Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION

Environmental Restoration

University of California
Environmental Restoration, MS M992
Los Alamos, New Mexico 87545
505-667-0808/FAX 505-665-4747

U. S. Department of Energy
Los Alamos Area Office, MS A316
Los Alamos, New Mexico 87544
505-665-7203
FAX 505-665-4504

APR 1996 RECEIVED

Date: April 19, 1996
Refer to: EM/ER:96-220

Mr. Benito Garcia
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: FINAL ACCELERATED CLEANUP REPORTS 116-016(b)

Dear Mr. Garcia:

Enclosed are the final reports and Certifications of Completion for the voluntary corrective actions completed in Fiscal Year 1995. The reports with potential release sites (PRSs) listed in the Hazardous and Solid Waste Amendments (HSWA) Module of the Los Alamos National Laboratory's Resource Conservation and Recovery Act operating permit contain our request for no further action (NFA). Upon your approval of these reports, we will submit a permit modification request for NFA of these PRSs.

For PRSs not listed in the HSWA Module, reports are included as informational copies for your records.

If you have any questions, please call David Bradbury at 505-665-6208.

Thank you for your timely attention to this matter.

Sincerely,

Jorg Jansen, Program Manager
Environmental Restoration

Sincerely,

Theodore Taylor, Program Manager
Los Alamos Area Office

JJ/TT/rfr

6003

Enclosures: (1) Final Reports for HSWA: C-9-001, 6-007(f), 8-005, 16-016(b), 18-001(a), 19-002, 21-013(c), 21-013(d), 21-013(e), 21-024(d), 21-024(e), 21-024(h), 31-001, 33-016, 39-007(a), and 69-001
(2) Final Reports for non-HSWA: C-0-036(a-d), C-0-041, C-10-001, C-21-027, C-36-001, 0-032, 1-001(f), 3-003(p), 3-022, 3-047(d), 3-051(c), 9-010(a-b), 16-011, 16-016(f), 20-003(c), 21-022(j), 39-002(c), 53-010, and 57-006
(3) Certifications of Completion

Cy (w/enclosures):
B. Driscoll, EPA, R.6, 6PD-N, (2 copies of HSWA)
D. Griswold, ERD, AL, MS A906
J. Harry, EM/ER, MS M992
B. Hoditschek, NMED-HRMB
R. Kern, NMED-HRMB
N. Naraine, EM-453, DOE-HQ
M. Shaner, P&PI, MS J591 (5 copies)
N. Weber, Bureau Chief, NMED-AIP, MS J993
J. White, ESH-19, MS K490
S. Yanicak, NMED-AIP, MS J993
RPF, MS M707

Cy (w/o enclosures):
T. Baca, EM, MS J591
D. Bradbury, EM/ER, MS M992
T. Glatzmaier, DDEES/ER, MS M992
D. McInroy, EM/ER, MS M992
G. Rael, ERD, AL, MS A906
W. Spurgeon, EM-453, DOE-HQ
T. Taylor, LAAO, MS A316
J. Vozella, LAAO, MS A316
EM/ER File, MS M992

Voluntary Corrective Action Completion Report for

Potential Release Site
16-016(b)
Former Surface Disposal
Area

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Field Unit 3

Environmental
Restoration
Project

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APR 22 1996

January 1996
Revision 1

A Department of Energy
Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY

LA-UR-96-189

CERTIFICATION OF COMPLETION

I certify that all work pertaining to the voluntary corrective action (VCA) 16-016(b) has been completed in accordance with the Department of Energy approved VCA plan entitled **VCA Plan for PRS 16-016(b), Former Surface Disposal Area**. Based on my personal involvement or inquiry of the person or persons who managed this clean up, a review of all data gathered and a visit to the site, to the best of my knowledge and belief, all criteria of the plan have been met or exceeded. I believe that the completion of the VCA is both protective to human health and the environment. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Brad Martin

Brad Martin
Field Unit 3 Project leader
Environmental Restoration Program
Los Alamos National Laboratory

8/25/95
Date Signed

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1.0 DESCRIPTION

Potential Release Site (PRS) 16-016(b) is the site of a former surface disposal area at TA-16. The area consisted of several mounds of soil containing asphalt, concrete, and construction debris located approximately 500 ft northeast of building TA-16-540, the TA-16 steam plant. PRS 16-016(b) is listed in the Hazardous and Solid Waste Amendments (HSWA) Module of the Los Alamos National Laboratory's Resource Conservation and Recovery Act (RCRA) Permit.

The debris, thought to be associated with road construction, was deposited in the area between 1948 and 1958. The 1990 Solid Waste Management Unit Report states that the site was suspected of being contaminated with high explosives (HE). However, the site is outside the HE corridor, and there is no existing information to suggest the possibility of HE contamination.

2.0 CORRECTIVE ACTION

The cleanup followed the Voluntary corrective action (VCA) Plan for Potential Release Sites, Group 4. Activities began July 10, 1995, and ended July 10, 1995, as a final remedy for PRS 16-016(b).

The cleanup involved excavating the mounds of soil and associated debris at the site using two dump trucks and one front-end loader. As the mounds of soil were excavated, field screening was performed for HE. Twenty HE field screening samples were collected during the excavation. The material was also screened for radionuclides before removal from the site. There were no positive screening hits. Locations of the twenty samples and negative field screening results are documented and available upon request. Three confirmatory samples were collected at the site after removal of all soil and debris. Figure 1 shows sample locations. The samples were analyzed for HE and metals using SW-846 methods 8330 and 6010, respectively. No contaminants were found in the soil. Analytical results are presented in Table 1; data are presented in Attachment A.

The mounds of soil and associated debris were taken to the TA-16 gravel pits and placed on plastic tarps until analytical sampling results indicated that the soil was free of contamination. Once the soil and debris were determined to be clean, the material was used at the gravel pits for construction fill. The volume of soil and debris removed from the site was approximately 591 yd^3. Site restoration consisted of regrading the site and allowing native grasses to regrow. The relatively level site required no erosion control.

This report serves as the formal request for regulator concurrence to remove PRS 16-016(b) from the HSWA Module.

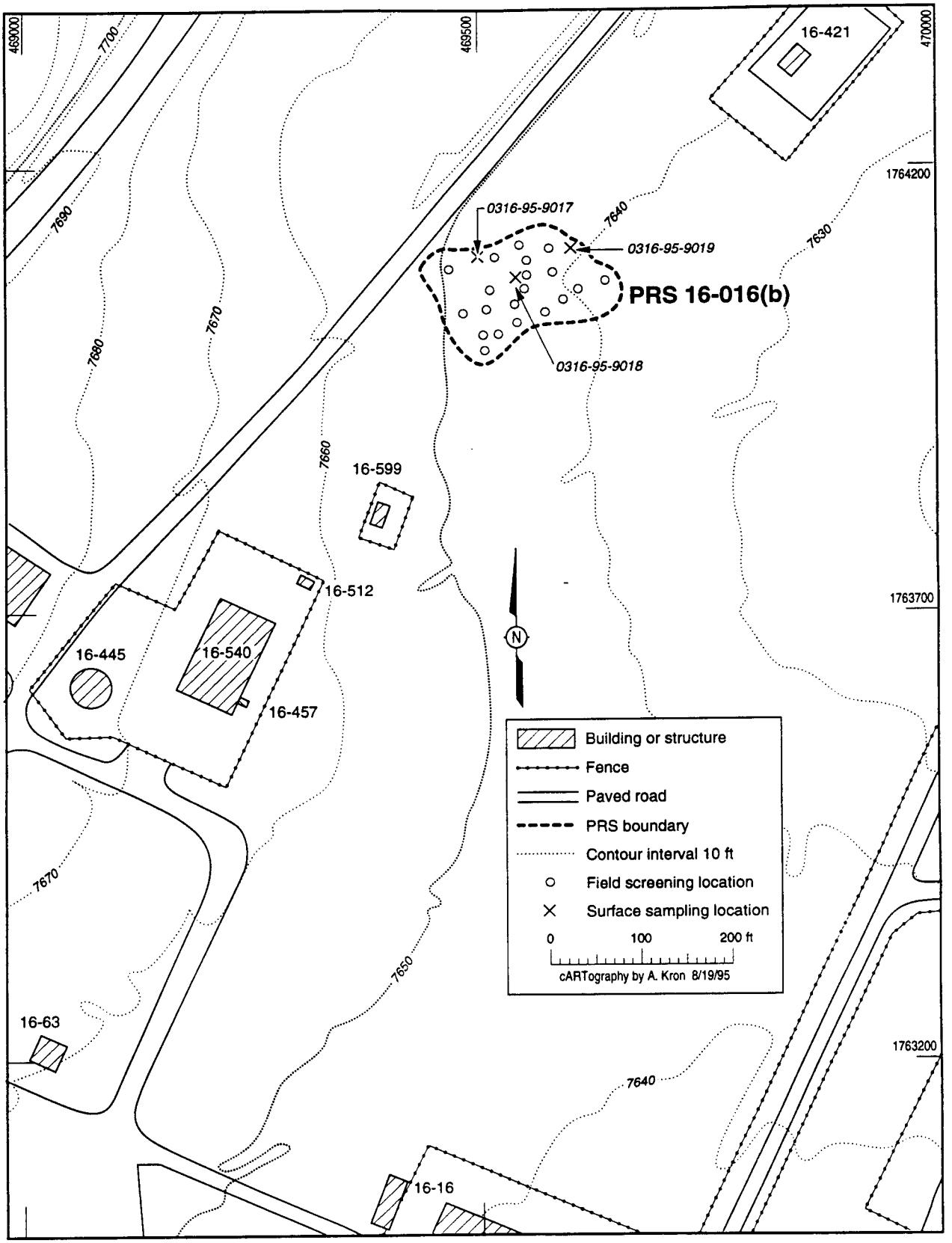

Fig. 1. Confirmatory sample locations at PRS 16-016(b).

TABLE 1

ANALYTICAL RESULTS FOR 16-016(b)

SAMPLE INFORMATION		ORGANIC ANALYSIS	METALS (RCRA[a])							
Sample ID	Location	SVOCs[b] (ppb)	Arsenic (ppm)	Barium (ppm)	Cadmium (ppm)	Chromium (ppm)	Mercury (ppm)	Lead (ppm)	Selenium (ppm)	Silver (ppm)
0316-95-9017	Surface Soil Sample	ND[c]	1.88	69	<0.248	3.5	0.0108	7.06	0.316	<0.495
0316-95-9018	Surface Soil Sample	972 - HMX[d]	2.1	130	<0.243	5.2	<0.011	8.77	0.378	<0.07
0316-95-9019	Surface Soil Sample	ND	2.29	118	<0.245	6.2	0.0117	8.17	0.292	<0.049
Background	Pajarito Plateau[e]	NA[f]	5.04	459.05	1.50	34.74	NA	28.36	NA	1.61

[a] RCRA = Resource and Conservation Recovery Act.
[b] SVOCs = Semivolatile organic compounds.
[c] ND = No analytes detected above laboratory detection limits.
[d] HMX detection limit is 750 ppb. The value detected is well below the HMX Screening Action Level of 4 000 ppm.
[e] Source: DRAFT - Natural Background Geochemistry, Geomorphology, and Pedogenesis of Selected soil Profiles and Bandelier Tuff, Los Alamos, NM, January 1995, LANL LA-12913-MS.
[f] NA = Not Available.

3.0 COST SUMMARY

TABLE 2

VCA COSTS

ACTIVITIES	COSTS
Planning	$15 000
Cleanup (Johnson Controls International & Kaiser)	$15 975
Verification sampling	$1 800
Disposal	a
Develop VCA report	$10 000
TOTAL COST	$32 775

[a] Disposal costs included in JCI's final costs.

ATTACHMENT A ANALYTICAL DATA

Included in this attachment are the analytical data from General Engineering Laboratories.

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WV	9995739	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544

Contact: Mr Fred Shore

Project Description: Routine Analysis

cc: ICFK00295

Report Date: January 17, 1996

Sample ID : 0316-95-9017
Lab ID : 9507177-01
Matrix : Soil
Date Collected : 07/11/95
Date Received : 07/12/95
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Nitroaromatics and Nitroamines - 14 items											
2,4,6-Trinitrotoluene	U	0.00	75.0	188	UGKG	1.0	GWL	07/18/95	1905	68962	1
2,4-Dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
2,6-Dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
2-Amino-4,6-dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
4-Amino-2,6-dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
HMX	U	0.00	225	750	UGKG	1.0					
Nitrobenzene	U	0.00	75.0	188	UGKG	1.0					
RDX	U	0.00	225	750	UGKG	1.0					
TETRYL	U	0.00	150	375	UGKG	1.0					
m-Dinitrobenzene	U	0.00	75.0	188	UGKG	1.0					
m-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
o-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
p-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
sym-Trinitrobenzene	U	0.00	75.0	188	UGKG	1.0					
Metals Analysis											
Mercury	J	0.0108	0.00232	0.200	MGKG	1.0	ADF	07/19/95	1225	69257	2
Silver	U	-47.3	123	495	UGKG	1.0	NRM	07/19/95	2257	69028	3
Aluminum		5130000	589	2480	UGKG	1.0					
Arsenic		1880	92.1	495	UGKG	1.0					
Barium		69000	3.28	495	UGKG	1.0					
Beryllium		447	0.564	248	UGKG	1.0					
Calcium		1350000	990	4950	UGKG	1.0					
Cadmium	U	-103	4.80	248	UGKG	1.0					
Cobalt		2420	8.71	495	UGKG	1.0					
Chromium		3490	29.5	495	UGKG	1.0					
Copper		2730	26.7	495	UGKG	1.0					
Iron		6080000	500	2480	UGKG	1.0					

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NC	232	
SC	10120	10582
TN	02934	
VA	00151	
WV	9958179	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544

Contact: Mr Fred Shore

Project Description: Routine Analysis

cc: ICFK00295 Report Date: January 17, 1996

Sample ID : 0316-95-9017

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Potassium		628000	318	4950	UGKG	1.0					
Magnesium		657000	116	495	UGKG	1.0	NRM	07/19/95	2257	69028	3
Manganese		221000	4.76	495	UGKG	1.0					
Sodium		49400	772	4950	UGKG	1.0					
Nickel		3140	39.9	495	UGKG	1.0					
Lead		7060	55.9	149	UGKG	1.0					
Antimony	J	172	47.4	495	UGKG	1.0					
Selenium		316	70.8	248	UGKG	1.0					
Thallium		536	102	495	UGKG	1.0					
Vanadium		9080	11.6	495	UGKG	1.0					
Zinc		16900	134	990	UGKG	1.0					

The following prep procedures were performed:

Mercury	ADF	07/18/95	1600	69257	2
TRACE	DVW	07/13/95	1600	69028	4

Surrogate Recovery	Test	Percent%	Acceptable Limits
1,2-Dinitrobenzene	HEXP	96.2	(70.0 - 130.)

M = Method	Method-Description
M 1	EPA 8330
M 2	EPA 7471
M 3	EPA 6010A
M 4	EPA 3050

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FL	E87156/87294	E87472/87458
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SC	10120	10582
TN	02934	
VA	00151	
WI	99985729	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544

Contact: Mr Fred Shero

Project Description: Routine Analysis

cc: ICFK00295

Report Date: January 17, 1996

Sample ID : 0316-95-9017

M = Method	Method-Description

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicate that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Nancy Slater at (803) 556-8171.

Flora Lg

Analytical Report Specialist

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SC	10120	10582
TN	02934	
VA	00151	
~~WI~~	~~999847991~~	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544
Contact: Mr Fred Shoro
Project Description: Routine Analysis

cc: ICFK00295 Report Date: January 17, 1996

Sample ID : 0316-95-9018
Lab ID : 9507177-02
Matrix : Soil
Date Collected : 07/11/95
Date Received : 07/12/95
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Nitroaromatics and Nitroamines - 14 items											
2,4,6-Trinitrotoluene	U	0.00	75.0	188	UGKG	1.0	GWL	07/18/95	1938	68962	1
2,4-Dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
2,6-Dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
2-Amino-4,6-dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
4-Amino-2,6-dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
HMX		972	225	750	UGKG	1.0					
Nitrobenzene	U	0.00	75.0	188	UGKG	1.0					
RDX	U	0.00	225	750	UGKG	1.0					
TETRYL	U	0.00	150	375	UGKG	1.0					
m-Dinitrobenzene	U	0.00	75.0	188	UGKG	1.0					
m-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
o-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
p-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
sym-Trinitrobenzene	U	0.00	75.0	188	UGKG	1.0					
Metals Analysis											
Mercury	J	0.0113	0.00232	0.200	MGKG	1.0	ADF	07/19/95	1227	69257	2
Silver	U	-44.7	121	485	UGKG	1.0	NRM	07/19/95	2302	69028	3
Aluminum		6810000	577	2430	UGKG	1.0					
Arsenic		2090	90.2	485	UGKG	1.0					
Barium		130000	3.22	485	UGKG	1.0					
Beryllium		587	0.553	243	UGKG	1.0					
Calcium		2500000	970	4850	UGKG	1.0					
Cadmium	U	-115	4.70	243	UGKG	1.0					
Cobalt		4130	8.54	485	UGKG	1.0					
Chromium		5200	28.9	485	UGKG	1.0					
Copper		3600	26.1	485	UGKG	1.0					
Iron		7440000	490	2430	UGKG	1.0					

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FL	E87156/87164	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	99081739	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544

Contact: Mr Fred Shore

Project Description: Routine Analysis

cc: ICFK00295

Report Date: January 17, 1996

Sample ID : 0316-95-9018

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Potassium		1090000	312	4850	UGKG	1.0					
Magnesium		1210000	114	485	UGKG	1.0	NRM	07/19/95	2302	69028	3
Manganese		360000	4.67	485	UGKG	1.0					
Sodium		64400	757	4850	UGKG	1.0					
Nickel		4790	39.1	485	UGKG	1.0					
Lead		8760	54.8	146	UGKG	1.0					
Antimony	J	197	46.5	485	UGKG	1.0					
Selenium		377	69.4	243	UGKG	1.0					
Thallium		696	100	485	UGKG	1.0					
Vanadium		13200	11.3	485	UGKG	1.0					
Zinc		20000	131	970	UGKG	1.0					

The following prep procedures were performed:

Mercury	ADF	07/18/95	1600	69257	2
TRACE	DVW	07/13/95	1600	69028	4

Surrogate Recovery	Test	Percent%	Acceptable Limits
1,2-Dinitrobenzene	HEXP	81.4	(70.0 - 130.)

M = Method	Method-Description
M 1	EPA 8330
M 2	EPA 7471
M 3	EPA 6010A
M 4	EPA 3050

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FL	E87156/E87704	E82472/E87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	99981779	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544

Contact: Mr Fred Shore

Project Description: Routine Analysis

cc: ICFK00295

Report Date: January 17, 1996

Sample ID : 0316-95-9018

M = Method	Method Description

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicate that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Nancy Slater at (803) 556-8171.

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NC	253	
SC	10120	10582
TN	02934	
VA	00151	
WV	9998/279	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544

Contact: Mr Fred Shore

Project Description: Routine Analysis

cc: ICFK00295

Report Date: January 17, 1996

Sample ID : 0316-95-9019
Lab ID : 9507177-03
Matrix : Soil
Date Collected : 07/11/95
Date Received : 07/12/95
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Nitroaromatics and Nitroamines - 14 items											
2,4,6-Trinitrotoluene	U	0.00	75.0	188	UGKG	1.0	GWL	07/18/95	2010	68962	1
2,4-Dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
2,6-Dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
2-Amino-4,6-dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
4-Amino-2,6-dinitrotoluene	U	0.00	75.0	188	UGKG	1.0					
HMX	U	0.00	225	750	UGKG	1.0					
Nitrobenzene	U	0.00	75.0	188	UGKG	1.0					
RDX	U	0.00	225	750	UGKG	1.0					
TETRYL	U	0.00	150	375	UGKG	1.0					
m-Dinitrobenzene	U	0.00	75.0	188	UGKG	1.0					
m-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
o-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
p-Nitrotoluene	U	0.00	75.0	188	UGKG	1.0					
sym-Trinitrobenzene	U	0.00	75.0	188	UGKG	1.0					
Metals Analysis											
Mercury	J	0.0117	0.00234	0.200	MGKG	1.0	ADF	07/19/95	1230	69257	2
Silver	U	43.3	122	490	UGKG	1.0	NRM	07/19/95	2306	69028	3
Aluminum		8220000	583	2450	UGKG	1.0					
Arsenic		2290	91.1	490	UGKG	1.0					
Barium		118000	3.25	490	UGKG	1.0					
Beryllium		568	0.559	245	UGKG	1.0					
Calcium		1290000	980	4900	UGKG	1.0					
Cadmium	U	-178	4.75	245	UGKG	1.0					
Cobalt		4100	8.62	490	UGKG	1.0					
Chromium		6240	29.2	490	UGKG	1.0					
Copper		3210	26.4	490	UGKG	1.0					
Iron		8820000	495	2450	UGKG	1.0					

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STATE	GEL	RFI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WV	9094373B	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544

Contact: Mr Fred Shore

Project Description: Routine Analysis

cc: ICFK00295

Report Date: January 17, 1996

Sample ID : 0316-95-9019

M = Method	Method-Description

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicate that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Nancy Slater at (803) 556-8171.

Analytical Report Specialist

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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	
VA	00151	
WI	99918729	

CERTIFICATE OF ANALYSIS

Client: ICF Kaiser Engineers
1900 Diamond Drive
Los Alamos, New Mexico 87544
Contact: Mr Fred Shore
Project Description: Routine Analysis

cc: ICFK00295 Report Date: January 17, 1996

Sample ID : 0316-95-9019

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Potassium		1330000	315	4900	UGKG	1.0					
Magnesium		1240000	115	490	UGKG	1.0	NRM	07/19/95	2306	69028	3
Manganese		320000	4.71	490	UGKG	1.0					
Sodium		47200	764	4900	UGKG	1.0					
Nickel		5070	39.5	490	UGKG	1.0					
Lead		8170	55.4	147	UGKG	1.0					
Antimony	J	399	46.9	490	UGKG	1.0					
Selenium		292	70.1	245	UGKG	1.0					
Thallium		798	101	490	UGKG	1.0					
Vanadium		15300	11.5	490	UGKG	1.0					
Zinc		20200	132	980	UGKG	1.0					

The following prep procedures were performed:

Mercury	ADF	07/18/95	1600	69257	2
TRACE	DVW	07/13/95	1600	69028	4

Surrogate Recovery	Test	Percent%	Acceptable Limits
1,2-Dinitrobenzene	HEXP	79.6	(70.0 - 130.)

M = Method	Method-Description
M 1	EPA 8330
M 2	EPA 7471
M 3	EPA 6010A
M 4	EPA 3050