116411

Quality Assurance Summary Report And Data Validation

Soil Borings

NOVEMBER 1990

Prepared for

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NOVAK SANITARY LANDFILL
SOIL BORINGS

DATA VALIDATION SUMMARY

This report presents the data validation of sample analysis for Novak Sanitary Landfill Soil Borings. On February 28, March 1, 2, and 6, 1990, sixteen soil samples were collected from the soil borings at the Novak Sanitary Landfill. These samples were submitted to National Environmental Testing, Inc., Cambridge Division (NET) for analysis in two groups (I and II). The following table identifies the specific samples and the parameters/methods requested.

No.	Sample ID	Sample Date	Group #	TOC	VOCs	METALS	CYANIDE
1	NSL-SB-1-01	2-28-90	I	-	-	X	X
2	NSL-SB-1-08	2-28-90	I	-	-	X	X
3	NSL-SB-1-13	2-28-90	I	-	-	X	X
4	NSL-SB-1-15	2-28-90	I	-	-	X	X
5	NSL-SB-2-01	3-02-90	I	-	-	X	X
6	NSL-SB-2-04	3-02-90	II	-	-	X	X
7	NSL-SB-2-06	3-02-90	II	-	-	X	X
8	NSL-SB-2-07	3-02-90	II	X	-	-	-
9	NSL-SB-2-08	3-02-90	I	-	X	X	X
10	NSL-SB-3-01	3-06-90	II	-	-	X	X
11	NSL-SB-3-05	3-06-90	II	-	-	X	X
12	NSL-SB-3-10	3-06-90	II	-	-	X	X
13	NSL-SB-3-15	3-06-90	II	-	-	X	X
14	NSL-SB-3-01B	3-06-90	II	-	X	X	X
15	NSL-SB-3-09	3-06-90	II	X	-	-	-
16	NSL-SB-1-10	3-01-90	I	X	-	-	-
	Trip Blank		II	-	X	-	-
TOTAL				3	3	13	13

1/ Group I = Lab Case 3035 (prep batch 1439CS); Group II = Lab Case 3070 (prep batch 1442CS).

PARAMETERS	METHODS
Volatile Organic Compounds	EPA Method 8240
Total Metals	ICP and AA
Total Cyanide	EPA Method 9010
Total Organic Carbon	EPA Method 9060

Samples were received at NET on March 3 and 7, 1990.

The deliverables for Volatile Organics, Semivolatile Organics, and Pesticides/PCBs were evaluated using EPA Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, Modified for Region III, June 1988. The deliverables for Metals and Cyanide were evaluated using EPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses, Modified for Region III, June 1988. Conventional analyses were evaluated for holding- time compliance and were reviewed for adherence to quality control procedures specified for each method. All data have been tabulated in the tables following this summary and have been assigned appropriate qualifier codes by the data reviewer.

SUMMARY OF DATA VALIDATION

All quality control parameters have been separately evaluated and summarized on individual "Data Validation Summary Report Forms" (DVRS forms). These DVRS forms are presented along with the pertinent "raw" and "reduced" data provided by the laboratory in subsequent sections of this report. The numerical order of the presentation of the DVRS forms follows the order presented in the discussion below. The following comments are taken from each DVRS form, are separated by parameter and discuss uncorrectable deficiencies:

ORGANICS (Only Volatile Organics were analyzed)

1.0 Holding Times

All samples were analyzed within holding times as established under 40 CFR, Chapter 136.

2.0 GC/MS Tuning and Performance

All ion abundance criteria were met, mass spectra were of good quality; Form V was present for each 12-hour period.

3.0 GC/MS Calibration

3.1 Initial Calibration

Initial calibration on instruments HP597OH, and HP5970K were acceptable.

3.2 Continuing Calibration

3.2.1 Continuing calibration run on 3/8/90 on instrument HP5970H had a % Difference (%D) of greater than 25% for 2-Butanone (27.9%). Only sample NSL-SB-2-8 was affected. The results in this sample were non-detect at a detection limit of 13 ug/Kg.

Action Taken: Non-detect results are flagged "UJ" (non- detect estimated) in accordance with the guidelines and reviewers professional judgement.

3.2.2 Continuing calibration run on 3/9/90 on instrument HP5970K had a Relative Response Factor (RRF) of less than 0.05 for 2-Butanone (0.045). The samples affected are NSL-SB-3-1B and NSL-SB-Trip Blank. The results in these samples were non-detect at a detection limit of 13 ug/Kg.

Action Taken: Non-detect results are flagged as "R", (unusable) in accordance with the guidelines.

3.2.3 Continuing calibration run 3/9/90 on instrument HP5970K had a %D of greater than 25% for 2-Butanone (30.8%).
The samples affected are NSL-SB-3-1B and NSL-SB-Trip Blank.
The results in these samples are both non-detected at a detection limit of 10 ug/L.

Action Taken: These results were previously flagged "R" as unusable (See 3.2.2 above).

4.0 Method Blanks

The contaminants detected in method blanks, i.e. compounds identified in the blanks at concentrations less than 5X or 10X the amount seen in the blanks are qualified according to the Functional Guidelines as shown below.

4.1 Method Blank VBLK030890H

This method blank was reported to contain methylene chloride at 2 ug/L and acetone at 16 ug/L. The sample affected, NSL-SB-2-8, was reported to contain Methylene chloride (6 ug/Kg) and Acetone at (4 ug/Kg).

Action Taken: These results will be flagged as "B" (not detected substantially above the level reported in laboratory or field blanks) as they are below 10X the amount detected in the blank (10 x 6 ug/L = 60 ug/L methylene chloride and 10 x 4 ug/L = 40 ug/L acetone).

4.2 Method Blank VBLK030990K

This method blank was reported to contain methylene chloride 2 ug/L and Acetone 19 ug/L. The samples affected were NSL-SB-3-1B and NSL-SB-Trip Blank, which were reported to contain methylene chloride at 5 ug/L and 4 ug/L respectively. Acetone was not detected in either sample.

Action Taken: Positive results for methylene chloride will be flagged "B" (not detected substantially above the level reported in laboratory or field blanks) as both results are below 10X the amount detected in the blank (10 x 2 ug/L = 20 ug/L methylene chloride). No action is taken when a compound is detected in a blank but not in the sample. Therefore no action was taken for the acetone.

5.0 Field Blanks

One field blank (Field Blank NSL-SB-3-1B) was collected and applies to all samples. The contaminants detected in field blanks, i.e. compounds identified in the blanks at concentrations less than 5X or 10X the amount seen in the blanks, are qualified according to the Functional

Guidelines. This blank was reported to contain 5 ug/L of methylene chloride. Only samples NSL-SB-2-8 and NSL-SB-Trip Blank require qualification.

Action Taken: Methylene chloride in these samples has previously been flagged "B". No further action is required.

6.0 Trip Blanks

The contaminants detected in method blanks, i.e. compounds identified in the blanks at concentrations less than 5X or 10X the amount seen in the blanks are qualified according to the Functional Guidelines. The trip blank NSL- SB-Trip Blank was reported to contain methylene chloride at 4 ug/L. Samples affected are NSL-SB-2-8 and NSL-SB-3-1B.

Action Taken: Methylene chloride in these samples has previously been flagged "B". No further action is required.

7.0 Surrogate Recovery

All surrogate recoveries were within quality control limints.

8.0 Matrix Spike/Matrix Spike Duplicate

More than 50% of compounds were outside the advisory control limits for matrix spike %R. In addition, the spikes were not sample specific, i.e. they were batch specific (performed on samples from some other source).

Action Taken: No action is taken on analytical results based on MS/MSD data alone. The MS/MSD results may be used in conjunction with other QC criteria to determine that a laboratory is having a systematic problem in the analysis of one or more analytes.

9.0 Internal Standards Performance

All criteria were met. All internal standards area counts were within -50% or +100% of the associated standard and retention times do not vary more than +/- 30 seconds.

10.0 Compound Identification

All criteria were met. All relative retention times criteria were met and within +/- 0.06 units of the standard.
It is noted that the Total Ion Chromatogram for sample NSL- SB-2-8 and method blank VBLK030890H have a significant interference signified by a "hump" on the chromatogram that occurs toward the end of the run. Because the same hump is apparent on the method blank, it appears that a column bleed may have occurred

during the analysis of the sample and the blank. This appears to have been successfully corrected on subsequent blanks.

11.0 Compound Quantitation and Reported Detection Limits

All criteria were met. All sample results were correctly calculated and CRQLs were correctly determined.

12.0 Tentatively Identified Compounds

All criteria were met. A library search was completed.

INORGANICS

1.0 Holding Times

Holding times were met for all parameters as specified under 40 CFR 136 except for mercury. Holding time for mercury in water is 28 days from date of sample collection. The holding time was exceeded in seven (7) of the soil samples by 3-7 days. Due to limited information concerning holding times for soil samples, data for soil samples exceeding holding times are not qualified (Region III Modifications to Inorganic Functional Guidelines).

2.0 Initial and Continuing Calibration Verification

All criteria were met. Instruments were calibrated daily.

3.0 Calibration Curve Standards

All curves were three-to-five point curves with the lowest standard at the limit of Quantitation (LOQ). ICP curves were one-point curve. All criteria were met.

4.0 Laboratory Blanks

All laboratory blanks (initial and continuing calibration blanks and preparation blanks) were evaluated for both groups of sample preparation batches (see table footnotes on page 1 of this summary).

Initial calibration blanks were run at the beginning of each preparation batch; continuing calibration blanks were analyzed at a frequency of every 10 samples or every 2 hours (whichever is more frequent). One preparation blank was analyzed with each sample batch.

The instrument detection limit (IDL) was less than the contract required detection limit (CRDL) in all cases and the calibration blanks are less than or equal to the CRDL. In some cases, contaminants were detected in the calibration blanks above the IDL but less than the CRDL. Contaminants also were detected at low levels in the method blanks. The calibration blanks having the highest concentrations were compared to the concentrations of contaminants detected in the preparation blanks by converting calibration blanks concentrations from ug/L units to mg/Kg units. The highest contaminant was then multiplied by 5 to determine the value to compare to the samples. Sample values greater than the IDL but less than 5X the highest amount seen in any blank are flagged with a B. Contaminants seen in blanks for each analytical batch (Group I and Group II) and their respective 5X concentrations are presented below.

Group I

Analyte	5X Concentration ug/Kg
Aluminum	90.1
Antimony	8.2
Cadmium	4.2
Calcium	283.5
Cobalt	15.4
Copper	8.6
Magnesium	83.7
Manganese	7.4
Nickel	34.4
Potassium	470.5
Sodium	121.4
Zinc	18.1

Each sample of Group I that have concentrations of these analytes above the IDL but less than the amounts presented above are flagged with a "B" as non-detected. The analytes flagged for each sample in Group I are as follows:

NSL-SB-1-1	
Antimony	1.8 B
Sodium	60.2 B

NSL-SB-1-8	
Antimony	1.4 B
Sodium	43.2 B

NSL-SB-1-13	
Calcium	253.0 B
Cobalt	12.4 B
Potassium	328.7 B
Sodium	36.6 B

NSL-SB-1-15	
Cobalt	10.5 B
Copper	5.2
Nickel	19.9 B

NSL-SB-2-1	
Sodium	57.5 B

NSL-SB-2-8	
Sodium	44.9 B

Group II

Analyte	5X Concentration ug/Kg mg
Calcium	195.7
Cobalt	33.8
Copper	7.7
Potassium	1470.0
Sodium	712.5
Zinc	14.8

Each sample of Group II that have concentrations of these analytes above the IDL but less than the amounts presented above are flagged with a "B" as non-detected. The analytes flagged for each sample in Group II are as follows:

NSL-SB-2-4	
Cobalt	8.1 B
Potassium	1190.0 B
Sodium	208.0 B

NSL-SB-2-6	
Calcium	154.0 B
Copper	2.8 B
Sodium	208.0 B
Zinc	6.5 B

NSL-SB-3-1	
Copper	4.6 B
Sodium	145.0 B

NSL-SB-3-01B	
Calcium	118.0 B
Copper	13.2 B
Zinc	13.9 B

NSL-SB-3-5	
Cobalt	25.9 B
Potassium	498.0 B
Sodium	192.0 B

NSL-SB-3-10	
Cobalt	19.4 B
Potassium	660.0 B
Sodium	206.0 B

NSL-SB-3-15	
Cobalt	11.8 B
Sodium	194.0 B

5.0 Field Blank

One field blank (NSL-SB-3-01B) was collected and applies to all samples. Seven contaminants were present in the field blank and are shown listed below. Three of these analytes (calcium, copper, and zinc) appear to be a direct result of contaminants in the analytical system and are therefore flagged "B" in the field blank sample. These analytes also have already been qualified in samples as appropriate. These three analytes are disqualified from qualifying any samples.

Compound	Concentration -mg/L-	5X Rule[1/] -mg/Kg-	
Calcium	.118	118.0	B
Copper	.0132	13.2	B
Iron	.0651	65.1	
Lead	.0024	2.4	
Magnesium	.0688	68.8	
Sodium	.8300	830.0	
Zinc	.0139	13.9	B

1/ The calculation of the qualifying blank value (5X) is based on the fact that 1 gram of sample is analyzed and 200 ml of blank are digested and that the percent solids is 100%. The calculation is performed as follows:

$$\text{Volume of blank (ml)} \times \frac{\text{Concentration of Contaminant in the blank in mg}}{1000\ \text{mL}} =$$

$$\frac{\text{Mass of contaminant in the blank (mg)}}{\text{weight in kilograms of sample analyzed}} = \text{concentration in mg/Kg}$$

Action Taken: Sample results for the affected compounds greater than the IDL but less than the 5X the amount the blank are qualified by flagging the sample with a "B" as non-detects. Some samples that were affected by the field blank contamination had analytes already flagged "B" as a result of the laboratory blanks.

Those samples (Group I and Group II) and their analytes affected not previously qualified with a "B" are presented below.

NSL-SB-1-15
Sodium 215.0 B

6.0 ICP Interference Check Samples

All criteria were met. All results were within +/- 20% of the true value.

7.0 Laboratory Control Samples

The %R was outside the QC limits for the compounds shown in the table below. Two solid laboratory control samples (LCS) were analyzed, one with each group of samples. Three analytes barium, potassium and sodium had % recoveries outside the 80 - 120 % QC Limits as shown in the table. However, examination of the data reveals that the control limits provided by EPA for these LCS samples were either not defined or inadequately defined. In addition, the concentrations of barium, potassium, and sodium

in the LCS in each batch were greater than or equal to the IDL but less than the CRDL.

Compound	%R Group I/Group II	QC Limits
Barium	0/170.8	80-120
Potassium	3,301.2/0	80-120
Sodium	206.0/213.4	80-120

Action Taken: Based on these findings, no qualifiers have been applied to any data.

8.0 Laboratory Duplicates

Some relative percent differences (RPDs) were outside the QC limits. Laboratory duplicate samples outside of the RPD control limits (+/- 35%) for antimony (200.0%) in Group I samples; and cobalt (45.4%) and silver (200.0%) in Group II samples.

Action Taken: Cobalt in Group II samples is flagged "J" as estimated (Samples affected are: NSL-SB-2-4, NSL-SB-2-6,NSL-SB-3-1, NSL-SB-3-5, NSL-SB-3-10, and NSL-SB-3-15), if not previously flagged B, K, or L.

Note: A 200% RPD calculation generally results when the concentration of the sample is greater than the IDL and the concentration of the duplicate is less than the IDL i.e., non-detected. In this case the calculation specifies the non-detect value as a "0". Thus the calculation becomes

$$\frac{|A-0|2}{(A+B)} \times 100\% = 200\% \text{ RPD.}$$

This value cannot be evaluated. In addition, the control limits of +/-35% for soils is unreasonably low because soils are classically inhomogenious and RPDs are notorious for being very high in this matrix. Because of these factors, a fair qualification of the sample data based solely on analytical precision is very difficult to impossible in soils. Therefore those analytes with an RPD of 200% are not qualified.

9.0 Matrix Spike

Spike sample recovery was not within control limits for the following compounds:

Compounds	Spike %R Group I/Group II	QC Limits	Bias Group I/GroupII	
Antimony	5.0/35.9	75 - 125	low	low
Lead	177.7/158.8	75 - 125	high	high
Manganese	191.2/34.8	75 - 125	high	low
Selenium	71.1	75 - 125	low	none
Silver	68.2	75 - 125	none	low

Action Taken: Matrix spikes for inorganics analyses are definitive. Samples will be qualified using the following codes, in accordance with the guidelines (unless previously qualified as B, J or R), as shown below:

Compound	Result >IDL Group I/Group II		Result <IDL Group I/Group II	
Antimony	L	L	R	UL
Lead	K	K	none	none
Manganese	K	L	none	UL
Selenium	L	none	UL	none
Silver	none	L	none	UL

10. Furnace AA QC

Each sample analysis and result in each Group was evaluated in accordance with the requirements for furnace QA/QC as specified in the guidelines and modified for EPA Region III. The criteria applied in the evaluation are stated below.

1. Each sample raw data was checked for dual injections or "burns" on the furnace AA.

2. Reported sample concentrations were compared to the CRDL. For sample concentrations > CRDL, the %RSD between burns had to be less than +/-20%.

3. Sample concentrations were compared to the IDL and evaluated along with the performance of the analytical (post digestion) spikes.

   For sample concentrations > IDL, if analytical spikes were < 40 %R associated results were qualified as biased low "L";

   For sample concentrations < IDL, if analytical spikes >10% but < 40 %R, results were qualified as biased low "UL".

For sample concentrations < IDL, if analytical spikes were < 10 %R, results were qualified as unusable "R".

4. If the sample concentration is < 50 % of the analytical spike concentration, sample results > IDL were qualified as biased high (K) if spike recovery was > 115%, and as biased low (L) if spike recovery was < 85%.

   Sample results < IDL were qualified as biased low (UL) if spike recovery was < 85 %R.

5. If the sample concentration is > 50% of the analytical spike concentration, and if the spike recovery is not within 85 - 115%R, then Method of Standard Additions (MSA) is required. If performed acceptably, the data remained unqualified. If performance was unacceptable, or not performed, the data was qualified as estimated "J".

6. Performance of Method of Standard Additions was evaluated for:
   a. Performance when required;
   b. Spiking at the appropriate levels;
   c. Correlation coefficient >0.995.

A complete detail of the evaluation of each sample based on these criteria is presented in Section 3.0 of this report in the inorganic data validation section, Furnace QA/QC.

Action Taken: Samples and analytes affected in both Groups I and II samples and assigned qualifier codes are as follows:

Group I	Code		Code
NSL-SB-1-1		NSL-SB-1-13	
Antimony	L	Antimony	L
Lead	L		

Group I	Code		Code
NSL-SB-1-8		NSL-SB-1-15	
Antimony	L	Antimony	L

Group II	Code
NSL-SB-2-6	
Arsenic	L
Thallium	K
NSL-SB-3-1	
Arsenic	L

11.0 ICP Serial Dilutions

The % Difference (%D) for compounds listed below were above 10%. However, the concentrations of cadmium, copper and vanadium in the original sample were not minimally a factor of 50 above the IDL, therefore, the 10 % criteria does not apply to these analytes and they will remain unqualified. Only calcium, manganese and zinc will be qualified as stated.

Compound	%D Group I/Group II
Cadmium	29.3/----
Calcium	10.7/16.2
Copper	18.0/----
Manganese	----/10.3
Vanadium	18.3/----
Zinc	15.0/125.0

Action Taken: Sample results for the affected analytes are flagged "J" as estimated unless previously flagged with a "B", K, L or "R".

12.0 Sample Result Verification

All criteria met. Quarterly instrument Detection Limits, ICP Interelement Correction Factors and ICP Lincear Ranges were all reported and were acceptable.

13.0 Field Duplicates

Field duplicates were not reported to be collected or analyzed.

Sample Qualification Summary
Novak Sanitary Landfill
Soil Borings
Volatile Organic Compounds

NSL-SB-2-8

2-Butanone (UJ)	Continuing Calibration %D > 25%
Methylene Chloride (B)	Contaminant in method blank;
	Contaminant in field blank;
	Contaminant in trip blank;
Acetone (B)	Contaminant in method blank;

NSL-SB-3-1B

2-Butanone (R)	Continuing calibration RRF < 0.05;
	Continuing calibration %D > 25%;
Methylene chloride (B)	Contaminant in method blank;
	Contaminant in trip blank
	Contaminant in method blank

NSL-SB-Trip Blank

2-Butanone (R)	Continuing calibration RRF < 0.05;
	Continuing calibration %D > 25 %
Methylene chloride (BJ)	Contaminant in method blank;
	Contaminant in field blank

Sample Qualification Summary
Novak Sanitary Landfill
Soil Borings
Metals and Cyanide

Group I Samples

NSL-SB-1-1

Antimony	(B)	Contaminant in calibration blank
Sodium	(B)	or method blank
Lead	(K)	High matrix spike recovery
Manganese	(K)	High matrix spike recovery
Selenium	(L)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10 %D
Zinc	(J)	" "

NSL-SB-1-8

Antimony	(B)	Contaminant in calibration blank
Sodium	(B)	or method blank
Lead	(K)	High matrix spike recovery
Manganese	(K)	High matrix spike recovery
Selenium	(UL)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10 %D
Zinc	(J)	" "

NSL-SB-1-13

Calcium	(B)	Contaminant in calibration blank
Cobalt	(B)	or method blank
Potassium	(B)	
Sodium	(B)	
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(K)	High matrix spike recovery
Selenium	(UL)	Low matrix spike recovery
Zinc	(J)	" "

NSL-SB-1-15

Cobalt	(B)	Contaminant in calibration blank
Copper	(B)	or method blank
Nickel	(B)	
Sodium	(B)	Contaminant in Field Blank
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(K)	High matrix spike recovery
Selenium	(UL)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10 %D
Zinc	(J)	" "

NSL-SB-2-1

Sodium	(B)	Contaminant in calibration blank or method blank
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(K)	High matrix spike recovery
Selenium	(L)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10 %D
Zinc	(J)	" "

NSL-SB-2-8

Sodium	(B)	Contaminant in calibration blank or method blank
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(K)	High matrix spike recovery
Selenium	(UL)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10% D.
Zinc	(J)	" "

Group II Samples

NSL-SB-2-4

Cobalt	(B)	Contaminant in calibration blank
Potassium	(B)	or method blank
Sodium	(B)	
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(L)	Low matrix spike recovery
Silver	(UL)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10% D.
Zinc	(J)	" "

NSL-SB-2-6

Calcium	(B)	Contaminant in calibration blank
Copper	(B)	or method blank
Sodium	(B)	
Zinc	(B)	
Cobalt	(UJ)	High RPD in Lab Duplicate
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(L)	Low matrix spike recovery
Silver	(L)	Low matrix spike recovery
Arsenic	(UL)	Furnace QA/QC not in order Post digestion spike Low
Thallium	(U)	Furnace QA/QC not in order Post digestion spike high

NSL-SB-3-1

Copper	(B)	Contaminant in calibration blank
Sodium	(B)	or method blank
Cobalt	(UJ)	High RPD in Lab Duplicate
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(L)	Low matrix spike recovery
Silver	(L)	Low matrix spike recovery
Arsenic	(L)	Furnace QA/QC not in order Post digestion spike low
Calcium	(J)	ICP serial dilution > 10% D.
Zinc	(J)	" "

NSL-SB-3-01B

Calcium	(B)	Contaminant in calibration blank
Copper	(B)	or method blank
Zinc	(B)	
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(L)	Low matrix spike recovery
Silver	(L)	Low matrix spike recovery

NSL-SB-3-5

Cobalt	(B)	Contaminant in calibration blank
Potassium	(B)	or method blank
Sodium	(B)	
Antimony	(L)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(L)	Low matrix spike recovery
Silver	(L)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10% D.
Zinc	(J)	" "

NSL-SB-3-10

Cobalt	(B)	Contaminant in calibration blank
Potassium	(B)	or method blank
Sodium	(B)	
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(L)	Low matrix spike recovery
Silver	(L)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10% D.
Zinc	(J)	" "

NSL-SB-3-15

Cobalt	(B)	Contaminant in calibration blank
Sodium	(B)	or method blank
Antimony	(UL)	Low matrix spike recovery
Lead	(K)	High matrix spike recovery
Manganese	(L)	Low matrix spike recovery
Silver	(UL)	Low matrix spike recovery
Calcium	(J)	ICP serial dilution > 10% D.
Zinc	(J)	" "

Narrative Laboratory Summary

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Atlantic, Inc.
Cambridge Division
12 Oak Park
Bedford, MA 01730
Tel: (617) 275-3535
Fax: (617) 275-7411

(Formerly Cambridge Analytical Associates, Inc.)

May 24, 1990

Ms. Jaclyn Baron
Geraghty & Miller, Inc.
290 Vincent Avenue
Hackensack, NJ 07601

Re: Novak Site Analytical Data--Soil Borings.

Dear Jackie:

Enclosed please find analysis data packages for tests performed on samples from the Novak Site. These samples were from the Soil Boring phase of the project. They were received at NET on March 3 and 7, 1990, and logged-in as NET Work Orders 90-03-035 and 90-03-070. These data have been transmitted previously via telefax.

Some volatile organic analysis detected Methyene chloride and Acetone, which were also present in the laboratory blank. These compounds are common laboratory contaminants. The Matrix Spike/Matrix Spike Duplicate for this package was performed on a sample from a different sumbittal analyzed at the same time in the laboratory (batch QC). There were no unusual problems encountered with the volatiles or inorganics analyses.

If you have any questions or require additional information, please do not hesitate to call me.

Sincerely,

Edward A. Lawler
Project Manager

Chain-of-Custody

GL GHTY & MILLER, INC.
Environmental Services

CHAIN-OF-CUSTODY RECORD

Project Number NJ06401

Project Location NOVAK

Laboratory Cambridge Analytical

Sampler(s) Kath

SAMPLE IDENTITY	Date Sampled	SAMPLE BOTTLE / CONTAINER DESCRIPTION: TAL Metals plastic containers	CN plastic containers	TCL Glass Jars	VOC glass vials	9603035	TOTAL
NSL-SB-1-1	2-28-90	1	1	–	–		2
NSL-SB-1-8	2-28-90	1	1	–	–		2
NSL-SB-1-13	2-28-90	1	1	–	–		2
NSL-SB-1-15	2-28-90	1	1	–	–		2
NSL-SB-1-10	3-1-90	–	–	1	–		1
NSL-SB-2-1	3-2-90	1	1	–	–		2
NSL-SB-2-8	3-2-90	1	1	–	2		4
						Total No. of Bottles/ Containers	15

AR301055

Relinquished by: A. Reamy	Organization: CAM	Date 3/21/90	Time 1600	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by: Cal Lantz	Organization: CAM/WOF	Date 3/31/90	Time 1013	Yes No N/A

Special Instructions/Remarks:

2802

GAUGHTY & MILLER, INC.
Environmental Services

CHAIN-OF-CUSTODY RECORD

7N53070

Page 1 of 1

Project Number NJ06401

Project Location NSL

Laboratory Cambridge

Sampler(s) AM

SAMPLE IDENTITY	Date Sampled	Metals TAL SO:15	TAL CN SO.15	TOC SO.15	Tal metals 1 liter plastic (unpres)	Tal CN 1 liter Plastic (unpres)	Volatile Organics Glass vials					TOTAL
NSL-SB-2-4	3-2-90	1	1	—	—	—	—					2
NSL-SB-2-6	3-2-90	1	1	—	—	—	—					2
NSL-SB-3-1	3-6-90	1	1	—	—	—	—					2
NSL-SB-3-5	3-6-90	1	1	—	—	—	—					2
NSL-SB-3-10	3-6-90	1	1	—	—	—	—					2
NSL-SB-3-15	3-6-90	1	1	—	—	—	—					2
NSL-SB-2-7	3-2-90	—	—	1	—	—	—					1
NSL-SB-3-9	3-6-90	—	—	1	—	—	—					1
NSL-SB-3-0/B	3-6-90	—	—	—	1	1	3					5
Trip Blank	?	—	—	—	—	—	2					2

Total No. of Bottles/ Containers: 21

Relinquished by: [signature]	Organization: GZM	Date 3/6/90	Time 1900	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization: Fedex	Date / /	Time	Seal Intact?
Received by: [signature]	Organization: NET CAMBRIDGE	Date 3/7/90	Time 9:50	(Yes) No N/A

Special Instructions/Remarks:

NET

AR300105

TABULATED DATA AND DEFINITIONS OF QUALIFIER CODES

NOVAK SANITARY LANDFILL
SOIL BORINGS

DATA VALIDATION SUMMARY

This report presents the data validation of sample analysis for Novak Sanitary Landfill Soil Borings. On February 28, March 1, 2, and 6, 1990, sixteen soil samples were collected from the soil borings at the Novak Sanitary Landfill. These samples were submitted to National Environmental Testing, Inc., Cambridge Division (NET) for analysis in two groups (I and II). The following table identifies the specific samples and the parameters/methods requested.

No.	Sample ID	Sample Date	Group #	TOC	VOCs	METALS	CYANIDE
1	NSL-SB-1-01	2-28-90	I	-	-	X	X
2	NSL-SB-1-08	2-28-90	I	-	-	X	X
3	NSL-SB-1-13	2-28-90	I	-	-	X	X
4	NSL-SB-1-15	2-28-90	I	-	-	X	X
5	NSL-SB-2-01	3-02-90	I	-	-	X	X
6	NSL-SB-2-04	3-02-90	II	-	-	X	X
7	NSL-SB-2-06	3-02-90	II	-	-	X	X
8	NSL-SB-2-07	3-02-90	II	X	-	-	-
9	NSL-SB-2-08	3-02-90	I	-	X	X	X
10	NSL-SB-3-01	3-06-90	II	-	-	X	X
11	NSL-SB-3-05	3-06-90	II	-	-	X	X
12	NSL-SB-3-10	3-06-90	II	-	-	X	X
13	NSL-SB-3-15	3-06-90	II	-	-	X	X
14	NSL-SB-3-01B	3-06-90	II	-	X	X	X
15	NSL-SB-3-09	3-06-90	II	X	-	-	-
16	NSL-SB-1-10	3-01-90	I	X	-	-	-
	Trip Blank		II	-	X	-	-
TOTAL				3	3	13	13

1/ Group I = Lab Case 3035 (prep batch 1439CS); Group II = Lab Case 3070 (prep batch 1442CS).

PARAMETERS	METHODS
Volatile Organic Compounds	EPA Method 8240
Total Metals	ICP and AA
Total Cyanide	EPA Method 9010
Total Organic Carbon	EPA Method 9060

Samples were received at NET on March 3 and 7, 1990.

Novak Sanitary Landfill

Soil Borings
Analytical Data for Volatile Organics with Assigned Qualifier Codes
(Results in ug/kg)

Parameters	NSL-SB 2-08	NSL-SB 3-01	TRIP BLANK
Chloromethane	13 U	10 U	10 U
Bromomethane	13 U	10 U	10 U
Vinyl chloride	13 U	10 U	10 U
Chloroethane	13 U	10 U	10 U
Methylene chloride	6 B	5 B	4 B
Acetone	4 B	10 U	10 U
Carbon disulfide	7 U	5 U	5 U
1,1-Dichloroethene	7 U	5 U	5 U
1,1-Dichloroethane	7 U	5 U	5 U
1,2-Dichloroethene (total)	7 U	5 U	5 U
Chloroform	7 U	5 U	5 U
1,2-Dichloroethane	7 U	5 U	5 U
2-Butanone	13 UJ	10 R	10 R
1,1,1-Trichloroethane	7 U	5 U	5 U
Carbon tetrachloride	7 U	5 U	5 U
Vinyl acetate	13 U	10 U	10 U
Bromodichloromethane	7 U	5 U	5 U
1,2-Dichloropropane	7 U	5 U	5 U
cis-1,3-Dichloropropene	7 U	5 U	5 U
Trichloroethene	7 U	5 U	5 U
Dibromochloromethane	7 U	5 U	5 U
1,1,2-Trichloroethane	7 U	5 U	5 U
Benzene	7 U	5 U	5 U
trans-1,3-Dichloropropene	7 U	5 U	5 U
Bromoform	7 U	5 U	5 U
4-Methyl-2-pentanone	13 U	10 U	10 U
2-Hexanone	13 U	10 U	10 U
Tetrachloroethene	7 U	5 U	5 U
1,1,2,2-Tetrachloroethane	7 U	5 U	5 U
Toluene	7 U	5 U	5 U
Chlorobenzene	7 U	5 U	5 U
Ethylbenzene	7 U	5 U	5 U
Styrene	7 U	5 U	5 U
Xylenes (total)	7 U	5 U	5 U

18AUG90 Ba

Novak Sanitary Landfill

Soil Borings
Analytical Data for Metals and Cyanide with Assigned Qualifier Codes
(Results in µg/kg)

Parameters	NSL-SB 1-01	NSL-SB 1-08	NSL-SB 1-13	NSL-SB 1-15	NSL-SB 2-01	NSL-SB 2-08	NSL-SB 2-04
Aluminum	18,100.00	19,300.00	2,090.00	1,470.00	6,150.00	22,700.00	11,000.00
Antimony	1.80 B1/	1.90 B1/	1.50 UL	1.40 UL	1.60 UL	1.60 UL	16.20 UL
Arsenic	12.00	9.00	16.70	1.10 1/	18.10	9.81	5.50
Barium	113.00	40.70	19.70 1/	10.50 1/	32.20 1/	69.90	63.60
Beryllium	0.89 1/	1.60	11.90	1.50	0.53 U	0.53 U	0.29 1/
Cadmium	12.40	13.30	9.40	6.50	13.30	40.50	3.70
Calcium	3,470.00 J	390.00 J1/	253.00 B1/	194,000.00 J	1,400.00 J	449.00 J1/	490.00 J1/
Chromium	27.30	14.60	9.40	9.70	13.70	46.90	14.80
Cobalt	29.30	21.10	12.40 B	10.50 B	15.60	22.00	8.10 U
Copper	18.20	17.30	9.50	5.20 B	13.80	26.90	7.80
Iron	32,600.00	87,400.00	19,300.00	6,450.00	38,200.00	—	19,200.00
Lead	60.60 K	30.70 K	25.80 K	12.00 K	40.20 K	28.30 K	38.30 K
Magnesium	1,600.00	853.00 U	540.00 1/	101,000.00	508.00 1/	672.00 1/	509.00 1/
Manganese	2,310.00 K	668.00 K	585.00 K	246.00 K	199.00 K	201.00 K	247.00 L
Mercury	0.14 U	0.21	0.20	0.11 U	0.13 U	0.34	0.13 U
Nickel	31.50	47.00	47.30	19.70 B	28.40	43.60	12.00
Potassium	1,260.00	963.50 1/	328.07 B1/	1,590.00	658.00	1,270.00	1,190.00 B
Selenium	0.72 L1/	0.51 UL	0.49 UL	0.45 UL	0.99 L1/	0.53 UL	0.54 U
Silver	2.50 1/	2.50 1/	2.20 U	2.00 U	2.40 U	2.40 U	2.20 UL
Sodium	60.20 B1/	43.20 B1/	36.60 B1/	215.00 B1/	57.50 B1/	44.90 B1/	208.00 B1/
Thallium	1.30 U	1.30 U	1.20 U	1.10 U	1.30 U	1.30 U	1.40 U
Vanadium	40.60	31.50	15.10	10.80	23.10	52.50	15.00
Zinc	172.00 J	110.00 J	167.00 J	35.20 J	79.60 J	70.80 J	21.80 J
Cyanide	1.80 U	1.60 U	1.50 U	1.40 U	1.60 U	1.60 U	1.50 U

21AUG90 Ba

1/ REPORTED VALUE IS LESS THAN THE CRQL BUT GREATER THAN THE IDL

Novak Sanitary Landfill

Soil Borings
Analytical Data for Metals and Cyanide with Assigned Qualifier Codes
(Results in µg/kg)

Parameters	NSL-SB 2-06	NSL-SB 3-01	NSL-SB 3-01B	NSL-SB 3-05	NSL-SB 3-10	NSL-SB 3-15
Aluminum	456.00	1,900.00	35.00 U	6,900.00	10,100.00	4,320.00
Antimony	14.00 UL	13.00 UL	6.00 UL	16.70 L	15.50 UL	19.30 UL
Arsenic	0.92 UL	3.10 L	4.00 U	5.70	1.40 1/	17.60
Barium	7.50 U	46.20	35.00 U	130.00	45.30	15.50 1/
Beryllium	0.23 U	0.22 U	2.00 U	0.99 1/	2.50	2.40
Cadmium	1.20 U	1.70	4.00 U	5.40	6.80	5.10
Calcium	154.00 B1/	4,780.00 J	118.00 B1/	851.00 J1/	814.00 J1/	4,870.00 J
Chromium	4.30	9.50	7.00 U	11.00	14.50	8.70
Cobalt	7.00 UJ	6.50 UJ	15.00 U	25.90 B	19.40 B	11.80 B
Copper	2.80 B1/	4.60 B1/	13.20 B1/	12.80	22.30	13.50
Iron	1,170.00	4,510.00	65.10 1/	21,500.00	31,100.00	19,200.00
Lead	34.40 K	92.40 K	2.40 K	31.20 K	37.80 K	47.20 K
Magnesium	121.00 1/	2,190.00	68.80 L1/	504.00 L1/	624.00 L1/	8,090.00
Manganese	7.20 L	24.40 L	3.00 UL	2,410.00 L	537.00 L	741.00 L
Mercury	0.11 U	0.11 U	0.20 U	0.11 U	0.71	0.15 U
Nickel	3.50 U	3.30 U	18.00 U	18.80	45.60	32.20
Potassium	193.00 U	180.00 U	150.00 U	498.00 B1/	660.00 B/1	1,990.00
Selenium	0.46 U	0.43 U	2.00 U	0.48 U	0.52 U	0.64 U
Silver	1.90 UL	1.70 UL	9.00 UL	1.90 UL	2.30 L1/	2.60 UL
Sodium	208.00 B/1	145.00 B1/	830.00	192.00 B1/	206.00 B	194.00 B1/
Thallium	1.20 U	1.10 U	5.00 U	1.20 U	1.30 U	1.60 U
Vanadium	12.40	11.10	13.00 U	16.90	27.80	23.10
Zinc	6.50 B	22.60 J	13.90 B	48.30 J	136.00 J	49.50 J
Cyanide	1.30 U	1.20 U	10.00 U	1.50 U	1.50 U	1.90 U

21AUG90 Ba

1/ REPORTED VALUE IS LESS THAN T RQL BUT GREATER THAN THE IDL

Novak Sanitary Landfill

Soil Borings
Analytical Data for Total Organic Carbon
(Results in µg/kg)

Parameters	NSL-SB 1-10	NSL-SB 2-07	NSL-SB 3-09
Total Organic Carbon	530	2,200	1,800

74\misc\novak.toc

Usage of Qualifiers on the Data Summary

A. Objective

The data qualifiers presented in the glossary identify the degree of confidence concerning the presence (or absence) of reported compounds and also identify results that are considered to be quantitatively inaccurate or imprecise due to the exceeding quality control criteria. These qualifiers have been regionally standardized to insure that contractors throughout the region all employ the same set of simple, concise definitions that are understandable to personnel within the various EPA branches.

B. Requirements

1. Only qualifiers defined in the glossary are permitted to qualify data.

2. A glossary of all qualifiers must be attached to the data summary.

3. In general, only one qualifier is permitted with each reported result. The following hierarchy has been developed to insure that only the most important code is used in situations where more than one quality control problem is associated with an analytical result:

   a. Qualifiers relating to identification take precedence over qualifiers related to quantitation. Thus, whenever a positive result is qualified with a B, R, or N, the codes J, K, or L will not be used. Also whenever a not-detected result is qualified with an R, the codes UJ and UL will not be used.

   b. Within each of the two categories of qualifiers, the qualifiers that indicate a more serious problem with the data takes precedence. Thus a positive result flagged with a B or and R will never be flagged with an N. For the quantitative codes, a J may take precedence over K or L in some cases because J accounts for possible errors in either direction - biased high or biased low. In other cases involving two separate quality control problems, the L may take precedence over the J if the perceived magnitude of bias (associated with the L code) is far greater than the measured imprecision or inaccuracy (associated with the J code).

4. The above restriction on the use of multiple qualifiers for a single result is applicable only to data summary and not to the narrative report. (The narrative should mention major, as well as minor, problems associated with individual results, using appropriate emphasis.)

Region III Organic Functional Guidelines 6/88

Organic Qualifiers and their Usages

Code	Example Uses
N	1. Multipeak pesticides (chlordane or toxaphene) or PCBs displaying fair pattern recognition, but missing one or more characteristic peaks or with interferences obscuring one or more peaks.
	2. GC/MS mass spectra displaying important characteristic ions, but ion ratios are slightly outside criteria, low-level ions are missing or interfered with, or additional unidentified ions are present.
	3. Results which are not quite 5-fold or 10-fold greater than the blank for benzene and toluene, respectively, but which are clearly greater than a constant 1 or 2 ppb background level of contamination which is governed by a specific regular, predictable process (such as trap bleed).
B	1. Used exclusively for sample results which are common contaminant compounds at a concentration of less than 10 times the concentration found in the blank or other compounds at less than 5 times the concentration in the blank.
R	1. Sample results obtained under a GC/MS Tune which exceeds expanded criteria.
	2. Pesticide/PCB results identified by two GC columns where DBC shift is outside of retention time criteria.
	3. Pesticide/PCB results identified by two GC columns where the same compound is outside of retention time windows in an associated matrix spike or continuing calibration standard.
	4. Sample results which are suspected to be artifacts of instrument or syringe carry-over from a preceding injection containing a much higher concentration of the same compound.
	5. Sample results which are strongly suspected to be artifacts of cross-contamination from the matrix spike cocktail.
K	1. Sample results which are suggest to be biased high due to high surrogate recoveries.
L	1. Sample results which are suggested to be biased low due exceeded holding times.
	2. DDT or endrin results which are suggested to be biased low due to high degradation in the evaluation standard.

Code	Example Uses (continued)
	3. Sample results which are suggested to be biased low due to low surrogate recoveries.
	4. Sample results which are suggested to be biased low due to low matrix spike recoveries.'
	5. Sample results which are suggested to be biased low due to saturated peaks used in quantitation.
J	1. VOA results which are suggested to be inaccurate due to high or low surrogate recoveries.
	2. BNA results which are suggested to be inaccurate due to exceeded holding times and high surrogate recoveries (opposing effects).
	3. VOA, BNA, or pesticide/PCB results which are considered estimated due to high percent RSD in the initial calibration or high percent difference in the continuing calibration.
	4. VOA or BNA positive results which are considered estimated due to low RF in the initial or continuing calibration.
	5. Sample results which are above the calibration range of the instrument.
	6. Results for positive matrix spike compounds which are present in the unspiked sample, where the recovery data might be attributable to unacceptable sample homogeneity.
	7. Results for field duplicates which display poor precision, considering the sample matrix and the method of analysis used.
	8. Results for compounds present in the unspiked aliquot of the matrix spike which exhibit poor precision in comparison with the spiked aliquots.
	9. Results affected by poor system performance, such as sensitivity fluctuation, internal standard area fluctuations, peak tailing, or coelution.
	10. BNA results which are suggested to be inaccurate but some surrogates suggest a high bias and others a low bias.
	11. Sample results which are suggested to be inaccurate due to internal standard areas exceeding criteria.
	12. Results which exhibit disagreement between multiple analyses of the same sample, where the discrepancy is much too large to be explained by the particular quality control criteria which were exceeded in the analysis.
	13. DDD or DDE results which are associated with high degradation in the evaluation standard, but which have been confirmed by GS/MS.

Region III Organic Functional Guidelines for Evaluating Analyses 6/88

Application of Qualifiers Due to Surrogate Outliers

Fraction	Number of Surrogates Outside Control Limits	Direction of Bias	Qualifier for Positive Results	Qualifier for Quantitation Limits
base-neutral	2 or 3	all high	K	None
	2 or 3	all low	L	UL
	2 or 3	mixed high and low	J	UJ
	1 or more	less than 10 percent rec.	L	R
acid	2 or 3	all high	K	None
	2 or 3	all low	L	UL
	2 or 3	mixed high and low	J	UJ
	1 or more	less than 10 percent rec.	L	R
volatile	2 or 3	all high	K	None
	2 or 3	all low	L	UL
	2 or 3	mixed high and low	J	UJ
	1	low or high	J	UJ
	1 or more	less than 10 percent rec.	L	R

Region III Inorganic Functional Guidelines 6/88

Glossary of Data Qualifier codes (Inorganic)

Codes Relating to Identification
(confidence concerning presence or absence of compounds):

U = Not detected. The associated number indicates approximate sample concentrations necessary to be detected.

(No Code) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

Codes Related to Quantitation
(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

[] = Analyte present. As values approach the IDL the quantitation may not be accurate.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

Other Codes

Q = No analytical result.

Cambridge Analytical Associates

ORGANIC FLAGS AND SAMPLE SUFFIXES

The following qualifers have been used for reporting results:

B - The "B" flag indicates that the analyte was found in the associated blank as well as in the sample.

E - The "E" flag identifies compound concentrations that exceed the calibration range of the GC/MS instrument. For Benzo(b) and Benzo(k)Flouranthene, the calibration range of each peak will be considered separately. Ortho, para, and meta xylene are quantified as two peaks, the calibration range of each peak will be considered separately.

D - If a sample is re-analyzed due to high concentrations and both the original analysis and re-analysis have been reported, the diluted analysis will have the "DL" suffix. All concentration values reported for the diluted analysis will be flagged with a "D".

U - The "U" flag indicates that the compound was analyzed for but not detected. The reported "U" value is the detection limit for the given compound. The value is corrected for dilution and for percent moisture.

J - The "J" flag indicates an estimated value. The flag is used for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the quantitated value is less than the method quantitation limit.

Y - Compound values that are flagged with a "Y" have been edited on our RTE/MS data system.

X - Compound values that are flagged with a "X" have been edited on our Foremaster data reporting system.

The following sample suffixes have been used:

XXXXX = sample number
XXXXXMS = matrix spike sample
XXXXXMSD = matrix spike duplicate sample
XXXXXRE = re-analyzed sample
XXXXXDL = sample analyzed at a secondary dilution

Cambridge Analytical Associates

Inorganic CLP SOW 7/87 Data Qualifiers

Form I-IN includes fields for three types of result qualifiers.

- C Qualifier - (concentration qualifier)

  " B " - If the reported value is less than the Contract Required Detection Limit (CRDL), but greater than the Instrument Detection Limit (IDL).

  " U " - Analyte was not detected. The result of the analyte is less than the Instrument Detection Limit (IDL).

- Q Qualifier -

  " E " - The reported value is estimated because of the presence of interference. If the 5-fold dilution analysis for one or more analytes is not within 10%, a chemical or physical interference effect must be suspected, and the data for all affected analytes in the samples received associated with that serial dilution must be flagged with an "E" on Form IX-IN and Form I-IN.

  " M " - Duplicate injection precision not met.

  " N " - Spike sample recovery not within control limits.

  " S " - The reported value was determined by the Method of Standard Addition (MSA)

  " W " - Postdigested spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

  " * " - Duplicate analysis not within control limits.

  " + " - Correlation coefficient for the MSA is less than 0.995.

- M (Method) Qualifier -

  " P " - for ICP

  " A " - for Flame AA

  " F " - for Furnace AA

  " CV "- for Manual Cold Vapor AA

  " C " - for Manual Spectrophotometric

  " NR "- if the analyte is not required to be analyzed

Volatile Organic Compounds

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

NSL-SB-2-8

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9003035-07C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: H2875

Level: (low/med) LOW Date Received: 03/03/90

% Moisture: not dec. 24 Date Analyzed: 03/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	6	BJ
67-64-1	Acetone	4	BJ
75-15-0	Carbon Disulfide	7	U
75-35-4	1,1-Dichloroethene	7	U
75-34-3	1,1-Dichloroethane	7	U
540-59-0	1,2-Dichloroethene (total)	7	U
67-66-3	Chloroform	7	U
107-06-2	1,2-Dichloroethane	7	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	7	U
56-23-5	Carbon Tetrachloride	7	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	7	U
78-87-5	1,2-Dichloropropane	7	U
10061-01-5	cis-1,3-Dichloropropene	7	U
79-01-6	Trichloroethene	7	U
124-48-1	Dibromochloromethane	7	U
79-00-5	1,1,2-Trichloroethane	7	U
71-43-2	Benzene	7	U
10061-02-6	trans-1,3-Dichloropropene	7	U
75-25-2	Bromoform	7	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	7	U
79-34-5	1,1,2,2-Tetrachloroethane	7	U
108-88-3	Toluene	7	U
108-90-7	Chlorobenzene	7	U
100-41-4	Ethylbenzene	7	U
100-42-5	Styrene	7	U
1330-20-7	Xylene (total)	7	U

Metals/Cyanide

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

NSLSB11

NSL-SB-1-1

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 03035

Matrix (soil/water): SOIL Lab Sample ID: 03035-01S

Level (low/med): LOW Date Received: 03/03/90

% Solids: 74.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18100.00		*	P
7440-36-0	Antimony	1.80	B	W	P
7440-38-2	Arsenic	12.00	B	S	F
7440-39-3	Barium	113.00			P
7440-41-7	Beryllium	0.89	B		P
7440-43-9	Cadmium	12.40			P
7440-70-2	Calcium	3470.00		E	P
7440-47-3	Chromium	27.30			P
7440-48-4	Cobalt	29.30			P
7440-50-8	Copper	18.20			P
7439-89-6	Iron	32600.00			P
7439-92-1	Lead	90.60		*	P
7439-95-4	Magnesium	1600.00			P
7439-96-5	Manganese	2310.00			P
7439-97-6	Mercury	0.14	U		CV
7440-02-0	Nickel	31.50			P
7440-09-7	Potassium	1260.00	B		NR
7782-49-2	Selenium	0.72	B	N	F
7440-22-4	Silver	2.30	B		P
7440-23-5	Sodium	90.20	B		P
7440-28-0	Thallium	1.30	U		P
7440-62-2	Vanadium	40.60			P
7440-66-6	Zinc	172.00		E	P
	Cyanide	1.80	U		C

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: CLEAR Artifacts: N

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRS Case No.: [illegible] SAS No.: [illegible] SDG No.: [illegible]

Matrix (soil/water): SOIL Lab Sample ID: [illegible]

Level (low/med.): LOW Date Received: [illegible]

% Solids: [illegible]

Concentration Units (ug/L or mg/kg dry weight): [illegible]

CAS No.	Analyte	Concentration	C	Q	M
[illegible]	Aluminum	[illegible]			[illegible]
[illegible]	Antimony	[illegible]			
[illegible]	Arsenic	[illegible]			
[illegible]	Barium	[illegible]			
[illegible]	Beryllium	[illegible]			[illegible]
[illegible]	Cadmium	[illegible]			
[illegible]	Calcium	[illegible]			
[illegible]	Chromium	[illegible]			
[illegible]	Cobalt	[illegible]			[illegible]
[illegible]	Copper	[illegible]			
[illegible]	Iron	[illegible]			
[illegible]	Lead	[illegible]			
[illegible]	Magnesium	[illegible]			
[illegible]	Manganese	[illegible]			
[illegible]	Mercury	[illegible]			
[illegible]	Nickel	[illegible]			
[illegible]	Potassium	963.50 B			P
[illegible]	Selenium	[illegible]			
[illegible]	Silver	[illegible]			
[illegible]	Sodium	< B [illegible]			
[illegible]	Thallium	[illegible]			
[illegible]	Vanadium	[illegible]			
[illegible]	Zinc	[illegible]			
[illegible]	Cyanide	[illegible]			

Color Before: [illegible] Clarity Before: [illegible] Texture: [illegible]

Color After: COLORLESS Clarity After: CLEAR Artifacts: [illegible]

Comments:

AR301075

C00

Matrix (soil/water) SOIL Lab Sample ID.

Level (low/med)

% Solids:

			328.07 B	P

Color After:

Comments:

FORM I

AR301076

Matrix (soil water

Level (low

% Solids:

			1590.00	P

Color After:

Comments:

A "B" to the left means the concentration is greater than the

INORGANIC ANALYSIS DATA SHEET

Lab Name: NET-CAMBRIDGE DIVISION

Lab Code: CAMBRG

Matrix (soil/water):

Level (low/med):

% Solids:

Lab Sample ID:

Date Received:

			658.00 B		P

Color After: COLORLESS   Clarity After: CLEAR   Artifacts:

Comments:

FORM I - IN

AR301078

C0001

Matrix (soil, water, oil):

Level (low, med, high):

% Solids:

			9.81	
			28.30	AF
			1270.00	B P

Color Before:

Color After:

Comments:

U.S. EPA - CLP

0000

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

NSL-SB-3-4

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: [illegible] SAS No.: SDG No.: [illegible]

Matrix (soil/water): SOIL Lab Sample ID: [illegible]

Level (low/med): LOW Date Received: [illegible]

% Solids: [illegible]

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
[illegible]	Aluminum	[illegible]			P
7440-36-0	Antimony	16.20	U	N	P
7440-38-2	Arsenic	5.50			P
7440-39-3	Barium	[illegible]			P
[illegible]	Beryllium	0.85	B		P
7440-43-9	Cadmium	3.70			P
7440-70-2	Calcium	[illegible]	B	E	P
[illegible]	Chromium	14.60			P
7440-48-4	Cobalt	8.10	U		P
7440-50-8	Copper	[illegible]			P
7439-89-6	Iron	19200.00			P
7439-92-1	Lead	38.30			P
7439-95-4	Magnesium	509.00	B		P
7439-96-5	Manganese	847.00		*	P
7439-97-6	Mercury	1.13			CV
7440-02-0	Nickel	12.00			P
[illegible]	Potassium	[illegible]	B		P
[illegible]	Selenium	0.54	U		P
7440-22-4	Silver	2.20	U	N	P
7440-23-5	Sodium	[illegible]	B		P
7440-28-0	Thallium	1.40	U		P
7440-62-2	Vanadium	15.00			P
7440-66-6	Zinc	21.80			P
[illegible]	Cyanide	1.50	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MSL - SB - E-5

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: [illegible]

Matrix (soil/water): SOIL Lab Sample ID: [illegible]

Level (low/med): LOW Date Received: [illegible]

% Solids: 85.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
[illegible]	Aluminum	[illegible]			P
[illegible]	Antimony	14.00	U	N	P
[illegible]	Arsenic	0.72	U		F
[illegible]	Barium	7.50	L		P
[illegible]	Beryllium	0.33	U		P
[illegible]	Cadmium	1.20	U		P
[illegible]	Calcium	154.00	B	E	P
[illegible]	Chromium	4.30			P
[illegible]	Cobalt	7.00	U		P
[illegible]	Copper	3.80	B		P
[illegible]	Iron	1170.00			P
[illegible]	Lead	24.80		S	F
[illegible]	Magnesium	121.00	B		P
[illegible]	Manganese	7.20			P
[illegible]	Mercury	0.11	U		CV
[illegible]	Nickel	3.50	U		P
[illegible]	Potassium	193.00	U		P
[illegible]	Selenium	0.46	U		F
[illegible]	Silver	1.50	U	N	P
[illegible]	Sodium	208.00	B		P
[illegible]	Thallium	1.30	U		F
[illegible]	Vanadium	18.40			P
[illegible]	Zinc	6.50	B		P
[illegible]	Cyanide	1.30	U		C

Color Before: BROWN Clarity Before: Texture: MEDIU

Color After: COLORLESS Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
NSL-
SB- 3-1

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVA SAS No.: SDG No.: [illegible]

Matrix (soil/water): SOIL Lab Sample ID: [illegible]

Level (low/med): LOW Date Received: [illegible]

% Solids: 82.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
[illegible]	Aluminum	1900.00			P
7440-36-	Antimony	13.00	U	N	P
7440-38-2	Arsenic	3.10		E	F
7440-39-3	Barium	46.20			P
7440-41-7	Beryllium	1.22			P
7440-43-9	Cadmium	1.70	U		P
7440-70-2	Calcium	730.00		E	P
7440-47-3	Chromium	8.50			P
7440-48-4	Cobalt	6.50	U		P
7440-50-8	Copper	8.60	B		P
7439-89-6	Iron	4510.00			P
7439-92-1	Lead	92.40		E	P
7439-95-4	Magnesium	2190.00			P
7439-96-5	Manganese	84.40		*	P
7439-97-6	Mercury	1.11	U		CV
7440-02-0	Nickel	8.30	U		P
7440-09-7	Potassium	180.00	U		P
7782-49-2	Selenium	1.43	U		F
7440-22-4	Silver	1.70	U	N	P
7440-23-5	Sodium	145.00	B		P
7440-28-0	Thallium	1.10	U		F
7440-62-2	Vanadium	11.10			P
7440-66-6	Zinc	22.60			P
[illegible]	Cyanide	1.20	U		C

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks as artifacts.

U.S. EPA - CLP

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

PSL -
SB- 3-5

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVA SAS No.: SDG No.: 1--2

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

Level (low/med): LOW Date Received:

% Solids: 83.1

Concentration units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
	Aluminum				P
	Antimony			N	P
	Arsenic				P
	Barium				P
	Beryllium			B	P
	Cadmium				P
	Calcium			E	P
	Chromium				P
	Cobalt				P
	Copper				P
	Iron				P
	Lead				P
	Magnesium			E	P
	Manganese			*	P
	Mercury				CV
	Nickel				P
	Potassium			B	P
	Selenium				P
	Silver				P
	Sodium			B	P
	Thallium			W	P
	Vanadium				P
	Zinc				P
	Cyanide				C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks as artifacts.

FORM I - IN 7/87

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
NSL-SB-3-1
NSL-SB-3-10

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAR SAS No.: SDG No.: [illegible]

Matrix (soil/water): SOIL Lab Sample ID: [illegible]

Level (low/med): LOW Date Received: [illegible]

% Solids: 77.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10100.00			P
7440-36-0	Antimony	15.50	U		P
7440-38-2	Arsenic	1.40		B	P
7440-39-3	Barium	45.30		B	P
7440-41-7	Beryllium	2.50			P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	214.00		B	P
7440-47-3	Chromium	14.20			P
7440-48-4	Cobalt	19.40			P
7440-50-8	Copper	22.30			P
7439-89-6	Iron	21100.00			P
7439-92-1	Lead	37.80			P
7439-95-4	Magnesium	6240.00			P
7439-96-5	Manganese	537.00			P
7439-97-6	Mercury	0.70			CV
7440-02-0	Nickel	45.60			P
7440-09-7	Potassium	2660.00			P
7782-49-2	Selenium	0.52			F
7440-22-4	Silver	3.30	U		P
7440-23-5	Sodium	2060.00		B	P
7440-28-0	Thallium	1.30	U		F
7440-62-2	Vanadium	27.30			P
7440-66-6	Zinc	135.00			P
[illegible]	Cyanide	1.50	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks as artifacts.

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

NSL-
SB- 3-15

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1-420

Matrix (soil/water): SOIL Lab Sample ID: 93070-065

Level (low/med): LOW Date Received: 12-07-90

% Solids: 82.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	8320.00			P	
7440-36-0	Antimony	19.30	U	N	P	
7440-38-2	Arsenic	17.80		E	F	
7440-39-3	Barium	15.50	B		P	
7440-41-7	Beryllium	2.40			P	
7440-43-9	Cadmium	5.10			P	
7440-70-2	Calcium	870.00		E	P	
7440-47-3	Chromium	8.70			P	
7440-48-4	Cobalt	11.80	B		P	
7440-50-8	Copper	13.50			P	
7439-89-6	Iron	19200.00			P	
7439-92-1	Lead	93.20		S	P	see sheet
7439-95-4	Magnesium	3090.00			P	
7439-96-5	Manganese	741.00			P	
7439-97-6	Mercury	0.15	U		CV	
7440-02-0	Nickel	32.20			P	
7440-09-7	Potassium	1990.00			P	
7782-49-2	Selenium	0.64	U		P	
7440-22-4	Silver	2.60	U	N	P	
7440-23-5	Sodium	194.00	B		P	
7440-28-0	Thallium	1.60	U		P	
7440-62-2	Vanadium	23.10			P	
7440-66-6	Zinc	49.50			P	
	Cyanide	1.90	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks as artifacts.

Wet Chemistry

NET Cambridge REPORT Work Order # 90-03-035
Results by Sample

SAMPLE ID N8L-8B-1-10 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 03/01/90 Category SOIL

TOC	530
ug/g (dry wt)	

SAMPLE ID N8L-8B-2-7 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 03/02/90 Category SOIL

TOC_8	2,200
ug/g (dry wt)	

SAMPLE ID N8L-8B-2-7 SPIKE SAMPLE # 07 FRACTIONS: B
Date & Time Collected 03/02/90 Category SOIL

TOC_8	95
percentrecovery	

SAMPLE ID N8L-8B-2-7 DUPLICATE SAMPLE # 07 FRACTIONS: C
Date & Time Collected 03/02/90 Category SOIL

TOC_8	2,000
ug/g (dry wt)	

SAMPLE ID N8L-8B-3-9 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 03/06/90 Category SOIL

TOC_8	1,800
ug/g (dry wt)	

TCLP

WORK ORDER: 9007035 037 038, 070,
Batch QC Report Form

Test	LCS's	Expected (mg/L)	Found (mg/L)	% Rec
W.C. 334		20.0	20.2	99

Duplcates:

Test	Sample (mg/L)	Duplicate (mg/L)	%RPI
9007070-07	0.172 mg/g	0.172 mg/g	0

Spikes:

Test	Spike (mg/L)	Sample + Spike (mg/L)	Sample (mg/L)	%Rec
9007070-07	1000	5883	900	94

% Rec = found/expected x 100 (LCS's)

$$\% \text{ Rec} = \frac{(\text{sample} + \text{spike}) - \text{sample}}{\text{spike}} \times 100 \text{ (Spikes)}$$

$$\% \text{ RPD} = \frac{\text{sample} - \text{duplicate}}{(\text{sample} + \text{dup})/2} \times 100$$

AR301089

AR301090

Cal. 1541
1541
1509

TOC SOIL (ug/ml)

Analyst V.K.
Date 11-26-90

Sample #	Run 1	Run 2	Run 3	Run 4	Run 5	Avg.	Range	Analytical Spike Prep.	Spike+sample - sample = spk		Quality Control True	Found	% rec.
WP1088	2034	2070	2036			2033	40				2000	2033	99%
03-035	136.10	13.36	14.70	13.52	13.84	13.70							
03-037-01	713.6	782.5	789.6	89.2		794.48							
03701	619.80	7678	632.6	7406	696.1	695.38							
038-01	1323	1286	1291	1257	1571	1296.8							
-02	1272	951	1094	935	1049	1060.2							
040-03	61.58	7705	51.51	38.76	5788	5788							
-042	41.90	40.51	38.74	37.90	39.76	39.76							99%
-04	987.1	1005	962.2	9776	1009	988.3							
040-05	39.88	39.33	41.10	41.41	3	38.70		WT 1088	2149	2011	2000	2050	105%

SOIL CALCULATIONS

Sample #						
035	517 ug/ml	x 10 ml	= 137 ug	+ (0.34 g	x 70 %)	= 527 ug/g
037-01	1945 ug/ml	x ml	= 7943.8 ug	+ (0.27 g	x 67 %)	= 4319 ug/g
037-02	695.4 ug/ml	x ml	= 6953.8 ug	+ (0.27 g	x 62 %)	= 41315 ug/g
038-01	1286 ug/ml	x ml	= 4268 ug	+ (0.34 g	x 86 %)	= 15080 ug/g
-02	1060 ug/ml	x ml	= 1060.2 ug	+ (0.46 g	x 80 %)	= 28809 ug/g
040-03	5788 ug/ml	x ml	= 5788 ug	+ (0.34 g	x 72 %)	= 2172 ug/g
-042	39.4 ug/ml	x ml	= ug	+ (0.28 g	x 72 %)	= ug/g
-04	988.3 ug/ml	x ml	= ug	+ (0.27 g	x 72 %)	= ug/g
040-05	38.88 ug/ml	x ml	= 3870.5 ug	+ (0.28 g	x 78.9 %)	= 1771 ug/g
	ug/ml	x ml	= ug	+ (g	x %)	= ug/g
	ug/ml	x ml	= ug	+ (g	x %)	= ug/g
NI-[illegible]		x ml	= ug	+ (g	x %)	= ug/g

Duplicates

Sample #						
	ug/ml	x ml	= ug	+ (0.00 g	x 00 %)	= ug/g
900,040-04	57.88 ug/ml	x 10 ml	= 578.8 ug	+ (0.34 g	x 72 %)	= 2172 ug/g
040-042	39.76 ug/ml	x 10 ml	= 397.6 ug	+ (0.28 g	x 72 %)	= 1972 ug/g

SPIKES

Spike value = 5 ml of 2000 ug/ml = 10000 ug

900,040-01	2573 ug/g	x (0.27 g (spk)	x 72 %)	= 4032 ug		
spk =	988.3 ug/ml	x 10 ml	= 9883 ug			
spk =	(988.3 ug	- 4032 ug)	+ 10000 ug	x 100	= 38%	96%
	ug/g	x (g (spk)	x %)	= (ug		
spk =	ug/ml	x ml	= ug			

Organics

DATA VALIDATION SUMMARY

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 17

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

QC REQUIREMENTS:	VOCs	BNAs	Pest/PCBs
1. Holding Times	A	N	N
2. GC/MS Tuning & Performance	A	N	N
3. Pest/PCBs Performance	N	N	N
4. GC/MS Calibration	P	N	N
5. Pest/PCBs Calibration	N	N	N
6. Method Blanks	P	N	N
7. Field Blanks	P	N	N
8. Trip Blanks	P	N	N
9. GC/MS Surrogate Recovery	A	N	N
10. Pest/PCBs Surrogate Recovery	N	N	N
11. MS/MSD	U	N	N
12. Field Duplicates	N	N	N
13. Internal Standards	A	N	N
14. Compounds Identification	A	N	N
15. Quantitation and Detection Limits	A	N	N
16. TICs	A	N	N

QC CRITERIA: *

A - Acceptable: All criteria met (see *Functional Guidelines*).

P - Provisional: All criteria not met; data usable as flagged.

U - Unacceptable: Criteria not met; data unusable.

N - Not Applicable.

*Data qualifier flags applied to data summary table.

HOLDING TIMES

LABORATORY DATA VALIDATION
ORGANICS - 1

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs A

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	All QAPP and 40 CFR 136 specified holding times met.
P - Provisional:	Some QAPP and 40 CFR 136 specified holding times are exceeded; data usable as flagged (see *Functional Guidelines*).
U - Unacceptable:	Holding times grossly exceeded; data unusable.
N - Not Applicable.	

REMARKS:

All 40 CFR 136 specified holding times met.

*ATTACHMENTS: Holding Times Table

MASTER SAMPLE LIST
AND HOLDING TIME ANALYSIS

GERAGHTY & MILLER, INC.
Environmental Services

Parameters (Method): Volatile Organic Compounds

Sample ID No.	COC No.	Parameters	Sample Collection Date	Sample Preparation Date	Sample Analysis Date	Days Allowable Hold Time	Days Actual Hold Time	Exceedence Time
NSL-SB-2-8	1		3/2/90		3/8/90	14	6	—
NSL-SB-3-01B	2		3/6/90		3/9/90	14	3	—
NSL-SB-Trip Blank	2		—		3/9/90	14	—	—

FORM 147

GC/MS Tuning and Performance

GC/MS TUNING AND PERFORMANCE

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 2

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs A

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	All ion abundance criteria met, spectra of good quality; FORM V present for each 12-hour period.
P - Provisional:	All ion abundance criteria not met or results within expanded criteria; data usable as flagged (see *Functional Guidelines*).
U - Unacceptable:	Criteria not met or mass calibration in error, spectra of poor quality; data unusable.
N - Not Applicable.	

REMARKS:

All criteria met.

*ATTACHMENTS: FORM V (VOCs and BNAs)

GC/MS Calibration

GC/MS CALIBRATION

LABORATORY DATA VALIDATION
ORGANICS - 4

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs P

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable: Average relative response factor (RRF) ≥ 0.05; Percent relative standard deviations (%RSD) ≤30% for initial calibration and percent difference (%D) ≤25% for continuing calibration.

P - Provisional: Some criteria met; data usable as flagged (see *Functional Guidelines*).

U - Unacceptable: Criteria not met; data unusable.

N - Not Applicable.

REMARKS:

Some criteria met, data usable as flagged.

*ATTACHMENTS: FORM VI and VII (VOCs & BNAs)

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Instrument ID: HP5970K Calibration Date(s): 03/02/90 03/02/90

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) PACK

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = K1698 RRF50 = K1697

RRF100= K1699 RRF150= K1700 RRF200= K1701

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane #	0.708	0.738	0.594	0.624	0.641	0.661	9.1#
Bromomethane	1.237	1.302	1.062	1.090	1.084	1.155	9.3
Vinyl Chloride *	0.784	0.821	0.674	0.674	0.689	0.728	9.5*
Chloroethane	0.511	0.557	0.434	0.451	0.465	0.484	10.3
Methylene Chloride	1.367	1.414	1.139	1.200	1.238	1.272	9.1
Acetone	0.233	0.191	0.166	0.171	0.171	0.186	14.9
Carbon Disulfide	3.157	3.493	2.928	3.268	3.377	3.245	[illegible]
1,1-Dichloroethene *	1.243	1.341	1.108	1.178	1.222	1.218	[illegible]*
1,1-Dichloroethane #	2.008	2.247	1.907	2.044	2.119	2.065	6.2#
1,2-Dichloroethene (total)	1.308	1.436	1.198	1.251	1.286	1.296	6.8
Chloroform *	3.057	3.376	2.874	3.065	3.187	3.112	6.0*
1,2-Dichloroethane	1.718	1.920	1.628	1.736	1.804	1.761	6.2
2-Butanone	0.051	0.071	0.063	0.065	0.074	0.065	13.7
1,1,1-Trichloroethane	0.681	0.795	0.711	0.730	0.782	0.740	6.5
Carbon Tetrachloride	0.718	0.820	0.749	0.774	0.810	0.774	5.5
Vinyl Acetate	0.301	0.377	0.365	0.369	0.407	0.364	10.6
Bromodichloromethane	0.731	0.861	0.764	0.789	0.826	0.794	6.4
1,2-Dichloropropane *	0.301	0.355	0.317	0.316	0.325	0.323	6.2*
cis-1,3-Dichloropropene	0.580	0.679	0.599	0.644	0.679	0.636	7.1
Trichloroethene	0.511	0.567	0.488	0.492	0.516	0.515	6.1
Dibromochloromethane	0.649	0.813	0.740	0.764	0.809	0.755	8.8
1,1,2-Trichloroethane	0.368	0.397	0.353	0.342	0.352	0.362	5.9
Benzene	0.780	0.885	0.763	0.767	0.791	0.797	6.3
trans-1,3-Dichloropropene	0.245	0.305	0.274	0.279	0.299	0.280	8.5
Bromoform #	0.396	0.499	0.449	0.487	0.521	0.470	10.4#
4-Methyl-2-Pentanone	0.198	0.239	0.215	0.222	0.233	0.221	7.3
2-Hexanone	0.143	0.151	0.137	0.139	0.143	0.143	3.8
Tetrachloroethene	0.535	0.575	0.494	0.493	0.507	0.521	6.7
1,1,2,2-Tetrachloroethane #	0.457	0.538	0.500	0.517	0.542	0.511	6.8#
Toluene *	0.646	0.716	0.627	0.627	0.659	0.655	5.6*
Chlorobenzene #	0.959	1.087	0.920	0.936	0.996	0.980	6.8#
Ethylbenzene *	0.446	0.503	0.423	0.420	0.439	0.446	7.5*
Styrene	0.936	1.068	0.918	0.924	0.961	0.961	[illegible]
Xylene (total)	0.558	0.602	0.524	0.518	0.535	0.547	6.2
Toluene-d8	0.994	0.990	1.009	0.979	0.973	0.989	1.4
Bromofluorobenzene	0.736	0.758	0.774	0.750	0.754	0.754	1.8
1,2-Dichloroethane-d4	1.445	1.494	1.549	1.662	1.727	1.575	7.4

3 C63

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Instrument ID: HP5970K Calibration date: 03/09/90 Time: 0940

Lab File ID: K1801 Init. Calib. Date(s): 03/02/90 03/02/90

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) PACK

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

		COMPOUND	RRF	RRF50	%D	
	#	Chloromethane	0.661	0.713	-7.9	#
		Bromomethane	1.155	1.196	-3.6	
	*	Vinyl Chloride	0.728	0.797	-9.5	*
		Chloroethane	0.484	0.520	-7.4	
		Methylene Chloride	1.272	1.268	0.3	
		Acetone	0.186	0.187	-0.5	
		Carbon Disulfide	3.245	3.150	2.9	
	*	1,1-Dichloroethene	1.218	1.113	8.6	*
	#	1,1-Dichloroethane	2.065	2.007	2.8	#
		1,2-Dichloroethene (total)	1.296	1.298	-0.2	
	*	Chloroform	3.112	2.958	4.9	*
		1,2-Dichloroethane	1.761	1.642	6.8	
		2-Butanone	0.065	0.045	30.8	
		1,1,1-Trichloroethane	0.740	0.673	9.1	
		Carbon Tetrachloride	0.774	0.669	13.6	
		Vinyl Acetate	0.364	0.273	25.0	
		Bromodichloromethane	0.794	0.710	10.6	
	*	1,2-Dichloropropane	0.323	0.293	9.3	*
		cis-1,3-Dichloropropene	0.636	0.575	9.6	
		Trichloroethene	0.515	0.485	5.8	
		Dibromochloromethane	0.755	0.637	15.6	
		1,1,2-Trichloroethane	0.362	0.323	10.8	
		Benzene	0.797	0.775	2.8	
		trans-1,3-Dichloropropene	0.280	0.227	18.9	
	#	Bromoform	0.470	0.383	18.5	#
		4-Methyl-2-Pentanone	0.221	0.181	18.1	
		2-Hexanone	0.143	0.115	19.6	
		Tetrachloroethene	0.521	0.516	1.0	
	#	1,1,2,2-Tetrachloroethane	0.511	0.431	15.7	#
	*	Toluene	0.655	0.662	-1.1	*
	#	Chlorobenzene	0.980	0.952	2.9	#
	*	Ethylbenzene	0.446	0.445	0.2	*
		Styrene	0.961	0.894	7.0	
		Xylene (total)	0.547	0.532	2.7	
		Toluene-d8	0.989	1.057	-6.9	
		Bromofluorobenzene	0.754	0.763	-1.2	
		1,2-Dichloroethane-d4	1.575	1.509	4.2	

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: CAMBRO Contract: NOVAK DRILL

Lab Code: CAMBRO Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Instrument ID: HP5970H Calibration Date(s): 03/03/90 03/03/90

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) PACK

Min RRF for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = H2796 RRF50 = H2795

RRF100= H2800 RRF150= H2798 RRF200= H2799

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	1.120	1.103	1.019	1.039	1.101	1.076	4.1#
Bromomethane		1.560	1.450	1.109	1.030	1.100	1.250	19.0
Vinyl Chloride	*	0.990	0.939	0.896	0.900	0.915	0.928	4.2*
Chloroethane		0.581	0.538	0.555	0.517	0.583	0.555	5.1
Methylene Chloride		1.293	1.341	1.298	1.253	1.315	1.300	2.5
Acetone		0.339	0.252	0.349	0.403	0.271	0.323	19.0
Carbon Disulfide		3.084	3.182	3.256	3.227	3.616	3.273	[illegible]
1-Dichloroethene	*	1.185	1.195	1.181	1.168	1.292	1.204	[illegible]*
1-Dichloroethane	#	2.198	2.180	2.127	2.193	2.400	2.220	4.7#
1,2-Dichloroethene (total)		1.208	1.220	1.220	1.227	1.334	1.242	4.2
Chloroform	*	3.057	2.896	2.869	2.972	3.222	3.003	4.7*
1,2-Dichloroethane		1.798	1.739	1.785	1.886	1.935	1.829	4.4
2-Butanone		0.093	0.098	0.153	0.149	0.115	0.122	23.0
1,1,1-Trichloroethane		0.670	0.675	0.714	0.745	0.799	0.721	7.4
Carbon Tetrachloride		0.655	0.672	0.717	0.745	0.788	0.715	7.6
Vinyl Acetate		0.580	0.589	0.692	0.742	0.677	0.656	10.6
Bromodichloromethane		0.750	0.751	0.796	0.836	0.890	0.805	7.4
1,2-Dichloropropane	*	0.373	0.370	0.371	0.393	0.418	0.385	5.4*
cis-1,3-Dichloropropene		0.659	0.674	0.711	0.744	0.790	0.716	7.4
Trichloroethene		0.440	0.439	0.453	0.462	0.505	0.460	5.9
Dibromochloromethane		0.661	0.685	0.769	0.798	0.846	0.752	10.3
1,1,2-Trichloroethane		0.366	0.359	0.375	0.406	0.399	0.381	5.4
Benzene		0.799	0.782	0.772	0.794	0.821	0.794	2.3
trans-1,3-Dichloropropene		0.321	0.339	0.364	0.365	0.392	0.356	7.6
Bromoform	#	0.423	0.450	0.574	0.605	0.605	0.531	16.6#
4-Methyl-2-Pentanone		0.410	0.345	0.471	0.500	0.395	0.424	14.6
2-Hexanone		0.273	0.257	0.372	0.383	0.288	0.315	18.6
Tetrachloroethene		0.423	0.409	0.431	0.421	0.446	0.426	3.2
1,1,2,2-Tetrachloroethane	#	0.661	0.665	0.803	0.804	0.722	0.731	9.6#
Toluene	*	0.649	0.632	0.650	0.657	0.693	0.657	3.6*
Chlorobenzene	#	0.963	0.949	0.992	1.002	1.078	0.997	5.0#
Ethylbenzene	*	0.455	0.459	0.469	0.490	0.517	0.478	5.4*
[illegible]tyrene		0.996	1.021	1.070	1.125	1.137	1.070	[illegible]
[illegible]lene (total)		0.649	0.639	0.653	0.690	0.688	0.664	3.[illegible]
Toluene-d8		1.005	1.026	1.006	1.010	1.010	1.011	0.8
Bromofluorobenzene		0.824	0.869	0.872	0.893	0.872	0.866	2.9
1,2-Dichloroethane-d4		1.523	1.527	1.583	1.730	1.760	1.625	7.0

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Instrument ID: HP5970H Calibration date: 03/08/90 Time: 1012

Lab File ID: H2867 Init. Calib. Date(s): 03/03/90 03/03/90

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) PACK

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		RRF	RRF50	%D	
Chloromethane	#	1.076	0.889	17.4	#
Bromomethane		1.250	1.220	2.4	
Vinyl Chloride	*	0.928	0.819	11.8	*
Chloroethane		0.555	0.491	11.5	
Methylene Chloride		1.300	1.298	0.2	
Acetone		0.323	0.266	17.6	
Carbon Disulfide		3.273	2.973	9.2	
1,1-Dichloroethene	*	1.204	1.077	10.6	*
1,1-Dichloroethane	#	2.220	2.040	8.1	#
1,2-Dichloroethene (total)		1.242	1.210	2.6	
Chloroform	*	3.003	2.760	8.1	*
1,2-Dichloroethane		1.829	1.599	12.6	
2-Butanone		0.122	0.088	27.9	
1,1,1-Trichloroethane		0.721	0.721	0.0	
Carbon Tetrachloride		0.715	0.710	0.7	
Vinyl Acetate		0.656	0.560	14.6	
Bromodichloromethane		0.805	0.762	5.3	
1,2-Dichloropropane	*	0.385	0.358	7.0	*
cis-1,3-Dichloropropene		0.716	0.703	1.8	
Trichloroethene		0.460	0.465	-1.1	
Dibromochloromethane		0.752	0.754	-0.3	
1,1,2-Trichloroethane		0.381	0.360	5.5	
Benzene		0.794	0.801	-0.9	
trans-1,3-Dichloropropene		0.356	0.351	1.4	
Bromoform	#	0.531	0.521	1.9	#
4-Methyl-2-Pentanone		0.424	0.383	9.7	
2-Hexanone		0.315	0.289	8.3	
Tetrachloroethene		0.426	0.486	-14.1	
1,1,2,2-Tetrachloroethane	#	0.731	0.717	1.9	#
Toluene	*	0.657	0.707	-7.6	*
Chlorobenzene	#	0.997	1.025	-2.8	#
Ethylbenzene	*	0.478	0.505	-5.6	*
Styrene		1.070	1.010	5.6	
Xylene (total)		0.664	0.601	9.5	
Toluene-d8		1.011	1.140	-12.8	
Bromofluorobenzene		0.866	0.854	1.4	
1,2-Dichloroethane-d4		1.625	1.413	13.0	

METHOD BLANKS

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 6

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs P

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	No evidence of contaminants above minimum detection limits, no interference with sample results, appropriate blank used for each GC/MS system, extraction method, and analytical system.
P - Provisional:	Contaminants present, but minimal interference with sample results; use *Functional Guidelines* 5X or 10X guidelines to assign data qualifier flags.
U - Unacceptable:	Gross contamination, too much interference to use data for certain compounds or for the entire fraction; appropriate blanks not analyzed.
N - Not Applicable.	

REMARKS:

Contaminants present, data usable as flagged.

*ATTACHMENTS: FORM IV (all parameters) and Method Blank analyses.

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Lab File ID: H2868 Lab Sample ID: 6306 030590

Date Analyzed: 03/08/90 Time Analyzed: 1119

Matrix: (soil/water) SOIL Level: (low/med) LOW

Instrument ID: HP5970H

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	NSL-SB-2-8	9003035-07C	H2875	1633

COMMENTS: 6306_030590,V,,BLANK
CLP,,,VBLK030890H,L,S,ALS 2 5G CDL

AR301104

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VBLK030890H

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 6306 030590

Sample wt/vol: 5.0 (g/mL) G Lab File ID: H2868

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. 0 Date Analyzed: 03/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	16	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK030890H

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 6306 030590

Sample wt/vol: 5.0 (g/mL) G Lab File ID: H2868

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. 0 Date Analyzed: 03/08/90

Column (pack/cap) PACK Dilution Factor: 1.0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Lab File ID: K1802 Lab Sample ID: 6306-030990

Date Analyzed: 03/09/90 Time Analyzed: 1033

Matrix: (soil/water) WATER Level: (low/med) LOW

Instrument ID: HP5970K

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	NSL-SB-3-01B	9003070-09A	K1808	1422
02	TB	9003070-10A	K1809	1501

MMENTS: 6306-030990, V, , BLANK
CLP, , , VBLK030990, L, W, ALS3 5ML CHARLIE

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK030990K

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 6306-030990

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: K1802

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	19	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

3088 55

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE

VBLK030990K

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 6306-030990

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: K1802

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 03/09/90

Column (pack/cap) PACK Dilution Factor: 1.0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

AR301109

FIELD BLANKS

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 7

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil (Water Blank)

PARAMETERS:

VOCs P

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	No evidence of contaminants above minimum detection limit.
P - Provisional:	Contaminants present, but minimal interference with sample results; use *Functional Guidelines* 5X or 10X guidelines to assign data qualifier flags.
U - Unacceptable:	Gross contamination, in blanks, indicating poor sampling technique, bottle contamination, air-borne contamination, preservative contamination, or improper handling. Data for batch invalid or suspect.
N - Not Applicable.	

REMARKS:

Contaminants present, data usable as flagged.

*ATTACHMENTS: Refer to data summary table.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE

NSL-SB-3-01B

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9003070-09A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: K1808

Level: (low/med) LOW Date Received: 03/07/90

% Moisture: not dec. _____ Date Analyzed: 03/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	B
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

NSL-SB-3-01B

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9003070-09A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: K1808

Level: (low/med) LOW Date Received: 03/07/90

% Moisture: not dec. ____ Date Analyzed: 03/09/90

Column (pack/cap) PACK Dilution Factor: 1.0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

AR301112

TRIP BLANKS

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 8

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil (Water Blank)

PARAMETERS:

VOCs P

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	No evidence of contaminants above minimum detection limit.
P - Provisional:	Contaminants present, but minimal interference with sample results; use *Functional Guidelines* 5X or 10X guidelines to assign data qualifier flags.
U - Unacceptable:	Gross contamination resulting in compromise to the sample data integrity.
N - Not Applicable.	

REMARKS:

Contaminants present; data usable as flagged.

*ATTACHMENTS: Refer to data summary table.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9003070-10A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: K1809

Level: (low/med) LOW Date Received: 03/07/90

% Moisture: not dec. _____ Date Analyzed: 03/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

C001

Lab Name: NET-CAMBRIDGE DIVISION

Lab Code: CAMBRG

Initial Calibration Source:

Continuing Calibration Source:

Antimony	
Beryllium	
Vanadium	
Cyanide	

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: [illegible] Case No.: NONE [illegible]

Initial Calibration Source: EPA[illegible]

Continuing Calibration Source: [illegible]

Selenium
Silver
Sodium
Thallium
Vanadium
Zinc
Cyanide

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide [illegible]

COO.

Lab Name: NET-CHMBRIDGE DIVISION Contract:

Lab Code: CAMB-3 Case No.: SAS No.: SDG No.:

Initial Calibration Source: EPA-C.

Continuing Calibration Source: CONTRACT

Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

1) Control Limits: Mercury 80-120; All other Metals 90-110; Cyanide 85-11

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Aluminum	10000.0	9951.00	99.5	10000.0	9925.00	99.2	9739.00	97.4	P
Antimony	978.0	975.50	99.7	1000.0	998.60	99.9	1004.00	100.4	P
Arsenic	52.0	48.90	94.0	50.0	45.75	91.5	44.80	89.6	P
Barium	970.0	1025.00	105.7	1000.0	1039.00	103.9	1029.00	102.9	P
Beryllium	250.0	251.10	100.4	1000.0	1028.00	102.8	1018.00	101.8	P
Cadmium	95.8	100.70	105.1	1000.0	980.60	98.1	946.30	94.6	P
Calcium	25000.0	24470.00	97.9	25000.0	24640.00	98.6	24150.00	96.6	P
Chromium	1000.0	992.80	99.3	10000.0	9922.00	99.2	9767.00	97.7	P
Cobalt	2500.0	2471.00	98.8	10000.0	9305.00	93.0	10250.00	102.5	P
Copper	1250.0	1240.00	99.2	10000.0	10010.00	100.1	9841.00	98.4	P
Iron	5000.0	5113.00	102.3	10000.0	10010.00	100.1	9846.00	98.5	P
Lead	97.5	102.15	104.8	100.0	90.00	90.0	97.15	97.2	P
Magnesium	25000.0	24110.00	96.4	10000.0	9768.00	97.7	9618.00	96.2	P
Manganese	2500.0	2583.00	103.3	10000.0	10020.00	100.2	9833.00	98.3	P
Mercury	5.0	5.42	108.4	2.0	2.30	115.0	2.08	104.0	C
Nickel	2500.0	2582.00	103.3	10000.0	10200.00	102.0	9993.00	99.9	P
Potassium	25000.0	24950.00	99.8	50000.0	48960.00	97.9	49010.00	98.0	P
Selenium	52.0	57.00	109.6	50.0	52.35	104.7	52.85	105.7	P
Silver	990.0	913.80	92.3	1000.0	990.80	99.1	985.50	98.6	P
Sodium	25000.0	24760.00	99.0	20000.0	19420.00	97.1	19390.00	97.0	P
Thallium	97.0	104.50	107.7	50.0	54.60	109.2	51.75	103.5	P
Vanadium	2500.0	2377.00	95.1	10000.0	10030.00	100.3	9912.00	99.1	P
Zinc	2500.0	2520.00	100.8	10000.0	9774.00	97.7	9567.00	95.7	P
Cyanide	100.0	101.62	101.6	100.0	106.60	106.6	115.36	115.4	C

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Aluminum				10000.0	9779.00	97.8	9767.00	97.7	P
Antimony				1000.0	1000.00	100.0	1052.00	105.2	P
Arsenic	52.0	53.05	102.0	50.0	45.45	90.9	48.40	96.8	F
Barium				1000.0	1020.00	102.0	1028.00	102.8	P
Beryllium				1000.0	1018.00	101.8	1017.00	101.	P
Cadmium				1000.0	969.30	96.9			P
Calcium				25000.0	24190.00	96.8	24010.00	96.0	P
Chromium				10000.0	9714.00	97.1	9714.00	97.1	P
Cobalt				10000.0	9416.00	94.2	10280.00	102.8	P
Copper				10000.0	9813.00	98.1	9806.00	98.1	P
Iron				10000.0	9810.00	98.1	9786.00	97.9	P
Lead				100.0	90.00	90.0			F
Magnesium				10000.0	9611.00	96.1	9560.00	95.6	P
Manganese				10000.0	9820.00	98.2	9795.00	98.0	P
Mercury				2.0	2.30	115.0	2.19	109.5	CV
Nickel				10000.0	10030.00	100.3	9983.00	99.8	P
Potassium				50000.0	48630.00	97.3	48430.00	96.9	P
Selenium				50.0	50.25	100.5	52.55	105.1	F
Silver				1000.0	975.20	97.5			P
Sodium				20000.0	19220.00	96.1	19090.00	95.4	P
Thallium				50.0	50.30	100.6			F
Vanadium				10000.0	9877.00	98.8	9879.00	98.8	P
Zinc				10000.0	9495.00	95.0	9451.00	94.5	P
Cyanide	100.0	108.24	108.2	100.0	105.06	105.1			C

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 144

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)
Aluminum								
Antimony								
Arsenic	52.0	52.45	100.9	50.0	49.65	99.3	47.50	95.0
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt				10000.0	10170.00	101.7	10150.00	101.5
Copper								
Iron	5000.0	5228.00	104.6	10000.0	10250.00	102.5	10190.00	101.9
Lead	97.5	98.70	101.2	100.0	106.00	106.0	106.70	106.7
Magnesium								
Manganese								
Mercury				2.0	1.85	92.5	2.08	104.0
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NI
Antimony									N
Arsenic				50.0	49.60	99.2			F
Barium									N
Beryllium									NI
Cadmium									N
Calcium									NI
Chromium									NI
Cobalt									NI
Copper									NI
Iron									NI
Lead				100.0	105.30	105.3	99.95	100.0	F
Magnesium									NI
Manganese									NI
Mercury				2.0	1.85	92.5	1.69	84.5	CV
Nickel									NI
Potassium									NI
Selenium									NI
Silver									NI
Sodium									NI
Thallium									NI
Vanadium									NI
Zinc									NI
Cyanide									NI

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 144

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)
Aluminum								
Antimony								
Arsenic	52.0	54.20	104.2	50.0	51.05	102.1	48.70	97.4
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead				100.0	100.30	100.3		
Magnesium								
Manganese								
Mercury				2.0	2.30	115.0	1.74	87.0
Nickel								
Potassium								
Selenium								
Silver				--				
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									N
Antimony									P
Arsenic				50.0	48.05	96.1	46.00	92.0	F
Barium									N
Beryllium									N
Cadmium									N
Calcium									N
Chromium									P
Cobalt									N
Copper									P
Iron									N
Lead	97.5	99.60	102.2	100.0	102.20	102.2	108.10	108.1	F
Magnesium									N
Manganese									P
Mercury				2.0	1.63	81.5	1.80	90.0	C
Nickel									P
Potassium									N
Selenium									P
Silver				--					N
Sodium									P
Thallium									N
Vanadium									P
Zinc									N
Cyanide									N

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1448

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									N
Antimony									N
Arsenic				50.0	48.45	96.9	52.05	104.1	P
Barium									N
Beryllium									N
Cadmium									N
Calcium									N
Chromium									N
Cobalt									N
Copper									N
Iron									N
Lead				100.0	108.20	108.2	107.30	107.3	P
Magnesium									N
Manganese									N
Mercury									N
Nickel									N
Potassium									N
Selenium									N
Silver									N
Sodium									N
Thallium									N
Vanadium									N
Zinc									N
Cyanide									N

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									N
Antimony									N
Arsenic									N
Barium									N
Beryllium									N
Cadmium									N
Calcium									N
Chromium									N
Cobalt									N
Copper									N
Iron									N
Lead	97.5	98.10	100.6	100.0	93.50	93.5	95.35	95.4	F
Magnesium									N
Manganese									N
Mercury									N
Nickel									N
Potassium									N
Selenium									N
Silver									N
Sodium									N
Thallium									N
Vanadium									N
Zinc									N
Cyanide									N

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 144

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead				100.0	98.85	98.8	100.30	100.3
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									N
Antimony									P
Arsenic									N
Barium									P
Beryllium									N
Cadmium									P
Calcium									N
Chromium									P
Cobalt									N
Copper									P
Iron									N
Lead				100.0	103.25	103.2	107.40	107.4	P
Magnesium									N
Manganese									N
Mercury									N
Nickel									P
Potassium									N
Selenium									N
Silver									N
Sodium									N
Thallium									N
Vanadium									N
Zinc									N
Cyanide									N

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 144

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead				100.0	108.40	108.4	99.50	99.5	
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver				--					
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 144

Initial Calibration Source: EPALV

Continuing Calibration Source: CONTRACTOR

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead				100.0	101.85	101.8		
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

(1) Control limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Calibration Curve Standards

CALIBRATION CURVE STANDARDS

LABORATORY DATA VALIDATION
INORGANICS - 3

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	A	Furnace AA	A
CV	A	Flame AA	N
MSA	N	Cyanide	A

QC CRITERIA: *

A - Acceptable: All curves three- to five-point with lowest standard at the LOQ; ICP - one point.

U - Unacceptable: Less than three-point curve and/or lowest standard not at the LOQ; no one-point verification for ICP.

N - Not Applicable.

REMARKS:

All criteria met.

*ATTACHMENTS: FORM IIB (All Parameters)

Method Blanks

METHOD BLANKS

LABORATORY DATA VALIDATION
INORGANICS - 4

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	P	Furnace AA	P
CV	A	Flame AA	N
MSA	N	Cyanide	A

QC CRITERIA: *

A - Acceptable:	No contaminants above IDL, no interference with sample results.
P - Provisional:	Contaminants present; sample results >IDL but <5 times the amount in any blank flagged with B.
U - Unacceptable:	Gross contamination, too much interference to use data or appropriate blanks not analyzed.
N - Not Applicable.	

REMARKS:

Contaminants present, data usable as flagged.

*ATTACHMENTS: FORM III (All Parameters); Method Blank Analyses

INORGANICS - METALS/CYANIDE

GROUP I SAMPLES
RECEIVED BY LABORATORY 5/03/90

SDG No. 03035 PERTAINS TO PREPARATION BATCH 143905

SAMPLES AFFECTED ARE:

NSL-SB-1-1
NSL-SB-1-8
NSL-SB-1-13
NSL-SB-1-15
NSL-SB-2-1
NSL-SB-2-8

COC.

Lab Name: [illegible] Contract:

Lab Code: [illegible] SAS No.: [illegible] SDG No.: [illegible]

Preparation Blank Matrix: Soil Water Soil

Preparation [illegible]

Nickel					
Potassium	174.0 B	169.7 B	176.7 B	439.6 B	64.160 B
Selenium					
Silver					
Sodium					
Thallium					
Vanadium					
Zinc					
Cyanide					

FORM III - IN

Lab Name: NET-CHEMSERVICE DIVISION

Lab Code: CHMSER

Preparation Blank Matrix: Still Water

Preparation Blank Matrix: Still Water

Potassium	470.5	B	280.6	B
Silicon				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

000

Lab Name: NET-[illegible] DIVISION

Lab Code: [illegible]

Preparation [illegible]

Preparation [illegible]

	35.0 U	35.0 U	469 B
	15.0 U	15.0 U	15.0 U
	40.0 U	40.0 U	40.0 U
	34.0 U	34.0 U	34.0 U
Zinc	7.0 U	7.0 U	7.0 U
Cyanide			

FORM III

AR301137

Lab Name: WES-CHARLESTON DIVISION Contract:

Lab Code: CHARLS Case No.: SAS No.: SDG No.:

Preparation Blank Matrix: Soil Water:

Preparation Blank Concentration Units: µg/L or mg/kg

Analyte	Initial Calibration Blank	Continuing Calibration Blank (1)	Continuing Calibration Blank (2)	Continuing Calibration Blank (3)
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: SAS No.: SDG No.:

Preparation Blank Matrix: Soil Water:

Preparation Blank Concentration Units:

Analyte	Initial Calibration Blank	Continuing Calibration Blank	Continuing Calibration Blank	Continuing Calibration Blank
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
Cyanide				

INORGANICS - METALS/CYANIDE

GROUP II SAMPLES
RECEIVED BY LABORATORY 3/07/90

SDG NO. 1442CS PERTAINS TO PREPARATION BATCH 1442CS

SAMPLES AFFECTED ARE:

NSL-SB-2-4
NSL-SB-2-6
NSL-SB-3-1
NSL-SB-3-5
NSL-SB-3-10
NSL-SB-3-15

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TB

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9003070-10A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: K1809

Level: (low/med) LOW Date Received: 03/07/90

% Moisture: not dec. _____ Date Analyzed: 03/09/90

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

GC/MS Surrogate Recovery

GC/MS SURROGATE RECOVERY

LABORATORY DATA VALIDATION
ORGANICS - 9

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs A

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	No VOCs surrogate recovery or one BNAs surrogate recovery out of QC limits and all percent recoveries (R%) >10%
P - Provisional:	No more than one VOCs surrogate recovery or two BNAs surrogate recoveries out of QC limits and all percent recovery (%R) >10%; or if any percent recovery <10% with results greater than CRQL; data usable as flagged (see *Functional Guidelines*).
U - Unacceptable:	Any percent recovery <10% with results less than CRQL; data unusable.
N - Not Applicable.	

REMARKS:

No VOCs surrogate recovery out of QC limits, all criteria met.

*ATTACHMENTS: FORM II (VOCs and BNAs)

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	NSL-SB-3-01B	98	103	98	0	0
02	TB	100	101	97	0	0
03	VBLK030990K	100	98	94	0	0

	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Level: (low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	NSL-SB-2-8	96	96	100	0	0
02	VBLK030890H	97	98	98	0	0

	GC LIMITS
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = Bromofluorobenzene	(74-121)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

Matrix Spike/Matrix Spike Duplicates

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 11

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs U

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable: <10% of compounds outside *Functional Guidelines* advisory limits.

P - Provisional: >10% but <50% of compounds outside criteria; field blank used for MS/MSD.

U - Unacceptable: >50% of compounds outside criteria and/or >10% of compounds with recoveries of <10%.

N - Not Applicable.

REMARKS:

Unacceptable- Batch QC, MS/MSD not sample specific; more than 50% of compounds outside criteria.

*No action taken on MS/MSD data alone to qualify entire data set.
ATTACHMENTS: FORM III (all parameters) and MS/MSD analyses.
Rev 90-3

FORM 111

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAMBRG Contract: CLTL B PORT

Lab Code: CAMBRG Case No.: FM200 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: C4-C8

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0	39.1	78	61-145
Trichloroethene	50.0	0	41.4	83	71-120
Benzene	50.0	0	41.7	83	76-127
Toluene	50.0	0	42.9	86	76-125
Chlorobenzene	50.0	0	43.7	87	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50.0	45.4	91	-15 *	14	61-145
Trichloroethene	50.0	49.8	100	-19 *	14	71-120
Benzene	50.0	49.8	100	-19 *	11	76-127
Toluene	50.0	50.3	101	-16 *	13	76-125
Chlorobenzene	50.0	52.4	105	-19 *	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 5 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: 9002322-030 ,V,,GMNY
CLP,FM200,,C4-C8,L,W,ALS7 SML CHARLIE

BATCH - QC

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CAMBRG Contract: CLTL B PORT

Lab Code: CAMBRG Case No.: FM199 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: D-4 12-14 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	58.8	0	48.7	83	59-172
Trichloroethene	58.8	0	60.5	103	62-137
Benzene	58.8	0	58.7	100	66-142
Toluene	58.8	24.0	59.1	60	59-139
Chlorobenzene	58.8	0	58.0	99	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	58.8	47.9	81	2	22	59-172
Trichloroethene	58.8	59.2	101	2	24	62-137
Benzene	58.8	58.7	100	0	21	66-142
Toluene	58.8	55.5	54 *	11	21	59-139
Chlorobenzene	58.8	54.1	92	7	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 1 out of 10 outside limits

COMMENTS: 9003-004-02B,V,,G&M
CLP,FM199,,D-4 12-14,L,S,ALS 9 50 UPM

BATCH -QC

AR301149

U.S. EPA - CLP

3
BLANKS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											N
Antimony											N
Arsenic											N
Barium											N
Beryllium											N
Cadmium											N
Calcium											N
Chromium											N
Cobalt											N
Copper											N
Iron											N
Lead	2.0	U	2.0	U	2.0	U	2.0	U			F
Magnesium											N
Manganese											N
Mercury											N
Nickel											N
Potassium											N
Selenium											N
Silver											N
Sodium											N
Thallium											N
Vanadium											N
Zinc											N
Cyanide											N

3
BLANKS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											N
Antimony											N
Arsenic											N
Barium											N
Beryllium											N
Cadmium											N
Calcium											N
Chromium											N
Cobalt											N
Copper											N
Iron											N
Lead			2.0	U	2.0	U	5.0				F
Magnesium											N
Manganese											N
Mercury											N
Nickel											N
Potassium											N
Selenium											N
Silver											N
Sodium											N
Thallium											N
Vanadium											N
Zinc											N
Cyanide											N

3
BLANKS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Iron										
Lead			3.1	B	4.2	B	3.2	B		
Magnesium										
Manganese										
Mercury										
Nickel										
Potassium										
Selenium										
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Cyanide										

Field Blanks

FIELD BLANKS

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
INORGANICS - 5

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil (Water Blank)

PARAMETERS:

ICP	P	Furnace AA	P
CV	A	Flame AA	N
MSA	N	Cyanide	A

QC CRITERIA: *

A - Acceptable:	No contaminants above IDL, no interference with sample results.
P - Provisional:	Contaminants present; sample results >IDL but <5 times the amount in any blank flagged with U.
U - Unacceptable:	Gross contamination, too much interference to use data or appropriate blanks not analyzed.
N - Not Applicable.	

REMARKS:

Contaminants present; data usable as flagged.

*ATTACHMENTS: Refer to data summary table.

U.S. EPA - CLP

001

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

~~SB3-012~~
NSL-SB-3-01B

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 2039CW

Matrix (soil/water): WATER Lab Sample ID: 03070-09S

Level (low/med): LOW Date Received: 03/07/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	35.00	U		P
7440-36-0	Antimony	6.00	U		P
7440-38-2	Arsenic	4.00	U		F
7440-39-3	Barium	35.00	U		P
7440-41-7	Beryllium	2.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	118.00	B		P
7440-47-3	Chromium	7.00	U		P
7440-48-4	Cobalt	15.00	U		P
7440-50-8	Copper	13.20	B		P
7439-89-6	Iron	65.10	B	*	P
7439-92-1	Lead	2.40	B	W N	F
7439-95-4	Magnesium	68.80	B		P
7439-96-5	Manganese	3.00	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	18.00	U		P
7440-09-7	Potassium	150.00	U		P
7782-49-2	Selenium	2.00	U	N	F
7440-22-4	Silver	9.00	U		P
7440-23-5	Sodium	830.00	B	E	P
7440-28-0	Thallium	5.00	U	N	F
7440-62-2	Vanadium	13.00	U		P
7440-66-6	Zinc	13.90	B	*	P
	Cyanide	10.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

AQUEOUS SAMPLE FROM SOIL BORINGS PHASE, ANALYZED WITH RESIDENTIAL WELL (WATER) BATCH.

FORM I - IN 7/87

ICP Interference Check Samples

ICP INTERFERENCE CHECK SAMPLES (ICS)

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
INORGANICS - 6

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	A	Furnace AA	N
CV	N	Flame AA	N
MSA	N	Cyanide	N

QC CRITERIA: *

A - Acceptable:	All results within ±20% of true value.
P - Provisional:	All criteria not met; refer to guidelines.
U - Unacceptable:	Recovery results for an element <50%; data unusable.
N - Not Applicable.	

REMARKS:

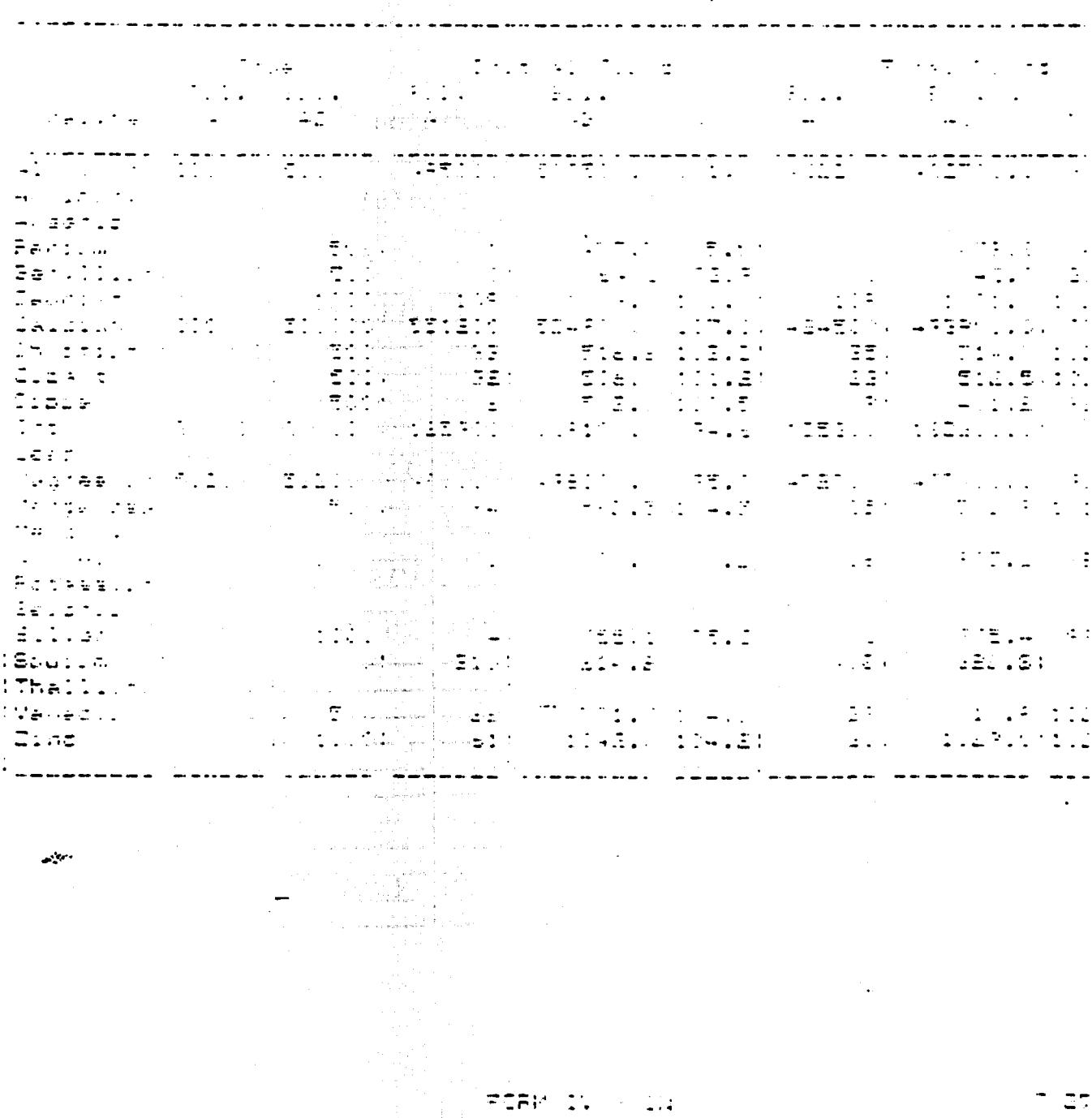
All criteria met.

*ATTACHMENTS: FORM IV (ICP)

Lab Name: NET-CAMBRIDGE DIVISION

Lab Code: CAMBRD

ICP ID Number:



U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: NET-CAMBRIDGE DIVISION Contract: _____

Lab Code: CAMBRG Case No: _____ SAS No.: _____ SDG No.: 03

ICP ID Number: 19 ICS Source: SPEX

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	500000	500000	480100	490300.0	98.1	491700	498400.0	99.7
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium	500000	500000	499300	520600.0	104.1	529200	586500.0	117.7
Chromium								
Cobalt	0	500	25	497.0	99.4	27	491.4	98.3
Copper								
Iron	200000	200000	177300	179000.0	89.5	179700	181200.0	90.6
Lead								
Magnesium	513000	513000	491200	491500.0	98.3	496400	499200.0	99.8
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc	0	1000	56	1001.0	100.1	58	1003.0	100.3

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

ICP ID Number: I9 ICS Source:

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	474300	473000.0	94.6	465500	466500.0	93.3
Antimony	0	0	98	43.6		80	92.4	
Arsenic								
Barium	0	500	31	492.9	98.6	24	490.6	98.1
Beryllium	0	500	2	449.3	89.9	2	457.5	91.5
Cadmium	0	1000	59	893.7	89.4	56	873.9	87.4
Calcium	500000	500000	451200	452600.0	90.5	439700	449200.0	89.8
Chromium	0	500	42	495.5	99.1	41	503.0	100.6
Cobalt	0	500	8	459.7	91.9	9	419.0	83.8
Copper	0	500	28	494.9	99.0	27	493.8	98.8
Iron	200000	200000	175000	174500.0	87.2	170800	173400.0	86.7
Lead								
Magnesium	500000	513000	469800	468400.0	91.3	460000	465400.0	90.7
Manganese	0	500	33	489.3	97.9	31	489.5	97.9
Mercury								
Nickel	0	1000	43	908.8	90.9	33	915.3	91.5
Potassium	0	0	-496	-461.4		-1128	-102.5	
Selenium								
Silver	0	1000	9	878.6	87.9	6	830.6	83.1
Sodium	0	0	-812	-925.0		-1160	-941.6	
Thallium								
Vanadium	0	500	22	483.9	96.8	21	491.4	98.3
Zinc	0	1000	65	954.1	95.4	67	943.0	94.3

U.S. EPA - CLP

ICP INTERFERENCE CHECK SAMPLE

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

ICP ID Number: I9 ICS Source:

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron	200000	200000	175200	175500.0	87.8	175300	175200.0	87.
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

Laboratory Control Samples

LABORATORY CONTROL SAMPLES (LCS)

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
INORGANICS - 7

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	P	Furnace AA	P
CV	A	Flame AA	N
MSA	N	Cyanide	A

QC CRITERIA: *

A - Acceptable:	All %R within QC limits or CLP criteria.
P - Provisional:	Some outside QC limits but %R not <50% or >120%.
U - Unacceptable:	If LCS falls less than 30%, indicative of severe laboratory or method deficiencies.
N - Not Applicable.	LCs are not required; LCs are used to evaluate method/sample preparation; analysis does not require preparation.

REMARKS:

Some % R outside QC limits, data usable as flagged.

*ATTACHMENTS: FORM VII (All Parameters).

Lab Name: NET-CAMBRIDGE DIVISION Contract: [redacted]

Lab Code: CAMBRD Case No.: [illegible] SDG No.: [illegible]

Solid LCS Source: [illegible]

Aqueous LCS Source: [illegible]

[illegible]	335.	309.9	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[4.8]	7.0 U		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	198100.0	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	149.8	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	19652.0	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	120800.0	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[50.0	1650.6		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sodium	[50.0]	103.0 B		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	192.8	[illegible]	[illegible]
Cyanide	[illegible]	[illegible]	[illegible]	[illegible]

[ ] = True values < CRDL ∴ no limits are established

AR301164

U.S. EPA - CLP

00037

7

LABORATORY CONTROL SAMPLE

Lab Name: WET - CAMBRIDGE DIVISION Contract: [redacted]

Lab Code: CAMBRG Case No.: ____ SAS No.: ____ SDG No.: W47

Solid LCS Source: EPA LV (0287)

Aqueous LCS Source: ____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				325.0	279.8		226.0	424.0	86.1
Antimony				211.0	246.6		127.0	294.0	116.9
Arsenic				917.0	812.0		635.0	1199.0	88.6
Barium *				[4.8]	9.2		0.0	40.0	170.1
Beryllium				19.4	17.0		16.5	22.3	87.6
Cadmium				45.4	41.1		38.7	55.1	90.5
Calcium				196000	186300.0		166400.0	225600.0	95.1
Chromium				99.6	97.7		79.2	120.0	98.1
Cobalt				144.0	128.6		125.0	162.9	89.3
Copper				6910.0	5890.0		6006.0	7820.0	85.2
Iron				22850.0	21520.0		17770.0	21080.0	95.9
Lead				286.0	262.9		193.0	285.0	91.9
Magnesium				118100.0	9992.0		100400.0	129900.0	84.6
Manganese				209.0	190.2		177.0	239.0	91.4
Mercury				12.7	12.9		8.5	17.0	101.6
Nickel				69.9	69.4		49.2	72.6	99.3
Potassium *				50.0	166.0	U	0.0	1000.0	0.0
Selenium				39.2	46.0		15.5	29.0	117.3
Silver				22.2	23.0		19.1	59.4	103.6
Sodium				[50]	106.7	B	0.0	1000.0	213.4
Thallium				39.0	42.1		24.6	53.5	107.9
Vanadium				65.5	65.5		51.7	79.9	100.0
Zinc				187.0	163.7		135.5	236.0	87.5
Cyanide**	100	95.90	95.90						

[ ] Denotes values which are greater than or equal to the IDL but less than the CRDL

* Values for these elements are below the CRDL & the wind are given for advisory purposes only

** There is currently no available solid standard with cyanide in it. FORM VII - IN
An aqueous standard was distilled from with 7/87 these samples

AR301165

Laboratory Duplicates

LABORATORY DUPLICATES

LABORATORY DATA VALIDATION
INORGANICS - 8

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	P	Furnace AA	P
CV	A	Flame AA	N
MSA	N	Cyanide	A

QC CRITERIA: *

A - Acceptable: All relative percent differences (RPDs) are within QC limits.

P - Provisional: Some RPDs outside of QC limits; field blank used for duplicate analysis.

U - Unacceptable: All RPDs outside QC limits.

N - Not Applicable.

REMARKS:

Some RPDs outside of QC limits, data usable as flagged.

*ATTACHMENTS: FORM VI (All Parameters).

DUPLICATES

EPA SAMPLE NO.

NSLEB113D

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 03035

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 82.3 % Solids for Duplicate: 82.0

Concentration units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		3088.9397		3568.6474		30.6	*	P
Antimony	14.6	1.4581	U	1.4945	B	200.0		P
Arsenic		12.7436		17.1081		3.2		P
Barium	-8.6	19.7229	B	19.7424	B	0.1		P
Beryllium		11.8785		10.9745		7.9		P
Cadmium		9.4435		10.3062		8.7		P
Calcium	1215.1	253.2195	B	274.8477	B	8.2		P
Chromium	2.4	9.4386		9.5504		1.2		P
Cobalt	12.2	12.3961		11.8445	B	4.6		P
Copper	6.1	9.5237		9.8299		3.2		P
Iron		19290.3719		20150.6380		4.4		P
Lead		25.7534		32.6572		23.6	*	P
Magnesium	1215.1	540.2179	B	687.7268	B	24.0		P
Manganese		585.1753		525.1511		10.8		P
Mercury	0.1	0.2027		0.2027		0.0		CV
Nickel	9.7	47.2903		42.7946		10.0		P
Potassium								NR
Selenium								NR
Silver	2.4	2.1871	U	2.1871	U			P
Sodium	1215.1	36.5978	B	29.7734	B	20.5		P
Thallium								NR
Vanadium	12.2	15.1324		14.8092		2.2		P
Zinc		167.4360		151.6644		9.9		P
Cyanide				--				NR

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPL NO

3-15D

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1442

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 62.3 % Solids for Duplicate: 58

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		4324.2337		3764.2067		13.8		P
Antimony	19.3	19.2616	U	18.8840	U			P
Arsenic		17.5958		16.9027		4.0		F
Barium	64.2	15.5281	B	14.7515	B	5.1		P
Beryllium	1.6	2.3692		2.7036		13.2		P
Cadmium	1.6	5.1236		4.9004		4.5		P
Calcium	1605.1	4869.9796		5514.1222		12.4		P
Chromium	3.2	8.7480		10.5939		19.1		P
Cobalt	16.1	11.8232	B	18.7681		45.4		P
Copper	8.0	13.4767		17.7321		27.3		
Iron		19158.8914		17215.8951		10.7		P
Lead		[illegible]		[illegible]		[illegible]		F
Magnesium	1605.1	8093.0907		7443.4355		8.4		P
Manganese		740.9303		586.3476		23.3	*	P
Mercury	0.2	0.1529	U	0.1529	U			CV
Nickel	12.8	32.2311		40.5061		22.8		P
Potassium	1605.1	1991.3305		1925.5365		3.4		P
Selenium	1.6	0.6421	U	0.6295	U			F
Silver	3.2	2.5682	U	2.7634	B	200.0		P
Sodium	1605.1	193.9324	B	236.7107	B	19.9		P
Thallium	3.2	1.6051	U	1.5737	U			F
Vanadium	16.1	23.1460		24.2565		4.7		P
Zinc		49.5024		60.6805		20.3		P
Cyanide	1.9	1.8578	U	1.7600	U			C

Matrix Spike

MATRIX SPIKE

LABORATORY DATA VALIDATION
INORGANICS - 9

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	P	Furnace AA	P
CV	A	Flame AA	N
MSA	N	Cyanide	A

QC CRITERIA: *

A - Acceptable:	All %R within QC limits (75-125%) or meet CLP criteria or >125%R and reported sample result is <IDL.
P - Provisional:	Some %R not within QC limits (see guidance for appropriate qualifier codes).
U - Unacceptable:	%R <30% and sample results are reported as <IDL.
N - Not Applicable.	

REMARKS:

Some % R not within QC limits, data usable as flagged.

*ATTACHMENTS: FORM V (All Parameters).

SPIKE SAMPLE

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: SAS No.: SDG No.:

Matrix (soil/water): SOIL Level (low/med): LOW

	5					
	5-125	20.1342	12.0105	0.6		76
	5					
	5					
	5					
	5					
	5					
	5					
	5					
	5					
	5					
	5					
	5					
	5					

Comments:

FORM V (PART 1) - IN

U.S. EPA - CLP

3A
SPIKE SAMPLE RECOVERY

EPA SAMPLE No.
3-15S

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1442CS

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	C
Aluminum								
Antimony	75-125	56.4631		19.2616	U	157.4	35.9	N
Arsenic	75-125	28.4108		17.5958		12.5	85.8	
Barium	75-125	589.4949		15.5281	B	629.5	91.2	
Beryllium	75-125	17.3261		2.3692		15.7	95.3	
Cadmium	75-125	19.0571		5.1236		15.7	88.7	
Calcium								
Chromium	75-125	71.6962		8.7480		62.9	100.1	
Cobalt	75-125	167.7326		11.8232	B	157.4	99.1	
Copper	75-125	85.1982		13.4767		78.7	9	
Iron								
Lead		13.1876		13.1825		6.3	158.9	
Magnesium		temp still low						
Manganese		795.6450		740.9303		157.4	34.8	
Mercury	75-125	0.9564		0.1529	U	0.8	119.6	
Nickel	75-125	189.2490		32.2311		157.4	99.8	
Potassium								
Selenium	75-125	2.5336		0.6421	U	3.1	81.7	
Silver	75-125	10.7072		2.5682	U	15.7	68.2	N
Sodium								
Thallium	75-125	15.5478		1.6051	U	15.7	99.0	
Vanadium	75-125	168.0045		23.1460		157.4	92.0	
Zinc	75-125	193.8755		49.5024		157.4	91.7	
Cyanide	75-125	17.5355		1.8578	U	17.1	102.5	

Comments:

Furnace AA QC

FURNACE AA QC

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
INORGANICS - 10

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	N	Furnace AA	P
CV	N	Flame AA	N
MSA	N	Cyanide	N

QC CRITERIA: *

A - Acceptable:	All criteria met.
P - Provisional:	All criteria not met, data of reasonable quality, data usable.
U - Unacceptable:	Criteria not met, data unusable.
N - Not Applicable.	

REMARKS:

Some criteria met, data usable as flagged.

*ATTACHMENTS: Review raw data package.

Rev 90-6

FORM 170

ICP Serial Dilutions

ICP SERIAL DILUTIONS

LABORATORY DATA VALIDATION
INORGANICS - 11

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	P	Furnace AA	N
CV	N	Flame AA	N
MSA	N	Cyanide	N

QC CRITERIA: *

A - Acceptable:	All criteria met.
P - Provisional:	All criteria not met, data of reasonable quality, data usable.
U - Unacceptable:	Criteria not met, data unusable.
N - Not Applicable.	

REMARKS:

Some criteria met, data usable as flagged.

*ATTACHMENTS: Form IX (ICP) and review raw data.

SERIAL DILUTIONS

EPA SAMPLE

Lab Name: [illegible]ET-CAMBRIDGE DIVISION

Lab Code: [illegible]

Matrix (soil/water) : SOIL

Level (low/med) : [illegible]

Analyte	Initial Sample Result	Serial Dilution Result	Percent Difference	
[illegible]	4676.00 B	6175.00 B		P

AR301178

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPL[illegible]O.

[illegible] 3-15L

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1442C

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	13470.00		14785.00		9.8		P
Antimony	60.00	U					NR
Arsenic							NR
Barium	48.37	B					NR
Beryllium	7.38						NR
Cadmium	15.96						NR
Calcium	15170.00		17625.00	B	16.2	E	P
Chromium	27.25						NR
Cobalt	36.83	B					NR
Copper	41.98						NR
Iron	59680.00		65650.00		10.0		P
Lead							NR
Magnesium	25210.00		27635.00		9.6		P
Manganese	2308.00		2546.00		10.3		P
Mercury							NR
Nickel	100.40						NR
Potassium	6203.00						NR
Selenium							NR
Silver	8.00	U					NR
Sodium	604.10	B					NR
Thallium							NR
Vanadium	72.10						NR
Zinc	154.20		347.00		125.0		P

Sample Result Verification

SAMPLE RESULT VERIFICATION

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
INORGANICS - 12

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	A	Furnace AA	A
CV	A	Flame AA	N
MSA	A	Cyanide	A

QC CRITERIA: *

A - Acceptable:	All criteria met.
P - Provisional:	All criteria not met, data of reasonable quality, data usable.
U - Unacceptable:	Criteria not met, data unusable.
N - Not Applicable.	

REMARKS:

All criteria met.

*ATTACHMENTS: Review raw data package.

Rev 90-6 FORM 172

AR301181

Internal Standards Performance

INTERNAL STANDARDS PERFORMANCE

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 13

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs A

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	All IS area counts are within -50% or +100% of the associated standard and retention times do not vary more than ±30 seconds.
P - Provisional:	Some IS area counts or retention times outside criteria; data usable as flagged (see *Functional Guidelines*).
U - Unacceptable:	Extremely low area counts reported or false negatives/positives exist; data unusable.
N - Not Applicable.	

REMARKS:

All criteria met.

*ATTACHMENTS: FORM VIII (VOCs and BNAs)

Rev 90-3

FORM 113

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Lab File ID (Standard): H2867 Date Analyzed: 03/08/90

Instrument ID: HP5970H Time Analyzed: 1012

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) PACK

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	38400	11.49	141000	21.80	118000	26.77
	UPPER LIMIT	76800		282000		236000	
	LOWER LIMIT	19200		70500		59000	
	EPA SAMPLE NO.						
01	NSL-SB-2-8	25000	11.42	99800	21.77	88400	26.74
02	VBLK030890H	34300	11.44	131000	21.79	115000	26.77

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

AR301184

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Lab File ID (Standard): K1801 Date Analyzed: 03/09/90

Instrument ID: HP5970K Time Analyzed: 0940

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) PACK

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	21400	9.24	89100	16.17	82400	19.49
	UPPER LIMIT	42800		178200		164800	
	LOWER LIMIT	10700		44550		41200	
	EPA SAMPLE NO.						
01	NSL-SB-3-01B	20400	9.20	82600	16.14	79700	19.47
02	TB	20400	9.20	81600	16.14	78100	19.47
03	VBLK030990K	22000	9.25	93700	16.12	85800	19.44

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

Compound Identification

COMPOUND IDENTIFICATION

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 14

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs A

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable: All relative retention times (RRT) criteria met; GC/MS — ±0.06 units of standard, Pest/PCBs — within GC retention time windows.

P - Provisional: All criteria not met, but no evidence of cross contamination; data usable as flagged (see *Functional Guidelines*).

U - Unacceptable: Criteria not met or incorrect identifications made; data unusable.

N - Not Applicable.

REMARKS:

All criteria met.

*ATTACHMENTS: Review Raw Data Package

Rev 90-3

FORM I-14

Compound Quantitation and Reported Detection Limits

COMPOUNDS QUANTITATION & REPORTED DETECTION LIMITS

LABORATORY DATA VALIDATION
ORGANICS - 15

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs A

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	All sample results are correctly calculated and CRQLs are correctly adjusted.
P - Provisional:	All criteria not met; data usable as flagged (see *Functional Guidelines*).
U - Unacceptable:	Criteria not met; data unusable.
N - Not Applicable.	

REMARKS:

All criteria met.

*ATTACHMENTS: Review Raw Data Package

Rev 90-3 FORM 115

Tentatively Identified Compounds

TENTATIVELY IDENTIFIED COMPOUNDS

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
ORGANICS - 16

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

VOCs A

BNAs N

PEST/PCBs N

QC CRITERIA: *

A - Acceptable:	Library search completed and reviewed for criteria in *Functional Guidelines,* Sections XI (MS/GC), Tentatively Identified Compounds.
P - Provisional:	All criteria not met; data usable as flagged (see *Functional Guidelines,*).
U - Unacceptable:	Criteria not met; data unusable.
N - Not Applicable.	

REMARKS:

All criteria met.

*ATTACHMENTS: Review Raw Data Package

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

NBL-SB-2-8

Lab Name: CAMBRG Contract: NOVAK DRILL

Lab Code: CAMBRG Case No.: SNOVAK SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9003035-07C

Sample wt/vol: 5.0 (g/mL) G Lab File ID: H2875

Level: (low/med) LOW Date Received: 03/03/90

% Moisture: not dec. 24 Date Analyzed: 03/08/90

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

AR301192

Inorganics

DATA VALIDATION SUMMARY

GERAGHTY & MILLER, INC.
Environmental Services

LABORATORY DATA VALIDATION
INORGANICS - 15

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

QC REQUIREMENTS	ICP	Furnace AA	CV	Flame AA	MSA	CN
1.- Holding Times	A	A	P	N	N	A
2.- Intial & Cont. Calib. Verif.	A	A	A	N	N	A
3.- Calib. Curve Stds	A	A	A	N	N	A
4.- Method Blanks	P	P	A	N	N	A
5.- Field Blanks	P	P	A	N	N	A
6.- ICP ICS	A	N	N	N	N	N
7.- LCS	P	P	A	N	N	A
8.- Lab Duplicates	P	P	A	N	N	A
9.- Matrix Spike	P	P	A	N	N	A
10.- Furnace AA QC	N	P	N	N	N	N
11.- ICP Ser. Dilutions	P	N	N	N	N	N
12.- Sample Result Verif.	A	A	A	N	A	A
13.- Field Duplicates	N	N	N	N	N	N

QC CRITERIA:

A - Acceptable: All criteria met.

P - Provisional: All criteria not met, data of reasonable quality, data usable.

U - Unacceptable: Criteria not met, data unusable.

N - Not Applicable.

Holding Times

HOLDING TIMES

LABORATORY DATA VALIDATION
INORGANICS - 1

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	A	Furnace AA	A
CV	P	Flame AA	N
MSA	N	Cyanide	A
CV Prep	P	Cyanide Prep	A

QC CRITERIA: *

A - Acceptable:	All QAPP and 40 CFR 136 specified holding times met.
P - Provisional:	Some QAPP and 40 CFR 136 specified holding times met.
U - Unacceptable:	All holding times exceeded.
N - Not Applicable.	

REMARKS:

All 40 CFR 136 specified holding times met for everything except mercury - holding time exceeded for 7 samples by 3-7 days.

*ATTACHMENTS: Holding Times Table; Form X for Prep Holding Times

MASTER SAMPLE LIST AND HOLDING TIME ANALYSIS

GERAGHTY & MILLER, INC. Environmental Servi

Parameters (Method): Metals*

Sample ID No.	COC No.	Parameters	Sample Collection Date	Sample Preparation Date	Sample Analysis Date	Months Allowable Hold Time	Months Actual Hold Time	Exceedence Time
NSL-SB-1-1	1		2/28/90		3/15-4/2/90	6	0.5-1	—
NSL-SB-1-8	1		2/28/90		3/15-4/2/90	6	0.5-1	—
NSL-SB-1-13	1		2/28/90		3/15-4/2/90	6	0.5-1	—
NSL-SB-1-15	1		2/28/90		3/15-4/2/90	6	0.5-1	—
NSL-SB-2-1	1		3/2/90		3/15-4/2/90	6	0.5-1	—
NSL-SB-2-8	1		3/2/90		3/15-4/2/90	6	0.5-1	—
NSL-SB-2-4	2		3/2/90		4/26-5/3/90	6	1.5-2	—
NSL-SB-2-6	2		3/2/90		4/26-5/3/90	6	1.5-2	—
NSL-SB-3-1	2		3/6/90		4/26-5/3/90	6	1 .5-2	—
NSL-SB-3-5	2		3/6/90		4/26-5/3/90	6	1.5-2	—
NSL-SB-3-10	2		3/6/90		4/26-5/3/90	6	1.5-2	—
NSL-SB-3-15	2		3/6/90		4/26-5/3/90	6	1.5-2	—
NSL-SB-3-01B	2		3/6/90		4/26-5/3/90	6	1.5-2	—

* Excluding Mercury

FORM 147

MASTER SAMPLE LIST AND HOLDING TIME ANALYSIS

GERAGHTY & MILLER, INC.
Environmental Services

Parameters (Method): Mercury

Sample ID No.	COC No.	Parameters	Sample Collection Date	Sample Preparation Date	Sample Analysis Date	Days Allowable Hold Time	Days Actual Hold Time	Days Exceedence Time
NSL-SB-1-1	1		2/28/90		3/8/90	28	8	—
NSL-SB-1-8	1		2/28/90		3/8/90	28	8	—
NSL-SB-1-13	1		2/28/90		3/8/90	28	8	—
NSL-SB-1-15	1		2/28/90		3/8/90	28	8	—
NSL-SB-2-1	1		3/2/90		3/8/90	28	6	—
NSL-SB-2-8	1		3/2/90		3/8/90	28	6	—
NSL-SB-2-4	2		3/2/90		4/6/90	28	35	7
NSL-SB-2-6	2		3/2/90		4/6/90	28	35	7
NSL-SB-3-1	2		3/6/90		4/6/90	28	31	3
NSL-SB-3-5	2		3/6/90		4/6/90	28	31	3
NSL-SB-3-10	2		3/6/90		4/6/90	28	31	3
NSL-SB-3-15	2		3/6/90		4/6/90	28	31	3
NSL-SB-3-01B	2		3/6/90		4/6/90	28	31	3

FORM 147

MASTER SAMPLE LIST
AND HOLDING TIME ANALYSIS

GERAGHTY & MILLER, INC.
Environmental Servic

Parameters (Method): Cyanide

Sample ID No.	COC No.	Parameters	Sample Collection Date	Sample Preparation Date	Sample Analysis Date	Days Allowable Hold Time	Days Actual Hold Time	Exceedence Time
NSL-SB-1-1	1		2/28/90		3/12/90	28	12	—
NSL-SB-1-8	1		2/28/90		3/12/90	28	12	—
NSL-SB-1-13	1		2/28/90		3/12/90	28	12	—
NSL-SB-1-15	1		2/28/90		3/12/90	28	12	—
NSL-SB-2-1	1		3/2/90		3/12/90	28	10	—
NSL-SB-2-8	1		3/2/90		3/12/90	28	10	—
NSL-SB-2-4	2		3/2/90		3/12/90	28	10	—
NSL-SB-2-6	2		3/2/90		3/12/90	28	10	—
NSL-SB-3-1	2		3/6/90		3/12/90	28	6	—
NSL-SB-3-5	2		3/6/90		3/12/90	28	6	—
NSL-SB-3-10	2		3/6/90		3/12/90	28	6	—
NSL-SB-3-15	2		3/6/90		3/12/90	28	6	—
NSL-SB-3-01B	2		3/6/90		3/12/90	28	6	—

FORM 147

MASTER SAMPLE LIST
AND HOLDING TIME ANALYSIS

GERAGHTY & MILLER, INC.
Environmental Services

Parameters (Method): Total Organic Carbon

Sample ID No.	COC No.	Parameters	Sample Collection Date	Sample Preparation Date	Sample Analysis Date	Days Allowable Hold Time	Days Actual Hold Time	Exceedence Time
NSL-SB-1-10	1		3/1/90		3/26/90	28	25	—
NSL-SB-2-7	2		3/2/90		3/26/90	28	24	—
NSL-SB-3-9	2		3/6/90		3/26/90	28	20	—

FORM 147

AR301200

HOLDING TIMES

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 03035

EPA Sample No.	Matrix	Date Received	Mercury Prep Date	Mercury Holding Time	Cyanide Prep Date	Cyanide Holding Time
NSLSB11	SOIL	03/03/90	03/07/90	-	03/08/90	E
NSLSB11S	SOIL	03/03/90	03/07/90	-	03/08/90	E
NSLSB11SD	SOIL	03/03/90	03/07/90	-		
NSLSB11S	SOIL	03/03/90	03/07/90	-	03/08/90	E
NSLSB11S	SOIL	03/03/90	03/07/90	-		
NSLSB18	SOIL	03/03/90	03/07/90	-	03/08/90	E
NSLSB21	SOIL	03/03/90	03/07/90	-	03/08/90	E
NSLSB28	SOIL	03/03/90	03/07/90	-	03/08/90	E

X
HOLDING TIMES

Lab Name: ET-CAMBRIDGE DIVISION   Contract:

Lab Code: CAMBRG   Case No.: NOVAK   SAS No.:   SDG No.: [illegible]

EPA Sample No.	Matrix	Date Received	Mercury Prep Date	Mercury Holding Time	Cyanide Prep Date	Cyanide Holding Time
[illegible]	SOIL	[illegible]	[illegible]	28	[illegible]	[illegible]
[illegible]	SOIL	[illegible]	[illegible]	28	[illegible]	[illegible]
~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
[illegible]	SOIL	[illegible]	[illegible]	28	[illegible]	[illegible]
[illegible]	SOIL	[illegible]	[illegible]	28	[illegible]	[illegible]
[illegible]	SOIL	[illegible]	[illegible]	28	[illegible]	[illegible]
[illegible]	SOIL	[illegible]	[illegible]	28	[illegible]	[illegible]
[illegible]	SOIL	[illegible]	[illegible]	28	[illegible]	[illegible]
[illegible]	SOIL	[illegible]	[illegible]	28	[illegible]	[illegible]

[illegible] 5/9

Initial and Continuing Calibration Verification

INITIAL AND CONTINUING CALIBRATION VERIFICATION

LABORATORY DATA VALIDATION
INORGANICS - 2

GERAGHTY & MILLER, INC.
Environmental Services

Project Description: Novak Sanitary Landfill

Site Name & Location: _____

Sample Group: Soil Borings

Date Collected: 2/28/90 - 3/6/90 Matrix: Soil

PARAMETERS:

ICP	A	Furnace AA	A
CV	A	Flame AA	N
MSA	N	Cyanide	A

QC CRITERIA: *

A - Acceptable:	All criteria met and instrument calibrated daily.
P - Provisional:	All criteria not met, data of reasonable quality, data unusable.
U - Unacceptable:	Criteria not met; data unusable.
N - Not Applicable.	

REMARKS:

All criteria met.

*ATTACHMENTS: FORM IIA (All Parameters)

U.S. EPA -

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: NET-CAMBRIDGE DIVISION

Lab Code: CAMBRG Case No.: SDG#:

Initial Calibration Source:

Continuing Calibration Source:

Concentration Units:

	Initial Calibration			Continuing Calibration				
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium	25000.0	24730.00	98.9	50000.0	54660.000	109.3	51840.00	109.7
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

(1) Control Limits: Mercury 81-120; Other Metals 80-110; Cyanide

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: MET-CAMBRIDGE DIVISION   Contract: [illegible]

Lab Code: [illegible]   Case No.: [illegible]   SAS No.: [illegible]   SDG No.: [illegible]

Initial Calibration Source: [illegible]

Continuing Calibration Source: [illegible]

[illegible]

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]			
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]			
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				50000.0	50040.00	100.1	52180.00	104.4	
Selenium				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Silver				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Sodium				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Thallium				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide [illegible]

AR301206

000

[illegible]

Lab Name: [illegible]ET CAMBRIDGE DIVISION Contract: [illegible]

Lab Code: CAMB[illegible] Case No.: [illegible] SAS No.: [illegible] SDG No.: [illegible]

Initial Calibration Source: EP[illegible]

Continuing Calibration Source: [illegible]

Analyte								
[illegible]				[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				[illegible]	[illegible]	[illegible]		
Calcium				[illegible]	[illegible]	[illegible]		
[illegible]								
[illegible]				[illegible]	[illegible]	[illegible]		
[illegible]								
[illegible]				[illegible]	[illegible]	[illegible]		
[illegible]				[illegible]	[illegible]	[illegible]		
[illegible]				[illegible]	[illegible]	[illegible]		
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				[illegible]	[illegible]	[illegible]		
[illegible]				[illegible]	[illegible]	[illegible]		
[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]				[illegible]	[illegible]			
[illegible]				50000.0	52590.00	105.2		
Selenium				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Silver				[illegible]	[illegible]	[illegible]		
[illegible]				[illegible]	[illegible]	[illegible]		
Thallium				[illegible]	[illegible]	[illegible]		
Vanadium				[illegible]	[illegible]	[illegible]		
Zinc				[illegible]	[illegible]	[illegible]		
Cyanide								

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Lab Name: [illegible] Contract:

Lab Code: [illegible]

Initial Calibration Source: [illegible]

Continuing Calibration Source: [illegible]

	10000.0	9880.00	98.8	10000.0	10340.00	103.4	10460.00	104.6
	2500	[illegible]	[illegible]	[illegible]	10660.00	106.6	10610.00	106.1
	[illegible]	[illegible]	[illegible]	[illegible]	10580.00	105.8	10480.00	104.8
	[illegible]	[illegible]	[illegible]	[illegible]	10030.00	100.3	10370.00	103.7
	2500.0	2471.00	98.8	10000.0	10370.00	103.7	10320.0	103.2

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide [illegible]

FORM II (PART 1 - IN)

U.S. EPA - CLP

3
BLANKS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	1442cs Prepa-ration Blank	C	M
Aluminum	60.0	U	60.0	U	60.0	U	60.0	U	[illegible]	U	P
Antimony	60.0	U	60.0	U	60.0	U	60.0	U	[illegible]	U	P
Arsenic	4.0	U	4.0	U	4.0	U	[illegible]	U	[illegible]		F
Barium	32.0	U	32.0	U	32.0	U	32.0	U	[illegible]		P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	[illegible]	U	P
Calcium	33.0	U	187.4	B	33.0	U	195.7	B	[illegible]	U	P
Chromium	10.0	U	10.0	U	10.0	U	10.0	U	[illegible]	U	P
Cobalt	30.0	U	30.0	U	30.0	U	33.8	B	[illegible]	U	P
Copper	5.0	U	5.0	U	5.0	U	7.7	B	[illegible]	U	P
Iron	20.0	U	20.0	U	20.0	U	20.0	U	[illegible]	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	[illegible]	U	F
Magnesium	70.0	U	70.0	U	70.0	U	70.0	U	[illegible]	U	P
Manganese	3.0	U	3.0	U	3.0	U	3.0	U	[illegible]	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	C
Nickel	15.0	U	15.0	U	15.0	U	15.0	U	[illegible]	U	P
Potassium	1470.0	B	830.0	U	830.0	U	830.0	U	[illegible]	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	[illegible]	U	F
Silver	8.0	U	8.0	U	8.0	U	8.0	U	8.600	U	P
Sodium	-247.9	B	-712.5	B	-712.5	B	-541.6	B	[illegible]	B	P
Thallium	5.0	U	5.0	U	5.0	U	5.0	U	[illegible]	U	F
Vanadium	11.0	U	11.0	U	11.0	U	11.0	U	[illegible]	U	P
Zinc	7.0	U	11.6	B	7.0	U	14.6	B	[illegible]	B	P
Cyanide	10.0	U	10.0	U	10.0	U			[illegible]	U	C

all prep blanks changed to appropriate units
5/7/90 RWS

U.S. EPA - CLP

3
BLANKS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 144

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C
Aluminum			60.0	U						
Antimony			60.0	U						
Arsenic	4.0	U	4.0	U	4.0	U				
Barium			32.0	U						
Beryllium			1.0	U						
Cadmium										
Calcium			33.0	U						
Chromium			10.0	U						
Cobalt			32.5	B	30.0	U	30.0	U		
Copper			5.0	U						
Iron			20.0	U						
Lead	2.0	U	2.0	U	2.0	U	2.0	U		
Magnesium			70.0	U						
Manganese			3.0	U						
Mercury			0.2	U	0.2	U	0.2	U		
Nickel			15.0	U						
Potassium			830.0	U						
Selenium			2.0	U						
Silver										
Sodium			-637.5	B						
Thallium										
Vanadium			11.0	U						
Zinc			8.6	B						
Cyanide	10.0	U	10.0	U						

3
BLANKS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C
Aluminum										
Antimony										
Arsenic	4.0	U	4.0	U	4.0	U	4.0	U		
Barium										
Beryllium										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Iron	20.0	U	20.0	U	31.6	B				
Lead			2.0	U	2.0	U				
Magnesium										
Manganese										
Mercury			-0.2		0.2	U	0.2	U		
Nickel										
Potassium										
Selenium										
Silver										
Sodium										
Thallium										
Vanadium										
Zinc										
Cyanide										

3
BLANKS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											N
Antimony											N
Arsenic	4.0	U	4.0	U	4.0	U	4.0	U			P
Barium											N
Beryllium											N
Cadmium											N
Calcium											N
Chromium											N
Cobalt											N
Copper											N
Iron											N
Lead	2.0	U	2.0	U	2.0	U	2.0	U			P
Magnesium											N
Manganese											N
Mercury			0.2	U	-0.2		-0.2				C
Nickel											N
Potassium											N
Selenium											N
Silver											N
Sodium											N
Thallium											N
Vanadium											N
Zinc											N
Cyanide											N

3
BLANKS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: BRIDG SAS No.: SDG No.: 1442C

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NF
Antimony											NF
Arsenic			4.0	U	4.0	U	4.0	U			F
Barium											NF
Beryllium											NF
Cadmium											NF
Calcium											NF
Chromium											NF
Cobalt											NF
Copper											NF
Iron											NF
Lead			2.0	U							F
Magnesium											NF
Manganese											NF
Mercury											NF
Nickel											NF
Potassium											NF
Selenium											NF
Silver											NF
Sodium											NF
Thallium											NF
Vanadium											NF
Zinc											NF
Cyanide											NF