

Los Alamos

NATIONAL LABORATORY

*Los Alamos National Laboratory
Los Alamos, New Mexico 87545*

Date: January 16, 1997
In Reply Refer To: ESH-18/WQ&H:97-0636
Mail Stop: K497
Telephone: (505) 667-7969

Mark Ashley
Oil Conservation Division
State of New Mexico Energy, Minerals, and
Natural Resources Department
2040 South Pacheco Street
Santa Fe, New Mexico 87505

**SUBJECT: MILAGRO PROJECT LAND APPLICATION NOI:
POST-APPLICATION SOIL MONITORING FOR 1996**

Dear Mr. Ashley:

In accordance with the conditions of your Division's approval of Los Alamos National Laboratory's (LANL) Notice of Intent to Discharge (NOI) for the Milagro Project at Fenton Hill, I have enclosed the annual sampling results for 1996. Also enclosed, for your information, is a map of the application site and sampling locations.

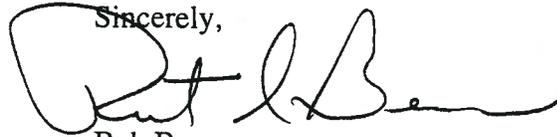
The enclosed Table 1 summarizes the analytical results for total arsenic (As) for all three rounds of sampling conducted for the Milagro Project NOI: pre-application; post-application, 1995; and post-application, 1996. The 1996 sampling results show that the elevated arsenic concentrations evident within the application site in 1995 (SS-4 and SS-5: 24 ppm and 18 ppm, respectively) have naturally attenuated to concentrations equivalent to pre-application conditions.

Additionally, all of the down-gradient sampling locations, SS-1, SS-2, and SS-3, continued to show stable arsenic concentrations equal to pre-application conditions. These stable arsenic concentrations strongly indicate that the arsenic is remaining within the application site and is not migrating down-gradient into the water course.

As required by your Division, LANL will continue to collect annual soil samples from the application site and down-gradient locations during 1997. If the analytical results for 1997 show similar arsenic levels to 1996 then LANL will request a waiver from the remaining 3 years of annual sampling. The silt fences which were installed prior to land application will be maintained throughout 1997.

I appreciate the time and effort which you have provided LANL on Milagro Project activities. If you have any questions regarding the enclosed analytical results or LANL's waiver request please feel free to contact me at 667-7969.

Sincerely,



Bob Beers
Water Quality and Hydrology Group

BB/tp

Enclosures: Map and Data Table
Analytical Report

Cy: S. Boyce, Forest Service, Jemez Springs, w/enc.
S. Rae, ESH-18, w/o enc., MS K497
N. Williams, ESH-18, w/enc., MS K497
M. Saladen, ESH-18, w/o enc., MS K497
B. Koch, DOE/LAAAO, w/enc., MS A316
G. Sinnis, P-23, w/enc., MS H803
D. Krier, EES-1, w/enc., MS D462
J. Thomson, EES-4, w/o enc., MS D443
P. Shanley, ESH-19, w/enc., MS K498
T. Glatzmaier, EES-5, w/enc., MS M992
P. Longmire, CST-7, w/enc., MS J534
J. Nyhan, EES-15, w/enc., MS J495
WQ&H File, w/o enc., MS K497
CRM-4, w/o enc., MS A150

Sample Location	Pre-Application-5/17/95	Post-Application-10/24/95	Post-Application-10/18/96
SS-1: soil, surface	3.	3.	<3.
SBS-1: soil, sub-surface	1.	2.	<3.
SS-2: soil, surface	3.	3.	<3.
SBS-2: soil, sub-surface	2.	3.	<3.
SS-3: soil, surface	2.	3.	<3.
SBS-3: soil, sub-surface	2.	4.	<3.
SS-4: soil, surface	3.	24.	3.9
SBS-4: soil, sub-surface	4.	4.	<3.
SS-5: soil, surface	2.	18.	<3.
SBS-5: soil, sub-surface	2.	3.	<3.



**ASSAIGAI
ANALYTICAL
LABORATORIES, INC.**

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LOS ALAMOS NATIONAL LABS
MAIL STOP K498/ESH-19
LOS ALAMOS, NM 87545

Attn: GUS SINNIS
Invoice Number:

Order #: 96-10-174
Date: 11/04/96 16:04
Work ID: MILAGRO PROJECT BASELINE
Date Received: 10/18/96
Date Completed: 11/04/96
Client Code: LOS14

SAMPLE IDENTIFICATION

<u>Sample Number</u>	<u>Sample Description</u>	<u>Sample Number</u>	<u>Sample Description</u>
01	TA57-SS5	07	TA57-SBS1
02	TA57-SBS5	08	TA57-SS2
03	TA57-SS4	09	TA57-SBS2
04	TA57-SS4-DUP	10	TA57-SS3
05	TA57-SBS4	11	TA57-SBS3
06	TA57-SS1		

ND = None Detected D_F = Dilution Factor NT = Not Tested
B = Analyte was present in the blank
E = Estimated Value or Result exceeds calibration range
MULTIPLY THE LIMIT(= AAL'S DETECTION LIMIT) BY DILUTION FACTOR

Certified By
FRED L. SHORE, Ph.D.



Received: 10/18/96

Results By Test

TEST CODE	Sample <u>01</u>	Sample <u>02</u>	Sample <u>03</u>	Sample <u>04</u>	Sample <u>05</u>
default units	(entered units)				
S6010X	10/28/96	10/28/96	10/28/96	10/28/96	10/28/96
N/A					
SCVHGX	10/23/96	10/23/96	10/23/96	10/23/96	10/23/96
N/A					

TEST CODE	Sample <u>06</u>	Sample <u>07</u>	Sample <u>08</u>	Sample <u>09</u>	Sample <u>10</u>
default units	(entered units)				
S6010X	10/28/96	10/28/96	10/28/96	10/28/96	10/28/96
N/A					
SCVHGX	10/23/96	10/23/96	10/23/96	10/23/96	10/23/96
N/A					

TEST CODE	Sample <u>11</u>
default units	(entered units)
S6010X	10/28/96
N/A	
SCVHGX	10/23/96
N/A	

Received: 10/18/96

REPORT

Work Order # 96-10-174

Results by Sample

SAMPLE ID TA57-SS5

FRACTION 01A TEST CODE S6010 NAME METALS-ICP/SW846 6010

Date & Time Collected 10/18/96 09:05:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	24.8	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	ND	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	3.3	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	3.7	2.0	1.0	10/28/96	10/31/96
Lead, Pb	10.6	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/Kg

BATCH_ID _____ M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS5 FRACTION 01A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A

Date & Time Collected 10/18/96 09:05:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____

ANALYST DG

UNITS _____ mg/Kg

BATCH_ID W9650

COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS5 FRACTION 01A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
 Date & Time Collected 10/18/96 09:05:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M9664

PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SBS5 FRACTION 02A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 09:11:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	24.7	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	ND	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	4.6	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	3.3	2.0	1.0	10/28/96	10/31/96
Lead, Pb	7.4	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS5 FRACTION 02A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
 Date & Time Collected 10/18/96 09:11:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS _____ mg/Kg
 BATCH_ID W9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS5 FRACTION 02A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
Date & Time Collected 10/18/96 09:11:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M9664

PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS5 FRACTION 02A TEST CODE SMSCMT NAME MISC TEST SOIL-METALS
 Date & Time Collected 10/18/96 09:11:00 Category SOIL

ANALYTES	RESULT	LIM
<u>THALLIUM</u>	<u>ND</u>	<u>20.0</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Notes and Definitions for this Report:

DATE_EXT 10/28/96
 DATE_ANAL 10/31/96
 ANALYST KH
 D_F 1.0
 UNITS mg/L
 BATCH_ID M9678-009
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SS4 FRACTION 03A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 09:20:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	15			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	121	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	0.65	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	5.2	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	5.8	2.0	1.0	10/28/96	10/31/96
Lead, Pb	11.0	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KH

UNITS mg/Kg

BATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SS4 FRACTION 03A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
 Date & Time Collected 10/18/96 09:20:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS _____ mg/Kg
 BATCH_ID W9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS4 FRACTION 03A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
 Date & Time Collected 10/18/96 09:20:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD
 UNITS mg/Kg
 BATCH_ID M9664
 PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS4 FRACTION 03A TEST CODE SMSCMT NAME MISC TEST SOIL-METALS
 Date & Time Collected 10/18/96 09:20:00 Category SOIL

ANALYTES	RESULT	LIM
<u>THALLIUM</u>	<u>ND</u>	<u>20.0</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
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<u> </u>	<u> </u>	<u> </u>
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<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Notes and Definitions for this Report:

DATE_EXT 10/28/96
 DATE_ANAL 10/31/96
 ANALYST KH
 D_F 1.0
 UNITS mg/L
 BATCH_ID M9678-010
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS4-DUP FRACTION 04A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 09:25:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	3.9	3.0	1.0	10/28/96	10/31/96
Barium, Ba	127	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	0.63	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	5.6	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	5.9	2.0	1.0	10/28/96	10/31/96
Lead, Pb	12.8	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SS4-DUP FRACTION 04A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
 Date & Time Collected 10/18/96 09:25:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS mg/Kg
 BATCH_ID W9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SS4-DUP FRACTION 04A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
 Date & Time Collected 10/18/96 09:25:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD
 UNITS mg/Kg
 BATCH_ID M9664
 PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS4 FRACTION 05A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 09:30:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	47.0	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	0.54	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	4.2	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	3.3	2.0	1.0	10/28/96	10/31/96
Lead, Pb	9.6	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS4 FRACTION 05A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
 Date & Time Collected 10/18/96 09:30:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.2</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS mg/Kg
 BATCH_ID W9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SBS4 FRACTION 05A TEST CODE SMSCMT NAME MISC TEST SOIL-METALS
 Date & Time Collected 10/18/96 09:30:00 Category SOIL

ANALYTES	RESULT	LIM
<u>THALLIUM</u>	<u>ND</u>	<u>20.0</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Notes and Definitions for this Report:

DATE_EXT 10/28/96
 DATE_ANAL 10/31/96
 ANALYST KH
 D_F 1.0
 UNITS mg/L
 BATCH_ID M9678-012
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS1 FRACTION 06A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 09:50:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	<u>NT</u>	<u>1.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Aluminum, Al	<u>NT</u>	<u>25</u>			
Arsenic, As	<u>ND</u>	<u>3.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Barium, Ba	<u>191</u>	<u>0.50</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Beryllium, Be	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Calcium, Ca	<u>NT</u>	<u>15</u>			
Cadmium, Cd	<u>ND</u>	<u>0.20</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Cobalt, Co	<u>NT</u>	<u>0.50</u>			
Chromium, Cr	<u>3.9</u>	<u>1.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Copper, Cu	<u>NT</u>	<u>0.50</u>			
Iron, Fe	<u>NT</u>	<u>15</u>			
Potassium, K	<u>NT</u>	<u>10</u>			
Magnesium, Mg	<u>NT</u>	<u>10</u>			
Manganese, Mn	<u>NT</u>	<u>0.25</u>			
Sodium, Na	<u>NT</u>	<u>15</u>			
Nickel, Ni	<u>4.5</u>	<u>2.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Lead, Pb	<u>18.3</u>	<u>2.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Antimony, Sb	<u>ND</u>	<u>1.5</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Selenium, Se	<u>ND</u>	<u>2.5</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Vanadium, V	<u>NT</u>	<u>0.15</u>			
Zinc, Zn	<u>NT</u>	<u>5.0</u>			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SS1 FRACTION 06A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
 Date & Time Collected 10/18/96 09:50:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>0.6</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS mg/Kg
 BATCH_ID W9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS1 FRACTION 06A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846.7471
 Date & Time Collected 10/18/96 09:50:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M9664

PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS1 FRACTION 06A TEST CODE SMSCMT NAME MISC TEST SOIL-METALS
 Date & Time Collected 10/18/96 09:50:00 Category SOIL

ANALYTES	RESULT	LIM
<u>THALLIUM</u>	<u>ND</u>	<u>20.0</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Notes and Definitions for this Report:

DATE_EXT 10/28/96
 DATE_ANAL 10/31/96
 ANALYST KH
 D_F 1.0
 UNITS mg/L
 BATCH_ID M9678-013
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SBS1 FRACTION 07A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 10:15:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	43.2	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	0.65	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	4.2	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	3.5	2.0	1.0	10/28/96	10/31/96
Lead, Pb	9.4	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SBS1 FRACTION 07A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
 Date & Time Collected 10/18/96 10:15:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS mg/Kg
 BATCH_ID M9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SBS1 FRACTION 07A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
 Date & Time Collected 10/18/96 10:15:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M9664

PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SBS1 FRACTION 07A TEST CODE SMSCMT NAME MISC TEST SOIL-METALS
 Date & Time Collected 10/18/96 10:15:00 Category SOIL

ANALYTES	RESULT	LIM
<u>THALLIUM</u>	<u>ND</u>	<u>20.0</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Notes and Definitions for this Report:

DATE_EXT 10/28/96
 DATE_ANAL 10/31/96
 ANALYST KH
 D_F 1.0
 UNITS mg/L
 BATCH_ID M9678-014
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS2 FRACTION 08A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 10:32:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	<u>ND</u>	<u>1.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Aluminum, Al	<u>NT</u>	<u>25</u>			
Arsenic, As	<u>ND</u>	<u>3.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Barium, Ba	<u>157</u>	<u>0.50</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Beryllium, Be	<u>0.54</u>	<u>0.50</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Calcium, Ca	<u>NT</u>	<u>15</u>			
Cadmium, Cd	<u>ND</u>	<u>0.20</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Cobalt, Co	<u>NT</u>	<u>0.50</u>			
Chromium, Cr	<u>4.0</u>	<u>1.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Copper, Cu	<u>NT</u>	<u>0.50</u>			
Iron, Fe	<u>NT</u>	<u>15</u>			
Potassium, K	<u>NT</u>	<u>10</u>			
Magnesium, Mg	<u>NT</u>	<u>10</u>			
Manganese, Mn	<u>NT</u>	<u>0.25</u>			
Sodium, Na	<u>NT</u>	<u>15</u>			
Nickel, Ni	<u>4.7</u>	<u>2.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Lead, Pb	<u>11.2</u>	<u>2.0</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Antimony, Sb	<u>ND</u>	<u>1.5</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Selenium, Se	<u>ND</u>	<u>2.5</u>	<u>1.0</u>	<u>10/28/96</u>	<u>10/31/96</u>
Vanadium, V	<u>NT</u>	<u>0.15</u>			
Zinc, Zn	<u>NT</u>	<u>5.0</u>			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS2 FRACTION 08A TEST CODE SCNT NAME CYANIDE, TOTAL/SWB46 9010A
 Date & Time Collected 10/18/96 10:32:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS _____ mg/Kg
 BATCH_ID W9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS2 FRACTION 09A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 10:51:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	39.1	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	0.82	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	2.9	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	2.9	2.0	1.0	10/28/96	10/31/96
Lead, Pb	9.8	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/Kg

BATCH_ID _____ M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SBS2 FRACTION 09A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
 Date & Time Collected 10/18/96 10:51:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS _____ mg/Kg
 BATCH_ID W9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SBS2 FRACTION 09A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
 Date & Time Collected 10/18/96 10:51:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD
 UNITS mg/Kg
 BATCH_ID M9664
 PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS3 FRACTION 10A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 11:27:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	111	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	ND	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	3.1	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	3.4	2.0	1.0	10/28/96	10/31/96
Lead, Pb	11.1	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	NT	2.5			
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SS3 FRACTION 10A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
 Date & Time Collected 10/18/96 11:27:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
 ANALYST DG
 UNITS mg/Kg
 BATCH_ID W9650
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TAS7-SS3 FRACTION 10A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
 Date & Time Collected 10/18/96 11:27:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD
 UNITS mg/Kg
 BATCH_ID M9664
 PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS3 FRACTION 11A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 11:33:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	78.5	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	0.68	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	4.2	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	3.7	2.0	1.0	10/28/96	10/31/96
Lead, Pb	8.9	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS3 FRACTION 11A TEST CODE SCNT NAME CYANIDE, TOTAL/SW846 9010A
Date & Time Collected 10/18/96 11:33:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_ANAL
Cyanide, Total	<u>ND</u>	<u>0.50</u>	<u>1.0</u>	<u>10/31/96</u>

Notes and Definitions for this Report:

EXTRACTED _____
ANALYST DG
UNITS _____ mg/Kg
BATCH_ID W9650
COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS3 FRACTION 11A TEST CODE SCVHG NAME MERCURY (CVAA)/SW846 7471
 Date & Time Collected 10/18/96 11:33:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Mercury	<u>ND</u>	<u>0.15</u>	<u>1.0</u>	<u>10/23/96</u>	<u>10/24/96</u>

Notes and Definitions for this Report:

ANALYST CD

UNITS mg/Kg

BATCH_ID M9664

PRCNT_MOIST

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS3 FRACTION 11A TEST CODE SMSCMT NAME MISC TEST SOIL-METALS
 Date & Time Collected 10/18/96 11:33:00 Category SOIL

ANALYTES	RESULT	LIM
<u>THALLIUM</u>	<u>ND</u>	<u>20.0</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Notes and Definitions for this Report:

DATE_EXT 10/28/96
 DATE_ANAL 10/31/96
 ANALYST KH
 D_F 1.0
 UNITS mg/L
 BATCH_ID M9678-018
 COMMENTS _____

Received: 10/18/96

Results by Sample

SAMPLE ID TA57-SBS2 FRACTION 09A TEST CODE S6010 NAME METALS-ICP/SW846 6010
 Date & Time Collected 10/18/96 10:51:00 Category SOIL

PARAMETER	RESULT	LIMIT	D_F	DATE_EXT	DATE_ANAL
Silver, Ag	ND	1.0	1.0	10/28/96	10/31/96
Aluminum, Al	NT	25			
Arsenic, As	ND	3.0	1.0	10/28/96	10/31/96
Barium, Ba	39.1	0.50	1.0	10/28/96	10/31/96
Beryllium, Be	0.82	0.50	1.0	10/28/96	10/31/96
Calcium, Ca	NT	15			
Cadmium, Cd	ND	0.20	1.0	10/28/96	10/31/96
Cobalt, Co	NT	0.50			
Chromium, Cr	9	1.0	1.0	10/28/96	10/31/96
Copper, Cu	NT	0.50			
Iron, Fe	NT	15			
Potassium, K	NT	10			
Magnesium, Mg	NT	10			
Manganese, Mn	NT	0.25			
Sodium, Na	NT	15			
Nickel, Ni	2.9	2.0	1.0	10/28/96	10/31/96
Lead, Pb	9.8	2.0	1.0	10/28/96	10/31/96
Antimony, Sb	ND	1.5	1.0	10/28/96	10/31/96
Selenium, Se	ND	2.5	1.0	10/28/96	10/31/96
Vanadium, V	NT	0.15			
Zinc, Zn	NT	5.0			

Notes and Definitions for this Report:

ANALYST KHUNITS mg/KgBATCH_ID M9678