FINAL REPORT

ENVIRONMENTAL RESOURCES MANAGEMENT

Mayer Landfill

SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT

Blooming Grove, New York
(Site Code #3-36-027)
(WA #D003970-01.1)

15 April 2002

Environmental Resources Management
475 Park Avenue South, 29th Floor
New York, NY 10016

ERM®

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LIST OF ACRONYMS

µg/l - micrograms/liter (parts per billion)

AA - Atomic Absorption Spectroscopy

AGCs - Annual Guideline Concentrations

ASP - Analytical Services Protocol

CAS - Chemical Abstract Services

C_a - Maximum Actual Annual Impact

CFR - Code of Federal Regulations

CLP - Contract Laboratory Program

C_p - Maximum Potential Annual Impact

CRDL - Contract Required Detection Limit

CRQLs - Contract Required Quantitation Limits

C_{st} - Maximum Short-Term Impact

DAR-1 - Guidelines for the Control of Toxic Ambient Air Contaminants

ECD - Electron Capture Detector

ELAP - Environmental Laboratory Accreditation Program

ERM - Environmental Resources Management, Inc.

ft - feet

FWIA - Fish and Wildlife Impact Analysis

GC - Gas Chromatography

HEEA - Health and Environmental Exposure Assessment

ICP - Inductively Coupled Plasma Spectoscopy

IDL - Instrument Detection Limit

LCS - Laboratory Control Sample

LMS - Lawler, Matusky & Skelly Engineers

LNAPL - Light Nonaqueous Phase Liquid

MCLs - Maximum Contaminant Levels

MDLs - Method Detection Limits

MITKEM - MITKEM Corporation

MS - Mass Spectroscopy

NGVD - National Geodetic Vertical Datum

NIH - National Institute of Health

NYCRR - New York Code of Rules and Regulations

NYPCS - New York Heritage Program Classification System

NYSDEC - New York State Department of Environmental Conservation

NYSDOH - New York State Department of Health

PAHs - Polyaromatic Hydrocarbons

PCBs - Poly-Chlorinated Biphenyls

PID - Photo-ionization detector

PVC - Polyvinyl chloride

QA - Quality Assurance

QA/QC - Quality Assurance/Quality Control

QC - Quality Control

RAGS - Risk Assessment Guidance for Superfund

RI - Remedial Investigation

RI/FS - Remedial Investigation/Feasibility Study

RSCOs - Recommended Soil Cleanup Objectives

SB - Site Background

SCGs - Standards, Criteria and Guidance

SGCs - Short-term Guidance Concentrations

SM - Standard Methods for the Analysis of Water and Wastewater

SRI - Supplemental Remedial Investigation

SVOCs - Semi Volatile Organic Compounds

TAGM - Technical and Administrative Guidance Memorandum

TAL - Target Analyte List

TCL - Target Compound List

TICS - Tentatively Identified Compounds

TOC - Total Organic Carbon

UCL - Upper Confidence Level

USEPA - United States Environmental Protection Agency

USFWS - United States Fish and Wildlife Service

USGS - United States Geological Survey

VOCs - Volatile organic compounds

Y.E.C - Y.E.C., Inc

1.0 *INTRODUCTION*

This Supplemental Remedial Investigation (SRI) Report has been prepared as an addendum to the March 16, 2001 "Remedial Investigation Report, Mayer Landfill, Blooming Grove, New York" prepared by Environmental Resources Management (ERM) as part of a New York State Department of Environmental Conservation (NYSDEC) Work Assignment (D-003970-01) for the Mayer Landfill (Site Code #3-36-027).

1.1 *PURPOSE AND ORGANIZATION OF THE REPORT*

The scope of the SRI is based on recommendations set forth in the RI report and discussions with the NYSDEC. The goals of the SRI were:

- Collection of quantitative soil gas samples along Peddler Hill Road;
- Collection of additional surface water and sediment samples downstream of the Mayer Pond;
- Delineation of the extent of the Light Non-Aqueous Phase Liquid (LNAPL) detected in MW-4; and
- Installation of a bedrock well in the borrow area located in the eastern portion of the site.

This report presents the findings of the SRI carried out by ERM at the Mayer Landfill. The report is divided into six sections:

- Introduction.
- Supplemental Remedial Investigation, which describes the field activities undertaken during the SRI.
- Environmental Conditions presents the results of the soil gas and sediment sampling, LNAPL delineation, and bedrock well installation.
- Health and Environmental Exposure Assessment (HEEA) outlines the results of the health assessment, and the results of the fish and wildlife analyses.
- Results and Conclusions identifies the applicable Standards, Criteria and Guidance (SCGs) values for the evaluation of the testing results. The section identifies locations where soil gas and sediment results exceed the SCGs.
- References present the reference documents used to prepare the report.

1.2 *BACKGROUND INFORMATION*

The Mayer Landfill is an inactive landfill located to the east of Prospect Road and to the south of Peddler Hill Road in the Town of Blooming Grove, Orange County, New York (Figure 1). The site occupies approximately 20 acres of a 227-acre parcel of land owned by the Mayer family (Figure 2). From approximately 1949 to 1975 the property was

used to dispose of waste materials. Detailed background information on the site including, site description, site history, physical characteristics, and summary of past response actions can be found in the March 16, 2001 "Remedial Investigation Report, Mayer Landfill, Blooming Grove, New York".

2.0 SUPPLEMENTAL REMEDIAL INVESTIGATION

2.1 SOIL GAS SAMPLING

Six additional soil gas samples were collected from outside the limits of the landfill (Figure 3). Five soil gas samples were placed along the northern side of the landfill and one sample was placed on the eastern side of the landfill. Sampling points were located to assess the possible migration of landfill gases toward the closest residences. The samples were obtained by driving a half-inch diameter spike two to three feet into the ground. The four-foot depth specified in the work plan was not reached due to extremely dry and tight soil on the site at the time of sampling. The spike was removed from the ground and a new length of disposable tygon tubing was inserted in the hole. The ground at the top of the hole was collapsed around the tubing to create a seal and the above ground end of the tubing was attached to a laboratory evacuated Summa Canister. The canister was then opened, drawing an instantaneous soil gas sample into the canister.

The samples collected were analyzed for Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method TO-15 and for methane using American Society for Testing and Materials (ASTM) Method D1946. The analytical methods used during the SRI allowed for quantitative results as opposed to the qualitative results obtained during the RI.

2.2 SURFACE WATER SAMPLING

The work plan included collection of an additional six surface water samples downstream of the Mayer Pond. As stated in the RI, the subtributary to Slattery Creek, on the Mayer property, is an intermittent stream. During the period from August through November of 2001 the section of the stream to be sampled was dry. Surface water samples could therefore not be collected during the supplemental investigation.

2.3 SEDIMENT SAMPLING

Six sediment samples were collected downstream of the Mayer Pond (Figure 4). Sediment sampling was carried out due to community concern expressed during the public meeting. Because the stream was not flowing at the time of sample collection, each sediment sample was hand collected as a discrete sample. Most of this portion of the subtributary to Slattery

Creek flows on the top of the bedrock surface. This setting accounts for build up of sediments only in low velocity areas. Samples were therefore collected from low velocity areas where sediment had accumulated. Sample depths were no greater than three inches. The sediment was transferred directly into the laboratory supplied bottles. Sediment samples were analyzed for the Target Compound List/Target Analyte List (TCL/TAL) parameters and Total Organic Carbon (TOC).

2.4 *GROUND WATER MONITORING WELL INSTALLATION*

Bedrock monitoring well (MW-14D) was installed in the borrow area along the southeastern edge of the site. This location was chosen to further define the bedrock aquifer along this boundary of the site (see Figure 2).

A nominal 4-inch borehole was advanced through the overburden using a truck-mounted air-rotary drill rig. Upon reaching bedrock, both NX and HQ-sized bedrock cores were continuously collected to approximately 75 feet below grade. The borehole was then advanced to a total depth of 128 feet using air-rotary methods. An ERM representative geologically logged all overburden and bedrock cuttings, and bedrock core samples.

Monitoring well MW-14D was constructed of 2-inch stainless steel riser with a shale trap. The shale trap was positioned at the bottom end of the riser (at depth) to establish the boundary between the open borehole and the sealed-off portion of the well. A minimum of one linear foot of bentonite pellets was placed in the annulus starting at the shale trap and manually hydrated. Above the bentonite seal, the remaining annular space was sealed using a cement/potable water grout to the ground surface. To finish the well, a concrete pad was built at grade to secure the remaining stainless steel riser with a locking protective stick-up casing. The standpipe was painted with a bright contrasting color with the well designation noted on the casing. The construction log for this well is located in Appendix A of this report.

Drill cuttings were spread across the ground surface within the immediate vicinity of well MW-14D. Upon completion of the well, the drill rig, rods, and downhole tools were steam-cleaned at a designated area located on a filled portion of the landfill.

Well development was accomplished manually using a PVC bailer. A bailer was used because the well did not produce significant water. A final set of water quality readings was obtained after purging the well

"dry". The purge water did not clear up over the course of bailing the well dry. Purge water was disposed of at a significant distance from the well location.

2.5 *LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) DELINEATION*

A total of 13 test soil borings (TB-01 through TB-13) and four temporary monitoring wells (TMW-01, TMW-02, TMW-03, and TMW-04) were installed adjacent to MW-4 to define the extent of the LNAPL observed in this well. The soil borings and temporary wells were installed within 50 feet or less of MW-4 along five separate transects (roughly north, south, east, west, and southwest) (see Figure 5A) to depths ranging from 16 to 26 feet below grade to define the horizontal and vertical extent of LNAPL. Product samples were collected from well MW-4 and one soil boring to chemically identify the free-phase material.

2.5.1 *Test Soil Borings*

Each soil boring was installed with a truck-mounted hollow stem auger drill rig and was advanced with 4.25-inch (inside diameter) augers. Continuous split-spoons were collected at each location and visually screened for the presence of LNAPL. LNAPL presence was also evaluated using a photoionization detector (PID). If LNAPL was observed, an additional soil boring was located along the same transect (moving away from well MW-4) at a distance determined in the field. Split spoon samples were geologically logged by an ERM representative. The presence of LNAPL was noted in the logs to determine the horizontal and vertical extent of the LNAPL plume. The logs can be found in Appendix B of this report.

2.5.2 *Temporary Monitoring Wells*

Four temporary wells (TMW-01, TMW-02, TMW-03, and TMW-04) were installed in the immediate vicinity of well MW-4, which is completed in the overburden. Each well was installed in a previously drilled borehole;

- TMW-01 was set inside TB-01 borehole,
- TMW-02 was set inside TB-07 borehole,
- TMW-03 was set inside TB-10 borehole, and
- TMW-04 was set inside TB-12 borehole.

The four new temporary monitoring wells were installed to delineate the LNAPL plume around well MW-4. Therefore, three of the temporary wells (TMW-01, TMW-02, and TMW-04) were located along the field-

determined boundary of the LNAPL plume (see Figure 5A). The fourth temporary well was located within the boundary of the interpreted LNAPL plume to provide additional product thickness data.

Each temporary well was constructed with 5 feet of 2-inch diameter PVC riser and 15-feet of 0.010-slotted PVC screen to a depth of 20 feet below grade. A #2 Morie sand was tremied into the annular space to a minimum height of two feet above the top of the well screen. During this time, the augers were slowly removed. A 2-ft thick bentonite seal was placed in the annular space above the sand pack and manually hydrated with potable water. Each well was finished with a temporary flushmount containing a 2-inch locking cherne plug. Appendix A provides the temporary monitoring well construction logs.

The boreholes that were not completed as temporary wells were backfilled with the original soil cuttings. Remaining soil cuttings were consolidated in a portion of filled landfill and covered with a minimum of six inches of clean backfill. Augers were steam cleaned prior to reuse. Split spoons were manually decontaminated between each use.

2.5.3 *Product Sampling*

LNAPL samples were collected from MW-4 and test boring TB-4 and shipped to Zymax Forensics in San Louis Obispo, CA for forensic fingerprint analysis. A disposable PVC bailer was manually lowered into well MW-4 to the top of the water column to obtain the sample. Soil sample TB-04 (16-18) was obtained from the 16.0 to 18.0 foot split spoon while drilling the borehole. Because there was a significant amount of free-phase material present at this depth interval, the sample was collected for chemical analysis to make a possible correlation with the free-phase material present in well MW-4.

2.6 *RESIDENTIAL WELL SAMPLING*

Two additional residential wells were sampled by the New York State Department of Health (NYSDOH). Samples were collected from two residences where initial sampling results indicated unusually elevated inorganic constituent concentrations. The wells sampled were located to the north and east of the landfill along Prospect Road and Peddler Hill Road, respectively.

2.7 *HORIZONTAL AND VERTICAL CONTROL SURVEY*

The horizontal location and vertical position (measuring point) of all sampling points, test borings, temporary wells, and the bedrock well were determined by Y.E.C., Inc. (YEC), a licensed surveyor. All measuring point elevations were to the National Geodetic Vertical Datum (NAD 88) with an accuracy of 0.01 feet and horizontal locations were in the New York State Plane Coordinate System (NAD 83).

2.8 *HEALTH AND ENVIRONMENTAL EXPOSURE ASSESSMENT*

A qualitative HEEA was completed using the data obtained during the supplemental investigation. The objective of the HEEA was to use the SRI data to evaluate if changes to the conclusions presented in the March 16, 2001 "Remedial Investigation Report, Mayer Landfill, Blooming Grove, New York" are warranted. The HEEA approach is described in the United States Environmental Protection Agency (USEPA) Risk Assessment Guidance for Superfund (RAGS) documents, and is conducted in accordance with the site Work Plan (ERM, 1999).

2.9 *FISH AND WILDLIFE IMPACT ANALYSIS*

A Fish and Wildlife Impact Analysis (FWIA) was conducted using the data collected during the SRI. The review of data was conducted in accordance with the NYSDEC FWIA procedures presented in the NYSDEC, Division of Fish and Wildlife, "Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites" (October, 1994).

3.0 *DESCRIPTION OF ENVIRONMENTAL CONDITIONS*

The results of the RI investigation are presented in the following sections.

3.1 *DESCRIPTION OF SAMPLING RESULTS*

3.1.1 *Soil Gas Sampling*

Six soil gas samples were collected (see Figure 3 for locations) and analyzed for methane and VOCs (by USEPA method TO-15). Quantitative results were obtained for the samples analyzed during the SRI.

Concentrations were calculated using "New York State DAR-1, Guidelines for the Control of Toxic Ambient Air Contaminants" (DAR-1) in order for comparison to be made to the Annual Guidance Concentrations (AGC) and the Short-term Guidance Concentrations (SGC) as presented in DAR-1. Where an individual compound was detected above the Method Detection Limits (MDLs), its concentration was used in the formulas presented in DAR-1, Appendix B, Section III.B. for an area source. The formulas are used to calculate the maximum Actual Annual Impact (C_a), the maximum Potential Annual Impact (C_p), and the maximum Short-Term Impact (C_{st}) as presented in Sections III.B.2, III.B.3, and III.B.4, respectively. The calculated C_a, C_p, and C_{st} concentrations are then compared to the Annual Guidance Concentrations (AGC) and the Short-term Guidance Concentrations (SGC) as presented in DAR-1. Table 1 presents the results of the soil gas sampling.

The C_a and C_p calculations utilize a term "S" for the side length of the area source in feet. A very conservative side length of 400 feet (determined from the average distance between the soil gas samples) was used in each calculation. The second term of the equations is an emissions rate (Q). To determine C_a, an annual emissions rate (lb/yr) was used and to determine C_p, an hourly emissions rate (lb/hr) was used. The annual and hourly emission rates used in the calculations were determined using a conservative flow rate of 0.2 liters/second. Under ambient conditions the flow rates would be lower. However, due to the vacuum that the Summa Canister places on the soil gas sample being obtained, this conservative flow rate was utilized in the calculation. The C_{st} calculation is determined utilizing the C_p values.

Once the calculations for C_a, C_p, and C_{st} are calculated for each compound above the laboratory MDLs, a comparison was made to the AGCs and the

SGCs. If either the calculated C_a or C_p concentration for a give compound is above its respective AGC, then the compound exceeds the AGC. If the calculated C_{st} concentration for a give compound is above its respective SGC, then the compound exceeds the SGC. No VOCs exceeded their respective SGCs or AGCs, even with the use of the conservative side length and flow rate. Methane was not detected in any samples above the MDLs.

3.1.2 *Sediment Sampling*

Sediment samples were collected from six locations over an approximate distance of 1300 feet downstream of the Mayer Pond. The samples were analyzed for TCL VOCs, SVOCs, pesticides/PCBs, and TAL inorganics. Results for these analyses are presented in Tables 2-5. Sediment samples were compared to Technical and Administrative Guidance Memorandum (TAGM) 4046 Recommended Soil Cleanup Objectives (RSCOs) as was done in the RI.

No VOCs, SVOCs or pesticides/PCBs were detected above the recommended cleanup objectives.

TAGM 4046 RSCOs were used as sediment guidelines because no other guidelines are available for non-benthic related organisms. Inorganics that exceeded the 95% Upper Confidence Level (UCL) of the average site background concentrations (as determined in the initial RI) included, arsenic, barium, beryllium, cobalt, iron, magnesium, manganese, nickel, selenium, silver, sodium, vanadium, and zinc. Except for barium, beryllium, and vanadium, concentrations of the metals reported above exceeded the 95% UCLs in all six samples. Concentrations of each analyte were relatively similar, i.e. the same order of magnitude, showing no decrease in concentration with distance from the landfill. If exceedences were associated with landfill impacts, then a decrease in concentrations would be expected the farther the sample point is from the landfill. For most analytes the highest concentration was detected in the samples farthest downstream (SS-14, SS-15 or SS-16). Lead, which was detected during the RI in samples upstream of the Mayer pond and suggested to have originated from the landfill, was not observed downstream of Mayer Pond at concentrations in excess of background levels. The only compounds to exceed the Eastern Background concentrations, presented in TAGM 4046, downstream of Mayer Pond were arsenic, magnesium, selenium, and zinc.

3.1.3 *Bedrock Monitoring Well*

One bedrock monitoring well was installed in the borrow area along the eastern edge of the property. The well was installed to further define the bedrock aquifer. Based on the depth to water in existing bedrock wells, it was proposed that MW-14D be installed to first water at approximately 80 to 90 feet below grade. Water was not encountered during installation of MW-14D to this depth. The boring was continued to 128 feet where a minimal amount of water was encountered. The boring was terminated at this depth and a 33-foot open hole bedrock well was constructed. Ground water sampling was not proposed for this well or other site wells during the SRI.

All wells were monitored on October 11, 2001 and November 15, 2001. When compared to monitoring results from March of 2000, water levels have decreased, particularly for the topographically high wells, as much as 12 feet. This decrease, associated with the dry summer and fall, could account for the minimal water that was encountered in MW-14D.

3.1.4 *LNAPL Delineation*

A LNAPL delineation was conducted in the vicinity of MW-4 where free phase product was detected in the well. A total of thirteen borings were installed around MW-4 to determine both the horizontal and vertical extent of the LNAPL (see Figures 5A and 5B). Temporary monitoring wells were installed at four of the thirteen boring locations. The temporary wells were installed to monitor the horizontal extent of the LNAPL (TMW-1, TMW-2, and TMW-4) and to monitor the vertical extent of the LNAPL (TMW-3).

Borings were installed in five directions radially from MW-4 to determine the horizontal extent of free phase LNAPL (Figure 5A). Borings TB-1 (east of MW-4), TB-7 (north of MW-4), TB-12 (south of MW-4) and TB-13 (southwest of MW-4) did not contain LNAPL. The western extent of the LNAPL was delineated by TB-8, which contained LNAPL and MW-4D, which did not during the installation on February 17, 2000. The LNAPL is expected from boring TB-6, north of MW-4, to boring TB-11, south of MW-4. The southwestern extent of the LNAPL is boring TB-10. Temporary wells (TMW-1, TMW-2, and TMW-4) were installed to confirm that the horizontal extent of LNAPL was defined by these borings.

Vertical delineation of the free phase product was determined from the boring logs. Free phase product was detected in eight borings including TB-2, TB-3, TB-4, TB-5, TB-6, TB-9, TB-10, and TB-11. The area of

investigation was relatively flat with less than three feet of relief. The water table during installation of the borings was approximately 11 feet below grade in MW-4 (surface elevation 627.09). The water table in 1999 was measured at 8.88 feet below grade indicating a significant smear zone of LNAPL at the site. This was supported by the results of the split spoon sampling. LNAPL was detected as high as 6 feet below grade in TB-3.

Free phase product was observed in six borings at depths ranging from 8 to 14 feet below grade. The maximum depth that residual product was observed was 18 feet below grade in TB-4 and TB-11. TB-4 had no recovery for the 16 to 18-foot interval, however, the split-barrel core sampler was covered with free phase material. Temporary well, TMW-3, was installed to measure the thickness of product within this portion of the delineated LNAPL area. Based on measurements collected from the temporary well, the thickness of the product was estimated at three-quarters of an inch.

Native material, consisting of a tight till, was encountered at 24.5 feet below grade in borings TB-9 to TB-13. Native soil was detected between 14 and 19 feet below grade in borings TB-1, TB-2, TB-5, TB-6, and TB-7. In summary, the maximum vertical extent of free phase product encountered during the LNAPL test boring investigation was from 8 to 18 feet below grade. Residual LNAPL was present as shallow as 6 feet below grade in TB-3. A plan view of the LNAPL plume was presented in Figure 5A. Cross sections of the LNAPL plume are presented in Figure 5B.

The free phase product in all borings, except TB-13, was described by ERM field personnel as a black to reddish brown viscous material bound up within the soil matrix. Photoionization Detector (PID) readings of the material ranged from approximately 200 to less than 1100 ppm. TB-13 did not contain free phase product, however heavy black staining was noted within the soil and woodchips. PID readings of the material in TB-13 were very low, less than 5 ppm, relative to the readings from all other borings. TB-13 marked the horizontal delineation of the LNAPL to the southwest of MW-4 because no free phase product was observed within the boring.

Two product samples were obtained for product identification. Samples were collected from MW-4 and from TB-4 (16-18'). Zymax Forensics of San Luis Obispo, CA carried out a GC/MS analysis of aliphatic and aromatic fractions in both product samples (Appendix C). Zymax determined that the results indicate both samples are a mixture of highly degraded No. 2 fuel oil or diesel #2 (both mid-distillated) and degraded creosote (coal tar oil), with a small amount of heavier hydrocarbons. MW-

4 also contained a newer mildly degraded mid-distillated fuel. ERM analyzed the data and calculated the age of the product in MW-4 as 14.6 +/- 2 years old. No h-alkanes were present in TB-4. Therefore an age determination was not possible. The lack of alkanes in the samples would indicate that the sample is highly degraded and therefore older in age than the MW-4 sample (> 20 years).

Two rounds of ground water/product monitoring were conducted on the temporary wells. The first round of monitoring was conducted on October 11, 2001 and the second round was conducted on November 15, 2001. The monitoring was conducted on TMW-1, TMW-2, and TMW-4 to determine if LNAPL had migrated into areas where the horizontal extent of the LNAPL had been defined. Product was not detected in TMW-1, TMW-2, and TMW-4. ERM therefore concluded that the extent of the LNAPL could be defined by TMW-1, TMW-2, and TMW-4. TMW-3 was monitored to determine the product thickness from within the LNAPL area. LNAPL was detected in TMW-3 with an interface probe. However, an accurate measurement was not possible due to the high viscosity of the LNAPL. Visual observation of product on the interface probe indicated that the LNAPL was approximately three-quarters of an inch thick.

3.1.5 *Residential Well Sampling*

Two additional residential wells were sampled for inorganics (metals) due to unusually elevated concentrations during the previous sampling efforts. One residence along Peddler Hill Road was re-sampled because of elevated lead levels that exceeded NYSDOH Maximum Contaminant Levels (MCLs). Lead was below detection limits (MDLs) in the re-sampling. One residence along Prospect Road was re-sampled because of elevated manganese concentrations above the NYSDOH MCLs. Results from the additional sampling round indicated that manganese had decreased from 1560 ug/l to 946 ug/l. However, this result is still above the NYSDOH MCL of 300 ug/l.

3.2 *RELIABILITY OF LABORATORY ANALYTICAL DATA*

The following section summarizes the results of the laboratory analysis Quality Assurance (QA). Included in this section is the discussion of the analytical procedures performed for the analysis of all environmental samples of various media collected during the investigation. A discussion pertaining to the validation and qualification of the analytical results is also provided.

3.2.1 *Laboratory Performing Analyses*

The environmental samples gathered during the investigation were analyzed by MITKEM Corporation (MITKEM), located at 175 Metro Center Boulevard, Warwick, Rhode Island 02886. MITKEM is a NYSDOH Environmental Laboratory Accreditation Program (ELAP) Contract Laboratory Program (CLP) certified laboratory. MITKEM meets the requirements for documentation, data reduction and reporting (Lab ID number 11522) and is certified to perform the NYSDEC Analytical Services Protocol (ASP) CLP analytical methods used in this investigation. Soil gas samples were analyzed by Severn Trent Laboratories (STL), 208 South Park Drive, Suite 1, Colchester, Vermont 05446. Product Identification samples were sent to Zymax Forensics, 71 Zaca Lane, San Luis Obispo, CA, 93401.

3.2.2 *Analytical Procedures*

The sediment samples taken at the site were analyzed following the NYSDEC ASP CLP. The ASP provides the technical and contractual background for environmental laboratories to conduct analytical methods for the preparation, detection and quantitative measurement of organic target compounds and inorganic target analytes in various matrices.

The sediment samples collected during the supplemental investigation were analyzed for TCL "plus 30" for organics. This includes TCL VOCs plus 10 Tentatively Identified Compounds (TICs) (NYSDEC ASP CLP Method 95-1), TCL Base/Neutral/Acid SVOCs plus 20 TICs (NYSDEC ASP CLP Method 95-2), and Pesticides and PCBs (NYSDEC ASP CLP Method 95-3). The analytical protocols for the TCL VOCs, SVOCs, and Pesticides/PCBs are found in Exhibit D Parts II, III, and IV, respectively, of the NYSDEC CLP ASP. TAL inorganics (23 metals and cyanide) were analyzed using the NYSDEC ASP CLP Analytical Methods for Inorganics. The analytical protocols for the TAL inorganics are found in Exhibit D, Part V of the NYSDEC CLP ASP. The TCL/TAL is detailed in Exhibit C of the ASP.

Sediment samples were also analyzed for TOC using Standard Methods for the Analysis of Water and Wastewater (SM) 18th Edition Method 5310 B.

Soil gas was evaluated through the use of Summa canister soil gas collectors and analyzed for VOCs by USEPA Method TO-15 and methane by ASTM Method D1946 by STL. Product Identification samples were

analyzed using GC/MS analysis for the aliphatic and aromatic fractions in both samples using a modified ASTM method.

3.2.3 *Data Validation*

3.2.3.1 *Objectives*

The overall objective of the data validation process is to determine the degree of confidence that may be placed on the analytical results. The validation process identifies deviations from the ASP, poor quality control (QC) results, matrix interference, and other analytical problems that may compromise the potential uses of the data. The analytical data were qualified and appropriately flagged by the validator. This information was taken into account during the interpretation of the data.

3.2.3.2 *Procedures*

A third party validator (L.A.B Validation Corp.) performed the review of the sampling data. The validation was performed in accordance with the protocols and procedures of the USEPA National Functional Guidelines for Organic Data Review (October 1999), the USEPA Laboratory Program National Functional Guidelines for Inorganic Data Review (February 1994), the UESPA Region II Evaluation of Metals Data (January 1992 HW-2 Revision 11), and the reviewer's professional judgment.

A preliminary review of the data was performed to verify that all of the necessary paperwork, such as chain-of-custodies, traffic reports, analytical reports, and deliverable packages, were present. A detailed quality assurance review was then performed by a qualified validator to verify the qualitative and quantitative reliability of the data as it was provided by the laboratory.

The following items/criteria were reviewed for the TCL volatile and semi-volatile organics:

- Deliverable Compliance
- Case Narrative
- Holding Times and Sample Preparation
- System Monitoring Compound Recoveries
- Laboratory Control Sample (LCS) Data
- Blank Summary and Data
- Gas Chromatography (GC)/Mass Spectroscopy (MS) tuning and Mass Calibration
- Target Compound Identification/Quantitation
- Quantitation Reports and Mass Spectral Data

- USEPA/ National Institute of Health (NIH) Mass Spectral Library Search for Tentatively Identified Compounds (TICs)
- Initial and Continuing Calibration Data
- Internal Standard Areas and Retention Times

The following items/criteria were reviewed for the TCL Pesticides and PCBs:

- Holding Times
- GC/Electron Capture Detector (ECD) Instrument Performance Check
- Initial Calibration
- Calibration Verifications
- Blanks
- Surrogate Spikes
- Matrix Spikes/Matrix Spike Duplicates
- Lab Control Samples
- Pesticide Cleanup Checks
- Target Compound Identification
- Compound Quantitation and Reported Contract Required Quantitation Limits (CRQLs)

The following items/criteria were reviewed for the Inorganics:

- Holding Times
- Calibration
- Blanks
- Inductively Coupled Plasma Spectroscopy (ICP) Interference Check Sample
- Laboratory Control Sample
- Duplicate Sample Analysis
- Spike Sample Analysis
- ICP Serial Dilution Analysis
- Graphite Furnace Atomic Absorption Spectroscopy (AA [where applicable])
- Field Duplicates

Based upon the results of the data review, detailed data validation summary reports were prepared for each laboratory deliverables package. Appendix D presents the data validation reports. The reports consist of a section that contains an assessment of the deliverables, followed by a section that describes, on an item-by-item basis, the analytical results and any qualifications that should be considered when using the data. The qualifications were made by assessing the results submitted by the laboratory in terms of the technical requirements of the analytical methods (including quality assurance/quality control [QA/QC] criteria) and the data validation requirements. The reports highlight the data results that

did not meet QC limits and therefore may have required data qualification. The reports also indicate the data qualification actions taken as a result of these criteria.

Based upon the data validation process, the qualifications of data are made by the use of qualifier codes. These qualifiers serve as an indication of the qualitative and quantitative reliability of the data. The qualifier codes utilized for the are as follows:

- U – Non Detect. The compound was analyzed for, but not detected. The associated numerical value is the detection limit. The value is usable as a non-detect at the detection limit.
- J - Estimated value. The value was designated as estimated as a result of the data validation criteria. Also used to indicate TICs or when an organic compound is present (mass spectral identification criteria are met), but the concentration is less than the CRQL. The value is usable as an estimated result.
- UJ – The compound was analyzed for, but not detected. The associated numerical value is the detection limit. However, due to a QC exceedence the value is an estimated quantity. The value is usable as a non-detect at the estimated detection limit.
- N – The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ– The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate quantity.

3.2.3.3 *Results*

The analytical results are valid and usable with qualifications as noted in the validation reports. All data qualifiers were taken into account during the interpretation of the analytical results. The validator has determined that after thorough review of the entire data set, all samples collected during the SRI are valid and should be considered usable.

4.0 *HEALTH AND ENVIRONMENTAL EXPOSURE ASSESSMENT (HEEA)*

A qualitative Health and Environmental Exposure Assessment (HEEA) for the site was completed for the sediment and soil gas samples collected during the SRI and the LNAPL detected on-site. The objectives of the HEEA are to: (1) identify potential exposure pathways for contaminants at the site; (2) identify potential on-site and off-site receptors; and (3) qualitatively evaluate potential human health exposures to these receptors. The HEEA approach is drawn from the USEPA's RAGS documents, and is conducted in accordance with the site Work Plan (ERM, 1999).

The HEEA evaluates potential exposures to both human and ecological receptors. Potential impacts to human health are evaluated in Section 4.1. Potential impacts to ecological receptors are evaluated in the Fish and Wildlife Impact Analysis, which is presented in Section 4.2. Discrepancies, if any, between the initial investigation and supplemental investigation are noted in the conclusions of each section.

4.1 *HUMAN HEALTH EXPOSURE ASSESSMENT*

The Human Health Exposure Assessment is divided into four sections. In the first step, potential exposure pathways for chemicals at the site are identified (Section 4.1.1). In the second step, chemicals of potential concern for each of the identified pathways/media are selected (Section 4.1.2). In the third step, a qualitative evaluation of potential human health exposures for each exposure pathway is conducted based on the identified chemicals of concern is presented (Section 4.1.3). In the final step, the conclusions of the Human Health Exposure Assessment are presented (Section 4.1.4).

4.1.1 *Identification of Potential Exposure Pathways*

The SRI was conducted to investigate: off-Site sediment, soil gas, and LNAPL in the area surrounding MW-4. The following sections describe potential exposure pathways for each of these media. Groundwater would be the media that could potentially be affected by the presence of LNAPL. Potential exposure pathways for groundwater were evaluated in the human health exposure assessment carried out as part of the RI. Based on the RI human health exposure assessment, with the exception of manganese, it was determined that there is no exposure pathway via groundwater. Manganese is an inorganic constituent not generally associated with LNAPL. The groundwater assessment, conducted during

the RI, would not be impacted by the additional SRI LNAPL information collected, and therefore no further discussion of the potential exposure pathways for groundwater will be included in the SRI. The potential exposure pathway for direct contact with LNAPL is discussed below in Section 4.1.1.3.

4.1.1.1 *Sediment*

Sediment is found in the intermittent streams that are headwaters/tributaries to Slattery Creek. Slattery Creek is designated a Class C stream. The best usage of Class C waters is fishing and the waters are suitable for fish propagation and survival (6 NYCRR 701.8). NYSDEC regulations state that the water quality for Class C waters shall be suitable for primary and secondary contact recreation, but that other factors may limit the use for these purposes. Under current conditions the site is inactive. However, direct contact with on-site sediment could occur through recreational activities of trespassers. In addition, ingestion of fish from downstream waters is a secondary (via bioaccumulation) sediment exposure pathway.

4.1.1.2 *Soil Gas*

Chemicals in soil and groundwater can serve as a source of chemicals in soil gas and subsequently to ambient air and indoor air where buildings are present. Since the site is currently inactive, the only human receptors are trespassers at the site. Future use of the site has not been determined.

4.1.1.3 *LNAPL*

LNAPL was encountered in the subsurface in the area of MW-4. However, based on the current site conditions, direct contact with the LNAPL is not likely, and therefore, does not present an exposure potential to humans.

4.1.2 *Identification of Chemicals of Potential Concern for Each Pathway*

In accordance with the Work Plan, chemicals of potential concern for each complete exposure pathway are identified by comparing the maximum detected concentrations of chemicals in each of the relevant media to applicable SCGs. Those chemicals for which SCGs are exceeded are further evaluated in Section 4.1.3.

4.1.2.1 *Sediment*

Six additional sediment samples were collected as part of the current investigation. Sediment samples were analyzed for TCL VOCs, SVOCs, pesticides/PCBs, and TAL inorganics. Additional information on the collection of these samples, sampling locations, and full sampling results are provided in Section 3.

Table 6 presents the maximum concentration of each chemical detected in sediment as well as the relevant SCGs for VOCs, SVOCs, and pesticides/PCBs. The exposure pathway of concern is direct contact. There are no sediment SCGs for the protection of human health via direct contact. Therefore, the most stringent guidelines available to compare VOC, SVOC, and pesticides/PCBs sediment data are the soil cleanup objectives for direct contact from NYSDEC TAGM 4046 (dated January 24, 1994). There are no direct contact soil cleanup objectives for inorganics in TAGM 4046. For purposes of selecting chemicals of potential concern, if the maximum detected concentration exceeded the SCG, the chemical was retained for further evaluation.

As shown in Table 6, no VOCs, SVOCs, or pesticides/PCBs were detected in concentrations exceeding the relevant SCGs. Therefore, this pathway is not evaluated further.

4.1.2.2 *Soil Gas*

Six soil gas samples were collected as part of the current investigation, and analyzed for VOCs and methane. Additional information on the collection of these samples, sampling locations, and full sampling results are provided in Section 3.

Table 7 presents the maximum concentration of each chemical detected in soil gas as well as the relevant SCGs. The applicable SCGs are the NYSDEC SGCs and the AGCs from DAR-1 (formerly Air Guide-1). For purposes of selecting chemicals of potential concern, if the maximum detected concentration exceeded the SCG (either the SGC or the AGC), the chemical was retained for further evaluation.

As shown in Table 7, no chemicals were detected in concentrations exceeding the relevant SCGs. Therefore, this pathway is not evaluated further.

4.1.2.3 *Summary*

The concentrations of chemicals detected in sediment and soil gas were below all applicable SCGs; therefore, these media are not evaluated further.

4.1.3 *Conclusions - Human Health Exposure Evaluation*

Two media were evaluated for potential human health impacts in this SRI report: sediment and soil gas. Evaluations of potential exposure pathways for groundwater were conducted in the RI Report. Exposure pathways that were qualitatively evaluated include direct contact with sediment and inhalation of soil gas. A summary of the findings for each of these pathways is provided below.

4.1.3.1 *Direct Contact with Sediment*

Based on the data in the current investigation, organic chemicals in sediment in the section of the stream downstream of the Mayer Pond do not present an exposure potential via direct contact under current or future conditions based on comparison with the direct contact soil cleanup levels. Sediment samples in the previous investigation indicated that organic chemicals in sediment in the portion of the stream immediately south of the landfill might present a human exposure potential via direct contact.

4.1.3.2 *Inhalation of Soil Gas*

No significant impacts to human health based on inhalation of soil gas are expected. Projected concentrations of the chemicals of concern in air are below the applicable AGCs and SGCs.

4.2 *FISH & WILDLIFE IMPACT ANALYSIS*

For the addendum to the "Fish & Wildlife Impact Analysis", only the data obtained for the sediment and soil gas sampling and LNAPL delineation have been addressed. The following information applies to the "Pathway Analysis" section of the RI report (section 4.2.7).

4.2.1 *Pathway Analysis*

This section evaluates pathways through which wildlife could potentially be exposed to site related contaminants. This evaluation includes the

identification of habitats and fish and wildlife resources that could potentially be impacted by site contaminants, potential pathways of contamination migration and exposure, and sources of contamination.

In order for fish and wildlife to be affected by chemical constituents from a site, two conditions must exist. There first must be an avenue by which fish and wildlife can be exposed to chemical constituents, referred to as a completed exposure pathway. In addition, the chemical concentrations within the completed exposure pathway must be of sufficient magnitude to cause an impact.

Potential fish and wildlife exposure pathways with respect to site related contaminants include direct contact with water, soil or sediments, ingestion of plants, animals or water or inhalation of air, that contain or have become contaminated with site related chemicals.

The fill material at the Site represents a potential wildlife exposure pathway. Wildlife, such as burrowing species, could be exposed via direct contact and or ingestion of the fill material/LNAPL. Additionally, inhalation of soil gas containing site related chemicals is a potential exposure pathway. Although these are possible exposure pathways, the impact on wildlife populations would be minimal and limited to the individual animals utilizing the relatively small area of fill.

4.2.1.1 *Samples Collected North of Prospect Road Downstream from Pond*

Six sediment samples were collected downstream of Mayer Pond located north of Prospect Road during the supplemental investigation. Organic analytical data indicate that, with the exception of heptachlor (UJ qualified) in a field duplicate sample, all organic parameter results were less than the applicable NYSDEC sediment criteria (Table 8). The high Polyaromatic Hydrocarbons (PAHs) detected in the SS01 and SS02 samples collected upstream of the pond during the RI, were not present in the samples collected downstream of the pond.

The sediment samples collected downstream of the pond exhibited silver and manganese concentrations in all samples and iron in three samples (SS14, SS15 and SS16) that were above the sediment criteria severe effect level (Table 9). All samples exhibited arsenic and nickel concentrations and all samples, except SS11, exhibited zinc concentrations that were above the sediment criteria low effect level. Cadmium concentrations in three samples (SS14, SS15 and SS16) and iron concentrations in three samples (SS11, SS12 and SS13) were above the sediment criteria low effect level.

The sediment samples collected downstream of the pond contained arsenic, iron, manganese, nickel, silver and zinc at concentrations that were generally higher than the concentrations in samples collected upstream of the pond. The source of the metals detected downstream of the pond is not clear. The stream segment does not have substantial fish population and ingestion of fish does not appear to be a potential pathway for human exposure. Because the stream is seasonally dry, the impact of elevated metals concentrations is unclear. However, remediation to remove these sediments would most likely have a greater impact on the aquatic habitat and the surrounding deciduous forested wetland habitat than leaving the sediments in place.

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 DESCRIPTION OF CURRENT CONDITIONS

5.1.1 Soil Gas

The results of the soil gas sampling indicate that compounds that were present in the initial landfill gas sampling (SG-1, SG-2 and SG-3) are not migrating through the soils in the direction of the residences. Even with the use of conservative values for the side length of the source and the flow rate for the sample, all calculated concentrations (C_a, C_p, and C_{st}) were below the AGCs and the SGCs.

5.1.2 Sediment

The additional sediment samples collected downstream of Mayer Pond contained thirteen inorganic compounds (metals) exceeding TAGM 4046 criteria. All six samples contained the same ten metals above the site background criteria. The concentrations were higher overall in the downstream portion of the creek (past the Mayer Pond), particularly for the three samples farthest from the pond (SS-14, SS-15, and SS-16), than in the portion of the creek closest to the landfill. Therefore it is unclear whether the source of the increased concentrations is the landfill or from some source between the landfill and this section of the stream (possibly the road). No organic compounds were detected above TAGM 4046 guidance concentrations.

5.1.3 LNAPL Delineation

A plume of LNAPL was delineated in the area of MW-4, which extends south into the area of known landfilling. The extent of the plume was delineated by observation of soils collected from borings at various distances from MW-4 in five directions and the installation of temporary wells. The LNAPL was described as a black viscous material bound up within the soil matrix. PID readings of the material ranged from approximately 200 to less than 1100 ppm.

Laboratory identification of the product determined that the product samples collected were a mixture of highly degraded No. 2 fuel oil (or diesel #2) and degraded creosote (coal tar oil), with a small amount of heavy hydrocarbons. MW-4 also contained a newer mildly degraded mid-distillated fuel. Age determination of one sample was 14.6 +/- 2 years old. Age determination on the second sample was not possible due

to the lack of h-alkanes within the sample. The lack of alkanes would indicate that the sample is older (>20 years).

5.1.4 *Residential Well Sampling*

Two residential wells were re-sampled by the NYSDOH due to unusually elevated concentrations of manganese and lead, respectively. One well along Peddler Hill Road was re-sampled for lead. The sampling results indicated that lead was not present in the sample. The well along Prospect Road that was re-sampled contained manganese above the MCLs. However the result of the re-sampling indicated that the concentration of manganese had decreased.

5.2 *HEALTH AND ENVIRONMENTAL EXPOSURE ASSESSMENT (HEEA)*

Three media were evaluated as part of the supplemental investigation for potential human health impacts: sediment, soil gas, and LNAPL. No significant impacts to human health were determined since the results of the additional sampling did not exceed any of the SGCs referenced in Section 4.0.

5.3 *FISH AND WILDLIFE IMPACT ANALYSIS*

The sediments downstream of Mayer Pond contained several metals above the NYSDEC sediment criteria. Data indicate a potential localized impact on breeding reproductive success of amphibians that use the habitats for breeding and on aquatic invertebrate populations. The stream is intermittent and for the majority of the summer and fall is dry and therefore can not sustain any fish or aquatic life. In addition, any remediation to remove these sediments would most likely have a greater impact on the aquatic habitat and the surrounding deciduous forested wetland habitat than leaving the sediments in place.

5.4 *CONCLUSIONS*

The goals of the SRI were to collect quantitative soil gas samples, additional surface water and sediment samples, delineate the LNAPL in the vicinity of MW-4, install an additional bedrock monitoring well, and resample residential wells that exhibited elevated metals concentrations in the RI sampling.

The soil gas sampling indicated that landfill gas is not migrating through the soil in the direction of the closest residences.

Surface water sampling was not conducted because the stream has been dry since August of 2001. Sediment sampling detected several inorganic (metals) compounds above TAGM 4046 criteria. However, analyte and concentrations were lower in the samples collected closest to the Mayer Pond outlet than those collected further downstream. It is not clear if the landfill is the source of the exceedences.

A plume of LNAPL was delineated around MW-4 that was approximately 1500 square feet. The material was described as a viscous material bound up in the soil matrix and was identified in the laboratory as mixture of highly degraded No. 2 fuel oil and degraded creosote with minor heavier hydrocarbons.

A bedrock well was installed in the borrow area to the east of the landfill to a depth of 128 feet. The well produced minimal water, possibly due to variations in the bedrock fracture system or the dry summer and fall that the site has experienced.

Two additional residential wells were re-sampled by the NYSDOH. The well to the north of the site contained an elevated manganese concentration, however the result was lower than during the initial sampling.

The HEEA did not indicate any human health exposures associated with the additional data obtained during the SRI.

The FWIA determined that any proposed remediation to remove sediments would have a greater impact on the aquatic habitat and the surrounding deciduous forested wetland habitat than leaving the sediments in place.

5.5 RECOMMENDATIONS

Based on the findings of the supplemental investigation, no further recommendations are provided. If additional data are to be collected, collection will be addressed as part of the Feasibility Study.

6.0 *REFERENCES*

ERM, Supplemental Remedial Investigation Work Plan, Mayer Landfill. June 2001.

ERM, Remedial Investigation Report (Volumes 1 and 2), Mayer Landfill. March 2001.

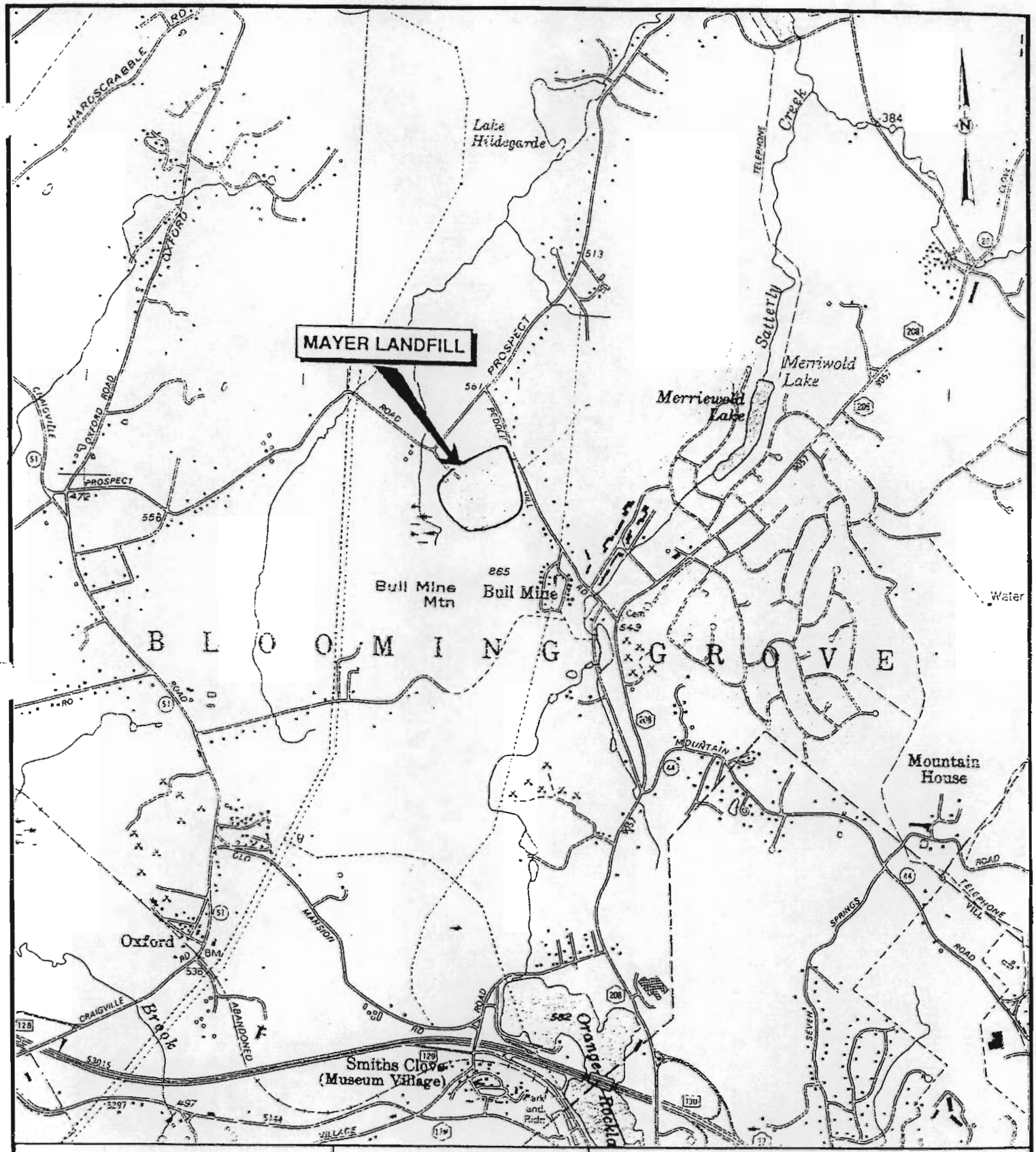
ERM, Work Plan for the Remedial Investigation/Feasibility Study, Mayer Landfill. August 1999.

NYSDEC, Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, January 24, 1994.

NYSDEC, Technical Guidance for Screening Contaminated Sediments, March 1998.

NYSDEC, Guidelines for the Control of Toxic Ambient Air Contaminants, DAR-1, November 1997.

FIGURES


MAYER LANDFILL
Lake Hildegarde
Merriewold Lake
Merriewold Lake
Bull Mine Mtn
Bull Mine
B L O O M I N G G R O V E
Mountain House
Oxford
Smiths Clove
(Museum Village)
Orange
Rockla
Water
HARCOSCRABBLE RD
OXFORD ROAD
CRAIGVILLE
PROSPECT
PROSPECT ROAD
PEDDIE
TELEPHONE
Creek
Satterly
MOUNTAIN
MANSION
ROAD
CRAIGVILLE
ABANDONED
RD
SPRINGS
SEVEN
VILLAGE
Park and Ride
384
513
561
472
566
865
543
582
530S
497
5297
5144
536
BM
0 1000 2000 ft
SCALE
1 in. = 2000 ft
LAT 41° 22' 15"
LONG 74° 12' 15"
QUADRANGLE LOCATION
SOURCE: NYSDOT; MONROE & MAYBROOK MAYBROOK QUADRANGLES, NEW YORK ORANGE COUNTY, 7.5 MINUTE SERIES.
TITLE
SITE LOCATION
PREPARED FOR
MAYER LANDFILL
NYSDEC I.D. NO. 336027
ERM
Environmental Resources Management
SCALE
1"=2000'
FIGURE
1
DRAWN:
C.C.
JOB NO.:
164.014
FILE NAME:
DATE
5/4/99

LEGEND

- MW — MONITORING WELL
- GP — GRID POINT
- STONE WALL
- —OW— OVERHEAD WIRE
- UTILITY POLE
- DRAINAGE PIPE
- EDGE OF WATER
- PROPERTY CORNER
- PROPERTY LINE
- --636-- CONTOUR LINE (2' INTERVAL)
- WLF — WETLAND FLAG
- S — SAMPLE POINT
- SW/SS — SOIL SAMPLE
- SG — SOIL GAS SAMPLE POINT
- TB — TEST BORING
- TMW — TEMPORARY MONITORING WELL

WELL ELEVATION TABLE (in feet)

WELL I.D.	TOP CONC.	GROUND	TOP OF CASING	TOP OF PVC
MW-1A	–	618.23	620.54	620.53
MW-2	–	597.51	600.22	600.28
MW-3A	–	609.09	611.03	611.00
MW-4	–	627.09	629.43	629.36
MW-4D	627.62	626.70	629.59	629.59
MW-5	–	592.17	594.79	594.84
MW-6	638.65	638.47	640.64	640.79
MW-7	–	590.35	592.37	592.50
MW-7D	–	590.11	592.39	592.33
MW-8	–	623.74	626.00	625.84
MW-9	–	609.94	612.31	612.30
MS-9D	–	610.08	612.49	612.36
MW-10	–	602.04	603.80	603.61
MW-11	–	601.92	603.93	603.86
MW-12	–	633.45	635.88	635.88
MW-13	636.74	636.63	639.02	639.05
MW-14D	–	631.82	633.63	633.54
TMW-1	–	626.62	626.62	626.33
TMW-2	–	627.17	627.17	626.87
TMW-3	–	628.70	628.70	628.21
TMW-4	–	629.18	629.18	628.90

N

PROSPECT ROAD (33' WIDE- ASSUMED)

S39°47'00"E 2086.73'

STONE WALL (TYP.)

EDGE OF PAVEMENT

S40°52'00"E 658.79'

S40°52'00"E 459.69'

L=257.83'
R=166.50'

N50°24'30"E

42" CMP

WELL

REMAINS FOUNDATION

REMAINS BARN

BORROW AREA

OW

STREAM

24" CMP

GP-20N/20E

MW-7D
MW-7

SW/SS-16
SW/SS-15
SW/SS-14
SW/SS-13
SW/SS-12
SW/SS-11

OTHER LANDS OF MAYER

N/F CONSOLIDATED EDISON (LIBER 1945 PAGE 231)

N14°25'50"E

N56°16'48"W

STONE WALL (TYP.)

638.30'

1" I.P. FOUND 0.4'S

N29°17'11"E 270.12'

WOOD FENCE POST FOUND 0.2'N 0.2'E

N76°06'19"W

STREAM

STONE BASIN

759.65'

1/2" I.P. FOUND 0.2'N 0.3'W

N/F MALINOWSKI (LIBER 2167 PAGE 463) ② HUNTER SUBDIVISION MAP FILED MAP NO. 5283

MW-1
MW-2
MW-3A
MW-4
MW-4D
MW-5
MW-6
MW-7
MW-7D
MW-8
MW-9
MW-9D
MW-10
MW-11
MW-12
MW-13
MW-14D
MW-1A

S-1 S-2 S-3 S-4 S-5 S-6 S-7 S-8 S-9 S-10 S-11 S-12 S-13 S-14

SG-01 SG-02 SG-03 SG-04 SG-05 SG-06 SG-07 SG-08 SG-09

TB-1 TB-2 TB-3 TB-4 TB-5 TB-6 TB-7 TB-8 TB-9 TB-10/TMW-3 TB-11 TB-12/TMW-4 TB-13

TMW-1 TMW-2

GP-16N/25E GP-15N/25E GP-14N/25E GP-13N/25E GP-14N/26E GP-15N/26E GP-16N/27E GP-17N/27E GP-17N/28E GP-18N/29E GP-19N/30E GP-18N/30E GP-17N/30E GP-16N/30E GP-17N/29E S1/G24 S1/G19 S1/G18 S1/G11

TOP EDGE BERM

WET AREA

ROCK PILE

TRAIL

STONE WALL (TYP.)

S40°18'45"W 682.97'

S47°13'58"W

629.93'

S47°42'56"W

450.65'

N/F HUNTER (LIBER 2239 PAGE 503) ① MAP NO. 5283

15" CMP

ROAD

1118.41'

S17°29'24"E

439.38'

PEDDLER HILL ROAD (50' WIDE)

S13°53'27"E 254.16'

S01°04'34"E 272.29'

S16°50'33"E 404.52'

EDGE OF PAVEMENT

R=175.00'
L=22.03'

S09°37'43"E 324.17'

S12°39'23"E 29.34'

S-1 508.90'

S39°16'23"W

N/F PADILLA (LIBER 317 PAGE 143) MAYER SUBDIVISION MAP FILED MAP NO. 5355 ③ ④

TREE/GP-26.5N/32E

GP-26N/32E

GP-25N/32E

TREE/GP-26.5N/33E

GP-26N/33E

GP-25N/33E

NOTES:

1. TAX LOT: PORTION OF 44-1-63.9
2. RECORD DEED: LIBER 2206 PAGE 1081
3. DATE OF SURVEY: DECEMBER 7, 1999. ADDITIONAL SURVEY ON JULY 7, 2000 – WETLAND FLAGS, MW-4D THRU MW-13, S-1 THROUGH S-14. ADDITIONAL SURVEY ON NOVEMBER 14, 2001 – TB-1 THRU TB-13; SW/SS-11 THRU SW/SS-16; SG-04 THRU SG-09; MW-14D; TMW-1 THRU TMW-4.
4. UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S EMBOSSED SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.
5. ONLY COPIES FROM THE ORIGINAL TRACING MARKED WITH THE LAND SURVEYOR'S EMBOSSED SEAL SHALL BE CONSIDERED VALID, TRUE COPIES.
6. SUBJECT TO THE FINDINGS OF AN UP-TO-DATE ABSTRACT OF TITLE.
7. PER CLIENTS REQUEST, THE SURVEY ONLY ENCOMPASSES THE PROPERTY SOUTH OF PROSPECT ROAD.
8. HORIZONTAL DATUM: COORDINATES ARE ASSUMED, NORTH PER HUNTER SUBDIVISION MAP NO. 5283.
9. VERTICAL DATUM: NGVD 1929 FROM PREVIOUS SURVEY
10. AREA = 103.848 ACRES

SCALE
100 50 0 100 FT.

I HEREBY CERTIFY THAT THIS MAP IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED ON DECEMBER 7, 1999 AND CONFORMS TO THE MINIMUM STANDARDS FOR LAND SURVEYS ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS.

DONALD R. STEDGE, L.S., N.Y.S. LIC. NO. 49759
DONALD R. STEDGE, L.S., P.C.
58 EDGEWOOD DRIVE
CENTRAL VALLEY, N.Y. 10917

REVISIONS
7-17-00: ADDED WETLAND FLAGS, MW-4D THRU MW-13, S-1 THRU S-14.
11-14-01: ADDED TB-1 THRU TB-13; SW/SS-11 THRU SW/SS-16; SG-04 THRU SG-09; MW-14D; TMW-1 THRU TMW-4

YEC, INC.

VALLEY COTTAGE NEW YORK

FIGURE 2
MAYER LANDFILL SURVEY
TOWN OF BLOOMING GROVE
ORANGE COUNTY, NEW YORK

DATE:	SCALE:	DRAWN BY:	CHECKED BY:	JOB NO.
JAN. 2000	1" = 100'	MBW	DRS	A0015-10

PAVEMENT
658.79'
S40°52'00"E
459.69'
(33' WIDE- ASSUMED)
N50°24'30"E
L=257.83'
R=166.50'
MAYER POND
BORROW AREA
OW
WELL
REMAINS FOUNDATION
42" CMP
REMAINS BARN
REMAINS BARN
STREAM
12" CMP
STREAM
MW-7D
MW-7
MW-11
MW-3A
MW-12
MW-2
MW-10
TOP EDGE BERM
MW-90
MW-9
SG-01
SG-02
SG-03
SG-04
SG-05
SG-06
SG-07
SG-08
SG-09
MW-1A
MW-4D
MW-4
MW-5
MW-6
MW-8
MW-13
TRAIL
TRAIL
TRAIL
STONE WALL (TYP.)
682.97'
N40°18'45"W
S47°13'58"W
450.65'
N/F
HUNTER
(LIBER 2239 PAGE 503)
S39°16'23"W
508.90'
N/F
PADILLA
(LIBER 3171 PAGE 143)
MAYER SUBDIVISION MAP
FILED MAP NO. 6355
S16°50'33"E
404.52'
R=175.00'
L=22.03'
S09°37'43"E 324.17'
S12°39'23"E
29.34'
S01°04'34"E
272.29'
EDGE OF PAVEMENT
HILL
ROAD
(50' WIDE)
S13°53'27"E
254.16'
439.38'
PEDDLER
WET AREA
WET AREA
WET AREA
WET AREA
WET AREA
WET AREA
626
628
630
632
634
636
638
640
642
644
646
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LEGEND

- MW — MONITORING WELL
- GRID POINT
- STONE WALL
- —OW— OVERHEAD WIRE
- UTILITY POLE
- DRAINAGE PIPE
- EDGE OF WATER
- PROPERTY CORNER
- PROPERTY LINE
- CONTOUR LINE (2' INTERVAL)
- SS — SEDIMENT SAMPLING POINT
- SG — SOIL GAS SAMPLE POINT (SRI)
- SOIL GAS SAMPLE POINT (RI)

TITLE

SOIL GAS SAMPLING LOCATIONS

MAYER LANDFILL
BLOOMING GROVE, NY

PREPARED FOR

NYSDEC

Environmental Resources Management
ERM

SCALE: 1"=200'
FIGURE: 3
DRAWN: GD
JOB NO.: 72701.03.01
FILE NAME: 72701044
DATE: 11/28/01

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LEGEND

- MW — MONITORING WELL
- GP — GRID POINT
- STONE WALL
- —OH— OVERHEAD WIRE
- UTILITY POLE
- DRAINAGE PIPE
- EDGE OF WATER
- PROPERTY CORNER
- PROPERTY LINE
- —936— CONTOUR LINE (2' INTERVAL)
- WF — WETLAND FLAG
- SS — SAMPLE POINT
- SD — SEDIMENT SAMPLING POINT
- SG — SOIL GAS SAMPLE POINT
- TB — TEST BORING
- TMW — TEMPORARY MONITORING WELL

SS-16
SS-15
SS-14
SS-13
SS-12
SS-11
SG-08
MW-5
MW-7D
MW-7

2086.73'
S39°47'00"E
PROSPECT
STONE WALL (TYP.)
EDGE OF PAVEMENT
658.79'
S40°52'00"E
459.69'
L=257.83'
R=166.50'
N50°24'30"E
ROAD
(33' WIDE- ASSUMED)
EDGE OF PAVEMENT
1118.41'
S17°29'24"E
439.38'
S13°53'27"E
254.16'
S4°34'43"E
PEDDLER
(50' WIDE)
18" CMP
42" CMP
OTHER LANDS OF MAYER
MAYER POND
BORROW AREA
WELL
REMAINS FOUNDATION
REMAINS SHED
REMAINS
OW

TITLE

SEDIMENT SAMPLING LOCATIONS

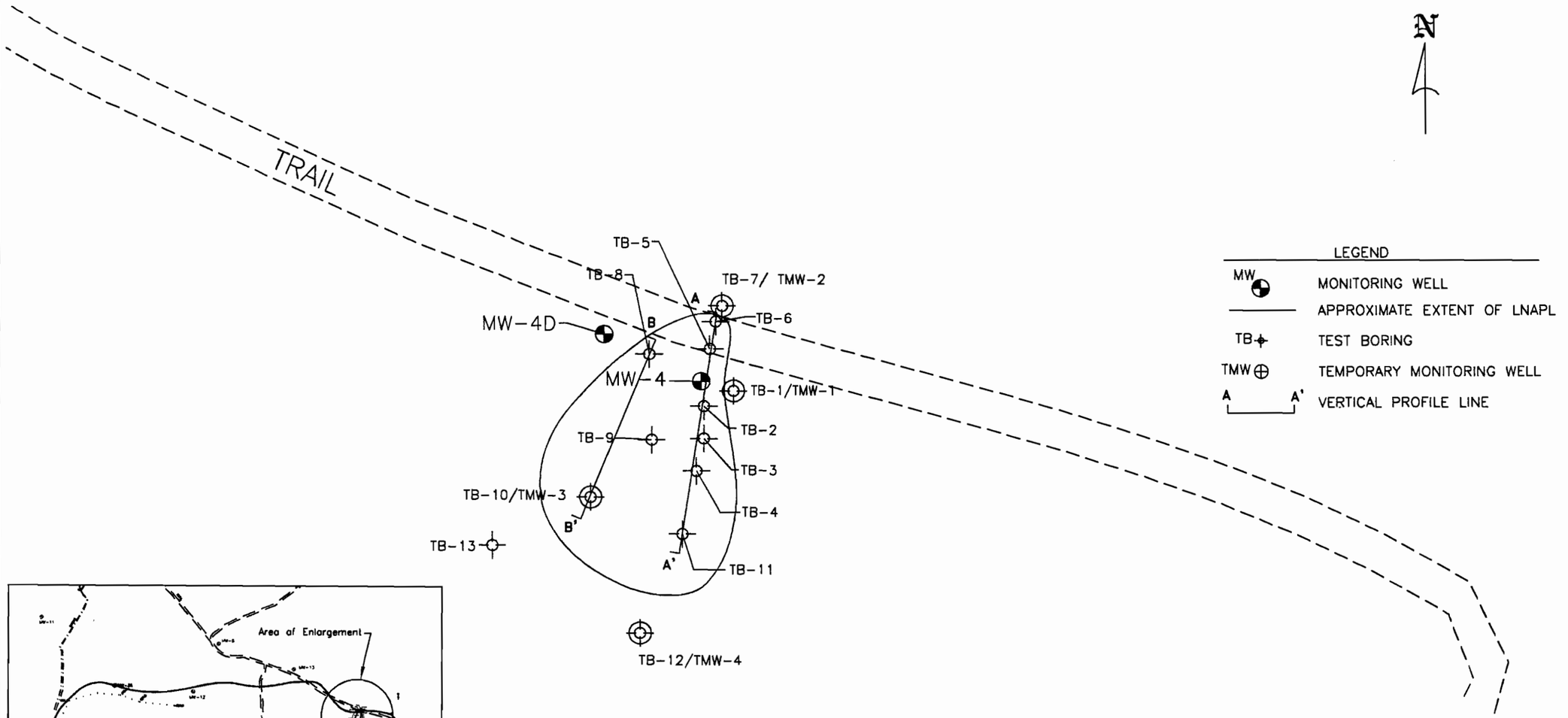
MAYER LANDFILL
BLOOMING GROVE, NY

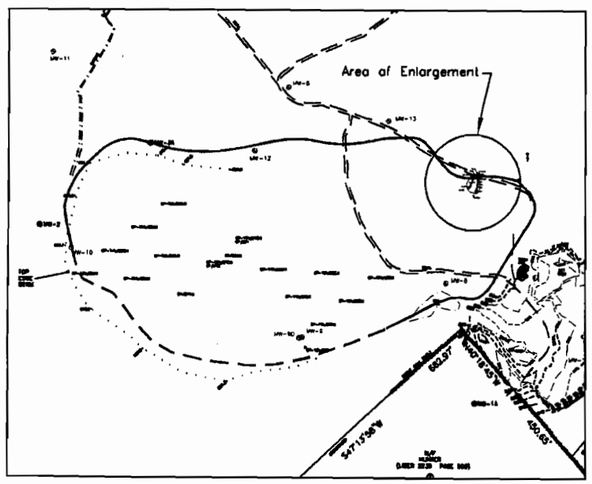
PREPARED FOR

NYSDEC

Environmental Resources Management
ERM

DRAWN	JOB NO.	FILE NAME	SCALE	FIGURE
GD	72701.03.01	72701043	1"=200'	4
			DATE 11/28/01	





TITLE

LNAPL DELINEATION

MAYER LANDFILL
BLOOMING GROVE, NY

PREPARED FOR

NYSDEC

ERM Environmental Resources Management

SCALE 1"=20'

FIGURE 5A

DRAWN: MLB

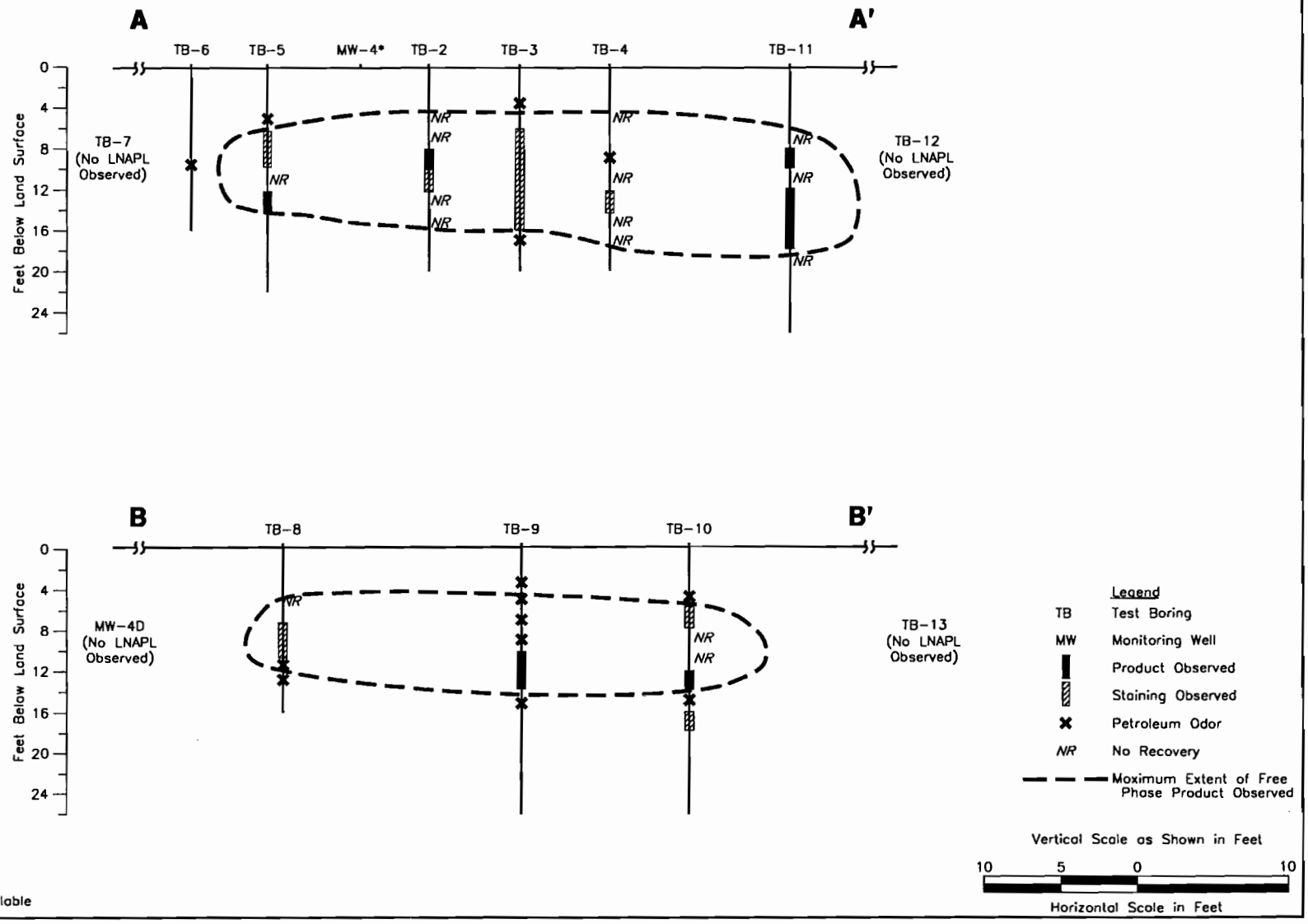
JOB NO.: 72701.03.01

FILE NAME: 7270105A

DATE 04.15.02

ERM, INC.

Figure 5B
Vertical LNAPL Delineation
Mayer Landfill for NYSDEC
Blooming Grove, New York



* Boring Log Not Available

72701.03.01/03.27.02-CMP/04.15.02-MLB/E102-1A

TABLES

TABLE 1
Volatile Organic Compounds and Methane
Mayer Landfill, Blooming Grove, NY
Soil Gas Sampling August, 2001

	DAR-1 (Air Guide-1)		SG04					SG05					SG06				
	SGC ug/m3	AGC ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3
Methane			0.8	UJ	-	-	-	0.8	UJ	-	-	-	0.8	UJ	-	-	-
Dichlorodifluoromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Chloromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Vinyl Chloride			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Bromomethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Chloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Trichlorofluoromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Freon TF			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,1-Dichloroethene			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
Methylene Chloride	NA	NA	0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
1,1-Dichloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
cis-1,2-Dichloroethene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Chloroform			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,1,1-Trichloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Carbon Tetrachloride			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Benzene	1300	0.13	0.54		3.8E-08	3.3E-04	0.008	0.71		5.0E-08	4.4E-04	0.011	0.72		5.1E-08	4.4E-04	0.011
1,2-Dichloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Trichloroethene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,2-Dichloropropane			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
cis-1,3-Dichloropropene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Toluene	37000	400	5.3		4.4E-07	0.004	0.096	4.8		4.0E-07	0.003	0.087	5.4		4.5E-07	0.004	0.098
trans-1,3-Dichloropropene			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
1,1,2-Trichloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Tetrachloroethene	1000	1	5.6		8.4E-07	0.007	0.183	6.6		9.9E-07	0.009	0.216	12		1.8E-06	0.016	0.392
Chlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Ethylbenzene	54000	1000	1.2		1.1E-07	0.001	0.025	1.3		1.2E-07	0.001	0.027	1.1		1.1E-07	0.001	0.023
Xylene (m,p)	4300	700	5.1		4.9E-07	0.004	0.107	4.7		4.5E-07	0.004	0.098	4.7		4.5E-07	0.004	0.098
Styrene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Xylene (o)	4300	700	1.6		1.5E-07	0.001	0.033	1.2		1.1E-07	0.001	0.025	1.2		1.1E-07	0.001	0.025
1,1,2,2-Tetrachloroethane			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
1,3-Dichlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,4-Dichlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-

TABLE 1
Volatile Organic Compounds and Methane
Mayer Landfill, Blooming Grove, NY
Soil Gas Sampling August, 2001

	DAR-1 (Air Guide-1)		SG04					SG05					SG06				
	SGC ug/m3	AGC ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3
1,2-Dichlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,2,4-Trichlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Hexachlorobutadiene			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
1,3,5-Trimethylbenzene	NA	290	0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,2,4-Trimethylbenzene	NA	290	2.6		2.8E-07	0.002	0.062	2.7		2.9E-07	0.003	0.064	2.2		2.4E-07	0.002	0.052
Dichlorotetrafluoroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,2-Dibromoethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,3-Butadiene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Carbon Disulfide			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Acetone	180000	28000	3.5		1.8E-07	0.002	0.040	12		6.3E-07	0.005	0.137	0.87		4.6E-08	0.000	0.010
Isopropyl Alcohol			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Methyl tert-Butyl Ether			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Cyclohexane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
n-Heptane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Dibromochloromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
n-Hexane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Tetrahydrofuran			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Methyl Ethyl Ketone	59000	1000	1.6		1.0E-07	0.001	0.023	2.2		1.4E-07	0.001	0.031	0.5	U	-	-	-
1,4-Dioxane			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
Methyl Isobutyl Ketone	31000	490	0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Methyl Butyl Ketone	4100	48	0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Bromoform			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Bromodichloromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
trans-1,2-Dichloroethene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
4-Ethyltoluene	NA	NA	0.86		9.3E-08	0.001	0.020	0.86		9.3E-08	0.001	0.020	0.58		6.3E-08	0.001	0.014
3-Chloropropene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
2,2,4-Trimethylpentane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Bromoethene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
2-Chlorotoluene	NA	NA	0.5	U	-	-	-	0.5	U	-	-	-	0.52		5.9E-08	0.001	0.013

Ca=Maximum Actual Annual Impact
Cp=Maximum Potential Annual Impact
Cst=Maximum Short-Term Impact

TABLE 1
Volatile Organic Compounds and Methane
Mayer Landfill, Blooming Grove, NY
Soil Gas Sampling August, 2001

	DAR-1 (Air Guide-1)		SG07					SG08					SG09				
	SGC ug/m3	AGC ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3
Methane			0.8	UJ	-	-	-	0.8	UJ	-	-	-	0.8	UJ	-	-	-
Dichlorodifluoromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Chloromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Vinyl Chloride			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Bromomethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Chloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Trichlorofluoromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Freon TF			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,1-Dichloroethene			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
Methylene Chloride	NA	NA	0.79	J	6.0E-08	0.001	0.013	0.9	J	6.9E-08	0.001	0.015	0.74	J	5.7E-08	5.0E-04	0.012
1,1-Dichloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
cis-1,2-Dichloroethene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Chloroform			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,1,1-Trichloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Carbon Tetrachloride			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Benzene	1300	0.13	0.62		4.4E-08	3.8E-04	0.010	0.5	U	-	-	-	0.56		3.9E-08	3.4E-04	0.009
1,2-Dichloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Trichloroethene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,2-Dichloropropane			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
cis-1,3-Dichloropropene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Toluene	37000	400	4.3		3.6E-07	0.003	0.078	6.6		5.5E-07	0.005	0.120	3.2		2.7E-07	0.002	0.058
trans-1,3-Dichloropropene			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
1,1,2-Trichloroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Tetrachloroethene	1000	1	6.4		9.6E-07	0.008	0.209	9.6		1.4E-06	0.013	0.314	9.1		1.4E-06	0.012	0.297
Chlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Ethylbenzene	54000	1000	0.82		7.8E-08	0.001	0.017	1.5		1.4E-07	0.001	0.031	1.3		1.2E-07	0.001	0.027
Xylene (m,p)	4300	700	3.6		3.4E-07	0.003	0.075	6.7		6.4E-07	0.006	0.140	6.7		6.4E-07	0.006	0.140
Styrene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Xylene (o)	4300	700	0.94		9.0E-08	0.001	0.020	1.8		1.7E-07	0.002	0.038	2.2		2.1E-07	0.002	0.046
1,1,2,2-Tetrachloroethane			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
1,3-Dichlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,4-Dichlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-

TABLE 1
Volatile Organic Compounds and Methane
Mayer Landfill, Blooming Grove, NY
Soil Gas Sampling August, 2001

	DAR-1 (Air Guide-1)		SG07					SG08					SG09				
	SGC ug/m3	AGC ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3	ppbV		Ca ug/m3	Cp ug/m3	Cst ug/m3
1,2-Dichlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,2,4-Trichlorobenzene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Hexachlorobutadiene			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
1,3,5-Trimethylbenzene	NA	290	0.5	U	-	-	-	0.74		8.0E-08	0.001	0.018	0.5	U	-	-	-
1,2,4-Trimethylbenzene	NA	290	2.4		2.6E-07	0.002	0.057	4.4		4.8E-07	0.004	0.104	2.5		2.7E-07	0.002	0.059
Dichlorotetrafluoroethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,2-Dibromoethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
1,3-Butadiene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Carbon Disulfide			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Acetone	180000	28000	35		1.8E-06	0.016	0.401	13		6.8E-07	0.006	0.149	1.4		7.3E-08	0.001	0.016
Isopropyl Alcohol			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Methyl tert-Butyl Ether			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Cyclohexane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
n-Heptane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Dibromochloromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
n-Hexane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Tetrahydrofuran			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Methyl Ethyl Ketone	59000	1000	3.1		2.0E-07	0.002	0.044	2.3		1.5E-07	0.001	0.033	0.5	U	-	-	-
1,4-Dioxane			0.5	UJ	-	-	-	0.5	UJ	-	-	-	0.5	UJ	-	-	-
Methyl Isobutyl Ketone	31000	490	0.78		7.0E-08	0.001	0.015	0.5	U	-	-	-	0.5	U	-	-	-
Methyl Butyl Ketone	4100	48	2.9		2.6E-07	0.002	0.057	0.5	U	-	-	-	0.5	U	-	-	-
Bromoform			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Bromodichloromethane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
trans-1,2-Dichloroethene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
4-Ethyltoluene	NA	NA	0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
3-Chloropropene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
2,2,4-Trimethylpentane			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
Bromoethene			0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-
2-Chlorotoluene	NA	NA	0.5	U	-	-	-	0.5	U	-	-	-	0.5	U	-	-	-

Ca=Maximum Actual Annual Impact
Cp=Maximum Potential Annual Impact
Cst=Maximum Short-Term Impact

TABLE 2
Target Compound List Volatile Organic Compounds
Mayer Landfill, Blooming Grove, NY
Sediment Samples
August, 2001

ANALYTE	TAGM 4046 Recommended Soil Clean -up Objectives (ug/Kg)	SS11 ug/kg	SS12 ug/kg	SS13 ug/kg	SS14 ug/kg	SS15 ug/kg	SS16 ug/kg	DUP082201 ug/kg
Chloromethane		12 U	13 U	11 U	11 U	11 U	11 U	11 U
Bromomethane		12 U	13 U	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	200	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Chloroethane	1900	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Methylene Chloride	100	12 U	2 J	3 J	11 U	11 U	11 U	11 U
Acetone	200	12 UJ	13 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ
Carbon Disulfide	2700	12 U	13 U	11 U	11 U	11 U	11 U	11 U
1,1-Dichloroethene	400	12 U	13 U	11 U	11 U	11 U	11 U	11 U
1,1-Dichloroethane	200	12 U	13 U	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethene (Total)	300	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Chloroform	300	12 U	13 U	11 U	11 U	11 U	11 U	11 U
1,2-Dichloroethane	100	12 U	13 U	11 U	11 U	11 U	11 U	11 U
2-Butanone	300	12 UJ	13 UJ	11 UJ	11 UJ	11 UJ	11 UJ	11 UJ
1,1,1-Trichloroethane	800	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Carbon Tetrachloride	600	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Bromodichloromethane		12 U	13 U	11 U	11 U	11 U	11 U	11 U
1,2-Dichloropropane		12 U	13 U	11 U	11 U	11 U	11 U	11 U
cis-1,3-Dichloropropene		12 U	13 U	11 U	11 U	11 U	11 U	11 U
Trichloroethene	700	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Dibromochloromethane		12 U	13 U	11 U	11 U	11 U	11 U	11 U
1,1,2-Trichloroethane		12 U	13 U	11 U	11 U	11 U	11 U	11 U
Benzene	60	12 U	13 U	11 U	11 U	11 U	11 U	11 U
trans-1,3-Dichloropropene		12 U	13 U	11 U	11 U	11 U	11 U	11 U
Bromoform		12 U	13 U	11 U	11 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	1000	12 U	13 U	11 U	11 U	11 U	11 U	11 U
2-Hexanone		12 UJ	13 U	11 UJ	11 UJ	11 U	11 U	11 UJ
Tetrachloroethene	1400	12 U	1 J	11 U	11 U	11 U	11 U	11 U
1,1,2,2-Tetrachloroethane	600	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Toluene	1500	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Chlorobenzene	1700	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Ethylbenzene	550	12 U	13 U	11 U	11 U	11 U	11 U	11 U
Styrene		12 U	13 U	11 U	11 U	11 U	11 U	11 U
Xylene (Total)	1200	12 U	13 U	11 U	11 U	11 U	11 U	11 U

Bolded: Detected Concentration
Exceeds Criteria

TABLE 3
Target Compound List Semi-Volatile Organic Compounds
Mayer Landfill, Blooming Grove, NY
Sediment Samples
August, 2001

ANALYTE	TAGM 4046 Recommended Soil Clean -up Objectives (ug/kg)	SS11 ug/kg	SS12 ug/kg	SS13 ug/kg	SS14 ug/kg	SS15 ug/kg	SS16 ug/kg	DUP082201 ug/kg
Phenol	30	390 U	450 U	370 U	390 U	370 U	370 U	380 U
bis(-2-Chloroethyl)Ether		390 U	450 U	370 U	390 U	370 U	370 U	380 U
2-Chlorophenol	800	390 U	450 U	370 U	390 U	370 U	370 U	380 U
1,3-Dichlorobenzene	1,600	390 U	450 U	370 U	390 U	370 U	370 U	380 U
1,4-Dichlorobenzene	8,500	390 U	450 U	370 U	390 U	370 U	370 U	380 U
1,2-Dichlorobenzene	7,900	390 U	450 U	370 U	390 U	370 U	370 U	380 U
2-Methylphenol	100	390 U	450 U	370 U	390 U	370 U	370 U	380 U
2,2-oxybis(1-Chloropropane)		390 U	450 U	370 U	390 U	370 U	370 U	380 U
4-Methylphenol	900	390 U	450 U	370 U	390 U	370 U	370 U	380 U
N-Nitroso-di-n-propylamine		390 U	450 U	370 U	390 U	370 U	370 U	380 U
Hexachloroethane		390 U	450 U	370 U	390 U	370 U	370 U	380 U
Nitrobenzene	200	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Isophorone	4,400	390 U	450 U	370 U	390 U	370 U	370 U	380 U
2-Nitrophenol	330	390 U	450 U	370 U	390 U	370 U	370 U	380 U
2,4-Dimethyphenol		390 U	450 U	370 U	390 U	370 U	370 U	380 U
2,4-Dichlorophenol	400	390 U	450 U	370 U	390 U	370 U	370 U	380 U
1,2,4-Trichlorobenzene	3,400	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Naphthalene	13,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
4-Chloroaniline	220	390 U	450 U	370 U	390 U	370 U	370 U	380 U
bis(2-Chloroethoxy)methane		390 U	450 U	370 U	390 U	370 U	370 U	380 U
Hexachlorobutadiene		390 U	450 U	370 U	390 U	370 U	370 U	380 U
4-Chloro-3-methylphenol	240	390 U	450 U	370 U	390 U	370 U	370 U	380 U
2-Methylnaphthalene	36,400	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Hexachlorocyclopentadiene		390 U	450 U	370 U	390 U	370 U	370 U	380 U
2,4,6-Trichlorophenol		390 U	450 U	370 U	390 U	370 U	370 U	380 U
2,4,5-Trichlorophenol	100	970 U	1100 U	930 U	960 U	930 U	930 U	960 U
2-Chloronaphthalene		390 U	450 U	370 U	390 U	370 U	370 U	380 U
2-Nitroaniline	430	970 U	1100 U	930 U	960 U	930 U	930 U	960 U
Dimethylphthalate	2,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Acenaphthylene	41,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
2,6-Dinitrotoluene	1,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
3-Nitroaniline	500	970 U	1100 U	930 U	960 U	930 U	930 U	960 U
Acenaphthene	50,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
2,4-Dinitrophenol	200	970 U	1100 U	930 U	960 U	930 U	930 U	960 U

TABLE 3
Target Compound List Semi-Volatile Organic Compounds
Mayer Landfill, Blooming Grove, NY
Sediment Samples
August, 2001

ANALYTE	TAGM 4046 Recommended Soil Clean -up Objectives (ug/kg)	SS11 ug/kg	SS12 ug/kg	SS13 ug/kg	SS14 ug/kg	SS15 ug/kg	SS16 ug/kg	DUP082201 ug/kg
4-Nitrophenol	100	970 U	1100 U	930 U	960 U	930 U	930 U	960 U
Dibenzofuran	6,200	390 U	450 U	370 U	390 U	370 U	370 U	380 U
2,4-Dinitrotoluene		390 U	450 U	370 U	390 U	370 U	370 U	380 U
Diethylphthalate	7,100	390 U	450 U	370 U	390 U	370 U	370 U	380 U
4-Chlorophenyl-phenylether		390 U	450 U	370 U	390 U	370 U	370 U	380 U
Fluorene	50,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
4-Nitroaniline		970 U	1100 U	930 U	960 U	930 U	930 U	960 U
4,6-Dinitro-2-methylphenol		970 U	1100 U	930 U	960 U	930 U	930 U	960 U
N-Nitrosodiphenylamine (1)		390 U	450 U	370 U	390 U	370 U	370 U	380 U
4-Bromophenyl-phenylether		390 U	450 U	370 U	390 U	370 U	370 U	380 U
Hexachlorobenzene	410	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Pentachlorophenol	1,000	970 U	1100 U	930 U	960 U	930 U	930 U	960 U
Phenanthrene	50,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Anthracene	50,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Carbazole		390 U	450 U	370 U	390 U	370 U	370 U	380 U
Di-n-butylphthalate	8,100	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Fluoranthene	50,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Pyrene	50,000	390 UJ	450 UJ	370 UJ	390 UJ	370 UJ	370 UJ	380 UJ
Butylbenzylphthalate	50,000	390 U	450 U	370 U	390 U	370 U	370 U	380 U
3,3-Dichlorobenzidine		390 U	450 U	370 U	390 U	370 U	370 U	380 U
Benzo(a)anthracene	224	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Chrysene	400	390 U	450 U	370 U	390 U	370 U	370 U	380 U
bis(2-Ethylhexyl)phthalate	50,000	390 U	**46 J**	**46 J**	**60 J**	**54 J**	**41 J**	380 U
Di-n-octylphthalate	50,000	390 UJ	450 UJ	370 UJ	390 UJ	370 UJ	370 UJ	380 UJ
Benzo(b)fluoranthene	1,100	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Benzo(k)fluoranthene	1,100	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Benzo(a)pyrene	61	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Indeno(1,2,3-cd)pyrene	3,200	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Dibenzo(a,h)anthracene	14	390 U	450 U	370 U	390 U	370 U	370 U	380 U
Benzo(g,h,i)perylene	50,000	390 UJ	450 UJ	370 UJ	390 UJ	370 UJ	370 UJ	380 UJ

Bolded: Detected Concentration

TABLE 4
Pesticides/ PCBs
Mayer Landfill, Blooming Grove, NY
Sediment Samples
August, 2001

ANALYTE	TAGM 4046 Recommended Soil Clean -up Objectives (ug/Kg)	SS11 ug/kg	SS12 ug/kg	SS13 ug/kg	SS14 ug/kg	SS15 ug/kg	SS16 ug/kg	DUP082201 ug/kg
alpha-BHC	110	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
beta-BHC	200	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
delta-BHC	300	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
gamma-BHC (Lindane)	60	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
Heptachlor	100	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
Aldrin	41	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
Heptachlor Epoxide	20	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
Endosulfan I	900	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
Dieldrin	44	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
4,4-DDE	2100	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
Endrin	100	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
Endosulfan II	900	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
4,4-DDD	2900	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
Endosulfan Sulfate	1000	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
4,4-DDT	2100	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
Methoxychlor		20 U	23 U	19 U	20 U	19 UJ	19 U	20 U
Endrin Ketone		3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
Endrin Aldehyde	5	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U	3.8 U
alpha-Chlordane	540	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
gamma-Chlordane	540	2 U	2.3 U	1.9 U	2 U	1.9 UJ	1.9 U	2 U
Toxaphene		200 U	230 U	190 U	200 U	190 UJ	190 U	200 U
Aroclor-1016	1,000-surface 10,000-subsurface	38 U	45 U	37 U	38 U	37 UJ	36 U	38 U
Aroclor-1221	1,000-surface 10,000-subsurface	77 U	91 U	75 U	77 U	75 UJ	74 U	77 U
Aroclor-1232	1,000-surface 10,000-subsurface	38 U	45 U	37 U	38 U	37 UJ	36 U	38 U
Aroclor-1242	1,000-surface 10,000-subsurface	38 U	45 U	37 U	38 U	37 UJ	36 U	38 U
Aroclor-1248	1,000-surface 10,000-subsurface	38 U	45 U	37 U	38 U	37 UJ	36 U	38 U
Aroclor-1254	1,000-surface 10,000-subsurface	38 U	45 U	37 U	38 U	37 UJ	36 U	38 U
Aroclor-1260	1,000-surface 10,000-subsurface	38 U	45 U	37 U	38 U	37 UJ	36 U	38 U

Bolded: Detected Concentration

TABLE 5
Target Analyte List Inorganic Constituents
Mayer Landfill, Blooming Grove, NY
Sediment Samples
August, 2001

ANALYTE	Eastern Background (mg/Kg)	TAGM 4046 Recommended Soil Clean -up Objectives (mg/Kg)	SS11 mg/kg	SS12 mg/kg	SS13 mg/kg	SS14 mg/kg	SS15 mg/kg	SS16 mg/kg	DUP082201 mg/kg
Aluminum	33,000	14318.93	12900 J	10200 J	12400 J	11900 J	12000 J	12200 J	12200 J
Antimony	N/A	1.95	0.64 UJ	0.78 UJ	0.86 UJ	0.54 UJ	0.80 UJ	0.62 UJ	0.42 UJ
Arsenic	3-12 **	6.99	8.4	8.4	12.1	17.7	17.7	18.7	7.7
Barium	15-600	80.07	77.9 J	96.2 J	99.5 J	163 J	120 J	113 J	64.5 J
Beryllium	0-1.75	0.64	0.56 B	0.49 B	0.67 B	0.73 B	0.76 B	0.80 B	0.52 B
Cadmium	0.1-1	1.41	0.36 J	0.43 J	0.53 J	0.82 J	0.79 J	0.71 J	0.28 J
Calcium	130 - 35,000 **	2945.53	1170	2090	1140	1370	1410	1200	839
Chromium	1.5 - 40 **	18.50	15.4	14.2	16.4	15.3	17.4	17.9	14.4
Cobalt	2.5 – 60 **	9.29	12.5	9.9 B	11.5	13.6	13.1	13.7	12.8
Copper	1-50	17.54	10.8 J	4.2 J	4.8 J	2.5 U	4.7 J	6.0 J	12.1 J
Iron	2,000 - 550,000	23723.42	26800	27100	37400	46100	46100	44600	25300
Lead	***	27.82	22.4 J	22.5 J	23.0 J	27.0 J	25.9 J	24.9 J	21.1 J
Magnesium	100 - 5,000	4390.39	5960	4610	5810	5260	5570	5830	5740
Manganese	50 - 5,000	513.92	1950 J	1970 J	2100 J	2720 J	2070 J	2020 J	1850 J
Mercury	0.001- 0.2	0.12	0.056 U	0.057 U	0.049 U	0.053 U	0.045 U	0.056 U	0.055 U
Nickel	0.5- 25	18.64	23.7	19.8	23.8	22.5	22.9	24.9	22.5
Potassium	8,500 - 43,000 **	1040.60	651 J	622 J	602 J	675 J	650 J	731 J	615 J
Selenium	0.1- 3.9	1.39	4.2 J	4.6 J	5.4 J	6.8 J	7.0 J	6.9 J	3.9 J
Silver	N/A	2.20	4.3 J	4.4 J	6.1 J	7.5 J	7.4 J	7.2 J	4.0 J
Sodium	6,000 - 8,000	161.61	227 J	296 J	294 J	335 J	320 J	300 J	195 J
Thallium	N/A	2.42	0.71 U	0.96 U	0.83 U	0.87 U	0.80 U	0.83 U	0.64 U
Vanadium	1-300	23.41	18.3	15.1	21.1	24.0	24.1	24.6	16.6
Zinc	9-50	55.27	108	133	153	176	164	154	98.6
Cyanide	N/A	N/A	0.22 U	0.23 U	0.28 U	0.22 U	0.19 U	0.15 UJ	0.19 U
TOC (%)			0.62	0.96	0.23	0.44	0.45	0.29	0.41

* = comparison criteria is 95% UCL of average site background concentrations (Table 5)
**: New York State background
***: Average Levels in undeveloped, rural areas may range from 4-61 ppm.
N/A: Not available
Bolded: Detected Concentration
Exceeds Criteria

TABLE 6
Chemicals of Potential Concern in Sediment
Organics
Mayer Landfill, Blooming Grove, New York

	Cleanup Objective(1) (ug/kg)	Maximum Detected Concentration (ug/kg)
Methylene chloride	93,000	3J
Tetrachloroethene	14,000	1J
Bis(2-ethylhexyl)phthalate	50,000	60J
Heptachlor	160	2.9

(1) USEPA Health Based Soil Cleanup Objective (Direct Contact Exposures) as cited in TAGM 4046.

TABLE 7
Chemicals of Potential Concern in Soil Gas
Mayer Landfill, Blooming Grove, NY
Soil Gas Sampling August, 2001

	DAR-1 (Air Guide-1)		Maximum Detected Concentration		
	SGC	AGC	Ca	Cp	Cst
	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
Methylene Chloride	NA	NA	6.04E-08	5.29E-04	0.013
Benzene	1300	0.13	5.06E-08	4.43E-04	0.011
Toluene	37000	400	5.48E-07	0.005	0.120
Tetrachloroethene	1000	1	1.79E-06	0.016	0.392
Ethylbenzene	54000	1000	1.43E-07	0.001	0.031
Xylene (m,p)	4300	700	6.41E-07	0.006	0.140
Xylene (o)	4300	700	2.10E-07	0.002	0.046
1,3,5-Trimethylbenzene	NA	290	8.01E-08	0.001	0.018
1,2,4-Trimethylbenzene	NA	290	4.76E-07	0.004	0.104
Acetone	180000	28000	1.83E-06	0.016	0.401
Methyl Ethyl Ketone	59000	1000	2.01E-07	0.002	0.044
Methyl Isobutyl Ketone	31000	490	7.04E-08	0.001	0.015
Methyl Butyl Ketone	4100	48	2.62E-07	0.002	0.057
4-Ethyltoluene	NA	NA	9.31E-08	0.001	0.020
2-Chlorotoluene	NA	NA	5.93E-08	0.001	0.013

Ca=Maximum Actual Annual Impact
Cp=Maximum Potential Annual Impact
Cst=Maximum Short-Term Impact

TABLE 8
Sediment Sample Organic Results Compared To NYSDEC Sediment Guidelines
Mayer Landfill, Blooming Grove, New York

ANALYTE	NYSDEC SEDIMENT CRITERIA* (ug/kg)	SS11 ug/kg	SS12 ug/kg	SS13 ug/kg	SS14 ug/kg	SS15 ug/kg	SS16 ug/kg	DUP082201 ug/kg
Methylene Chloride	NC	12 U	2 J	3 J	11 U	11 U	11 U	11 U
Tetrachloroethene	3.9*****	12 U	1 J	11 U	11 U	11 U	11 U	11 U
bis(2-Ethylhexyl)phthalate	977.5**	390 U	46 J	46 J	60 J	54 J	41 J	380 U
Heptachlor	0.004*****	2 U	2.3 U	1.9 U	2 U	1.9 U	1.9 U	2.9 UJ

NC: No Sediment Criteria
* Based on Site specific TOC average value of 4.9 g/Kg
** Benthic Aquatic Life Chronic Toxicity
*** Wildlife Bioaccumulation/Benthic Aquatic Life Chronic Toxicity
***** Based on human health bioaccumulation
Exceeds Criteria

TABLE 9
Sediment Sample Inorganic Results Compared To NYSDEC Sediment Guidelines
Mayer Landfill, Blooming Grove, New York

ANALYTE	NYSDEC SEDIMENT CRITERIA (mg/kg) LOWEST EFFECT LEVEL	NYSDEC SEDIMENT CRITERIA (mg/kg) SEVERE EFFECT LEVEL	SS11 mg/kg	SS12 mg/kg	SS13 mg/kg	SS14 mg/kg	SS15 mg/kg	SS16 mg/kg	DUP082201 mg/kg
Arsenic	6	33	**8.4**	**8.4**	**12.1**	**17.7**	**17.7**	**18.7**	**7.7**
Cadmium	0.6	9	**0.36 J**	**0.43 J**	**0.53 J**	**0.82 J**	**0.79 J**	**0.71 J**	**0.28 J**
Copper	16	110	**10.8 J**	**4.2 J**	**4.8 J**	**2.5 J**	**4.7 J**	**6 J**	**12.1 J**
Iron	20,000	40,000	**26800**	**27100**	**37400**	**46100**	**46100**	**44600**	**25300**
Lead	31	110	**22.4 J**	**22.5 J**	**23 J**	**27 J**	**25.9 J**	**24.9 J**	**21.1 J**
Manganese	460	1100	**1950 J**	**1970 J**	**2100 J**	**2720 J**	**2070 J**	**2020 J**	**1850 J**
Nickel	16	50	**23.7**	**19.8**	**23.8**	**22.5**	**22.9**	**24.9**	**22.5**
Silver	1	2.2	**4.3**	**4.4**	**6.1**	**7.5**	**7.4**	**7.2**	**4**
Zinc	120	270	**108**	**133**	**153**	**176**	**164**	**154**	**98.6**

Bold Exceeds Lowest Effect Level

Exceeds Severe Effect Level

APPENDIX A

Monitoring/Temporary Well Construction Logs

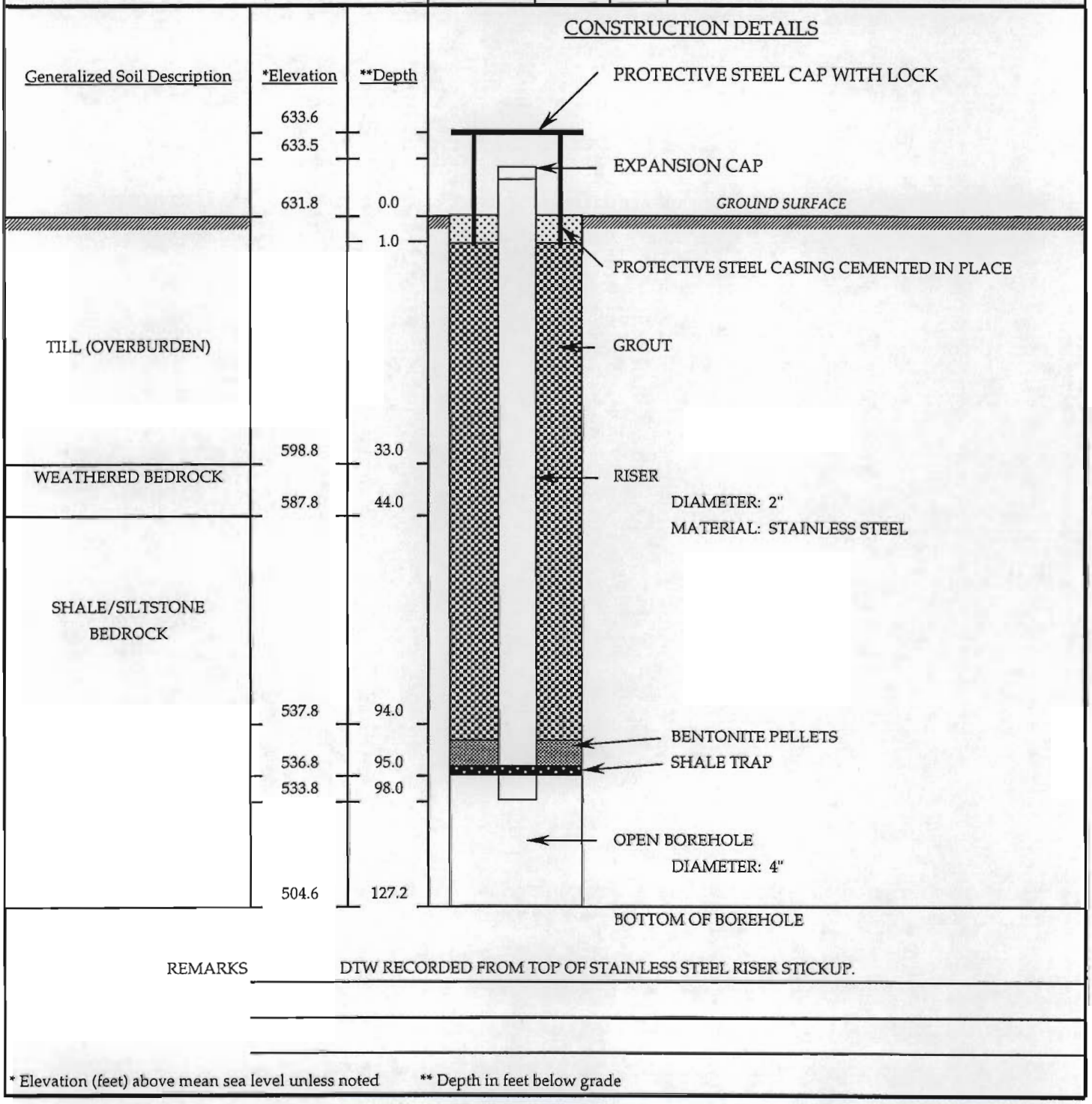
ERM, INC.

855 Springdale Drive, Exton, PA 19341

WELL : MW-14D

MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of PVC casing)			Site Elevation Datum
MAYER LANDFILL	72701.03.01				
Drilling Company	Foreman	Date	Time	Level (feet)	Ground Elevation
NOTHNAGLE	NEAL SHORT				631.82
Surveyor		9/17/01	1129	119.2	Top of Protective Steel Cap Elevation
Y.E.C., Inc.					633.63
Date and Time of Completion	Geologist				Top of Riser Pipe Elevation
09/17/2001	J. RYBACKI				633.54



REMARKS DTW RECORDED FROM TOP OF STAINLESS STEEL RISER STICKUP.

* Elevation (feet) above mean sea level unless noted ** Depth in feet below grade

Environmental Resources Management, Inc.

TMW-01

WO No:	72701.03.01	Date Completed	12 September 2001			
Project	Supplemental Remedial	Owner	NYSDEC			
Location	Blooming Grove, NY	Boring Depth (ft)	20.0	Diameter	8 inches	
Lat.		Surface Elevation	626.62	feet msl		
Long.		Riser Elevation	626.33	feet msl		
Screen	Schedule 40 PVC	Length (ft)	15	Diameter	2 inches	
Slot Size	0.010 inches	Stabilized DTW	9.64	feet TOC		
Riser	Schedule 40 PVC	Length (ft)	5	Diameter	2 inches	
Method	Hollow Stem Auger	Driller	Neal Short	Geologist	J. Rybacki	Location Sketch Map
Drilling Company	Nothnagle Drilling					

Elevation (MSL)	Depth (feet BGS)	Well Construction Schematic	Split-Spoon #	Recovery (inches)	Blows per 0.5 feet	OVA (ppm)	Sample (feet BGS)	Sample Description/Classification
	0						0.0-20.0	Same as soil boring TB-01 log.
	5							
	10							
	15							
	20							
	25							

NA: Not Analyzed

Environmental Resources Management, Inc.

TMW-02

WO No:	72701.03.01	Date Completed	13 September 2001				
Project	Supplemental Remedial	Owner	NYSDEC				
Location	Blooming Grove, NY	Boring Depth (ft)	20.0	Diameter	8 inches		
Lat.		Surface Elevation	627.17	feet msl			
Long.		Riser Elevation	626.33	feet msl			
Screen	Schedule 40 PVC	Length (ft)	15	Diameter	2 inches		
Slot Size	0.010 inches	Stabilized DTW	10.21	feet TOC			
Riser	Schedule 40 PVC	Length (ft)	5	Diameter	2 inches		
Method	Hollow Stem Auger	Driller	Neal Short	Geologist	J. Rybacki	Location Sketch Map	
Drilling Company	Nothnagle Drilling						

Elevation (MSL)	Depth (feet BGS)	Well Construction Schematic	Split-Spoon #	Recovery (inches)	Blows per 0.5 feet	OVA (ppm)	Sample (feet BGS)	Sample Description/Classification
	0						0.0-20.0	Same as soil boring TB-07 log.
	5							
	10							
	15							
	20							
	25							

NA: Not Analyzed

Environmental Resources Management, Inc.

TMW-03

WO No:	72701.03.01	Date Completed	18 September 2001				
Project	Supplemental Remedial	Owner	NYSDEC				
Location	Blooming Grove, NY	Boring Depth (ft)	24.0	Diameter	8 inches		
Lat.		Surface Elevation	628.7	feet msl			
Long.		Riser Elevation	628.21	feet msl			
Screen	Schedule 40 PVC	Length (ft)	15	Diameter	2 inches		
Slot Size	0.010 inches	Stabilized DTW	10.47	feet TOC			
Riser	Schedule 40 PVC	Length (ft)	5	Diameter	2 inches		
Method	Hollow Stem Auger	Driller	Neal Short	Geologist	J. Rybacki		
Drilling Company	Nothnagle Drilling						

Location Sketch Map

Elevation (MSL)	Depth (feet BGS)	Well Construction Schematic	Split-Spoon #	Recovery (inches)	Blows per 0.5 feet	OVA (ppm)	Sample (feet BGS)	Sample Description/Classification
	0						0.0-26.0	Same as soil boring TB-10 log.
	5							
	10							
	15							
	20							
	25							

NA: Not Analyzed

Environmental Resources Management, Inc.

TMW-04

WO No:	72701.03.01	Date Completed	18 September 2001				
Project	Supplemental Remedial	Owner	NYSDEC				
Location	Blooming Grove, NY	Boring Depth (ft)	24.0	Diameter	8 inches		
Lat.		Surface Elevation	629.18	feet msl			
Long.		Riser Elevation	628.9	feet msl			
Screen	Schedule 40 PVC	Length (ft)	15	Diameter	2 inches		
Slot Size	0.010 inches	Stabilized DTW	10.38	feet TOC			
Riser	Schedule 40 PVC	Length (ft)	5	Diameter	2 inches		
Method	Hollow Stem Auger	Driller	Neal Short	Geologist	J. Rybacki		
Drilling Company	Nothnagle Drilling						

Location Sketch Map

Elevation (MSL)	Depth (feet BGS)	Well Construction Schematic	Split-Spoon #	Recovery (inches)	Blows per 0.5 feet	OVA (ppm)	Sample (feet BGS)	Sample Description/Classification
	0						0.0-26.0	Same as soil boring TB-12 log.
	5							
	10							
	15							
	20							
	25							

NA: Not Analyzed

APPENDIX B

Boring Logs

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-01
Project:	Supplemental Remedial Investigation	Date Completed:	09/12/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	3,10	ND	0.0-1.0	SILT and SAND. Orange to tan, fine grained, with fine to coarse gravel, dry, no staining, no odor.
NC	25,19	ND	1.0-2.0	Unconsolidated Fill Material. Blue-gray shale fragments with little fine grained sand silt, hard-packed, dry, no staining, no odor.
NC	8,6,5	ND	2.0-3.5	SILT. Gray to orange, with little fine grained sand and fine to medium gravel, hard-packed, dry, no staining, no odor.
NC	8	ND	3.5-4.0	SILT. Emerald green, with little fine grained sand and fine to medium gravel, with trace clay, slightly moist, no odor.
NC	4,4,4,4	ND	4.0-6.0	CLAY, SILT, and SAND. Emerald green, fine grained, with little fine to medium angular gravel, moist, cohesive, musty odor.
NC	4,4,3,4	NC	6.0-8.0	No recovery.
NC	woh,2,3,4	<8	8.0-10.0	CLAY, SILT, and SAND. Emerald green, fine grained, with little fine to medium angular gravel, moist, cohesive, slight petroleum odor present.
NC	3,2,2,2	NC	10.0-12.0	No recovery.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-01
Project:	Supplemental Remedial Investigation	Date Completed:	09/12/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	1,2,1,1	ND	12.0-14.0	CLAY, SILT, and SAND. Emerald green, fine grained, with little fine to medium angular gravel, with trash (white plastic chips), wet, cohesive, very slight odor.
NC	4,8,8,3	ND	14.0-16.0	SAND and SILT. Dark gray-green, fine grained, with trash (newspaper, etc), wet to saturated, slight garbage odor.
NC	2,3,4,8	ND	16.0-18.0	SAND and SILT. Olive-green and gray, fine grained, with trace clay, wet to saturated, with trash, garbage odor present.
NC	2,2,5,3	ND	18.0-20.0	SAND and SILT. Olive-green and gray, fine grained, with little to some clay, wet to saturated, with trash (garbage odor present.)

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-02
Project:	Supplemental Remedial Investigation	Date Completed:	09/12/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	3,10	ND	0.0-1.0	SILT and SAND. Orange to tan, fine grained, with fine to coarse gravel, dry, no staining, slight musty garbage odor.
NC	25,19	ND	1.0-2.0	Unconsolidated Fill Material. Blue-gray shale fragments with little fine grained sand silt, hard-packed, dry, no staining, no odor.
NC	8,6,5	ND	2.0-3.5	SILT. Gray to orange, with little fine grained sand and fine to medium gravel, hard-packed, dry, no staining, no odor.
NC	8	ND	3.5-4.0	SILT. Emerald green, with little fine grained sand and fine to medium gravel, with trace clay, slightly moist, no odor.
NC	NC	NC	4.0-6.0	No recovery.
NC	NC	NC	6.0-8.0	No recovery.
NC	woh,woh,2,7	<102	8.0-10.0	CLAY, SILT, and SAND. Emerald green, fine grained, with little fine to medium angular gravel, wet, cohesive, brown-red free-phase material present, strong petroleum odor.
NC	10,10,8,6	<221	10.0-12.0	SILT and SAND. Brown to gray, fine grained, with fine to medium gravel, with heavy black staining and strong petroleum odor (black material is sticky/ tarry and is bound up in soil matrix.)

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-02
Project:	Supplemental Remedial Investigation	Date Completed:	09/12/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	4,3,3,4	NC	12.0-14.0	No recovery. Split spoon has petroleum odor.
NC	2,2,3,4	NC	14.0-16.0	No recovery. Spoon is wet.
NC	2,21,100,7,3	ND	16.0-18.5	SILT and SAND. Olive-green to gray, fine grained, with trace clay, trash present through out interval, saturated, musty odor.
NC	3	ND	18.5-19.0	SAND and SILT. Gray, fine grained, with trace coarse gravel, saturated, no apparent staining, musty odor.
NC	3,4	ND	19.0-20.0	SAND and SILT. Orange-brown, fine grained, with trace coarse gravel, saturated, no apparent staining, garbage odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-03
Project:	Supplemental Remedial Investigation	Date Completed:	09/12/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	3,7,9,12	ND	0.0-2.0	SAND, SILT, and GRAVEL. Tan to light brown, sand is fine grained, gravel is fine to coarse, with sandstone fragments, loose, dry, no staining, no odor.
NC	6,5	ND	2.0-3.0	SAND, SILT, and GRAVEL. Tan to light brown, sand is fine grained, gravel is fine to coarse, with sandstone fragments, loose, dry, no staining, no odor.
NC	6,7	ND	3.0-4.0	SAND, SILT, and GRAVEL. Gray to black, gravel is shale fragments, slightly moist, very slight petroleum odor, trash at bottom of interval.
NC	4,5,7,6	ND	4.0-6.0	SILT. Emerald green, with little fine grained sand and fine to medium gravel, with trace clay, slightly moist, no odor.
NC	2,3,3,3	169/60	6.0-8.0	SAND and SILT. Olive-green, fine grained, with trace clay, slightly moist, heavy black staining (black material is bound up in soil matrix), strong petroleum odor.
NC	woh,woh,3,3	<624	8.0-10.0	SAND and SILT. Olive-green, fine grained, with trace clay, slightly moist, very heavy black staining (black material is bound up in soil matrix), strong petroleum odor (driveway sealer.)
NC	NC	<772	10.0-12.0	SAND and SILT. Tan to light brown, fine grained, with trace clay, dry, very heavy black staining (black material is bound up and stringy), strong petroleum odor (driveway sealer.)

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-03
Project:	Supplemental Remedial Investigation	Date Completed:	09/12/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling		

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	NC	<178	12.0-14.0	SAND and SILT. Olive-green, fine grained, with trace clay, slightly moist, heavy black staining (black material is bound up in soil matrix), strong petroleum odor.
NC	2,2,4,5	<275	14.0-16.0	SAND and SILT. Olive-green, fine grained, with trace clay, wet to saturated, with intermittent black staining within soil matrix, trash present from 15.0 to 16.0 ft b.g.s. (paper and cardboard).
NC	2,3,8,10	<5	16.0-18.0	TRASH (paper and plastic). Wet to saturated, no staining, slight odor.
NC	4,4,5,5	ND	18.0-20.0	TRASH (glass and plastic). Wet to saturated, no staining, slight landfill odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-04
Project:	Supplemental Remedial Investigation	Date Completed:	09/12/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	5,8,10,5	ND	0.0-2.0	SAND. Tan/buff, fine grained, with sandstone fragments, dry, loose, no staining, no odor.
NC	5,5	ND	2.0-3.0	SAND. Tan/buff, fine grained, with sandstone fragments, dry, loose, no staining, no odor.
NC	4,6	ND	3.0-4.0	TRASH (rubber and plastic). No apparent staining, no odor.
NC	3,3,2,2	NC	4.0-6.0	No recovery.
NC	4,4,7,8	ND	6.0-8.0	SILT and SAND. Tan and gray-green, fine grained, with trace gravel, blue-gray coloration at end of interval, no odor.
NC	3,6,5,3	262/31	8.0-10.0	SILT and SAND. Gray-green to silvery-gray, fine grained, very moist, sticky/cohesive, strong odor.
NC	2,2,2,4	NC	10.0-12.0	No recovery.
NC	3,4,6,10	<348	12.0-14.0	SILT and SAND. Black-brown and dark olive-green, fine grained, with glass fragments, moist to wet, black staining intermittent through out (material is sticky and bound up in soil matrix), strong petroleum odor.
NC	3,7,3,8	NC	14.0-16.0	No recovery. Wood chips and free phase material at end of interval.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-04
Project:	Supplemental Remedial Investigation	Date Completed:	09/12/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling		

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
16.0-18.0	NC	NC	16.0-18.0	No recovery. Spoon completely covered with free-phase material, with trace trash at end of interval.
NC	3,7,3,8	NC	18.0-20.0	No recovery. Wood chips and garbage at end of interval.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-05
Project:	Supplemental Remedial Investigation	Date Completed:	09/13/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	22 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling		

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	10,26,38,28	NC	0.0-2.0	SILT. Brown and gray, with little fine grained sand, with fine to coarse shale fragments through out, very hard-packed, dry, no staining, no odor.
NC	18,18,16,11	<2.5	2.0-4.0	SILT. Brown and gray, with little fine grained sand, with fine to coarse shale fragments through out, very hard-packed, dry, no staining, no odor, PID <2.5 ppm from 3.5 to 4.0 ft b.g.s.
NC	2,2,7,7	ND	4.0-6.0	SILT and SAND. Emerald green, fine grained, moist, very slight petroleum odor.
NC	5,4,2,2	<436	6.0-8.0	SILT and SAND. Emerald green, fine grained, moist, with residual material (brown to red-brown) present, strong petroleum odor.
NC	4,4,4,5	<65	8.0-10.0	SILT and SAND. Emerald green, fine grained, wood chips at bottom of interval, very moist to wet, with residual material (brown to red-brown) present, strong petroleum odor.
NC	3,2,3,2	NC	10.0-12.0	Very little recovery. Trash at bottom of interval, wet.
NC	3,2,2,4	<65	12.0-14.0	TRASH (wood and white plastic chips). Free-phase material through out, wet, strong petroleum odor.
NC	woh,2,8,11	<3	14.0-16.0	TRASH (wood, metal, styrofoam). With sandstone fragments, saturated,

NC: Not Collected.
ND; Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-05
Project:	Supplemental Remedial Investigation	Date Completed:	09/13/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling		

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
				very slight garbage odor.
NC	3,2,3,woh	<1	16.0-18.0	TRASH, SILT, and SAND. Olive-green, fine grained, with trace clay, shale fragments present, saturated, no significant odor.
NC	8,3,2,3	<1	18.0-20.0	SILT and SAND. Dark olive-green, fine grained, with trace clay and coarse angular gravel, saturated (somewhat viscous consistency), no significant odor.
NC	7,12,18,20	ND	20.0-22.0	TILL (sand, silt, and gravel). Dark olive-green, sand is fine grained, gravel is fine to coarse, with trace clay, very hard-packed (tight), moist, no significant odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-06
Project:	Supplemental Remedial Investigation	Date Completed:	09/13/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	16 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	16,32,33,34	ND	0.0-2.0	SHALE FRAGMENTS. Blue-gray, with little silt, loose, hard-packed, dry, no staining, no odor.
NC	23,17,15,13	ND	2.0-4.0	SILT, SAND, and SHALE FRAGMENTS. Rust-orange to gray to olive-green, slightly moist at bottom of interval, no apparent staining, no odor.
NC	2,3,3,4	ND	4.0-6.0	SILT, SAND, and SHALE FRAGMENTS. Teal to olive-green to emerald green, sand is very fine grained, fragments are fine to coarse, with trace clay, moist to very moist, cohesive, no apparent staining, no odor.
NC	3,3,2,2	ND	6.0-8.0	SILT, SAND, and SHALE FRAGMENTS. Teal to olive-green to emerald green, sand is very fine grained, fragments are fine to coarse, with trace clay, moist to very moist, cohesive, no apparent staining, no odor.
NC	woh,woh	ND	8.0-9.0	SILT, SAND, and SHALE FRAGMENTS. Teal to olive-green to emerald green, sand is very fine grained, fragments are fine to coarse, with trace clay, moist to very moist, cohesive, no apparent staining, no odor.
NC	woh,5	<2	9.0-10.0	TRASH (plastic bags and paper). Moist, very slight petroleum odor.
NC	100/2	<4	10.0-12.0	TRASH. Shale fragment at bottom of interval, moist to wet, no staining, no odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-06
Project:	Supplemental Remedial Investigation	Date Completed:	09/13/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	16 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	1	ND	12.0-12.5	SILT and SAND. Dark green, with gravel and some trash, saturated, no odor.
NC	3,100/0.2	ND	12.5-13.0	SHALE FRAGMENTS. No staining, no odor.
NC	26,8,9,11	ND	14.0-16.0	SILT and SAND. Dark green, fine grained, with trace clay, saturated, slightly cohesive, slight garbage odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-07
Project:	Supplemental Remedial Investigation	Date Completed:	09/13/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	16,32,33,34	ND	0.0-2.0	SHALE FRAGMENTS. Blue-gray, with little silt, loose, hard-packed, dry, no staining, no odor.
NC	23,17,15,13	ND	2.0-4.0	SILT, SAND, and SHALE FRAGMENTS. Rust-orange to gray to olive-green, slightly moist at bottom of interval, no apparent staining, no odor.
NC	2,3,3,4	ND	4.0-6.0	SILT, SAND, and SHALE FRAGMENTS. Teal to olive-green to emerald green, sand is very fine grained, fragments are fine to coarse, with trace clay, moist to very moist, cohesive, no apparent staining, no odor.
NC	3,3,2,2	ND	6.0-8.0	SILT, SAND, and SHALE FRAGMENTS. Teal to olive-green to emerald green, sand is very fine grained, fragments are fine to coarse, with trace clay, moist to very moist, cohesive, no apparent staining, no odor.
NC	3,3	ND	8.0-9.0	SILT, SAND, and SHALE FRAGMENTS. Teal to olive-green to emerald green, sand is very fine grained, fragments are fine to coarse, with trace clay, moist to very moist, cohesive, no apparent staining, no odor.
NC	3,4	ND	9.0-10.0	TRASH (plastic bags and paper). Moist, very slight petroleum odor.
NC	3,100/0.5	<5	10.0-10.5	TRASH. Shale fragment at bottom of interval, moist to wet, no staining, slight petroleum odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-07
Project:	Supplemental Remedial Investigation	Date Completed:	09/13/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	20 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	8,5,3,8	ND	12.0-14.0	No recovery.
NC	7,6,5,4	<1	14.0-16.0	SILT and SAND. Dark olive-green, fine grained, with trace clay and coarse angular gravel, saturated (somewhat viscous consistency), no significant odor.
NC	8,8,16,24	ND	16.0-18.0	TILL (sand, silt, and gravel). Dark olive-green, sand is fine grained, gravel is fine to coarse, with trace clay, very hard-packed (tight), moist, no significant odor.
NC	NC	NC	18.0-20.0	TILL (sand, silt, and gravel). Dark olive-green, sand is fine grained, gravel is fine to coarse, with trace clay, very hard-packed (tight), moist, no significant odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-08
Project:	Supplemental Remedial Investigation	Date Completed:	09/13/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	16 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	3	ND	0.0-0.5	SILT, SAND, and GRAVEL. Orange-brown, sand is very fine grained, gravel is fine to coarse, loose, dry, no staining, no odor.
NC	24,25,30	ND	0.5-2.0	SHALE FRAGMENTS. Gray, dry, no staining, no odor.
NC	15,11,8,8	ND	2.0-4.0	SILT. Gray to orange, with little fine grained sand and fine to medium gravel, hard-packed, dry, no staining, no odor.
NC	2,2,3,3	ND	4.0-6.0	No recovery.
NC	4,4	ND	6.0-7.0	SILT and SAND. Teal and brown, fine grained, dry to slightly moist, no staining, no odor.
NC	44,45	<374	7.0-8.0	SILT and SAND. Teal and brown, fine grained, moist, sticky/cohesive, black staining intermittent through out, residual material is bound up in soil matrix, strong petroleum odor; very coarse quartzite cobble at bottom of interval.
NC	2,2,4,6	<357	8.0-10.0	SILT and SAND. Dark olive-green and black, moist to very moist, residual material is bound up in soil matrix, sticky/cohesive, strong petroleum odor.
NC	2,2	<261	10.0-11.0	SILT and SAND. Dark olive-green and black, moist to very moist, residual material is bound up in soil matrix, sticky/cohesive, strong petroleum odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-08
Project:	Supplemental Remedial Investigation	Date Completed:	09/13/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	16 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	4,4	<5	11.0-12.0	SILT and SAND. Olive-green to yellow-brown, fine grained, with trash at bottom of interval (white plastic chips), wet, cohesive, petroleum/garbage odor present.
NC	7,7,11,11	<15	12.0-14.0	TRASH (white plastic chips). Saturated, petroleum/garbage odor present.
NC	5,8,8,100/0.3	ND	14.0-16.0	TRASH (rubber, paper, plastic). Saturated, garbage odor.
NC	100/0	NC	16.0-18.0	No recovery.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-9
Project:	Supplemental Remedial Investigation	Date Completed:	09/18/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	5,5,12,12	ND	0.0-2.0	SILT, SAND, and GRAVEL. Tan, sand is fine grained, loose, with root material at top of interval, dry, no staining, no odor.
NC	8,4	ND	2.0-3.0	SILT, SAND, and GRAVEL. Tan, sand is fine grained, loose, with root material at top of interval, dry, no staining, no odor.
NC	8,8	<3.5	3.0-4.0	SHALE FRAGMENTS. Blue-gray, with fine grained sand, silt, and trash, sticky, slightly cohesive, slight petroleum odor.
NC	3,4,8,10	<9	4.0-6.0	SILT. Olive-green, brown, and metallic silver, with fine grained sand, hard-packed, friable, slightly moist, no staining, with trace petroleum odor.
NC	8,5,3,4	<12	6.0-8.0	SILT and SAND. Green-gray, fine grained, with trace clay, moist, cohesive, somewhat sticky at bottom of interval, petroleum odor.
NC	woh,woh,2,3	NC	8.0-10.0	Very little recovery. Trash, sand, and silt at bottom of spoon, strong odor.
NC	woh,woh,3,12	<280	10.0-12.0	SILT and SAND. Black, with free-phase material through out interval, sticky/ tarry, strong asphalt sealer odor.
NC	19,19,20,11	<430	12.0-14.0	SILT and SAND. Olive-green; with black, tarry material at bottom of interval, moist, sticky, very strong odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-09
Project:	Supplemental Remedial Investigation	Date Completed:	09/18/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	3,3,2,2	<450	14.0-16.0	SILT and SAND. Olive-green, with trash at bottom of interval, moist to wet, sticky, petroleum and garbage odor.
NC	2,2,7,7	<8	16.0-18.0	SILT and SAND. Olive-green, with trash (glass and wire) present, saturated, no apparent staining, strong garbage odor.
NC	2,10,12,12	<25	18.0-20.0	SILT and SAND. Olive-green, with trash (glass, paper, and wire) present, saturated, no apparent staining, strong garbage odor.
NC	15,9,17,5	<10	20.0-22.0	TRASH (plastic). Saturated.
NC	2,2,3,4	<10	22.0-24.0	SILT and SAND. Dark gray-green, with trash (black stained wood chips, metal, white plastic chips) through out, sticky/ cohesive, saturated, petroleum and garbage odor.
NC	4	ND	24.0-24.5	TRASH.
NC	16,16,8	ND	24.5-26.0	SILT and SAND. Gray-green, fine grained, with fine to coarse shale fragments (blue-gray), hard-packed, wet to saturated, no apparent staining, slight petroleum odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-10
Project:	Supplemental Remedial Investigation	Date Completed:	09/18/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	4,11,7,3	ND	0.0-2.0	SILT, SAND, and GRAVEL. Tan, sand is fine grained, loose, with root material at top of interval, dry, no staining, no odor.
NC	2,2,2,2	ND	2.0-4.0	TRASH (plastic bags, paper, newspaper). Garbage odor.
NC	10,6,4,3	ND	4.0-6.0	SILT and SAND. Dark olive-green to black-green, fine grained, with trash, moist to wet, slightly sticky/ cohesive, petroleum and garbage odor.
NC	4,6,10,11	ND	6.0-8.0	SILT, SAND, and TRASH. Dark olive-green to black-green, fine grained, moist to wet, slightly sticky/ cohesive, slight sheen on spoon, petroleum and garbage odor.
NC	5,4,3,3,	NC	8.0-10.0	No recovery.
NC	2,1,1,1	NC	10.0-12.0	No recovery.
NC	3,4,5,5	<1050	12.0-14.0	SILT and SAND. Dark olive-green and silvery-gray, fine grained, with trash (wood chips and plastic bags), wet to saturated, with black free-phase material (sticky/ cohesive) through out interval, very strong odor.
NC	10,4,8,8	ND	14.0-16.0	SILT and SAND. Olive-green and gray-green, fine grained, with trash (wood chips and glass), slightly moist, slight petroleum odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-10
Project:	Supplemental Remedial Investigation	Date Completed:	09/18/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	5,10,5,5	ND	16.0-18.0	SILT and SAND. Olive-green and gray-green, fine grained, with trash (wood chips and glass), slightly moist, black staining, slight petroleum odor.
NC	6,4,2,4	NC	18.0-20.0	TRASH.
NC	3,9,3,4	NC	20.0-22.0	TRASH.
NC	4,2,2,4	NC	22.0-24.0	TRASH.
NC	27	NC	24.0-24.5	TRASH.
NC	100/0.2	NC	24.5-25.0	TILL (sand, silt, and shale fragments). Blue-green to gray-blue, sand is fine grained, with coarse shale fragments and little sandstone fragments, moist, no apparent staining, slight garbage odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-11
Project:	Supplemental Remedial Investigation	Date Completed:	09/18/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	5,4,5,2	ND	0.0-2.0	SILT, SAND, and GRAVEL. Tan and brown, sand is fine grained, loose, with root material at top of interval, dry, no staining, no odor.
NC	2,4,4,4	ND	2.0-4.0	TRASH. Moist, strong garbage odor.
NC	33,37,8,6	ND	4.0-6.0	SHALE FRAGMENTS.
NC	5,4,5,10	ND	6.0-8.0	No recovery. Liquid inside spoon, no odor.
NC	2,2,2,2	<30	8.0-10.0	SILT and SAND. Olive-green to gray-green, fine grained, moist to very moist, with little black free-phase material and garbage, slight petroleum odor.
NC	woh,3,2,2	ND	10.0-12.0	No recovery. Spoon is saturated.
NC	woh,2,3,3	<200	12.0-14.0	SILT and SAND. Black, fine grained, with trash (rags, wood chips, and plastic), saturated, free-phase material through out, petroleum odor.
NC	3,3,5,8	<30	14.0-16.0	SILT and SAND. Dark olive-green, with trash occurring intermittently, saturated, with some free-phase material present (dark red-brown), petroleum odor.
NC	4,4,5,5	<12	16.0-18.0	SILT, SAND, and TRASH. Dark olive-green, saturated, with some free-

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-11
Project:	Supplemental Remedial Investigation	Date Completed:	09/18/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
				phase material present through out interval, petroleum odor.
NC	woh,3,5,5	<10	18.0-20.0	No recovery. Spoon saturated with water, garbage odor.
NC	2,woh,woh,5	<17	20.0-22.0	TRASH. With very little soil matrix (silt and sand), saturated, petroleum and garbage odor.
NC	5,5,5,5	<5	22.0-24.0	TRASH (glass, plastic bags, wood chips). With very little soil matrix (silt and sand), saturated, petroleum and garbage odor present.
NC	5	NC	24.0-24.5	TRASH.
NC	19,25,25	NC	24.5-26.0	TILL (sand, silt, and shale fragments). Blue-green to gray-blue, sand is fine grained, with coarse shale fragments and little sandstone fragments, moist, no apparent staining, slight garbage odor, PID <13 from 24.0 to 25.0 ft b.g.s. and ND from 25.0 to 26.0 ft b.g.s.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-12
Project:	Supplemental Remedial Investigation	Date Completed:	09/18/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	3,7,4,3	ND	0.0-2.0	SILT, SAND, and GRAVEL. Tan and brown, sand is fine grained, loose, with root material at top of interval, dry, no staining, no odor.
NC	1,2,3,4	ND	2.0-4.0	TRASH. With trace soil matrix (sand and silt), slight petroleum odor.
NC	woh,woh,woh,woh	ND	4.0-6.0	TRASH and SILT. Olive-green, wet, black staining present, slight petroleum odor.
NC	17,10,8,7	ND	6.0-8.0	TRASH (wood chips and glass). Black coloration through out, with no soil matrix, slight odor.
NC	NC	ND	8.0-10.0	No recovery.
NC	3,4,3,4	ND	10.0-12.0	TRASH and SILT. Dark olive-green to gray-green, garbage odor.
NC	7,4,4,7	ND	12.0-14.0	TRASH. Dark olive-green, with some soil (silt) matrix, saturated, garbage odor.
NC	3,3,4,6	ND	14.0-16.0	SAND and SILT. Dark olive-green to brown-green, with trace clay and trash (copper wire and plastic) intermittent through out interval, wet to saturated, with little to some gray-black staining, garbage odor.
NC	8,7,5,5	ND	16.0-18.0	No recovery.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-12
Project:	Supplemental Remedial Investigation	Date Completed:	09/18/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	2,woh,3,3	ND	18.0-20.0	No recovery.
NC	6,4,3,4	ND	20.0-22.0	TRASH. Strong garbage odor.
NC	5,4,3,6	ND	22.0-24.0	TRASH. Strong garbage odor.
NC	5	ND	24.0-24.5	TRASH.
NC	6,5,6	ND	24.5-26.0	TILL (sand, silt, and shale fragments). Blue-green to gray-blue, sand is fine grained, with coarse shale fragments and little sandstone fragments, moist, no apparent staining, slight garbage odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.
woh: Weight of Hammer.

Soil Boring Log

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-13
Project:	Supplemental Remedial Investigation	Date Completed:	09/19/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s.
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 1	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (peak/steady), ppm	Depth (ft. bgs.)	Sample Description/Classification
NC	5,12,7,12	<2	0.0-2.0	SILT, SAND, and GRAVEL. Tan and brown, sand is fine grained, loose, with root material at top of interval and trash at bottom of interval, dry, no staining, no odor.
NC	2,2,2,2	<1.5	2.0-4.0	TRASH. Olive-green, with trace to little sand and silt matrix, moist, garbage odor.
NC	1,2,5,7	<1	4.0-6.0	TRASH. Black coloration through out, very strong petroleum odor.
NC	4,3,3,4	<1	6.0-8.0	TRASH. With heavily black-stained wood chips, strong petroleum odor.
NC	4,2,2,2	<3	8.0-10.0	TRASH. With trace olive-green sand and silt matrix, wet to saturated, heavy black staining present, strong petroleum odor (same as 6.0 to 8.0 ft.)
NC	4,6,10,12	<2	10.0-12.0	TRASH (paper, plastic, and wood chips). Heavy black staining through out interval, wet to saturated, strong odor (same as 6.0 to 8.0 ft.)
NC	5,4,12,12	<5	12.0-14.0	TRASH. With trace to little soil matrix, saturated, strong odor (same as 6.0 to 8.0 ft.)
NC	4,4,8,6	<2	14.0-16.0	SAND and SILT. Dark olive-green and green-brown, fine grained, with trash present through out interval, saturated, black staining present, strong odor (same as 6.0 to 8.0 ft.)

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

Environmental Resources Management, Inc.

WO No:	72701.03.01	Boring Location:	TB-13
Project:	Supplemental Remedial Investigation	Date Completed:	09/19/2001
Client:	NYSDEC	Borehole Diameter:	8"
Location:	Blooming Grove, NY	Total Depth:	26 ft b.g.s
Method:	Hollow Stem Auger (4.25-inch ID)	Geologist:	J. Rybacki
Driller:	Neal Short		
Drilling Co:	Nothnagle Drilling	Page 2	

Sampled Interval (ft. bgs.)	Blow counts	OVA Response (ppm)	Depth (ft. bgs.)	Sample Description/Classification
NC	11,10,2,2	<2	16.0-18.0	SAND and SILT. Dark olive-green and green-brown, fine grained, with trash present through out interval, saturated, black staining present, strong odor (same as 6.0 to 8.0 ft.)
NC	2,4,1,1	<1	18.0-20.0	TRASH (rags, plastic bags, and glass). Black through out, saturated, garbage odor.
NC	2,7,2,3	<3	20.0-22.0	TRASH (plastic). Saturated, garbage odor.
NC	3,4,5,5	<1	22.0-24.0	TRASH. With silt and fine gravel, saturated, garbage odor.
NC	3	NC	24.0-24.5	TRASH.
NC	6,19,20	NC	24.5-26.0	TILL (sand, silt, and shale fragments). Blue-green to gray-blue, sand is fine grained, with coarse shale fragments and little sandstone fragments, moist, no apparent staining, slight garbage odor.

NC: Not Collected.
ND: Not Detected.
b.g.s.: Below Ground Surface.

APPENDIX C

Product Identification Report

ZymaX FORENSICS

October 02, 2001

Mr. Greg Dunn
Environmental Resources Management
855 Springdale Drive
Exton, PA 19341

Project: Mayer Landfill

Dear Mr. Dunn,

Enclosed are analytical results for two product samples ID MW-4 and TB-04 (16-18) submitted to ZymaX on September 18, 2001. The data were obtained from GC/MS full scan analysis for the aliphatic and aromatic fraction of both product samples. Furthermore, the mass chromatograms of terpanes (m/z 191) and steranes (m/z 217) were obtained from GCMS-SIM (no charge).

Our preliminary conclusion based on the analytical data, indicates that both product samples are a mixture of a highly degraded No.2 fuel oil (or diesel #2) and degraded creosote (coal tar oil), with a small amount of heavy hydrocarbons. Furthermore, a mildly degraded Mid-distillated fuel is also present in sample MW-4.

The project was performed at ZymaX forensics as Laboratory No.25132.

Please call us at **805.544.4696** if you have any questions regarding the analytical results.

Respectfully,
ZymaX forensics

Shantan Lu, Ph.D.
Director of Petroleum Geochemistry

www.ZymaXforensics.com

16921 Parthenia Street Ste. 201 • North Hills CA 91343 • fax 818.893.8940 • vox 818.893.4103
laboratory: 71 Zaca Lane • San Luis Obispo CA 93401 • fax 805.544.8226 • vox 805.544.4696
email: forensics@ZymaXusa.com

ERM Sample Chain of Custody

Client: MSDC | Project name: Mesquite Landfill

Work order number: 9770103 01 | Project manager/contact: 610-524-3402

Installation code: ——— | Project manager/contact phone: Greg Dunn

Samplers: T. Kubacki | Sample program: ———

Parameters for Analysis: Soil Gas 8260/MS Full Scan

Date	Time	Site Identification	Sample depth (feet)	ERM T.R. number	Sample technique	File type (media)	Site type	Number of Containers	Soil Gas 8260/MS Full Scan	Container cleaned up								Remarks
9/12/01	0908	MW-11 (Finished)	———	———	grab	———	———	1	1	⊗								8260/MS Full Scan
9/12/01	1623	MW-TB-04(16-18)	16-18	———	grab	———	———	1	1	⊗							-2	↓
																		Refrigerated

Relinquished by (signature)	Date/time	Received by (signature)	Date/time
[signature]	9/13/01 1100	[signature]	9/13/01 1258

Shipped to:
Zymax Forensics
71 Zaca Lane
San Luis Obispo, CA
93401

Date/time: 9/13/01

Carrier/airbill number: Fed Ex 5574723280

Cooler Temperature: °C | pH: ☐ Yes ☐ No | Comments:

Copies: **White** and **Yellow** copies accompany sample shipments to laboratory. **Yellow** copy retained by laboratory. **White** copy to be returned to ERM for files. **Pink** copy retained by sampler. **Gold** copy extra as needed.

8-97

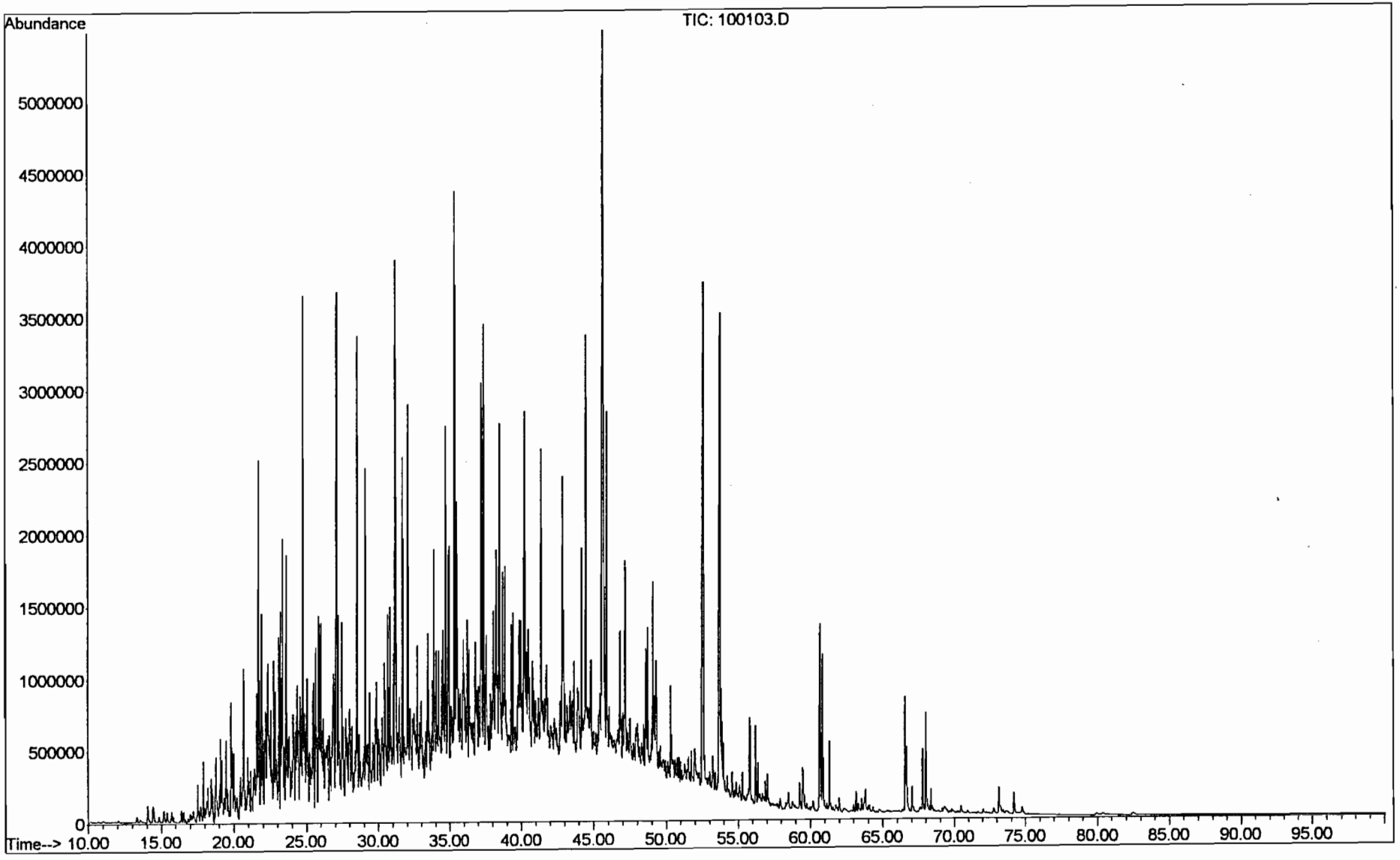
ZymaX FORENSICS

Hydrocarbon fractions for sample submitted by Environmental Resources Management

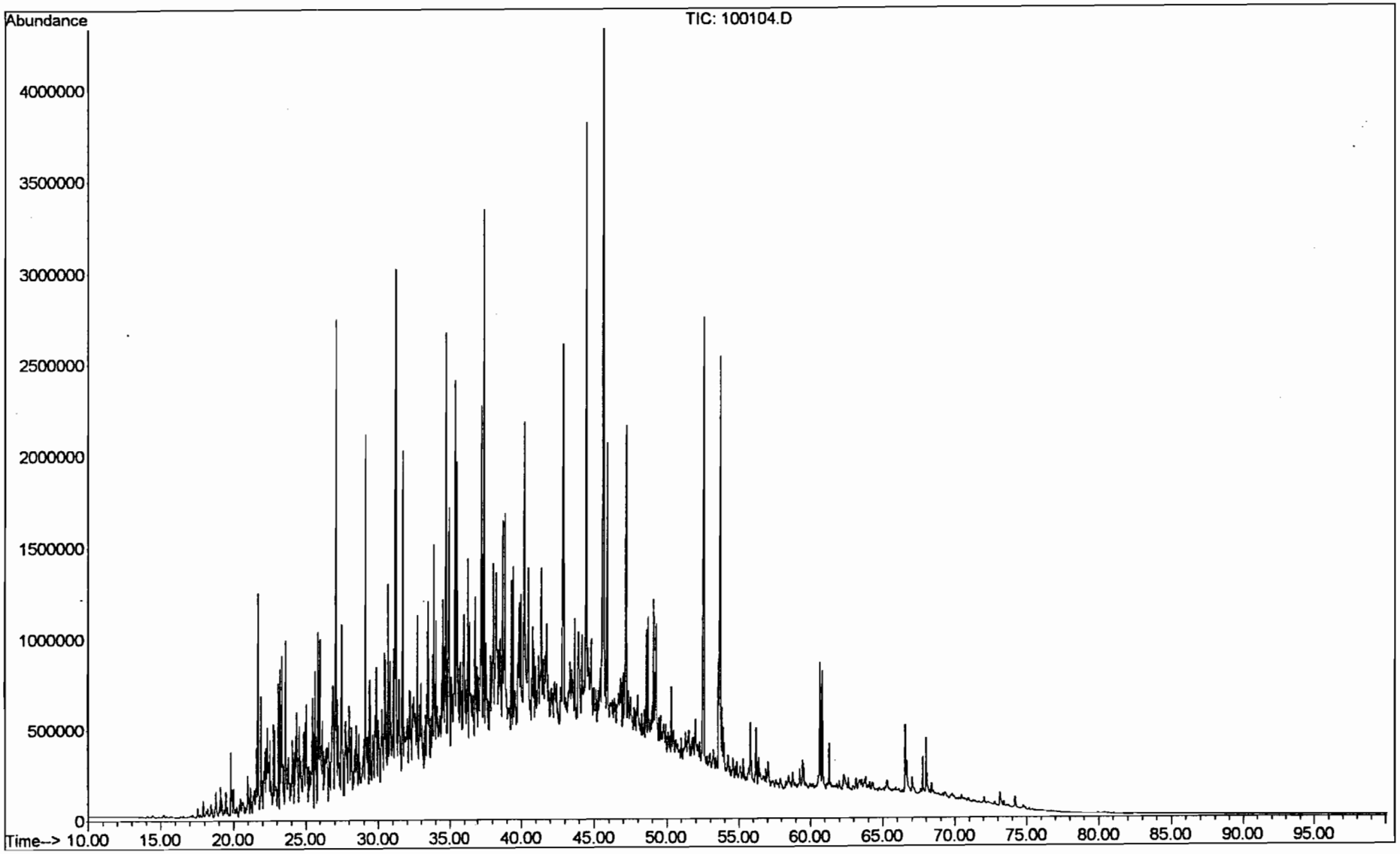
Sample ID	Zymax ID	Saturated Aromatic (%)	Polar Asphaltenes (%)
MW-4	25132-1	68.0	32.0
TB-04 (16-18)	25132-2	60.0	40.0

Supervisor

Sample Name: MW-4 (25132-1) Product (ali + aro)
Misc Info : Mayer Landfill



Sample Name: TB-04 (16-18) 25132-2 Product (ali + aro)
Misc Info : Mayer Landfill

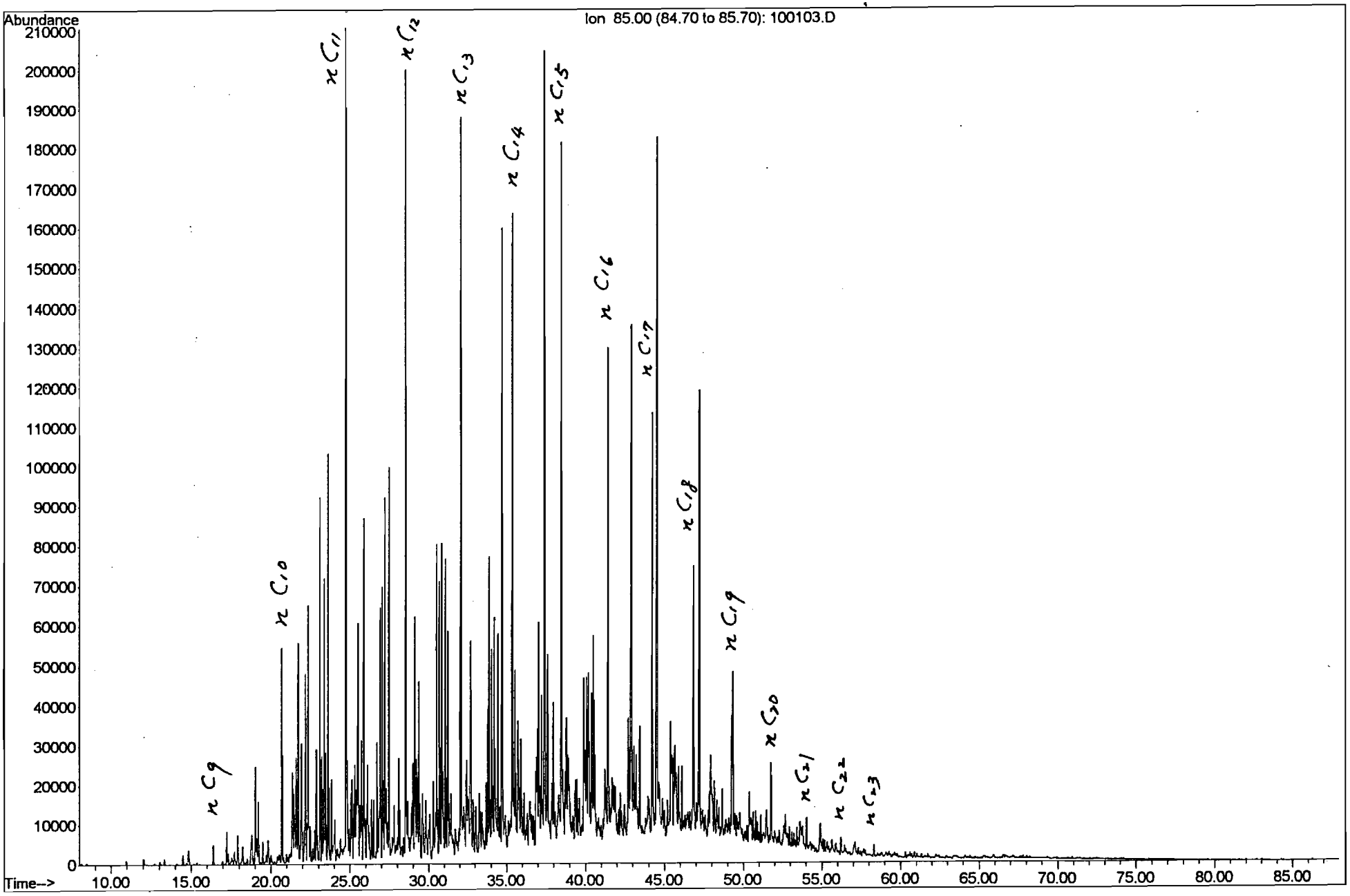


Table

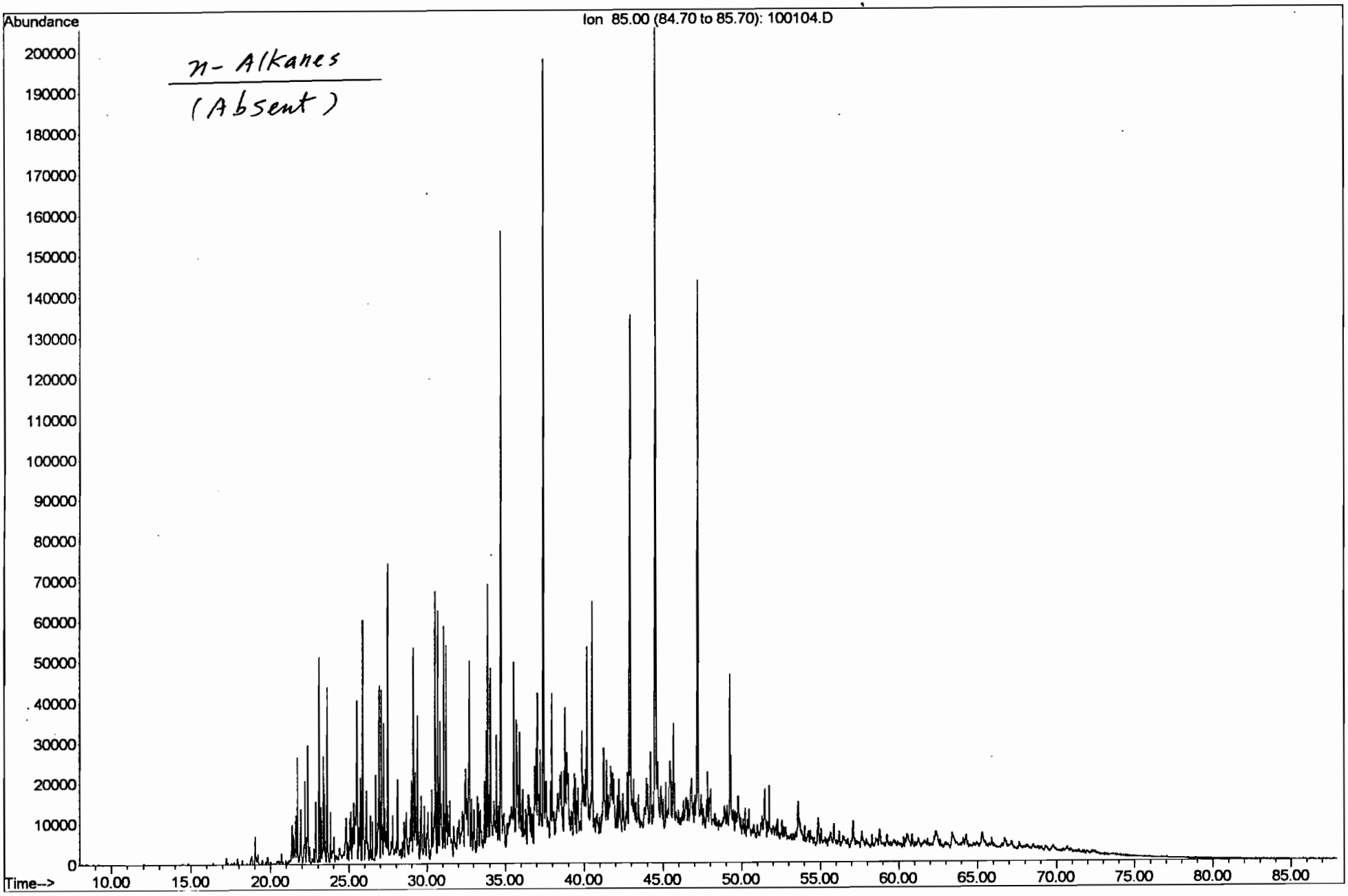
Key to Chromatogram Symbol Identification for m/z 85 and m/z 113 Paraffins and Isoparaffins

Symbol	Detail
i-10	Iso-alkane with 10 carbon atoms
i-15	Farnesane (isoprenoid with 15 carbon atoms)
i-16	Isoprenoid with 16 carbon atoms
Pr	Pristane (isoprenoid with 19 carbon atoms)
Ph	Phytane (isoprenoid with 20 carbon atoms)
nC_8	n-C_8 normal alkane
nC_{15}	n-C_{15} normal alkane
i-8	2,5-(2,4)-Dimethylhexane
i-8'	2,3,4-Trimethylpentane
i-8"	2,3-Dimethylhexane
CH-*n*	Alkylcyclohexane (where *n* indicates number of carbon atoms in the side chain)

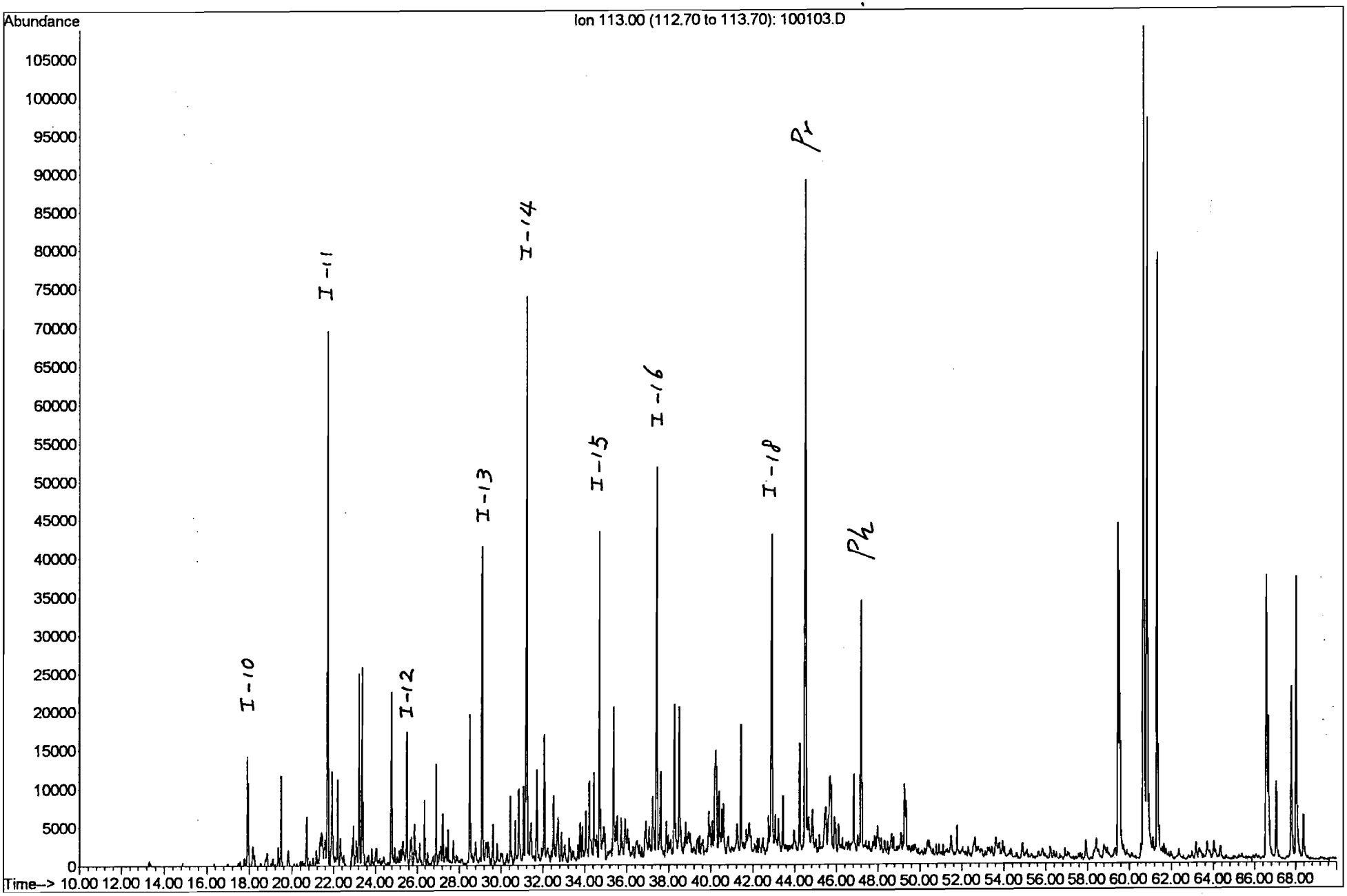
MW-4 (25132-1) Product (ali + aro)
Mayer Landfill



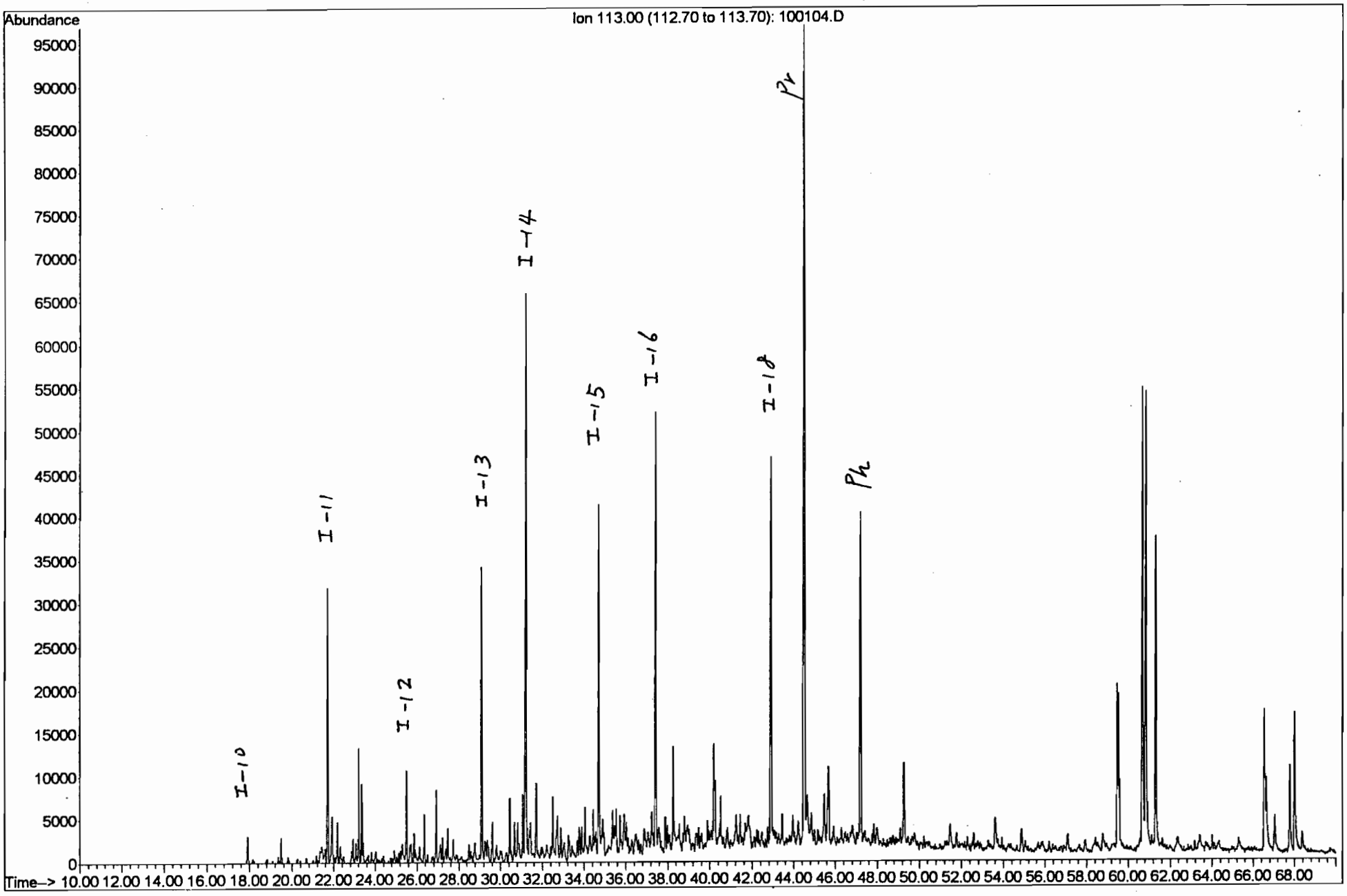
TB-04 (16-18) 25132-2 Product (ali + aro)
Mayer Landfill



MW-4 (25132-1) Product (ali + aro)
Mayer Landfill



TB-04 (16-18) 25132-2 Product (ali + aro)
Mayer Landfill



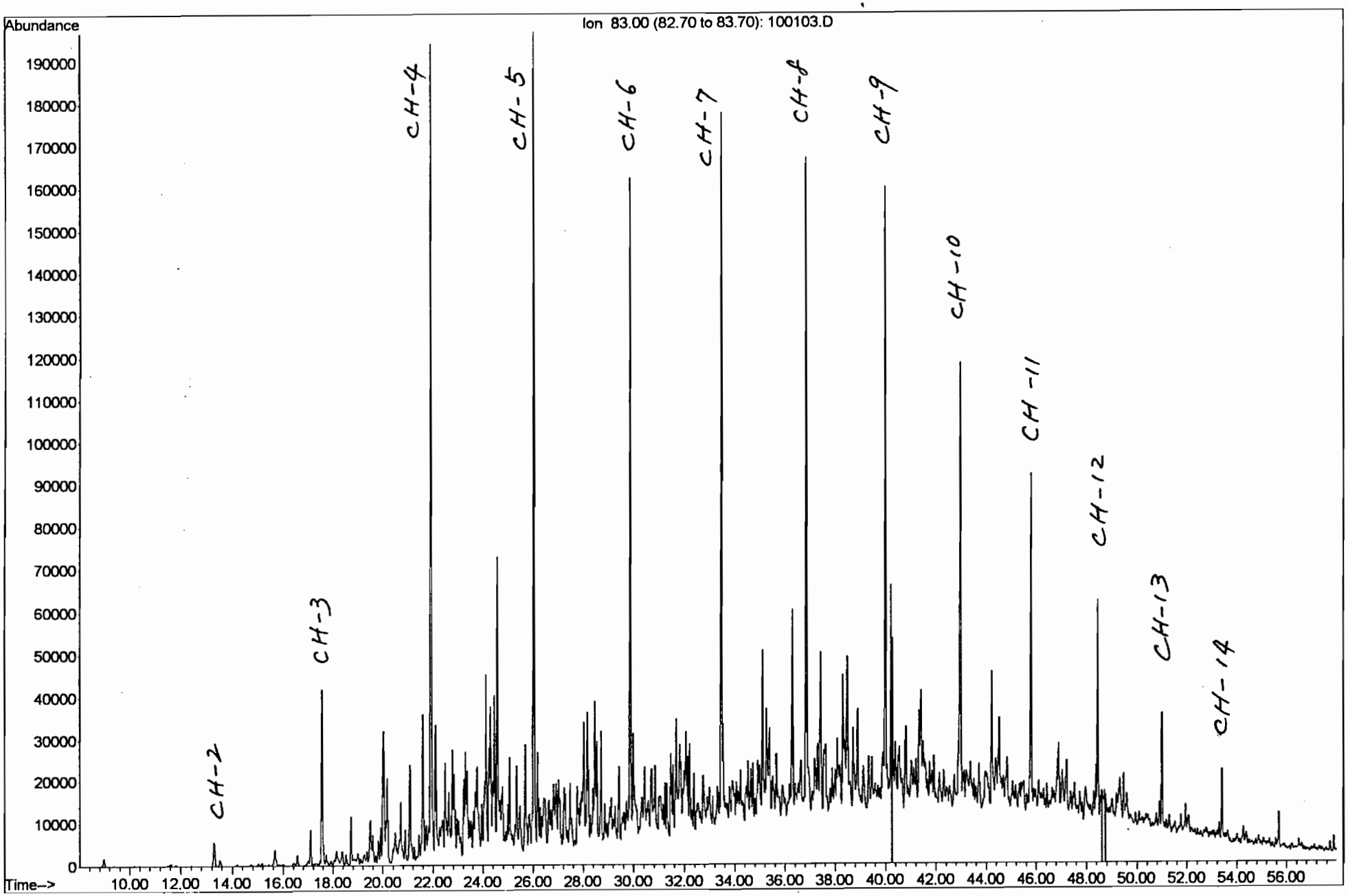
ZymaX FORENSICS

Table

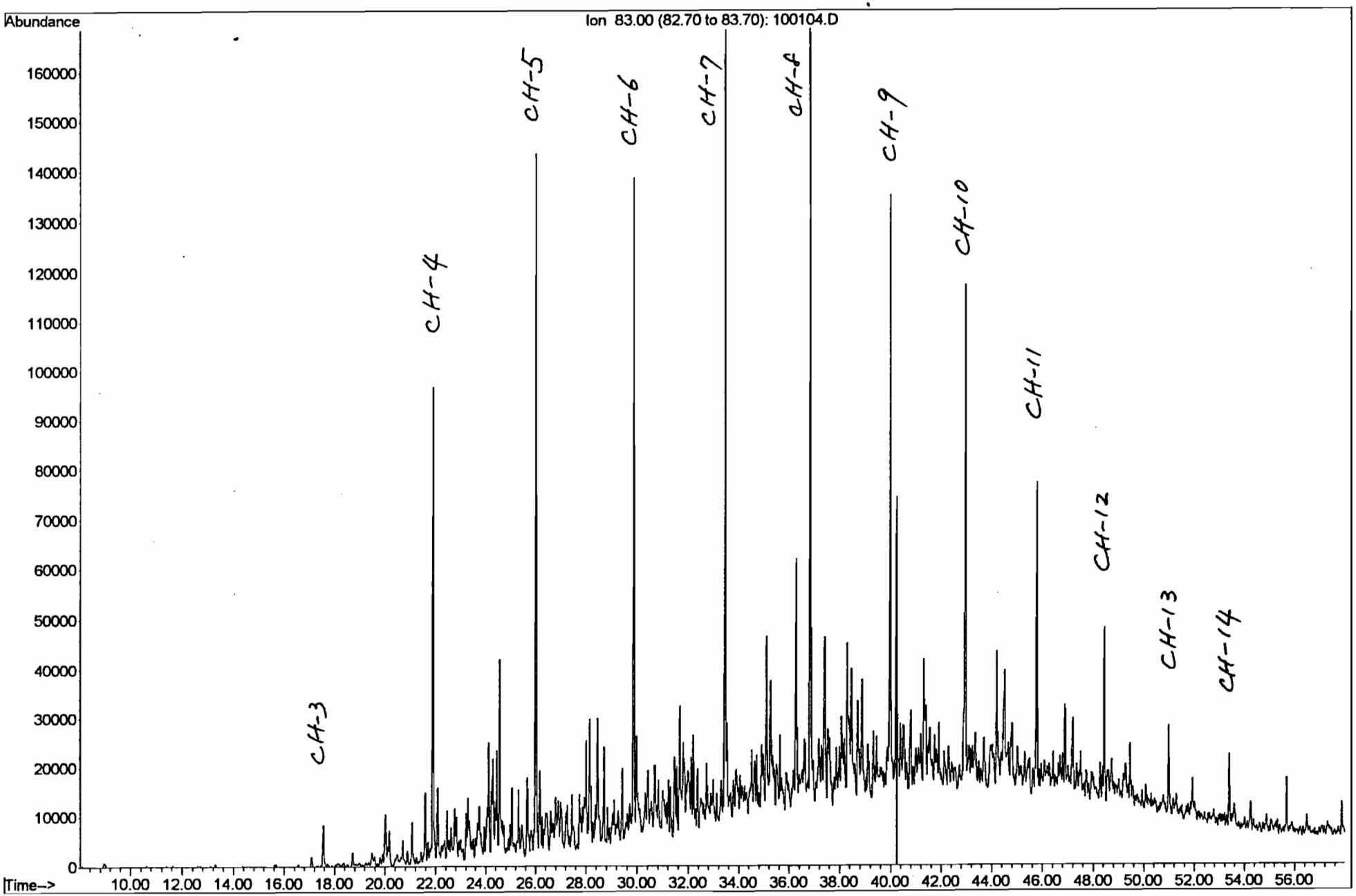
Key for Alkylcyclohexanes at m/z 83

Symbol	Detail
CH-1:	Methylcyclohexane
CH-2:	Ethylcyclohexane
CH-3:	Propylcylohexane
CH-4:	Butylcyclohexane
CH-5:	Pentylcyclohexane
CH-6:	Hexylcyclohexane
CH-7:	Heptylcyclohexane
CH-8:	Octylcyclohexane
CH-9:	Nonylcyclohexane
CH-10:	Decylcyclohexane
CH-11:	Undecylcyclohexane
CH-12:	Dodecylcyclohexane
CH-13:	Tridecylcyclohexane
CH-14:	Tetradecylcyclohexane

MW-4 (25132-1) Product (ali + aro)
Mayer Landfill



TB-04 (16-18) 25132-2 Product (ali + aro)
Mayer Landfill



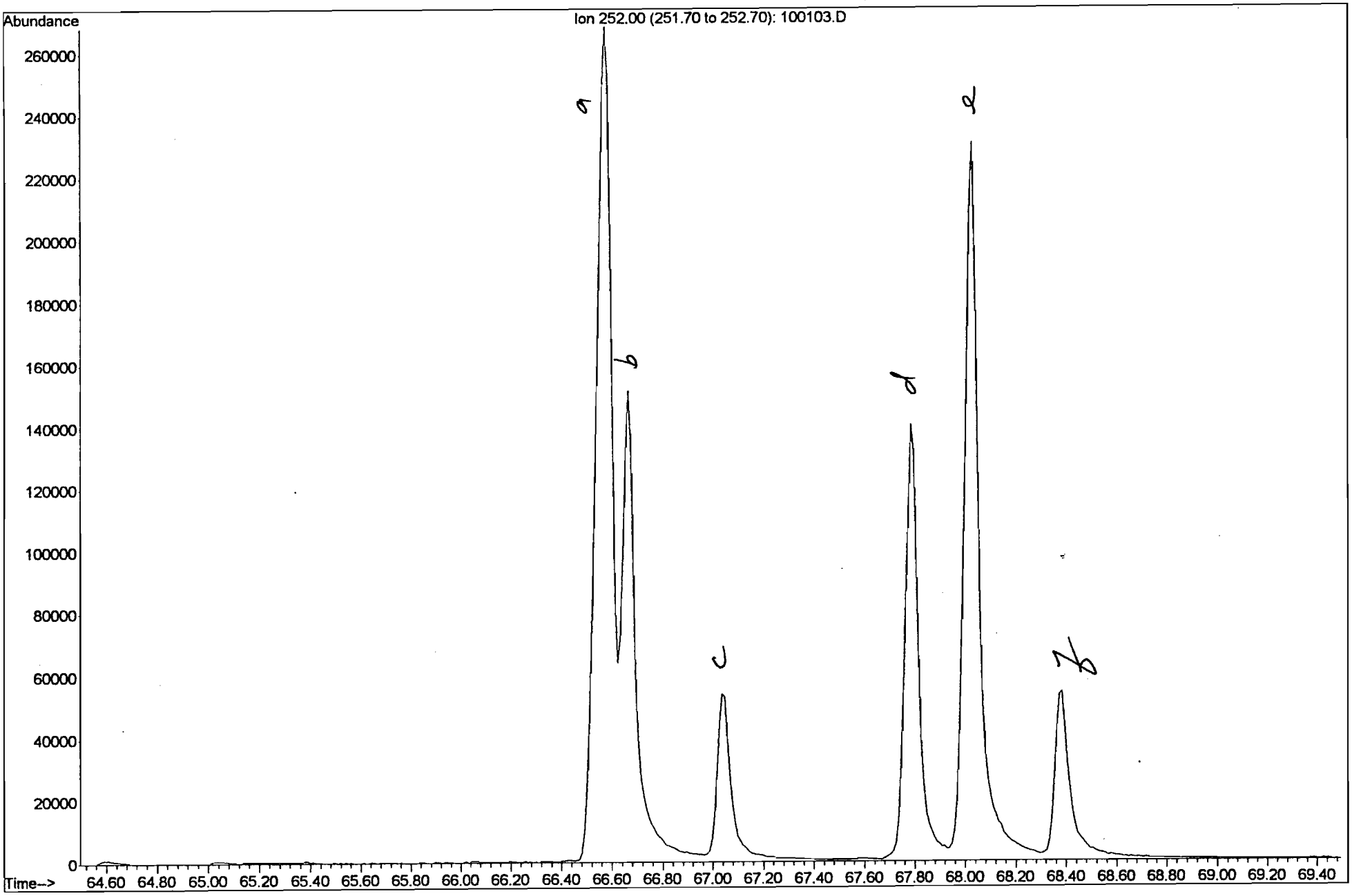
ZymaX FORENSICS

Table

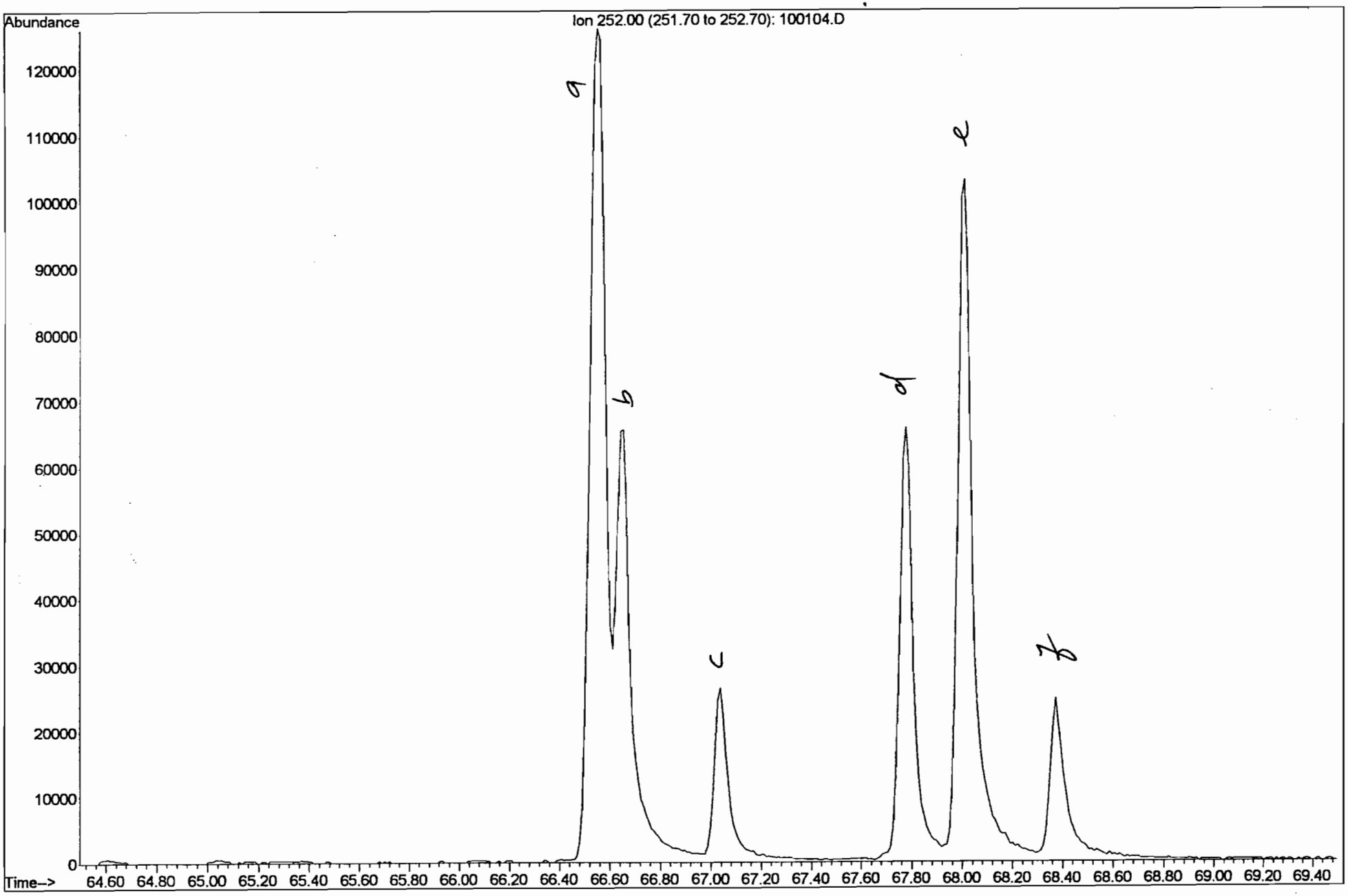
Key for Identification for Six Pyrogenic PAH (m/z 252)

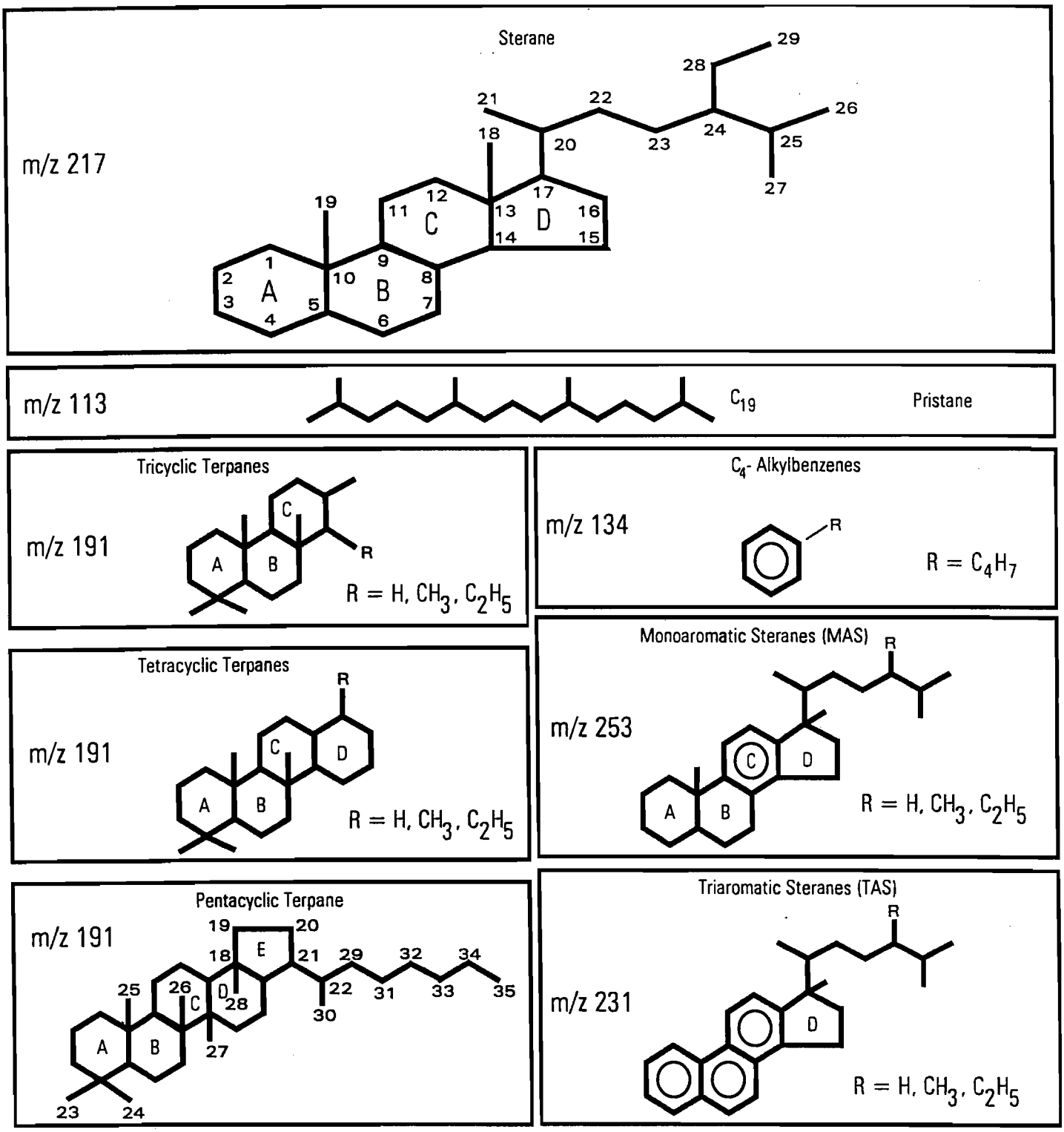
Peak No.	Identity
a	Benzo(B)fluoranthene
b	Benzo(K)fluoranthene
c	Benzo(A)fluoranthene
d	Benzo(E)pyrene
e	Benzo(A)pyrene
f	Perylene

MW-4 (25132-1) Product (ali + aro)
Mayer Landfill



TB-04 (16-18) 25132-2 Product (ali + aro)
Mayer Landfill





The compound structures of pristane, C_4-alkylbenzenes, sterane; terpanes; monoaromatic and triaromatic steranes

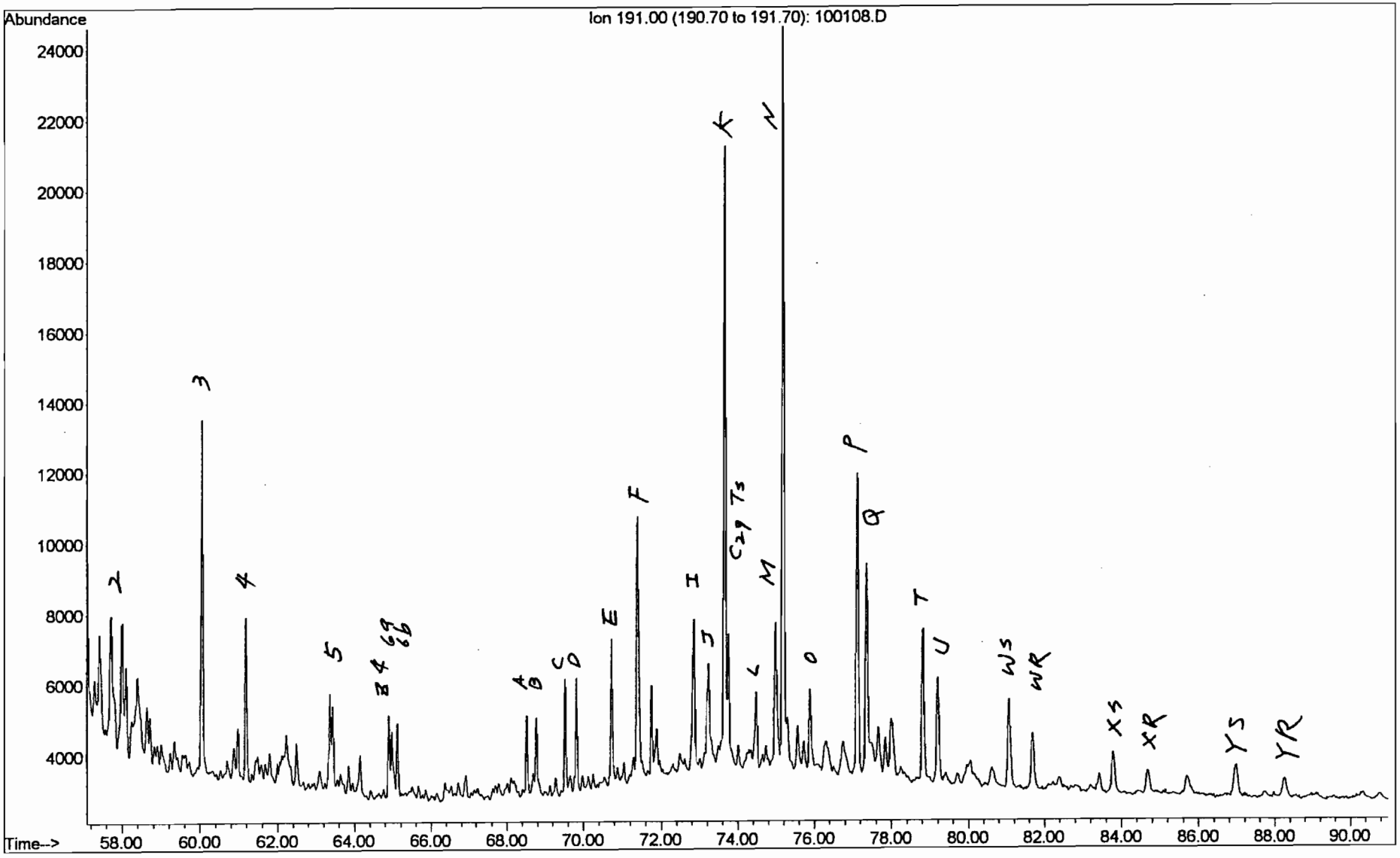
Table

ZymaX FORENSICS

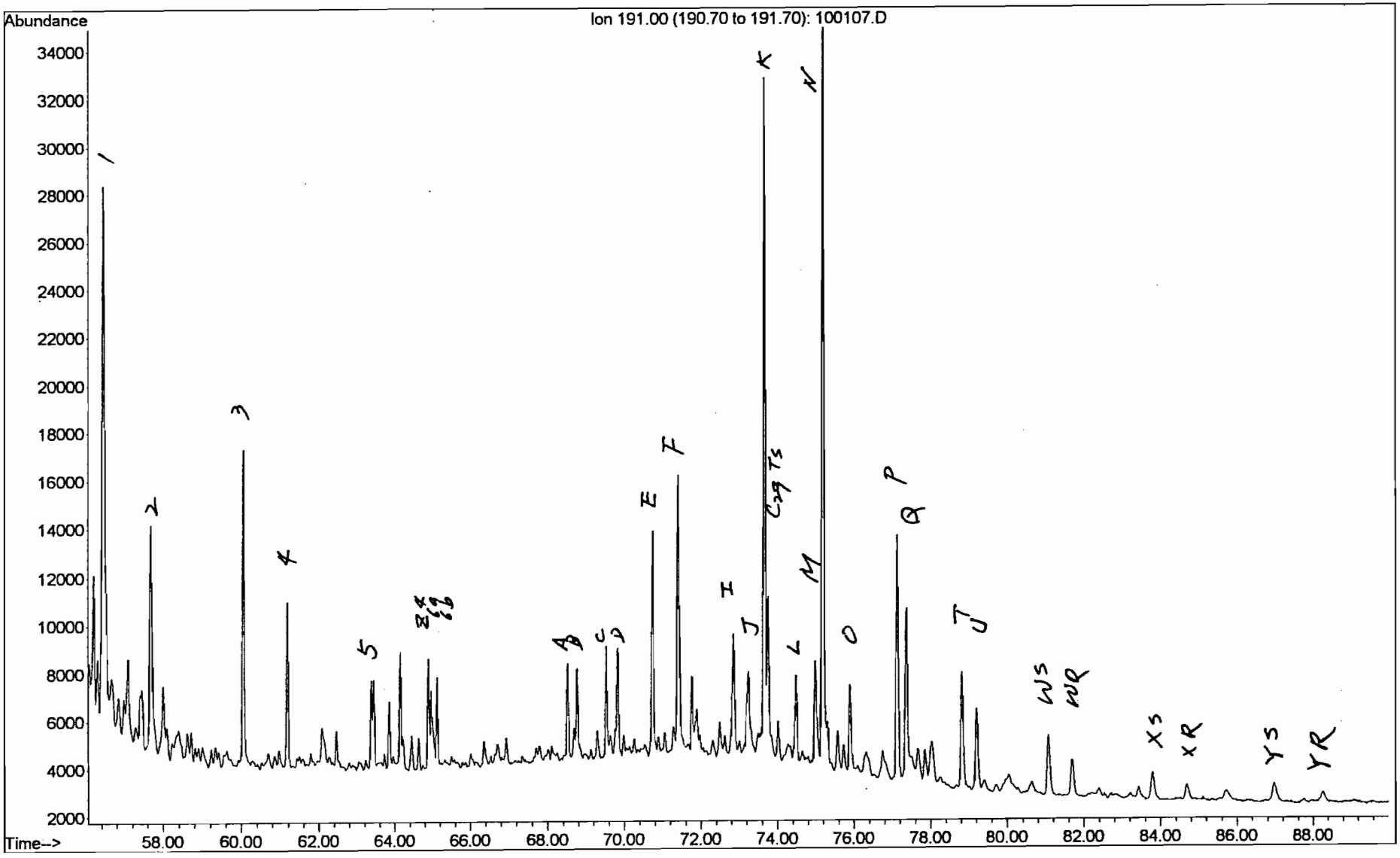
Key for Tricyclic, Tetracyclic, and Pentacyclic Terpanes Identification (m/z 191 mass chromatograms)

Code	Identity	Carbon #
0	C_{20}-Tricyclic Terpane	20
1	C_{21}-Tricyclic Terpane	21
2	C_{22}-Tricyclic Terpane	22
3	C_{23}-Tricyclic Terpane	23
4	C_{24}-Tricyclic Terpane	24
5	C_{25}-Tricyclic Terpane	25
Z4	C_{24}-Tetracyclic Terpane	24
6a	C_{26}-Tricyclic Terpane	26
6b	C_{26}-Tricyclic Terpane	26
7	C_{27}-Tricyclic Terpane	27
A	C_{28}-Tricyclic Terpane #1	28
B	C_{28}-Tricyclic Terpane #2	28
C	C_{29}-Tricyclic Terpane #1	29
D	C_{29}-Tricyclic Terpane #2	29
E	18α-22,29,30-Trisnorneohopane (Ts)	27
F	17α-22,29,30-Trisnorhopane (Tm)	27
G	17ß-22,29-30-Trisnorhopane	27
H	17α-23,28-Bisnorlupane	28
10a	C_{30}-Tricyclic Terpane #1	30
10b	C_{30}-Tricyclic Terpane #2	30
I	17α-28,30-Bisnorhopane	28
11a	C_{31}-Tricyclic Terpane #1	31
J	17α-25-Norhopane	29
11b	C_{31}-Tricyclic Terpane #2	31
K	17α,21ß-30-Norhopane	29
C_{29}Ts	18α-30-Norneohopane	29
C_{30}*	17α-Diahopane	30
L	17ß-21α-30-Normoretane	29
Ma	18α-Oleanane	30
Mb	18ß-Oleanane	30
N	17α,21ß-Hopane	30
O	17ß,21α-Moretane	30
13a	C_{33}-Tricyclic Terpane #1	33
13b	C_{33}-Tricyclic Terpane #2	33
P	22S-17α,21ß-30-Homohopane	31
Q	22R-17α,21ß-30-Homohopane	31
R	Gammacerane	30
14a	C_{34}-Tricyclic Terpane #1	34
S	17ß,21α-Homomoretane	31
14b	C_{34}-Tricyclic Terpane #2	34
T	22S-17α,21ß-30-Bishomohopane	32
U	22R-17α,21ß-30-Bishomohopane	32
15a	C_{35}-Tricyclic Terpane #1	35
15b	C_{35}-Tricyclic Terpane #2	35
V	17ß,21α-C_{32}-Bishomomoretane	32
WS	22S-17α,21ß-30,31,32-Trishomohopane	33
WR	22R-17α,21ß-30,31,32-Trishomohopane	33
16a	C_{36}-Tricyclic Terpane #1	36
16b	C_{36}-Tricyclic Terpane #2	36
XS	22S-17α,21ß-30,31,32,33-Tetrahomohopane	34
XR	22R-17α,21ß-30,31,32,33-Tetrahomohopane	34
YS	22S-17α,21ß-30,31,32,33,34-Pentahomohopane	35
YR	22R-17α,21ß-30,31,32,33,34-Pentahomohopane	35

Sample Name: MW-4 (25132-1) Product (ali + aro)
Misc Info : Mayer Landfill



Sample Name: TB-04 (16-18) 25132-2 Product (ali + aro)
Misc Info : Mayer Landfill

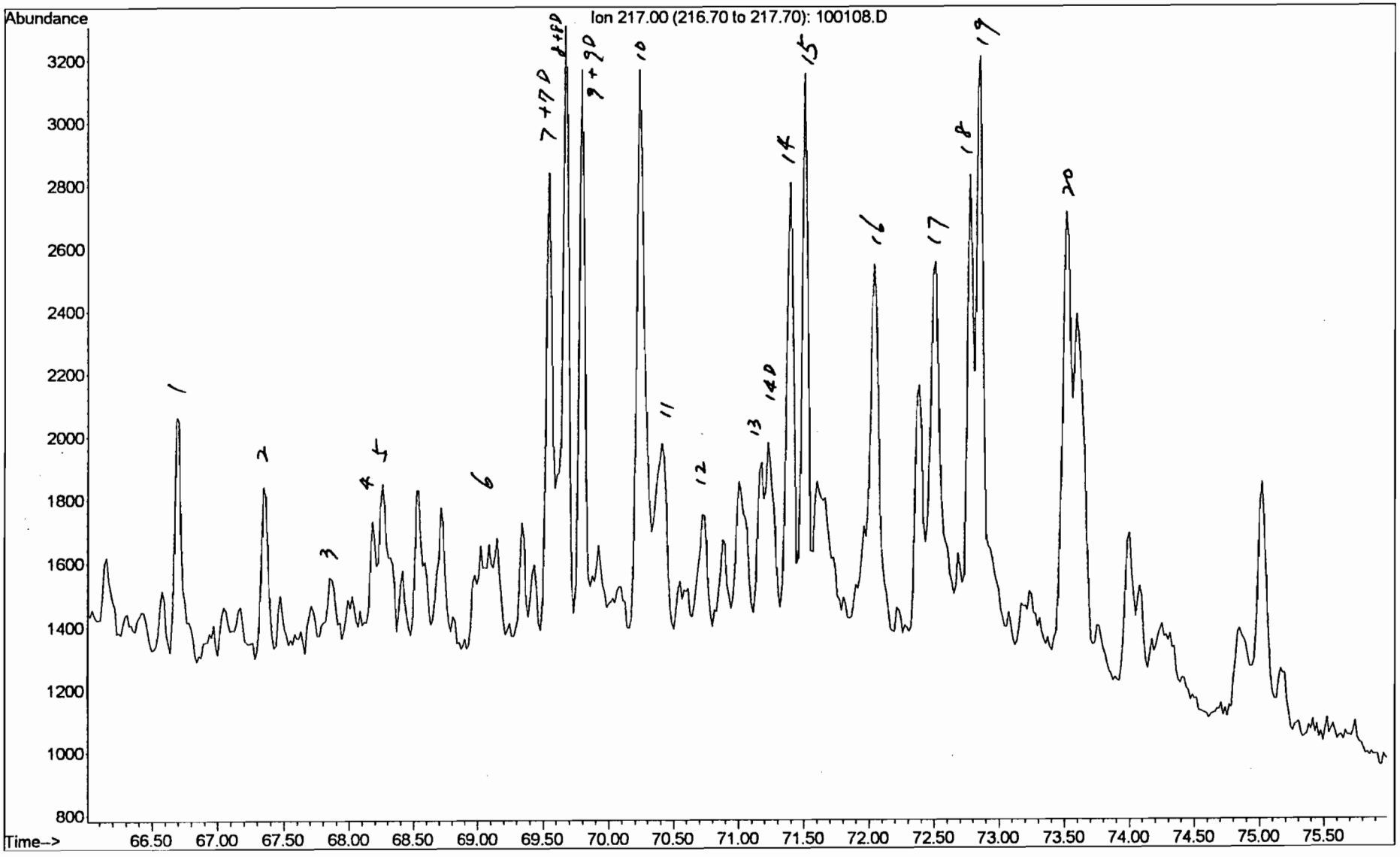


Table

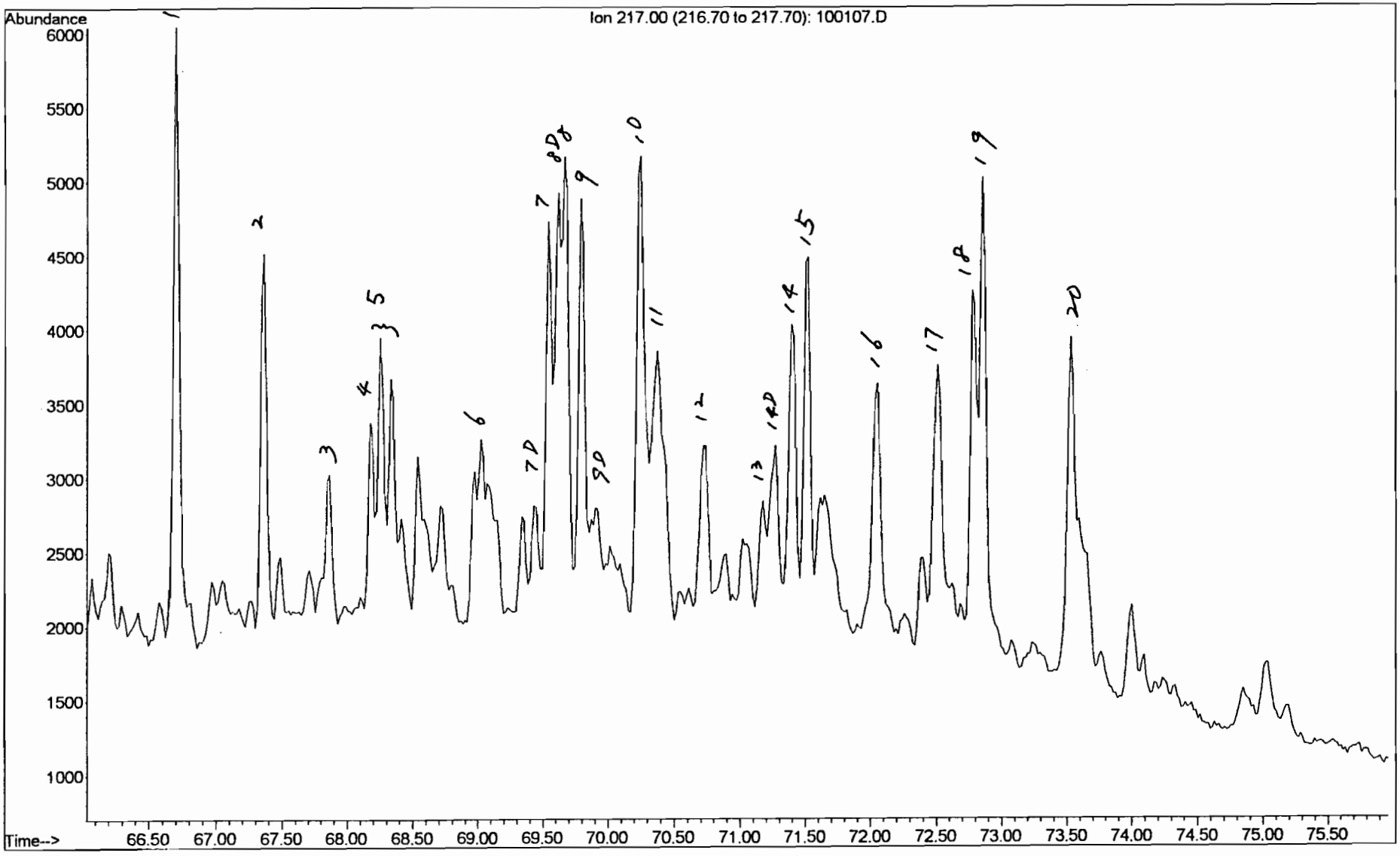
Key for Steranes Identification (m/z 217 Mass Chromatogram)

Code	Identity	Carbon #
1	13ß,17α-diacholestane (20S)	27
2	13ß,17α-diacholestane (20R)	27
3	13α,17ß-diacholestane (20S)	27
4	13α,17ß-diacholestane (20R)	27
5	24-methyl-13ß,17α-diacholestane (20S)	28
6	24-methyl-13ß,17α-diacholestane (20R)	28
7D	24-methyl-13α,17ß-diacholestane (20S)	28
7	14α,17α-cholestane (20S)	27
8D	24-ethyl-13ß,17α-diacholestane (20S)	29
8	14ß,17ß-cholestane (20R)	27
9	14ß,17ß-cholestane (20S)	27
9D	24-methyl-13α,17ß-diacholestane (20R)	28
10	14α,17α-cholestane (20R)	27
11	24-ethyl-13ß,17α-diacholestane (20R)	29
12	24-ethyl-13α,17ß-diacholestane (20S)	29
13	24-methyl-14α,17α-cholestane (20S)	28
14D	24-ethyl-13α,17ß-diacholestane (20R)	29
14	24-methyl-14ß,17ß-cholestane (20R)	28
15	24-methyl-14ß,17ß-cholestane (20S)	28
16	24-methyl-14α,17α-cholestane (20R)	28
17	24-ethyl-14α-cholestane (20S)	29
18	24-ethyl-14ß,17ß-cholestane (20R)	29
19	24-ethyl-14ß,17ß-cholestane (20S)	29
20	24-ethyl-14α,17α-cholestane (20R)	29
21A	24-n-Propylcholestane (20S)	30
21B	4-methyl-24-ethylcholestane (20S)	30
22A	4α-methyl-24-ethyl-14β,17β-cholestane(20S)	30
22B	24-n-propyl-14β,17β-cholestane (20S)	30
23A	4α-methyl-24-ethyl-14β,17β-cholestane(20R)	30
23B	24-n-propyl-14β,17β-cholestane (20R)	30
24A	4α-methyl-24-ethylcholestane(20R)	30
24B	24-n-propylcholestane (20R)	30

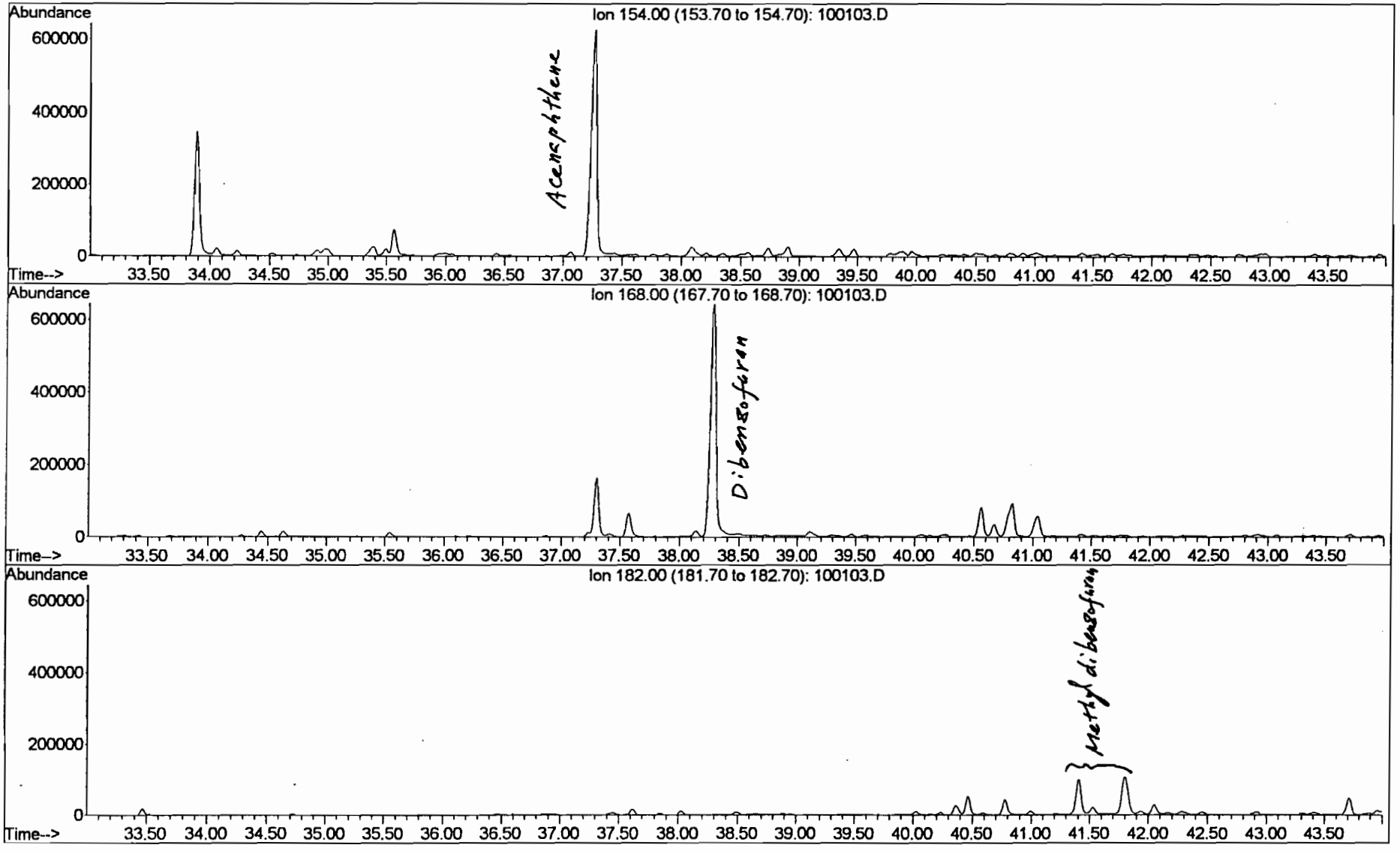
Sample Name: MW-4 (25132-1) Product (ali + aro)
Misc Info : Mayer Landfill



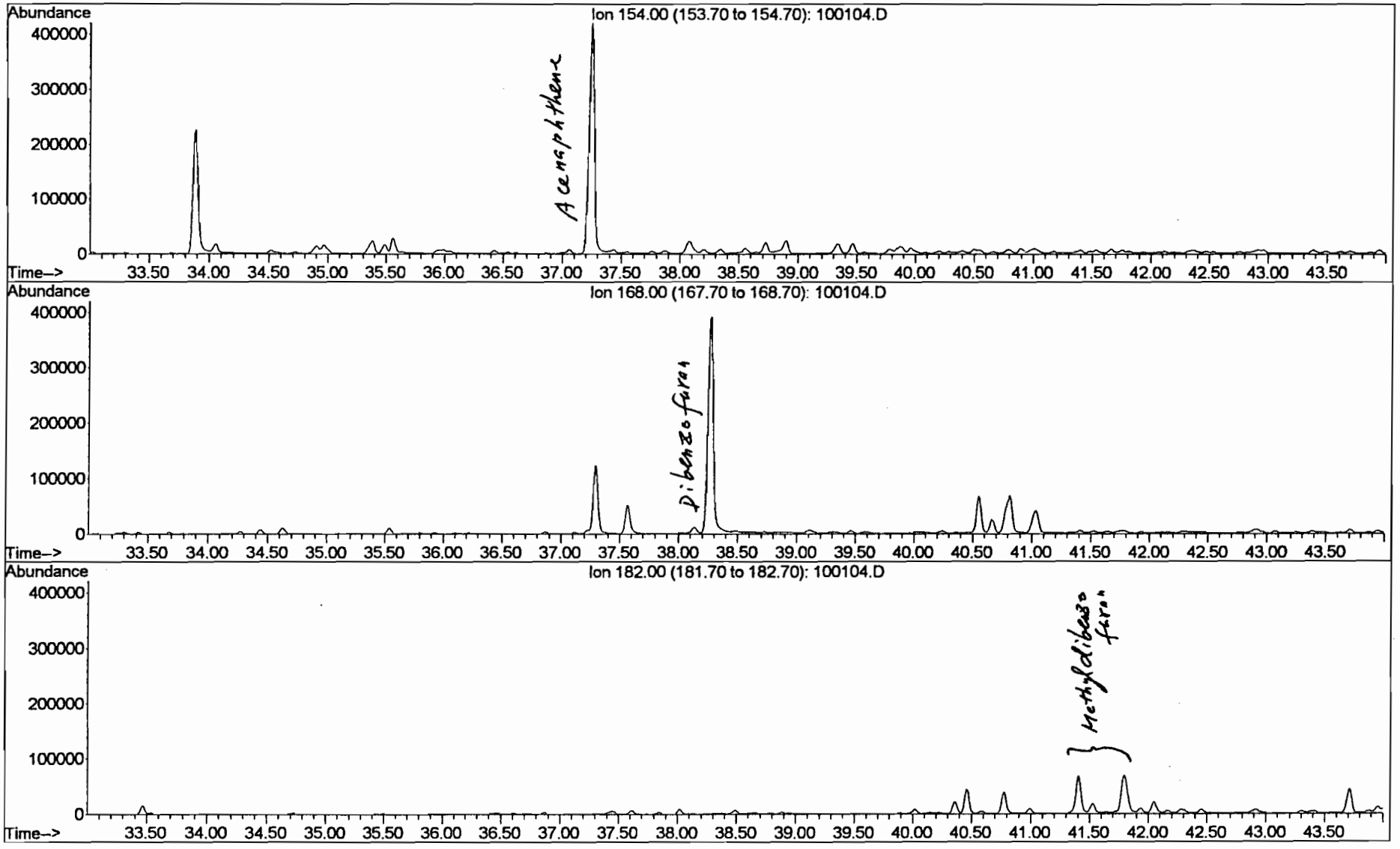
Sample Name: TB-04 (16-18) 25132-2 Product (ali + aro)
Misc Info : Mayer Landfill



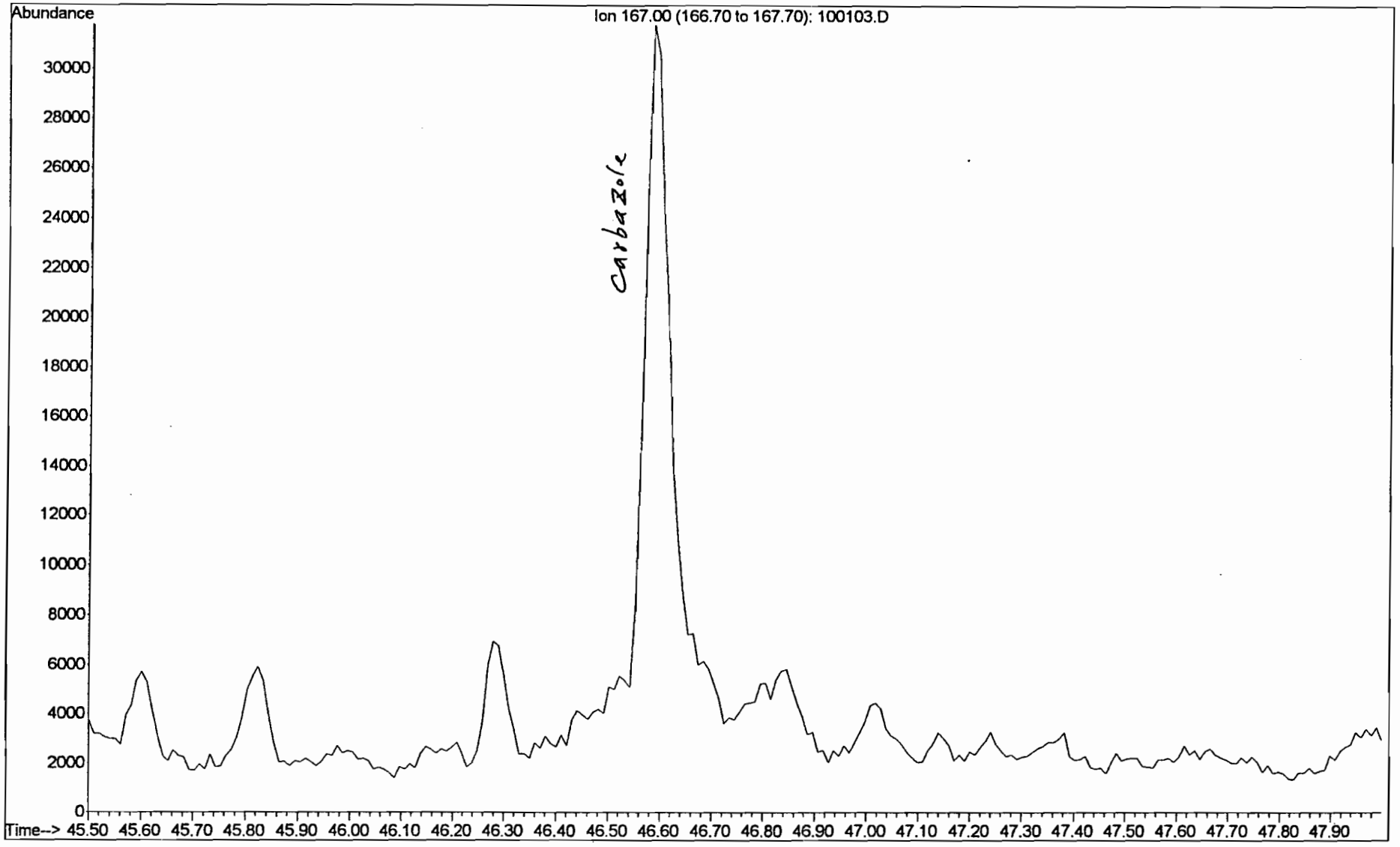
Sample Name: MW-4 (25132-1) Product (ali + aro)
Misc Info : Mayer Landfill



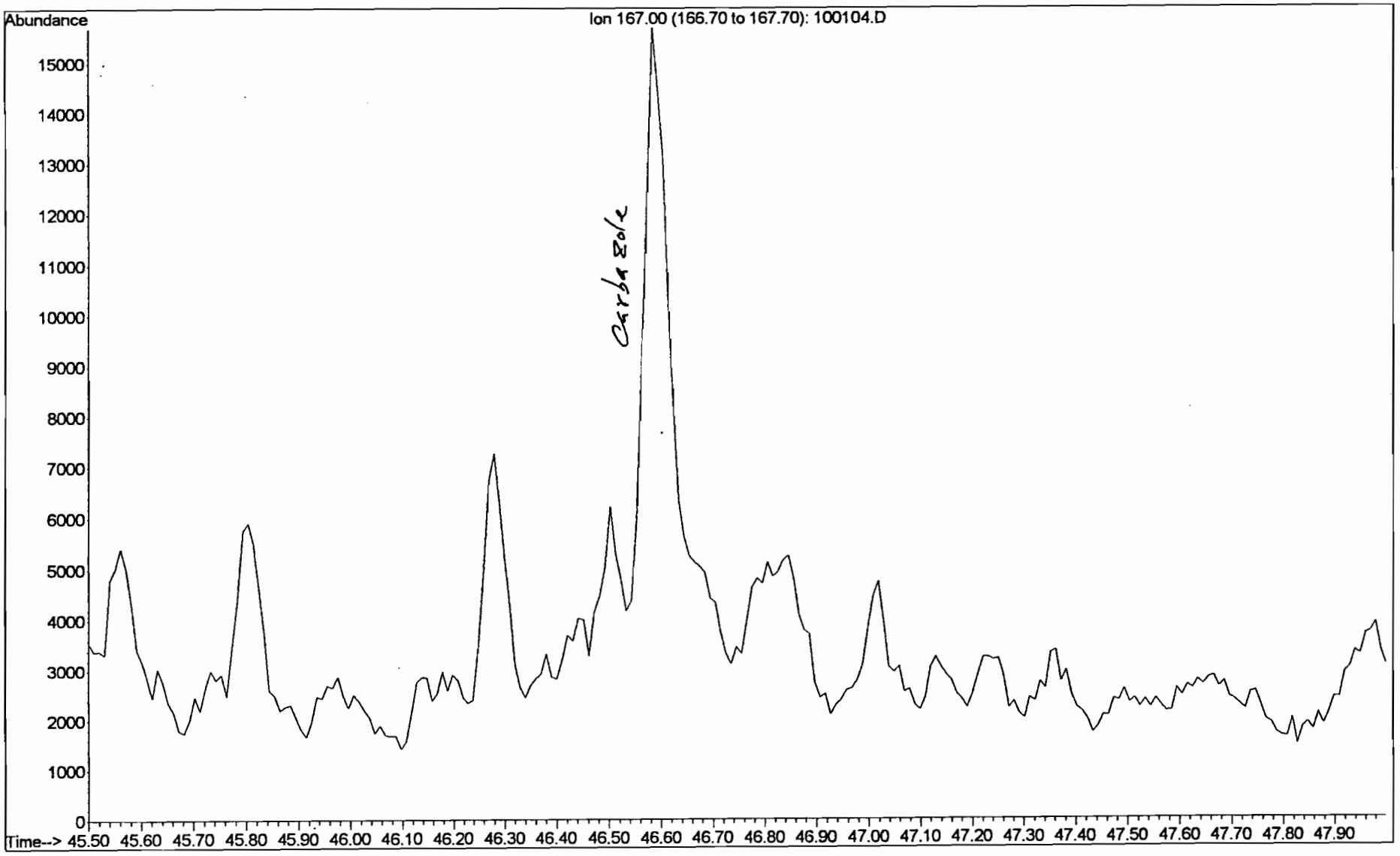
Sample Name: TB-04 (16-18) 25132-2 Product (ali + aro)
Misc Info : Mayer Landfill



Sample Name: MW-4 (25132-1) Product (ali + aro)
Misc Info : Mayer Landfill



Sample Name: TB-04 (16-18) 25132-2 Product (ali + aro)
Misc Info : Mayer Landfill



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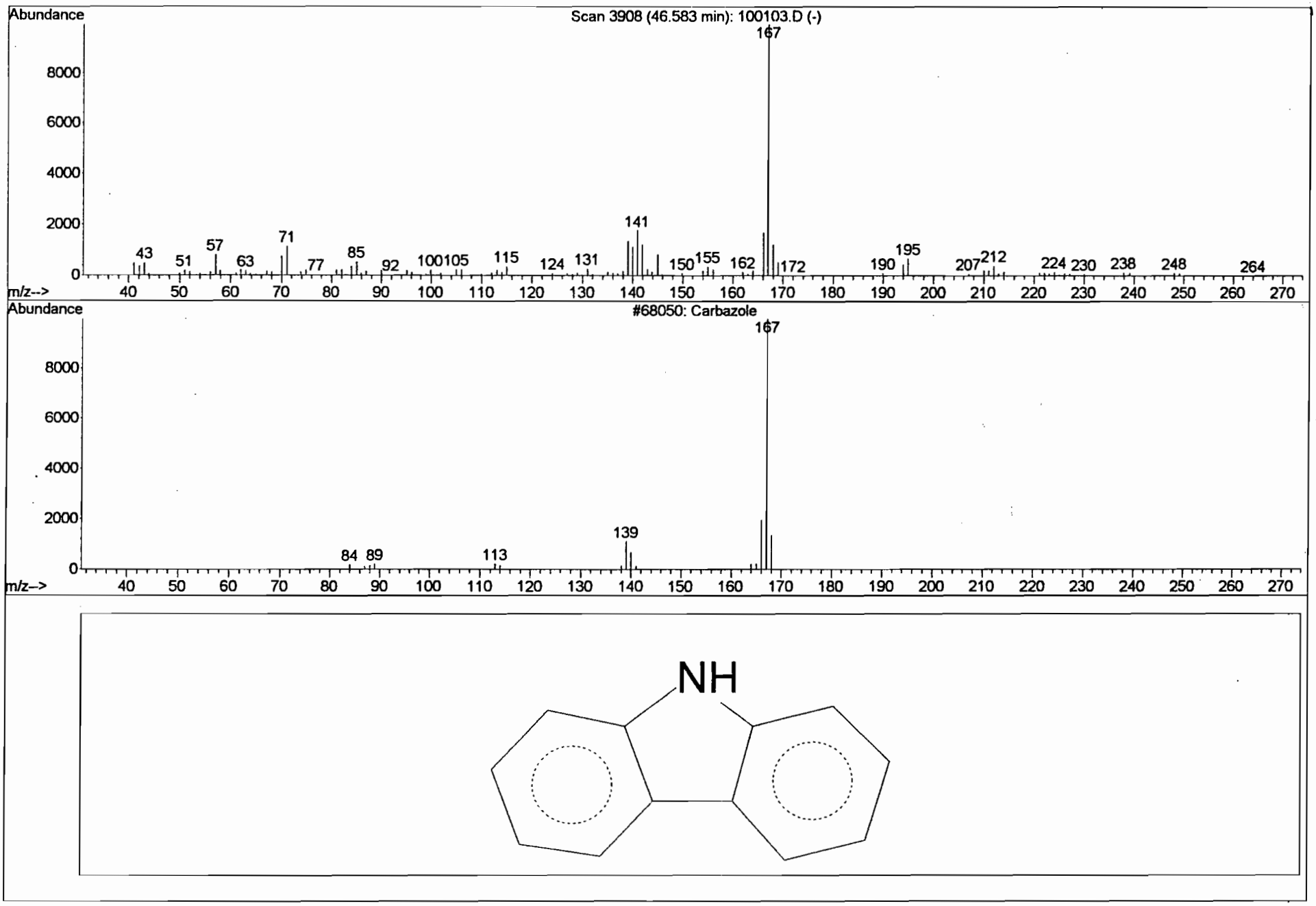
Quality : 81
ID : Carbazole



ZymaX FORENSICS

Table

Key for Aromatic Compounds Identification in Bar Diagram

AB:	C_3-C_6 Alkylbenzenes
NAPH:	C_0-C_4 Naphthalenes
FL:	C_0-C_4 Fluorenes
BP:	C_0-C_2 BP Biphenyl/Dibenzofuran
PHEN:	C_0-C_4 Phenanthrenes
PY:	C_0-C_4 Pyrenes/Fluoranthenes
CHR:	C_0-C_4 Chrysenes
BT:	C_1-C_5 Benzothiophenes
DBT:	C_0-C_4 Dibenzothiophenes
NBT:	C_0-C_4 Naphthobenzothiophenes
MAS:	Monoaromatic Steranes
TAS:	Triaromatic Steranes

Table

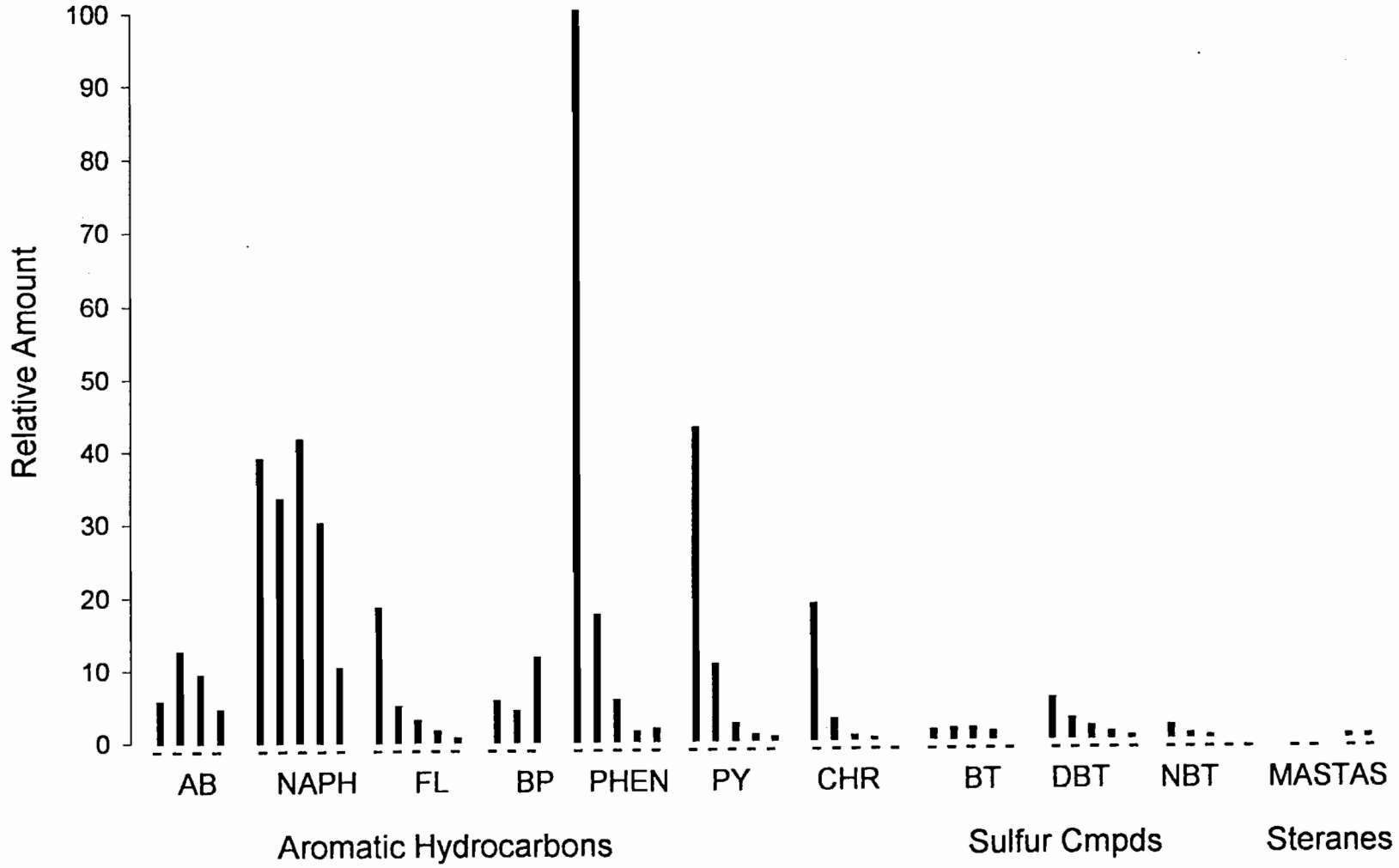
ZymaX FORENSICS

Key for Identifying Aromatic Hydrocarbons at Various m/z Units

No.	m/z	Compound
1	120	C_3-alkylbenzenes
2	134	C_4-alkylbenzenes
3	148	C_5-alkylbenzenes
4	162	C_6-alkylbenzenes
5	128	C_0-naphthalene
6	142	C_1-naphthalenes
7	156	C_2-naphthalenes
8	170	C_3-naphthalenes
9	184	C_4-naphthalenes
10	166	C_0-fluorene
11	180	C_1-fluorenes
12	194	C_2-fluorenes
13	208	C_3-fluorenes
14	222	C_4-fluorenes
15	154	C_0-biphenyl
16	168	C_1-biphenyls + dibenzofuran
17	182	C_2-biphenyls + C_1-dibenzofuran
18	178	C_0-phenanthrene
19	192	C_1-phenanthrenes
20	206	C_2-phenanthrenes
21	220	C_3-phenanthrenes
22	234	C_4-phenanthrenes
23	202	C_0-pyrene/fluoranthene
24	216	C_1-pyrenes/fluoranthenes
25	230	C_2-pyrenes/fluoranthenes
26	244	C_3-pyrenes/fluoranthenes
27	258	C_4-pyrenes/fluoranthenes
28	228	C_0-chrysene
29	242	C_1-chrysenes
30	256	C_2-chrysenes
31	270	C_3-chrysenes
32	284	C_4-chrysenes
33	148	C_1-benzothiophenes
34	162	C_2-benzothiophenes
35	176	C_3-benzothiophenes
36	190	C_4-benzothiophenes
37	204	C_5-benzothiophenes
28	184	C_0-dibenzothiophene
39	198	C_1-dibenzothiophenes
40	212	C_2-dibenzothiophenes
41	226	C_3-dibenzothiophenes
42	240	C_4-dibenzothiophenes
43	234	C_0-naphthobenzothiophene
44	248	C_1-naphthobenzothiophenes
45	262	C_2-naphthobenzothiophenes
46	276	C_3-naphthobenzothiophenes
47	290	C_4-naphthobenzothiophenes
48	253	Monoaromatic steranes
49	267	Monoaromatic steranes
50	239	Monoaromatic steranes
51	231	Triaromatic steranes
52	245	Triaromatic steranes

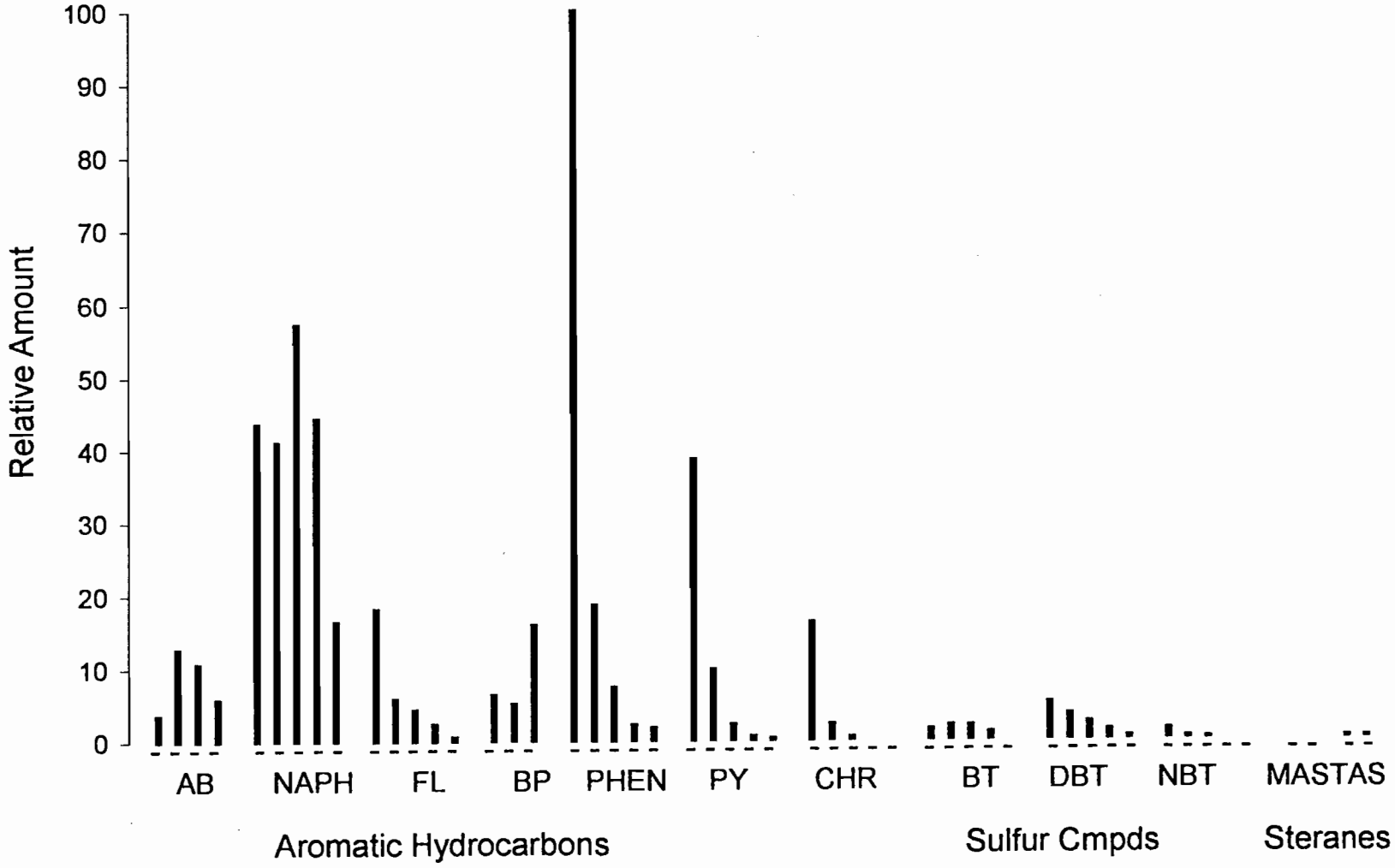
Aromatic Hydrocarbon Distribution

MW-4



Aromatic Hydrocarbon Distribution

TB-04 (16-18)



APPENDIX D

Validation Reports

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731 (631) 757-0467

DATA VALIDATION REPORT

ORGANIC/INORGANIC ANALYSES

VOLATILES BY GC/MS – NYSDEC ASP METHOD 95-1
SEMIVOLATILES BY GC/MS – NYSDEC ASP METHOD 95-2
PESTICIDES/PCBs BY GC/ECD – NYSDEC ASP METHOD 95-3
TARGET ANALYTE LIST (TAL) METALS/CYANIDE BY ICP/CV/LACHAT
TOTAL ORGANIC CARBON SW-846 METHOD 9060

For Six (6) Sediment Samples And Associated Quality Control Samples
Collected August 22, 2001
From Mayer Landfill – Blooming Grove, New York
ERM Project #72701.03.01

SAMPLE DELIVERY GROUP NUMBER: 81819
MITKEM CORPORATION
AND
R.I. ANALYTICAL LABORATORIES, INC.

SUBMITTED TO:

Mr. Greg Dunn/Project Manager
ERM
855 Springdale Drive
Exton, PA 19341

November 15, 2001
Updated November 21, 2001

PREPARED BY: Lori A Beyer

Lori A. Beyer/President
L.A.B. Validation Corp.
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L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731 (631) 757-0467

Mayer Landfill – Sediment Sampling; August 2001
Data Validation Report: ASP Volatiles, ASP Semivolatiles, ASP Pesticides/PCBs, Target Analyte List (TAL) Metals, Cyanide and Total Organic Carbon

Table of Contents:

Introduction:

A validation was performed on six (6) sediment samples and the associated quality control samples for organic/inorganic analysis for samples collected under ERM chain of custody documentation and submitted to Mitkem Corporation for subsequent analysis. Mitkem Corporation subcontracted the TOC analysis to R.I. Analytical Laboratories, Inc. This report contains the laboratory and validation results for six (6) field samples and associated quality control analyses identified on the following page. The samples were collected on August 22, 2001.

The samples were analyzed by Mitkem Corporation, utilizing NYSDEC ASP (1995) Methods and submitted under ASPCLP equivalent deliverable requirements for the associated analytical methodologies employed. The analytical testing consisted of the Target Compound List of analytes for Volatile Organics, the Target Compound List for Semivolatiles, Target Compound List for Pesticides/PCBs, Target Analyte List of twenty-three (23) Metals, Cyanide and Total Organic Carbon.

The data was evaluated in accordance with the National Functional Guidelines for Organic and Inorganic Data Review, Region 2 SOPs and in conjunction with the analytical methodologies for which the samples were analyzed, where applicable and relevant.

The data validation report pertains to the following field sediment samples:

Sample Identification	Laboratory Identification(s)	Sample Matrix	Collection Date
SS11	81819006	Sediment	08/22/01
SS12 (plus MS/MSD)	81819005, 81819009, 81819010	Sediment	08/22/01
SS13	81819004	Sediment	08/22/01
SS14	81819003	Sediment	08/22/01
SS15	81819002	Sediment	08/22/01
SS16	81819001	Sediment	08/22/01
DUP082201 (Field Duplicate of SS11)	81819007	Sediment	08/22/01
TB082201	81819008	Aqueous	08/22/01

The data summary tables included in Appendix A summarize all usable (qualified) and unusable (rejected) results for samples contained in this Sample Delivery Group (SDG). These tables summarize the detailed narrative section of the report. All data validation qualifications have been reported in the excel spreadsheet in bold for ease of review and verification.

NOTE:
L.A.B. Validation Corp. believes it is appropriate to note that the data validation criteria utilized for data evaluation is different than the method requirements utilized by the laboratory. Qualified data does not necessarily mean that the laboratory was non-compliant in the analysis that was performed.

Data Qualifier Definitions:

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate quantity.

Sample Receipt:

The Chain of Custody document from 08/22/01 indicates that sediment samples were received at Mitkem Corporation via overnight carrier on 08/23/01. Sample temperature was documented upon receipt at the laboratory and determined to be within acceptance limits. Sample login notes were generated and the chain of custody did not indicate any non-agreement at Validated Time of Sample Receipt (VTSR) at the laboratory. No problems and/or discrepancies were noted, consequently, the integrity of the samples has been assumed to be good.

1.0 Volatile Organics by GC/MS ASP Method 95-1

The following method criteria were reviewed: holding times, SMCs, MS, MSD, LCS, Blanks, Tunes, Calibrations, Internal Standards, Target Component Identification, Quantitation, Reported Quantitation Limits and Overall System Performance. The volatile sediment results were considered to be valid and usable as noted in the data summary tables in Appendix A and within the following text:

1.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All sediment samples pertaining to this SDG were performed within the method and technical holding time requirements. No qualifications were required based upon holding time.

1.2 System Monitoring Compound (Surrogate) Recovery

All samples are spiked with surrogate compounds prior to sample analysis to evaluate overall laboratory performance and efficiency of the analytical technique. If the measure of surrogate concentrations is outside contact specification, qualifications are required to be applied to associated samples and analytes.

Surrogate recoveries (%R) were determined to be within QC limits for all analyses.

1.3 Matrix Spikes (MS)/ Matrix Spike Duplicates (MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

Sample SS12 was selected by ERM sampling personnel for MS/MSD analysis. All spiking recoveries and RPD met QC requirements.

1.4 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Acceptable LCS was analyzed. No qualifications were applied based upon LCS data.

1.5 Blank Contamination

Quality assurance (QA) blanks; i.e. method, trip and field (equipment) blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment and are generally only required for Volatile Organics. Field (equipment) blanks measure cross-contamination of samples during field operations. Storage blanks measure cross-contamination during sample storage of the field samples for volatile organics.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

For:	Flag Sample Result with a "U" when:	Report CRQL & Qualify "U" when:	No Qualification is Needed when:
Methylene Chloride, Acetone, Toluene & 2-Butanone	Sample Conc. is >CRQL, but </=10x blank value	Sample Conc. Is <CRQL and </=10x blank value	Sample Conc. is >CRQL and >10x blank value
Other Contaminants	Sample Conc. is >CRQL, but </=5x blank value	Sample Conc. Is <CRQL and </=5x blank value	Sample Conc. is >CRQL and >5x blank value

Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

A) **Method Blank Contamination:**

No target/non-target compounds were detected in any of the associated method blanks applicable to these field samples.

B) **Field Blank Contamination:**

Field (equipment) blank analysis is not applicable to this SDG.

C) **Trip Blank Contamination:**

No target/non-target compounds were detected in the Trip Blank associated with this SDG.

D) **Storage Blank Contamination:**

No target/non-target compounds were detected in the Storage Blank associated with this SDG.

1.6 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The Tuning standard for volatile organics is Bromofluorobenzene (BFB).

Instrument performance was generated within acceptable limits for Bromofluorobenzene (BFB).

1.7 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.05 in both initial and continuing calibrations. A value <0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R".

All the response factors for the target analytes reported were found to be within acceptable limits (>/=0.05), for the initial and continuing calibrations.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instruments' daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R",unusable. Additionally, in cases where the %RSD is >30% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 30% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high level results will be qualified, "J" in the portion of the curve where non linearity exists.

Initial Calibrations: The initial calibrations provided and the %RSD were within acceptable limits (30%) for all compounds

Continuing Calibrations: The continuing calibrations provided and the %D were within acceptable limits (25%) for all compounds with the following exceptions:

COMPOUND	CALIBRATION DATE/INSTRUMENT	%D	AFFECTED SAMPLES
Acetone	08/25/01, V6	25.5	TB082201
2-Butanone	08/25/01, V6	29.0	TB082201
2-Hexanone	08/25/01, V6	25.4	TB082201
Acetone	08/29/01, V6	33.6	SS12, SS15, SS16
2-Butanone	08/29/01, V6	25.9	SS12, SS15, SS16
Acetone	08/30/01, V6	39.2	SS11, SS13, DUP082201, SS14
2-Butanone	08/30/01, V6	38.2	SS11, SS13, DUP082201, SS14
2-Hexanone	08/30/01, V6	30.8	SS11, SS13, DUP082201, SS14

1.8 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, professional judgement will be used to determine either partial or total rejection of the data for that sample fraction.

Acceptable Internal Standard area responses and retention times were observed throughout sample analysis.

1.9 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.

GC/MS spectra met the qualitative criteria for identification. All retention times were within required specifications.

1.10 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis are considered to be acceptable. Correct internal standards and response factors were used to calculate final concentrations.

The reported low-level concentrations of Methylene Chloride detected in samples SS12 and SS13 should be utilized with caution since this compound is a common laboratory contaminant.

1.11 Overall System Performance

Acceptable sample analysis was conducted for this SDG.

Sample DUP082201 was a blind field duplicate of SS11. No target analytes were detected in either of these two (2) analyses.

2.0 Semivolatile Organics by GC/MS ASP Method 95-2

The following method criteria were reviewed: holding times, Surrogates, MS, MSD, LCS, Blanks, Tunes, Calibrations, Internal Standards, Target Component Identification, Quantitation, Reported Quantitation Limits and overall system performance. The semivolatile results were considered to be valid and usable as noted on the data summary tables in Appendix A and within the following text:

2.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Samples were extracted and analyzed within the technical holding times for analysis. No qualifications were required based upon holding times.

2.2 Surrogate Recovery

All samples are spiked with surrogate compounds prior to sample preparation/extraction to evaluate overall laboratory performance and efficiency of the analytical technique. Additionally, the sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation of the data is dependent upon reextraction and/or reanalysis to confirm/negate laboratory error or matrix related problems. Discussion of surrogate recoveries that fell outside (above/below) QC guidelines are itemized below:

All surrogate recovery values met QC requirements for this analysis. No qualifications were applied based upon surrogate recovery values.

2.3 Matrix Spikes (MS)/Matrix Spike Duplicates (MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

Sample SS12 was selected by ERM sampling personnel for MS/MSD analysis. Acceptable recovery and RPD values were observed for all compounds.

2.4 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Two (2) distinct sets of LCS was analyzed for this SDG. All recoveries fell within established ranges with the exception of 4-Chloro-3-methylphenol, 4-Nitrophenol, 2,4-Dinitrotoluene and Pentachlorophenol, which recovered slightly above QC ranges (104%-112%). No qualifications were applied based upon LCS data since the spiked compounds recovered high and were not detected in any of the associated field samples.

2.5 Method Blanks

Quality assurance (QA) blanks; i.e. method, trip and field (equipment) blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field (equipment) blanks measure cross-contamination of samples during field operations.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

For:	Flag Sample Result with a "U" when:	Report CRQL & Qualify "U" when:	No Qualification is Needed when:
Phthalates (common laboratory contaminants)	Sample Conc. is >CRQL, but </=10x blank value	Sample Conc. is <CRQL and </=10x blank value	Sample Conc. is >CRQL and >10x blank value
Other Contaminants	Sample Conc. is >CRQL, but </=5x blank value	Sample Conc. is <CRQL and </=5x blank value	Sample Conc. is >CRQL and >5x blank value

Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

A) **Method Blank Contamination:**

No target/non-target compounds were detected in the method blank associated with this SDG.

B) **Field Blank Contamination:**

Field blank analysis is not applicable for this SDG.

2.6 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The Tuning standard for semivolatile organics is decafluorotriphenylphosphine (DFTPP).

Instrument performance was generated within acceptable limits and frequency for decafluorotriphenylphosphine (DFTPP).

2.7 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

C) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.05 in both initial and continuing calibrations. A value <0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R".

All the response factors for the target analytes reported were found to be within acceptable limits (>/=0.05), for the initial (average RRF) and continuing calibrations.

D) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R", unusable. Additionally, in cases where the %RSD is >30% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 30% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high level results will be qualified, "J" in the portion of the curve where non linearity exists.

Initial Calibrations: The initial calibrations provided and the %RSD were within acceptable limits (30%) for all compounds.

Continuing Calibrations: The continuing calibrations provided and the %D were within acceptable limits (25%) for all compounds with the following exceptions:

COMPOUND	CALIBRATION DATE/INSTRUMENT	%D	AFFECTED SAMPLES
Pyrene	09/24/01, S2	28.6	DUP082201, SS11, SS12, SS13, SS14, SS15, SS16
Di-n-octylphthalate	09/24/01, S2	41.7	DUP082201, SS11, SS12, SS13, SS14, SS15, SS16
Benzo(g,h,I) perylene	09/24/01, S2	32.2	DUP082201, SS11, SS12, SS13, SS14, SS15, SS16

2.8 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all

of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, professional judgement will be used to determine either partial or total rejection of the data for that sample fraction.

All internal standard area responses and retention times fell within QC limits. No qualifications were applied.

2.9 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.

GC/MS spectra met the qualitative criteria for identification. All retention times were within required specifications.

The reported concentrations of Bis (2-ethylhexyl) phthalate should be utilized with caution in samples SS12, SS13, SS14, SS15 and SS16. This target compound is a common laboratory contaminant, however, was not detected in the associated method blank.

2.10 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis are considered to be acceptable. Correct internal standards and response factors were used to calculate final concentrations.

2.11 Overall System Performance

Acceptable system performance was maintained throughout the analysis of all samples. Good resolution and chromatographic performance were observed.

Sample DUP082201 was a blind field duplicate of SS11. No target analytes were detected in either of these two (2) analyses.

3.0 Pesticides/PCBs by GC-ECD ASP Method 95-3

The following method criteria were reviewed: holding times, Surrogates, MS, MSD, LCS, Blanks, Analytical Sequences, Calibrations, Target Component Identification, Quantitation, Reported Quantitation Limits and overall system performance. The Pesticide/PCB results were considered to be valid and usable as noted on the data summary tables in Appendix A and within the following text:

3.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All samples were extracted and analyzed within the method required holding times and the technical holding times required for data validation. No qualifications were applied based upon holding time criteria.

3.2 Surrogate Recovery

All samples are spiked with surrogate compounds prior to sample preparation/extraction to evaluate overall laboratory performance and efficiency of the analytical technique. Additionally, the sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation of the data is dependent upon reextraction and/or reanalysis to confirm/negate laboratory error or matrix related problems. Discussion of surrogate recoveries that fell outside (above/below) QC guidelines are itemized below:

Surrogate recoveries were acceptable for all analyses conducted for this SDG with the exception of DCB and TCX, which recovered low on both the primary and confirmatory columns analysis of sample SS15. All reported non-detects have been qualified, "UJ" as required.

3.3 Matrix Spikes (MS)/Matrix Spike Duplicates (MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

Sample SS12 was selected by ERM sampling personnel for MS/MSD analysis. All spike recoveries and RPD met QC requirements.

3.4 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Acceptable LCS was analyzed. Spike recoveries fell within established ranges.

3.5 Blanks

Quality assurance (QA) blanks; i.e. method, instrument, trip and field (equipment) blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Instrument blanks measure carryover for cross contamination. Field (equipment) blanks measure cross-contamination of samples during field operations.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

For:	Flag Sample Result with a "U" when:	Report CRQL & Qualify "U" when:	No Qualification is Needed when:
Any Contaminant	Sample Conc. is >CRQL, but </=5x blank value	Sample Conc. Is <CRQL and </=5x blank value	Sample Conc. is >CRQL and >5x blank value

Extraction and Instrument blanks were performed at the appropriate frequency. Below is a summary of blank contamination:

A) **Method Blank Contamination:**

An acceptable method blank was analyzed for this SDG. No target compounds were detected.

B) **Field Blank Contamination:**

Field blank analysis is not applicable to this SDG.

C) **Instrument Blank Contamination:**

No target analytes were detected in any of the associated instrument blanks and therefore, no qualifications are required.

3.6 Calibration Verification

Initial calibration sequence was performed as required for the individual and multi-component standards. Appropriate and acceptable PEM, INDA and INDB standards were analyzed. GC resolution is acceptable. Acceptable 4,4'-DDT and Endrin breakdowns were observed. No qualifications have been applied.

3.7 Target Compound Identification

Qualitative criteria for compound identification have been established to minimize the number of false positives and false negatives. The retention times of all target analytes have been verified in the samples to that of the analyzed reference standards. Low-level concentration of Heptachlor was detected and confirmed at 2.9 ug/kg in sample DUP082201 (blind field duplicate of SS11), however not in SS11. This value must be considered estimated, "UJ" due to high percent difference between the primary and confirmatory columns and the confirmed presence is most like a result of non-target interferences.

3.8 Compound Quantification and Reported Detection Limits

TCL compounds are identified on the GC by using the analyte's relative retention time (RRT) and by comparison to the primary column and the secondary confirmation column data.

3.9 Overall System Performance

Acceptable system performance was maintained throughout the analysis of all samples. Good resolution and chromatographic performance were observed.

4.0 Target Analyte List (TAL) Metals/Cyanide by ICP/Cold Vapor NYSDEC ASP Exhibit D, Part V Analysis

The following method criteria were reviewed: holding times, CRDL standards, calibration, blanks, MS, laboratory duplicates, LCS, interference check sample, ICP serial dilutions, and sample results verification. The metals results were considered to be valid and usable with the appropriate qualifiers, as noted on the data summary forms in Appendix A and within the following text:

4.1 Holding Times

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All samples in this SDG were digested and analyzed within the specified holding time of 26 days from collection for Mercury and 180 days for the remaining metals. Holding times for Cyanide have also been met. No qualifications were applied based upon holding time criteria.

4.2 Calibration (ICV/CCV)

Satisfactory instrument calibration is established to ensure that the instruments are capable of producing acceptable quantitative data. An initial calibration demonstrated that the instruments are capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instruments are giving satisfactory sequential performance and that the initial calibration is still valid.

The ICP, Mercury and Cyanide instruments were calibrated utilizing four point calibrations in addition to blanks at the beginning of every run. The calibrations were all acceptable, yielding correlation coefficients of 0.995 or greater. For ICP analysis, satisfactory instrument performance near the Contract Required Detection Limit (CRDL) was demonstrated by analyzing a CRDL standard at the beginning and end of the analytical run. The instruments were calibrated properly by analyzing the CRDL solution at the correct levels of two times the CRDL's for Manganese, and analyzed at the required frequency at the beginning and end of each analytical run.

All recoveries were within acceptable limits of 90-110% for initial and continuing calibration on the ICP, 80-120% for Mercury and 85%-115% for Cyanide. No qualifiers were required for ICP or Mercury analysis based on initial calibration analysis.

4.3 Blanks

Quality assurance (QA) blanks, i.e. method, field (equipment) or preparation blanks are prepared to identify any contamination that may have been introduced into the samples during sample preparation or field activity. Preparation blanks

measure laboratory contamination. Field (equipment) blanks measure cross-contamination of samples during field operations.

All Initial Calibration Blanks (ICB), Continuing Calibration Blanks (CCB) and Preparation Blanks (PBS) were generated within acceptable limits. The absolute value of these blanks did not exceed the CRDL.

Sample results >IDL but <5x the blank (ICB,CCB, PBS) have been qualified, "U" as required.

4.4 Spiked Sample Recovery

The spike data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

SS12 was utilized for soil MS analysis. Recoveries for Antimony (41.6%), fell outside the specified limit of 75-130%. Antimony concentrations were qualified "J" (biased low) and "UJ" as required. All remaining elements/analytes met QC criteria.

A post digestion spike was performed as required and acceptable recoveries were obtained for Antimony.

4.5 Laboratory Duplicates

The laboratory uses duplicate sample determinations to demonstrate acceptable method precision at the time of analysis. Duplicate analyses are also performed to generate data in order to determine the long-term precision of the analytical method on various matrices.

SS12 was utilized for duplicate analysis. All RPD fell within the required 20% limit with the exception of Barium, Cadmium, Copper, Lead, Manganese, Potassium, Sodium and Cyanide concentrations must be considered estimated and have been qualified, "J" and "UJ" as required. Selenium was previously qualified based upon spike recovery. No additional data qualifications were required based upon duplicate analysis.

4.6 Laboratory Control Sample

The laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous and solid Laboratory Control samples shall be analyzed for each analyte

utilizing the same sample preparation, analytical methods and QA/QC procedures as employed for the samples.

For the soil LCS, recovery values of all elements were within the vendor's specifications with the exception of Aluminum (68.7%), Antimony (65.7%), and Cyanide (74.1%). Results must be considered estimated, biased low, "J" and "UJ."

4.7 Interference Check Sample

The interference check sample (ICS) verifies the laboratory's interelement and background correction factors. The ICS consists of two solutions A and AB. Solution A consists of interference, and solution AB consists of the analytes mixed with interferents.

Results were within acceptance limits of 80-120% as required .

4.8 ICP Serial Dilution

The serial dilution of samples quantitated by ICP determines whether or not significant physical or chemical interferences exist due to sample matrix. An ICP serial dilution analysis must be performed on a sample for each group of samples with a similar matrix type and concentration, or for each Sample Delivery Group (SDG), whichever is more frequent.

The serial dilution was performed on SS12. The RPD of 10% was not met for Antimony, Cadmium, Selenium and Silver. As a result, concentrations must be considered estimated, "J."

4.9 Sample Results Verification

Analyte quantitation was generated in accordance with protocols. The raw data was verified and found to be within the linear ranges of each instrument used for quantitation. All the raw data corresponds to reported values.

4.10 Overall Assessment of Data

The data generated were of acceptable quality.

Sample concentrations that were determined to be <CRDL but greater than the IDL must be considered estimated, "J."

Sample DUP082201 was collected as a blind field duplicate of SS11. Precision was determined to be within acceptable limits between the two (2) distinct analyses for all elements.

5.0 Total Organic Carbon

5.1 Holding Times

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Field samples were analyzed within the allowable holding time of 28 days from sample collection.

5.2 Calibration

Sample analysis was conducted utilizing a TOC analyzer. Acceptable calibrations were performed. No qualifications were required based on calibration data.

5.3 Blanks

Quality assurance (QA) blanks, i.e. method, field or preparation blanks are prepared to identify any contamination, which may have been introduced into the samples during sample preparation or field activity. Preparation blanks measure laboratory contamination. Field blanks measure cross-contamination of samples during field operations.

Acceptable method blanks were analyzed. The value obtained was less than the CRDL. ICB/CCB/PBS were analyzed at the correct frequencies yielding acceptable results.

5.4 Spiked Sample Recovery

The spike data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

SS12 was utilized for Matrix Spike analysis. Acceptable recovery values were observed.

5.5 Laboratory Duplicates

The laboratory uses duplicate sample determinations to demonstrate acceptable method precision at the time of analysis. Duplicate analyses are also performed to generate data in order to determine the long-term precision of the analytical method on various matrices.

Duplicate analysis was performed on SS12. Precision was defined by Relative Percent Difference (RPD) was found to be within acceptable limits of +/- 20%.

5.6 Laboratory Control Sample

The laboratory Control Sample (LCS) serves as a monitor of the overall performance of each step during the analysis, including the sample preparation. Aqueous and solid Laboratory Control samples shall be analyzed for each analyte utilizing the same sample preparation, analytical methods and QA/QC procedures as employed for the samples.

An LCS was analyzed with this batch of sample. The results generated were within the acceptable limits of 80-120%.

5.7 Sample Results Verification

Analyte quantitation was generated in accordance with protocols. The instrument logs were verified and found to be within the linear ranges of each instrument used for the quantitation.

5.8 Overall Assessment of Data

The data was of acceptable quality.

Sample DUP082201 was a blind field duplicate of SS11. Acceptable precision was observed for TOC.

Reviewer's Signature Lori A Beyer **Date** 11/21/01

Appendix A
Data Summary Tables
With Qualifications

VOLATILES BY ASP METHOD 95-1

Client: ERM
Project: MAYER LANOFILL, BLOOMING GROVE, NY
Sampling Event: SEDIMENT SAMPLING
Laboratory: Mitkem Corporation
SDG 81819

	Sample Identification:		DUP082201	SS11	SS12	SS13	SS14	SS15	SS16
	Laboratory ID:		81819007	81819006	81819005	81819004	81819003	81819002	81819001
	Sampling Date:		8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01
	% Moisture		14	15	27	11	14	11	11
Cas #	Analyte	Units:							
74-87-3	Chloromethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
74-83-9	Bromomethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
75-01-4	Vinyl Chloride	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
75-00-3	Chloroethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
75-09-2	Methylene Chloride	ug/kg (dry weight)	11 U	12 U	2 J	3 J	11 U	11 U	11 U
67-64-1	Acetone	ug/kg (dry weight)	11 UJ	12 UJ	13 UJ	11 UJ	11 UJ	11 UJ	11 UJ
75-15-0	Carbon Disulfide	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
75-35-4	1,1-Dichloroethene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
75-34-3	1,1-Dichloroethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
540-59-0	1,2-Dichloroethene (Total)	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
67-66-3	Chloroform	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
107-06-2	1,2-Dichloroethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
78-93-3	2-Butanone	ug/kg (dry weight)	11 UJ	12 UJ	13 UJ	11 UJ	11 UJ	11 UJ	11 UJ
71-55-6	1,1,1-Trichloroethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
56-23-5	Carbon Tetrachloride	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
75-27-4	Bromodichloromethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
78-87-5	1,2-Dichloropropane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
79-01-8	Trichloroethene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
124-48-1	Dibromochloromethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
79-00-5	1,1,2-Trichloroethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
71-43-2	Benzene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
75-25-2	Bromoform	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
108-10-1	4-Methyl-2-Pentanone	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
591-78-6	2-Hexanone	ug/kg (dry weight)	11 UJ	12 UJ	13 U	11 UJ	11 UJ	11 U	11 U
127-18-4	Tetrachloroethene	ug/kg (dry weight)	11 U	12 U	1 J	11 U	11 U	11 U	11 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
108-88-3	Toluene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
108-90-7	Chlorobenzene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
100-41-4	Ethylbenzene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
100-42-5	Styrene	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U
1330-20-7	Xylene (Total)	ug/kg (dry weight)	11 U	12 U	13 U	11 U	11 U	11 U	11 U

VOLATILES BY ASP METHOD 95-1

Client: ERM
Project: MAYER LANDFILL, BLOOMING GROVE, NY
Sampling Event: SEDIMENT SAMPLING
Laboratory: Mitkem Corporation
SDG 81819

Sample Identification:			TB082201
Laboratory ID:			81819008
Sampling Date:			8/22/01
% Moisture			NA
Cas #	Analyte	Units:	
74-87-3	Chloromethane	ug/l	10 U
74-83-9	Bromomethane	ug/l	10 U
75-01-4	Vinyl Chloride	ug/l	10 U
75-00-3	Chloroethane	ug/l	10 U
75-09-2	Methylene Chloride	ug/l	10 U
67-64-1	Acetone	ug/l	10 UJ
75-15-0	Carbon Disulfide	ug/l	10 U
75-35-4	1,1-Dichloroethene	ug/l	10 U
75-34-3	1,1-Dichloroethane	ug/l	10 U
540-59-0	1,2-Dichloroethene (Total)	ug/l	10 U
67-66-3	Chloroform	ug/l	10 U
107-06-2	1,2-Dichloroethane	ug/l	10 U
78-93-3	2-Butanone	ug/l	10 UJ
71-55-6	1,1,1-Trichloroethane	ug/l	10 U
56-23-5	Carbon Tetrachloride	ug/l	10 U
75-27-4	Bromodichloromethane	ug/l	10 U
78-87-5	1,2-Dichloropropane	ug/l	10 U
10061-01-5	cis-1,3-Dichloropropene	ug/l	10 U
79-01-6	Trichloroethene	ug/l	10 U
124-48-1	Dibromochloromethane	ug/l	10 U
79-00-5	1,1,2-Trichloroethane	ug/l	10 U
71-43-2	Benzene	ug/l	10 U
10061-02-6	trans-1,3-Dichloropropene	ug/l	10 U
75-25-2	Bromoform	ug/l	10 U
108-10-1	4-Methyl-2-Pentanone	ug/l	10 U
591-78-6	2-Hexanone	ug/l	10 UJ
127-18-4	Tetrachloroethene	ug/l	10 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/l	10 U
108-88-3	Toluene	ug/l	10 U
108-90-7	Chlorobenzene	ug/l	10 U
100-41-4	Ethylbenzene	ug/l	10 U
100-42-5	Styrene	ug/l	10 U
1330-20-7	Xylene (Total)	ug/l	10 U

SEMIVOLATILES BY ASP METHOD 95-2

Client: ERM
Project: MAYER LANDFILL, BLOOMING GROVE, NY
Sampling Event: SEDIMENT SAMPLING
Laboratory: Mitkem Corporation
SDG 81819

	Sample Identification:		DUP082201	SS11	SS12	SS13	SS14	SS15	SS16
	Laboratory ID:		81819007	81819008	81819005	81819004	81819003	81819002	81819001
	Sampling Date:		8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01
	% Moisture		14	15	27	11	14	11	11
Cas #	Analyte	Units:							
108-95-2	Phenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
111-44-4	bis(2-chloroethyl)Ether	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
95-57-8	2-Chlorophenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
541-73-1	1,3-Dichlorobenzene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
106-46-7	1,4-Dichlorobenzene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
95-50-1	1,2-Dichlorobenzene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
95-48-7	2-Methylphenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
106-44-5	4-Methylphenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
621-64-7	N-Nitroso-di-n-propylamine	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
67-72-1	Hexachloroethane	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
98-95-3	Nitrobenzene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
78-59-1	Isophorone	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
88-75-5	2-Nitrophenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
105-87-9	2,4-Dimethylphenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
120-83-2	2,4-Dichlorophenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
120-82-1	1,2,4-Trichlorobenzene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
91-20-3	Naphthalene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
106-47-8	4-Chloroaniline	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
111-91-1	bis(2-Chloroethoxy)methane	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
87-68-3	Hexachlorobutadiene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
59-50-7	4-Chloro-3-methylphenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
91-57-6	2-Methylnaphthalene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
77-47-4	Hexachlorocyclopentadiene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
88-06-2	2,4,6-Trichlorophenol	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
95-95-4	2,4,5-Trichlorophenol	ug/kg (dry weight)	960 U	970 U	1100 U	930 U	960 U	930 U	930 U
91-58-7	2-Chloronaphthalene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
88-74-4	2-Nitroaniline	ug/kg (dry weight)	960 U	970 U	1100 U	930 U	960 U	930 U	930 U
131-11-3	Dimethylphthalate	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
208-96-8	Acenaphthylene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
606-20-2	2,6-Dinitrotoluene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
99-09-2	3-Nitroaniline	ug/kg (dry weight)	960 U	970 U	1100 U	930 U	960 U	930 U	930 U
83-32-9	Acenaphthene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U

SEMIVOLATILES BY ASP METHOD 95-2

Client: ERM
Project: MAYER LANDFILL, BLOOMING GROVE, NY
Sampling Event: SEDIMENT SAMPLING
Laboratory: Mitkem Corporation
SDG 81819

	Sample Identification:		DUP082201	SS11	SS12	SS13	SS14	SS15	SS16
	Laboratory ID:		81819007	81819006	81819005	81819004	81819003	81819002	81819001
	Sampling Date:		8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01
	% Moisture		14	15	27	11	14	11	11
Cas #	Analyte	Units:							
51-28-5	2,4-Dinitrophenol	ug/kg (dry weight)	960 U	970 U	1100 U	930 U	960 U	930 U	930 U
100-02-7	4-Nitrophenol	ug/kg (dry weight)	960 U	970 U	1100 U	930 U	960 U	930 U	930 U
132-64-9	Dibenzofuran	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
121-14-2	2,4-Dinitrotoluene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
84-66-2	Diethylphthalate	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
7005-72-3	4-Chlorophenyl-phenylether	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
86-73-7	Fluorene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
100-01-6	4-Nitroaniline	ug/kg (dry weight)	960 U	970 U	1100 U	930 U	960 U	930 U	930 U
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg (dry weight)	960 U	970 U	1100 U	930 U	960 U	930 U	930 U
86-30-6	N-Nitrosodiphenylamine	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
101-55-3	4-Bromophenyl-phenylether	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
118-74-1	Hexachlorobenzene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
87-86-5	Pentachlorophenol	ug/kg (dry weight)	960 U	970 U	1100 U	930 U	960 U	930 U	930 U
85-01-8	Phenanthrene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
120-12-7	Anthracene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
86-74-8	Carbazole	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
84-74-2	Di-n-butylphthalate	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
206-44-0	Fluoranthene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
129-00-0	Pyrene	ug/kg (dry weight)	380 UJ	390 UJ	450 UJ	370 UJ	390 UJ	370 UJ	370 UJ
85-68-7	Butylbenzylphthalate	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
56-55-3	Benzo(a)anthracene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
218-01-9	Chrysene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
117-81-7	bis(2-Ethylhexyl)phthalate	ug/kg (dry weight)	380 U	390 U	46 J	46 J	80 J	54 J	41 J
117-84-0	Di-n-octylphthalate	ug/kg (dry weight)	380 UJ	390 UJ	450 UJ	370 UJ	390 UJ	370 UJ	370 UJ
205-99-2	Benzo(b)fluoranthene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
207-08-9	Benzo(k)fluoranthene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
50-32-8	Benzo(a)pyrene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
53-70-3	Dibenzo(a,h)anthracene	ug/kg (dry weight)	380 U	390 U	450 U	370 U	390 U	370 U	370 U
191-24-2	Benzo(g,h,i)perylene	ug/kg (dry weight)	380 UJ	390 UJ	450 UJ	370 UJ	390 UJ	370 UJ	370 UJ

PESTICIDES/PCB'S BY ASP METHOD 95-3

Client: ERM
Project: MAYER LANDFILL, BLOOMING GROVE, NY
Sampling Event: SEDIMENT SAMPLING
Laboratory: Mitkem Corporation
SDG 81819

	Sample Identification:		DUP082201	SS11	SS12	SS13	SS14	SS15	SS16
	Laboratory ID:		81819007	81819006	81819005	81819004	81819003	81819002	81819001
	Sampling Date:		8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01
	% Moisture		14	15	27	11	14	11	11
Cas #	Analyte	Units:							
319-84-6	alpha-BHC	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
319-85-7	beta-BHC	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
319-86-8	delta-BHC	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
58-89-9	gamma-BHC (Lindane)	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
76-44-8	Heptachlor	ug/kg (dry weight)	2.9 UJ	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
309-00-2	Aldrin	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
1024-57-3	Heptachlor epoxide	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
959-98-8	Endosulfan I	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
60-57-1	Dieldrin	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
72-55-9	4,4'-DDE	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
72-20-8	Endrin	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
33213-65-9	Endosulfan II	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
72-54-8	4,4'-DDD	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
1031-07-8	Endosulfan sulfate	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
50-29-3	4,4'-DDT	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
72-43-5	Methoxychlor	ug/kg (dry weight)	20 U	20 U	23 U	19 U	20 U	19 UJ	19 U
53494-70-5	Endrin ketone	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
7421-93-4	Endrin aldehyde	ug/kg (dry weight)	3.8 U	3.8 U	4.5 U	3.7 U	3.8 U	3.7 UJ	3.6 U
5103-71-9	alpha-Chlordane	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
5103-74-2	gamma-Chlordane	ug/kg (dry weight)	2.0 U	2.0 U	2.3 U	1.9 U	2.0 U	1.9 UJ	1.9 U
8001-35-2	Toxaphene	ug/kg (dry weight)	200 U	200 U	230 U	190 U	200 U	190 UJ	190 U
12674-11-2	Aroclor-1016	ug/kg (dry weight)	38 U	38 U	45 U	37 U	38 U	37 UJ	36 U
11104-28-2	Aroclor-1221	ug/kg (dry weight)	77 U	77 U	91 U	75 U	77 U	75 UJ	74 U
11141-16-5	Aroclor-1232	ug/kg (dry weight)	38 U	38 U	45 U	37 U	38 U	37 UJ	36 U
53469-21-9	Aroclor-1242	ug/kg (dry weight)	38 U	38 U	45 U	37 U	38 U	37 UJ	36 U
12672-29-6	Aroclor-1248	ug/kg (dry weight)	38 U	38 U	45 U	37 U	38 U	37 UJ	36 U
11097-69-1	Aroclor-1254	ug/kg (dry weight)	38 U	38 U	45 U	37 U	38 U	37 UJ	36 U
11096-82-5	Aroclor-1260	ug/kg (dry weight)	38 U	38 U	45 U	37 U	38 U	37 UJ	36 U

METALS/CN BY ASP CLP, EXHIBIT D, PART V
TOTAL ORGANIC CARBON BY SW846 METHOD 9060

Client: ERM
Project: MAYER LANDFILL, BLOOMING GROVE, NY
Sampling Event: SEDIMENT SAMPLING
Laboratory: Mitkem Corporation/Rhode Island Analytical Laboratories
SDG 61819
Sample Identification:
Laboratory ID:
Sampling Date:
% Solids

Cas #	Analyte	Units:	DUP082201	SS11	SS12	SS13	SS14	SS15	SS16
			61819007	61819006	61819005	61819004	61819003	61819002	61819001
			8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01
			86.0	85.0	73.0	89.0	86.0	89.0	89.0
7429-90-5	Aluminum	mg/kg (dry weight)	12200 J	12900 J	10200 J	12400 J	11900 J	12000 J	12200 J
7440-36-0	Antimony	mg/kg (dry weight)	0.42 UJ	0.64 UJ	0.78 UJ	0.86 UJ	0.54 UJ	0.80 UJ	0.62 UJ
7440-38-2	Arsenic	mg/kg (dry weight)	7.7	8.4	8.4	12.1	17.7	17.7	16.7
7440-39-3	Barium	mg/kg (dry weight)	64.6 J	77.9 J	96.2 J	99.5 J	163 J	120 J	113 J
7440-41-7	Beryllium	mg/kg (dry weight)	0.52 J	0.56 J	0.49 J	0.67 J	0.73 J	0.76 J	0.80 J
7440-43-9	Cadmium	mg/kg (dry weight)	0.28 J	0.36 J	0.43 J	0.53 J	0.82 J	0.79 J	0.71 J
7440-70-2	Calcium	mg/kg (dry weight)	839	1170	2090	1140	1370	1410	1200
7440-47-3	Chromium	mg/kg (dry weight)	14.4	15.4	14.2	18.4	15.3	17.4	17.9
7440-48-4	Cobalt	mg/kg (dry weight)	12.6	12.5	9.9 J	11.5	13.6	13.1	13.7
7440-50-8	Copper	mg/kg (dry weight)	12.1 J	10.8 J	4.2 J	4.8 J	2.5 U	4.7 J	5.8 J
7439-89-6	Iron	mg/kg (dry weight)	25300	26800	27100	37400	46100	46100	44800
7439-92-1	Lead	mg/kg (dry weight)	21.1 J	22.4 J	22.5 J	23.9 J	27.8 J	25.9 J	24.9 J
7439-95-4	Magnesium	mg/kg (dry weight)	5740	5960	4610	5810	5260	5570	5830
7439-96-5	Manganese	mg/kg (dry weight)	1850 J	1958 J	1970 J	2100 J	2720 J	2970 J	2920 J
7439-97-6	Mercury	mg/kg (dry weight)	0.055 U	0.056 U	0.057 U	0.049 U	0.053 U	0.045 U	0.056 U
7440-02-0	Nickel	mg/kg (dry weight)	22.8	23.7	19.8	23.8	22.5	22.9	24.9
7440-09-7	Potassium	mg/kg (dry weight)	615 J	651 J	622 J	602 J	675 J	690 J	731 J
7782-49-2	Selenium	mg/kg (dry weight)	3.9 J	4.2 J	4.6 J	5.4 J	6.8 J	7.0 J	6.9 J
7440-22-4	Silver	mg/kg (dry weight)	4.0 J	4.3 J	4.4 J	6.1 J	7.5 J	7.4 J	7.2 J
7440-23-5	Sodium	mg/kg (dry weight)	195 J	227 J	296 J	294 J	335 J	320 J	300 J
7440-28-0	Thallium	mg/kg (dry weight)	0.64 U	0.71 U	0.96 U	0.83 U	0.87 U	0.80 U	0.83 U
7440-62-2	Vanadium	mg/kg (dry weight)	16.6	18.3	15.1	21.1	24.0	24.1	24.8
7440-66-6	Zinc	mg/kg (dry weight)	98.8	108	133	153	176	164	154
	Cyanide	mg/kg (dry weight)	0.19 U	0.22 U	0.23 U	0.28 U	0.22 U	0.19 U	0.15 UJ
	Total Organic Carbon (TOC)	mg/kg (dry weight)	4100	6200	9600	2300	4400	4500	2900

Appendix B
Tentatively Identified Compounds

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

DUP082201

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819007

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V6B6407

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: not dec. 14 Date Analyzed: 08/30/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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FORM I VOA-TIC

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS11

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819006

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V6B6406

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: not dec. 15 Date Analyzed: 08/30/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS12

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819005

Sample wt/vol: 5.2 (g/mL) G Lab File ID: V6B6371

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: not dec. 27 Date Analyzed: 08/29/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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6.					
7.					
8.					
9.					
10.					
11.					
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SS13

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819004

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6B6405

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: not dec. 11 Date Analyzed: 08/30/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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FORM I VOA-TIC

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS14

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819003

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V6B6410

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: not dec. 14 Date Analyzed: 08/30/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS15

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6B6368

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: not dec. 11 Date Analyzed: 08/29/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SS16

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819001

Sample wt/vol: 5.1 (g/mL) G Lab File ID: V6B6367

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: not dec. 11 Date Analyzed: 08/29/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(mL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TB082201

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) WATER Lab Sample ID: 81819008

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: V6B6283

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: not dec. _____ Date Analyzed: 08/25/01

GC Column: DB-624 ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
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EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

DUP082201

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819007

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2C2691

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: 14 decanted: (Y/N) N Date Extracted: 08/29/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/24/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

Number TICs found: 11

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.59	280	J
2.	56554-86-0	17-OCTADECENAL	21.90	120	NJ
3.		UNKNOWN	22.34	120	J
4.	1599-67-3	1-DOCOSENE	23.71	150	NJ
5.		UNKNOWN	24.26	83	J
6.	56554-87-1	16-OCTADECENAL	24.69	270	NJ
7.	1454-84-8	1-NONADECANOL	25.30	310	NJ
8.	7390-81-0	OXIRANE, HEXADECYL-	26.68	180	NJ
9.		UNKNOWN	27.64	98	J
10.		UNKNOWN	28.15	99	J
11.		UNKNOWN	31.37	180	J
12.					
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EPA SAMPLE NO.

SS11

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819006

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S2C2689

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: 15 decanted: (Y/N) N Date Extracted: 08/29/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/24/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.59	160	J
2.	0-00-0	1-HEXACOSANAL	24.69	160	NJ
3.		UNKNOWN	25.38	130	J
4.	7390-81-0	OXIRANE, HEXADECYL-	26.68	91	NJ
5.					
6.					
7.					
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30.					

1F

EPA SAMPLE NO.

SS12

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819005

Sample wt/vol: 30.4 (g/mL) G Lab File ID: S2C2693

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: 27 decanted: (Y/N) N Date Extracted: 08/29/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/24/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.60	380	J
2.	2091-29-4	9-HEXADECENOIC ACID	18.14	200	NJ
3.	57-10-3	HEXADECANOIC ACID	18.29	220	NJ
4.		UNKNOWN	19.77	100	J
5.	2765-11-9	PENTADECANAL-	20.44	120	NJ
6.	629-80-1	HEXADECANAL	21.19	130	NJ
7.	56554-86-0	17-OCTADECENAL	21.90	380	NJ
8.		UNKNOWN	22.57	370	J
9.	629-80-1	HEXADECANAL	23.24	120	NJ
10.		UNKNOWN	23.69	340	J
11.	638-66-4	OCTADECANAL	24.69	320	NJ
12.	629-96-9	1-EICOSANOL	25.29	570	NJ
13.	0-00-0	1-HEXACOSANAL	26.68	340	NJ
14.	629-96-9	1-EICOSANOL	27.59	240	NJ
15.	57-88-5	CHOLESTEROL	28.11	230	NJ
16.		UNKNOWN	28.74	180	J
17.	638-66-4	OCTADECANAL	29.54	210	NJ
18.		UNKNOWN	30.24	660	J
19.		UNKNOWN	31.22	740	J
20.		UNKNOWN	31.53	210	J
21.					
22.					
23.					
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27.					
28.					
29.					
30.					

1F

EPA SAMPLE NO.

SS13

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819004

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2C2687

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: 11 decanted: (Y/N) N Date Extracted: 08/29/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/24/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.59	280	J
2.		UNKNOWN	10.44	100	J
3.		UNKNOWN	26.08	980	J
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
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21.					
22.					
23.					
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28.					
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1F

EPA SAMPLE NO.

SS14

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819003

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2C2690

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: 14 decanted: (Y/N) N Date Extracted: 08/29/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 09/24/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.59	300	J
2.	56554-87-1	16-OCTADECENAL	21.90	140	NJ
3.	112-92-5	1-OCTADECANOL	23.70	140	NJ
4.		UNKNOWN	24.27	86	J
5.		UNKNOWN	24.70	150	J
6.	1454-84-8	1-NONADECANOL	25.32	200	NJ
7.	638-66-4	OCTADECANAL	26.68	150	NJ
8.		UNKNOWN	27.64	94	J
9.		UNKNOWN	28.14	93	J
10.		UNKNOWN	31.25	290	J
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
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28.					
29.					
30.					

1F

EPA SAMPLE NO.

SS15

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819002

Sample wt/vol: 30.2 (g/mL) G Lab File ID: S2C2692

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: 11 decanted: (Y/N) N Date Extracted: 08/29/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/24/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

Number TICs found: 11

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.59	260	J
2.		UNKNOWN	10.44	100	J
3.	56554-86-0	17-OCTADECENAL	21.90	95	NJ
4.	56554-87-1	16-OCTADECENAL	23.24	78	NJ
5.	19047-85-9	PHOSPHONIC ACID, DIOCTADECYL	23.72	120	NJ
6.		UNKNOWN	24.27	110	J
7.	0-00-0	1-HEXACOSANAL	24.70	120	NJ
8.	629-96-9	1-EICOSANOL	25.36	100	NJ
9.	124-25-4	TETRADECANAL	26.68	92	NJ
10.		UNKNOWN	29.54	86	J
11.		UNKNOWN	31.36	150	J
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EPA SAMPLE NO.

SS16

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: 81819

Matrix: (soil/water) SOIL Lab Sample ID: 81819001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: S2C2688

Level: (low/med) LOW Date Received: 08/23/01

% Moisture: 11 decanted: (Y/N) N Date Extracted: 08/29/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 09/24/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	7.59	140	J
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
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Appendix C
Chain of Custody

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REPORT TO		INVOICE TO		
COMPANY: ERM	PHONE: 610 524 3402	COMPANY	PHONE	LAB PROJECT #: 8181a
NAME: Greg Dunn	FAX: 610 524 3755	NAME: Same	FAX	
ADDRESS: 855 Springdale Drive		ADDRESS		TURNAROUND TIME:
CITY/ST/ZIP: Exton PA 19341		CITY/ST/ZIP		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
Mayer Landfill	2701.03.01	

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	TCL VOCs +10 ABGC TICs	TCL SVOCs +20 PCB 8082	TCL Pest/PCBs	TAL Inorganics	TOC	Temperature	COMMENTS
SS16	08/22/01 1128		X		X		8181a01	4	X	X	X	X	X		
SS15	08/22/01 1145		X		X		02	4	X	X	X	X	X		
SS14	08/22/01 1158		X		X		03	4	X	X	X	X	X		
SS13	08/22/01 1215		X		X		04	4	X	X	X	X	X		
SS12	08/22/01 1240		X		X		05	4	X	X	X	X	X		
SS12MS/MSD	08/22/01 1240		X		X		0512	8	X	X	X	X	X		
SS11	08/22/01 1305		X		X		06	4	X	X	X	X	X		
DUP082201	08/22/01 0800		X		X		07	4	X	X	X	X	X		
TB082201	— / —			X			08	2	X						
TempBlank	— / —			X				1						X	
	/														
	/														

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1		08/22/01 2000		8/23/01 830
2		/		/
3		/		/

ADDITIONAL REMARKS:

COOLER TEMP: 5°

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

Appendix D
Case Narrative

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to ERM-Northeast's Mayer Landfill project. Under this deliverable, analysis results are presented for one aqueous and seven soil samples that were received on August 23, 2001. Analyses were performed per specifications in the project's contract and the chain of custody forms. Following the narrative is the Mitkem Login sheet for cross-referencing client sample IDs with laboratory IDs.

The organic, metals and cyanide analyses were performed according to NYSDEC ASP protocols (October 1995 update) and reported per NYSDEC ASP requirement for Category B deliverable.

The analysis results for total organic carbon were performed according to EPA Methods and reported in standard Mitkem format with supporting data.

The following observation and/or deviations are observed for the following analyses:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required.

The enclosed report includes the originals of all data with the exception of logbook pages and certain initial calibrations. Photocopies of logbook pages are included, with the originals maintained on file at the laboratory. The originals of initial calibrations that are shared among several cases are maintained on file at the laboratory, with photocopies included in the data package.

2. Volatile Analysis:

Trap used for instrument V6: OI Analytical #10 trap containing 8 cm each of Tenax, silica gel and carbon molecular sieve

GC column used: 30 m x 0.25 mm id (1.4 um film thickness) DB-624 capillary column.

Surrogate recovery: recoveries were within the QC limits.

Lab control sample: spike recoveries were within the QC limits

Matrix spike/matrix spike duplicate: duplicate matrix spikes were performed on sample SS12. Spike recoveries and replicate RPDs were within the advisory QC limits.

Sample analysis: pH of the aqueous sample was about 7. No other unusual observation was made for the analyses.

3. Semivolatile Analysis:

GC column: 30 m x 0.25 mm id (0.5 um film thickness) DB-5MS capillary column

Alkanes were determined as part of TIC and are presented in the narrative per SOW requirement.

Surrogate recovery: recoveries were within the QC limits.

Lab control sample: spike recoveries were within the QC limits with the exception of high recovery of several analytes. The LCS was re-analyzed with similar findings.

Matrix spike/matrix spike duplicate: duplicate matrix spikes were performed on sample SS12. Spike recoveries and replicate RPDs were within the advisory QC limits.

Sample analysis: no other unusual observation was made for the analyses.

4. Pesticides/PCB Analysis:

GC column used: 30 m x 0.53 mm id (0.5 um film thickness) CLPPest1 and 30 m x 0.53 mm id (0.42 um film thickness) CLPPest2 megabore columns

Surrogate recovery: recoveries were within the QC limits with the exception of low recovery of both tetrachloro-m-xylene and decachlorobiphenyl in both columns for sample SS15.

Lab control sample: spike recoveries were within the QC limits

Matrix spike/matrix spike duplicate: duplicate matrix spikes were performed on sample SS12. Spike recoveries and replicate RPDs were within the advisory QC limits.

Sample analysis: no unusual observation was made for the analyses.

5. Metals Analysis:

Mercury was analyzed using a Perkin Elmer Model 100 FIMS cold vapor atomic absorption analyzer. The other elements were analyzed using either a Perkin Elmer Model3100XL Optima or a Perkin Elmer Model 3000DV ICAP.

Lab control sample: spike recoveries were within the QC limits.

Matrix spike: matrix spike was performed on sample SS12. Spike recoveries were within QC limits with the exception of antimony. Antimony flagged with an "N" flag on Form Is. A post digest spike performed with recoveries within QC limits.

Matrix duplicate: sample duplicate was performed on sample SS12. RPDs were within the QC limits with the exception of barium, cadmium, copper, lead, manganese, potassium and sodium. These elements are flagged with an "*" on Form Is.

Sample analysis: no other unusual observation was made for the analyses.

6. Cyanide analysis:

The cyanide samples were prepared using minidistill apparatus by Kontes. The resultant distillates were analyzed using a Lachat QuikChem 8000 autoanalyzer.

Lab control sample: spike recovery was within the QC limits.

Matrix spike: matrix spike was performed on sample SS12. Spike recovery was within QC limits.

Matrix duplicate: sample duplicate was performed on sample SS12. RPD was not within the QC limits. Cyanide is flagged with an "*" on Form Is.

Sample analysis: no other unusual observation was made for the analyses.

7. Inorganics Analysis:

TOC analyses were performed by Rhode Island Analytical Laboratories of Warwick, RI. The entire RIAL report, with raw data, is included in this data package

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this

hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Agnes Ng
CLP Project Manager
09/27/01

ALKANE NARRATIVE REPORT
Report date : 09/26/2001
SDG: 81819

Client Sample ID: SS13 Lab Sample ID: 81819004 File ID: S2C2687

Compound	RT	Est. Conc.	Q
Straight-chain Alkane	25.19	87	J
Straight-chain Alkane	27.34	85	J

Client Sample ID: SS11 Lab Sample ID: 81819006 File ID: S2C2689

Compound	RT	Est. Conc.	Q
Straight-chain Alkane	25.19	130	J
Straight-chain Alkane	27.35	140	J

Client Sample ID: SS14 Lab Sample ID: 81819003 File ID: S2C2690

Compound	RT	Est. Conc.	Q
Straight-chain Alkane	23.64	96	J
Branched Alkane	25.19	250	J
Straight-chain Alkane	27.35	210	J

Client Sample ID: DUP082201 Lab Sample ID: 81819007 File ID: S2C2691

Compound	RT	Est. Conc.	Q
Straight-chain Alkane	25.19	280	J
Straight-chain Alkane	27.35	260	J
Straight-chain Alkane	30.48	88	J

Client Sample ID: SS15 Lab Sample ID: 81819002 File ID: S2C2692

Compound	RT	Est. Conc.	Q
Straight-chain Alkane	22.34	110	J
Straight-chain Alkane	23.64	78	J
Straight-chain Alkane	25.19	160	J
Straight-chain Alkane	27.35	150	J

Client Sample ID: SS12 Lab Sample ID: 81819005 File ID: S2C2693

Compound	RT	Est. Conc.	Q
Straight-chain Alkane	22.35	210	J
Straight-chain Alkane	23.65	170	J
Straight-chain Alkane	25.20	600	J
Straight-chain Alkane	27.35	500	J
Straight-chain Alkane	30.47	210	J

Appendix E
NYSDEC Forms

Mitkem Corporation

New York State Department of Environmental Conservation
Sample Identification and Analytical Requirements Summary

Project Name: MAYER LANDFILL 12701.03.01 SDG: 818I9

Customer Sample Code	Laboratory Sample Code	Analytical Requirements: VOA GC/MS Method #	BNA GC/MS Method #	Pest PCBs Method #	Metals	Other
SS16	818I9001	ASP	ASP	ASP	ASP	ASP Al/Fe
SS15	002					
SS14	003					
SS13	004					
SS12	005					
SS11	006					
DUP082201	007		↓	↓	↓	↓
TB182201	008					
SS12MS	009		ASP		ASP	ASP Al/Fe
SS12MSD	010	↓	↓		↓	
SS12DUP	↓ 011				↓	ASP Al/Fe

NYASP 10/95

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Volatile (VOA) Analyses

Project Name: NAYER LANDFILL 7270I.03.01 SDG: 8I819

Laboratory Sample ID	Matrix	Date Collected	Date Received at Lab	Date Extracted	Date Analyzed
8I819001	SL	8/22/01	8/23/01	NA	8/29/01
002					8/29/01
003					8/30/01
004					↓
005					8/25/01
006					8/30/01
007	↓				↓
008	AQ				8/25/01
009	SL				8/30/01
010	↓	↓	↓	↓	↓

NYASP 10/95

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Semivolatile (BNA) Analyses

Project Name: MAYER LANDFILL 7270I.13.01 SDG: 81819

Laboratory Sample ID	Matrix	Date Collected	Date Received at Lab	Date Extracted	Date Analyzed
81819001	SL	8/22/01	8/23/01	8/29/01	9/24/01
002	"	"	"	"	"
003	"	"	"	"	"
004	"	"	"	"	"
005	"	"	"	"	"
006	"	"	"	"	"
007	"	"	"	"	↓
009	"	"	"	"	9/25/01
↓ 010	↓	↓	↓	↓	↓

NYASP 10/95

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Pesticides/PCB Analyses

Project Name: MAYER LANDFILL 7J701.03.01 SDG: 8/8/9

Laboratory Sample ID	Matrix	Date Collected	Date Received at Lab	Date Extracted	Date Analyzed
8/8/901	SL	8/22/01	8/23/01	8/29/01	9/23/01
002					
003					
004					
005					
006					
007					↓
009					9/25/01
↓ 010	↓	↓	↓	↓	↓

NYASP 10/95

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Volatile (VOA) Analyses

Project Name: MAYER LANDFILL 7J701.03.01 SDG: 8/15/19

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Low/Med. Level	Dil./Conc. Factor
8/15/19001	SL	ASP	NA	LOW	1
002	"	"	"	"	"
003	"	"	"	"	"
004	"	"	"	"	"
005	"	"	"	"	"
006	"	"	"	"	"
007	"	"	"	"	"
008	AQ	"	"	"	"
009	SL	"	"	"	"
010	"	"	"	"	"

NYASP 10/95

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Semivolatile (BNA) Analyses

Project Name: MAYER LANDFILL 7270.03.01 SDG: 818/9

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
818/9001	SL	ASP	3550B	GPC	1
002					
003					
004					
005					
006					
014					
009					
010					

NYASP 10/95

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Pesticide/PCB Analyses

Project Name: MAYER LANDFILL 72401.03.01 SDG: 8181 9

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
8181 9001	SC	ASP	3550B	GPC florisil / Copper	1
002					
003					
004					
005					
006					
007					
009					
010					

NYASP 10/95

Mitkem Corporation

New York State Department of Environmental Conservation

Sample Preparation and Analyses Summary
Inorganic Analyses

Project Name: MAYER LANDFILL 3701.03.01 SDG: 81819

Laboratory Sample ID	Matrix	Metals Requested	Date Received at Lab	Date Analyzed
81819001	SL	ASP	8/23/01	8/24/01
002				
003				
004				
005				
006				
007				
009				
010				
011				

NYASP 10/95

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731 (631) 757-0467

DATA VALIDATION REPORT

ORGANIC ANALYSES

VOLATILES IN AIR BY GC/MS – METHOD TO-15
METHANE BY GC –METHOD ASTM D1946

For Six (6) Air Samples And Associated Quality Control Samples
Collected August 22, 2001
From Mayer Landfill – Blooming Grove, New York
ERM Project #72701.03.01

SAMPLE DELIVERY GROUP NUMBER: 84452
Severn Trent Burlington

SUBMITTED TO:

Mr. Greg Dunn/Project Manager
ERM
855 Springdale Drive
Exton, PA 19341

November 23, 2001

PREPARED BY: for a Beer.

Lori A. Beyer/President
L.A.B. Validation Corp.
14 West Point Drive
East Northport, NY 11731

L.A.B. Validation Corp. 14 West Point Drive, East Northport, N.Y. 11731 (631) 757-0467

Mayer Landfill – Air Sampling; August 2001
Data Validation Report: Volatiles by TO-15 and Methane by ASTM Method D1946

Table of Contents:

Introduction:

A validation was performed on six (6) air samples and the associated quality control samples for organic analysis for samples collected under ERM chain of custody documentation and submitted to Severn Trent Burlington for subsequent analysis. This report contains the laboratory and validation results for six (6) field samples and associated quality control analyses identified on the following page. The samples were collected on August 22, 2001.

The samples were analyzed by Severn Trent Burlington, utilizing TO/ASTM Methods in accordance with the project scope and submitted under ASPCLP equivalent deliverable requirements for the associated analytical methodologies employed. The analytical testing consisted of Volatile Organics in air and Methane in air.

The data was evaluated in accordance with the National Functional Guidelines for Organic Data Review, Region 2 SOPs and in conjunction with the analytical methodologies for which the samples were analyzed, where applicable and relevant.

The data validation report pertains to the following field air samples:

Sample Identification	Laboratory Identification(s)	Sample Matrix	Collection Date
SG04	463365	Air	08/22/01
SG05	463366	Air	08/22/01
SG06	463367	Air	08/22/01
SG07	463368	Air	08/22/01
SG08	463369	Air	08/22/01
SG09	463370	Air	08/22/01

The data summary tables included in Appendix A summarize all usable (qualified) and unusable (rejected) results for samples contained in this Sample Delivery Group (SDG). These tables summarize the detailed narrative section of the report. All data validation qualifications have been reported in the excel spreadsheet in bold for ease of review and verification.

NOTE:
L.A.B. Validation Corp. believes it is appropriate to note that the data validation criteria utilized for data evaluation is different than the method requirements utilized by the laboratory. Qualified data does not necessarily mean that the laboratory was non-compliant in the analysis that was performed.

Data Qualifier Definitions:

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate quantity.

Sample Receipt:

The Chain of Custody document from 08/22/01 indicates that the air samples were received at STL Burlington via Federal Express on 08/24/01. Sample temperature was not applicable for the summa canisters. Sample login notes were generated and the chain of custody did not indicate any non-agreement at Validated Time of Sample Receipt (VTSR) at the laboratory. No problems and/or discrepancies were noted, consequently, the integrity of the samples has been assumed to be good.

1.0 Volatile Organics by GC/MS Method TO-15

The following method criteria were reviewed: holding times, MS, MSD, LCS, Blanks, Tunes, Calibrations, Internal Standards, Target Component Identification, Quantitation, Reported Quantitation Limits and Overall System Performance. The volatile air results were considered to be valid and usable as noted in the data summary tables in Appendix A and within the following text:

1.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All air samples pertaining to this SDG were performed within 14 days of sample collection. No qualifications were required based upon holding time.

1.2 Matrix Spikes (MS)/ Matrix Spike Duplicates (MSD)

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices.

MS/MSD was not performed on any of the field samples pertaining to this SDG. In lieu of MS/MSD, an LCS/LCS Duplicate was performed. Several spiked analytes recovered outside acceptance limits: Carbon Tetrachloride (160%), trans-1,3 Dichloropropene (140%, 150%) and Hexachlorobutadiene (67%).

No action was required for Carbon Tetrachloride and trans-1,2-Dichloropropene since these compounds were not detected in the associated field samples.

Reported non-detects for Hexachlorobutadiene must be considered estimated, "UJ."

1.3 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Acceptable LCS was analyzed. No additional qualifications were applied based upon LCS data.

1.4 Blank Contamination

Quality assurance (QA) blanks; i.e. method, trip and field (equipment) blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment and are generally only required for Volatile Organics. Field (equipment) blanks measure cross-contamination of samples during field operations.

The following table was utilized to qualify target analyte results due to contamination. The largest value from all the associated blanks is required to be utilized:

For:	Flag Sample Result with a "U" when:	Report CRQL & Qualify "U" when:	No Qualification is Needed when:
Methylene Chloride, Acetone, Toluene & 2-Butanone	Sample Conc. is >CRQL, but </=10x blank value	Sample Conc. Is <CRQL and </=10x blank value	Sample Conc. is >CRQL and >10x blank value
Other Contaminants	Sample Conc. is >CRQL, but </=5x blank value	Sample Conc. Is <CRQL and </=5x blank value	Sample Conc. is >CRQL and >5x blank value

Below is a summary of the compounds in the sample and the associated qualifications that have been applied:

A) **Method Blank Contamination:**

No target/non-target compounds were detected in the associated method blank applicable to these field samples.

B) **Field Blank Contamination:**

Field (equipment) blank analysis is not applicable to this SDG.

C) **Trip Blank Contamination:**

Trip blank analysis is not applicable to this SDG.

1.5 GC/MS Instrument Performance Check

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The Tuning standard for volatile organics is Bromofluorobenzene (BFB).

Instrument performance was generated within acceptable limits for Bromofluorobenzene (BFB).

1.6 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:
The response factor measures the instrument's response to specific chemical compounds. The response factor for all compounds must be >/= 0.05 in both initial and continuing calibrations. A value <0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound in the corresponding samples will be rejected, "R".

All the response factors for the target analytes reported were found to be within acceptable limits (>/=0.05), for the initial and continuing calibrations.

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instruments' daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R",unusable. Additionally, in cases where the %RSD is >30% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 30% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high level results will be qualified, "J" in the portion of the curve where non linearity exists.

Initial Calibrations: The initial calibrations provided and the %RSD were within acceptable limits (30%) for all compounds with the exception of Methylene Chloride (35.4%) and trans-1,3 -Dichloropropene (35.7%). Results for all field samples have been qualified, "J" and "UJ" as required.

Continuing Calibrations: The continuing calibrations provided and the %D were within acceptable limits (30%) for all compounds with the following exceptions:

COMPOUND	CALIBRATION DATE/INSTRUMENT	%D	AFFECTED SAMPLES
1,1-Dichloroethene	09/04/01, X	35.1	SG04, SG05, SG06, SG07, SG08, SG09
1,2-Dichloropropane	09/04/01, X	30.7	SG04, SG05, SG06, SG07, SG08, SG09
1,1,2,2-Tetrachloroethane	09/04/01, X	30.3	SG04, SG05, SG06, SG07, SG08, SG09
1,4-Dioxane	09/04/01, X	32.8	SG04, SG05, SG06, SG07, SG08, SG09

1.7 Internal Standards

Internal Standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than +/-30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all

of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ", or "R" if there is a severe loss of sensitivity.

If an internal standard retention time varies by more than 30 seconds, professional judgement will be used to determine either partial or total rejection of the data for that sample fraction.

Acceptable Internal Standard area responses and retention times were observed throughout sample analysis.

1.8 Target Compound List Identification

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within =/- 0.06RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound.

GC/MS spectra met the qualitative criteria for identification. All retention times were within required specifications.

1.9 Compound Quantification and Reported Detection Limits

GC/MS quantitative analysis are considered to be acceptable. Correct internal standards and response factors were used to calculate final concentrations.

The reported low-level concentrations of Methylene Chloride detected in samples SG07, SG08, SG09 should be utilized with caution since this compound is a common laboratory contaminant. Methylene chloride could not be negated due to the lack of presence in the corresponding method blank.

1.10 Overall System Performance

Acceptable sample analysis was conducted for this SDG.

2.0 Methane Analysis by GC ASTM Method D1946

The following method criteria were reviewed: holding times, LCS, Blanks, Tunes, Calibrations, Target Component Identification, Quantitation, Reported Quantitation Limits and overall system performance. The Methane results were considered to be valid and usable as noted on the data summary tables in Appendix A and within the following text:

2.1 Holding Time

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the technical holding time is exceeded, the data may not be considered valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimates, "J". The non-detects (sample quantitation limits) are required to be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

Samples were analyzed within sixteen (16) days from sample collection. Non-detects have been qualified, "UJ" as required.

2.2 Laboratory Control Sample

The LCS data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and on the laboratory performance.

Acceptable LCS was analyzed for this SDG. Recoveries and RPD met QC requirements. No qualifications were required based upon LCS results.

2.3 Method Blanks

Quality assurance (QA) blanks; i.e. method, trip and field (equipment) blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field (equipment) blanks measure cross-contamination of samples during field operations.

No target compounds were detected in the method blank associated with this SDG.

2.4 Initial and Continuing Calibrations

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

C) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):
Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentrations. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified, "R", unusable. Additionally, in cases where the %RSD is >30% and eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 30% then positive results are qualified, "J". In cases where removal of either the low or high point restores the linearity, then only low or high level results will be qualified, "J" in the portion of the curve where non linearity exists.

Initial Calibrations: The initial calibration provided and the %RSD were within acceptable limits (30%) for Methane.

Continuing Calibrations: The continuing calibrations provided and the %D were within acceptable limits (30%) for Methane.

2.5 Target Compound List Identification

TCL compounds are identified on the GC by using the analyte's relative retention time (RRT).

No peaks were detected within the retention time range for Methane in any of the associated field samples.

2.6 Compound Quantification and Reported Detection Limits

GC quantitative analysis is acceptable.

2.7 Overall System Performance

Acceptable system performance was maintained throughout the analysis of all samples. Good resolution and chromatographic performance were observed.

Reviewer's Signature Lou A. Bar **Date** 11/23/01

Appendix A
Data Summary Tables
With Qualifications

VOLATILES IN AIR BY TO-15

Client: ERM
Project: MAYER LANDFILL, BLOOMING GROVE, NY
Sampling Event: AIR SAMPLING
Laboratory: Severn Trent Burlington
SDG 84452

	Sample Identification:		SG04	SG05	SG06	SG07	SG08	SG09
	Laboratory ID:		463365	463366	463367	463368	463369	463370
	Sampling Date:		8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01
Cas #	Analyte	Units:						
75-71-8	Dichlorodifluoromethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
74-87-3	Chloromethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
75-01-4	Vinyl Chloride	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
74-83-9	Bromomethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
75-00-3	Chloroethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
75-69-4	Trichlorofluoromethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
76-13-1	Freon TF	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
75-35-4	1,1-Dichloroethene	PPBV	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
75-09-2	Methylene Chloride	PPBV	0.5 UJ	0.5 UJ	0.5 UJ	0.79 J	0.9 J	0.74 J
75-34-3	1,1-Dichloroethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
156-59-2	cis-1,2-Dichloroethene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
67-66-3	Chloroform	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
71-55-6	1,1,1-Trichloroethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
56-23-5	Carbon Tetrachloride	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
71-43-2	Benzene	PPBV	0.54	0.71	0.72	0.62	0.5 U	0.56
107-06-2	1,2-Dichloroethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
79-01-6	Trichloroethene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
78-87-5	1,2-Dichloropropane	PPBV	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
10061-01-5	cis-1,3-Dichloropropene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
108-88-3	Toluene	PPBV	5.3	4.8	5.4	4.3	6.6	3.2
10061-02-6	trans-1,3-Dichloropropene	PPBV	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
79-00-5	1,1,2-Trichloroethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
127-18-4	Tetrachloroethene	PPBV	5.6	6.6	12	6.4	9.6	9.1
108-90-7	Chlorobenzene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
100-41-4	Ethylbenzene	PPBV	1.2	1.3	1.1	0.62	1.5	1.3
1330-20-7	Xylene (m,p)	PPBV	5.1	4.7	4.7	3.6	6.7	6.7
100-42-5	Styrene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
95-47-6	Xylene (o)	PPBV	1.6	1.2	1.2	0.94	1.8	2.2
79-34-5	1,1,2,2-Tetrachloroethane	PPBV	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
541-73-1	1,3-Dichlorobenzene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
106-46-7	1,4-Dichlorobenzene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
95-50-1	1,2-Dichlorobenzene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
120-82-1	1,2,4-Trichlorobenzene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
87-68-3	Hexachlorobutadiene	PPBV	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
108-67-8	1,3,5-Trimethylbenzene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.74	0.5 U
95-63-6	1,2,4-Trimethylbenzene	PPBV	2.8	2.7	2.2	2.4	4.4	2.5
76-14-2	Dichlorotetrafluoroethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
106-93-4	1,2-Dibromoethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
106-99-0	1,3-Butadiene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
75-15-0	Carbon Disulfide	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
67-64-1	Acetone	PPBV	3.5	12	0.87	35	13	1.4
67-63-0	Isopropyl Alcohol	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1634-04-4	Methyl tert-Butyl Ether	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
110-82-7	Cyclohexane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
142-82-5	n-Heptane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
124-48-1	Dibromochloromethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
110-54-3	n-Hexane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
109-99-9	Tetrahydrofuran	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
78-93-3	Methyl Ethyl Ketone	PPBV	1.6	2.2	0.5 U	3.1	2.3	0.5 U
123-91-1	1,4-Dioxane	PPBV	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
108-10-1	Methyl Isobutyl Ketone	PPBV	0.5 U	0.5 U	0.5 U	0.78	0.5 U	0.5 U
591-78-6	Methyl Butyl Ketone	PPBV	0.5 U	0.5 U	0.5 U	2.9	0.5 U	0.5 U
75-25-2	Bromoform	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
75-27-4	Bromodichloromethane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
156-60-5	trans-1,2-Dichloroethene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
622-96-8	4-Ethyltoluene	PPBV	0.86	0.86	0.58	0.5 U	0.5 U	0.5 U
107-05-1	3-Chloropropene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
540-84-1	2,2,4-Trimethylpentane	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
593-60-2	Bromoethene	PPBV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
95-49-8	2-Chlorotoluene	PPBV	0.5 U	0.5 U	0.52	0.5 U	0.5 U	0.5 U

METHANE IN AIR BY ASTM D1946

Client: ERM
Project: MAYER LANDFILL, BLOOMING GROVE, NY
Sampling Event: AIR SAMPLING
Laboratory: Severn Trent Burlington
SDG 84452

Cas #	Analyte	Units:	Sample Identification:	SG04	SG05	SG06	SG07	SG08	SG09
			Laboratory ID:	463365	463366	463367	463368	463369	463370
			Sampling Date:	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01	8/22/01
74-82-8	Methane	Area %		0.80 UJ	0.80 UJ	0.80 UJ	0.80 UJ	0.80 UJ	0.80 UJ

Appendix B
Tentatively Identified Compounds

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ERMEXT SAMPLE NO.

SG04

Lab Name: STL BURLINGTON Contract: 21000

Lab Code: STLVT Case No.: 21000 SAS No.: SDG No.: 84452

Matrix: (soil/water) AIR Lab Sample ID: 463365

Sample wt/vol: 200(g/mL) ML Lab File ID: 463365

Level: (low/med) LOW Date Received: 08/24/01

% Moisture: not dec. _____ Date Analyzed: 09/04/01

GC Column: DB-1 ID: 0.35 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN SILOXANE DERIVATIVE	14.83	2.0	J
2.		UNKNOWN BENZENE DERIVATIVE	17.33	2.2	J
3.		UNKNOWN	19.86	1.4	J
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ERMEXT SAMPLE NO.

SG05

Lab Name: STL BURLINGTON Contract: 21000

Lab Code: STLVT Case No.: 21000 SAS No.: SDG No.: 84452

Matrix: (soil/water) AIR Lab Sample ID: 463366

Sample wt/vol: 200(g/mL) ML Lab File ID: 463366

Level: (low/med) LOW Date Received: 08/24/01

% Moisture: not dec. _____ Date Analyzed: 09/04/01

GC Column: DB-1 ID: 0.35 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	14.78	3.8	J
2.		UNKNOWN AMIDE	15.50	1.0	J
3.		UNKNOWN BENZENE DERIVATIVE	17.30	2.3	J
4.		UNKNOWN	19.49	1.4	J
5.		UNKNOWN BENZENE DERIVATIVE	19.61	1.1	J
6.		UNKNOWN	19.85	1.7	J
7.		UNKNOWN	20.15	1.0	J
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ERMEXT SAMPLE NO.

SG06

Lab Name: STL BURLINGTON Contract: 21000

Lab Code: STLVT Case No.: 21000 SAS No.: SDG No.: 84452

Matrix: (soil/water) AIR Lab Sample ID: 463367

Sample wt/vol: 200(g/mL) ML Lab File ID: 463367

Level: (low/med) LOW Date Received: 08/24/01

% Moisture: not dec. _____ Date Analyzed: 09/04/01

GC Column: DB-1 ID: 0.35 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN BENZENE DERIVATIVE	17.30	2.5	J
2.		UNKNOWN	20.15	1.0	J
3.					
4.					
5.					
6.					
7.					
8.					
9.					
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ERMEXT SAMPLE NO.

SG07

Lab Name: STL BURLINGTON Contract: 21000

Lab Code: STLVT Case No.: 21000 SAS No.: SDG No.: 84452

Matrix: (soil/water) AIR Lab Sample ID: 463368

Sample wt/vol: 200(g/mL) ML Lab File ID: 463368

Level: (low/med) LOW Date Received: 08/24/01

% Moisture: not dec. _____ Date Analyzed: 09/04/01

GC Column: DB-1 ID: 0.35 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN ALKANE	16.27	1.8	J
2.		UNKNOWN BENZENE DERIVATIVE	17.29	1.8	J
3.		UNKNOWN	17.60	4.8	J
4.		UNKNOWN	17.92	1.9	J
5.		UNKNOWN	18.15	4.4	J
6.		UNKNOWN	18.77	4.4	J
7.		UNKNOWN	18.83	70	J
8.		UNKNOWN	19.30	2.5	J
9.		UNKNOWN	19.52	2.4	J
10.		UNKNOWN BENZENE DERIVATIVE	19.62	41	J
11.		UNKNOWN	19.85	42	J
12.		UNKNOWN	20.40	2.0	J
13.		UNKNOWN BENZENE DERIVATIVE	20.87	6.9	J
14.		UNKNOWN	20.99	3.3	J
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17.					
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30.					

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ERMEXT SAMPLE NO.

SG08

Lab Name: STL BURLINGTON Contract: 21000

Lab Code: STLVT Case No.: 21000 SAS No.: SDG No.: 84452

Matrix: (soil/water) AIR Lab Sample ID: 463369

Sample wt/vol: 200 (g/mL) ML Lab File ID: 463369I2

Level: (low/med) LOW Date Received: 08/24/01

% Moisture: not dec. _____ Date Analyzed: 09/04/01

GC Column: DB-1 ID: 0.35 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	14.78	14	J
2.		UNKNOWN	16.27	1.5	J
3.		UNKNOWN	17.30	3.4	J
4.		UNKNOWN	17.57	9.8	J
5.		UNKNOWN BENZENE DERIVATIVE	18.15	3.6	J
6.		UNKNOWN	18.62	9.7	J
7.		UNKNOWN	18.83	14	J
8.		UNKNOWN	19.30	4.3	J
9.		UNKNOWN	19.52	16	J
10.		UNKNOWN BENZENE DERIVATIVE	19.62	65	J
11.		UNKNOWN	19.85	53	J
12.		UNKNOWN ALKANE	20.15	1.4	J
13.		UNKNOWN	20.38	21	J
14.		UNKNOWN BENZENE DERIVATIVE	20.87	10	J
15.		UNKNOWN	20.97	8.0	J
16.					
17.					
18.					
19.					
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30.					

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ERMEXT SAMPLE NO.

SG09

Lab Name: STL BURLINGTON Contract: 21000

Lab Code: STLVT Case No.: 21000 SAS No.: SDG No.: 84452

Matrix: (soil/water) AIR Lab Sample ID: 463370

Sample wt/vol: 200(g/mL) ML Lab File ID: 463370

Level: (low/med) LOW Date Received: 08/24/01

% Moisture: not dec. _____ Date Analyzed: 09/04/01

GC Column: DB-1 ID: 0.35 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 13

CONCENTRATION UNITS:
(ug/L or ug/Kg) ppbv

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN BENZENE DERIVATIVE	17.21	1.9	J
2.		UNKNOWN ALKANE	17.53	5.0	J
3.		UNKNOWN	18.07	2.4	J
4.		UNKNOWN	18.54	1.7	J
5.		UNKNOWN	18.77	8.8	J
6.		UNKNOWN AMIDE	19.05	1.8	J
7.		UNKNOWN	19.46	19	J
8.		UNKNOWN	19.56	17	J
9.		UNKNOWN	19.79	12	J
10.		UNKNOWN	20.09	1.0	J
11.		UNKNOWN	20.34	4.2	J
12.		UNKNOWN	20.82	5.1	J
13.		UNKNOWN	20.94	3.5	J
14.					
15.					
16.					
17.					
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30.					

Appendix C
Chain of Custody

Severn Trent Laboratories
208 South Park Drive, Suite 1, Colchester, VT 05446 Tel: (802) 655-1203

CHAIN OF CUSTODY RECORD

Report to:
Company: ERM, Inc
Address: 855 Springdale Dr.
Exton, PA 19341
Contact: Greg Dunn
Phone: 610-524-3402
Fax: 610-524-3755
Contract/ Quote #:

Invoice to
Company: Sime
Address:
Contact:
Phone:
PO/SO #: 72701.0301

ANALYSIS REQUESTED
Volatiles by TO-15
Methane in Air ASTM D1946

Lab use only
Due Date:
Temp. of coolers when received (C): 1 | 2 | 3 | 4 | 5
Custody Seal N / Y
Intact N / Y
Screened For Radioactivity ☐

Sampler's Name: Greg Dunn
Sampler's Signature: Gregory W Dunn

Proj. No: 72701.03.01
Project Name: Mayer Landfill, NY

Matrix[1]	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	No./Type of Containers: VOA	A-G 1 Lt	250 ml	P/O	Volatiles by TO-15	Methane in Air ASTM D1946	Lab Sample ID (Lab Use Only)
A	08/24/01	1450		X	SG04				X	X	X	
A		1520			SG05				X	X	X	
A		1550			SG06				X	X	X	
A		1620			SG07				X	X	X	
A		1653			SG08				X	X	X	
A	V	1733			SG09				X	X	X	

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Remarks
Gregory W Dunn	08/30/01	0930				
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date: 8-24-01	Time: 0930	Client's delivery of samples constitutes acceptance of Severn Trent Laboratories terms and conditions contained in the Price Schedule

[1] Matrix: WW Wastewater W Water S Soil SD Solid L Liquid A Air Bag C Charcoal tube SL Sludge O Oil
Container: VOA 40 ml vial A-G Amber or Glass 1 Liter 250 ml Glass wide mouth P/O Plastic or other Summa Canister

STL cannot accept verbal changes. Please Fax written changes to (802) 655-1248

Appendix D
Case Narrative

SEVERN TRENT SERVICES

STL Burlington
208 South Park Drive
Suite 1
Colchester, VT 05446

Tel: 802 655 1203
Fax: 802 655 1248
www.stl-inc.com

September 20, 2001

Mr. Greg Dunn
ERM, Inc.
855 Springdale Drive
Exton, PA 19341

Re: Laboratory Project No. 21000
Case: 21000 SDG: 84452

Dear Mr. Dunn:

Enclosed are the analytical results of samples received intact by Severn Trent Laboratories on August 24, 2001. Laboratory numbers have been assigned and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 08/24/01	ETR No: 84452	
463365	SG04	08/22/01	Air
463366	SG05	08/22/01	Air
463367	SG06	08/22/01	Air
463368	SG07	08/22/01	Air
463369	SG08	08/22/01	Air
463370	SG09	08/22/01	Air

Documentation that identifies the condition of the sample at the time of sample receipt and the issues arising at the time of sample log-in was included in the Sample Handling section of this submittal.

Most of the target analytes generally recovered well in the laboratory blank spike sample identified as P9_LCS and duplicate sample P9_LCSD. However, there were select outages and these are identified on the Form III summaries.

The initial calibration standard exhibited responses for the target compounds trans-1,3-Dichloropropene and Methylene Chloride that exceeded the 30 percent criteria for percent Relative Standard Deviation (RSD). The target compound Methylene Chloride was detected in the field samples SG07, SG08 and SG09.

A select continuing calibration standard exhibited percent difference relative to the nominal concentrations that exceeded the established 15 percent difference criteria for the target compounds 1,1-Dichloroethene, 1,2-Dichloropropane, 1,1,2,2-Tetrachloroethane and 1,4-Dioxane. These compounds were not detected in the field samples of this delivery group.

SEVERN TRENT SERVICES

STL Burlington

If there are any questions regarding this submittal, please contact Ron Pentkowski at 802 655-1203.

This report shall not be reproduced, except in full, without the written approval of the laboratory. This report is sequentially numbered starting with page 0001 and ending with page 335.

I certify that this package is in compliance with the NELAC requirements, both technically and for completeness, for other than the conditions detailed above. The release of the data contained in this hardcopy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Sincerely,

Christopher A. Ouellette
Laboratory Director

RAP/kag
Enclosure

00013 Last Alpha Page

Appendix E
NYSDEC Forms

To be included with all lab data and with each workplan.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Lab Sample Code	Analytical Requirements*					
		VOA GC/MS	BNA GC/MS	VOA GC	Pest PCB	Metals	Other (*)
SG04	463365	X					X
SG05	463366	X					X
SG06	463367	X					X
SG07	463368	X					X
SG08	463369	X					X
SG09	463370	X					X

(*) Other = Methane

* Check Appropriate Boxes
* CLP, Non-CLP (Please indicate year of protocol)
* HSL, Priority Pollutant

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

VOA ANALYSES

Lab Sample ID	Matrix	Date Collected	Date Received at Lab	Low Level Medium Level	Date Analyzed
463365	Air	08/22/2001	08/24/2001	Low	9/4/01
463366	Air	08/22/2001	08/24/2001	Low	9/4/01
463367	Air	08/22/2001	08/24/2001	Low	9/4/01
463368	Air	08/22/2001	08/24/2001	Low	9/4/01
463369	Air	08/22/2001	08/24/2001	Low	9/4/01
463370	Air	08/22/2001	08/24/2001	Low	9/4/01

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

VOA ORGANIC ANALYSES

Lab Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxilary Clean Up	Dil./Conc Factor
463365	Air	TO-15	N/A	N/A	1.0
463366	Air	TO-15	N/A	N/A	1.0
463367	Air	TO-15	N/A	N/A	1.0
463368	Air	TO-15	N/A	N/A	1.0
463369	Air	TO-15	N/A	N/A	1.0
463370	Air	TO-15	N/A	N/A	1.0

0603-C Last Alpha