J.K.

Los Alamos
NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

APR 1999
RECEIVED

Date: April 8, 1999
In Reply Refer To: ESH-18/WQ&H:99-0132
Mail Stop: K497
Telephone: (505) 665-1859

Ms. Marcy Leavitt, Chief
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

SUBJECT: ANALYTICAL RESULTS FROM SAMPLING GROUND WATER DURING DRILLING OF MONITORING WELL R-25 AT 1867, 1939, 1940, AND 1942 FOOT DEPTHS

Dear Ms. Leavitt:

Enclosed are copies of the validated analytical reports for samples collected from Monitoring Well R-25 at the following depths: 1867, 1939, 1940, and 1942 feet. Discussion of the enclosed analytical reports is presented below.

1867 feet

On February 20, 1999, samples CACV-99-0017 (filtered sample), CACV-99-0018 (nonfiltered sample), and CACV-99-0019 (nonfiltered sample) were collected from R-25 at 1867 feet. Analysis of CACV-99-0017 (filtered sample) for metals did not confirm the presence of any target analytes at concentrations greater than the New Mexico Water Quality Control Commission (WQCC) Section 3103 Ground Water Standards. Validation of the data resulted in the addition of the following qualifiers to the report: (1) Non-detected results ("U") for three analytes (Be, Co, and Tl) because the amount in the sample could not be distinguished from the amount in the associated blank; and (2) Estimated results ("J") for three analytes (Ba, Fe, and Zn) because of problems indicated by the serial dilution.

Analysis of sample CACV-99-0018 (nonfiltered sample) for high-explosives (HE) detected RDX (0.97 ug/L) and 2,6-dinitrotoluene (0.27 ug/L) in the sample at concentrations greater than the laboratory's reporting limit. Validation of the data confirmed that the results are acceptable as reported.

Analysis of CACV-99-0019 (nonfiltered sample) for high-explosives (HE) did not confirm the presence of any target analytes at concentrations greater than the laboratory's reporting limit. Validation of the data confirmed that the results are acceptable as reported.

1939 feet

On February 23, 1999, one sample, CACV-99-0024 (nonfiltered sample) was collected from R-25 at 1939 feet. Analysis of sample CACV-99-0024 (nonfiltered sample) for high-explosives (HE) did not confirm the presence of any target analytes at concentrations greater than the laboratory's reporting limit. Validation of the data confirmed that the results are acceptable as reported.

6162

1940 feet

On February 23, 1999, three samples, CACV-99-0025 (nonfiltered sample), CACV-99-0026 (filtered sample), and CACV-99-0028 (nonfiltered sample), were collected from R-25 at 1940 feet. Analysis of sample CACV-99-0025 (nonfiltered sample) for high-explosives (HE) detected the following five target analytes at concentrations greater than the laboratory's reporting limit: HMX (1.5 ug/L); RDX (8.8 ug/L); 2,4,6-trinitrotoluene (0.77 ug/L); 4-amino-2,6-DNT (1.7 ug/L); and 2-amino-4,6-DNT (0.69 ug/L). Validation of the data confirmed that the results are acceptable as reported.

Analysis of CACV-99-0026 (filtered sample) for metals did not confirm the presence of any target analytes at concentrations greater than the New Mexico Water Quality Control Commission (WQCC) Section 3103 Ground Water Standards. Validation of the data resulted in the addition of the following qualifiers to the report: (1) Non-detected results ("U" or "UJ") for eight analytes (Al, Be, Co, Cu, Pb, Ni, Se, and Zn) because of blank contamination; and (2) Estimated results ("J") for three analytes (Cu, Na, and Zn) because of problems indicated by the serial dilution.

Analysis of sample CACV-99-0028 (nonfiltered sample) for high-explosives (HE) detected the following six target analytes at concentrations greater than the laboratory's reporting limit: HMX (1.6 ug/L); RDX (9.6 ug/L); 2,4,6-trinitrotoluene (1.1 ug/L); 4-amino-2,6-DNT (1.8 ug/L); 2-amino-4,6-DNT (0.79 ug/L); and 2,4-dinitrotoluene (0.27 ug/L). Validation of the data confirmed that the results are acceptable as reported.

1942 feet

On February 24, 1999, one sample, CACV-99-0045 (nonfiltered sample) was collected from R-25 at 1942 feet. Analysis of sample CACV-99-0045 (nonfiltered sample) for high-explosives (HE) detected the following three target analytes at concentrations greater than the laboratory's reporting limit: RDX (5.9 ug/L); 2,4,6-trinitrotoluene (0.64 ug/L); and 4-amino-2,6-DNT (1.1 ug/L). Validation of the data confirmed that the results are acceptable as reported.

On February 26, 1999, two samples, CACV-99-0049 (nonfiltered sample) and CACV-99-0050 (filtered sample), were collected from R-25 at 1942 feet. Analysis of sample CACV-99-0049 (nonfiltered sample) for high-explosives (HE) detected the following two target analytes at concentrations greater than the laboratory's reporting limit: RDX (4.5 ug/L); and 4-amino-2,6-DNT (0.57 ug/L). Validation of the data confirmed that the results are acceptable as reported.

Analysis of CACV-99-0050 (filtered sample) for metals did not confirm the presence of any target analytes at concentrations greater than the New Mexico Water Quality Control Commission (WQCC) Section 3103 Ground Water Standards with the exception of manganese (sample CACV-99-0050 concentration for Mn is 0.307 mg/L, NM WQCC 3103 ground water standard for Mn is 0.2 mg/L). Validation of the data resulted in the addition of the following qualifiers to the report: (1) Non-detected results ("U" or "UJ") for six analytes (Al, Be, Cu, Hg, Pb, and Sb) because of blank contamination; and (2) Non-detected results with estimated reporting limits ("UJ") for selenium (Sb) because of problems indicated by the matrix spike.

Please contact me at 667-1859, or Bob Beers at 667-7969, if you need any additional information regarding this data.

Sincerely,

Steven Rae
Group Leader
Water Quality and Hydrology Group

BB:SR/mm

Enclosures: a/s

Cy: J. Keiling, NMED/HRMB, Santa Fe, New Mexico, w/enc.
J. Young, NMED/HRMB, Santa Fe, New Mexico, w/enc.
J. Davis, NMED/SWQB, Santa Fe, New Mexico, w/enc.
B. Hoditschek, NMED/SWQB, Santa Fe, New Mexico, w/enc.
S. Yanicek, NMED/DOE/OB, w/enc., MS J993
J. Vozella, DOE/LAAO, w/enc., MS A316
R. Burick, DIR, w/enc., MS A100
T. Gunderson, DIR, w/enc., A100
T. Baca, EM-DO, w/enc., MS J591
J. Canepa, EM/ER, w/enc., MS M992
T. George, EM/ER, w/enc., MS M992
A. Pratt, EES-13, w/enc., MS M992
D. Broxton, EES-1, w/enc., MS D462
D. McInroy, EM/ER, w/enc., MS M992
R. Bohn, EM/ER, w/enc., MS M992
D. Erickson, ESH-DO, w/enc., MS K491
S. Veenis, ER/ESH-18, w/enc., MS K497
M. Saladen, ESH-18, w/enc., MS K497
B. Beers, ESH-18, w/enc., MS K497
D. Woitte, LC-GEN, w/enc., MS A187
WQ&H File, w/enc., MS K497
CIC-10, w/enc., MS A150

867' ~~1747'~~ filtered

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0017

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5240R_

Matrix (soil/water): WATER Lab Sample ID: 9902153-1

Level (low/med): LOW__ Date Received: 02/23/99

% 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_	109	B		P	
7440-36-0	Antimony_	2.3	U		P	
7440-38-2	Arsenic__	1.9	U		P	
7440-39-3	Barium___	10.5	~~B~~	~~E~~	P	J
7440-41-7	Beryllium	0.30	~~B~~		P	U
7440-43-9	Cadmium__	0.20	U		P	
7440-70-2	Calcium__	5500			P	
7440-47-3	Chromium_	0.74	~~B~~		P	
7440-48-4	Cobalt___	1.3	~~B~~		P	U
7440-50-8	Copper___	2.0	~~B~~		P	
7439-89-6	Iron_____	620		~~E~~	P	J
7439-92-1	Lead_____	1.0	~~B~~		P	
7439-95-4	Magnesium	2100	~~B~~		P	
7439-96-5	Manganese	105			P	
7439-97-6	Mercury__	0.03	U		AV	
7440-02-0	Nickel___	15.5	~~B~~		P	
7440-09-7	Potassium	2540	~~B~~		P	
7782-49-2	Selenium_	3.4	~~B~~		P	
7440-22-4	Silver___	1.0	U		P	
7440-23-5	Sodium___	9100			P	
7440-28-0	Thallium_	6.4	~~B~~		P	U
7440-62-2	Vanadium_	0.92	~~B~~		P	
7440-66-6	Zinc_____	29.9		~~E~~	P	J

3/10/99

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

1867' ~~1747~~'
nonfiltered

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0018

Lab Name: PARAGON_ANALYTICS_____ Contract: _____
Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5240R_
Matrix (soil/water): WATER Lab Sample ID: 9902153-2
Level (low/med): LOW__ Date Received: 02/23/99
% 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_	2270			P	
7440-36-0	Antimony_	14.5	B		P	
7440-38-2	Arsenic__	5.2	B		P	
7440-39-3	Barium___	42.2	B	E	P	J
7440-41-7	Beryllium	0.54	B		P	u
7440-43-9	Cadmium__	0.20	U		P	
7440-70-2	Calcium__	6370			P	
7440-47-3	Chromium_	262			P	
7440-48-4	Cobalt___	4.7	B		P	
7440-50-8	Copper___	40.2			P	
7439-89-6	Iron_____	17000		E	P	J
7439-92-1	Lead_____	97.2			P	
7439-95-4	Magnesium	2460	B		P	
7439-96-5	Manganese	212			P	
7439-97-6	Mercury__	0.03	U		AV	
7440-02-0	Nickel___	143			P	
7440-09-7	Potassium	2870	B		P	
7782-49-2	Selenium_	4.6	B		P	
7440-22-4	Silver___	1.0	U		P	
7440-23-5	Sodium___	9440			P	
7440-28-0	Thallium_	12.0			P	u
7440-62-2	Vanadium_	7.4	B		P	
7440-66-6	Zinc_____	201		E	P	J

3/10/99

Color Before: BROWN____ Clarity Before: CLOUDY Texture: N/A___
Color After: LT.BROWN_ Clarity After: CLEAR_ Artifacts: _____

Comments:

Nitroaromatics And Nitramines

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902154
Client Name: Los Alamos National Laboratory
ClientProject ID: 5239R

1867 FL boiler
nonfiltered

Reported on: Tuesday, March 02, 1999

Field ID:	CACV-99-0018
Lab ID:	9902154-1

Sample Matrix: Liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 20-Feb-99
Date Extracted: 24-Feb-99
Date Analyzed: 25-Feb-99
Prep Batch: EX990224-1

Sample Aliquot: 350
Final Volume: 3
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	1	ug/L	1	U	
121-82-4	RDX	0.97	ug/L	0.84		
99-35-4	1,3,5-TRINITROBENZENE	0.26	ug/L	0.26	U	
99-65-0	1,3-DINITROBENZENE	0.25	ug/L	0.25	U	
479-45-8	TETRYL	1	ug/L	1	U	
98-95-3	NITROBENZENE	1	ug/L	1	U	
118-96-7	2,4,6-TRINITROTOLUENE	0.25	ug/L	0.25	U	
1946-51-0	4-AMINO-2,6-DNT	0.25	ug/L	0.25	U	
35572-78-2	2-AMINO-4,6-DNT	0.25	ug/L	0.25	U	
606-20-2	2,6-DINITROTOLUENE	0.27	ug/L	0.25		
121-14-2	2,4-DINITROTOLUENE	0.25	ug/L	0.25	U	
88-72-2	2-NITROTOLUENE	1	ug/L	1	U	
99-99-0	4-NITROTOLUENE	1	ug/L	1	U	
99-08-1	3-NITROTOLUENE	1	ug/L	1	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	3.4	ug/l	4.29	79	34 - 106

U = Less than the Reporting Limit

3/26/99

Nitroaromatics And Nitramines

Method SW8330

nonfiltered
1867 ft
cyclone

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902154
Client Name: Los Alamos National Laboratory
ClientProject ID: 5239R

Reported on: Tuesday, March 02, 1999

[redacted]	CACV-99-0019
[redacted]	9902154-2

Sample Matrix: Liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 20-Feb-99
Date Extracted: 24-Feb-99
Date Analyzed: 25-Feb-99
Prep Batch: EX990224-1

Sample Aliquot: 350
Final Volume: 3
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	1	ug/L	1	U	
121-82-4	RDX	0.84	ug/L	0.84	U	
99-35-4	1,3,5-TRINITROBENZENE	0.26	ug/L	0.26	U	
99-65-0	1,3-DINITROBENZENE	0.25	ug/L	0.25	U	
479-45-8	TETRYL	1	ug/L	1	U	
98-95-3	NITROBENZENE	1	ug/L	1	U	
118-96-7	2,4,6-TRINITROTOLUENE	0.25	ug/L	0.25	U	
1946-51-0	4-AMINO-2,6-DNT	0.25	ug/L	0.25	U	
35572-78-2	2-AMINO-4,6-DNT	0.25	ug/L	0.25	U	
606-20-2	2,6-DINITROTOLUENE	0.25	ug/L	0.25	U	
121-14-2	2,4-DINITROTOLUENE	0.25	ug/L	0.25	U	
88-72-2	2-NITROTOLUENE	1	ug/L	1	U	
99-99-0	4-NITROTOLUENE	1	ug/L	1	U	
99-08-1	3-NITROTOLUENE	1	ug/L	1	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	2.88	ug/l	4.29	67	34 - 106

U = Less than the Reporting Limit

3/26/99

Nitroaromatics And Nitramines

Method SW8330

nonfiltered
193-ft
cyclone

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902172
Client Name: Los Alamos National Laboratory
ClientProject ID: 5259R

Reported on: Tuesday, March 23, 1999

[redacted]	CACV-99-0024
[redacted]	9902172-1

Sample Matrix: Liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 23-Feb-99
Date Extracted: 26-Feb-99
Date Analyzed: 02-Mar-99
Prep Batch: EX990226-1

Sample Aliquot: 350
Final Volume: 3
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	1	ug/L	1	U	
121-82-4	RDX	0.84	ug/L	0.84	U	
99-35-4	1,3,5-TRINITROBENZENE	0.26	ug/L	0.26	U	
99-65-0	1,3-DINITROBENZENE	0.25	ug/L	0.25	U	
479-45-8	TETRYL	1	ug/L	1	U	
98-95-3	NITROBENZENE	1	ug/L	1	U	
118-96-7	2,4,6-TRINITROTOLUENE	0.25	ug/L	0.25	U	
1946-51-0	4-AMINO-2,6-DNT	0.25	ug/L	0.25	U	
35572-78-2	2-AMINO-4,6-DNT	0.25	ug/L	0.25	U	
606-20-2	2,6-DINITROTOLUENE	0.25	ug/L	0.25	U	
121-14-2	2,4-DINITROTOLUENE	0.25	ug/L	0.25	U	
88-72-2	2-NITROTOLUENE	1	ug/L	1	U	
99-99-0	4-NITROTOLUENE	1	ug/L	1	U	
99-08-1	3-NITROTOLUENE	1	ug/L	1	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	3.5	ug/l	4.29	82	34 - 106

U = Less than the Reporting Limit

3/25/99

Nitroaromatics And Nitramines

Method SW8330

1940ft
cyclone
nonfiltered

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902172
Client Name: Los Alamos National Laboratory
ClientProject ID: 5259R

Reported on: Wednesday, March 03, 1999

Field ID:	CACV-99-0025
Lab ID:	9902172-2

Sample Matrix: Liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 23-Feb-99
Date Extracted: 26-Feb-99
Date Analyzed: 03-Mar-99
Prep Batch: EX990226-1

Sample Aliquot: 350
Final Volume: 3
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	1.5	ug/L	1		
121-82-4	RDX	8.8	ug/L	0.84		
99-35-4	1,3,5-TRINITROBENZENE	0.26	ug/L	0.26	U	
99-65-0	1,3-DINITROBENZENE	0.25	ug/L	0.25	U	
479-45-8	TETRYL	1	ug/L	1	U	
98-95-3	NITROBENZENE	1	ug/L	1	U	
118-96-7	2,4,6-TRINITROTOLUENE	0.77	ug/L	0.25		
1946-51-0	4-AMINO-2,6-DNT	1.7	ug/L	0.25		
35572-78-2	2-AMINO-4,6-DNT	0.69	ug/L	0.25		
606-20-2	2,6-DINITROTOLUENE	0.25	ug/L	0.25	U	
121-14-2	2,4-DINITROTOLUENE	0.25	ug/L	0.25	U	
88-72-2	2-NITROTOLUENE	1	ug/L	1	U	
99-99-0	4-NITROTOLUENE	1	ug/L	1	U	
99-08-1	3-NITROTOLUENE	1	ug/L	1	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	3.52	ug/l	4.29	82	34 - 106

U = Less than the Reporting Limit

BK
3/25/99

U.S. EPA - CLP

1940ft
Nonfiltered

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0025

Lab Name: PARAGON_ANALYTICS_____ Contract: _____
Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5260R_
Matrix (soil/water): WATER Lab Sample ID: 9902169-1
Level (low/med): LOW__ Date Received: 02/25/99
% 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_	11100			P	
7440-36-0	Antimony_	2.3	U		P	
7440-38-2	Arsenic__	2.9	~~B~~		P	U
7440-39-3	Barium___	137	~~B~~		P	
7440-41-7	Beryllium	1.4	~~B~~		P	U
7440-43-9	Cadmium__	0.20	U		P	
7440-70-2	Calcium__	13300			P	
7440-47-3	Chromium_	21.8			P	
7440-48-4	Cobalt___	7.6	~~B~~		P	
7440-50-8	Copper___	61.9		~~E~~	P	J
7439-89-6	Iron_____	39900			P	
7439-92-1	Lead_____	8.7			P	
7439-95-4	Magnesium	5550			P	
7439-96-5	Manganese	672			P	
7439-97-6	Mercury__	0.03	U		AV	
7440-02-0	Nickel___	22.2	~~B~~		P	
7440-09-7	Potassium	2590	~~B~~		P	
7782-49-2	Selenium_	4.0	~~B~~		P	U
7440-22-4	Silver___	1.2	~~B~~		P	U
7440-23-5	Sodium___	9230		~~E~~	P	J
7440-28-0	Thallium_	3.4	U		P	
7440-62-2	Vanadium_	9.4	~~B~~		P	
7440-66-6	Zinc_____	69.0		~~E~~	P	J

4/6/99

Color Before: BROWN____ Clarity Before: CLOUDY Texture: N/A___
Color After: LT_BROWN_ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

U.S. EPA - CLP

1940 ft
Filtered

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0026

Lab Name: PARAGON_ANALYTICS_____ Contract: _____
Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5260R_
Matrix (soil/water): WATER Lab Sample ID: 9902169-2
Level (low/med): LOW__ Date Received: 02/25/99
% 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_	273			P	U
7440-36-0	Antimony_	2.3	U		P	
7440-38-2	Arsenic__	1.9	U		P	
7440-39-3	Barium___	16.0	B		P	
7440-41-7	Beryllium	0.63	B		P	U
7440-43-9	Cadmium__	0.20	U		P	
7440-70-2	Calcium__	9530			P	
7440-47-3	Chromium_	0.60	U		P	
7440-48-4	Cobalt___	0.86	B		P	U
7440-50-8	Copper___	0.60	U	E	P	UJ
7439-89-6	Iron_____	493			P	
7439-92-1	Lead_____	0.80	U		P	UJ
7439-95-4	Magnesium	3230	B		P	
7439-96-5	Manganese	143			P	
7439-97-6	Mercury__	0.03	U		AV	
7440-02-0	Nickel___	3.5	B		P	U
7440-09-7	Potassium	1420	B		P	
7782-49-2	Selenium_	3.3	B		P	U
7440-22-4	Silver___	1.0	U		P	
7440-23-5	Sodium___	8000		E	P	J
7440-28-0	Thallium_	3.4	U		P	
7440-62-2	Vanadium_	0.70	U		P	
7440-66-6	Zinc_____	0.97	B	E	P	UJ

4/6/99

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

Nitroaromatics And Nitramines

Method SW8330

1940fL

Cyclone nonfiltered

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902172
Client Name: Los Alamos National Laboratory
ClientProject ID: 5259R

Reported on: Wednesday, March 03, 1999

[redacted]	CACV-99-0028
[redacted]	9902172-3

Sample Matrix: Liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 23-Feb-99
Date Extracted: 26-Feb-99
Date Analyzed: 03-Mar-99
Prep Batch: EX990226-1

Sample Aliquot: 350
Final Volume: 3
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	1.6	ug/L	1		
121-82-4	RDX	9.6	ug/L	0.84		
99-35-4	1,3,5-TRINITROBENZENE	0.26	ug/L	0.26	U	
99-65-0	1,3-DINITROBENZENE	0.25	ug/L	0.25	U	
479-45-8	TETRYL	1	ug/L	1	U	
98-95-3	NITROBENZENE	1	ug/L	1	U	
118-96-7	2,4,6-TRINITROTOLUENE	1.1	ug/L	0.25		
1946-51-0	4-AMINO-2,6-DNT	1.8	ug/L	0.25		
35572-78-2	2-AMINO-4,6-DNT	0.79	ug/L	0.25		
606-20-2	2,6-DINITROTOLUENE	0.25	ug/L	0.25	U	
121-14-2	2,4-DINITROTOLUENE	0.27	ug/L	0.25		
88-72-2	2-NITROTOLUENE	1	ug/L	1	U	
99-99-0	4-NITROTOLUENE	1	ug/L	1	U	
99-08-1	3-NITROTOLUENE	1	ug/L	1	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	3.51	ug/l	4.29	82	34 - 106

U = Less than the Reporting Limit

3/25/99

Nitroaromatics And Nitramines

Method SW8330

1942 ft
Cyclone
nonfiltered

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902186
Client Name: Los Alamos National Laboratory
ClientProject ID: 5264R

Reported on: Thursday, March 04, 1999

Field ID: CACV-99-0045
Lab ID: 9902186-1

Sample Matrix: Liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Feb-99
Date Extracted: 01-Mar-99
Date Analyzed: 02-Mar-99
Prep Batch: EX990301-2

Sample Aliquot: 350
Final Volume: 3
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	1	ug/L	1	U	
121-82-4	RDX	5.9	ug/L	0.84		
99-35-4	1,3,5-TRINITROBENZENE	0.26	ug/L	0.26	U	
99-65-0	1,3-DINITROBENZENE	0.25	ug/L	0.25	U	
479-45-8	TETRYL	1	ug/L	1	U	
98-95-3	NITROBENZENE	1	ug/L	1	U	
118-96-7	2,4,6-TRINITROTOLUENE	0.64	ug/L	0.25		
1946-51-0	4-AMINO-2,6-DNT	1.1	ug/L	0.25		
35572-78-2	2-AMINO-4,6-DNT	0.25	ug/L	0.25	U	
606-20-2	2,6-DINITROTOLUENE	0.25	ug/L	0.25	U	
121-14-2	2,4-DINITROTOLUENE	0.25	ug/L	0.25	U	
88-72-2	2-NITROTOLUENE	1	ug/L	1	U	
99-99-0	4-NITROTOLUENE	1	ug/L	1	U	
99-08-1	3-NITROTOLUENE	1	ug/L	1	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	3.87	ug/l	4.29	90	34 - 106

U = Less than the Reporting Limit

HV 4/5/99

Nitroaromatics And Nitramines

Method SW8330

1942 ft
bailer
nonfiltered

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9903007
Client Name: Los Alamos National Laboratory
ClientProject ID: 5288R

Reported on: Monday, March 29, 1999

Field ID: CACV-99-0049
Lab ID: 9903007-1

Sample Matrix: Liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 26-Feb-99
Date Extracted: 03-Mar-99
Date Analyzed: 05-Mar-99
Prep Batch: EX990303-2

Sample Aliquot: 350
Final Volume: 3
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	1	ug/L	1	U	
121-82-4	RDX	4.5	ug/L	0.84		
99-35-4	1,3,5-TRINITROBENZENE	0.26	ug/L	0.26	U	
99-65-0	1,3-DINITROBENZENE	0.25	ug/L	0.25	U	
479-45-8	TETRYL	1	ug/L	1	U	
98-95-3	NITROBENZENE	1	ug/L	1	U	
118-96-7	2,4,6-TRINITROTOLUENE	0.25	ug/L	0.25	U	
1946-51-0	4-AMINO-2,6-DNT	0.57	ug/L	0.25		
35572-78-2	2-AMINO-4,6-DNT	0.25	ug/L	0.25	U	
606-20-2	2,6-DINITROTOLUENE	0.25	ug/L	0.25	U	
121-14-2	2,4-DINITROTOLUENE	0.25	ug/L	0.25	U	
88-72-2	2-NITROTOLUENE	1	ug/L	1	U	
99-99-0	4-NITROTOLUENE	1	ug/L	1	U	
99-08-1	3-NITROTOLUENE	1	ug/L	1	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	3.55	ug/l	4.29	83	34 - 106

U = Less than the Reporting Limit

3/15/99

U.S. EPA - CLP

1942 ft

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
non filtered

CACV-99-0049

Lab Name: PARAGON_ANALYTICS_____ Contract: _____
Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5289R_
Matrix (soil/water): WATER Lab Sample ID: 9903006-1
Level (low/med): LOW__ Date Received: 03/02/99
% 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_	1740			P_	
7440-36-0	Antimony_	2.3	~~B~~	~~N~~	P_	UJ
7440-38-2	Arsenic__	1.9	U		P_	
7440-39-3	Barium___	33.5	~~B~~		P_	
7440-41-7	Beryllium	0.06	U		P_	UJ
7440-43-9	Cadmium__	0.20	U		P_	
7440-70-2	Calcium__	7320			P_	
7440-47-3	Chromium_	30.7			P_	
7440-48-4	Cobalt___	1.8	~~B~~		P_	
7440-50-8	Copper___	16.3	~~B~~		P_	
7439-89-6	Iron____	23900			P_	
7439-92-1	Lead____	6.3			P_	
7439-95-4	Magnesium	2960	~~B~~		P_	
7439-96-5	Manganese	499			P_	
7439-97-6	Mercury__	0.03	U		AV	UJ
7440-02-0	Nickel___	13.2	~~B~~		P_	
7440-09-7	Potassium	3000	~~B~~		P_	
7782-49-2	Selenium_	2.9	U		P_	
7440-22-4	Silver___	1.0	U		P_	
7440-23-5	Sodium___	9130			P_	
7440-28-0	Thallium_	3.4	U		P_	
7440-62-2	Vanadium_	3.9	~~B~~		P_	
7440-66-6	Zinc____	30.5			P_	

4/6/99

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

U.S. EPA - CLP

1942 ft
Filtered

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0050

Lab Name: PARAGON_ANALYTICS_____ Contract: _____
Lab Code: NA_____ Case No.: _____ SAS No.: _____ SDG No.: 5289R_
Matrix (soil/water): WATER Lab Sample ID: 9903006-2
Level (low/med): LOW__ Date Received: 03/02/99
% 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_	72.0	~~B~~		P	U
7440-36-0	Antimony_	2.3	U	~~N~~	P	UJ
7440-38-2	Arsenic__	1.9	U		P	
7440-39-3	Barium___	7.3	~~B~~		P	
7440-41-7	Beryllium	0.06	U		P	UJ
7440-43-9	Cadmium__	0.20	U		P	
7440-70-2	Calcium__	6590			P	
7440-47-3	Chromium_	0.60	U		P	
7440-48-4	Cobalt___	0.89	~~B~~		P	
7440-50-8	Copper___	0.60	U		P	UJ
7439-89-6	Iron_____	615			P	
7439-92-1	Lead_____	0.80	U		P	UJ
7439-95-4	Magnesium	2640	~~B~~		P	
7439-96-5	Manganese	307			P	
7439-97-6	Mercury__	0.03	U		AV	UJ
7440-02-0	Nickel___	4.8	~~B~~		P	
7440-09-7	Potassium	2770	~~B~~		P	
7782-49-2	Selenium_	2.9	U		P	
7440-22-4	Silver___	1.0	U		P	
7440-23-5	Sodium___	8940			P	
7440-28-0	Thallium_	3.4	U		P	
7440-62-2	Vanadium_	0.70	U		P	
7440-66-6	Zinc_____	4.0	~~B~~		P	

4/6/99

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN