Los Alamos
NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Date: December 23, 1999
In Reply Refer To: ESH-18/WQ&H:99-0486
Mail Stop: K497
Telephone: (505) 665-1859

HSWA LANL 6/M/99 [R-25]
TA-16

JAN 2000
RECEIVED

Mr. John Kieling
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

SUBJECT: REQUEST TO LAND APPLY ADDITIONAL WATER AT R-25 WELL DRILLING SITE

Dear Mr. Kieling:

This correspondence is in response to your request for written documentation of Los Alamos National Laboratory's (Laboratory) request to land apply one (1) Frac tank containing approximately 20,000 gallons of water from the R-25 Well on December 22 and 23, 1999. The Laboratory wishes to land apply this water at the existing R-25 land application area by use of the sprinkler system previously approved for this use. Enclosed for your review are the pre and post application soil sample data. It is the Laboratory's opinion that the application of this water should not elevate the RDX contaminant level in the soil.

Please call Harvey Decker at 665-2014 if you need additional information.

Sincerely,

Rita Marie Sandoval

for Steven Rae
Group Leader
Water Quality and Hydrology Group

SR:HD/rm

TK

6210

Enclosures: a/s

Cy: B. Hoditschek, NMED/SWQB, w/enc., Santa Fe, New Mexico
P. Bustamante, NMED/GWPB, w/enc., Santa Fe, New Mexico
J. Young, NMED/HRMB, w/enc., Santa Fe, New Mexico
S. Yanicak, NMED DOE OB, w/enc., MS J993
D. Broxton, EES-1, w/enc., MS D 462
R. Bohn, EM-ER, w/o enc., MS M992
P. Longmire, EES-5, w/o enc., MS J534
D. Erickson, ESH DO w/o enc., MS K491
C. Nylander, ESH-18, w/o enc., MS K 497
S. Veenis, ESH-18, w/o enc., MS K497
M. Saladen, ESH-18, w/o enc., MS K497
H. Decker, ESH-18, w/o enc., MS K497
WQ&H File, w/enc., MS K497
CIC-10, w/enc., MS A150

PRE-APPLICATION

SOIL

SAMPLES

West end of South Line

Nitroaromatics And Nitramines

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9904020
Client Name: Los Alamos National Laboratory
ClientProject ID: 5429R

Reported on: Tuesday, April 20, 1999

CACV-99-0054	
9904020-4	

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

Date Collected: 29-Mar-99
Date Extracted: 07-Apr-99
Date Analyzed: 15-Apr-99
Prep Batch: EX990407-6

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	2.52	mg/kg	2.5	101	50 - 150

U = Less than the Reporting Limit

West end of South Line

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0054

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5428R_

Matrix (soil/water): SOIL__ Lab Sample ID: 9904019-4

Level (low/med): LOW__ Date Received: 04/03/99

% Solids: _88.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	3400	_		P_
7440-36-0	Antimony_	1.1	B		P_
7440-38-2	Arsenic__	3.8	_		P_
7440-39-3	Barium__	83.8	_		P_
7440-41-7	Beryllium	0.38	B		P_
7440-43-9	Cadmium__	0.05	U		P_
7440-70-2	Calcium__	1110	B		P_
7440-47-3	Chromium_	6.0	_	E	P_
7440-48-4	Cobalt___	5.6	B		P_
7440-50-8	Copper___	2.0	B		P_
7439-89-6	Iron____	9920	_		P_
7439-92-1	Lead____	14.5	_		P_
7439-95-4	Magnesium	750	B		P_
7439-96-5	Manganese	372	_		P_
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	3.7	B		P_
7440-09-7	Potassium	834	B	E	P_
7782-49-2	Selenium_	0.50	U		P_
7440-22-4	Silver___	0.11	U		P_
7440-23-5	Sodium___	45.3	B	E	P_
7440-28-0	Thallium_	0.50	U		P_
7440-62-2	Vanadium_	23.5	_		P_
7440-66-6	Zinc____	12.2	_		P_
			_		
			_		

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

Color After: LT._BROWN Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

Nitroaromatics And Nitramines

East end of South Line

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9904020
Client Name: Los Alamos National Laboratory
ClientProject ID: 5429R

Reported on: Tuesday, April 20, 1999

[redacted]	CACV-99-0053
[redacted]	9904020-3

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

Date Collected: 29-Mar-99
Date Extracted: 07-Apr-99
Date Analyzed: 15-Apr-99
Prep Batch: EX990407-6

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	2.57	mg/kg	2.5	103	50 - 150

U = Less than the Reporting Limit

EAST end of South Line

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0053

Lab Name: PARAGON_ANALYTICS Contract: _____

Lab Code: NA Case No.: _____ SAS No.: _____ SDG No.: 5428R

Matrix (soil/water): SOIL Lab Sample ID: 9904019-3

Level (low/med): LOW Date Received: 04/03/99

% Solids: 83.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4280			P
7440-36-0	Antimony	1.4	B		P
7440-38-2	Arsenic	3.9			P
7440-39-3	Barium	113			P
7440-41-7	Beryllium	0.55	B		P
7440-43-9	Cadmium	0.05	U		P
7440-70-2	Calcium	1340			P
7440-47-3	Chromium	7.0		E	P
7440-48-4	Cobalt	6.5	B		P
7440-50-8	Copper	2.5	B		P
7439-89-6	Iron	11700			P
7439-92-1	Lead	15.4			P
7439-95-4	Magnesium	856	B		P
7439-96-5	Manganese	544			P
7439-97-6	Mercury	0.02	B		AV
7440-02-0	Nickel	5.2	B		P
7440-09-7	Potassium	945	B	E	P
7782-49-2	Selenium	1.0	B		P
7440-22-4	Silver	0.12	U		P
7440-23-5	Sodium	50.2	B	E	P
7440-28-0	Thallium	0.53	U		P
7440-62-2	Vanadium	27.0			P
7440-66-6	Zinc	14.6			P

Color Before: BROWN Clarity Before: N/A Texture: MEDIUM

Color After: LT. BROWN Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

Nitroaromatics And Nitramines

East end of North Line

Method SW8330

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9904020
Client Name: Los Alamos National Laboratory
ClientProject ID: 5429R

Reported on: Tuesday, April 20, 1999

[redacted]	CACV-99-0061
[redacted]	9904020-1

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

Date Collected: 29-Mar-99
Date Extracted: 07-Apr-99
Date Analyzed: 15-Apr-99
Prep Batch: EX990407-6

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	2.56	mg/kg	2.5	102	50 - 150

U = Less than the Reporting Limit

Wa - Application Area Soils
R-25, TA-16

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0051

Lab Name: PARAGON_ANALYTICS_____ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 5428R_

EASTERN of North Line

Matrix (soil/water): SOIL__ Lab Sample ID: 9904019-1

Level (low/med): LOW__ Date Received: 04/03/99

% Solids: _89.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4330			P
7440-36-0	Antimony	0.96	B		P
7440-38-2	Arsenic	4.2			P
7440-39-3	Barium	142			P
7440-41-7	Beryllium	0.50	B		P
7440-43-9	Cadmium	0.04	U		P
7440-70-2	Calcium	1590			P
7440-47-3	Chromium	6.5		E	P
7440-48-4	Cobalt	6.5	B		P
7440-50-8	Copper	2.8	B		P
7439-89-6	Iron	11600			P
7439-92-1	Lead	17.8			P
7439-95-4	Magnesium	954	B		P
7439-96-5	Manganese	663			P
7439-97-6	Mercury	0.02	B		AV
7440-02-0	Nickel	5.0	B		P
7440-09-7	Potassium	1190		E	P
7782-49-2	Selenium	0.49	U		P
7440-22-4	Silver	0.11	U		P
7440-23-5	Sodium	49.5	B	E	P
7440-28-0	Thallium	0.49	U		P
7440-62-2	Vanadium	25.5			P
7440-66-6	Zinc	15.6			P

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

Color After: LT._BROWN Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

Nitroaromatics And Nitramines

Method SW8330

west end of north line

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9904020
Client Name: Los Alamos National Laboratory
ClientProject ID: 5429R

Reported on: Tuesday, April 20, 1999

CACV-99-0052	Sample Matrix: Solid	Date Collected: 29-Mar-99		Sample Aliquot:	2
9904020-2	% Moisture: N/A	Date Extracted: 07-Apr-99		Final Volume:	20
	Cleanup Method: NONE	Date Analyzed: 15-Apr-99		Dilution:	1
	Report Basis: AS RECEIVED	Prep Batch: EX990407-6			

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	2.52	mg/kg	2.5	101	50 - 150

U = Less than the Reporting Limit

west end of north line.

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-99-0052

Lab Name: PARAGON_ANALYTICS Contract: _____

Lab Code: NA Case No.: _____ SAS No.: _____ SDG No.: 5428R

Matrix (soil/water): SOIL Lab Sample ID: 9904019-2

Level (low/med): LOW Date Received: 04/03/99

% Solids: 86.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3680			P
7440-36-0	Antimony	1.3	B		P
7440-38-2	Arsenic	5.1			P
7440-39-3	Barium	107			P
7440-41-7	Beryllium	0.50	B		P
7440-43-9	Cadmium	0.05	U		P
7440-70-2	Calcium	898	B		P
7440-47-3	Chromium	7.2		E	P
7440-48-4	Cobalt	5.9	B		P
7440-50-8	Copper	1.9	B		P
7439-89-6	Iron	13400			P
7439-92-1	Lead	15.6			P
7439-95-4	Magnesium	753	B		P
7439-96-5	Manganese	464			P
7439-97-6	Mercury	0.02	B		AV
7440-02-0	Nickel	4.3	B		P
7440-09-7	Potassium	801	B	E	P
7782-49-2	Selenium	0.66	B		P
7440-22-4	Silver	0.12	U		P
7440-23-5	Sodium	97.4	B	E	P
7440-28-0	Thallium	0.51	U		P
7440-62-2	Vanadium	31.0			P
7440-66-6	Zinc	12.2			P

Color Before: BROWN Clarity Before: N/A Texture: MEDIUM

Color After: LT. BROWN Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

POST-APPLICATION

SOIL

SAMPLES

HPLC Explosives

Method SW8330

Sample Results

R-25
Applic. Area Soils
post-Applic.
HE Analys.

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9906189
Client Name: Los Alamos National Laboratory SMO
ClientProject ID: 5722R

CACV-99-0068	
9906189-1	

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: 23-Jun-99
Date Extracted: 29-Jun-99
Date Analyzed: 30-Jun-99

Prep Batch: EX990629-6
QCBatchID: EX990629-6-1
Run ID: hp990630-1
Cleanup: NONE
Basis: As Received

Sample Aliquot: 2 G
Final Volume: 20 ML
Result Units: MG/KG

File Name: 06300016

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

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
PA00004	1,4-DINITROBENZENE	2.4		2.5	96	50 - 150

Data Package ID: *PT9906189-1*

HPLC Explosives

Method SW8330

Sample Results

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9906189
Client Name: Los Alamos National Laboratory SMO
ClientProject ID: 5722R

CACV-99-0067
9906189-2

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: 23-Jun-99
Date Extracted: 29-Jun-99
Date Analyzed: 30-Jun-99

Prep Batch: EX990629-8
QCBatchID: EX990629-8-1
Run ID: hp990630-1
Cleanup: NONE
Basis: As Received

Sample Aliquot: 2 G
Final Volume: 20 ML
Result Units: MG/KG

File Name: 06300017

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

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
PA00004	1,4-DINITROBENZENE	2.72		2.5	108	50 - 150

Data Package ID: *PT9906189-1*

HPLC Explosives

Method SW8330

Sample Results

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9906189
Client Name: Los Alamos National Laboratory SMO
Client/Project ID: 5722R

CACV-99-0066	
9906189-3	

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: 23-Jun-99
Date Extracted: 29-Jun-99
Date Analyzed: 30-Jun-99

Prep Batch: EX990629-8
QCBatchID: EX990629-8-1
Run ID: hp990630-1
Cleanup: NONE
Basis: As Received

Sample Aliquot: 2G
Final Volume: 20ML
Result Units: MG/KG

File Name: 06300018

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

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
PA00004	1,4-DINITROBENZENE	2.42		2.5	96	80 - 150

Data Package ID: *PT9906189-1*

HPLC Explosives

Method SW8330

Sample Results

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9906189
Client Name: Los Alamos National Laboratory SMO
ClientProject ID: 5722R

CACV-99-0059	
9906189-4	

Sample Matrix: SOIL
% Moisture: N/A
Date Collected: 23-Jun-99
Date Extracted: 29-Jun-99
Date Analyzed: 30-Jun-99

Prep Batch: EX990629-6
QCBatchID: EX990629-6-1
Run ID: hp990630-1
Cleanup: NONE
Basis: As Received

Sample Aliquot: 2 G
Final Volume: 20 ML
Result Units: MG/KG

File Name: 06300019

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

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
PA00004	1,4-DINITROBENZENE	2.54		2.5	102	50 - 150

Data Package ID: *PT9906189-1*

R-25
Ap. Area Soils
post disclg.
Metals (TAL)

KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750
Phone: (740) 373-4071

Los Alamos National Laboratory
SMO, TA-3, Bldg. 271
MS H865, Drop Point 01U
Los Alamos, NM 87545
Attention: Joylene Valdez

PO Number:
Account Number: LANL-295

Login #: L9906572
Report Date: 07/19/99
Work ID: 5723R/CG9M25020007
Date Received: 06/24/99

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
L9906572-01	CACV-99-0056	L9906572-02	CACV-99-0057
L9906572-03	CACV-99-0058	L9906572-04	CACV-99-0059

All results on solids/sludges are reported on a dry weight basis, where applicable, unless otherwise specified. This report shall not be reproduced, except in full, without the written approval of KEMRON.

NYSDOH ELAP ID: 10861

Report Sent To: A. Crowder
Approved By:
Date Sent: 7/26/99

Maren M Beery
Certified By
Maren M. Beery

FIELD COPY

KEMRON ENVIRONMENTAL SERVICES

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-0056

Lab Name: KEMRON_ENVIRONMENTAL_SERV Contract: _____

Lab Code: _____ Case No.: 06572_ SAS No.: _____ SDG No.: 5723R_

Matrix (soil/water): SOIL_ Lab Sample ID: 0657201

Level (low/med): LOW__ Date Received: 02/12/91

% Solids: _90.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7900			P
7440-36-0	Antimony_	0.05	U	N	F
7440-38-2	Arsenic__	5.2			P
7440-39-3	Barium__	134		N	P
7440-41-7	Beryllium	0.53			P
7440-43-9	Cadmium__	0.15			P
7440-70-2	Calcium__	1750			P
7440-47-3	Chromium_	8.3			P
7440-48-4	Cobalt__	7.6		*	P
7440-50-8	Copper__	4.0			P
7439-89-6	Iron__	12700			P
7439-92-1	Lead__	20.8		N	P
7439-95-4	Magnesium	1290			P
7439-96-5	Manganese	682			P
7439-97-6	Mercury__	0.02	B		CV
7440-02-0	Nickel__	5.9			P
7440-09-7	Potassium	1280			P
7782-49-2	Selenium_				NR
7440-22-4	Silver__	0.35	B		P
7440-23-5	Sodium__	44.5			P
7440-28-0	Thallium_	0.16	B		F
7440-62-2	Vanadium_	27.3			P
7440-66-6	Zinc__	18.7			P
	Cyanide__				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-0056

Lab Name: KEMRON_ENVIRONMENTAL_SERV Contract: _____

Lab Code: _____ Case No.: 06572_ SAS No.: _____ SDG No.: 5723R_

Matrix (soil/water): SOIL_ Lab Sample ID: 0657201

Level (low/med): LOW__ Date Received: 02/12/91

% Solids: _90.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_				NR
7440-36-0	Antimony_				NR
7440-38-2	Arsenic__				NR
7440-39-3	Barium___				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium__				NR
7440-70-2	Calcium__				NR
7440-47-3	Chromium_				NR
7440-48-4	Cobalt___				NR
7440-50-8	Copper___				NR
7439-89-6	Iron____				NR
7439-92-1	Lead____				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury__				NR
7440-02-0	Nickel___				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium_	0.13	U		P
7440-22-4	Silver___				NR
7440-23-5	Sodium___				NR
7440-28-0	Thallium_				NR
7440-62-2	Vanadium_				NR
7440-66-6	Zinc____				NR
	Cyanide__				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-0057

Lab Name: KEMRON_ENVIRONMENTAL_SERV Contract: _____

Lab Code: _____ Case No.: 06572_ SAS No.: _____ SDG No.: 5723R_

Matrix (soil/water): SOIL_ Lab Sample ID: 0657202

Level (low/med): LOW__ Date Received: 02/12/91

% Solids: _93.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7650			P
7440-36-0	Antimony_	0.07	B	N	F
7440-38-2	Arsenic__	5.5			P
7440-39-3	Barium___	102		N	P
7440-41-7	Beryllium	0.58			P
7440-43-9	Cadmium__	0.11			P
7440-70-2	Calcium__	1000			P
7440-47-3	Chromium_	9.0			P
7440-48-4	Cobalt___	11.7		*	P
7440-50-8	Copper___	3.0			P
7439-89-6	Iron____	13500			P
7439-92-1	Lead____	23.4		N	P
7439-95-4	Magnesium	1170			P
7439-96-5	Manganese	675			P
7439-97-6	Mercury__	0.02	B		CV
7440-02-0	Nickel___	5.9			P
7440-09-7	Potassium	964			P
7782-49-2	Selenium_				NR
7440-22-4	Silver___	0.43	B		P
7440-23-5	Sodium___	46.1			P
7440-28-0	Thallium_	0.14	B		F
7440-62-2	Vanadium_	32.9			P
7440-66-6	Zinc____	13.3			P
	Cyanide__				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-0057

Lab Name: KEMRON_ENVIRONMENTAL_SERV Contract: _____

Lab Code: _____ Case No.: 06572_ SAS No.: _____ SDG No.: 5723R_

Matrix (soil/water): SOIL_ Lab Sample ID: 0657202

Level (low/med): LOW__ Date Received: 02/12/91

% Solids: _93.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_				NR
7440-36-0	Antimony_				NR
7440-38-2	Arsenic__				NR
7440-39-3	Barium___				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium__				NR
7440-70-2	Calcium__				NR
7440-47-3	Chromium_				NR
7440-48-4	Cobalt___				NR
7440-50-8	Copper___				NR
7439-89-6	Iron____				NR
7439-92-1	Lead____				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury__				NR
7440-02-0	Nickel___				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium_	0.14	U		P_
7440-22-4	Silver___				NR
7440-23-5	Sodium___				NR
7440-28-0	Thallium_				NR
7440-62-2	Vanadium_				NR
7440-66-6	Zinc____				NR
	Cyanide__				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-0058

Lab Name: KEMRON_ENVIRONMENTAL_SERV Contract: _____

Lab Code: _____ Case No.: 06572_ SAS No.: _____ SDG No.: 5723R_

Matrix (soil/water): SOIL_ Lab Sample ID: 0657203

Level (low/med): LOW__ Date Received: 02/12/91

% Solids: _77.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7600			P
7440-36-0	Antimony	0.06	U	N	F
7440-38-2	Arsenic	6.0			P
7440-39-3	Barium	92.0		N	P
7440-41-7	Beryllium	0.58			P
7440-43-9	Cadmium	0.10	B		P
7440-70-2	Calcium	1060			P
7440-47-3	Chromium	9.1			P
7440-48-4	Cobalt	6.5		*	P
7440-50-8	Copper	3.3			P
7439-89-6	Iron	13600			P
7439-92-1	Lead	17.4		N	P
7439-95-4	Magnesium	1120			P
7439-96-5	Manganese	513			P
7439-97-6	Mercury	0.02	B		CV
7440-02-0	Nickel	5.5			P
7440-09-7	Potassium	1020			P
7782-49-2	Selenium				NR
7440-22-4	Silver	0.24	B		P
7440-23-5	Sodium	61.1			P
7440-28-0	Thallium	0.16	B		F
7440-62-2	Vanadium	32.5			P
7440-66-6	Zinc	15.3			P
	Cyanide				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-0058

Lab Name: KEMRON_ENVIRONMENTAL_SERV Contract: _____

Lab Code: _____ Case No.: 06572_ SAS No.: _____ SDG No.: 5723R_

Matrix (soil/water): SOIL_ Lab Sample ID: 0657203

Level (low/med): LOW__ Date Received: 02/12/91

% Solids: _77.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_				NR
7440-36-0	Antimony_				NR
7440-38-2	Arsenic__				NR
7440-39-3	Barium__				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium__				NR
7440-70-2	Calcium__				NR
7440-47-3	Chromium_				NR
7440-48-4	Cobalt___				NR
7440-50-8	Copper___				NR
7439-89-6	Iron____				NR
7439-92-1	Lead____				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury__				NR
7440-02-0	Nickel___				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium_	0.16	U		P_
7440-22-4	Silver___				NR
7440-23-5	Sodium___				NR
7440-28-0	Thallium_				NR
7440-62-2	Vanadium_				NR
7440-66-6	Zinc____				NR
	Cyanide__				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-0059

Lab Name: KEMRON_ENVIRONMENTAL_SERV Contract: _____

Lab Code: _____ Case No.: 06572_ SAS No.: _____ SDG No.: 5723R_

Matrix (soil/water): SOIL_ Lab Sample ID: 0657204

Level (low/med): LOW__ Date Received: 02/12/91

% Solids: _87.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6670			P
7440-36-0	Antimony_	0.05	U	N	F
7440-38-2	Arsenic__	3.7			P
7440-39-3	Barium___	74.4		N	P
7440-41-7	Beryllium	0.43			P
7440-43-9	Cadmium__	0.10	B		P
7440-70-2	Calcium__	1110			P
7440-47-3	Chromium_	7.1			P
7440-48-4	Cobalt___	8.1		*	P
7440-50-8	Copper___	2.8			P
7439-89-6	Iron____	9580			P
7439-92-1	Lead____	14.5		N	P
7439-95-4	Magnesium	1080			P
7439-96-5	Manganese	379			P
7439-97-6	Mercury__	0.02	B		CV
7440-02-0	Nickel___	4.7			P
7440-09-7	Potassium	942			P
7782-49-2	Selenium_				NR
7440-22-4	Silver___	0.43	B		P
7440-23-5	Sodium___	39.6			P
7440-28-0	Thallium_	0.11	B		F
7440-62-2	Vanadium_	21.9			P
7440-66-6	Zinc____	13.4			P
	Cyanide__				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CACV-0059

Lab Name: KEMRON_ENVIRONMENTAL_SERV Contract: _____

Lab Code: _____ Case No.: 06572_ SAS No.: _____ SDG No.: 5723R_

Matrix (soil/water): SOIL_ Lab Sample ID: 0657204

Level (low/med): LOW__ Date Received: 02/12/91

% Solids: _87.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_				NR
7440-36-0	Antimony_				NR
7440-38-2	Arsenic__				NR
7440-39-3	Barium___				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium__				NR
7440-70-2	Calcium__				NR
7440-47-3	Chromium_				NR
7440-48-4	Cobalt___				NR
7440-50-8	Copper___				NR
7439-89-6	Iron____				NR
7439-92-1	Lead____				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury__				NR
7440-02-0	Nickel___				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium_	0.14	U		P
7440-22-4	Silver___				NR
7440-23-5	Sodium___				NR
7440-28-0	Thallium_				NR
7440-62-2	Vanadium_				NR
7440-66-6	Zinc____				NR
	Cyanide__				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: