TA/6 J.K.

Los Alamos
NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Date: March 24, 1999
In Reply Refer To: ESH-18/WQ&H:99-0101
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 1407, 1507, 1607, AND 1747 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: 1407, 1507, 1607, and 1747 feet. Discussion of the enclosed analytical reports is presented below.

1407 feet

On January 7, 1999, sample CACV-99-0001 (nonfiltered sample) was collected from R-25 at 1407 feet. Analysis of CACV-99-0001 for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) did not confirm the presence of any target analytes in the sample at concentrations greater than the laboratory's reporting limit. Data validation determined that all VOCs detected in the sample should be considered as sample contaminants and not as present in the sample. The results for these analytes are qualified as undetected ("U") at the reporting limit.

Additionally, sample CACV-99-0001 was analyzed for Total Organic Carbon (TOC). The sample result of 2.5 mg/L was confirmed through data validation.

1507 feet

On January 13, 1999, two samples, CACV-99-0009 (nonfiltered sample) and CACV-99-0010 (filtered sample), were collected from R-25 at 1507 feet. Analysis of sample CACV-99-0009 (nonfiltered sample) for high-explosives (HE) detected RDX (4.4 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-99-0010 (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

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the following qualifiers to the report: (1) Rejected results ("R") for four analytes (Sb, As, Pb, and Hg) because of interference problems found in the preparation blank; (2) Non-detected results ("U") for four analytes (Al, Be, Cd, and Co) because the amount in the sample could not be distinguished from the amount in the associated blank; and (3) Estimated results for five analytes (Cu, Mg, Ni, K, and Se).

1607 feet

On February 3, 1999, two samples, CACV-99-0007 (nonfiltered sample) and CACV-99-0008 (filtered sample), were collected from R-25 at 1607 feet. Analysis of sample CACV-99-0007 (nonfiltered sample) for high-explosives (HE) detected the following target analytes at concentrations greater than the laboratory's reporting limit: HMX (2.6 ug/l), RDX (15 ug/L), and 2-amino-4,6-DNT (0.46 ug/L). Validation of the data confirmed that the results are acceptable as reported with the exception of 2,4,6-TNT and 4-amino-2,6-DNT which were qualified as estimated ("J") to indicate possible unknown bias due to integration errors.

Analysis of CACV-99-0008 (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) Rejected results ("R") for beryllium (Be) because of interference problems found in the preparation blank; (2) Non-detected results ("U") for four analytes (Al, Cr, Co, and Cu) because the amount in the sample could not be distinguished from the amount in the associated blank; and (3) Estimated results ("J") for two analytes (Ba and Zn) due to possible interference in the sample matrix.

1747 feet

On February 2, 1999, sample CACV-99-0011 (nonfiltered sample) was collected from R-25 at 1747 feet. Analysis of CACV-99-0011 for high-explosives (HE) did not confirm the presence of any target analytes at concentrations greater than the laboratory's reporting limit. Data validation confirmed that the sample results are acceptable as reported by the laboratory.

On February 12, 1999, three samples were collected from R-25 at 1747 feet: CACV-99-0013 (filtered sample), CACV-99-00014 (nonfiltered sample), and CACV-99-0015 (nonfiltered sample). Discussion of the results is presented below.

Analysis of sample CACV-99-0013 (filtered sample) for metals confirmed the presence of one target analyte, iron (Fe), at a concentration greater than the WQCC Section 3103 Ground Water Standards (sample concentration equal to 1.87 mg/L, ground water standard equal to 1.0 mg/L). Validation of the data resulted in the addition of the following qualifiers to the report: (1) Non-detected results ("U") for three analytes (Al, Be, and Cr) because the amount in the sample could not be distinguished from the amount in the associated blank; and (2) Estimated results ("J") for two analytes (Al and Cu) due to problems indicated by the serial dilution.

Analysis of samples CACV-99-0014 (nonfiltered sample) and CACV-99-0015 (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 by the laboratory.

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, 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

1,407 FL

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9901076
Client Name: Los Alamos National Laboratory
ClientProject ID: 5111R

Reported on: Wednesday, January 27, 1999

CACV-99-0001	
9901076-1	

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

Date Collected: 07-Jan-99
Date Extracted: 21-Jan-99
Date Analyzed: 21-Jan-99
Prep Batch: V01076

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	U	
74-87-3	CHLOROMETHANE	10	ug/L	10	U	
75-01-4	VINYL CHLORIDE	10	ug/L	10	U	
74-83-9	BROMOMETHANE	10	ug/L	10	U	
75-00-3	CHLOROETHANE	10	ug/L	10	U	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	U	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	U	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	U	
67-64-1	ACETONE	20 ~~18~~	ug/L	20	~~J~~ U	
74-88-4	IODOMETHANE	5	ug/L	5	U	
75-15-0	CARBON DISULFIDE	5 ~~2.6~~	ug/L	5	~~J~~ U	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	U	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	U	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	U	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	U	
78-93-3	2-BUTANONE	20 ~~1.6~~	ug/L	20	~~J~~ U	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	U	
67-66-3	CHLOROFORM	5	ug/L	5	U	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	U	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	U	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	U	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	U	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	U	
71-43-2	BENZENE	5	ug/L	5	U	
79-01-6	TRICHLOROETHENE	5	ug/L	5	U	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	U	
74-95-3	DIBROMOMETHANE	5	ug/L	5	U	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	U	
108-10-1	4-METHYL-2-PENTANONE	20 ~~2.4~~	ug/L	20	~~J~~ U	
108-88-3	TOLUENE	5	ug/L	5	U	
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	U	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	U	
591-78-6	2-HEXANONE	20 ~~5.3~~	ug/L	20	~~J~~ U	

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Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9901076
Client Name: Los Alamos National Laboratory
ClientProject ID: 5111R

Reported on: Wednesday, January 27, 1999

CACV-99-0001	
9901076-1	

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

Date Collected: 07-Jan-99
Date Extracted: 21-Jan-99
Date Analyzed: 21-Jan-99
Prep Batch: V01076

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

127-18-4	TETRACHLOROETHENE	5	ug/L	5	U	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	U	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	U	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	U	
108-90-7	CHLOROBENZENE	5	ug/L	5	U	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	U	
100-41-4	ETHYLBENZENE	5	ug/L	5	U	
136777-61-	M+P-XYLENE	5	ug/L	5	U	
95-47-6	O-XYLENE	5	ug/L	5	U	
100-42-5	STYRENE	5	ug/L	5	U	
75-25-2	BROMOFORM	5	ug/L	5	U	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	U	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	U	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	U	
108-86-1	BROMOBENZENE	5	ug/L	5	U	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	U	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	U	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	U	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	U	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	U	
95-63-6	1,2,4-TRIMETHYLBENZENE	5 ~~0.89~~	ug/L	5	~~5~~ U	RSB 3/17/99
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	U	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	U	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	U	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	U	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	U	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	U	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	U	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	U	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	U	
91-20-3	NAPHTHALENE	5	ug/L	5	U	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	U	

MV 2/24/99

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Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9901076
Client Name: Los Alamos National Laboratory
ClientProject ID: 5111R

Reported on: Wednesday, January 27, 1999

[redacted]	CACV-99-0001
[redacted]	9901076-1

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

Date Collected: 07-Jan-99
Date Extracted: 21-Jan-99
Date Analyzed: 21-Jan-99
Prep Batch: V01076

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	78	ug/l	50	156	86 - 115
1868-53-7	DIBROMOFLUOROMETHANE	66.8	ug/l	50	134	86 - 118
2037-26-5	TOLUENE-D8	67.7	ug/l	50	135	88 - 110

U = Less than the Reporting Limit

2/24/99

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Semi-volatile Organics by GC/MS

Method SW8270

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9901076
Client Name: Los Alamos National Laboratory
ClientProject ID: 5111R

Reported on: Friday, January 22, 1999

CACV-99-0001	
9901076-1	

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

Date Collected: 07-Jan-99
Date Extracted: 18-Jan-99
Date Analyzed: 20-Jan-99
Prep Batch: EX990118-4

Sample Aliquot: 1000
Final Volume: 1
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
110-86-1	PYRIDINE	10	ug/L	10	U	
62-75-9	N-NITROSODIMETHYLAMINE	10	ug/L	10	U	
62-53-3	ANILINE	20	ug/L	20	U	
108-95-2	PHENOL	10	ug/L	10	U	
111-44-4	BIS(2-CHLOROETHYL)ETHER	10	ug/L	10	U	
95-57-8	2-CHLOROPHENOL	10	ug/L	10	U	
541-73-1	1,3-DICHLOROBENZENE	10	ug/L	10	U	
106-46-7	1,4-DICHLOROBENZENE	10	ug/L	10	U	
95-50-1	1,2-DICHLOROBENZENE	10	ug/L	10	U	
100-51-6	BENZYL ALCOHOL	20	ug/L	20	U	
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10	ug/L	10	U	
95-48-7	2-METHYLPHENOL	10	ug/L	10	U	
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10	ug/L	10	U	
106-44-5	4-METHYLPHENOL	10	ug/L	10	U	
67-72-1	HEXACHLOROETHANE	10	ug/L	10	U	
98-95-3	NITROBENZENE	10	ug/L	10	U	
78-59-1	ISOPHORONE	10	ug/L	10	U	
88-75-5	2-NITROPHENOL	10	ug/L	10	U	
105-67-9	2,4-DIMETHYLPHENOL	10	ug/L	10	U	
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10	ug/L	10	U	
120-83-2	2,4-DICHLOROPHENOL	10	ug/L	10	U	
65-85-0	BENZOIC ACID	50	ug/L	50	U	
120-82-1	1,2,4-TRICHLOROBENZENE	10	ug/L	10	U	
91-20-3	NAPHTHALENE	10	ug/L	10	U	
106-47-8	4-CHLOROANILINE	20	ug/L	20	U	
87-68-3	HEXACHLOROBUTADIENE	10	ug/L	10	U	
59-50-7	4-CHLORO-3-METHYLPHENOL	20	ug/L	20	U	
91-57-6	2-METHYLNAPHTHALENE	10	ug/L	10	U	
77-47-4	HEXACHLOROCYCLOPENTADIENE	10	ug/L	10	U	
88-06-2	2,4,6-TRICHLOROPHENOL	10	ug/L	10	U	
95-95-4	2,4,5-TRICHLOROPHENOL	50	ug/L	50	U	
91-58-7	2-CHLORONAPHTHALENE	10	ug/L	10	U	
88-74-4	2-NITROANILINE	50	ug/L	50	U	
131-11-3	DIMETHYL PHTHALATE	10	ug/L	10	U	

2/24/99

1,407 ft

Semi-volatile Organics by GC/MS

Method SW8270

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9901076
Client Name: Los Alamos National Laboratory
ClientProject ID: 5111R

Reported on: Friday, January 22, 1999

[redacted]	CACV-99-0001
[redacted]	9901076-1

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

Date Collected: 07-Jan-99
Date Extracted: 18-Jan-99
Date Analyzed: 20-Jan-99
Prep Batch: EX990118-4

Sample Aliquot: 1000
Final Volume: 1
Dilution: 1

606-20-2	2,6-DINITROTOLUENE	10	ug/L	10	U	
208-96-8	ACENAPHTHYLENE	10	ug/L	10	U	
99-09-2	3-NITROANILINE	50	ug/L	50	U	
83-32-9	ACENAPHTHENE	10	ug/L	10	U	
51-28-5	2,4-DINITROPHENOL	50	ug/L	50	U	
100-02-7	4-NITROPHENOL	50	ug/L	50	U	
132-64-9	DIBENZOFURAN	10	ug/L	10	U	
121-14-2	2,4-DINITROTOLUENE	10	ug/L	10	U	
84-66-2	DIETHYL PHTHALATE	10	ug/L	10	U	
86-73-7	FLUORENE	10	ug/L	10	U	
7005-72-3	4-CHLOROPHENYL PHENYL ETHER	10	ug/L	10	U	
100-01-6	4-NITROANILINE	20	ug/L	20	U	
103-33-3	AZOBENZENE	20	ug/L	20	U	
534-52-1	4,6-DINITRO-2-METHYLPHENOL	50	ug/L	50	U	
86-30-6	N-NITROSODIPHENYLAMINE	10	ug/L	10	U	
101-55-3	4-BROMOPHENYL PHENYL ETHER	10	ug/L	10	U	
118-74-1	HEXACHLOROBENZENE	10	ug/L	10	U	
87-86-5	PENTACHLOROPHENOL	50	ug/L	50	U	
85-01-8	PHENANTHRENE	10	ug/L	10	U	
120-12-7	ANTHRACENE	10	ug/L	10	U	
86-74-8	CARBAZOLE	10	ug/L	10	U	
84-74-2	DI-N-BUTYL PHTHALATE	10	ug/L	10	U	
206-44-0	FLUORANTHENE	10	ug/L	10	U	
92-87-5	BENZIDINE	10	ug/L	10	U	
129-00-0	PYRENE	10	ug/L	10	U	
85-68-7	BUTYL BENZYL PHTHALATE	10	ug/L	10	U	
56-55-3	BENZO(A)ANTHRACENE	10	ug/L	10	U	
91-94-1	3,3'-DICHLOROBENZIDINE	20	ug/L	20	U	
218-01-9	CHRYSENE	10	ug/L	10	U	
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10	ug/L	10	U	
117-84-0	DI-N-OCTYL PHTHALATE	10	ug/L	10	U	
205-99-2	BENZO(B)FLUORANTHENE	10	ug/L	10	U	
207-08-9	BENZO(K)FLUORANTHENE	10	ug/L	10	U	
50-32-8	BENZO(A)PYRENE	10	ug/L	10	U	
193-39-5	INDENO(1,2,3-CD)PYRENE	10	ug/L	10	U	
53-70-3	DIBENZO(A,H)ANTHRACENE	10	ug/L	10	U	

BN 2/24/99

1,407 ft

Semi-volatile Organics by GC/MS

Method SW8270

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9901076
Client Name: Los Alamos National Laboratory
ClientProject ID: 5111R

Reported on: Friday, January 22, 1999

[redacted]	CACV-99-0001
[redacted]	9901076-1

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

Date Collected: 07-Jan-99
Date Extracted: 18-Jan-99
Date Analyzed: 20-Jan-99
Prep Batch: EX990118-4

Sample Aliquot: 1000
Final Volume: 1
Dilution: 1

191-24-2	BENZO(G,H,I)PERYLENE	10	ug/L	10	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
118-79-6	2,4,6-TRIBROMOPHENOL	57.3	ug/l	75	76	0 - 123
321-60-8	2-FLUOROBIPHENYL	43.4	ug/l	50	87	43 - 116
367-12-4	2-FLUOROPHENOL	56	ug/l	75	75	21 - 100
4165-60-0	NITROBENZENE-D5	39.9	ug/l	50	80	35 - 114
4165-62-2	PHENOL-D6	61.1	ug/l	75	81	10 - 94
1718-51-0	TERPHENYL-D14	33	ug/l	50	66	33 - 141

U = Less than the Reporting Limit

BMC 2/24/99

1,407 ft

Total Organic Carbon

Method EPA415.1

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos National Laboratory SMO
Client Project ID: 5111R
Work Order Number: 9901076
Reporting Basis: As Received

Final Volume: 1 ML
Matrix: Water
Result Units: MG/L

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Detection Limit	Flag	Sample Aliquot
CACV-99-0001	9901076-1	1/7/99	1/28/99	1/28/99	N/A	1	2.5	1		1 ML

2/24/99

Comments:

1. ND or U = Not Detected at or above the client requested detection limit.

Data Package ID: *MW9901076-1*

1507A2

Nitroaromatics And Nitramines

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9901105
Client Name: Los Alamos National Laboratory
Client Project ID: 5122R

Reported on: Monday, January 25, 1999

CACV-99-009	
9901105-1	

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

Date Collected: 13-Jan-99
Date Extracted: 18-Jan-99
Date Analyzed: 19-Jan-99
Prep Batch: EX990118-2

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	4.4	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	0.25	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	2.41	ug/l	4.29	56	34 - 106

U = Less than the Reporting Limit

2/23/99

U.S. EPA - CLP

1,507

~~1,407F6~~

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

Non Filtered

CACV-99-0009

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5121R_

Matrix (soil/water): WATER_ Lab Sample ID: 9901107-1

Level (low/med): LOW__ Date Received: 01/16/99

% 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	31800			P	
7440-36-0	Antimony	6.3	~~B~~	~~N~~	P	J-
7440-38-2	Arsenic	6.9	~~B~~		P	J
7440-39-3	Barium	356			P	
7440-41-7	Beryllium	2.6	~~B~~		P	U
7440-43-9	Cadmium	0.20	U		P	
7440-70-2	Calcium	18400			P	
7440-47-3	Chromium	154			P	
7440-48-4	Cobalt	18.9	~~B~~		P	J
7440-50-8	Copper	164			P	
7439-89-6	Iron	194000			P	
7439-92-1	Lead	26.1			P	
7439-95-4	Magnesium	7470			P	
7439-96-5	Manganese	1650			P	
7439-97-6	Mercury	0.04	~~B~~		AV	J-
7440-02-0	Nickel	115			P	
7440-09-7	Potassium	4960	~~B~~	~~E~~	P	J
7782-49-2	Selenium	12.0			P	J+
7440-22-4	Silver	1.0	U		P	
7440-23-5	Sodium	14100			P	
7440-28-0	Thallium	3.4	U		P	
7440-62-2	Vanadium	23.3	~~B~~		P	J
7440-66-6	Zinc	399			P	

4/2/99

Color Before: BROWN____ Clarity Before: CLOUDY Texture: N/A___

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

U.S. EPA - CLP

1,507
~~1,407~~ Filtered

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0010

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5121R_

Matrix (soil/water): WATER_ Lab Sample ID: 9901107-2

Level (low/med): LOW__ Date Received: 01/16/99

% 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_	43.2	~~B~~		P_	U
7440-36-0	Antimony_	2.3	~~U~~	N	P_	R
7440-38-2	Arsenic__	1.9	~~U~~		P_	R
7440-39-3	Barium___	9.7	B		P_	
7440-41-7	Beryllium	0.39	~~B~~		P_	U
7440-43-9	Cadmium__	0.39	~~B~~		P_	U
7440-70-2	Calcium__	7420			P_	
7440-47-3	Chromium_	0.60	U		P_	
7440-48-4	Cobalt___	1.0	~~B~~		P_	
7440-50-8	Copper___	9.0	~~B~~		P_	U
7439-89-6	Iron____	213			P_	J-
7439-92-1	Lead____	0.80	~~U~~		P_	
7439-95-4	Magnesium	2840	~~B~~		P_	R
7439-96-5	Manganese	185			P_	J
7439-97-6	Mercury__	0.03	~~U~~		AV	Hg
7440-02-0	Nickel___	5.3	~~B~~		P_	J
7440-09-7	Potassium	1850	B	E	P_	J
7782-49-2	Selenium_	4.3	~~B~~		P_	J+
7440-22-4	Silver___	1.0	U		P_	
7440-23-5	Sodium___	11000			P_	
7440-28-0	Thallium_	3.4	U		P_	
7440-62-2	Vanadium_	0.70	U		P_	
7440-66-6	Zinc____	28.4			P_	

2/2/99

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

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

1607 FL

Nitroaromatics And Nitramines

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902033
Client Name: Los Alamos National Laboratory
ClientProject ID: 5158R

Reported on: Wednesday, February 10, 1999

Field ID: CACV-99-0007	Sample Matrix: liquid	Date Collected: 03-Feb-99	Sample Aliquot: 350
Lab ID: 9902033-1	% Moisture: N/A	Date Extracted: 05-Feb-99	Final Volume: 3
	Cleanup Method: NONE	Date Analyzed: 08-Feb-99	Dilution: 1
	Report Basis: AS RECEIVED	Prep Batch: EX990205-3	

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	2.6	ug/L	1		
121-82-4	RDX	15	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	0.84	ug/L	0.25	J	
1946-51-0	4-AMINO-2,6-DNT	5	ug/L	0.25	J	
35572-78-2	2-AMINO-4,6-DNT	0.46	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

2/25/99

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	4.11	ug/l	4.29	96	34 - 106

U = Less than the Reporting Limit

1807FL
Nonfiltered

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0007

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5159R_

Matrix (soil/water): WATER_ Lab Sample ID: 9902030-1

Level (low/med): LOW__ Date Received: 02/04/99

% 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_	3690			P	
7440-36-0	Antimony_	2.9	B		P	U
7440-38-2	Arsenic__	1.9	U		P	
7440-39-3	Barium___	68.4	B	E	P	J
7440-41-7	Beryllium	0.06	B		P	R
7440-43-9	Cadmium__	0.20	U		P	
7440-70-2	Calcium__	10500			P	
7440-47-3	Chromium_	71.4			P	
7440-48-4	Cobalt___	3.7	B		P	
7440-50-8	Copper___	26.3			P	
7439-89-6	Iron_____	22400			P	
7439-92-1	Lead____	41.0			P	
7439-95-4	Magnesium	3680	B		P	
7439-96-5	Manganese	328			P	
7439-97-6	Mercury__	0.03	U		AV	
7440-02-0	Nickel___	42.7			P	
7440-09-7	Potassium	2060	B		P	
7782-49-2	Selenium_	2.9	U		P	
7440-22-4	Silver___	1.0	U		P	
7440-23-5	Sodium___	8990			P	
7440-28-0	Thallium_	5.1	B		P	U
7440-62-2	Vanadium_	3.4	B		P	
7440-66-6	Zinc_____	157		B	P	J

KM 3/10/99

Color Before: BROWN____ Clarity Before: CLOUDY Texture: N/A___

Color After: LT_BROWN_ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

1607ft
filtered

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0008

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5159R_

Matrix (soil/water): WATER_ Lab Sample ID: 9902030-2

Level (low/med): LOW__ Date Received: 02/04/99

% 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_	52.9	B		P_	U
7440-36-0	Antimony_	2.3	U		P_	
7440-38-2	Arsenic__	1.9	U		P_	
7440-39-3	Barium___	15.4	B	E	P_	J
7440-41-7	Beryllium	0.06	U		P_	R
7440-43-9	Cadmium__	0.20	U		P_	
7440-70-2	Calcium__	8880			P_	
7440-47-3	Chromium_	0.91	B		P_	U
7440-48-4	Cobalt___	0.95	B		P_	U
7440-50-8	Copper___	0.80	B		P_	U
7439-89-6	Iron____	477			P_	
7439-92-1	Lead____	0.80	U		P_	
7439-95-4	Magnesium	3190	B		P_	
7439-96-5	Manganese	190			P_	
7439-97-6	Mercury__	0.03	U		AV	
7440-02-0	Nickel___	9.2	B		P_	
7440-09-7	Potassium	1640	B		P_	
7782-49-2	Selenium_	2.9	U		P_	
7440-22-4	Silver___	1.0	U		P_	
7440-23-5	Sodium___	8330			P_	
7440-28-0	Thallium_	3.4	U		P_	
7440-62-2	Vanadium_	0.70	U		P_	
7440-66-6	Zinc____	20.8		E	P_	J

3/10/99

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

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

1747 ft.

Nitroaromatics And Nitramines

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902061
Client Name: Los Alamos National Laboratory
ClientProject ID: 5187R

Reported on: Friday, February 26, 1999

[redacted]	CACV-99-0011
[redacted]	9902061-1E

Sample Matrix: Solid
% Moisture: 0
Cleanup Method: NONE
Report Basis: DRY WEIGHT

Date Collected: 02-Feb-99
Date Extracted: 12-Feb-99
Date Analyzed: 24-Feb-99
Prep Batch: EX990212-1

Sample Aliquot: 2
Final Volume: 20
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
2691-41-0	HMX	2.2	mg/kg	2.2	U	
121-82-4	RDX	1	mg/kg	1	U	
99-35-4	1,3,5-TRINITROBENZENE	0.25	mg/kg	0.25	U	
99-65-0	1,3-DINITROBENZENE	0.25	mg/kg	0.25	U	
479-45-8	TETRYL	0.65	mg/kg	0.65	U	
98-95-3	NITROBENZENE	0.26	mg/kg	0.26	U	
118-96-7	2,4,6-TRINITROTOLUENE	0.25	mg/kg	0.25	U	
1946-51-0	4-AMINO-2,6-DNT	0.25	mg/kg	0.25	U	
35572-78-2	2-AMINO-4,6-DNT	0.25	mg/kg	0.25	U	
606-20-2	2,6-DINITROTOLUENE	0.26	mg/kg	0.26	U	
121-14-2	2,4-DINITROTOLUENE	0.25	mg/kg	0.25	U	
88-72-2	2-NITROTOLUENE	0.25	mg/kg	0.25	U	
99-99-0	4-NITROTOLUENE	0.25	mg/kg	0.25	U	
99-08-1	3-NITROTOLUENE	0.25	mg/kg	0.25	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
100-25-4	1,4-DINITROBENZENE	2.23	mg/kg	2.5	89	50 - 150

U = Less than the Reporting Limit

3/8/99

174742
Filtered

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0013

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5217R_

Matrix (soil/water): WATER_ Lab Sample ID: 9902107-1

Level (low/med): LOW__ Date Received: 02/17/99

% 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_	106	B	E	P	UJ
7440-36-0	Antimony_	2.3	U		P	
7440-38-2	Arsenic__	1.9	U		P	
7440-39-3	Barium___	15.2	B		P	
7440-41-7	Beryllium	0.31	B		P	U
7440-43-9	Cadmium__	0.20	U		P	
7440-70-2	Calcium__	7030			P	
7440-47-3	Chromium_	2.2	B		P	U
7440-48-4	Cobalt___	1.4	B		P	
7440-50-8	Copper___	1.6	B	E	P	J
7439-89-6	Iron____	1870			P	
7439-92-1	Lead____	11.4			P	
7439-95-4	Magnesium	2560	B		P	
7439-96-5	Manganese	98.4			P	
7439-97-6	Mercury__	0.03	U		AV	
7440-02-0	Nickel___	11.9	B		P	
7440-09-7	Potassium	2110	B		P	
7782-49-2	Selenium_	2.9	U		P	
7440-22-4	Silver___	1.0	U		P	
7440-23-5	Sodium___	9560			P	
7440-28-0	Thallium_	3.4	U		P	
7440-62-2	Vanadium_	3.0	B		P	
7440-66-6	Zinc____	81.8			P	

3/10/99

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

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

1747ft
Non filtered

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0014

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5217R_

Matrix (soil/water): WATER_ Lab Sample ID: 9902107-2

Level (low/med): LOW__ Date Received: 02/17/99

% 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_	1340		E	P	J
7440-36-0	Antimony_	8.4	B		P	U
7440-38-2	Arsenic__	2.6	B		P	U
7440-39-3	Barium___	39.5	B		P	
7440-41-7	Beryllium	0.33	B		P	U
7440-43-9	Cadmium__	0.20	U		P	
7440-70-2	Calcium__	7650			P	
7440-47-3	Chromium_	430			P	
7440-48-4	Cobalt___	4.8	B		P	U
7440-50-8	Copper___	32.8		E	P	J
7439-89-6	Iron_____	12100			P	
7439-92-1	Lead_____	78.1			P	
7439-95-4	Magnesium	2690	B		P	
7439-96-5	Manganese	190			P	
7439-97-6	Mercury__	0.03	U		AV	
7440-02-0	Nickel___	218			P	
7440-09-7	Potassium	2270	B		P	
7782-49-2	Selenium_	2.9	U		P	
7440-22-4	Silver___	1.0	U		P	
7440-23-5	Sodium___	9920			P	
7440-28-0	Thallium_	3.4	U		P	
7440-62-2	Vanadium_	6.6	B		P	
7440-66-6	Zinc_____	257			P	

B/V
3/10/99

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

Color After: LT_BROWN_ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

1747 ft.

Nitroaromatics And Nitramines

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902108
Client Name: Los Alamos National Laboratory
ClientProject ID: 5216R

Reported on: Tuesday, February 23, 1999

Field ID: CACV-99-0014
Lab ID: 9902108-1

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

Date Collected: 12-Feb-99
Date Extracted: 18-Feb-99
Date Analyzed: 20-Feb-99
Prep Batch: EX990218-1

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	3.14	ug/l	4.29	73	34 - 106

U = Less than the Reporting Limit

3/8/99

1747 A.

Nitroaromatics And Nitramines

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9902108
Client Name: Los Alamos National Laboratory
ClientProject ID: 5216R

Reported on: Tuesday, February 23, 1999

Field ID: CACV-99-0015
Lab ID: 9902108-2

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

Date Collected: 12-Feb-99
Date Extracted: 18-Feb-99
Date Analyzed: 20-Feb-99
Prep Batch: EX990218-1

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	3.19	ug/l	4.29	74	34 - 106

U = Less than the Reporting Limit

3/9/99