NM -

MONITORING REPORTS

YEAR(S): 1993/98/



American Exploration Company

April 29, 1993

FEDERAL EXPRESS

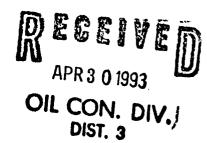
Mr. Denny A. Foust Environmental Geologist Energy, Minerals and Natural Resources Division Oil Conservation Division 1000 Rio Brazos Road Aztec, New Mexico 87410

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



SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: $\frac{93}{23}$

<u>93-04-240</u> 93-04-242

Approved for release by:

S. Grice, UST Coordinator Date: 4/31/95

S. Sample, Laboratory Director

Date:

for



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

SAMPLED BY: American Exploration

SAMPLE ID: SFRR - 0-0"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

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



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

PARAMETER	ANALYTICAL DATA RESULTS	DETECTION	UNITS
Chromium, Total METHOD 6010 *** Analyzed by: DQ Date: 04/14/93	5	LIMIT 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

mg/Kg

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 UNITS

Selenium, Total ND 1

METHOD 7740 ***

Analyzed by: WFL

Date: 04/16/93

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.



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 DA	ATA		
PARAMETER	RESULTS	DETECTION LIMIT	UNITE
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA	20000	100	mg/Kg
Date: 04/14/93 12:21:00			
BENZENE	ND	10 P	. μg/Kg
TOLUENE	ND	10 P	μg/Ko
ETHYLBENZENE	400	10 P	μg/Ko
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.



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 UNITS

LIMIT

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.



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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil)

1600

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.



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 UNITS

LIMIT

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.



American Exploration Co. 1331 Lamar, Ste 900

Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

SAMPLED BY: American Exploration

SAMPLE ID: SFRR - 10-6"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DA	ATA		
PARAMETER	RESULTS	DETECTION LIMIT	UNITE
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA	7300	100	mg/Kg
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.

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.

⁽P) - Practical Quantitation Limit



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

DAIR RECEIVED: 04/0//95

ANALYTICAL DATA

PARAMETER RESULTS DETECTION UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil) 24 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.



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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil) 6300 100 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

mg/Kg

PROJECT: Hospah Arroyo Analysis

SITE:

SAMPLED BY: American Exploration

SAMPLE ID: SFRR - 20-6"

PROJECT NO:

1100

MATRIX: SOIL

10

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER RESULTS DETECTION UNITS

Petroleum Hydrocarbons-Diesel (Soil)

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.



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.



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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil) 45000 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

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 UNITS

LIMIT

220

10 mg/Kg

Petroleum Hydrocarbons-Diesel (Soil) 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.



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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil)

14000

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.



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

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

SPL, Inc., - Shari L. Grice

with EPA guidelines for quality assurance.



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

PARAMETER	ANALYTICAL	DATA RESULTS	DETECTION LIMIT	UNITS
Chromium, Total METHOD 6010 ***		7	1	mg/Kg
Analyzed by: DQ Date: 04/14/93				
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.



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

ND

DETECTION

LIMIT

UNITS

mg/Kg

Selenium, Total

METHOD 7740 ***

Analyzed by: WFL

Date: 04/16/93

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.



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 UNITS

LIMIT

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.



American Exploration Co. 1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

ITE:

SAMPLED BY: American Exploration

SAMPLE ID: HSU - 0-24"

PROJECT NO:

ND

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER RESULTS DETECTION UNITS

LIMIT

10

mg/Kg

Petroleum Hydrocarbons-Diesel (Soil)

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.



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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil) 3600 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.



American Exploration Co. 1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

mg/Kg

PROJECT: Hospah Arroyo Analysis

SAMPLED BY: American Exploration

SAMPLE ID: HSU - 10-12"

PROJECT NO:

MATRIX: SOIL

10

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER RESULTS DETECTION UNITS

LIMIT Petroleum Hydrocarbons-Diesel (Soil) 110

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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

mg/Kg

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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil) 15000 100

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.



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 UNITS

LIMIT

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.



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 UNITS

LIMIT

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.



American Exploration Co. 1331 Lamar, Ste 900

Houston, TX 77010 ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

ITE:

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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil)

13000

100

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.



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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

110

LIMIT 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

ITE:

SAMPLED BY: American Exploration

SAMPLE ID: HSU - 40-0"

PROJECT NO:

10000

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER RESULTS DETECTION UNITS

LIMIT

200 mg/Kg

Petroleum Hydrocarbons-Diesel (Soil)

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.



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 DA	TA		
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS	13	10	mg/Kg
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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

SAMPLED BY: American Exploration

SAMPLE ID: HSU - 10-6"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DA	TA		
PARAMETER	RESULTS	DETECTION LIMIT	UNITE
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS	99	10	mg/Kg
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.



American Exploration Co.

1331 Lamar, Ste 900

Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

SAMPLED BY: American Exploration

SAMPLE ID: HANSON - 0-0"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICA	L 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TY 77010

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

PARAMETER	ANALYTICAL	DATA RESULTS	DETECTION	UNITE
			LIMIT	
Chromium, Total		10	1	mg/Kg
METHOD 6010 ***	•			
Analyzed by: DQ				
Date: 04/14/93				
Mercury, Total		ND	0.2	mg/Kg
METHOD 7471 ***				3 ,
Analyzed by: PB				
Date: 04/12/93				
Moisture, E.P.A.		22	. 1	wt. 9
METHOD CLP SOW				
Analyzed by: DSE				
Date: 04/12/93				•
Acid Digestion-Solid, ICP		04/13/93		
METHOD 3050		• •		
Analyzed by: AM				
Date: 04/13/93				
Lead, Total		10	10	mg/Kg
METHOD 6010 ***				
Analyzed by: DQ				
Date: 04/14/93				

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.



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 UNITS

LIMIT

Selenium, Total ND 1 mg/Kg

METHOD 7740 ***
Analyzed by: WFL

Date: 04/16/93

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.



THE REPRODUCTION OF

THE

FOLLOWING

DOCUMENT (S)

CANNOT BE IMPROVED

DUE TO

THE CONDITION OF

THE ORIGINAL



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

The state of the s	· · · · · · · · · · · · · · · · · · ·	. () ()	4. 194 For HT. 1199	TUSE ALTER TO BE	
		ANAL YTICAL	DATA	上海安徽省 (1914年)	11
PARAMETER			RESULTS	DETECTION	UNITS
Petroleum Hydro	carbons-D:	lesel (Soil)	8600	LIMIT 200	mg/Kg
METHOD MOD. CA		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			mg/1.g
Analyzed by: K				1. 原理 (1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	
Date: 0	4/14/93 1	2:21:00			7
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 5030/80				1. 据名 · · · · · · · · · · · · · · · · · ·	
Analyzed by: M					
Date: 0	4/11/93			() () () () () () () () () () () () () (

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.



Certificate of Analysis No. 9304

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

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

SAMPLED BY: American Exploration

SAMPLE ID: HANSON - 0-12"

PROJECT NO:

1100

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER

RESULTS DETECTION UNITE

Petroleum Hydrocarbons-Diesel (Soil)

METHOD MOD. CA. DHS

Analyzed by: KA

Date: 04/14/93 12:21:00

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.



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

BAMPLE ID: HANSON - 0-24"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

		ANALYTIC		Son Carlos Commence	
PARAMETER			RESULTS	DETECTION	UNITS
Petroleum Hydr METHOD MOD. C	A. DHS	s-Diesel (Soil)	ND.	10	mg/Kg
Analyzed by: Date:		3 12:21:00			
				- And the second	

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.



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

BAMPLE ID: HANSON - 0-60"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

PARAMETER RESULTS DETECTION UNIT			. 1		MALY	ical d	ATA	Add His	· 点,相子.	A Propher Section	4. 16.
Petroleum Hydrocarbons-Diesel (Soil) ND 10 mg/l METHOD MOD. CA. DHS Analyzed by: KA	Parameter	100	1 1		排線 [44] 例:有[4			ESULTS	.,		UNIT
METHOD MOD. CA. DHS Analyzed by: KA	Petroleum Hy	drocar	bons-	-Dies	1 (Sc	11)		ND		T- 0	ma/K
	METHOD MOD.	CA, E									
			4/93	12.5	٠.۵۵					建制 播起了	

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.



Certificate of Analysis No. 93

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:

12000

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER

DETECTION . RESULTS

> LIMIT 200

UNITS

mg/Kg

Petroleum Hydrocarbons-Diesel (Soil)

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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BAMPLED BY: American Exploration

SAMPLE ID: HANSON - 10-6"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL I	DATA		
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA	21000	200	mg/Kg
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.



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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

13000

LIMIT 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

ITE:

SAMPLED BY: American Exploration

SAMPLE ID: HANSON - 10-24"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

AMALYTICAL DATA

PARAMETER

RESULTS

DETECTION LIMIT UNITE

Petroleum Hydrocarbons-Diesel (Soil)

2600

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.



American Exploration Co. 1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

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

DETECTION 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.



American Exploration Co.

1331 Lamar, Ste 900

Houston, TX 77010 ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

UNITS

mg/Kg

PROJECT: Hospah Arroyo Analysis

SITE:

SAMPLED BY: American Exploration

SAMPLE ID: HANSON - 10-72"

PROJECT NO:

ND

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER RESUL

RESULTS DETECTION

LIMIT

10

Petroleum Hydrocarbons-Diesel (Soil)

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.



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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

1800

LIMIT 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.



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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

860

LIMIT 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

2300

LIMIT 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.



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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

480

10

LIMIT

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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

24000

LIMIT 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

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 RESU

RESULTS

DETECTION

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

4100

LIMIT 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.



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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

72

LIMIT 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.



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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil) 7900 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

ITE:

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

rs detection

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

ND

LIMIT 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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

SAMPLED BY: American Exploration

BAMPLE ID: HANSON - 50-0"

PROJECT NO:

MATRIX: SOIL

DATE SAMPLED: 04/02/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER

RESULTS

DETECTION

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

27000

LIMIT 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.



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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil) 410 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.



American Exploration Co. 1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

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 RESUL

RESULTS D

DETECTION UNITS

Petroleum Hydrocarbons-Diesel (Soil)

43000

LIMIT 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.



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 DAT	A		
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA	80	10	mg/Kg
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.



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:

2800

MATRIX: SOIL

DATE SAMPLED: 04/03/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER RESULTS DETECTION

LIMIT 200

T

UNITS

mg/Kg

Petroleum Hydrocarbons-Diesel (Soil)

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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

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

SULTS 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.



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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

9800

LIMIT 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.



American Exploration Co.

1331 Lamar, Ste 900

Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

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 D	ATA		
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA	ND	10	mg/Kg
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.



American Exploration Co. 1331 Lamar, Ste 900

Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

mg/Kg

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 UNITS

LIMIT

130 10

Petroleum Hydrocarbons-Diesel (Soil) 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.



American Exploration Co. 1331 Lamar, Ste 900

Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

11000

LIMIT 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.



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

PROJECT: Hospah Arroyo Analysis

SAMPLED BY: American Exploration

SAMPLE ID: Pit #1 D-72

PROJECT NO:

MATRIX: SOIL

DATE: 04/21/93

DATE SAMPLED: 04/03/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA **PARAMETER** RESULTS DETECTION UNITS LIMIT Petroleum Hydrocarbons-Diesel (Soil) 8000 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.



American Exploration Co. 1331 Lamar, Ste 900

Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

BITE:

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 UNITS

LIMIT

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.



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 DATE	A		
PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Petroleum Hydrocarbons-Diesel (Soil) METHOD MOD. CA. DHS Analyzed by: KA	37	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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

ITE:

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

UNITS

Petroleum Hydrocarbons-Diesel (Soil)

ND

LIMIT 200

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.



American Exploration Co. 1331 Lamar, Ste 900

Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

PROJECT: Hospah Arroyo Analysis

SAMPLED BY: American Exploration

SAMPLE ID: Pit #1 I-6

PROJECT NO:

98

MATRIX: SOIL

DATE SAMPLED: 04/03/93

DATE RECEIVED: 04/07/93

ANALYTICAL DATA

PARAMETER RESULTS DETECTION UNITS

LIMIT

10

mg/Kg

Petroleum Hydrocarbons-Diesel (Soil)

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.



American Exploration Co.

1331 Lamar, Ste 900 Houston, TX 77010

ATTN: Mr. Lloyd Hetrick

DATE: 04/21/93

mg/Kg

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 UNITS

Petroleum Hydrocarbons-Diesel (Soil) ND 200

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.



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

ITE:

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 UNITS

LIMIT

Petroleum Hydrocarbons-Diesel (Soil)

1400

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.

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

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 AMALYSIS -----

Compound	Blank Value	Spike Added #g/Kg	Original Sample Concentration #8/Kg	MS Concentration #g/Kg	MS % Rec#	QC Limits Range
BENZENE	ND	20	ND	20	100	39 - 150 X
TOLUENE	ND	20	ND	19	95	46 - 148 X
ETHYL_BENZENE	ND	20	ND	19	95	32 - 160 X
O XYLENE	ND	20	ND	18	90	32 - 160 X
M AND P XYLENE	ND .	40	2	37	87	32 - 160 %

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

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

VARD930411165700



* SPL QUALITY CONTROL SUMMARY **

PAGE '

Matrix:

Soil

Sample ID:

9304240-61A

Batch ID:

VARH930414122100

Reported on:

04/21/93 09:51:29

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

COMPOUND	Sample Value mg/Kg	Spike Added mg/Kg	MS % Recovery	MSD X 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.



** SPL QUALITY CONTROL SUMMARY **

PAGE 2

Matrix:

Soil

Sample ID: Batch ID: 9304242-67A

VARH930414122100

Reported on:

04/21/93 09:51:31

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

сомроимъ	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 fing recovery and RPD values with an asterisk

* values outside of QC Limits.



Soil

Sample ID: 9304240-30A

Batch ID:

VARH930414122100

Reported on:

04/21/93 09:51:33

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

COMPOUND	Sample Value mg/Kg	Spilke Added mg/Kg	MS % Recovery	MSD % Recovery	Relative % Difference
MODSD	ND	71.7	96	100	4

HOTES

column to be used to flag recovery and RPD values with an asterisk

* values outside of QC Limits.

SPL QUALITY CONTROL REPORT ATOMIC ABSORPTION ANALYSIS

DATE:/- INSTRU LEMENT:	H1593 MENT: '3	3 _{TIME:} [5030] 5	; 0 > file#:(D4150	YST: (METHOD	GFA	matrix: Aunits:	Soil	Kg
AMPLE ID UMBERS:	[043	1426	5- c- c-80	130	04	267	'-lc- -18,1	11c; 48)
AMPLE ID	METHOD	i I	ORIGINAL	DUPLICATE	RPD	SPIKE	MS	MSD	RPD
42651	BLANK (C. N.)	% REC.	. CONC.	CONC	MA	ADDED 4	% REC.	% REC.	%
4267-4	lc ND	98.4	% UD	MS	MA	40.0	81.5		
1312-50 Do 4/12	NB	91.99	0/2.6	14.4	13	40.0	79.8	_	
rb"	MD	90.1	6						
		1					1		
								•	
	!		is 1				 		
			1] 1) 14						
LAGS:		·····						· · · · · · · · · · · · · · · · · · ·	
				SUPERVIS	OR APPR	OVAL: DATE:	Meaga	<u>Mariar</u> 1116193	η

SPL QUALITY CONTROL REPORT ICP ANALYSIS

DATE:	4/14/73	TIME:	09:39 AM.	ANALY <i>Ao414</i> N	ST:	<i>9</i> 8	MATRIX:	Son	
INSTRUÑ	MENT:	TA 616	FILE #:	AO414 N	METHOD:	icp	UNITS: _	ongle.	
	•								
	1		1					44.	
MPLE ID				427pm 42	27/ 13-	-7B	9269 IA	4240	18
MBERS:		-4240	148 276	3					
			- ·						
		L							
000410	n e m.	1) //				2)			
QC SAMI	TEID:	1). 427	1 48			2).			
LEMENT	METHOD	ICS	ORIGINAL.	DUPLICATE	RPD	SPIKE	MS	MSD	RPD
-2 4/13		% REC.	CONC.	CONC.	%	ADDED		% REC.	%
Cu 1113	Np	88.8	NP	NP	N/A	0.25	92.0	93.5	2
Ni.	1	90.1	 			0.50	88.6	91.9	3
Ag		98.7				0.05	91.0	90.2	1
PB		90.3	İ	i		0.50	86.0	88.1	2.
BA		90.1				2.0	91.0		2
Cd		95.6				0.05	81.2	77.2	5
CR	1	82.9		1	V	0.20	93.3	95.2	2
							1		
							1		
	<u> </u>								
							<u> </u>		
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	ļ				
	 	<u> </u>			! 		<u> </u>	\ 	ļ
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	 	<u> </u>	<u>i</u>	<u> </u>	
			-		-		-		
	<u> </u>		<u> </u>		 	-		1	1
	1		<u>_</u>	- 	 		-	-	<u>i</u>
	J				<u> </u>		<u> </u>	1	!
T ACC.									
LAGS:									
							•		
	•			៥វ ជាជាជា	SOR APP	DOVAT.		. .	
Į.				SULEKA	mor Wel	DATE	: _ I.Jean	Mariam 4115193	
						DAIL	×	4112143	

SPL QUALITY CONTROL REPORT ATOMIC ABSORPTION ANALYSIS

DATE: INSTRU	<u>41,2193</u> ment:	TIME:	3.54 FILE#:	ANAL!	YST: METHOD	IM/PB ::CVAA	MATRIX: UNITS:	501L5 Ug 1L		
ELEMENT:	Hg									
SAMPLE ID NUMBERS:		4127 - 4269 -	4127-10; 4129-10; 4240-18, 48, 278 4269-1A							
SAMPLE ID	METHOD BLANK	LCS % REC.	ORIGINAL CONC.	DUPLICATE CONC.	RPD %	SPIKE ADDED	MS % REC.	MSD % REC.	RPD %	
4127 - IC	ND	73.6	ND	ND	M/A	2.00	73.5	73.5	0	
									· .	
						1				
						i				
	1				·					
<u></u>						<u> </u>				
						1				
FLAGS:								-		
				SUPERVIS	OR APPI	ROVAL:	Meaga	Maxiam		

DATE:

SPL QUALITY CONTROL REPORT ATOMIC ABSORPTION ANALYSIS

DATE: INSTRU	6 9 MENT: 3	TIME:	「3. 28 FILE#:(OH 6B	yst: () method	GPAG	MATRIX: UNITS:	Soil mg	Kg	
LEMENT:	<u>S</u> 1	5							U	
AMPLE ID UMBERS:			04240-1B, 14B, 27B; 04269-1A							
AMPLE ID	METHOD BLANK	LCS % REC.	ORIGINAL CONC.	DUPLICATE CONC.	%	SPIKE ADDED	MS % REC.	MSD % REC.	RPD %	
4250-5	x NB	81.5	5 MD	MS	NA	30.0	95.0	93.3	2	
		İ	 				,	ŕ		
	 	<u> </u>				 	 			
		 					! !			
	<u> </u>					1	1	·		
							İ			
								_		
							i 			
!			 							
FLAGS:	c sar	mples	wate	anal	lytic	ally	spit	عما .		
				SUPERVIS	SOR APPR	, ROVAL: DATE:	7/6aBd	<u>Marian</u>	۸	

713/660-0901

8880 Interchange Drive, Houston, Texas 77054 713/6 Wet Chemistry QA/QC Validation Report

Test Code_	MOLSEP
Method 4	PAVIMETRIC
	les in Set <u>55</u>

Date <u>4-12-93</u> Time 6:20 AM

Analyst DSE Matrix 901L

Detection Limit

Sample #'s in Set	304250-16-76	304285-1C	304288-3446	voct11c	Units <u>% WEIGH</u> T
304265-18-738	304267-18-711	304269-1A	301271-18-778	304275-18-181	3
3049/10-1871	l I				

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
304290-7C	20	2/	4.9	30.4	22.4	
304285-1C	4	4	0			
304265-138	20	17	16.2			
304267-118	20	22	9.5			
304264-IA	26	24	8			
304271-78	//		10			
304290-7C 304285-1C 304265-138 304267-118 304269-1A 304271-7B 204275-8B	10	12	9.1		V	

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

Spike Recove	ry (Calculation		
% Recovery	=	(Actual - Original)	X	100
		Amount Added		

Reviewed By	JAhr	w
~-		1

Date_

Relative Percent Difference Calculation

RPD =(#1 - #2)

Approved By Will Umlesel



Soil

Sample ID: 9304240-61A

Batch ID:

VARH930414122100

Reported on: Analyzed on:

04/21/93 09:53:19

04/14/93 12:21:00

Analyst:

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 X Difference
MODSD	ND	143.5	128	123	4

MOTES

column to be used to flag recovery and RPD values with an asterisk

* values outside of QC Limits.





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:

~

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

MOTES

column to be used to flag recovery and RPD values with an asterisk

* values outside of QC Limits.



Soil

Sample ID:

9304240-30A

Batch ID:

VARH930414122100

Reported on:

04/21/93 09:53:22

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

сомроимь	Sample Value mg/Kg	Spike Added mg/Kg	MS X Recovery	MSD % Recovery	Relative X Difference
MODSD	ND	71.7	96	100	4

MOTES

column to be used to flag recovery and RPD values with an asterisk

* values outside of QC Limits.

Page	
1	_
01	

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

Analysis Request and Chain of Custody Record

Project No.		Client/Project Name	Name S	· ·	Pro Pro	ProjecyLocation	000	***************************************
\dashv					,	Open		LABORATORY
Sample No./ and Identification Time	Grab	Container (Size/Mat'l)	SI T	Preser- vative	A	ANALYSIS REQUESTED		REMARKS
8-0" 47193	7	463/	g 501/	None	Seo attac	hed sh	sheet	
0-6" 42/93	1	_ 0						
0.12" 42/93	1							
0-24" 4/2/03	1							
0-60" 4293	7							
10-0" 42193								
10-6" Wayer								
10-12" 42/93								
1.24" H2193						`		
10-60" TERS					7			
Samplers: (Signature)		Relinquished by: (Signature)	2 Sorev	- · · · ·	Date: Rec	Received by: (Signature)	Date:	intact
9		Relinquished by: (Signature)	d by:		Date: Recipion (Sig	Received by: (Signature)	Date:	Intact
Miney Exis Co		Relinquished by: (Signature)	d by:			Received by: (Signature)	Date	intact
7					Time:		Time	
SAMPLER REMARKS		reverse order	1 6001	t. 12	6 39 0/ (ISIN	Received for laborations (Signature)	Date 4 8 97	2 Laboratory No.
	j		for	5	hipping Dan	Dala-Languis Io.		

		3	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	Laboratory nge Drive es 77054 9901		Analysis Request and Chain of Custody Record	st and Chain	of Cus	itody Re
Project No.	Clien	Clieny/Project Name	Salan	La	2	Project Location	CFRR		
Field Date Sample No./ and Identification Time	Grab Comp	Sample Container (Size/Mat'l)	Sample Type (Liquid. Sludge, Etc.)	Preser- vative		ANALYSIS REQUESTED			LABORATORY REMARKS
20-0" #1343 546/4", 0-02	7	2000	501/	None	Spo a	Hoched she	leet		
20-6" 412/93	7	_		_	<u>.</u>	•			
ĭ	7								
20.24" 42.95	7								
20-60" History	2								
30-0" 41243	7								
20-6" High	7								
30-12" 4393	2								
205th " 45-02	7					`			
30-60" HZM2	7				_	1			
131	(G.20	Relinquished by: (Signature)	3		Date:	Received by: (Signature)	Date:		intact
(h) Xores	P	alinguished by:	The same		Time:	Received by:	Time:		Intact
Affiliation	9:	(Signature)	`		Time:	(Signature)	Time:		
AMONE SO C	76.P	Relinquished by: (Signature)			Date:	Received by: (Signature)	Date:		intact
,					ā	_	,	9	
SAMPLER BEMARYS	rel,	order	1 Coples	7	3908	A POPULATION OF THE POPULATION	Date:A	12:00 Laboratory No	드
Seal #			<u> </u>	Chind 1	7	Dona mesonis w			

ļ

Ś 0



THE REPRODUCTION OF

THE

FOLLOWING

DOCUMENT (S)

CANNOT BE IMPROVED

DUE TO

THE CONDITION OF

THE ORIGINAL

Page

<u>Q</u>

0

	6 8		T	Τ	T	1	Т	.1		N	12	11	2	6	1	M			0	
	Packed		1-mer	Am	1	SX SX	Samplers	70-60	70-24"	0-12"	70-6"	0-0"	60-60"	60-24"	60.12"	8.6"	0.0"	Field Sample No./ Identification	Project No.	
	N	3	J CKS	Affiliation		some.	Samplers: (Signature)	1248	42/97	SHELL	A SELL	1793	E SEN	4263	4/2/53	design	194.3 ESTETA	Date and Time		
	Vei		6	-				\ <u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>	1	7	2	\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	2	7	12	7		Grab		
	veverse order		(Signeture)		Relinquished by: (Signature)	Z	Relinquished by:										403	Container (Size/Mat1)	Americas	2
70K	N- (00)) Jones	2										50:/	Sample Type (Liquid. Sludge, Etc.)	Explore	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901
Shu	100																None	Preser- vative	ज्रा मि	aboratory age Drive as 77054 9901
B	5	1	Time:	1	Dest	Time	Data:										5		7	
Z		١															00		62	
	1,46	_													<u> </u> 		att			2
/	Signature)		(Signature)		Received by: (Signeture)		Received by:					<u> </u>			_	-	factive	ANAL	Project Location	naly
1	Rusults 0:		39		<u>ड</u> ेड्र	;	3									,	e d	ALYSIS REQUESTED	Local	yeis F
		-	·														5	QUES	DA	eq
	8																hee	TEO		6
	Ψ																4			a 70
										1									78	ξ
	Time		Time:	1	Det	Time:	Dan.												1	
	12/2	1								 		 							70	2
-		7 -		+	3	_	_													S C
	Caboratory No.		intact		Intact	Ĭ.	intect											LABORATORY REMARKS		Request and Chain of Custody F
	, ć			1.00					·									ATOAY AKS		Record
			1 (17.	ý.				े. क्षेत्रका	ă
L			<u> </u>						10.		4.35°	4000			1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		(AA)	1 1414	35.1	
															29.57	া কি জী			37 5. MA	KIN BUDY

· (1)

٠				(e. 7)		ing Alika ing	100	ję A	蒙流.				4.1	in th		No Feb	ules A		
Seed 0	Walle Com	Amer 1	事 一	SXS)	Sample	70-60	10-24"	70-/2"	10-6"	70-0"	60-60"	60-24	1000	2.6	80.0	Semple No./ Identification	Project No.		
10. 15	de no	Jak	Affliction	nea	Hera: (Signature)	S. S. C. S.	S. Col	South States	4883	41493	N. W. W. W.	245H	1/8/23	124 A	1943 Estela				
6.50	101/04CD	0				2	7	7	2	7	2	2	7	2	-	Grab	γ Ω		
	10 of	Rudinguished by (Signature)	Relinquished by (Signature)	7	Relinquished by:	-									403	Sample Container (Stra/Mart)	A Merit		®
	del		3	1	13			Gagaria.					44 to					***	
<i>202</i>	\ !			Sorre	2							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			30:/	Sample Type (Liquid, Studge, Etc.)	821	TINOO INIMATE	Environmenti
c Sh	odled				•									8 7	None			よを入れる事を置け	Total lad
wal	68.39			1.5	Dear	To the second se								不要的	5				
(D)	3		(Signal	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Received by:	~							4	A CONTRACTOR	Hech	MV	77	A COUNTY	
Pleasufts do:			gradure)		• .									· · · · · · · · · · · · · · · · · · ·	els!	NALYSIS REQUESTED			
					•										heet			lest and	
	Time	× 1 8	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Tima:	Den		***			· · · · · · · · · · · · · · · · · · ·		 			36		K		
	18 83			1"		7.8	-15a						47 A		33 Mg.	1000			
) Laboratory No	I		-	5									ja.				, and a	
			Si de	1								HAND HAND				ABORATORY REMARKS		necora 14.	が変える。
			in Jane	in and in	٠		AM AN AN	18.50 (4.60) 1.00 (4.00) 1.00 (4.00)			Show a special				250				6-3:

Page 4 of 6

Page 4 of 6

tor shipping	SAMPLER BEMARKS: PACKED IN VENEUSE ONCLEV - CODIENT TO BOTH Results to: Data Results to: Data Results to: Data Results to: Data Results to:	MPN (Signature) Patte: Paccined by: Co., (Signature) Time: Caprature)	Relinquished by: (Signature) Time: Received by: (Signature)	Only Time: (Signature)		90-24" 6:30 11	90-12" Whats V	90-6" HAIGS V	40-0" Missing 1" 1 25.00	80-60"HAY9" V	90-24" 4219 1	80-12" H243 V		80-0" WARS 1 403 Soil None See attached sheet	Field Date Sample Sample Sample Sample Sample Identification Time G Container Sludge, Etc.) Sample No./ and G Container Type (Liquid, valive valive valive	Project No. ClienyProject Name Timerican Exploration Co. Project Location For STAR	® Environmental Laboratory 8880 Interchange Drive Analysis Request and Chain of Custody Houston, Texas 77054 713/660-0901
	13 Laboratory No.	Intact	1 00 4 5		4.	4篇	٠ - ا	्र स्थान		4.5	÷ 46.55	177年 日本 日本 日本 日本 日本 日本 日本 日本 日本 日本 日本 日本 日本	· · · · · · · · · · · · · · · · · · ·		LABORATORY REMARKS		Sustody Record

		50) 100 300 140	3		= -	ex. at							o morali n liga	in the in	to a second	in Light and a horomorphisms is a	A STATE OF THE STA	20.
LACKED BENNA	1-Imer		S Contraction	2	90-60"	40-24"	90-12"	90-6"	90-0"	80-60	90-24"	80-12"	80-6	80-0%	Field Sample No./ Identification	Topica No.	K	
14.	Cxp (Afflietion	R	. §	50/2/4	42193	242H	4493	ESENT.	42/97	softeh.	1243 1444	426	651°	Tana a			
veverse	0,				7	7	7	7	7	7	7	7			Grab	\ \ \cdot \c		
ord	Patinguished by: (Signature)	(Signature)	Padroughed by	Relinquished by: (Signature)		- 1 - 1 - 2 Met	,							589/27	Sample Container (Size/Mat'l)	MPY CA	9	
- 10			12	C O		1 1			:					Soil	Sivo Type	N.	74 78 8	
500			20	•					:					1	Sample Type (Liquid, Sludge, Esc.)	1160		
shi		Ju. 2.					٠.		į		. 4	Jadin.		None	17			
to: 399			Trans.				And the second of the second o							25.22		4		
Date Park		(Signature)	Received by	(Signature)	7			Sec. 3		*1	***			Hoche	WATAR!	7/2 1/4	****	
					-	(水)		74 () 				, я , я		Ishe	AWALYSIS REQUESTED	Ocation.	Red Gues	
			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	٠.				•	:					1		03	i and Ω	
Time: 17:80		1	Tank													R	Man of C	Page
5 Laboratory No.	500		Triangle All Annual	500					.• .		46.				LABORATORY REMARKS		Custody R	8
			大学を変えていた			14.7	Service of the servic		r -								ecord	6
74.55 72.55 73.55 74.85		· 100						MMIC								125 (Sec.)	le de la company	

Leboratory No.	Date: 4 8 93	Bassing of Horney (Special Property Special Property Spec	1 76 39°F	1- Cas/es	reverse orde	1006		SALL REMINERS	
intact	Deta: Time:		Date: Time:	,	Relinquished by: (Signeture)	0.	EXD C	AMER	
intact	Time:		Time:		Relinquished by: (Signature)		Attistion		
Intact	Date: Time:		Date: Time:	Jones	Relinquished by: (Signature)		Samplers: (Signature)	Samples	
)					
						-			
									· · · · · · · · · · · · · · · · · · ·
		1		1 1	1	2	055F.P.	09.00	
						1	45163	100-24"	:
						1	63E/A	100-12"	
						1	4/2/45 6:45P	100=6"	
		Hoched Sheet	e See c	Soil More	tolass	7	28/2/4	100-0"	<u> </u>
LABORATORY REMARKS		ANALYSIS REQUESTED	• •	Sampid Type (Liquid Preser- Skidge, Etc.) Preser- value	Sample Container (Stochdart)	Grab - Comp	Ting	Flaid Sample No./ Identification	
	ANS	Project Location / S	Hon Co	n Explora	Client Project Name	Ω.		Project No.	
stody Record	in of Cu	Analysis Request and Chain of Custody Record	·	Environmental Laboratory 8860 Interchange Drive Houston, Texas 77054 713/860-0901	(2)				

İ

plera: (Signature) Ser Ser

Patenquished by: (Signature)

-

Received by: (Signature)

Received by: (Signeture)

Des 1

Med

D TI

Intect

Dest

THE

1 Deser

Redinquished by: (Signature)



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

Analysis Request and Chain of Custody Record

		nesyris to:	Mi	Shine	tax				Seal #
Laboratory No.	Date: 4 6 93	Received to habitatory:	100 PE	*	. Cooled	order.	everse	`	SAMPLER REMARKS
	Time:	Signature	Time:			(signature)		*	()MVV
Intact	Date:	Received by:	Date:			Relinquished by:		2 / /	D 5
	Time:		Time:		'	9		Affiliation	•
Intact	Date:	Received by: (Signature)	Date: R			Relinquished by:		'	
	Time:		Time:		L) Bru			ones	
Intact	Date:	Received by:	Date:			Relinquished by:		Samplers: (Signature)	Sample
		, , ,	"	"	٠.	>	1	Mars	10-60"
		(, ,	11	//	,,	ı	2	YEREZ.	D-24
		" "	1	į	7.	Ţ	1	4/2/63	10-12"
		"	11	•	` ` `		1	WS/JA	10-60"
		· · · · · · · · · · · · · · · · · · ·	"		•	٠	1	45/23	0-01
		" "	"	<i>"</i>	٠	1.	1	4/3/53	0-60"
		"	,,	,		"	1	43007	0-24"
			,,	``	•	• •	1	42.65 A	0-12"
			11	,,	,,	0 "	7	4/2/43	0-6"
		chal shoot	offe ags	Hone	5011	403 16/185	1	412/63	0-0"
LABORATORY REMARKS	1	ANALYSIS REQUESTED		Preser- vative	Sample/ Type (Liquid, Sludge, Etc.)	Sample Container (Size/Mat'l)	Grab Comp	Date and Time	Field Sample No./ Identification
FRA A	SUS	Project kocation Hosmall - H	ion Co	has	n (xa	Client/Project Name	Ω		Project No.

Client/Project Name AMENIC SAMPLE And Fe Sample Sample Container Time G G (Size/Mart)) Fig. 25.7	 1253 V " "	0" 4744" " " " " " "	30-6" M263 " " " " " " " " " " " " " " " " " " "	1) " " " " " " " " " " " " " " " " " " "	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	(1 45.75 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MARKY " " " " " " " " " " " " " " " " " " "	MARKY 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MARKY WEST WEST WEST MELON Relinquished by: Crime: Received by: Signature) Relinquished by: Crime: Received by: Signature) Time: Received by: Signature) Time: Received by: Signature)	MARKS V 1/2	MARKS (C. 35.95 (C.
SUISTAM "A" LABORATORY REMARKS							Date: Intact				

	10	3	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	aboratory nge Drive as 77054)901		Analysis Request and Chain of Custody Record	าd Chain of Cเ	ustody Record
Project No.	, 0	ClienyProject Name	Expla	whise	1 /0.	Project Location + 05 Man -	14511/5	FAR "A"
Field Date Sample No./ and Identification Time	Grab	Sample Container (Size/Mat'l)	Sample Type (Liquid. Sludge, Etc.)	Preser- vative		ANALYSIS REQUESTED		LABORATORY REMARKS
HO-0" HS/S	1 65	403	501/	None	500	attracted si	heet	
164 " 9.04	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 /		_ ,	٦	,,	دار	
40.12" 634	1 86	ď	`	Υ	"	c/		:
40.24 83	1 418	7	14	"	4	//		
40.60" #31	511 1							
50-0" 43/	1 45							
20-6 " 43	1 243							
50-12" #3	1 23							
30.24. 4.3	1 4							
50-60 4.3	7							
Samplers: (Signature)	eture)	Relinquished by:	Mores	- · · ·	Date: Time:	Received by: (Signature)	Date:	intact
		Relinquished by: (Signature)			Date:	Received by: (Signature)	Date:	intact
Affiliation		Delining			Time:		Time:	
		Relinquished by: (Signature)			Date: Time:	(Signature)	Time:	intact
SAMPLER REMARKS:		1				(Signature) Obta Besults 10:	Date: 4 8 / 8 / 93	Laboratory No.
368i #								

							Peny	July July		L		
			\ \	Data Resbus 10	1				, ak		10 10	Money
Laboratory No.	Date: 4 8/43 Time: /2:40		MO COLON	Received for labori (Signature)	7	1068	to	Coled	- nels	\ \ \	AKS.	SAMPLER REMARKS
	Time:		_	•		Time:						1
Intact	Date:			(Signature)		Date:			Relinquished by:	.	50	Amar F
	Time:					Time:			,		Attiliation	>
Intact	Date:			Received by: (Signature)		Date:			Relinquished by: (Signature)	· 7		
	Time:					Time:	K	2	0	_	See J	Bones
Intact	Date:			Received by:		Date:	•		Relinquished by:		Samplers: (Signature)	Sample
									/	7	HY43	70-60"
			`							2	Harr	D - 24+
										7	4260	7:0-12"
										7	4243	70-6"
											42/93	70.0"
										7	though the	60.60"
										7	H2/93	60-24"
											1 606.3	60-12"
							_)		4/3/93 1	60-6"
		Sheet		toche	at	Spe	Mone	Sor/	403	7	13/93	O-C
LABORATORY REMARKS			REQUESTED	ANALYSIS REQUESTED			Preser- vative	Sample Type (Liquid. Sludge, Etc.)	Sample Container (Size/Mat'l)	Grab Comp	Date and Time	Field Sample No./ Identification
'A' A'	11818	HSU.	ation	Project/Location		6	which	Exala	Client/Project Name	Clien		Project No.
ysis Request and Chain of Custody Record	in of Cus	and Cha	Request	nalysis l	Āna		Laborator ange Drive xas 77054 -0901	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	3		79	

		Construction (Seel #
Laboratory No.	Date: 4/8/93 Time: 12:50	Aposived to Leboludy (Signature)					KS:	SAMPLER REMARKS:
		(Signature)	Time:		(Signature)			KIMEN CX
Intact		Received by:	Date:		Relinquished by:			2
		(Signature)	Time:		(Signature)			
Intact		December 1	7	A Property of			Service .	The state of the s
	Time:	(Signature)	T Case		(Signature)		Samplers: (Signature)	Sampiera
		Davids)			1 408.0	90-60"
							HAKS	
		,				<u>`</u>	1 50/2/4	"#1. Jul"
							25/2/2	90-12"
							10:304 "	90.6"
						È	1203	90-0"
							18182 V	80 60"
:							12/57	80-24"
							12/93 1	80-12"
				·			62/93 6:00A	80-6"
		technol short	None Seo at	Soil	403/as		1 4060:00	0.0%
LABORATORY REMARKS		ANALYSIS REQUESTED	Preser- vative	Sample Type (Liquid, Sludge, Etc.)	Sample Container (Size/Mat'i)	Comp	Date and Time	Field Sample No./ Identification
J.	1/SFAR	Project Location / HSU	rtin Co	Explan	Client/Project Name			Project No.
stody Record	ain of Cus	Analysis Request and Chain of Custody Record	Laboratory inge Drive xas 77054 -0901	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	3		3	

0 0

Seal #

		, ,	Land Resolution	<i>y</i> ,	() · /	^ ·				Seel
Laboratory No.	Time Ligo	Oratory:	1 2 3	106 AB	3	- Q	ordor	rod	7.	SAMPLER REMARKS
			(Signatura)	Time:			(Signature)	20	XDC	11mon
Intact	Date		AReceived by:	Date:			Relinquished by:		Affiliation	
Intact			Received by: (Signature)	Date:			Relinquished by: (Signature)			0
	Time:		(Signature)	Time: 6:00/	res	Jakon Jakon	(Signature)		mai	Ma
Intact	Date:		Received by:	Date: 46/0:		(X)	Relinquished by:		Samplers: (Signature)	Sample
		ì	ì	``	``	· ·	4	"	13/63 12/67H	('0-)
		,,	;		``	•	'	14	12:00K	B-60"
		`	·	:	``			1	12:001	13-48"
		1	· ·	;	;	:		1	12:00X	6-24."
		· ·	;	``	3	·	۲	6	12:00N	B.12"
				``	;	;	·	7	N.	8-0"
		·	;		:	,	,	7	11. JOA	A-60"
		ï	;	``	5	ì	:	7	1/30/	A-36"
		•			`	Ţ	<i>''</i>	V	113/93	A-12"
		Sheet	time	Seo a	None	50,1	40 3 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A 3	1	4/3/43 11:30 A	H-0"
LABORATORY REMARKS		ANALYSIS REQUESTED	ANALYSIS	·	Preser- vative	Sample Type (Liquid, Sludge, Etc.)	Sample Container (Size/Mat'l)	Grab Comp	Date and Time	Field Sample No./ Identification
1 42	ing t	man - Stimming	Project Location	0	whon	Coplan	Client/Project Name	Clie		Project No.
stody Record	ain of Cu	Analysis Request and Chain of Custody Record	Analysis		l Laboraton ange Drive xas 77054 ⊩0901	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	@			

1

Page 2 of 2



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

Analysis Request and Chain of Custody Record

			(Seal #
Laboratory No.	Time: 2	ratory	(Signatural Control of the Control o						RKS:	SAMPLER REMARKS:
Intact	Time:)	Received by: (Signature)	Date: Time:			Relinquished by: (Signature)	7	in Sept	American
	Time:		(Signature)	Time:			(Signature)		Affiliation	1
intact	Date:		Received by:	Date:		The same	Relinquished by:		ren	A LANGE
Intact	Date:		Received by: (Signature)	299/4 avec	,	Ω	Relinquished by: (Signature)		Samplers: (Signature)	Sample
		,								
		'	,	;	,,	,	``	1	ESETH	E-60:
		!	·	:	2	\-	*	1	11363	0-72"
:		,	3	•	0	•	٩.	-	4/363	0.24"
		•	•	``	\.	,	``	2	25/2/4	0.12"
			`	* (,~	9	7.	1	4/3/63	C-60"
		٧	;	ţ	r	"	011	9	25/E/H	0-24"
		Sheet	Hoched	Sep a	None	Soil	463/	7	4/3/62	7-12"
LABORATORY REMARKS		NESTED	ANALYSIS REQUESTED		Preser- vative	Sample Type (Liquid, Sludge, Etc.)	Sample Container (Size/Mat'l)	Grab Comp	Date and Time	Field Sample No./ Identification
PHAZ	M. ha	1- Shim	Project Location	6	1, on	Explora	Client/Project Name	<i>Y</i> ₽		Project No.

		Data Resolts to:		9	7	Shiveing		180.	Soal #
Laboratory No.	Date: 4 8 43 Time: 1230	Rignature) Aprabry		too	7 068 4	Cooled -	13	RKS:	SAMPLER REMARKS
Intact	Time:	(Signature)	Date: Time:			Relinquished by: (Signature)	b '	in Cxp.	Hmon'an
	a a							Affiliation	ÀT.
Intact		Received by: (Signature)				Relinquished by: (Signature)			
	Time:	(Official)	Time: 6:00 P		1 Ones	0		James	A. O.
Intact	Date:	Received by:	62/9/4 avec		.	Relinquished by:		Samplers: (Signature)	Sampler
		., ,,	"	٥	2	· ·	7	4.8/93 8:20A	C-0"
		" , "	``	1,	ï	"	7	4/3/93	8-66"
		" "	11	Ţ		11	7	6.154	B-60"
			,,	',	,,	11	7	G:15A 1	8.6"
		,, ,,	1'	//	"	,	7	4/3/43 V	B-0"
		11	,,	"	"	"	7	H 3/95	A.60"
		11	(,	′′	r	٨	1	A 10 A 1	A. 24"
		*	//	V	"	, (1	4/3/63 8:40 A 1	A. 12"
		" "	11	//	**	"		8:00A 1	1.6"
		capel sheet	See alto	None	Soil	403 Glass	7	4/3/93 B: & A 1	A-0"
LABORATORY REMARKS		ANALYSIS REQUESTED		Preser- vative	Sample Type (Liquid, Sludge, Etc.)	Sample Container (Size/Mat'i)	Grab Comp	Date and Time	Field Sample No./ Identification
(# t/	mming f	Project Location HOSMAN - SKIMI	in Co.	hrah	n Exp	Client/Project Name	₽		Project No.
stody Record	hain of Cus	Analysis Request and Chain of Custody Record		Laborator ange Drive xas 77054 -0901	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	39			

					lab	They to	Shipp			Seal #
	Ļ		Data Respita to		` `	•		over	Pec.	Tacked in
8 13 Laboratory No.	Time: 17:73	(all the state of	Received to labo		nof I	to 300	(00/cd)	6	,	SAMPLER REMARKS
	Time:)		Time:			•			
Intact	Date:		Received by: (Signature)	Date:			Relinquished by:		EXM C	Amon 6
	Time:		•	Time:					Affiliation	À!
Intact	Date:		Received by: (Signature)	Date:			Relinquished by:			/
	Time:		(Signature)	Time: 6:00	\	Bres	(Signature)		rex	De la constant de la
Intact	Date:		Aeceived by	1 19/4 :018Q		とく	Relinquished by:		Samplers: (Signature)	Sampler
		*	1	.,	?	-	1,	6	4/3/53	E-0"
			.,	;	;	•	·	7	4367	1.48-6
		1	3	"	:	,-	ζ.	7	4/3/93	0-72"
		"	r,	,,	•	•	*	7	45614	D-66"
			·,	:	~	^*	7	2	4/3/03	D. 24"
		• (;	•	3	٠,	•	7	43/43 143/43	D-0"
		7	ν	11	•	٠,	4	<u></u>	1/3/93	C-60"
			••	//	"	',	"	2	4/3/97 1	C-24"
		i	*	•	"	11	"	7	8.20 4	C-12"
		1 Sheet	Hochel	See H	None	Sor/	csoff con	7	473193 8.2019	7-6"
LABORATORY REMARKS		DUESTED	ANALYSIS REQUESTED		Preser- vative	Sample Type (Liquid, Sludge, Etc.)	Sample Container (Size/Mat'l)	Grab Comp	Date and Time	Field Sample No./ Identification
) H/	in the	n - Shimm	Project Location	60	Lion	Exolara	Client/Project Name	₽ P	-	Project No.
stody Record	nain of Cu	lysis Request and Chain of Custody Record			Laborator ange Drive xas 77054 -0901	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	9			
of	Page									

		Data Mayors to.	106.	The state of the s	Shipping	Br			
Laboratory No.	Time: 12100	with John	7	100	£ of 1	Coolea	`	ARKS:	SAMPLER REMARKS
intact	Time:	(Signature)	Date: Time:			Relinquished by: (Signature)	0,	of the sa	Hawkon
	Time:		Time:					Affiliation	Ą
Intact		Received by: (Signature)	Date:		1	Relinquished by: (Signature)			
			Time: / 200		work			ones	(A) X
intact	Date:	Received by: (Signature)	Date 4/6/67	•		Relinquished by:		Implers: (Signature)	Sampler
		,,	``	`	> =	`		H3/93 V	G-0"
			,,	`	"	• `		1 50/6/4	26
		``	•	\\	*	"		1 \$54:8	1.60"
		7	``	·	"	"	``	1 85187	124"
		" "	11	,	ï	,,		4/3/03 V	F-6"
		, ,		· ·	•	"		413/03 V	F-0"
		,,	``	4	:	`.		1 BUE.S.	E-72"
			`	· ·	``	•		H3/13 V	E-60"
			``	1	11	11.		4/3/93 V	E-12"
		hahel sheet	See An	None	Soil	4039/20		4/3/93 V	2-6"
LABORATORY REMARKS		ANALYSIS REQUESTED		Preser- vative	Sample Type (Liquid, Sludge, Etc.)	Sample Container (Size/Mat'i)	Comp	Date and rain Time G	Field Sample No./ Identification
P. H	Mind	Project Location - SKim	on C	bration	n Exp	Client/Project Name	Q.		Project No.
stody Record	ain of Cus	Analysis Request and Chain of Custody Record		Laborator ange Drive ixas 77054 -0901	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	3			

			64	MAIL	for Sh				Seal #
	Time: 12/60	Date Results to) '	(36/64)	guda.	rev. (1	Doke
Laboratory No.	Date: 4 7 47	Received to hat bratery	2005		110			IRKS:	SAMPLER REMARKS
	Time:		Time:			(Signature)		(*)	FIMEX
Intact	Date:	Received by:	Date:			Relinquished by:		5, 2	1
	Time:		Time:		`	(Signature)		Affiliation	
Intact	Date:	Received by:	Date:			Relinquished by:			
	Time:		Time: / 20/2	7	2 Kone	Capping		real	
intact	Date:	Received by:	Date: 4/6/67		ゲブ	Relinquished by:		Samplers: (Signature)	Sample
		1 1		ì	*	//	(400.01	I-12"
		, ,	"	``	"	'/	7	23/2/4	.90
		' '	**	``	"	''	7	454.6 80/8/4	1.0°
		" ''	"	1,	"	,	7	43/62	14.12"
		" "	"	**	"	"	7	4357 505/4	H.6"
		1 2	**	`	1.	"	1	4/3/62	H.O"
		" "	" "	-	`	"	1	413/93 9.15A	G-60"
		* *			"	"	1	#3/63 "	G-24"
		`	" '	7	h	,,	<i>u</i>	4:00A	G-12"
		reduced shoot	See Ath	None	$S_{0i}/$	8016,000	1	47362 47362	. 9-6
LABORATORY REMARKS		ANALYSIS REQUESTED		Preser- vative	Semple Type (Liquid. Sludge, Etc.)	Sample Container (Size/Mat'i)	Grab Comp	Date and Time	Field Sample No./ Identification
A	m Pit	Projecy Location - SK:MMIL	, 0,	whon	n Exala	Client/Project Name	Clie		Project No.
stody Record	nain of Cus	Analysis Request and Chain of Custody Record		Laboratory inge Drive kas 77054	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	· ®			

Page 5 of 5

			3	Environmental Laboratory 8880 Interchange Drive Houston, Texas 77054 713/660-0901	Laboratory inge Drive kas 77054		Analysis Reque	st and Chain of	alysis Request and Chain of Custody Record
Project No.			Client/Project Name	Explore	stor	O.	Project Location	- Sh'amin	at #1
Field Sample No./ Identification	Date and Time	Grab	Semple E Container C (Size/Mat1)	Sample Type (Liquid, Sludge, Etc.)	Preser- vative		ANALYSIS REQUESTED	,	LABORATORY REMARKS
. 6	45:91 686/H	7	Syleon	50/	Now	500 ,	stacked si	hat	
J-12"	66/E/H	7	.,	`	ì	``	``	``	
16-0"	47/67	1	•	"	~	()	• •	*	,
						•			
						-			
							,		
Sampler	Samplers: (Signature)		Relinquished by: (Signature)	B Sone	1	Date: Time:	Received by: (Signature)	Date:	Intact
	Affiliation		Relinquished by: (Signature)			Date: Time:	Received by: (Signature)	Date: Time:	Intact
Amer, E	E C	39	Relinquished by: (Signature)			Date: Time:	Received by: (Signature)	Time:	intact
SAMPLER FIEMANKS	M	rel.	Indian -	2 60	7	210 bs.	Data Results to:	Date 8	(13) Laboratory No.
Court				JOP 3	SMIP	urs			



CHAIN OF CUSTODY RECCRD

TERS	Remirks															Date Time;	04:11/2/8		Date Times		(15016 778 4489
ANA.YSES / PARAMETERS	1.8	Thory ToyIns ToyIns		1	7	1 1 1		#12 1/2 cos/ss	1		7		7			ignature)	Men :	ignature)	Resived by iboratory: (Signame);		
Project Location	Custody Tape No.	Matrix 10. of		* Indo	36)		Water	\		75	1 + 10 1				8/6/92 11:40 / Suni	Date ficeived by: Equature)	Date Time facetvers by to	intain Laboratores, In:	910 Technology Blvd. Jute 83 Bozeman, Montana 5715 737 Telephone (406) 586-450
³ rojec	Chain if Qust	Lab Number		942	943£	35.49			Set 76	425	- 25.00	* 5.46								InteMountain	2506 West fain Street Farmington. IM 874501 Telephone 305) 325-4737
		Тте	,	3:33	1: 45	37:25	- 1	٠. ا	3: 30	54:1	57.52	1:15	5t=0.								rde rg 822716 7 6832-8945
Client Project Name	Samicer; (Signature)	Sample NoJ dentification Date	en-mallale-	verticam out 10- 8/5/92	2. to F. K. Dist's 185/12	Throw (2000 Final 215/92		The second secon	movai Love office " 8/5/92	20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	toring February 192	18/8 18/2 1	BARY COSIO	into Font	Section of the School of the section	A COL	X Transport	Reinuishedet: (Dignature	Reinvished by: (Signature		23 Terra Nettue 1714 Phillips Crale Shedan, Westing 82801 Gillette, Wyom;g 822716 Tesprone (287) 672-8945 Telephone (307 6822-8945

8-20-92 ;11:49AM ;

NAVAJO EPA-

5052621864;# 2/ 6 11:54 No.UU2 P.02

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 Albuquerque, NM 87196-4700 700 Camino de Salud, NE [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 55381
(M) Submitter 77

(班) SLD Files

To: Martha Rosenquist

BIALE OF ISET MEALOW

N.M. ED/Groundwater Burcau

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 . . . Township: 17N Section: 06

At: 13:21 hrs. In/Near: McKinley County 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	dqq
Toluene	32.40		10.00	ppb
Ethylbenzene	8.70	T	10.00	dqq
p- & m-Kylene	33.90		10.00	dqq
o-Xylene	36.20		10.00	ppb
n-Propylbenzene	38,60		10.00	ppb
As a laboury series Demonstra		* #		

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 Saaled A; Intact: No , Yes & Broken By: ______ Date: _____

Laboratory Remarks:

Thirty compounds eluting from near Toluene through naphthalene at 10-30 per 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 n-Butylbenzene Naphthalene

0 4.8 ppb
017.5 ppb
012.2 ppb

D.L. 10 ppb D.L. 10 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 SDG 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

1 030 330	using EPA Methods 601 & 60		
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	Bromachloromethane	10.0	Ü
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	Ü
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	Ü
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-Dibromosthane	10.0	บ
74-95-3	Dibromomethane	10.0	U
95-50-1	1.2-Dichlorobenzene	10.0	U
541-73-1	1.3-Dichlorobenzene	10.0	Ü
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	Ü

(Continued on page 3.)



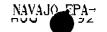
ANALYTICAL REPORT SLD Accession No. OR-92-1629 Continuation, Page 3 of ✓

156-59-4	cis-1.2-Dichloroethene	10.0	v
156-60-5	trans-1,2-Dichloroethene	10.0	Ŭ
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	Ŭ
563-58-6	1.1-Dichloropropane	10.0	<u> </u>
1006-01-5	cis-1.3-Dichloropropene	10.0	Ü
1006-02-6	trans-1,3-Dichloropropens	10.0	บ
100-41-4	Ethylbenzene	8.7	Ĵ
87-68-3	Hexachlorobutadiene	10.0	Ū
98-82-8	Isopropylbenzene	10.0	U
99-87-6	4-Isopronvitoluene	10.0	U
75-09-2	Methylene chloride	10.0	Ŭ
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	บ
630-20-6	1,1.1.2-Tetrachloroethane	10.0	UU
79-34-5	1,1,2,2-Tetrachloroethane	10.0	Ü
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	IJ
120-82-1	1.2.4-Trichlorobenzene	10.0	U
71-55-6	1.1.1-Trichloroethane	10.0	บ
79-00-5	1,1,2-Trichloroethane	10.0	<u> </u>
79-01-6	Trichloroethene	10.0	Ü
75-69-4	Trichlorofluoromethans	10.0	UU
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	Vinvl 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.)



5052621864;# 5/ 6

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 anvironment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED No Compounds Detected

CONCENTRATION (PPB)

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 Meyerhein 08/13/92 Supervisor Organia Chemistry Section

08/21/92 CLIENT: DATE REPORTED: NM OCD Sandoval Lake Upstream Outlet ID: 08/06/92 9208051330 DATE RECEIVED: SITE: DATE COLLECTED: 08/05/92 LAB NO: F9426 Lab pH (s.u.).....Lab Conductivity, umhos/cm @ 25C.... 8.22 3100 3.22 2230 2190 Total Alkalinity as CaCO3, mg/L.... 793 Total Hardness as CaCO3, mg/L..... 71.7 Sodium Adsorption Ratio..... 40.0 Fluoride, mg/L..... 1.13 meq/L mq/L 970 15.9 Bicarbonate as HC03..... Carbonate as C03..... <0.10 <0.01 7.33 Chloride..... 260 13.4 644 Sulfate..... Calcium..... 16.7 0.83 7.33 0.60 Magnesium..... Potassium..... 11.0 0.28 33.9 Sodium..... Major Cations..... 35.6 Major Anions..... 36.6 Cation/Anion Difference..... 1.38 %

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

Trace Metals by ICAP (Total Concentration), mq/L Detection Analytical Result: Limit: Silver (Ag)..... ND <0.01 <0.1 Aluminum (Al)..... 3.6 Arsenic (As)..... <0.1 ND Boron (B) 0.35 <0.01 Barium (Ba)..... ND <0.5 <0.005 Beryllium (Be)..... ND Calcium (Ca)..... <0.5 17.9 Cadmium (Cd)..... <0.005 ND 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)..... <0.02 ND Magnesium (Mg)..... <0.5 4.9 518 <0.5 0.01 <0.01 Lead (Pb)..... ND <0.1 ND <0.05 <0.1 ND Silicon (Si)..... 6.10 <0.01 Thallium (Tl)..... ND <0.5 Vanadium (V)..... ND <0.02 0.08 <0.01 Zinc (Zn).....

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

Wanda Orso

Water Lab Supervisor

08/21/92 CLIENT: NM OCD DATE REPORTED: ID: Santa Fe RR Discharge Pt SITE: 9208051145 DATE RECEIVED: 08/06/92 LAB NO: DATE COLLECTED: 08/05/92 F9427 Lab PH (s.u.).....Lab Conductivity, umhos/cm @ 25C.... 8.02 2450 4.09 1880 1770 Total Alkalinity as CaCO3, mg/L.... 524 Total Hardness as CaCO3, mg/L..... 32.5 48.9 Sodium Adsorption Ratio..... 0.57 Fluoride, mg/L..... 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 7.39 0.37 Calcium..... 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 %

CLIENT: DATE REPORTED: 08/21/92 NM OCD

Santa Fe RR Discharge Pt ID:

Nickel (Ni)..... Lead (Pb).....

Antimony (Sb).....

Selenium (Se).....

Silicon (Si).....

Thallium (Tĺ).....

Vanadium (V).....

Zinc (Zn)..........

08/06/92 SITE: 9208051145 DATE RECEIVED: DATE COLLECTED: 08/05/92 LAB NO: F9427

Analytical

469

ND

ND

ND

ND

ND

ND

6.10

0.07

Result: Limit: <0.01 ND Silver (Ag)..... ND <0.1 Aluminum (Al)..... <0.1 ND Arsenic (As)..... 0.32 <0.01 Boron (B)..... <0.5 ND Barium (Ba)..... <0.005 Beryllium (Be)..... NDCalcium (Ca)..... <0.5 8.1 <0.005 Cadmium (Cd)..... ND Cobalt (Co) ND <0.02 ND <0.02 0.01 <0.01 Iron (Fe)..... 0.05 <0.05 Potassium (K)..... <0.5 ND <0.02 Manganese (Mn)..... 0.04 Molybdenum (Mo)..... ND <0.02 <0.5 Magnesium (Mg)..... 2.4 Sodium (Na)..... <0.5

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

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

Wanda Orso

Water Lab Supervisor

<0.01

<0.1 <0.05

<0.1

<0.5

<0.01

<0.02

<0.01

Detection

08/21/92 DATE REPORTED: CLIENT: NM OCD Arroyo Below Final Skim ID: 08/06/92 SITE: 9208051245 DATE RECEIVED: 08/05/92 LAB NO: F9428 DATE COLLECTED: 8.07 Lab pH (s.u.)..... 3050 Lab Conductivity, umhos/cm @ 25C.... 3.28 2120 1930 Total Alkalinity as CaCO3, mg/L.... 648 Total Hardness as CaCO3, mg/L..... 34.1 Sodium Adsorption Ratio..... 53.1 1.13 Fluoride, mg/L.... mg/L meq/L **793** Bicarbonate as HC03..... 13 Carbonate as C03..... <0.10 <0.01 Chloride..... 311 8.78 Sulfate..... 504 10.5 Calcium..... 8.01 0.4 3.42 0.28 Magnesium..... Potassium..... 5.87 0.15 31 Sodium..... 713 31.8 32.2 0.62 %

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

Analytical

Result: 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 <0.005 Beryllium (Be)..... ND Calcium (Ca)..... 9.2 <0.5 Cadmium (Cd)..... <0.005 ND Cobalt (Co)..... <0.02 ND <0.02 Chromium (Cr)..... ND Copper (Cu)..... 0.01 <0.01 Iron (Fe)...... 0.89 <0.05 Potassium (K)..... 0.8 <0.5

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

Manganese (Mn)..... 0.07 <0.02 Molybdenum (Mo)..... ND <0.02 Magnesium (Mg)..... 2.5 <0.5 <0.5 503 <0.01 ND Lead (Pb)..... ND <0.1 <0.05 ND ND <0.1 Silicon (Si)..... 5.50 <0.01 Thallium (Tl)..... <0.5 ND Vanadium (V)..... ND <0.02 0.24 <0.01

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

Wanda Orso Water Lab Supervisor

Detection

CLIENT: ID:	NM OCD DATE REPORTED: Hanson Battery Discharge Pt	08/21/92
SITE: LAB NO:	9208051115 DATE RECEIVED: F9429 DATE COLLECTED:	08/06/92 08/05/92
	Lab pH (s.u.)) 5)) 1 5 7
	mg/L meq/l Bicarbonate as HC03 689 11.3 Carbonate as C03 <0.10	3 1 3 9 3 2 4 1 1 2 3

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

Trace Metals by ICAP (Total Concentration), mg/L Analytical Detection Result: Limit: <0.01 Silver (Ag)..... NDAluminum (Al)..... ND <0.1 Arsenic (As)..... ND <0.1 Boron (B)...... 0.32 <0.01 Barium (Ba)..... ND <0.5 Beryllium (Be)..... <0.005 ND <0.5 Calcium (Ca)..... 11.3 Cadmium (Cd)..... <0.005 ND <0.02 Cobalt (Co)..... ND <0.02 Chromium (Cr)..... ND Copper (Cu)..... 0.01 <0.01 Iron (Fe)..... 0.04 <0.05 Potassium (K)..... <0.5 ND 0.03 Manganese (Mn)..... <0.02 Molybdenum (Mo)..... <0.02 ND Magnesium (Mg)..... <0.5 3.7 <0.5 492 0.01 <0.01 Lead (Pb)..... ND <0.1 <0.05 ND <0.1 ND Silicon (Si)...... 5.80 <0.01 Thallium (Tl)..... ND <0.5 Vanadium (V)...... ND <0.02 <0.01 Zinc (Zn)..... 0.09

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

Wanda Orso

Water Lab Supervisor

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.)	@ 25C 3290 3.04 0C), mg/L. 2210 lc), mg/L. 2110 mg/L 881 g/L 27.8	
	Bicarbonate as HC03 Carbonate as C03 Chloride Sulfate Calcium Magnesium Potassium Sodium Major Cations Major Anions Cation/Anion Difference	58.2 1.94 469 13.2 279 5.82 7.21 0.36 2.39 0.2 5.87 0.15 818 35.6 36.3	

DATE REPORTED: 08/21/92 CLIENT: NMOCD

ID:

Hospah Sand Unit Discharge Point 9208051045 DATE DATE RECEIVED: DATE COLLECTED: 08/06/92 SITE: 08/05/92 LAB NO: 9430

Trace Metals by ICAP (Total	Concentration)	mg/L
Trace Recard by Tom (Total	Analytical	Detection
	Result:	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 (T1)	ND	<0.5
Vanadium (V)	ND	<0.02
Zinc (Zn)	0.11	<0.01
	V	-0.01

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

Wanda Orso

Water Lab Supervisor



OIL CONSERVA ION DIVISION RECEIVED

'92 SEP 23 PM 9 09

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

Soil Lab Manager

xc: File



Inter Mountain Laboratories, Inc.

2506 West Main Street

Farmington, New Mexico 87401

Tel. (505) 326-4737

DATE SAMPLED: August 5, 1992

DATE REPORTED: August 31, 1992

Lab No. 9423 9424 9425	9423 9423 9425	Detection limits	Lab No. 9423 9424 9425	Detection limits
Location SANDOVAL LAKE-UPSTREAM OUTLET SANTA FE RR DISCHARGE PT ARROYO BELOW FINAL SKIM	Location SANDOVAL LAKE-UPSTREAM OUTLET SANTA FE RR DISCHARGE PT ARROYO BELOW FINAL SKIM BLANK	limits	Location SANDOVAL LAKE-UPSTREAM OUTLET SANTA FE RR DISCHARGE PT ARROYO BELOW FINAL SKIM BLANK	limits
Moisture % 138 41 45	1305 560 1275 70	Silicon ppm 0.5	7100 4600 6400 ND	Aluminum ppm 5
	8888	Silver ppm 0.5	1.35 1.30 1.10	Arsenic ppm 0.25
	28.5 143.0 62.0 3.0	Zinc A ppm 0.5	12.5 12.5 9.0 1.5	Boron ppm 0.5
	355	Antimony ppm 2.5	ND 115	Barium ppm 25
	0.40 0.25 0.55 ND	Beryllium PPm 0.25	8888	Cadmium ppm 0.1
	1945 1405 2545 65	Calcium ppm 25	8.0 8.0	Copper ppm 0.5
	2.5 2.0 4.5	n Cobalt ppm 1.0	4.0 5.0 ND	Chromium ppm 1.0
	1360 1155 1435 ND	Magnesium Ppm 25	6900 6300 15000	Iron PPm 2.5
	35 56	gnesium ppm 25	8888	Lead ppm 1.0
	1805 1125 1090 ND	Potassium ppm 25	150 94 160 ND	Manganese ppm 1.0
	1605 830 1355 40	Sodium T PPm 25	2.0 1.5 3.5	Molybdenum ppm 1.0
	8888	Thallium PPm 25	3.5 5.0	m Nickel ppm 0.5
	12.0 10.0 13.5 ND	Vanadium PPM 1.5	8888	Selenium ppm 0.25

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.

Page 1 of 1



Inter·Mountain Laboratories, Inc.

2506 West Main Street

Farmington, New Mexico 87401

Tel. (505) 326-4737

9425 9424 9423 Lab No. DATE SAMPLED: August 5, 1992 DATE REPORTED: September 8, 1992 Arroyo below Final Skim Santa Fe RR-Discharge Pt. Upstream Outlet Sandoval Lake-Location 7.6 7.6 7.8 옾 EC mmhos/cm @ 25°C 0.51 0.43 0.69 Ca mg/kg 1295 590 775 Mg mg/kg 190 130 81 12250 Na mg/kg 16380 9520 ĸ mg/kg 2040 820 590 Mardness mg/kg 1850 2300 38 00 NM OCD Cl mg/kg 2056 1526 527 MCO3 21212 21457 32369 7600 3050 80**4** mg/kg 4920 NO2 mg/kg Δ Δ <u>۾</u> NO3 ng/kg $\hat{\sim}$ Δ <u>1</u>0 Difference Percent 2:2 1.7 4.9 Page 1 of 1 Sulfide mg/l 2.0 0.3

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



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, <u>Purge and Trap</u>, and EPA Method 8020, <u>Aromatic Volatile Hydrocarbons</u>, 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 <u>Analysis of Water and Waste</u>, 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

EPA Method 418.1 Total Recoverable Petroleum Hydrocarbons

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

Sample	Lab	Concentration	Detection Limit
ID	Number	(ppm)	(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

Charles Ballah Review

EPA Method 418.1 Total Recoverable Petroleum Hydrocarbons

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

Sample	Lab	Concentration (ppm)	Detection Limit
ID	Number		(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 Chernical 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

Marlis Ballah
Review

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)
МВ	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

Classa Ballela Review

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

Clarles Ballel.
Review

Matrix Spike Duplicate Analysis

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

Charles Ballele Review

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

Marker Balleh Review

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

Claus Balle Review

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

Malis Ballin Review

Oil Conservation District

Project Name:

Oil Conservation District

Report Date:

8/13/92

Sample ID:

Hospah Field Water Disposal

Date Sampled: Date Received: 8/5/92 8/5/92

Sample Number: 9426 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:

Males Ballele Review

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:

<u>Surrogate</u>	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:

Review Ballih

Oil Conservation District

Project Name:Hospah Field Water DisposalReport Date:8/13/92Sample ID:Arroyo Below Final SkimDate Sampled:8/5/92Sample Number:9428Date Received:8/5/92Sample Matrix:waterDate 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:

<u>Surrogate</u>	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 Ballin

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 Date Analyzed: 8/13/92

Sample Matrix: Preservative:

water 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:

<u>Surrogate</u>	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:

Marks Balkh Review

Oil Conservation District

Project Name:

Hospah Field Water Disposal

Report Date: Date Sampled: 8/14/92

Sample ID:

Battery Dschg Pt

Date Received:

8/5/92 8/5/92

Sample Number: 9430 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:

<u>Surrogate</u>	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.

Marles Ballele Review



2506 West Main Street Farmington, New Mexico 87401 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:

Mala Ballek Review



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:

<u>Surrogate</u>	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

Thata Ballih



Quality Control Report Matrix Spike-Volatile Aromatic Hydrocarbons

Sample Number: Sample Matrix: 9426

Water

Preservative: Condition:

Cool, HgCl2

Intact

Report Date:

08/13/92

Date Sampled:

08/05/92 08/05/92

Date Received: 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

4-Bromofluorobenzene

103% 102% 88-110% 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:

Demi frke

Clarks Balkh



Quality Control Report Matrix Spike-Volatile Aromatic Hydrocarbons

Sample Number:

MBSPK0814

Sample Matrix:

Solid

Preservative: Condition:

NA NA Report Date:

08/14/92

Date Sampled: Date Received: NΑ NA

Date Analyzed:

08/14/92

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

Quality Control:

<u>Surrogate</u>

Percent Recovery

Acceptance Limits

Toluene-d8

97% 93% 81-117% 74-121%

Reference:

Method 5030, Purge and Trap

4-Bromofluorobenzene

Method 8020, Aromatic Volatile Organics

SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental

Protection Agency, November 1986.

Comments:

Marles Ballel



Quality Control Report

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

Matrix Duplicate: Volatile Aromatic Hydrocarbons

Client:

OCD

Date Sampled:

8/5/92

Sample ID:

9427 Sample Matrix: Water Date Received: Date Analyzed:

8/5/92 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%.

<u>Surrogate</u>	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:

Cliantes Ballih
Review



QUALITY CONTROL REPORT MATRIX DUPLICATE - VOLATILE AROMATIC HYDROCARBONS

Sample Number:

9435d

Soil

Sample Matrix: Preservative:

Condition:

Cool Intact Date Sampled:

Date Received:

08/06/92 08/06/92

Date Extracted:

08/14/92

Date Analyzed:

08/14/92

Anabas	Sample Result	Duplicate Result (mg/kg)	Percent Difference
Analyte	(mg/kg)	(HID/KG)	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% 101%

81-117% 74-121%

Reference:

Method 5030, Purge and Trap

4-Bromofluorobenzene

Method 8020, Aromatic Volatile Organics

SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental

Protection Agency, September 1986.

Comments:

Marlie Ballile Review

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

METHOD 8010 HALOGENATED VOLATILE ORGANICS

Client:

O.C.D.

Project Name:

NA

Report Date: 08/21/92

Project Location: NA

Date Sampled:

Date Analyzed:

08/05/92

Sample ID:

Sandoval Lake Upstream Outlet

Date Received:

08/07/92 08/18/92

Sample Matrix:

Sample Number: 9426/C921462

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

08/21/92

08/05/92

08/07/92

08/18/92

METHOD 8010 HALOGENATED VOLATILE ORGANICS Page 2 - Quality Control

Client:

O.C.D.

Project Name:

NA

Sample ID:

NA

Sandoval Lake Upstream Outlet

Sample Matrix:

Sample Number:

9426/C921462

Preservative:

Water

Condition:

Warm, HgCl2

Quality Control: Sur

Surrogate

Percent Recovery

Acceptance Limits

Report Date:

Date Sampled:

Date Received:

Date Analyzed:

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:

My Wary A

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:

Santa Fe Rail Road Discharge Point 9427/C921463

Date Received: Date Analyzed:

08/07/92 08/18/92

Sample Number: 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

08/21/92

08/05/92

08/07/92

08/18/92

METHOD 8010 HALOGENATED VOLATILE ORGANICS Page 2 - Quality Control

Client:

O.C.D.

Project Name:

NA

Sample ID:

NA

Santa Fe Rail Road Discharge Point

Sample Matrix: Preservative:

Sample Number:

Quality Control:

9427/C921463 Water

Condition:

Warm, HgCl2

Surrogate

Percent Recovery

85% 94% Acceptance Limits

Report Date:

Date Sampled:

Date Received:

Date Analyzed:

75-125% 75-125%

Reference:

Method 5030, Purge and Trap

1-Chloro-2-Fluorobenzene

Bromochloromethane

Method 8010, Halogenated Volatile Organics

SW-846, Test Methods for Evaluating Solid Wastes, United States Environmental

Protection Agency, September 1986.

Comments:

palvet

Man Water of Review

08/21/92

08/05/92

08/07/92

08/19/92

METHOD 8010 HALOGENATED VOLATILE ORGANICS

Report Date:

Date Sampled:

Date Received:

Date Analyzed:

Client:

O.C.D.

Project Name:

NA

Project Location: NA

Sample ID: Sample Number: 9428/C921464

Arroyo Below Final Skim

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.

08/21/92

08/05/92

08/07/92

08/19/92

METHOD 8010 HALOGENATED VOLATILE ORGANICS Page 2 - Quality Control

Client:

O.C.D.

Project Name:

NA

Sample ID:

NA

Sample Number: Arroyo Below Final Skim

Sample Matrix:

9428/C921464

Preservative: Condition:

Water

Warm, HgCl2

Quality Control:

Surrogate

1-Chloro-2-Fluorobenzene

Bromochloromethane

Percent Recovery

87% 104% Acceptance Limits

Report Date:

Date Sampled:

Date Received:

Date Analyzed:

75-125% 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:

malibet

Review Wirdly

08/21/92

08/05/92

08/07/92

08/19/92

METHOD 8010 HALOGENATED VOLATILE ORGANICS

Report Date:

Date Sampled:

Date Received:

Date Analyzed:

Client:

O.C.D.

Project Name:

NA

Project Location: NA

Sample ID: Sample Number:

Hanson Battery Discharge Point 9429/C921465

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.

METHOD 8010 HALOGENATED VOLATILE ORGANICS Page 2 - Quality Control

Client:

O.C.D.

Project Name:

NA

Sample ID:

NA

Sample Number:

Hanson Battery Discharge Point

Sample Matrix: Preservative:

9429/C921465

Condition:

Water Warm, HgCl2 Report Date:

Date Sampled:

08/21/92 08/05/92

Date Received:

08/07/92

Date Analyzed:

08/19/92

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:

Review Wadnes

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: Date Analyzed:

08/07/92 08/19/92

Sample Number: Sample Matrix:

9430/C921466 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.

METHOD 8010 HALOGENATED VOLATILE ORGANICS Page 2 - Quality Control

Client:

O.C.D.

Project Name:

NA

Sample ID:

NA

Sample Number:

Hospah Sand Unit Battery Discharge Point

Sample Matrix: Preservative:

9430/C921466 Water

Condition:

Warm, HgCl2

Report Date:

Date Sampled:

08/21/92 08/05/92

Date Received:

08/07/92

Date Analyzed:

08/19/92

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:

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

	Sample Result	Duplicate Result	
Analyte	(ug/L)	(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 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

QUALITY CONTROL REPORT - MATRIX DUPLICATE METHOD 8010 - HALOGENATED VOLATILE ORGANICS Page 2

Sample Number:

C921465 Duplicate

Sample Matrix:

Preservative: Condition:

Water

Warm, HgCl2

Intact

Date Sampled:

08/05/92

Date Received:

08/07/92

Date Analyzed:

08/19/92

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:

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: Condition:

Warm, HgCl2 Intact

Date Analyzed: 08/19/92

	Spike Added	Sample Result	Spike Result	Percent	Acceptance
Analyte	(ug/L)	(ug/L)	(ug/L)	Recovery	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.

QUALITY CONTROL REPORT - MATRIX SPIKE METHOD 8010 - HALOGENATED VOLATILE ORGANICS Page 2

Sample Number:

C921466 Spike

Sample Matrix:

Preservative: Condition:

Water

Warm, HgCl2

Intact

Date Sampled: 08/05/92

Date Received: 08/07/92

Date Analyzed: 08/19/92

Quality Control:

<u>Surrogate</u>

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:

Kuin (Jaday)

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.

METHOD 8010 HALOGENATED VOLATILE ORGANICS Page 2 - Quality Control

Sample Matrix:

MB0819 V1

Preservative:

Water

Report Date:

08/24/92

Date Analyzed:

08/19/92

Quality Control: Surrogate

Percent Recovery

Acceptance Limits

1-Chloro-2-Fluorobenzene

Bromochloromethane

81% 110% 75-125% 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:

Neview Manuf



□ 008

009

1010

011

[] 012

PAH

PAH

PCB

PCB

PHENOL

8100

610

8080

608

8040

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab	IML-	- Farmingt	<u> </u>		Contract No			
OCD Sample	No. 920	805 1045					·	
Collection Date	Collection Time	Collected by —Person	on/Agency					
08 105 192	10:45	Brown/	Foust	-OCD				/OCD
SITE INFORM			/r . =	BO: A	2 11 1	.	7	
Collection Site D	Hospour Description Fr	Sand Unit/ om pipe dis	Charging	from 2	sattery- 1	2 anow	yo	
<u> </u>					Town	ship, Range, Sec	tion, Tract: 17N9W1	F
					ITM	9W +	1 + +	F
FINAL NM		AL BUREAU RVATION DIVISION		SAMPLEF	IELD TREATME	NT— Check	properboxes	
PO Box 2088 Santa Fe, NM 87504-2088				No. of samples submitted:				
SAMPLING CONDITIONS Waterlevel			NF: Whole sample (Non-filtered) F: Filtered in field with 0.45 µmembrane filter					
	☐ Pump ☐ Tap	Discharge		☐ PF:	Pre-filtered w/45 /	4membrane filter	•	
pH(00400)		Sample type		□ NA:				
Water Temp. (00	0010)	Conductivity (Uncorrected		A:	HCL 2ml H ₂ SO ₂ /L added		A: 4ml fuming HNO ₃	accec
20°C	•	Conductivity at 25° C	m) ہے	FIELD COMM	ENTS: ++-Cl-cu	Ideal to C	10 - il viale	!
		No-		doled to	Cubi contae	ners.	10 mil yials	
LAB ANALYS	SIS REQUES	TED:						
ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
□ 001 □ 002	VOA VOA	8020 602	□013 □014	PHENOL VOC	604 8240	□ 026 □ 027	Cd Pb	7130 7421
 003	VOH	8010	□015	VOC	624	28	Hg(L)	7421 7470
☐ 004 ☐ 005	VOH SUITE	601 8010-802 0	□016 □017	SVOC SVOC	8250 625	□ 031 ∑ 032	Se ICAP	7740 6010
5 006 ☐ 007	SUITE HEADSPACI	601-602	□018 □019	VOC SVOC	8260 8270	(2 033 □ 034	CATIONS/ANIONS N SUITE	231.

O&G

AS

Ва

Cr

Cr6

9070

7060

7080

7190

7198

[]020

[]022

□]023

C]024

[]025

NITRATE

NITRITE

TKN

AMMONIA

OTHER S

35

036

037

38



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. 920	8051115						
Collection Date	Collection Time	Collected by —Person	/Agency					
08 05 92	11:15	Brown/	Foust -	- OC D				/OCD
SITE INFORM Sample location		2 ++	. 1	D. 1				
Collection Site De	escription F	Battery- D m sipe disc	15 (har	e Toint	2 nd ~~ d	to ano	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
- CONCOUNT ON D	(17	m sipe asc	recognized	Tron	Jano	TO CATE	7.0	
							ion, Tract: 17NBh	
					YW			1 !
FINAL NM		RVATION DIVISION		SAMPLEF	IELD TREATMEN	IT— Check p	properboxes	
IN A PUE	3ox 2088 a Fe, NM 87	504-2088		No. of sample	es submitted:			
SAMPLING CONDITIONS Water level			→ NF:	Whole sample (Non- Filtered in field with	•	ne filter		
] Pump] Tap	Discharge		□ PF: Pre-filtered w/45 /4/membrane filter			•	
/	·	Sample type		□ NA:	No acid added		A: 5ml conc. HNO, a	ded
pH(00400)		Conductivity (Uncorrected)		☐ ☐ A: ☐ A:	HCL 2mi H,SO,/L added		A: 4mi fuming HNO ₃ a	added
Water Temp. (000	010)	7550 Conductivity at 25° C	<u> </u>	FIELD COMM	CATC			. 1
<i>4</i> / C			<u>, ∕ mh</u>		H ₅ Cla	dded to	all 40 mil 1	rais
			(س	on contain	ors-noth	ring ade	le <i>òl·</i>	
LAB ANALYS	IS DECLIES	ren.						-
TEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHO
□ 001	VOA	8020	□ 013	PHENOL	604	□ 026	Cd	713
□ 002 □ 003	VOA VOH	602 8010	□014 □015	VOC VOC	8240 624	☐ 027 ☐ 028	Pb Hg(L)	742 747
004	VOH	601	□016 □016	SVOC	8250	☐ 021	Se	774
☐ 005 ☐ 006	SUITE	8010-8020	□017 □018	SVOC	625	1 23 032	ICAP	601
DZ_006 □ 007	SUITE HEADSPACE	601-602	□018 □019	VOC SVOC	8260 8270	I⊠ 033 □ 034	CATIONS/ANIONS N SUITE	
□ 008	PAH	8100	□ 020	O&G	9070	035	NITRATE	
□ 009 □ 010	PAH PCB	610 8080	□ 022 □ 023	AS Ba	7060 7080	□ 036 □ 037	NITRITE	
□ 010 □ 011	PCB	608	□ 023 □ 024	Cr Cr	7190 7190	□ 037 □ 038	AMMONIA TKN	
<u> </u>	PHENOL	8040	025	Cr6	7198		OTHER	



STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES SEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ImL-	- Farmington	Contract No				
OCD Sample No. 92	W8051145					
Collection Date Collection T	ime Collected by —Person/Agency					
08/05/92 11:45	Brown/Foust-	- OCI) 100D				
SITE INFORMATION	·					
	FRR Rotton - 1	Dichara Post +				
Collection Site Description	la dischaging the	and pund to arrayo				
	(Se 0))	700				
		Township, Range, Section, Tract: 17N8WD7				
SEND ENVIRONMEN	ITAL BUREAU					
	ERVATION DIVISION	SAMPLE FIELD TREATMENT — Check proper boxes				
PO Box 2088 Santa Fe, NM	87504-2088	No. of samples submitted:				
SAMPLING CONDITION	S Waterlevel	NF: Whole sample (Non-filtered) F: Filtered in field with 0.45 membrane filter				
☐ Bailed ☐ Pump ☐ Dipped ☐ Tap	Discharge	PF: Pre-filtered w/45 Amembrane filter				
pH(00400)	Sample type	■ NA: No acid added ■ A: 5ml conc. HNO, added				
	Conductivity (Uncorrected)	A: HCL A: 4ml furning HNO, added				
Water Temp. (00010) ∂ (<i>o</i> ° C	2300 // mhs					
00 C	M mho	Cu Significant - nothing added				
		Lusicontainers - horning godes				
		Sedirent- nothing added				
LAB ANALYSIS REQUE	STED:					
ITEM DESC	METHOD ITEM	DESC METHOD ITEM DESC METHO				

ITEM	DESC	METHOD	ITEM	DESC	METHOD	IIEM	DESC	METHOD
001 002 003 004 005 55006	VOA VOA VOH VOH SUITE SUITE HEADSPACE	8020 602 8010 601 8010-8020 601-602	□013 □014 □015 □016 □017 □018 □019	PHENOL VOC VOC SVOC VOC SVOC	604 8240 624 8250 625 8260 8270	☐ 026 ☐ 027 ☐ 028 ☐ 031 ○ 032 ○ 033 ☐ 034	Cd Pb Hg(L) Se ICAP CATIONS/ANIONS N SUITE	7130 7421 7470 7740 6010
☐ 008 ☐ 009 ☐ 010 ☐ 011 ☐ 012	PAH PAH PCB PCB PHENOL	8100 610 8080 608 8040	□ 020 □ 022 □ 023 □ 024 □ 025	O&G AS Ba Cr Cr6	9070 7060 7080 7190 7198	□ 035 □ 036 □ 037 □ 038 □⊅	NITRATE NITRITE AMMONIA TKN OTHER Sulfid	45

TAL



STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

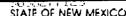
ANALYSIS REQUEST FORM

Contract Lab Im	L-Far	mington			Contract	No		, , , , , , , , , , , , , , , , , , , 	
OCD Sample No. 9	2080	151245							
Collection Date Collection	on Time	Collected by —Person/A	lgency						
08 105 192 12:4	15	Brown/F	oust						/OCD
SITE INFORMATION		·							
The state of the s	no be	law final:	skiam i	as mik		·····			
Sample location Arcco	Tron	pipe on do	un sche	em side	0.f -	Gna	<u>)</u>		
	Skim	ming pond							
		<i>)</i> '				Towns	hip, Ran	ge, Section	n, Tract: 17N BW 6K
							-	+	+ +
SEND ENVIRONM FINAL NM OIL CO REPORT PO Box 208 Santa Fe, N SAMPLING CONDITI	NSERVA 18 IM 87504	-2088		No. of samples	s submitted:			heck pro	pper boxes
	ļ			′	Filtered in file				filter
☐ Bailed ☐ Pump ☑ Dipped ☐ Tap	Dis	charge			L16-1110100	W/45 ,74	illemine a	JIO IIIOJI	
рН(00400)	San	nple type			No acid add	led		☐ A:	
Water Temp. (00010)	Cor	ductivity (Uncorrected)	⊬(mho	☐ A: ☐ A:	HCL 2ml H ₂ SO ₂ /L	. added		□ A:	4ml fuming HNO ₃ added
24°C	Cor	ductivity at 25° C		FIELD COMME Hacladd	NTS: ed+va	U 4	ا سرا	nas	ls .
				added -					
			70	ment s	í				
									

LAB ANALYSIS REQUESTED:

ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
☐ 001 ☐ 002 ☐ 003 ☐ 004 ☐ 005 ☒ 006 ☐ 007 ☐ 008 ☐ 009 ☐ 010 ☐ 011	VOA VOA VOH VOH SUITE SUITE HEADSPACE PAH PAH PCB PCB PHENOL	8020 602 8010 601 8010-8020 601-602 8100 610 8080 608 8040	□013 □014 □015 □016 □017 □018 □019 □020 □022 □023 □024 □025	PHENOL VOC SVOC SVOC VOC SVOC O&G AS Ba Cr Cr	604 8240 624 8250 625 8260 8270 9070 7060 7080 7190 7198	☐ 026 ☐ 027 ☐ 028 ☐ 031 ☐ 032 ☐ 034 ☐ 035 ☐ 036 ☐ 037 ☐ 038	Cd Pb Hg(L) Se ICAP CATIONS/ANIONS N SUITE NITRATE NITRITE AMMONIA TKN OTHER SALF Cd	7130 7421 7470 7740 6010

TPIH





012

PHENOL

8040

O2:5



OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

		•						
Contract Lab_	tml F	amington			Contract No		······································	
OCD Sample	No. 9209	051330						
Collection Date	Collection Time	Collected by —Perso	n/Agency					
08/05/92	13:30	Brown/	F0151-	0c9				/OCD
SITE INFORM	iation Le	ike Sandovo	J					
Sample location	Lake S	andoral						
Collection Site De	escription U	ostream of of final arr	culvert	(pipe) u	index road			
beth	reen lake	of thou arr	040 cus	(Macshi	Townsh	ip, Range, Sect	lon, Tract:	
						+		- []
	IRONMENTA							
REPORT PO P	DIL CONSEF Box 2088	RVATION DIVISION		SAMPLE	FIELD TREATMEN	Т— Спескр	proper boxes	
Sant	a Fe, NM 87	504-2088		No. of sam	oles submitted:			
SAMPLING C	ONDITIONS	Waterlevel		/		.45 Amembra		
☐ Bailed ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐] Pump] Tap	Discharge		T L PF	: Pre-filtered w/45 /4	membrane filter		
pH(00400)		Sample type		□ NA	A: No acid added	- 🗆		
-		Conductivity (Uncorrected)			HCL 2miH ,SO/L added		A: 4ml fuming HN	O, added
Water Temp. (000	010)	Conductivity at 25° C		EIELD COM	MENTO:	- 1	1	
<i>41</i> C					Ided to all 4			
					to cabicon	towners	5 0~	
			<u>\$</u> e	demont	samples			
LAB ANALYSI	IS REQUEST	TED:						
ITEM	DESC	METHOD	ITEM	DESC	METHOD	ΠEM	DESC	METHOD
☐ 001 ☐ 002	VOA VOA	8020 602	□013 □014	PHENOL VOC	604 8240	□ 026 □ 027	Cd Pb	7130 7421
□ 003	VOH	8010	□014 □015	VOC	624	₩ 028	Hg(L)	7470
□ 004 □ 005	VOH SUITE	601 8010-8020	□016 □017	SVOC SVOC	8250 625	☐ 031 ☑ 032	Se ICAP	774/ 601/
>≥ 006	SUITE	801-602	018	VOC	8260	⊠ 033	CATIONS/ANIOI	
☐ 007 ☐ 008	HEADSPACE PAH	8100	□019 □020	SVOC O&G	8270 9070	□ 034 □ 035	N SUITE NITRATE	
□ 009	PAH	610	□ 022	AS	7060	🗆 036	NITRITE	
☐ 010 ☐ 011	PCB PCB	8080 608	□ 023 □ 024	Ba Cr	7080 7190	□ 037 □ 038	AMMONIA TKN	
L 011	, 00	000	V67	∽	7100	<u> </u>	· · · · · · · · · · · · · · · · · · ·	A

OTHER Sulfides

Z

7198



SCIENTIFIC LABORATORY DIVISION & 154 WPW Organic Analysis Request Foot Organic Section - Phono: 241 277

DEDODE TO	DAVID BOYER	UR89-1222-C
REPORT TO:		S.L.D. No. OR
	N.M. OIL CONSERVATION DIVISION	DATE REC
	P.O. Box 2088	PRIORITY
,	Santa Fe, NM 87504-2088	PHONE(s): 827-5812
COLLECTION		; COUNTY: McKinley
COLLECTION 1	DATE/TIME CODE: (Year-Month-Day-Hour-Minute)	1018101411215191
	DE: (Township-Range-Section-Tracts) $1 1719+019$	M + O + O - - (10N06E24342)
USER CODE:	8 2 2 3 5 SUBMITTER: David Boye	code: 2 6 0
SAMPLE TYPE	: WATER [X], SOIL [_], FOOD [_], OTHER:	***************************************
Samples were p	npanies Septum Vials, Glass Jugs, and/or reserved as follows:	RECEIVED
☐ NP:	No Preservation; Sample stored at room temperature. Sample stored in an ice bath (Not Frozen).	OCT = 3 1000
P-AA	Sample Preserved with Ascorbic Acid to remove chlorine	OCT - 3 1989
P-HCl	Sample Preserved with Hydrochloric Acid (2 drops/40 ml	OIL CONSERVATION DIV
	QUESTED: Please check the appropriate box(es) below to in	dicate the type of an SANTA percens
required. When	ever possible list specific compounds suspected or required.	5
(753) Aliph	PURGEABLE SCREENS natic Headspace (1-5 Carbons)	EXTRACTABLE SCREENS 751) Aliphatic Hydrocarbons
<u> </u>		755) Base/Neutral Extractables
		58) Herbicides, Chlorophenoxy acid
(766) Triha		(59) Herbicides, Triazines
(774) SDW	A VOC's I (8 Regulated +)	760) Organochlorine Pesticides
(775) SDW	A VOC's II (EDB & DBCP)	61) Organophosphate Pesticides
Othe	er Specific Compounds or Classes	67) Polychlorinated Biphenyls (PCB's)
		64) Polynuclear Aromatic Hydrocarbons
		62) SDWA Pesticides & Herbicides
Remarks: //	o losse or odo	
FIELD DATA:	* Taker	rat R. Tsosie Residence
pH=; (Conductivity=810umho/cm at 20°C; Chlorine Resident	ual=mg/l
Dissolved Oxyge	n=mg/l; Alkalinity=mg/l; Flow Rate	
Depth to water	ft.; Depth of well ft.; Perforation Interval	ft.; Casing:
1506	on, Methods and Remarks (i.e. odors, etc.) Sample F.	Supplies the should
toent	ure complex and several	
	he results in this block accurately reflect the results of my are collector):	field analyses, observations and hod of Shipment to the Lab:
CHAIN OF CU	STODY	,
I certify that t	his sample was transferred from	to
	on	
the statements	in this block are correct. Evidentiary Seals: Not Sealed	OR Seals Intact: Yes No
Signatures		· · · · · · · · · · · · · · · · · · ·

For OCD use: Date owner notified: 10/3/89 Phone or Letter? Initials

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						
AN	ALY TICAL	_ RESULTS						
COMPOUND(S) DETECTED	CONC.	COMPOUND(S) DETECTED	CONC.					
		+						
ABBREVIATIONS USED: N D = NONE DETECTED AT OR ABOVE T R = DETECTED AT A LEVEL BELOW [RESULTS IN BRACKETS] ARE UNCONE	+ DETECTION LIMIT + T 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:								
CERTIFICAT	TE OF ANALYT	CICAL PERSONNEL						
Seal(s) Not Sealed Intact: Yes No	res on handling	and analysis of this sample unless otherwise noted						
Date(s) of analysis: Analyst's sig	gnature:							
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

<u>Distribution</u> (Submitter

(X) SLD Files

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

DEMO	CR	APHIC	DATA
DENIO		$\Delta IIII$	ν_{α}

LOCATION On: 4-Aug-89 *By:* Boy . . .

At: 12:59 hrs.

In/Near: other

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:

Laboratory Remarks: R. Tsosie Residence

Analyst:

Gary C/Eden

Analyst, Organic Chemistry

Date

Reviewed By:

Richard F. Meyerhein

Supervisor, Organic Chemistry Section

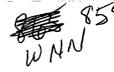
RECEIVED

OCT - 3 1989

OIL CONSERVATION DIV. SANTA FE



nent Department SION New Mexico Health and Envi SCIENTIFIC LABORATORY 700 Camino de Salud NE Albuquerque, NM 87106 — (505) 841-2555



ENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED //	8101 189 1	We 2814	USER CODE 59300	□ 59600 💢 O	THER: 82	235	
Collection DATE)4	SITE INFORM- ►	Sample location		Rosia	Penre	2.
Collection TIME	7	ATION	Collection site description	Sample	5.0	1-8	He not
Collected by — Pers	el 27	/OCD		Somy		giru	
SEND FINAL REPORT TO	State Land	SERVATION DIV Office Bldg NM 87504-208	• PO Box 208	OCT 25 198	DESI GUSION	den Dipe	el Waley line Foony bin well
· PI	hone: 827-58	312		OIL CONSERVATION D	well code		
_	CONDITIONS			, <u>}</u>	Owner *	no no transfer to the second of the	
☐ Bailed☐ Dipped☐	☐ Pump ⁄⊠ Tap	Water level		Discharge		Sample typ	Cralo
pH (00400)	フ	Conductivity (Unco	prrected)	Water Temp. (00010))-°C	Conductivit	y at 25°C (00094) μmho
Field commen	ts	٠ .			<u> </u>		

CAMPI E EIE	ELD TREATMENT	T Chook orong	ar hovoo				
No. of sample	ELD TREATMENT es / NF	1411-11-	F: Filtered in	field with	ml H₂SO₄/	l added	
submitted	,	(Non-tiltered)	0.45 μme	mbrane tilter			
	acid added C		□A:	5ml conc. HNO ₃ ad	ded 🗀 🛭	A: 4ml 1	Fuming HNO ₃ added
ANALYTICA NA	L RESULTS from		Units Date analyze	d			
Conductivi 25°C (000	ity (Corrected) 95\		µmho <u>8///</u>	From MC,	NA Sample	::	Date Analyzed
☐ Total non-firesidue (su (00530) ☐ Other: ☐ Other: ☐ Other:	ilterable uspended)	8,44	mg/l	Calcium Potassium Magnesium Sodium Bicarbonate	1 4. 239	mg/1	8/23 8/21 8/23 8/21
A-H₂SO₄				Chloride	18.3		9/1
☐ Total Kjelda (☐ Chemical odemand (0 ☐ Total organ	0) N total (00610) ahl-N) oxygen 10340)		mg/l	Sulfate Total Solid Total Solid Cation/Ar	26' s 65 1.0	8 mg/1 8 mg/1 0 0.83 1	8/8
☐ Other: ☐ Other:			*****	Analyst	Date R	eported	Reviewed by
Laboratory ren	marks			<u></u>		·/ O `	لنعا
		**************************************			**************************************	**************	
		***************************************		***************************************			

CATIONS ANALYTE MEQ.	PPM	DET.	ANALY	ANIONS TE MEQ.	PPM	DET.
Ca 0.60 Mg 0.35 Na 10.35 K 0.03	12.00 4.30 238.00 1.00	<3.0 <0.3 <10.0 <0.3	HC03 SO4 CL	4.18 5.58 0.23	255.00 268.00 8.30	<1.0 <10.0 <5.0
Mn 0.00 Fe 0.00	0.00		NO3 C03 NH3 PO4	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	< 0. < 1. < 0. < 0.
SUMS 11.33	255.30			10.00	531.30	
Total Dissolved Ion Balance =		658		WC No.	= 8902814	

RECEIVED

OCT 25 1989

OIL CONSERVATION DIVISION

NTIFIC LABORATORY DIV 700 Camino de Salud NE Albuquerque, NM 87106 841-2570



	David Boyer S.L.D. No. OR- 502 5
88-	. 0502-C N.M. Oil Conservation Division DATE REC.
	P. 0. Box 2088
N	Santa Fe, N.M. 87504-2088 PRIORITY 3
'	PHONE(S): 327-5812 USER CODE: 8 2 2 3 5
	SUBMITTER: David Boyer CODE: 2 6 0
	SAMPLE COLLECTION CODE: (YYMMDDHHMMIII) 8 8 0 4 1 7 1 1 3 0 0 4 B
	SAMPLE TYPE: WATER SOIL [], FOOD [], OTHER: CODE:
	COUNTY: McKinley; CITY: Haspah CODE:
	LOCATION CODE: (Township-Range-Section-Tracts) $17N+08W+05+13$ (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 EXTRACTABLE SCREENS
	[(753) Aliphatic Purgeables (1-3 Carbons) [(751) Aliphatic Hydrocarbons
	(754) Aromatic & Halogenated Purgeables (760) Organochlorine Pesticides (765) Mass Spectrometer Purgeables (755) Base/Neutral Extractables
	[(758) Herbicides, Chlorophenoxy acid
	Other Specific Compounds or Classes (759) Herbicides, Triazines
	[(760) Organochlorine Pesticides [(761) Organophosphate Pesticides
	(767) Polychlorinated Biphenyls (PCB's)
	[(764) Polynuclear Aromatic Hydrocarbons
	[(762) SDWA Pesticides & Herbicides
	Remarks:
	PIELD DATA: (Cols is Hospah upper sand South
	pH= //); Conductivity= 1780 mho/cm at 160 C; Chlorine Residual= mg/l
	Dissolved Oxygen= mg/l; Alkalinity= mg/l; Flow Rate 2 9 mg/l; Flow
	Depth to waterft.; Depth of wellft.; Perforation Intervalft.; Casing:
	Sampling Location, Methods and Remarks (i.e. odors, etc.) TESORD SFRR B'Lease discharge. Clear, machine
	This dix horde not been to reach orray
	I certify that the results in this blocke accurately reflect the results of my field analyses, observations and
	activities. (signature collector): Method of Shipment to the Lab:
	This form accompanies 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 S O Sample Preserved with Sodium Thiosulfate to remove chlorine residual.
	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



LAB. No.: OR- 502

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical script of the control	:5	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 Hydrocarbon (762) SDWA Pesticides & Herbicides	
COMPOUND(S) DETECTED	CONC.	COMPOUND(S) DETECTED	CONC. [PPB]
dromatic suspender	selmanke		
helosenetted burnelle			
Junior de la la la la la la la la la la la la la		<u></u>	
			<u> </u>
			-
<u> </u>			
	.		
			-
* DETECTION LIMIT * *	.548/	+ DETECTION LIMIT +	
	W THE STATED	DETECTION LIMIT DETECTION LIMIT (NOT CONFIRMED) OR WITH APPROXIMATE QUANTITATION	
LABORATORY REMARKS: Thints the	D compo	unds sanaina from ca	est.
alitin the the 102	1 th	Charles and the	-/1
enung april spell 63 St	upsulue d	vengene wilgings ar it	1 110
deletted by the photos	ionization	a delector V but not lot	eullifier
also one learly Seluting	: flompour	d at approx. 50 pps	not
identified by the PIV	detector.		
CERTIFIC	CATE OF ANALY	TICAL PERSONNEL	
Seal(s) Intact: Yes No . Seal(s) broken	4	Select date:	
I certify that I followed standard laboratory proc			oted and
that the statements on this page accurately reflect		-	
Date(s) of analysis: 5/3/88. Analyst's	signature:	Vara C- Eden	
I certify that I have reviewed and concur with t			his block
$l \rightarrow \infty$	-	V Dampie and with the secondition in	DIOCK.
Reviewers signature: / ///Lylwl	~		



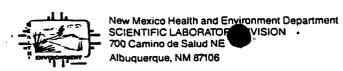
New Mexico Health and Engagement Department SCIENTIFIC LABORATORY SIVISION 700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

859N

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

	12/188 1	Bwc-1345	USER 59300	D □ 59600 🖎 O	тнея: , 822	235	
Collection DATE	7	SITE INFORM- >	Sample location TC	SORO HOSP	och		
Collection TIME		ATION	Collection site description		DD NE	211/81	ye
Collected by — Person	ni Adopcy ley	/OCD			<u> </u>) 400	ge
SEND FINAL REPORT TO	State Land	SERVATION DIV Office Bldg, NM 87504-208	PO Box 208				
Att	n:nax.tu_bu)	/E.L	57.		Station/		N - 5
Ph	one: 827-58	12			well code	17N, 1	(84), 5.13
SAMPLING C	ONDITIONS				Owner	0	
☐ Bailed	☐ Pump ☐ Tap	Water level	<u> </u>	Discharge V > 9/	Lean	Sample type	GRAR
pH (00400)	7,5	Conductivity (Unco	rrected)	Water Temp. (00010)	6. < °C	Conductivity	at 25°C (00094) µmho
Field comments	Clean	mori	P shee	n. Discha	oraz C	does.	
	reach	arrow	10	.,		******************	
SAMPLE FIEL	LD TREATMENT	` Г — Check prope	r boxes				
No. of sample:			□ E. Filtered in	field with A: 2	ml H ₂ SO ₄ /	L added	·
	acid added			5ml conc. HNO3 ad	ded 🗆	A: 4m1 fu	ming HNO ₃ added
ANALYTICAL	RESULTS from	SAMPLES					
NA Conductivity 25°C (00099	y (Corrected)		units Date analyze	From NF,	NA Sample	:2	Date Analyzed
☐ Total non-filt residue (sus (00530) ☐ Other: ☐ Other: ☐ Other: ☐ Other:	erable spended)	€.56	mg/l	CalciumPotassiumMagnesiumSodium	6., 12.	6 mg/1_ / mg/1_ } @ mg/1_	5/10 5/10 5/19
A-H ₂ SO ₄				Bicarbonate Chloride		<u>40 mg/1 (</u> <u>70 mg/1 </u>	5/25
□ Nitrate-N + , total (00630)) I total (00610)		mg/l	Sulfate Total Solid	62	. <u>5</u> mg/1_ . <u>5</u> mg/1_ 2 <u>0</u> mg/1_	 .s/20
☐ Total Kjeldal (☐ Chemical ox)		mg/l	- 🗆			
demand (00	(340)		mg/l	-			,
()		mg/l	- 🛛 Cation/Ar	nion Ba	lance _	
☐ Other:				Analyst	Date R	eported F	leviewed by
Laboratory rem	arks					· / 1 3 G	
			······································				**************************************
							000
FOR OCD U	ISE Date C	wner Notifie	d 6/57/3	S Phone of Lette	er?)	Ini	tals

	CATIONS				ANIONS		
ANALYT	E MEQ.	PPM	DET. LIMIT	ANALYTI	E MEQ.	PPM	DET. LIMIT
Ca Mg Na K	0.80 0.50 52.98 0.15	16.00 6.10 1218.00 6.00	<3.0 <0.3 <10.0 <0.3	HC03 SO4 CL	7.21 1.30 38.93	440.00 62.50 1380.00	<10.0
Mn Fe	0.00	0.00		NO3 C03 NH3 PO4	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	< 0. < 1. < 0. < 0.
SUMS	54.43	1246.10			47.44	1882.50	
	Dissolved lance =	_	3120		C No. out/By	= 88.01345	_



HEAVY METAL ANALYSIS FORM

Telephone: (505)841-2553

Date Received 4/2/8/No.7/0-/36 Code	
COLLECTION DATE & TIME: XX mm dd hh	collection site description
COLLECTED BY: /f>	Jesopo Oil Hospan
Balley/Royl OCK	CEDD HRIT CALE
182004/102/- 000	JAN B GOOD
TO:	OWNER:
ENVIRONMENTAL BUREAU	SITE LOCATION:
NM OIL CONSERVATION DIVISION	County: McKinley
State Land Office Bldg., PO Box 20	
SANTA FE, NM 87504-2088	Township, Range, Section, Tract: (10N06E24342)
ATTN:	1/17W+018W+014+21/13
	ON/ WELL CODE:
IEIEFIONE. 627-3612 SIAI	ton, while copy.
LATITUDE, LONG	SITUDE:
SAMPLING CONDITIONS:	
Bailed Pump Water Level:	Discharge: Sample Type:
Dipped Tap	Nagpm Grale
pH(00400) Conductivity(Uncorr.) Wate	
75 4167	16:5°c (00094)
1700 µmno	16 25 °C µmho
FIELD COMMENTS:	,
	· · · · · · · · · · · · · · · · · · ·
SAMPLE FIELD TREATMENT	LAB ANALYSIS REQUESTED:
Check proper boxes:	Land Market Language Language
WPN: Water WPF: Water	Y ICAP Scan
Preserved w/HNO, Preserved w/HNO,	Mark box next to metal if AA
Non-Filtered Filtered	is required.
ANALYTICAL DE	SCILLES (NAC/L)
ANALYTICAL RE	
Aluminum COA	ELEMENT ICAP VALUE AA VALUE Silicon 4/.4
Barium <0.\	Silver 40.1
Beryllium 40.)	Strontium
Boron 0.3	Tin 40.1
Cadmium <20.1	Vanadium 40.
Calcium 16.	Zinc 40.1
Chromium 20.	Arsenic X <0.005
Cobalt <u> </u>	Selenium X 20.005
Copper <0.1	Mercury 2 < 0.0005
Iron 0.	
Lead 40.1	
Magnesium 3.6	
Manganese < 0.05	
Molybdenum <u>20.1</u>	
Nickel ∠O.	
13.0 CONT.	Me
LAB COMMENTS:	DIGE 57
For OCD Use:	
	nalyst B Reviewer Cin Colly
Phone or Letter?	
	nalyzed $5/1/88$ Date Reversed $5/12/88$

700 Camino de Salud NE Albuquerque, NM 87106 841-2570



STATE OF NEW MEXICO

Initials AB

RED	∖ David Boyer	S.L.D. No. OR- 501-A+B			
88.0501 C	N.M. Oil Conservation Division	DATE REC. 4/21/88			
90.	P. O. Box 2088	7/0/			
would,	Santa Fe, N.M. 87504-2088	PRIORITY 3			
PHONE(S):	327-5812 USER	CODE: 8 2 2 3 5			
SUBMITTER:	David Boyer	CODE: 12 1 6 1 0 1			
	CTION CODE: (YYMMDDHHMMIII) 88041	91110500			
	WATER SOIL , FOOD , OTHER:	CODE:			
	CKINIEY; CITY: NOSpah	CODE:			
	E: (Township=Range-Section-Tracts) 1 7 N+08				
	UESTED: Please check the appropriate box(es) below to indic				
	er possible list specific compounds suspected or required.	are the type of analytical screens			
(750) Aliaha		XTRACTABLE SCREENS			
		Aliphatic Hydrocarbons Organochlorine Pesticides			
2_ \		Base/Neutral Extractables			
(766) Trihale	•	Herbicides, Chlorophenoxy acid			
· · ·		Herbicides, Triazines			
		Organochlorine Pesticides			
	[(761)	Organophosphate Pesticides			
	(767)	Polychlorinated Biphenyls (PCB's)			
	(764)	Polynuclear Aromatic Hydrocarbons			
		SDWA Pesticides & Herbicides			
Remarks:					
FIELD DATA:					
pH = 9.5; co	onductivity= Decumbo/cm at°C; Chlorine Residual:	=mg/l			
Dissolved Oxygen	n=mg/l; Alkalinity=mg/l; Flow Rate 175	212			
ľ	ft.; Depth of wellft.; Perforation Interval	ft.; Casing:			
	on, Methods and Remarks (i.e. odors, etc.)				
· -	RO-Final oil-Water Sep	parato outsall			
	arrayo. Some colon, He	alo)			
	ne results in this block accurately reflect the results of my fiel	ld analyses, observations and			
activities.(signature collector): Method of Shipment to the Lab: Scall and Jugs, and/or 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 SO	Sample Preserved with Sodium Thiosulfate to remove chloring	e residual.			
CHAIN OF CU	STODY				
I certify that th	nis sample was transferred from	to			
at (location)	on	and that			
the statements i	n this block are correct. Evidentiary Seals: Not Sealed 🔲 S	Seals Intact: Yes No			
Signatures					
For OCD U	se: Date Owner Notified 6/2788 Phone of	or Letter? Initials			



LAB. No.: OR- 501

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical scre	ening method(s) cl	necked below:	
PURGEABLE SCREENS		EXTRACTABLE SCREENS	
(753) Aliphatic Purgeables (1-3 Carbons)		(751) Aliphatic Hydrocarbons	
(754) Aromatic & Halogenated Purgeables		(760) Organochlorine Pesticides	٠.
(765) Mass Spectrometer Purgeables		(755) Base/Neutral Extractables	
(766) Trihalomethanes		(758) Herbicides, Chlorophenoxy acid	
•		(759) Herbicides, Triazines	
Other Specific Compounds or Classes		•	
		(760) Organochlorine Pesticides	
<u> </u>		(761) Organophosphate Pesticides	
<u> </u>		(767) Polychlorinated Biphenyls (PCB's)	
		(764) Polynuclear Aromatic Hydrocarbons	1
		(762) SDWA Pesticides & Herbicides	
. A N	IALYTICAL	RESULTS	
COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC.
aromatie nuroenfler	see 8		
	remarko		
halosenated laurosables	N.D.		
		<u> </u>	
	- 		
·			1
	- -		
			<u> </u>
	1 11		
	- 		ļl
	_		
	1 11	•	
	┥╾─┤┟╴		
* DETECTION LIMIT * *	.54%	+ DETECTION LIMIT + +	
ABBREVIATIONS USED:			
N D = NONE DETECTED AT OR ABOV	ר יייי פייאייים	DETECTION LIMIT	
T R = DETECTED AT A LEVEL BELOW		•	
[RESULTS IN BRACKETS] ARE UNCON	FIRMED AND/OR	WITH APPROXIMATE QUANTITATION	
101		0 1	7
LABORATORY REMARKS: July fine	compour	nels ranging from la	sly
eluting they to les	a little to	I lend to which the	to
The state of	montale a	surgene sugers accu	nea
by the sholoronization	n delecto	To best not identified	· le
Chart to	/		
- (Milmirasions grange	Jon 1	- 5 pps	
CERTIFIC	ATE OF ANALYT	ICAL PERSONNEL	
, ,	4		
Seal(s) Intact: Yes No Seal(s) broken		Alalia date:	
I certify that I followed standard laboratory proced			ed and
that the statements on this page accurately reflect	the analytical resu	ults for this sample.	
Date(s) of analysis: 5/3/88. Analyst's	signature:	ery & Elen	
I certify that I have reviewed and concur with the	•		is block.
Reviewers signature: K Meyarhein	<u>/</u>		



New Mexico Health and Er ment Department SCIENTIFIC LABORATORY DIVISION 700 Camino de Salud NE Albuquerque, NM 87106 — (505) 841-2555

859 WNN GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4	A1188 K	SWC-1347	JSER CODE 59300	□ 59600 🖎 (OTHER: 82235	7
Collection DATE 19			ample location	-ORO Oil	Final	out Sall
Collection TIME	·	ATION .	ollection site description	(1)	,	
Collected by - Person/A	sency /Bail	en /000		HOSPAN	7	
	Finance		JUN 1 0 198	9 119 1	<u> </u>	
Е	NVIRONMENT	AL BUREAU	and the second s	TO HILL.		
SEND PINAL	M OIL CONS	ERVATION DIVI	ISION 111	.}*** ↑		
		IM 87504-2088	FU DUX ZUOL	,		**************************************
	David Boy		and the second second second second second			,
	. •				Station/	/ 0 @hu/ 6 12 a
	e: 827-58	12			well code // /	V, R 8W, 6, 4×4
SAMPLING COI						
	☐ Pump ☐ Tap	Water level	_	Discharge / 5	- 9pm Sam	pple type 63ab
pH (00400)		Conductivity (Uncorr		Water Temp. (00010)		ductivity at 25°C (00094)
Field comments	, 0 —		280 µmho	0.0	27 °C	μmho
Field comments	Disch	wige ?	Som Fine	oil-wate	2 Nepa	rato to orray
		······				
SAMDI E EIEI D	TREATMENT	— Check proper	hoves			
No. of samples	/ SZNF	14/5-15-5-5-15	F: Filtered in	field with	2 14 60:// od	
submitted	CXIN	(Non-filtered)		mbrane filter	2 ml H₂SO₄/L ad	aea
DNA: No aci	d added 🗆 C	ther-specify:	□A:	5ml conc. HNO3 a	dded	4ml fuming HNO3 added
ANALYTICAL R	ESULTS from	SAMPLES				
NA NA		U	nits Date analyzed	From NF,	NA Sample:	Date
Conductivity (C 25°C (00095)	corrected)	2732	$\frac{1}{100} \frac{6/3}{2}$	1	·	Analyzed .
	hia.			Salcium_	10.0	mg/1 5/19
☐ Total non-filtera residue (susper				Potassium		mg/1 5/10
(00530) Cother:	nd -	8.68	ng/1 - 1/3	Magnesium		
☐ Other:				Sodium	641	
☐ Other:				Bicarbonat		
A-H₂SO₄				Chloride	146	mg/1 s/s
☐ Nitrate-N+, Ni	trate-N			Sulfate _	542	mg/1 //
total (00630) Ammonia-N tot	al (00610)		ng/l ng/l	Total Soli		
☐ Total Kjeldahl-N				1000		
() Chemical oxyg	 en	r	ng/l	1 🗕 —	<u> </u>	· · · · · · · · · · · · · · · · · · ·
demand (0034	D)		ng/l	- U		<u> </u>
Total organic ca		r	ng/l	- Cation/A	.nion Balan	ice
☐ Other:	· 			Analyst	Date Report	
					617	88
Laboratory remark	s			,		
	***************************************				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
			1/1/	<u> </u>	$\overline{}$	A 267
			1/2-1/19	Phone of Lett	2	Inital

ANALYI	CATIONS E MEQ.	PPM	DET.	ANALYT	ANIONS E MEQ.	PPM	DET.
Ca Mg Na K	0.50 0.30 27.88 0.08	10.00 3.70 641.00 3.00	<3.0 <0.3 <10.0 <0.3	HC03 SO4 CL	11.54 11.29 4.12	704.00 542.00 146.00	<1.0 <10.0 <5.0
Mn Fe	0.00	0.00		NO3 CO3 NH3 PO4	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	< 0. < 1. < 0. < 0.
SUMS	28.76	657.70			26.95	1392.00	
	Dissolved alance =	Solids= 106.73%	1818		C No.	= \(\text{8801347} \)	27



New Mexico Health and Environment Department SCIENTIFIC LABORATOR VISION • 700 Camino de Salud NE Albuquerque, NM 87106

HEAVY WETAL ANALYSIS FORM Telephone: (505)841-2553

Date Received 4/2/180 No.Z(P-/37 Co	er (5) coos 5 ch
	de \$\frac{2235}{2235} Other: h mm COLLECTION SITE DESCRIPTION
88 04 19 11	105 PESORO OIL-HOSMAN
COLLECTED BY:	
	Sind Outleast
TO:	OWNER:
ENVIRONMENTAL BUREAU NM OIL CONSERVATION DIVISION State Land Office Bldg., PO Box SANTA FE, NM 87504-2088 ATTN: BRUIS BUYER TELEPHONE: 827-5812 STA	SITE LOCATION: County: McKinfey 2088 Township, Range, Section, Tract: (10N06E24342) [[]
SAMPLING CONDITIONS:	ONGITUDE:
☐ Bailed ☐ Pump Water Leve	el: Discharge: Sample Type:
pH(00400) Conductivity(Uncorr.) Wa	ter Temp. (00010) Conductivity at 25°C
	(00094)
7,5 John pmho FIELD COMMENTS:	17 °c µmho
FIELD COMMENTS.	·
SAMPLE FIELD TREATMENT Check proper boxes:	LAB ANALYSIS REQUESTED:
WPN: Water WPF: Water	ICAP Scan
Preserved w/HNO Preserved w/HNO	
Non-Filtered Filtered	is required.
ANALYTICAL	RESULTS (MG/L)
ELEMENT ICAP VALUE AA VALUE	ELEMENT ICAP VALUE AA VALUE
Aluminum 0.2 Barium 40.)	Silicon <u>5.1</u> Silver 40.1
Beryllium <p.)< td=""><td>Strontium 0.3</td></p.)<>	Strontium 0.3
Boron 0.2	Tin 20.1
Cadmium 40.1	Vanadium <0,1
Calcium 6.9	Zinc 0.1
Chromium 40.1	Arsenic 4 <0.005
Cobalt <0.05	Selenium \(\square\) <0.005
Copper <0.1 Iron 0.3	Mercury 2 20.0005
Lead <0.1	
Magnesium 2.1	
Manganese 0.06	<u> </u>
Molybdenum 20.1 Nickel 20.1	
10.10	
LAB COMMENTS:	D16 6-5 7
Phone or Letter?	Analyst B Reviewer Ochly Analyzed 5/11/88 Date Reveived 5/16/88
Initials: Date	Analyzed 5/11/88 Date Reverved 5/12/88

E OF NEW MEXICO

Albuquerque, NM 87106 841-2570

11	
المستريخ المستريرة	
A STA	T
T	
ENVIRONMENT	

1-2570	
S.L.D. No. OR	-500
DATE REC.	21/80
PRIORITY 3	
USER CODE: 8 2 2 3	5 1
CODE: 12 6 0	
1911150	1 1
CODE:	
CODE:	
81W+014+21/210	10N06E24342)
indicate the type of analytical scr	eens
EXTRACTABLE SCREENS	
(751) Aliphatic Hydrocarbons	
(760) Organochlorine Pesticides	
(755) Base/Neutral Extractables	•
(758) Herbicides, Chlorophenoxy ac	id
(759) Herbicides, Triazines	
(760) Organochlorine Pesticides	
(761) Organophosphate Pesticides	
(767) Polychlorinated Biphenyls (P	CB's)
(764) Polynuclear Aromatic Hydrod	carbons
(762) SDWA Pesticides & Herbicid	des
On an of Final +	and For
som of some	TUT IS
sidual=mg/l	
ft.; Casing:	
-	
7/2000 5 1	0 T
of lexon Fina	Vous
grow lake outo	Wat Cu
ny field analyses, observations and	n 1-
Method of Shipment to the Lab: $\int d$	laced
hlorine residual.	
to .	
:_	and that
Seals Intact: Yes No	_
!! ··· !	
	/
	Initial
	none or Letter?



THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical	screening method(s)	hecked below:	
PURGEABLE SCREENS (753) Aliphatic Purgeables (1-3 Carbons) (754) Aromatic & Halogenated Purgeable (765) Mass Spectrometer Purgeables (766) Trihalomethanes		EXTRACTABLE SCREENS (751) Aliphatic Hydrocarbons (760) Organochlorine Pesticides (755) Base/Neutral Extractables (758) Herbicides, Chlorophenoxy acid	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;
Other Specific Compounds or Clas	sses	(759) Herbicides, Triasines (760) Organochlorine Pesticides (761) Organophosphate Pesticides (767) Polychlorinated Biphenyls (PCB's	
		(762) SDWA Pesticides & Herbicides	
· <u>.</u>	<u>ANALYTICAI</u>	. RESULTS	
COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC. [PPB]
promotic nursuable	N.D.		
habaenatha Burgean	les N.D.		
			_
* DETECTION LIMIT *	* 543/2	+ DETECTION LIMIT +	-
	LOW THE STATED	DETECTION LIMIT DETECTION LIMIT (NOT CONFIRMED) R WITH APPROXIMATE QUANTITATION	
ABORATORY REMARKS:			
<u> </u>			
/	FICATE OF ANALYT		:
eal(s) Intact: Yes No . Seal(s) brok certify that I followed standard laboratory pr nat the statements on this page accurately ref	ocedures on handling	and analysis of this sample unless otherwise no	oted and
	t's signature:	1 10	
certify that I have reviewed and concur with	·	for this sample and with the statements in	this block.
eviewers signature:			



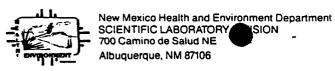
New Mexico Health and Envenent Department SCIENTIFIC LABORATORY DIVISION 700 Camino de Salud NE Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4 21 KV N	AB WC-BY6 CODE 59300	o □ 59600 [XX o	THER: 82235	1		
80 OF 19	SITE Sample location	Ospach - Sa	endorrol	Labe outfall		
Collection TIME-	ATION		2 /			
Collected by - Person/Agency Roll	/0CD 10CD	Samp	le fron	Culver		
With the second	JUN 1 10 195					
ENVIRONMENT	TAL BUREAU	TIMEN .	***************************************			
SEND NM OIL CONS	SERVATION-DIVISION Office Bldg, PO Box 208	8				
DEBOOT	VM 87504-2088	-				
Attn: David Boy	yer					
Dhomas 027 FG			Station/ well code / 7 /	1000 120		
Phone: 827-58	312		Owner Owner	$\gamma, g\omega, q, \chi/2$		
SAMPLING CONDITIONS Bailed Dump	Water level	Discharge	Samo	e type		
© Dipped □ Tap		~100	Cuedos	GRab		
pH (00400) & - S	Conductivity (Uncorrected) 2427) µmho	Water Temp. (00010)	4 C Condu	ictivity at 25°C (00094) µmho		
	, 	1	775 0	prinito :		
1VD SU	reenodor	:		***************************************		
SAMPLE FIELD TREATMEN	T — Check proper boxes					
No. of samples submitted	*: Whole sample	field with	ml H ₂ SO ₄ /L adde	ed		
			1.1 - 4. /	1 6 4 - 100 - 11-1		
NA: No acid added (Other-specify: ———————————————————————————————————	omi conc. HNO3 ad	ded [A: 4]	ml fuming HNO ₃ added		
ANALYTICAL RESULTS from	1 SAMPLES Units Date analyze	al = · · ·				
(Conductivity (Corrected)	7	From <u>NS</u> ,	NA Sample:	Date = Analyzed		
25°C (00095)	3130 jumho 6/6	_ .				
☐ Total non-filterable	•	Calcium	<u>6.0</u> m	g/1 <u>5/19</u>		
residue (suspended) (00530)	mg/i	Potassium _		g/1 5/10		
State: Las pH _	8.93	_ Magnesium _	<u> </u>	g/15719		
Other:		Sodium	742 m			
		Bicarbonate				
A-H ₂ SO ₄		Chloride _	208 m			
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	Sulfate	530 m			
☐ Ammonia-N total (00610)	mg/l	- Total Solid	s 2069 m	1g/15/20		
☐ Total Kjeldahl-N ☐ ()	mg/l					
☐ Chemical oxygen demand (00340)	mg/l		·	· .		
☐ Total organic carbon						
()	mg/l	- Cation/A				
☐ Other:		Analyst	Date Reported	Reviewed by		
Laboratory remarks	6720					

\	r 1	1				
	//	<u> </u>				

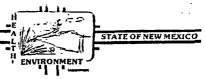
	CATIONS		~~~		ANIONS		
ANALYT	E MEQ.	PPM	DET. LIMIT	ANALYT	E MEQ.	PPM	DET. LIMIT
Ca Mg Na K	0.30 0.60 32.27 0.10	6.00 7.30 742.00 4.00	<3.0 <0.3 <10.0 <0.3	HC03 SO4 CL	13.16 11.04 5.87	803.00 530.00 208.00	<1.0 <10.0 <5.0
Mn Fe	0.00	0.00		NO3 CO3 NH3 PO4	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	< 0. < 1. < 0. < 0.
SUMS	33.28	759.30			30.07	1541.00	
	Dissolved lance =	Solids= 110.67%	2069		C No. out/By	= 8801346	_



HEAVY WETAL ANALYSIS FORM Telephone: (505)841-2553

Date Received 4 2188 No. 70-135 Cod	
COLLECTION DATE & TIME: YY mm dd hh	collection site description Hospah Sandoval Lake
COLLECTED BY: Rough & Co. A. Par	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
- 10097 Balley more	Culment discha
TO:	OWNER:
ENVIRONMENTAL BUREAU	SITE LOCATION:
NM OIL CONSERVATION DIVISION	County: McKinley
State Land Office Bldg., PO Box 2	2088
SANTA FE, NM 87504-2088	Township, Range, Section, Tract: (10N06E24342)
- Barrell Barrell	117W40BW40H+21/121
ATTN: WALLE STATE	FION/ WELL CODE:
· .	
LATITUDE, LON SAMPLING CONDITIONS:	NGITUDE:
Bailed Pump Water Level	l: Discharge: Sample Type:
Dipped Tap	NIDOPPM TRABE
pH(00400) Conductivity(Uncorr.) Wat	ter Temp. (00010) Conductivity at 25°C
8.5 2480 µmho	19-5°c (00094)
FIELD COMMENTS:	, , o d l james o
SAMPLE FIELD TREATMENT	LAB ANALYSIS REQUESTED:
Check proper boxes:	IAD ANALISIS REQUESTED.
WPN: Water WPF: Water	ICAP Scan
Preserved w/HNO, Preserved w/HNO,	Mark box next to metal if AA
Non-Filtered Filtered	is required.
ANALYTICAL R	RESULTS (MG/L)
ELEMENT ICAP VALUE AA VALUE	ELEMENT ICAP VALUE AA VALUE
Aluminum <u>1.4</u>	Silicon <u>4,2</u>
Barium <u><0.1</u>	Silver
Beryllium <0.1	Strontium 0.2
Boron 0.2	Tin 40.1
Cadmium 40.1	Vanadium <o. < a=""></o. <>
Calcium 6.9	Zinc <u>40.1</u> Arsenic × 20.005
Chromium <0.1 Cobalt <0.1	· · · · · · · · · · · · · · · · · · ·
Copper 20.1 Iron 1.5	Mercury (20.0005
Lead <u>20.</u> Magnesium 2.9	
Manganese 0.05	
Molybdenum <0,(
Nickel 40.\	
LAB COMMENTS:	D16651
For OCD Use:	00 0 11
Date Owner Notified: 6/5/99 ICAP	Analyst B Reviewer In ally
Phone or letter?	Analyzed 5/9/88 Date Reveived 5/12/77 a
Initials: NAR Date	Analyzed 5/9/88 Date Reveived 5/12/70 a

700 Camino de Salud NE Albuquerque, NM 87106 841-2570



REPORT TO:	David Boyer	S.L.D. No. OR- 499 A+B
1400 0	N.M. Oil Conservation Division	DATE REC. 4/21/88
0499- C	P. O. Box 2088	
TrU	Santa Fe, N.M. 87504-2088	PRIORITY 3
PHONE(S):	327-5812	USER CODE: 8 2 2 3 5
SUBMITTER:	David Boyer	CODE: 2 6 0
	ection code: (YYMMDDHHMMIII) $ \mathcal{B} \mathcal{S}$	101411911311512418
SAMPLE TYPE:	WATER SOIL , FOOD , OTHER:	CODE:
	nt Kinley; CITY: HOSP	
LOCATION COD	E: (Township-Range-Section-Tracts)	$\sqrt{ \mathcal{S} } = \sqrt{ \mathcal{S} } = \mathcal$
	QUESTED: Please check the appropriate box(es) or possible list specific compounds suspected or	below to indicate the type of analytical screens
required. Whenev	PURGEABLE SCREENS	EXTRACTABLE SCREENS
[(753) Alipha	tic Purgeables (1-3 Carbons)	(751) Aliphatic Hydrocarbons
	atic & Halogenated Purgeables	(760) Organochlorine Pesticides
	Spectrometer Purgeables	(755) Base/Neutral Extractables
(766) Trihal		(758) Herbicides, Chlorophenoxy acid
Other	Specific Compounds or Classes	(759) Herbicides, Triazines
<u> </u>		(760) Organochlorine Pesticides
<u> </u>		(761) Organophosphate Pesticides
<u></u>		(767) Polychlorinated Biphenyls (PCB's)
		(764) Polynuclear Aromatic Hydrocarbons (762) SDWA Pesticides & Herbicides
		(102) DD WA I CAUCIUCA OF HEIDICIUES
Remarks:		
FIELD DATA: pH=6,5; Co	onductivity= <u>1440</u> umho/cm at <u>l/</u> °C; Cl n=mg/l; Alkalinity=mg/l; Flow	nlorine Residual=mg/l
FIELD DATA: pH=; Co Dissolved Oxygen	mg/l; Alkalinity= mg/l; Flow	nlorine Residual=mg/l Rate/
pH=6,5; Co	mg/l; Alkalinity= mg/l; Flow in the mg/l; Flow i	nlorine Residual=mg/l Rate/
PIELD DATA: pH= 6,5; Co Dissolved Oxyger Depth to water Sampling Location Riff I certify that the activities (signature) This form accommoders	mg/l; Alkalinity= mg/l; Flow mg/l	nlorine Residual=mg/l Rate
PIELD DATA: pH=; Co Dissolved Oxyger Depth to water Sampling Location I certify that the activities (signatu) This form accom Samples were proposed in the propo	mg/l; Alkalinity= mg/l; Flow ft.; Depth of well ft.; Perforation, Methods and Remarks (i.e. odors, etc.) The results in this black accurately reflect the results in this black accurately reflect the results as follows: No Preservation; Sample stored at room temp Sample stored in an ice bath (Not Frozen). Sample Preserved with Sodium Thiosulfate to	nlorine Residual=mg/l Rate
PIELD DATA: pH=; Condition	mg/l; Alkalinity= mg/l; Flow ft.; Depth of well ft.; Perforation, Methods and Remarks (i.e. odors, etc.) The results in this black accurately reflect the results in this black accurately reflect the results as follows: No Preservation; Sample stored at room temp Sample stored in an ice bath (Not Frozen). Sample Preserved with Sodium Thiosulfate to	nlorine Residual=mg/l Rateft.; Casing: n Intervalft.; Casing: get from tonk to trought sults of my field analyses, observations and Method of Shipment to the Lab: State Calledon, and/or perature. remove chlorine residual.
FIELD DATA: pH=6,5; Co Dissolved Oxyger Depth to water Sampling Location I certify that the activities (signatus This form accomes Samples were proposed in the proposed	mg/l; Alkalinity= mg/l; Flow ft.; Depth of well ft.; Perforation, Methods and Remarks (i.e. odors, etc.) Mine results in this block accurately reflect the refree collector): Septum Vials, Glass Jugs reserved as follows: No Preservation; Sample stored at room temp Sample stored in an ice bath (Not Frozen). Sample Preserved with Sodium Thiosulfate to	nlorine Residual=mg/l Rate
PIELD DATA: pH=; Condition Dissolved Oxyger Depth to water Sampling Location I certify that the activities (signature of the comples were proposed or the comples were proposed or the comples were proposed or the comples were proposed or the comples were proposed or the comples were proposed or the comples were proposed or the comples were proposed or the complex were propo	mg/l; Alkalinity= mg/l; Flow ft.; Depth of well ft.; Perforation, Methods and Remarks (i.e. odors, etc.) Mine results in this block accurately reflect the refree collector): Septum Vials, Glass Jugs reserved as follows: No Preservation; Sample stored at room temp Sample stored in an ice bath (Not Frozen). Sample Preserved with Sodium Thiosulfate to STODY	nlorine Residual=mg/l Rate
PIELD DATA: pH=; Condition Dissolved Oxyger Depth to water Sampling Location I certify that the activities (signature of the company of the company of the company of the certify that the certification The condition of the certification The certification of the certificatio	mg/l; Alkalinity= mg/l; Flow ft.; Depth of well ft.; Perforation, Methods and Remarks (i.e. odors, etc.) Mine results in this black accurately reflect the refree collector): Septum Vials, Glass Jugs reserved as follows: No Preservation; Sample stored at room temp Sample stored in an ice bath (Not Frozen). Sample Preserved with Sodium Thiosulfate to STODY This sample was transferred from	nlorine Residual=mg/l Rate



LAB. No.: OR- 499

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screen	eening method(s)	checked below:	
PURGEABLE SCREENS		EXTRACTABLE SCREENS	
(753) Aliphatic Purgeables (1-3 Carbons)		(751) Aliphatic Hydrocarbons	
(754) Aromatic & Halogenated Purgeables		(760) Organochlorine Pesticides	
(765) Mass Spectrometer Purgeables		(755) Base/Neutral Extractables	
(766) Trihalomethanes		(758) Herbicides, Chlorophenoxy acid	•
Other Specific Compounds or Classes		(759) Herbicides, Triazines	
		(760) Organochlorine Pesticides	
		(761) Organophosphate Pesticides	
		(767) Polychlorinated Biphenyls (PCB's	1)
		(764) Polynuclear Aromatic Hydrocarbo	
		(762) SDWA Pesticides & Herbicides	
. Al	NALYTICA	L RESULTS	
COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC.
dromatio suspelle	N.D.		
helegenote le la Al	N.D.		
parsoynava ypurglable	1 10.N-		
			
	- 		_
*	1-1-1	1	
* DETECTION LIMIT * *	15-991	+ DETECTION LIMIT +	
ABBREVIATIONS USED: N D = NONE DETECTED AT OR ABOV T R = DETECTED AT A LEVEL BELOV [RESULTS IN BRACKETS] ARE UNCOR	W THE STATED	DETECTION LIMIT (NOT CONFIRMED)	
ABORATORY REMARKS:	T		······································
THE PARTY AND TH			
			<u> </u>
			
			
CEDTIFIC	ATE OF AMALY	TICAL PERSONNEL	
		L III	
al(s) Intact: Yes No Seal(s) broken	by:	Asset date:	
certify that I followed standard laboratory proceed			oted and
at the statements on this page accurately reflect	the analytical re	sults for this sample.	
ate(s) of analysis: 5/3/88. Analyst's	signature:	ruy l. Eden	
certify that I have reviewed and concur with th	ne analytical resul	for this sample and with the statements in	this block.
eviewers signature: K. Meyerhell		·	
			



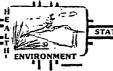
New Mexico Health and Engagement SCIENTIFIC LABORATORY SWISION 700 Camino de Salud NE
Albuquerque, NM 87106 -- (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

<u> </u>				-		
PECEIVED 4	1211881	ON 116-1343 CODE 5930	o □ 59600 💢 Ç	THER: 82	235	
Collection DATE 19		SITE Sample location ATION	IA Wind		-Hospei	7
	1000001/4	Collection site description	n # 15T-5	64		
Collected by Rerson.	I Partil	And ord OCRE / STITI		-		
	+ Ve	105000				
	ENVIRONMENT	TAL BUREAU				
SEND	NW OIT CONS	SERVATION DIVISION				
FINAL REPORT	State Hand	Office Bldg, PO Box 208	00		·	
TO	Santa CIECO	MS87504180881VISION				
Attn	: David Boy	yer SANTA FE				
Pho	ne: 827-58	212		Station/ well code	TN BW	8.131
		512		Owner	<i>y.v. o.c.</i>	07/07
SAMPLING CO	□ Pump	I Mater In al	Discharge		Comple time	
☐ Dipped.	□ Tap	Water level	Discharge	•	Sample type	rk .
pH (00400)	0 >	Conductivity (Uncorrected)	Water Temp. (00010)	11	Conductivity at 25°C	(00094)
	6-5	1440 µmho	<u></u>	<i>l/</i> °C		μmho
Field comments	Samh	la scrom disi	honos to	trace	ille From	n storage
tos	h		yus age	<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>	1101 3. 42 3.	70
_ Con			······································			
SAMPLE FIEL	D TREATMEN	T — Check proper boxes				
No. of samples		. Whole sample 🗆 F. Filtered in	n field with \(\pi \lambda \cdot 2	2 ml H ₂ SO ₄ /	l added	
submitted	/ - - -	· (Non-filtered) · 0.45 μme	embrane filter	- 1111 112004/	Lauded	
NA: No a	cid added 🗆 C	Other-specify:	5ml conc. HNO3 ac	lded 🗖	A: 4ml fuming	${\rm HNO_3}$ added
ANALYTICAL	RESULTS from	SAMPLES				· · · · · · · · · · · · · · · · · · ·
NA		Units Date analyze	ed - n/C	VI C1-	n.	<u> </u>
∕ Conductivity	(Corrected)	7077/	From NF ,	NA Sample	e: Dar / Anal:	
25°C (00095)	7077 jumbo 5/23	-		/	
☐ Total non-filte	erable		Calcium	8	mg/7	<u> </u>
residue (sust			Potassium		3 mg/7 5/	10
(00530)	[mt/ -	9.05 6/3	Magnesium _	14.		•
Other:	6 pu -					<u></u>
☐ Other:			Sodium			7_
			Bicarbonate		582mg/16	2/3
A-H ₂ SO ₄			Chloride _	28	<u> 5 mg/1 6/</u>	3
□ Nitrate-N+, total (00630)		en es il	Sulfate	43		
□ Ammonia-N		mg/l mg/l	Total Solid			
☐ Total Kjeldah	, ,		- Ha 10141 3011	<u> </u>	9/	
()		mg/l	- U <i></i>			
☐ Chemical oxy demand (003		mg/l				
☐ Total organic	carbon				-	
()	·	mg/l	- 🛛 Cation/A	nion Ba	lance	
☐ Other:			Analyst	Date R	leported Reviewe	d by
J				8	7 84 00	<u> </u>
Laboratory rema	ırks					
·	***************************************					
EOD OCD III	CE - Dot- (rmar Natifich Alets	Phone or Lett	er2	Initals	190
FUR OUD U	or Date (Owner Notifie	- riione of merr	~ 	+urcars	3/VE

ANALY	CATIONS TE MEQ.	PPM	DET.	ANALYT	ANIONS E MEQ.	PPM	DET.
Ca Mg Na K	0.40 1.20 20.40 0.08	8.00 14.60 469.00 3.00	<3.0 <0.3 <10.0 <0.3	HC03 SO4 CL	9.54 8.98 0.80	582.00 431.00 28.50	<1.0 <10.0 <5.0
Mn Fe	0.00	0.00 0.00 494.60		NO3 CO3 NH3 PO4	0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	< 0. < 1. < 0. < 0.
	22.08 Dissolved alance =		1334		C No. out/By	= 8801343	<u>-</u>

NTIFIC LABORATORY DIV 700 Camino de Salud NE Albuquerque, NM 87106 841-2570



STATE OF NEW MEXICO

REPORT TO:	David Boyer	S.L.D. No. OR-	503 ALB
)503.c	N.M. Oil Conservation Division	DATE REC.	4/21/88
1303.46	P. O. Box 2088		1/0/00
WDU	Santa Fe, N.M. 87504-2088	PRIORITY	3
J 751	327-5812	USER CODE: 8 2	2 3 5
SUBMITTER:	David Boyer		0 :
	ection code: (YYMMDDHHMMIII) $ \mathcal{B} \mathcal{B}$		12 48
SAMPLE TYPE	WATER SOIL , FOOD , OTHER:	CODE:	
COUNTY:	Mc Kinley ; CITY: Has	pah code:	
LOCATION COI	DE: (Township-Range-Section-Tracts)	N+0191W+D11+21.	(10N06E24342)
	QUESTED: Please check the appropriate box(es)		ytical screens
required. Whenev	ver possible list specific compounds suspected or PURGEABLE SCREENS	EXTRACTABLE SCRE	ENS
(753) Aliph	atic Purgeables (1-3 Carbons)	(751) Aliphatic Hydrocarb	
	atic & Halogenated Purgeables	(760) Organochlorine Pest	•
(765) Mass	Spectrometer Purgeables	(755) Base/Neutral Extrac	•
(766) Triha	omethanes	(758) Herbicides, Chloroph	nenoxy acid
Othe	r Specific Compounds or Classes	(759) Herbicides, Triazines	
		(760) Organochlorine Pest	icides
		(761) Organophosphate Pe	esticides
<u> </u>		(767) Polychlorinated Bip	- '
		(764) Polynuclear Aromat	ic Hydrocarbons
		() () () () () () () () () ()	
Remarks:		(762) SDWA Pesticides &	: Herbicides
FIELD DATA:	conductivity= <u>750</u> umho/cm at <u>1</u> oc; c		: Herbicides
PIELD DATA:	conductivity= <u>750</u> umho/cm at <u>l</u> °C; C n=mg/l; Alkalinity=mg/l; Flow	hlorine Residual=mg/l	: Herbicides
FIELD DATA: pH=; C Dissolved Oxyge	• • • • • • • • • • • • • • • • • • • •	hlorine Residual=mg/l	: Herbicides
FIELD DATA: pH=; C Dissolved Oxyge Depth to water Sampling Location Rab	m=mg/l; Alkalinity=mg/l; Flow	hlorine Residual=mg/l Rateft.; Casing:_ Sample Framile	Then top
PIELD DATA: pH=; Continue of the photon of the photo	memg/l; Alkalinity=mg/l; Flow ft.; Depth of well 300 ft.; Perforation on, Methods and Remarks (i.e. odors, etc.) on the collector of the collector of the results in this black accurately reflect the results in the collector of the col	hlorine Residual=mg/l Rateft.; Casing:_ Sample Framki Delay . Well w esults of my field analyses, observati Method of Shipment to th	Then top Moverying
PIELD DATA: pH=; O Dissolved Oxyge Depth to water Sampling Location I certify that the activities (signature of the correction	memg/l; Alkalinity=mg/l; Flow ft.; Depth of well 3000 ft.; Perforation on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) On Control of the co	hlorine Residual=mg/l Rate	Then top Moverying
PIELD DATA: pH=; O Dissolved Oxyge Depth to water Sampling Location I certify that to activities (signature of the correct of the	memg/l; Alkalinity=mg/l; Flow ft.; Depth of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 400 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 400 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 400 ft.; Perforation, Methods and Remarks (i.e	hlorine Residual=mg/l Rate	Then top Moorying
PIELD DATA: pH=; O Dissolved Oxyge Depth to water Sampling Location I certify that to activities (signature of the correct of the	memg/l; Alkalinity=mg/l; Flow ft.; Depth of well 3000 ft.; Perforation on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) on, Methods and Remarks (i.e. odors, etc.) On Control of the co	hlorine Residual=mg/l Rate	Then top Moorying
FIELD DATA: pH=; O Dissolved Oxyge Depth to water Sampling Location I certify that to activities (signated to the continuous continu	ft.; Depth of well Control on, Methods and Remarks (i.e. odors, etc.) And Some C. Well One Control of the results in this block accurately reflect the results in this block accurately reflect the results collector): Inpanies Septum Vials, Glass Jugs reserved as follows: No Preservation; Sample stored at room temps Sample stored in an ice bath (Not Frozen). Sample Preserved with Sodium Thiosulfate to isstory this sample was transferred from	hlorine Residual=mg/l Rate	Then top Moorying
FIELD DATA: pH=; C Dissolved Oxyge Depth to water Sampling Location I certify that to activities (signated to the continuous corrections) I certify that to activities were possible. P-Ice P-Na S O CHAIN OF CU I certify that to at (location) the statements	memg/l; Alkalinity=mg/l; Flow ft.; Depth of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) column 100 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 300 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 400 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 400 ft.; Perforation, Methods and Remarks (i.e. odors, etc.) graph of well 400 ft.; Perforation, Methods and Remarks (i.e	hlorine Residual=mg/l Rate	Then top Morryson ons and e Lab: Stato Co
FIELD DATA: pH=; O Dissolved Oxyge Depth to water Sampling Location I certify that to activities (signated to the continuous continu	ft.; Depth of well Control on, Methods and Remarks (i.e. odors, etc.) And Some C. Well One Control of the results in this block accurately reflect the results in this block accurately reflect the results collector): Inpanies Septum Vials, Glass Jugs reserved as follows: No Preservation; Sample stored at room temps Sample stored in an ice bath (Not Frozen). Sample Preserved with Sodium Thiosulfate to isstory this sample was transferred from	hlorine Residual=mg/l Rate	Then top Movrying ons and e Lab: Statola



LAB. No.: OR- 503

THIS PAGE FOR LABORATORY RESULTS ONLY

This sample was tested using the analytical screen	ning method(s)	checked below:	,
PURGEABLE SCREENS		EXTRACTABLE SCREENS	,
(753) Aliphatic Purgeables (1-3 Carbons)		(751) Aliphatic Hydrocarbons	
(754) Aromatic & Halogenated Purgeables		(760) Organochlorine Pesticides	•
(164) Mass Spectrometer Purgeables		(755) Base/Neutral Extractables	
· · ·		(758) Herbicides, Chlorophenoxy acid	
(766) Trihalomethanes		· · · · · · · · · · · · · · · · · · ·	
Other Specific Compounds or Classes		(759) Herbicides, Triazines	
		(760) Organochlorine Pesticides	
		(761) Organophosphate Pesticides	
		(767) Polychlorinated Biphenyls (PCB's)	
	-	(764) Polynuclear Aromatic Hydrocarbons	
	···	(762) SDWA Pesticides & Herbicides	
. <u>AN</u>	ALYTICA	L RESULTS	
COMPOUND(S) DETECTED	CONC. [PPB]	COMPOUND(S) DETECTED	CONC.
t 10			
aromalie surglables	NeVe		
believe tt 1 Companille	1/1)		
Inagerala de Jourgenses	Nelle		
	1	<u> </u>	1
		·	
	 		
	t (Į.
	 		
	1		-
* DETECTION LIMIT * *	-us/		
* DETECTION LIMIT * T	5.49h	+ DETECTION LIMIT +	
ABBREVIATIONS USED: N D = NONE DETECTED AT OR ABOVE T R = DETECTED AT A LEVEL BELOW [RESULTS IN BRACKETS] ARE UNCONF	THE STATED	DETECTION LIMIT (NOT CONFIRMED)	i
LADON MONK DESCRIPTION	,		
LABORATORY REMARKS:			
	······································		
			·
CERTIFICA	TE OF ANALY	TICAL PERSONNEL	
		TIONE TERSONNEL	
Seal(s) Intact: Yes No Seal(s) broken by	r:	date:	
I certify that I followed standard laboratory procedu		g and analysis of this sample unless otherwise noted	and
that the statements on this page accurately reflect t	he analytical r	esults, for this sample.	
Date(s) of analysis: 5/3/88 . Analyst's si	•	Harry C-Elen	
I certify that I have reviewed and concur with the	_	' /	block
Reviewers signature: K. Meyerhein			



New Mexico Health and English ment Department SCIENTIFIC LABORATORY DIVISION 700 Camino de Salud NE Albuquerque, NM 87106 — (505) 841-2555 859NN

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 4	1211881	Bwc-1344	ODE 59300	59600 XX	OTHER: 822	235,	
Soll Care	9	SITE INFORM- ▶	Sample location	lospah-b	urlin	Somer	tre well
Collection TIME 5	-	ATION	Collection site description	C. mark.	-		
Collected by Person	Agency Riches	/OCD		Sample S	rom	MAS	lales
SEND FINAL REPORT TO	ENVIRONMENT NM OIL CONS State Land	SERVATION DIV Office Bldg, NM 87504-208	, PO Box: 208	3	Lep	les at	lilehen
	٠٠.				Station/		
	one: 827-58	12			Owner Owner		
SAMPLING C		L Maria (ava)		Diaghana	<u> </u>	C	
☐ Bailed ☐ Dipped	☐ Pump ② Tap	Water level	<u></u>	Discharge -		Sample type	GRAB
pH (00400)	つ	Conductivity (Unco	rrected) 2 ζ μmho	Water Temp. (00010)	/2.0	Conductivity a	t 25°C (00094) µmho
Field comments				:			
		······································		***************************************		***************************************	
			**************************************			***************************************	
SAMPLE FIEL	D TREATMENT	Г — Check prope	r boxes				
No. of samples submitted	/ DNF	Whole sample (Non-filtered)	□ F: Filtered in 0.45 μme	field with A:	2 ml H₂SO₄/	L added	
NA: No a	cid added 🗆 C	Other-specify:	□A:	5ml conc. HNO ₃ a	dded 🗆	A: 4ml fu	ming HNO ₃ added
ANALYTICAL	RESULTS from	SAMPLES					
NA NA			Units Date analyze	From NP,	NA Sample	•	Date
Conductivity 25°C (00095	(Corrected)	1024	umho 5/23		Odinp: d		Analyzed
☐ Other:		8,71	mg/l	Calcium Potassium Magnesium Sodium Bicarbonat	1.2 Z e 2	16mg/1_ 4/_mg/1_	5/10 5/10 6/3
A-H ₂ SO ₄				$\Rightarrow oxtimes$ Chloride $_$	8.15		8/31
☐ Nitrate-N+, total (00630)			mg/l	Sulfate _	244	mg/1	6/5
☐ Ammonia-N			mg/l	- Total Soli	ds <u>588</u>	<u>mg/1</u>	5/23
☐ Total Kjeldah	nt-N 		mg/l	<u> </u>			
☐ Chemical ox demand (00)			mg/l				
☐ Total organic	carbon		mg/l	Cation/A	nion Ba	lance _	
☐ Other: ☐ Other:	•			Analyst	Date R	انستا	eviewed by
Laboratory rema	arks				(b	1 1001	
				<i></i>	~		
			1/10/0	& Phone or Late	des	Tni	1 1 873

	CATIONS		DET.		ANIONS		DET.
ANALYI	E MEQ.	PPM	LIMIT	ANALYTI	E MEQ.	PPM	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	\mathtt{CL}	0.23	8.15	<5.0
K	0.03	1.00	<0.3				
Mn	0.00	0.00	[иоз	0.00	0.00	< 0.
Fe	0.00	0.00	ĺ	C03	0.00	0.00	< 1.
			ĺ	NH3	0.00	0.00	< 0.
			į	PO4	0.00	0.00	< 0.
SUMS	9.77	223.20	† 		9.26	493.15	
Total	Dissolve	d Solids=	2796 J			42	20
Ion Ba	alance =	105.47%		W	C No.	= 8705215	1344
				Date (out/By	121 6	•

i



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.

Ron R. Richardson

Lab Director

enclosures:



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 ourrectur.	01/11/	
noo u ork a neages			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/1		766	4/12

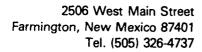


12 April, 1988

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





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/1		613	4/12



12 April, 1988

Mr. Bob Durbin Tesoro Petroleum Corporation Star Route 2 Cuba, NM 87013

Lab ID: Date Received: 04/12/88 F1263 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..... 4/12 Total Settleable Solids, ug/ml...... 4/12 <0.1 Oil & Grease, mg/1..... 4/12 17.0 Total Iron, mg/l..... 0.35 4/12 Sodium, mg/1..... 653 4/12

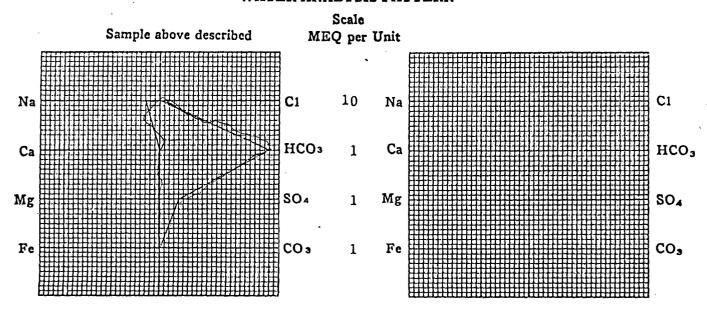
CHEMICAL & GEOLOGICAL LABORTORIES

P. O. Box 2794 Casper, Wyoming

WATER ANALYSIS REPORT

WELL NOII	esoro Petroleum anson & Santa F	e RR	LOCATION	Dept. and water	
			a (no other info		
Cations Sodium	mg/1 688 7 - 8 - 3	meq/1 29.93 0.18 0.40 0.25	Hydroxide Hydrogen sulfide	1379 Present	meq/1 3.74 4.40 22.62
Total dissolved solids, VaC1 equivalent, mg/ Observed pH	1	1721	Specific resistance (Observed Calculated	2 68°F.: 3.90 4.40	ohm-meter

WATER ANALYSIS PATTERN





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

Lab Director

enclosures:



Chromium.....

Copper....

Iron............

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

Tesoro Petroleum Corp. April 11, 1988 CLIENT: Drinking Water Sample Site: WATER from Windmill Lab Id: F1191 Date Collected: 03/21/88 East side of SFR Lease Date Received: 03/21/88 Not on our lease 9.0 Lab pH:...... Lab Conductivity, umhos/cm @ 25C..... 1740 Total Dissolved Solids (180), mg/l...... 1340 Total Dissolved Solids (calc), mg/1..... 1020 Total Suspended Solids, mg/l..... 4.00 Nitrate + Nitrite as "N", mg/l...... <0.01 Ammonia Nitrogen, mg/l..... 0.06 0.21 Boron, mg/1..... 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/lmeq/1<1 <0.01 Acidity as CaCo3..... Bicarbonate as HCO3..... 505 8.28 Carbonate as CO3..... 2.37 71 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

<0.02

<0.01

0.30

Nickel....

Selenium.....

Zinc........

<0.01

<0.005

0.16