116662

de maximis, inc.

9041 Executive Park Drive
Suite 601
Knoxville, TN 37923
(615) 691-5052

ORIGINAL
(Red)

Re: 3d (DATA VALIDATION)

November 4, 1991

VIA OVERNIGHT MAIL

Mr. Cesar Lee
United States Environmental Protection Agency
Region 3
841 Chestnut Building
Philadelphia, PA 19107

Re: Novak Sanitary Landfill Site
Lehigh County, Pennsylvania

Dear Mr. Lee:

Enclosed are seven copies of responses prepared by Geraghty & Miller in response to comments of the United States Environmental Protection Agency (EPA) dated June 12, 1991 and subsequently clarified in August and September 1991. The comments of the EPA related to the data validation and report for the Leachage/Drainageways (First Set).

If you or your staff have any questions regarding the enclosed, please do not hesitate to contact me.

Sincerely,
de maximis, inc.

Mark A. Travers
Senior Project Manager

psm

cc: Lawrence Diamond, Esquire
Meg Mustard, PADER

lee3.ltr\disk:2

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AR304911

GERAGHTY
& MILLER, INC.
Environmental Services

Ground Water *Engineering* *Hydrocarbon* *Remediation* *Education*

ORIGINAL
(Red)

September 24, 1991

Mr. Mark Travers
Senior Project Manager
de maximis, inc.
P.O. Box 90348
Knoxville, Tennessee 37990

Re: Novak Sanitary Landfill

Dear Mr. Travers:

This letter addresses the June 12, 1991 USEPA Region III comments regarding the Novak Sanitary Landfill data submitted March 12, 1991 by Geraghty & Miller, Inc.. Each particular issue and the associated, corrective action are presented in the following discussion:

1.0 Leachate/Drainageways (First Set)

1.1 Blanks for Volatile Organic Compound Analyses

All of the volatile organic compound (VOC) data were reevaluated and qualified by utilizing the method blank, field blank, or trip blank which has the highest level of VOC contamination. The application of this criterion to the validation process resulted in no changes to the VOC data.

1.2 Holding Time for Semivolatile Organic Compound Analyses

All of the samples were extracted for semivolatile organic compound analyses within the ten day holding time (from validated time of sample reciept [VTSR]) specified in the quality assurance project plan (QAPP), which was approved by the EPA Project Manager and the EPA Quality Assurance Officer. Therefore, as confirmed by the USEPA Region III correspondence dated August 5, 1991 (attached), none of the associated semivolatile sample data requires further qualification.

1.3 Duplicate Analysis for Mercury

Sample NSL-SW-2-01 was used for the laboratory duplicate analysis of inorganic parameters. In the original analysis, mercury was undetected in sample NSL-SW-2-01. Since this result is less than (<) the corresponding contract required detection limit (CRDL) which

201 West Passaic Street, 3rd Floor • Rochelle Park, New Jersey 07662 • (201) 909-0700 • FAX (201) 909-0568

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is 0.2 micrograms per liter [ug/L]), the ± CRDL criterion is used to evaluate the duplicate analysis. The result for mercury from the duplicate analysis (0.3690 ug/L) is outside of the quality control (QC) limit (± CRDL); therefore the result for mercury in sample NSL-SW-2-01 is qualified as estimated at the detection limit (UJ) and all of the associated sample data, for the same matrix (water), also are qualified as estimated (J) or estimated at the detection limit (UJ).

1.4 Serial Dilution Analysis of Zinc

The percent difference (%D) for the inductively coupled plasma (ICP) serial dilution analysis of zinc (17.4%), performed on sample NSL-SD-2-01, is outside of the QC limit (< 10%). Although the associated data were previously qualified in an appropriate manner, the laboratory did fail to flag the affected sample results with an "E". This flag has been added to the result for zinc in sample NSL-SD-2-01 as well as all of the associated sample data for the same matrix (soil).

2.0 Soil Borings

2.1 Transcription Errors between Form Is and Data Summary Forms

The following transcription errors have been corrected:

The result for arsenic in sample NSL-SB-1-01 has been changed from '12.00' to '[12.00]'. The result for iron in sample NSL-SB-1-08 has been changed from '87,400' to '37,400', and the result for magnesium, in the same sample, has been changed from '853 U' to '[853]'. Finally, the result for barium in sample NSL-SB-3-10 has been changed from '45.30' to '[45.30]'.

2.2 Inorganic Data Values Between the Instrument Detection Limit and the Contract Required Detection Limit

Inorganic data were previously footnoted with "1/" to indicate that the corresponding result is above the instrument detection limit (IDL) but below the CRDL (i.e. IDL < result < CRDL). In all cases, this footnote has been replaced with brackets ("[ ]") in accordance with USEPA Region III data validation guidelines.

GERAGHTY & MILLER, INC.

ORIGINAL
(Red)
3

The corrected validated data spreadsheets and Form Is are attached. Please call if you have any questions.

Sincerely,

GERAGHTY & MILLER, INC.

Cameron S. Dunnan
Staff Scientist

Anthony J. Rana
Project Scientist/Project Manager

for
J. Lawrence Hosmer, P.E.
Vice President/Project Officer

Novaklet\cd

received
8/9/91

ORIGINAL
(Red)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

August 5, 1991

Mr. Mark Travers, Senior Project Manager
de maximus, inc.
P.O. Box 90348
Knoxville, TN 37990

Re: Novak Sanitary Landfill
Leachate/Drainage Ways (First Set), Data Validation Oversight Comments

Dear Mr. Travers:

As you may recall, EPA commented that the semivolatile technical extraction holding time was exceeded for the soil samples, and that Region III applies that water extraction holding time to the soil samples. You responded that all soil samples were extracted within 8 or 9 days of sample collection, which was within the time frame set by the approved QAPP, and believed that the data should remain unqualified.

The QAPP states, in Table 7.1, that the holding time for semivolatiles is 10 days from VTSR until extraction, and 40 days after extraction. The QAPP was approved by both the EPA Project Manager and the EPA Quality Assurance Officer.

I agree that since the QAPP was approved by EPA the semivolatile data does not need to be qualified.

On a related subject: Nancy Lane of Geraghty & Miller, Inc. contacted Pei-Fung Hurst of EPA ECAO-Cincinnati for 30 or so RfDs and RfCs for compounds at the Novak site. Requests such as this should be first directed to Dr. Roy Smith, EPA Region III, at (215) 597-6682. Please advise Geraghty & Miller to contact Dr. Smith for all toxicological-related requests.

If you have any questions, I can be reached at (215) 597-3216.

Sincerely,

Lisa Nichols

Lisa Nichols
Project Manager

c: P. Anderson (3HW21)
T. Simpson (3ES23)
R. Smith (3HW15)

Novak Sanitary Landfill

Leachate/Drainageways - Water
Analytical Data for Metals and Cyanide with Assigned Qualifier Codes
(Results in µg/L)

Parameters	NSL-SW 1-01	NSL-SW 2-01	NSL-SW 3-01	NSL-SW 4-01	NSL-SW 4-01B	NSL-SW 5-01	NSL-SW 6-01	NSL-LH 7-01
Aluminum	277.00	223.00	443.00	208.00	60.00 U	405.00	640.00	1,300.00
Antimony	60.00 U	60.00 U	60.00 U	60.00 U	60.00 U	60.00 U	60.00 U	60.00 U
Arsenic	4.00 UL	4.00 UL	4.00 U	4.00 U	4.00 U	4.00 UL	4.00 U	4.00 U
Barium	59.50	81.20	32.00 U	790.00	32.00 U	336.00	126.00	1,790.00
Beryllium	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.20
Cadmium	5.00 U	5.00 U	6.00	26.40	5.00 U	9.30	12.80	60.50
Calcium	43,800.00	107,000.00	21,600.00	153,000.00	282.00	57,900.00	118,000.00	201,000.00
Chromium	17.20	10.00 U	10.00 U	20.80	10.00 U	10.00 U	10.00 U	44.50
Cobalt	30.00 U	30.00 U	30.00 U	39.90 B	30.00 U	30.00 U	30.00 U	30.00 U
Copper	16.30 B	15.90 B	78.10	359.00	8.20 B	19.90 B	9.10 B	46.20 B
Iron	784.00 K	462.00 K	713.00 K	92,000.00 K	38.90	3,110.00 K	8,900.00 K	299,000.00 K
Lead	8.00 K	2.80 J	15.50 J	60.10 K	2.00 U	7.40 K	5.20 K	15.60 J
Magnesium	9,940.00	33,100.00	4,260.00	98,000.00	70.00 U	78,400.00	21,200.00	127,000.00
Manganese	65.20	17.90	77.10	3,820.00	3.00 U	2,200.00	540.00	1,450.00
Mercury	0.20 UJ	0.20 UJ	0.20 UJ	[0.32] J	0.20 UJ	0.20 UJ	0.20 UJ	0.20 UJ
Nickel	18.80	16.60	18.00	374.00	15.00 U	36.00	15.00 U	92.80
Potassium	6,990.00	16,800.00	3,550.00	21,400.00	830.00 U	36,400.00	11,200.00	104,000.00
Selenium	2.00 U	2.00 U	2.00 U	2.00 UL	2.00 U	2.00 U	2.00 U	2.00 UL
Silver	R	R	R	R	R	R	R	8.20 L
Sodium	16,500.00 J	32,400.00 J	9,200.00 B	48,100.00 J	1,910.00 B	71,800.00 J	25,400.00 J	145,000.00 J
Thallium	5.00 UL	5.00 U	5.00 U	5.00 UL	5.00 U	5.00 UL	5.00 U	5.00 UL
Vanadium	11.00 U	11.00 U	11.00 U	13.00	11.00 U	11.00 U	11.00 U	40.50
Zinc	24.50 B	23.20 B	21.90 B	762.00	9.50 B	77.90	21.70 B	142.00
Cyanide	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	13.90	5.00 U	10.00 U

30AUG90 Ba

AR304916

Novak Sanitary Landfill

Soil Borings
Analytical Data for Metals and Cyanide with Assigned Qualifier Codes
(Results in mg/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	R	R	R	R	R	R	16.20 UL
Arsenic	[12.00]	9.00	16.70	[1.1]	18.10	9.81	5.50
Barium	113.00	40.70	[19.70]	[10.50]	[32.20]	69.90	63.60
Beryllium	[0.89]	1.60	11.90	1.50	0.53 U	0.53 U	[0.29]
Cadmium	12.40	13.30	9.40	6.50	13.30	40.50	3.70
Calcium	3,470.00 J	[390.00] J	[253.00] B	194,000.00 J	1,400.00 J	[449.00] J	[490.00] J
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	37,400.00	19,300.00	6,450.00	38,200.00	—	19,200.00
Lead	60.60 J	30.70 K	25.80 K	12.00 K	40.20 K	28.30 K	38.30 K
Magnesium	1,600.00	[853.00]	[540.00]	101,000.00	[508.00]	[672.00]	[509.00]
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]	[328.07] B	1,590.00	658.00	1,270.00	1,190.00 B
Selenium	[0.72] L	0.51 UL	0.49 UL	0.45 UL	[0.99] L	0.53 UL	0.54 U
Silver	[2.50]	[2.50]	2.20 U	2.00 U	2.40 U	2.40 U	2.20 UL
Sodium	[60.20] B	[43.20] B	[36.60] B	[215.00] B	[57.50] B	[44.90] B	[208.00] B
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

ORIGINAL (Red)

GERAGHTY & MILLER, INC.

AR304917

Novak Sanitary Landfill

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

Parameters	NSL-SB 2-06	NSL-SB 3-01	NSL-SB 3-01 B*	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]	17.60
Barium	7.50 U	46.20	35.00 U	130.00	[45.30]	[15.50]
Beryllium	0.23 U	0.22 U	2.00 U	[0.99]	2.50	2.40
Cadmium	1.20 U	1.70	4.00 U	5.40	6.80	5.10
Calcium	[154.00] B	4,780.00 J	[118.00] B	[851.00] J	[814.00] J	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 UJ	25.90 B	19.40 B	11.80 B
Copper	[2.80] B	[4.60] B	[13.20] B	12.80	22.30	13.50
Iron	1,170.00	4,510.00	[65.10]	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]	2,190.00	[68.80] L	[504.00] L	[624.00] L	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] B	[660.00] B	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] L	2.60 UL
Sodium	[208.00] B	[145.00] B	830.00	[192.00] B	206.00 B	[194.00] B
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

ORIGINAL (Red)

* Results in ug/L

GERAGHTY & MILLER, INC.

AR304918

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SD101

NSL-SD-1-01

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1456CS

Matrix (soil/water): SOIL Lab Sample ID: 04158-01S

Level (low/med): LOW Date Received: 04/12/90

% Solids: 59.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3770.00			P
7440-36-0	Antimony	20.30	U	N	P
7440-38-2	Arsenic	1.40	U	N	F
7440-39-3	Barium	40.20	B		P
7440-41-7	Beryllium	2.10			P
7440-41-7	Cadmium	4.90			P
7440-70-2	Calcium	738.00	B		P
7440-47-3	Chromium	11.50	B		P
7440-48-4	Cobalt	14.10	B		P
7440-50-8	Copper	7.20	B		P
7439-89-6	Iron	13900.00		*	P
7439-92-1	Lead	5.20		*	F
7439-95-4	Magnesium	364.00	B	E	P
7439-96-5	Manganese	905.00		N*	P
7439-97-6	Mercury	0.17			~~HF~~ CV
7440-02-0	Nickel	20.60			P
7440-09-7	Potassium	1280.00	B		P
7782-49-2	Selenium	0.68	U	N	F
7440-22-4	Silver	2.70	U	N	P
7440-23-5	Sodium	6870.00		E	P
7440-28-0	Thallium	1.70 ~~0.09~~	U	N	F
7440-62-2	Vanadium	20.90			P
7440-66-6	Zinc	44.70		NE	P
	Cyanide	2.10	U	N	C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks and roots as artifacts.

FORM I - IN 7/87

AR304919

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SD201

NSL-SD-2-01

ORIGINAL 0003 (Red)

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1456CS

Matrix (soil/water): SOIL Lab Sample ID: 04158-05S

Level (low/med): LOW Date Received: 04/12/90

% Solids: 79.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6280.00			P
7440-36-0	Antimony	15.20	U	N	P
7440-38-2	Arsenic	2.20	B	N	F
7440-39-3	Barium	47.60	B		P
7440-41-7	Beryllium	1.20	B		P
7440-41-7	Cadmium	4.30			P
7440-70-2	Calcium	3990.00			P
7440-47-3	Chromium	8.30	B		P
7440-48-4	Cobalt	11.90	B		P
7440-50-8	Copper	10.90			P
7439-89-6	Iron	12200.00		*	P
7439-92-1	Lead	23.20		*	F
7439-95-4	Magnesium	1240.00	B	E	P
7439-96-5	Manganese	411.00		N*	P
7439-97-6	Mercury	0.13	U	N	~~NF~~
7440-02-0	Nickel	16.20			P
7440-09-7	Potassium	1240.00	B		P
7782-49-2	Selenium	0.51	U	N	F
7440-22-4	Silver	2.00	U	N	P
7440-23-5	Sodium	5140.00		E	P
7440-28-0	Thallium	1.30 ~~0.00~~	U	N	F
7440-62-2	Vanadium	20.10			P
7440-66-6	Zinc	58.60		NE	P
	Cyanide	1.60	U	N	C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks and roots as artifacts.

FORM I - IN 7/87

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U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SD301

NSL-SD-3-01

ORIGINAL (Red)

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1456CS

Matrix (soil/water): SOIL Lab Sample ID: 04158-04S

Level (low/med): LOW Date Received: 04/12/90

% Solids: 70.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2510.00			P
7440-36-0	Antimony	17.10	U	N	P
7440-38-2	Arsenic	1.10	B	NW	F
7440-39-3	Barium	27.40	B		P
7440-41-7	Beryllium	0.96	B		P
7440-41-7	Cadmium	1.60			P
7440-70-2	Calcium	844.00	B		P
7440-47-3	Chromium	4.70	B		P
7440-48-4	Cobalt	10.80	B		P
7440-50-8	Copper	1.40	U		P
7439-89-6	Iron	3280.00		*	P
7439-92-1	Lead	4.60		*	F
7439-95-4	Magnesium	604.00	B	E	P
7439-96-5	Manganese	475.00		N*	P
7439-97-6	Mercury	0.14	U	X	CV
7440-02-0	Nickel	9.60	B		P
7440-09-7	Potassium	1450.00			P
7782-49-2	Selenium	0.56	U	N	F
7440-22-4	Silver	2.70	B	N	P
7440-23-5	Sodium	5700.00		E	P
7440-28-0	Thallium	1.40	U	N	F
7440-62-2	Vanadium	10.00	B		P
7440-66-6	Zinc	10.80		NE	P
	Cyanide	1.70	U	N	C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks and roots as artifacts.

FORM I - IN 7/87

AR304921

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SD401

NSL-SD-4-01

ORIGINAL 0005

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1456CS

Matrix (soil/water): SOIL Lab Sample ID: 04158-02S

Level (low/med): LOW Date Received: 04/12/90

% Solids: 74.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	791.00			P
7440-36-0	Antimony	15.90	U	N	P
7440-38-2	Arsenic	1.80	B	N	P
7440-39-3	Barium	13.60	B		P
7440-41-7	Beryllium	0.53	B		P
7440-41-7	Cadmium	1.30	U		P
7440-70-2	Calcium	432.00	B		P
7440-47-3	Chromium	3.00	B		P
7440-48-4	Cobalt	5.40	B		P
7440-50-8	Copper	1.30	U		P
7439-89-6	Iron	1730.00		*	P
7439-92-1	Lead	17.20		*	P
7439-95-4	Magnesium	234.00	B	E	P
7439-96-5	Manganese	81.10		N*	P
7439-97-6	Mercury	0.14	U		CV
7440-02-0	Nickel	10.00	B		P
7440-09-7	Potassium	1160.00	B		P
7782-49-2	Selenium	0.54	U	N	P
7440-22-4	Silver	2.10	U	N	P
7440-23-5	Sodium	5460.00		E	P
7440-28-0	Thallium	1.40 ~~0.44~~	U	N	F
7440-62-2	Vanadium	8.00	B		P
7440-66-6	Zinc	8.80		N E	P
	Cyanide	1.50	U	N	C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks and roots as artifacts.

AR304922

U.S. EPA - CLP

.0006 8

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SD501

NL-SD-5-01 ORIGINAL (Red)

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1456CS

Matrix (soil/water): SOIL Lab Sample ID: 04194-01S

Level (low/med): LOW Date Received: 04/13/90

% Solids: 76.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16600.00			P
7440-36-0	Antimony	31.90		N	P
7440-38-2	Arsenic	7.80		N	F
7440-39-3	Barium	58.40			P
7440-41-7	Beryllium	1.70			P
7440-41-7	Cadmium	11.30			P
7440-70-2	Calcium	471.00	B		P
7440-47-3	Chromium	17.80			P
7440-48-4	Cobalt	26.20			P
7440-50-8	Copper	23.00			P
7439-89-6	Iron	36000.00		*	P
7439-92-1	Lead	13.10		*	F
7439-95-4	Magnesium	1090.00	B	E	P
7439-96-5	Manganese	807.00		NR	P
7439-97-6	Mercury	0.13			~~NR~~
7440-02-0	Nickel	40.80			P
7440-09-7	Potassium	2090.00			P
7782-49-2	Selenium	0.51	U	N	F
7440-22-4	Silver	2.40	B	N	P
7440-23-5	Sodium	4650.00		E	P
7440-28-0	Thallium	1.30 ~~0.50~~	U	N	F
7440-62-2	Vanadium	31.60			P
7440-66-6	Zinc	86.00		NE	P
	Cyanide	1.50	U	N	C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks and roots as artifacts.

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SD601

NSL-SD-6-01

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1456CS

Matrix (soil/water): SOIL Lab Sample ID: 04194-02S

Level (low/med): LOW Date Received: 04/13/90

% Solids: 61.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9830.00			P
7440-36-0	Antimony	19.50	U	N	P
7440-38-2	Arsenic	8.00		N	F
7440-39-3	Barium	46.30	B		P
7440-41-7	Beryllium	1.70			P
7440-41-7	Cadmium	6.80			P
7440-70-2	Calcium	832.00	B		P
7440-47-3	Chromium	14.90	B		P
7440-48-4	Cobalt	11.60	B		P
7440-50-8	Copper	11.30			P
7439-89-6	Iron	21100.00		*	P
7439-92-1	Lead	15.80		*	F
7439-95-4	Magnesium	1050.00	B	E	P
7439-96-5	Manganese	106.00		EN	P
7439-97-6	Mercury	0.15	U		~~P~~ F 4/12/90
7440-02-0	Nickel	31.00			P
7440-09-7	Potassium	2270.00			P
7782-49-2	Selenium	0.65	U	N	F
7440-22-4	Silver	2.60	U	N	P
7440-23-5	Sodium	6510.00		E	P
7440-28-0	Thallium	1.60 ~~1.50~~	U	N	F 4/11/90
7440-62-2	Vanadium	31.50			P
7440-66-6	Zinc	71.20		NE	P
	Cyanide	1.80	U	N	C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks and roots as artifacts.

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS701

NSL-SS-7-01 SS

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1456CS

Matrix (soil/water): SOIL Lab Sample ID: 04194-03S

Level (low/med): LOW Date Received: 04/13/90

% Solids: 39.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7330.00			P
7440-36-0	Antimony	109.00	N		P
7440-38-2	Arsenic	6.50	N		F
7440-39-3	Barium	636.00			P
7440-41-7	Beryllium	1.50	B		P
7440-41-7	Cadmium	30.80			P
7440-70-2	Calcium	15900.00			P
7440-47-3	Chromium	20.30	B		P
7440-48-4	Cobalt	19.30	B		P
7440-50-8	Copper	9.80	B		P
7439-89-6	Iron	113000.00		*	P
7439-92-1	Lead	5.30		*+	F
7439-95-4	Magnesium	2320.00	B	E	P
7439-96-5	Manganese	392.00		N*	P
7439-97-6	Mercury	0.26			
7440-02-0	Nickel	56.00			P
7440-09-7	Potassium	2790.00			P
7782-49-2	Selenium	1.00	U	N	F
7440-22-4	Silver	4.30	B	N	P
7440-23-5	Sodium	9980.00		E	P
7440-28-0	Thallium	2.60	U	N	F
7440-62-2	Vanadium	35.10			P
7440-66-6	Zinc	95.80		NE	P
	Cyanide	2.60	U	N	C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had rocks and roots as artifacts.

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO:

SS801
NSL-SS-8-01

Lab Name: NET-CAMBRIDGE DIVISION Contract:

Lab Code: CAMBRG Case No.: NOVAK SAS No.: SDG No.: 1456CS

Matrix (soil/water): SOIL Lab Sample ID: 04194-04S

Level (low/med): LOW Date Received: 04/13/90

% Solids: 82.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7030.00			P
7440-36-0	Antimony	14.50	U	N	P
7440-38-2	Arsenic	7.20		N	F
7440-39-3	Barium	217.00			P
7440-41-7	Beryllium	1.20	B		P
7440-41-7	Cadmium	5.60			P
7440-70-2	Calcium	5790.00			P
7440-47-3	Chromium	11.00	B		P
7440-48-4	Cobalt	9.10	B		P
7440-50-8	Copper	9.50			P
7439-89-6	Iron	17600.00		*	P
7439-92-1	Lead	20.60		*	F
7439-95-4	Magnesium	1400.00		E	P
7439-96-5	Manganese	429.00		N*	P
7439-97-6	Mercury	0.12	U		NR
7440-02-0	Nickel	26.70			P
7440-09-7	Potassium	1980.00			P
7782-49-2	Selenium	0.48	U	N	F
7440-22-4	Silver	2.30	B	N	P
7440-23-5	Sodium	4880.00		E	P
7440-28-0	Thallium	1.20 ~~0.041~~	~~B~~ U	N	F
7440-62-2	Vanadium	21.10			P
7440-66-6	Zinc	49.50		NE	P
	Cyanide	1.20	U	N	C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: COLORLESS Clarity After: Artifacts: YES

Comments:

The sample had bits of paper as artifacts.

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