GW - 157

WORK PLANS

Energy Production Systems, Inc.

5928 U.S. Highway 64
Farmington, New Mexico 87401
(505) 632-2200

April 19, 1996

Mr. Patricio W. Sanchez
Petroleum Engineer, Environmental Bureau
Oil Conservatin Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Discharge Plan GW-157 Spill Investigation

Dear Mr. Sanchez:

Pursuant to our discussion and in response to your letter dated November 30, 1995, attached please find copies of soil and water samples tested by Intermountain Laboratories, Inc. in Farmington, New Mexico. These samples were taken from (1) Tap Water, (2) Hydro-Test Tank Water, (3) Steel Plate Storage Area, (4) Max Mesa Storage Area, **(5) Spill Area,** (6) Used Equipment Storage Area.

As per our discussion, we tested only for Barium, Cadmium, Chromium, and Lead which tested higher on the initial spill site test. As you will note, the water in both cases tested relatively low for each of these metals. On the other hand, the soil samples consistantly tested higher indicating that these elements are present in all the soils in the area and would not indicate contamination from the spill water or other local sources.

Please review our findings and contact me such that we might discuss the results. These results, I believe, provide adequate information to close this site evaluation.

Respectfully,

John H. Cole
President

John Cole 632-2200

inl Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Energy Production Systems Inc	Soil & Water Samples	
Sampler: (Signature) M Clayton Poulter	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	Total Ba, Cd, Cr, Pb				Remarks
Tap Water				Water	✓	✓				
Hydro Tank Water				Water	✓	✓				
Plate Storage Area				Soil	✓	✓				
Max Mesa Area				Soil	✓	✓				Soil log in
Spill Area				Soil	✓	✓				
Used Unit Storage Area				Soil	✓	✓				
										intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Denise DeVaney	3/25/95	13:10		3/25/95	13:10
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

Inter-Mountain Laboratories, Inc.

34617

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

☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945

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

☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

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

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TRACE METAL CONCENTRATION

Client: **ENERGY PRODUCTION SYSTEMS Inc.**
Project:
Sample ID: Plate Storage Area
Laboratory ID: 46864
Sample Matrix: Soil
Condition: Intact

Date Reported: 04/08/96
Date Sampled: na
Date Received: 03/25/96

Parameter	Result MG/KG	Detection Limit MG\KG	Method
Barium.....	365.00	0.01	EPA 200.7
Cadmium.....	1.00	0.01	EPA 200.7
Chromium.....	18.00	0.01	EPA 200.7
Lead.....	27.20	0.05	EPA 200.7

References: Method 3050: Acid Digestion of Sediments, Sludges, and Soils SW-846, Rev. 1, July 1992.

Reported By:_____

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TRACE METAL CONCENTRATION

Client: **ENERGY PRODUCTION SYSTEMS Inc.**
Project:
Sample ID: Max Mesa Area
Laboratory ID: 46865
Sample Matrix: Soil
Condition: Intact

Date Reported: 04/08/96
Date Sampled: na
Date Received: 03/25/96

Parameter	Result MG/KG	Detection Limit MG/KG	Method
Barium.....	145.00	0.01	EPA 200.7
Cadmium.....	<.01	0.01	EPA 200.7
Chromium.....	6.00	0.01	EPA 200.7
Lead.....	9.00	0.05	EPA 200.7

References: Method 3050: Acid Digestion of Sediments, Sludges, and Soils SW-846, Rev. 1, July 1992.

Reported By:

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TRACE METAL CONCENTRATION

Client: **ENERGY PRODUCTION SYSTEMS Inc.**
Project:
Sample ID: Spill Area
Laboratory ID: 46866
Sample Matrix: Soil
Condition: Intact

Date Reported: 04/08/96
Date Sampled: na
Date Received: 03/25/96

Parameter	Result MG/KG	Detection Limit MG/KG	Method
Barium.....	165.00	0.01	EPA 200.7
Cadmium.....	<.01	0.01	EPA 200.7
Chromium.....	4.00	0.01	EPA 200.7
Lead.....	5.50	0.05	EPA 200.7

References: Method 3050: Acid Digestion of Sediments, Sludges, and Soils SW-846, Rev. 1, July 1992.

Reported By: DV

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TRACE METAL CONCENTRATION

Client: **ENERGY PRODUCTION SYSTEMS Inc.**
Project:
Sample ID: Used Unit Storage Area
Laboratory ID: 46867
Sample Matrix: Soil
Condition: Intact

Date Reported: 04/08/96
Date Sampled: na
Date Received: 03/25/96

Parameter	Result MG/KG	Detection Limit MG/KG	Method
Barium.....	140.00	0.01	EPA 200.7
Cadmium.....	<.01	0.01	EPA 200.7
Chromium.....	8.00	0.01	EPA 200.7
Lead.....	7.00	0.05	EPA 200.7

References: Method 3050: Acid Digestion of Sediments, Sludges, and Soils SW-846, Rev. 1, July 1992.

Reported By:

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Energy Production Systems Inc.**		
Project:	Soil and Water Samples		
Sample ID:	Tap Water	Date Reported:	04/10/96
Laboratory ID:	0396W00451	Date Sampled:	03/22/96
Sample Matrix:	Water	Time Sampled:	13:00
Condition:	Cool/Intact	Date Received:	03/25/96

Parameter	Analytical Result	Units
Trace Metals (Total)		
Barium	0.06	mg/L
Cadmium	<0.001	mg/L
Chromium	<0.01	mg/L
Lead	<0.005	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Comments:

Reported by SB

Reviewed by WM

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Energy Production Systems Inc.**		
Project:	Soil and Water Samples		
Sample ID:	Hydro Tank Water	Date Reported:	04/10/96
Laboratory ID:	0396W00452	Date Sampled:	03/22/96
Sample Matrix:	Water	Time Sampled:	13:05
Condition:	Cool/Intact	Date Received:	03/25/96

Parameter	Analytical Result	Units
Trace Metals (Total)		
Barium	0.1	mg/L
Cadmium	<0.001	mg/L
Chromium	<0.01	mg/L
Lead	<0.005	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Comments:

Reported by SB

Reviewed by WM

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis/Spike Analysis/Blank Analsis
TOTAL METALS

Client: **Energy Production Systems Inc.**
Project: Soil and Water Samples
Laboratory ID: 0396W00451-452
Sample Matrix: Water
Condition: Cool / Intact

Date Reported: 04/10/96
Date Sampled: 03/22/96
Date Received: 03/25/96

Parameter	Found Result (mg/L)	Known Result (mg/L)	Percent Recovery	Date Analyzed
Barium	1.00	1.00	**100%**	04/03/96
Cadmium	0.004	0.004	**107%**	03/29/96
Chromium	1.07	1.00	**107%**	04/03/96
Lead	0.042	0.040	**106%**	03/29/96

Parameter	Spiked Sample Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Barium	0.52	0.06	0.50	**94%**
Cadmium	0.003	<0.001	0.003	**105%**
Chromium	0.50	<0.01	0.50	**101%**
Lead	0.028	<0.005	0.025	**114%**

Blank Analysis

Parameter	Result	Detection Level (mg/L)
Barium	ND	0.01
Cadmium	ND	0.00
Chromium	ND	0.01
Lead	ND	0.005

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Comments: Quality control run concurrently with the above sample lab numbers.

Reported By: BB

Reviewed By: WM

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☐ Telephone ☒ Personal	Time 8:00 AM	Date 11/30/95
Originating Party		Other Parties
Pat Sanchez		Bill Olson

Subject EPS - GW-157 Spill Soil Analysis submitted by Envirotech Inc., (Rec. Oct. 23, 1995 by OCD)

Discussion Discussed Elevated levels of barium, cadmium, chromium, and lead. Note: Ba, Cr, Cd, Pb were above WQCC standards:

	Level (Totals)	WQCC	Level /20
Ba	456 mg/l	1.0 mg/l	22.8 mg/l
Cr	4.07 mg/l	0.05 mg/l	0.2035 mg/l
Cd	0.548 mg/l	0.01 mg/l	0.0274 mg/l
Pb	9.35 mg/l	0.05 mg/l	0.4675 mg/l

Conclusions or Agreements

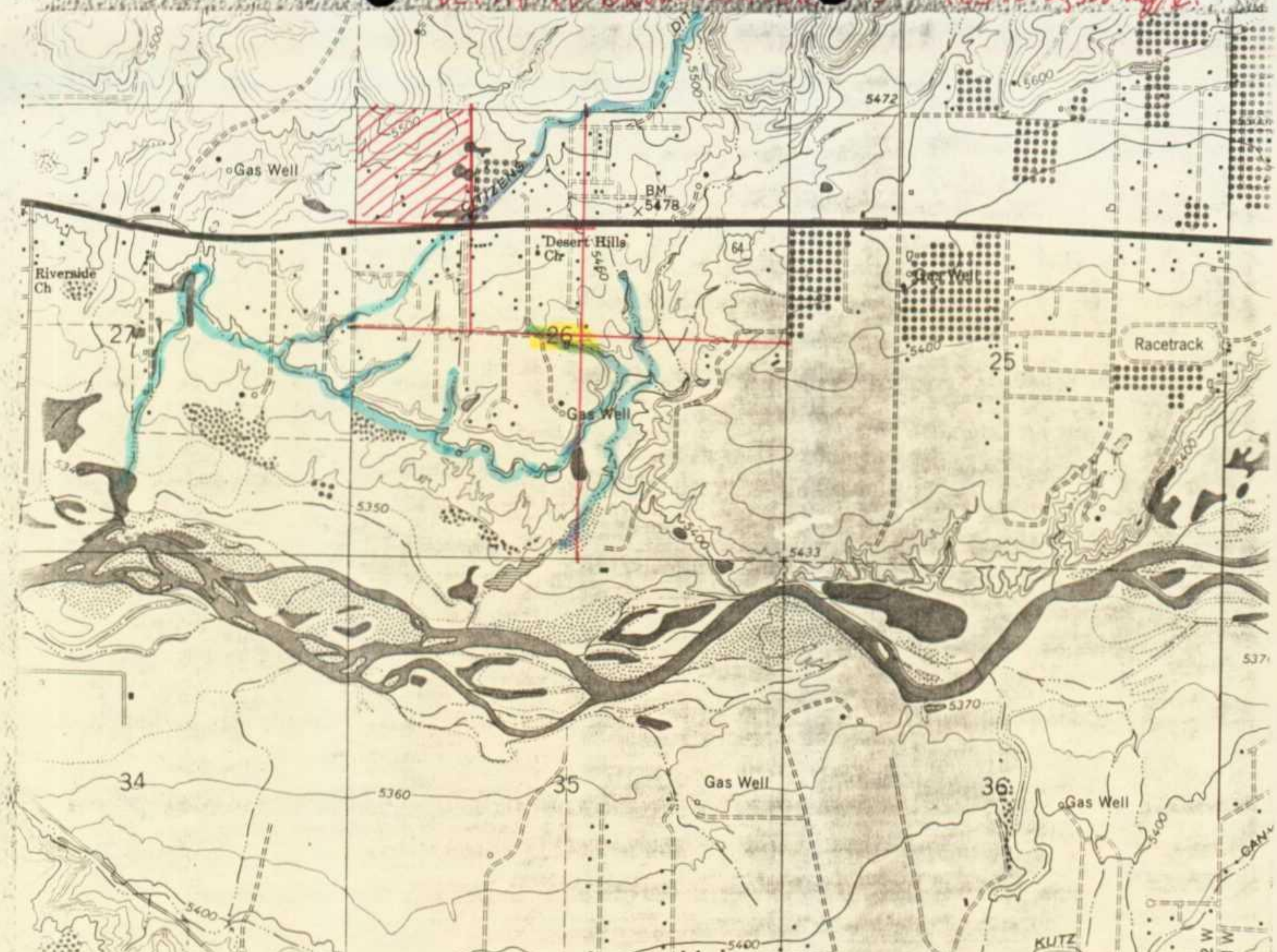
Send a letter telling them to clean up contamination so that the WQCC standards of 3-103.A. are not exceeded. (See Attachments)

Distribution File for GW-157

Signed Patricia W. Sanchez

▨ - LOCATION OF GW-157

DEPTH TO GROUNDWATER ≈ 5' TDS ≈ 2,500 mg/l.



A. Human Health Standards-Ground water shall meet the standards of Section A and B unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria of Section 1-[redacted] for the combination of contaminants, or the Human Health Standard of Section 3-103.A. for each contaminant shall apply, whichever is more stringent.

Arsenic (As)	0.1 mg/l
Barium (Ba)	1.0 mg/l
Cadmium (Cd)	0.01 mg/l
Chromium (Cr)	0.05 mg/l
Cyanide (CN)	0.2 mg/l
Fluoride (F)	1.6 mg/l
Lead (Pb)	0.05 mg/l
Total Mercury (Hg)	0.002 mg/l
Nitrate (NO_3 as N)	10.0 mg/l
Selenium (Se)	0.05 mg/l
Silver (Ag)	0.05 mg/l
Uranium (U)	5.0 mg/l
Radioactivity: Combined Radium-226 and Radium-228	30.0 pCi/l
Benzene	0.01 mg/l
Polychlorinated biphenyls (PCB's)	0.001 mg/l
Toluene	0.75 mg/l
Carbon Tetrachloride	0.01 mg/l
1,2-dichloroethane (EDC)	0.01 mg/l
1,1-dichloroethylene (1, 1-DCE)	0.005 mg/l
1,1,2, 2-tetrachloroethylene (PCE)	0.02 mg/l
1,1, 2-trichloroethylene (TCE)	0.1 mg/l

ethylbenzene	0.75 mg/l
total xylenes	0.62 mg/l
methylene chloride	0.1 mg/l
chloroform	0.1 mg/l
1,1-dichloroethane	0.025 mg/l
ethylene dibromide (EDB)	0.0001 mg/l
1,1,1-trichloroethane	0.06 mg/l
1,1,2-trichloroethane	0.01 mg/l
1,1,2,2-tetrachloroethane	0.01 mg/l
vinyl chloride	0.001 mg/l
PAHs: total naphthalene plus monomethylnaphthalenes	0.03 mg/l
benzo-a-pyrene	0.0007 mg/l

B. Other Standards for Domestic Water Supply

⊙ Chloride (Cl)	250. mg/l
† Copper (Cu)	1.0 mg/l
† Iron (Fe)	1.0 mg/l
† Manganese (Mn)	0.2 mg/l
Phenols	0.005 mg/l
⊙ Sulfate (SO_4)	600. mg/l
Total Dissolved Solids (TDS)	1000. mg/l
† Zinc (Zn)	10.0 mg/l
pH	between 6 and 9

C. Standards for Irrigation Use - Ground water shall meet the standards of subsections A, B, and C unless otherwise provided.

† Aluminum (Al)	5.0 mg/l
† Boron (B)	0.75 mg/l
† Cobalt (Co)	0.05 mg/l
† Molybdenum (Mo)	1.0 mg/l
† Nickel (Ni)	0.2 mg/l