodibromomethane	< 1.0	ug/L	
Chloroethane	< 10.0	ug/L	
Chloroform	< 1.0	ug/L	
Chloromethane	< 10.0	ug/L	
1,1-Dichloroethane	< 5.0	ug/L	
1,2-Dichloroethane	< 5.0	ug/L	
1,1-Dichloroethene	< 5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	ug/L	
1,2-Dichloropropane	< 5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	ug/L	
Ethyl benzene	< 5.0	ug/L	
2-Hexanone	< 10.0	ug/L	
4-Methyl-2-pentanone	< 10.0	ug/L	
Methylene chloride	< 5.0	ug/L	
Styrene	< 5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	ug/L	
Tetrachloroethene	< 5.0	ug/L	
Toluene	< 5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	ug/L	
Trichloroethene	< 5.0	ug/L	
Vinyl Acetate	< 10.0	ug/L	
Vinyl Chloride	< 2.0	ug/L	
Xylenes (total)	< 5.0	ug/L	

CHAIN OF CUSTODY RECORD

Page____ of ____ pgs

First Environmental Laboratories, Inc.

First Environmental Laboratories
1600 Shore Road, Suite D
Naperville, Illinois 60563
Phone: (630) 778-1200 • Fax: (630) 778-1233
24 Hr. Pager (708) 569-7507
E-mail: info@firstenv.com
IEPA Certification# 100292

Company Name: MWH
Street Address: 27755 Diehl Road, Suite 300
City: Warrenville State: IL Zip: 60555
Phone: (630) 836-8900 Fax: (630) 836-8945
Send Report To: Walter Buettner
Sampled By: M. Mesarch / R. Stein

Project I.D.: Blackwell
P.O. #: 209076A

BLACKWELL LANDFILL, DuPAGE CO
LEACHATE SAMPLE

Matrix Codes: S = Soil W = Water O = Other

Analyses

Date/Time Taken	Sample Description	Matrix	Arsenic, Barium, Boron	Cadmium, Chromium (total)	Copper, Cyanide	Iron (total), Lead	Manganese, Mercury	Nickel, pH, Phenols	Selenium, Silver, Zinc	BOD, COD, Oil & Grease	Ammonia (as N)	TDS, TSS	VOCs, Pesticides/PCBs	Acid compounds	Base/Neutrals	Comments	Lab I.D.
7/24/02 15:20	BW-LCS-19	W	X	X	X	X	X	X	X	X	X						63706
	Trip Blank	W															63707

Cooler Temperature: _____ °C
Received within 6 hrs. of collection: ✓

Notes and Special Instructions:

Relinquished By: Matthew Mesarch Date/Time 7/24/02 15:55 Received By: Ryan [illegible] Date/Time 7/24/02 15:55
Relinquished By: _____ Date/Time _____ Received By: _____ Date/Time _____

First Environmental Laboratories, Inc.

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233
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October 31, 2002

Mr. Walter Buettner
MWH
27755 Diehl Road, Suite 300
Warrenville, IL 60555

Project ID: Blackwell
First Environmental File ID: 72290
Date Received: October 23, 2002

Dear Mr. Buettner:

The above referenced sample was analyzed as instructed on the enclosed chain of custody record.

PROJECT SUMMARY

Analyses were performed in accordance with the USEPA publication: Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020. The specific method references are listed on the Analytical Report.

I thank you for the opportunity to be of service and look forward to working with you again in the future. Should you have any questions regarding the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

W. Mottashed

William H. Mottashed
Project Manager

First Environmental Laboratories, Inc.

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233
IEPA Certification #100292

Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 2090764	Date Received:	10/23/02
Sample Number:	72290	Date Taken:	10/23/02
Sample Description:	BW-LCS-20	Time Taken:	14:05
Lab File ID:	72290	Date Reported:	04/11/00

Analyte	Result	Units	Date Analyzed	Method
BOD-5 Day	595	mg/L	10/23/02	405.1
COD	1,030	mg/L	10/24/02	410.4
Cyanide	<0.005	mg/L	10/31/02	335.2
Ammonia Nitrogen as N	260	mg/L	10/25/02	350.1 R2.0
Oil & Grease	38	mg/L	10/25/02	1664A
pH @ 25°C	7.50	units	10/23/02 15:00	150.1
Phenol	0.35	mg/L	10/24/02	420.1
Total Dissolved Solids	4,770	mg/L	10/24/02	160.1
Total Suspended Solids	54	mg/L	10/24/02	160.2
Arsenic	0.006	mg/L	10/30/02	200.7R4.4
Barium	0.265	mg/L	10/30/02	200.7R4.4
Boron	2.88	mg/L	10/30/02	200.7R4.4
Cadmium	<0.001	mg/L	10/30/02	200.7R4.4
Chromium, Total	0.017	mg/L	10/30/02	200.7R4.4
Copper	<0.001	mg/L	10/30/02	200.7R4.4
Iron	49.2	mg/L	10/30/02	200.7R4.4
Lead	0.006	mg/L	10/30/02	200.7R4.4
Manganese	0.371	mg/L	10/30/02	200.7R4.4
Mercury	<0.0005	mg/L	10/24/02	245.1R3.0
Nickel	0.054	mg/L	10/30/02	200.7R4.4
Selenium	<0.002	mg/L	10/30/02	200.7R4.4
Silver	<0.001	mg/L	10/30/02	200.7R4.4
Zinc	0.650	mg/L	10/30/02	200.7R4.4

CHAIN OF CUSTODY RECORD

First Environmental Laboratories, Inc.

First Environmental Laboratories
1600 Shore Road, Suite D
Naperville, Illinois 60563
Phone: (630) 778-1200 • Fax: (630) 778-1233
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E-mail: info@firstenv.com
IEPA Certification# 100292

Company Name: MWH
Street Address: 27755 Diehl Rd. Suite 300
City: Warrenville State: IL Zip: 60555
Phone: 630. 836. 8900 Fax: 630. 836. 8959
Send Report To: Walter Buettner
Sampled By: M. Mesarch / T. Klingforth

Project I.D.: Blackwell
P.O. #: 2090764
Blackwell Landfill, DuPage Co
Leachate Sample

Matrix Codes: S = Soil W = Water O = Other

Analyses

Date/Time Taken	Sample Description	Matrix	Arsenic, Barium, Boron	Cadmium, chromium (Total)	Copper, cyanide, lead	Iron (total), mercury	Manganese, nickel, pH, phenols	Selenium, zinc, silver	BOD, COD, oil & grease	Ammonia (as N)	TDS, TSS	Comments	Lab I.D.
10/23/02 1405	BW-LCS-20	W	X	X	X	X	X	X	X				72290
	Trip Blank	W										- Not Received	

Cooler Temperature: _____ °C
Received within 6 hrs. of collection: ✓

Notes and Special Instructions:

Relinquished By: [signature] Date/Time 10/23/02 1500 Received By: [signature] Date/Time 10/23/02 15:00
Relinquished By: _____ Date/Time _____ Received By: _____ Date/Time _____

First Environmental Laboratories, Inc.
1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233
IEPA Certification #100292

February 7, 2003

Mr. Walter Buettner
MWH
27755 Diehl Road, Suite 300
Warrenville, IL 60555

Project ID: Blackwell
First Environmental File ID: 79298-99
Date Received: January 30, 2003

Dear Mr. Buettner:

The above referenced sample was analyzed as instructed on the enclosed chain of custody record.

PROJECT SUMMARY

Analyses were performed in accordance with the USEPA publications: Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, and Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, December 1996. The specific method references are listed on the Analytical Report.

I thank you for the opportunity to be of service and look forward to working with you again in the future. Should you have any questions regarding the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

W. Mottashed

William H. Mottashed
Project Manager

First Environmental Laboratories, Inc.
1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233
IEPA Certification #100292

Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	01/30/03
Sample Number:	79298	Date Taken:	01/30/03
Sample Description:	BW-LCS-21	Time Taken:	1100
Lab File ID:	79298-99	Date Reported:	04/11/00

Analyte	Result	Units	Date Analyzed	Method
BOD-5 Day	38	mg/L	01/30/03	405.1
COD	865	mg/L	02/04/03	410.4
Cyanide	<0.005	mg/L	02/06/03	9010
Ammonia Nitrogen as N	570	mg/L	02/06/03	350.1 R2.0
Oil & Grease	<5	mg/L	02/04/03	1664A
pH @ 25°C	7.95	units	01/30/03 15:00	150.1
Phenol	0.05	mg/L	02/04/03	9065
Total Dissolved Solids	7,580	mg/L	01/30/03	160.1
Total Suspended Solids	16	mg/L	01/30/03	160.2
Arsenic	0.009	mg/L	02/03/03	6010
Barium	0.056	mg/L	02/03/03	6010
Boron	3.86	mg/L	02/03/03	6010
Cadmium	<0.001	mg/L	02/03/03	6010
Chromium, Total	0.016	mg/L	02/03/03	6010
Copper	<0.001	mg/L	02/03/03	6010
Iron	5.11	mg/L	02/03/03	6010
Lead	0.006	mg/L	02/03/03	6010
Manganese	0.018	mg/L	02/03/03	6010
Mercury	<0.0005	mg/L	02/03/03	7470
Nickel	0.088	mg/L	02/03/03	6010
Selenium	<0.002	mg/L	02/03/03	6010
Silver	<0.001	mg/L	02/03/03	6010
Zinc	0.086	mg/L	02/03/03	6010

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IEPA Certification #100292

Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	01/30/03
Sample Number:	79298	Date Taken:	01/30/03
Sample Description:	BW-LCS-21	Time Taken:	1100
Lab File ID:	79298-99	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Volatile Organic Compounds Method 5030B/8260B			
Analysis Date: 02/05/03			
Acetone	77.5	ug/L	
Benzene	< 5.0	ug/L	
Bromodichloromethane	< 1.0	ug/L	
Bromoform	< 1.0	ug/L	
Bromomethane	< 5.0	ug/L	
2-Butanone	< 10.0	ug/L	
Carbon disulfide	< 5.0	ug/L	
Carbon tetrachloride	< 5.0	ug/L	
Chlorobenzene	< 5.0	ug/L	
Chlorodibromomethane	< 1.0	ug/L	
Chloroethane	< 10.0	ug/L	
Chloroform	< 1.0	ug/L	
Chloromethane	< 10.0	ug/L	
1,1-Dichloroethane	< 5.0	ug/L	
1,2-Dichloroethane	< 5.0	ug/L	
1,1-Dichloroethene	< 5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	ug/L	
1,2-Dichloropropane	< 5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	ug/L	
Ethyl benzene	< 5.0	ug/L	
2-Hexanone	< 10.0	ug/L	
4-Methyl-2-pentanone	< 10.0	ug/L	
Methylene chloride	< 5.0	ug/L	
MTBE	< 5.0	ug/L	
Styrene	< 5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	ug/L	
Tetrachloroethene	< 5.0	ug/L	
Toluene	< 5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	ug/L	
Trichloroethene	< 5.0	ug/L	
Vinyl Acetate	< 10.0	ug/L	
Vinyl Chloride	< 2.0	ug/L	
Xylenes (total)	< 5.0	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	01/30/03
Sample Number:	79298	Date Taken:	01/30/03
Sample Description:	BW-LCS-21	Time Taken:	1100
Lab File ID:	79298-99	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Base-Neutral/Acid Compounds Method 3510C/8270C			
Preparation Date: 01/31/03			
Analysis Date: 02/03/03			
Acenaphthene	< 10	ug/L	
Acenaphthylene	< 10	ug/L	
Anthracene	< 10	ug/L	
Benzidine	< 10	ug/L	
Benzo[a]anthracene	< 10	ug/L	
Benzo[b]fluoranthene	< 10	ug/L	
Benzo[k]fluoranthene	< 10	ug/L	
Benzo[g,h,i]perylene	< 10	ug/L	
Benzo[a]pyrene	< 10	ug/L	
Benzoic Acid	< 50	ug/L	
Benzyl Alcohol	< 20	ug/L	
bis(2-chloroethoxy)methane	< 10	ug/L	
bis(2-chloroethyl)ether	< 10	ug/L	
bis(2-chloroisopropyl)ether	< 10	ug/L	
bis(2-ethylhexyl)phthalate	< 5	ug/L	
4-Bromophenyl-phenylether	< 10	ug/L	
Butylbenzylphthalate	< 10	ug/L	
4-Chloroaniline	< 10	ug/L	
4-Chloro-3-methylphenol	< 20	ug/L	
2-Chloronaphthalene	< 10	ug/L	
2-Chlorophenol	< 10	ug/L	
4-Chlorophenyl-phenylether	< 10	ug/L	
Chrysene	< 10	ug/L	
Dibenz[a,h]anthracene	< 10	ug/L	
Dibenzofuran	< 10	ug/L	
1,2-Dichlorobenzene	< 10	ug/L	
1,3-Dichlorobenzene	< 10	ug/L	
1,4-Dichlorobenzene	< 10	ug/L	
3,3-Dichorobenzidine	< 20	ug/L	
2,4-Dichlorophenol	< 10	ug/L	
Diethylphthalate	< 10	ug/L	
2,4-Dimethylphenol	< 10	ug/L	
Dimethylphthalate	< 10	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	01/30/03
Sample Number:	79298	Date Taken:	01/30/03
Sample Description:	BW-LCS-21	Time Taken:	1100
Lab File ID:	79298-99	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Di-n-butylphthalate	< 10	ug/L	
4,6-Dinitro-2-methylphenol	< 50	ug/L	
2,4-Dinitrophenol	< 50	ug/L	
2,4-Dinitrotoluene	< 10	ug/L	
2,6-Dinitrotoluene	< 10	ug/L	
Di-n-octylphthalate	< 10	ug/L	
Fluoranthene	< 10	ug/L	
Fluorene	< 10	ug/L	
Hexachlorobenzene	< 10	ug/L	
Hexachlorobutadiene	< 10	ug/L	
Hexachlorocyclopentadiene	< 10	ug/L	
Hexachloroethane	< 5	ug/L	
Indeno[1,2,3-cd]pyrene	< 10	ug/L	
Isophorone	< 10	ug/L	
2-Methylnaphthalene	< 10	ug/L	
2-Methylphenol	< 10	ug/L	
3&4-Methylphenol	< 10	ug/L	
Naphthalene	< 10	ug/L	
2-Nitroaniline	< 50	ug/L	
3-Nitroaniline	< 50	ug/L	
4-Nitroaniline	< 20	ug/L	
Nitrobenzene	< 10	ug/L	
2-Nitrophenol	< 10	ug/L	
4-Nitrophenol	< 50	ug/L	
N-Nitrosodimethylamine	< 10	ug/L	
N-Nitroso-di-n-propylamine	< 10	ug/L	
n-Nitrosodiphenylamine	< 10	ug/L	
Pentachlorophenol	< 50	ug/L	
Phenanthrene	< 10	ug/L	
Phenol	< 10	ug/L	
Pyrene	< 10	ug/L	
1,2,4-Trichlorobenzene	< 10	ug/L	
2,4,5-Trichlorophenol	< 10	ug/L	
2,4,6-Trichlorophenol	< 10	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	01/30/03
Sample Number:	79298	Date Taken:	01/30/03
Sample Description:	BW-LCS-21	Time Taken:	1100
Lab File ID:	79298-99	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Pesticides/PCBs Method 3510C/8081A/8082			
Preparation Date: 01/31/03			
Analysis Date: 01/31/03			
Aldrin	< 0.05	ug/L	
Aroclor 1016	< 0.50	ug/L	
Aroclor 1221	< 0.50	ug/L	
Aroclor 1232	< 0.50	ug/L	
Aroclor 1242	< 0.50	ug/L	
Aroclor 1248	< 0.50	ug/L	
Aroclor 1254	< 0.50	ug/L	
Aroclor 1260	< 0.50	ug/L	
alpha-BHC	< 0.05	ug/L	
beta-BHC	< 0.05	ug/L	
delta-BHC	< 0.05	ug/L	
Lindane (gamma-BHC)	< 0.05	ug/L	
alpha-Chlordane	< 0.50	ug/L	
gamma-Chlordane	< 0.50	ug/L	
4,4'-DDD	< 0.10	ug/L	
4,4'-DDE	< 0.10	ug/L	
4,4-DDT	< 0.10	ug/L	
Dieldrin	< 0.10	ug/L	
Endosulfan I	< 0.05	ug/L	
Endosulfan II	< 0.10	ug/L	
Endosulfan sulfate	< 0.10	ug/L	
Endrin	< 0.10	ug/L	
Endrin aldehyde	< 0.10	ug/L	
Endrin ketone	< 0.10	ug/L	
Heptachlor	< 0.05	ug/L	
Heptachlor epoxide	< 0.05	ug/L	
Methoxychlor	< 0.50	ug/L	
Toxaphene	< 1.0	ug/L	

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Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 209076A	Date Received:	01/30/03
Sample Number:	79299	Date Taken:	01/30/03
Sample Description:	TB-21	Time Taken:	1100
Lab File ID:	79298-99	Date Reported:	04/11/00

Analyte	Result	Units	Flags
Volatile Organic Compounds Method 5030B/8260B			
Analysis Date: 02/05/03			
Acetone	< 10.0	ug/L	
Benzene	< 5.0	ug/L	
Bromodichloromethane	< 1.0	ug/L	
Bromoform	< 1.0	ug/L	
Bromomethane	< 5.0	ug/L	
2-Butanone	< 10.0	ug/L	
Carbon disulfide	< 5.0	ug/L	
Carbon tetrachloride	< 5.0	ug/L	
Chlorobenzene	< 5.0	ug/L	
Chlorodibromomethane	< 1.0	ug/L	
Chloroethane	< 10.0	ug/L	
Chloroform	< 1.0	ug/L	
Chloromethane	< 10.0	ug/L	
1,1-Dichloroethane	< 5.0	ug/L	
1,2-Dichloroethane	< 5.0	ug/L	
1,1-Dichloroethene	< 5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	ug/L	
1,2-Dichloropropane	< 5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	ug/L	
Ethyl benzene	< 5.0	ug/L	
2-Hexanone	< 10.0	ug/L	
4-Methyl-2-pentanone	< 10.0	ug/L	
Methylene chloride	< 5.0	ug/L	
MTBE	< 5.0	ug/L	
Styrene	< 5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	ug/L	
Tetrachloroethene	< 5.0	ug/L	
Toluene	< 5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	ug/L	
Trichloroethene	< 5.0	ug/L	
Vinyl Acetate	< 10.0	ug/L	
Vinyl Chloride	< 2.0	ug/L	
Xylenes (total)	< 5.0	ug/L	

CHAIN OF CUSTODY RECORD

First Environmental Laboratories, Inc.

First Environmental Laboratories
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Naperville, Illinois 60563
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24 Hr. Pager (708) 569-7507
E-mail: info@firstenv.com
IEPA Certification# 100292

Company Name: MWH
Street Address: 27755 DIEHL ROAD SUITE 300
City: WARRENVILLE State: IL Zip: 60555
Phone: 630 936-8900 Fax:
Send Report To: WALTER BUETTNER
Sampled By: RUDOLF H. STEIN

Project I.D.: BLACKWELL
P.O. #: 2090764

BLACKWELL LANDFILL, DUPAGE CO.
LEACHATE SAMPLE BW-LCS-21

Matrix Codes: S = Soil W = Water O = Other

Analyses

Date/Time Taken	Sample Description	Matrix	ARSENIC, BARIUM, BORON	CADMIUM, CHROMIUM (TOTAL)	COPPER, CYANIDE, IRON (TOTAL), LEAD	MANGANESE, MERCURY, NICKEL, pH, PHENOLS	SELENIUM, SILVER, ZINC	BOD, COD, OIL & GREASE	AMMONIA (AS N),	TDS, TSS	VOC, PESTICIDES/PCB, ACID COMPOUNDS, BASE/NEUTRALS	Comments	Lab I.D.
1/30/03 / 1100	BW-LCS-21	W	X	X	X	X	X	X	X	X	X		79298
1/30/03 / 1100	TB-21	W									X		79299

Cooler Temperature: _____ °C
Received within 6 hrs. of collection: ✓

Notes and Special Instructions:

Relinquished By: [signature] Date/Time 1/30/03 / 1225 Received By: [signature] Date/Time 1/30/03 1225
Relinquished By: _____ Date/Time _____ Received By: _____ Date/Time _____

Rev. 1/01

First Environmental Laboratories, Inc.

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IL ELAP / NELAC Certification # 100292

April 23, 2003

Mr. Walter Buettner
MWH
27755 Diehl Road, Suite 300
Warrenville, IL 60555

Project ID: Blackwell
First Environmental File ID: 84662
Date Received: April 16, 2003

Dear Mr. Buettner:

The above referenced sample was analyzed as instructed on the enclosed chain of custody record.

PROJECT SUMMARY

Analyses were performed in accordance with the USEPA publications: Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, and Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, December 1996. The specific method references are listed on the Analytical Report.

All analyses were performed within established holding times, and all Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met. QA/QC documentation will remain on file for future reference.

I thank you for the opportunity to be of service and look forward to working with you again in the future. Should you have any questions regarding the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

William H. Mottashed
Project Manager

First Environmental Laboratories, Inc.

1600 Shore Road • Naperville, Illinois 60563 • Phone (630) 778-1200 • Fax (630) 778-1233
IL ELAP / NELAC Certification # 100292

Analytical Report

Client:	MONTGOMERY WATSON		
Project ID:	Blackwell; 2090764	Date Received:	04/16/03
Sample Number:	84662	Date Taken:	04/16/03
Sample Description:	BW-LCS-22	Time Taken:	1035
Lab File ID:	84662	Date Reported:	04/11/00

Analyte	Result	Units	Date Analyzed	Method
BOD-5 Day	6,880	mg/L	04/16/03	405.1
COD	7,360	mg/L	04/23/03	410.4
Cyanide	<0.005	mg/L	04/18/03	335.2
Ammonia Nitrogen as N	220	mg/L	04/23/03	350.1 R2.0
Oil & Grease	125	mg/L	04/17/03	1664A
pH @ 25°C	6.85	units	04/16/03 12:30	150.1
Phenol	1.61	mg/L	04/17/03	420.1
Total Dissolved Solids	7,330	mg/L	04/17/03	160.1
Total Suspended Solids	243	mg/L	04/17/03	160.2
Arsenic	0.008	mg/L	04/18/03	200.7R4.4
Barium	0.338	mg/L	04/18/03	200.7R4.4
Boron	2.40	mg/L	04/23/03	200.7R4.4
Cadmium	<0.001	mg/L	04/18/03	200.7R4.4
Chromium, Total	0.008	mg/L	04/18/03	200.7R4.4
Copper	<0.001	mg/L	04/18/03	200.7R4.4
Iron	290	mg/L	04/18/03	200.7R4.4
Lead	0.010	mg/L	04/18/03	200.7R4.4
Manganese	6.12	mg/L	04/18/03	200.7R4.4
Mercury	<0.0005	mg/L	04/18/03	245.1R3.0
Nickel	0.038	mg/L	04/18/03	200.7R4.4
Selenium	<0.002	mg/L	04/18/03	200.7R4.4
Silver	<0.001	mg/L	04/18/03	200.7R4.4
Zinc	1.52	mg/L	04/18/03	200.7R4.4

CHAIN OF CUSTODY RECORD

First Environmental Laboratories, Inc.

First Environmental Laboratories
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E-mail: info@firstenv.com
IEPA Certification# 100292

Company Name: MWH
Street Address: 27755 DIEHL ROAD SUITE 300
City: WARRENVILLE State: IL Zip: 60555
Phone: 630 836-8900 Fax:
Send Report To: WALTER BUETTNER
Sampled By: RUDOLF STEIN

Project I.D.: BLACKWELL
P.O. #: 2090764

BLACKWELL LANDFILL, DUPAGE CO.
LEACHATE SAMPLE BW-LCS-

Matrix Codes: S = Soil W = Water O = Other

Analyses

Date/Time Taken	Sample Description	Matrix	ARSENIC, BARIUM, BORON	CADMIUM, CHROMIUM (TOTAL)	COPPER, CYANIDE, IRON (TOTAL), LEAD	MANGANESE, MERCURY, NICKEL, PH, PHENOLS	SELENIUM, SILVER, ZINC	BOD, COD, OIL & GREASE	AMMONIA (AS N),	TDS, TSS		Comments	Lab I.D.
4/16/2003 1035	BW-LCS ~~22~~	W	X	X	X	X	X	X	X				84662

Cooler Temperature: ____ °C
Received within 6 hrs. of collection: ✓

Notes and Special Instructions:

Relinquished By: [signature] Date/Time 4/16/03 1135 Received By: [signature] Date/Time 4/16/03 1135
Relinquished By: Date/Time Received By: Date/Time

Rev. 1/01

C

APPENDIX C

LANDFILL GAS
MAY 2002 TO APRIL 2003

Table C-1
Landfill Gas Composition
Blackwell Landfill NPL Site

Vent	May-02			July-02			September-02			November-02			January-03			April-03		
Number	%CH_4	%CO_2	%O_2	%CH_4	%CO_2	%O_2	%CH_4	%CO_2	%O_2	%CH_4	%CO_2	%O_2	%CH_4	%CO_2	%O_2	%CH_4	%CO_2	%O_2
SV-1	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
SV-2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
SV-3	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
SV-4	64.4	34.7	1.2	63.6	37.9	0.0	78.2	49.6	0.2	60.2	35.3	2.2	NM	NM	NM	0.0	0.0	20.8
SV-5	1.5	0.9	20.2	22.8	16.0	13.1	14.2	8.2	16.6	13.2	13.5	14.6	NM	NM	NM	6.5	3.2	18.6
SV-6	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
SV-7	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
SV-8	59.5	32.0	2.5	63.4	38.1	0.0	68.0	49.0	0.0	67.9	39.0	1.6	NM	NM	NM	68.0	39.0	0.0
SV-9	63.5	33.4	1.6	53.6	30.7	3.7	82.3	45.6	0.1	56.2	30.2	4.5	NM	NM	NM	52.4	27.0	2.4
SV-10	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
SV-11	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
SV-12	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-2	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-3	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-4	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-5	63.2	34.6	1.5	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-6	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-7	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-8	3.5	0.9	19.8	0.0	0.0	20.8	17.3	10.2	15.2	35.5	22.9	9.3	NM	NM	NM	2.5	1.5	19.5
DV-9	2.8	1.6	19.3	0.3	0.1	20.6	0.0	0.0	20.2	0.9	0.8	20.7	NM	NM	NM	9.0	4.9	17.8
DV-10	4.9	2.7	18.7	4.5	2.1	19.4	8.5	3.9	18.0	36.0	25.2	8.2	NM	NM	NM	0.0	0.0	20.9
DV-11	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-13	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-14	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DV-15	62.9	35.3	1.4	64.6	36.7	0.0	82.4	44.5	0.2	70.7	33.7	2.6	NM	NM	NM	70.0	38.0	0.0
DV-16	63.3	33.5	1.2	65.4	36.0	0.0	82.7	41.9	0.0	70.2	35.1	4.7	NM	NM	NM	69.9	38.3	0.0
DV-17	63.1	35.6	1.4	63.6	37.7	0.0	79.6	42.0	0.0	67.4	39.7	1.8	NM	NM	NM	60.9	34.6	0.3
DV-18	57.0	36.4	1.5	63.6	37.8	0.2	82.5	44.7	0.0	66.7	26.4	0.0	NM	NM	NM	66.9	40.9	0.0
EW-1	61.4	36.0	1.4	0.0	0.0	20.7	41.8	25.6	0.0	44.2	29.6	5.8	72.0	29.6	2.1	65.4	40.6	0.0
EW-1A	38.5	20.6	1.4	0.3	0.0	20.7	74.5	46.8	0.3	12.5	68.3	13.5	0.7	0.0	20.7	0.0	0.0	20.9
EW-2	52.5	29.0	1.5	53.3	29.2	0.4	65.8	34.9	0.0	50.4	27.7	0.9	74.2	28.0	1.5	55.9	32.8	0.0
EW-3	62.7	35.3	1.4	62.7	34.9	0.7	82.1	45.9	0.0	53.9	29.6	4.8	72.1	28.3	3.8	68.0	40.1	0.0
EW-4	65.7	30.9	1.3	67.3	34.0	0.0	86.5	38.9	0.0	71.5	32.0	0.9	76.1	27.3	1.8	71.2	37.6	0.0
EW-5	70.9	25.3	1.4	72.2	28.0	0.0	90.5	33.9	0.1	70.1	34.1	2.1	85.7	22.5	1.3	76.6	31.0	1.2
EW-6	63.3	33.8	1.3	66.2	35.5	0.0	82.3	43.1	0.3	67.6	34.5	0.5	75.5	29.2	1.1	69.5	39.0	0.0
EW-7	65.0	35.4	1.1	66.1	36.0	0.0	83.7	43.2	0.0	64.7	33.7	1.7	72.0	28.6	3.7	70.0	39.8	0.0
EW-8	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Vent Stack	61.8	32.3	1.4	61.4	33.3	0.0	77.5	33.9	0.1	70.1	32.2	0.1	74.6	28.3	2.1	61.9	35.5	0.0
LS01	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.2	3.3	18.0	0.2	2.2	19.3
DL01	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DL01N	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DL01S	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DL02N	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

NOTES:

%O_2	Percent oxygen
%CH_4	Percent methane
%CO_2	Percent carbon dioxide
SV	Shallow vent
DV	Deep vent
EW	Extraction well
LS	Lift station
DL	Drip leg
NR	Not recorded
NM	Not measured

All measurements taken with a Landtec GA-90 gas analyzer

Table C-2
Landfill Gas Temperature
Blackwell Landfill NPL Site

Vent Number	May-02	July-02	September-02	November-02	January-03	April-03
SV-1	NM	NM	NM	NM	NM	NM
SV-2	NM	NM	NM	NM	NM	NM
SV-3	NM	NM	NM	NM	NM	NM
SV-4	83.4	88.8	85.0	NM	NM	54.6
SV-5	78.0	79.0	71.4	NM	NM	54.9
SV-6	NM	NM	NM	NM	NM	NM
SV-7	NM	NM	NM	NM	NM	NM
SV-8	89.1	81.8	86.0	NM	NM	50.0
SV-9	92.6	82.0	90.2	NM	NM	40.0
SV-10	NM	NM	NM	NM	NM	NM
SV-11	NM	NM	NM	NM	NM	NM
SV-12	NM	NM	NM	NM	NM	NM
DV-2	NM	NM	NM	NM	NM	NM
DV-3	NM	NM	NM	NM	NM	NM
DV-4	NM	NM	NM	NM	NM	NM
DV-5	81.1	NM	NM	NM	NM	NM
DV-6	NM	NM	NM	NM	NM	NM
DV-7	NM	NM	NM	NM	NM	NM
DV-8	79.8	77.0	74.6	NM	NM	55.5
DV-9	80.3	80.0	70.1	NM	NM	56.0
DV-10	86.3	80.5	79.6	NM	NM	57.1
DV-11	NM	NM	NM	NM	NM	NM
DV-13	NM	NM	NM	NM	NM	NM
DV-14	NM	NM	NM	NM	NM	NM
DV-15	80.0	84.0	87.3	NM	NM	60.0
DV-16	88.5	79.7	77.0	NM	NM	52.0
DV-17	89.3	75.8	87.5	NM	NM	50.0
DV-18	83.7	88.5	84.0	NM	NM	62.0
EW-1	NA	NA	NA	NA	NA	NA
EW-1A	NA	NA	NA	NA	NA	NA
EW-2	NA	NA	NA	NA	NA	NA
EW-3	NA	NA	NA	NA	NA	NA
EW-4	NA	NA	NA	NA	NA	NA
EW-5	NA	NA	NA	NA	NA	NA
EW-6	NA	NA	NA	NA	NA	NA
EW-7	NA	NA	NA	NA	NA	NA
EW-8	NA	NA	NA	NA	NA	NA
Vent Stack	45.7	45.7	45.7	45.7	45.7	45.7
LS01	NA	NA	NA	NA	NA	NA

Notes:

SV - Shallow vent
DV - Deep Well
EW - Extraction well
LS - Lift Station
NM - Not Measured
NA - Not Applicable

1. Temperature in units of degrees Fahrenheit.
2. Velocity/Temperature measurements were not collected on 11-21-02 due to moisture related equipment failure.
3. Velocity/Temperature measurements were not collected on 1-30-03 due to frozen flush mounts.
4. All measurements taken with a TSI VELOCICALC Model 8350 velocity/temperature meter.

Table C-3
Static Landfill Gas Pressure
Blackwell Landfill NPL Site

Vent Number	May-02	July-02	September-02	November-02	January-03	April-03
SV-1	NM	NM	NM	NM	NM	NM
SV-2	NM	NM	NM	NM	NM	NM
SV-3	NM	NM	NM	NM	NM	NM
SV-4	6.00	1.00	NM	NM	NM	0.00
SV-5	0.11	0.32	NM	NM	NM	0.00
SV-6	NM	NM	NM	NM	NM	NM
SV-7	NM	NM	NM	NM	NM	NM
SV-8	2.00	0.18	NM	NM	NM	1.80
SV-9	2.00	0.10	NM	NM	NM	0.98
SV-10	NM	NM	NM	NM	NM	NM
SV-11	NM	NM	NM	NM	NM	NM
SV-12	NM	NM	NM	NM	NM	NM
DV-2	NM	NM	NM	NM	NM	NM
DV-3	NM	NM	NM	NM	NM	NM
DV-4	NM	NM	NM	NM	NM	NM
DV-5	1.20	NM	NM	NM	NM	NM
DV-6	NM	NM	NM	NM	NM	NM
DV-7	NM	NM	NM	NM	NM	NM
DV-8	0.00	0.02	NM	NM	NM	0.00
DV-9	0.00	0.02	NM	NM	NM	0.00
DV-10	0.04	0.02	NM	NM	NM	0.02
DV-11	NM	NM	NM	NM	NM	NM
DV-13	NM	NM	NM	NM	NM	NM
DV-14	NM	NM	NM	NM	NM	NM
DV-15	0.80	0.04	NM	NM	NM	0.08
DV-16	2.40	0.20	NM	NM	NM	0.06
DV-17	1.00	0.80	NM	NM	NM	0.06
DV-18	3.30	0.80	NM	NM	NM	3.60
EW-1	0.10	0.02	NM	NM	0.04	0.00
EW-1A	0.30	0.02	NM	NM	0.04	0.00
EW-2	0.40	0.80	NM	NM	0.10	0.00
EW-3	0.30	0.24	NM	NM	0.38	0.60
EW-4	0.14	0.10	NM	NM	0.14	0.00
EW-5	0.10	0.08	NM	NM	0.08	0.10
EW-6	0.58	1.00	NM	NM	0.35	0.70
EW-7[2]	1.50	1.20	NM	NM	0.87	1.00
EW-8	NM	NM	NM	NM	NM	NM
Vent Stack	NM	NM	NM	NM	NM	NM
LS01	NM	NM	NM	NM	NM	NM
Barometric (in. Hg)						

Notes:

SV - Shallow vent
DV - Deep Well
EW - Extraction well
LS - Lift Station
NM - Not Measured
NA - Not Applicable

1. Pressure in units of inches of water.
2. Pressure measurements were not collected on 9-26-02 and 11-21-02 due to equipment failure.
3. Pressure measurements were not collected on 1-30-03 due to frozen flush mounts.
4. Pressure measurements were not conducted at the main vent stack as it is open to the atmosphere.
5. All measurements taken with an Alnor 6000AP velometer.

Table C-4
Landfill Gas Velocity
Blackwell Landfill NPL Site

Vent Number	May-02	July-02	September-02	November-02	January-03	April-03
SV-1	NM	NM	NM	NM	NM	NM
SV-2	NM	NM	NM	NM	NM	NM
SV-3	NM	NM	NM	NM	NM	NM
SV-4	55	40	32	NM	NM	50
SV-5	60	12	3	NM	NM	15
SV-6	NM	NM	NM	NM	NM	NM
SV-7	NM	NM	NM	NM	NM	NM
SV-8	35	35	40	NM	NM	70
SV-9	40	32	20	NM	NM	54
SV-10	NM	NM	NM	NM	NM	NM
SV-11	NM	NM	NM	NM	NM	NM
SV-12	NM	NM	NM	NM	NM	NM
DV-2	NM	NM	NM	NM	NM	NM
DV-3	NM	NM	NM	NM	NM	NM
DV-4	NM	NM	NM	NM	NM	NM
DV-5	270	NM	NM	NM	NM	NM
DV-6	NM	NM	NM	NM	NM	NM
DV-7	NM	NM	NM	NM	NM	NM
DV-8	35	15	3	NM	NM	10
DV-9	25	0	2	NM	NM	15
DV-10	25	45	3	NM	NM	40
DV-11	NM	NM	NM	NM	NM	NM
DV-13	NM	NM	NM	NM	NM	NM
DV-14	NM	NM	NM	NM	NM	NM
DV-15	215	35	23	NM	NM	57
DV-16	74	74	110	NM	NM	166
DV-17	220	180	50	NM	NM	70
DV-18	40	55	24	NM	NM	50
EW-1	NA	NA	NA	NA	NA	NA
EW-1A	NA	NA	NA	NA	NA	NA
EW-2	NA	NA	NA	NA	NA	NA
EW-3	NA	NA	NA	NA	NA	NA
EW-4	NA	NA	NA	NA	NA	NA
EW-5	NA	NA	NA	NA	NA	NA
EW-6	NA	NA	NA	NA	NA	NA
EW-7	NA	NA	NA	NA	NA	NA
EW-8	NA	NA	NA	NA	NA	NA
Vent Stack	275	275	275	275	275	275
LS01	NA	NA	NA	NA	NA	NA

Notes:

SV - Shallow vent
DV - Deep Well
EW - Extraction well
LS - Lift Station
NM - Not Measured
NA - Not Applicable

1. Velocity in units of standard feet per minute (fpm).
2. -- Data considered unreliable due to equipment inconsistencies.
3. Velocity/Temperature measurements were not collected on 11-21-02 due to moisture related equipment failure.
4. Velocity/Temperature measurements were not collected on 1-30-03 due to frozen flush mounts.
5. All measurements taken with a TSI VELOCICALC Model 8350 velocity/temperature meter.

Table C-5
Landfill Gas Flow Rate
Blackwell Landfill NPL Site

Vent Number	May-02	July-02	September-02	November-02	January-03	April-03
SV-1	NM	NM	NM	NM	NM	NM
SV-2	NM	NM	NM	NM	NM	NM
SV-3	NM	NM	NM	NM	NM	NM
SV-4	1.28	0.93	0.75	NM	NM	1.16
SV-5	1.40	0.28	0.07	NM	NM	0.35
SV-6	NM	NM	NM	NM	NM	NM
SV-7	NM	NM	NM	NM	NM	NM
SV-8	0.82	0.82	0.93	NM	NM	1.63
SV-9	0.93	0.75	0.61	NM	NM	1.26
SV-10	NM	NM	NM	NM	NM	NM
SV-11	NM	NM	NM	NM	NM	NM
SV-12	NM	NM	NM	NM	NM	NM
DV-2	NM	NM	NM	NM	NM	NM
DV-3	NM	NM	NM	NM	NM	NM
DV-4	NM	NM	NM	NM	NM	NM
DV-5	6.29	NM	NM	NM	NM	NM
DV-6	NM	NM	NM	NM	NM	NM
DV-7	NM	NM	NM	NM	NM	NM
DV-8	3.09	1.33	0.27	NM	NM	0.88
DV-9	2.21	0.00	0.18	NM	NM	1.33
DV-10	2.21	3.98	0.27	NM	NM	3.53
DV-11	NM	NM	NM	NM	NM	NM
DV-13	NM	NM	NM	NM	NM	NM
DV-14	NM	NM	NM	NM	NM	NM
DV-15	19.00	3.09	2.03	NM	NM	5.04
DV-16	6.54	6.54	9.72	NM	NM	14.67
DV-17	19.44	15.90	4.42	NM	NM	6.19
DV-18	3.53	4.86	2.12	NM	NM	4.42
Vent Stack	67.07	72.07	88.09	80.08	92.09	72.07
EW-1	NA	NA	NA	NA	NA	NA
EW-1A	NA	NA	NA	NA	NA	NA
EW-2	NA	NA	NA	NA	NA	NA
EW-3	NA	NA	NA	NA	NA	NA
EW-4	NA	NA	NA	NA	NA	NA
EW-5	NA	NA	NA	NA	NA	NA
EW-6	NA	NA	NA	NA	NA	NA
EW-7	NA	NA	NA	NA	NA	NA
EW-8	NA	NA	NA	NA	NA	NA
Vent Stack Flowrate	67.07	72.07	88.09	80.08	92.09	72.07

Notes:

SV - Shallow vent
DV - Deep Well
EW - Extraction well
LS - Lift Station
NM - Not Measured
NA - Not Applicable

1. Flowrate in units of cubic feet per minute (CFM).
2. -- Data considered unreliable due to equipment inconsistencies.
3. Velocity/Temperature measurements were not collected on 11-21-02 due to moisture related equipment failure.
4. Velocity/Temperature measurements were not collected on 1-30-03 due to frozen flush mounts.
5. All measurements taken with a TSI VELOCICALC Model 8350 velocity/temperature meter.

Table C-6
TNMOC Emission Rate
Blackwell Landfill NPL Site

		Vent Readings			Peak TNMOC Concentration	Peak TNMOC Concentration	TNMOC Emission Rate	
Date	I.D. (ft)	Velocity (fpm)	Flowrate (ft^3/min)	Flowrate (m^3/min)	(ppm-carbon)	(ppm-hexane)	(Mg/yr)	(lb/hr)
May-02	0.505	335	67.07	1.90	1,900	316.67	1.21	0.3049
Jul-02	0.505	275	55.05	1.56	1,900	316.67	1.00	0.2503
Sep-02	0.505	275	55.05	1.56	1,900	316.67	1.00	0.2503
Nov-02	0.505	NM	NM	NM	1,900	316.67	NM	NM
Jan-03	0.505	460	92.09	2.61	1,900	316.67	1.67	0.4187
Apr-03	0.505	360	72.07	2.04	1,900	316.67	1.30	0.3277

1. Flowrate in units of cubic feet per minute (CFM).
2. Measurements collected with a Landtec GA90 and TSI VELOCICALC Model 8350 velocity/temperature meter.

Notes:

NM - Not Measured
I.D. - Inside diameter
ft - Feet
fpm - Feet per minute
ft^3/min - Cubic feet per minute
m3/min - Cubic meters per minute
ppm - Parts per million
TNMOC - Total non-methane organic compounds
Mg/yr - Milligrams per year
lb/hr - pound per hour

D

APPENDIX D

LANDFILL GAS ANALYTICAL DATA
MAY 2002 TO APRIL 2003

SEVERN TRENT SERVICES

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705-4808

Tel: 714 258 8610
Fax: 714 258 0921
www.stl-inc.com

July 15, 2002

STL LOT NUMBER: **E2G010227**
PO/CONTRACT: 1252008.078102

Walter Buettner
MONTGOMERY WATSON
27755 Diehl, Suite 300
Warrenville, IL 60555

Dear Walter Buettner,

This report contains the analytical results for the two samples received under chain of custody by STL Los Angeles on on July 1, 2002. These samples are associated with your BLACKWELL FOREST PRESERVE project. Preliminary data was provided on July 15, 2002.

STL Los Angeles certifies that the test results provided in this report meet all the requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of the report. NELAP Certification Number for STL Los Angeles is 01118CA.

All applicable quality control procedures met method-specified acceptance criteria.

This report shall not be reproduced except in full, without the written approval of the laboratory.

This report contains 000021 pages.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Sabina Sudoko

Sabina Sudoko
Project Manager
CC: Project File

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
MWH	Walter Buettner	6/27/02	129775
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	
27755 Diehl Road Suite 300	(630) 836-8900	E26010 227	Page 1 of 1

City	State	Zip Code	Site Contact	Lab Contact
Warrenville	IL	60555		

Project Name and Location (State)	Carrier/Waybill Number
Blackwell Forest Preserve - IL	

Contract/Purchase Order/Quote No.: 2090764

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil		Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): ASTM D 1946	U.S. EPA MODIFIED	METHOD 25C (TNMOC)								Special Instructions/ Conditions of Receipt
BW-LFGSTACK-22A	6/27/02	14:55	X												X	X									9701B
BW-LFGSTACK-922A	6/27/02	14:57	X																						12407 HOLD

2090764

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1 Relinquished By: Matthew Mercurio	6-27-02	15:15	1. Received By: [signature]	6-28-02	1030
2 Relinquished By			2 Received By		
3 Relinquished By			3 Received By		

Comments

DISTRIBUTION: Returned to Client with Report. CANARY - Stays with the Sample. PINK - Field Copy

SEVERN TRENT SERVICES

(1)

CANISTER FIELD DATA RECORD

CLIENT: MONTGOMERY WATSON
CANISTER SERIAL #: 9701 B
DATE CLEANED: 5-31-02 B
CLIENT SAMPLE #: BW-LFGSTACK-22A
SITE LOCATION: Blackwell Forest Preserve

VFR ID: _____
Duration of comp. : _____ hrs. / mins.
Flow setting: _____ ml/min
Initials: _____

READING	TIME	Vac. (inches Hg) Or PRESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK		30"	6/18/02	[illegible]
INITIAL FIELD VACUUM	14:52	30"	6/27/02 M.B.M	M.B.M
FINAL FIELD READING	14:55	0"	6/27/02	M.B.M
GAUGE READING UPON RECEIPT				

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg and PSIA)	13.62	7-2-02	[illegible]
FINAL PRESSURE (PSIA)	24.60	7-2-02	[illegible]

Pressurization Gas: N_2

COMMENTS: 1.8062

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
15 Min.	316 – 333
30 Min.	158 – 166.7
1	79.2 – 83.3
2	39.6 – 41.7
4	19.8 – 20.8
6	13.2 – 13.9
8	9.9 – 10.4
10	7.92 – 8.3
12	6.6 – 6.9
24	3.5 – 4.0

SEVERN TRENT SERVICES

CANISTER FIELD DATA RECORD

(2)

CLIENT: MONTGOMERY WATSON
CANISTER SERIAL #: 12407
DATE CLEANED: 5-31-02 B
CLIENT SAMPLE #: BW-LFGSTACK-922A
SITE LOCATION: Blackwell Forest Preserve

VFR ID: _____
Duration of comp. : _____ hrs. / mins.
Flow setting: _____ ml/min
Initials: _____

READING	TIME	Vac. (inches Hg) Or PRESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK		30"	6/18/02	[illegible]
INITIAL FIELD VACUUM	27 M.B.M. ~~6/26~~/02 14:50	30"	7 MBM 6/2~~6~~/02	MBM.
FINAL FIELD READING	6/27/02 14:57	0"	6/27/02	MBM.
GAUGE READING UPON RECEIPT				

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg and PSIA)	13.68	7-2-02	[illegible]
FINAL PRESSURE (PSIA)	29.71	7-2-02	[illegible]

Pressurization Gas: N_2

COMMENTS:

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
15 Min.	316 – 333
30 Min.	158 – 166.7
1	79.2 – 83.3
2	39.6 – 41.7
4	19.8 – 20.8
6	13.2 – 13.9
8	9.9 – 10.4
10	7.92 – 8.3
12	6.6 – 6.9
24	3.5 – 4.0

SEVERN TRENT SERVICES

CANISTER QC CERTIFICATION

Certification Type: TO-14A

Date Cleaned/Batch: 5-31-02 B

Date of QC: 6-11-02

Data File Number: 1436114 (MSB)

Canister ID Numbers

* 93069	9701 B ✓
9414 BB	9339 B
9803 BB	93094
12407 ✓	11360
A-222	GL0032
0082	93040

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "*Certification Type*" indicated above.

"*" INDICATES THE CAN OR CANS WHICH WERE SCREENED.

Reviewed By: [signature]

Date: 6-12-02

N:\CON\DOCS\Can QC Cert - Generic.doc

STL Los Angeles

AIR TOXICS - TO14

Data file : \\ANAP1225\MSB_DD\chem\gcmsb.i\020611.B\MB06114.D
Lab Smp Id: BLANK Client Smp ID: BLANK
Inj Date : 11-JUN-2002 18:55
Operator : DLK Inst ID: gcmsb.i
Smp Info : BLANK,BLANK,93069
Misc Info : 1,1,500,500,3,,BLANK,LONGUBER.sub,0,
Comment :
Method : \\ANAP1225\MSB_DD\chem\gcmsb.i\020611.b\TO14A.m
Meth Date : 11-Jun-2002 17:21 target Quant Type: ISTD
Cal Date : 11-JUN-2002 13:25 Cal File: IC06116.D
Als bottle: 4 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: LONGUBER.sub
Target Version: 4.04
Processing Host: ANAP1225

Concentration Formula: Amt * DF * (FinalPres / InitPres)*(CalVol / SmpVol)

Name	Value	Description
DF	1.000	Dilution Factor
FinalPres	1.000	FinalPres
InitPres	1.000	InitPres
CalVol	500.000	CalVol
SmpVol	500.000	SmpVol

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ppbv)	FINAL (ppbv)	
5 Dimethyl ether (DME)	45	1.969	2.468	(0.232)	24808	13.0025	12.00	ND (RT, MS)
* 56 Bromochloromethane	49	8.486	8.542	(1.000)	445124	50.0000		
$ 64 1,2-Dichloroethane-d4	65	9.515	9.536	(0.922)	464216	39.9614	39.96	
69 tert-Amyl methyl ether (TAME)	73	10.319	9.887	(1.000)	19584	0.9220	0.922(a)	ND (RT, MS)
* 71 1,4-Difluorobenzene	114	10.319	10.356	(1.000)	1636891	50.0000		
73 1-Butanol	56	10.310	10.799	(0.999)	27838	8.8822	8.848(a)	ND (RT, MS)
$ 87 Toluene-d8	98	12.945	12.966	(1.255)	1301454	50.9125	50.91	
* 99 Chlorobenzene-d5	117	15.617	15.628	(1.000)	1357213	50.0000		
110 .alpha.-Pinene	93	17.873	17.568	(1.144)	52072	2.13892	2.139	ND (RT, MS)
$ 113 4-Bromofluorobenzene	95	17.883	17.885	(1.145)	1401233	46.8346	46.83(Q)	
117 trans-1,4-Dichloro-2-butene	88	17.864	18.290	(1.144)	52956	29.9113	29.91	ND (RT, MS)

MC 6-12-2

Date : 11-JUN-2002 18:55

Client ID: BLANK

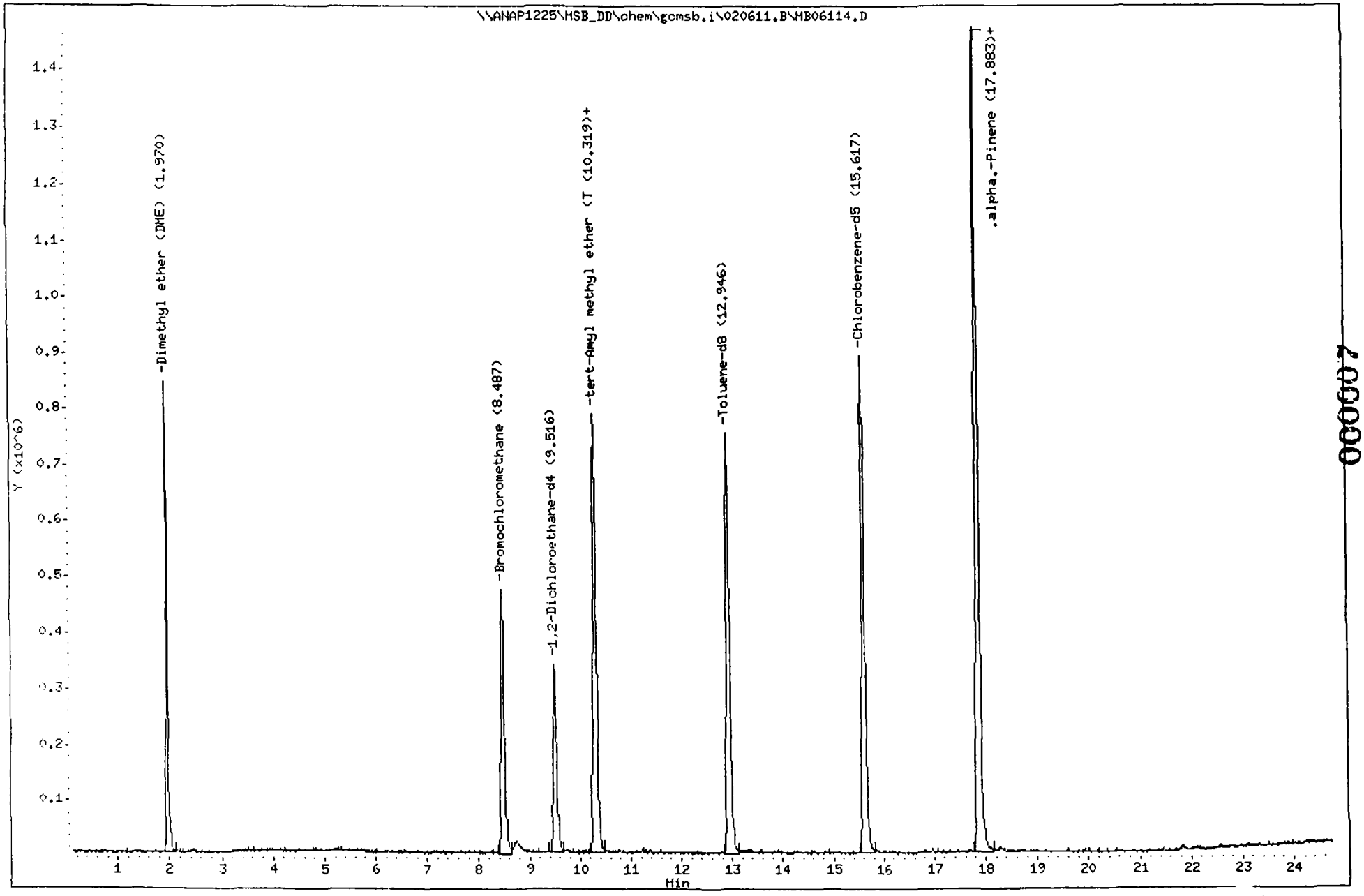
Sample Info: BLANK,BLANK,93069

Column phase: J&W DB-624

Instrument: gcmsb.i

Operator: DLK

Column diameter: 0.53



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SEVERN TRENT SERVICES

Analytical Report

ANALYTICAL REPORT

PROJECT NO. 52008.078102

BLACKWELL FOREST PRESERVE

Lot #: E2G010227

Walter Buettner

MONTGOMERY WATSON

SEVERN TRENT LABORATORIES, INC.

Sabina Sudoko
Project Manager

July 15, 2002

ANALYTICAL METHODS SUMMARY

E2G010227

PARAMETER	ANALYTICAL METHOD
EPA 25C Modified Fixed Gases	CFR60 EPA 25C Modified ASTM D1946

References:

ASTM Annual Book Of ASTM Standards.

CFR60 "Test Methods," 40 CFR, Part 60, July 1, 1997

SAMPLE SUMMARY

E2G010227

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAM TIM
E34EL	001	BW-LFGSTACK-22A	06/27/02	14:

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MWH AMERICAS INC

Client Sample ID: BW-LFGSTACK-22A

GC Volatiles

Lot-Sample #...:	E2G010227-001	**Work Order #...:**	E34EL1AC	**Matrix.....:**	AIR
Date Sampled...:	06/27/02	**Date Received..:**	06/28/02		
Prep Date.....:	07/05/02	**Analysis Date..:**	07/05/02		
Prep Batch #...:	2189317				
Dilution Factor:	1.8				
Analyst ID.....:	101605	**Instrument ID..:**	GC1		
		Method.....:	ASTM D1946		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Carbon dioxide	**33**	**0.018**	**%(v/v)**
Oxygen	**0.18**	**0.18**	**%(v/v)**
Nitrogen	**12**	**1.8**	**%(v/v)**
Methane	**59**	**0.00036**	**%(v/v)**
Carbon monoxide	ND	0.0018	%(v/v)

MWH AMERICAS INC

Client Sample ID: BW-LFGSTACK-22A

GC Volatiles

Lot-Sample #...:	E2G010227-001	**Work Order #...:**	E34EL1AA	**Matrix.....:**	AIR
Date Sampled...:	06/27/02	**Date Received..:**	06/28/02		
Prep Date.....:	07/05/02	**Analysis Date..:**	07/05/02		
Prep Batch #...:	2189313				
Dilution Factor:	1.8				
Analyst ID.....:	101605	**Instrument ID..:**	GC1		
		Method.....:	CFR60 EPA 25C Mod		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	**590000**	**3.6**	**ppm-c**
TNMOC as Methane	**1500**	**54**	**ppm-c**

SEVERN TRENT SERVICES

QA/QC

QC DATA ASSOCIATION SUMMARY

E2G010227

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	AIR	ASTM D1946		2189317	
	AIR	CFR60 EPA 25C Mod		2189313	

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E2G010227
MB Lot-Sample #: M2G080000-317

Analysis Date..: 07/05/02
Dilution Factor: 1

Work Order #...: E4C491AA

Prep Date.....: 07/05/02
Prep Batch #...: 2189317

Analyst ID.....: 101605

Matrix.....: AIR

Instrument ID..: GC1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Carbon dioxide	ND	0.010	%(v/v)	ASTM D1946
Oxygen	ND	0.10	%(v/v)	ASTM D1946
Nitrogen	ND	1.0	%(v/v)	ASTM D1946
Methane	ND	0.00020	%(v/v)	ASTM D1946
Carbon monoxide	ND	0.0010	%(v/v)	ASTM D1946

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E2G010227
MB Lot-Sample #: M2G080000-313
Analysis Date..: 07/05/02
Dilution Factor: 1

Work Order #...: E4C5X1AA
Prep Date.....: 07/05/02
Prep Batch #...: 2189313
Analyst ID.....: 101605

Matrix.....: AIR
Instrument ID..: GC1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methane	ND	2.0	ppm-c	CFR60 EPA 25C Mod
TNMOC as Methane	ND	30	ppm-c	CFR60 EPA 25C Mod

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E2G010227 **Work Order #...:** E4C491AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M2G080000-317 E4C491AD-LCSD
Prep Date.....: 07/05/02 **Analysis Date..:** 07/05/02
Prep Batch #...: 2189317
Dilution Factor: 1 **Instrument ID..:** GC1
Analyst ID.....: 101605

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Carbon dioxide	**109**	**(75 - 125)**			**ASTM D1946**
	111	**(75 - 125)**	**2.0**	**(0-20)**	**ASTM D1946**
Methane	**112**	**(60 - 120)**			**ASTM D1946**
	110	**(60 - 120)**	**1.9**	**(0-20)**	**ASTM D1946**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E2G010227 **Work Order #...:** E4C491AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M2G080000-317 E4C491AD-LCSD
Prep Date.....: 07/05/02 **Analysis Date..:** 07/05/02
Prep Batch #...: 2189317
Dilution Factor: 1 **Instrument ID..:** GC1
Analyst ID.....: 101605

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Carbon dioxide	**1.00**	**1.09**	**%(v/v)**	**109**		**ASTM D1946**
	1.00	**1.11**	**%(v/v)**	**111**	**2.0**	**ASTM D1946**
Methane	**0.0500**	**0.0560**	**%(v/v)**	**112**		**ASTM D1946**
	0.0500	**0.0549**	**%(v/v)**	**110**	**1.9**	**ASTM D1946**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E2G010227 **Work Order #...:** E4C5X1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M2G080000-313 E4C5X1AD-LCSD
Prep Date.....: 07/05/02 **Analysis Date..:** 07/05/02
Prep Batch #...: 2189313
Dilution Factor: 1 **Instrument ID..:** GC1
Analyst ID.....: 101605

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Methane	112	(80 - 120)			CFR60 EPA 25C Modifi
	110	(80 - 120)	1.9	(0-20)	CFR60 EPA 25C Modifi
TNMOC as Methane	102	(80 - 120)			CFR60 EPA 25C Modifi
	100	(80 - 120)	2.3	(0-20)	CFR60 EPA 25C Modifi

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E2G010227 **Work Order #...:** E4C5X1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M2G080000-313 E4C5X1AD-LCSD
Prep Date.....: 07/05/02 **Analysis Date..:** 07/05/02
Prep Batch #...: 2189313
Dilution Factor: 1 **Instrument ID..:** GC1
Analyst ID.....: 101605

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Methane	**500**	**560**	**ppm-c**	**112**		**CFR60 EPA 25C Modi**
	500	**549**	**ppm-c**	**110**	**1.9**	**CFR60 EPA 25C Modi**
TNMOC as Methane	**600**	**611**	**ppm-c**	**102**		**CFR60 EPA 25C Modi**
	600	**597**	**ppm-c**	**100**	**2.3**	**CFR60 EPA 25C Modi**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SEVERN
TRENT
SERVICES

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705-4808

Tel: 714 258 8610
Fax: 714 258 0921
www.stl-inc.com

October 3, 2002

STL LOT NUMBER: **E2I280156**

Walter Buettner
MONTGOMERY WATSON
27755 Diehl, Suite 300
Warrenville, IL 60555

Dear Mr. Buettner,

This report contains the analytical results for the sample received under chain of custody by STL Los Angeles on September 27, 2002. This sample is associated with your BLACKWELL FOREST PRESERVE project.

Preliminary results were sent via facsimile on Wednesday, October 02, 2002.

STL Los Angeles certifies that the test results provided in this report meet all the requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of the report. NELAP Certification Number for STL Los Angeles is 01118CA.

This report shall not be reproduced except in full, without the written approval of the laboratory.

This report contains 000020 pages.

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ACCREDITED IN ACCORDANCE WITH nelac

SEVERN TRENT SERVICES

STL Los Angeles

CASE NARRATIVE

All applicable quality control procedures met method-specified acceptance criteria. Any matrix related anomalies are footnoted within the report.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Jesse Bacwaden
Project Manager

CC: Project File

STL Los Angeles is a part of Severn Trent Laboratories, Inc.

ACCREDITED IN ACCORDANCE WITH nelac

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
MWH	Walter Buettner	9/26/02	128547
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	
27755 Diehl Rd Suite 30	(630) 836-8900	ERI 280156	Page ____ of ____

City	State	Zip Code	Site Contact	Lab Contact
Warrenville	IL	60555		

Project Name and Location (State): Blackwell Forest Preserve - IL

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.: 2090764

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): ASTM D1946	USEPA MODIFIED METHOD 25C (TUNED)									Special Instructions/ Conditions of Receipt
BW-LFGSTACK-923A	9/26/02	3:15	X												X	X									9315 B
BW-LFGSTACK-923A	9/26/02	3:20	X																						92060 Hold

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other ____

QC Requirements (Specify): 1030 (*)

	Date	Time		Date	Time
1 Relinquished By: Adam [illegible]	9/26/02	4:00	1 Received By: [illegible]	9-27-02	14:30
2 Relinquished By			2. Received By		
3 Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

SEVERN TRENT SERVICES

CANISTER FIELD DATA RECORD

CLIENT: MONTGOMERY WATSON
CANISTER SERIAL #: 9315 B
DATE CLEANED: 9-10-02 D
CLIENT SAMPLE #: BW-LFG-STACK-23A
SITE LOCATION: Blackwell Forest Preserve

VFR ID: _____
Duration of comp. : _____ hrs. / mins.
Flow setting: _____ ml/min
Initials: _____

READING	TIME	Vac. (inches Hg) Or PRESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK				
INITIAL FIELD VACUUM	3:10 pm	-30	9/26/02	[illegible]
FINAL FIELD READING	3:15 pm	0	9/26/02	[illegible]
GAUGE READING UPON RECEIPT				

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg and PSIA)	13.29	10-1-02	[illegible]
FINAL PRESSURE (PSIA)	24.80	10-1-02	[illegible]

Pressurization Gas: N_2

COMMENTS:

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
15 Min.	316 – 333
30 Min.	158 – 166.7
1	79.2 – 83.3
2	39.6 – 41.7
4	19.8 – 20.8
6	13.2 – 13.9
8	9.9 – 10.4
10	7.92 – 8.3
12	6.6 – 6.9
24	3.5 – 4.0

2

SEVERN TRENT SERVICES

CANISTER FIELD DATA RECORD

CLIENT: MONTGOMERY WATSON
CANISTER SERIAL #: 92060
DATE CLEANED: 9-10-02 D
CLIENT SAMPLE #: BW-LFG-STACK-923A
SITE LOCATION: Blackwell Forest Preserve

VFR ID: _____
Duration of comp. : _____ hrs. / mins.
Flow setting: _____ ml/min
Initials: _____

READING	TIME	Vac. (inches Hg) Or PRESS (psig)	DATE	INITIALS
INITIAL VACUUM CHECK		-29	9/26/02	AM
INITIAL FIELD VACUUM	3:10 pm	-29	9/26/02	AM
FINAL FIELD READING	3:20 pm	0	9/26/02	AM
GAUGE READING UPON RECEIPT				

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg and PSIA)	13.19	10-1-02	—
FINAL PRESSURE (PSIA)	24.66	10-1-02	—

Pressurization Gas: N_2

COMMENTS:

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
15 Min.	316 – 333
30 Min.	158 – 166.7
1	79.2 – 83.3
2	39.6 – 41.7
4	19.8 – 20.8
6	13.2 – 13.9
8	9.9 – 10.4
10	7.92 – 8.3
12	6.6 – 6.9
24	3.5 – 4.0

SEVERN TRENT SERVICES

Analytical Report

ANALYTICAL REPORT

PROJECT NO. 2090764

BLACKWELL FOREST PRESERVE

Lot #: E2I280156

Walter Buettner

MONTGOMERY WATSON

SEVERN TRENT LABORATORIES, INC.

Jesse Bacwaden
Project Manager

October 3, 2002

EXECUTIVE SUMMARY - Detection Highlights

E2I280156

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
BW-LFGSTACK-23A 09/26/02 15:15 001				
Carbon dioxide	30	0.019	%(v/v)	ASTM D1946
Nitrogen	9.0	1.9	%(v/v)	ASTM D1946
Methane	57	0.00037	%(v/v)	ASTM D1946
Methane	570000	3.7	ppm-c	CFR60 EPA 25C Mod
TNMOC as Methane	1400	56	ppm-c	CFR60 EPA 25C Mod

ANALYTICAL METHODS SUMMARY

E2I280156

PARAMETER	ANALYTICAL METHOD
EPA 25C Modified Fixed Gases	CFR60 EPA 25C Modified ASTM D1946

References:

ASTM Annual Book Of ASTM Standards.

CFR60 "Test Methods," 40 CFR, Part 60, July 1, 1997

SAMPLE SUMMARY

E2I280156

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
E8340	001	BW-LFGSTACK-23A	09/26/02	15:1

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MWH AMERICAS INC

Client Sample ID: BW-LFGSTACK-23A

GC Volatiles

Lot-Sample #...: E2I280156-001 **Work Order #...:** E83401AD **Matrix.....:** AIR
Date Sampled...: 09/26/02 **Date Received..:** 09/27/02
Prep Date.....: 10/01/02 **Analysis Date..:** 10/01/02
Prep Batch #...: 2275200
Dilution Factor: 1.87
Analyst ID.....: 358011 **Instrument ID..:** GC3
Method.....: ASTM D1946

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Carbon dioxide	**30**	**0.019**	**%(v/v)**
Oxygen	ND	0.19	%(v/v)
Nitrogen	**9.0**	**1.9**	**%(v/v)**
Methane	**57**	**0.00037**	**%(v/v)**
Carbon monoxide	ND	0.0019	%(v/v)

MWH AMERICAS INC

Client Sample ID: BW-LFGSTACK-23A

GC Volatiles

Lot-Sample #...:	E2I280156-001	**Work Order #...:**	E83401AC	**Matrix.....:**	AIR
Date Sampled...:	09/26/02	**Date Received..:**	09/27/02		
Prep Date.....:	10/01/02	**Analysis Date..:**	10/01/02		
Prep Batch #...:	2275198				
Dilution Factor:	1.87				
Analyst ID.....:	358011	**Instrument ID..:**	GC3		
		Method.....:	CFR60 EPA 25C Mod		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	**570000**	**3.7**	**ppm-c**
TNMOC as Methane	**1400**	**56**	**ppm-c**

SEVERN
TRENT
SERVICES

QA/QC

QC DATA ASSOCIATION SUMMARY

E2I280156

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	AIR	ASTM D1946		2275200	
	AIR	CFR60 EPA 25C Mod		2275198	

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E2I280156
MB Lot-Sample #: M2J020000-200
Analysis Date..: 10/01/02
Dilution Factor: 1

Work Order #...: E88V01AA
Prep Date.....: 10/01/02
Prep Batch #...: 2275200
Analyst ID.....: 358011

Matrix.....: AIR
Instrument ID..: GC3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Carbon dioxide	ND	0.010	%(v/v)	ASTM D1946
Oxygen	ND	0.10	%(v/v)	ASTM D1946
Nitrogen	ND	1.0	%(v/v)	ASTM D1946
Methane	ND	0.00020	%(v/v)	ASTM D1946
Carbon monoxide	ND	0.0010	%(v/v)	ASTM D1946

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E2I280156
MB Lot-Sample #: M2J020000-198
Analysis Date..: 10/01/02
Dilution Factor: 1

Work Order #...: E88VX1AA
Prep Date.....: 10/01/02
Prep Batch #...: 2275198
Analyst ID.....: 358011

Matrix.....: AIR
Instrument ID..: GC3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methane	ND	2.0	ppm-c	CFR60 EPA 25C Mod
TNMOC as Methane	ND	30	ppm-c	CFR60 EPA 25C Mod

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E2I280156 **Work Order #...:** E88V01AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M2J020000-200 E88V01AD-LCSD
Prep Date.....: 10/01/02 **Analysis Date..:** 10/01/02
Prep Batch #...: 2275200
Dilution Factor: 1 **Instrument ID..:** GC3
Analyst ID.....: 358011

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Carbon dioxide	**95**	**(75 - 125)**			**ASTM D1946**
	95	**(75 - 125)**	**0.30**	**(0-20)**	**ASTM D1946**
Methane	**102**	**(60 - 120)**			**ASTM D1946**
	101	**(60 - 120)**	**0.63**	**(0-20)**	**ASTM D1946**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E2I280156 **Work Order #...:** E88V01AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M2J020000-200 E88V01AD-LCSD
Prep Date.....: 10/01/02 **Analysis Date..:** 10/01/02
Prep Batch #...: 2275200
Dilution Factor: 1 **Instrument ID..:** GC3
Analyst ID.....: 358011

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Carbon dioxide	**1.00**	**0.952**	**%(v/v)**	**95**		**ASTM D1946**
	1.00	**0.949**	**%(v/v)**	**95**	**0.30**	**ASTM D1946**
Methane	**0.0500**	**0.0510**	**%(v/v)**	**102**		**ASTM D1946**
	0.0500	**0.0507**	**%(v/v)**	**101**	**0.63**	**ASTM D1946**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E2I280156 **Work Order #...:** E88VX1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M2J020000-198 E88VX1AD-LCSD
Prep Date.....: 10/01/02 **Analysis Date..:** 10/01/02
Prep Batch #...: 2275198
Dilution Factor: 1 **Instrument ID..:** GC3
Analyst ID.....: 358011

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
TNMOC as Methane	**87**	**(80 - 120)**			**CFR60 EPA 25C Modifi**
	87	**(80 - 120)**	**0.24**	**(0-20)**	**CFR60 EPA 25C Modifi**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E2I280156 **Work Order #...:** E88VX1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M2J020000-198 E88VX1AD-LCSD
Prep Date.....: 10/01/02 **Analysis Date..:** 10/01/02
Prep Batch #...: 2275198
Dilution Factor: 1 **Instrument ID..:** GC3
Analyst ID.....: 358011

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
TNMOC as Methane	**600**	**520**	**ppm-c**	**87**		**CFR60 EPA 25C Modif**
	600	**522**	**ppm-c**	**87**	**0.24**	**CFR60 EPA 25C Modif**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SEVERN TRENT STL

January 21, 2003

STL LOT NUMBER: **E3A090235**

Walter Buettner
MONTGOMERY WATSON
27755 Diehl, Suite 300
Warrenville, IL 60555

Dear Mr. Buettner,

This report contains the analytical results for the sample received under chain of custody by STL Los Angeles on January 9, 2003. This sample is associated with your BLACKWELL FOREST PRESERVE project.

Preliminary results were sent via facsimile on Friday, January 17, 2003.

STL Los Angeles certifies that the test results provided in this report meet all the requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of the report. NELAP Certification Number for STL Los Angeles is 01118CA.

This report shall not be reproduced except in full, without the written approval of the laboratory.

This report contains 000024 pages.

Severn Trent Laboratories, Inc.
STL Los Angeles • 1721 South Grand Avenue, Santa Ana, CA 92705-4808
Tel 714 258 8610 Fax 714 258 0921 • *www.stl-inc.com*

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ACCREDITED IN ACCORDANCE WITH nelac

SEVERN TRENT STL

CASE NARRATIVE

All applicable quality control procedures met method-specified acceptance criteria. Any matrix related anomalies are footnoted within the report.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Jesse Bacwaden
Project Manager

CC: Project File

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: MWH	Project Manager: WALTER BUETTNER	Date: 1/7/03	Chain of Custody Number: 129095
Address: 27755 DIEHL ROAD SUITE 300	Telephone Number (Area Code)/Fax Number: (630) 836-8900	Lab Number: E3A090235	Page 1 of 1
City: WARRENVILLE; State: IL; Zip Code: 60555	Site Contact:	Lab Contact:	
Project Name and Location (State): BLACKWELL FPD	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): ASTM D1945	USEPA MOD	METHOD 25C (TNMOC)		HOLD							Special Instructions/ Conditions of Receipt
BW-LFGSTACK-24A	1/7/03	1030	X												X	X										0110
BW-LFGSTACK-924A	1/7/03	1035																	X							A-292 HOLD

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	1/7/03	1200	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By: [signature]	1-9-03	1030

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

SEVERN TRENT SERVICES

CANISTER FIELD DATA RECORD

CLIENT: M/W

CANISTER SERIAL #: 0110

DATE CLEANED: 12-9-02 B

CLIENT SAMPLE #: BW-LFG-STACK-24A

SITE LOCATION:

VFR ID:

Duration of comp. : hrs. / mins.

Flow setting: ml/min

Initials:

READING	TIME	Vac. (inches Hg) Or PRESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK		30"	12-12-02	SL
INITIAL FIELD VACUUM		28"	1/7/03	RHJ/MJM
FINAL FIELD READING		0"	1/7/03	RHJ/MJM
GAUGE READING UPON RECEIPT				

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg and PSIA)			
FINAL PRESSURE (PSIA)			

Pressurization Gas: N_2

COMMENTS:

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
15 Min.	316 – 333
30 Min.	158 – 166.7
1	79.2 – 83.3
2	39.6 – 41.7
4	19.8 – 20.8
6	13.2 – 13.9
8	9.9 – 10.4
10	7.92 – 8.3
12	6.6 – 6.9
24	3.5 – 4.0

SEVERN TRENT SERVICES

2

CANISTER FIELD DATA RECORD

CLIENT: M/W

CANISTER SERIAL #: A-292

DATE CLEANED: 12-9-02 B

CLIENT SAMPLE #:

SITE LOCATION:

VFR ID:

Duration of comp. : hrs. / mins.

Flow setting: ml/min

Initials:

READING	TIME	Vac. (inches Hg) Or PRESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK		30"	12-12-02	SL
INITIAL FIELD VACUUM		28"	1/7/03	MS / MBM
FINAL FIELD READING		0"	1/7/03	MS / MBM
GAUGE READING UPON RECEIPT				

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg and PSIA)			
FINAL PRESSURE (PSIA)			

Pressurization Gas: N2

COMMENTS:

OH Hold

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
15 Min.	316 – 333
30 Min.	158 – 166.7
1	79.2 – 83.3
2	39.6 – 41.7
4	19.8 – 20.8
6	13.2 – 13.9
8	9.9 – 10.4
10	7.92 – 8.3
12	6.6 – 6.9
24	3.5 – 4.0

SEVERN TRENT SERVICES

Analytical Report

ANALYTICAL REPORT

PROJECT NO. 2090764

BLACKWELL FOREST PRESERVE

Lot #: E3A090235

Walter Buettner

MONTGOMERY WATSON

SEVERN TRENT LABORATORIES, INC.

Jesse Bacwaden
Project Manager

January 17, 2003

EXECUTIVE SUMMARY - Detection Highlights

E3A090235

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
BW-LFGSTACK-24A 01/07/03 10:30 001				
Methane	510000	4.0	ppm-c	CFR60 EPA 25C Mod
TNMOC as Methane	960	60	ppm-c	CFR60 EPA 25C Mod
Carbon dioxide	30	0.020	%(v/v)	ASTM D1945
Nitrogen	18	2.0	%(v/v)	ASTM D1945
Oxygen	1.8	0.20	%(v/v)	ASTM D1945
Methane	51	0.00040	%(v/v)	ASTM D1945

ANALYTICAL METHODS SUMMARY

E3A090235

PARAMETER	ANALYTICAL METHOD
EPA 25C Modified Natural Gas by GC	CFR60 EPA 25C Modified ASTM D1945

References:

ASTM Annual Book Of ASTM Standards.

CFR60 "Test Methods," 40 CFR, Part 60, July 1, 1997

SAMPLE SUMMARY

E3A090235

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMI TIMI
FFT5J	001	BW-LFGSTACK-24A	01/07/03	10:3

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MWH AMERICAS INC

Client Sample ID: BW-LFGSTACK-24A

GC Volatiles

Lot-Sample #...: E3A090235-001 **Work Order #...:** FFT5J1AC **Matrix.....:** AE
Date Sampled...: 01/07/03 **Date Received..:** 01/09/03
Prep Date.....: 01/13/03 **Analysis Date..:** 01/13/03
Prep Batch #...: 3017323
Dilution Factor: 2
Analyst ID.....: 358011 **Instrument ID..:** GC6
Method.....: ASTM D1945

PARAMETER	RESULT	REPORTING LIMIT	UNITS
C6	ND	0.020	%(v/v)
C7	ND	0.020	%(v/v)
Ethane	ND	0.020	%(v/v)
Propane	ND	0.020	%(v/v)
Isobutane	ND	0.020	%(v/v)
n-Butane	ND	0.020	%(v/v)
Neopentane	ND	0.020	%(v/v)
Isopentane	ND	0.020	%(v/v)
n-Pentane	ND	0.020	%(v/v)
C8+	ND	0.020	%(v/v)

MWH AMERICAS INC

Client Sample ID: BW-LFGSTACK-24A

GC Volatiles

Lot-Sample #...: E3A090235-001 Work Order #...: FFT5J1AD Matrix.....: AE
Date Sampled...: 01/07/03 Date Received..: 01/09/03
Prep Date.....: 01/10/03 Analysis Date..: 01/10/03
Prep Batch #...: 3017324
Dilution Factor: 2
Analyst ID.....: 358011 Instrument ID..: GC6
Method.....: ASTM D1945

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Carbon dioxide	30	0.020	%(v/v)
Nitrogen	18	2.0	%(v/v)
Oxygen	1.8	0.20	%(v/v)
Methane	51	0.00040	%(v/v)

MWH AMERICAS INC

Client Sample ID: BW-LFGSTACK-24A

GC Volatiles

Lot-Sample #...:	E3A090235-001	**Work Order #...:**	FFT5J1AE	**Matrix.....:**	AE
Date Sampled...:	01/07/03	**Date Received..:**	01/09/03		
Prep Date.....:	01/10/03	**Analysis Date..:**	01/10/03		
Prep Batch #...:	3010324				
Dilution Factor:	2				
Analyst ID.....:	101605	**Instrument ID..:**	GC3		
		Method.....:	CFR60 EPA 25C Mod		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	**510000**	**4.0**	**ppm-c**
TNMOC as Methane	**960**	**60**	**ppm-c**

SEVERN TRENT SERVICES

QA/QC

QC DATA ASSOCIATION SUMMARY

E3A090235

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	AE	CFR60 EPA 25C Mod		3010324	
	AE	ASTM D1945		3017323	
	AE	ASTM D1945		3017324	

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E3A090235
MB Lot-Sample #: M3A170000-323

Analysis Date..: 01/13/03
Dilution Factor: 1

Work Order #...: FF9EQ1AA

Prep Date.....: 01/13/03
Prep Batch #...: 3017323

Analyst ID.....: 358011

Matrix.....: AIR

Instrument ID..: GC6

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
C6	ND	0.010	%(v/v)	ASTM D1945
C7	ND	0.010	%(v/v)	ASTM D1945
Ethane	ND	0.010	%(v/v)	ASTM D1945
Propane	ND	0.010	%(v/v)	ASTM D1945
Isobutane	ND	0.010	%(v/v)	ASTM D1945
n-Butane	ND	0.010	%(v/v)	ASTM D1945
Neopentane	ND	0.010	%(v/v)	ASTM D1945
Isopentane	ND	0.010	%(v/v)	ASTM D1945
n-Pentane	ND	0.010	%(v/v)	ASTM D1945
C8+	ND	0.010	%(v/v)	ASTM D1945

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E3A090235
MB Lot-Sample #: M3A170000-324

Analysis Date..: 01/10/03
Dilution Factor: 1

Work Order #...: FF9ER1AA

Prep Date.....: 01/10/03
Prep Batch #...: 3017324

Analyst ID.....: 358011

Matrix.....: AIR

Instrument ID..: GC6

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Carbon dioxide	ND	0.010	%(v/v)	ASTM D1945
Nitrogen	ND	1.0	%(v/v)	ASTM D1945
Oxygen	ND	0.10	%(v/v)	ASTM D1945
Methane	ND	0.00020	%(v/v)	ASTM D1945

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E3A090235
MB Lot-Sample #: M3A100000-324

Analysis Date..: 01/10/03
Dilution Factor: 1

Work Order #...: FFW5W1AA

Prep Date.....: 01/10/03
Prep Batch #...: 3010324

Analyst ID.....: 101605

Matrix.....: AIR

Instrument ID..: GC3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methane	ND	2.0	ppm-c	CFR60 EPA 25C Mod
TNMOC as Methane	ND	30	ppm-c	CFR60 EPA 25C Mod

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E3A090235 **Work Order #...:** FF9EQ1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3A170000-323 FF9EQ1AD-LCSD
Prep Date.....: 01/13/03 **Analysis Date..:** 01/13/03
Prep Batch #...: 3017323
Dilution Factor: 1 **Instrument ID..:** GC6
Analyst ID.....: 358011

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
C6	**117**	**(85 - 135)**			**ASTM D1945**
	117	**(85 - 135)**	**0.090**	**(0-20)**	**ASTM D1945**
Propane	**112**	**(80 - 120)**			**ASTM D1945**
	111	**(80 - 120)**	**0.53**	**(0-20)**	**ASTM D1945**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E3A090235 **Work Order #...:** FF9EQ1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3A170000-323 FF9EQ1AD-LCSD
Prep Date.....: 01/13/03 **Analysis Date..:** 01/13/03
Prep Batch #...: 3017323
Dilution Factor: 1 **Instrument ID..:** GC6
Analyst ID.....: 358011

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
C6	**0.000182**		**%(v/v)**	**117**		**ASTM D1945**
	0.000182		**%(v/v)**	**117**	**0.090**	**ASTM D1945**
Propane	**0.000368**		**%(v/v)**	**112**		**ASTM D1945**
	0.000368		**%(v/v)**	**111**	**0.53**	**ASTM D1945**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E3A090235 **Work Order #...:** FF9ER1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3A170000-324 FF9ER1AD-LCSD
Prep Date.....: 01/10/03 **Analysis Date..:** 01/10/03
Prep Batch #...: 3017324
Dilution Factor: 1 **Instrument ID..:** GC6
Analyst ID.....: 358011

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Carbon dioxide	**88**	**(75 - 125)**			**ASTM D1945**
	89	**(75 - 125)**	**0.060**	**(0-20)**	**ASTM D1945**
Methane	**90**	**(75 - 120)**			**ASTM D1945**
	90	**(75 - 120)**	**0.33**	**(0-20)**	**ASTM D1945**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E3A090235 **Work Order #...:** FF9ER1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3A170000-324 FF9ER1AD-LCSD
Prep Date.....: 01/10/03 **Analysis Date..:** 01/10/03
Prep Batch #...: 3017324
Dilution Factor: 1 **Instrument ID..:** GC6
Analyst ID.....: 358011

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Carbon dioxide	**1.00**	**0.885**	**%(v/v)**	**88**		**ASTM D1945**
	1.00	**0.886**	**%(v/v)**	**89**	**0.060**	**ASTM D1945**
Methane	**0.0500**	**0.0451**	**%(v/v)**	**90**		**ASTM D1945**
	0.0500	**0.0450**	**%(v/v)**	**90**	**0.33**	**ASTM D1945**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E3A090235 **Work Order #...:** FFW5W1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3A100000-324 FFW5W1AD-LCSD
Prep Date.....: 01/10/03 **Analysis Date..:** 01/10/03
Prep Batch #...: 3010324
Dilution Factor: 1 **Instrument ID..:** GC3
Analyst ID.....: 101605

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
TNMOC as Methane	**87**	**(80 - 120)**			**CFR60 EPA 25C Modifi**
	86	**(80 - 120)**	**1.0**	**(0-20)**	**CFR60 EPA 25C Modifi**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E3A090235 **Work Order #...:** FFW5W1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3A100000-324 FFW5W1AD-LCSD
Prep Date.....: 01/10/03 **Analysis Date..:** 01/10/03
Prep Batch #...: 3010324
Dilution Factor: 1 **Instrument ID..:** GC3
Analyst ID.....: 101605

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
TNMOC as Methane	**3020**	**2640**	**ppm-c**	**87**		**CFR60 EPA 25C Modif**
	3020	**2610**	**ppm-c**	**86**	**1.0**	**CFR60 EPA 25C Modif**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SEVERN TRENT STL

April 22, 2003

STL LOT NUMBER: **E3D150182**

Walter Buettner
MONTGOMERY WATSON
27755 Diehl, Suite 300
Warrenville, IL 60555

Dear Mr. Buettner,

This report contains the analytical results for the two samples received under chain of custody by STL Los Angeles on April 14, 2003. These samples are associated with your BLACKWELL FOREST PRESERVE project.

Preliminary results were sent via facsimile on Monday, April 21, 2003.

STL Los Angeles certifies that the test results provided in this report meet all the requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of the report. NELAP Certification Number is 01118CA / E87652.

This report shall not be reproduced except in full, without the written approval of the laboratory.

This report contains **000026** pages.

SEVERN TRENT STL

CASE NARRATIVE

All applicable quality control procedures met method-specified acceptance criteria. Any matrix related anomalies are footnoted within the report.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Jesse Bacwaden
Project Manager

CC: Project File

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Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client: MWH	Project Manager: WALTER BUETTNER	Date: 4/11/03	Chain of Custody Number: 129483
Address: 27755 DIEHL ROAD SUITE 300	Telephone Number (Area Code)/Fax Number: (630) 836-8900	Lab Number: E3D150182	Page 1 of 1
City: WARRENVILLE State: IL Zip Code: 60555	Site Contact	Lab Contact	
Project Name and Location (State): BLACKWELL FPD	Carrier/Waybill Number		
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: ASTM D 1945	USEPA M00	METHOD 25C (TNMOC)	HOLD	Special Instructions/ Conditions of Receipt
BW-LFG-STACK-25A	4/11/03	1045	X										X	X			0172
BW-LFG-STACK-925A	4/11/03	1050	X													X	93285 HOLD

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other_____

QC Requirements (Specify)

1. Relinquished By: [signature]	Date: 4/11/03	Time: 1430	1. Received By: [signature]	Date: 4-14-03	Time: ok 100
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report CANARY - Stays with the Sample PINK - Field Copy

SEVERN TRENT STL

CANISTER FIELD DATA RECORD

CLIENT: Montgomery Watson
CANISTER SERIAL #: 0172
DATE CLEANED: 3-10-03C
CLIENT SAMPLE #:
SITE LOCATION: BLACKWELL

VFR ID:
Duration of comp. : hrs. / mins.
Flow setting: ml/min
Initials:

READING	TIME	Vac. (inches Hg) Or PRESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK		30"	3-20-03	SL
INITIAL FIELD VACUUM	4/11/03 11 10	-28"	4/11/03	MBM
FINAL FIELD READING	4/11/03 11 30	0"	4/11/03	MBM

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg or PSIA)	14.08	4.15.3	[illegible]
FINAL PRESSURE (PSIA)	24.12	4-15-3	[illegible]

Pressurization Gas: N_2

COMMENTS: 1.7/31

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
15 Min.	316 – 333
30 Min.	158 – 166.7
1	79.2 – 83.3
2	39.6 – 41.7
4	19.8 – 20.8
6	13.2 – 13.9
8	9.9 – 10.4
10	7.92 – 8.3
12	6.6 – 6.9
24	3.5 – 4.0

SEVERN TRENT STL

CANISTER FIELD DATA RECORD

CLIENT: Montgomery Watson
CANISTER SERIAL #: 9328S
DATE CLEANED: 3-10-03C
CLIENT SAMPLE #:
SITE LOCATION: BLACKWELL

VFR ID:
Duration of comp. : hrs. / mins.
Flow setting: ml/min
Initials:

READING	TIME	Vac. (inches Hg) Or PRESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK		30"	3-20-03	SL
INITIAL FIELD VACUUM	4/11/03 11 10	-28"	4/11/03	MBM
FINAL FIELD READING	11 30	0"	4/11/03	MBM

LABORATORY CANISTER PRESSURIZATION			
INITIAL VACUUM (inches Hg or PSIA)	17.04	4-15-3	—
FINAL PRESSURE (PSIA)	24.65	4-15-3	—

Pressurization Gas: N_2

COMMENTS:

1.7557

COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
15 Min.	316 – 333
30 Min.	158 – 166.7
1	79.2 – 83.3
2	39.6 – 41.7
4	19.8 – 20.8
6	13.2 – 13.9
8	9.9 – 10.4
10	7.92 – 8.3
12	6.6 – 6.9
24	3.5 – 4.0

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SEVERN TRENT STL

Analytical Report

ANALYTICAL REPORT

PROJECT NO. 2090764

BLACKWELL FOREST PRESERVE

Lot #: E3D150182

Walter Buettner

MONTGOMERY WATSON

SEVERN TRENT LABORATORIES, INC.

Jesse Bacwaden
Project Manager

April 22, 2003

EXECUTIVE SUMMARY - Detection Highlights

E3D150182

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
BW-LFG STACK-25A 04/11/03 10:45 001				
Methane	520000	3.4	ppm-c	CFR60 EPA 25C Mod
TNMOC as Methane	1000	51	ppm-c	CFR60 EPA 25C Mod
Carbon dioxide	31	0.017	%(v/v)	ASTM D1945
Nitrogen	13	1.7	%(v/v)	ASTM D1945
Oxygen	2.5	0.17	%(v/v)	ASTM D1945
Specific Gravity	0.92			ASTM D3588
Heat of Combustion	540	1.0	BTU/FT3	ASTM D3588

ANALYTICAL METHODS SUMMARY

E3D150182

PARAMETER	ANALYTICAL METHOD
EPA 25C Modified	CFR60 EPA 25C Modified
Heat of Combustion and Re lative Density	ASTM D3588
Natural Gas by GC	ASTM D1945
Specific Gravity	ASTM D3588

References:

ASTM Annual Book Of ASTM Standards.

CFR60 "Test Methods," 40 CFR, Part 60, July 1, 1997

SAMPLE SUMMARY

E3D150182

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FLXVP	001	BW-LFG STACK-25A	04/11/03	10:4

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

MWH AMERICAS INC

Client Sample ID: BW-LPG STACK-25A

GC Volatiles

Lot-Sample #...: E3D150182-001 **Work Order #...:** FLXVP1AE **Matrix.....:** AIR
Date Sampled...: 04/11/03 **Date Received..:** 04/14/03
Prep Date.....: 04/15/03 **Analysis Date..:** 04/15/03
Prep Batch #...: 3105507
Dilution Factor: 1
Analyst ID.....: 358011 **Instrument ID..:** GC5
Method.....: ASTM D1945

PARAMETER	RESULT	REPORTING LIMIT	UNITS
C6	ND	0.010	%(v/v)
C7	ND	0.010	%(v/v)
Propane	ND	0.010	%(v/v)
Isobutane	ND	0.010	%(v/v)
n-Butane	ND	0.010	%(v/v)
Neopentane	ND	0.010	%(v/v)
Isopentane	ND	0.010	%(v/v)
n-Pentane	ND	0.010	%(v/v)
C8+	ND	0.010	%(v/v)

MWH AMERICAS INC

Client Sample ID: BW-LFG STACK-25A

GC Volatiles

Lot-Sample #...:	E3D150182-001	**Work Order #...:**	FLXVP1AC	**Matrix.....:**	AIR
Date Sampled...:	04/11/03	**Date Received..:**	04/14/03		
Prep Date.....:	04/15/03	**Analysis Date..:**	04/15/03		
Prep Batch #...:	3105510				
Dilution Factor:	1				
Analyst ID.....:	358011	**Instrument ID..:**	GC5		
		Method.....:	ASTM D3588		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Heat of Combustion	**540**	**1.0**	**BTU/FT3**

MWH AMERICAS INC

Client Sample ID: BW-LFG STACK-25A

GC Volatiles

Lot-Sample #...:	E3D150182-001	**Work Order #...:**	FLXVP1AF	**Matrix.....:**	AIR
Date Sampled...:	04/11/03	**Date Received..:**	04/14/03		
Prep Date.....:	04/15/03	**Analysis Date..:**	04/15/03		
Prep Batch #...:	3111411				
Dilution Factor:	1.71				
Analyst ID.....:	358011	**Instrument ID..:**	GC5		
		Method.....:	ASTM D1945		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Carbon dioxide	**31**	**0.017**	**%(v/v)**
Nitrogen	**13**	**1.7**	**%(v/v)**
Oxygen	**2.5**	**0.17**	**%(v/v)**

MWH AMERICAS INC

Client Sample ID: BW-LPG STACK-25A

GC Volatiles

Lot-Sample #...:	E3D150182-001	**Work Order #...:**	FLXVP1AD	**Matrix.....:**	AIR
Date Sampled...:	04/11/03	**Date Received..:**	04/14/03		
Prep Date.....:	04/15/03	**Analysis Date..:**	04/15/03		
Prep Batch #...:	3105511				
Dilution Factor:	1				
Analyst ID.....:	358011	**Instrument ID..:**	GC5		
		Method.....:	ASTM D3588		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Specific Gravity	**0.92**		

MWH AMERICAS INC

Client Sample ID: BW-LPG STACK-25A

GC Volatiles

Lot-Sample #...:	E3D150182-001	**Work Order #...:**	FLXVP1AG	**Matrix.....:**	AIR
Date Sampled...:	04/11/03	**Date Received..:**	04/14/03		
Prep Date.....:	04/15/03	**Analysis Date..:**	04/15/03		
Prep Batch #...:	3105368				
Dilution Factor:	1.71				
Analyst ID.....:	101605	**Instrument ID..:**	GC3		
		Method.....:	CFR60 EPA 25C Mod		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methane	**520000**	**3.4**	**ppm-c**
TNMOC as Methane	**1000**	**51**	**ppm-c**

SEVERN TRENT STL

QA/QC

QC DATA ASSOCIATION SUMMARY

E3D150182

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	AIR	CFR60 EPA 25C Mod		3105368	
	AIR	ASTM D1945		3105507	
	AIR	ASTM D1945		3111411	
	AIR	ASTM D3588		3105511	
	AIR	ASTM D3588		3105510	

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E3D150182
MB Lot-Sample #: M3D150000-507

Analysis Date..: 04/15/03
Dilution Factor: 1

Work Order #...: FMAWF1AA

Prep Date.....: 04/15/03
Prep Batch #...: 3105507

Analyst ID.....: 358011

Matrix.....: AIR

Instrument ID..: GC5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
C6	ND	0.010	%(v/v)	ASTM D1945
C7	ND	0.010	%(v/v)	ASTM D1945
Propane	ND	0.010	%(v/v)	ASTM D1945
Isobutane	ND	0.010	%(v/v)	ASTM D1945
n-Butane	ND	0.010	%(v/v)	ASTM D1945
Neopentane	ND	0.010	%(v/v)	ASTM D1945
Isopentane	ND	0.010	%(v/v)	ASTM D1945
n-Pentane	ND	0.010	%(v/v)	ASTM D1945
C8+	ND	0.010	%(v/v)	ASTM D1945

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E3D150182
MB Lot-Sample #: M3D210000-411

Work Order #...: FMAVH1AA

Matrix.....: AIR

Prep Date.....: 04/15/03

Instrument ID..: GC5

Analysis Date..: 04/15/03
Dilution Factor: 1

Prep Batch #...: 3111411

Analyst ID.....: 358011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Carbon dioxide	ND	0.010	%(v/v)	ASTM D1945
Nitrogen	ND	1.0	%(v/v)	ASTM D1945
Oxygen	ND	0.10	%(v/v)	ASTM D1945

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: E3D150182
MB Lot-Sample #: M3D150000-368

Analysis Date..: 04/15/03
Dilution Factor: 1

Work Order #...: FLX761AA

Prep Date.....: 04/15/03
Prep Batch #...: 3105368

Analyst ID.....: 101605

Matrix.....: AIR

Instrument ID..: GC3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methane	ND	2.0	ppm-c	CFR60 EPA 25C Mod
TNMOC as Methane	ND	30	ppm-c	CFR60 EPA 25C Mod

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E3D150182 **Work Order #...:** FMAWF1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3D150000-507 FMAWF1AD-LCSD
Prep Date.....: 04/15/03 **Analysis Date..:** 04/15/03
Prep Batch #...: 3105507
Dilution Factor: 1 **Instrument ID..:** GC5
Analyst ID.....: 358011

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
C6	**103**	**(85 - 135)**			**ASTM D1945**
	103	**(85 - 135)**	**0.21**	**(0-20)**	**ASTM D1945**
C7	**99**	**(80 - 120)**			**ASTM D1945**
	98	**(80 - 120)**	**0.79**	**(0-20)**	**ASTM D1945**
Propane	**98**	**(80 - 120)**			**ASTM D1945**
	98	**(80 - 120)**	**0.13**	**(0-20)**	**ASTM D1945**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E3D150182 **Work Order #...:** FMAWF1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3D150000-507 FMAWF1AD-LCSD
Prep Date.....: 04/15/03 **Analysis Date..:** 04/15/03
Prep Batch #...: 3105507
Dilution Factor: 1 **Instrument ID..:** GC5
Analyst ID.....: 358011

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
C6	**0.000182**		**%(v/v)**	**103**		**ASTM D1945**
	0.000182		**%(v/v)**	**103**	**0.21**	**ASTM D1945**
C7	**0.000153**		**%(v/v)**	**99**		**ASTM D1945**
	0.000153		**%(v/v)**	**98**	**0.79**	**ASTM D1945**
Propane	**0.000368**		**%(v/v)**	**98**		**ASTM D1945**
	0.000368		**%(v/v)**	**98**	**0.13**	**ASTM D1945**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E3D150182 **Work Order #...:** FMAVH1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3D210000-411 FMAVH1AD-LCSD
Prep Date.....: 04/15/03 **Analysis Date..:** 04/15/03
Prep Batch #...: 3111411
Dilution Factor: 1 **Instrument ID..:** GC5
Analyst ID.....: 358011

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Ethane	**98**	**(75 - 120)**			**ASTM D1945**
	98	**(75 - 120)**	**0.26**	**(0-20)**	**ASTM D1945**
Carbon dioxide	**99**	**(75 - 125)**			**ASTM D1945**
	99	**(75 - 125)**	**0.59**	**(0-20)**	**ASTM D1945**
Methane	**109**	**(75 - 120)**			**ASTM D1945**
	109	**(75 - 120)**	**0.88**	**(0-20)**	**ASTM D1945**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E3D150182 **Work Order #...:** FMAVH1AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3D210000-411 FMAVH1AD-LCSD
Prep Date.....: 04/15/03 **Analysis Date..:** 04/15/03
Prep Batch #...: 3111411
Dilution Factor: 1 **Instrument ID..:** GC5
Analyst ID.....: 358011

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Ethane	**0.0500**	**0.0490**	**%(v/v)**	**98**		**ASTM D1945**
	0.0500	**0.0489**	**%(v/v)**	**98**	**0.26**	**ASTM D1945**
Carbon dioxide	**1.00**	**0.992**	**%(v/v)**	**99**		**ASTM D1945**
	1.00	**0.986**	**%(v/v)**	**99**	**0.59**	**ASTM D1945**
Methane	**0.0500**	**0.0547**	**%(v/v)**	**109**		**ASTM D1945**
	0.0500	**0.0543**	**%(v/v)**	**109**	**0.88**	**ASTM D1945**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: E3D150182 **Work Order #...:** FLX761AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3D150000-368 FLX761AD-LCSD
Prep Date.....: 04/15/03 **Analysis Date..:** 04/15/03
Prep Batch #...: 3105368
Dilution Factor: 1 **Instrument ID..:** GC3
Analyst ID.....: 101605

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Methane	**109**	**(80 - 120)**			**CFR60 EPA 25C Modifi**
	109	**(80 - 120)**	**0.88**	**(0-20)**	**CFR60 EPA 25C Modifi**
TNMOC as Methane	**91**	**(80 - 120)**			**CFR60 EPA 25C Modifi**
	91	**(80 - 120)**	**0.22**	**(0-20)**	**CFR60 EPA 25C Modifi**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: E3D150182 **Work Order #...:** FLX761AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3D150000-368 FLX761AD-LCSD
Prep Date.....: 04/15/03 **Analysis Date..:** 04/15/03
Prep Batch #...: 3105368
Dilution Factor: 1 **Instrument ID..:** GC3
Analyst ID.....: 101605

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Methane	**500**	**547**	**ppm-c**	**109**		**CFR60 EPA 25C Modif**
	500	**543**	**ppm-c**	**109**	**0.88**	**CFR60 EPA 25C Modif**
TNMOC as Methane	**600**	**545**	**ppm-c**	**91**		**CFR60 EPA 25C Modif**
	600	**546**	**ppm-c**	**91**	**0.22**	**CFR60 EPA 25C Modif**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters