



**BROOKHAVEN NATIONAL LABORATORY
2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS**

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1.0 INTRODUCTION

This report documents the Operation and Maintenance (O&M) activities undertaken during calendar year 2003 for the Current Landfill and the Former Landfill Areas (Former Landfill, Interim Landfill, and Slit Trench). Brookhaven National Laboratory (BNL) is responsible for performing this work to comply with the post-closure O&M requirements specified in 6 New York State Code of Rules and Regulations (NYCRR) Part 360, Solid Waste Management Facilities, effective December 31, 1988. The details of the O&M programs are described in the Final Operations and Maintenance Manuals for the Current Landfill (CDM Federal, 1996a) and the Former Landfill Areas (CDM Federal, 1996b).

The following are the primary objectives of the O&M program:

- Monitor the effectiveness of the impermeable caps in protecting groundwater quality;
- Monitor the potential generation and migration of soil gas; and
- Maintain and monitor the various components of the closure system (landfill caps, drainage structure, and environmental monitoring systems).

This is the eighth year of O&M for the Current Landfill, the seventh year for the Former Landfill and Slit Trench, and the sixth year for the Interim Landfill.

1.1 Site Description and Project Background

BNL is a 5,265-acre site located in central eastern Long Island, New York. The facility is a federally owned and funded international research and learning center managed, by Brookhaven Science Associates (BSA) under contract with the United States Department of Energy (DOE). On December 21, 1989, the site was placed on the United States Environmental Protection Agency's (USEPA's) National Priorities List (NPL), a ranking of hazardous waste sites compiled by the federal government as part of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Placing BNL on the NPL resulted in the establishment of a remediation-

task list for various locations around the facility. The site subsequently was divided into seven (7) separate remediation work areas known as Operable Units. The Current Landfill and Former Landfill Area are located in Operable Unit I (OU I), near the south central portion of the BNL site (see Figure 1).

Current Landfill (CLF) The Current Landfill consists of one unlined waste-cell that was operated from the late 1960s until the mid 1980s for disposing of waste generated at the Laboratory. An impermeable cap covering the cell was completed in November 1995. Additional information about the cap's construction can be obtained from the *Construction Certification Report for the Current Landfill* (CDM Federal, 1996b). Following the installation of the cap, the post-closure groundwater-monitoring program was implemented in December 1996, in accordance with 6 NYCRR Part 360 section 2.15, Solid Waste Management Facilities (effective December 31, 1988).

Groundwater quality near the Current Landfill is monitored under the O&M program for a wide variety of volatile organic compounds (VOCs), metals, radiological and water chemistry (landfill leachate) parameters. Monitoring in this vicinity was expanded in 1999 to include a wetland area adjacent to the landfill's eastern boundary. This area, known as the Wooded Wetland area, is a two-acre wetland located between the Former Hazardous Waste Management Facility (HWMF) and the Current Landfill. The wetland receives surface runoff from the Current Landfill, and usually is flooded during the spring/early summer, and dry in late summer/fall. Monitoring of the Wooded Wetland area has been incorporated into the Current Landfill Monitoring Program and consists of sampling and analyzing surface water and sediment to evaluate the potential for leachate, as originally performed under the *OU I Ecological Risk Assessment* (CDM Federal, 1999).

As required under 6 NYCRR Part 360, groundwater quality must be monitored for a minimum of five years, after which the permittee may request modification of the sampling and analysis requirements. In October, 2001, BNL submitted the first *Five-Year Evaluation Report for the Current Landfill* (BNL, 2001). This report assessed groundwater trends over the five years after capping, and proposed changes to the sampling program. These changes were implemented in CY02. Additional proposed sampling program modifications for CY04 are included as part of this

annual report. Recommendations from the 2002 report were not implemented in 2003, as concurrence was not reached with USEPA and NYSDEC.

Former Landfill (FLF) The Former Landfill Area encompasses three closely located landfill units; the Former Landfill, the Slit Trench, and the Interim Landfill. The Former Landfill is an unlined waste-disposal area originally used by the United States Army in the 1940's. Waste disposal operations ceased in 1966, and the landfill was covered with soil. The Interim Landfill also is unlined, and was reportedly used for approximately one year between the time the Former Landfill was closed, and the Current Landfill was opened. The Slit Trench is unlined as well, and believed to have been operated between 1960 and 1967 for disposal of construction and demolition debris (CDM Federal, 1996).

The Former Landfill and Slit Trench were capped in November 1996 and the Interim Landfill was capped in October 1997. Additional information about the construction of the caps can be found in the *Construction Certification Report for the Former Landfill* (Roy F. Weston, 1997) and the Interim Landfill (PW Grosser, 1997). BNL started O&M activities in December 1996 at the Former Landfill and Slit Trench, and in November 1997 at the Interim Landfill. Under this O&M program, groundwater quality in downgradient wells in the vicinity of the Former Landfill is monitored for VOCs and landfill-leachate parameters. Metals are monitored semiannually, while radionuclides and upgradient wells are monitored annually for VOC's.

In March 2002, BNL submitted a Five-Year Evaluation Report for the Former Landfill (P.W. Grosser, 2002), which assessed trends in groundwater quality over the 5-year period following capping. Modifications to the sampling program are included annually as part of this report. Recommendations from the 2002 report were not implemented in 2003, as concurrence was not reached with USEPA and NYSDEC.

1.2 Overview of the Monitoring Program

Groundwater Monitoring

Data quality objectives (DQOs) for each of BNL's groundwater monitoring programs are presented in the BNL Environmental Monitoring Plan (BNL, 2002). The design of the data-collection network was optimized as part of the process. Such optimization continues annually as part of the O&M program and is based on the interpretation of new data as well as historical trends. The primary decision identified for the landfill monitoring programs was "Are the controls effectively improving groundwater quality below and downgradient of the landfill?"

Groundwater samples are collected from monitoring wells positioned upgradient and downgradient of each landfill area. Analytical data are reviewed, and determinations are made regarding the effectiveness of landfill controls. Proposed modifications to sampling frequencies and analytical parameters are summarized in Section 6 of this report.

The monitoring program for the landfill areas consists of:

Soil Gas Monitoring. Measurements of methane, Lower Explosive Limit (LEL), and hydrogen sulfide are taken quarterly from numerous monitoring locations surrounding the landfills to evaluate the movement of soil gas from the landfills.

Wooded Wetland Monitoring. Surface waters and sediments in the wooded wetland adjacent to the eastern boundary of the Current Landfill are sampled annually to evaluate possible effects of landfill leachate on Tiger Salamander habitats. This work was incorporated into the routine landfill monitoring program, and is carried out annually (See Appendix A).

Routine Visual Inspection, Maintenance, and Repair. Monthly inspections are performed to monitor the structural and/or operational status of the landfill caps, drainage structures, and environmental monitoring systems.

Leachate Discharge. Visual inspections of the landfills are performed monthly to monitor for signs of leachate discharge. If observed, samples of the leachate are collected and

analyzed.

These activities are discussed in greater detail in Sections 2 through 5 of this report. Section 6 contains the conclusions and recommendations. References are included in Section 7.

2.0 GROUNDWATER MONITORING

2.1 Monitoring Well Networks

Current Landfill

Since February 1996, groundwater quality at the Current Landfill has been monitored using ten downgradient wells and one background monitoring well. Figure 2 depicts the location of the monitoring wells. Figure 3 shows the water table contours for December 2003. The depths of the screen intervals for the Current Landfill wells are listed below.

Well ID	Screen Interval (feet BLS)
087-09*	24-34
087-11	11-21
087-23	25-40
087-24	70-80
087-26	70-80
087-27	5-20
088-109	6-21
088-110	10-25
088-21	5-20
088-22	70-80
088-23	120-130

*Background well

BLS - Below Land Surface

Former Landfill

Since January 1997, groundwater quality at the Former landfill area has been monitored using eight shallow monitoring wells (3 upgradient and five downgradient). The locations of the eight

monitoring wells are presented in Figure 4. The direction of groundwater flow in the Operable Unit I area of the site is generally to the south-southeast. Figure 3 shows the December 2003 water table contours for the area. The screen zones for Former Landfill wells are summarized below.

Well ID	Screen Interval (feet BLS)
086-42*	65-75
086-72*	41.5-56.5
087-22*	43-53
097-17	29-39
097-64	29-44
097-277	40-55
106-02	55-65
106-30	29-44

*Background well

BLS - Below Land Surface

2.1.1 Sampling Frequency and Analytical Parameters

Monitoring wells at both landfills were sampled in 2003 during the following periods:

Sampling Event	Sampling Dates
Round 1	January 13 - 14
Round 2	April 8 - 9
Round 3	July 22 - 23
Round 4	October 2 - 3

The groundwater sampling was conducted by Dvirka and Bartilucci Consulting Engineers, Woodbury, New York and the samples were analyzed by General Engineering Labs, Inc. and Severn Trent Laboratories, Inc.. See Table 1 for a summary of analyses performed by well and sampling round.

2.1.2 Quality Assurance / Quality Control

The groundwater samples were collected and analyzed in accordance with strict quality assurance, quality control (QA/QC) requirements as described in the BNL Groundwater Monitoring Program Quality Assurance Project Plan (QAPP) (BNL, 1999). The analytical results for groundwater samples collected during 2003 satisfied the data-quality objectives. The sampling team personnel are responsible for assuring that a master calibration/maintenance log is maintained for each field-measuring device (e.g., pH conductivity, turbidity meters e.g.). The sample coordinator provided a calibration/maintenance log for equipment supplied to the contractor's sampling teams.

The analytical results of samples collected for the Current and Former Landfill projects underwent data verification, using BNL standard operating procedures EM-SOP-203, Chemical Data Verification and EM-SOP-204, Radiochemical Data Verification. These procedures are designed to verify the accuracy and/or completeness of analytical data. The data-verification process is implemented to detect the most common analytical problems that affect the quality of the results. To accomplish this task, QA/QC items such as the following were checked: holding times, matrix spikes, laboratory and field blanks, and field logs. If items are found that can affect the use and interpretation of the data, they are either corrected, as in the case of unreadable information on the field logs, or the data is qualified, as in the case of contamination of the blanks or violations of the holding time.

Guidance on the collection of QA/QC samples is contained in the QAPP, and in BNL procedure EM-SOP-200 "Collection and Frequency of Field Quality Control Samples". The QA/QC samples collected included trip blanks, field blanks, matrix spike/matrix spike duplicate (MS/MSDs), and blind duplicates.

Trip blanks were analyzed for aqueous VOCs only. One trip blank was shipped to the analytical laboratory with each set of samples submitted for VOC analyses. Two duplicate samples were collected each round. In January, one duplicate reported a high relative percent difference (RPD) for calcium, iron, manganese, potassium, zinc, filterable residue, total kjeldahl nitrogen, and alkalinity.

In April, one duplicate reported a high RPD value for ammonia. Results for these analytes in the associated samples were qualified as estimated. Matrix spike/matrix spike duplicates (MS/MSDs) samples were collected at a frequency of two MS/MSD samples per quarter. This ensures that the matrix of the sample does not adversely impact the analysis. In July, one matrix spike analysis reported percent recoveries outside of QC limits for iron and cyanide. In October, the matrix spike recoveries were below QC limits for iron, cyanide and total kjeldahl nitrogen. Results for these analytes in the associated samples were qualified as estimated.

2.2 Landfill Groundwater Monitoring Results

This section summarizes the results for VOCs, metals, water-chemistry parameters, and radionuclides detected for both the Current Landfill and Former Landfill in calendar year 2003. The historical trends in concentrations of key contaminants are assessed and shown graphically in Figures 5 through 12. Summary tables of all 2003 landfill groundwater data are presented in Tables 2 through 9. Detections that exceed groundwater standards are highlighted. The summary tables include groundwater standards, laboratory results, minimum detection limits, and laboratory data qualifiers.

The groundwater standards used for evaluating groundwater data include those contained in the NYSDEC Ambient Water Quality Standards and Guidance Values (June 1998). Groundwater standards for radiological compounds were supplemented with New York State Department of Health's (NYSDOH's) standards for drinking water when a NYSDEC groundwater standard was not available. When there were no groundwater standards for a radiological compound, a Groundwater Screening Level was used. This value is based on a dose equivalent of 4 mrem/year and was calculated as 4% of the USDOE Derived Concentration Guides (DCG) (DOE Order 5400.5) for the isotope of concern. These values are listed under the "groundwater standards" column in the summary tables and annotated where appropriate. Laboratory results that exceed the groundwater standards are highlighted in the data summary tables to facilitate review of the information.

The laboratory data qualifiers included in the summary tables vary for the different analyses. Explanations for the most commonly used laboratory data qualifiers are included in the notes in each summary table. Complete 2003 laboratory data reports, chain of custody forms, and well-sampling

logs for both landfills are archived and available upon request. In addition, analytical results are stored in the BNL Environmental Information Management System (EIMS) database and reported in the annual BNL Groundwater Status Report.

2.2.1 Current Landfill

2.2.1.1 Volatile Organic Compounds (VOCs)

Benzene, 1,1-dichloroethane and chloroethane, were detected above their respective groundwater standards in four of the ten-downgradient monitoring wells during 2003 (Table 2). These VOCs have historically been the primary groundwater contaminants detected downgradient of the Current Landfill.

Figure 5 plots the concentration trends of total VOCs (TVOC), benzene and chloroethane. As shown, VOCs remained stable at low concentrations with the exception of wells 088-109 and 088-110. These two wells, located immediately southeast of the landfill footprint, continued to display fluctuations in VOC concentrations, although well below historical high values. Overall, the trend plots also show a distinct decrease in VOC concentrations, beginning one to two years after the capping of the landfill. This reflects the positive effects of the capping on the groundwater quality downgradient.

Benzene exceeded the 1 µg/L standard in well 087-11. Chloroethane exceeded the 5 µg/L standard in wells 087-11, 087-23, 088-109, and 088-110. 1,1-Dichloroethane was reported above standards only in well 088-109. The maximum chloroethane concentration was 77 µg/L in well 088-109; an increase from its 2002 maximum of 43 µg/L. Benzene was detected at a maximum of 2.6 µg/L in well 087-11, and 1,1-dichloroethane was detected at 26 µg/L in well 088-109; an increase from its 2002 maximum concentration of 6.7 µg/L. There have been no detections of VOCs exceeding groundwater standards in wells 087-24, 088-22, and 088-23 since 1998. These downgradient wells are screened in the mid-to deep-Upper Glacial Aquifer to monitor the vertical extent of contamination from the Current Landfill. No VOCs were detected in the background well.

2.2.1.2 Water Chemistry Parameters

Groundwater samples near the Current Landfill were analyzed for cyanide, sulfate, nitrite, nitrate, total nitrogen, chloride, alkalinity, total dissolved solids (TDS or residue, nonfilterable) and total suspended solids (TSS or residue, filterable), during 2003 (Table 1). Samples also were analyzed for ammonia and Total Kjeldahl Nitrogen (TK). The results are provided in Table 3. Elevated levels of these parameters can be indicative of the presence of landfill leachate.

Ammonia was the only compound detected above the standard of 2 mg/L, with exceedances in three downgradient wells (087-11, 087-27, and 088-110) during four sampling events as shown in Table 3. The highest concentration of 3.63 mg/L was reported for well 088-110 in Round 2, which is less than the highest concentration reported in 2002 of 7.75 mg/L. The highest level observed during 2003 in background well 87-09 was estimated at 1.46 mg/L. There was a general reduction in ammonia levels for most wells from previous years.

During 2003, all sulfate and chloride concentrations remained below the groundwater standard of 250 mg/L. The highest sulfate value reported for 2003 was detected in the Round 2 sample from monitoring well 088-109, at a concentration of 27.6 mg/L.

Chloride concentrations ranged from 4.3 mg/L in well 087-27 during Round 4, to a high of 51.5 mg/L in well 087-11 in sampling Round 3. Chloride concentrations historically have been significantly below the groundwater standard of 250 mg/L in all Current Landfill wells. Figure 6 plots these trends, showing the low and stable nature of chloride concentrations in the vicinity of the Current Landfill.

Alkalinity, in the form of bicarbonate, is the concentration of anions available to neutralize acid, and is often used as an indicator of leachate contamination. The alkalinity in background well 087-09 ranged from 27.7 mg/L to 123 mg/L during 2003. The concentrations in several downgradient wells were higher than the background range by up to a factor of two. The highest alkalinity concentration during 2003 was detected in downgradient, shallow Upper Glacial Aquifer well 087-11, at 209 mg/L in sampling Round 4. There is no groundwater standard for alkalinity. The concentration trends

plotted in Figure 6 show an overall decrease in alkalinity following the capping of the landfill. Alkalinity levels in the background well remained stable during this period.

TDS and TSS results were similar to those from previous years, and indicate some continuing movement of leachate from the Current Landfill as evidenced by comparing data from downgradient and background wells. TDS and TSS concentrations in background well 087-09 ranged from 84 mg/L to 143 mg/L, and 1.9 mg/L to 24 mg/L, respectively. The maximum concentrations observed in downgradient wells were 266 mg/L and 56 mg/L of TDS and TSS, respectively.

No water chemistry parameters exceeded groundwater standards in downgradient wells 087-24, 088-22, and 088-23, since 1998. These wells are all screened in the mid to deep-Upper Glacial Aquifer to monitor the vertical extent of contamination from the Current Landfill. A comparison of downgradient and background wells shows that leachate continues to be generated from the Current Landfill, albeit at low concentrations. Decreasing trends in concentration indicate that the capping is effectively reducing the generation and migration of leachate.

2.2.1.3 *Metals*

Historically, iron and manganese were detected consistently above groundwater standards in the majority of wells surrounding the landfill. While these metals indicate the presence of leachate, the groundwater standards for these compounds are considered secondary standards based on aesthetics and taste rather than risk to human health. Precipitated iron from the BNL Water Treatment Plant was disposed of at the Current Landfill during past operations. The highest concentrations generally are found in the shallow wells 87-11 and 87-27, located immediately south of the Current Landfill (see Figure 7). There have been no detections of metals, other than iron and manganese, exceeding groundwater standards in wells 087-24, 087-26, 088-22, and 088-23 since 1998. These wells are all screened in the mid-to-deep Upper Glacial Aquifer to monitor the vertical extent of contamination from the Current Landfill. Concentrations in upgradient well 87-09 still are lower than in the downgradient wells, suggesting continued leachate migration from the landfill. Given the relatively short time that the landfill has been capped, the anticipated transport time of groundwater from the north end of the landfill to the downgradient monitoring network, and the disposal of sludges

containing metals during the landfill's operation, the continued presence of iron, magnesium and sodium in these wells is not unexpected.

During 2003, iron, manganese, and sodium continued to be detected above their respective groundwater standards (Table 4). Iron in the downgradient wells peaked at a maximum of 68,100 µg/L in well 087-11 during Round 4. In contrast to background concentrations, in well 87-09, iron ranged from 234 µg/L to 31,700 µg/L. Manganese ranged from 30 µg/L to 7,200 µg/L in background well 087-09, and up to 7,400 µg/L in the downgradient wells. Background sodium levels ranged from 7,600 to 30,600 µg/L; whereas downgradient levels ranged up to 37,700 µg/L. Thallium was reported above the groundwater standard of 0.5 µg/L in several wells during Round 3 in 2003 up to 12 µg/L. Thallium detections have historically been observed at similar levels in Current Landfill wells.

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2.2.1.4 Radionuclides

No radionuclides were detected above groundwater standards during 2003 (Table 5). Strontium-90 and tritium were the only radionuclides detected during 2003. Low levels of strontium-90 were detected in upgradient well 87-09 and in downgradient wells 087-11, 087-27, and 088-21. Strontium-90 was not detected in downgradient wells 088-22, 088-109 and 088-110 which all reported detections in 2002. Concentrations were well below the 8 pCi/L groundwater standard, and ranged from 0.44 pCi/L in well 087-11 to 2.13 pCi/L in well 088-21. Overall, strontium-90 concentrations have shown either decreasing or stable trends, with concentrations at or near the detection limit (Figure 8). Gross beta activity, which is a possible indicator of strontium-90 in groundwater, ranged from 1.12 pCi/L in well 087-27 to 13.5 pCi/L in well 088-23. The gross beta standard for groundwater is 50 pCi/L.

Tritium was detected significantly below the groundwater standard of 20,000 pCi/L with a maximum value of 1,450 pCi/L in shallow downgradient well 087-27 (Figure 8). Tritium and Sr-90 concentrations have not exceeded groundwater standards in wells 087-24, 088-22, and 088-23 since 1998. These wells are all screened in the mid-to-deep-Upper Glacial Aquifer to monitor the vertical extent of contamination from the Current Landfill.

2.2.2 Former Landfill

2.2.2.1 VOCs

During 2003 there were no detections of VOCs above groundwater standards in wells in the Former Landfill Area (Table 6). The compounds consistently found in the Former Landfill monitoring wells include 1,1,1-trichloroethane, 1,1-dichloroethane, and chloroform. Chloroform was reported in several wells during the year at concentrations ranging from 0.25 µg/L to 3.2 µg/L, well below the groundwater standard of 7 µg/L. The other three compounds were all detected at less than 1 µg/L in well 106-30 during each sampling round.

Figure 9 shows plots of the historical VOC detections for the Former Landfill monitoring wells. During 2003, VOCs were detected at the Former Landfill in several wells, but only at trace concentrations, indicating that the cap on the landfill is operating as intended.

2.2.2.2 Water Chemistry Parameters

Groundwater samples from monitoring wells in the Former Landfill Area were analyzed for sulfate, nitrite, nitrate, total nitrogen, chloride, alkalinity, TDS (TDS or residue, non-filterable) and TSS (TSS or residue, filterable). During 2003, none of the of water chemistry parameters exceeded applicable groundwater standards (Table 7). In general, all of the landfill leachate indicator parameters were relatively low concentrations in comparison to background, and displayed either decreasing or stable trends in 2003. These trends indicate that the landfill cap is effective.

Sulfate concentrations ranged from 2.3 mg/L to 13.1 mg/L in the background wells, and from 5.5 mg/L to 21.8 mg/L in downgradient wells, significantly below the standard of 250 mg/L. Nitrogen in the form of nitrate (NO₃), and chloride were consistently low, with levels in the downgradient wells nearly indistinguishable from those in the background wells. Chloride concentrations ranged from 3.1 mg/L to 21.8 mg/L, well below the groundwater standard of 250 mg/L. Five of the eight downgradient wells showed decreasing chloride concentrations in 2003 (Figure 10).

Detections of alkalinity ranged from 1.5 mg/L to 55 mg/L in background wells and from 3.1 mg/L to 29.8 mg/L in downgradient wells. The trends plotted in Figure 10, demonstrate a steep decline in the alkalinity concentration in several of the downgradient wells during 2003. The concentrations are approaching background, and suggest a gradual decline in the release of landfill leachate since the landfill was capped.

TDS concentrations ranged from 38 mg/L to 76 mg/L in the background wells and from 25 mg/L to 85 mg/L in the downgradient wells. TSS concentrations were from 0.4 mg/L to 26.6 mg/L in the background wells, and from 0.4 mg/L to 5 mg/L in the downgradient wells.

2.2.2.3 Metals

There were only a few isolated detections of metals that exceeded the groundwater standards during 2003 (Table 8). Several metals (including aluminum, copper, iron, manganese, nickel and sodium), were detected in background/upgradient well 086-42 at concentrations exceeding groundwater standards during Round 1. These metals have historically been at or below detectable limits in these wells, and returned to low levels by the end of the year. The results from well 86-42 are therefore considered suspect. The well will continue to be analyzed for metals at a semi-annual frequency.

Thallium, which was detected at concentrations that exceeded the 0.5 µg/L groundwater standard in downgradient wells 097-64 and 106-30 in 2002, was not detected in 2003. Historical iron concentrations, plotted in Figure 11, show that concentrations have been below the 300 µg/L standard in all downgradient wells with the exception of a detection of 1,380 mg/L in well 086-72 during Round 2. Iron was not detected in this well in Round 2 and has been at or near detectable levels since 1996. Aluminum was detected at concentrations above the standard in well 106-30 during Rounds 3 and 4.

2.2.2.4 Radionuclides

There were no detections of radionuclides above the groundwater standards during 2003. The sampling results are summarized in Table 9, and concentration trend plots are shown on Figure 12.

Strontium-90 was detected in downgradient well 097-64, at a concentration of 3 pCi/L, which is well below the standard of 8 pCi/L. Gross beta was detected at concentrations equal to background in several wells and is most likely associated with strontium-90. Tritium was detected in upgradient well 86-42 at very low levels in each of the four sampling rounds with a maximum concentration of 713 pCi/L. Tritium was not detected in any other Former Landfill monitoring wells.

The only other radionuclide detection was for gross beta in wells 097-64 and 106-30 at 7.8 pCi/L and 2.8 pCi/L respectively. The groundwater standard for gross beta activity is 50 pCi/L. Gross alpha activity was detected at 1.9 pCi/L (standard is 15 pCi/L) in well 097-17. Gross alpha activity was not detected in this well during the previous three sampling rounds in 2002. Radionuclide detections in 2003 continued to be significantly reduced from historical high levels and stable.

3.0 Wooded Wetland Monitoring

Sampling at the Wooded Wetland is performed as part of the compliance monitoring for the Current Landfill. Prior to the capping of the Current Landfill, leachate was periodically observed in the wetland. The monitoring is focused on metal concentrations in the sediment and surface water to evaluate potential risks to the local Tiger Salamander population. See Appendix A for a detailed discussion of the sampling and analysis results.

Sediment

Sediment samples were collected from the Wooded Wetland Area in May 2003. The concentrations were compared to the maximum sediment concentrations reported in the ecological risk assessment (Appendix A, Table 5). The results suggest there is no elevated risk to adult salamanders from sediments in the Southern or the Northern Ponds. The results for 2003 indicate that metals concentrations in sediments are less than the maximum concentration benchmarks for copper, lead, manganese, mercury and zinc (See Appendix A, Tables 2A and 2B). The maximum doses from exposure to these sediments result in a hazard quotient that is less than 1.0. In addition, because concentrations of metals were not detected above BNL background in all but one location (sediment sample location SD-5 had a manganese concentration of 88.3 mg/kg, slightly exceeding the background concentration of 84.3 mg/kg), the metals are not considered a potential risk.

Surface Water

Surface water samples from the Southern and Northern Ponds had average iron concentrations of 963 ug/L and 1,663 ug/L, respectively. Although the average concentration from the Northern Pond was higher than the 1,000-ug/L critical toxicity concentration (Appendix A, Table 2B), it was lower than the BNL background concentration of 1,990 ug/L.

The average surface water concentration of aluminum (1,865 ug/L) was above the critical water-concentration (525 ug/L) in the Northern Pond. This value was higher than results from previous years. The critical concentration, which is an indicator of potential toxicity, is lower than background. When the averages of the surface water samples from each pond are compared to BNL's background levels, the average concentration of aluminum for the Southern Pond is below the background level of 820 ug/L, whereas, the Northern Pond exceeds the background level. With the exception of aluminum back in 2003, trends in the average concentration of aluminum have shown a general decrease, since 1999.

The average surface water concentrations of zinc in the Southern (32.10 ug/L) and Northern Ponds (51.27 ug/L) were above the critical water- concentration (23.8 ug/L). This value was higher than those of previous years. As with the iron and aluminum, the critical concentration is lower than background. The average concentration of zinc for both ponds is below the BNL background concentration of 62.9 ug/L. With the exception of zinc levels in 2003 trends in the average concentration of zinc have shown no significant change since 1999.

Based on the 2003 sampling results, annual sampling of the Wooded Wetlands should continue as part of the annual O&M landfills monitoring activities for at least another year. A complete copy of the 2003 Annual Wooded Wetlands Report is included in Appendix A of this report.

4.0 SOIL GAS MONITORING

4.1 Soil Gas Monitoring Networks

Soil gas readings were collected from wells surrounding the Current and Former Landfills in March - April, July, October, and December 2003. Methane, lower explosive limit (LEL), and hydrogen

sulfide were measured using a Landtec GA-90 (Serial # 690). The LEL for methane is 5.3% and the upper explosive limit (UEL) is 15%.

4.1.1 Current Landfill

Along the perimeter of the Current Landfill, 58 points were sampled for soil gas. The sampling points include 12 soil-gas well clusters consisting of three sampling intervals per cluster, and 11 soil-gas well couplets consisting of two sampling intervals per couplet. Table 10 describes each soil-gas well. Their locations are illustrated on Figure 13.

4.1.2 Former Landfill Area

Twenty-four sampling points were monitored for the Former Landfill Area. These points include six well couplets consisting of two sampling points per couplet. Details of each soil gas well are given in Table 10 and their locations shown in Figure 14.

4.1.3 Sampling Frequency

Soil-gas was monitored for each landfill on the following dates.

Sampling Event	Current Landfill	Former Landfill
Round 1	April 2003	March 2003
Round 2	July 2003	July 2003
Round 3	October 2003	October 2003
Round 4	December 2003	December 2003

4.2 Results of Soil-Gas Monitoring

Action levels for soil gas are specified in 6 NYCRR Part 360-2.17(f) in terms of percent LEL, which is primarily related to the amount of methane present. This discussion focuses primarily on the methane levels detected during quarterly monitoring. Hydrogen sulfide is monitored, but is not a regulatory requirement. 6 NYCRR Part 360-2.17(f) specifies that active measures to control decomposition gases are required when the concentration of methane or other explosive gases exceeds 25 percent of the LEL (or 1.3% methane) in facility structures, or 100 percent (%) of the LEL (or 5.3% methane) at the site boundary.

4.2.1 Current Landfill

A total of 23-soil gas monitoring well clusters are positioned around the Current Landfill (Figure 13). Potential receptors, or areas where methane can accumulate in the vicinity of the Current Landfill, include the National Weather Service building located 480 feet north northwest of the Current Landfill on the north side of Brookhaven Avenue. Should methane extend to the south side of Brookhaven Avenue, active measures will be required to control its migration. Four outpost soil gas wells, GSGM-1 to GSGM-4, located along the south side of Brookhaven Avenue are used to monitor the northern extent of migration of landfill gas.

The results of quarterly soil gas monitoring for 2003 are summarized in Table 11. Appendix B contains the field notes recorded during the sampling events. Instrument measurements show that methane continues to be generated in several areas of the landfill. The percent of the LEL is equivalent to 20 times the methane concentrations in the landfill and is elevated along the northwest corner and the south boundary of the Current Landfill. The highest levels were recorded in well cluster SGM-3 (ranging from 0 % of the LEL to 1,182 % of the LEL) located along the western boundary and in well cluster SGM-12 (ranging from 0 % of the LEL to 1,294 % of the LEL) located near the southern boundary. These levels have remained stable since 1996 when monitoring began and the current gas venting system appears to be controlling gas accumulation. These data are consistent with previous years (see Appendix D).

Outpost wells, GSGM-1 to GSGM-4, located along the south side of Brookhaven Avenue showed no methane during 2003, indicating that the methane accumulation and migration does not extend to this area. Should methane extend to the south side of Brookhaven Avenue, active measures will be required to control its migration.

Hydrogen sulfide is a product of anaerobic decay in landfills and can produce an odor like rotten eggs. It is a nuisance, but rarely a toxicity problem. For reference, the National Institute of Occupational Safety and Health sets an exposure limit of 10 parts per million (ppm) hydrogen sulfide in the breathing zone for an 8-hour period.

Hydrogen sulfide measurements collected from the soil gas monitoring wells ranged from 0 ppm to 191 ppm. Well SGM-19B located near the landfills southeast corner, had the highest hydrogen-sulfide concentration, considerably above the 10 ppm exposure limit; however it was taken from a vapor point screened 10.5 - 17 feet below the surface and not from the breathing zone. Like methane, receptors to hydrogen sulfide are considered to be in areas such as basements where the gas can accumulate. Based upon the readings obtained from the outpost soil gas wells along the south side of Brookhaven Avenue (GSGM-1 – GSGM-4), there is no evidence that hydrogen sulfide is migrating toward the National Weather Service building.

4.2.1.1 Trend in Soil-Gas Data

Appendix D contains the results of methane monitoring for the Current Landfill from 1996 through 2003. Generally the levels of methane and hydrogen sulfide in the wells along the northwest landfill boundary and southeast corner have remained stable.

4.2.2 Former Landfill Area

A total of 12 soil gas monitoring well clusters are positioned around the Former Landfill areas. During 2003, the well clusters were monitored on a quarterly basis. The only existing operating facilities and offices within the immediate vicinity of the Former Landfill area are located approximately 620 feet to the west. However, because these facilities do not have basements, there is minimal potential for hazardous levels of landfill gases to accumulate in these structures.

Based upon the four sampling events, little to no methane or hydrogen sulfide was detected. Table 12 details the 2003 soil gas monitoring results for the Former Landfill Area. Appendix B contains the field notes recorded during the sampling events.

4.2.2.1 Trends in Soil-Gas Data

The results of monitoring the Former Landfill continue to be consistent with the initial survey of the methane- gas migration conducted in 1995, during which concentrations between 0% to 2% methane were recorded. Hydrogen-sulfide gas also was measured during this survey and showed concentrations ranging from 0 ppm to 1 ppm. Appendix D includes the results of monitoring methane in the Former Landfill Area for 1996 through 2003.

Presently, there is no measured pathway for methane-gas migration, nor do the concentrations represent an explosive hazard as shown by the non-detect readings on the LEL meter. The age of the Former Landfill and the types of materials disposed of would likely result in the low levels or absence of methane or hydrogen sulfide.

5.0 MAINTENANCE AND REPAIR

Monthly site inspections were performed by BNL at the Current and Former Landfill areas to monitor the structural and/or operational status of the landfill cap, gas vents, drainage structure, and environmental monitoring system (groundwater wells, soil gas wells) in general accordance with the approved O&M Manuals. A copy of the inspection reports is included in Appendix C. Maintenance and repair work completed or required by BNL is discussed below.

5.1 Landfill Cap and Gas Vents

The grass cover on the Former Landfill Area and the Current Landfill were maintained in accordance with O&M Plan (CDM, 1996a and CDM 1996c). No gas vents at either landfill required repair. Lawn mowing was undertaken at both the Former and Current Landfills and the levels in some areas was allowed to grow higher to improve vegetation that is intended to protect the liner material.

5.2 Drainage Structures

The drainage structures at both the Current and Former landfill areas were maintained and any obstructions removed. They were observed to be operational and structurally sound during the site inspections. Grass and small brush were weeded from the drainage channels several times during the year. Weeds and bush were treated with herbicides in areas of the channel that are difficult to weed. Other than routine grass trimming, no additional maintenance or repair work was required.

5.3 Environmental Monitoring System

The monitoring wells and soil gas monitoring wells associated with the landfills required no significant maintenance.

5.4 Related Structures

The monitoring wells and soil gas monitoring wells associated with the landfills required no significant maintenance.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Groundwater Monitoring

6.1.1 *Conclusions for the Current Landfill*

- VOCs such as benzene, 1,1-dichloroethane and chloroethane continue to be detected in downgradient wells 087-11, 087-23, 088-109, and 088-110 at concentrations above groundwater standards. The maximum VOC concentration (chloroethane) in 2003 was 77 µg/L in well 088-109. TVOC concentrations in these four wells have ranged between 5 and 80 µg/L over the past several years indicating that low level VOCs continue to emanate from the landfill. The continued presence of leachate indicators is expected and normal, in view of the short time that the landfill has been capped, and the time needed for the transport of solutes from the upgradient end of the landfill to the downgradient monitoring network.
- Landfill water chemistry parameters and metals evaluated during the year suggest that leachate continues to emanate from the landfill. The continued presence of leachate indicators is expected and normal, in view of the short time that the landfill has been capped, and the time needed for the transport of solutes from the upgradient end of the landfill to the downgradient monitoring network.
- Tritium and Sr-90 continue to be detected in the wells downgradient of the Current Landfill, but at concentrations well below groundwater standards. These concentrations were consistent with those observed in 2002.
- Since 1998, there have been no detections of VOCs, metals, water chemistry parameters or radionuclides exceeding groundwater standards in wells 087-24, 088-22, and 088-23. These wells are all screened in the mid-to deep-Upper Glacial Aquifer to monitor the vertical extent of contamination from the Current Landfill.

- Although low levels of contaminants continue to be detected, the landfill controls are effective as evidenced by the improving quality of groundwater downgradient of the landfill.
- Sediment samples collected from the Northern and Southern Pond of the Wooded Wetland area are below the maximum sediment benchmark concentrations for the metals of concern. Since the hazard quotient is less than 1.0, there is no potential risk to the adult salamander populations from pond sediments.
- Aluminum and iron concentrations detected in the surface water samples from the Northern and Southern Ponds of the Wooded Wetland indicate a low potential for risk to larval salamanders since, the ratio of their concentrations in the water to the critical concentrations is greater than 1.0 but less than 10.

6.1.2 Recommendations for the Current Landfill

- Reduce the frequency of sampling in the mid to deep Upper Glacial wells 087-24, 088-22, and 088-23 for VOCs from semi-annually to annually. Reduce the frequency of sampling these wells for metals and water chemistry from quarterly to semi-annually. Lowering the sampling and analysis frequencies for these wells is based on the absence of any detection above groundwater standards since 1998, and the consistently low concentrations where detections were recorded. These wells are screened significantly below the depth of the contaminants' migration from the landfill, and serve as perimeter data-points for the vertical extent of contamination. Changes in the vertical migration pathway for contaminants from the Current Landfill is not anticipated.
- For the shallow downgradient wells, reduce the frequency of sampling for radionuclides from quarterly to annually. Although, tritium and strontium-90 have been detected in several wells, the concentrations are only slightly above background levels.

6.1.3 Conclusions for the Former Landfill

- The Former Landfill is no longer a significant source of VOC contamination. No VOCs were detected above groundwater standards in 2003. VOC concentrations in the downgradient wells were at or near the minimum detectable limits.
- Landfill-leachate indicators in downgradient wells continue to be detected at concentrations above background, indicating some continued generation of leachate. However, the leachate concentrations are very low and remain stable. This low level of generation is expected, given the age of the landfill.
- The Former Landfill no longer appears to be a significant source of strontium-90 contamination. Strontium-90 was only detected in a single downgradient well (097-64), but at a concentration below the standard of 8 µg/L.
- The implemented landfill controls are effective, as evidenced by the improving quality of groundwater downgradient of the landfill.

6.1.4 Recommendations for the Former Landfill

Due to the low concentrations detected, the substantial historical databases, and the stability of the VOCs and water-chemistry parameters, reduce the frequency of analysis for these parameters from quarterly to semi-annually.

6.2 Soil Gas Monitoring

6.2.1 Conclusions for the Current Landfill

Methane and hydrogen-sulfide levels in wells located along the northwest landfill boundary and southeast corner have remained stable and have not shown any significant increases or decreases over time. No significant gas migration has been observed at the outpost soil gas wells along Brookhaven Avenue.

6.2.2 Recommendations for the Current Landfill

The soil-gas monitoring program is adequate at this time, since methane gas is still being produced and leachate is continuing to discharge from the Landfill. There are no recommended changes to the monitoring program.

6.2.3 Conclusions for the Former Landfill

Methane and hydrogen sulfide levels at the Former Landfill area continue to show little to no levels of landfill gasses.

6.2.4 Recommendations for the Former Landfill

There have been little to no detections of methane and/or hydrogen sulfide during monitoring at the Former Landfill over the past 5 years. There are no recommended changes to the monitoring program.

6.3 Maintenance and Repair

Maintenance of the landfill caps will continue in accordance with the O&M requirements.

6.3.1 Current Landfill

Monthly inspections and maintenance will continue in accordance with the O&M requirements.

6.3.2 Former Landfill Area

Monthly inspections and maintenance will continue in accordance with the O&M requirements.

7.0 REFERENCES

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Table 1. Analytical Requirements for Groundwater Samples

Well ID	Project	Decision Subunit	EPA 524.2 VOCs	EPA 504 EDB	EPA 625 Semi-VOCs	Pesticides Method 608	PCBs Method 608	MTBE	TSS/TDS	Sulfates/Chloride/Alkalinity	TK Nitrogen	Total Nitrogen	Nitrates	Nitrites	Ammonia	TAL Metals	Cyanide	Hexavalent Chromium	EPA 900 Gross Alpha/Beta	Isotopic Ce -137	EPA 901 Gamma Spec	EPA 906 Tritium	EPA 905 Sr 90	Blind Duplicate/MS/MSD	Frequency (events/year)	
087-09	CLF	Background	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
087-11	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
087-23	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
087-24	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
087-26	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
087-27	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
088-109	CLF	Downgradient	X						X	X	X	X	X	X	X	X	X		X		X	X	X	X	4	
088-110	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
088-21	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
088-22	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
088-23	CLF	Downgradient	Xb						X	X	X	X	X	X	X	X	X		X		X	X	X		4	
086-42	FLF	Background	X ^a		X ^a	X ^a			X	X	X	X	X	X	X	X	Xb	X	X ^a		X ^a	X ^a	X	X ^a		4
086-72	FLF	Background	X ^a		X ^a	X ^a			X	X	X	X	X	X	X	X	Xb	X	X ^a		X ^a	X ^a	X ^a	X ^a		4
087-22	FLF	Background	X ^a		X ^a	X ^a			X	X	X	X	X	X	X	X	Xb	X	X ^a		X ^a	X ^a	X ^a	X ^a		4
097-17	FLF	Downgradient	X		X ^a	X ^a			X	X	X	X	X	X	X	X	Xb	X	X ^a		X ^a	X ^a	X ^a	X ^a		4
097-277	FLF	Downgradient	X		X ^a	X ^a			X	X	X	X	X	X	X	X	Xb	X	X ^a		X ^a	X ^a	X ^a	X ^a		4
097-64	FLF	Downgradient	X		X ^a	X ^a			X	X	X	X	X	X	X	X	Xb	X	X ^a		X ^a	X ^a	X ^a	X ^a		4
106-02	FLF	Downgradient	X		X ^a	X ^a			X	X	X	X	X	X	X	X	Xb	X	X ^a		X ^a	X ^a	X ^a	X ^a		4
106-30	FLF	Downgradient	X		X ^a	X ^a			X	X	X	X	X	X	X	X	Xb	X	X ^a		X ^a	X ^a	X ^a	X ^a	X	4

a: Collect in 4th Quarter only.

b: Collect in 2nd and 4th Quarters.

Table 2. Current Landfill - Summary of 2003 VOC Data

Analyte	Groundwater Standards ug/L	087-09		087-11		087-23		087-24	
		4/9/03 (ug/L)	10/1/03 (ug/L)	4/9/03 (ug/L)	10/1/03 (ug/L)	4/9/03 (ug/L)	10/1/03 (ug/L)	4/9/03 (ug/L)	10/1/03 (ug/L)
1,1,1,2-Tetrachloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	0.04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	1	0.5 U	0.5 U	2.6	2	0.45 J	0.74	0.5 U	0.5 U
Benzene, 1,2,4-trimethyl	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene, 1,3,5-trimethyl-	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene, 1-methylethyl-	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	5	0.5 U	0.5 U	0.79	0.5 U	0.33 J	0.77	0.5 U	0.5 U
Chlorobromomethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	5	0.5 U	0.5 U	7.4	7	3.8	6.3	0.5 U	0.5 U
Chloroform	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cymene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DBCP	0.04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
EDB	0.05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethene, 1,2-dichloro-, (E)-	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m/p xylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl bromide	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl chloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	10		0.5 U		0.5 U		0.5 U		0.5 U
Methylene chloride	5	0.34 U	0.5 U	0.8 B	0.5 U	0.76 B	0.55	0.74 B	0.5 U
n-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Chlorotoluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Dichlorobenzene	3	0.5 U	0.5 U	0.36 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
524.2 TVOC	--	0	0	11.95	9	5.34	8.36	0.74	0

ug/L - Micrograms per liter.
 U - Not detected.
 J - Estimated value.
 -- No standard available.

Table 2. Current Landfill - Summary of 2003 VOC Data

Analyte	Groundwater Standards ug/L	087-26	087-26	087-27	087-27	088-109	088-109	088-109	088-109
		4/9/03 (ug/L)	10/1/03 (ug/L)	4/9/03 (ug/L)	10/1/03 (ug/L)	1/13/03 (ug/L)	4/9/03 (ug/L)	7/21/03 (ug/L)	10/1/03 (ug/L)
1,1,1,2-Tetrachloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,1,1-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,1,2,2-Tetrachloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,1,2-Trichloroethane	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,1-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	1.3	0.5 U	26	2.4
1,1-Dichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,1-Dichloropropene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,2,3-Trichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,2,3-Trichloropropane	0.04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,2,4-Trichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,2-Dichloroethane	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,2-Dichloropropane	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
1,3-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
2,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Benzene	1	0.5 U	0.5 U	0.5 U	1	0.5 U	0.5 U	1.8 U	0.5 U
Benzene, 1,2,4-trimethyl	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Benzene, 1,3,5-trimethyl-	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Benzene, 1-methylethyl-	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Bromobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Bromodichloromethane	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Bromoform	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Carbon tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Chlorobenzene	5	0.5 U	0.5 U	0.5 U	0.73	0.5 U	0.5 U	1.8 U	0.5 U
Chlorobromomethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Chloroethane	5	0.5 U	0.5 U	0.97	4.4	10.2	0.87	77	14
Chloroform	7	0.5 U	0.5 U	0.78	0.5 U	0.35 J	0.58	1.8 U	0.5 U
cis-1,2-Dichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
cis-1,3-Dichloropropene	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Cymene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
DBCP	0.04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Dibromochloromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Dibromomethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Dichlorodifluoromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
EDB	0.05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Ethene, 1,2-dichloro-, (E)-	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Ethylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Hexachlorobutadiene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
m-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
m/p xylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Methyl bromide	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Methyl chloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Methyl tert-butyl ether	10		0.5 U		0.5 U			1.8 U	0.5 U
Methylene chloride	5	0.7 B	0.5 U	0.87 B	0.5 U	0.5 U	0.41 U	1.8 U	0.5 U
n-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
n-Propylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Naphthalene	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.84 J	0.5 U
o-Chlorotoluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
o-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
o-Xylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
p-Chlorotoluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
p-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
sec-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Styrene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
tert-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Tetrachloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Toluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
trans-1,3-Dichloropropene	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Trichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Trichlorofluoromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
Vinyl chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U	0.5 U
524.2 TVOC	--	0.7	0	2.62	6.13	11.85	1.45	103.84	16.4

ug/L - Micrograms per liter.
 U - Not detected.
 J - Estimated value.
 -- No standard available.

Table 2. Current Landfill - Summary of 2003 VOC Data

Analyte	Groundwater Standards ug/L	088-110	088-110	088-21	088-21	088-22	088-22	088-23
		4/9/03 (ug/L)	10/1/03 (ug/L)	4/9/03 (ug/L)	10/1/03 (ug/L)	4/9/03 (ug/L)	10/1/03 (ug/L)	4/9/03 (ug/L)
1,1,1,2-Tetrachloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	5	2.9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	0.04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	1	1.3	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene, 1,2,4-trimethyl	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene, 1,3,5-trimethyl-	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene, 1-methylethyl-	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	5	0.39 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobromomethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	5	15.6	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cymene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DBCP	0.04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
EDB	0.05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethene, 1,2-dichloro-, (E)-	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	5	0.29 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m/p xylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl bromide	5	0.5 U	0.5 U	0.5 U	0.57	0.5 U	0.5 U	0.5 U
Methyl chloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether	10		0.5 U		0.5 U		0.5 U	
Methylene chloride	5	0.88 B	0.5 U	0.41 U	0.5 U	0.88 U	0.5 U	0.34 U
n-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Chlorotoluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Dichlorobenzene	3	0.45 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	2	0.25 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
524.2 TVOC	--	22.06	5.6	0	0.57	0	0	0

ug/L - Micrograms per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 3. Current Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	087-09 1/13/2003 (mg/L)	087-09 4/9/2003 (mg/L)	087-09 7/21/2003 (mg/L)	087-09 10/1/2003 (mg/L)	087-11 1/13/2003 (mg/L)	087-11 4/9/2003 (mg/L)	087-11 7/21/2003 (mg/L)	087-11 10/1/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	27.7	28.8	123	43	43.2	93.5	140	209
Ammonia (as N)	2	0.03 J	0.3	1.46 J	0.52	1.91	3.35	2.63 J	0.05 U
Chloride	250	43.6	34.5	12.5	21.8 J	31.2	32.8	38.3	51.5 J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 U	0.005 U	0.00172 U	0.00172 U	0.005 U	0.005 U
Nitrate (as N)	10	1.56	0.0341 U	0.02 U	0.059	0.205	0.0341 U	0.02 U	0.02 U
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	2	1.01	1.8	0.54	2.06	3.26	1.7	0.15 U
Residue, filterable	--	139	111	143	84	186	9 U	213	266
Residue, non-filterable	--	1.86 J	18.3 J	24	5	15.8	21.3	27	31
Sulfate	250	13.8	12.1	2.3	7.3	13.7	12.1	14.1	10
Total Kjeldahl Nitrogen	--	0.24	0.992	1.8 J	0.48	2.05	3.26	1.7 J	0.1 U

mg/L - Miligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 3. Current Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	087-23 1/13/2003 (mg/L)	087-23 4/9/2003 (mg/L)	087-23 7/22/2003 (mg/L)	087-23 10/1/2003 (mg/L)	087-24 1/13/2003 (mg/L)	087-24 4/9/2003 (mg/L)	087-24 7/22/2003 (mg/L)	087-24 10/1/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	104	72	71	115	10.3	19.5 U	24	5 U
Ammonia (as N)	2	0.81	0.38	0.584	0.5	0.024 U	0.06	0.05 U	0.05 U
Chloride	250	7.5	5.31	7.2	14.8 J	14.8	19.4	17.6	16.6 J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 UJ	0.005 UJ	0.00172 U	0.00172 U	0.005 UJ	0.005 UJ
Nitrate (as N)	10	0.0341 U	0.0341 U	0.02 U	0.02 U	0.414	0.385	0.46 J	0.47
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	0.86	0.617 U	0.14 U	0.59	0.54	0.655 U	0.46	0.47
Residue, filterable	--	134	88 U	108	120	61	75 U	62	34
Residue, non-filterable	--	9.9	18.6	19	11	0.382 U	0.382 U	1 U	1
Sulfate	250	7.47	5.02	3.8	6.5	11.3	15.3	14	11.9
Total Kjeldahl Nitrogen	--	0.86	0.617 U	0.1 U	0.59	0.07 J	0.215 U	0.1 U	0.1 U

mg/L - Miligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 3. Current Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	087-26 1/13/2003 (mg/L)	087-26 4/9/2003 (mg/L)	087-26 7/21/2003 (mg/L)	087-26 10/1/2003 (mg/L)	087-27 1/13/2003 (mg/L)	087-27 4/9/2003 (mg/L)	087-27 7/21/2003 (mg/L)	087-27 10/1/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	14.4	13.4 U	26	5 U	97.6	83.3	75	132
Ammonia (as N)	2	0.024 U	0.03 J	0.05 UJ	0.05 U	1.95	2.16	0.443 J	0.75
Chloride	250	12.6	13.5	14	15.4 J	23.5	18.3	4.3	18.3 J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 U	0.005 UJ	0.00882	0.00172 U	0.005 U	0.005 UJ
Nitrate (as N)	10	0.387	0.393	0.43	0.42	0.152	0.0341 U	0.02 U	0.02 U
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	0.5	0.675 U	0.85	0.42	1.73	2.43	0.14 U	0.9
Residue, filterable	--	60	60 U	61	62	189	132 U	78	187
Residue, non-filterable	--	0.7 J	3.79	2	4	18.8	34.7	18	25
Sulfate	250	10.9	10.7	10.2	10.3	17.4	15.5	5.5	11.4
Total Kjeldahl Nitrogen	--	0.08 J	0.265 U	0.42 J	0.1 U	1.65	2.43	0.1 UJ	0.9

mg/L - Miligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 3. Current Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	088-109 1/13/2003 (mg/L)	088-109 4/9/2003 (mg/L)	088-109 7/21/2003 (mg/L)	088-109 10/1/2003 (mg/L)	088-110 1/13/2003 (mg/L)	088-110 4/9/2003 (mg/L)	088-110 7/21/2003 (mg/L)	088-110 10/1/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	19.5	38	144	126	80.1	130	126	121
Ammonia (as N)	2	0.83	0.69	1.53 J	2.1	1.51	3.63	1.53 J	1.9
Chloride	250	14.6	13.7	16.2	13.4 J	19.3	18.6	18.9	15.6 J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 U	0.005 UJ	0.00172 U	0.00172 U	0.005 U	0.005 U
Nitrate (as N)	10	0.0341 U	0.0341 U	0.02 U	0.028	0.0341 U	0.0341 U	0.02 U	0.02 U
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	1.12	0.654	1.1	1.9	1.57	3.89	1.7	1.5
Residue, filterable	--	85	109	175	195	182	246 U	183	159
Residue, non-filterable	--	3.53	3.58	38	16	15.1	26.3	26	22
Sulfate	250	25.4	27.6	16.3	22.9	18.8	20.7	18.5	19
Total Kjeldahl Nitrogen	--	1.12	0.614	1.1 J	1.9	1.57	3.89	1.7 J	1.5

mg/L - Miligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 3. Current Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	088-21 1/13/2003 (mg/L)	088-21 4/9/2003 (mg/L)	088-21 7/22/2003 (mg/L)	088-21 10/1/2003 (mg/L)	088-22 1/13/2003 (mg/L)	088-22 4/9/2003 (mg/L)	088-22 7/22/2003 (mg/L)	088-22 10/1/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	25.7	29.8	55	35	24.7	13.4	36	30
Ammonia (as N)	2	0.024 U	0.024 U	0.05 U	0.05 U	0.024 U	0.03 J	0.05 U	0.05 U
Chloride	250	11.9	66.4	18	26.9 J	19.9	20.2	14.7	14.2 J
Cyanide	0.2	0.00172 U	0.00172 U	0.0058 J	0.005 U	0.00172 U	0.00172 U	0.005 UJ	0.005 U
Nitrate (as N)	10	0.551	0.561	0.082 J	0.05	0.0341 U	0.0341 U	0.02 U	0.02 U
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	0.71	0.972	0.086 B	0.15 U	0.06 J	0.24	0.14 U	0.15 U
Residue, filterable	--	55	160	95	97	73	91	66	70
Residue, non-filterable	--	3.51	2.33 J	2	1	14.8	56.4	41	33
Sulfate	250	4.98 J	5.26	5	4	11.9	13.9	15.6	14.3
Total Kjeldahl Nitrogen	--	0.07 J	0.272	0.1 U	0.1 U	0.06 J	0.24	0.1 U	0.1 U

mg/L - Miligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 3. Current Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	088-23 1/13/2003 (mg/L)	088-23 4/9/2003 (mg/L)	088-23 7/22/2003 (mg/L)	088-23 10/1/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	29.8	37	29	29
Ammonia (as N)	2	0.024 U	0.06	0.05 U	0.05 U
Chloride	250	18.8	19.3	19	18.2 J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 UJ	0.005 U
Nitrate (as N)	10	0.0341 U	0.0341 U	0.015 BJ	0.02 U
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	0.08 J	0.259	0.015 B	0.15 U
Residue, filterable	--	91	95	94	94
Residue, non-filterable	--	7.2	6.7	7	7
Sulfate	250	13.7	14.5	14.6	13.9
Total Kjeldahl Nitrogen	--	0.08 J	0.259	0.1 U	0.1 U

mg/L - Miligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 4. Current Landfill - Summary of 2003 Metals Data

<i>Analyte</i>	<i>Groundwater Standards* ug/L</i>	087-09 1/13/2003 (ug/L)	087-09 4/9/2003 (ug/L)	087-09 7/21/2003 (ug/L)	087-09 10/1/2003 (ug/L)	087-11 1/13/2003 (ug/L)	087-11 4/9/2003 (ug/L)	087-11 7/21/2003 (ug/L)	087-11 10/1/2003 (ug/L)
Aluminum	200	47.9 B	39.4 B	170 B	265	69.1 B	199 B	26 B	108
Antimony	3	6.61 U	6.81 U	5 U	5 U	6.61 U	6.81 U	5 U	5 U
Arsenic	10	2.89 U	4.1 U	5.5 B	5.7	2.89 U	4.1 U	6.3 B	9.2
Barium	1000	37.1 B	36.1 B	67.4 B	29.3	26.5 B	38.2 B	32.3 B	56.2
Beryllium	3	0.37 U	0.133 U	2 U	0.38 B	0.37 U	0.133 U	2 U	0.39 B
Cadmium	5	0.403 U	0.807 U	2 U	2 U	0.403 U	0.807 U	2 U	2 U
Calcium	--	11100	9650	13800	5830	15100	20300	17300	25200
Chromium	50	17.6	1.37 U	7 B	2.7 B	1.44 U	2.04 B	1.1 B	2.6 B
Cobalt	--	1.29 U	2.28 B	9.3 B	1.5 B	1.29 U	3.28 B	1.2 B	0.59 B
Copper	200	1.57 U	3.91 U	12.6 B	2.4 B	1.63 B	3.91 U	8 B	10 U
Iron	300	235	3450	31700 J	10200	49800	63700	49300 J	68100
Lead	25	1.78 U	2.67 U	3 U	3 U	1.78 U	2.67 U	3 U	3 U
Magnesium	35000	4450 B	4440 B	5700	2730	3500 B	5300	5500	7640
Manganese	300	29.6	1070	7200	1350	2180	2710	2250	2730
Mercury	0.7	0.052 U	0.075 B	0.2 U	0.2 U	0.052 U	0.052 U	0.2 U	0.2 U
Nickel	100	22.8 B	3.28 B	1.3 B	10 U	1.02 U	2.82 U	1.4 B	10 U
Potassium	--	3030 B	1380 B	2000 U	2510	4980 B	5920	4310 B	9540
Selenium	10	3.66 U	4.2 U	5 U	5 U	3.66 U	4.2 U	5 U	5 U
Silver	50	1.17 U	2.5 U	0.86 B	2 U	1.17 U	2.5 U	2 U	2 U
Sodium	20000	30600	17500	7600	12700	16300	17500	21000	28600
Thallium	0.5	6.56 U	6.27 U	10.2	5 U	6.56 U	6.27 U	15	4.1 B
Vanadium	--	1.54 U	3.12 U	2.4 B	0.64 B	1.54 U	3.12 U	1.9 B	2.8 B
Zinc	2000	3.08 B	0.494 U	4.5 B	5 B	6.18 B	0.494 U	10 U	10 U

ug/L - Micrograms per liter.

-- No standard available.

U - Not detected.

B - Result is between the contract required
detection limit and instrument detection limit.

J - Estimated value.

Table 4. Current Landfill - Summary of 2003 Metals Data

<i>Analyte</i>	<i>Groundwater Standards* ug/L</i>	087-23 1/13/2003 (ug/L)	087-23 4/9/2003 (ug/L)	087-23 7/22/2003 (ug/L)	087-23 10/1/2003 (ug/L)	087-24 1/13/2003 (ug/L)	087-24 4/9/2003 (ug/L)	087-24 7/22/2003 (ug/L)	087-24 10/1/2003 (ug/L)
Aluminum	200	35.5 U	19.9 U	50 U	50 U	35.5 U	19.9 U	50 U	50 U
Antimony	3	6.61 U	6.81 U	5 U	5 U	6.61 U	6.81 U	5 U	5 U
Arsenic	10	7.8	6.75 B	8.1 B	12.5	2.89 U	4.1 U	5 U	5 U
Barium	1000	33.8	19.6 B	34.8 B	31.6	11	13.6 B	12 B	11.5 B
Beryllium	3	0.37 U	0.133 U	2 U	0.56 B	0.37 U	0.133 U	2 U	0.71 B
Cadmium	5	0.403 U	0.807 U	2 U	2 U	0.403 U	0.807 U	2 U	2 U
Calcium	--	6140 J	4250 B	4860 B	5520	3670 J	4480 B	3640 B	3980
Chromium	50	1.44 U	1.37 U	5 U	5 U	1.44 U	1.37 U	5 U	0.94 B
Cobalt	--	1.29 U	1.88 U	3.4 B	2 B	1.29 U	1.88 U	1.3 B	1.1 B
Copper	200	1.57 U	3.91 U	6.6 B	10 U	1.57 U	3.91 U	10 U	10 U
Iron	300	53300 J	33600	49900 J	46500 J	39.2 JB	32.9 B	19 JB	41.1 JB
Lead	25	1.78 U	2.67 U	3 U	3 U	1.78 U	2.67 U	3 U	3 U
Magnesium	35000	1900	1710 B	1420 B	1930	2800	3430 B	2660 B	2620
Manganese	300	6200 J	6220	7400	5840	2.53 B	0.656 B	2.2 B	2.2 B
Mercury	0.7	0.052 U	0.052 U	0.2 U	0.2 U	0.052 U	0.052 U	0.2 U	0.2 U
Nickel	100	1.02 U	2.82 U	10 U	10 U	1.02 U	2.82 U	10 U	10 U
Potassium	--	1080 J	742 B	2000 U	1720 B	1270 J	1500 B	2000 U	2930
Selenium	10	3.66 U	4.2 U	5 U	5 U	3.66 U	4.2 U	5 U	5 U
Silver	50	1.17 U	2.5 U	0.95 B	2 U	1.17 U	2.5 U	2 U	2 U
Sodium	20000	5630	3530 B	3510 B	7470	10400	12500	13300	12800
Thallium	0.5	6.56 U	6.27 U	16.2	5 U	6.56 U	6.27 U	5 U	5 U
Vanadium	--	1.54 U	3.12 U	1.4 B	1.4 B	1.54 U	3.12 U	5 U	5 U
Zinc	2000	7.56 J	0.494 U	4.7 B	10 U	0.871 JB	0.494 U	10 U	3.6 B

ug/L - Micrograms per liter.

-- No standard available.

U - Not detected.

B - Result is between the contract required detection limit and instrument detection

J - Estimated value.

Table 4. Current Landfill - Summary of 2003 Metals Data

<i>Analyte</i>	<i>Groundwater Standards* ug/L</i>	087-26 1/13/2003 (ug/L)	087-26 4/9/2003 (ug/L)	087-26 7/21/2003 (ug/L)	087-26 10/1/2003 (ug/L)	087-27 1/13/2003 (ug/L)	087-27 4/9/2003 (ug/L)	087-27 7/21/2003 (ug/L)	087-27 10/1/2003 (ug/L)
Aluminum	200	35.5 U	19.9 U	50 U	21.9 B	43.3 B	48.5 B	50 U	88.8
Antimony	3	6.61 U	6.81 U	5 U	5 U	6.61 U	6.81 U	5 U	5 U
Arsenic	10	2.89 U	4.1 U	5 U	1.7 B	3.73 B	4.1 U	1.7 B	5.5
Barium	1000	14.9	14.5 B	15.6 B	16.6 B	37.4	22.5 B	11.3 B	35.8
Beryllium	3	0.37 U	0.133 U	2 U	0.23 B	0.37 U	0.133 U	2 U	0.27 B
Cadmium	5	0.403 U	0.807 U	2 U	2 U	0.403 U	0.807 U	2 U	2 U
Calcium	--	2870 J	2790 B	3090 B	3380	25100 J	20600	13400	20200
Chromium	50	1.44 U	1.37 U	5 U	5 U	1.44 U	1.37 U	5 U	5 U
Cobalt	--	1.29 U	1.88 U	5 U	0.67 B	3.53 B	1.88 U	2 B	6.1
Copper	200	4.57 B	4.37 B	6.3 B	3.9 B	1.57 U	3.91 U	2.7 B	10 U
Iron	300	242 J	823	748 J	1100	34100 J	19700	13900 J	43600
Lead	25	1.78 U	2.67 U	3 U	3 U	1.78 U	2.67 U	3 U	3 U
Magnesium	35000	2040	2010 B	2150 B	2260	5650	6200	4590 B	2800
Manganese	300	2.59 JB	8.07 B	9.5 B	18.8	2950 J	2240	667	2140
Mercury	0.7	0.052 U	0.052 U	0.2 U	0.2 U	0.052 U	0.052 U	0.2 U	0.2 U
Nickel	100	1.02 U	2.82 U	1.3 B	10 U	1.02 U	2.82 U	10 U	10 U
Potassium	--	791 J	831 B	2000 U	2160	4430 J	3440 B	2000 U	4480
Selenium	10	3.66 U	4.2 U	5 U	5 U	3.66 U	4.2 U	5 U	5 U
Silver	50	1.17 U	2.5 U	2 U	2 U	1.17 U	2.5 U	2 U	2 U
Sodium	20000	13500	12500	12300	13300	17300	11400	2560 B	13300
Thallium	0.5	6.56 U	6.27 U	5 U	5 U	6.56 U	6.27 U	4.6 B	5 U
Vanadium	--	1.54 U	3.12 U	5 U	5 U	1.54 U	3.12 U	5 U	1.4 B
Zinc	2000	0.926 JB	0.494 U	4.7 B	3.8 B	2.15 JB	0.494 U	3.7 B	10 U

ug/L - Micrograms per liter.

-- No standard available.

U - Not detected.

B - Result is between the contract required detection limit and instrument detection

J - Estimated value.

Table 4. Current Landfill - Summary of 2003 Metals Data

<i>Analyte</i>	<i>Groundwater Standards* ug/L</i>	088-109 1/13/2003 (ug/L)	088-109 4/9/2003 (ug/L)	088-109 7/21/2003 (ug/L)	088-109 10/1/2003 (ug/L)	088-110 1/13/2003 (ug/L)	088-110 4/9/2003 (ug/L)	088-110 7/21/2003 (ug/L)	088-110 10/1/2003 (ug/L)
Aluminum	200	35.5 U	62.9 B	47.4 B	50 U	35.5 U	20.1 B	50 U	50 U
Antimony	3	6.61 U	6.81 U	5 U	5 U	6.61 U	6.81 U	5 U	5 U
Arsenic	10	2.89 U	4.1 U	5.3 B	7.1	7.57 B	6.83 B	5.1 B	10.2
Barium	1000	20.9	14.7 B	71.7 B	72.9	37.7 B	56.6 B	47.3 B	36.8
Beryllium	3	0.37 U	0.133 U	2 U	0.2 B	0.37 U	0.133 U	2 U	0.31 B
Cadmium	5	0.403 U	0.807 U	2 U	2 U	0.403 U	0.807 U	2 U	2 U
Calcium	--	9300 J	9190	26700	28300	20600	29600	20200	17000
Chromium	50	1.44 U	1.37 U	5 U	5 U	1.44 U	1.37 U	5 U	5 U
Cobalt	--	1.29 U	1.88 U	5.2 B	4.2 B	1.4 B	6.66 B	2.9 B	2.8 B
Copper	200	1.57 U	3.91 U	1.9 B	10 U	1.57 U	3.91 U	6.3 B	10 U
Iron	300	790 J	1320	35400 J	34000	39100	58200	43500 J	46800
Lead	25	1.78 U	2.67 U	3 U	3 U	1.78 U	2.67 U	3 U	3 U
Magnesium	35000	4660	4530 B	5880	6220	4560 B	7050	5020	3860
Manganese	300	147 J	302	1210	1150	3210	3710	4170	3320
Mercury	0.7	0.052 U	0.052 U	0.2 U	0.2 U	0.052 U	0.054 B	0.2 U	0.2 U
Nickel	100	1.02 U	2.82 U	2.5 B	10 U	1.02 U	2.82 U	10 U	10 U
Potassium	--	1160 J	960 B	7590	6360	4060 B	6490	2080 B	5950
Selenium	10	3.66 U	4.2 U	5 U	5 U	3.8 B	4.2 U	5 U	5 U
Silver	50	1.17 U	2.5 U	2 U	2 U	1.17 U	2.5 U	2 U	2 U
Sodium	20000	8950	7950	10700	9910	15200	17300	14000	12000
Thallium	0.5	6.56 U	6.27 U	9.7 B	5 U	6.56 U	6.27 U	11.9	5 U
Vanadium	--	1.54 U	3.12 U	1.3 B	0.89 B	1.54 U	3.12 U	1.3 B	1.2 B
Zinc	2000	1.37 JB	0.494 U	4.5 B	10 U	2 B	0.494 U	10 U	10 U

ug/L - Micrograms per liter.

-- No standard available.

U - Not detected.

B - Result is between the contract required detection limit and instrument detection

J - Estimated value.

Table 4. Current Landfill - Summary of 2003 Metals Data

Analyte	Groundwater Standards* ug/L	088-21 1/13/2003 (ug/L)		088-21 4/9/2003 (ug/L)		088-21 7/22/2003 (ug/L)		088-21 10/1/2003 (ug/L)		088-22 1/13/2003 (ug/L)		088-22 4/9/2003 (ug/L)		088-22 7/22/2003 (ug/L)		088-22 10/1/2003 (ug/L)	
Aluminum	200	168	B	64.1	B	50	U	23.7	B	35.5	U	19.9	U	50	U	50	U
Antimony	3	6.61	U	6.81	U	5	U	5	U	6.61	U	6.81	U	5	U	5	U
Arsenic	10	2.89	U	4.1	U	5	U	5	U	9.99	B	25.2		21.2		28.1	
Barium	1000	11.8	B	8.61	B	4	B	5.3	B	28.4	B	30	B	32.7	B	33	
Beryllium	3	0.37	U	0.133	U	2	U	0.34	B	0.37	U	0.133	U	2	U	0.33	B
Cadmium	5	0.403	U	0.807	U	2	U	2	U	0.403	U	0.807	U	2	U	2	U
Calcium	--	4220	B	10600		8900		7780		4380	B	4050	B	3950	B	3500	
Chromium	50	1.44	U	1.37	U	0.62	B	0.68	B	1.44	U	1.37	U	5	U	5	U
Cobalt	--	1.29	U	1.88	U	5	U	5	U	2.64	B	2.59	B	3.4	B	3.5	B
Copper	200	1.57	U	3.91	U	6.2	B	10	U	1.57	U	3.91	U	2.4	B	10	U
Iron	300	185		75.9	B	85.6	JB	792	J	8900		23100		15400	J	17200	J
Lead	25	1.78	U	2.67	U	3	U	3	U	1.78	U	2.67	U	3	U	3	U
Magnesium	35000	2150	B	5260		3950	B	3700		1030	B	1080	B	1070	B	904	
Manganese	300	16.2		6.93	B	49.1		114		846		873		989		927	
Mercury	0.7	0.052	U	0.052	U	0.2	U	0.2	U	0.052	U	0.052	U	0.2	U	0.2	U
Nickel	100	1.02	U	2.82	U	10	U	10	U	2.95	B	3.63	B	3.5	B	2.3	B
Potassium	--	1260	B	1110	B	2000	U	2150		1360	B	1410	B	2000	U	1970	B
Selenium	10	4.15	B	4.2	U	5	U	5	U	3.66	U	4.2	U	5	U	5	U
Silver	50	1.17	U	2.5	U	2	U	2	U	1.17	U	2.5	U	2	U	2	U
Sodium	20000	13700		37700		24500		18300		17700		17400		14900		15100	
Thallium	0.5	6.56	U	6.27	U	5	U	5	U	6.56	U	6.27	U	6	B	5	U
Vanadium	--	1.54	U	3.12	U	5	U	5	U	1.54	U	3.12	U	5	U	5	U
Zinc	2000	1.77	B	0.494	U	10	U	3.7	B	1.27	B	0.494	U	10	U	10	U

ug/L - Micrograms per liter.

-- No standard available.

U - Not detected.

B - Result is between the contract required detection limit and instrument detection

J - Estimated value.

Table 4. Current Landfill - Summary of 2003 Metals Data

<i>Analyte</i>	<i>Groundwater Standards* ug/L</i>	088-23 1/13/2003 (ug/L)	088-23 4/9/2003 (ug/L)	088-23 7/22/2003 (ug/L)	088-23 10/1/2003 (ug/L)
Aluminum	200	35.5 U	56.2 B	50 U	50 U
Antimony	3	6.61 U	6.81 U	5 U	5 U
Arsenic	10	2.99 B	4.1 U	3.2 B	3.5 B
Barium	1000	3.75 B	3.71 B	4 B	3.6 B
Beryllium	3	0.37 U	0.133 U	2 U	0.33 B
Cadmium	5	0.403 U	0.807 U	2 U	2 U
Calcium	--	10100	11300	11100	8810
Chromium	50	1.44 U	1.37 U	5 U	5 U
Cobalt	--	1.29 U	1.88 U	0.63 B	5 U
Copper	200	1.57 U	3.91 U	10 U	10 U
Iron	300	3840	2880	3410 J	3620 J
Lead	25	1.78 U	2.67 U	3 U	3 U
Magnesium	35000	2710 B	2670 B	2620 B	2320
Manganese	300	1930	1600	2030	2130
Mercury	0.7	0.052 U	0.052 U	0.2 U	0.2 U
Nickel	100	1.02 U	2.82 U	10 U	10 U
Potassium	--	551 B	576 B	2000 U	2000 U
Selenium	10	3.66 U	4.2 U	5 U	5 U
Silver	50	1.17 U	2.5 U	2 U	2 U
Sodium	20000	14400	13300	13500	14100
Thallium	0.5	6.56 U	6.27 U	5 U	5 U
Vanadium	--	1.54 U	3.12 U	5 U	5 U
Zinc	2000	1.23 B	0.494 U	4.3 B	10 U

ug/L - Micrograms per liter.

-- No standard available.

U - Not detected.

B - Result is between the contract required detection limit and instrument detection

J - Estimated value.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	087-09 1/13/2003 pCi/L				087-09 4/9/2003 pCi/L				087-09 7/21/2003 pCi/L				087-09 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	1.39	U	13.6	7.83	0.567	U	4.27	2.79	5.4	U	18	8.9	-8.5	U	14	8.9
Beryllium-7	40000	-0.683	U	19.8	11.3	-0.459	U	21.8	12.3	-18	U	83	47	-26	U	86	50
Cesium-134	80	1.17	U	1.89	1.35	-0.411	U	2.19	1.27	-2.8	U	12	6.9	-3.6	U	14	7.9
Cesium-137	120	0.357	U	2.25	1.27	0.523	U	2.6	1.45	-1.9	U	16	7.6	-1.4	U	15	8.1
Co-60	200	0.647	U	2.2	1.13	0.792	U	2.81	1.49	-7.1	U	14	7.4	2.7	U	17	7.2
Cobalt-57	4000	-0.368	U	2	1.19	0.193	U	1.8	1.02	1.5	U	6.6	3.6	0.6	U	6.8	3.8
Europium-152	841	2.92	U	6.61	3.61	-0.518	U	6.69	4.01	32	U	130	56	15	U	130	64
Europium-154	573	2.57	U	7.15	3.73	0.323	U	7.62	4.21	19	U	120	57	39	U	160	80
Europium-155	4000	-0.304	U	8.44	4.96	2.59	U	7.21	4.41	-4	U	23	13	-6	U	25	14
Gross Alpha	15	0.0885	U	0.657	0.367	1.6	UJ-DL	2.03	1.12	0.5	U	1.7	0.95	-0.35	U	1.4	0.67
Gross Beta	1000	1.82	J	1.13	0.715	3.3	J	1.06	0.703	3	J	1.9	1.3	1.4	U	1.9	1.2
Manganese-54	2000	-1.48	U	1.88	1.23	0.187	U	2.58	1.48	-4.3	U	11	6.4	-3.2	U	11	6
Sodium-22	10000	0.937	U	2.56	1.33	0.119	U	2.73	1.51	-0.02	U	11	4.6	0.04	U	17	8.3
Strontium-90	8	0.343	U	0.456	0.228	0.64	J	0.451	0.251	0.43	U	0.7	0.44	0.83	U	0.86	0.57
Tritium	20000	147	U	373	220	164	U	362	215	-6	U	270	160	-210	U	370	210
Zinc-65	360	1.51	U	4.56	2.67	1.1	U	5.53	2.97	-9	U	32	18	-11	U	31	18

- pCi/L - Picocuries per Liter.
- Qual - Qualification
- MDA - Minimal detectable activity
- U - Not detected
- J - Estimated value
- I - Interference noted by the analyst.
- T - Low chemical yield reported.
- N2 - Activity is less than the sum of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	087-11 1/13/2003 pCi/L				087-11 4/9/2003 pCi/L				087-11 7/21/2003 pCi/L				087-11 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-0.106	U	12.3	7.67	3.38	U	12.8	7.1	-7.1	U	15	9.2	-1.2	U	16	8.8
Beryllium-7	40000	-5.05	U	19.3	11.2	-7.26	U	20.7	12	6	U	95	49	10	U	89	45
Cesium-134	80	0.805	U	1.94	1.85	1.19	U	2.17	1.08	-9	U	13	8.2	-6.8	U	9.6	6.4
Cesium-137	120	1.11	U	2.26	1.18	0.0769	U	2.36	1.31	3.1	U	15	7.2	-1.2	U	17	8.5
Co-60	200	0.239	U	2.47	1.32	-0.54	U	2.43	1.37	-2.6	U	18	9.4	2.4	U	22	9.1
Cobalt-57	4000	-0.32	U	1.88	1.1	0.264	U	2.04	1.17	0.8	U	6.6	3.6	-1.5	U	5.3	3.2
Europium-152	841	4.18	U	7.04	3.99	0.64	U	6.71	3.95	-25	U	100	58	6	U	110	56
Europium-154	573	-0.456	U	6.18	3.4	-0.712	U	6.7	3.67	7	U	110	53	-18	U	110	57
Europium-155	4000	4.87	U	8.39	4.65	0.979	U	7.94	4.52	-0.5	U	24	13	-6	U	19	11
Gross Alpha	15	0.00368	U	0.774	0.415	-0.0739	U	1.62	0.73	0.17	U	1.4	0.74	1	U	2.5	1.5
Gross Beta	1000	0.499	U	1.15	0.684	3.61	J	0.894	0.684	3.2	J	1.8	1.2	9.9		1.9	1.8
Manganese-54	2000	-0.34	U	2.02	1.19	-0.479	U	2.21	1.29	0.2	U	13	6.5	-4.2	U	10	6.2
Sodium-22	10000	-0.166	U	2.21	1.22	-0.248	U	2.4	1.31	0.06	U	20	10	-0.6	U	16	7.7
Strontium-90	8	0.276	U	0.291	0.155	0.438	J	0.187	0.123	0.45	U	0.85	0.52	0.76	J	0.69	0.46
Tritium	20000	79.3	U	375	217	404	J	369	231	1270		270	240	1330		360	280
Zinc-65	360	-2.58	U	4.48	2.72	0.691	U	4.76	2.6	8	U	38	18	1	U	33	17

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- U - Not detected
- J - Estimated value
- I - Interference noted by the analyst.
- T - Low chemical yield reported.
- N2 - Activity is less than the sum of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	087-23 1/13/2003 pCi/L				087-23 4/9/2003 pCi/L				087-23 7/22/2003 pCi/L				087-23 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-1.35	U	4.3	2.67	-6.21	U	18.2	15	-4.3	U	14	7.5	5.2	U	17	8.9
Beryllium-7	40000	3.67	U	21.8	12.1	2.8	U	24.4	13.6	-14	U	91	50	32	U	110	57
Cesium-134	80	-0.301	U	2.26	1.31	-0.784	U	2.44	1.67	2.1	U	13	6.4	-9.4	U	12	7.9
Cesium-137	120	-0.256	U	2.39	1.38	0.549	U	2.8	1.55	-0.6	U	18	8.4	0.7	U	15	7.6
Co-60	200	0.324	U	2.73	1.48	0.39	U	2.78	1.47	3.2	U	22	9.4	8	U	21	8.8
Cobalt-57	4000	-0.42	U	1.69	0.974	-0.272	U	2.41	1.42	0.04	U	6.2	3.5	2.2	U	7.5	4
Europium-152	841	-0.753	U	6.89	4.15	-0.422	U	7.79	4.72	-35	U	110	65	-23	U	110	59
Europium-154	573	3.81	U	7.99	4.1	1.1	U	7.53	3.96	-30	U	80	47	-35	U	140	83
Europium-155	4000	-0.512	U	6.74	4.23	1.09	U	10.2	5.86	0.9	U	22	12	2	U	26	14
Gross Alpha	15	0.328	U	0.66	0.402	0.327	U	1.08	0.503	0.17	U	1.6	0.86	0.93	U	1.5	0.96
Gross Beta	1000	1.68	J	1.22	0.757	0.586	U	0.797	0.403	1.4	U	1.9	1.2	1.5	U	1.7	1.1
Manganese-54	2000	-0.297	U	2.31	1.36	-0.352	U	2.66	1.56	-5.4	U	12	7.2	-3.5	U	13	7.1
Sodium-22	10000	1.35	U	2.85	1.46	0.39	U	2.69	1.42	1.1	U	14	6.1	-1.9	U	17	9
Strontium-90	8	0.216	U	0.411	0.192	0.101	U	0.453	0.205	0.18	U	0.82	0.49	0.52	U	0.79	0.5
Tritium	20000	369	J	352	220	60.3	U	367	212	-20	U	270	160	480	J	360	240
Zinc-65	360	-0.993	U	4.44	2.94	-0.13	U	5.31	3.34	-13	U	27	16	-2	U	31	16

- pCi/L - Picocuries per Liter.
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- MDA - Minimal detectable activity
- U - Not detected
- J - Estimated value
- I - Interference noted by the analyst.
- T - Low chemical yield reported.
- N2 - Activity is less than the sum of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	087-24 1/13/2003 pCi/L				087-24 4/9/2003 pCi/L				087-24 7/22/2003 pCi/L				087-24 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-0.277	U	4.14	2.46	7.63	U	15	9.46	1.7	U	17	9.3	-2.1	U	16	9.4
Beryllium-7	40000	-0.444	U	23.9	14.2	7.86	U	20.1	20.3	-13	U	96	52	-22	U	61	36
Cesium-134	80	0.0636	U	2.69	1.7	-0.333	U	2.11	1.46	-1.6	U	13	7.2	-4	U	13	7.5
Cesium-137	120	0.0181	U	2.75	1.53	1.74	U	2.25	1.78	0.7	U	12	5.7	3.4	U	17	8
Co-60	200	0.531	U	3.24	1.71	0.625	U	2.68	1.46	-1.2	U	16	8.1	2.7	U	17	6.8
Cobalt-57	4000	0.756	U	1.73	1.03	0.376	U	2.13	1.26	0.9	U	6.2	3.4	-0.7	U	6.7	3.8
Europium-152	841	2.77	U	7.15	4	2.88	U	6.9	3.84	-36	U	100	61	-38	U	55	41
Europium-154	573	6.73	U	7.61	9.99	-1.62	U	6.14	3.66	-60	U	97	65	-48	U	76	52
Europium-155	4000	2.55	U	7.1	4.21	4.01	U	9.33	5.43	-12	U	22	14	-7	U	22	13
Gross Alpha	15	-0.00988	U	0.758	0.341	0.189	U	1.09	0.481	0.16	U	1	0.54	0.23	U	1.1	0.63
Gross Beta	1000	1.64	J	1.59	0.87	1.12	J	0.84	0.472	1.6	U	1.7	1.1	1.2	U	1.8	1.1
Manganese-54	2000	-0.317	U	2.9	1.67	-0.548	U	2.27	1.32	-3.7	U	9.6	5.7	-1	U	12	5.8
Sodium-22	10000	2.4	U	2.82	3.57	-0.586	U	2.2	1.31	-1.9	U	16	8.3	1.3	U	17	8
Strontium-90	8	-0.112	U	0.426	0.168	0.439	J-N2	0.424	0.227	-0.007	U	0.72	0.42	0.61	U	0.91	0.57
Tritium	20000	743	J	368	247	564	J	377	243	570		270	190	320	U	360	230
Zinc-65	360	-0.72	U	5.98	4.03	-1.04	U	5.21	3.06	7	U	38	18	-13	U	6	11

- pCi/L - Picocuries per Liter.
- Qual - Qualification
- MDA - Minimal detectable activity
- U - Not detected
- J - Estimated value
- I - Interference noted by the analyst.
- T - Low chemical yield reported.
- N2 - Activity is less than the sum of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	087-26 1/13/2003 pCi/L				087-26 4/9/2003 pCi/L				087-26 7/21/2003 pCi/L				087-26 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-3.84	U	12.9	10.2	3.34	U	16.8	11.2	0.2	U	15	8.2	-0.9	U	16	8.5
Beryllium-7	40000	13.6	U	21.4	11.3	2.39	U	20.8	11.5	19	U	92	44	-38	U	74	45
Cesium-134	80	0.835	U	2.17	1.33	-0.576	U	1.99	1.34	-2	U	10	5.5	-3.4	U	11	6.6
Cesium-137	120	0.634	U	2.41	1.33	-0.209	U	2.21	1.27	5.3	U	14	6	-0.9	U	17	8.3
Co-60	200	0.31	U	2.4	1.28	0.501	U	2.45	1.28	2.7	U	17	6.8	-1.8	U	19	8.6
Cobalt-57	4000	0.385	U	1.94	1.1	0.473	U	2.01	1.14	1.5	U	6.1	3.1	-2.2	U	5.5	3.4
Europium-152	841	1.34	U	6.04	3.51	-1.61	U	6.26	3.83	-14	U	110	56	-2	U	110	54
Europium-154	573	0.122	U	6.17	3.35	-0.197	U	6.31	3.45	57	U	140	55	14	U	120	58
Europium-155	4000	-2.72	U	7.75	4.52	-1.74	U	7.92	4.59	-0.9	U	24	13	-2	U	21	12
Gross Alpha	15	0.0429	U	0.982	0.559	-0.022	U	1.17	0.473	-0.02	U	0.84	0.41	0.37	U	1.2	0.69
Gross Beta	1000	0.659	U	1.31	0.781	0.643	U	0.891	0.446	1.1	U	1.8	1.1	0.4	U	2	1.2
Manganese-54	2000	0.373	U	2.2	1.23	0.268	U	2.02	1.12	-0.7	U	14	6.9	-1.1	U	12	6.6
Sodium-22	10000	0.0404	U	2.2	1.2	-0.0641	U	2.26	1.23	-0.04	U	12	5.4	0.005	U	12	5.6
Strontium-90	8	0.222	UJ	0.327	0.173	0.256	J-N2	0.224	0.139	-0.11	U	0.73	0.42	0.17	U	0.86	0.51
Tritium	20000	988	J	350	248	684	J	383	253	630		280	190	590		370	240
Zinc-65	360	-0.726	U	4.25	2.78	-0.242	U	4.59	2.52	-11	U	25	15	-1	U	31	16

pCi/L - Picocuries per Liter.
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 MDA - Minimal detectable activity
 U - Not detected
 J - Estimated value
 I - Interference noted by the analyst.
 -T - Low chemical yield reported.
 -N2 - Activity is less than the sum of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	087-27 1/13/2003 pCi/L				087-27 4/9/2003 pCi/L				087-27 7/21/2003 pCi/L				087-27 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-0.559	U	13.5	8.07	8.85	U	13.2	10.5	-8.8	U	15	9.4	4	U	18	9.9
Beryllium-7	40000	-3.49	U	20.6	12.1	7.13	U	21.5	12	-24	U	88	50	52	U	110	47
Cesium-134	80	0.152	U	1.99	1.3	-0.143	U	2.06	1.93	-4.6	U	8.3	5.4	-6.3	U	13	7.8
Cesium-137	120	-0.386	U	2.34	1.39	-0.579	U	2.04	1.23	-1.6	U	11	6	-0.7	U	14	7.1
Co-60	200	1.17	U	2.56	1.3	0.718	U	2.32	1.2	-1.2	U	18	8.9	-1.5	U	15	7.4
Cobalt-57	4000	0.444	U	2.15	1.29	1.54	U	2.15	1.25	-1.6	U	6.3	3.8	-0.05	U	6.4	3.5
Europium-152	841	-2.69	U	6.41	3.82	3.09	U	7.2	4.02	2	U	97	44	-50	U	95	60
Europium-154	573	-1.6	U	6.28	3.64	-1.52	U	5.68	3.29	40	U	140	59	-5	U	110	55
Europium-155	4000	8.83	J-UI	8.74	8.82	1.95	U	8.97	5.35	7	U	27	14	12	U	27	14
Gross Alpha	15	-0.245	U	0.87	0.449	0.254	U	1.86	0.828	0.18	U	1.3	0.68	0.09	U	2.1	1.1
Gross Beta	1000	4.64		1.06	0.758	2.91	J	0.924	0.641	2.8	J	1.9	1.3	5		1.9	1.4
Manganese-54	2000	0.776	U	2.03	1.1	0.000905	U	2.1	1.23	1.5	U	14	6.7	2.9	U	16	7.4
Sodium-22	10000	-0.569	U	2.25	1.3	-0.533	U	2.04	1.18	-1	U	17	8.5	-0.05	U	14	6.6
Strontium-90	8	0.786	J	0.384	0.221	0.848		0.219	0.156	0.33	U	0.8	0.49	0.78	U	0.84	0.55
Tritium	20000	1450		375	282	367	U	367	228	-100	U	270	160	200	U	370	220
Zinc-65	360	1.01	U	4.26	2.53	-1.96	U	4.25	2.55	3.4	U	23	8.6	-11	U	28	16

pCi/L - Picocuries per Liter.
 Qual - Qualification
 MDA - Minimal detectable activity
 U - Not detected
 J - Estimated value
 I - Interference noted by the analyst.
 -T - Low chemical yield reported.
 -N2 - Activity is less than the sum of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	088-109 1/13/2003 pCi/L				088-109 4/9/2003 pCi/L				088-109 7/21/2003 pCi/L				088-109 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-0.308	U	15.3	8.95	-0.434	U	18.7	11.4	7	U	21	11	-2.5	U	16	8.4
Beryllium-7	40000	1.48	U	20.3	11.7	-9.1	U	20	18.8	-32	U	93	55	10	U	89	45
Cesium-134	80	0.114	U	2.11	1.96	-0.233	U	1.98	1.29	-8.6	U	11	7.5	-7.4	U	10	7
Cesium-137	120	0.113	U	2.29	1.34	0.136	U	2.14	2.5	-0.06	U	13	6.8	-5.4	U	14	7.2
Co-60	200	2.58	U	2.8	1.82	0.151	U	2.51	1.36	-5.7	U	3.7	5.7	2.6	U	21	8.5
Cobalt-57	4000	0.0963	U	2.2	1.32	-1.06	U	1.86	1.1	-0.6	U	5.8	3.2	-0.3	U	6	3.4
Europium-152	841	1.47	U	6.85	3.87	-0.29	U	6.4	3.81	-51	U	82	55	-1	U	91	44
Europium-154	573	-2.4	U	6	3.68	0.00405	U	6.15	3.34	42	U	140	59	-20	U	130	68
Europium-155	4000	-1.53	U	8.89	5.35	6.67	U	8.11	5.56	-11	U	20	12	-10	U	21	13
Gross Alpha	15	-0.0212	U	1.07	0.476	-0.166	UJ	1.6	0.604	1.4	U	2.1	1.4	0.09	U	2	1.1
Gross Beta	1000	2.62	J	1.6	0.923	1.53	J	0.943	0.542	6.9		1.9	1.6	6.8		1.7	1.5
Manganese-54	2000	0.368	U	2.32	1.27	-0.992	U	1.87	1.16	-2	U	15	8.2	-2.7	U	12	7
Sodium-22	10000	-0.859	U	2.15	1.31	0.00145	U	2.2	1.2	2.6	U	17	7.6	3.4	U	17	7.6
Strontium-90	8	0.155	U	0.159	0.0857	0.311	U	0.384	0.197	0.6	U	0.77	0.49	0.31	U	0.74	0.45
Tritium	20000	334	U	363	224	120	U	372	218	1070		270	220	70	U	370	220
Zinc-65	360	2.62	U	4.92	2.82	1.52	U	4.77	2.59	-18	U	22	16	6	U	28	12

pCi/L - Picocuries per Liter.
 Qual - Qualification
 MDA - Minimal detectable activity
 U - Not detected
 J - Estimated value
 I - Interference noted by the analyst.
 -T - Low chemical yield reported.
 -N2 - Activity is less than the sum
 of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	088-110 1/13/2003 pCi/L				088-110 4/9/2003 pCi/L				088-110 7/21/2003 pCi/L				088-110 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-1.25	U	13	7.48	0.446	U	4.35	2.55	-1.6	U	16	9.1	-6.9	U	16	9.8
Beryllium-7	40000	10.5	U	22.4	12.4	0.912	U	23.7	13.9	32	U	98	46	-17	U	84	47
Cesium-134	80	-0.964	U	2.18	1.36	-0.249	U	2.65	1.7	-9.3	U	12	7.8	1.6	U	12	6.2
Cesium-137	120	0.601	U	2.4	1.35	-0.215	U	3.01	1.7	-2.2	U	14	7.9	0.7	U	12	5.6
Co-60	200	0.604	U	2.54	1.31	0.677	U	3.47	1.84	7.4	U	21	8.7	3.4	U	19	8.2
Cobalt-57	4000	0.408	U	2.05	1.2	-0.816	U	1.58	1.01	-1.1	U	6.3	3.6	1.8	U	7.1	3.7
Europium-152	841	-2.88	U	6.93	4.13	-1.49	U	6.59	3.91	-0.6	U	100	51	-13	U	120	61
Europium-154	573	-1.87	U	6.45	3.88	-0.0457	U	10.2	5.61	23	U	130	61	-39	U	120	67
Europium-155	4000	-1.18	U	8.59	5.08	1.17	U	6.98	4.19	-5	U	24	14	-5	U	24	14
Gross Alpha	15	0.346	U	0.671	0.415	0.508	U	1.55	0.807	0.36	U	1.7	0.94	0.03	U	1.8	0.91
Gross Beta	1000	1.36	J	1.07	0.668	5.2		0.902	0.776	3.6	J	1.9	1.3	5.6		1.9	1.5
Manganese-54	2000	0.678	U	2.38	1.28	0.924	U	3.05	1.66	-5	U	13	7.5	2.8	U	13	5.4
Sodium-22	10000	-0.674	U	2.3	1.39	-0.0164	U	3.64	2.01	7.4	U	22	9.6	-1.1	U	18	9
Strontium-90	8	0.398	U	0.422	0.22	0.571	J-N2	0.454	0.25	0.47	U	0.7	0.44	0.47	U	0.85	0.52
Tritium	20000	634	J	375	246	305	U	358	219	110	U	270	160	-100	U	360	210
Zinc-65	360	0.644	U	5.01	3.19	-1.13	U	6.02	3.57	-2	U	29	15	-6	U	25	14

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- U - Not detected
- J - Estimated value
- I - Interference noted by the analyst.
- T - Low chemical yield reported.
- N2 - Activity is less than the sum of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	088-21 1/13/2003 pCi/L				088-21 4/9/2003 pCi/L				088-21 7/22/2003 pCi/L				088-21 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-5.55	U	14.9	9.48	2.37	U	13.3	8.75	-12	U	15	10	9.6	U	20	9.9
Beryllium-7	40000	2.89	U	19.8	10.9	2.82	U	20	11.1	-11	U	82	44	7	U	110	56
Cesium-134	80	-0.162	U	2.12	1.39	-0.52	U	2.09	1.41	-6	U	12	7.2	-9.2	U	13	8.3
Cesium-137	120	0.402	U	2.5	1.41	0.704	U	2.3	1.25	4.2	U	16	7.4	2	U	15	7.3
Co-60	200	2.46	U	2.59	1.75	0.77	U	2.67	1.61	-0.2	U	17	7.9	0.1	U	18	8.5
Cobalt-57	4000	1.15	U	2	1.11	0.68	U	2	1.12	0.9	U	5.9	3	0.8	U	6.5	3.5
Europium-152	841	0.768	U	7.01	4.16	0.125	U	5.97	3.55	20	U	140	66	-2	U	110	55
Europium-154	573	-2.21	U	6.85	4.04	0.211	U	6.4	3.48	9	U	110	49	23	U	130	59
Europium-155	4000	0.474	U	8.15	4.63	1.07	U	7.79	4.39	1	U	21	11	-3	U	25	15
Gross Alpha	15	-0.16	U	1.09	0.606	0.137	UJ	1.91	0.836	-0.05	U	1.4	0.69	0.15	U	1.7	0.92
Gross Beta	1000	1.34	J	1.32	0.807	2.83	J	0.868	0.616	1.5	U	1.9	1.2	4.5		1.9	1.4
Manganese-54	2000	0.129	U	2.26	1.29	0.173	U	2.25	1.28	-2.1	U	12	6.5	2.2	U	14	6.4
Sodium-22	10000	-0.788	U	2.45	1.44	0.0852	U	2.3	1.25	1.3	U	9.8	2.7	-8.8	U	12	8.5
Strontium-90	8	1.2		0.363	0.228	2.13		0.369	0.304	1.63	J	0.81	0.64	1.79	J	0.86	0.68
Tritium	20000	910	J	379	261	307	U	374	229	-7	U	270	160	-70	U	360	210
Zinc-65	360	0.773	U	5.14	3.16	-4.04	U	4.4	2.86	-4	U	35	18	-5	U	30	16

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 I - Interference noted by the analyst.
 -T - Low chemical yield reported.
 -N2 - Activity is less than the sum
 of the error and the MDA.

Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	088-22 1/13/2003 pCi/L				088-22 4/9/2003 pCi/L				088-22 7/22/2003 pCi/L				088-22 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-2.2	U	13.3	7.76	-1.37	U	12.9	8.67	4.1	U	17	8.9	-12.6	U	14	8.9
Beryllium-7	40000	2.05	U	18.8	10.5	5.55	U	31.2	17.9	-0.7	U	94	49	-13	U	79	43
Cesium-134	80	-0.45	U	1.93	1.31	-1.4	U	3.11	1.93	-3.9	U	13	7.3	5.5	U	14	7
Cesium-137	120	0.214	U	2.27	1.29	21	UI	6.74	3.83	-3.1	U	13	7.1	-3.3	U	15	7.4
Co-60	200	0.0951	U	2.32	1.27	-1.8	U	3.04	1.92	-1.3	U	12	5.6	1.3	U	20	8.1
Cobalt-57	4000	-0.588	U	1.93	1.16	-0.367	U	2.73	1.68	0.6	U	6.9	3.8	-2.7	U	4.6	3
Europium-152	841	0.351	U	6.63	3.74	2.99	U	9.87	5.62	37	U	140	66	-2	U	110	58
Europium-154	573	-1.86	U	4.98	3.45	-1.27	U	8.86	5.93	-89	U	88	67	10	U	130	66
Europium-155	4000	0.101	U	8.44	4.95	6.79	U	11.8	6.96	-3	U	23	13	-1	U	20	11
Gross Alpha	15	0.496	U	0.609	0.413	-0.887	UJ	1.78	0.507	0.11	U	1.3	0.71	0.47	U	1.3	0.77
Gross Beta	1000	13.4		1.15	1.03	0.364	U	0.815	0.385	1	U	1.9	1.1	1.7	U	1.8	1.2
Manganese-54	2000	0.867	U	2.27	1.25	-0.411	U	3.07	1.75	3.3	U	15	6.9	-1.2	U	12	6.5
Sodium-22	10000	-0.671	U	1.78	1.23	-0.44	U	3.17	2.12	4.8	U	18	7.6	0.5	U	18	8.7
Strontium-90	8	0.123	U	0.609	0.31	0.314	UJ-T	0.599	0.294	0.16	U	0.86	0.51	0.41	U	0.97	0.59
Tritium	20000	191	U	377	225	457	J	368	233	670		270	190	670		360	240
Zinc-65	360	-3.06	U	4.23	2.63	-2.01	U	6.1	4.23	16	U	37	16	-5	U	26	14

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- I - Interference noted by the analyst.
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Table 5. Current Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	088-23 1/13/2003 pCi/L				088-23 4/9/2003 pCi/L				088-23 7/22/2003 pCi/L				088-23 10/1/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	-18.9	DL	20.4	14.2	-0.994	U	12.5	7.16	5.7	U	17	8.8	4.6	U	18	9.3
Beryllium-7	40000	-9.1	U	21.8	12.9	12.4	U	19.8	11.5	4	U	100	53	21	U	97	46
Cesium-134	80	0.261	U	2.33	1.48	-1.53	U	2.33	1.49	-0.5	U	11	6	-8.6	U	11	7.2
Cesium-137	120	-0.201	U	2.39	1.57	-0.472	U	2.13	1.49	2.8	U	15	7.1	0.8	U	13	6.6
Co-60	200	0.0889	U	2.53	1.55	0.648	U	2.42	1.41	4.2	U	19	8.1	1.3	U	15	6.2
Cobalt-57	4000	-0.019	U	2.6	1.52	0.551	U	1.91	1.9	-0.9	U	6.8	4	-0.4	U	6.8	3.8
Europium-152	841	2.36	U	8.11	4.75	1.43	U	6.69	3.75	-45	U	100	64	1	U	110	49
Europium-154	573	-2.33	U	7.04	4.12	1.33	U	6.77	3.66	-18	U	110	62	17	U	120	56
Europium-155	4000	-2.28	U	10.5	6.2	-3.32	U	8.35	5.02	-3	U	24	14	16	U	25	12
Gross Alpha	15	-0.0631	U	0.588	0.319	0.48	UJ	1.61	0.745	0.19	U	1.2	0.65	-0.43	U	1.5	0.68
Gross Beta	1000	13.5		1.06	0.985	-0.0396	U	0.906	0.38	-0.02	U	1.8	1	1	U	1.8	1.1
Manganese-54	2000	0.7	U	2.69	1.48	0.169	U	2.2	1.21	8.8	U	17	6.7	4.4	U	15	6.4
Sodium-22	10000	-0.837	U	2.51	1.47	0.463	U	2.42	1.31	4.2	U	21	9.3	2.6	U	14	5.3
Strontium-90	8	0.000177	U	0.162	0.081	0.0204	U	0.317	0.142	0.1	U	0.83	0.49	0.09	U	0.74	0.44
Tritium	20000	155	U	379	224	617	J	376	245	40	U	260	160	-130	U	360	210
Zinc-65	360	-1.38	U	5.75	3.3	1.8	U	4.93	2.94	9	U	34	15	-8	U	35	19

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- MDA - Minimal detectable activity
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- I - Interference noted by the analyst.
- T - Low chemical yield reported.
- N2 - Activity is less than the sum of the error and the MDA.

Table 6. Former Landfill - Summary of 2003 VOC Data

Analyte	Groundwater Standards* ug/L	086-42	086-72	087-22	097-17	097-17	097-17	097-17
		10/2/03 (ug/L)	10/2/03 (ug/L)	10/2/03 (ug/L)	1/14/03 (ug/L)	4/10/03 (ug/L)	7/23/03 (ug/L)	10/2/03 (ug/L)
1,1,1,2-Tetrachloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	0.04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene, 1,2,4-trimethyl	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene, 1,3,5-trimethyl	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzene, 1-methylethyl-	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobromomethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	7	0.5 U	3.2	0.6	0.5 U	0.34 J	0.25 J	0.81
cis-1,2-Dichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cymene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DBCP	0.04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
EDB	0.05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethene, 1,2-dichloro-, (E)-	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m/p xylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl bromide	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl chloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl tert-butyl ether		0.5 U	0.5 U	0.5 U			0.5 U	0.5 U
Methylene chloride	5	0.5 U	0.5 U	0.5 U	0.34 U	0.33 J	0.5 U	0.5 U
n-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	10	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Chlorotoluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Dichlorobenzene	3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethylene	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.8 U
Trichlorofluoromethane	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
524.2 TVOC	--	0	3.2	0.6	0	0.67	0.25	0.81

ug/L - Micrograms per liter.
 U - Not detected.
 J - Estimated value.
 -- No standard available.

Table 6. Former Landfill - Summary of 2003 VOC Data

Analyte	Groundwater Standards* ug/L	097-277		097-277		097-277		097-277		097-64		097-64		097-64	
		1/14/03 (ug/L)	U	4/10/03 (ug/L)	U	7/23/03 (ug/L)	U	10/2/03 (ug/L)	U	1/14/03 (ug/L)	U	4/10/03 (ug/L)	U	7/23/03 (ug/L)	U
1,1,1,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloropropene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-Trichloropropane	0.04	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	0.6	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
2,2-Dichloropropane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene	1	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1,2,4-trimethyl	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1,3,5-trimethyl	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Benzene, 1-methylethyl-	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	50	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon tetrachloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	7	2		0.47	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Cymene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DBCP	0.04	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
EDB	0.05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethene, 1,2-dichloro-, (E)-	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexachlorobutadiene	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m/p xylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl bromide	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl tert-butyl ether						0.5	U	0.5	U					0.5	U
Methylene chloride	5	0.34	U	0.31	J	0.5	U	0.5	U	0.32	U	0.33	J	0.5	U
n-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
n-Propylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Naphthalene	10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
o-Xylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Chlorotoluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
p-Dichlorobenzene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
sec-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
tert-Butylbenzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethylene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	0.4	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethylene	5	0.5	U	0.5	U	0.5	U	1.8	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
524.2 TVOC	--	2		0.78		0		0		0		0.33		0	

ug/L - Micrograms per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 6. Former Landfill - Summary of 2003 VOC Data

Analyte	Groundwater Standards* ug/L	097-64	106-02	106-02	106-02	106-02	106-30	106-30
		10/2/03 (ug/L)	1/14/03 (ug/L)	4/10/03 (ug/L)	7/23/03 (ug/L)	10/2/03 (ug/L)	1/14/03 (ug/L)	4/10/03 (ug/L)
1,1,1,2-Tetrachloroethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1,1-Trichloroethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	1.2	0.59
1,1,2,2-Tetrachloroethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1,2-Trichloroethane	1	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1-Dichloroethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.42 J	0.36 J
1,1-Dichloroethylene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1-Dichloropropene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2,3-Trichlorobenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2,3-Trichloropropane	0.04	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2,4-Trichlorobenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2-Dichloroethane	0.6	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2-Dichloropropane	1	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,3-Dichloropropane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
2,2-Dichloropropane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Benzene	1	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Benzene, 1,2,4-trimethyl	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Benzene, 1,3,5-trimethyl	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Benzene, 1-methylethyl-	--	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromobenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromodichloromethane	50	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Bromoform	50	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Carbon tetrachloride	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Chlorobenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Chlorobromomethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Chloroethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Chloroform	7	0.5 UJ	0.53	0.58	0.51	0.5 UJ	0.42 J	0.27 J
cis-1,2-Dichloroethylene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.4	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Cymene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
DBCP	0.04	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Dibromochloromethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Dibromomethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Dichlorodifluoromethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
EDB	0.05	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Ethene, 1,2-dichloro-, (E)-	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Ethylbenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Hexachlorobutadiene	0.5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
m-Dichlorobenzene	3	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
m/p xylene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Methyl bromide	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Methyl chloride	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Methyl tert-butyl ether		0.5 UJ			0.5 U	0.5 UJ		
Methylene chloride	5	0.5 UJ	0.3 U	0.28 J	0.5 U	0.5 UJ	0.28 U	0.35 J
n-Butylbenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
n-Propylbenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Naphthalene	10	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
o-Chlorotoluene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
o-Dichlorobenzene	3	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
o-Xylene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
p-Chlorotoluene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
p-Dichlorobenzene	3	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
sec-Butylbenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Styrene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
tert-Butylbenzene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Tetrachloroethylene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Toluene	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
trans-1,3-Dichloropropene	0.4	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Trichloroethylene	5	1.9 UJ	0.5 U	0.5 U	0.5 U	1.8 UJ	0.5 U	0.5 U
Trichlorofluoromethane	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
Vinyl chloride	2	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
524.2 TVOC	--	0	0.53	0.86	0.51	0	2.04	1.57

ug/L - Micrograms per liter.
 U - Not detected.
 J - Estimated value.
 -- No standard available.

Table 7. Former Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	086-42 1/14/2003 (mg/L)	086-42 4/9/2003 (mg/L)	086-42 7/23/2003 (mg/L)	086-42 10/2/2003 (mg/L)	086-72 1/14/2003 (mg/L)	086-72 4/10/2003 (mg/L)	086-72 7/22/2003 (mg/L)	086-72 10/2/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	16.4	1.45 U	5 U	55	6.17	5.14	5 U	5 U
Ammonia (as N)	2	0.23	0.024 U	0.05 U	0.05 U	0.024 U	0.024 U	0.05 U	0.05 U
Chloride	250	12.5	14.5	13.4	13.2 J	8.95	8.21	8.4	21.8 J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 U	0.005 U	0.00172 U	0.00172 U	0.005 UJ	0.005 U
Nitrate (as N)	10	0.408	0.324	0.38	0.4	0.176	0.0341 U	0.063 J	0.059
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	0.61	0.609	0.38	0.4	0.15	0.178	0.063 B	0.15 U
Residue, filterable	--	75	66	65	44	55	38	46	47
Residue, non-filterable	--	0.404 J	0.421 J	1 U	1 U	0.404 J	26.6	3	1
Sulfate	250	13	11.9	12.8	12.4	13.1	11.9	2.3	7.3
Total Kjeldahl Nitrogen	--	0.2	0.219	0.1 U	0.1 UJ	0.06 J	0.138	0.1 U	0.1 UJ

mg/L - Milligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 7. Former Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	087-22 1/13/2003 (mg/L)	087-22 4/10/2003 (mg/L)	087-22 7/22/2003 (mg/L)	087-22 10/2/2003 (mg/L)	097-17 1/14/2003 (mg/L)	097-17 4/10/2003 (mg/L)	097-17 7/23/2003 (mg/L)	097-17 10/2/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	7.19	7.2	5 U	5 U	9.25	7.2	5.5	7
Ammonia (as N)	2	0.024 U	0.024 U	0.05 U	0.05 U	0.024 U	0.024 U	0.05 U	0.05 U
Chloride	250	3.6	5.55	9.2	7 J	3.78	5.35	4.8	9.7 J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 UJ	0.005 U	0.00172 U	0.00172 U	0.005 U	0.005 U
Nitrate (as N)	10	0.397	0.272	0.24 J	0.17	0.364	0.252	0.41	0.12
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	0.46	0.461	0.24	0.17	0.42	0.331	0.41	0.12 B
Residue, filterable	--	47	38	44	46	44	36	36	25
Residue, non-filterable	--	0.421 J	0.402 U	1 U	4	0.707 J	0.392 U	1 U	1 U
Sulfate	250	12.5	12	10.4	10.1	9.39	9.39	12	5.5
Total Kjeldahl Nitrogen	--	0.05 J	0.141	0.1 U	0.1 UJ	0.06 J	0.101	0.1 U	0.1 U

mg/L - Milligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 7. Former Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	097-277 1/14/2003 (mg/L)	097-277 4/10/2003 (mg/L)	097-277 7/23/2003 (mg/L)	097-277 10/2/2003 (mg/L)	097-64 1/14/2003 (mg/L)	097-64 4/10/2003 (mg/L)	097-64 7/23/2003 (mg/L)	097-64 10/2/2003 (mg/L)
Alkalinity (as CaCO ₃)	--	10.3	8.22	5 U	5	19.5	14.4	5	7.5
Ammonia (as N)	2	0.024 U	0.024 U	0.05 U	0.05 U	0.024 U	0.024 U	0.05 U	0.05 U
Chloride	250	14.3	20.9	18.6	18.3 J	3.13	9.54	4.6	7.3 J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 U	0.005 U	0.00172 U	0.00172 U	0.005 U	0.005 U
Nitrate (as N)	10	0.348	0.523	0.53	0.35	0.358	1.1	0.75	0.87
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U
Nitrogen	--	0.39	0.684	0.53	0.35	0.42	1.4	0.75	0.87
Residue, filterable	--	82	85	81	83	68	69	59	70
Residue, non-filterable	--	0.386 U	0.392 U	1 U	1 U	1.21 J	0.402 U	1	1 U
Sulfate	250	18.7	19.5	21.8	19.9	12.3	14.6	15.1	15.5
Total Kjeldahl Nitrogen	--	0.07 J	0.0942 J	0.1 U	0.1 U	0.07 J	0.121	0.1 U	0.1 U

mg/L - Milligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 7. Former Landfill - Summary of 2003 Water Chemistry Data

<i>Analyte</i>	<i>Groundwater Standards mg/L</i>	106-02 1/14/2003 (mg/L)	106-02 4/10/2003 (mg/L)	106-02 7/23/2003 (mg/L)	106-02 10/2/2003 (mg/L)	106-30 1/14/2003 (mg/L)	106-30 4/10/2003 (mg/L)	106-30 7/23/2003 (mg/L)	106-30 10/2/2003 (mg/L)	
Alkalinity (as CaCO ₃)	--	26.7	29.8	6.5	24	16.4	16.4	5	5	U
Ammonia (as N)	2	0.024 U	0.024 U	0.05 U	0.05 U	0.024 U	0.024 U	0.05 U	0.05 U	U
Chloride	250	6.75	7.97	7.4	8.2 J	5.35	4.65	6.7	5.5	J
Cyanide	0.2	0.00172 U	0.00172 U	0.005 U	0.005 U	0.00172 U	0.00172 U	0.005 U	0.005 U	U
Nitrate (as N)	10	0.626	0.484	0.37	0.47	0.162	0.203	0.29	0.26	J
Nitrite (as N)	1	0.0542 U	0.0542 U	0.02 U	0.02 U	0.0542 U	0.0542 U	0.02 U	0.02 U	U
Nitrogen	--	0.73	0.663	1.1	0.47	0.14	0.341	0.29	0.26	
Residue, filterable	--	79	73	65	66	62	50	54	67	
Residue, non-filterable	--	0.51 J	0.396 U	1	1	1.89 J	4.97	1	2	
Sulfate	250	11.8	16.3	16.6	14.8	14.5	13.1	15.4	17.1	
Total Kjeldahl Nitrogen	--	0.05 J	0.123	0.7	0.1 U	0.05 J	0.131	0.1 U	0.1	UJ

mg/L - Milligrams per liter.

U - Not detected.

J - Estimated value.

-- No standard available.

Table 8. Former Landfill - Summary of 2003 Metals Data

Analyte	Groundwater Standards* ug/L	086-42 4/9/2003 (ug/L)		086-42 10/2/2003 (ug/L)		086-72 4/10/2003 (ug/L)		086-72 10/2/2003 (ug/L)		087-22 4/10/2003 (ug/L)		087-22 10/2/2003 (ug/L)		097-17 4/10/2003 (ug/L)		097-17 10/2/2003 (ug/L)	
Aluminum	200	1260	B	37.4	B	953		48.3	B	22	B	62		48.9	B	63.8	
Antimony	3	6.81	U	5	U	6.81	U	5	U	6.81	U	5	U	6.81	U	5	U
Arsenic	10	4.1	U	5	U	4.1	U	5	U	4.1	U	5	U	4.1	U	5	U
Barium	1000	36.2	B	7.7	B	18.9	B	11.7	B	15	B	14.8	B	10.7	B	12.4	B
Beryllium	3	0.133	U	0.12	B	0.133	U	0.27	B	0.133	U	0.25	B	0.133	U	0.15	B
Cadmium	5	8.07	U	2	U	0.807	U	2	U	0.807	U	2	U	0.807	U	2	U
Calcium	--	30500		6130		2230	B	2380		2960	B	2970		3310	B	4940	
Chromium	50	38.1		5	U	1.75	B	5	U	1.37	U	5	U	1.37	U	5	U
Cobalt	--	4.49	B	5	U	1.88	U	5	U	1.88	U	5	U	1.88	U	5	U
Copper	200	342		10	U	3.91	U	10	U	3.91	U	10	U	3.91	U	10	U
Iron	300	32000		17.8	B	1380		50	U	14.7	B	32.5	B	21.5	B	50	U
Lead	25	63.3		3	U	5.23		3	U	2.67	U	1.2	B	2.67	U	3	U
Magnesium	35000	5790	B	2630		1920	B	1670		2230	B	1810		2090	B	2160	
Manganese	300	375		0.33	B	27.7		3.8	B	2.87	B	3.6	B	19.9		22.7	
Mercury	0.7	0.052	U	0.2	U	0.052	U	0.2	U	0.052	U	0.2	U	0.052	U	0.2	U
Nickel	100	188		10	U	2.82	U	10	U	2.82	U	10	U	2.82	U	10	U
Potassium	--	111000		2000	U	1060	B	2340		1440	B	1710	B	922	B	2500	
Selenium	10	4.2	U	5	U	4.2	U	5	U	4.2	U	5	U	4.2	U	5	U
Silver	50	2.5	U	2	U	2.5	U	2	U	2.5	U	2	U	2.5	U	2	U
Sodium	20000	197000		10000		6580		6220		4220	B	4480		3440	B	3100	
Thallium	0.5	6.27	U	5	U	6.27	U	5	U	6.27	U	5	U	6.27	U	5	U
Vanadium	--	6.07	B	5	U	3.12	U	5	U	3.12	U	5	U	3.12	U	5	U
Zinc	2000	1030		10	U	0.494	U	10	U	0.494	U	10	U	0.494	U	10	U

ug/L - Micrograms per liter.

-- No standard available.

U - Not detected.

B - Result is between the contract required
detection limit and instrument detection limit.

J - Estimated value.

Table 8. Former Landfill - Summary of 2003 Metals Data

Analyte	Groundwater Standards*	097-277		097-64		097-64		106-02		106-02		106-30		106-30	
	ug/L	4/10/2003 (ug/L)	10/2/2003 (ug/L)	4/10/2003 (ug/L)	10/2/2003 (ug/L)	4/10/2003 (ug/L)	10/2/2003 (ug/L)	4/10/2003 (ug/L)	10/2/2003 (ug/L)	4/10/2003 (ug/L)	10/2/2003 (ug/L)	4/10/2003 (ug/L)	10/2/2003 (ug/L)	4/10/2003 (ug/L)	10/2/2003 (ug/L)
Aluminum	200	19.9 U	38.2 B	57.3 B	76.3	63 B	94.6	418	243						
Antimony	3	6.81 U	5 U	6.81 U	5 U	6.81 U	5 U	6.81 U	5 U	6.81 U	5 U	6.81 U	5 U	6.81 U	5 U
Arsenic	10	4.1 U	5 U	4.1 U	5 U	4.1 U	5 U	4.1 U	5 U	4.1 U	5 U	4.1 U	5 U	4.1 U	5 U
Barium	1000	14.6 B	14.5 B	24.8 B	20.6	10.1 B	8.7 B	16.3 B	13.6 B						
Beryllium	3	0.133 U	0.25 B	0.133 U	0.21 B	0.133 U	0.36 B	0.133 U	0.19 B						
Cadmium	5	0.807 U	2 U	0.807 U	2 U	0.807 U	2 U	0.807 U	2 U	0.807 U	2 U	0.807 U	2 U	0.807 U	2 U
Calcium	--	6730	7370	9540	10600	14400	11600	6950	6870						
Chromium	50	1.37 U	5 U	1.37 U	5 U	1.37 U	5 U	1.37 U	5 U	1.37 U	5 U	1.37 U	5 U	1.37 U	5 U
Cobalt	--	1.88 U	5 U	1.88 U	5 U	1.88 U	5 U	1.88 U	5 U	1.88 U	5 U	1.88 U	5 U	1.88 U	5 U
Copper	200	3.91 U	10 U	3.91 U	10 U	3.91 U	10 U	3.91 U	10 U	3.91 U	10 U	3.91 U	10 U	3.91 U	10 U
Iron	300	14.5 B	19.3 B	31.6 B	50 U	9.63 B	50 U	266	108						
Lead	25	2.67 U	3 U	2.67 U	3 U	2.67 U	3 U	2.67 U	3 U	2.67 U	3 U	2.67 U	3 U	2.67 U	3 U
Magnesium	35000	2680 B	2510	1740 B	1590	2360 B	1790	2000 B	2290						
Manganese	300	133	559	9.22 B	8.9	3.6 B	4 B	21.5	27.8						
Mercury	0.7	0.052 U	0.2 U	0.052 U	0.2 U	0.052 U	0.2 U	0.052 U	0.2 U	0.052 U	0.2 U	0.052 U	0.2 U	0.052 U	0.2 U
Nickel	100	2.82 U	10 U	2.82 U	10 U	2.82 U	10 U	2.82 U	10 U	2.82 U	10 U	2.82 U	10 U	2.82 U	10 U
Potassium	--	1880 B	3990	2420 B	2000 U	1110 B	1820 B	2980 B	2000 U						
Selenium	10	4.2 U	5 U	4.2 U	5 U	4.2 U	5 U	4.2 U	5 U	4.2 U	5 U	4.2 U	5 U	4.2 U	5 U
Silver	50	2.5 U	2 U	2.5 U	2 U	2.5 U	2 U	2.5 U	2 U	2.5 U	2 U	2.5 U	2 U	2.5 U	2 U
Sodium	20000	13800	12300	5510	5130	4630 B	4760	3870 B	6410						
Thallium	0.5	6.27 U	5 U	6.27 U	5 U	6.27 U	5 U	6.27 U	5 U	6.27 U	5 U	6.27 U	5 U	6.27 U	5 U
Vanadium	--	3.12 U	5 U	3.12 U	5 U	3.12 U	5 U	3.12 U	5 U	3.12 U	5 U	3.12 U	5 U	3.12 U	5 U
Zinc	2000	0.494 U	10 U	0.494 U	10 U	0.494 U	10 U	0.494 U	10 U	0.494 U	10 U	0.494 U	10 U	0.494 U	10 U

ug/L - Micrograms per liter.

-- No standard available.

U - Not detected.

B - Result is between the contract require detection limit and instrument detection

J - Estimated value.

Table 9. Former Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	086-42 1/14/2003 pCi/L				086-42 4/9/2003 pCi/L				086-42 7/23/2003 pCi/L				086-42 10/2/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2													1.8	U	18	9.4
Beryllium-7	40000													9	U	100	51
Cesium-134	80													-5.6	U	8.7	5.8
Cesium-137	120													4.1	U	15	6.7
Co-60	200													6.9	U	23	9.8
Cobalt-57	4000													-0.3	U	7	4
Europium-152	841													-3	U	120	60
Europium-154	573													-30	U	92	54
Europium-155	4000													5	U	27	14
Gross Alpha	15													0.32	U	0.87	0.51
Gross Beta	1000													1	U	1.7	1.1
Manganese-54	2000													-1.9	U	12	6.2
Sodium-22	10000													-2.4	U	14	7.3
Strontium-90	8													0.16	U	0.66	0.39
Tritium	20000	713	J	374	249	601	J	373	243	420	J	290	190	390	J	320	200
Zinc-65	360													-3	U	32	17

pCi/L - Picocuries per Liter.
 Qual - Qualification
 MDA - Minimal detectable activity
 U - Not detected
 J - Estimated value

Table 9. Former Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	086-72 10/2/2003 pCi/L				087-22 10/2/2003 pCi/L				097-17 10/2/2003 pCi/L				097-277 10/2/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	0.2	U	16	8.7	1.3	U	16	8.6	0.4	U	17	9	-3.7	U	15	9.2
Beryllium-7	40000	-13	U	92	51	-34	U	84	50	-35	U	62	39	-21	U	89	50
Cesium-134	80	-3.9	U	11	6.5	-0.6	U	12	6.6	-7.2	U	11	7.2	-2.8	U	14	7.8
Cesium-137	120	-1.8	U	14	7.6	0.9	U	14	7	2.5	U	15	7.4	-0.6	U	16	8.8
Co-60	200	-0.2	U	18	8.9	-1.3	U	13	6	0.1	U	16	7.6	-3	U	20	11
Cobalt-57	4000	-2.3	U	6.6	3.9	2.9	U	6.9	3.6	-0.4	U	6.5	3.7	4	U	7.7	3
Europium-152	841	-16	U	95	49	-27	U	100	59	-0.6	U	110	56	36	U	130	57
Europium-154	573	15	U	130	64	-34	U	59	41	-26	U	87	50	-8	U	110	57
Europium-155	4000	8	U	26	13	-3	U	26	15	-5	U	25	14	-9	U	25	15
Gross Alpha	15	0.27	U	0.96	0.55	0.38	U	1.1	0.63	0.33	U	0.77	0.47	0.17	U	1.2	0.63
Gross Beta	1000	0.5	U	1.8	1.1	1	U	1.8	1.1	1.8	U	1.8	1.2	1.8	U	1.9	1.2
Manganese-54	2000	-1.8	U	12	6.1	-1.9	U	12	6.2	4.2	U	14	5.9	0.9	U	13	6.3
Sodium-22	10000	6.9	U	20	8.1	-1.2	U	14	6.8	0.1	U	16	7.3	0.2	U	17	8.3
Strontium-90	8	0.04	U	0.61	0.36	-0.09	U	0.7	0.4	0.33	U	0.77	0.47	0.16	U	0.55	0.33
Tritium	20000	260	U	320	200	120	U	320	190	140	U	320	190	230	U	330	200
Zinc-65	360	0.5	U	33	16	-7	U	28	15	-16	U	17	14	-4	U	25	13

pCi/L - Picocuries per Liter.

Qual - Qualification

MDA - Minimal detectable activity

U - Not detected

J - Estimated value

Table 9. Former Landfill - Summary of 2003 Radionuclide Data

Analyte	Groundwater Standards pCi/L	097-64 10/2/2003 pCi/L				106-02 10/2/2003 pCi/L				106-30 10/2/2003 pCi/L			
		Result	Qual	MDA	Error	Result	Qual	MDA	Error	Result	Qual	MDA	Error
Americium-241	1.2	4.4	U	17	8.3	-7.1	U	16	9.7	8	U	19	10
Beryllium-7	40000	8	U	88	44	37	U	100	45	16	U	90	43
Cesium-134	80	-4.7	U	9.7	6.1	-0.05	U	12	6.2	-7.2	U	8.9	6.1
Cesium-137	120	-2.5	U	18	8.8	-4.3	U	11	6.6	-1.8	U	14	7.6
Co-60	200	1.4	U	21	8.8	-2.9	U	10	5.6	1.2	U	19	9.3
Cobalt-57	4000	-0.2	U	5.8	3.3	0.5	U	6.6	3.6	-1.7	U	6.5	3.8
Europium-152	841	-56	U	83	57	-50	U	110	65	4	U	110	50
Europium-154	573	-5	U	110	53	-37	U	92	55	-48	U	88	56
Europium-155	4000	1	U	22	12	0.3	U	23	12	-3	U	24	13
Gross Alpha	15	0.06	U	1.2	0.67	0.37	U	0.98	0.58	0.38	U	0.98	0.58
Gross Beta	1000	7.8		1.8	1.6	0.6	U	2	1.2	2.8	J	1.9	1.3
Manganese-54	2000	6.9	U	15	6.5	1.6	U	11	4.3	3.5	U	15	6.6
Sodium-22	10000	9.2	U	22	9.2	1.2	U	19	8.9	-1.5	U	12	5.9
Strontium-90	8	3.05		0.71	0.82	0.07	U	0.67	0.4	0.69	U	0.75	0.49
Tritium	20000	170	U	320	190	150	U	320	190	140	U	320	190
Zinc-65	360	16	U	32	11	0.5	U	33	16	-10	U	23	14

pCi/L - Picocuries per Liter.

Qual - Qualification

MDA - Minimal detectable activity

U - Not detected

J - Estimated value

Table 10
Soil Gas Monitoring Well Description

Current Landfill			
Soil Gas Monitoring Well	Screen Location	Top of Screen (Feet BLS)	Bottom Screen (Feet BLS)
SGM-1 PROBE A	Shallow	2.5	7.5
SGM-1 PROBE B	Intermediate	10.5	17.5
SGM-1 PROBE C	Deep	20	29.5
SGM-2 PROBE A	Shallow	2.5	7.5
SGM-2 PROBE B	Intermediate	10.5	16
SGM-2 PROBE C	Deep	19	28
SGM-3 PROBE A	Shallow	2.5	7.5
SGM-3 PROBE B	Intermediate	10.5	17
SGM-3 PROBE C	Deep	20	29
SGM-4 PROBE A	Shallow	2.5	7.5
SGM-4 PROBE B	Intermediate	10.5	20
SGM-4 PROBE C	Deep	23	32
SGM-5 PROBE A	Shallow	2.5	7.5
SGM-5 PROBE B	Intermediate	10.5	22
SGM-5 PROBE C	Deep	25	34
SGM-6 PROBE A	Shallow	2.5	7.5
SGM-6 PROBE B	Intermediate	10.5	18.5
SGM-6 PROBE C	Deep	21.5	30.5
SGM-7 PROBE A	Shallow	2.5	7.5
SGM-7 PROBE B	Intermediate	10.5	16
SGM-7 PROBE C	Deep	19	26
SGM-8 PROBE A	Shallow	2.5	7.5
SGM-8 PROBE B	Intermediate	10.5	16.5
SGM-8 PROBE C	Deep	19.5	28.5
SGM-9 PROBE A	Shallow	2.5	7.5
SGM-9 PROBE B	Intermediate	10.5	20.5
SGM-9 PROBE C	Deep	23.5	32.5
SGM-10 PROBE A	Shallow	2.5	7.5
SGM-10 PROBE B	Intermediate	10.5	15.5
SGM-10 PROBE C	Deep	18.5	27.5
SGM-11 PROBE A	Shallow	2.5	7.5
SGM-11 PROBE B	Intermediate	10.5	16
SGM-12 PROBE A	Shallow	2.5	7.5
SGM-12 PROBE B	Intermediate	10.5	15
SGM-13 PROBE A	Shallow	2.5	7.5
SGM-13 PROBE B	Intermediate	10.5	13
SGM-14 PROBE A	Shallow	2.5	7.5
SGM-14 PROBE B	Intermediate	10.5	13
SGM-15 PROBE A	Shallow	2.5	5.5
SGM-15 PROBE B	Intermediate	8.5	11.5
SGM-16 PROBE A	Shallow	2.5	5.5
SGM-16 PROBE B	Intermediate	8.5	11
SGM-17 PROBE A	Shallow	2.5	5.5
SGM-17 PROBE B	Intermediate	8.5	11

Table 10
Soil Gas Monitoring Well Description

Current Landfill			
SGM-18 PROBE A	Shallow	2.5	7.5
SGM-18 PROBE B	Intermediate	10.5	13.5
SGM-19 PROBE A	Shallow	2.5	7.5
SGM-19 PROBE B	Intermediate	10.5	17

BLS – Below Land Surface

Former Landfill			
Soil Gas Monitoring Well	Screen Location	Top of Screen (Feet BLS)	Bottom Screen (Feet BLS)
SGM-1 PROBE A	Shallow	2.5	10
SGM-1 PROBE B	Intermediate	15	43
SGM-2 PROBE A	Shallow	2.5	10
SGM-2 PROBE B	Intermediate	15	40
SGM-3 PROBE A	Shallow	2	9.5
SGM-3 PROBE B	Intermediate	14.5	36
SGM-4 PROBE A	Shallow	2.5	10
SGM-4 PROBE B	Intermediate	15	35.5
SGM-5 PROBE A	Shallow	2.5	10
SGM-5 PROBE B	Intermediate	15	37
SGM-6 PROBE A	Shallow	2.7	10.2
SGM-6 PROBE B	Intermediate	22	37.2
SGM-7 PROBE A	Shallow	2.8	10.3
SGM-7 PROBE B	Intermediate	15	42
SGM-8 PROBE A	Shallow	2.5	10
SGM-8 PROBE B	Intermediate	15	47
SGM-9 PROBE A	Shallow	2.5	10
SGM-9 PROBE B	Intermediate	15	52
SGM-10 PROBE A	Shallow	2.5	10
SGM-10 PROBE B	Intermediate	15	52
SGM-11 PROBE A	Shallow	2.5	10
SGM-11 PROBE B	Intermediate	15	46
SGM-12 PROBE A	Shallow	2.5	10
SGM-12 PROBE B	Intermediate	15	43.5

BLS – Below Land Surface

Table 11
2003 Current Landfill Soil Gas Monitoring Summary Table

Soil Gas Monitoring Well	Methane (% By Volume) April-03	Methane (% By Volume) July-03	Methane (% By Volume) October-03	Methane (% By Volume) December-03	LEL (% By Volume) April-03	LEL (% By Volume) July-03	LEL (% By Volume) October-03	LEL (% By Volume) December-03	Hydrogen Sulfide (ppm by volume) April-03	Hydrogen Sulfide (ppm by volume) July-03	Hydrogen Sulfide (ppm by volume) October-03	Hydrogen Sulfide (ppm by volume) December-03	Soil Gas Monitoring Well
SGMW-01A	17.6	22.1	21.1	21.5	352	444	422	436	2	-	0	-	SGMW-01A
SGMW-01B	18.6	16.2	19.7	19.8	372	324	394	396	3	-	81	-	SGMW-01B
SGMW-01C	18.0	13.9	20.0	17.3	360	282	400	348	3	-	80	-	SGMW-01C
SGMW-02A	58.2	41.2	5.0	22.2	(1164)	324	100	442	14	-	68	-	SGMW-02A
SGMW-02B	55.7	0.0	0.1	0.0	(1140)	0	2	0	32	-	13	-	SGMW-02B
SGMW-02C	59.1	0.0	0	42.7	536	0	0	858	9	-	0	-	SGMW-02C
SGMW-03A	26.8	57.8	55.0	0.0	(1182)	(1156)	(1100)	0	19	-	0	-	SGMW-03A
SGMW-03B	69.1	0.0	54.2	11.7	(1078)	0	(1084)	234	23	-	95	-	SGMW-03B
SGMW-03C	63.9	0.0	0.2	41.0	(1052)	0	4	820	3	-	0	-	SGMW-03C
SGMW-04A	54.1	0.0	0.5	9.4	966	0	10	186	3	-	109	-	SGMW-04A
SGMW-04B	53.9	0.0	0.2	47.0	938	0	4	940	7	-	27	-	SGMW-04B
SGMW-04C	52.6	0.0	0.1	41.5	862	0	2	832	15	-	0	-	SGMW-04C
SGMW-05A	48.3	48.0	54.9	23.4	966	960	(1098)	468	2	-	163	-	SGMW-05A
SGMW-05B	46.9	43.8	53.8	38.8	938	876	(1076)	776	3	-	0	-	SGMW-05B
SGMW-05C	43.1	0.0	41.8	32.3	862	0	836	648	3	-	0	-	SGMW-05C
SGMW-06A	40.3	5.8	15.5	15.5	806	116	310	420	1	-	0	-	SGMW-06A
SGMW-06B	42.9	0.0	0.0	20.7	858	0	0	896	3	-	0	-	SGMW-06B
SGMW-06C	43.6	0.0	0.1	44.8	872	0	2	900	2	-	0	-	SGMW-06C
SGMW-07A	0.8	0.0	0.0	45.1	16	0	0	0	1	-	0	-	SGMW-07A
SGMW-07B	0.9	0.0	0.1	0.0	18	0	2	0	2	-	0	-	SGMW-07B
SGMW-07C	4.0	0.0	0.1	0.0	80	0	2	0	0	-	0	-	SGMW-07C
SGMW-08A	0.0	0	0.1	0.0	0	0	2	0	0	-	27	-	SGMW-08A
SGMW-08B	0.0	0	0	0.0	0	0	0	0	0	-	0	-	SGMW-08B
SGMW-08C	0.0	0	0	0.0	0	0	0	0	0	-	0	-	SGMW-08C
SGMW-09A	0	0	0.1	0.0	0	0	2	0	0	-	13	-	SGMW-09A
SGMW-09B	0	0	0	0.0	0	0	0	0	0	-	0	-	SGMW-09B
SGMW-09C	0.1	0	0.1	0.0	2	0	2	0	0	-	0	-	SGMW-09C
SGMW-10A	18.0	22.0	27.9	5.6	360	440	558	112	1	-	0	-	SGMW-10A
SGMW-10B	15.8	17.7	22.0	0.0	316	354	440	0	1	-	0	-	SGMW-10B
SGMW-10C	14.0	16.6	18.2	0.0	280	332	364	0	2	-	0	-	SGMW-10C
SGMW-11A	15.6	29.3	0.4	17.7	312	586	8	356	1	-	0	-	SGMW-11A
SGMW-11B	13.7	26.0	0.1	0.0	274	520	2	0	13	-	0	-	SGMW-11B
SGMW-12A	60.0	47.6	64.7	0.0	(1200)	952	(1294)	0	0	-	0	-	SGMW-12A
SGMW-12B	50.9	0.3	0.5	1.8	(1018)	6	10	36	1	-	0	-	SGMW-12B
SGMW-13A	30.5	0.0	67.2	66.4	610	0	(1344)	1328	1	-	163	-	SGMW-13A
SGMW-13B	0.0	0.8	0.1	0.0	0	16	2	0	1	-	0	-	SGMW-13A
SGMW-14A	29.4	9.8	8.3	0.0	588	196	2	0	10	-	0	-	SGMW-14A
SGMW-14B	0.2	0	0.1	0.1	4	0	2	2	1	-	0	-	SGMW-14B
SGMW-15A	0.1	0	0.1	0.0	2	0	2	0	1	-	54	-	SGMW-15A
SGMW-15B	0	0	0.1	0.0	0	0	2	0	0	-	0	-	SGMW-15B
SGMW-16A	0.1	0	0	0.0	2	0	0	0	1	-	0	-	SGMW-16A
SGMW-16B	0	0	0	0.0	0	0	0	0	3	-	0	-	SGMW-16B
SGMW-17A	0	0	0	0.0	0	0	0	0	0	-	0	-	SGMW-17A
SGMW-17B	0	0	0	0.0	0	0	0	0	2	-	0	-	SGMW-17B
SGMW-18A	0.1	0	0	0.0	2	0	0	0	2	-	0	-	SGMW-18A
SGMW-18B	0	0.1	0.0	0.0	0	2	0	0	0	-	0	-	SGMW-18B
SGMW-19A	41.8	29.1	40.0	27.0	838	582	800	540	0	-	0	-	SGMW-19A
SGMW-19B	44.0	0.7	33.2	29.5	880	14	664	592	39	-	191	-	SGMW-19B
GSGM-1A	0.1	0	0	0	2	0	0	0	0	-	0	-	GSGM-1A
GSGM-1B	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-1B
GSGM-1C	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-1C
GSGM-2A	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-2A
GSGM-2B	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-2B
GSGM-2C	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-2C
GSGM-3A	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-3A
GSGM-3B	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-3B
GSGM-4A	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-4A
GSGM-4B	0	0	0	0	0	0	0	0	0	-	0	-	GSGM-4B

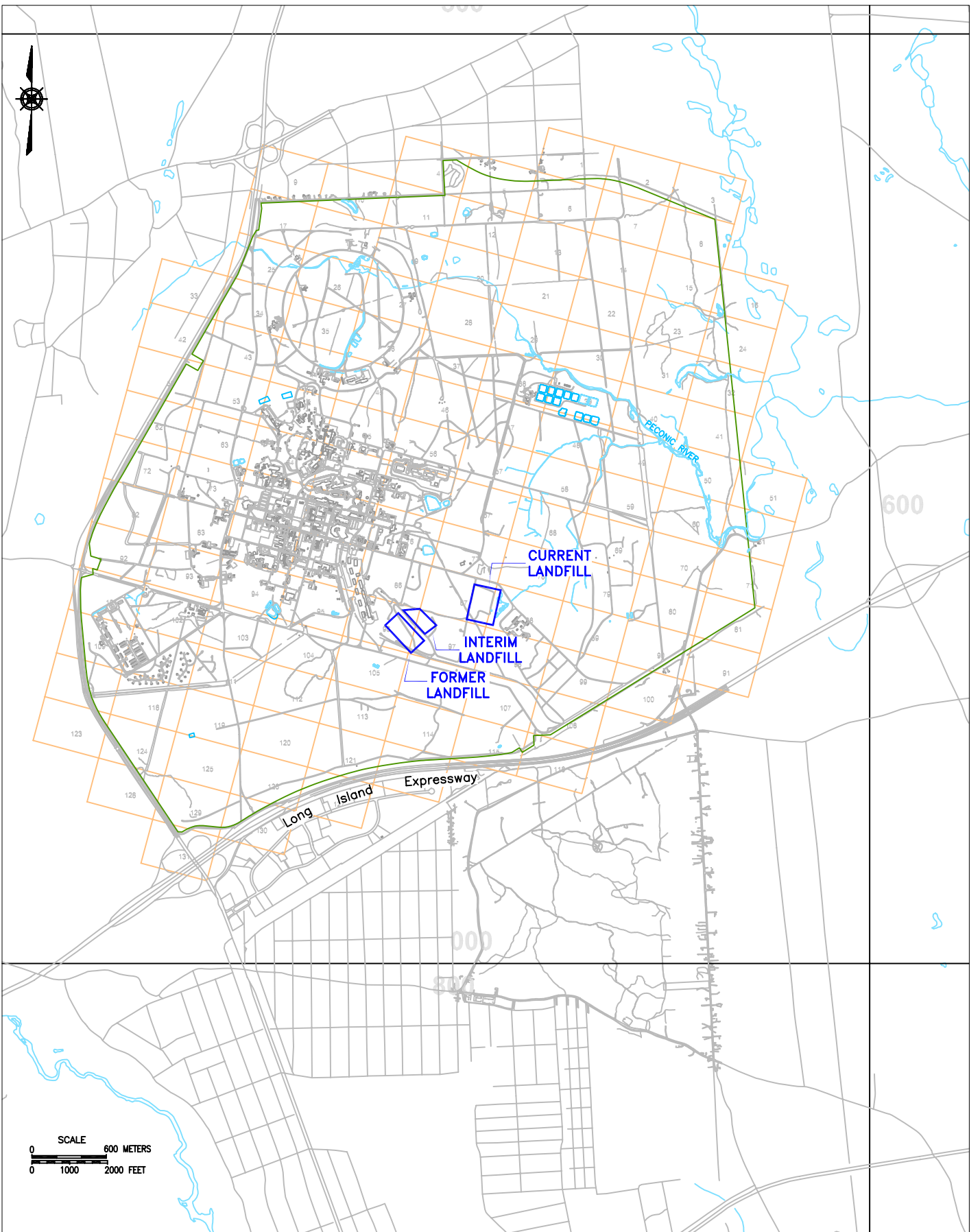
Measurements in () are calculated, not measured.
 - H2S pod was not operating correctly.
 July measurements taken with a Landtec GEM 500.

Table 12
2003 Former Landfill Soil Gas Monitoring Summary

Soil Gas Monitoring Well	Methane (% By Volume) March-03	Methane (% By Volume) July-03	Methane (% By Volume) October-03	Methane (% By Volume) December-03	LEL (% By Volume) March-03	LEL (% By Volume) July-03	LEL (% By Volume) October-03	LEL (% By Volume) December-03	Hydrogen Sulfide (ppm by volume) March-03	Hydrogen Sulfide (ppm by volume) July-03	Hydrogen Sulfide (ppm by volume) October-03	Hydrogen Sulfide (ppm by volume) December-03	Soil Gas Monitoring Well
SGMW-01A	0	0	0.1	0	0	0	2	0	0	~	0	~	SGMW-01A
SGMW-01B	0.1	0	0	0	2	0	0	0	1	~	0	~	SGMW-01B
SGMW-02A	0.1	0	0.1	0	2	0	2	0	4	~	0	~	SGMW-02A
SGMW-02B	0	0	0.1	0	0	0	2	0	1	~	0	~	SGMW-02B
SGMW-03A	0	0	0	0	0	0	0	0	1	~	0	~	SGMW-03A
SGMW-03B	0.1	0	0.1	0	2	0	2	0	1	~	0	~	SGMW-03B
SGMW-04A	0.2	0	0.1	0	4	0	2	0	2	~	0	~	SGMW-04A
SGMW-04B	0	0	0.1	0	0	0	2	0	3	~	0	~	SGMW-04B
SGMW-05A	0.1	0	0	0	2	0	0	0	1	~	0	~	SGMW-05A
SGMW-05B	0	0	0.1	0	0	0	2	0	1	~	0	~	SGMW-05B
SGMW-06A	0.1	0	0.2	0	2	0	4	0	2	~	0	~	SGMW-06A
SGMW-06B	0.1	0	0.2	0	0	0	4	0	2	~	0	~	SGMW-06B
SGMW-07A	0.1	0	0.1	0	2	0	2	0	4	~	0	~	SGMW-07A
SGMW-07B	0.2	0	0.1	0	4	0	2	0	5	~	0	~	SGMW-07B
SGMW-08A	0.1	0	0.1	0	2	0	2	0	1	~	0	~	SGMW-08A
SGMW-08B	0.2	0	0.1	0	4	0	2	0	2	~	0	~	SGMW-08B
SGMW-09A	0.1	0	0	0	2	0	0	0	3	~	0	~	SGMW-09A
SGMW-09B	0.1	0	0	0	2	0	0	0	1	~	0	~	SGMW-09B
SGMW-10A	0.2	0	0.1	0	4	0	2	0	2	~	0	~	SGMW-10A
SGMW-10B	0.2	0	0	0	4	0	0	0	4	~	0	~	SGMW-10B
SGMW-11A	0.1	0	0.1	0	2	0	2	0	0	~	0	~	SGMW-11A
SGMW-11B	0.1	0	0.1	0	2	0	2	0	3	~	0	~	SGMW-11B
SGMW-12A	0.1	0	0.1	0	2	0	2	0	4	~	0	~	SGMW-12A
SGMW-12B	0.1	0	0.1	0	2	0	2	0	3	~	0	~	SGMW-12B

July measurements taken with a Landtec GEM 500
~ H2S pod not operational.

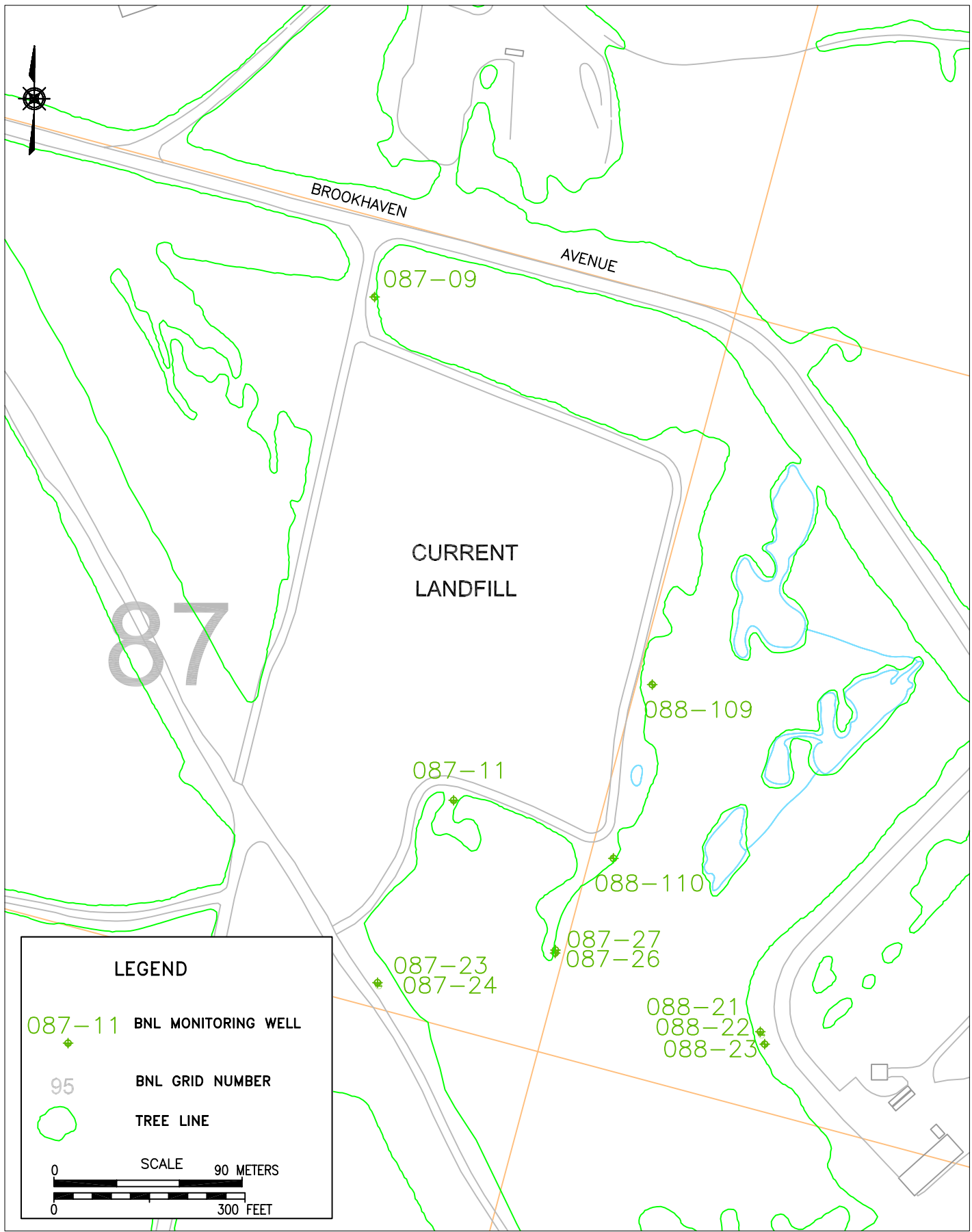
T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 1.DWG



TITLE:
SITE LOCATION MAP
2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT: HZ.: -	DATE: 02/18/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: -	NOTES: -
FIGURE NO.:			1

T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 2.DWG



LEGEND

087-11 BNL MONITORING WELL

95 BNL GRID NUMBER

○ TREE LINE

SCALE

0 90 METERS

0 300 FEET

BROOKHAVEN
NATIONAL LABORATORY

ENVIRONMENTAL
SERVICES DIVISION

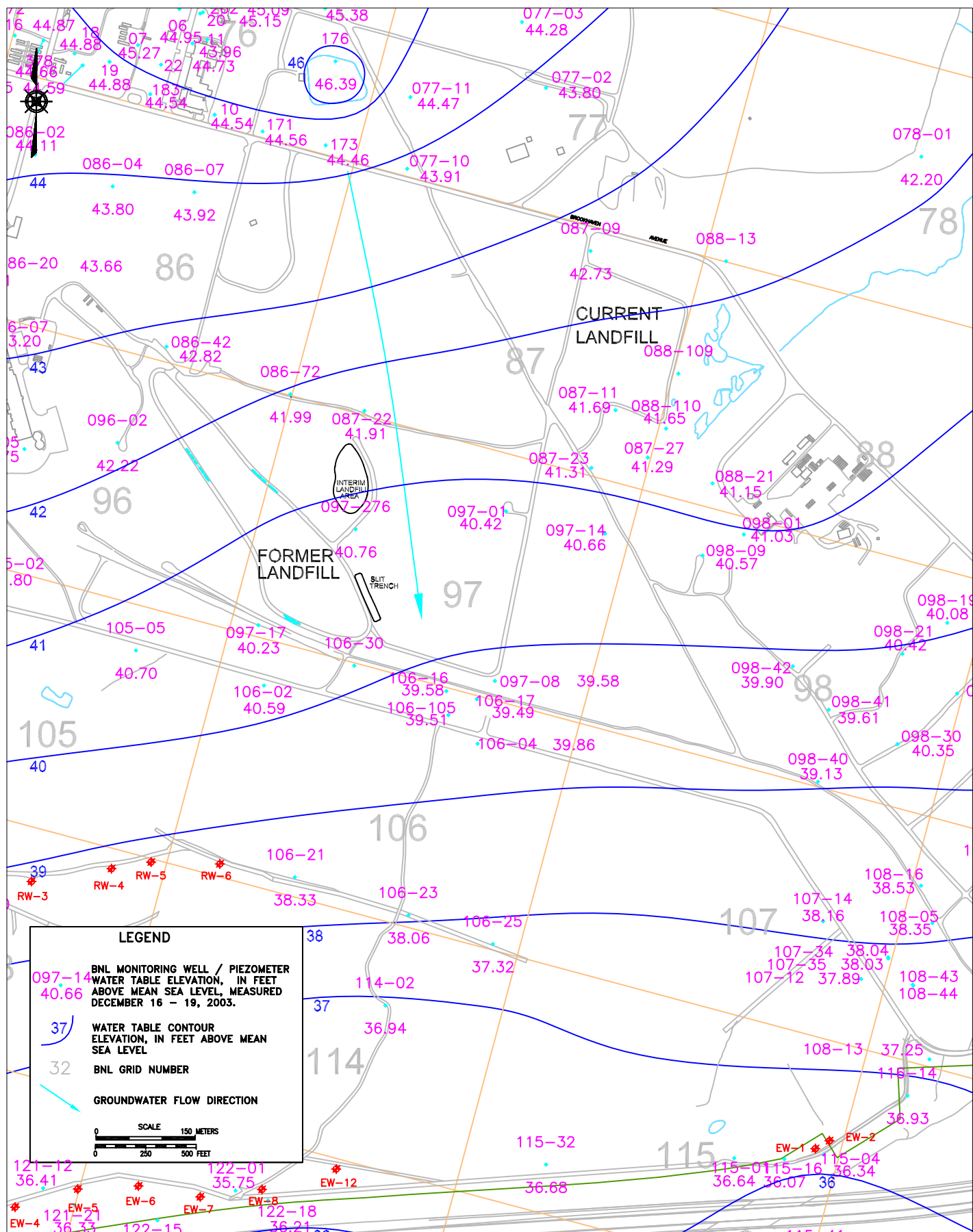
TITLE:

**CURRENT LANDFILL
MONITORING WELL LOCATIONS**

2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT:HZ.: -	DATE: 02/24/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: -	NOTES: -
FIGURE NO.:		2	

T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 3.DWG



LEGEND

- 097-14 BNL MONITORING WELL / PIEZOMETER WATER TABLE ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, MEASURED DECEMBER 16 - 19, 2003.
- 37 WATER TABLE CONTOUR ELEVATION, IN FEET ABOVE MEAN SEA LEVEL
- 32 BNL GRID NUMBER
- GROUNDWATER FLOW DIRECTION

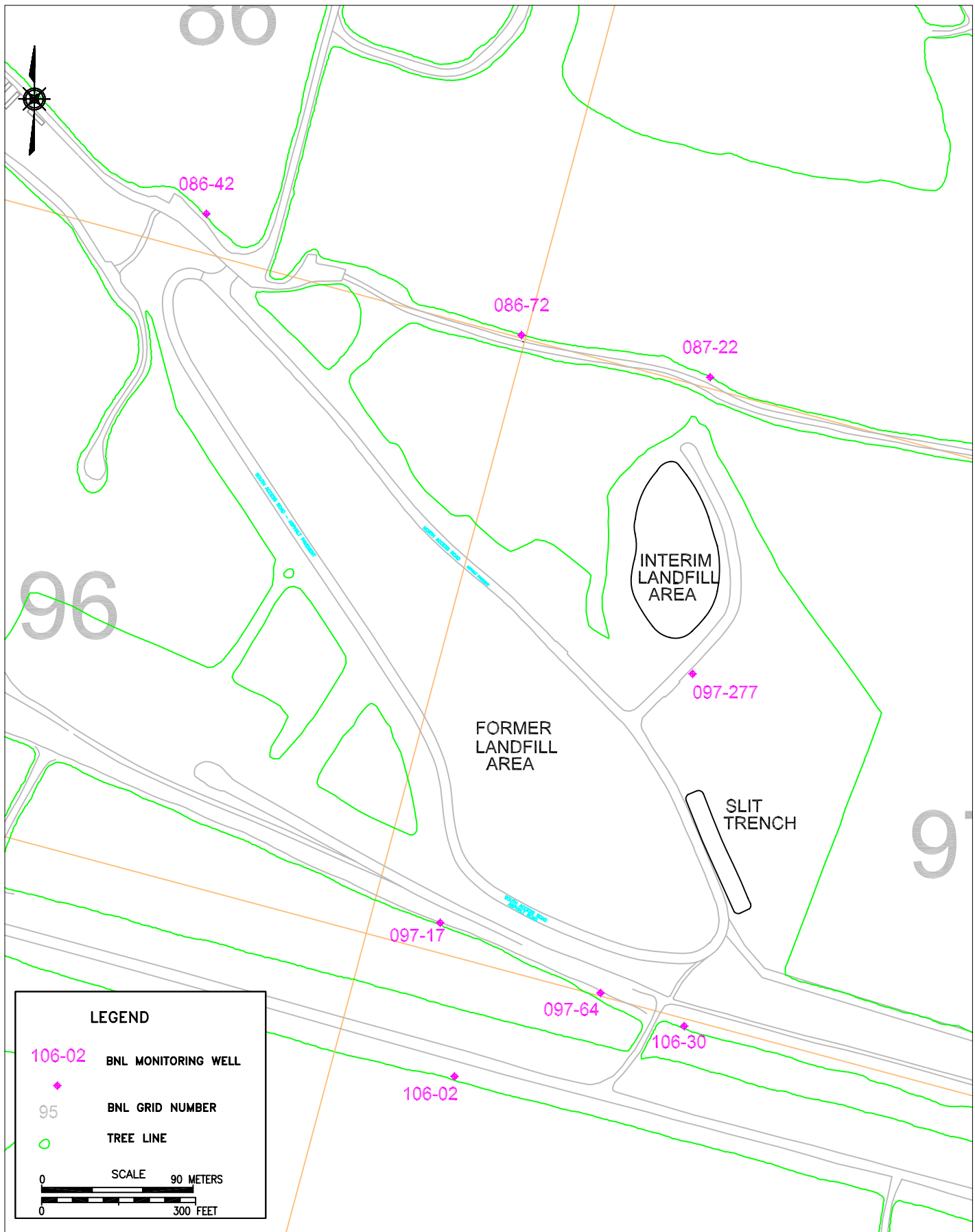
SCALE
0 150 METERS
0 250 500 FEET



TITLE:
WATER TABLE CONTOUR MAP
2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT: HZ.: -	DATE: 02/18/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: -	NOTES: -
FIGURE NO.:			3

T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 4.DWG



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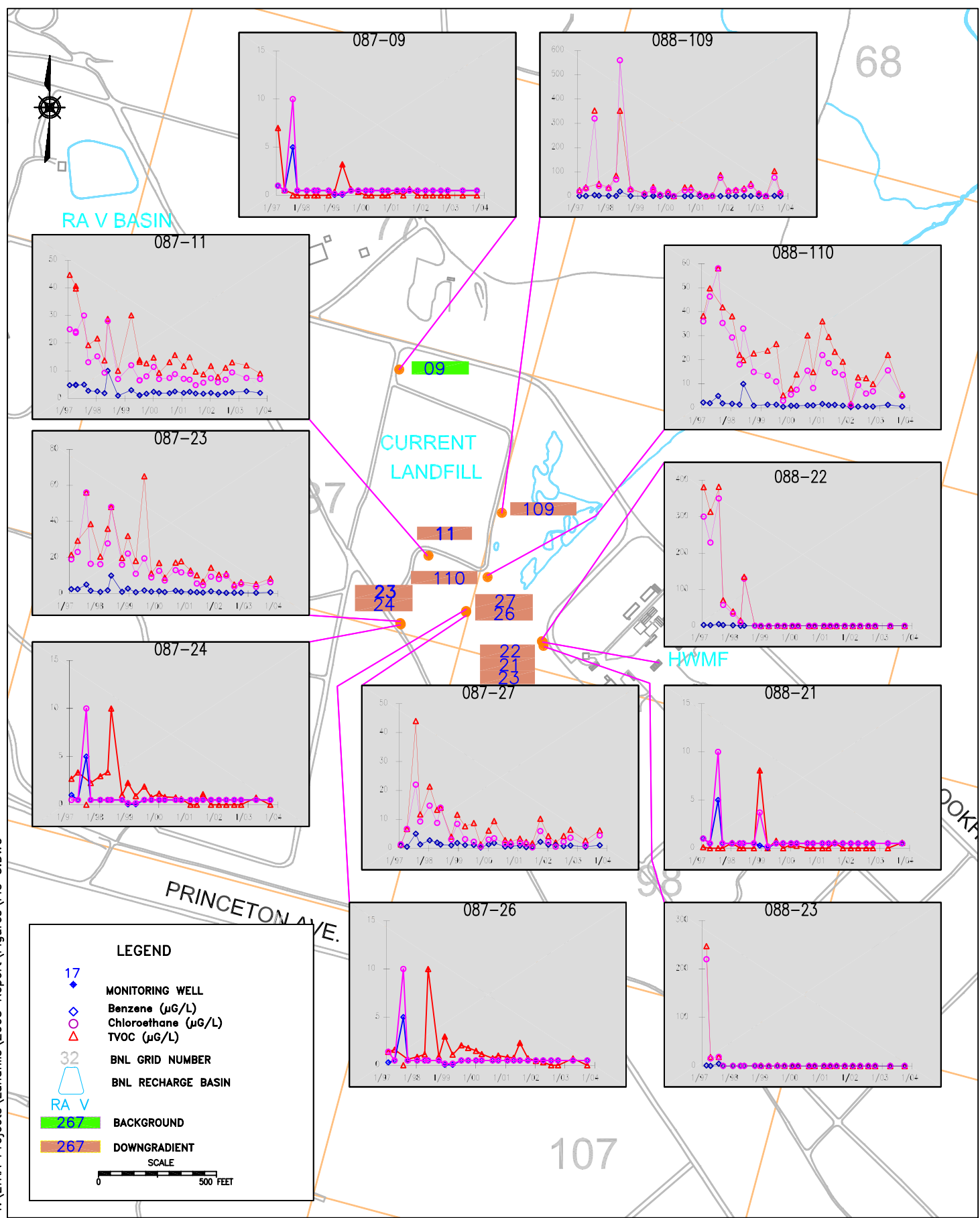
ENVIRONMENTAL
SERVICES DIVISION

TITLE:

**FORMER LANDFILL
MONITORING WELL LOCATIONS**
2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT:HZ.: -	DATE: 02/18/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: -	NOTES: -
FIGURE NO.:			4

T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 5.DWG



LEGEND

- 17 ◆ MONITORING WELL
- ◆ Benzene (µg/L)
- Chloroethane (µg/L)
- △ TVOC (µg/L)
- 32 BNL GRID NUMBER
- RA V BNL RECHARGE BASIN
- 267 BACKGROUND
- 267 DOWNGRADIENT SCALE

0 500 FEET

BROOKHAVEN
NATIONAL LABORATORY

ENVIRONMENTAL SERVICES DIVISION

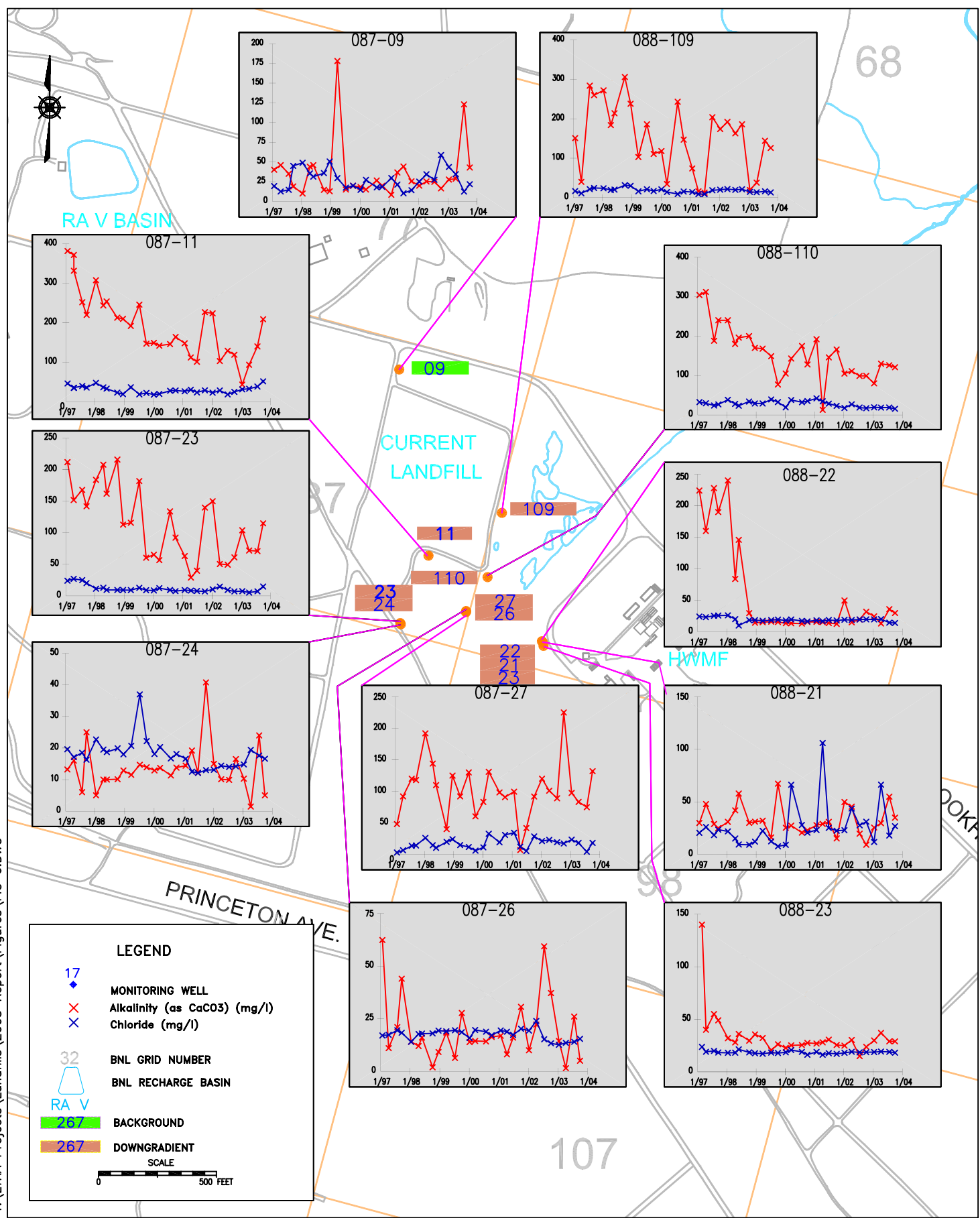
TITLE:

**CURRENT LANDFILL
VOC TREND PLOTS**

2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT: HZ.: -	DATE: 02/24/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: 1	NOTES: --
FIGURE NO.:		5	

T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 6.DWG



LEGEND

- 17 ◆ MONITORING WELL
- × Alkalinity (as CaCO₃) (mg/l)
- × Chloride (mg/l)
- 32 BNL GRID NUMBER
- RA V BNL RECHARGE BASIN
- 267 BACKGROUND
- 267 DOWNGRADIENT SCALE

SCALE
0 500 FEET

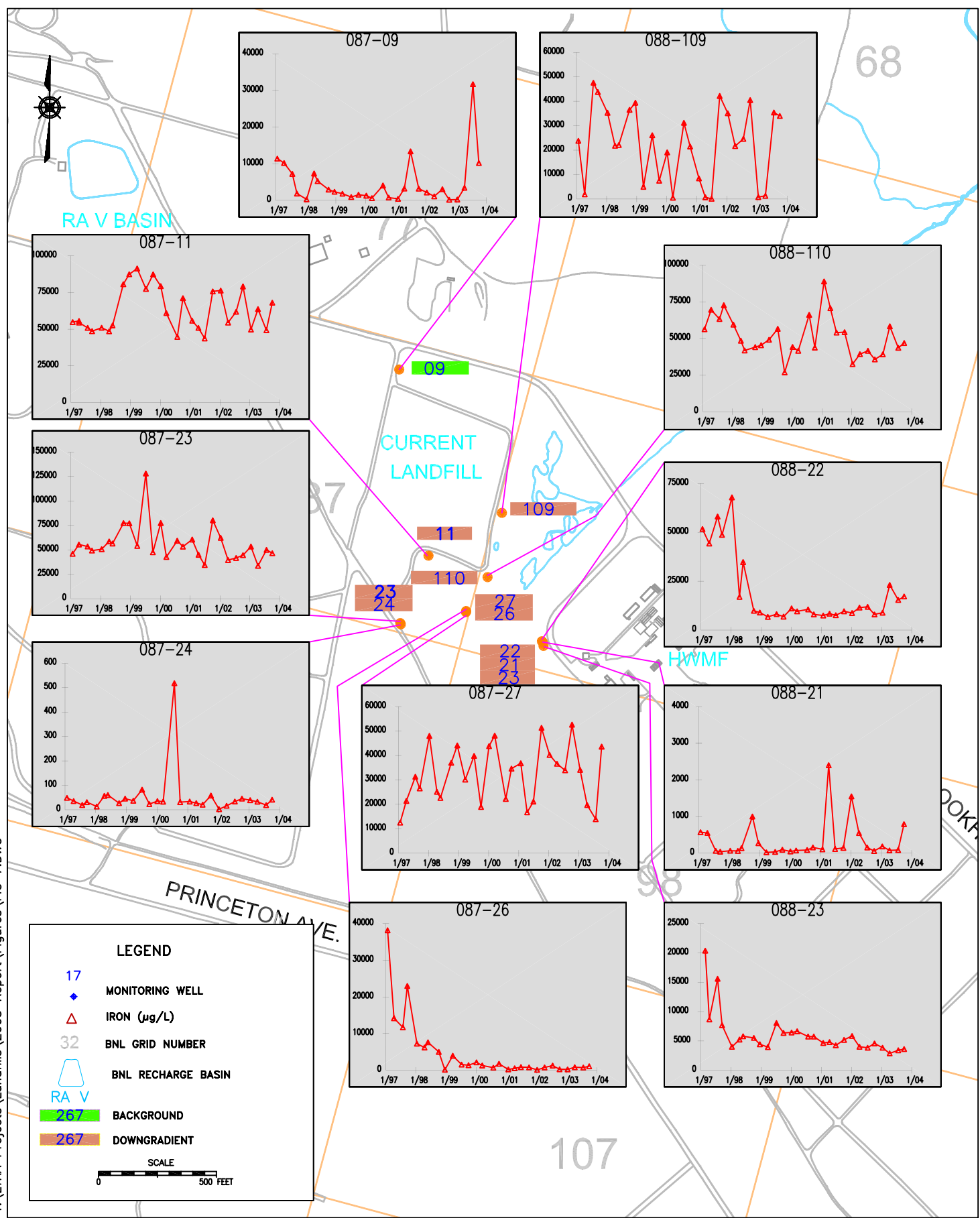
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NATIONAL LABORATORY

ENVIRONMENTAL SERVICES DIVISION

TITLE:
**CURRENT LANDFILL
ALKALINITY AND CHLORIDE TREND PLOTS**
2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT: HZ.: -	DATE: 02/24/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: 1	NOTES: --
FIGURE NO.:		6	

T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 7.DWG

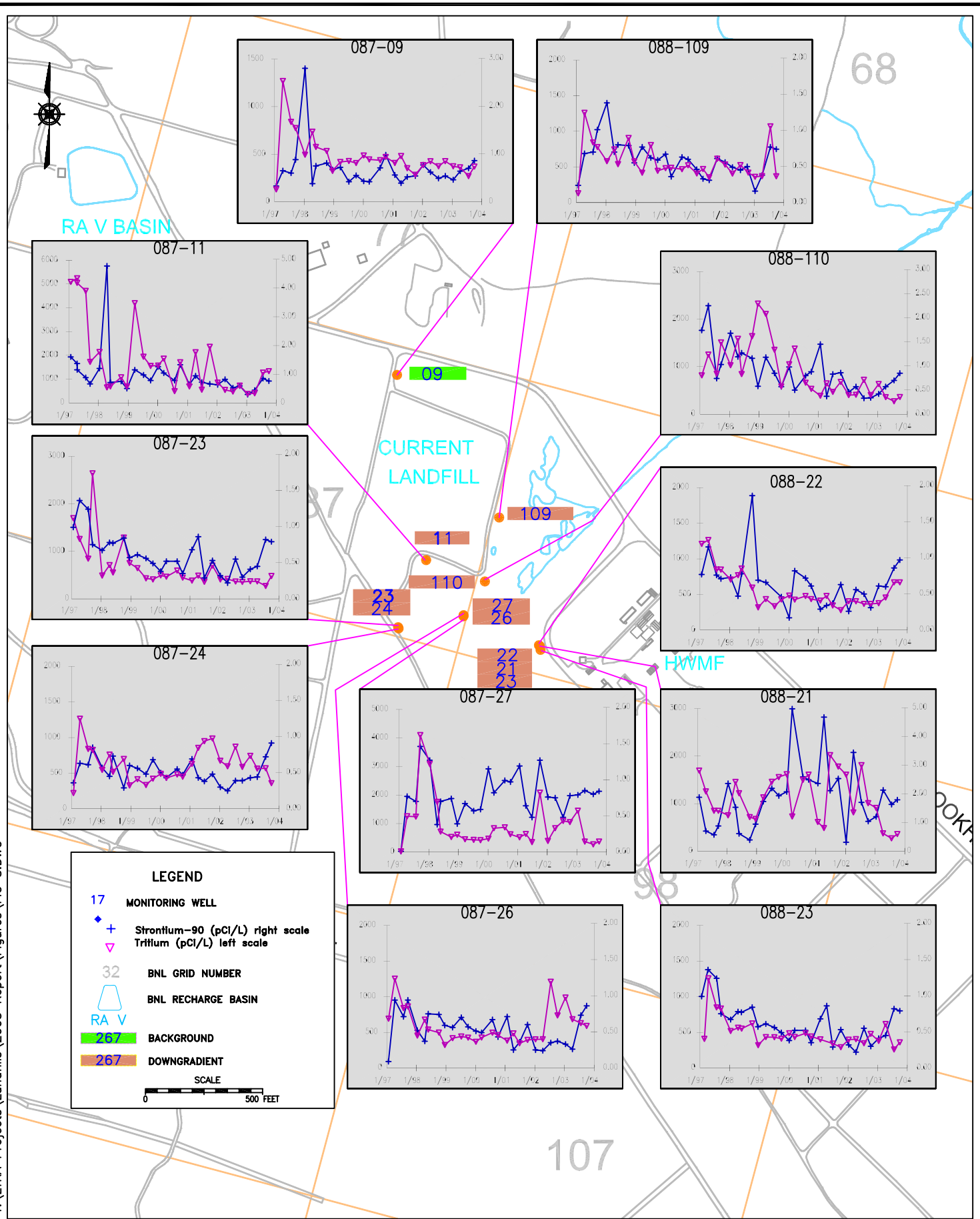


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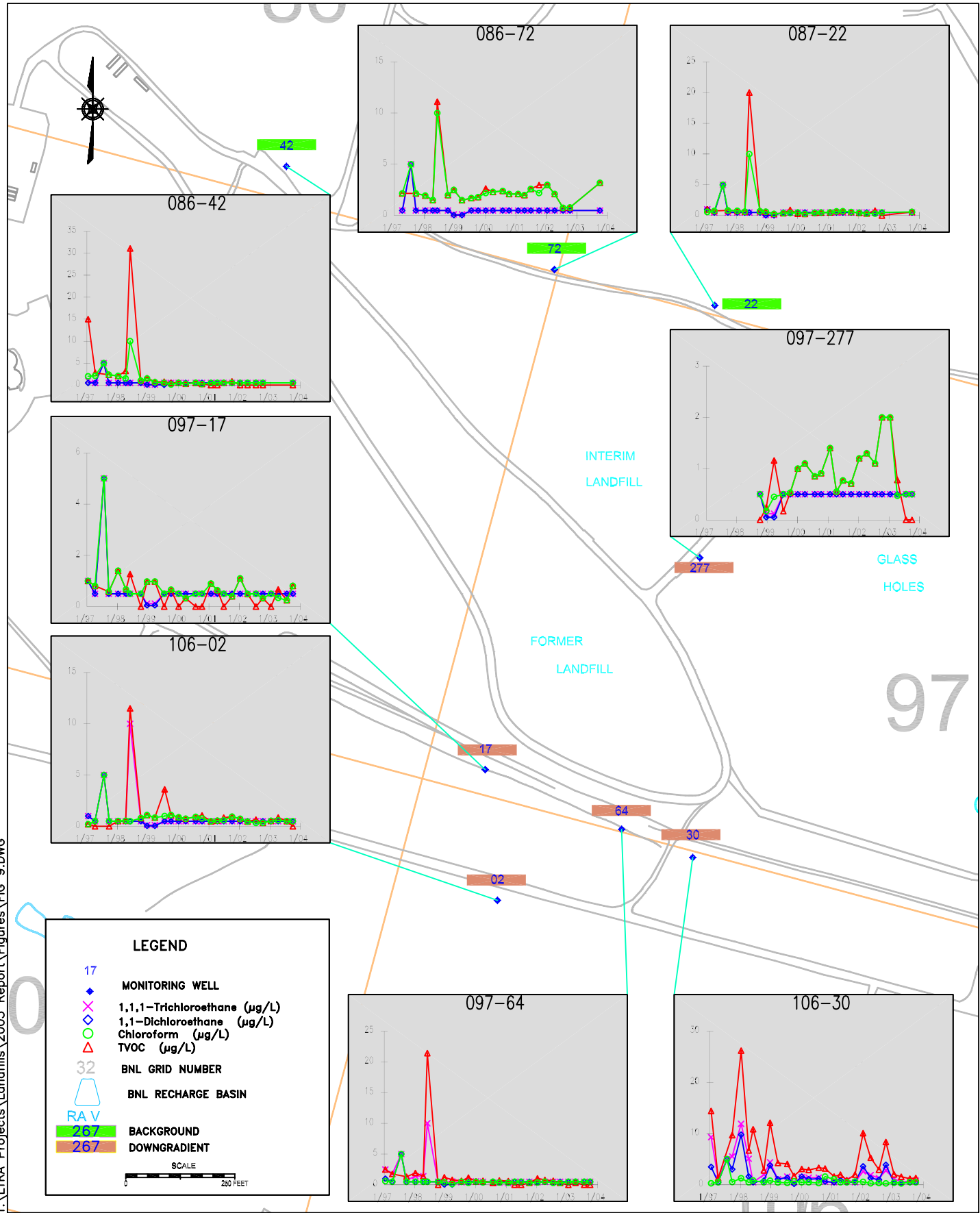
ENVIRONMENTAL
SERVICES DIVISION

TITLE:
**CURRENT LANDFILL
IRON TREND PLOTS**
2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

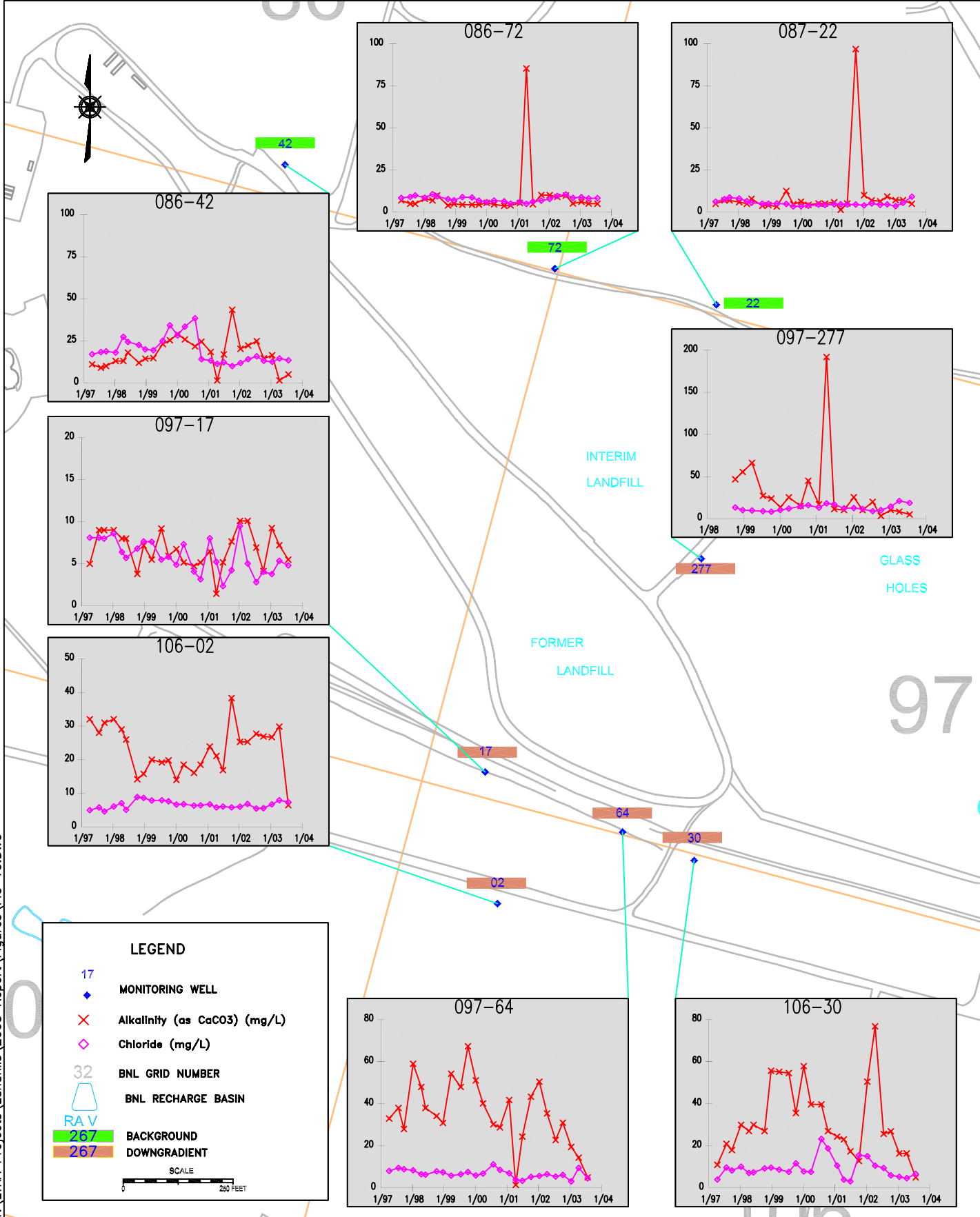
DWN: KCK	VT: HZ.: -	DATE: 02/24/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: 1	NOTES: --
FIGURE NO.:			7



T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 9.DWG



T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 10.DWG



LEGEND

- 17 MONITORING WELL
- × Alkalinity (as CaCO₃) (mg/L)
- ◇ Chloride (mg/L)
- 32 BNL GRID NUMBER
- RAV BNL RECHARGE BASIN
- 267 BACKGROUND
- 267 DOWNGRADIENT

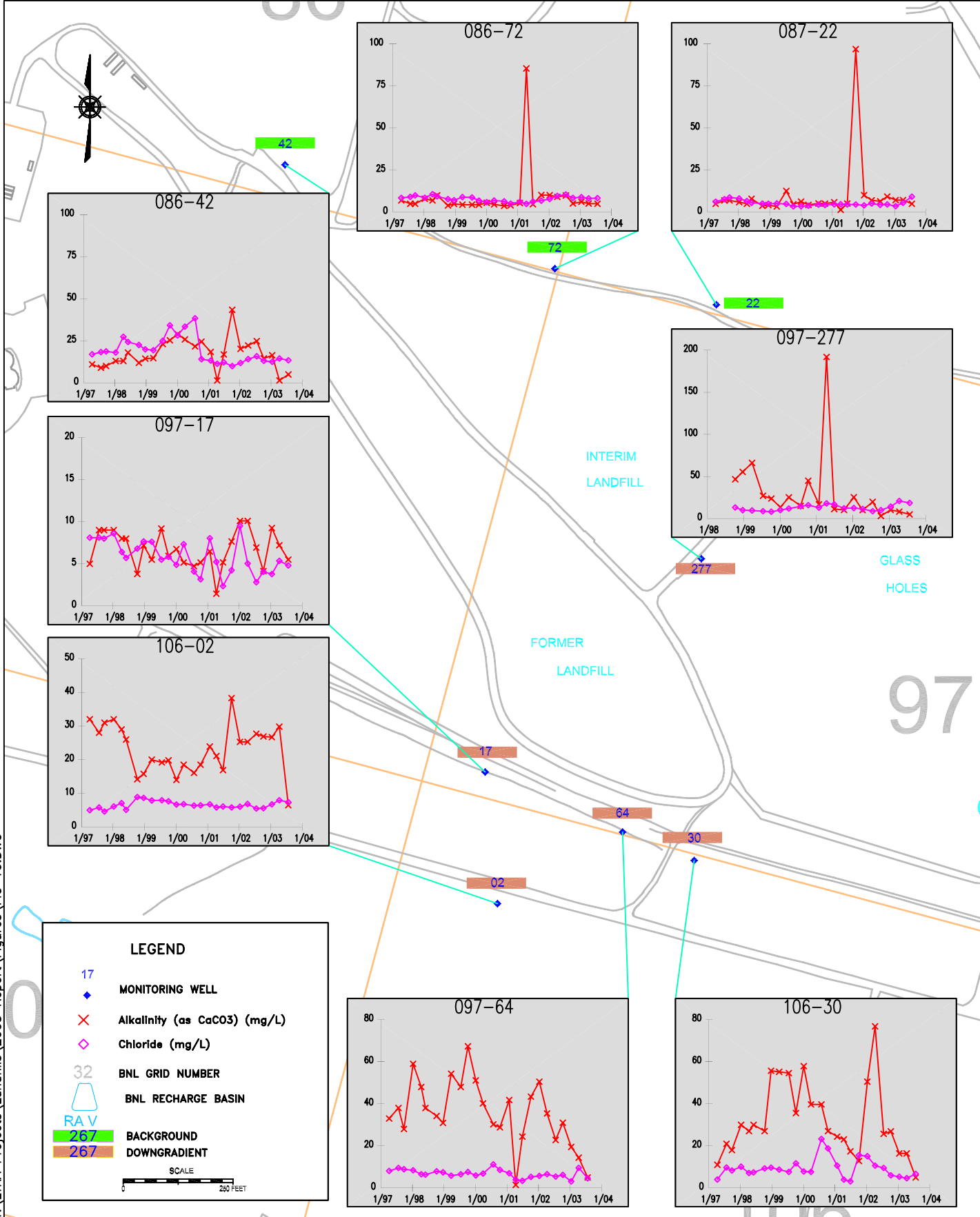
SCALE
0 250 FEET



TITLE:
**FORMER LANDFILL
ALKALINITY AND CHLORIDE TREND PLOTS**
2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT:HZ.: -	DATE: 02/24/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: 1	NOTES: --
FIGURE NO.:		10	

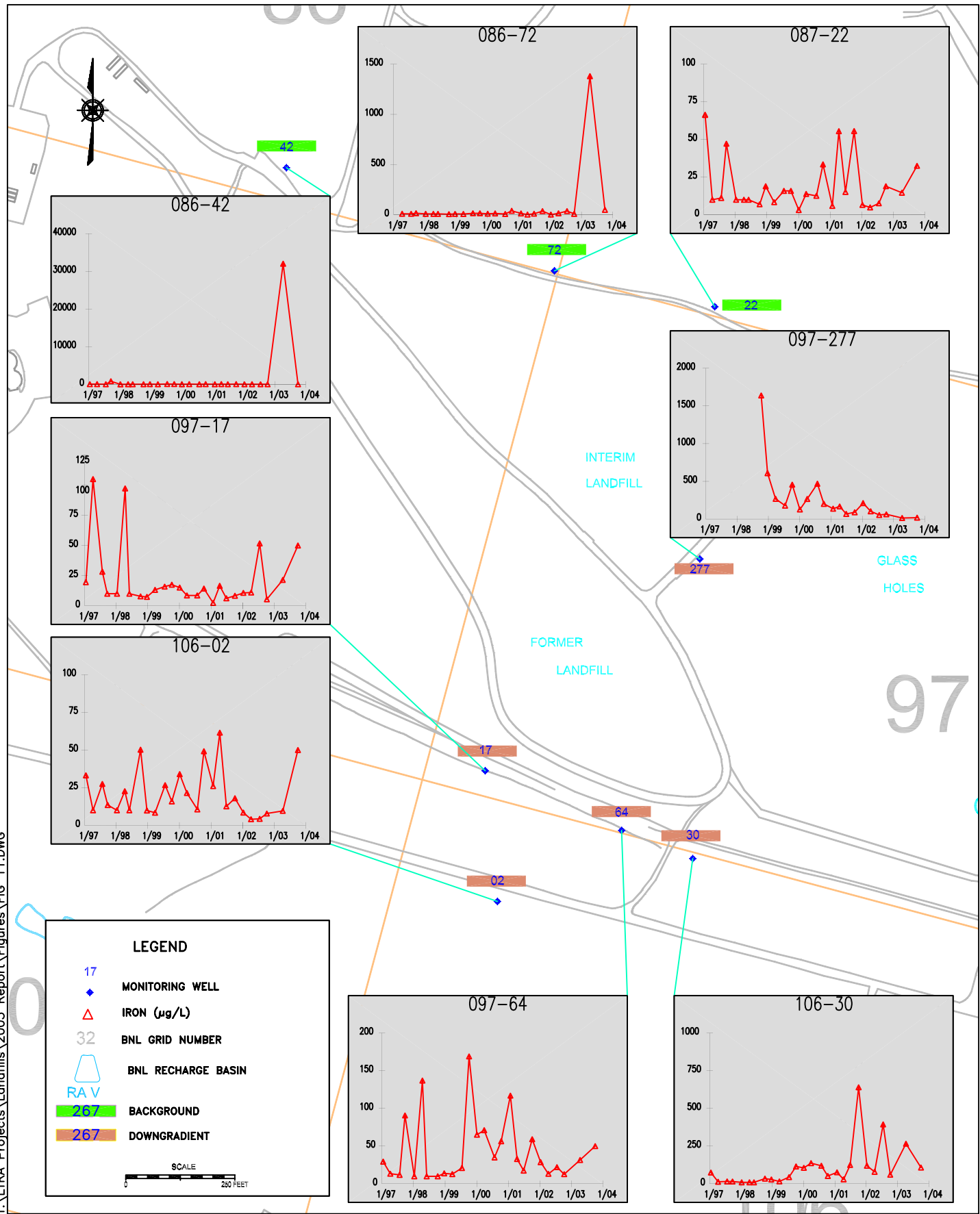
T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 10.DWG

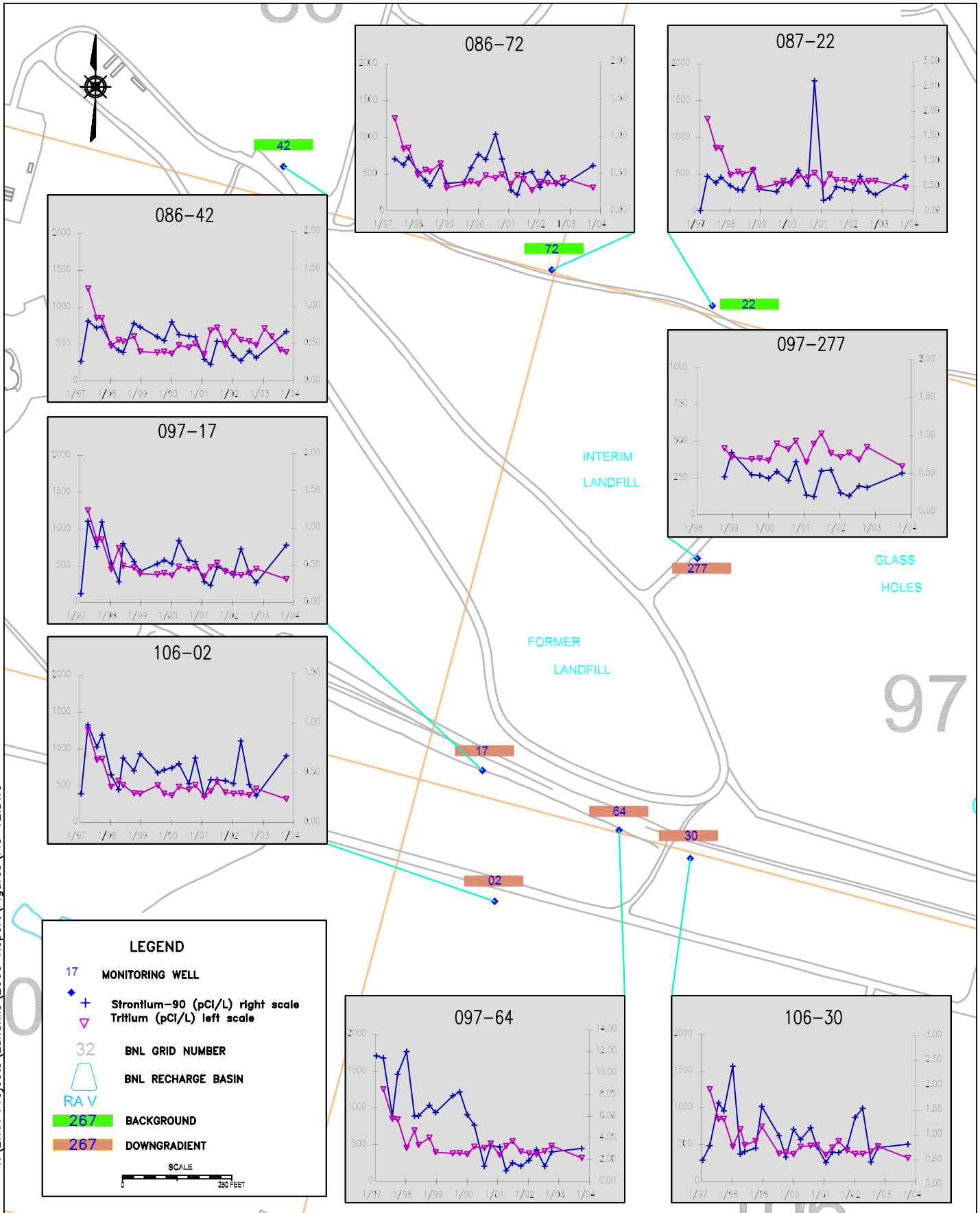


TITLE:
**FORMER LANDFILL
 ALKALINITY AND CHLORIDE TREND PLOTS**
 2003 ENVIRONMENTAL MONITORING REPORT
 CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT:HZ.: -	DATE: 02/24/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: 1	NOTES: --
FIGURE NO.:		10	

T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 11.DWG



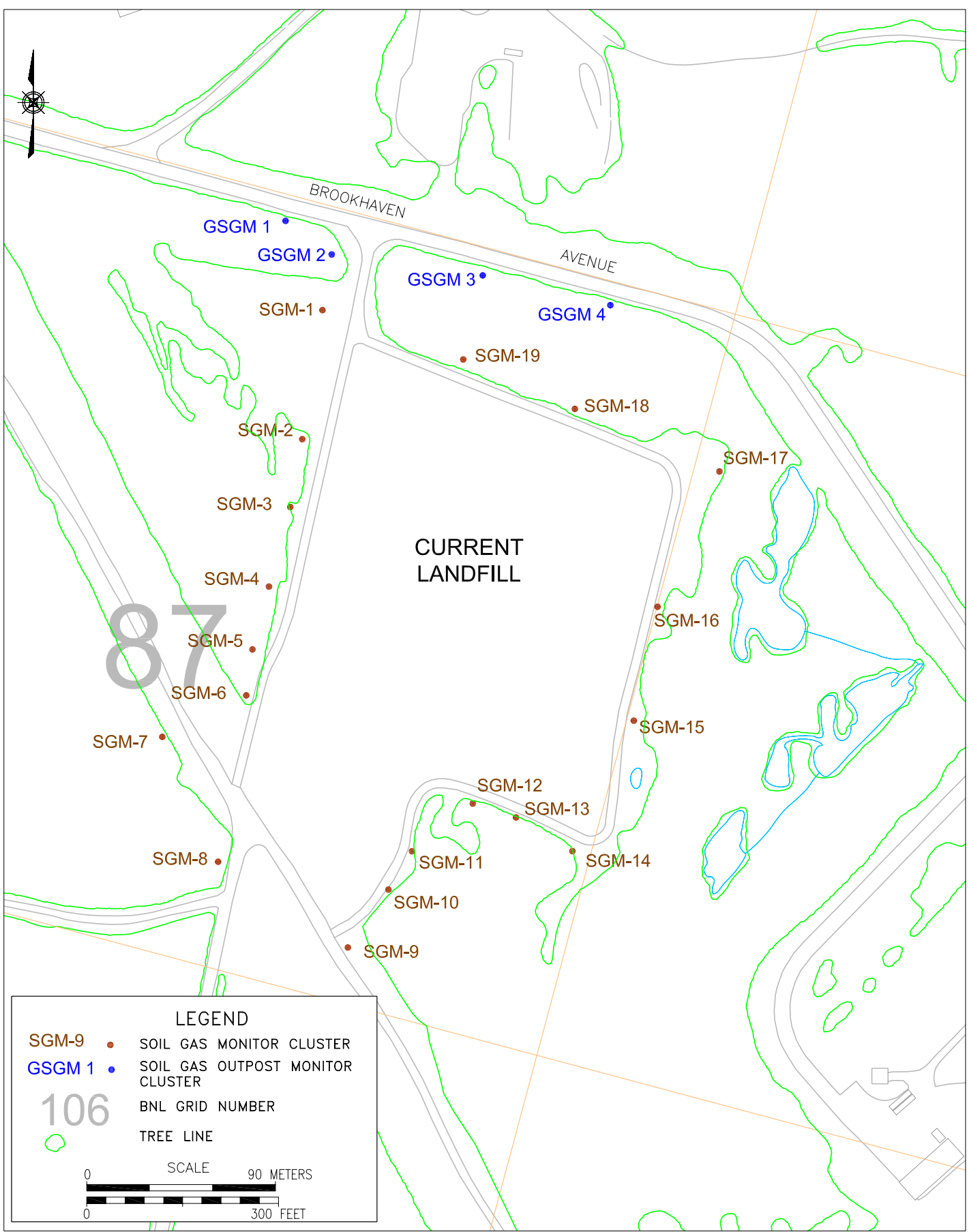


LEGEND

- 17 **MONITORING WELL**
- + **Strontium-90 (pCi/L) right scale**
- ▽ **Tritium (pCi/L) left scale**
- 32 **BNL GRID NUMBER**
- △ **BNL RECHARGE BASIN**
- RAV
- 267 **BACKGROUND**
- 267 **DOWNGRADIENT**

SCALE
0 250 FEET

T:\LTRA Projects\Landfills\2003 Report\Figures\FIG 13.DWG



LEGEND

- SGM-9 ● SOIL GAS MONITOR CLUSTER
- GSGM 1 ● SOIL GAS OUTPOST MONITOR CLUSTER
- 106 BNL GRID NUMBER
- TREE LINE

SCALE

0 90 METERS

0 300 FEET

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SERVICES DIVISION

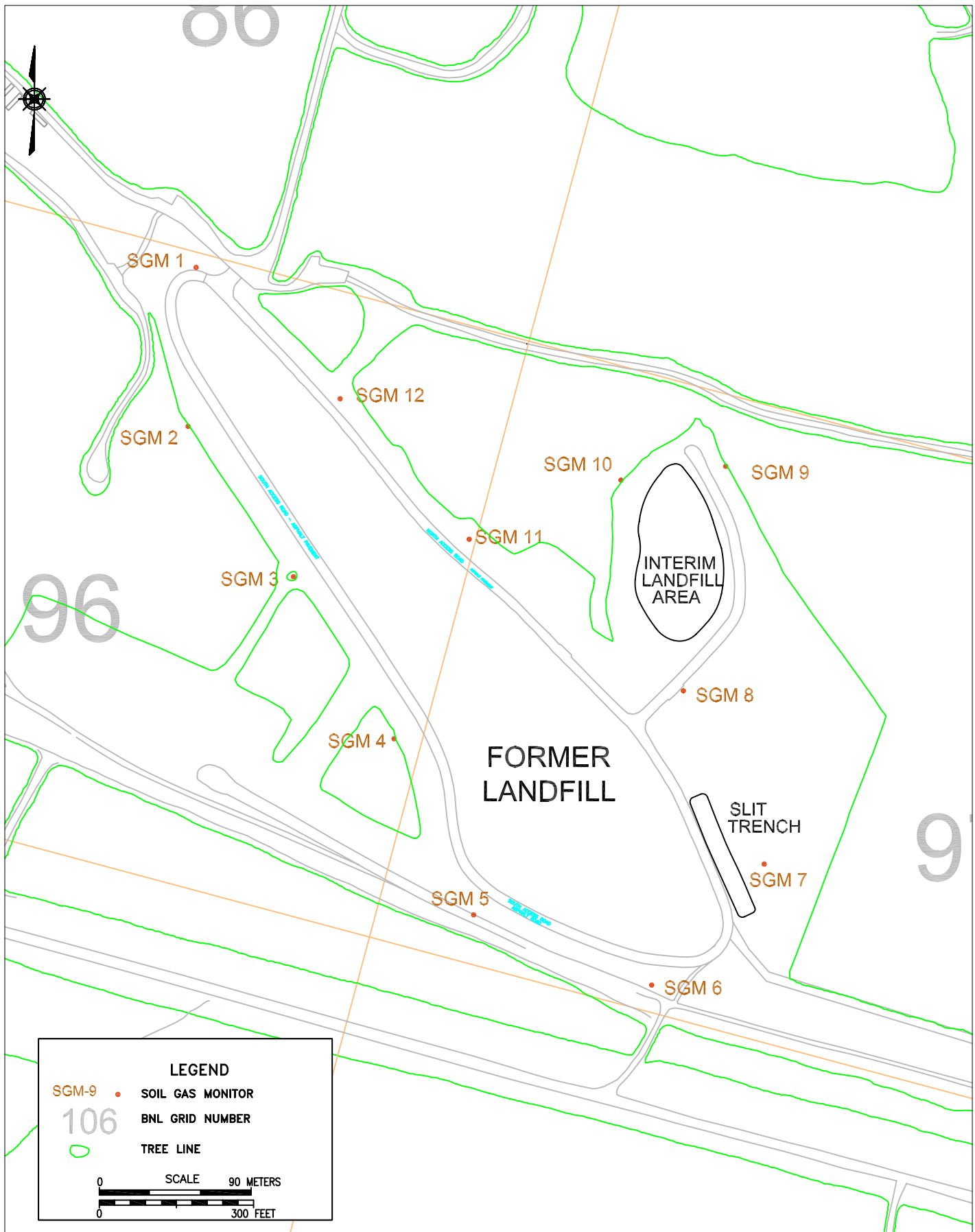
TITLE:

**CURRENT LANDFILL
SOIL GAS MONITOR LOCATION MAP**

2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT:HZ.: -	DATE: 03/15/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: -	NOTES: -
FIGURE NO.:		13	

\\HYDROLOGISTS\DORSCH\2003\LANDFILLS REPORT\FIGURES\FIG 14.DWG



LEGEND

- SGM-9 • SOIL GAS MONITOR
- 106 BNL GRID NUMBER
- TREE LINE

0 SCALE 90 METERS
0 300 FEET

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TITLE:
**FORMER LANDFILL
SOIL GAS MONITOR LOCATION MAP**
2003 ENVIRONMENTAL MONITORING REPORT
CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT: HZ.: -	DATE: 02/18/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: -	NOTES: -
FIGURE NO.:			14

Appendix A

Operable Unit 1
Wooded Wetlands Supplemental Surface Water
and
Sediment Sampling and Analysis Report

ANNUAL WOODED WETLAND REPORT 2003

1.0 INTRODUCTION

This report summarizes and evaluates the annual sediment and surface-water sampling performed for Operable Unit I (OU I), Wooded Wetland area at Brookhaven National Laboratory, Upton, New York (BNL). The Wooded Wetland is located east of and adjacent to the Current Landfill and has the potential to receive leachate from the landfill. The wetland consists of a North and South pond. The annual sampling of the Wooded Wetland follows the recommendations of the Focused Ecological Risk Assessment Operable Units I/VI (CDM, 1999b). This report summarizes the results of the sampling conducted in accordance with the 1999 and 2000 OU I Wooded Wetlands Supplemental Sampling and Analysis Plans (BNL, 1999 and BNL, 2000). These plans were prepared as an addendum to the Sampling and Analysis Plan for the Remedial Investigation/Feasibility Study for Operable Unit I (SAIC, 1993).

The annual sampling focuses on analysis of metals in the sediment and surface-water to evaluate their potential risks to the local Tiger Salamander population. Seven sediment and seven surface-water samples were collected in May 2003 from two ponds (North and South), in the Wooded Wetland area, and analyzed for total metals.

1.1 Background

The Wooded Wetland is a two-acre area located between the Former Hazardous Waste Management Facility and the Current Landfill (Figure 1). The wetland receives surface runoff from the Current Landfill, which was capped in 1995, as well as land runoff from the south. The Wooded Wetland usually is flooded during the spring and early summer and dry in late summer. In the Current Landfill area, the water table is located approximately 10 to 15 feet below the Wooded Wetlands, therefore the wetland area does not receive groundwater recharge. High clay content of the near surface soils allows for perching of water from precipitation and runoff.

An ecological review and assessment of the wooded wetland is provided in the *OU I/VI Preliminary Ecological Risk Screening Report* (CDM, 1996b). As part of the Feasibility Study for OU I, a Focused Ecological Risk Assessment was conducted for this area of concern (CDM, 1999b).

Two surface-water samples (SW-4 and SW-5) and 14 sediment samples (SD-10 through SD-17) were collected from this area in 1994 during the OU I Remedial Investigation (CDM, 1996a). At six of the sediment locations, samples were collected from two intervals: 0 to 0.5 feet, and 1 to 1.5 feet. Samples were collected from the surface only at the remaining two locations (SD-10 and SD-11).

A gap was identified in the 1994 data set and supplemental sampling was carried out in December 1997 as part of the Ecological Risk Assessment. Only two surface-water and two sediment samples were collected and analyzed for metals during this sampling event due to the dry conditions at this time. Results from all four locations indicated lower concentrations of contaminants in both the

surface-water and sediment compared to the May 1994 locations. Figure 1 shows the benchmark 1994 and 1997 surface-water/sediment sample locations, respectively.

Samples of surface-water and sediment were collected at five locations in June 1999, as shown on Figure 2. Analytical results are presented in Table 1. These places were chosen based upon the locations where samples were collected in 1994 and 1997. Locations SW/SD-B and SW/SD-C were near to the two 1997 locations. SW/SD-A, SW/SD-D, and SW/SD-E were close to three of the 1994 sediment sampling locations. Variability in sampling locations and number of samples were related primarily to seasonal drying of the ponds.

The results of the surface-water samples from four of the locations (SW-A, SW-B, SW-D, and SW-E) indicated that the risk for larval salamanders was unlikely to low. At location SW-C, the concentration of metals in the surface-water sample indicated a moderate risk. Sediment results from the five locations (SD-A through SD-E) indicated that the risk to adult salamanders is unlikely. (See the Ecological Risk Assessment, CDM, 1999b.)

In August 2000, four surface-water samples (2 from each pond), and seven sediment samples (4 from the South Pond, 3 from the North Pond) were collected from the Wooded Wetlands Area. The locations are shown in Figure 2. Analytical results are presented in Table 1. In 2001, 2002, and 2003 seven surface-water and sediment samples were taken from the ponds (Table 2). The following discussions focus on the findings of the 2003 sampling season.

2.0 GENERAL PROCEDURES

2.1 Environmental Sampling Procedures

Sampling was conducted by BNL on May 29, 2003, in accordance with the procedures and sampling locations outlined in the *OUI Sampling and Analysis Plan* (SAIC, 1993), supplementary Wooded Wetlands sampling plans (BNL 1999 and 2000) and BNL standard operating procedures for sampling surface-water and sediments.

Samples were sent to an off-site certified laboratory for analysis. They were submitted for total metals analysis, target analyte list (TAL) by EPA Methods 6010B, and mercury by EPA Methods 7470 and 7471. In accordance with the July 2000 Sampling and Analysis Plan, quality assurance/quality control samples included a blind duplicate (one per matrix), matrix spike/matrix spike duplicate (one per matrix), and, one equipment blank.

2.2 Criteria

To determine if sediment or surface-water concentrations pose a risk to salamanders, analytical data were compared to benchmark sediment concentrations and critical water concentrations (Tables 2A and 2B) that were calculated in the *Ecological Risk Assessment* (CDM, 1999b). A benchmark sediment dose is a dose above which an observable toxic effect may occur in adult Tiger Salamanders. Table 2A gives the benchmark sediment concentrations for five metals of concern. Critical water concentrations are surface-water concentrations that have the potential to produce observable adverse effects to larval salamanders. The ten metals in the surface-water that have an

estimated critical concentration, are summarized in Table 2B. Three of them have benchmark maximum concentrations greater than the critical levels.

2.3 Sample Locations

Seven sediment and seven surface-water samples were collected and analyzed for total metals in 2003 from the Northern and Southern Ponds. Four sediment and four surface-water samples were taken from the Southern Pond, and three sediment and three surface-water samples were collected from the Northern Pond. Table 1 lists 2003 samples with cross-references of the sampling locations to 1994, 1997, 1999, 2000, 2001, 2002 and 2003. Figure 2 shows the sediment and surface-water sampling locations.

3.0 SUMMARY OF ANALYTICAL RESULTS

The results from the total metals sample analyses of sediment and surface-water for each year are summarized in Tables 3 and 4, respectively. Tables 5 and 6 contain comparisons of average sediment and surface-water sample results for contaminants of concern to maximum contaminant and background concentrations, for each year.

3.1 Sediment

Table 5 summarizes the results for the contaminants of concern, specifically copper, lead, manganese, mercury and zinc, for the Northern and Southern Ponds. These results are compared with the maximum and background sediment concentrations from Table 2A.

To evaluate sediment concentrations in the Northern and Southern Ponds for the metals of concern, annual averages were calculated from the samples collected. The averages were determined to evaluate trends, since the sediment samples were grab samples collected from a number of locations.

The results from the four Southern Pond locations, SD-5, SD-6, SD-16, and SD-17, indicate that the concentrations of the metals of concern at these locations are below the maximum contaminant and background concentrations. Compared to the 2002 levels of lead, the 2003 levels decreased significantly. Copper, manganese and zinc levels were similar or lower to previous years results. Overall trends since 1999 indicate similar or slightly decreasing concentrations of metals in the sediments.

The 2003 concentrations of the metals of concern from the Northern Pond samples were similar to, or lower than, the maximum benchmark sediment concentrations. The average 2003 concentrations were also similar to, or less than, the 2001 and 2002 levels. No significant trend in concentrations since 1999 is apparent.

3.2 Surface-Water

Table 6 presents the results of the ten metals of concern for each of the seven surface water samples collected during 2003. Also shown in Table 6, for comparison, are the surface water results from previous monitoring, along with the critical and benchmark water concentrations from Table 1B. Four surface water samples came from the Southern Pond (SW-5S, SW-6, SW-16 and SW-17) and three samples were collected from the Northern Pond (SW-4, SW-5N and SW-2001).

The Southern Pond samples show concentrations of iron were in excess of the critical concentration value at two of four locations (SW16 and SW17). Zinc concentrations were in excess of the critical concentration value of 23.8 ug/L at all four locations (ranging from 29.9 to 34.4 ug/L) and showed an increase from previous years.

Aluminum and iron concentrations in the Northern Pond have historically been detected in excess of the critical threshold value. The average 2003 concentrations of aluminum, iron and zinc are above the critical concentrations. With the exception of aluminum and zinc, the average 2003 concentrations are similar to those in previous years.

4.0 CONCLUSIONS & RECOMMENDATIONS

The results of the May 2003 sediment and surface water sampling program indicate no elevated risk to adult salamanders from sediments in the Southern or the Northern Ponds when compared to the maximum benchmark concentrations (Table 2A). The sample concentrations for both ponds were lower than the maximum benchmark concentrations which would result in an elevated hazard quotient that was discussed in the Final Focused Ecological Risk Assessment for OU I (CDM, 1999b). The potential risk is based on comparing the 2003 results with the maximum benchmark concentrations for copper, lead, mercury, and zinc. In addition, because concentrations were not detected above BNL background, they are not considered a potential risk. A hazard quotient greater than 1.0 but less than 10 is considered a low risk. When the averages of the parameters in the sediments collected during 2003 were used in evaluating potential risk, none of them were above the BNL background concentrations.

Surface water samples indicated an average iron concentration of 1,663 ug/l in the Northern Pond, which is higher than the 1,000 ug/l critical concentration. Although the maximum iron concentration (3,420 ug/l in sample SW-2001), exceeded the background concentration, all other samples in both ponds were below background concentrations. The average concentration of aluminum (1,865 ug/l) was above the critical water concentration (525 ug/l) in the Northern Pond. This result is higher than data from previous years and exceeded background concentrations. Zinc levels increased in samples collected in 2003, exceeded the critical concentration and were higher than previous years. They were less than the background levels.

There is a considerable amount of uncertainty reflected in deriving the critical water concentrations established in the Ecological Risk Assessment (CDM, 1999). This is largely due to the limited number of published toxicity values for the Tiger Salamander related to the metal of concern. In the case of aluminum, the critical water concentration is calculated by applying a correction factor of 0.1 (to account for uncertainty) to the mortality as indicated by the Lowest Observed Adverse Effects

Level (LOAEL) for the mortality of the Jefferson Salamander larvae. The Jefferson salamander larvae species is the closest matches for the Tiger Salamander larvae. The critical water concentration for iron was taken from the EPA National Recommended Water Quality Criteria for Non-Priority Pollutants (EPA, April 1999). No maximum value is given under these criteria.

Overall, the results obtained from the May 2003 sampling indicates a general decrease in several of the metals of concern in both sediment and surface-water collected in previous years. The number of sediment and water samples collected from the Southern Pond in 2003 was the same as those collected in 2002, so the averages can be directly compared. No substantive effect due to leached metals from the landfill is evident in the sediments or surface-water.

In summary, the average values of the concentrations of the metals of concern in the sediments in either pond in 2003 were not above benchmark or BNL background concentrations. This indicates that a risk to adult salamanders is unlikely. The averages for the water samples collected from each pond in 2003 indicate that aluminum and iron in the Northern Pond and zinc in both ponds was present above BNL critical water concentrations but below background concentrations. However, there is considerable uncertainty inherent in the establishing the critical water concentrations for both of these metals and in assigning the actual risk posed to the tiger salamander larvae.

Based on the results of the 2003 sampling event, annual sampling of the Wooded Wetlands during the spring should continue for another year to document and confirm the trends monitored as part of the O&M Landfill Report.

5.0 REFERENCES

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TABLES

Table 1
Sediment and Surface Sample Locations

Sediment Sample Locations							
Pond Sampled	2003 Sample Designation	2002 Sample Designation	2001 Sample Designation	2000 Sample Designation	1999 Sample Designation	1997 Sample Designation	1994 Sample Designation
South	SD-5	SD-5	SD-5	SD-5	SD-B	SD-5	NS
South	SD-6	SD-6	SD-6	SD-6	SD-C	SD-6	NS
South	SD-16	SD-16	SD-16	SD-16	NS	NS	SD-16
South	SD-17	SD-17	SD-17	SD-17	SD-A	NS	SD-17
North	SD-11	SD-11	SD-11	SD-11	NS	NS	SD-11
North	SD-12	SD-12	SD-12	SD-12	SD-D	NS	SD-12
North	NS	NS	NS	SD-13	SD-E	NS	SD-13
North	SD-2001	SD-2001	SD-2001	NS	NS	NS	NS

Surface-Water Sample Locations							
Pond Sampled	2003 Sample Designation	2002 Sample Designation	2001 Sample Designation	2000 Sample Designation	1999 Sample Designation	1997 Sample Designation	1994 Sample Designation
South	SW-5 S	SW-5 S	SW-5 S	SW-5	SW-B	SW-5	SW-5
South	SW-6	SW-6	SW-6	SW-6	SW-C	SW-6	NS
South	SW-16	SW-16	SW-16	NS	NS	NS	NS
South	SW-17	SW-17	SW-17	NS	SW-A	NS	NS
North	SW-4	SW-4	SW-4	SW-4	NS	NS	SW-4
North	SW-5 N	SW-5 N	SW-5 N	SW-5	SW-D	NS	NS
North	NS	NS	NS	NS	SW-E	NS	NS
North	SW-2001	SW-2001	SW-2001	NS	NS	NS	NS

NS Not Sampled

Table 2A
Benchmark Sediment Concentrations for Adult Salamanders*

Contaminants of Concern	BNL** Background Concentration (mg/kg)	Maximum Sediment Concentration (mg/kg)	Maximum Dose (mg/kg/day)	Benchmark Dose (mg/kg/day)	Hazard Quotient***
Copper	52.5	29.0	0.00903	0.232	0.0389
Lead	97.6	82.9	3.86	151	0.0255
Manganese	84.3	541	0.168	556	0.000302
Mercury	0.41	0.17	0.0000529	0.00958	0.00552
Zinc	158	122	6.49	105	0.0618

NOTES:

*OU I Feasibility Study, Appendix L. Final Focused Ecological Risk Assessment for Operable Unit I/VI, 3/31/99.

** Off-site stream sediment concentrations from the upper Peconic River. OU V Remedial Investigation Report, IT Corp. 1996.

*** Contaminants with hazard quotients greater than 0.0001.

Table 2B
Critical Benchmark Water Concentrations for Larval Salamanders*

Contaminants of Concern	BNL Background Concentration (ug/l) **	Maximum Concentration (ug/l)	Critical Concentration (ug/l) ***
Aluminum	820	762	525
Cadmium	3.5	0.3	12.8
Copper	10.1	8.1	15.0
Cobalt	ND	18.7	50.0
Iron	1990	4,400	1,000
Lead	ND	4.4	14.6
Mercury	0.18	0.24	2.7
Nickel	ND	3.5	420
Silver	ND	ND	2.4
Zinc	62.9	64.9	23.8

NOTES:

*OU I Feasibility Study, Appendix L. Final Focused Ecological Risk Assessment for Operable Unit I/VI, 3/31/99.

** Based on OU V Remedial Investigation Report, IT Corp., 1996 and OU I/VI Remedial Investigation Report, CDM Federal Corp., 1996.

***The critical concentration for contaminants of concern in water represents the reported toxic concentration most applicable to salamanders which is adjusted, where necessary, to the equivalent of the No Observable Adverse Effects Levels (NOAEL).

Table 3
Annual Wooded Wetland Report
Sediment Sample Results - Metals Analysis

LOCATION	CONTAMINANT Units : mg/Kg	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
SD-5 (SD-B)	Aluminum	NS	4,470	11,600	11,000	8,490	10,200	11,300 *
	Antimony	NS	1.4 U	0.27 U	0.26 U	0.481 B	0.719 UN	0.485 B
	Arsenic	NS	1.1 B	1.4	1.81	1.39 B	1.66	1.8
	Barium	NS	18.4 B	19.4	24.4	25.1 B	26.6	28
	Beryllium	NS	0.15 B	0.23 B	0.364 B	0.34 B	0.327 B	0.406 B
	Cadmium	NS	0.15 B	0.05 B	0.396 B	0.145 B	0.154 B	0.091 U
	Calcium	NS	915 B	343 B	432 B	554 B	727 *	394 *N
	Chromium	NS	6.1	9.9	13.9	11.7	11.6	14
	Cobalt	NS	1.3 B	1.7 B	3.15 B	3.36 B	1.97	3.53
	Copper	NS	4.8 B	8.1	9.59	9.03	9.65	11.7
	Iron	NS	2,560	7,490	7,590	8,670	6,130	8,820 *N
	Lead	NS	28	19.4	13.4	13.0	21.1 N	12.7
	Magnesium	NS	487 B	1150	1890	2,240	1,420	2,080 *N
	Manganese	NS	41.5	45.1	82.4	123	78.7 *	88.3 *N
	Mercury	NS	0.11 U	0.05	0.098	0.053	0.053	0.021
	Nickel	NS	4.1 B	5.7	8.02	9.25	6.74	8.17
	Potassium	NS	238 B	397 B	653 B	891	602	889 N
	Selenium	NS	1.3 U	0.36 B	0.896	0.508 B	0.827	0.468 U
	Silver	NS	0.44 U	0.29 B	0.151 U	0.126 U	0.172 U	0.235 U
	Sodium	NS	42.2 B	27.2 B	33.6 B	50.2 B	40.8	44.9
Thallium	NS	1 U	0.82 U	0.34 U	0.561 U	0.748 U	0.502 U	
Vanadium	NS	15.6 B	17.4	24.1	20.4	21.8	22.5	
Zinc	NS	22.3	25.1	31.4	29.8	31.9	29.5	
Cyanide	NS	NA	0.489	NA	NA	NA	NA	
SD-6 (SD-C)	Aluminum	NS	4,920	9,780	1,670	10,500	1,900	1,390 *
	Antimony	NS	1.1 U	0.93 U	0.247 U	0.338 U	0.645 UN	0.417 B
	Arsenic	NS	0.47 U	1.3 U	0.556 B	1.34	0.535 U	0.372 U
	Barium	NS	15.2 B	21.5	3.57	26.2	4.74	3.27
	Beryllium	NS	0.11 B	0.08 B	0.07 U	0.336	0.045 B	0.033 B
	Cadmium	NS	0.2 B	0.17 U	0.105 U	0.057 B	0.064 B	0.074 U
	Calcium	NS	487 B	774 B	88.3 B	279 B	136 *	51.5 *N

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Annual Wooded Wetland Report
Sediment Sample Results - Metals Analysis

LOCATION	CONTAMINANT Units : mg/Kg	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Chromium	NS	6.1	6.5	1.87	13	2.31	1.47
	Cobalt	NS	1.4 B	0.81 B	0.344 B	3.68 B	0.308 B	0.397 B
	Copper	NS	4.8 B	7.8	0.72 B	7.27	1.85	0.549 B
	Iron	NS	2,620	5,710	1,040	8,050	1,060	816 *N
	Lead	NS	19.8	63.5	4.62 B	5.28	9.74 N	1.6
	Magnesium	NS	596 B	568 B	250	2,750	245	214 *N
	Manganese	NS	29.3	39.3	10.4	144	13.4 *	9.87 *N
	Mercury	NS	0.1 U	0.18	0.049	0.004 U	0.011 B	0.006 U
	Nickel	NS	4.1 B	5.3	1.28	9.9	1.51	1.05
	Potassium	NS	273 B	268	103 B	1,240	94	100 N
	Selenium	NS	1 U	0.95 B	0.328 U	0.374 U	0.359 U	0.381 U
	Silver	NS	0.34 U	0.44 U	0.143 U	0.111 U	0.155 U	0.191 U
	Sodium	NS	35.1 B	96.9 U	11.5 B	50.9 B	18.6	13.9
	Thallium	NS	0.8 U	2.8 B	0.324 U	0.495 U	0.671 U	0.409 U
	Vanadium	NS	11.5 B	20.2 U	3.35 B	16 B	4.85	2.35
	Zinc	NS	19.7	26 B	5.86	27.6	6.45	3.98
	Cyanide	NS	NA	1.27	NA	NA	NA	NA
SD-16	Aluminum	5,110 *	NS	NS	1,780	1,240	2,660	716 *
	Antimony	8.7 U	NS	NS	0.226 U	0.302 U	0.702 UN	0.568 B
	Arsenic	0.59 B	NS	NS	0.566 B	0.377 B	0.582 U	0.357 U
	Barium	7.1 B	NS	NS	5.25	3.6 B	9.13	1.89
	Beryllium	0.25 U	NS	NS	0.064 U	0.036 B	0.071 B	0.023 U
	Cadmium	1.2 U	NS	NS	0.096 U	0.031 U	0.132 B	0.071 U
	Calcium	125 B	NS	NS	216 B	137 B	451 *	62 *N
	Chromium	5.5	NS	NS	2.41	1.63	3.21	1.44
	Cobalt	1.2 U	NS	NS	0.347 B	0.248 B	0.372 B	0.197 B
	Copper	1 B	NS	NS	1.48	0.904 B	3.78	0.389 B
	Iron	1,730 *	NS	NS	1,120	817	1320	569 *N
	Lead	4.4 NJ	NS	NS	9.99	3.19	16.1 N	1.7
	Magnesium	259 B	NS	NS	239 B	185 B	293	109 *N
	Manganese	11.5 *	NS	NS	12.4	9.68	17.7 *	8.07 *N

Table 3
Annual Wooded Wetland Report
Sediment Sample Results - Metals Analysis

LOCATION	CONTAMINANT Units : mg/Kg	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Mercury	0.01 B	NS	NS	0.064	0.003 U	0.033	0.005 U
	Nickel	7.5 U	NS	NS	1.43	1.2 B	2.01	0.78
	Potassium	138 U	NS	NS	113 B	114 B	133	54.5 N
	Selenium	0.25 U,	NS	NS	0.365 B	0.334 U	0.391 U	0.366 U
	Silver	1 U	NS	NS	0.131 U	0.099 U	0.168 U	0.183 U
	Sodium	39 B	NS	NS	14.4 B	17 B	22.9	11.5
	Thallium	0.25 U,	NS	NS	0.295 U	0.442 U	0.73 U	0.393 U
	Vanadium	5.1 B	NS	NS	5.26 B	2.39 B	6.58	1.6
	Zinc	4.7 B	NS	NS	7.34	6.48	12.9	2.58
	Cyanide	3.1 U	NS	NS	NA	NA	NA	NA
SD-17 (SD-A)	Aluminum	3,550	NS	3,500	2,840	1,440	1,870	2,870 *
	Antimony	8.8 U	NS	0.26 U	0.198 U	0.312 U	0.614 UN	0.415 B
	Arsenic	0.25 U	NS	1.1	0.397 B	0.424 B	0.51 U	0.435 B
	Barium	8.8 B	NS	21.6	6.32	5.34 B	4.96	5.63
	Beryllium	0.25 U	NS	0.17 B	0.056 U	0.037 B	0.042 B	0.052 B
	Cadmium	1.3 U	NS	0.11 B	0.092 B	0.075 B	0.055 B	0.077 U
	Calcium	80.4 B	NS	785	240 B	136 B	183 *	137 *N
	Chromium	4.4	NS	7.4	2.54	1.98	1.99	2.68
	Cobalt	1.3 U	NS	1.1 B	0.209 B	0.196 B	0.166 B	0.504 B
	Copper	2.9 B	NS	8.2	1.64	1.41 B	1.42	12.6
	Iron	1,590	NS	1,750	757	740	742	1210 *N
	Lead	4.1 NJ	NS	21.3	6.98	6.15	5.29 N	4.71
	Magnesium	389 B	NS	665 B	157 B	162 B	169	280 *N
	Manganese	14.8	NS	40.1	10.9	12.3	9.72 *	16 *N
	Mercury	0.02 B	NS	0.028 U	0.038	0.003 U	0.014	0.012 B
	Nickel	7.6 U	NS	4.3	1.13	1.25 B	1	3.34
	Potassium	140 U	NS	216 B	88.7 B	91.6 B	83.2	117 N
	Selenium	0.25 U	NS	0.57 B	0.412 B	0.482 B	0.342 U	0.396 U
	Silver	1 U	NS	0.22 B	0.115 U	0.103 U	0.147 U	0.199 U
	Sodium	16.5 B	NS	31.9 B	9.14 B	19.3 B	17	15.6
	Thallium	0.25 U	NS	0.79 U	0.259 U	0.457 U	0.639 U	0.425 U

Table 3
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Sediment Sample Results - Metals Analysis

LOCATION	CONTAMINANT Units : mg/Kg	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Vanadium	4.4 B	NS	12.6	4.52 B	2.99 B	3.19	4.09
	Zinc	8.8	NS	27.5	7.37	4.6	6.37	6.24
	Cyanide	3.2 U	NS	0.243	NA	NA	NA	
SD-11	Aluminum	4,030 *	NS	NS	5,070	12,800	11,400	6,920 *
	Antimony	10.9 U	NS	NS	0.311 U	0.532 U	1.51 UN	0.688 U
	Arsenic	0.31 U	NS	NS	1.07	0.859 B	2.35	1.81
	Barium	9.3 NB	NS	NS	27.1	53.4	61.1	35.4
	Beryllium	0.31 U	NS	NS	0.134 B	0.291 B	0.342 B	0.232 B
	Cadmium	1.6 U	NS	NS	0.135 B	0.06 B	0.232 B	0.144 B
	Calcium	125 B	NS	NS	225 B	389	1750 *	551 *N
	Chromium	4.5	NS	NS	4.99	11.6	10.5	6.48
	Cobalt	1.6 U	NS	NS	0.221 B	0.258 B	1.9	0.586 B
	Copper	R	NS	NS	5.25	7.06	21.3	7.52
	Iron	763 *	NS	NS	938	1,260 B	4,920	1,570 *N
	Lead	6.3 N	NS	NS	8.41	13.2	85.7 N	17.8
	Magnesium	168 B	NS	NS	118 B	295 B	819	262 *N
	Manganese	6.6 *	NS	NS	3.74	9.41	33.9 *	10.5 *N
	Mercury	0.03 B	NS	NS	0.074	0.12	0.198	0.056
	Nickel	9.3 U	NS	NS	2	2.77 B	7.51	3.13
	Potassium	171 U	NS	NS	131 B	308 B	488	285 N
	Selenium	0.31 B	NS	NS	1.43	2.68	1.59	0.993 B
	Silver	1.2 U	NS	NS	0.198 B	0.175 U	0.363 U	0.338 U
	Sodium	40.9 B	NS	NS	32.2 B	58.4 B	87.2	44.3
Thallium	0.31 U	NS	NS	0.723 B	0.779 U	1.57 U	0.724 U	
Vanadium	4.2 B	NS	NS	4.27 B	8.33 B	35.8	9.46	
Zinc	R	NS	NS	15.4	16.5	61.7	22.3	
	Cyanide	3.9 U	NS	NS	NA	NA	NA	NA
SD-12 (SD-D)	Aluminum	7,220 *	NS	30,300	4,420	27,900	20,600	13,600 *
	Antimony	8.7 U	NS	0.6 U	0.247 U	0.734 B	1.34 BN	1.61 B
	Arsenic	0.76 B	NS	5	0.981	6.58 B	4.46	4.17
	Barium	17.4 B	NS	85.9	32	77.5	68.2	49.5

Table 3
Annual Wooded Wetland Report
Sediment Sample Results - Metals Analysis

LOCATION	CONTAMINANT Units : mg/Kg	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Beryllium	0.25 U	NS	0.73 B	0.129 B	0.82 B	0.546 B	0.348 B
	Cadmium	1.2 U	NS	0.54 B	0.148 B	0.724 B	0.241 B	0.199 B
	Calcium	379 B	NS	1,820	964	2,780	2,020 *	2,260 *N
	Chromium	7.8	NS	22.1	4.7	27.8	20.3	13.3
	Cobalt	2.5 B	NS	5.3 B	0.428 B	6.59 B	3.82	3.09
	Copper	R	NS	44.6	7.41	36.6	26.4	20.2
	Iron	5,150	NS	22,000	1,840	18,700	11,700	8,940 *N
	Lead	10.4 NJ	NS	86.3	6.11	71.1	59.8 N	42.3
	Magnesium	943 B	NS	2220	207 B	3,020	1,610	885 *N
	Manganese	56 *	NS	125	4.12	147	73.3 *	48.4 *N
	Mercury	0.03 B	NS	0.37	0.074	0.272	0.215	0.214
	Nickel	7.5 U	NS	16.5	2.04	19.6	11.6	7.9
	Potassium	292 B	NS	766 B	130 B	1,300 B	774	611 N
	Selenium	0.25 U	NS	2.2	1.22	2.01	1.74	1.44
	Silver	1 U	NS	1.3 B	0.146 B	0.441 U	0.284 U	0.47 U
	Sodium	29.8 B	NS	106 B	31.4 B	133 B	81.1	69.4
	Thallium	0.25 U	NS	1.8 U	0.323 U	1.03 U	1.23 U	1.01 U
	Vanadium	10.8 B	NS	54.5	3.49 B	59.9	45.7	31.1
	Zinc	R	NS	123	5.91	137	70.3	38.4
	Cyanide	3.1 U	NS	0.708	NA	NA	NA	NA
SD-13 (SD-E)	Aluminum	9,100 *	NS	8,360	2,090	NS	NS	NS
	Antimony	9.2 U	NS	0.51 U	0.194 U	NS	NS	NS
	Arsenic	1.2 B,	NS	1 B	0.46 B	NS	NS	NS
	Barium	22.7 B	NS	21.7	10.2	NS	NS	NS
	Beryllium	0.26 U	NS	0.08 B	0.055 U	NS	NS	NS
	Cadmium	1.3 U	NS	0.18 B	0.083 U	NS	NS	NS
	Calcium	640 B	NS	993 B	264 B	NS	NS	NS
	Chromium	9.1	NS	5.3	2.58	NS	NS	NS
	Cobalt	2.7 B	NS	0.64 B	0.124 B	NS	NS	NS
	Copper	8.1	NS	9.5	1.42	NS	NS	NS
	Iron	7,040 *	NS	3,340	781	NS	NS	NS

Table 3
Annual Wooded Wetland Report
Sediment Sample Results - Metals Analysis

LOCATION	CONTAMINANT Units : mg/Kg	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Lead	15.8 NJ	NS	39.9 B	5.14	NS	NS	NS
	Magnesium	1190 B	NS	312	108 B	NS	NS	NS
	Manganese	85 *	NS	16	3.96	NS	NS	NS
	Mercury	0.06 B	NS	0.13	0.054	NS	NS	NS
	Nickel	7.9 U	NS	3.2	0.848	NS	NS	NS
	Potassium	300 B	NS	209 B	113 B	NS	NS	NS
	Selenium	0.26 U	NS	0.89 B	0.502 B	NS	NS	NS
	Silver	1.1 U	NS	0.35 B	0.113 U	NS	NS	NS
	Sodium	48.4 B	NS	76.1 B	14.1 B	NS	NS	NS
	Thallium	0.26 U	NS	1.5 U	0.254 U	NS	NS	NS
	Vanadium	16.3	NS	14.9	2.99 B	NS	NS	NS
	Zinc	27.9	NS	17.3	4.35	NS	NS	NS
	Cyanide	3.3 U	NS	0.847	NA	NS	NS	NS
SD-2001	Aluminum	NS	NS	NS	1,780	46,900	15,800	14,900 *
	Antimony	NS	NS	NS	0.226 U	0.821 U	1.32 UN	1.44 B
	Arsenic	NS	NS	NS	0.566 B	9.03	4.21	4.4
	Barium	NS	NS	NS	5.25	118	52.9	52.1
	Beryllium	NS	NS	NS	0.064 U	1.23 B	0.434 B	0.359 B
	Cadmium	NS	NS	NS	0.096 U	1.07 B	0.277 B	0.249 B
	Calcium	NS	NS	NS	216 B	2,310 B	1,900 *	1,720 *N
	Chromium	NS	NS	NS	2.41	45.5	15.7	15.1
	Cobalt	NS	NS	NS	0.347 B	8.87 B	2.98	3.16
	Copper	NS	NS	NS	1.48	52.9	23.3	21.2
	Iron	NS	NS	NS	1,120	25,600	8,720	7,180 *N
	Lead	NS	NS	NS	9.99	145	57 N	60.8
	Magnesium	NS	NS	NS	239 B	3,940	1,210	853 *N
	Manganese	NS	NS	NS	12.4	158	69.3 *	41.2 *N
	Mercury	NS	NS	NS	0.064	0.727	0.192	0.18
	Nickel	NS	NS	NS	1.43	28	10.1	9.12
	Potassium	NS	NS	NS	113 B	1,780	603	599 N
	Selenium	NS	NS	NS	0.365 B	2.42	1.4	1.31

Table 3
Annual Wooded Wetland Report
Sediment Sample Results - Metals Analysis

LOCATION	CONTAMINANT Units : mg/Kg	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Silver	NS	NS	NS	0.131 U	0.689 B	0.316 U	0.441 U
	Sodium	NS	NS	NS	14.4 B	149 B	74.7	74.9
	Thallium	NS	NS	NS	0.295 U	1.2 U	1.37 U	0.943 U
	Vanadium	NS	NS	NS	5.26 B	107	40	41.5
	Zinc	NS	NS	NS	7.34	186	76.6	42.1
	Cyanide	NS	NS	NS	NA	NA	NA	NA

NOTES:

1994 Samples were collected from 0.0' to 0.5'

Number in parenthesis () indicates alternate identification for same location.

NA Not available

NS Not sampled

U Analyte was analyzed for but not detected.

N - Spike sample recovery was not within control limits

J - Estimated value; concentration below method detection limit.

* - Duplicate precision is not within control limits.

B - Concentraion less than the contract required detection limit, but greater than or equal to the instrument detection limit.

Table 4
Annual Wooded Wetland Report
Surface Water Sample Results - Metals Analysis

Location	Contaminant UNITS ug/L	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
SW-5S (SWB)	Aluminum	38,600	304	1,240	253	385	445 E	429
	Antimony	35 U	2.5 U	1.9 U	4.14 U	2.65 U	4.79 U	3.46 U
	Arsenic	8.7 B	1.1 U	2.7 U	2.09 U	4.47 B	3.97 U	3.31 U
	Barium	136 B	11.7 B	19.6	5.32 B	7.7 B	6.32 B	6.91 B
	Beryllium	1.2 U	0.1 B	0.14 U	0.46 U	0.158 U	0.185 U	0.21 U
	Cadmium	5 U	0.2 U	0.44 B	0.69 U	0.274 B	0.21 U	0.66 U
	Calcium	29,700	8,860	5,520	2,360 B	3,170 B	3,590 B	2,450 B
	Chromium	32.1 U	0.7 U	2.8 B	1.03 B	0.774 B	0.781 B	1.69 U
	Cobalt	18.7 B	1.3 U	1.1 B	0.91 U	0.679 B	0.581 U	1.71 B
	Copper	56.2	0.9 U	13.4	1.63 U	2.24 B	1.52 B	2.58 B
	Iron	44,000	347	3,740	1,120	1,100	890	779
	Lead	NA	2.2 B	5.3	1.38 U	1.47 U	2.16 B	2.4 U
	Magnesium	12,500	2,460 B	1,560 B	985 B	1,060 B	1,230 B	774 B
	Manganese	1,410	96.1	383	181	339	227	153
	Mercury	0.25 B	0.1 U	0.13 B	0.05 B	0.057 U	0.04 U	0.095 U
	Nickel	30 U	1.6 U	7.6	1.29 U	1.91 B	2.09 B	1.64 U
	Potassium	5,720 B	2,430 B	4,790 B	2,340 B	3,470 B	2,700 B	2,010 B
	Selenium	1 U	2.4 U	2.6 B	3.66 U	2.93 U	2.67 U	3.39 U
	Silver	4 U	0.8 U	0.89 U	0.94 U	0.871 U	1.15 U	1.7 U
	Sodium	7,200	3,500 B	4,250 B	1,840 B	2,670 B	2,620 B	2,290 BE
Thallium	1 U	1.9 U	5.6 U	2.11 U	3.88 U	4.99 U	3.64 U	
Vanadium	74.9 B	3.4 B	9.2 B	1.94 B	2.84 B	2.32 B	4.13 B	
Zinc	252	47.5	65.8	8.12 B	12.4 B	13.7 B	34.4	
SW- 6 (SW-C)	Aluminum	NS	762	110,000	503	523	541 E	413
	Antimony	NS	2.5 U	3.7 U	4.14 U	2.65 U	4.79 U	3.46 U
	Arsenic	NS	1.1 U	19.8	2.09 U	2.33 U	3.97 U	3.31 U
	Barium	NS	13.8 B	507	9.62 B	7.9 B	7.37 B	5.89 B
	Beryllium	NS	0.1 B	3.3 B	0.46 U	0.158 U	0.185 U	0.21 U
	Cadmium	NS	0.1 B	7.4 B	0.69 U	0.272 U	0.21 U	0.66 U
	Calcium	NS	7,000	28,400	2,660 B	2,150 B	2,450 B	1,540 B
	Chromium	NS	0.7 U	99.4	1.41 B	0.779 B	0.533 B	1.69 U
	Cobalt	NS	1.3 U	22.7 B	0.91 U	0.419 U	0.581 U	1.33 B
	Copper	NS	8.1 B	165	1.92 B	2.48 B	1.55 B	1.91 B
	Iron	NS	692	77,500	2,140	1,250	725	522
	Lead	NS	4.4	887	1.38 U	1.47 U	1.24 U	2.4 U
	Magnesium	NS	2,690 B	13,200	860 B	810 B	982 B	642 B
	Manganese	NS	256	1,280	107	106	133	78.1
Mercury	NS	0.1 U	1	0.085 B	0.057 U	0.04 U	0.095 U	
Nickel	NS	3.4 B	121	1.93 B	2.07 B	2.07 B	1.64 U	

Table 4
Annual Wooded Wetland Report
Surface Water Sample Results - Metals Analysis

Location	Contaminant UNITS ug/L	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Potassium	NS	2,610 B	9,990 B	1,940 B	2,360 B	1,920 B	1,180 B
	Selenium	NS	2.4 U	10 B	3.66 U	3.46 B	2.67 U	3.61 B
	Silver	NS	0.8 U	2.3 B	0.94 U	0.871 U	1.15 U	1.7 U
	Sodium	NS	3,330 B	4,350 B	2,070 B	2,920 B	3,180 B	2,270 BE
	Thallium	NS	1.9 U	11.3 U	2.11 U	3.88 U	4.99 U	3.64 U
	Vanadium	NS	9.1 B	348	3.19 B	2.94 B	3.33 B	4.71 B
	Zinc	NS	53.2	699	16.8 B	14.1 B	14.4 B	29.9
SW- 16	Aluminum	NS	NS	NS	NS	928	521 E	446
	Antimony	NS	NS	NS	NS	2.65 U	4.79 U	3.46 U
	Arsenic	NS	NS	NS	NS	2.33 U	3.97 U	3.31 U
	Barium	NS	NS	NS	NS	27.3 B	11.2 B	8.81 B
	Beryllium	NS	NS	NS	NS	0.158 U	0.185 U	0.21 U
	Cadmium	NS	NS	NS	NS	0.272 U	0.21 U	0.66 U
	Calcium	NS	NS	NS	NS	5,480	6,040	4,200 B
	Chromium	NS	NS	NS	NS	1.31 B	0.723 B	2.07 B
	Cobalt	NS	NS	NS	NS	0.627 B	0.581 U	1.69 B
	Copper	NS	NS	NS	NS	3.3 B	2.21 B	3.09 B
	Iron	NS	NS	NS	NS	2,320	1,330	1,430
	Lead	NS	NS	NS	NS	3.86	1.39 B	2.4 U
	Magnesium	NS	NS	NS	NS	1,420 B	1,580 B	1,120 B
	Manganese	NS	NS	NS	NS	156	158	116
	Mercury	NS	NS	NS	NS	0.057 U	0.04 U	0.095 U
	Nickel	NS	NS	NS	NS	2.81 B	2.23 B	1.64 U
	Potassium	NS	NS	NS	NS	2,730 B	2,270 B	1,730 B
	Selenium	NS	NS	NS	NS	2.93 U	2.67 U	3.39 U
	Silver	NS	NS	NS	NS	0.871 U	1.15 U	1.7 U
	Sodium	NS	NS	NS	NS	2,520 B	2,680 B	2,170 BE
Thallium	NS	NS	NS	NS	3.88 U	4.99 U	3.64 U	
Vanadium	NS	NS	NS	NS	4.61 B	2.96 B	5.02 B	
Zinc	NS	NS	NS	NS	15.5 B	14.6 B	34	
SW-17 (SW-A)	Aluminum	NS	NS	1,260	NS	612	441 E	490
	Antimony	NS	NS	2 U	NS	2.65 U	4.79 U	3.46 U
	Arsenic	NS	NS	2.7 U	NS	3.21 B	3.97 U	3.31 U
	Barium	NS	NS	21.6	NS	36 B	14.6 B	10.3 B
	Beryllium	NS	NS	0.14 U	NS	0.158 U	0.185 U	0.21 U
	Cadmium	NS	NS	0.34 U	NS	0.272 U	0.21 U	0.66 U
	Calcium	NS	NS	8,570	NS	9,120	7,900	6,930
	Chromium	NS	NS	3 B	NS	1.73 B	1.16 B	1.69 U
	Cobalt	NS	NS	1.1 B	NS	1.49 B	0.759 B	1.82 B

Table 4
Annual Wooded Wetland Report
Surface Water Sample Results - Metals Analysis

Location	Contaminant UNITS ug/L	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Copper	NS	NS	5	NS	4.2 B	2.21 B	3.26 B
	Iron	NS	NS	5,410	NS	5430	1650	1120
	Lead	NS	NS	6	NS	3.31	2.04 B	2.4 U
	Magnesium	NS	NS	1,950 B	NS	1,950 B	1,780 B	1,530 B
	Manganese	NS	NS	240	NS	469	150	157
	Mercury	NS	NS	0.12 U	NS	0.057 U	0.04 U	0.095 U
	Nickel	NS	NS	6	NS	3.28 B	2.27 B	1.64 U
	Potassium	NS	NS	2,480 B	NS	3,310 B	2,400 B	1,960 B
	Selenium	NS	NS	2.1 B	NS	3 U	3 U	3 U
	Silver	NS	NS	0.89 U	NS	0.871 U	1.15 U	1.7 U
	Sodium	NS	NS	3,610 B	NS	2,560 B	2,470 B	2,050 BE
	Thallium	NS	NS	6 U	NS	3.88 U	4.99 U	3.64 U
	Vanadium	NS	NS	6.5 B	NS	7.54 B	4.11 B	4.25 B
	Zinc	NS	NS	31.5	NS	24	14.2 B	30.1
SW- 4	Aluminum	829	NS	NS	179 B	1,500	1,320 E	326
	Antimony	35 U	NS	NS	4.14 U	2.65 U	4.79 U	3.46 U
	Arsenic	1.3 B	NS	NS	2.09 U	2.33 U	3.97 U	3.31 U
	Barium	21.9 B	NS	NS	17.4 B	77.9 B	15.1 B	6.39 B
	Beryllium	1 U	NS	NS	0.46 U	0.158 U	0.185 U	0.21 U
	Cadmium	5 U	NS	NS	0.69 U	0.272 U	0.21 U	0.66 U
	Calcium	8,150	NS	NS	16,400	7,230	5,350	3,630 B
	Chromium	5 UUB	NS	NS	0.87 U	1.62 B	1.62 B	1.99 B
	Cobalt	5	NS	NS	0.91 U	1.84 B	0.581 U	1.68 B
	Copper	8.5 B	NS	NS	1.63 U	5.79 B	3.79 B	2.59 B
	Iron	3930	NS	NS	2,600	3,670	1,760	499
	Lead	NA	NS	NS	1.38 U	5.61	3.53	2.4 U
	Magnesium	4,260 B	NS	NS	2,780 B	2,170 B	1,930 B	1,340 B
	Manganese	146	NS	NS	135	312	69.5	39.6
	Mercury	0.2 B	NS	NS	0.109 B	0.057 U	0.04 U	0.095 U
	Nickel	30 U	NS	NS	1.29 U	3.5 b	2.14 B	1.64 U
	Potassium	2,130 B	NS	NS	3,350 B	2,980 B	2,200 B	1,380 B
	Selenium	1 U	NS	NS	3.66 U	2.93 U	2.67 U	3.84 B
	Silver	4 U	NS	NS	0.94 U	0.871 U	1.15 U	1.8 B
	Sodium	6,850	NS	NS	2,410 B	2,860 B	2,960 B	2,390 BE
	Thallium	1 U	NS	NS	2.48 B	3.88 U	4.99 U	3.64 U
	Vanadium	9 U	NS	NS	2.05 B	6.95 B	4.03 B	4.06 B
	Zinc	33.3	NS	NS	2.19 U	28	22	55.8
SW- 5N (SW-D)	Aluminum	NS	NS	945	179 B	575	238 E	1180
	Antimony	NS	NS	1.9 U	4.14 U	2.89 B	4.79 U	3.46 U
	Arsenic	NS	NS	2.7 U	2.09 U	2.33 U	3.97 U	3.31 U
	Barium	NS	NS	22.8	17.4 B	25.6 B	9.22 B	9.58 B

Table 4
Annual Wooded Wetland Report
Surface Water Sample Results - Metals Analysis

Location	Contaminant UNITS ug/L	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
	Beryllium	NS	NS	0.14 U	0.46 U	0.158 U	0.185 U	0.21 U
	Cadmium	NS	NS	0.34 U	0.69 U	0.272 U	0.21 U	0.66 U
	Calcium	NS	NS	7,990	16,400	15,700	11,000	10,500
	Chromium	NS	NS	1.4 B	0.87 U	1.06 B	0.532 U	2.12 B
	Cobalt	NS	NS	1.1 B	0.91 U	0.515 B	0.581 U	1.78 B
	Copper	NS	NS	3.2 B	1.63 U	2.28 B	1.3 U	4.09 B
	Iron	NS	NS	6,900	2,600	1,290	598	1,070
	Lead	NS	NS	3.6 B	1.38 U	2.27 B	1.24 U	2.4 U
	Magnesium	NS	NS	2,560 B	2,780 B	2,850 B	2,110 B	2,010 B
	Manganese	NS	NS	146	135	103	33.2	35.2
	Mercury	NS	NS	0.12 U	0.109 B	0.057 U	0.04 U	0.095 U
	Nickel	NS	NS	5 B	1.29 U	1.09 B	0.837 U	1.64 U
	Potassium	NS	NS	3,910 B	3,350 B	3,160 B	2,210 B	1,600 B
	Selenium	NS	NS	1.9 U	3.66 U	2.93 U	2.67 U	3.39 U
	Silver	NS	NS	0.89 U	0.94 U	0.871 U	1.15 U	2 B
	Sodium	NS	NS	3,870 B	2,410 B	2,280 B	2,160 B	1,650 BE
	Thallium	NS	NS	5.6 U	2.48 B	3.88 U	4.99 U	3.64 U
	Vanadium	NS	NS	4.6 B	2.05 B	2.56 B	1.27 B	4.4 B
	Zinc	NS	NS	21.9	2.19 U	4.96 B	4.54 B	25.4
SW- E	Aluminum	NS	NS	1,170	NS	NS	NS	NS
	Antimony	NS	NS	1.9 U	NS	NS	NS	NS
	Arsenic	NS	NS	2.7 U	NS	NS	NS	NS
	Barium	NS	NS	30.4	NS	NS	NS	NS
	Beryllium	NS	NS	0.14 U	NS	NS	NS	NS
	Cadmium	NS	NS	0.34 U	NS	NS	NS	NS
	Calcium	NS	NS	8,410	NS	NS	NS	NS
	Chromium	NS	NS	3.9 B	NS	NS	NS	NS
	Cobalt	NS	NS	2.3 B	NS	NS	NS	NS
	Cooper	NS	NS	6.4	NS	NS	NS	NS
	Iron	NS	NS	6,970	NS	NS	NS	NS
	Lead	NS	NS	4.5 B	NS	NS	NS	NS
	Magnesium	NS	NS	2,610 B	NS	NS	NS	NS
	Manganese	NS	NS	323	NS	NS	NS	NS
	Mercury	NS	NS	0.12 U	NS	NS	NS	NS
	Nickel	NS	NS	6.7	NS	NS	NS	NS
	Potassium	NS	NS	4,140 B	NS	NS	NS	NS
	Selenium	NS	NS	1.9 U	NS	NS	NS	NS
	Silver	NS	NS	0.89 U	NS	NS	NS	NS
	Sodium	NS	NS	3,990 B	NS	NS	NS	NS
	Thallium	NS	NS	5.6 U	NS	NS	NS	NS
	Vanadium	NS	NS	7.5 B	NS	NS	NS	NS
	Zinc	NS	NS	38.2	NS	NS	NS	NS

Table 4
Annual Wooded Wetland Report
Surface Water Sample Results - Metals Analysis

Location	Contaminant UNITS ug/L	SAMPLES COLLECTED						
		1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03
SW- 2001	Aluminum	NS	NS	NS	NS	466	427 E	4090
	Antimony	NS	NS	NS	NS	2.65 U	4.79 U	3.46 U
	Arsenic	NS	NS	NS	NS	2.33 U	3.97 U	3.31 U
	Barium	NS	NS	NS	NS	42.9 B	11.2 B	20.9 B
	Beryllium	NS	NS	NS	NS	0.158 U	0.185 U	0.21 U
	Cadmium	NS	NS	NS	NS	0.272 U	0.21 U	0.66 U
	Calcium	NS	NS	NS	NS	15,300	11,700	10,400
	Chromium	NS	NS	NS	NS	0.977 B	0.532 U	4.52 B
	Cobalt	NS	NS	NS	NS	0.518 B	0.581 U	2.86 B
	Copper	NS	NS	NS	NS	1.94 B	2.74 B	7.14 B
	Iron	NS	NS	NS	NS	1,190	753	3,420
	Lead	NS	NS	NS	NS	1.66 B	1.24 U	8.68
	Magnesium	NS	NS	NS	NS	2,760 B	2,180 B	2,320 B
	Manganese	NS	NS	NS	NS	130	103	105
	Mercury	NS	NS	NS	NS	0.057 U	0.04 U	0.095 U
	Nickel	NS	NS	NS	NS	0.815 U	1.08 B	1.64 U
	Potassium	NS	NS	NS	NS	3,050 B	2,130 B	1,960 B
	Selenium	NS	NS	NS	NS	2.93 U	2.67 U	3.39 U
	Silver	NS	NS	NS	NS	0.871 U	1.15 U	1.7 U
	Sodium	NS	NS	NS	NS	2,270 B	2,230 B	1,800 BE
Thallium	NS	NS	NS	NS	3.88 U	4.99 U	3.64 U	
Vanadium	NS	NS	NS	NS	2.32 B	2.13 B	12 B	
Zinc	NS	NS	NS	NS	4.25 B	5.91 B	72.6	

NOTES:

1994 Samples were collected from 0.0 ' to 0.5'

Number in parenthesis () indicates alternate identification for same location.

NA Not available

NS Not sampled

U Analyte was analyzed for but not detected.

N - Spike sample recovery was not within control limits

J - Estimated value; concentration below method detection limit.

* - Duplicate precision is not within control limits.

B - Concentraion less than the contract required detection limit, but greater than or equal to the instrument detection limit.

Table 5
Wooded Wetlands-Sediment Results and Benchmark Concentrations
Brookhaven National Laboratory, Upton, New York

South Pond

Contaminant units mg/Kg	SD-5 (SD-B)							SD-6 (SD-C)							SD-16							SI		
	1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03	1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03	1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03	1994	1997	Jun-99
Copper	NS	4.8 B	8.1	9.59	9.03	9.65	11.7	NS	4.8 B	7.8	0.72 B	7.27	1.85	0.549 B	1 B	NS	NS	1.48	0.904	3.78	0.39 B	2.9 B	NS	8.2
Lead	NS	28	19.4	13.4	13	21.1 N	12.7	NS	19.8	63.5	4.62	5.28	9.74 N	1.6	4.4 NJ	NS	NS	9.99	3.19	16.1 N	1.7	4.1 NJ	NS	21.3
Manganese	NS	41.5	45.1	82.4	123	78.7	88.3 *N	NS	29.3	39.3	10.4	144	13.4	9.87 *N	11.5	NS	NS	12.4	9.68	17.7	8.07 *N	14.8	NS	40.1
Mercury	NS	0.11 U	0.05	0.098	0.053	0.053	0.021	NS	0.1 U	0.18	0.049	0.004	0.011 B	0.006 U	0.001 B	NS	NS	0.064	0.003	0.033	0.01 U	0.02 B	NS	0.03 U
Zinc	NS	22.3	25.1	31.4	29.8	31.9	29.5	NS	19.7	26	5.86	27.6	6.45	3.98	4.7 B	NS	NS	7.34	6.48	12.9	2.58	8.8	NS	27.5

South Pond Averages

Contaminant units mg/Kg						Maximum Sediment Conc. ¹	Bkg. Sediment Conc.
	1999	2000	2001	2002	2003		
Copper	8.03	3.36	4.7	4.2	6.3	29	52.5
Lead	34.73	8.75	6.9	13.1	5.2	82.9	97.6
Manganese	41.50	29.03	72.2	29.9	30.6	541	84.3
Mercury	0.09	0.06	0.02	0.03	0.01	0.17	0.41
Zinc	26.20	12.99	17.1	14.4	10.6	122	158

North Pond

Contaminant units mg/Kg	SD-11							SD-12 (SD-D)							SD-13 (SD-E)									
	1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03	1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03	1994	1997	Jun-99	Aug-00	Jun-01	May-02	May-03	1994	1997	Jun-99
Copper	NA	NS	NS	5.25	7.06	21.3	7.52	NA	NS	45	7.41	37	26.4	20.2	8.1	NS	9.5	1.42	NS	NS	NS	NS	NS	NS
Lead	6.3 N	NS	NS	8.41	13.2	85.7 N	17.8	10.4 NJ	NS	86	6.11	71.1	59.8 N	42.3	15.8 NJ	NS	39.9	5.14	NS	NS	NS	NS	NS	NS
Manganese	6.6	NS	NS	3.74	9.41	33.9	10.5 *N	56	NS	125	4.12	147	73.3	48.4 *N	85	NS	16.0	4.0	NS	NS	NS	NS	NS	NS
Mercury	0.030 B	NS	NS	0.074	0.120	0.198	0.056	0.03 B	NS	0.370	0.074	0.272	0.215	0.214	0.08 B	NS	0.13	0.054	NS	NS	NS	NS	NS	NS
Zinc	NA	NS	NS	15.4	16.5	61.7	22.3	NA	NS	123	5.91	137	70.3	38.4	27.9	NS	17.3	4.35	NS	NS	NS	NS	NS	NS

North Pond Averages

Contaminant units mg/Kg						Maximum Sediment Conc. ¹	Bkg. Sediment Conc.
	1999	2000	2001	2002	2003		
Copper	27.1	4.7	32.2	23.7	16.3	29	52.5
Lead	63.1	6.6	76.4	67.5	40.3	82.9	97.6
Manganese	70.5	3.9	104.8	58.8	33.4	541	84.3
Mercury	0.25	0.07	0.37	0.20	0.15	0.17	0.41
Zinc	70.2	8.6	113.2	69.5	34.3	122	158

NOTES:

¹ Final Focused Ecological Risk Assessment for Operable Unit I/VI (CDM 1999)

1994 Samples were collected from 0.0 ' to 0.5'

Number in parenthesis () indicates alternate identification for same location.

NA Not available

NS Not sampled

U Analyte was analyzed for but not detected.

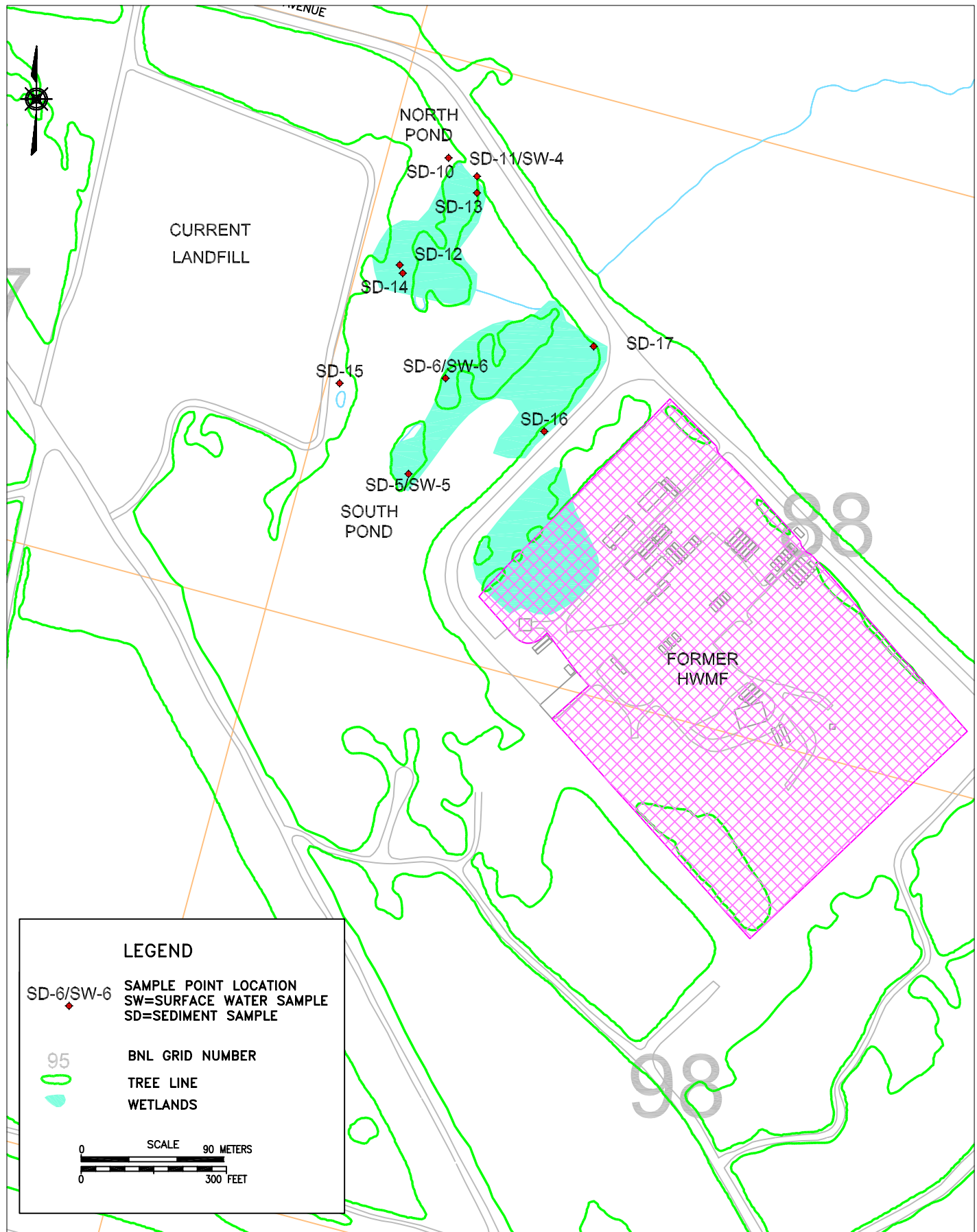
N - Spike sample recovery was not within control limits

J - Estimated value; concentration below method detection limit.

* - Duplicate precision is not within control limits.

FIGURES

T:\LTRA Projects\Landfills\2003 Report\Figures\wooded wetlands FIG 1.DWG



LEGEND

SD-6/SW-6 SAMPLE POINT LOCATION
 SW=SURFACE WATER SAMPLE
 SD=SEDIMENT SAMPLE

95 BNL GRID NUMBER

TREE LINE
 WETLANDS

SCALE
 0 90 METERS
 0 300 FEET

BROOKHAVEN
 NATIONAL LABORATORY

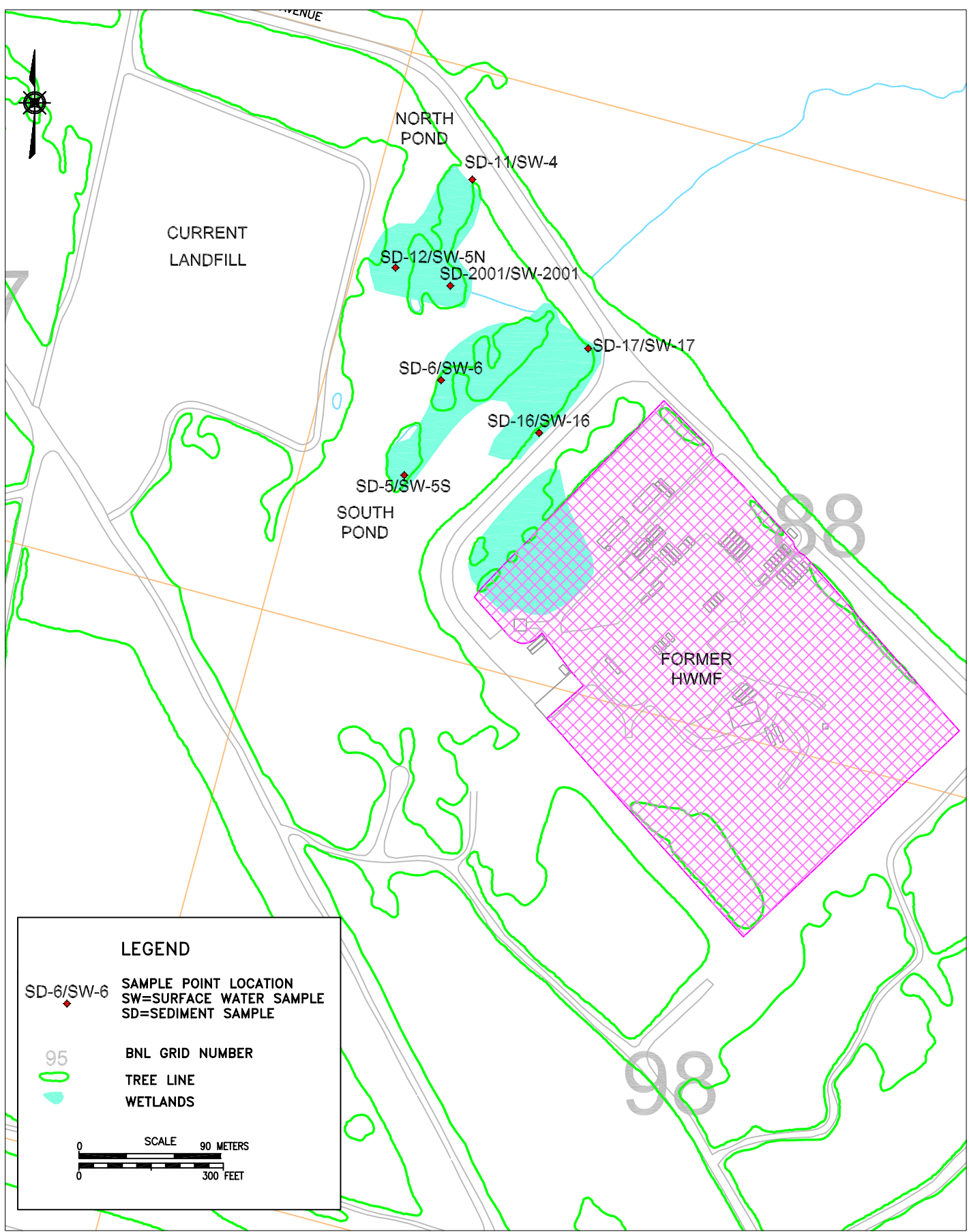
ENVIRONMENTAL
 SERVICES DIVISION

TITLE: **WOODED WETLANDS
 BENCHMARK SURFACE AND SEDIMENT
 SAMPLE LOCATIONS FROM ECOLOGICAL RISK
 ASSESSMENT 1994 - 1997**

2003 ENVIRONMENTAL MONITORING REPORT
 CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT: HZ.: -	DATE: 02/18/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: -	NOTES: -
FIGURE NO.:			1

T:\LTRA Projects\Landfills\2003 Report\Figures\wooded wetlands FIG 2.DWG



LEGEND

SD-6/SW-6 SAMPLE POINT LOCATION
 SW=SURFACE WATER SAMPLE
 SD=SEDIMENT SAMPLE

95 BNL GRID NUMBER

TREE LINE
 WETLANDS

SCALE 90 METERS
 0 300 FEET

BROOKHAVEN
 NATIONAL LABORATORY

ENVIRONMENTAL
 SERVICES DIVISION

TITLE: **WOODED WETLANDS
 SEDIMENT AND SURFACE WATER
 SAMPLING LOCATIONS 2003**
 2003 ENVIRONMENTAL MONITORING REPORT
 CURRENT AND FORMER LANDFILL AREAS

DWN: KCK	VT:HZ.: -	DATE: 02/18/04	PROJECT NO.: 07176
CHKD: WRD	APPD: WRD	REV.: -	NOTES: -
FIGURE NO.:			2

Appendix B

Soil Gas Sampling Field Notes

CO₂ gate

Location	CH ₄ %	LEL%	H ₂ S ppm	Comment
SEM 1A	17.6	35.3	2	
B	18.6	37.2	3	
C	18.0	36.0	3	
SEM 2A	58.2	(11640)	14	
2B	55.7	(1140)	32	
2C	59.1	(1182)	9	
SEM 3A	26.8	57.6	19	
3B	69.1	(1382)	23	
3C	63.9	(1278)	13	
SEM 4A	54.1	(1082)	5	
4B	53.9	(1078)	7	
4C	52.6	(1052)	15	
SEM 5A	48.3	96.6	1	
5B	46.9	93.8	3	
5C	43.1	86.2	3	

✓
60

CO₂ gate

Location	CH ₄ %	LEL%	H ₂ S ppm	Comment
SEM 6A	40.3	80.6	1	
6B	42.9	85.8	3	
6C	43.6	87.2	2	
SEM 7A	0.8	1.6	1	
7B	0.9	1.8	2	
7C	4.0	8.0	0	
SEM 8A	0	0	0	
8B	0	0	0	
8C	0	0	0	
SEM 9A	0	0	0	
9B	0	0	0	
9C	0.1	2	0	
M 10A	18.0	36.0	1	
10B	15.8	31.6	1	
10C	14.0	28.0	2	
M 11A	15.0	31.2	1	
11B	13.7	27.4	13	
M 12A	60.0	(1200)	0	
12B	50.9	(1018)	1	
M 13A	30.5	61.0	1	
13B	0	0	1	VACUUM = notes in screen zone

VACUUM = notes in screen zone

Ogata

Current Landfill

4/15/03

Location	C4% ¹	LEL%	H ₂ S ppm	Comment
SGM 144	29.4	5.88	10	
145	0.2	4	1	
SGM 15A	0.1	2	1	water in screen zone ↓
Skull 15B	0	0	0	
SGM 16A	0.1	2	1	
16B	0	0	3	
Skull 17A	0	0	3	
17B	0	0	2	water in screen ↓
SGM 18A	0.1	2	2	
18B	0	0	0	
SGM 19A	41.8	838	0	
19B	44.0	880	3.9	
SGM 1A	0.1	2	0	
1B	0	0	0	
1C	0	0	0	
SGM 2A	0	0	0	
2B	0	0	0	
2C	0	0	0	
SGM 3A	0	0	0	
3B	0	0	0	
SGM 4A	0	0	0	
4B	0	0	0	
4C	0	0	0	
SGM 5A	0	0	0	
5B	0	0	0	
5C	0	0	0	
SGM 6A	0	0	0	
6B	0	0	0	

Ogata

Current Landfill
Calibrated Landfill 6/15/00
SN K7005 w/ H₂S padique
to use

7/29/03
Sun-80

Time onsite: 1350
Time offsite: 1625

Location	C4% ¹	LEL%	H ₂ S ppm	Comment
SGM 1A	22.1	444	0	
2B	16.2	324	0	
2C	13.9	282	0	
SGM 7A	41.2	824	0	
2B	0	0	0	
2C	0	0	0	
SGM 3A	57.8	1156	0	
3B	0	0	0	
3C	0	0	0	
SGM 4A	0	0	0	
4B	0	0	0	
4C	0	0	0	
SGM 5A	48.0	960	0	
5B	13.8	276	0	
5C	0	0	0	

H₂S pad not operating correctly.

7/29/03

CO2 gas

Current Landfill

Location CH₄ LE% H₂S ppm

SGM16A 5.8 11.6

6b 2 0

6c 0 0

SGM17A 0 0

7b 0 0

7c 0 0

SGM18A 0 0

8b 0 0

8c 0 0

SGM19A 0 0

9b 0 0

9c 0 0

SGM10A 22.0 440

10b 17.7 354

10c 16.6 332

SGM11A 29.3 586

11b 24.0 520

SGM12A 47.6 952

12b 0.3 6

SGM13A 0 0

13b 0.8 16

H₂S Rod Not operating Correct

7/29/03

CO2 gas

Current Landfill

Location CH₄ LE% H₂S ppm

SGM14A 9.2 196

14b 0 0

SGM15A 0 0

15b 0 0

16a 0 0

16b 0 0

SGM17A 0 0

17b 0 0

SGM18A 0 0

18b 0.1 2

SGM19A 29.1 582

19b 0.7 14

SGM20A 0 0

10b 0 0

10c 0 0

SGM21A 0 0

21b 0 0

21c 0 0

SGM22A 0 0

22b 0 0

22c 0 0

SGM23A 0 0

23b 0 0

23c 0 0

SGM24A 0 0

24b 0 0

24c 0 0

SGM25A 0 0

VLS

CO gater

Current Landfill

Calibration Landfill GA-90

SN 680 in the 5' peak
power to use.
Steel pins: 0920
Snap pins:

Location	CH%	LEL%	H ₂ S ppm	Comment
5GM1A	21.1	422	0	
1B	19.7	394	81	
1C	20.0	420	80	
5GM2A	20	100	68	
2B	0.1	2	13	
2C	0	0	0	
5GM3A	25.0	(1100)	0	
3B	54.2	(1654)	95	
3C	1.2	7	0	
5GM4A	6.5	10	109	
4B	0.2	4	27	
4C	2.1	2	0	
5GM5A	54.9	(1698)	163	
5B	23.5	(1076)	0	
5C	41.8	834	0	

CO gater

Current Landfill

Location CH% LEL% H₂S ppm Comment

6GM6A	15.5	310	0	
6B	0	0	0	
6C	0.1	2	0	
6GM7A	0	0	0	
7B	0.1	2	0	
7C	0.1	2	0	
5GM8A	0.1	2	27	
8B	0	0	0	
8C	0	0	0	
5GM9A	0.1	2	15	
5GM9B	0	0	0	
9C	0.1	2	0	
5GM12A	27.9	558	0	
10B	22.0	440	0	
10C	18.2	364	0	
5GM11A	0.4	8	0	
11B	0.1	2	0	
5GM12A	24.7	(1294)	0	
12B	0.5	10	0	
5GM13A	27.2	(1344)	163	top in wall str.
13B	0.1	2	0	

W. W. W.

Current Landfill

Location	CH ₄ %	HC ₂ %	H ₂ S ppm	Comment
SGM 14A	8.3	106		
14B	0.1	2	0	
SGM 15A	0.1	2	54	
15B	0.1	2	0	
16A	0.1	2	0	
SGM 16B	0	0	0	
17A	0	0	0	
SGM 17B	0	0	0	
18A	0	0	0	
SGM 18B	0	0	0	
19A	40.0	800	0	
SGM 19B	33.3	666	0	
SGM 20A	0	0	0	
20B	0	0	0	
SGM 21A	0	0	0	
21B	0	0	0	
SGM 22A	0	0	0	
22B	0	0	0	
SGM 23A	0	0	0	
23B	0	0	0	
SGM 24A	0	0	0	
24B	0	0	0	
25	0	0	0	

R. W. W.

Current Landfill

10/16/63
W. W. W.
70°

Location	CH ₄ %	HC ₂ %	H ₂ S ppm	Comment
SGM 1A	21.5	436	0.0	
B	19.5	396	0.00	
C	17.3	348	0.00	
SGM 2A	23.2	442	0.00	
B	0	0	0.00	
C	12.7	254	0.00	
SGM 3A	0	0	0.00	
B	11.7	234	0.00	
C	41.0	820	0.00	
SGM 4A	9.4	186	0.00	
C	47.0	940	0.00	
C	41.5	832	0.00	
SGM 5A	23.4	468	0.00	
C	38.8	776	0.00	
C	32.3	648	0.00	
SGM 6A	20.7	414	0.00	
B	44.8	896	0.00	
C	45.1	900	0.00	
SGM 7A	0	0	0	
7B	0	0	0	
7C	0	0	0	
H ₂ S				700 Not on 4-10-63 corrected

CD 8/12

Time on site 1350
Time off site 1400

Carbide SA-90 SNA 690
w/ H₂S pool calibration
check performed prior to use

Former Landfill
LEL % H₂S ppm Comment

Loc	CH ₄ %	LEL %	H ₂ S ppm	Comment
A	0	0	0	
1B	0.1	2	1	
2A	0.1	2	4	
3B	0	0	1	
3A	0	0	1	
3B	0.1	2	1	
4A	0.2	4	2	
4B	0	0	3	
5A	0.1	2	1	
5B	0	0	1	
M6A	0.1	2	2	
6B	0.1	2	2	
M7A	0.1	2	2	0.1, 2, 4
7B	0.2	4	2	0.2, 4, 5
M8A	0.1	2	1	
8B	0.2	4	2	

48

Light

24/03
 25/03
 26/03
 27/03
 28/03
 29/03
 30/03

1
 2
 3
 4
 5
 6
 7
 8
 9
 10
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 26
 27
 28
 29
 30

49

12/03

Light

Forman Landfill

Calibration sheet of spectrometer
 70 R7005 performed 11/15
 Time of flight: 0.045
 Time of flight: 1115

Location: C.H. 76 LE 16 to 19 km Camp
 SGM 1A 0 0
 1B 0 0
 SGM 2A 8 0
 2B 0 0
 SGM 3A 0 0
 3B 0 0
 DGM 4A 0 0
 4B 0 0
 SGM 5A 0 0
 5B 0 0
 SGM 6A 0 0
 6B 0 0
 SGM 7A 0 0
 7B 0 0
 SGM 8A 0 0
 8B 0 0

130

COYOTE

Females

Location 44% (5%)

45

46

47

48

49

H2S pod not operating
correctly.
HR allowed access
SGM 7.
Co.

Dog

Location 44% (5%)

45

46

47

48

49

Location 44% (5%)

SGM 44

45

SGM 45

46

SGM 46

47

SGM 47

48

SGM 48

49

SGM 49

50

SGM 50

51

41

42

43

44

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63

R. W. S.
 For identification
 const. 1330 15/10
 1130

S3

11/18/03

Uran

40

Local

SGM 14

B

SGM 14

2b

SGM 3A

3B

SGM 4A

43

SGM 5A

5A

SGM 6A

6A

SGM 7A

7B

SGM 8A

8B

SGM 9A

9B

SGM 10A

10B

Copy

SGM 14

SGM 14

SGM 14

SGM 14

SGM 14

SGM 14

SGM 14

SGM 14

SGM 14

SGM 14

SGM 14

11/18/03
 1130
 1130

1130
 1130

1130
 1130

1130
 1130

1958
 1959
 1960
 1961
 1962
 1963
 1964
 1965
 1966
 1967
 1968
 1969
 1970
 1971
 1972
 1973
 1974
 1975
 1976
 1977
 1978
 1979
 1980

Location	CH ₄ %	LEL%	H ₂ S ppm
SGM III	0	0	0
III	0	0	0
SGM IBA	0	0	0
IB	0	0	0

1958
 1959
 1960
 1961
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 1980

Appendix C

Monthly Landfill Site Inspection Forms

**BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s): Tom Doyle
 Date of Inspection: March 6, 2003
 Purpose of Inspection: Routine Heavy Rainfall Reported Incident
 Time on Site: 1000
 Time off Site: 1030
 Weather Conditions: cold cloudy

A. Inspection Checklist

	Component	Observed Condition			Further Action Required	
		Excellent	Fair	Poor	Yes	No
1.0	Landfill Cap:					
	Vegetation			/		/
	Cap			/		/
	Gas Vents			/		/
2.0	Drainage Structures:					
	Toe Drain					/
	Drainage Channels			/		/
	French Drains/Outfalls			/		/
	Subsurface Drainage Pipes/Outfalls			/		/
	Manholes			/		/
	Recharge Areas			/		/
	Monitoring System:					
	Soil Gas Wells			/		/
	Groundwater Wells			/		/
4.0	Site Access:					
	Asphalt Access Road			✓	/	
	Crushed-Concrete Access Road			✓	/	

B. Description of Further Action Requirements:

1. Location: all areas
 Observed Conditions: snow cover > 1'-0" all areas

Recommendations: plow asphalt road

**BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s): Thomas Doyle
 Date of Inspection: 5/9/03
 Purpose of Inspection: Routine Heavy Rainfall Reported Incident
 Time on Site: 0930
 Time off Site: 1030
 Weather Conditions: clear mild

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation		✓			
Cap	✓				
Gas Vents	✓				
2.0 Drainage Structures:					
Toe Drain	✓				
Drainage Channels	✓				
French Drains/Outfalls	✓				
Subsurface Drainage Pipes/Outfalls	✓				
Manholes	✓				
Recharge Areas	✓				
Monitoring System:					
Soil Gas Wells	✓				
Groundwater Wells	✓				
4.0 Site Access:					
Asphalt Access Road	✓				
Crushed-Concrete Access Road	✓				

B. Description of Further Action Requirements:

1. Location: _____
 Observed Conditions: area in good shape (Homeland Defense using north west corner for equipment trial)

Recommendations: no work needed

**BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s):

Tom Doyle

Date of Inspection:

6/24/03

Purpose of Inspection:

Routine Heavy Rainfall Reported Incident

Time on Site:

11:00

Time off Site:

11:45

Weather Conditions:

clear

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation		X		X	
Cap	X				
Gas Vents					
2.0 Drainage Structures:					
Toe Drain	X				
Drainage Channels	X				
French Drains/Outfalls	X				
Subsurface Drainage Pipes/Outfalls	X				
Manholes	X				
Recharge Areas	X				
Monitoring System:					
Soil Gas Wells	X				
Groundwater Wells	X				
4.0 Site Access:					
Asphalt Access Road	X				
Crushed-Concrete Access Road	X				

B. Description of Further Action Requirements:

1. Location:

1.0 grass areas

Observed Conditions:

Recommendations:

Mow grass

**BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s):

Tom Doyle

Date of Inspection:

7/18/03

Purpose of Inspection:

Routine Heavy Rainfall Reported Incident

Time on Site:

1300

Time off Site:

1345

Weather Conditions:

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation			X	X	
Cap	X				X
Gas Vents	X				X
2.0 Drainage Structures:					
Toe Drain	X				X
Drainage Channels	X				X
French Drains/Outfalls	X				X
Subsurface Drainage Pipes/Outfalls	X				X
Manholes	X				X
Recharge Areas	X				X
Monitoring System:					
Soil Gas Wells	X				X
Groundwater Wells	X				X
4.0 Site Access:					
Asphalt Access Road	X				X
Crushed-Concrete Access Road	X				X

B. Description of Further Action Requirements:

1. Location:

grass needs mowing

Observed Conditions:

Recommendations:

**BROOKHAVEN NATIONAL LABORATORY
FORMER LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s):

Tom Dwyer

Date of Inspection:

10/17/03

Purpose of Inspection:

Routine Heavy Rainfall Reported Incident

Time on Site:

1:00

Time off Site:

1:45

Weather Conditions:

Fair

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation	<i>X</i>				<i>P</i>
Cap	<i>P</i>				<i>P</i>
Gas Vents	<i>P</i>				<i>P</i>
2.0 Drainage Structures:					
Toe Drain	<i>F</i>				<i>P</i>
Drainage Channels	<i>F</i>				<i>P</i>
French Drains/Outfalls	<i>P</i>				<i>P</i>
Subsurface Drainage Pipes/Outfalls	<i>P</i>				<i>P</i>
Manholes	<i>P</i>				<i>P</i>
Recharge Areas	<i>P</i>				<i>P</i>
Monitoring System:					
Soil Gas Wells	<i>X</i>				<i>P</i>
Groundwater Wells	<i>F</i>				<i>P</i>
4.0 Site Access:					
Asphalt Access Road	<i>F</i>				<i>P</i>
Crushed-Concrete Access Road	<i>F</i>				<i>P</i>

B. Description of Further Action Requirements:

1. Location:

Observed Conditions:

Recommendations:

**BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s): T. Doyle
 Date of Inspection: March 6, 2003
 Purpose of Inspection: Routine Heavy Rainfall Reported Incident
 Time on Site: 0930
 Time off Site: 0950
 Weather Conditions: cold landfill snow covered

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation					
Cap					
Gas Vents					
2.0 Drainage Structures:					
Toe Drain					
Drainage Channels					
French Drains/Outfalls					
Subsurface Drainage Pipes/Outfalls					
Manholes					
Recharge Areas					
Monitoring System:					
Soil Gas Wells					
Groundwater Wells					
4.0 Site Access:					
Asphalt Access Road					
Crushed-Concrete Access Road					

3. Description of Further Action Requirements:

Location: _____
 Observed Conditions: SNOW COVERED AREAS INACCESSIBLE
 Recommendations: Plow Roads

**BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s):

Thomas Doyle

Date of Inspection:

4/14/03

Purpose of Inspection:

Routine Heavy Rainfall Reported Incident

Time on Site:

10:00

Time off Site:

11:00

Weather Conditions:

clear mild

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation		✓			
Cap	✓				
Gas Vents	✓				
2.0 Drainage Structures:					
Toe Drain	✓				
Drainage Channels	✓				
French Drains/Outfalls	✓				
Subsurface Drainage Pipes/Outfalls	✓				
Manholes	✓				
Recharge Areas	✓				
Monitoring System:					
Soil Gas Wells	✓				
Groundwater Wells					
4.0 Site Access:					
Asphalt Access Road		✓			
Crushed-Concrete Access Road	✓				

B. Description of Further Action Requirements:

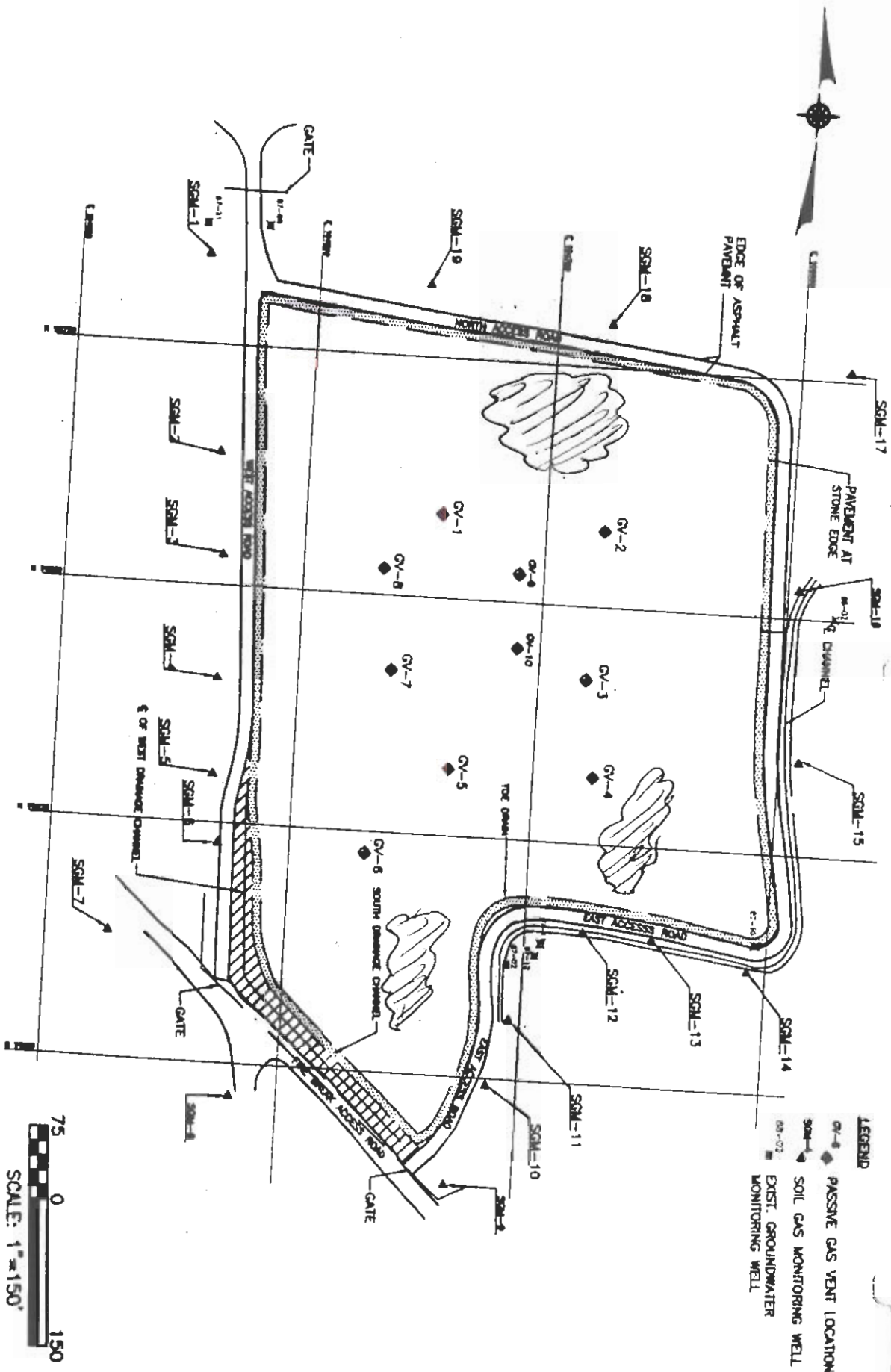
1. Location:

Observed Conditions:

Grass starting spring growth cycle
a thaw melted snow cover before plowing took
place. Grass at three locations seemed more
deteriorated than the rest of the landfill

Recommendations:

allow grass to grow to height so it can
seed. Thereafter mow the three areas
shown to a greater height.



LEGEND

- GV-1 to GV-8 PASSIVE GAS VENT LOCATION
- SGM-1 to SGM-18 SOIL GAS MONITORING WELL
- GW-01, GW-02 EXIST. GROUNDWATER MONITORING WELL



SITE INSPECTION MAP

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL CLOSURE

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

FIGURE 1-X

**BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s): Tom Doyle
 Date of Inspection: 5/9/03
 Purpose of Inspection: Routine Heavy Rainfall Reported Incident
 Time on Site: 1045
 Time off Site: 1630
 Weather Conditions: clear

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation	✓				/
Cap	✓				/
Gas Vents	✓				/
2.0 Drainage Structures:					
Toe Drain	✓				/
Drainage Channels	✓				/
French Drains/Outfalls	✓				/
Subsurface Drainage Pipes/Outfalls	✓				/
Manholes	✓				/
Recharge Areas	✓				/
Monitoring System:					
Soil Gas Wells	✓				/
Groundwater Wells	✓				/
4.0 Site Access:					
Asphalt Access Road	✓				/
Crushed-Concrete Access Road	✓				/

B. Description of Further Action Requirements:

1. Location:
 Observed Conditions: Grass Recovered well so far from snowy winter

Recommendations: no action needed

**BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s): Tom Doyle
 Date of Inspection: 6/24/03
 Purpose of Inspection: Routine Heavy Rainfall Reported Incident
 Time on Site: 0930
 Time off Site: 1030
 Weather Conditions: partly cloudy

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation	✓			✓	
Cap	✓				
Gas Vents	✓				
2.0 Drainage Structures:					
Toe Drain	✓				
Drainage Channels	✓				
French Drains/Outfalls	✓				
Subsurface Drainage Pipes/Outfalls	✓				
Manholes	✓				
Recharge Areas	✓				
Monitoring System:					
Soil Gas Wells	✓				
Groundwater Wells	✓				
4.0 Site Access:					
Asphalt Access Road	✓				
Crushed-Concrete Access Road	✓				

B. Description of Further Action Requirements:

1. Location: 1.0 Grass now can be mowed > 12" high
 Observed Conditions: _____

Recommendations: Mow grass to 4" and leave previously identified areas at 6" inches

BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
MAINTENANCE AND REPAIR SUMMARY FORM

Date: 7/10/03
Condition to be Repaired: Grass
Weather: Fair Warm
Manpower: _____
Supervisor(s): M. Penkashil / T. Doyle
Personnel: Labores
Equipment: Lawn mowers

Health and Safety Measures: Hearing protection

Health and Safety Officer Required: _____
Description of Work Performed: Mowing

Materials Required (Type, Quantity): Lawn mowers

Status of Work: mowing completed

Supervisor's Signature: Tom Doyle

**BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s):

Tom Doyle

Date of Inspection:

8/11/08

Purpose of Inspection:

Routine Heavy Rainfall Reported Incident

Time on Site:

0930

Time off Site:

1015

Weather Conditions:

warm Sunny

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation	✓				/
Cap	✓				/
Gas Vents	✓				/
2.0 Drainage Structures:					
Toe Drain	✓				/
Drainage Channels	✓				/
French Drains/Outfalls	✓				/
Subsurface Drainage Pipes/Outfalls	✓				/
Manholes	✓				/
Recharge Areas	✓				/
Monitoring System:					
Soil Gas Wells	✓				/
Groundwater Wells	✓				/
4.0 Site Access:					
Asphalt Access Road	✓				/
Crushed-Concrete Access Road	✓				/

B. Description of Further Action Requirements:

1. Location: _____

Observed Conditions: _____

Recommendations: _____

**BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s): Tom Doyle
 Date of Inspection: 9/26/03
 Purpose of Inspection: Routine Heavy Rainfall Reported Incident
 Time on Site: 1045
 Time off Site: 1130
 Weather Conditions: Rain

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation		✓		✓	
Cap	✓	✓			
Gas Vents	✓				
2.0 Drainage Structures:					
Toe Drain	✓				
Drainage Channels	✓				
French Drains/Outfalls	✓				
Subsurface Drainage Pipes/Outfalls	✓				
Manholes	✓				
Recharge Areas	✓				
Monitoring System:					
Soil Gas Wells	✓				
Groundwater Wells	✓				
4.0 Site Access:					
Asphalt Access Road	✓				
Crushed-Concrete Access Road	✓				

3. Description of Further Action Requirements:

Location: grass needs mowing
 Observed Conditions: _____

Recommendations: have grounds mow

**BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s):

Tom Doyle

Date of Inspection:

10/17/03

Purpose of Inspection:

Routine Heavy Rainfall Reported Incident

Time on Site:

0930

Time off Site:

1000

Weather Conditions:

Fair

A. Inspection Checklist

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation	X				X
Cap	X				X
Gas Vents	X				X
2.0 Drainage Structures:					
Toe Drain	X				X
Drainage Channels	X				X
French Drains/Outfalls	X				X
Subsurface Drainage Pipes/Outfalls	X				X
Manholes	X				X
Recharge Areas	X				X
Monitoring System:					
Soil Gas Wells	X				X
Groundwater Wells	X				X
4.0 Site Access:					
Asphalt Access Road	X				X
Crushed-Concrete Access Road	X				X

3. Description of Further Action Requirements:

Location: _____

Observed Conditions: _____

Recommendations: _____

**BROOKHAVEN NATIONAL LABORATORY
CURRENT LANDFILL AREA
SITE INSPECTION FORM**

Name of Inspector(s):

Tom Donohue

Date of Inspection:

12/09/03

Purpose of Inspection:

Routine Heavy Rainfall Reported Incident

Time on Site:

0910

Time off Site:

1000

Weather Conditions:

Cloud

A. Inspection Checklist

everything is snow covered

Component	Observed Condition			Further Action Required	
	Excellent	Fair	Poor	Yes	No
1.0 Landfill Cap:					
Vegetation		X			X
Cap	X				X
Gas Vents	X				X
2.0 Drainage Structures:					
Toe Drain		X			X
Drainage Channels		X			X
French Drains/Outfalls		X			X
Subsurface Drainage Pipes/Outfalls		X			X
Manholes		X			X
Recharge Areas		X			X
Monitoring System:					
Soil Gas Wells	X				X
Groundwater Wells	X				X
1.0 Site Access:					
Asphalt Access Road		X			X
Crushed-Concrete Access Road		X			X

B. Description of Further Action Requirements:

Location:

Observed Conditions:

Recommendations:

Appendix D

Historical Soil Gas Monitoring Data

1996 CURRENT LANDFILL SOIL GAS MONITORING SUMMARY TABLE

1998 Environmental Monitoring Report
Current and Former Landfills - Brookhaven National Laboratory

Soil Gas Monitoring Well	Methane (% By Volume)			
	April-96	June-96	July-96	December-96
SGMW-01A	21.6	0	16.5	29.8
SGMW-01B	23.2	0	11	28.9
SGMW-01C	24.1	0	11.4	26.8
SGMW-02A	55.1	53	49.5	64.8
SGMW-02B	55.5	52.7	51.4	59
SGMW-02C	55.6	56.4	43.8	58
SGMW-03A	66	61.2	54	62.8
SGMW-03B	62	59.5	45	61.6
SGMW-03C	57.8	58.1	54	57.9
SGMW-04A	49.7	0	48.9	52.4
SGMW-04B	53	0	49.4	54.3
SGMW-04C	52.8	0	48.6	55.9
SGMW-05A	50.1	49.4	46.5	52
SGMW-05B	50.9	47.5	42	53.7
SGMW-05C	48.7	46.9	30.4	51.6
SGMW-06A	40.1	44.2	0.8	0
SGMW-06B	44	46	41.9	0
SGMW-06C	45.2	46.7	42	0
SGMW-07A	8.6	10.4	14.5	6.2
SGMW-07B	76	11.6	0.2	0.8
SGMW-07C	8.4	11.7	3.2	8.7
SGMW-08A	0	0	0.7	0
SGMW-08B	0	0	0	0
SGMW-08C	0	0	0	0
SGMW-09A	0.3	0	0	2.8
SGMW-09B	1.2	0	0	6.7
SGMW-09C	2.5	0.3	0	5.8
SGMW-10A	16.7	22.8	23	22.7
SGMW-10B	16.6	14.3	15.8	32.5
SGMW-10C	14	18.2	11.4	29.2
SGMW-11A	16.4	26.8	23.5	39.3
SGMW-11B	15.7	25.6	25	29.6
SGMW-12A	57.5	0	36.9	57.2
SGMW-12B	51.3	0	32.3	55.7
SGMW-13A	46.3	0	18.7	0
SGMW-13B	47.5	0	26	0
SGMW-14A	34.9	0	18.2	38.6
SGMW-14B	41.4	44.2	16	0
SGMW-15A	0	0.6	3.6	3.4
SGMW-15B	12.7	0	0	0
SGMW-16A	0	0	0	0
SGMW-16B	0	0	0.7	0
SGMW-17A	0	0	0	0
SGMW-17B	0	0	0	0
SGMW-18A	8.6	0	0	7.1
SGMW-18B	0.6	0	0	0
SGMW-19A	40.8	29	16	52.5
SGMW-19B	36.7	30.1	6.9	46.5
GSGM-1A	NA	◇	0	◇
GSGM-1B	NA	◇	0	◇
GSGM-1C	NA	◇	0	◇
GSGM-2A	NA	0	0	◇
GSGM-2B	NA	0	0	◇
GSGM-2C	NA	0	0	◇
GSGM-3A	NA	0	◇	◇
GSGM-3B	NA	0	0	◇
GSGM-4A	NA	0	0	◇
GSGM-4B	NA	0	0	◇

◇ No measurement was recorded.

NA Well was not yet installed.

1997 CURRENT LANDFILL SOIL GAS MONITORING SUMMARY TABLE

1998 Environmental Monitoring Report

Current and Former Landfills - Brookhaven National Laboratory

Soil Gas Monitoring Well	Methane (% By Volume)			Hydrogen sulfide (ppm By Volume)		
	March-97	August-97	November-97	March-97	August-97	November-97
SGMW-01A	33.4	17.1	16.4	5	5	8
SGMW-01B	32.5	17.2	15.8	1	4	7
SGMW-01C	34.2	15.9	14.5	1	0	1
SGMW-02A	62.4	47.7	53.2	40	39	137
SGMW-02B	64.7	57	56.7	9	17	43
SGMW-02C	62.6	56.6	55.6	2	0	0
SGMW-03A	65.2	55.7	52.2	3	24	15
SGMW-03B	67.5	55.8	57	7	5	9
SGMW-03C	62.5	55.8	57	3	6	7
SGMW-04A	57.6	53.9	52.5	6	52	6
SGMW-04B	58.2	52.5	55.8	7	29	25
SGMW-04C	58.2	52.5	54.5	6	14	15
SGMW-05A	55.2	47.5	50.5	6	44	29
SGMW-05B	54.4	43.3	45.5	10	21	20
SGMW-05C	53.6	37.5	38.7	3	1	2
SGMW-06A	42.6	44	42.9	7	33	3
SGMW-06B	45	43.5	44.4	10	16	17
SGMW-06C	46	42	43.1	7	13	15
SGMW-07A	10.1	2.3	0	3	0	0
SGMW-07B	8.8	0	0	5	0	6
SGMW-07C	9.9	4.1	0.2	3	0	9
SGMW-08A	0	0	0	1	0	5
SGMW-08B	0	0	0	0	0	9
SGMW-08C	0	0	0	0	0	10
SGMW-09A	0.3	0	0	0	0	15
SGMW-09B	3.4	0	0	0	0	14
SGMW-09C	4.6	0.8	1	0	0	12
SGMW-10A	20.5	28	19	1	19	13
SGMW-10B	19.8	24.5	24	1	0	5
SGMW-10C	0	21.7	20.6	0	0	18
SGMW-11A	24.3	27.6	25.2	20	60	56
SGMW-11B	0	27.8	20.5	0	74	32
SGMW-12A	55.9	48	42	21	89	98
SGMW-12B	0	46.5	44.3	0	0	25
SGMW-13A	28.7	45.2	0.7	2	16	19
SGMW-13B	0	0.4	38.9	0	0	27
SGMW-14A	39.1	20.1	5.2	6	10	24
SGMW-14B	0	0	13.5	0	0	13
SGMW-15A	1.8	0.2	2.5	0	0	14
SGMW-15B	0	0	2.6	0	0	14
SGMW-16A	0	31.7	1.1	0	0	9
SGMW-16B	0	◇	0	0	◇	0
SGMW-17A	0	0	0	0	0	20
SGMW-17B	0	0	0	0	0	0
SGMW-18A	0	0	0	0	0	14
SGMW-18B	0	0	0	0	0	15
SGMW-19A	35.1	22	10.6	41	51	42
SGMW-19B	0	29	17.3	0	30	12
GSGM-1A	0	◇	0	4	◇	0
GSGM-1B	0	◇	0	5	◇	1
GSGM-1C	0	◇	0	6	◇	0
GSGM-2A	0	◇	0	6	◇	0
GSGM-2B	0	◇	0	6	◇	4
GSGM-2C	0	◇	0	6	◇	0
GSGM-3A	0	◇	0	5	◇	0
GSGM-3B	0	◇	0	4	◇	0
GSGM-4A	0	◇	0	5	◇	8
GSGM-4B	0	◇	0	5	◇	0

* Values are calculated, not measured.

◇ No measurement was recorded.

Brookhaven National Laboratory

1998 Landfills Environmental Monitoring Report
1998 Current Landfill Soil Gas Monitoring Summary Table

Soil Gas Monitoring Well	Methane (% By Volume) February-98	Methane (% By Volume) May-98	Methane (% By Volume) August-98	Methane (% By Volume) December-98	Hydrogen sulfide (ppm By Volume) February-98	Hydrogen sulfide (ppm By Volume) May-98	Hydrogen sulfide (ppm By Volume) August-98	Hydrogen sulfide (ppm By Volume) December-98	Soil Gas Monitoring Well
SGMW-01A	26.3	26.1	24.2	20.4	5	0	0	0	SGMW-01A
SGMW-01B	25.1	30.1	28	10.7	4	0	0	4	SGMW-01B
SGMW-01C	24	20	17.7	17.7	1	2	1	2	SGMW-01C
SGMW-02A	67.6	65.3	70.4	51.1	82	3	4	8	SGMW-02A
SGMW-02B	64.1	68	68	54.9	93	5	6	4	SGMW-02B
SGMW-02C	61.5	64.7	65	53.1	11	0	0	0	SGMW-02C
SGMW-03A	20.4	80	78.6	2.5	10	3	2	1	SGMW-03A
SGMW-03B	76.8	74	74	51.1	23	0	0	0	SGMW-03B
SGMW-03C	65.3	65.5	65.3	41.5	4	3	0	1	SGMW-03C
SGMW-04A	11.3	54.2	55	0.4	8	7	4	0	SGMW-04A
SGMW-04B	58.0	55.8	59	36.1	5	4	3	0	SGMW-04B
SGMW-04C	00.5	57.5	57.5	0	17	6	2	0	SGMW-04C
SGMW-05A	48.1	52.4	50	48.9	3	5	5	2	SGMW-05A
SGMW-05B	54	52.1	55.4	47.7	3	4	3	3	SGMW-05B
SGMW-05C	49	50.3	48	41.5	0	3	2	0	SGMW-05C
SGMW-06A	27.3	14.1	39.3	17.5	2	7	6	0	SGMW-06A
SGMW-06B	44.8	46.5	7.8	47.2	15	0	0	1	SGMW-06B
SGMW-06C	46.3	48	6.4	0	0	0	0	0	SGMW-06C
SGMW-07A	2.2	8.9	7.2	0	0	3	3	0	SGMW-07A
SGMW-07B	0	6.6	7	0	0	4	4	0	SGMW-07B
SGMW-07C	4.9	8.5	8.5	0.1	1	8	8	0	SGMW-07C
SGMW-08A	0	0	0	0	2	0	0	0	SGMW-08A
SGMW-08B	0	0	0	0	3	3	3	0	SGMW-08B
SGMW-08C	0	0	0	0	4	1	1	0	SGMW-08C
SGMW-09A	0	0	0	0	8	0	0	0	SGMW-09A
SGMW-09B	0.7	1.4	1.3	0	2	0	0	0	SGMW-09B
SGMW-09C	3	2.7	2.5	0.7	5	2	1	0	SGMW-09C
SGMW-10A	17.9	29.7	30	29.2	0	0	0	0	SGMW-10A
SGMW-10B	23.5	26.4	28.3	26	2	0	0	0	SGMW-10B
SGMW-10C	20.7	24	23	23.7	0	0	0	0	SGMW-10C
SGMW-11A	22.8	31	29.4	17.8	18	0	0	0	SGMW-11A
SGMW-11B	10.0	29	25.3	25.4	8	0	0	0	SGMW-11B
SGMW-12A	53.7	67.2	50.4	33.9	37	2	1	3	SGMW-12A
SGMW-12B	60.3	0.2	3	39.2	11	3	4	0	SGMW-12B
SGMW-13A	7	61.5	59	0	8	0	0	0	SGMW-13A
SGMW-13B	0.1	0.1	0	0	9	0	0	0	SGMW-13B
SGMW-14A	17.1	21	20	1.2	0	1	2	0	SGMW-14A
SGMW-14B	0	0	15	0	0	0	2	0	SGMW-14B
SGMW-15A	4	1.2	0	0	5	0	0	0	SGMW-15A
SGMW-15B	0	0	0.7	0	0	0	0	0	SGMW-15B
SGMW-16A	0	0	0	0	0	0	0	0	SGMW-16A
SGMW-16B	0	0	0	0	0	0	0	0	SGMW-16B
SGMW-17A	0	0	0	0	0	1	0	0	SGMW-17A
SGMW-17B	0	0	0	0	0	0	0	0	SGMW-17B
SGMW-18A	0.2	0	0	0	0	0	0	0	SGMW-18A
SGMW-18B	0	0	0	0	0	0	2	0	SGMW-18B
SGMW-19A	37.4	47.2	30.4	6.7	68	0	0	1	SGMW-19A
SGMW-19B	39.7	4	4	12	5	1	1	4	SGMW-19B

Soil Gas Monitoring Well	Methane (% By Volume)				Hydrogen sulfide (ppm By Volume)			
	February-88	May-88	August-88	December-88	February-89	May-88	August-88	December-88
GSGM-1A	0	0	0	0	0	0	0	0
GSGM-1B	0	0	0	0	1	0	0	0
GSGM-1C	0	0	0	0	0	0	0	0
GSGM-2A	0	0	0	0	0	0	0	0
GSGM-2B	0	0	20.1	0	0	0	1	0
GSGM-2C	0	0	0	0	2	0	0	0
GSGM-3A	0	0	0	0	0	0	0	0
GSGM-3B	0	0	0	0	0	0	0	0
GSGM-4A	0	0	0	0	0	0	0	0
GSGM-4B	0	0	0	0	2	0	0	0

* Values are calculated, not measured.
 -> No measurement was recorded.

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Soil Gas Monitoring Well	Methane (% By Volume) June-99	Methane (% By Volume) October-99	Methane (% By Volume) December-99	LEL (% By Volume) June-99	LEL (% By Volume) October-99	LEL (% By Volume) December-99	Hydrogen sulfide (ppm By Volume) June-99	Hydrogen sulfide (ppm By Volume) October-99	Hydrogen sulfide (ppm By Volume) December-99	Soil Gas Monitoring Well
SGMW-01A	19.5	17.9	18.8	390	360	394	0	<>	<>	SGMW-01A
SGMW-01B	18.6	18.1	18.6	370	362	372	0	<>	<>	SGMW-01B
SGMW-01C	17.2	14.2	16.7	344	286	334	0	<>	1	SGMW-01C
SGMW-02A	52.4	52.6	55.8	1048	1052	1116	13	<>	25	SGMW-02A
SGMW-02B	54.4	55	56.7	1088	1100	1134	3	<>	11	SGMW-02B
SGMW-02C	55.3	55.2	57.5	1106	1104	1150	3	<>	3	SGMW-02C
SGMW-03A	59.6	41.5	2.3	1192	830	60	3	<>	1	SGMW-03A
SGMW-03B	61.4	58.3	61.3	1228	1169	1228	0	<>	4	SGMW-03B
SGMW-03C	59.9	53.3	59.5	1198	1066	1160	0	<>	3	SGMW-03C
SGMW-04A	53.6	0	39.1	1076	0	782	0	<>	2	SGMW-04A
SGMW-04B	53.5	53.5	52.8	1070	1070	1056	0	<>	7	SGMW-04B
SGMW-04C	62.4	55.2	48.7	1048	1104	974	2	<>	9	SGMW-04C
SGMW-05A	47.8	51.1	47.4	940	1022	944	0	<>	8	SGMW-05A
SGMW-05B	45	51.5	48	900	1030	984	0	<>	4	SGMW-05B
SGMW-05C	39.7	35	38.3	704	702	769	0	<>	4	SGMW-05C
SGMW-06A	41.1	0.1	39.2	828	2	784	0	<>	2	SGMW-06A
SGMW-06B	43.2	43.2	46.8	862	862	934	0	<>	7	SGMW-06B
SGMW-06C	43.1	0	48.8	862	0	928	0	<>	5	SGMW-06C
SGMW-07A	3.3	0.1	0	66	2	0	0	<>	2	SGMW-07A
SGMW-07B	0.8	0	0	18	0	0	0	<>	2	SGMW-07B
SGMW-07C	4.4	0.17	1.3	88	34	28	0	<>	2	SGMW-07C
SGMW-08A	0	0	0	0	0	0	0	<>	2	SGMW-08A
SGMW-08B	0	0	0	0	0	0	0	<>	2	SGMW-08B
SGMW-08C	0	0	0	0	0	0	0	<>	2	SGMW-08C
SGMW-09A	0	0	0	0	0	0	0	<>	3	SGMW-09A
SGMW-09B	0	0	0	0	0	0	0	<>	3	SGMW-09B
SGMW-09C	0	0	0	0	0	2	<>	<>	3	SGMW-09C
SGMW-10A	21.4	15.7	20	428	314	400	1	<>	2	SGMW-10A
SGMW-10B	19.8	26.7	21.1	396	532	420	0	<>	3	SGMW-10B
SGMW-10C	17.8	22.6	16.1	358	454	324	0	<>	3	SGMW-10C
SGMW-11A	19.3	31.2	19.9	388	624	398	9	<>	3	SGMW-11A
SGMW-11B	19.2	25.6	14.8	384	512	284	10	<>	3	SGMW-11B
SGMW-12A	46.8	45.1	47.1	938	892	942	30	<>	9	SGMW-12A
SGMW-12B	44.2	48.5	47.5	884	930	954	5	<>	3	SGMW-12B
SGMW-13A	53.1	0.1	0	1082	2	0	12	<>	0	SGMW-13A
SGMW-13B	0.2	0.2	24.5	4	4	482	0	<>	2	SGMW-13B
SGMW-14A	7.6	5.9	7.1	152	116	142	0	<>	5	SGMW-14A
SGMW-14B	0	22.8	3.4	0	452	68	0	<>	2	SGMW-14B
SGMW-15A	0	1.8	2.9	0	32	55	0	<>	3	SGMW-15A
SGMW-15B	0	0.1	0	0	2	0	0	<>	2	SGMW-15B
SGMW-16A	0	0.1	0	0	2	0	0	<>	2	SGMW-16A
SGMW-16B	0	0.1	0	0	2	0	0	<>	2	SGMW-16B
SGMW-17A	screen in water table	0.1	0	<>	2	0	<>	<>	2	SGMW-17A
SGMW-17B	screen in water table	0.1	0	<>	2	0	<>	<>	2	SGMW-17B
SGMW-18A	0	0.1	0	0	2	0	0	<>	1	SGMW-18A
SGMW-18B	0	1	0.4	0	2	8	0	<>	1	SGMW-18B
SGMW-19A	25.1	23	20.3	502	460	408	16	<>	16	SGMW-19A
SGMW-19B	30.1	27.3	20.5	602	544	410	8	<>	12	SGMW-19B

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Soil Gas Monitoring Well	Methane (% By Volume)		Methane (% By Volume)		LEL (% By Volume)		LEL (% By Volume)		Hydrogen sulfide (ppm By Volume)		Hydrogen sulfide (ppm By Volume)		Soil Gas Monitoring Well
	June-99	October-99	December-99	June-99	October-99	December-99	June-99	October-99	June-99	October-99	December-99	December-99	
GSGM-1A	0	0	0	0	0	0	0	0	0	0	0	0	GSGM-1A
GSGM-1B	0	0	0	0	0	0	0	0	0	0	0	0	GSGM-1B
GSGM-1C	0	broken valve	broken valve	0	0	0	0	0	0	0	0	0	GSGM-1C
GSGM-2A	0	0	0	0	0	0	0	0	0	0	2	2	GSGM-2A
GSGM-2B	0	0	0	0	0	0	0	0	0	0	1	1	GSGM-2B
GSGM-2C	0	0	0	0	0	0	0	0	0	0	1	1	GSGM-2C
GSGM-3A	0	0	0	0	0	0	0	0	0	0	0	0	GSGM-3A
GSGM-3B	0	0	0	0	0	0	0	0	0	0	0	0	GSGM-3B
GSGM-4A	0	0	0	0	0	0	0	0	0	0	0	0	GSGM-4A
GSGM-4B	0	0	0	0	0	0	0	0	0	0	0	0	GSGM-4B

-> No measurement was recorded.

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Soil Gas Monitoring Well	Methane (% By Volume)		Methane (% By Volume)		Methane (% By Volume)		Methane (% By Volume)		Hydrogen Sulfide (ppm by volume)		Hydrogen Sulfide (ppm by volume)		Hydrogen Sulfide (ppm by volume)		Soil Gas Monitoring Well
	February-00	June-00	September-00	December-00	February-00	June-00	September-00	December-00	February-00	June-00	September-00	December-00	February-00	December-00	Soil Gas Monitoring Well
SGMW-01A	28.0	28.5	21.6	18.8	402	410	422	385	0	0	4	0	0	0	SGMW-01A
SGMW-01B	10.3	20.3	11.2	14.3	380	400	292	291	1	0	1	0	0	0	SGMW-01B
SGMW-01C	17.5	13.7	11.6	13.0	360	276	230	260	0	0	1	0	0	0	SGMW-01C
SGMW-02A	41.5	54.0	51.4	51.4	(1000)	(1000)	(1000)	(1000)	1	3	2	18	0	0	SGMW-02A
SGMW-02B	55.1	57.1	56.3	56.2	(1102)	(1142)	(1120)	(1124)	4	20	9	11	0	0	SGMW-02B
SGMW-02C	56.0	46.3	56.8	50.0	(1120)	nd	(1120)	(1120)	2	0	0	5	0	0	SGMW-02C
SGMW-03A	49.9	62.8	49.8	57.8	890	(1255)	(1280)	(1152)	1	8	0	3	0	0	SGMW-03A
SGMW-03B	47.0	57.0	50.2	57.4	(1140)	(1244)	(1200)	(1146)	1	4	0	2	0	0	SGMW-03B
SGMW-03C	57.3	61.2	62.0	58.7	(1146)	(1244)	(1240)	(1134)	1	4	0	4	0	0	SGMW-03C
SGMW-04A	30.7	51.9	2.6	51.6	614	(1038)	52	(1132)	2	2	1	2	0	0	SGMW-04A
SGMW-04B	42.0	50.0	48.0	50.0	978	(1056)	922	(1060)	2	4	1	2	0	0	SGMW-04B
SGMW-04C	43.0	52.1	43.0	45.2	850	(1042)	858	908	4	0	1	8	0	0	SGMW-04C
SGMW-05A	47.7	49.4	47.5	47.2	954	989	950	944	1	0	6	8	0	0	SGMW-05A
SGMW-05B	43.8	50.0	48.2	43.9	892	(1000)	884	878	1	0	8	8	0	0	SGMW-05B
SGMW-05C	36.7	43.7	40.7	36.7	734	874	814	738	2	1	0	8	0	0	SGMW-05C
SGMW-06A	43.0	41.7	41.0	44.0	680	834	820	880	0	4	2	2	0	0	SGMW-06A
SGMW-06B	43.9	45.5	40.0	44.3	859	910	820	920	1	2	2	2	0	0	SGMW-06B
SGMW-06C	44.3	45.3	33.7	45.8	888	626	674	916	0	1	1	8	0	0	SGMW-06C
SGMW-07A	0.3	0.0	0.9	0.0	8	119	18	0	0	0	1	1	0	0	SGMW-07A
SGMW-07B	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	SGMW-07B
SGMW-07C	2.6	3.0	1.8	0.5	52	60	36	10	0	0	2	2	0	0	SGMW-07C
SGMW-08A	0.0	0.0	0.0	0.0	0	0	0	0	1	0	0	3	0	0	SGMW-08A
SGMW-08B	0.0	0.0	0.0	0.0	0	0	0	0	1	0	0	3	0	0	SGMW-08B
SGMW-08C	0.0	0.0	0.0	0.0	0	0	0	0	1	0	0	3	0	0	SGMW-08C
SGMW-08A	0.0	0.0	0.0	0.0	0	0	0	0	1	0	1	3	0	0	SGMW-08A
SGMW-08B	0.0	0.0	0.0	0.0	0	0	0	0	1	0	1	3	0	0	SGMW-08B
SGMW-08C	0.0	0.0	0.0	0.0	0	0	0	0	1	0	1	3	0	0	SGMW-08C
SGMW-09A	9.3	28.1	23.7	17.0	188	522	474	340	1	3	2	2	0	0	SGMW-09A
SGMW-09B	13.5	21.2	26.1	15.5	270	424	322	310	1	0	2	2	0	0	SGMW-09B
SGMW-10A	10.8	19.5	22.2	12.8	212	350	444	280	0	0	2	3	0	0	SGMW-10A
SGMW-10C	10.1	27.1	54.6	13.5	202	342	(1050)	272	2	20	10	7	0	0	SGMW-10C
SGMW-11A	6.6	26.6	54.3	9.2	135	526	(1080)	184	2	23	2	8	0	0	SGMW-11A
SGMW-11B	43.9	60.0	64.4	46.5	878	(1200)	(1080)	104	2	63	2	7	0	0	SGMW-11B
SGMW-12A	42.9	48.8	48.1	47.0	859	958	922	820	2	0	2	5	0	0	SGMW-12A
SGMW-12B	45.1	48.8	48.8	48.0	480	(1270)	1270	930	1	0	2	7	0	0	SGMW-12B
SGMW-13A	45.1	49.0	48.8	48.0	802	(1152)	0	684	1	0	8	5	0	0	SGMW-13A
SGMW-13A	2.7	20.2	15.8	12.1	54	404	316	242	1	0	0	7	0	0	SGMW-13A
SGMW-14A	0.0	0.0	0.0	0.0	0	0	0	0	1	0	0	31	0	0	SGMW-14A
SGMW-14B	2.9	0.0	1.6	0.0	40	0	302	0	2	0	2	4	0	0	SGMW-14B
SGMW-15A	0.0	0.0	0.0	0.0	0	0	0	0	2	0	0	5	0	0	SGMW-15A
SGMW-15B	0.0	0.0	0.0	0.0	0	0	0	0	1	0	0	3	0	0	SGMW-15B
SGMW-16A	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	2	0	0	SGMW-16A
SGMW-16B	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	2	0	0	SGMW-16B
SGMW-17A	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	1	0	0	SGMW-17A
SGMW-17B	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	3	0	0	SGMW-17B
SGMW-18A	0.0	0.1	0.3	0.0	0	2	0	0	0	0	0	4	0	0	SGMW-18A
SGMW-18B	0.0	0.0	0.0	0.0	259	778	688	284	0	0	18	13	0	0	SGMW-18B
SGMW-19A	12.0	38.9	34.8	14.2	334	682	656	250	4	2	0	4	0	0	SGMW-19A
SGMW-19B	16.7	34.0	32.6	10.0	0	0	0	0	4	0	0	1	0	0	SGMW-19B
SGSM-1A	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	1	0	0	SGSM-1A
SGSM-1B	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	1	0	0	SGSM-1B
SGSM-1C	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	1	0	0	SGSM-1C
SGSM-2A	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	1	0	0	SGSM-2A
SGSM-2B	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	SGSM-2B
SGSM-2C	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	SGSM-2C
SGSM-3A	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	SGSM-3A
SGSM-3B	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	SGSM-3B
SGSM-4A	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	SGSM-4A
SGSM-4B	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	SGSM-4B
SGSM-4B	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	3	0	0	SGSM-4B

0 - No measurement was collected due to that week in the area.
 Measurements in parentheses are calculated, not measured.

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Soil Gas Monitoring Well	Methane (% By Volume)		Methane (% By Volume)		Methane (% By Volume)		LEL (% By Volume)		LEL (% By Volume)		LEL (% By Volume)		Hydrogen Sulfide (ppm by volume)		Hydrogen Sulfide (ppm by volume)		Hydrogen Sulfide (ppm by volume)	
	March-01	June-01	September-01	March-01	June-01	September-01	March-01	June-01	September-01	March-01	June-01	September-01	March-01	June-01	September-01	March-01	June-01	September-01
SGMW-01A	22.2	23.1	18.3	4.0	4.62	369	2	11	0	4	0	0	0	0	0	0	0	0
SGMW-01B	2.8	0.0	17.1	0.0	0	354	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-01C	15.3	23.4	15.3	23.4	403	306	0	403	>1,000	0	0	0	0	0	0	0	0	0
SGMW-02A	59.8	52.9	67.9	52.9	1209	1059	140	1059	>1,000	140	67	49	140	67	49	140	67	49
SGMW-02B	58.8	0.0	55.3	0.0	1189	0	0	0	>1,000	181	0	0	1	0	0	0	0	0
SGMW-02C	0.0	0.0	53.2	0.0	0	53.2	0	0	>1,000	5	0	0	5	0	0	0	0	0
SGMW-03A	39.9	51.8	62.9	51.8	780	62.9	1158	62.9	>1,000	28	14	43	28	14	43	28	14	43
SGMW-03B	67.2	66.5	64.7	66.5	1344	1344	1330	1330	>1,000	21	21	0	21	21	0	0	0	0
SGMW-03C	0.2	0.0	83.5	0.0	4	0	0	0	>1,000	1	2	0	1	2	0	0	0	0
SGMW-04A	42.8	3.8	82.8	3.8	859	82.8	70	82.8	>1,000	3	32	32	3	32	32	3	32	32
SGMW-04B	50.8	53.8	82.8	53.8	1018	82.8	1072	1072	>1,000	2	15	14	2	15	14	2	15	14
SGMW-04C	0.0	0.2	80.9	0.2	0	80.9	4	4	>1,000	1	2	0	1	2	0	0	0	0
SGMW-05A	45.8	48.2	67.5	48.2	912	67.5	66.4	66.4	>1,000	3	2	0	3	2	0	0	0	0
SGMW-05B	43.8	0.2	82.8	0.2	878	82.8	4	4	>1,000	2	3	0	2	3	0	0	0	0
SGMW-05C	0.0	0.1	46.3	0.1	0	46.3	2	2	809	2	3	84	2	3	3	2	3	3
SGMW-06A	18.4	8.3	51.4	8.3	389	51.4	166	166	>1,000	2	4	5	2	4	4	2	4	5
SGMW-06B	0.0	0.2	51.9	0.2	0	51.9	4	4	>1,000	2	3	0	2	3	0	0	0	0
SGMW-06C	0.0	0.1	62.8	0.1	0	62.8	2	2	>1,000	2	3	0	2	3	0	0	0	0
SGMW-07A	0.8	5.1	0.2	5.1	12	0.2	102	102	4	4	0	0	4	4	0	0	0	0
SGMW-07B	0	0.3	0.2	0.3	0	0.2	6	6	4	2	3	0	2	3	3	0	0	0
SGMW-07C	0.8	0.0	1.1	0.0	18	1.1	0	0	24	3	1	0	3	1	0	0	0	0
SGMW-08A	0	0	0	0	0	0	4	4	4	2	1	0	2	1	0	0	0	0
SGMW-08B	0	0	2	0	0	2	0	0	4	2	2	0	2	2	0	0	0	0
SGMW-08C	0	0	3	0	0	3	4	4	0	1	3	0	1	3	3	0	0	0
SGMW-08D	0	2	0	2	0	0	4	4	0	0	0	0	0	0	0	0	0	0
SGMW-08E	0	2	0	2	0	0	4	4	0	0	0	0	0	0	0	0	0	0
SGMW-08F	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
SGMW-08G	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
SGMW-08H	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0
SGMW-10A	10.9	16.9	29.8	16.9	216	29.8	338	338	580	4	2	0	4	2	0	0	0	0
SGMW-10B	11.2	16.9	25.5	16.9	224	25.5	378	378	512	2	3	0	2	3	0	0	0	0
SGMW-10C	8.0	13.2	16.9	13.2	160	16.9	284	284	378	2	2	0	2	2	0	0	0	0
SGMW-11A	8.9	21.5	28.3	21.5	176	28.3	430	430	888	16	43	2	16	43	43	2	2	2
SGMW-11B	8.1	19.3	28.9	19.3	122	28.9	380	380	540	0	27	36	0	27	540	36	36	36
SGMW-12A	48.5	63.4	63.7	63.4	980	63.7	1068	1068	1074	1	85	188	1	85	188	188	188	188
SGMW-12B	44.4	0.2	50.1	0.2	888	50.1	4	4	1002	3	0	101	3	0	101	101	101	101
SGMW-13A	18.3	65.1	55.7	65.1	326	55.7	1302	1302	1114	0	5	0	0	5	0	0	0	0
SGMW-13B	8.8	2	0	2	18	0	4	4	150	0	2	0	0	2	0	0	0	0
SGMW-14A	17.4	62	7.4	62	348	7.4	124	124	150	0	4	0	0	4	0	0	0	0
SGMW-14B	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0
SGMW-15A	0.0	3	0.0	3	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-16B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-18A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-17A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-17B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SGMW-18B	0	0	0.0	0	2	0.0	0	0	0	0	1	0	0	1	0	0	0	0
SGMW-19A	21.0	38.2	28.0	38.2	238	28.0	784	784	672	3	200	0	3	200	200	0	0	0
SGMW-19B	20.3	36.8	26.1	36.8	408	36.8	738	738	624	6	63	0	6	63	63	0	0	0
GSGM-1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-1C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-2C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-3A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-3B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-4A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GSGM-4B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

↔ No Measurement was collected due to other work in the area.
Measurements in () are calculated, not measured.

1996/97 FORMER LANDFILL AREA SOIL GAS MONITORING SUMMARY TABLE

1998 Environmental Monitoring Report

Current and Former Landfills Brookhaven National Laboratory

Soil Gas Monitoring Well	Methane (% By Volume)				Hydrogen Sulfide (ppm by volume)			
	Aug-96	Mar-97	Aug-97	Nov-97	Aug-96	Mar-97	Aug-97	Nov-97
SGMW-01A	0	0	0.3	0	◇	6	-5	0
SGMW-01B	0	0	0.3	0	◇	4	-5	0
SGMW-02A	0	0	0	0	◇	6	-2	0
SGMW-02B	0	0	0	0	◇	3	-2	0
SGMW-03A	0	0	0	0	◇	1	-4	0
SGMW-03B	0	0	0	0	◇	5	-4	0
SGMW-04A	0	0	0.2	0.1	◇	7	-5	8
SGMW-04B	0	0	0.2	0.1	◇	7	-5	9
SGMW-05A	0	0	0	0	◇	7	-2	12
SGMW-05B	0	0	0	0	◇	4	-2	0
SGMW-06A	0	0	0	0	◇	7	-4	0
SGMW-06B	0	0	0.1	0	◇	4	-4	0
SGMW-07A	0	0	◇	◇	◇	7	◇	◇
SGMW-07B	0	0	◇	◇	◇	7	◇	◇
SGMW-08A	0	0	0.1	0	◇	6	-5	0
SGMW-08B	0	0	0.1	0	◇	6	-1	0
SGMW-09A	0	0	0	0	◇	5	-2	1
SGMW-09B	0	0	0	0	◇	4	-2	0
SGMW-10A	0	0	0	0	◇	7	-1	1
SGMW-10B	0	0	0	0	◇	5	-2	0
SGMW-11A	0	0	0.3	0	◇	9	-5	0
SGMW-11B	0	0	0	0	◇	4	-1	2
SGMW-12A	0	0	0.3	0	◇	9	-5	0
SGMW-12B	0	0	0.3	0	◇	5	-5	0

◇ No measurement taken.

Negative numbers reported are due to equipment problems.

Brookhaven National Laboratory

1998 Landfills Environmental Monitoring Report

1998 Former Landfill Area Soil Gas Monitoring Summary Table

Soil Gas Monitoring Well	Methane (% By Volume)				Hydrogen sulfide (ppm By Volume)				Soil Gas Monitoring Well
	February-98	May-98	August-98	December-98	February-98	May-98	August-98	December-98	
SGMW-01A	0	0	0	0	1	0	1	0	SGMW-01A
SGMW-01B	0.1	0	0	0	1	0	0	0	SGMW-01B
SGMW-02A	0	0	0	0	6	0	0	0	SGMW-02A
SGMW-02B	0.1	0	0	0	6	1	0	0	SGMW-02B
SGMW-03A	0	0	0	0	0	0	1	1	SGMW-03A
SGMW-03B	0	0	0	0	3	0	2	0	SGMW-03B
SGMW-04A	0	0.1	0	0.1	0	2	0	1	SGMW-04A
SGMW-04B	0	0	0	0	1	0	0	0	SGMW-04B
SGMW-05A	0	0	0	0	0	0	3	0	SGMW-05A
SGMW-05B	0	0	0	0	0	0	4	0	SGMW-05B
SGMW-06A	0	0	0	0	2	0	0	1	SGMW-06A
SGMW-06B	0	0	0	0	0	0	0	0	SGMW-06B
SGMW-07A	<>	<>	<>	<>	<>	<>	<>	<>	SGMW-07A
SGMW-07B	<>	<>	<>	<>	<>	<>	<>	<>	SGMW-07B
SGMW-08A	0	0	0	0	1	0	0	0	SGMW-08A
SGMW-08B	0	0	0	0	0	0	4	0	SGMW-08B
SGMW-09A	0	0	0	0	1	0	1	1	SGMW-09A
SGMW-09B	0	0	0	0	0	0	3	0	SGMW-09B
SGMW-10A	0	0	0	0	0	0	4	0	SGMW-10A
SGMW-10B	0	0	0	0	0	0	3	0	SGMW-10B
SGMW-11A	0	0	0	0	0	0	0	2	SGMW-11A
SGMW-11B	0	0	0	0	1	0	1	0	SGMW-11B
SGMW-12A	0	0	0	0	0	0	2	1	SGMW-12A
SGMW-12B	0	0	0	0	0	0	4	0	SGMW-12B

<> Well SGM07 was not accessible

Brookhaven National Laboratory
 1999 Landfills Environmental Monitoring Report
 1999 Former Landfill Soil Gas Monitoring Summary Table

Soil Gas Monitoring Well	Methane (% By Volume)			Methane (% By Volume)			LEL (% By Volume)			Hydrogen sulfide (ppm By Volume)			Soil Gas Monitoring Well
	June-99	October-99	December-99	June-99	October-99	December-99	June-99	October-99	December-99	June-99	October-99	December-99	
SGMW-01A	0	0	0	0	0	0	0	0	0	0	<>	1	SGMW-01A
SGMW-01B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-01B
SGMW-02A	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-02A
SGMW-02B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-02B
SGMW-03A	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-03A
SGMW-03B	0.1	0	0	2	0	0	0	0	0	0	<>	0	SGMW-03B
SGMW-04A	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-04A
SGMW-04B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-04B
SGMW-05A	0	0	0	0	0	0	0	0	0	0	<>	3	SGMW-05A
SGMW-05B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-05B
SGMW-06A	0	0	0	0	0	0	0	0	0	0	<>	1	SGMW-06A
SGMW-06B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-06B
SGMW-07A	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>	SGMW-07A
SGMW-07B	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>	<>	SGMW-07B
SGMW-08A	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-08A
SGMW-08B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-08B
SGMW-08A	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-08A
SGMW-08B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-08B
SGMW-09A	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-09A
SGMW-09B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-09B
SGMW-10A	0	0	0	0	0	0	0	0	0	1	<>	0	SGMW-10A
SGMW-10B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-10B
SGMW-11A	0	0	0	0	0	0	0	0	0	1	<>	0	SGMW-11A
SGMW-11B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-11B
SGMW-12A	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-12A
SGMW-12B	0	0	0	0	0	0	0	0	0	0	<>	0	SGMW-12B

<> No measurement was recorded.

Brookhaven National Laboratory
 2000 Landfill Environmental Monitoring Report
 2000 Former Landfill Soil Gas Monitoring Summary Table

Soil Gas Monitoring Well	Methane (% By Volume) February-00	Methane (% By Volume) June-00	Methane (% By Volume) September-00	Methane (% By Volume) December-00	LEL (% By Volume) February-00	LEL (% By Volume) June-00	LEL (% By Volume) September-00	LEL (% By Volume) December-00	Hydrogen Sulfide (ppm by volume) February-00	Hydrogen Sulfide (ppm by volume) June-00	Hydrogen Sulfide (ppm by volume) September-00	Hydrogen Sulfide (ppm by volume) December-00	Soil Gas Monitoring Well
SGMW-01A	0	0	0	0	0	0	0	0	2	5	1	1	SGMW-01A
SGMW-01B	0	0	0	0	0	0	0	0	0	0	2	2	SGMW-01B
SGMW-02A	0	0	0	0	0	0	0	0	2	0	2	2	SGMW-02A
SGMW-02B	0	0	0	0	0	0	0	0	0	0	0	1	SGMW-02B
SGMW-03A	0	0	0	0	0	0	0	0	0	1	2	2	SGMW-03A
SGMW-03B	0	0	0	0	0	0	0	0	0	0	1	2	SGMW-03B
SGMW-04A	0	0	0	0	0	0	0	0	0	0	1	3	SGMW-04A
SGMW-04B	0	0	0	0	0	0	0	0	0	0	1	4	SGMW-04B
SGMW-05A	0	0	0	0	0	0	0	0	1	1	1	4	SGMW-05A
SGMW-05B	0	0	0	0	0	0	0	0	0	0	2	3	SGMW-05B
SGMW-06A	0	0	0	0	0	0	0	0	0	0	0	4	SGMW-06A
SGMW-06B	0	0	0	0	0	0	0	0	0	0	1	4	SGMW-06B
SGMW-07A	0	0	0	0	0	0	0	0	0	0	1	6	SGMW-07A
SGMW-07B	0	0	0	0	0	0	0	0	0	0	0	6	SGMW-07B
SGMW-08A	0	0	0	0	0	0	0	0	0	0	0	3	SGMW-08A
SGMW-08B	0	0	0	0	0	0	0	0	0	0	0	4	SGMW-08B
SGMW-09A	0	0	0	0	0	0	0	0	0	2	1	6	SGMW-09A
SGMW-09B	0	0	0	0	0	0	0	0	0	1	2	4	SGMW-09B
SGMW-10A	0	0	0	0	0	0	0	0	0	0	1	6	SGMW-10A
SGMW-10B	0	0	0	0	0	0	0	0	0	0	0	5	SGMW-10B
SGMW-11A	0	0	0	0	0	0	0	0	0	1	0	5	SGMW-11A
SGMW-11B	0	0	0	0	0	0	0	0	0	0	1	4	SGMW-11B
SGMW-12A	0	0	0	0	0	0	0	0	2	1	1	3	SGMW-12A
SGMW-12B	0	0	0	0	0	0	0	0	2	0	1	2	SGMW-12B

<- No Measurement was collected due to other work in the area.

**Brookhaven National Laboratory
2001 Landfills Environmental Monitoring Report
2001 Former Landfill Soil Gas Monitoring Summary Table**

Soil Gas Monitoring Well	Methane (% By Volume) March-01	Methane (% By Volume) June-01	Methane (% By Volume) September-01	LEL (% By Volume) March-01	LEL (% By Volume) June-01	LEL (% By Volume) September-01	Hydrogen Sulfide (ppm by volume) March-01	Hydrogen Sulfide (ppm by volume) June-01	Hydrogen Sulfide (ppm by volume) September-01
SGMW-01A	0	0	0	0	0	0	3	N/A	1
SGMW-01B	0	0	0	0	0	0	3	N/A	1
SGMW-02A	0	0	0.1	0	0	0.2	4	N/A	2
SGMW-02B	0	0	0	0	0	0	5	N/A	2
SGMW-03A	0	0	0.1	0	0	0.2	4	N/A	3
SGMW-03B	0	0	0.1	0	0	0.2	4	N/A	2
SGMW-04A	0	0	0	0	0	0	5	N/A	0
SGMW-04B	0	0	0	0	0	0	5	N/A	0
SGMW-05A	0	0	0	0	0	0	6	N/A	0
SGMW-05B	0	0	0	0	0	0	5	N/A	0
SGMW-06A	0	0	0	0	0	0	6	N/A	0
SGMW-06B	0	0	0	0	<>	0	6	N/A	0
SGMW-07A	0	0	0	0	<>	0	5	N/A	0
SGMW-07B	0	0	0	0	<>	0	5	N/A	0
SGMW-08A	0	0	0	0	<>	0	6	N/A	0
SGMW-08B	0	0	0	0	<>	0	7	N/A	0
SGMW-09A	0	0	0	0	<>	0	6	N/A	0
SGMW-09B	0	0	0	0	0	0	3	N/A	0
SGMW-10A	0	0	0	0	0	0	6	N/A	0
SGMW-10B	0	0	0	0	0	0	6	N/A	0
SGMW-11A	0	0	0	0	0	0	7	N/A	0
SGMW-11B	0	0	0	0	0	0	4	N/A	0
SGMW-12A	0	0	0	0	0	0	6	N/A	0
SGMW-12B	0	0	0	0	0	0	7	N/A	0
SGMW-12B	0	0	0	0	0	0	8	N/A	0

<> No Measurement was collected due to other work in the area.

2002 Current Landfill Soil Gas Monitoring Summary

Soil Gas Monitoring Well	Methane (% By Volume)			Methane (% By Volume)			Methane (% By Volume)			LEL (% By Volume)			Hydrogen Sulfide (ppm by volume)			Hydrogen Sulfide (ppm by volume)			Hydrogen Sulfide (ppm by volume)			Soil Gas Monitoring Well
	March-02	June-02	Sept-02, Oct-02	March-02	June-02	Sept-02, Oct-02	March-02	June-02	Sept-02, Oct-02	March-02	June-02	Sept-02, Oct-02	March-02	June-02	Sept-02, Oct-02	March-02	June-02	Sept-02, Oct-02	March-02	June-02	Sept-02, Oct-02	
SGMW-01A	13.8	14.1	9.8	18.0	27.6	142	354	7	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-01A
SGMW-01B	13.7	11.5	8.2	16.9	27.4	184	334	1	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-01B
SGMW-01C	10.8	8.6	5.5	11.6	172	110	234	1	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-01C
SGMW-02A	48.0	49.8	48.2	58.5	920	964	(1130)	132	54	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-02A
SGMW-02B	17.1	25.8	34.6	43.2	342	682	864	2	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-02B
SGMW-02C	37.5	43.8	52.0	51.7	750	760	(1034)	148	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-02C
SGMW-03A	36.5	53.0	54.1	41.4	(1072)	(1082)	428	16	13	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-03A
SGMW-03B	57.0	62.4	59.6	65.9	(1248)	(1162)	(1318)	6	1	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-03B
SGMW-03C	54.1	58.6	58.0	60.0	(1062)	(1172)	(1201)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-03C
SGMW-04A	40.8	46.9	50.8	48.1	808	888	960	11	25	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-04A
SGMW-04B	44.9	49.0	51.3	46.2	730	888	844	2	25	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-04B
SGMW-04C	36.5	43.5	44.4	42.8	670	776	850	6	6	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-04C
SGMW-05A	39.1	28.0	38.8	42.5	782	768	838	1	8	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-05A
SGMW-05B	37.4	38.4	42.0	41.2	738	840	884	13	1	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-05B
SGMW-05C	29.0	31.0	31.6	34.2	578	620	632	8	8	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-05C
SGMW-06A	30.7	33.6	40.0	43.1	618	672	690	2	2	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-06A
SGMW-06B	36.1	35.8	40.6	41.5	712	716	854	11	11	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-06B
SGMW-06C	36.3	35.2	39.1	42.0	722	762	846	8	8	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-06C
SGMW-07A	0.2	0.4	0.0	0.0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-07A
SGMW-07B	0.2	0.0	0.0	0.0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-07B
SGMW-07C	0.2	1.2	0.0	0.0	4	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-07C
SGMW-08A	0.2	0	0	0.0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-08A
SGMW-08B	0.2	0	0	0.0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-08B
SGMW-08C	0.2	0	0	0.0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-08C
SGMW-08A	0.1	0	0	0.0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-08A
SGMW-08B	0.2	0	0	0.0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-08B
SGMW-09C	0.2	0	0	0.0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-09C
SGMW-10A	10.6	15.0	25.5	16.8	212	360	336	0	360	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-10A
SGMW-10B	10.7	14.2	20.0	14.8	214	284	202	4	4	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-10B
SGMW-10C	8.0	12.2	17.1	12.2	160	244	246	0	244	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-10C
SGMW-11A	6.2	14.9	20.7	17.0	160	268	334	8	8	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-11A
SGMW-11B	6.1	14.5	24.7	10.4	122	200	208	68	68	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-11B
SGMW-12A	37.6	43.0	50.4	49.0	752	860	976	15	15	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-12A
SGMW-12B	38.0	43.0	46.0	45.0	780	870	948	4	4	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-12B
SGMW-13A	38.5	43.5	47.3	47.9	718	870	948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-13A
SGMW-13A	33.7	42.3	46.2	47.1	674	846	942	2	2	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-13A
SGMW-14A	1.0	11.0	10.4	14.8	112	220	268	3	3	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-14A
SGMW-14B	5.6	11.0	10.4	14.8	112	220	268	1	1	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-14B
SGMW-15A	0.1	0	4.0	8.3	2	0	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-15A
SGMW-15B	0.1	0	4.5	10.1	2	0	890	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-15B
SGMW-16A	0	0	0.1	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-16A
SGMW-16B	0.1	0	0.1	0.0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-16B
SGMW-17A	0.1	0	0.2	0.0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-17A
SGMW-17B	0.1	0	0.2	0.0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-17B
SGMW-18A	0.2	0	0.1	0.0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-18A
SGMW-18B	0.4	0	0.2	0.0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-18B
SGMW-19A	6.8	15.9	29.5	0.0	116	316	570	2	2	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-19A
SGMW-19B	8.5	18.8	31.2	0.0	168	362	624	4	4	0	0	0	0	0	0	0	0	0	0	0	0	SGMW-19B
CSGM-1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-1A
CSGM-1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-1B
CSGM-1C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-1C
CSGM-2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-2A
CSGM-2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-2B
CSGM-2C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-2C
CSGM-3A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-3A
CSGM-3B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-3B
CSGM-4A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-4A
CSGM-4B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	CSGM-4B

Measurements in () are calculated, not measured

2002 Former Landfill Soil Gas Monitoring Summary

Soil Gas Monitoring Well	Methane (% By Volume) March-01	Methane (% By Volume) June-02	Methane (% By Volume) October-02	Methane (% By Volume) December-02	LEL (% By Volume) March-02	LEL (% By Volume) July-02	LEL (% By Volume) October-02	LEL (% By Volume) December-02	Hydrogen Sulfide (ppm by volume) March-02	Hydrogen Sulfide (ppm by volume) June-02	Hydrogen Sulfide (ppm by volume) October-02	Hydrogen Sulfide (ppm by volume) December-02	Soil Gas Monitoring Well
SGMW-01A	0	0	0	0	0	0	0	0	2	0	0	0	SGMW-01A
SGMW-01B	0	0	0	0	0	0	0	0	0	0	1	0	SGMW-01B
SGMW-02A	0	0	0	0	0	0	0	0	3	1	0	2	SGMW-02A
SGMW-02B	0	0	0	0	0	0	0	0	1	1	1	2	SGMW-02B
SGMW-03A	0	0	0	0	0	0	0	0	3	0	1	6	SGMW-03A
SGMW-03B	0	0	0	0	0	0	0	0	3	0	0	5	SGMW-03B
SGMW-04A	0	0	0	0	0	0	0	0	2	0	0	5	SGMW-04A
SGMW-04B	0	0	0	0	0	0	0	0	2	0	4	4	SGMW-04B
SGMW-05A	0	0	0	0	0	0	0	0	2	1	1	7	SGMW-05A
SGMW-05B	0	0	0	0	0	0	0	0	1	1	0	6	SGMW-05B
SGMW-06A	0	0	0	0	0	0	0	0	0	1	1	7	SGMW-06A
SGMW-06B	0	0	0	0	0	0	0	0	1	1	0	5	SGMW-06B
SGMW-07A	0	0	0	0	0	0	0	0	2	0	0	3	SGMW-07A
SGMW-07B	0	0	0	0	0	0	0	0	2	0	0	2	SGMW-07B
SGMW-08A	0	0	0	0	0	0	0	0	3	0	4	6	SGMW-08A
SGMW-08B	0	0	0	0	0	0	0	0	2	4	1	6	SGMW-08B
SGMW-09A	0	0	0	0	0	0	0	0	2	3	1	9	SGMW-09A
SGMW-09B	0	0.2	0	0.1	0	4	0	2	2	4	2	9	SGMW-09B
SGMW-10A	0	0.2	0	0.1	0	4	0	2	2	3	0	8	SGMW-10A
SGMW-10B	0	0.2	0	0.1	0	4	0	0	2	3	0	7	SGMW-10B
SGMW-11A	0	0	0	0	0	4	0	2	3	3	0	7	SGMW-11A
SGMW-11B	0	0	0	0	0	0	0	0	2	0	1	7	SGMW-11B
SGMW-12A	0	0	0	0	0	0	0	2	2	0	0	6	SGMW-12A
SGMW-12B	0	0	0	0.1	0	0	0	2	4	3	2	8	SGMW-12B

2003 Curtiss Lehigh Soil Gas Monitoring Summary Table

Soil Gas Monitoring Well	Methane (% By Volume) April-03	Methane (% By Volume) July-03	Methane (% By Volume) October-03	Methane (% By Volume) December-03	LEL (% By Volume) April-03	LEL (% By Volume) July-03	LEL (% By Volume) October-03	LEL (% By Volume) December-03	Hydrogen Sulfide (ppm by volume) April-03	Hydrogen Sulfide (ppm by volume) July-03	Hydrogen Sulfide (ppm by volume) October-03	Hydrogen Sulfide (ppm by volume) December-03	Soil Gas Monitoring Well
SGMW-01A	17.6	22.1	21.1	21.5	383	444	422	438	2	-	-	-	SGMW-01A
SGMW-01B	18.6	16.2	18.7	19.8	372	324	364	366	3	81	0	0	SGMW-01B
SGMW-01C	18.0	13.9	20.0	17.3	380	282	348	348	3	63	0	0	SGMW-01C
SGMW-02A	48.2	41.2	5.0	22.2	(1184)	324	400	442	14	0	0	0	SGMW-02A
SGMW-02B	55.7	0.0	0.1	0.0	(1140)	0	2	0	32	0	0	0	SGMW-02B
SGMW-02C	54.1	0.0	0.0	42.7	528	0	0	858	8	0	0	0	SGMW-02C
SGMW-03A	26.8	57.8	55.0	0.0	(1182)	(1156)	(1100)	0	19	0	0	0	SGMW-03A
SGMW-03B	69.1	0.0	54.2	11.7	(1078)	0	234	820	23	0	0	0	SGMW-03B
SGMW-03C	83.9	0.0	0.2	41.0	(1052)	0	4	186	3	0	0	0	SGMW-03C
SGMW-04A	54.1	0.0	0.5	0.4	966	0	10	0	7	0	0	0	SGMW-04A
SGMW-04B	53.9	0.0	0.2	47.0	608	0	4	840	7	27	0	0	SGMW-04B
SGMW-04C	52.6	0.0	0.1	0.0	862	0	2	0	15	0	0	0	SGMW-04C
SGMW-05A	48.3	48.0	54.9	21.4	(1068)	960	(1068)	468	2	0	163	0	SGMW-05A
SGMW-05B	45.9	43.8	53.8	38.8	(1076)	876	(1076)	776	3	0	0	0	SGMW-05B
SGMW-05C	43.1	0.0	41.8	32.3	836	0	836	848	3	0	0	0	SGMW-05C
SGMW-06A	40.3	3.8	15.5	23.7	310	118	0	420	3	0	0	0	SGMW-06A
SGMW-06B	43.9	0.0	0.0	0.0	868	0	0	898	2	0	0	0	SGMW-06B
SGMW-06C	43.6	0.0	0.1	44.8	872	0	2	900	2	0	0	0	SGMW-06C
SGMW-07A	0.8	0.0	0.0	45.1	10	0	0	0	1	0	0	0	SGMW-07A
SGMW-07B	0.0	0.0	0.1	0.0	18	0	2	0	2	0	0	0	SGMW-07B
SGMW-07C	4.0	0.0	0.1	0.0	60	0	2	0	0	0	27	0	SGMW-07C
SGMW-08A	6.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	SGMW-08A
SGMW-08B	6.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	SGMW-08B
SGMW-08C	0.0	0.0	0.1	0.0	0	0	0	0	0	0	0	0	SGMW-08C
SGMW-09A	0	0	0.0	0.0	0	0	0	0	0	0	0	0	SGMW-09A
SGMW-09B	0	0	0.1	0.0	0	0	0	0	0	0	13	0	SGMW-09B
SGMW-09C	0.1	0.0	0.1	0.0	0	0	2	0	0	0	0	0	SGMW-09C
SGMW-10A	15.9	0.0	0.1	5.8	360	440	559	112	1	0	0	0	SGMW-10A
SGMW-10B	15.8	17.7	22.0	27.8	318	332	442	0	1	0	0	0	SGMW-10B
SGMW-10C	14.0	18.6	18.2	0.0	298	354	304	0	2	0	0	0	SGMW-10C
SGMW-11A	15.9	28.3	0.4	17.7	312	588	8	359	1	0	0	0	SGMW-11A
SGMW-11B	13.7	0.0	0.0	0.0	214	533	2	0	13	0	0	0	SGMW-11B
SGMW-12A	60.0	47.6	64.7	0.0	(1200)	852	(1294)	0	0	0	0	0	SGMW-12A
SGMW-12B	30.5	0.3	0.5	1.8	(1018)	8	0	2	1	0	163	0	SGMW-12B
SGMW-13A	30.5	0.0	67.2	66.4	910	0	(1344)	0	1	0	0	0	SGMW-13A
SGMW-13B	0.0	0.8	0.1	0.0	0	16	2	0	1	10	0	0	SGMW-13A
SGMW-14A	0.0	0.8	8.3	0.0	588	196	2	2	1	0	0	0	SGMW-14A
SGMW-14B	0.2	0.0	0.1	0.1	4	0	2	2	1	0	0	0	SGMW-14B
SGMW-15A	0.1	0.0	0.1	0.0	2	0	2	0	1	0	0	0	SGMW-14B
SGMW-15B	0.0	0.0	0.1	0.0	0	0	2	0	1	0	0	0	SGMW-15A
SGMW-16A	0.1	0.0	0.0	0.0	0	0	2	0	1	0	0	0	SGMW-15B
SGMW-16B	0.0	0.0	0.0	0.0	2	0	2	0	0	0	0	0	SGMW-16A
SGMW-17A	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	SGMW-16B
SGMW-17B	0.0	0.0	0.0	0.0	0	0	0	0	3	0	0	0	SGMW-17A
SGMW-18A	0.1	0.1	0.0	0.0	0	0	0	0	2	0	0	0	SGMW-17B
SGMW-18B	0.1	0.1	0.0	0.0	2	2	0	0	2	0	0	0	SGMW-18A
SGMW-19A	41.8	29.1	40.0	27.8	638	282	900	540	2	0	0	0	SGMW-18B
SGMW-19B	44.8	0.7	33.2	29.5	860	14	604	552	0	0	161	0	SGMW-19A
SGMW-19C	0.1	0.0	0.0	0.0	2	0	0	0	39	0	0	0	SGMW-19B
GSQM-1A	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-1A
GSQM-1B	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-1B
GSQM-1C	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-1C
GSQM-2A	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-2A
GSQM-2B	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-2B
GSQM-2C	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-2C
GSQM-3A	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-3A
GSQM-3B	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-3B
GSQM-4A	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-4A
GSQM-4B	0	0	0	0	0	0	0	0	0	0	0	0	GSQM-4B

Measurements in () are calculated, not measured
 - H2S pod was not operating correctly.
 July measurements taken with a Landtec DEM 500

2003 Former Landfill Soil Gas Monitoring Summary

Soil Gas Monitoring Well	Methane (% By Volume)		Methane (% By Volume)		Methane (% By Volume)		LEL (% By Volume)		LEL (% By Volume)		LEL (% By Volume)		Hydrogen Sulfide (ppm by volume)		Hydrogen Sulfide (ppm by volume)		Hydrogen Sulfide (ppm by volume)		Soil Gas Monitoring Well
	March-03	July-03	October-03	December-03	March-03	July-03	October-03	December-03	March-03	July-03	October-03	December-03	March-03	July-03	October-03	December-03			
SGMW-01A	0	0	0.1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	SGMW-01A
SGMW-01B	0.1	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-01B
SGMW-02A	0.1	0	0.1	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	SGMW-02A
SGMW-02B	0	0	0.1	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-02B
SGMW-03A	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-03A
SGMW-03B	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-03B
SGMW-03C	0.1	0	0.1	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-03C
SGMW-04A	0.2	0	0.1	0	0	0	4	0	0	0	0	3	2	0	0	0	0	0	SGMW-04A
SGMW-04B	0	0	0	0	0	0	2	0	0	0	0	1	1	0	0	0	0	0	SGMW-04B
SGMW-05A	0.1	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-05A
SGMW-05B	0.1	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-05B
SGMW-06A	0	0	0.1	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	SGMW-06A
SGMW-06B	0.1	0	0.2	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	SGMW-06B
SGMW-07A	0.1	0	0.1	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	SGMW-07A
SGMW-07B	0.2	0	0.1	0	0	0	2	0	0	0	0	0	5	0	0	0	0	0	SGMW-07B
SGMW-08A	0.1	0	0.1	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-08A
SGMW-08B	0.2	0	0.1	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	SGMW-08B
SGMW-08C	0.1	0	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	SGMW-08C
SGMW-09B	0.1	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	SGMW-09B
SGMW-10A	0.2	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0	0	0	SGMW-10A
SGMW-10B	0.2	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	SGMW-10B
SGMW-11A	0.1	0	0.1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	SGMW-11A
SGMW-11B	0.1	0	0.1	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	SGMW-11B
SGMW-12A	0.1	0	0.1	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	SGMW-12A
SGMW-12B	0.1	0	0.1	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	SGMW-12B

July measurements taken with a Lanatic GEM 500
 - H2S pod not operational.