NM - 38

MONITORING REPORTS

YEAR(S):

1993-1988

American Exploration Company

April 29, 1993

FEDERAL EXPRESS

Mr. Denny A. Foust
Environmental Geologist
Energy, Minerals and Natural Resources Division
Oil Conservation Division
1000 Rio Brazos Road
Aztec, New Mexico 87410

RE: Hospah Oil Field
McKinley County, New Mexico

Dear Mr. Foust:

We are following up on yesterday's correspondence by delivering copies of a complete set of lab analyses of soil samples taken at the Hospah Field during the first week of April. To determine the location and depth of each analysis, refer to the description following the words "SAMPLE ID". For example "SFRR 10-6" refers to a sample taken at a point 10 feet downstream from the discharge point at Sante Fe Railroad lease at a depth of 6 inches. If you need further explanation, do not hesitate to call me at (713) 756-6386.

Very truly yours,

AMERICAN EXPLORATION COMPANY

Roderick Oxford
Vice President - Legal

RO:nb

cc: Bob McBride
Lloyd Hetrick

RO:0001

1331 Lamar Street, Suite 900, Houston, Texas 77010-3088, Telephone: (713) 756-6000
885 Third Avenue, Suite 1200, New York, New York 10022-4802, Telephone: (212) 644-6900

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 93-04-240
93-04-242

Approved for release by:

Mari L. Grice
S. Grice, UST Coordinator Date: 4/21/93

for Cynthia Schreiner
S. Sample, Laboratory Director Date: 4/21/93

SPL

Certificate of Analysis No. 9304240-01

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	5900	200	mg/Kg
Silver, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	ND	1	mg/Kg
Arsenic, Total METHOD 7060 *** Analyzed by: WFL Date: 04/15/93	ND	0.2	mg/Kg
Barium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	54.9	0.5	mg/Kg
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	ND	2	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-01

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	5	1	mg/Kg
Mercury, Total METHOD 7471 *** Analyzed by: PB Date: 04/12/93	ND	0.1	mg/Kg
Moisture, E.P.A. METHOD CLP SOW Analyzed by: DSE Date: 04/12/93	7	1	wt. %
Acid Digestion-Solid, ICP METHOD 3050 Analyzed by: AM Date: 04/13/93	04/13/93		
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-01

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 04/16/93	ND	1	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-02

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 0-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	20000	100	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			
BENZENE	ND	10 P	µg/Kg
TOLUENE	ND	10 P	µg/Kg
ETHYLBENZENE	400	10 P	µg/Kg
TOTAL XYLENE	97	10 P	µg/Kg
TOTAL BTEX	497		µg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 04/11/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-03

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 0-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	43000	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-04

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 0-24"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	1600	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL

Certificate of Analysis No. 9304240-05

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 10-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	55000	200	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-06

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 10-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	7300	100	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			
BENZENE	ND	1 P	µg/Kg
TOLUENE	ND	1 P	µg/Kg
ETHYLBENZENE	65	1 P	µg/Kg
TOTAL XYLENE	ND	1 P	µg/Kg
TOTAL BTEX	65		µg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 04/11/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-07

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 10-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	24	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-08

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 20-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	6300	100	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc. - Shari L. Grice

Certificate of Analysis No. 9304240-09

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 20-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	1100	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-10

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 20-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	33	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-11

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 30-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	45000	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-12

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 30-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	220	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-13

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: SFRR - 40-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	14000	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-14

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	1900	200	mg/Kg
Silver, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	ND	1	mg/Kg
Arsenic, Total METHOD 7060 *** Analyzed by: WFL Date: 04/15/93	ND	0.2	mg/Kg
Barium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	86.8	0.6	mg/Kg
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	ND	2	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-14

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	7	1	mg/Kg
Mercury, Total METHOD 7471 *** Analyzed by: PB Date: 04/12/93	ND	0.2	mg/Kg
Moisture, E.P.A. METHOD CLP SOW Analyzed by: DSE Date: 04/12/93	10	1	wt. %
Acid Digestion-Solid, ICP METHOD 3050 Analyzed by: AM Date: 04/13/93	04/13/93		
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	10	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-14

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 04/16/93	ND	1	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-15

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 0-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304240-16

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 0-24"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-17

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 10-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	3600	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-18

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 10-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	110	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-19

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 20-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	15000	100	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-20

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 20-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	ND	10	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-21

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 20-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-22

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 30-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	13000	100	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-23

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 30-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	110	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-24

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 40-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	10000	200	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-25

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 0-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	13	10	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			
BENZENE	ND	1 P	µg/Kg
TOLUENE	ND	1 P	µg/Kg
ETHYLBENZENE	2	1 P	µg/Kg
TOTAL XYLENE	ND	1 P	µg/Kg
TOTAL BTEX	2		µg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 04/11/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-26

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HSU - 10-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	99	10	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			
BENZENE	ND	1 P	µg/Kg
TOLUENE	1	1 P	µg/Kg
ETHYLBENZENE	4	1 P	µg/Kg
TOTAL XYLENE	ND	1 P	µg/Kg
TOTAL BTEX	5		µg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 04/11/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL

Certificate of Analysis No. 9304240-27

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	2000	200	mg/Kg
Silver, Total *METHOD 6010* *** Analyzed by: DQ Date: 04/14/93	1	1	mg/Kg
Arsenic, Total METHOD 7060 *** Analyzed by: WFL Date: 04/15/93	1.7	0.3	mg/Kg
Barium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	145	0.6	mg/Kg
Cadmium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	ND	3	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-27

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	10	1	mg/Kg
Mercury, Total METHOD 7471 *** Analyzed by: PB Date: 04/12/93	ND	0.2	mg/Kg
Moisture, E.P.A. METHOD CLP SOW Analyzed by: DSE Date: 04/12/93	22	1	wt. %
Acid Digestion-Solid, ICP METHOD 3050 Analyzed by: AM Date: 04/13/93	04/13/93		
Lead, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	10	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.
QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-27

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 0-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Selenium, Total METHOD 7740 *** Analyzed by: WFL Date: 04/16/93	ND	1	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

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Certificate of Analysis No. 9304240-28

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 0-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	8600	200	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			
BENZENE	ND	10 P	µg/Kg
TOLUENE	ND	10 P	µg/Kg
ETHYLBENZENE	2700	10 P	µg/Kg
TOTAL XYLENE	740	10 P	µg/Kg
TOTAL BTEX	3440		µg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 04/11/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-29

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 0-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	1100	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-30

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 0-24"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-31

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 0-60"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-32

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 10-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	12000	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-33

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 10-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	21000	200	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			
BENZENE	ND	5 P	µg/Kg
TOLUENE	ND	5 P	µg/Kg
ETHYLBENZENE	670	5 P	µg/Kg
TOTAL XYLENE	160	5 P	µg/Kg
TOTAL BTEX	830		µg/Kg
METHOD 5030/8020 ***			
Analyzed by: MOO			
Date: 04/11/93			

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-34

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 10-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	13000	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-35

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 10-24"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	2600	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

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Certificate of Analysis No. 9304240-36

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 10-60"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304240-37

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 10-72"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-38

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 20-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	1800	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-39

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 20-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	860	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-40

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 20-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	2300	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-41

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 20-24"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	480	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-42

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 30-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	24000	200	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304240-43

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 30-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	4100	200	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-44

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 30-12"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	72	10	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-45

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 40-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	7900	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-46

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 40-6"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304240-47

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: HANSON - 50-0"

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/02/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	27000	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304240-48

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #2 A-36

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	410	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-58

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #2 B-48

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	43000	200	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304242-59

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #2 C-24

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	80	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304242-60

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #2 D-72

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	2800	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-61

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #2 E-60

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304242-62

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 A-24

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	9800	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304242-63

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 B-60

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

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Certificate of Analysis No. 9304242-64

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 C-24

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	130	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-66

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 E-60

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	11000	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-65

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 D-72

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	8000	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-67

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 F-60

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	10	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-68

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 G-24

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil)	37	10	mg/Kg
METHOD MOD. CA. DHS			
Analyzed by: KA			
Date: 04/14/93 12:21:00			

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-69

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 H-6

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	200	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

SPL®

Certificate of Analysis No. 9304242-70

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 I-6

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	98	10	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-71

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 J-6

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	ND	200	mg/Kg

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

Certificate of Analysis No. 9304242-72

American Exploration Co.
1331 Lamar, Ste 900
Houston, TX 77010
ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis
SITE:
SAMPLED BY: American Exploration
SAMPLE ID: Pit #1 K-0

PROJECT NO:
MATRIX: SOIL
DATE SAMPLED: 04/03/93
DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA Date: 04/14/93 12:21:00	1400	200	mg/Kg

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 17th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Shari L. Grice

SPL, Inc., - Shari L. Grice

** SPL Quality Control Report **
BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE
Method 8020/602

SPL Sample ID: 9304250-02A Reported on: 04/21/93
Matrix: Soil Analyzed on: 04/11/93

This sample was randomly selected for use in the SPL quality control program. One in twenty samples is fortified, in duplicate, with a known concentration of the substance being analyzed.
The results are as follows:

---- SPIKE ANALYSIS -----

Compound	Blank Value	Spike Added µg/Kg	Original Sample Concentration µg/Kg	MS Concentration µg/Kg	MS % Rec#	QC Limits Range
BENZENE	ND	20	ND	20	100	39 - 150 %
TOLUENE	ND	20	ND	19	95	46 - 148 %
ETHYL_BENZENE	ND	20	ND	19	95	32 - 160 %
O XYLENE	ND	20	ND	18	90	32 - 160 %
M AND P XYLENE	ND	40	2	37	87	32 - 160 %

---- SPIKE DUPLICATE ANALYSIS -----

Compound	Spike Added µg/Kg	MSD Concentration µg/Kg	MSD % Rec#	% RPD	RPD Limit	QC Rec Range
BENZENE	20	19	95	5	20	39 - 150 %
TOLUENE	20	19	95	0	20	46 - 148 %
ETHYL_BENZENE	20	19	95	0	20	32 - 160 %
O XYLENE	20	18	90	0	20	32 - 160 %
M AND P XYLENE	40	36	85	2	20	32 - 160 %

VARD930411165700

Cynthia Schreiner

Cynthia Schreiner, QC Officer

Matrix:	Soil	Reported on:	04/21/93 09:51:29
Sample ID:	9304240-61A	Analyzed on:	04/14/93 12:21:00
Batch ID:	VARH930414122100	Analyst:	KA

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Total Petroleum Hydrocarbons-Diesel
Modified California DHS

COMPOUND	Sample Value mg/Kg	Spike Added mg/Kg	MS % Recovery #	MSD % Recovery #	Relative % Difference #
MODSD	ND	143.5	128	123	4

NOTES

column to be used to flag recovery and RPD values with an asterisk
* values outside of QC Limits.

Cynthia Schreiner

Cynthia Schreiner, QC Officer

Matrix:	Soil	Reported on:	04/21/93 09:51:31
Sample ID:	9304242-67A	Analyzed on:	04/14/93 12:21:00
Batch ID:	VARH930414122100	Analyst:	KA

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Total Petroleum Hydrocarbons-Diesel
Modified California DHS

COMPOUND	Sample Value mg/Kg	Spike Added mg/Kg	MS % Recovery #	MSD % Recovery #	Relative % Difference #
MODSD	ND	143.5	107	103	4

NOTES

column to be used to flag recovery and RPD values with an asterisk
* values outside of QC Limits.

Cynthia Schreiner

Cynthia Schreiner, QC Officer

Matrix:	Soil	Reported on:	04/21/93 09:51:33
Sample ID:	9304240-30A	Analyzed on:	04/14/93 12:21:00
Batch ID:	VARH930414122100	Analyst:	KA

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Total Petroleum Hydrocarbons-Diesel
Modified California DHS

C O M P O U N D	Sample Value mg/Kg	Spike Added mg/Kg	MS % Recovery #	MSD % Recovery #	Relative % Difference #
MODSD	ND	71.7	96	100	4

NOTES

column to be used to flag recovery and RPD values with an asterisk
* values outside of QC Limits.

Cynthia Schreiner, QC Officer

SPL QUALITY CONTROL REPORT
ATOMIC ABSORPTION ANALYSIS

DATE: 4/15/93 TIME: 11:10 ANALYST: WFC MATRIX: Soil
INSTRUMENT: 30302 FILE #: 0415C METHOD: ~~GFAA~~ UNITS: mg/kg

ELEMENT: As

SAMPLE ID NUMBERS: 04265-1c-13c; 04267-1c-11c; 04313-1c-8c; 04240-1B, 14B, 27B

SAMPLE ID	METHOD BLANK	LCS % REC.	ORIGINAL CONC.	DUPLICATE CONC.	RPD %	SPIKE ADDED	MS % REC.	MSD % REC.	RPD %
04265-1c	ND	98.4%	ND	ND	NA	40.0	96.2%	97.5%	1
04267-9c	ND	98.4%	ND	ND	NA	40.0	81.5%	—	—
04313-5c	ND	91.9%	12.6	14.4	13	40.0	79.8%	—	—
PB 4/12	ND	90.1%	—	—	—	—	—	—	—

FLAGS: _____

SUPERVISOR APPROVAL: Meaga Mariam
DATE: 4/16/93

SPL QUALITY CONTROL REPORT
ICP ANALYSIS

DATE: 4/14/93 TIME: 09:39 AM ANALYST: BB. MATRIX: Soil
INSTRUMENT: TJA 61E FILE #: A0414 METHOD: ICP UNITS: mg/kg.

AMPLE ID UMBERS: 4275 1B-8B ~~4276~~ 4271 1B-7B 4269 1A 4240 1B 4240 1AB 2B

QC SAMPLE ID: 1). 4271 4B 2).

ELEMENT B-2 4/13	METHOD BLANK	LCS % REC.	ORIGINAL CONC.	DUPLICATE CONC.	RPD %	SPIKE ADDED	MS % REC.	MSD % REC.	RPD %
Cu	NP	88.8	NP	NP	N/A	0.25	92.0	93.5	2
Ni		90.1				0.50	88.6	91.8	3
Ag		98.7				0.05	91.0	90.2	1
Pb		90.3				0.50	86.0	88.1	2
Ba		90.1				2.0	91.0	92.8	2
Cd		95.6				0.05	81.2	77.2	5
Cr	↓	82.9	↓	↓	↓	0.20	93.3	95.2	2

FLAGS:

SUPERVISOR APPROVAL: Meaga Nariam
DATE: 4/15/93

SPL QUALITY CONTROL REPORT
ATOMIC ABSORPTION ANALYSIS

DATE: 4/12/93 TIME: 3.54 ANALYST: JM/PB MATRIX: SOILS
INSTRUMENT: B3030 FILE #: 0412C METHOD: CVAA UNITS: ug/L

ELEMENT: Hg

SAMPLE ID NUMBERS: 4127-1C ; 4129-1C ; 4240-1B, 1AB, 27B
4269-1A

SAMPLE ID	METHOD BLANK	LCS % REC.	ORIGINAL CONC.	DUPLICATE CONC.	RPD %	SPIKE ADDED	MS % REC.	MSD % REC.	RPD %
4127-1C	ND	73.6	ND	ND	N/A	2.00	73.5	73.5	0

FLAGS:

SUPERVISOR APPROVAL: Meaga Mariam
DATE: 4/13/93

SPL QUALITY CONTROL REPORT
ATOMIC ABSORPTION ANALYSIS

DATE: 4/16/93 TIME: 13:28 ANALYST: WFC MATRIX: Soil
INSTRUMENT: 30302 FILE #: 0416B METHOD: ~~GFAA~~ UNITS: mg/kg

LEMENT: SE

AMPLE ID UMBERS: 04240-1B, 14B, 27B; 04269-1A.

AMPLE ID	METHOD BLANK	LCS % REC.	ORIGINAL CONC.	DUPLICATE CONC.	RPD %	SPIKE ADDED	MS % REC.	MSD % REC.	RPD %
4250-5x	ND	81.5%	ND	ND	NA	30.0	95.0%	93.3%	2

FLAGS: QC samples were analytically spiked.

SUPERVISOR APPROVAL: Maaza Mariam
DATE: 4/16/93

8880 Interchange Drive, Houston, Texas 77054 713/660-0901

Wet Chemistry QA/QC Validation Report

Test Code MOISEP Date 4-12-93 Analyst DSE

Method GRAVIMETRIC Time 6:20AM Matrix SOIL

Of Samples in Set 55 Detection Limit 1

Sample #'s in Set 304250-1C-7C, 304285-1C, 304288-3C-4C, 10C/11C, 304265-1B→13B, 304267-1B→11B, 304269-1A, 304271-1B→7B, 304275-1B→8B, 304240-1B, 1AB, 2TB

Units % WEIGHT

Standards	EM, %T, ABS.	Actual Concentration	Theoretical Concentration	% Recovery	Upper Limit	Lower Limit
Blank						
#1						
#2						
#3						
#4						
Check Std.						

Duplicate	#1	#2	RPD (%)	Upper Limit	Lower Limit	Dilution
304250-7C	20	21	4.9	30.4	22.4	
304285-1C	4	4	0			
304265-13B	20	17	16.2			
304267-11B	20	22	9.5			
304269-1A	26	24	8			
304271-7B	11	11	0			
304275-8B	10	12	9.1			

Spike Sample	Concentration Before Spike	Amount Added	Concentration After Spike	After - Before	% Recovery	Upper Limit	Lower Limit

Spike Recovery Calculation

$$\% \text{ Recovery} = \frac{(\text{Actual} - \text{Original})}{\text{Amount Added}} \times 100$$

Relative Percent Difference Calculation

$$\text{RPD} = \frac{(\#1 - \#2)}{(\#1 + \#2)(0.5)} \times 100$$

Reviewed By [signature]

Date 4/13/93

Approved By [signature]

Date 4/13/93

Matrix:	Soil	Reported on:	04/21/93 09:53:19
Sample ID:	9304240-61A	Analyzed on:	04/14/93 12:21:00
Batch ID:	VARH930414122100	Analyst:	KA

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Total Petroleum Hydrocarbons-Diesel
Modified California DHS

COMPOUND	Sample Value mg/Kg	Spike Added mg/Kg	MS % Recovery #	MSD % Recovery #	Relative % Difference #
MODSD	ND	143.5	128	123	4

NOTES

column to be used to flag recovery and RPD values with an asterisk
* values outside of QC Limits.

Cynthia Schreiner, QC Officer

Matrix: Soil
Sample ID: 9304242-67A
Batch ID: VARH930414122100

Reported on: 04/21/93 09:53:21
Analyzed on: 04/14/93 12:21:00
Analyst: KA

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Total Petroleum Hydrocarbons-Diesel
Modified California DHS

C O M P O U N D	Sample Value mg/Kg	Spike Added mg/Kg	MS % Recovery #	MSD % Recovery #	Relative % Difference #
MODSD	ND	143.5	107	103	4

NOTES

column to be used to flag recovery and RPD values with an asterisk
* values outside of QC Limits.

Cynthia Schreiner, QC Officer

Matrix:	Soil	Reported on:	04/21/93 09:53:22
Sample ID:	9304240-30A	Analyzed on:	04/14/93 12:21:00
Batch ID:	VARH930414122100	Analyst:	KA

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Total Petroleum Hydrocarbons-Diesel
Modified California DHS

C O M P O U N D	Sample Value mg/Kg	Spike Added mg/Kg	MS % Recovery #	MSD % Recovery #	Relative % Difference #
MODSD	ND	71.7	96	100	4

NOTES

column to be used to flag recovery and RPD values with an asterisk
* values outside of QC Limits.

Cynthia Schreiner

Cynthia Schreiner, QC Officer

930242 & 9304240

Environmental Laboratory
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Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration	Hospah - SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
0-0"	4/2/93 4:10P	V		4oz Glass	Soil	None	See attached sheet	
0-6"	4/2/93 4:10P	V						
0-12"	4/2/93 4:10P	V						
0-24"	4/2/93 4:10P	V						
0-60"	4/2/93 4:10P	V						
10-0"	4/2/93 4:20P							
10-6"	4/2/93 4:20P							
10-12"	4/2/93 4:20P							
10-24"	4/2/93 4:20P							
10-60"	4/2/93 4:20P							

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
C. Jones	C. Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in reverse order - Cooled to 39°F for shipping			Received for laboratory: (Signature)	Date 4/8/93 Time 12:00	Laboratory No.
Seal #			Data Results to:		

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Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
20-0"	4/2/93 4:35P	✓		4oz Glass	Soil	None	See attached sheet	
20-6"	4/2/93 4:35P	✓						
20-12"	4/2/93 4:35P	✓						
20-24"	4/2/93 4:35P	✓						
20-60"	4/2/93 4:35P	✓						
30-0"	4/2/93 4:50P	✓						
30-6"	4/2/93 4:50P	✓						
30-12"	4/2/93 4:50P	✓						
30-24"	4/2/93 4:50P	✓						
30-60"	4/2/93 4:50P	✓						

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
C. Jones	C. Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co					
	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
			Received for laboratory (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
			Data Results to:		

SAMPLER REMARKS: Packed in rev. order - Cooled to 39°F for shipping

Seal #

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Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co	Hospah — SFRB

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
40-0"	4/2/93 5:10P	✓		40z Glass	Soil	None	See attached sheet	
40-6"	4/2/93 5:10P	✓		"	"	"	"	
40-12"	4/2/93 5:10P	✓		"	"	"	"	
40-24"	4/2/93 5:10P	✓		"	"	"	"	
40-60"	4/2/93 5:10P	✓		"	"	"	"	
50-0"	4/2/93 5:30P	✓		"	"	"	"	
50-6"	4/2/93 5:30P	✓		"	"	"	"	
50-12"	4/2/93 5:30P	✓		"	"	"	"	
50-24"	4/2/93 5:30P	✓		"	"	"	"	
50-60"	4/2/93 5:30P	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Expl Co					
	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in rev. order — Cooled to 39°F for shipping			Received for Laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

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Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co	Hospah - SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
60-0"	4/2/93 5:45P	✓		40z Glass	Soil	None	See attached sheet	
60-6"	4/2/93 5:45P	✓		"	"	"	"	
60-12"	4/2/93 5:45P	✓		"	"	"	"	
60-24"	4/2/93 5:45P	✓		"	"	"	"	
60-60"	4/2/93 5:45P	✓		"	"	"	"	
70-0"	4/2/93 6:00P	✓		"	"	"	"	
70-6"	4/2/93 6:00P	✓		"	"	"	"	
70-12"	4/2/93 6:00P	✓		"	"	"	"	
70-24"	4/2/93 6:00P	✓		"	"	"	"	
70-60	4/2/93 6:00P	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in reverse order - Cooled to 39°F for shipping			Received for laboratory: (Signature)	Date: 4/5/93 Time: 1230	Laboratory No.
Seal #			Data Results to:		

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Houston, Texas 77054
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Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
60-0"	4/2/93 5:45P	✓		40z Glass	Soil	None	See attached sheet	
60-6"	4/2/93 5:45P	✓						
60-12"	4/2/93 5:45P	✓						
60-24"	4/2/93 5:45P	✓						
60-60"	4/2/93 5:45P	✓						
70-0"	4/2/93 6:00P	✓						
70-6"	4/2/93 6:00P	✓						
70-12"	4/2/93 6:00P	✓						
70-24"	4/2/93 6:00P	✓						
70-60	4/2/93 6:00P	✓						

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
D Jones	D Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in reverse order - Cooled to 39°F for shipping			Received for laboratory by: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

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Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co	Hospah - SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
60-0"	4/2/93 5:45P	✓		40z Glass	Soil	None	See attached sheet	
60-6"	4/2/93 5:45P	✓						
60-12"	4/2/93 5:45P	✓						
60-24"	4/2/93 5:45P	✓						
60-60"	4/2/93 5:45P	✓						
70-0"	4/2/93 6:00P	✓						
70-6"	4/2/93 6:00P	✓						
70-12"	4/2/93 6:00P	✓						
70-24"	4/2/93 6:00P	✓						
70-60	4/2/93 6:00P	✓						

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in reverse order – Cooled to 39°F for shipping			Received for laboratory: (Signature)	Date: 4/5/93 Time: 12:12	Laboratory No.
Seal #			Data Results to:		

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Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
80-0"	4/2/93 6:15P	✓		4oz Glass	Soil	None	See attached sheet	
80-6"	4/2/93 6:15P	✓						
80-12"	4/2/93 6:15P	✓						
80-24"	4/2/93 6:15P	✓						
80-60"	4/2/93 6:15P	✓						
90-0"	4/2/93 6:30P	✓						
90-6"	4/2/93 6:30P	✓						
90-12"	4/2/93 6:30P	✓						
90-24"	4/2/93 6:30P	✓						
90-60"	4/2/93 6:30P	✓						

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:30	Laboratory No.
			Data Results to:		

SAMPLER REMARKS: Packed in reverse order - Cooled to 39°F for shipping

Seal #

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Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
80-0"	4/2/93 6:15P	✓		40z Glass	Soil	None	See attached sheet	
80-6"	4/2/93 6:15P	✓						
80-12"	4/2/93 6:15P	✓						
80-24"	4/2/93 6:15P	✓						
80-60"	4/2/93 6:15P	✓						
90-0"	4/2/93 6:30P	✓						
90-6"	4/2/93 6:30P	✓						
90-12"	4/2/93 6:30P	✓						
90-24"	4/2/93 6:30P	✓						
90-60"	4/2/93 6:30P	✓						

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
D Jones	D Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
			Received for laboratory: (Signature)	Date: 4/5/93 Time: 12:00	Laboratory No.
			Data Results to:		

SAMPLER REMARKS: Packed in reverse order - Cooled to 39°F for shipping

Seal #

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Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
80-0"	4/2/93 6:15P	✓		403 Glass	Soil	None	See attached sheet	
80-6"	4/2/93 6:15P	✓						
80-12"	4/2/93 6:15P	✓						
80-24"	4/2/93 6:15P	✓						
80-60"	4/2/93 6:15P	✓						
90-0"	4/2/93 6:30P	✓						
90-6"	4/2/93 6:30P	✓						
90-12"	4/2/93 6:30P	✓						
90-24"	4/2/93 6:30P	✓						
90-60"	4/2/93 6:30P	✓						

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
			Data Results to:		

SAMPLER REMARKS: Packed in reverse order - Cooled to 39°F for shipping

Seal #

Environmental Laboratory
8880 Interchange Drive
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713/660-0901

Analysis Request and Chain of Custody Record

Project No.

Client/Project Name: American Exploration Co.

Project Location: Hospah – SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
100-0"	4/2/93 6:45P	✓		40z Glass	Soil	None	See attached Sheet	
100-6"	4/2/93 6:45P	✓		"	"	"	"	
100-12"	4/2/93 6:45P	✓		"	"	"	"	
100-24"	4/2/93 6:45P	✓		"	"	"	"	
100-60	4/2/93 6:45P	✓		✓	✓	✓	✓	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
C Jones	C Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
AMER EXP CO.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
SAMPLER REMARKS: Packed in reverse order – Cooled to 39°F for shipping			Data Results to:		
Seal #					

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.:

Client/Project Name: American Exploration Co.

Project Location: Hospah – SFKR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Sample Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
0-0"	4/2/93 6:45P	V		40z Glass	Soil	None	See attached Sheet	
100-6"	4/2/93 6:45P	V						
100-12"	4/2/93 6:45P	V						
100-24"	4/2/93 6:45P	V						
100-60	4/2/93 6:45P	V						

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
AMER EXP CO.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in reverse order – Cooler sealed for shipping			Received for laboratory: (Signature)	Date: 4/6/93 Time: 12:00	Laboratory No.:
Seal #			Date Results to:		

IPL®

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah – SFRR

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
100-0"	4/2/93 6:45P	✓		4oz Glass	Soil	None	See attached Sheet	
100-6"	4/2/93 6:45P	✓		"	"	"	"	
100-12"	4/2/93 6:45P	✓		"	"	"	"	
100-24"	4/2/93 6:45P	✓		"	"	"	"	
100-60	4/2/93 6:45P	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
AMER EXP CO.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
SAMPLER REMARKS: Packed in reverse order – Cooled to 39°F for shipping			Date Results to:		
Seal #					

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - HSU/SFRR "A"

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
0-0"	4/2/93 7:45A	✓		40z glass	Soil	None	See attached sheet	
0-6"	4/2/93 8:00A	✓		"	"	"	"	
0-12"	4/2/93 8:00A	✓		"	"	"	"	
0-24"	4/2/93 8:00A	✓		"	"	"	"	
0-60"	4/2/93 8:00A	✓		"	"	"	"	
10-0"	4/2/93 8:15A	✓		"	"	"	"	
10-60"	4/2/93 8:15A	✓		"	"	"	"	
10-12"	4/2/93 8:15A	✓		"	"	"	"	
10-24"	4/2/93 8:15A	✓		"	"	"	"	
10-60"	4/2/93 8:15A	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
D Jones	D Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Expl Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in reverse order. Cooled to 39° F for shipping			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:30	Laboratory No.
Seal #			Date Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.

Client/Project Name: American Exploration Co.

Project Location: Hospah - HSU/SFRR "A"

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
20-0"	4/2/93 8:25A	✓		40z glass	Soil	None	See attached sheet	
20-6"	4/2/93 8:25A	✓		"	"	"	"	
20-12"	4/2/93 8:25A	✓		"	"	"	"	
20-24"	4/2/93 8:25A	✓		"	"	"	"	
20-60"	4/2/93 8:25A	✓		"	"	"	"	
30-0"	4/2/93 8:35A	✓		"	"	"	"	
30-6"	4/2/93 8:35A	✓		"	"	"	"	
30-12"	4/2/93 8:35A	✓		"	"	"	"	
30-24"	4/2/93 8:35A	✓		"	"	"	"	
30-60"	4/2/93 8:35A	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Affiliation: Amer Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in reverse order - Cooled to 39°F for shipping			Received for laboratory: (Signature)	Date: 4/8/93 Time: 2:00	Laboratory No.
Seal #			Data Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah – HSU/SERB "A"

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
40-0"	4/3/93 8:45A	V		4oz glass	soil	None	See attached sheet	
40-6"	4/3/93 8:45A	V		"	"	"	"	
40-12"	4/3/93 8:45A	V		"	"	"	"	
40-24"	4/3/93 8:45A	V		"	"	"	"	
40-60"	4/3/93 8:45A	V						
50-0"	4/3/93 8:45A	V						
50-6"	4/3/93 8:45A	V						
50-12"	4/3/93 8:45A	V						
50-24"	4/3/93 8:45A	V						
50-60"	4/3/93 8:45A	V						

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
	C. Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS:			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

SPL®
Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah – HSU/SFRR "A"

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
[redacted]-0"	4/2/93 9:30A	✓		4oz glass	Soil	None	See attached Sheet	
60-6"	4/2/93 9:30A	✓						
60-12"	4/2/93 9:30A	✓						
60-24"	4/2/93 9:30A	✓						
60-60"	4/2/93 9:30A	✓						
70-0"	4/2/93 9:45A	✓						
70-6"	4/2/93 9:45A	✓						
70-12"	4/2/93 9:45A	✓						
[redacted]-24"	4/2/93 9:45A	✓						
70-60"	4/2/93 9:45A	✓		✓	✓	✓	✓	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Locked in rev. order – Cooled to 39°F for shipping			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co	Hospah – HSU/SFRR "A"

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
80-0"	4/2/93 10:00A	✓		403 glass	Soil	None	See attached sheet	
80-6"	4/2/93 10:00A	✓		"	"	"	"	
80-12"	4/2/93 10:15A	✓		"	"	"	"	
80-24"	4/2/93 10:15A	✓		"	"	"	"	
80-60"	4/2/93 10:15A	✓		"	"	"	"	
90-0"	4/2/93 10:30A	✓		"	"	"	"	
90-6"	4/2/93 10:30A	✓		"	"	"	"	
90-12"	4/2/93 10:30A	✓		"	"	"	"	
90-24"	4/2/93 10:30A	✓		"	"	"	"	
90-60"	4/2/93 10:30A	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Expl Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS:			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah – HGU/STRR A"

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
100-0"	4/2/93 11:00A		✓	40z glass	Soil	None	See attached sheet	
100-6"	4/2/93 11:00A		✓					
100-12"	4/2/93 11:00A		✓					
100-24"	4/2/93 11:00A		✓					
100-60"	4/2/93 11:00A		✓					
#1 Sample	4/4/93 11:00A		✓	✓	Oil	✓	For Reference	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
D Jones	D Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
American Exp Co	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
			Received for Laboratory: (Signature)	Date: 4/8/93 Time: 12:20	Laboratory No.
SAMPLER REMARKS:			Data Results to:		
Seal #					

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co	Hospah – Skimming Pit #2

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
A-0"	4/3/93 11:30A	V		40z glass	Soil	None	See attached sheet	
A-12"	4/3/93 11:30A	V		"	"	"	"	
A-36"	11:30A	V		"	"	"	"	
A-60"	11:30A	V		"	"	"	"	
B-0"	12:00N	V		"	"	"	"	
B-12"	12:00N	V		"	"	"	"	
B-24"	12:00N	V		"	"	"	"	
B-48"	12:00N	V		"		"	"	
B-60"	12:00N	V		"	"	"	"	
C-0"	4/3/93 12:00N	V		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: 4/6/93 Time: 6:00P	Received by: (Signature)	Date: Time:	Intact
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in red order – Cooled @ 39°F See Shipping			Received for laboratory: (Signature)	Date: 4/6/93 Time: 12:00	Laboratory No.
Seal #			Date Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah – Skimming Pit #2

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
C-12"	4/3/93 12:30P	✓		40z glass	Soil	None	See attached sheet	
C-24"	4/3/93 12:30P	✓		"	"	"	"	
C-60"	4/3/93 1:00P	✓		"	"	"	"	
D-12"	4/3/93 1:00P	✓		"	"	"	"	
D-24"	4/3/93 1:30P	✓		"	"	"	"	
D-72"	4/3/93 1:30P	✓		"	"	"	"	
E-60"	4/3/93 1:30P	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: 4/6/93 Time: 6:00P	Received by: (Signature)	Date: Time:	Intact
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
American Exp Co	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS:			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - Skimming Pit #1

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
A-0"	4/3/93 8:00A	✓		403 Glass	Soil	None	See attached sheet	
A-6"	4/3/93 8:00A	✓		"	"	"	"	
A-12"	4/3/93 8:00A	✓		"	"	"	"	
A-24"	4/3/93 8:10A	✓		"	"	"	"	
A-60"	4/3/93 8:10A	✓		"	"	"	"	
B-0"	4/3/93 8:10A	✓		"	"	"	"	
B-6"	4/3/93 8:15A	✓		"	"	"	"	
B-60"	4/3/93 8:15A	✓		"	"	"	"	
B-66"	4/3/93	✓		"	"	"	"	
C-0"	4/3/93 8:20A	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: / Time:	Received by: (Signature)	Date: / Time:	Intact
A. D. Jones	A Jones	4/6/93 6:00P			
Affiliation	Relinquished by: (Signature)	Date: / Time:	Received by: (Signature)	Date: / Time:	Intact
American Exp. Co.	Relinquished by: (Signature)	Date: / Time:	Received by: (Signature)	Date: / Time:	Intact
			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:30	Laboratory No.
			Data Results to:		

SAMPLER REMARKS: Packed in rev. order. Cooled to 39° F for shipping to lab.

Seal #

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - Skimming Pit #1

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
C-6"	4/3/93 8:20A	✓		403 g/oss	Soil	None	See Attached Sheet	
C-12"	4/3/93 8:20A	✓		"	"	"	"	
C-24"	4/3/93 8:20A	✓		"	"	"	"	
C-60"	4/3/93 8:20A	✓		"	"	"	"	
D-0"	4/3/93 8:20A	✓		"	"	"	"	
D-24"	4/3/93 8:25A	✓		"	"	"	"	
D-60"	4/3/93 8:25A	✓		"	"	"	"	
D-72"	4/3/93 8:25A	✓		"	"	"	"	
D-84"	4/3/93 8:25A	✓		"	"	"	"	
E-0"	4/3/93 8:30A	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: 4/6/93 Time: 6:00P	Received by: (Signature)	Date: Time:	Intact
D Jones	D Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer Exp Co	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in rec. order	Cooled to 39°F for shipping to lab.		Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co	Hospah - Skimming Pit #1

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
E-6"	4/3/93 8:30A	✓		40z glass	Soil	None	See Attached sheet	
E-12"	4/3/93 8:30A	✓		"	"	"	"	
E-60"	4/3/93 8:30A	✓		"	"	"	"	
E-72"	4/3/93 8:30A	✓		"	"	"	"	
F-0"	4/3/93 8:35A	✓		"	"	"	"	
F-6"	4/3/93 8:40A	✓		"	"	"	"	
F-24"	4/3/93 8:45A	✓		"	"	"	"	
F-60"	4/3/93 8:45A	✓		"	"	"	"	
F-96"	4/3/93 8:50A	✓		"	"	"	"	
G-0"	4/3/93 8:55A	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: 4/6/93 Time: 6:20p	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
American Exp Co	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in rev. order. Cooled to 39° F for Shipping to lab.			Received for laboratory: (Signature)	Date: 4/8/93 Time: 1200	Laboratory No.
Seal #			Data Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - Skimming Pit #1

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
F-6"	4/3/93 9:00A	✓		40z glass	Soil	None	See Attached Sheet	
G-12"	4/3/93 9:00A	✓		"	"	"	"	
G-24"	4/3/93 9:10A	✓		"	"	"	"	
G-60"	4/3/93 9:15A	✓		"	"	"	"	
H-0"	4/3/93 9:20A	✓		"	"	"	"	
H-6"	4/3/93 9:23A	✓		"	"	"	"	
H-12"	4/3/93 9:30A	✓		"	"	"	"	
I-0"	4/3/93 9:45A	✓		"	"	"	"	
I-6"	4/3/93 9:55A	✓		"	"	"	"	
I-12"	4/3/93 10:00A	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: 4/6/93 Time: 6:00P	Received by: (Signature)	Date: Time:	Intact
A Jones	A Jones				
Affiliation	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amex Exp Co.	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in rev. order. Cooled to 39°F for Shipping			Received for Laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

Environmental Laboratory
8880 Interchange Drive
Houston, Texas 77054
713/660-0901

Analysis Request and Chain of Custody Record

Project No.	Client/Project Name	Project Location
	American Exploration Co.	Hospah - Skimming pit # 1

Field Sample No./ Identification	Date and Time	Grab	Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid, Sludge, Etc.)	Preservative	ANALYSIS REQUESTED	LABORATORY REMARKS
J-6"	4/3/93 10:15A	✓		4039 glass	Soil	None	See attached sheet	
J-12"	4/3/93 10:20A	✓		"	"	"	"	
K-0"	4/3/93 10:30A	✓		"	"	"	"	

Samplers: (Signature)	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
C Jones	C Jones				
	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
Affiliation					
Amer. Exp Co	Relinquished by: (Signature)	Date: Time:	Received by: (Signature)	Date: Time:	Intact
SAMPLER REMARKS: Packed in rev. order - Cooled to 39°F for shipping			Received for laboratory: (Signature)	Date: 4/8/93 Time: 12:00	Laboratory No.
Seal #			Data Results to:		

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
OCD		

Sampler: (Signature)	Chain of Custody Tape No.

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TPH 418.1	Sulfide	Cat/anion	heavy metals	Remarks
Sanoval Lake-										
Upstream outlet	8/5/92	3:30	~~9423~~	sludge	2	✓	✓	✓	✓	
Santa Fe RR Discharge Pt.	8/5/92	1:45	~~9424~~	sludge	2	✓	✓	✓	✓	
Arroyo Below Final Skim	8/5/92	2:45	~~9425~~	sludge	2	✓	✓	✓	✓	
					SOS	SOZD	Cat/Anion	Cat		
Sanoval Lake upstream outlet	8/5/92	3:30	~~9426~~	water	5	✓	✓	✓	✓	
Santa Fe RR Discharge Pt.	8/5/92	1:45	~~9427~~	water	5	✓	✓	✓		
Arroyo Below Final Skim	8/5/92	2:45	~~9428~~	water	5	✓	✓	✓		
[illegible]	8/5/92	1:15	~~9429~~	water	5	✓	✓	✓		
Wagon Sand Unit Battery Discharge Point Into Point	8/5/92	10:45	~~9430~~	water	1	✓	✓	✓		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	8/6/92	11:40	[signature]	8/6/92	11:40
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945

☐ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☐ 910 Technology Blvd. Suite B, Bozeman, Montana 59715, Telephone (406) 586-8450

☐ Route 3, Box 256, College Station, TX 77845, Telephone (409) 776-8945

☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

06016

STATE OF NEW MEXICO
SCIENTIFIC LABORATORY DIVISION
P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

August 14, 1992

Request
ID No. 025137

ANALYTICAL REPORT
SLD Accession No. OR-92-1629

Distribution
(_) User 55391
(▩) Submitter TT
(▩) SLD Files

To: Martha Rosenquist
N.M. ED/Groundwater Bureau
1911 5th Street
Santa Fe, NM 87501

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: A water, purgeable sample submitted to this laboratory on July 17, 1992

DEMOGRAPHIC DATA

COLLECTION
On: 14-Jul-92 *By:* Shu . . .
At: 13:21 hrs. *In/Near:* McKinley County

LOCATION
Township: 17N *Section:* 06
Range: 08E *Tract:* .34

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen (754)

Parameter	Value	Note	MDL	Units
Halogenated Volatiles (42)	0.00	N	10.00	ppb
Acetone	237.40		10.00	ppb
Toluene	32.40		10.00	ppb
Ethylbenzene	8.70	T	10.00	ppb
p- & m-Xylene	33.90		10.00	ppb
o-Xylene	36.20		10.00	ppb
n-Propylbenzene	38.60		10.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified; T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed[X]; Intact: No[ ], Yes[ ] & Broken By: _____ Date: _____

Laboratory Remarks:

Thirty compounds eluting from near Toluene through naphthalene at 10-30 ppb detected by the photoionization detector but not identified.

In addition to the compounds in the above table, the following were also detected:

1,3,5-Trimethylbenzene	@ 4.8 ppb	D.L. 10 ppb
n-Butylbenzene	@17.5 ppb	D.L. 10 ppb
Naphthalene	@12.2 ppb	D.L. 10 ppb

VOLATILE ORGANICS ANALYSIS DATA SHEET

(Continued on page 2.)

ANALYTICAL REPORT
SLD Accession No. OR-92-1629
Continuation, Page 2 of 4

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Water Lab Sample ID: OR-92-1629
Sample wt/vol: 50.0 (g/mL) mL SLD Batch No: 214
Level: (low/med) Low Date Received: 7/17/92
% Moisture: not dec. N/A dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 7/30/92
GPC Cleanup: (Y/N) No pH: Dilution Factor: 1
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	QUALIFIER
67-64-1	Acetone	237.4	
71-43-2	Benzene	10.0	U
108-86-1	Bromobenzene	10.0	U
74-97-5	Bromochloromethane	10.0	U
75-27-4	Bromodichloromethane	10.0	U
75-25-2	Bromoform	10.0	U
78-93-3	2-Butanone (MEK)	50.0	U
104-51-8	n-Butylbenzene	17.5	
135-98-8	sec-Butylbenzene	10.0	U
98-06-6	tert-Butylbenzene	10.0	U
1634-04-4	tert-Butyl methyl ether (MTBE)	50.0	U
56-23-5	Carbon tetrachloride	10.0	U
108-90-7	Chlorobenzene	10.0	U
67-66-3	Chloroform	10.0	U
95-49-8	2-Chlorotoluene	10.0	U
106-43-4	4-Chlorotoluene	10.0	U
96-12-8	1,2-Dibromo-3-chloropropane	10.0	U
124-48-1	Dibromochloromethane	10.0	U
106-93-4	1,2-Dibromoethane	10.0	U
74-95-3	Dibromomethane	10.0	U
95-50-1	1,2-Dichlorobenzene	10.0	U
541-73-1	1,3-Dichlorobenzene	10.0	U
106-46-7	1,4-Dichlorobenzene	10.0	U
75-71-8	Dichlorodifluoromethane	10.0	U
75-34-3	1,1-Dichloroethane	10.0	U
107-06-2	1,2-Dichloroethane	10.0	U
75-35-4	1,1-Dichloroethene	10.0	U

(Continued on page 3.)

ANALYTICAL REPORT
SLD Accession No. OR-92-1629
Continuation, Page 3 of 4

156-59-4	cis-1,2-Dichloroethene	10.0	U
156-60-5	trans-1,2-Dichloroethene	10.0	U
78-87-5	1,2-Dichloropropane	10.0	U
142-28-9	1,3-Dichloropropane	10.0	U
590-20-7	2,2-Dichloropropane	10.0	U
563-58-6	1,1-Dichloropropene	10.0	U
1006-01-5	cis-1,3-Dichloropropene	10.0	U
1006-02-6	trans-1,3-Dichloropropane	10.0	U
100-41-4	Ethylbenzene	8.7	J
87-68-3	Hexachlorobutadiene	10.0	U
98-82-8	Isopropylbenzene	10.0	U
99-87-6	4-Isopropyltoluene	10.0	U
75-09-2	Methylene chloride	10.0	U
90-12-0	1-Methylnaphthalene	10.0	U
91-57-6	2-Methylnaphthalene	10.0	U
91-20-3	Naphthalene	12.2	
103-65-1	Propylbenzene	38.6	
100-42-5	Styrene	10.0	U
630-20-6	1,1,1,2-Tetrachloroethane	10.0	U
79-34-5	1,1,2,2-Tetrachloroethane	10.0	U
127-18-4	Tetrachloroethene	10.0	U
109-99-9	Tetrahydrofuran (THF)	50.0	U
108-88-3	Toluene	32.4	
87-61-5	1,2,3-Trichlorobenzene	10.0	U
120-82-1	1,2,4-Trichlorobenzene	10.0	U
71-55-6	1,1,1-Trichloroethane	10.0	U
79-00-5	1,1,2-Trichloroethane	10.0	U
79-01-6	Trichloroethene	10.0	U
75-69-4	Trichlorofluoromethane	10.0	U
96-18-4	1,2,3-Trichloropropane	10.0	U
95-63-6	1,2,4-Trimethylbenzene	10.0	U
108-67-8	1,3,5-Trimethylbenzene	4.8	J
75-01-4	Vinyl chloride	10.0	U
95-47-6	o-Xylene	36.2	
N/A	p- & m-Xylene	33.9	

Qualifier Definitions:
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.

(Continued on page 4.)

ANALYTICAL REPORT
SLD Accession No. OR-92-1629
Continuation, Page 4 of 4

J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
No Compounds Detected	

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION	% RECOVERY
Bromofluorobenzene	25.0 ppb	111.2
2-Bromo-1-chloropropane	25.0 ppb	94.4

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
1,1,2,2-Tetrachloroethane	25.3 ppb	123.1
Acetone	24.3 ppb	38.8
Naphthalene	25.3 ppb	195.7

Analyst: _____
Gary C. Eden
Analyst, Organic Chemistry

Reviewed By: _____
Richard P. Meyerhein 08/13/92
Supervisor, Organic Chemistry Section

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	NM OCD	DATE REPORTED:	08/21/92
ID:	Sandoval Lake Upstream Outlet		
SITE:	9208051330	DATE RECEIVED:	08/06/92
LAB NO:	F9426	DATE COLLECTED:	08/05/92

Lab pH (s.u.)	8.22
Lab Conductivity, umhos/cm @ 25C	3100
Lab Resistivity, ohm-m	3.22
Total Dissolved Solids (180C), mg/L	2230
Total Dissolved Solids (calc), mg/L	2190
Total Alkalinity as CaC03, mg/L	793
Total Hardness as CaC03, mg/L	71.7
Sodium Adsorption Ratio	40.0
Fluoride, mg/L	1.13

	mg/L	meq/L	
Bicarbonate as HC03	970	15.9	
Carbonate as C03	<0.10	<0.01	
Chloride	260	7.33	
Sulfate	644	13.4	
Calcium	16.7	0.83	
Magnesium	7.33	0.60	
Potassium	11.0	0.28	
Sodium	779	33.9	
Major Cations		35.6	
Major Anions		36.6	
Cation/Anion Difference		1.38	%

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: NM OCD
ID: Sandoval Lake Upstream Outlet
SITE: 9208051330
LAB NO: F9426

DATE REPORTED: 08/21/92
DATE RECEIVED: 08/06/92
DATE COLLECTED: 08/05/92

Trace Metals by ICAP (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.01
Aluminum (Al)	3.6	<0.1
Arsenic (As)	ND	<0.1
Boron (B)	0.35	<0.01
Barium (Ba)	ND	<0.5
Beryllium (Be)	ND	<0.005
Calcium (Ca)	17.9	<0.5
Cadmium (Cd)	ND	<0.005
Cobalt (Co)	ND	<0.02
Chromium (Cr)	ND	<0.02
Copper (Cu)	0.01	<0.01
Iron (Fe)	2.97	<0.05
Potassium (K)	3.4	<0.5
Manganese (Mn)	0.12	<0.02
Molybdenum (Mo)	ND	<0.02
Magnesium (Mg)	4.9	<0.5
Sodium (Na)	518	<0.5
Nickel (Ni)	0.01	<0.01
Lead (Pb)	ND	<0.1
Antimony (Sb)	ND	<0.05
Selenium (Se)	ND	<0.1
Silicon (Si)	6.10	<0.01
Thallium (Tl)	ND	<0.5
Vanadium (V)	ND	<0.02
Zinc (Zn)	0.08	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	NM OCD	DATE REPORTED:	08/21/92
ID:	Santa Fe RR Discharge Pt		
SITE:	9208051145	DATE RECEIVED:	08/06/92
LAB NO:	F9427	DATE COLLECTED:	08/05/92

Lab pH (s.u.)	8.02	
Lab Conductivity, umhos/cm @ 25C	2450	
Lab Resistivity, ohm-m	4.09	
Total Dissolved Solids (180C), mg/L	1880	
Total Dissolved Solids (calc), mg/L	1770	
Total Alkalinity as CaC03, mg/L	524	
Total Hardness as CaC03, mg/L	32.5	
Sodium Adsorption Ratio	48.9	
Fluoride, mg/L	0.57	

	mg/L	meq/L	
Bicarbonate as HC03	641	10.5	
Carbonate as C03	<0.10	<0.01	
Chloride	214	6.05	
Sulfate	584	12.2	
Calcium	7.39	0.37	
Magnesium	3.42	0.28	
Potassium	3.91	0.10	
Sodium	641	27.9	
Major Cations		28.6	
Major Anions		28.7	
Cation/Anion Difference		0.1	%

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: NM OCD
ID: Santa Fe RR Discharge Pt
SITE: 9208051145
LAB NO: F9427

DATE REPORTED: 08/21/92
DATE RECEIVED: 08/06/92
DATE COLLECTED: 08/05/92

Trace Metals by ICAP (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.01
Aluminum (Al)	ND	<0.1
Arsenic (As)	ND	<0.1
Boron (B)	0.32	<0.01
Barium (Ba)	ND	<0.5
Beryllium (Be)	ND	<0.005
Calcium (Ca)	8.1	<0.5
Cadmium (Cd)	ND	<0.005
Cobalt (Co)	ND	<0.02
Chromium (Cr)	ND	<0.02
Copper (Cu)	0.01	<0.01
Iron (Fe)	0.05	<0.05
Potassium (K)	ND	<0.5
Manganese (Mn)	0.04	<0.02
Molybdenum (Mo)	ND	<0.02
Magnesium (Mg)	2.4	<0.5
Sodium (Na)	469	<0.5
Nickel (Ni)	ND	<0.01
Lead (Pb)	ND	<0.1
Antimony (Sb)	ND	<0.05
Selenium (Se)	ND	<0.1
Silicon (Si)	6.10	<0.01
Thallium (Tl)	ND	<0.5
Vanadium (V)	ND	<0.02
Zinc (Zn)	0.07	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	NM OCD	DATE REPORTED:	08/21/92
ID:	Arroyo Below Final Skim		
SITE:	9208051245	DATE RECEIVED:	08/06/92
LAB NO:	F9428	DATE COLLECTED:	08/05/92

Lab pH (s.u.)	8.07
Lab Conductivity, umhos/cm @ 25C	3050
Lab Resistivity, ohm-m	3.28
Total Dissolved Solids (180C), mg/L	2120
Total Dissolved Solids (calc), mg/L	1930
Total Alkalinity as CaC03, mg/L	648
Total Hardness as CaC03, mg/L	34.1
Sodium Adsorption Ratio	53.1
Fluoride, mg/L	1.13

	mg/L	meq/L	
Bicarbonate as HC03	793	13	
Carbonate as C03	<0.10	<0.01	
Chloride	311	8.78	
Sulfate	504	10.5	
Calcium	8.01	0.4	
Magnesium	3.42	0.28	
Potassium	5.87	0.15	
Sodium	713	31	
Major Cations		31.8	
Major Anions		32.2	
Cation/Anion Difference		0.62	%

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: NM OCD
ID: Arroyo Below Final Skim
SITE: 9208051245
LAB NO: F9428

DATE REPORTED: 08/21/92
DATE RECEIVED: 08/06/92
DATE COLLECTED: 08/05/92

Trace Metals by ICAP (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.01
Aluminum (Al)	0.9	<0.1
Arsenic (As)	ND	<0.1
Boron (B)	0.36	<0.01
Barium (Ba)	ND	<0.5
Beryllium (Be)	ND	<0.005
Calcium (Ca)	9.2	<0.5
Cadmium (Cd)	ND	<0.005
Cobalt (Co)	ND	<0.02
Chromium (Cr)	ND	<0.02
Copper (Cu)	0.01	<0.01
Iron (Fe)	0.89	<0.05
Potassium (K)	0.8	<0.5
Manganese (Mn)	0.07	<0.02
Molybdenum (Mo)	ND	<0.02
Magnesium (Mg)	2.5	<0.5
Sodium (Na)	503	<0.5
Nickel (Ni)	ND	<0.01
Lead (Pb)	ND	<0.1
Antimony (Sb)	ND	<0.05
Selenium (Se)	ND	<0.1
Silicon (Si)	5.50	<0.01
Thallium (Tl)	ND	<0.5
Vanadium (V)	ND	<0.02
Zinc (Zn)	0.24	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	NM OCD	DATE REPORTED:	08/21/92
ID:	Hanson Battery Discharge Pt		
SITE:	9208051115	DATE RECEIVED:	08/06/92
LAB NO:	F9429	DATE COLLECTED:	08/05/92

Lab pH (s.u.)		7.66	
Lab Conductivity, umhos/cm @ 25C		2530	
Lab Resistivity, ohm-m		3.95	
Total Dissolved Solids (180C), mg/L		1920	
Total Dissolved Solids (calc), mg/L		1780	
Total Alkalinity as CaC03, mg/L		564	
Total Hardness as CaC03, mg/L		47.6	
Sodium Adsorption Ratio		40.7	
Fluoride, mg/L		0.62	
	mg/L	meq/L	
Bicarbonate as HC03	689	11.3	
Carbonate as C03	<0.10	<0.01	
Chloride	313	8.83	
Sulfate	465	9.69	
Calcium	10.7	0.53	
Magnesium	5.10	0.42	
Potassium	5.47	0.14	
Sodium	646	28.1	
Major Cations		29.2	
Major Anions		29.8	
Cation/Anion Difference		1.03	%

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT: NM OCD
ID: Hanson Battery Discharge Pt
SITE: 9208051115
LAB NO: F9429

DATE REPORTED: 08/21/92
DATE RECEIVED: 08/06/92
DATE COLLECTED: 08/05/92

Trace Metals by ICAP (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.01
Aluminum (Al)	ND	<0.1
Arsenic (As)	ND	<0.1
Boron (B)	0.32	<0.01
Barium (Ba)	ND	<0.5
Beryllium (Be)	ND	<0.005
Calcium (Ca)	11.3	<0.5
Cadmium (Cd)	ND	<0.005
Cobalt (Co)	ND	<0.02
Chromium (Cr)	ND	<0.02
Copper (Cu)	0.01	<0.01
Iron (Fe)	0.04	<0.05
Potassium (K)	ND	<0.5
Manganese (Mn)	0.03	<0.02
Molybdenum (Mo)	ND	<0.02
Magnesium (Mg)	3.7	<0.5
Sodium (Na)	492	<0.5
Nickel (Ni)	0.01	<0.01
Lead (Pb)	ND	<0.1
Antimony (Sb)	ND	<0.05
Selenium (Se)	ND	<0.1
Silicon (Si)	5.80	<0.01
Thallium (Tl)	ND	<0.5
Vanadium (V)	ND	<0.02
Zinc (Zn)	0.09	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	NMOCD	DATE REPORTED:	08/21/92
ID:	Hospah Sand Unit Discharge Point		
SITE:	9208051045	DATE RECEIVED:	08/06/92
LAB NO:	9430	DATE COLLECTED:	08/05/92

Lab pH (s.u.)	8.88	
Lab Conductivity, umhos/cm @ 25C	3290	
Lab Resistivity, ohm-m	3.04	
Total Dissolved Solids (180C), mg/L	2210	
Total Dissolved Solids (calc), mg/L	2110	
Total Alkalinity as CaC03, mg/L	881	
Total Hardness as CaC03, mg/L	27.8	
Sodium Adsorption Ratio	67.50	
Fluoride, mg/L	1.63	
	mg/L	meq/L
Bicarbonate as HC03	958	15.7
Carbonate as C03	58.2	1.94
Chloride	469	13.2
Sulfate	279	5.82
Calcium	7.21	0.36
Magnesium	2.39	0.2
Potassium	5.87	0.15
Sodium	818	35.6
Major Cations		36.3
Major Anions		36.7
Cation/Anion Difference		0.49 %

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	NMOCD	DATE REPORTED:	08/21/92
ID:	Hospah Sand Unit Discharge Point		
SITE:	9208051045	DATE RECEIVED:	08/06/92
LAB NO:	9430	DATE COLLECTED:	08/05/92

Trace Metals by ICAP (Total Concentration), mg/L

	Analytical Result:	Detection Limit:
Silver (Ag)	ND	<0.01
Aluminum (Al)	ND	<0.1
Arsenic (As)	ND	<0.1
Boron (B)	0.39	<0.01
Barium (Ba)	ND	<0.5
Beryllium (Be)	ND	<0.005
Calcium (Ca)	6.9	<0.5
Cadmium (Cd)	ND	<0.005
Cobalt (Co)	ND	<0.02
Chromium (Cr)	ND	<0.02
Copper (Cu)	ND	<0.01
Iron (Fe)	0.08	<0.05
Potassium (K)	1.1	<0.5
Manganese (Mn)	0.03	<0.02
Molybdenum (Mo)	ND	<0.02
Magnesium (Mg)	1.8	<0.5
Sodium (Na)	576	<0.5
Nickel (Ni)	ND	<0.01
Lead (Pb)	ND	<0.1
Antimony (Sb)	ND	<0.05
Selenium (Se)	ND	<0.1
Silicon (Si)	5.40	<0.05
Thallium (Tl)	ND	<0.5
Vanadium (V)	ND	<0.02
Zinc (Zn)	0.11	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter·Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

NM OCD
P.O. Box 2088
Santa Fe, NM 87504-2088

Attn: Kathy Brown

Dear Kathy:

Enclosed are the results of the analysis on the 3 sludge samples we received at our lab on August 6, 1992. Results for the five water samples went out under separate cover.

Please call me if you have any questions. Let me know if we can do anything more for you.

Sincerely,

Linda Spencer

Linda Spencer
Soil Lab Manager

xc: File

Inter-Mountain Laboratories, Inc.

2506 West Main Street | Farmington, New Mexico 87401 | Tel. (505) 326-4737

NM OCD
SLUDGE

DATE SAMPLED: August 5, 1992
DATE REPORTED: August 31, 1992

		Aluminum	Arsenic	Boron	Barium	Cadmium	Copper	Chromium	Iron	Lead	Manganese	Molybdenum	Nickel	Selenium
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection limits		5	0.25	0.5	25	0.1	0.5	1.0	2.5	1.0	1.0	1.0	0.5	0.25
Lab No.	Location													
9423	SANDOVAL LAKE-UPSTREAM OUTLET	7100	1.35	12.5	85	ND	6.5	4.0	6900	ND	150	2.0	3.5	ND
9424	SANTA FE RR DISCHARGE PT	4600	1.30	12.5	45	ND	4.5	4.0	6300	ND	94	1.5	2.0	ND
9425	ARROYO BELOW FINAL SKIM	6400	1.10	9.0	115	ND	8.0	5.0	15000	ND	160	3.5	5.0	ND
	BLANK	ND	ND	1.5	ND	ND	ND	ND	4	ND	ND	ND	ND	ND

		Silicon	Silver	Zinc	Antimony	Beryllium	Calcium	Cobalt	Magnesium	Potassium	Sodium	Thallium	Vanadium
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection limits		0.5	0.5	0.5	2.5	0.25	25	1.0	25	25	25	25	1.5
Lab No.	Location												
9423	SANDOVAL LAKE-UPSTREAM OUTLET	1305	ND	28.5	ND	0.40	1945	2.5	1360	1805	1605	ND	12.0
9424	SANTA FE RR DISCHARGE PT	560	ND	143.0	ND	0.25	1405	2.0	1155	1125	830	ND	10.0
9425	ARROYO BELOW FINAL SKIM	1275	ND	62.0	ND	0.55	2545	4.5	1435	1090	1355	ND	13.5
	BLANK	70	ND	3.0	ND	ND	65	ND	ND	ND	40	ND	ND

		Moisture
		%
Lab No.	Location	
9423	SANDOVAL LAKE-UPSTREAM OUTLET	138
9424	SANTA FE RR DISCHARGE PT	41
9425	ARROYO BELOW FINAL SKIM	45

Metals calculated on "as received (wet)" basis. Moisture percent provided for your use: (Wet wt.-Dry wt.)/(Dry wt.)
METHOD 3050: Acid Digestion of Sediments, Sludges, and Soils, SW-846, Nov. 1986.

Inter-Mountain Laboratories, Inc.

2506 West Main Street | Farmington, New Mexico 87401 | Tel. (505) 326-4737

NM OCD
SLUDGE

DATE SAMPLED: August 5, 1992
DATE REPORTED: September 8, 1992

Lab No.	Location	pH	EC mmhos/cm @ 25°C	Ca mg/kg	Mg mg/kg	Na mg/kg	K mg/kg	Hardness mg/kg	Cl mg/kg	HCO3 mg/kg	SO4 mg/kg	NO2 mg/kg	NO3 mg/kg	Percent Difference	Sulfide mg/l
9423	Sandoval Lake-Upstream Outlet	7.8	0.69	1295	130	16380	2040	3800	527	32369	4920	<1	<1	4.9	0.3
9424	Santa Fe RR-Discharge Pt.	7.6	0.43	775	81	9520	590	2300	1526	21457	3050	<1	<1	1.7	2.0
9425	Arroyo below Final Skim	7.6	0.51	590	100	12250	820	1850	2056	21212	7600	<1	10	2.2	<0.1

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble,ABPTA= Ammonium Bicarbonate-DPTA, AAO= Acid Ammonium Oxalate
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, Exch= Exchangeable, Avail= Available

Inter-Mountain Laboratories, Inc.

Oil Conservation District

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Case Narrative

On August 6, 1992 a set of three sludge samples and a set of five water samples were submitted to Inter-Mountain Laboratories, Farmington for analysis. The samples were received cool and intact and designated "Hospah Field Water Disposal". Analyses for Total Petroleum Hydrocarbons (TPH) were performed on the sludge samples and analyses for Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) were performed on the water samples.per the accompanying chain of custody form.

Extraction of the sludge samples was performed using Method 3550, "Sonication Extraction", with 1,1,2,2-trichlorotrifluoroethane as the extraction solvent. Analysis was by Method 418.1, "Total Recoverable Petroleum Hydrocarbons", using a Beckman Acculab 10 Infrared Spectrophotometer. Petroleum hydrocarbons were detected in some of the samples above the stated detection limits as indicated in the enclosed report.

BTEX analyses were performed by EPA Method 5030, Purge and Trap, and EPA Method 8020, Aromatic Volatile Hydrocarbons, using an OI Analytical 4460 Purge and Trap and a Hewlett-Packard 5890 Gas Chromatograph. BTEX analytes were detected beyond the stated detection limits, as indicated on the enclosed report sheets.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the sample reported here are found in Analysis of Water and Waste, SW-846, USEPA, 1986.

Quality control reports have been included for your information. These reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call at your convenience.

Sincerely,

Dr. Denise A. Bohemier,
Organic Lab Supervisor

OCD9423

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

EPA Method 418.1
Total Recoverable Petroleum Hydrocarbons

Client:	OCD	Report Date:	8/18/92
Project ID:	Hospah	Date Sampled:	8/5/92
Sample Matrix:	Sludge	Date Received:	8/6/92
Preservation:	Ice	Date Extracted	8/14/92
Condition:	Intact	Date Analyzed:	8/14/92

Sample ID	Lab Number	Concentration (ppm)	Detection Limit (ppm)
Sandoval Lake Upstream Outlet	9423	ND	250
Arroyo Below Final Skim	9425	651	250

ND - Parameter not detected at stated detection limit

Reference: Method 418.1 - Petroleum Hydrocarbons, Total Recoverable Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Extraction by Method 3550 - Sonication Extraction Test Methods for Evaluating Solid Waste, SW-846, USEPA, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

EPA Method 418.1
Total Recoverable Petroleum Hydrocarbons

Client:	OCD	Report Date:	8/18/92
Project ID:	Hospah Field	Date Sampled:	8/5/92
Sample Matrix:	Sludge	Date Received	8/6/92
Preservation:	Ice	Date Extracted	8/14/92
Condition:	Intact	Date Analyzed:	8/18/92

Sample ID	Lab Number	Concentration (ppm)	Detection Limit (ppm)
Santa Fe RR Discharge Pt	9424	15700	5000

ND - Parameter not detected at stated detection limit

Reference: Method 418.1 - Petroleum Hydrocarbons, Total Recoverable Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Extraction by Method 3550 - Sonication Extraction
Test Methods for Evaluating Solid Waste, SW-846, USEPA, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control Report
Total Recoverable Petroleum Hydrocarbons

Method Blank Analysis

Client:	OCD	Report Date:	8/18/92
Project ID:	Hospah Field	Date Analyzed:	8/14/92

Lab Number	Concentration (mg/kg)	Detection Limit (mg/kg)
MB	ND	2.50

ND- Analyte Not Detected at stated detection limit

Reference:

Method 418.1 - Petroleum Hydrocarbons, Total Recoverable Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Extraction by Method 3550 - Sonication Extraction
Test Methods for Evaluating Solid Waste, SW-846, USEPA, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

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Farmington, New Mexico 87401

Quality Control Report
Total Recoverable Petroleum Hydrocarbons

Matrix Spike Analysis

Client:	OCD	Report Date:	8/18/92
Project ID:	Hospah Field	Date Sampled:	NA
Sample ID:		Date Received:	NA
Lab ID:	MBSPK	Date Extracted:	8/14/92
Matrix:	Soil	Date Analyzed:	8/14/92

Sample ID	Spiked Sample Concentration (mg/kg)	Unspiked Sample Concentration (mg/kg)	Spike Added (mg/kg)	Percent Recovery
MBSPK	10	ND	10	99%

ND- Analyte Not Detected at stated detection limit

Spike recovery acceptance limit: 42-125%

Reference:

Method 418.1 - Petroleum Hydrocarbons, Total Recoverable Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Extraction by Method 3550 - Sonication Extraction Test Methods for Evaluating Solid Waste, SW-846, USEPA, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control Report
Total Recoverable Petroleum Hydrocarbons

Matrix Spike Duplicate Analysis

Client:	OCD	Report Date:	8/18/92
Project ID:	Hospah Field	Date Sampled:	NA
Sample ID:		Date Received:	NA
Lab ID:		Date Extracted:	8/14/92
Matrix:	Sludge	Date Analyzed:	8/14/92

Spike Added (mg/kg): 10

Sample ID	Duplicate Concentration (mg/kg)	Spiked Concentration (mg/kg)	Percent Difference	Acceptance Limit
MBSPKDUP	11.4	9.9	14%	<30%

ND- Analyte Not Detected at stated detection limit
NA- *Value not calculated.*

Reference:

Method 418.1 - Petroleum Hydrocarbons, Total Recoverable Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Extraction by Method 3550 - Sonication Extraction Test Methods for Evaluating Solid Waste, SW-846, USEPA, November 1986.

Comments:

Analyst

Review

Inter-Mountain Laboratories, Inc.

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Farmington, New Mexico 87401

Quality Control Report
Total Recoverable Petroleum Hydrocarbons

Method Blank Analysis

Client:	OCD	Report Date:	8/18/92
Project ID:	Hospah Field	Date Analyzed:	8/18/92

Lab Number	Concentration (mg/kg)	Detection Limit (mg/mL)
MB	ND	2.50

ND- Analyte Not Detected at stated detection limit

Reference:

Method 418.1 - Petroleum Hydrocarbons, Total Recoverable Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Extraction by Method 3550 - Sonication Extraction
Test Methods for Evaluating Solid Waste, SW-846, USEPA, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control Report
Total Recoverable Petroleum Hydrocarbons

Matrix Spike Analysis

Client:	OCD	Report Date:	8/18/92
Project ID:	Hospah Field	Date Sampled:	NA
Sample ID:		Date Received:	NA
Lab ID:	MBSPK	Date Extracted:	8/14/92
Matrix:	Soil	Date Analyzed:	8/18/92

Sample ID	Spiked Sample Concentration (mg/kg)	Unspiked Sample Concentration (mg/kg)	Spike Added (mg/kg)	Percent Recovery
MBSPK	11	ND	10	111%

ND- Analyte Not Detected at stated detection limit

Spike recovery acceptance limit: 42-125%

Reference:

Method 418.1 - Petroleum Hydrocarbons, Total Recoverable Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Extraction by Method 3550 - Sonication Extraction Test Methods for Evaluating Solid Waste, SW-846, USEPA, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

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Farmington, New Mexico 87401

Quality Control Report
Total Recoverable Petroleum Hydrocarbons

Matrix Spike Duplicate Analysis

Client:	OCD	Report Date:	8/18/92
Project ID:	Hospah Field	Date Sampled:	NA
Sample ID:		Date Received:	NA
Lab ID:		Date Extracted:	8/14/92
Matrix:	Sludge	Date Analyzed:	8/18/92

Spike Added (mg/kg): 10

Sample ID	Duplicate Concentration (mg/kg)	Spiked Concentration (mg/kg)	Percent Difference	Acceptance Limit
MBSPKDUP	10.9	11.1	2%	<30%

ND- Analyte Not Detected at stated detection limit
NA- Value not calculated.

Reference:

Method 418.1 - Petroleum Hydrocarbons, Total Recoverable Chemical Analysis of Water and Waste, United States Environmental Protection Agency, 1978.

Extraction by Method 3550 - Sonication Extraction Test Methods for Evaluating Solid Waste, SW-846, USEPA, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

BTEX
Volatile Aromatic Hydrocarbons

Oil Conservation District

Project Name:	Oil Conservation District	Report Date:	8/13/92
Sample ID:	Hospah Field Water Disposal	Date Sampled:	8/5/92
Sample Number:	9426	Date Received:	8/5/92
Sample Matrix:	water	Date Analyzed:	8/13/92
Preservative:	cool, HgCl2		
Condition:	intact		

Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-xylene	ND	1.0
o-xylene	ND	1.0

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	118%	88-110%
4-Bromofluorobenzene	108%	86-115%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

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Farmington, New Mexico 87401

BTEX
Volatile Aromatic Hydrocarbons

Oil Conservation District

Project Name:	Hospah Field Water Disposal	Report Date:	8/13/92
Sample ID:	Santa Fe RR Discharge Point	Date Sampled:	8/5/92
Sample Number:	9427	Date Received:	8/5/92
Sample Matrix:	water	Date Analyzed:	8/13/92
Preservative:	cool, HgCl2		
Condition:	intact		

Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	5.0
Toluene	76.4	5.0
Ethylbenzene	ND	5.0
m,p-xylene	ND	10.0
o-xylene	ND	10.0

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	107%	88-110%
4-Bromofluorobenzene	101%	86-115%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

BTEX
Volatile Aromatic Hydrocarbons

Oil Conservation District

Project Name:	Hospah Field Water Disposal	Report Date:	8/13/92
Sample ID:	Arroyo Below Final Skim	Date Sampled:	8/5/92
Sample Number:	9428	Date Received:	8/5/92
Sample Matrix:	water	Date Analyzed:	8/13/92
Preservative:	cool, HgCl2		
Condition:	intact		

Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	0.5
Toluene	3.6	0.5
Ethylbenzene	ND	0.5
m,p-xylene	2.5	1.0
o-xylene	ND	1.0

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	127%	88-110%
4-Bromofluorobenzene	100%	86-115%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments: Sample interference in the toluene-d8 region of the chromatogram has resulted in an apparent high surrogate recovery.

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

BTEX
Volatile Aromatic Hydrocarbons

Oil Conservation District

Project Name:	Hospah Field Water Disposal	Report Date:	8/14/92
Sample ID:	Hanson Battery Discharge Point	Date Sampled:	8/5/92
Sample Number:	9429	Date Received:	8/5/92
Sample Matrix:	water	Date Analyzed:	8/13/92
Preservative:	cool, HgCl2		
Condition:	intact		

Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	5.0
Toluene	13.2	5.0
Ethylbenzene	ND	5.0
m,p-xylene	ND	10.0
o-xylene	ND	10.0

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	105%	88-110%
4-Bromofluorobenzene	97%	86-115%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

BTEX
Volatile Aromatic Hydrocarbons

Oil Conservation District

Project Name:	Hospah Field Water Disposal	Report Date:	8/14/92
Sample ID:	Battery Dschg Pt	Date Sampled:	8/5/92
Sample Number:	9430	Date Received:	8/5/92
Sample Matrix:	water	Date Analyzed:	8/14/92
Preservative:	cool, HgCl2		
Condition:	intact		

Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	14.8	2.5
Toluene	63.7	2.5
Ethylbenzene	11.1	2.5
m,p-xylene	32.3	5.0
o-xylene	9.2	5.0

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	116%	88-110%
4-Bromofluorobenzene	97%	86-115%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments: Sample interference in the toluene-d8 region of the chromatogram has resulted in an apparent high surrogate recovery.

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 West Main Street
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Tel. (505) 326-4737

QUALITY CONTROL REPORT
METHOD BLANK - VOLATILE AROMATIC HYDROCARBONS

Laboratory ID: MB0813
Sample Matrix: Water

Date Analyzed: 08/13/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.2
Ethylbenzene	ND	0.2
p,m-Xylene	ND	0.2
o-Xylene	ND	0.2

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	98%	88-110%
Bromofluorobenzene	94%	86-115%

Reference:

Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

QUALITY CONTROL REPORT
METHOD BLANK - VOLATILE AROMATIC HYDROCARBONS

Laboratory ID: MB0814
Sample Matrix: Water

Date Analyzed: 08/14/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.2
Ethylbenzene	ND	0.2
p,m-Xylene	ND	0.2
o-Xylene	ND	0.2

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	94%	88-110%
Bromofluorobenzene	88%	86-115%

Reference:

Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Quality Control Report
Matrix Spike-Volatile Aromatic Hydrocarbons

Sample Number:	9426	Report Date:	08/13/92
Sample Matrix:	Water	Date Sampled:	08/05/92
Preservative:	Cool, HgCl2	Date Received:	08/05/92
Condition:	Intact	Date Analyzed:	08/13/92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	Percent Recovery	Acceptance Limit
Benzene	10.0	ND	9.6	96%	39-150%
Toluene	10.0	ND	9.9	99%	46-148%
Ethylbenzene	10.0	ND	9.9	99%	32-160%
p,m-Xylene	20.0	ND	21.5	107%	NE
o-Xylene	20.0	ND	20.1	101%	NE

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	103%	88-110%
4-Bromofluorobenzene	102%	86-115%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Quality Control Report
Matrix Spike-Volatile Aromatic Hydrocarbons

Sample Number:	MBSPK0814	Report Date:	08/14/92
Sample Matrix:	Solid	Date Sampled:	NA
Preservative:	NA	Date Received:	NA
Condition:	NA	Date Analyzed:	08/14/92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	Percent Recovery	Acceptance Limit
Benzene	10.0	ND	9.4	94%	39-150%
Toluene	10.0	ND	9.8	98%	46-148%
Ethylbenzene	10.0	ND	9.9	99%	32-160%
p,m-Xylene	20.0	ND	19.6	98%	NE
o-Xylene	20.0	ND	19.5	98%	NE

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Toluene-d8	97%	81-117%
	4-Bromofluorobenzene	93%	74-121%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, November 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

Quality Control Report
Matrix Duplicate: Volatile Aromatic Hydrocarbons

Client:	OCD	Date Sampled:	8/5/92
Sample ID:	9427	Date Received:	8/5/92
Sample Matrix:	Water	Date Analyzed:	8/13/92
Preservative:	Cool,HgCl2		
Condition:	Intact		

Analyte	Duplicate Concentration (ppb)	Sample Concentration (ppb)	% Difference
Benzene	ND	ND	NA
Toluene	72.9	76.4	1.2%
Ethylbenzene	ND	ND	NA
p,m-xylene	ND	ND	NA
o-xylene	ND	ND	NA

ND-Analyte not detected at detection limit.

NA-Not calculated.

Quality Control: Duplicate acceptance limit at 20%.

Surrogate	Percent Recovery	Acceptance Limit
Toluene-d8	98.09%	88-110%
4-Bromofluorobenzene	98.72%	86-115%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

QUALITY CONTROL REPORT
MATRIX DUPLICATE - VOLATILE AROMATIC HYDROCARBONS

Sample Number:	9435d	Date Sampled:	08/06/92
Sample Matrix:	Soil	Date Received:	08/06/92
Preservative:	Cool	Date Extracted:	08/14/92
Condition:	Intact	Date Analyzed:	08/14/92

Analyte	Sample Result (mg/kg)	Duplicate Result (mg/kg)	Percent Difference
Benzene	12	13	9.8%
Toluene	20	23	15.0%
Ethylbenzene	28	34	16.9%
p,m-Xylene	138	165	18%
o-Xylene	39	44	11%

ND - Analyte not detected at stated detection limit.

Quality Control: Duplicate acceptance limit set at 30% difference.

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	108%	81-117%
4-Bromofluorobenzene	101%	74-121%

Reference: Method 5030, Purge and Trap
Method 8020, Aromatic Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

CASE NARRATIVE

On August 7, 1992, five water samples were received by Inter-Mountain Laboratories - College Station, Texas. The sample was received warm and intact and identified by Client Name "OCD". Analyses for Method 8010 - Halogenated Volatile Organics, plus cis-1,2-Dichloroethene was performed according to the accompanying chain of custody form.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the sample reported here are found in "SW - 846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986".

Quality Control reports have been included for your information and use. These reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call at your convenience.

Sincerely,

Kevin Woodruff
Project Manager

OCD1462

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client: **O.C.D.**
Project Name: NA
Project Location: NA
Sample ID: Sandoval Lake Upstream Outlet
Sample Number: 9426/C921462
Sample Matrix: Water
Preservative: Warm, HgCl2
Condition: Intact

Report Date: 08/21/92
Date Sampled: 08/05/92
Date Received: 08/07/92
Date Analyzed: 08/18/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	**O.C.D.**		
Project Name:	NA	Report Date:	08/21/92
Sample ID:	NA	Date Sampled:	08/05/92
Sample Number:	Sandoval Lake Upstream Outlet	Date Received:	08/07/92
Sample Matrix:	9426/C921462	Date Analyzed:	08/18/92
Preservative:	Water		
Condition:	Warm, HgCl2		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	83%	75-125%
Bromochloromethane	97%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client: **O.C.D.**
Project Name: NA
Project Location: NA
Sample ID: Santa Fe Rail Road Discharge Point
Sample Number: 9427/C921463
Sample Matrix: Water
Preservative: Warm, HgCl2
Condition: Intact

Report Date: 08/21/92
Date Sampled: 08/05/92
Date Received: 08/07/92
Date Analyzed: 08/18/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	**O.C.D.**		
Project Name:	NA	Report Date:	08/21/92
Sample ID:	NA	Date Sampled:	08/05/92
Sample Number:	Santa Fe Rail Road Discharge Point	Date Received:	08/07/92
Sample Matrix:	9427/C921463	Date Analyzed:	08/18/92
Preservative:	Water		
Condition:	Warm, HgCl2		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	85%	75-125%
Bromochloromethane	94%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client: O.C.D.
Project Name: NA
Project Location: NA
Sample ID: Arroyo Below Final Skim
Sample Number: 9428/C921464
Sample Matrix: Water
Preservative: Warm, HgCl2
Condition: Intact

Report Date: 08/21/92
Date Sampled: 08/05/92
Date Received: 08/07/92
Date Analyzed: 08/19/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	**O.C.D.**		
Project Name:	NA	Report Date:	08/21/92
Sample ID:	NA	Date Sampled:	08/05/92
Sample Number:	Arroyo Below Final Skim	Date Received:	08/07/92
Sample Matrix:	9428/C921464	Date Analyzed:	08/19/92
Preservative:	Water		
Condition:	Warm, HgCl2		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	87%	75-125%
Bromochloromethane	104%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client: **O.C.D.**
Project Name: NA
Project Location: NA
Sample ID: Hanson Battery Discharge Point
Sample Number: 9429/C921465
Sample Matrix: Water
Preservative: Warm, HgCl2
Condition: Intact

Report Date: 08/21/92
Date Sampled: 08/05/92
Date Received: 08/07/92
Date Analyzed: 08/19/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	**O.C.D.**		
Project Name:	NA	Report Date:	08/21/92
Sample ID:	NA	Date Sampled:	08/05/92
Sample Number:	Hanson Battery Discharge Point	Date Received:	08/07/92
Sample Matrix:	9429/C921465	Date Analyzed:	08/19/92
Preservative:	Water		
Condition:	Warm, HgCl2		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	92%	75-125%
Bromochloromethane	121%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Client:	O.C.D.		
Project Name:	NA	Report Date:	08/21/92
Project Location:	NA	Date Sampled:	08/05/92
Sample ID:	Hospah Sand Unit Battery Discharge Point	Date Received:	08/07/92
Sample Number:	9430/C921466	Date Analyzed:	08/19/92
Sample Matrix:	Water		
Preservative:	Warm, HgCl2		
Condition:	Intact		

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Client:	**O.C.D.**		
Project Name:	NA	Report Date:	08/21/92
Sample ID:	NA	Date Sampled:	08/05/92
Sample Number:	Hospah Sand Unit Battery Discharge Point	Date Received:	08/07/92
Sample Matrix:	9430/C921466	Date Analyzed:	08/19/92
Preservative:	Water		
Condition:	Warm, HgCl2		

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	1-Chloro-2-Fluorobenzene	88%	75-125%
	Bromochloromethane	121%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

QUALITY CONTROL REPORT - MATRIX DUPLICATE
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number:	C921465 Duplicate	Date Sampled:	08/05/92
Sample Matrix:	Water	Date Received:	08/07/92
Preservative:	Warm, HgCl2	Date Analyzed:	08/19/92
Condition:	Intact		

Analyte	Sample Result (ug/L)	Duplicate Result (ug/L)	Percent Difference
Bromodichloromethane	ND	ND	NA
Bromoform	ND	ND	NA
Bromomethane	ND	ND	NA
Carbon tetrachloride	ND	ND	NA
Chlorobenzene	ND	ND	NA
Chloroethane	ND	ND	NA
2-Chloroethylvinylether	ND	ND	NA
Chloroform	ND	ND	NA
Chloromethane	ND	ND	NA
Dibromochloromethane	ND	ND	NA
1,2-Dichlorobenzene	ND	ND	NA
1,3-Dichlorobenzene	ND	ND	NA
1,4-Dichlorobenzene	ND	ND	NA
Dichlorodifluoromethane	ND	ND	NA
1,1-Dichloroethane	ND	ND	NA
1,2-Dichloroethane	ND	ND	NA
1,1-Dichloroethene	ND	ND	NA
cis-1,2-Dichlorethene	ND	ND	NA
trans-1,2-Dichloroethene	ND	ND	NA
1,2-Dichloropropane	ND	ND	NA
cis-1,3-Dichloropropene	ND	ND	NA
trans-1,3-Dichloropropene	ND	ND	NA
Methylene Chloride	ND	ND	NA
1,1,2,2-Tetrachloroethane	ND	ND	NA
Tetrachloroethene	ND	ND	NA
1,1,1-Trichloroethane	ND	ND	NA
1,1,2-Trichloroethane	ND	ND	NA
Trichloroethene	ND	ND	NA
Trichlorofluoromethane	ND	ND	NA
Vinyl chloride	ND	ND	NA

ND - Analyte not detected at stated detection limit
NA - Value not applicable or calculated

Inter-Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

QUALITY CONTROL REPORT - MATRIX DUPLICATE
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number:	C921465 Duplicate	Date Sampled:	08/05/92
Sample Matrix:	Water	Date Received:	08/07/92
Preservative:	Warm, HgCl2	Date Analyzed:	08/19/92
Condition:	Intact		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	80%	75-125%
Bromochloromethane	113%	75-125%

Reference:

Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

QUALITY CONTROL REPORT - MATRIX SPIKE
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number: C921466 Spike
Sample Matrix: Water
Preservative: Warm, HgCl2
Condition: Intact

Date Sampled: 08/05/92
Date Received: 08/07/92
Date Analyzed: 08/19/92

Analyte	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	Percent Recovery	Acceptance Limit
Bromodichloromethane	20.0	ND	18.4	92%	42-172%
Bromoform	10.0	ND	7.7	77%	13-159%
Bromomethane	NA	ND	NA	NA	D-144%
Carbon tetrachloride	10.0	ND	9.6	96%	43-143%
Chlorobenzene	10.0	ND	10.4	104%	38-150%
Chloroethane	NA	ND	NA	NA	46-137%
Chloroform	10.0	ND	10.4	104%	49-133%
Chloromethane	NA	ND	NA	NA	D-193%
Dibromochloromethane	10.0	ND	8.0	80%	24-191%
Dichlorodifluoromethane	NA	ND	NA	NA	50-150%
1,2-Dichlorobenzene	10.0	ND	11.6	116%	D-208%
1,3-Dichlorobenzene	10.0	ND	11.4	114%	7-187%
1,4-Dichlorobenzene	10.0	ND	11.8	118%	42-143%
1,1-Dichloroethane	10.0	ND	8.9	89%	47-132%
1,2-Dichloroethane	10.0	ND	9.4	94%	51-147%
1,1-Dichloroethene	10.0	ND	8.4	84%	28-167%
trans-1,2-Dichloroethene	10.0	ND	9.9	99%	38-155%
1,2-Dichloropropane	10.0	ND	9.7	97%	44-156%
cis-1,3-Dichloropropene	10.0	ND	5.4	54%	22-178%
trans-1,3-Dichloropropene	10.0	ND	6.5	65%	22-178%
Methylene Chloride	10.0	ND	9.6	96%	25-162%
1,1,2,2-Tetrachloroethane	10.0	ND	9.7	97%	8-184%
Tetrachloroethene	10.0	ND	8.9	89%	26-162%
1,1,1-Trichloroethane	10.0	ND	9.5	95%	41-138%
1,1,2-Trichloroethane	10.0	ND	9.7	97%	39-136%
Trichloroethene	10.0	ND	10.1	101%	35-146%
Trichlorofluoromethane	NA	ND	NA	NA	21-156%
Vinyl chloride	NA	ND	NA	NA	28-163%

ND - Analyte not detected at stated detection limit.
NA - Not Applicable.

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

QUALITY CONTROL REPORT - MATRIX SPIKE
METHOD 8010 - HALOGENATED VOLATILE ORGANICS

Sample Number:	C921466 Spike	Date Sampled:	08/05/92
Sample Matrix:	Water	Date Received:	08/07/92
Preservative:	Warm, HgCl2	Date Analyzed:	08/19/92
Condition:	Intact		

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	98%	75-125%
Bromochloromethane	104%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS

Sample Number: MB0819 V1
Sample Matrix: Water

Report Date: 08/24/92
Date Analyzed: 08/19/92

Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Bromodichloromethane	ND	5.0
Bromoform	ND	0.5
Bromomethane	ND	5.0
Carbon tetrachloride	ND	0.5
Chlorobenzene	ND	0.5
Chloroethane	ND	0.5
2-Chloroethylvinylether	ND	0.5
Chloroform	ND	0.5
Chloromethane	ND	5.0
Dibromochloromethane	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
Dichlorodifluoromethane	ND	5.0
1,1-Dichloroethane	ND	0.5
1,2-Dichloroethane	ND	0.5
1,1-Dichloroethene	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
Methylene Chloride	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
Tetrachloroethene	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Trichloroethene	ND	0.5
Trichlorofluoromethane	ND	0.5
Vinyl chloride	ND	5.0

ND - Analyte not detected at stated detection limit.

Inter·Mountain Laboratories, Inc.

3304 Longmire
College Station, Texas 77845

METHOD 8010
HALOGENATED VOLATILE ORGANICS
Page 2 - Quality Control

Sample Matrix:	MB0819 V1	Report Date:	08/24/92
Preservative:	Water	Date Analyzed:	08/19/92

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
1-Chloro-2-Fluorobenzene	81%	75-125%
Bromochloromethane	110%	75-125%

Reference: Method 5030, Purge and Trap
Method 8010, Halogenated Volatile Organics
SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental Protection Agency, September 1986.

Comments:

Analyst

Review

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab IML-Farmington Contract No.

OCD Sample No. 9208051045

Collection Date	Collection Time	Collected by—Person/Agency
08 05 92	10:45	Brown / Foust - OCD /OCD

SITE INFORMATION

Sample location Hospah Sand Unit / Santa Fe RR-A Battery - Discharge Point

Collection Site Description From pipe discharging from 2nd pond to arroyo

Township, Range, Section, Tract: 17N9W1F

17N | 9W | + | 1 | + | + | F

SEND FINAL REPORT TO

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLING CONDITIONS

☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

Water level

Discharge

Sample type

pH(00400)

Conductivity (Uncorrected) 2400 µmho

Water Temp. (00010) 26°C

Conductivity at 25° C µmho

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

☒ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 µ membrane filter
☐ **PF:** Pre-filtered w/45 µ membrane filter

☐ **NA:** No acid added
☐ **A:** HCL
☐ **A:** 2ml H_2SO_4/L added
☐ **A:** 5ml conc. HNO_3 added
☐ **A:** 4ml fuming HNO_3 added

FIELD COMMENTS: HgCl added to 40 ml vials
Nothing added to Cubicontainers.

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☒ 032	ICAP	6010
☒ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER Sulfides	

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab IML - Farmington Contract No.

OCD Sample No. 9208051115

Collection Date	Collection Time	Collected by —Person/Agency
08/05/92	11:15	Brown/Foust - OCD /OCD

SITE INFORMATION

Sample location Hanson Battery - Discharge Point

Collection Site Description From pipe discharging from 2nd pond to arroyo

Township, Range, Section, Tract: 17NBW6 NW NW 18

SEND FINAL REPORT TO
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

- [x] NF: Whole sample (Non-filtered)
- [ ] F: Filtered in field with 0.45 μ membrane filter
- [ ] PF: Pre-filtered w/45 μ membrane filter

- [ ] NA: No acid added
- [ ] A: HCL
- [ ] A: 2ml H_2SO_4/L added
- [ ] A: 5ml conc. HNO_3 added
- [ ] A: 4ml fuming HNO_3 added

SAMPLING CONDITIONS

- [ ] Bailed
- [ ] Pump
- [x] Dipped
- [ ] Tap

Water level

Discharge

Sample type

pH(00400)

Conductivity (Uncorrected) 2550 μmho

Water Temp. (00010) 27°C

Conductivity at 25° C μmho

FIELD COMMENTS: HgCl added to all 40ml vials
Cubi containers - nothing added.

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☒ 032	ICAP	6010
☒ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☐	OTHER____	

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab IML-Farmington Contract No.

OCD Sample No. 9208051145

Collection Date	Collection Time	Collected by —Person/Agency
08/05/92	11:45	Brown/Foust - OCD /OCD

SITE INFORMATION

Sample location Santa Fe RR Battery - Discharge Point

Collection Site Description From Pipe discharging from 2nd pond to arroyo

Township, Range, Section, Tract: 17N8WD7

SEND FINAL REPORT TO ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLING CONDITIONS

☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

Water Temp. (00010) 26°C

Water level

Discharge

Sample type

Conductivity (Uncorrected) 2300 µmho

Conductivity at 25° C µmho

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

☒ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 µ membrane filter
☐ **PF:** Pre-filtered w/45 µ membrane filter

☐ **NA:** No acid added
☐ **A:** HCL
☐ **A:** 2ml H_2SO_4/L added
☐ **A:** 5ml conc. HNO_3 added
☐ **A:** 4ml fuming HNO_3 added

FIELD COMMENTS: HgCl added to all 40 ml vials
Cubicontainers - nothing added
Sediment - nothing added

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☒ 032	ICAP	6010
☒ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒	OTHER Sulfides TPH	

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab IML-Farmington Contract No.

OCD Sample No. 9208051245

Collection Date	Collection Time	Collected by—Person/Agency
08/05/92	12:45	Brown/Faust /OCD

SITE INFORMATION

Sample location Arroyo below final skimming point

Collection Site Description From pipe on downstream side of final skimming pond

Township, Range, Section, Tract: 17N 8W 6K

SEND FINAL REPORT TO ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLING CONDITIONS

☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

Water Temp. (00010) 24°C

Water level

Discharge

Sample type

Conductivity (Uncorrected) 2780 µmho

Conductivity at 25° C µmho

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

☒ **NF:** Whole sample (Non-filtered)
☐ **F:** Filtered in field with 0.45 µ membrane filter
☐ **PF:** Pre-filtered w/45 µ membrane filter

☐ **NA:** No acid added
☐ **A:** HCL
☐ **A:** 2ml H_2SO_4/L added
☐ **A:** 5ml conc. HNO_3 added
☐ **A:** 4ml fuming HNO_3 added

FIELD COMMENTS:
$HgCl_2$ added to all 40 ml vials
Nothing added to cubicontainers or sediment samples

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☒ 032	ICAP	6010
☒ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒	OTHER Sulfides	

TPH

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab FML Farmington Contract No.

OCD Sample No. 9208 051330

Collection Date	Collection Time	Collected by —Person/Agency
08/05/92	13:30	Brown/Foust - OCD /OCD

SITE INFORMATION Lake Sandoval

Sample location Lake Sandoval

Collection Site Description Upstream of culvert (pipe) under road between lake & final arroyo discharge.

Township, Range, Section, Tract: | | | + | | + | + | | |

SEND FINAL REPORT TO ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

SAMPLING CONDITIONS

☐ Bailed ☐ Pump
☒ Dipped ☐ Tap

pH(00400)

Water Temp. (00010) 21°C

Water level

Discharge

Sample type

Conductivity (Uncorrected) 2800 µmho

Conductivity at 25° C µmho

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted:

☒ NF: Whole sample (Non-filtered)
☐ F: Filtered in field with 0.45 µ membrane filter
☐ PF: Pre-filtered w/45 µ membrane filter

☐ NA: No acid added
☐ A: HCL
☐ A: 2ml H_2SO_4/L added
☐ A: 5ml conc. HNO_3 added
☐ A: 4ml fuming HNO_3 added

FIELD COMMENTS:
HgCl added to all 40 ml vials
Nothing added to cubi containers or sediment samples

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001	VOA	8020	☐ 013	PHENOL	604	☐ 026	Cd	7130
☐ 002	VOA	602	☐ 014	VOC	8240	☐ 027	Pb	7421
☐ 003	VOH	8010	☐ 015	VOC	624	☐ 028	Hg(L)	7470
☐ 004	VOH	601	☐ 016	SVOC	8250	☐ 031	Se	7740
☐ 005	SUITE	8010-8020	☐ 017	SVOC	625	☒ 032	ICAP	6010
☒ 006	SUITE	601-602	☐ 018	VOC	8260	☒ 033	CATIONS/ANIONS	
☐ 007	HEADSPACE		☐ 019	SVOC	8270	☐ 034	N SUITE	
☐ 008	PAH	8100	☐ 020	O&G	9070	☐ 035	NITRATE	
☐ 009	PAH	610	☐ 022	AS	7060	☐ 036	NITRITE	
☐ 010	PCB	8080	☐ 023	Ba	7080	☐ 037	AMMONIA	
☐ 011	PCB	608	☐ 024	Cr	7190	☐ 038	TKN	
☐ 012	PHENOL	8040	☐ 025	Cr6	7198	☒	OTHER Sulfides TPH	

SCIENTIFIC LABORATORY DIVISION
ORGANIC ANALYSIS REQUEST FORM
Organic Section - Phone: 841-2570

754 WPU

OR89-1222-C

REPORT TO: DAVID BOYER
N.M. OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87504-2088

S.L.D. No. OR-
DATE REC. 8-7-89
PRIORITY 3
PHONE(S): 827-5812

COLLECTION CITY: Hospah ; COUNTY: McKinley

COLLECTION DATE/TIME CODE: (Year-Month-Day-Hour-Minute) 8 9 0 8 0 4 1 2 5 9

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 N + 0 9 W + 0 1 + 2 — — (10N06E24342)

USER CODE: 8 2 2 3 5 SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____ ____

RECEIVED
OCT - 3 1989
OIL CONSERVATION DIV.
SANTA FE

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-AA Sample Preserved with Ascorbic Acid to remove chlorine residual.
- [X] P-HCl Sample Preserved with Hydrochloric Acid (2 drops/40 ml)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Headspace (1-5 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes
- [ ] (774) SDWA VOC's I (8 Regulated +)
- [ ] (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: No Taste or odor

FIELD DATA: *Taken at R. Tsosie Residence

pH= 7 ; Conductivity= 820 umho/cm at 22 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval ____ - ____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.) Sample from hose *1 1/2 miles from Bob Durbin Domestic Well - Supplies Freshwater to entire complex and several families for livestock use.

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): W T Roney Method of Shipment to the Lab: State Car

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] OR Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

For OCD use: Date owner notified: 10/31/89 Phone or Letter? Initials WB

ANALYSES PERFORMED

LAB. No.: OR-

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Headspace (1-5 Carbons)
- ☐ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes
- ☐ (774) SDWA VOC's I (8 Regulated +)
- ☐ (775) SDWA VOC's II (EDB & DBCP)

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
* DETECTION LIMIT * *		+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMEL AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Not Sealed ☐ Intact: Yes ☐ No ☐. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: _____. Analyst's signature: _____

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: _____

STATE OF NEW MEXICO HEALTH AND ENVIRONMENT DEPARTMENT

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud, NE
Albuquerque, NM 87106 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

September 1, 1989

ANALYTICAL REPORT
SLD Accession No. OR-89-1222

Distribution
(■) Submitter
(※) SLD Files

To: NM Oil Consv. Div.
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A purgeable water sample submitted to this laboratory on August 7, 1989**

User:
OIL CONSERVATION DIV
State Land Office Bldg.
P. O. Box 2088
Santa Fe, NM 87504-2088

DEMOGRAPHIC DATA

COLLECTION

On: 4-Aug-89 *By:* Boy . . .
At: 12:59 hrs. *In/Near:* other

LOCATION

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable Screen

Parameter	Value	Note	MDL	Units
Halogenated Purgeables (33)	0.00	N	0.50	ppb
Aromatic Purgeables (6)	0.00	N	0.50	ppb

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed☑, Intact: No☐, Yes☐ & Broken By: _____ Date: _____

Laboratory Remarks: R. Tsosie Residence

Analyst: Gary C. Eden 8/10/89 **Reviewed By:** R Meyerhein
Gary C. Eden — Analysis Date — Richard F. Meyerhein 08/31/89
Analyst, Organic Chemistry — *Supervisor, Organic Chemistry Section*

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

~~8005~~ 859
WNN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 10/07/89	LAB NO. WC 2814	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 07/08/04	SITE INFORM-ATION ►	Sample location R. Tsosie Residence	
Collection TIME 1259		Collection site description Sample from hose at residence. Water by pipeline from Bob Durbin well	
Collected by — Person/Agency Boyer /OCD			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088
Attn: David Boyer

RECEIVED
OCT 25 1989
OIL CONSERVATION DIVISION

Phone: 827-5812

Station/well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☐ Dipped ☒ Tap	Water level	Discharge	Sample type Grab
pH (00400) 7	Conductivity (Uncorrected) 850 µmho	Water Temp. (00010) 22 °C	Conductivity at 25°C (00094) µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	966	µmho	8/11
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	8.44		8/8
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From WC, NA Sample:

			Date Analyzed
☒ Calcium	12	mg/l	8/23
☒ Potassium	1	mg/l	8/21
☒ Magnesium	4.3	mg/l	8/23
☒ Sodium	238	mg/l	8/21
☒ Bicarbonate	255	mg/l	8/8
☒ Chloride	8.3	mg/l	9/1
☒ Sulfate	268	mg/l	9/1
☒ Total Solids	658	mg/l	9/13
☒ CO_2	1.0		8/8
☒ Fluoride	0.83	µg/l	8/07
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	9/21/89	CD

Laboratory remarks

FOR OCD USE -- Date Owner Notified _____ Phone or Letter? _____ Initals _____

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	0.60	12.00	<3.0	HC03	4.18	255.00	<1.0
Mg	0.35	4.30	<0.3	SO4	5.58	268.00	<10.0
Na	10.35	238.00	<10.0	CL	0.23	8.30	<5.0
K	0.03	1.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	11.33	255.30			10.00	531.30	

Total Dissolved Solids= 658
Ion Balance = 113.34%

WC No. = 8902814
Date out/By EJ 9/11

RECEIVED
OCT 25 1989
OIL CONSERVATION DIVISION

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

88-0502-C

upy 754

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 827-5812

S.L.D. No. OR- 502 A&B
DATE REC. 4/21/88
PRIORITY 3
USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 8 0 4 1 9 1 1 3 0 A & B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: McKinley ; CITY: Haspah CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 N + 0 8 W + 0 5 + 1 3 — (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA: (Gas is Hospah upper sand, South)

pH= 7.5 ; Conductivity= 4480 umho/cm at 16.5 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate 2 g/m

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Tesoro SF RR "B" Lease discharge. Clear, no sheen
This discharge not been to reach arroyo

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): M T Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, ___ Glass Jugs, and/or ___ _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ___/___/___ - ___:___ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____ _____

For OCD Use: Date Owner Notified 6/27/88 Phone or Letter? _____ Initials MTB

ANALYSES PERFORMED

LAB. No.: OR- 502

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy. acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	see remarks		
halogenated purgeables	N.D.		
* DETECTION LIMIT * ✳	.5-1 ppb	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT
T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)
[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: thirty two compounds ranging from early eluting thru the C3 substituted benzene region at .5-1 ppb detected by the photoionization detector but not identified. Also one early eluting compound at approx. 50 ppb not identified by the PID detector.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/3/88 Analyst's signature: Mary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhen

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859 WNW

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 4/21/88 LAB NO. WC-1345
USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE: 04/04/19
Collection TIME: 1130
Collected by — Person/Agency: Boyer/Bailey /OCD
SITE INFORMATION ►
Sample location: TESORO Hospah
Collection site description: SF RR "B" Lease

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088
Attn: David Boyer
Phone: 827-5812

RECEIVED
APR 20 1988
OIL CONSERVATION DIVISION
SANTA FE

Station/well code: T17N, R8W, S.13
Owner:

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level: ~	Discharge: ~2 gpm	Sample type: GRAB
pH (00400): 7.5	Conductivity (Uncorrected): 4400 µmho	Water Temp. (00010): 16.5 °C	Conductivity at 25°C (00094): µmho

Field comments: Clear, no oil sheen. Discharge does not reach arroyo

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	5517	µmho	6/6
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: lab pH	8.56		6/3
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NF, NA Sample:

			Date Analyzed
☒ Calcium	16.0	mg/l	5/19
☒ Potassium	6	mg/l	5/10
☒ Magnesium	6.1	mg/l	5/19
☒ Sodium	1218	mg/l	5/10
☒ Bicarbonate	440	mg/l	6/3
☒ Chloride	1380	mg/l	5/25
☒ Sulfate	62.5	mg/l	"
☒ Total Solids	3120	mg/l	5/20
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported: 6/7/88 | Reviewed by: C

Laboratory remarks: Nes

FOR OCD USE -- Date Owner Notified 6/27/88 Phone or (Letter?) Initals DB

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	0.80	16.00	<3.0	HC03	7.21	440.00	<1.0
Mg	0.50	6.10	<0.3	SO4	1.30	62.50	<10.0
Na	52.98	1218.00	<10.0	CL	38.93	1380.00	<5.0
K	0.15	6.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	54.43	1246.10			47.44	1882.50	

Total Dissolved Solids= 3120

Ion Balance = 114.74%

WC No. = 8801345

Date out/By 5/27

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received: 4/21/88	Lab No. ICP-136	User Code: ☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 88 mm 04 dd 19 hh 11 mm 30

COLLECTION SITE DESCRIPTION: Tesoro Oil Hospah
SFRR "B" Lease

COLLECTED BY: Bailey/Boyer OCD

TO:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

ATTN:
TELEPHONE: 827-5812

OWNER:

SITE LOCATION:
County: McKinley

Township, Range, Section, Tract: (10N06E24342)
~~17N+08W+~~~~04+21+2~~ 17N+08W+05+13-

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water Level:	Discharge: ~2gpm	Sample Type: Grab

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
7.5	4480 µmho	16.5 °C	µmho

FIELD COMMENTS:

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ WPN: Water Preserved w/HNO_3 Non-Filtered	☐ WPF: Water Preserved w/HNO_3 Filtered	☒ ICAP Scan Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	<0.1		Silicon	4.4	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	0.9	
Boron	0.3		Tin	<0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	16.		Zinc	<0.1	
Chromium	<0.1	☐	Arsenic		☒ <0.005
Cobalt	<0.05		Selenium		☒ <0.005
Copper	<0.1		Mercury		☒ <0.0005
Iron	0.1				☐
Lead	<0.1	☐			☐
Magnesium	3.6				☐
Manganese	<0.05				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

LAB COMMENTS: DIGEST

For OCD Use:
Date Owner Notified: 6/27/88
Phone or (Letter)?
Initials: DGB

ICAP Analyst: JB
Date Analyzed: 5/11/88

Reviewer: Jim Ashby
Date Received: 5/12/88

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

88-0501-C

REP: David Boyer — S.L.D. No. OR- 501-A&B
N.M. Oil Conservation Division — DATE REC. 4/21/88
P. O. Box 2088
Santa Fe, N.M. 87504-2088 — PRIORITY 3

WPU 754

PHONE(S): 827-5812 — USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer — CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 880419110 5 D G B

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER:______ CODE: ______

COUNTY: McKinley; CITY: Hospah CODE: ______

LOCATION CODE: (Township-Range-Section-Tracts) 17N+08W+06+4214 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] ______
- [ ] ______
- [ ] ______
- [ ] ______
- [ ] ______

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: ______

FIELD DATA:

pH= 9.5; Conductivity= 2280 umho/cm at 17 °C; Chlorine Residual=______ mg/l

Dissolved Oxygen=______ mg/l; Alkalinity=______ mg/l; Flow Rate 175 g/m

Depth to water ______ ft.; Depth of well ______ ft.; Perforation Interval ____-____ ft.; Casing: ______

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Tesoro - Final oil-water separator outfall to arroyo. Some color, HC odor

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D. Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, 1 Glass Jugs, and/or ______

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from ______ to ______

at (location) ______ on ___/___/___ - ___:___ and that the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures ______ ______

For OCD Use: Date Owner Notified 6/27/88 Phone or (Letter?) ______ Initials DGB

ANALYSES PERFORMED

LAB. No.: OR- 501

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	see remarks		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	.5 ug/L	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: fifty four compounds ranging from early eluting thru the C3 substituted benzenes region detected by the photoionization detector. Not yet identified. Concentrations range from 1 - 5 ppb.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☑ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/3/88 . Analyst's signature: Mary C. Ellen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyerhoen

859
WNW

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 4/21/88 | LAB NO. WC-1347 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 04/19/88 | Collection TIME: 1105 | Collected by (Person/Agency): Boyer/Bailey/OCD

SITE INFORMATION ►

Sample location: Tesoro Oil - Final Outfall

Collection site description: Hospah

JUN 10 1988

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code: T17N, R8W, 6.424

Owner:

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☒ Dipped ☐ Tap	Water level: —	Discharge: 175 gpm	Sample type: Grab
pH (00400): 9.5	Conductivity (Uncorrected): 2280 µmho	Water Temp. (00010): 17 °C	Conductivity at 25°C (00094): µmho

Field comments: Discharge from Final Oil-Water Separator to creek

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µm membrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	2732	µmho	6/3
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	8.68		6/3
☐ Other:			
☐ Other:			

A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NF, NA Sample:

			Date Analyzed
☒ Calcium	10.0	mg/l	5/19
☒ Potassium	3	mg/l	5/10
☒ Magnesium	3.7	mg/l	5/19
☒ Sodium	641	mg/l	5/10
☒ Bicarbonate	704	mg/l	6/3
☒ Chloride	146	mg/l	5/25
☒ Sulfate	542	mg/l	"
☒ Total Solids	1818	mg/l	5/20
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/7/88	

Laboratory remarks: 124

FOR OCD USE -- Date Owner Notified 6/27/88 Phone or (Letter)? _____ Initials RB

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	0.50	10.00	<3.0	HC03	11.54	704.00	<1.0
Mg	0.30	3.70	<0.3	SO4	11.29	542.00	<10.0
Na	27.88	641.00	<10.0	CL	4.12	146.00	<5.0
K	0.08	3.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	28.76	657.70			26.95	1392.00	

Total Dissolved Solids= 1818
Ion Balance = 106.73%

WC No. = 8801347
Date out/By 3/27

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received	Lab No.	User Code	
4/27/88	ECD-137	☒ 82235	☐ Other:

COLLECTION DATE & TIME: yy 88 | mm 04 | dd 19 | hh 11 | mm 05

COLLECTED BY:

COLLECTION SITE DESCRIPTION: Tesoro Oil - Hospah Final Outfall

TO:

OWNER:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

ATTN: David Boyer
TELEPHONE: 827-5812

SITE LOCATION:
County: McKinley

Township, Range, Section, Tract: (10N06E24342)
17N+018W+016+4214

STATION/ WELL CODE:

LATITUDE, LONGITUDE: -

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water Level:	Discharge:	Sample Type:
			~1750 rpm	GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
9.5	2280 µmho	17 °C	µmho

FIELD COMMENTS:

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ WPN: Water Preserved w/HNO_3 Non-Filtered	WPF: Water Preserved w/HNO_3 Filtered	☒ ICAP Scan Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE		AA VALUE	ELEMENT	ICAP VALUE		AA VALUE
Aluminum	0.2			Silicon	5.1		
Barium	<0.1			Silver	<0.1	☐	
Beryllium	<0.1			Strontium	0.3		
Boron	0.2			Tin	<0.1		
Cadmium	<0.1	☐		Vanadium	<0.1		
Calcium	6.9			Zinc	0.1		
Chromium	<0.1	☐		Arsenic		☒	<0.005
Cobalt	<0.05			Selenium		☒	<0.005
Copper	<0.1			Mercury		☒	<0.0005
Iron	0.3					☐	
Lead	<0.1	☐				☐	
Magnesium	2.1					☐	
Manganese	0.06					☐	
Molybdenum	<0.1					☐	
Nickel	<0.1					☐	

LAB COMMENTS: D1665?

For OCD Use:
Date Owner Notified: 6/3/88
Phone or ~~Letter~~?
Initials: DFB

ICAP Analyst JB
Date Analyzed 5/11/88

Reviewer Jim Ashley
Date Received 5/12/88

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

A & B

88-0000-C

WP 754

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088

S.L.D. No. OR- OR-500
DATE REC. 4/21/88
PRIORITY 3
PHONE(S): 827-5812
USER CODE: 8 2 2 3 5
SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 8 0 4 1 9 1 1 5 0

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: McKinley ; CITY: Hospah CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 N + 0 8 W + 0 4 + 2 1 2 (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: ~~Sandoval Lake downstream of final outfall~~ ~~No sheen, odor~~

FIELD DATA:

pH= 8.5 ; Conductivity= 2400 umho/cm at 14.5 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ ____/____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____ - _____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Sandoval Lake downstream of Tesoro Final outfall
No sheen, odor. Sample from lake outfall at culvert

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): DB Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, ____ Glass Jugs, and/or ____ _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on ____/____/____ - ____:____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____

For OCD Use: Date Owner Notified 6/27/88 Phone or Letter? _____ Initials DB

ANALYSES PERFORMED

LAB. No.: OR- 500

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D.		
halogenated purgeables	N.D.		
* DETECTION LIMIT * ✳	.5 ug/L	+ DETECTION LIMIT + +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6/3/88 . Analyst's signature: Mary C. Glen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R. Meyerhen

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859 WNW

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 4/21/88 | LAB NO. WC-1346 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

COLLECTION DATE: 04/19/88 | SITE INFORMATION | Sample location: Hospah - Sandoval Lake outfall

Collection TIME: 1150 | Collection site description: Sample from Culvert

Collected by — Person/Agency: Boyer / Bailey / OCD

JUN 10 1988

SEND FINAL REPORT TO ▶
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code: 17N, 8W, 4.212

Owner:

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level: —	Discharge: ~100 gpm	Sample type: Grab
pH (00400): 8.5	Conductivity (Uncorrected): 2400 µmho	Water Temp. (00010): 14.5 °C	Conductivity at 25°C (00094): µmho

Field comments: No sheen, odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA	Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	3130 µmho	6/6
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: Lab pH	8.93	
☐ Other:		
☐ Other:		

A-H_2SO_4		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

From NE, NA Sample:

			Date Analyzed
☒	Calcium	6.0 mg/l	5/19
☒	Potassium	4 mg/l	5/10
☒	Magnesium	7.3 mg/l	5/19
☒	Sodium	742 mg/l	5/10
☒	Bicarbonate	803 mg/l	6/3
☒	Chloride	208 mg/l	5/25
☒	Sulfate	530 mg/l	11
☒	Total Solids	2069 mg/l	5/20
☐			
☐			
☒	Cation/Anion Balance		

Analyst: | Date Reported: 6/7/88 | Reviewed by:

Laboratory remarks:

FOR OCD USE -- Date Owner Notified 6/5/88 Phone or (Letter)? Initals

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	0.30	6.00	<3.0	HC03	13.16	803.00	<1.0
Mg	0.60	7.30	<0.3	SO4	11.04	530.00	<10.0
Na	32.27	742.00	<10.0	CL	5.87	208.00	<5.0
K	0.10	4.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	33.28	759.30			30.07	1541.00	

Total Dissolved Solids= 2069

Ion Balance = 110.67%

WC No. = 8801346

Date out/By _____ 5/27

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106

HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received: 4/21/88 | Lab No. ICP-135 | User Code: ☒ 82235 ☐ Other:

COLLECTION DATE & TIME: yy 88 | mm 04 | dd 19 | hh 11 | mm 50

COLLECTED BY: Boyer/Bailey/Anderson

COLLECTION SITE DESCRIPTION: Hospah-Sandoval Lake
Lake Sample from road culvert discharge

TO:

OWNER:

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg., PO Box 2088
SANTA FE, NM 87504-2088

ATTN: David Boyer
TELEPHONE: 827-5812

SITE LOCATION:
County: McKinley

Township, Range, Section, Tract: (10N06E24342)
U T W 4 0 8 W 4 0 4 + 2 1 1 2

STATION/ WELL CODE:

LATITUDE, LONGITUDE:

SAMPLING CONDITIONS:

☐ Bailed ☒ Dipped	☐ Pump ☐ Tap	Water Level: —	Discharge: ~1800 gpm	Sample Type: GRAB

pH(00400)	Conductivity(Uncorr.)	Water Temp.(00010)	Conductivity at 25°C (00094)
8.5	2480 µmho	14.5 °C	µmho

FIELD COMMENTS:

SAMPLE FIELD TREATMENT Check proper boxes:		LAB ANALYSIS REQUESTED:
☒ WPN: Water Preserved w/HNO_3 Non-Filtered	☐ WPF: Water Preserved w/HNO_3 Filtered	☒ ICAP Scan Mark box next to metal if AA is required.

ANALYTICAL RESULTS (MG/L)

ELEMENT	ICAP VALUE	AA VALUE	ELEMENT	ICAP VALUE	AA VALUE
Aluminum	1.4		Silicon	4.2	
Barium	<0.1		Silver	<0.1	☐
Beryllium	<0.1		Strontium	0.2	
Boron	0.2		Tin	<0.1	
Cadmium	<0.1	☐	Vanadium	<0.1	
Calcium	6.9		Zinc	<0.1	
Chromium	<0.1	☐	Arsenic		☒ <0.005
Cobalt	<0.05		Selenium		☒ <0.005
Copper	<0.1		Mercury		☒ <0.0005
Iron	1.5				☐
Lead	<0.1	☐			☐
Magnesium	2.9				☐
Manganese	0.05				☐
Molybdenum	<0.1				☐
Nickel	<0.1				☐

LAB COMMENTS: DIGEST

For OCD Use:
Date Owner Notified: 6/27/88
Phone or ~~Letter~~?
Initials: AHB

ICAP Analyst JB
Date Analyzed 5/9/88

Reviewer Jo Ashley
Date Received 5/12/88

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

HEALTH ENVIRONMENT — STATE OF NEW MEXICO

88-0499-C

WW-754

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 827-5812

S.L.D. No. OR- 499 A+B
DATE REC. 4/21/88
PRIORITY 3
USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 8 0 4 1 9 1 3 1 5 2 4 B

SAMPLE TYPE: WATER [X], SOIL [ ], FOOD [ ], OTHER: _____ CODE: _____

COUNTY: McKinley ; CITY: Hospah CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 N + 0 8 W + 0 8 + 1 3) (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- [ ] (753) Aliphatic Purgeables (1-3 Carbons)
- [X] (754) Aromatic & Halogenated Purgeables
- [ ] (765) Mass Spectrometer Purgeables
- [ ] (766) Trihalomethanes

Other Specific Compounds or Classes

- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____
- [ ] _____

EXTRACTABLE SCREENS

- [ ] (751) Aliphatic Hydrocarbons
- [ ] (760) Organochlorine Pesticides
- [ ] (755) Base/Neutral Extractables
- [ ] (758) Herbicides, Chlorophenoxy acid
- [ ] (759) Herbicides, Triazines
- [ ] (760) Organochlorine Pesticides
- [ ] (761) Organophosphate Pesticides
- [ ] (767) Polychlorinated Biphenyls (PCB's)
- [ ] (764) Polynuclear Aromatic Hydrocarbons
- [ ] (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH= 6.5 ; Conductivity= 1440 umho/cm at 11 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ _____/_____

Depth to water _____ ft.; Depth of well _____ ft.; Perforation Interval _____-_____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

B+A Windmill discharge from tank to trough
#1ST-564

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): D.J. Boyer Method of Shipment to the Lab: State Car

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____ _____

Samples were preserved as follows:

- [ ] NP: No Preservation; Sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (Not Frozen).
- [ ] P-$Na_2S_2O_3$ Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____/_____/_____ - _____:_____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures _____

For OCD Use: Date Owner Notified 6/27/88 Phone or (Letter?) _____ Initials MB

ANALYSES PERFORMED

LAB. No.: OR- 499

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D.		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	.5 ppb	+ DETECTION LIMIT +	

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☒ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/3/88 . Analyst's signature: Gary C. Eden

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: K Meyerhen

New Mexico Health and En[illegible]ment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859 WWN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4/21/88	LAB NO. WC-1343
USER CODE	☐ 59300 ☐ 59600 ☒ OTHER: 82235
Collection DATE 88/04/19	SITE INFORMATION ► Sample location: B/A Windmill - Hospah
Collection TIME 1315	Collection site description: #15T-564
Collected by — Person/Agency: Boyer/Bailey/Anderson OCD	

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

OIL CONSERVATION DIVISION SANTA FE

Station/well code: 17N 8W 8.131

Owner:

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level —	Discharge —	Sample type GRAB
pH (00400) 8.5	Conductivity (Uncorrected) 1440 µmho	Water Temp. (00010) 11 °C	Conductivity at 25°C (00094) µmho

Field comments: Sample from discharge to trough from storage tank

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1	☐ NF: Whole sample (Non-filtered)	☐ F: Filtered in field with 0.45 µmembrane filter	☐ A: 2 ml H_2SO_4/L added
☒ NA: No acid added	☐ Other-specify:	☐ A: 5ml conc. HNO_3 added	☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	2022	µmho	5/23
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	9.05		6/3
☐ Other:			
☐ Other:			

A-H_2SO_4		Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NF, NA Sample:

			Date Analyzed
☒ Calcium	8	mg/l	
☒ Potassium	3	mg/l	5/10
☒ Magnesium	14.6	mg/l	
☒ Sodium	469	mg/l	5/10
☒ Bicarbonate	582	mg/l	6/3
☒ Chloride	28.5	mg/l	6/3
☒ Sulfate	431	mg/l	
☒ Total Solids	1334	mg/l	
☐			
☐			
☒ Cation/Anion Balance			

Analyst	Date Reported	Reviewed by
	6/7/88	[illegible]

Laboratory remarks: 27

FOR OCD USE -- Date Owner Notified 6/27/88 Phone or Letter? ______ Initals DGB

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	0.40	8.00	<3.0	HC03	9.54	582.00	<1.0
Mg	1.20	14.60	<0.3	SO4	8.98	431.00	<10.0
Na	20.40	469.00	<10.0	CL	0.80	28.50	<5.0
K	0.08	3.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	22.08	494.60			19.32	1041.50	

Total Dissolved Solids= 1334

Ion Balance = 114.26%

WC No. = 8801343

Date out/By 5/27

SCIENTIFIC LABORATORY DIVISION

700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEXICO
HEALTH ENVIRONMENT

88-0503-C

WPU 154

REPORT TO: David Boyer
N.M. Oil Conservation Division
P. O. Box 2088
Santa Fe, N.M. 87504-2088
PHONE(S): 827-5812

S.L.D. No. OR- 503 A&B
DATE REC. 4/21/88
PRIORITY 3
USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer
CODE: 2 6 0

SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 8 0 4 1 9 1 3 4 5 2 W B

SAMPLE TYPE: WATER ☒, SOIL ☐, FOOD ☐, OTHER: _____ CODE: _____

COUNTY: McKinley; CITY: Haspah CODE: _____

LOCATION CODE: (Township-Range-Section-Tracts) 1 7 N 0 9 W D 1 2 _ _ (10N06E24342)

ANALYSES REQUESTED: Please check the appropriate box(es) below to indicate the type of analytical screens required. Whenever possible list specific compounds suspected or required.

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

Remarks: _____

FIELD DATA:

pH= 7; Conductivity= 750 umho/cm at 12 °C; Chlorine Residual= _____ mg/l

Dissolved Oxygen= _____ mg/l; Alkalinity= _____ mg/l; Flow Rate _____ _____/_____

Depth to water _____ ft.; Depth of well 320 ft.; Perforation Interval _____-_____ ft.; Casing: _____

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Bob Dunbin Domestic Well. Sample from kitchen tap No treatment; No taste or odor. well in Morrison?

I certify that the results in this block accurately reflect the results of my field analyses, observations and activities.(signature collector): [signature] Method of Shipment to the Lab: State car

This form accompanies 2 Septum Vials, _____ Glass Jugs, and/or _____

Samples were preserved as follows:

- ☐ NP: No Preservation; Sample stored at room temperature.
- ☒ P-Ice: Sample stored in an ice bath (Not Frozen).
- ☐ P-$Na_2S_2O_3$: Sample Preserved with Sodium Thiosulfate to remove chlorine residual.

CHAIN OF CUSTODY

I certify that this sample was transferred from _____ to _____

at (location) _____ on _____/_____/_____ - _____:_____ and that

the statements in this block are correct. Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____ _____

For OCD Use: Date Owner Notified 6/27/88 Phone or (Letter?) _____ Initial

ANALYSES PERFORMED

LAB. No.: OR- 503

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screening method(s) checked below:

PURGEABLE SCREENS

- ☐ (753) Aliphatic Purgeables (1-3 Carbons)
- ☒ (754) Aromatic & Halogenated Purgeables
- ☐ (765) Mass Spectrometer Purgeables
- ☐ (766) Trihalomethanes

Other Specific Compounds or Classes

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

EXTRACTABLE SCREENS

- ☐ (751) Aliphatic Hydrocarbons
- ☐ (760) Organochlorine Pesticides
- ☐ (755) Base/Neutral Extractables
- ☐ (758) Herbicides, Chlorophenoxy acid
- ☐ (759) Herbicides, Triazines
- ☐ (760) Organochlorine Pesticides
- ☐ (761) Organophosphate Pesticides
- ☐ (767) Polychlorinated Biphenyls (PCB's)
- ☐ (764) Polynuclear Aromatic Hydrocarbons
- ☐ (762) SDWA Pesticides & Herbicides

ANALYTICAL RESULTS

COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
aromatic purgeables	N.D.		
halogenated purgeables	N.D.		
* DETECTION LIMIT *	* 5 ug/L	+ DETECTION LIMIT +	+

ABBREVIATIONS USED:

N D = NONE DETECTED AT OR ABOVE THE STATED DETECTION LIMIT

T R = DETECTED AT A LEVEL BELOW THE STATED DETECTION LIMIT (NOT CONFIRMED)

[RESULTS IN BRACKETS] ARE UNCONFIRMED AND/OR WITH APPROXIMATE QUANTITATION

LABORATORY REMARKS: _____

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ☐ No ☑ Seal(s) broken by: not sealed date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 5/3/86 . Analyst's signature: Mary C Glen

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block.

Reviewers signature: R Meyerhoff

859 WNN

New Mexico Health and En[illegible]ment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4/21/88 LAB NO WC-1344 USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 88/04/19

Collection TIME 1345

Collected by — Person/Agency Boyer/Bailey /OCD

SITE INFORMATION ►

Sample location: Hospah - Surlin Domestic well

Collection site description: Sample from untreated water at kitchen tap

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87504-2088

Attn: David Boyer

Phone: 827-5812

Station/well code:

Owner:

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☐ Dipped ☒ Tap	Water level —	Discharge —	Sample type GRAB
pH (00400) 7	Conductivity (Uncorrected) 750 µmho	Water Temp. (00010) 12 °C	Conductivity at 25°C (00094) µmho

Field comments

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1 ☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify*: ☐ A: 5ml conc. HNO_3 added ☐ A: 4ml fuming HNO_3 added

ANALYTICAL RESULTS from SAMPLES

NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1024	µmho	5/23
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: Lab pH	8.71		6/3
☐ Other:			
☐ Other:			
A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

From NF, NA Sample:

			Date Analyzed
☒ Calcium	5	mg/l	5/
☒ Potassium	1	mg/l	5/10
☒ Magnesium	1.2	mg/l	
☒ Sodium	216	mg/l	5/10
☒ Bicarbonate	241	mg/l	6/3
☒ Chloride	8.15	mg/l	5/31
☒ Sulfate	244	mg/l	6/5
☒ Total Solids	588	mg/l	5/23
☐			
☐			
☒ Cation/Anion Balance			

Analyst | Date Reported 6 9 88 | Reviewed by [signature]

Laboratory remarks

FOR OCD USE -- Date Owner Notified 6/27/88 Phone or Letter? ______ Initals [initials]

CATIONS				ANIONS			
ANALYTE	MEQ.	PPM	DET. LIMIT	ANALYTE	MEQ.	PPM	DET. LIMIT
Ca	0.25	5.00	<3.0	HC03	3.95	241.00	<1.0
Mg	0.10	1.20	<0.3	SO4	5.08	244.00	<10.0
Na	9.40	216.00	<10.0	CL	0.23	8.15	<5.0
K	0.03	1.00	<0.3				
Mn	0.00	0.00		NO3	0.00	0.00	< 0.
Fe	0.00	0.00		C03	0.00	0.00	< 1.
				NH3	0.00	0.00	< 0.
				PO4	0.00	0.00	< 0.
SUMS	9.77	223.20			9.26	493.15	

Total Dissolved Solids= 2796

Ion Balance = 105.47%

WC No. = 8705215/1349

Date out/By

imi
Inter-Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

12 April, 1988

Mr. Bob Durbin
Tesoro Petroleum Corporation
Star Route 2
Cuba, NM 87013

Dear Mr. Durbin:

On April 12, 1988, our laboratory received four (4) water samples for analysis. Samples were analyzed for NPDES parameters.

Tests were conducted according to 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis", as amended. Results of the analyses are shown on the following pages.

If you have any questions, or we can be of further assistance, please feel free to call.

Sincerely,

Ron R. Richardson

Ron R. Richardson
Lab Director

enclosures:

Inter-Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

12 April, 1988

Mr. Bob Durbin
Tesoro Petroleum Corporation
Star Route 2
Cuba, NM 87013

****

Lab ID: F1260 Date Received: 04/12/88
Sample ID: Production Water Date Collected: 04/11/88
HSU & SFR "A" Leases

		Date Analyzed
pH, (s.u.)	8.2	4/12
Total Dissolved Solids, mg/l	1940	4/12
Total Suspended Solids, mg/l	44	4/12
Total Settleable Solids, ug/ml	<0.1	4/12
Oil & Grease, mg/l	44.3	4/12
Total Iron, mg/l	0.28	4/12
Sodium, mg/l	766	4/12

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12 April, 1988

Mr. Bob Durbin
Tesoro Petroleum Corporation
Star Route 2
Cuba, NM 87013

****

Lab ID: F1261 Date Received: 04/12/88
Sample ID: Production Water Date Collected: 04/11/88
Hanson Lease

		Date Analyzed
pH, (s.u.)	9.0	4/12
Total Dissolved Solids, mg/l	1700	4/12
Total Suspended Solids, mg/l	8.0	4/12
Total Settleable Solids, ug/ml	<0.1	4/12
Oil & Grease, mg/l	17.7	4/12
Total Iron, mg/l	0.29	4/12
Sodium, mg/l	641	4/12

Inter·Mountain
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Tel. (505) 326-4737

12 April, 1988

Mr. Bob Durbin
Tesoro Petroleum Corporation
Star Route 2
Cuba, NM 87013

****

Lab ID: F1261 Date Received: 04/12/88
Sample ID: Production Water Date Collected: 04/11/88
SFR Lease

		Date Analyzed
pH, (s.u.)	8.3	4/12
Total Dissolved Solids, mg/l	1660	4/12
Total Suspended Solids, mg/l	5.6	4/12
Total Settleable Solids, ug/ml	<0.1	4/12
Oil & Grease, mg/l	17.3	4/12
Total Iron, mg/l	0.06	4/12
Sodium, mg/l	613	4/12

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12 April, 1988

Mr. Bob Durbin
Tesoro Petroleum Corporation
Star Route 2
Cuba, NM 87013

****

Lab ID: F1263 Date Received: 04/12/88
Sample ID: Water down creek Date Collected: 04/11/88
HSU & SFR "A"
Hanson SFR Leases

		Date Analyzed
pH, (s.u.)	9.2	4/12
Total Dissolved Solids, mg/l	1800	4/12
Total Suspended Solids, mg/l	4.4	4/12
Total Settleable Solids, ug/ml	<0.1	4/12
Oil & Grease, mg/l	17.0	4/12
Total Iron, mg/l	0.35	4/12
Sodium, mg/l	653	4/12

(1964)

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

OPERATOR Tesoro Petroleum Corporation DATE November 13, 1975 LAB NO. 18059
WELL NO. Hanson & Santa Fe RR LOCATION
FIELD FORMATION
COUNTY INTERVAL
STATE SAMPLE FROM Produced water

REMARKS & CONCLUSIONS: From Farmington area (no other information given)

Oil and grease, mg/l (Freon method) - - - - - 10.0

Cations	mg/l	meq/l	Anions	mg/l	meq/l
Sodium	688	29.93	Sulfate	180	3.74
Potassium	7	0.18	Chloride	156	4.40
Lithium			Carbonate	-	
Calcium	8	0.40	Bicarbonate	1379	22.62
Magnesium	3	0.25	Hydroxide		
Iron	-		Hydrogen sulfide	Present	
Total Cations		30.76	Total Anions		30.76

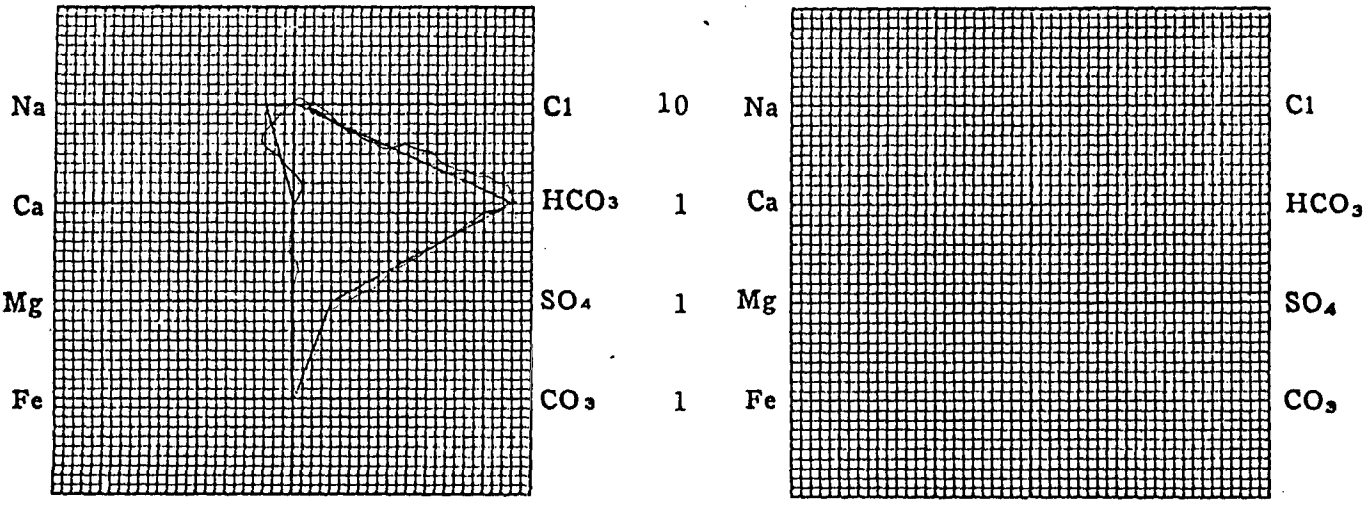
Total dissolved solids, mg/l 1721
NaCl equivalent, mg/l 1327
Observed pH 7.7

Specific resistance @ 68°F.:
Observed 3.90 ohm-meters
Calculated 4.40 ohm-meters

WATER ANALYSIS PATTERN

Sample above described

Scale
MEQ per Unit



(Na value in above graphs includes Na, K, and Li)
NOTE: Mg/l=Milligrams per liter Meq/l= Milligram equivalents per liter
Sodium chloride equivalent=by Dunlap & Hawthorne calculation from components

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Tel. (505) 326-4737

11 April, 1988

Bob Durbin
Tesoro Petroleum Corporation
Star Route 2
Cuba, NM 87013

Dear Mr. Durbin:

On March 21, 1988, our laboratory received one (1) water sample for analysis. Sample was analyzed for parameters requested.

Tests were conducted according to 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis", as amended. Results of the analyses are shown on the following page.

If you have any questions, or we can be of further assistance, please feel free to call.

Sincerely,

Ron R Richardson

Ron R. Richardson
Lab Director

enclosures:

Inter·Mountain
Laboratories, Inc.

2506 West Main Street
Farmington, New Mexico 87401
Tel. (505) 326-4737

CLIENT: Tesoro Petroleum Corp. April 11, 1988

Sample Site: Drinking Water
Lab Id: F1191
Date Collected: 03/21/88
Date Received: 03/21/88

Water from Windmill
East side of SFR Lease
Not on our lease

Lab pH:	9.0
Lab Conductivity, umhos/cm @ 25C	1740
Total Dissolved Solids (180), mg/l	1340
Total Dissolved Solids (calc), mg/l	1020
Total Suspended Solids, mg/l	4.00
Nitrate + Nitrite as "N", mg/l	<0.01
Ammonia Nitrogen, mg/l	0.06
Boron, mg/l	0.21
Fluoride, mg/l	2.56
Ortho-Phosphorus as "P", mg/l	0.01
Sodium Adsorption Ratio	65.3
Total Alkalinity as CaCO3, mg/l	533
Total Hardness as CaCO3, mg/l	1210

	mg/l	meq/l
Acidity as CaCo3	<1	<0.01
Bicarbonate as HCO3	505	8.28
Carbonate as CO3	71	2.37
Chloride	27	0.75
Sulfate	450	9.36
Calcium	3	0.17
Magnesium	<1	0.03
Potassium	2	0.06
Sodium	475	20.66
Major Cations		20.92
Major Anions		20.76
Cation/Anion Difference		0.38

Trace Metals (Dissolved Concentrations), mg/l

Aluminum	<0.1	Lead	<0.02
Arsenic	<0.005	Manganese	<0.02
Barium	<0.5	Mercury	<0.001
Cadmium	<0.002	Molybdenum	<0.02
Chromium	<0.02	Nickel	<0.01
Copper	<0.01	Selenium	<0.005
Iron	0.30	Zinc	0.16