1R - 280

GENERAL CORRESPONDENCE

YEAR(S):

3/2001 → 1997

P.O. Box 1613
703 E. Clinton Suite 102
Hobbs, New Mexico 88240
505/397-0510
Fax 505/393-4388
www.sesi-nm.com

Safety & Environmental Solutions, Inc.

March 30, 2001

Mr. Bill Olson
New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Dear Bill:

This letter is being written on behalf of Chevron USA regarding the Dynegy Leak Site near Monument, New Mexico. We have sampled the monitor wells onsite for a period of almost two years. I have enclosed a graph and table of sample results for that period for your information. As you can see, the monitor wells have no BTEX and the Chloride level is relatively stable. The results do not appear to indicate any appreciable increase in Chloride concentration.

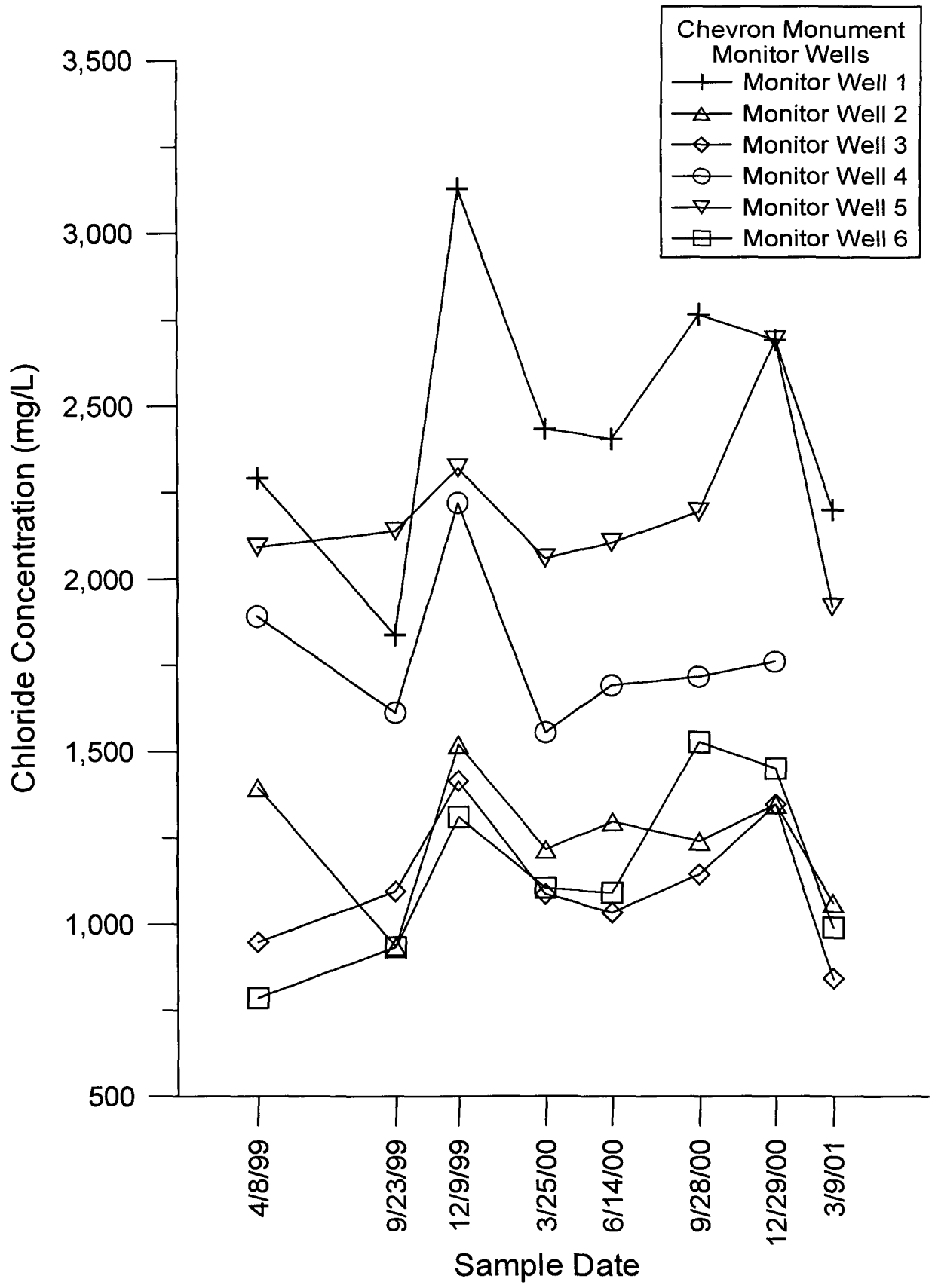
In light of these sampling results, we would request that the frequency of sampling of the monitor wells be reduced to annually in order to minimize the operating cost of the project. We will include annual results in a report to your office.

If you have any questions, or I can be of further assistance please contact me at (505) 397-0510.

Sincerely,

Bob Allen

Bob Allen CHMM, REM, CET, CES
President


Chevron Monument Monitor Wells
Monitor Well 1
Monitor Well 2
Monitor Well 3
Monitor Well 4
Monitor Well 5
Monitor Well 6
Chloride Concentration (mg/L)
3,500
3,000
2,500
2,000
1,500
1,000
500
4/8/99
9/23/99
12/9/99
3/25/00
6/14/00
9/28/00
12/29/00
3/9/01
Sample Date

Monitor Well 1								
Contaminant	Serial Date	Chloride (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	TPH (mg/L)
Date:								
4/8/99	36258	2,291	6,910	<0.002	<0.002	<0.002	<0.006	N/a
9/23/99	36426	1,839	7,740	<0.002	<0.002	<0.002	<0.006	<1.0
12/9/99	36503	3,130	8,130	<0.002	<0.002	<0.002	<0.006	1.58
3/25/00	36610	2,433	9,212	<0.002	<0.002	<0.002	<0.006	<1.0
6/14/00	36691	2,405	8,876	<0.002	<0.002	<0.002	<0.006	1.39
9/28/00	36797	2,765	8,854	<0.002	<0.002	<0.002	<0.006	<1.0
12/29/00	36889	2,691	7,350	<0.002	<0.002	<0.002	<0.006	<1.0
3/9/01	36959	2,199	8,470	<0.002	<0.002	<0.002	<0.006	4.44
WQCC Standard		250	1,000	0.01	0.75	0.75	0.62	N/a

Monitor Well 2								
Contaminant	Serial Date	Chloride (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	TPH (mg/L)
Date:								
4/8/99	36258	1,395	4,060	<0.002	<0.002	<0.002	<0.006	N/a
9/23/99	36426	934	7,740	<0.002	<0.002	<0.002	<0.006	10.3
12/9/99	36503	1,520	3,540	<0.002	<0.002	<0.002	<0.006	5.17
3/25/00	36610	1,216	3,898	<0.002	<0.002	<0.002	<0.006	2.36
6/14/00	36691	1,296	3,988	<0.002	<0.002	<0.002	<0.006	<1.0
9/28/00	36797	1,240	3,822	<0.002	<0.002	<0.002	<0.006	1.72
12/29/00	36889	1,346	3,968	<0.002	<0.002	<0.002	<0.006	<1.0
3/9/01	36959	1,060	3,756	<0.002	<0.002	<0.002	<0.006	<1.0
WQCC Standard		250	1,000	0.01	0.75	0.75	0.62	N/a

Monitor Well 3								
Contaminant	Serial Date	Chloride (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	TPH (mg/L)
Date:								
4/8/99	36258	948	3,700	<0.002	<0.002	<0.002	<0.006	N/a
9/23/99	36426	1,095	3,930	<0.002	<0.002	<0.002	<0.006	2.52
12/9/99	36503	1,414	3,610	<0.002	<0.002	<0.002	<0.006	<1.0
3/25/00	36610	1,086	4,058	<0.002	<0.002	<0.002	<0.006	1.47
6/14/00	36691	1,033	3,848	<0.002	<0.002	<0.002	<0.006	<1.0
9/28/00	36797	1,144	3,764	<0.002	<0.002	<0.002	<0.006	<1.0
12/29/00	36889	1,346	4,078	<0.002	<0.002	<0.002	<0.006	<1.0
3/9/01	36959	840	3,620	<0.002	<0.002	<0.002	<0.006	<1.0
WQCC Standard		250	1,000	0.01	0.75	0.75	0.62	N/a

Monitor Well 4								
Contaminant	Serial Date	Chloride (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	TPH (mg/L)
Date:								
4/8/99	36258	1,893	6,200	<0.002	<0.002	<0.002	<0.006	N/a
9/23/99	36426	1,612	5,190	<0.002	<0.002	<0.002	<0.006	2.76
12/9/99	36503	2,220	4,770	<0.002	<0.002	<0.002	<0.006	<1.0
3/25/00	36610	1,554	4,730	<0.002	<0.002	<0.002	<0.006	1.11
6/14/00	36691	1,691	5,144	<0.002	<0.002	<0.002	<0.006	<1.0
9/28/00	36797	1,716	4,818	<0.002	<0.002	<0.002	<0.006	3.31
12/29/00	36889	1,760	4,758	<0.002	<0.002	<0.002	<0.006	<1.0
3/9/01	36959	N/a	N/a	N/a	N/a	N/a	N/a	N/a
WQCC Standard		250	1,000	0.01	0.75	0.75	0.62	N/a

Monitor Well 5								
Contaminant	Serial Date	Chloride (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	TPH (mg/L)
Date:								
4/8/99	36258	2,092	7,260	<0.002	<0.002	<0.002	<0.006	N/a
9/23/99	36426	2,139	8,230	<0.002	<0.002	<0.002	<0.006	2.9
12/9/99	36503	2,320	7,000	<0.002	<0.002	<0.002	<0.006	<1.0
3/25/00	36610	2,059	8,054	<0.002	<0.002	<0.002	<0.006	2.38
6/14/00	36691	2,104	7,744	<0.002	<0.002	<0.002	<0.006	<1.0
9/28/00	36797	2,193	7,926	<0.002	<0.002	<0.002	<0.006	1.17
12/29/00	36889	2,691	7,628	<0.002	<0.002	<0.002	<0.006	<1.0
3/9/01	36959	1,919	8,462	<0.002	<0.002	<0.002	<0.006	<1.0
WQCC Standard		250	1,000	0.01	0.75	0.75	0.62	N/a

Monitor Well 6								
Contaminant	Serial Date	Chloride (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	TPH (mg/L)
Date:								
4/8/99	36258	785	2,800	<0.002	<0.002	<0.002	<0.006	N/a
9/23/99	36426	933	2,640	<0.002	<0.002	<0.002	<0.006	2.66
12/9/99	36503	1,310	2,090	<0.002	<0.002	<0.002	<0.006	<1.0
3/25/00	36610	1,104	3,096	<0.002	<0.002	<0.002	<0.006	<1.0
6/14/00	36691	1,090	3,244	<0.002	<0.002	<0.002	<0.006	<1.0
9/28/00	36797	1,526	3,332	<0.002	<0.002	<0.002	<0.006	<1.0
12/29/00	36889	1,449	3,512	<0.002	<0.002	<0.002	<0.006	<1.0
3/9/01	36959	990	3,348	<0.002	<0.002	<0.002	<0.006	<1.0
WQCC Standard		250	1,000	0.01	0.75	0.75	0.62	N/a

P.O. Box 1613
703 E. Clinton Suite 103
Hobbs, New Mexico 88240
505/397-0510
fax 505/393-4388

Safety & Environmental Solutions, Inc.

October 7, 1999

Mr. William C. Olson
Hydrologist, Environmental Bureau
New Mexico Oil Conservation Division
PO Box 1635
Santa Fe, New Mexico 87505

Dear Bill:

This correspondence is in response to your letter dated September 16, 1999, with answers to the questions posed in your letter.

1.) At the meeting attended by Mr. Cooper, landowner, Mr. Caskey and Mr. Massey, Chevron, USA, Ms. Williams and yourself, NMOCD and myself, we addressed the cleanup of the water utilizing a skimmer system and it was decided to submit a soil remediation work plan upon completion of the water cleanup.
2.) Attached, in the quarterly monitor well report, is a current water elevation map with relevant features.
3.) On August 25, 1999 a *Skim-rite* skimmer system was installed to recover free phase hydrocarbons from the groundwater. For the third quarter, ending September 30th, the volume of product recovered was 33 gal.
4.) Attached is the third quarter monitor well report.
5.) The ground water metals samples were digested with nitric acid and represent total metals concentrations.

Sincerely,

Bob Allen

Bob Allen REM, CET, CES
President

Enclosures

CC: Donna Williams, NMOCD – Hobbs District office
R. Massey, D. Duncan, Chevron, USA

WARREN PETROLEUM COMPANY,
Limited Partnership
An NGC Company

January 30, 1998

Mr. William Olson, Hydrogeologist
Environmental Bureau
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Remediation and Groundwater Monitoring Plan
Monument, Lea County, New Mexico

Dear Mr. Olson:

In response to your letter of December 17, 1997, and our meeting of December 16, 1997, NGC Corporation (NGC) and Chevron Production Company, USA Inc. (Chevron), are jointly submitting this Remediation and Groundwater Monitoring Plan. The pipeline spill and closed production pit (Site) will be closed after documenting that the following objectives have been accomplished to the satisfaction of your office:

1. Removal of free-phase petroleum products in monitor well SW-1,
2. Implementation of a groundwater monitoring program for monitoring wells MW-1 through MW-6,
3. Reduction of TPH concentrations in the soil present in the areas of sample locations SS-5 and SS-6, and
4. Completion of a Risk Assessment for soils at the site.

A description of how we propose to accomplish each of the above objectives follows:

1. Well tests will be done on SW-1 to determine the most appropriate means of removing the free-phase floating product from the well. First, the well will be bailed to determine if the recovery rate is high enough to sustain a pump. If pumping is possible, a pump will be used for recovery until recovery rates diminish, at which time bailing will become the recovery method. If recovery rates are not high enough for either pumping or bailing, then a hydrophobic sorbent material will be inserted into the well which will act as a skimmer to remove the petroleum product from the groundwater surface. Product removal operations will continue until no free-phase liquids are

1000 Louisiana • Suite 5800
Houston, Texas • 77002-5050
Tel 713.507.6590

measurable in well SW-1 and may be accomplished by one or a combination of these methods, since the most appropriate method may change over time.

The initial frequency of the pumping, bailing or sorbent changing operations will depend upon the results of our well tests. Visits to the site will be scheduled to maximize overall product recovery and will be adjusted with each subsequent visit. The optimal frequency will be dependent on the type of product recovery method used and the response of the groundwater system. Removal of the free-phase petroleum products in monitor well SW-1 will be done in such a manner as to maximize the amount of product removal while minimizing the amount of water removed. All recovered fluids and spent collection medium will be stored in 55-gallon steel drums (or other suitable storage) on-site during active pumping and bailing operations, and will then be transported to the Monument Plant. All recovered fluids will be added to the Plant's oil/water separator. The sorbent materials, if any are used, will be characterized and taken to a disposal site for proper disposal.

2. In response to the OCD's question regarding the metals analyses already conducted on groundwater samples taken from the six (6) monitor wells, the laboratory analyzed these samples for total metals using both EPA Method 200.7 and EPA Method 200.8 (refer to the analyses in Appendix E of our Oct. 9, 1997 submittal).

   Upon receiving OCD approval of the Plan, an initial round of groundwater samples will be collected from monitor wells, MW-1 through MW-6. These samples will be submitted to the laboratory for the following analyses: BTEX (EPA Method 8020), and dissolved metals including iron and manganese (EPA Method 200.7). In addition, dissolved oxygen will be measured in the field at each well. Subsequent to this initial sampling event, quarterly groundwater samples will be collected from the same wells and will be submitted to the laboratory for BTEX (EPA Method 8020) only. At the end of the first year (the fourth quarterly sampling), these wells will be analyzed for the same analytes as described in the initial sampling. At the end of the first year of the monitoring program, the frequency, the number of wells and the constituents to be analyzed will be reevaluated in concurrence with the OCD.

   When no measurable free-phase petroleum product is present in well SW-1, the groundwater monitoring program will terminate. Written notice will be submitted to the OCD of this intent to terminate monitoring and, with OCD's concurrence, the seven (7) onsite monitor wells will be plugged.

3. Clean soil will be mixed with the soil in the areas of SS-5 and SS-6 so as to achieve a resultant mixture that has a TPH concentration similar in range to the other surface soil (SS) samples. TPH concentrations for the samples

identified in SS-5 and SS-6 as well as the other SS samples are identified in Table 1 of the Philip Environmental Phase II Investigation, dated March 1997. Additionally, an appropriate concentration of nutrients will be applied to enhance the natural attenuation of the resultant mixture. A composite verification sample will be taken of the mixed soil for both the SS-5 and SS-6 locations and tested for TPH (Method 8015-Mod). Upon receipt, the results of these analyses will be provided to the OCD.

4. As a final task, an assessment will be conducted to evaluate the risks that may be associated with the BTEX concentrations remaining in the soils at the site. In conducting this assessment, a residential scenario will be assumed for calculating inhalation, dermal and ingestion exposures.

Verbal notice to OCD will be given before each activity defined in this plan. An annual report that summarizes the free-product recovery activities and groundwater monitoring results will be prepared and submitted to OCD.

We appreciate your meeting with us on December 16 and your help with resolving this matter. If you have any questions or comments, please do not hesitate to contact either J. D. Morris at (713) 507-6752 or Don Sellars at (713) 754-5047.

Sincerely,

J. D. Morris
Environmental Manager
NGC Corporation

Don Sellars
Environmental Engineer
Chevron Production USA, Inc.

cc: Mr. Wayne Price
OCD District Office
Hobbs, NM

WARREN PETROLEUM COMPANY,
Limited Partnership
An NGC Company

Oct. 9, 1997

Mr. William C. Olson
Hydrogeologist, Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

RE: Ground Water Investigation Work Plan
Pipeline Spill / Unlined Pit
Monument, New Mexico

Dear Mr. Olson,

This letter is in response to your correspondence dated June 6, 1997, to Mr. Don Griffin with Chevron. Per our conversation and by our letter dated September 29, 1997, the date to submit the required information was extended to October 10, 1997. As you know, NGC/Warren Petroleum and Chevron have been completing a joint investigation of the subject site.

The information requested as outlined in your letter is attached as shown below.

Appendix A - Conclusions and Recommendations
Appendix B - Description of Activities Completed
Appendix C - Soil Boring Logs and Well Construction Diagrams
Appendix D - Soil Sample Laboratory Data
Appendix E - Groundwater Sample Laboratory Data

For further information on this matter you may call either Don Sellars with Chevron, 713-754-5047, or J.Dee Morris with NGC/Warren, 713-507-6752. We would also be happy to meet with you to review any aspects or details of this project. Thank you for your assistance in this matter.

Sincerely,

J. Dee Morris, PE
Environmental Manager
NGC/Warren Petroleum

Don Sellars
Environmental Specialist
Chevron USA Production Company
Mid-Continent Business Unit

cc: Jerry Sexton
NMOCD District Office
1000 W. Broadway
Hobbs, NM 88240

See Distribution

1000 Louisiana • Suite 5800
Houston, Texas • 77002-5050
Tel 713.507.6590

Distribution:

NGC/Warren
Tom Linton
Mike Hicks
Bob Langley
Plant File: Env/Waste/Remediation
Corp File: 5601 WA. 4

Chevron
Jeanette NewVille
Gordon Caskey
Don Griffin

APPENDIX A

Conclusions and Recommendations

Table 1
Philip Environmental Phase II Investigation Sample Results
March 1997

Sample Number [1), 2)]	Total Recoverable Petroleum Hydrocarbons (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)
SS-1	31,800	0.10	1.46	0.74	0.30	2.60
SS-2	6,350	<.05	0.41	0.69	3.53	4.63
SS-3	22,800	<.05	0.19	0.12	1.06	1.37
SS-4	26,400	<.05	0.13	<0.05	0.25	0.38
SS-5	164,000	0.27	0.11	0.11	0.52	1.01
SS-6	93,500	0.33	0.25	0.24	1.29	2.11
SS-7	42,100	0.93	0.57	0.20	4.74	6.44
SS-8	5,020	<0.05	0.36	<0.05	0.12	0.48
SB-1 (8' - 10')	19,400	0.77	2.25	0.48	2.32	5.83
SB-1 (43' -45')	7,940	<0.05	<0.05	0.61	2.64	3.25
SB-2 (13' 15')	27,200	1.23	10.50	3.48	15.00	30.21
SB-2 (38' -40')	30,700	<0.1	<0.1	3.12	10.00	13.12
SB-3 (13' - 15')	21,400	0.56	1.55	0.22	1.07	3.40
SB-3 (38'- 40')	1,190	<0.05	0.10	0.10	0.58	0.79
SB-4 (3' -5')	< 10.0	<0.05	<0.05	<0.05	<0.05	<0.05
SB-4 (18' - 20')	< 10.0	<0.05	<0.05	<0.05	<0.05	<0.05
SB-5 (18' - 20')	25,700	0.62	1.82	0.34	0.95	3.73
SB-5 (38' -40')	30,700	<0.1	<0.1	3.12	10.00	13.12
SB-6 (8' - 10')	22	<0.05	0.39	<0.05	0.05	0.44
SB-6 (18' - 20')	23	<0.05	<0.05	<0.05	<0.05	<0.05
NMOCD Remediation Action Level	*100* [3)]	*10*	*n/a* [4)]	*n/a* [4)]	*n/a* [4)]	*50*

Notes:

1) SS sample numbers designate samples collected during the shallow trenching operations at the site. SB sample numbers designate samples collected from soil borings.
2) Numbers in ( ) after SB sample numbers indicate the depth interval of the sample.
3) * NMOCD Total Recoverable Petroleum Hydrocarbons Action Level of 100 mg/kg is the most stringent action level, based on a site ranking >19.
4) n/a There are no compound specific action levels for these compounds, they are considered only in terms of the Total benzene, toluene, ethylbenzene, and xylenes concentration.

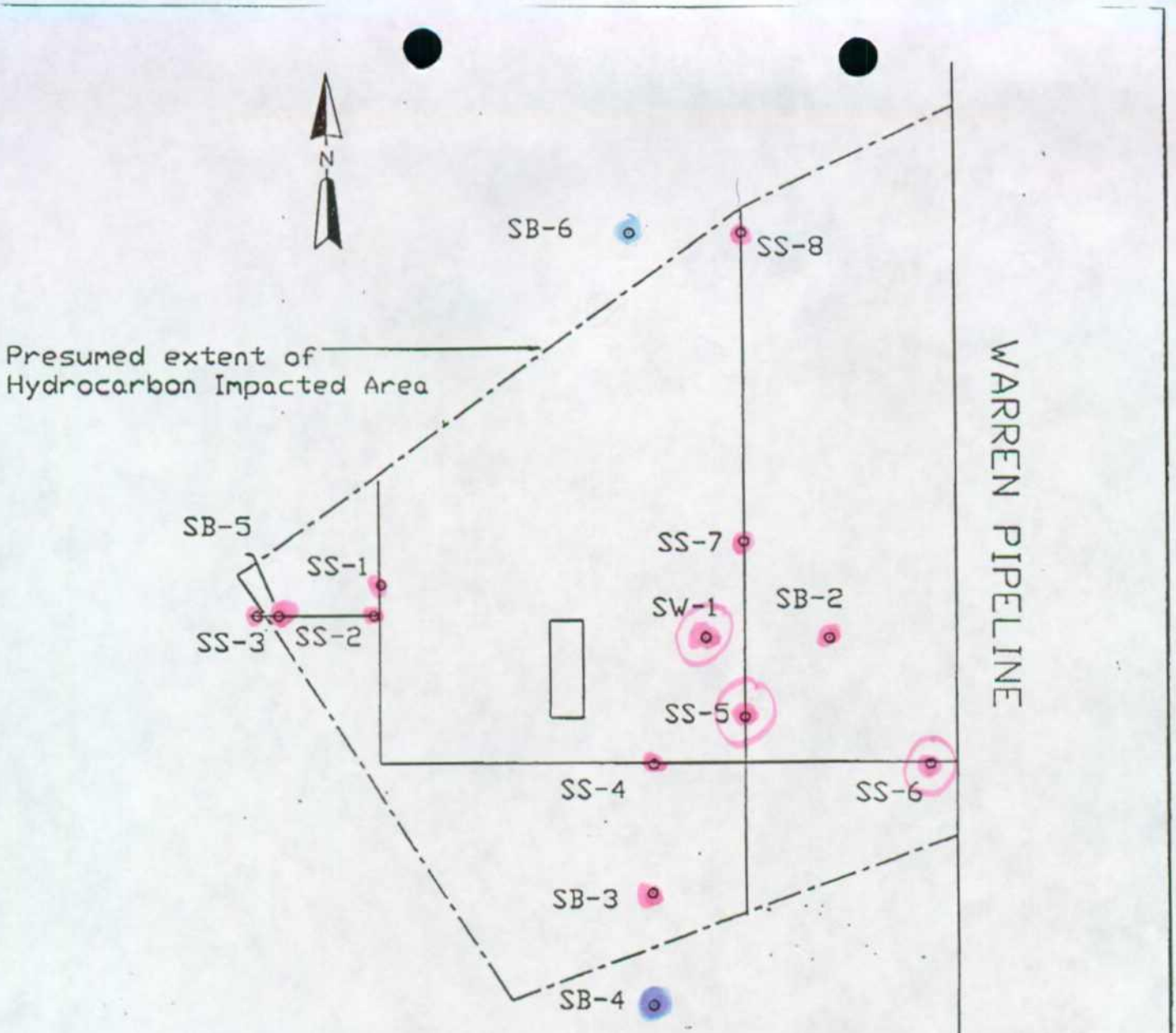


Figure taken from Philip Environmental Services Corporation Phase II Site Assessment Report. Note that North Arrow may be improperly positioned and figure may not be to stated scale.

LEGEND
SB - SOIL BORING
SS - SOIL SAMPLE
SW - SAMPLE WELL

FIGURE 1

PHILIP ENVIRONMENTAL PHASE II SITE ASSESSMENT SAMPLE LOCATIONS MARCH 1997

Drawing Scale: 1"=25'

CHEVRON MONUMENT, NM SITE

Conclusions

Based on the information and data in the CH2M Hill investigation, the following conclusions are made:

- No free phase hydrocarbon was observed in any of the six new monitoring wells installed during the June investigation. The horizontal extent of the free phase hydrocarbon is delineated and is limited in areal distribution of SW-1.

- The dissolved hydrocarbon plume has been delineated. The groundwater data from five of the six perimeter wells indicate the presence of minimal levels of hydrocarbon constituents, however, none of these concentrations exceed the NMWQCC standards.

- Forty-three soil samples were collected from the vadose zone during the installation of the six perimeter wells. Total Petroleum Hydrocarbon and BTEX results for all soil samples were below detection limits.

- Groundwater elevation data indicates that the local gradient is towards the southeast and is essentially flat, 0.002 feet/foot.

Recommendations

Based on all information and data collected at the project site the following recommendations are made:

- Due to the remote location of the site, the minimal localized impact, and the distance to any receptors, we will complete a risk assessment for the site which will evaluate both groundwater and impacted soils. This assessment will be completed by December 31, 1997. A complete scope and methodology for the assessment will be provided to your office prior to initiation of any work.

- Additionally, in order to further minimize impacts at the site, we will implement a recovery process for the free phase hydrocarbon in SW-1. This work will be initiated by November 17, 1997, and run concurrent with the risk assessment. Due to the expected low recovery rates, the technique (pumping versus baling) has not yet been determined, however we will communicate the decided method to the OCD prior to any action being taken onsite. This effort will be discontinued when risk based closure levels have been achieved.

Two corrections have been made to the Philip Environmental Report which was submitted April 24, 1997. These two corrections are attached as Table 1 and Figure 1. The units for both the sample data and the NMOCD remediation levels were previously reported incorrectly in Table 1. A note regarding the scale and directional positioning of the plat has been added to Figure 1.

APPENDIX B

Description of Activities Completed

Field Methodology

The June 1997 field investigation at the Chevron Eunice, NM, site involved soil sample collection, groundwater monitoring well installation, collection of groundwater level measurements, and groundwater sampling. The details of these activities are summarized in the sections below.

Soil Sampling

A total of 43 soil samples were collected from six soil boring locations at the Chevron Eunice, NM, site between June 17 and June 20, 1997. The soil boring locations were placed both upgradient and downgradient along and within the perimeter of the site. Soil borings were installed using hollow stem augers and samples were collected using a 5-foot continuous split spoon sampler. The drilling subcontractor was Atkins Engineering, Inc. of Roswell, New Mexico.

Sample collection, by necessity, was begun at 8 feet belowground surface elevation because at all locations the material present to 8 feet belowground surface was very loose, unconsolidated dry sand that did not remain in the split spoon sampler upon removal from the borehole. Visual observation of what material was captured by the hollow step auger from 0 to 8 feet belowground surface elevation, although badly mixed, did not show indications of contamination. Sample collection, lithologic description, observations, and headspace scanning was continued for the full depth of the boring. Samples for laboratory analysis were not collected from below the depth of the water table. Soil boring logs are provided in Appendix C.

Soil samples collected in the field were placed in laboratory-provided sample bottles and held onsite, under chain of custody, at 4°C. In addition to the aliquots of sample collected for laboratory analysis, a portion of the soil from each sample interval was also placed in a sealable plastic bag in order to conduct a headspace analysis in accordance with NMOCD guidelines. After approximately 10 minutes, the headspace reading in the plastic bag was measured using an organic vapor monitor (OVM). For soil borings MW-1 and MW-3 through MW-6 all sample intervals had headspace readings of 0 ppm.

At location MW-2, all sample intervals had headspace readings of 0 ppm with the exception of the intervals from 33 to 38 and 38 to 41 feet belowground surface elevation and are below the level of groundwater saturation. The 33- to 38-foot interval from location MW-2 had a headspace reading of 2,400 ppm and the 38- to 41-foot interval had a headspace reading of 1,600 ppm. Some soil staining and small amounts of free phase petroleum product were observed in these sample intervals. During sampling, proper quality assurance procedures were followed including the collection and analysis of field equipment blanks, trip blanks, and duplicate samples.

Upon the completion of the soil sampling program, all soil samples were returned by the field team to Albuquerque, NM, and then were transferred under chain of custody to Hall Environmental Analysis Laboratory. Samples were analyzed by the laboratory for total

petroleum hydrocarbons by EPA Method 418.1; for benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020; for chloride by EPA Method 300.0; and for specific conductance by EPA Method 120.1.

Sample results are summarized in the following section titled Investigation Results. The complete analytical data package is provided in Appendix D.

Groundwater Monitoring Well Installation

At each of the soil boring locations, in addition to collection of soil samples, a groundwater monitoring well was installed in the advanced borehole. At each location a 4-inch, Schedule 40 PVC monitoring well was installed in a 7-1/4 -inch nominal diameter borehole. Each well was installed with 15 feet of 0.020-slot PVC screen with approximately 10 feet of screen placed below the water table and 5 feet above the water table. Clean 8/16-size silica sand was installed around the well screen to approximately 2 feet above the top of the screen and a 2- to 3-foot bentonite chip seal was then placed above the sand pack. The remaining annular space was then grouted with Portland cement containing 3 to 5 percent bentonite. The stickup casing was set in a concrete pad and a stainless steel locking cap installed on the casing.

Following installation, the monitoring wells were completed using a submersible pump and were pumped until the water was fairly clear, and pH, conductivity, and temperature measurements had stabilized. After installation the horizontal and vertical location of each monitoring well was surveyed by a licensed New Mexico surveyor. Atkins Engineering performed the well installation, completion, and surveying. Figure 2 shows the well locations at the site and well construction diagrams are provided in Appendix C. All investigation-derived wastes associated with the well installation and soil boring programs were staged onsite in soil piles next to each well location and left at the site for disposal by Chevron.

Groundwater Level Measurement Collection

Following the installation and completion of the groundwater monitoring wells a round of groundwater level measurements were collected. These water level measurements were collected prior to the purging and groundwater sampling of each well. Table 2 summarizes the water level measurement data.

Groundwater Sampling

All six groundwater monitoring wells were sampled on June 25, 1997. Prior to sampling, each well was purged of several well volumes of water. Upon removal of each well volume, pH, conductivity, and temperature of the water were measured and subsequent well volumes were removed until these parameters had stabilized. At minimum, three well volumes of water were removed.

Table 2
Groundwater Level Measurements

		June 25, 1997	
	Well Elevation (Top of PVC casing) (In Feet above MSL)	Depth to Groundwater (Feet Below PVC)	GW Elevation (In Feet above MSL)
MW-1	3565.24	36.43	3528.81
MW-2	3564.21	35.63	3528.58
MW-3	3564.06	35.6	3528.46
MW-4	3564.62	36.25	3528.37
MW-5	3564.58	36.07	3528.51
MW-6	3564.58	35.99	3528.59

Notes:
Water level measurements taken from top of surveyed PVC casing.
Elevations given in feet above Mean Sea Level.

Groundwater samples were collected using clean, dedicated bailers and were placed into clean, laboratory-provided sample bottles and held onsite at 4°C under chain of custody. Proper quality assurance procedures were followed during the sampling event, including the collection of field equipment blanks and trip blanks.

Upon completion of groundwater sampling, the samples were returned to Albuquerque, NM with the field team and then transferred to Hall Environmental Analysis Laboratory. Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020; polyaromatic hydrocarbons by EPA Method 8310; New Mexico Water Quality Control Commission metals, and major cations and anions as specified in the NMOCD's letter dated June 6, 1997. Sample results are summarized in the following section titled Analytical Results. The complete analytical data package is provided in Appendix E.

Table 3
Soil Sample Results
Chevron Site Monument, NM June 1997

Sample Number [1]	Total Recoverable Petroleum Hydrocarbons (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/L)	Conductivity (µS/cm)
MW-1 8.0'	< 20	ND [2]	ND	ND	ND	ND	6.1	866
MW-1 13.0'	< 20	ND	ND	ND	ND	ND	0.6	470
MW-1 18.0'	< 20	ND	ND	ND	ND	ND	160	4,370
MW-1 25.0'	< 20	ND	ND	ND	ND	ND	360	9,380
MW-1 30.0'	< 20	ND	ND	ND	ND	ND	330	10,600
MW-1 35.0'	< 20	ND	ND	ND	ND	ND	160	5,500
MW-2 8.0'	< 20	ND	ND	ND	ND	ND	<0.5	463
MW-2 13.0'	< 20	ND	ND	ND	ND	ND	12	437
MW-2 18.0'	< 20	ND	ND	ND	ND	ND	14	3,350
MW-2 23.0'	< 20	ND	ND	ND	ND	ND	170	6,350
MW-2 28.0'	< 20	ND	ND	ND	ND	ND	280	6,170
MW-2 33.0'	< 20	ND	ND	ND	ND	ND	180	3,540
MW-2 99-99' [3]	< 20	ND	ND	ND	ND	ND	190	4,900
MW-3 8.0'	< 20	ND	ND	ND	ND	ND	14	569
MW-3 13.0'	< 20	ND	ND	ND	ND	ND	0.9	506
MW-3 18.0'	< 20	ND	ND	ND	ND	ND	0.9	1,240
MW-3 23.0'	< 20	ND	ND	ND	ND	ND	94	4,020
MW-3 28.0'	< 20	ND	ND	ND	ND	ND	440	7,800
MW-3 33.0'	< 20	ND	ND	ND	ND	ND	180	3,270
MW-3 38.0'	< 20	ND	ND	ND	ND	ND	160	2,900
MW-4 8.0'	< 20	ND	ND	ND	ND	ND	9.1	436
MW-4 13.0'	< 20	ND	ND	ND	ND	ND	0.8	485
MW-4 20.0'	< 20	ND	ND	ND	ND	ND	<0.5	472
MW-4 25.0'	< 20	ND	ND	ND	ND	ND	0.7	655
MW-4 30.0'	< 20	ND	ND	ND	ND	ND	280	3,100
MW-4 35.0'	< 20	ND	ND	ND	ND	ND	130	3,210
MW-5 8.0'	< 20	ND	ND	ND	ND	ND	11	1,950
MW-5 13.0'	< 20	ND	ND	ND	ND	ND	0.7	472
MW-5 18.0'	< 20	ND	ND	ND	ND	ND	<0.5	512
MW-5 23.0'	< 20	ND	ND	ND	ND	ND	<0.5	683
MW-5 28.0'	< 20	ND	ND	ND	ND	ND	8.6	781
MW-5 33.0'	< 20	ND	ND	ND	ND	ND	3.9	547
MW-5 38.0'	< 20	ND	ND	ND	ND	ND	48	1,520

Table 3 (cont.)
Soil Sample Results
Chevron Site Monument, NM June 1997

Sample Number	Total Recoverable Petroleum Hydrocarbons (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/L)	Conductivity (µS/cm)
MW-5 98-98' [3]	< 20	ND	ND	ND	ND	ND	4.5	508
MW-5 99-99' [3]	< 20	ND	ND	ND	ND	ND	0.7	520
MW-6 8.0'	< 20	ND	ND	ND	ND	ND	240	3,910
MW-6 13.0'	< 20	ND	ND	ND	ND	ND	450	8,610
MW-6 18.0'	< 20	ND	ND	ND	ND	ND	700	13,100
MW-6 23.0'	< 20	ND	ND	ND	ND	ND	890	12,400
MW-6 28.0'	< 20	ND	ND	ND	ND	ND	830	15,700
MW-6 33.0'	< 20	ND	ND	ND	ND	ND	210	2,680
MW-6 34.0'	< 20	ND	ND	ND	ND	ND	140	1,760
MW-6 45.0'	< 20	ND	ND	ND	ND	ND	210	3,280
NMOCD Remediation Action Level	*100* [4]*	*10*	*n/a* [5]	*n/a* [5]	*n/a* [5]	*50*	*n/a* [5]	*n/a* [5]

Notes:

1) MW- indicates which monitoring well location the boring was associated with and the numbers following the MW-# indicates the depth inteval from which the sample was collected.
2) ND indicates the compound was not detected above the method detection level.
3) Sample intervals designated as 98-98 or 99-99 are duplicate samples collected from an interval within the boring. The soil boring logs indicate the sample interval from which the duplicate was collected.
4) * NMOCD Total Recoverable Petroleum Hydrocarbons Action Level of 100 mg/kg is the most stringent action level, based on a site ranking >19.
5) n/a There are no compound specific action levels for these compounds, they are considered only in terms of the Total benzene, toluene, ethylbenzene, and xylenes concentration.

Table 4 (cont.)
Groundwater Sample Results
Chevron Site Monument, NM June 1997

Sample Number	Chromium, Total (mg/L)	Cobalt, Total (mg/L)	Copper, Total (mg/L)	Iron, Total (mg/L)	Lead, Total (mg/L)	Manganese, Total (mg/L)	Mercury, Total (mg/L)
MW-1	0.07	<0.01	0.02	25.8	0.01	0.48	<.001
MW-2	<.01	<0.01	<.01	0.4	<.01	0.39	<.001
MW-3	0.05	0.02	0.04	35.7	0.02	1.00	<.001
MW-4	0.08	0.04	0.06	56.9	0.04	4.24	<.001
MW-5	0.02	<0.01	0.01	7.6	<0.01	0.51	<0.001
MW-6	0.01	<0.01	<0.01	6.4	<0.01	0.31	<0.001
NM WQCC Limit	*0.05*	*n/a*	*n/a*	*n/a*	*1.60*	*n/a*	*0.002*

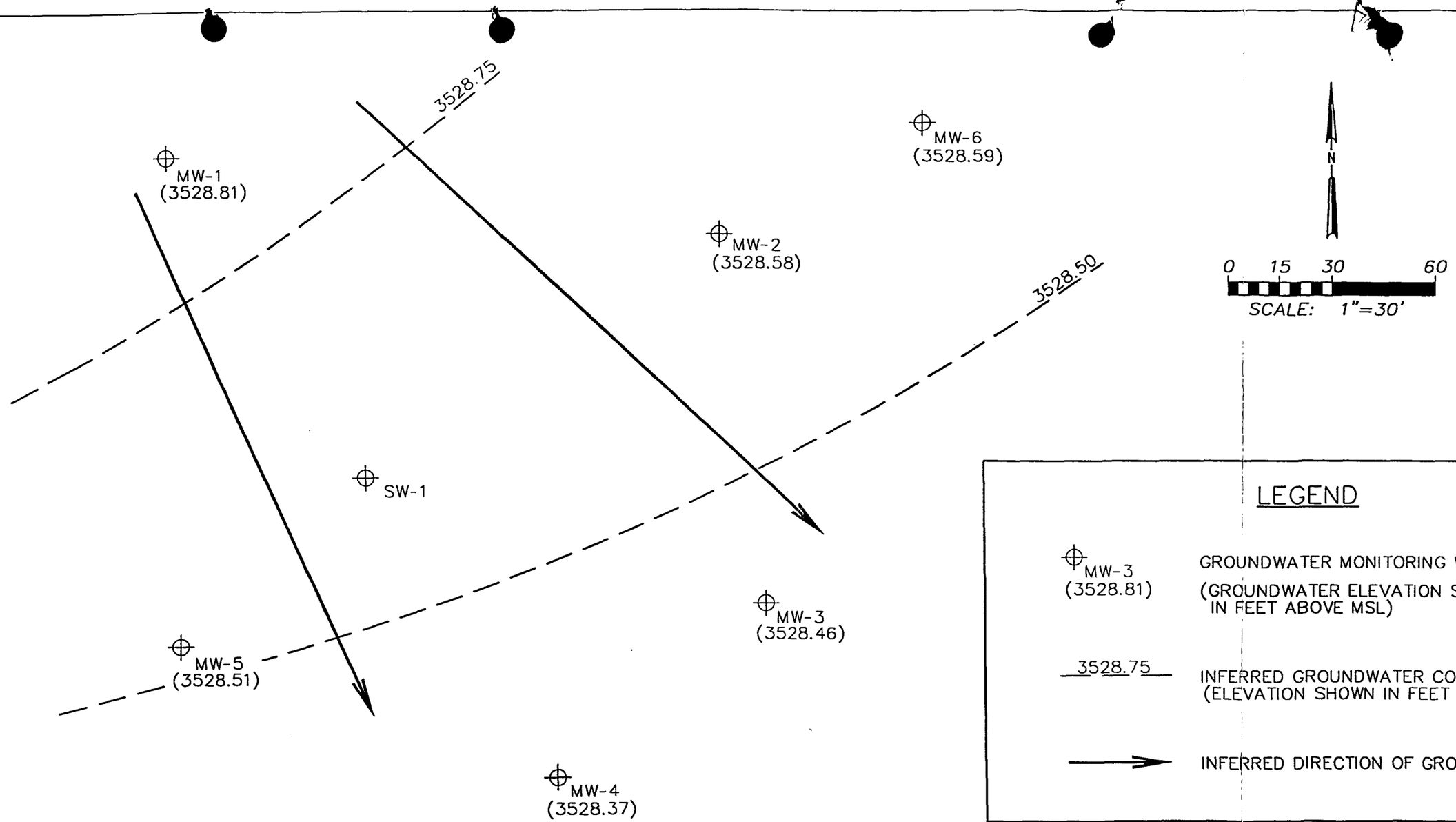
Sample Number	Molybedenum, Total (mg/L)	Nickel, Total (mg/L)	Selenium, Total (mg/L)	Silver, Total (mg/L)	Uranium, Total (mg/L)	Zinc, Total (mg/L)	
MW-1	0.07	0.02	0.121	<0.005	0.045	0.03	
MW-2	0.01	<.01	0.012	<0.005	0.010	<.01	
MW-3	0.01	0.04	0.010	<0.005	0.031	0.08	
MW-4	0.04	0.11	0.023	<0.005	0.073	0.15	
MW-5	0.09	0.01	0.024	<0.005	0.058	<0.01	
MW-6	0.03	<0.01	0.009	<0.005	0.015	<0.01	
NM WQCC Limit	*n/a*	*n/a*	*0.05*	*0.05*	*5*	*n/a*	

Notes:

1) Results and action levels are shown in the units indicated under the compound name.
2) ND indicates the compound was not detected above the method detection level.
3) NM WQCC refers to the New Mexico Water Quality Control Commission Regulations
4) n/a indicates that no WQCC standard exists for a compound, or that existing standards are for domesitc water supplies or irrigation use.
5) Groundwater samples were analyzed for the full polyaromatic hydrocarbon suite (PAHs) by EPA Method 8310, however, only those compounds for which there were any detected concentrations are summarized in the above table.

Table 4
Groundwater Sample Results
Chevron Site Monument, NM June 1997

Sample Number	1-methylnaphthalene (µg/L)	2-methylnaphthalene (µg/L)	Flourene (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
MW-1	ND	ND	ND	ND	ND	ND	0.7
MW-2	6.3	ND	0.78	ND	1.3	5.4	0.7
MW-3	ND	6.6	0.4	ND	ND	0.5	0.6
MW-4	ND	ND	0.91	ND	ND	1.8	0.9
MW-5	ND	ND	ND	3.7	ND	3.1	1.0
MW-6	ND	ND	ND	ND	ND	ND	ND
NM WQCC Limit	*Total Naphthalenes: 30*		*n/a*	*10*	*750*	*750*	*620*
Sample Number	**TDS (mg/L)**	**pH (mg/L)**	**Flouride (mg/L)**	**Sulfate (mg/L)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	
MW-1	7,110	7.38	2.60	3,400	2,400	<2.5	
MW-2	3,220	7.87	2.90	660	1,100	<2.5	
MW-3	3,630	7.29	2.90	830	1,100	<2.5	
MW-4	5,610	7.19	3.10	1,600	1,500	<2.5	
MW-5	7,030	7.31	3.40	2,200	1,800	<2.5	
MW-6	2,270	7.33	3.40	410	710	<2.5	
NM WQCC Limit	*n/a*	*n/a*	*2*	*n/a*	*n/a*	*10*	
Sample Number	**Sodium (mg/L)**	**Calcium (mg/L)**	**Aluminum, Total (mg/L)**	**Arsenic, Total (mg/L)**	**Barium, Total (mg/L)**	**Boron, Total (mg/L)**	**Cadmium, Total (mg/L)**
MW-1	1870	586	27.9	0.06	0.20	2.40	<.001
MW-2	870	212	0.5	0.01	0.20	1.20	<.001
MW-3	959	347	45.3	0.05	0.80	1.60	<.001
MW-4	1480	1070	75.7	0.05	0.80	2.30	0.01
MW-5	2030	361	7.9	0.03	0.20	3.20	<.001
MW-6	535	196	6.1	0.03	0.20	0.70	<0.01
NM WQCC Limit	*n/a*	*n/a*	*n/a*	*0.10*	*1.00*	*n/a*	*0.01*



LEGEND

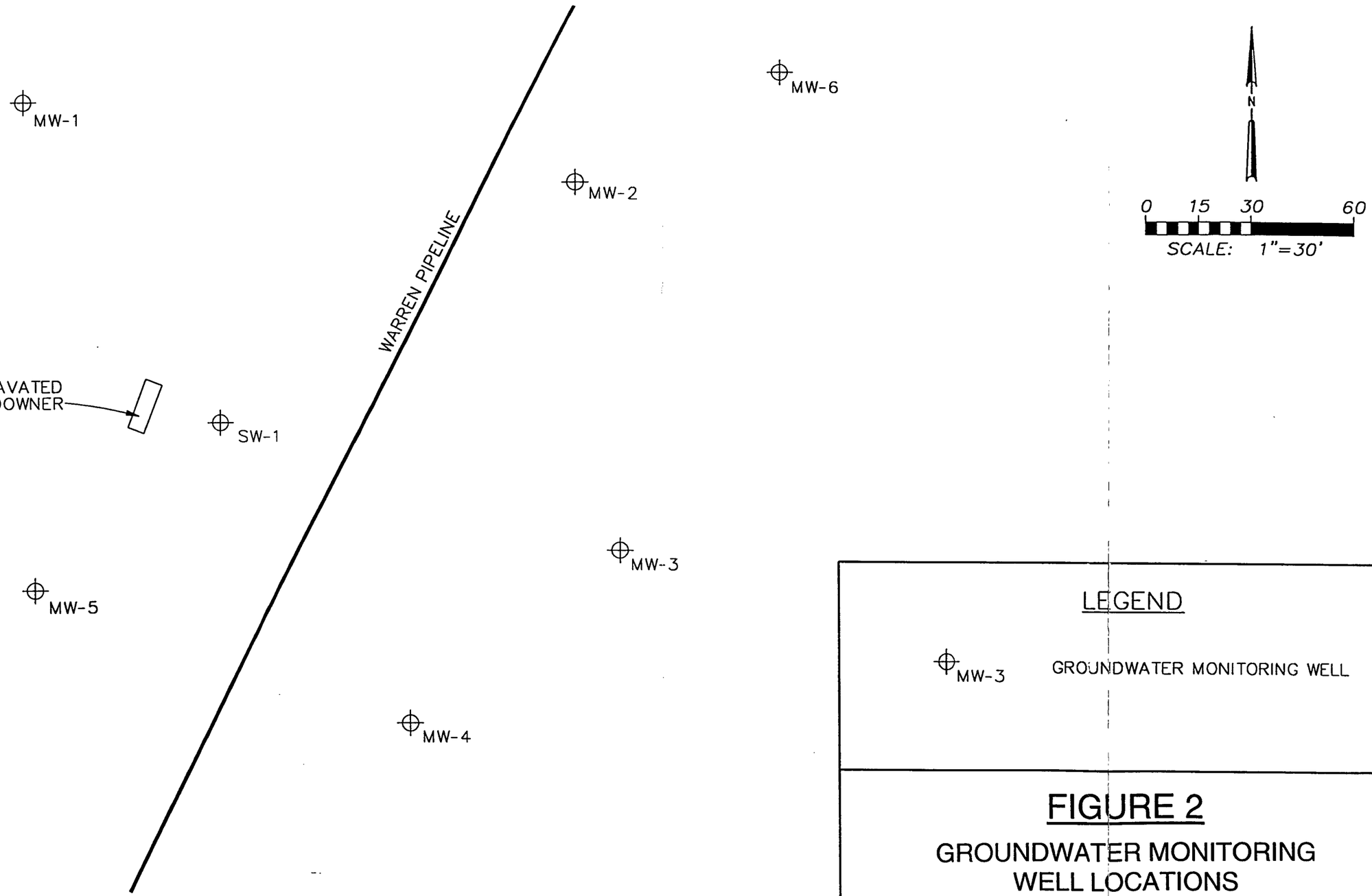
MW-3 (3528.81)	GROUNDWATER MONITORING WELL (GROUNDWATER ELEVATION SHOWN IN FEET ABOVE MSL)
3528.75	INFERRED GROUNDWATER CONTOUR LINES (ELEVATION SHOWN IN FEET ABOVE MSL)
→	INFERRED DIRECTION OF GROUNDWATER FLOW

FIGURE 3

GROUNDWATER CONTOUR MAP
JUNE 25, 1997

CHEVRON MONUMENT, NM SITE

CH2MHILL



LEGEND

MW-3 GROUNDWATER MONITORING WELL

FIGURE 2

GROUNDWATER MONITORING WELL LOCATIONS

CHEVRON MONUMENT, NM SITE

CH2MHILL

MW-1

MW-6

MW-2

WARREN PIPELINE

PIT EXCAVATED
BY LANDOWNER

(7.8')
5.0'
SW-1

MW-3

MW-5

MW-4

N

0 15 30 60

SCALE: 1"=30'

LEGEND

MW-3 GROUNDWATER MONITORING WELL

5.0' Contour line showing inferred thickness of free petroleum product. (Product thickness shown in feet)

FIGURE 4

FREE PRODUCT THICKNESS MAP
JUNE 1997

CHEVRON MONUMENT, NM SITE

CH2MHILL

APPENDIX C

Soil Boring Logs and Well Construction Diagrams

CH2MHILL

PROJECT NUMBER	BORING NUMBER MW-1
141823.JE.DW	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : N/A DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USI 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/17//97 END : 6/17/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
5	3-8'	5'		N/A	Poorly graded sand with silt, fine grained, white - tan, dry, loose, no staining or odor, SP-SM	Headspace Reading 0 ppm Collect sample MW-1 8.0'
10	8-13'	5'		N/A	Poorly graded sand with silt, fine grained, white - tan, dry, loose, no staining or odor, SP-SM	Headspace Reading 0 ppm Collect sample MW-1 13.0'
15	13-18'	5'		N/A	Poorly graded sand with silt, fine grained, white - tan, dry, loose, no staining or odor, SP-SM Color changes to white - pink sand At 17' cross through a thin, slightly lithified sst layer then cross back out into f.g sand	Headspace Reading 0 ppm Collect sample MW-1 18.0'
20	20-25'	5'		N/A	Poorly graded sand with silt, fine grained, tan-brown, dry, loose, no staining or odor, SP-SM	Headspace Reading 0 ppm Collect sample MW-1 25.0'
25	25-30'	5'		N/A	Poorly graded sand with silt, fine grained, tan-brown, dry, loose, no staining or odor, SP-SM Some small caliche pieces present	Headspace Reading 0 ppm Collect sample MW-1 30.0'

PROJECT NUMBER	BORING NUMBER	MW-1
141823.JE.DW		SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : DRILLING CONTRACTOR : Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/17/97 END : 6/17/96 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
30	30-35'	1'		N/A	Hit hard caliche layer at 29' bgs	Switch from continuous 5-foot spoon to driving 2-foot spoons
					At 32' reappearance of white-tan, f.g. sand w/ pieces of caliche, loose, SP-SM	Collect sample MW-1 35.0'
35	35-37'	2'		10-17-23-50	F.g. white-tan, poorly graded sand, moist, loose SP-SM	Headspace Reading 0 ppm
					Soil saturated at 38' bgs.	
40	40-42'	2'			F.g. white-brown sand with clay, no staining or odor, saturated and sticky, SC	Headspace Reading 0 ppm
45					Bottom flights of augers covered with red-pink, silty fat clay T.D. of Hole 46' bgs	
50						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	MW-2
141823.JE.DW		SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : N/A DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/18/97 END : 6/18/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
		0.5			loose, sandy surface soil	
	3-8'	3'		N/A	Poorly graded sand with silt, fine grained, white - tan, dry, slightly cemented, no staining or odor, SP-SM	Headspace Reading 0 ppm Collect sample MW-2 8.0'
5						
	8-13'	2.5'		N/A	Poorly graded sand with silt, very fine grained, pink - tan, very slightly moist, loose, no staining or odor, SP-SM	Headspace Reading 0 ppm Collect sample MW-2 13.0'
10						
	13-18'	3.0'		N/A	Poorly graded sand with silt, fine grained, white - tan, dry, loose, no staining or odor, SP-SM	Headspace Reading 0 ppm Collect sample MW-2 18.0'
15					Color changes to white - pink sand Wh-tan, f.g. silty sand, SP-SM	
	18-23'	4.0'		N/A	Poorly graded sand with silt, fine grained, white-tan, very slightly moist, no stainind or odor, loose, SP-SM	Headspace Reading 0 ppm Collect sample MW-2 23.0'
20						
	23-28'	5'		N/A	Poorly graded sand with silt, fine grained, white-tan, very slightly moist, no stainind or odor, loose, SP-SM	Headspace Reading 0 ppm Collect sample MW-2 28.0'
25					Brown-tan, mottled, silty sand with clay, semi-consol. moist	

PROJECT NUMBER	BORING NUMBER	MW-2
141823.JE.DW	SHEET 2	OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/18/97 END : 6/18/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
28-33'	3.5'		N/A	Semi-consolidated, white, f.g. silty sand, moist, SM-SP	Headspace Reading 0 ppm
30					Saturated, tank, fine grained, sand with silt and clay ML	Collect sample MW-2 33.0' and duplicate sample MW-2 99-99
33-38"	2.0'				Hard layer at 33' - thin, wh-buff sst layer. Tan-gray silty layer with f.g. sand, mottled, patches of free phase hydrocarbon product in soil, strong hydrocarbon odor, saturated, SM-SP	Headspace Reading 2400 ppm
35						
38-43'	3'					Headspace Reading 1600 ppm
40						
40-42'	2'				At 41 ' fractured fairly lithified white-buff sst layer. Free phase petroleum product is concentrated in fractures of this unit.	
					At 43' cross out of sst layer into tight, brown silty sandy clay. No evidence of staining, odor, or free phase petroleum product.	Headspace Reading 0 ppm
45					T.D. of Hole 43' bgs	
50						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	MW-3
141823.JE.DW		SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : N/A DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/18/97 END : 6/18/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
		1.0'			loose, sandy surface soil	
	3-8 '	1.0'		N/A	Fine-grained, white, slightly cemented, sand with some silt, dry, SP-SM, no staining or odor. Thin caliche layer at 4.0'	Headspace Reading 0 ppm Collect sample MW-3 8.0'
5						
	8-13'	2'		N/A	Tan-brown, fine grained, poorly graded, sand with some silt, very slightly moist, SP-SM No staining or odor.	Headspace Reading 0 ppm Collect sample MW-3 13.0'
10						
	13-18'	3'		N/A	White-tan, fine grained, porrly graded sand with some silt, very slightly moist, SP-SM No staining or odor.	Headspace Reading 0 ppm Collect sample MW-3 18.0'
15						
	18-23'	3'		N/A	White-tan, fine grained, porrly graded sand with some silt, very slightly moist, SP-SM No staining or odor.	Headspace Reading 0 ppm Collect sample MW-3 23.0'
20						
	23-28'	0.5'		N/A	White-tan, fine grained, porrly graded sand with some silt, slightly moist, SP-SM No staining or odor.	Headspace Reading 0 ppm Collect sample MW-3 28.0'
25						

PROJECT NUMBER	BORING NUMBER	MW-3
141823.JE.DW	SHEET 2	OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/18/97 END : 6/18/97 LOGGER SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
	28-33'	3.5'		N/A	White-tan, fine grained, poorly graded sand with some silt, slightly moist, SP-SM No staining or odor.	Headspace Reading 0 ppm
30						Collect sample MW-3 33.0'
	33-38"	3.5'			White clay present in cuttings at 33' F.g. white sand with silt and clay, moist, ML	Headspace Reading 0 ppm
35						
	38-43'	3.5'			White-tan silty clay with some f.g. sand, moist, stiff, ML	Headspace Reading 0 ppm
40					Saturated, white silty clay with sand, ML	
45						
					T.D. of Hole 48' bgs	
50						

CH2MHILL

PROJECT NUMBER	BORING NUMBER	MW-4
141823.JE.DW		SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : N/A DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/18/97 END : 6/18/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
		1.0'			loose, sandy brown, surface soil	
	3-8'	2'		N/A	Fine-grained, white sand with some silt, dry, SP-SM, no staining or odor.	Headspace Reading 0 ppm Collect sample MW-4 8.0'
5						
	8-13'	2.5'		N/A	Fine-grained, white sand with some silt,SP-SM, no staining or odor, very slightly moist.	Headspace Reading 0 ppm Collect sample MW-4 13.0'
10						
	13-20'	3'		N/A		Headspace Reading 0 ppm Collect sample MW-4 18.0'
15					Fine-grained, white sand with some silt, dry, SP-SM, no staining or odor, very slightly moist.	
20	20-25'	2.5'		N/A	Tan-orange, fine grained sand with silt, semi-consolidated, no odor or staining.	Headspace Reading 0 ppm Collect sample MW-4 20.0'
					White, fine grained, poorly graded sand, dry no odor or staining, SP-SM	Headspace Reading 0 ppm Collect sample MW-4 25.0'
25	25-30'	3'		N/A	White, fine grained, poorly graded sand, dry no odor or staining, SP-SM	

PROJECT NUMBER	BORING NUMBER	MW-4
141823.JE.DW	SHEET 2	OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/18/97 END : 6/18/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
30	30-35'	1'		N/A	Tan, fine grained sand with silt and some clay, slightly consolidated, slightly moist, no odor or staining, SP-SM	Headspace Reading 0 ppm Collect sample MW-4 35.0'
35	35-40'	1'		N/A	Tan, fine grained sand with silt and some clay, slightly consolidated, moist, no odor or staining, SP-SM	Headspace Reading 0 ppm
40					Bottom of auger flights covered with thick, fat, red clay. Total Depth of Borehole 44 feet below ground surface	
45						
50					T.D. of Hole 48' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	MW-5
141823.JE.DW		SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : N/A DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/19/97 END : 6/19/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
		1.0'			loose, sandy surface soil	
	3-8 '	4'		N/A	White-tain, fine grained sand with silt, dry, loose, no odor or staining. SP-SM	Headspace Reading 0 ppm Collect sample MW-5 8.0'
5						
	8-13'	3'		N/A	White-tain, fine grained sand with silt, dry, loose, no odor or staining. SP-SM	Headspace Reading 0 Collect sample MW-5 13.0' and duplicate sample MW-5 99-99
10						
	13-18'	1		N/A	White-tain, fine grained sand with silt, dry, loose, no odor or staining. SP-SM	Headspace Reading 0 ppm Collect sample MW-5 18.0'
15						
	18-23'	1'		N/A	White-tain, fine grained sand with silt, dry, loose, no odor or staining. SP-SM	Headspace Reading 0 ppm Collect sample MW-5 23.0'
20						
	23-28'	3'		N/A	White-tain, fine grained sand with silt, dry, loose, no odor or staining. SP-SM	Headspace Reading 0 ppm Collect sample MW-5 28.0'
25						

PROJECT NUMBER	BORING NUMBER	MW-5
141823.JE.DW	SHEET 2	OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/19/97 END : 6/19/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
30	28-33'	3'		N/A	White-tain, fine grained sand with silt, dry, slightly consolidated, no odor or staining. SP-SM	Headspace Reading 0 ppm Collect sample MW-5 33.0' and duplicate sample MW-5 98-98
35	33-38"	3'			F.g. white silty sand, moist, SP-SM	Headspace Reading 0 ppm Collect sample MW-5 38.0'
40	38-43'	3.5'			White-tan silty clay with some f.g. sand, moist, stiff, ML Tan, fine-grained silty sandy clay, saturated, ML	Headspace Reading 0 ppm
45					White silty clay, saturated, ML Bottom auger flights covered with thick, fat, red clay Total Depth 43 feet below ground surface	
50					T.D. of Hole 48' bgs	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	MW-6
141823.JE.DW		SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : N/A DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/20/97 END : 6/20/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
		1.0'			loose, sandy surface soil	
	3-8'	4'		N/A	Fine grained, white-buff, loose, very slightly moist, sand with silt, SP-SM No odor or staining	Headspace Reading 0 ppm Collect sample MW-6 8.0'
5						
	8-13'	2.5'		N/A	Fine grained, white-buff, loose, very slightly moist, sand with silt, SP-SM No odor or staining	Headspace Reading 0 Collect sample MW-6 13.0'
10						
	13-18'	4.5'		N/A	Fine grained, white-buff, semi-consol., slightly moist, sand with silt, SP-SM No odor or staining	Headspace Reading 0 ppm Collect sample MW-6 18.0'
15						
	18-23'	3'		N/A	Fine grained, white-buff, semi-consol., slightly moist, sand with silt with some caliche, SP-SM No odor or staining	Headspace Reading 0 ppm Collect sample MW-6 23.0'
20						
	23-28'	5'		N/A	Buff-white, fine grained sand with silt and clay, slightly moist, some pieces of caliche and stone, SP-SM No odor or staining	Headspace Reading 0 ppm Collect sample MW-5 28.0'
25						

PROJECT NUMBER	BORING NUMBER	MW-6
141823.JE.DW	SHEET 2	OF 2

SOIL BORING LOG

PROJECT : Chevron Monument, NM site LOCATION : Monument, NM

ELEVATION : DRILLING CONTRACTOF Atkins Engineering Associates

DRILLING METHOD AND EQUIPMENT USED : 4 1/4 ID Hollow Stem Augers and 5-foot continuous split spoon sampler

WATER LEVELS : START : 6/20/97 END : 6/20/97 LOGGER : SM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. OVM (ppm): Breathing Zone Headspace
28-33'	2'		N/A	White-buff silty f.g sand with clay, moist, no odor or staining, ML	Headspace Reading 0 ppm Collect sample MW-6 33.0'
33-38'	3'			White-buff silty f.g sand with clay, saturated, no odor or staining, ML	Headspace Reading 0 ppm
38-43'	4'			White-buff silty f.g sand with clay, saturated, no odor or staining, ML	Headspace Reading 0 ppm
				Total Depth 45 feet below ground surface	
				T.D. of Hole 48' bgs	

CH2MHILL

PROJECT NUMBER 141823.JE.DW	WELL NUMBER MW-1
	SHEET 1 OF 1

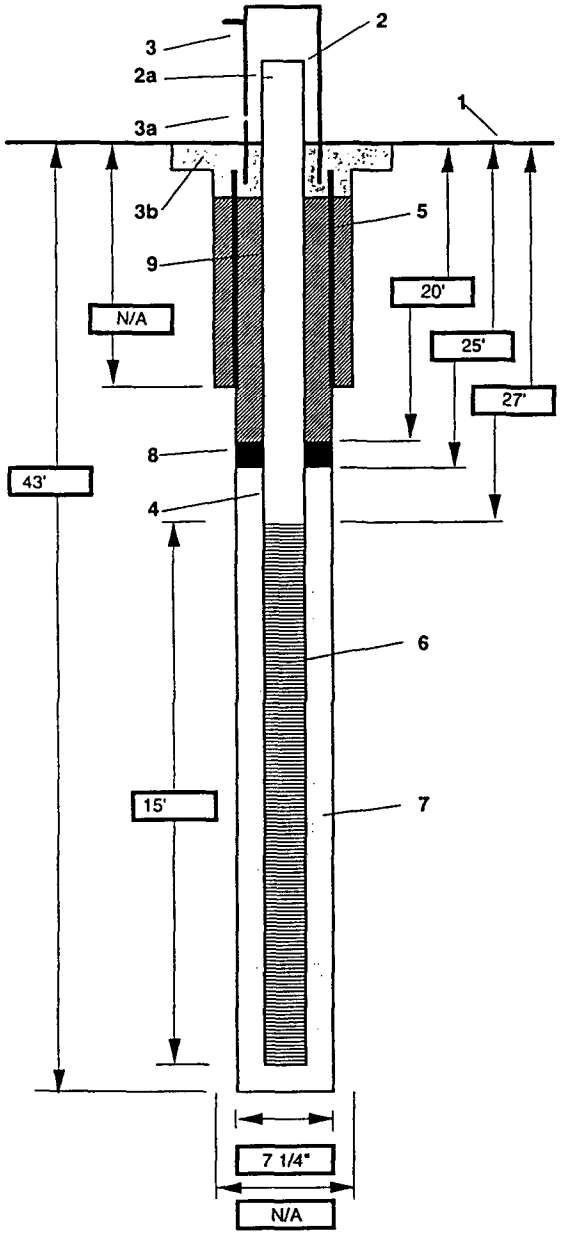
WELL COMPLETION DIAGRAM

PROJECT : Chevron Monument, NM Site LOCATION : Monument, NM

DRILLING CONTRACTOR : Atkins Engineering

DRILLING METHOD AND EQUIPMENT USE 4 1/4-inch ID Hollow Stem Auger and Continuous 5-foot Split Spoon Sampler

WATER LEVELS : 35.0' bgs 6/17/97 START : 6/17/97 END : 6/17/97 LOGGER SM



1- Ground elevation at well: N/A

2- Top of casing elevation: 3565.24 feet
a) vent hole? N/A

3- Wellhead protection cover type: Stainless steel stickup casing
a) weep hole? N/A
b) concrete pad dimensions: Approx. 2' by 2'

4- Dia./type of well casing: 4-inch Schedule 40 PVC

5- Dia./type of surface casing: N/A

6- Type/slot size of screen: 4-inch diameter PVC 0.020 slot

7- Type screen filter: 6/18 silica sand
a) Quantity used: 6 1/2 50-lb. bags

8- Type of seal: bentonite chips
a) Quantity used: 1 50-lb bag

9- Grout
a) Grout mix used: Portland cement with 3-5% bentonite
b) Method of placement: gravity
c) Vol. of surface casing grout: N/A
d) Vol. of well casing grout: Approx. 40 gallons

Development method: submersible pump

Development time: 30 minutes at approx. 6 gpm

Estimated purge volume: 150-180 gallons

Comments

CH2MHILL

PROJECT NUMBER 141823.JE.DW	WELL NUMBER MW-2
	SHEET 1 OF 1

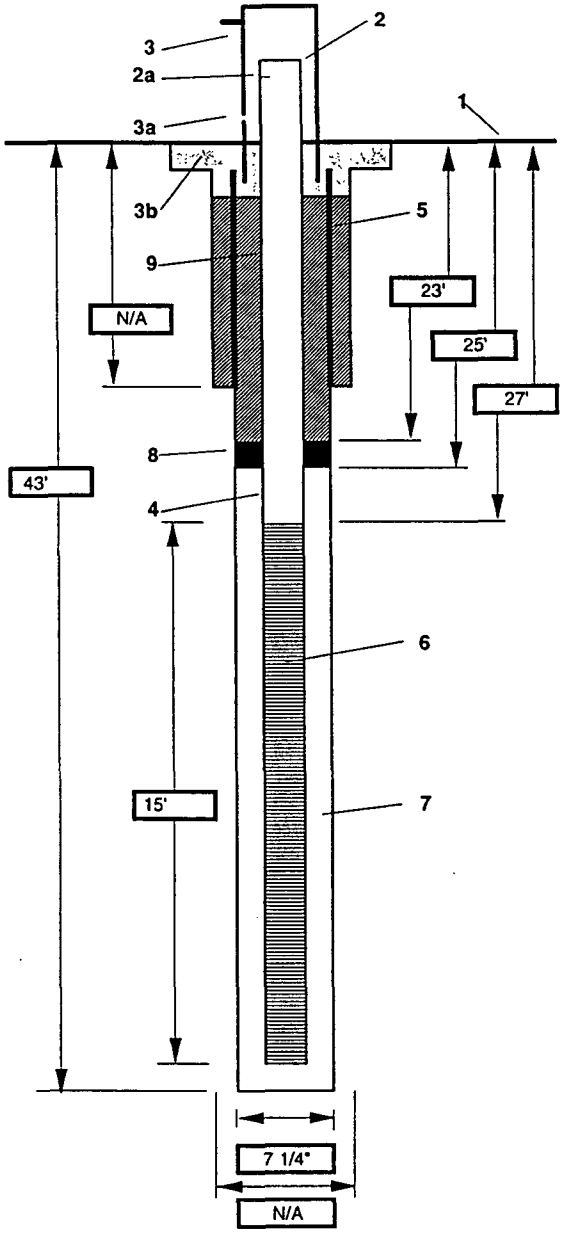
WELL COMPLETION DIAGRAM

PROJECT : Chevron Monument, NM Site LOCATION : Monument, NM

DRILLING CONTRACTOR : Atkins Engineering

DRILLING METHOD AND EQUIPMENT USE 4 1/4-inch ID Hollow Stem Auger and Continuous 5-foot Split Spoon Sampler

WATER LEVELS : 33.76' bgs 6/20/97 START : 6/19/97 END : 6/19/97 LOGGER SM



1- Ground elevation at well	N/A
2- Top of casing elevation	3564.21
a) vent hole?	N/A
3- Wellhead protection cover type	Stainless steel stickup casing
a) weep hole?	N/A
b) concrete pad dimensions	Approx. 2' by 2'
4- Dia./type of well casing	4-inch Schedule 40 PVC
5- Dia./type of surface casing	N/A
6- Type/slot size of screen	4-inch diameter PVC 0.020 slot
7- Type screen filter	6/18 silica sand
a) Quantity used	5 1/2 50-lb. bags
8- Type of seal	bentonite chips
a) Quantity used	1/2 50-lb bag
9- Grout	
a) Grout mix used	Portland cement with 3-5% bentonite
b) Method of placement	gravity
c) Vol. of surface casing grout	N/A
d) Vol. of well casing grout	Approx. 30 gallons
Development method	submersible pump
Development time	30 minutes at approx. 1-2 gpm
Estimated purge volume	30-50 gallons

Comments

CH2MHILL

PROJECT NUMBER 141823.JE.DW	WELL NUMBER MW-3
	SHEET 1 OF 1

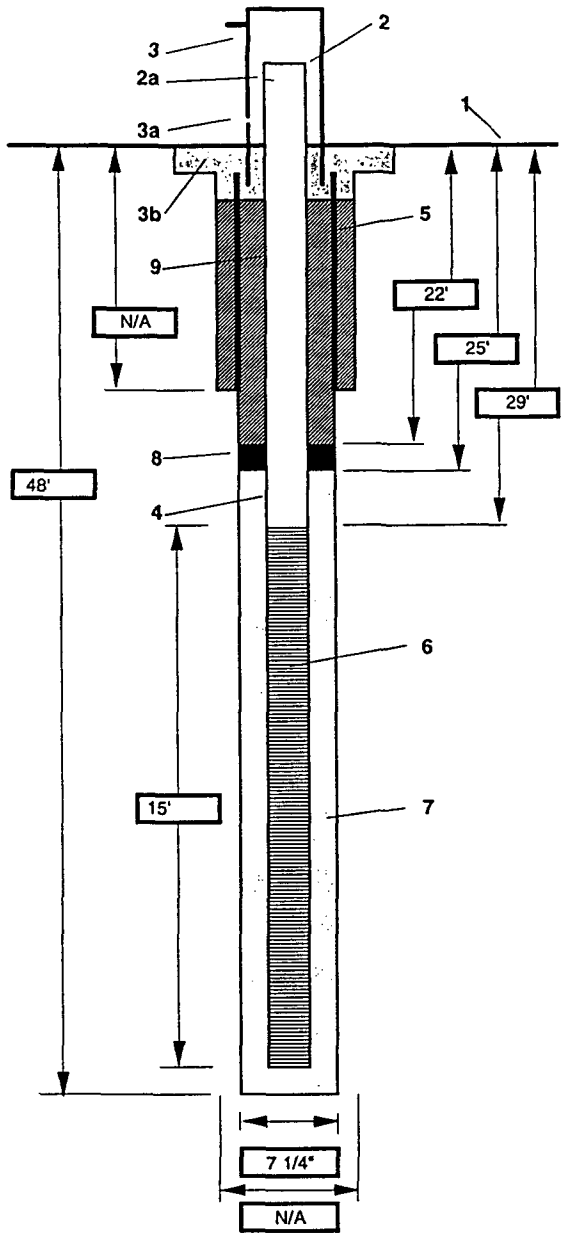
WELL COMPLETION DIAGRAM

PROJECT : Chevron Monument, NM Site LOCATION : Monument, NM

DRILLING CONTRACTOR : Atkins Engineering

DRILLING METHOD AND EQUIPMENT USE 4 1/4-inch ID Hollow Stem Auger and Continuous 5-foot Split Spoon Sampler

WATER LEVELS : 33.2.0' bgs 6/18/97 START : 6/18/97 END : 6/18/97 LOGGER SM



1- Ground elevation at well: N/A

2- Top of casing elevation: 3564.06
a) vent hole? N/A

3- Wellhead protection cover type: Stainless steel stickup casing
a) weep hole? N/A
b) concrete pad dimensions: Approx. 2' by 2'

4- Dia./type of well casing: 4-inch Schedule 40 PVC

5- Dia./type of surface casing: N/A

6- Type/slot size of screen: 4-inch diameter PVC 0.020 slot

7- Type screen filter: 6/18 silica sand
a) Quantity used: 7 1/2 50-lb. bags

8- Type of seal: bentonite chips
a) Quantity used: 1/2 50-lb bag

9- Grout
a) Grout mix used: Portland cement with 3-5% bentonite
b) Method of placement: gravity
c) Vol. of surface casing grout: N/A
d) Vol. of well casing grout: Approx. 30 gallons

Development method: submersible pump

Development time: 30 minutes at approx. 2-3 gpm

Estimated purge volume: 60-90 gallons

Comments

CH2MHILL

PROJECT NUMBER 141823.JE.DW	WELL NUMBER MW-4
	SHEET 1 OF 1

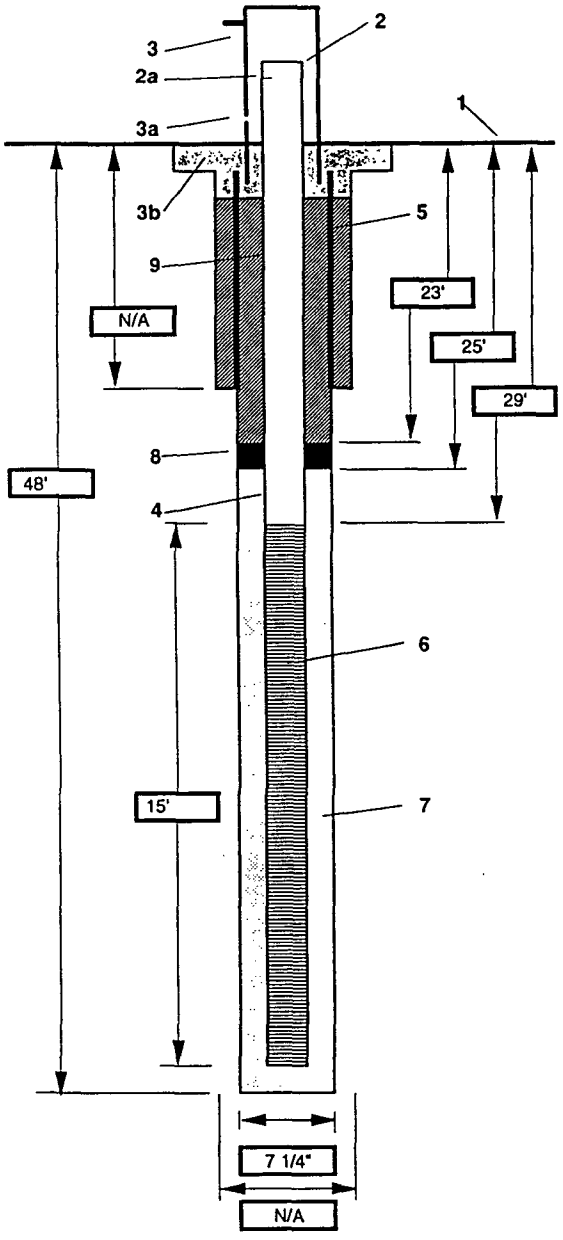
WELL COMPLETION DIAGRAM

PROJECT : Chevron Monument, NM Site LOCATION : Monument, NM

DRILLING CONTRACTOR : Atkins Engineering

DRILLING METHOD AND EQUIPMENT USE 4 1/4-inch ID Hollow Stem Auger and Continuous 5-foot Split Spoon Sampler

WATER LEVELS : 34.04.0' bgs 6/20/97 START : 6/19/97 END : 6/18997 LOGGER SM



1- Ground elevation at well	N/A
2- Top of casing elevation	3564.62
a) vent hole?	N/A
3- Wellhead protection cover type	Stainless steel stickup casing
a) weep hole?	N/A
b) concrete pad dimensions	Approx. 2' by 2'
4- Dia./type of well casing	4-inch Schedule 40 PVC
5- Dia./type of surface casing	N/A
6- Type/slot size of screen	4-inch diameter PVC 0.020 slot
7- Type screen filter	6/18 silica sand
a) Quantity used	10 50-lb. bags
8- Type of seal	bentonite chips
a) Quantity used	1/2 50-lb bag
9- Grout	
a) Grout mix used	Portland cement with 3-5% bentonite
b) Method of placement	gravity
c) Vol. of surface casing grout	N/A
d) Vol. of well casing grout	Approx. 30 gallons
Development method	bailer
Development time	30 minutes with bailer
Estimated purge volume	25 gallons
Comments	Well very poor producer. Large portion of screened interval has filled in with red clay, water remains turbid.

CH2MHILL

PROJECT NUMBER 141823.JE.DW	WELL NUMBER MW-5
	SHEET 1 OF 1

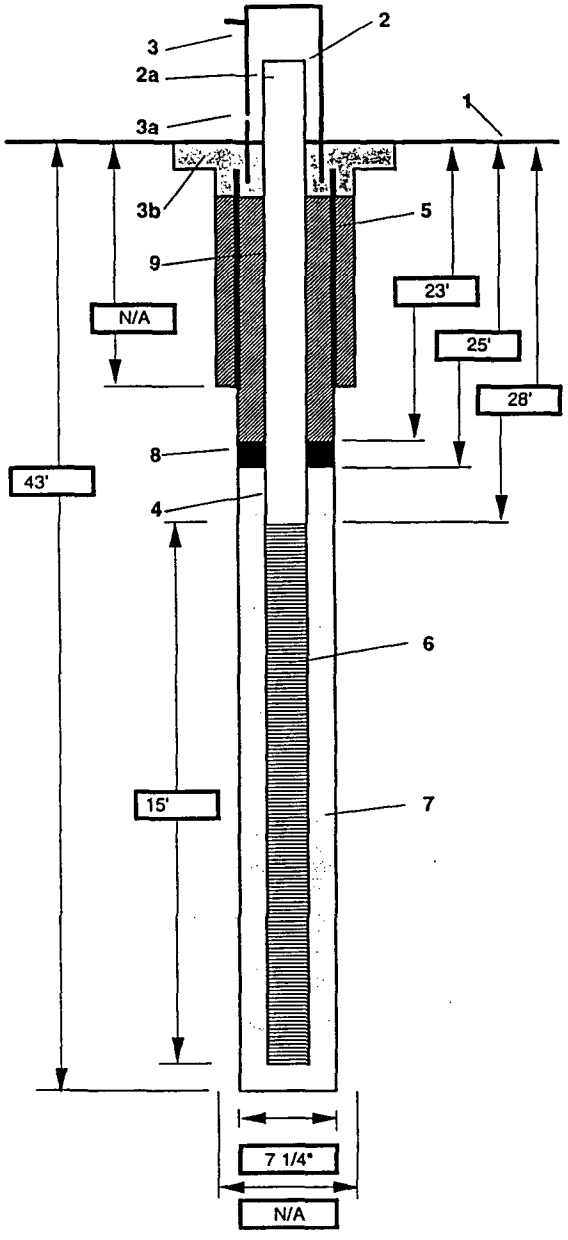
WELL COMPLETION DIAGRAM

PROJECT : Chevron Monument, NM Site LOCATION : Monument, NM

DRILLING CONTRACTOR : Atkins Engineering

DRILLING METHOD AND EQUIPMENT USE 4 1/4-inch ID Hollow Stem Auger and Continuous 5-foot Split Spoon Sampler

WATER LEVELS : 34.39.0' bgs 6/20/97 START : 6/19/97 END : 6/19/97 LOGGER SM



1- Ground elevation at well	N/A
2- Top of casing elevation	3564.58
a) vent hole?	N/A
3- Wellhead protection cover type	Stainless steel stickup casing
a) weep hole?	N/A
b) concrete pad dimensions	Approx. 2' by 2'
4- Dia./type of well casing	4-inch Schedule 40 PVC
5- Dia./type of surface casing	N/A
6- Type/slot size of screen	4-inch diameter PVC 0.020 slot
7- Type screen filter	6/18 silica sand
a) Quantity used	6 1/2 50-lb. bags
8- Type of seal	bentonite chips
a) Quantity used	1/2 50-lb bag
9- Grout	
a) Grout mix used	Portland cement with 3-5% bentonite
b) Method of placement	gravity
c) Vol. of surface casing grout	N/A
d) Vol. of well casing grout	Approx. 30 gallons
Development method	submersible pump
Development time	30 minutes at approx. 1-2 gpm
Estimated purge volume	30-50 gallons

Comments

CH2MHILL

PROJECT NUMBER 141823.JE.DW	WELL NUMBER MW-6
	SHEET 1 OF 1

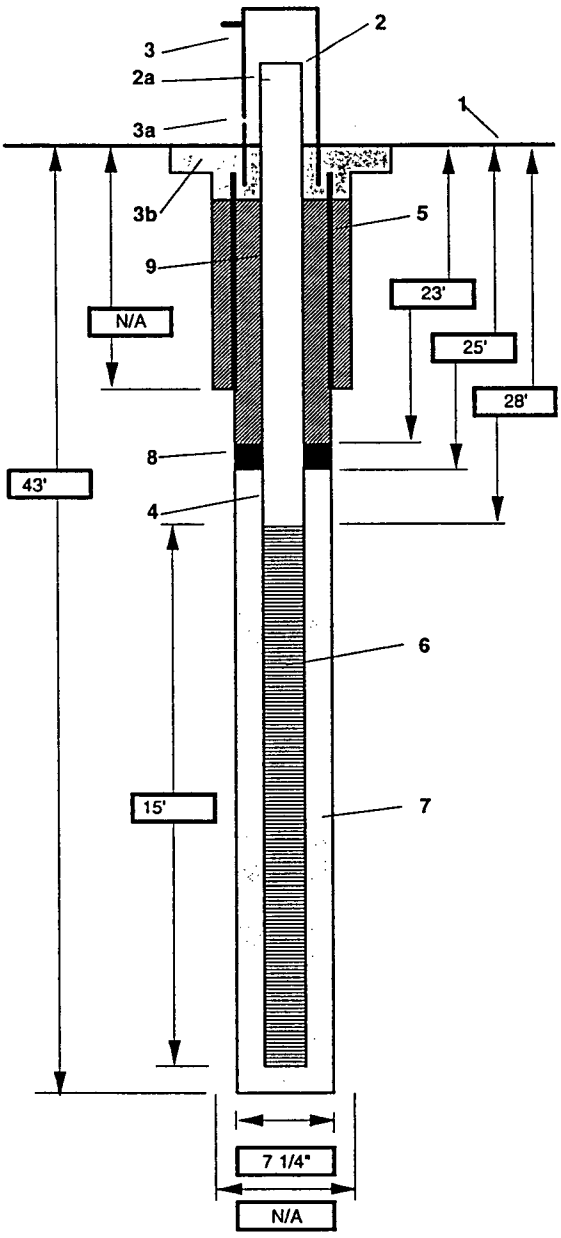
WELL COMPLETION DIAGRAM

PROJECT : Chevron Monument, NM Site LOCATION : Monument, NM

DRILLING CONTRACTOR : Atkins Engineering

DRILLING METHOD AND EQUIPMENT USE 4 1/4-inch ID Hollow Stem Auger and Continuous 5-foot Split Spoon Sampler

WATER LEVELS : 31.75' bgs 6/20/97 START : 6/20/97 END : 6/20/97 LOGGER SM



1- Ground elevation at well	N/A
2- Top of casing elevation	3564.58
a) vent hole?	N/A
3- Wellhead protection cover type	Stainless steel stickup casing
a) weep hole?	N/A
b) concrete pad dimensions	Approx. 2' by 2'
4- Dia./type of well casing	4-inch Schedule 40 PVC
5- Dia./type of surface casing	N/A
6- Type/slot size of screen	4-inch diameter PVC 0.020 slot
7- Type screen filter	6/18 silica sand
a) Quantity used	6 50-lb. bags
8- Type of seal	bentonite chips
a) Quantity used	1/2 50-lb bag
9- Grout	
a) Grout mix used	Portland cement with 3-5% bentonite
b) Method of placement	gravity
c) Vol. of surface casing grout	N/A
d) Vol. of well casing grout	Approx. 30 gallons
Development method	submersible pump
Development time	30 minutes at approx. 1-2 gpm
Estimated purge volume	30-50 gallons

Comments

APPENDIX D

Soil Sample Laboratory Data

Hall Environmental
Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins, NE Suite A
Albuquerque, NM 87110
(505)345-3975

7/9/97

CH2M Hill
6001 Indian School NE
Albuquerque, NM 87110

Dear Ms. Sharon Minchak,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

Detection limits are determined by EPA methodology. No determination of compounds below these levels (denoted by the nd or < sign) has been made.

Please don't hesitate to contact me for any additional information or clarifications.

Sincerely,

7/21/97

Scott Hallenbeck, Lab Manager

Project: 9706055/Chevron

Client:	CH2M Hill	**Date Collected:**	6/18,20/97
Project Name:	Chevron Monument, NM	**Date Received:**	6/20/97
Project Manager:	Sharon Minchak	**Date Extracted:**	6/23/97
Sample Matrix:	Non-Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	**MW-6 33.0'**	**MW-4 8.0'**	**Extraction Blank I**
Lab Code:	9706042-21	9706042-22	
Date Analyzed:	6/25/97	6/25/97	6/25/97

Compound	MRL	Result	Result	Result
Benzene	0.05	nd	nd	nd
Toluene	0.05	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd
BFB (Surrogate) Recovery		80	91	96
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client:	CH2M Hill	**Date Collected:**	6/18/97
Project Name:	Chevron Monument, NM	**Date Received:**	6/20/97
Project Manager:	Sharon Minchak	**Date Extracted:**	6/23/97
Sample Matrix:	Non-Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:		**MW-4 13.0'**	**MW-4 20.0'**	**MW-4 25.0'**	**MW-4 30.0'**
Lab Code:		9706042-23	9706042-24	9706042-25	9706042-26
Date Analyzed:		6/26/97	6/26/97	6/26/97	6/26/97
Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		99	97	95	81
Dilution Factor		1	1	1	1

Client: CH2M Hill
Project Name: Chevron Monument, NM
Project Manager: Sharon Minchak
Sample Matrix: Non-Aqueous

Date Collected: 6/18,19/97
Date Received: 6/20/97
Date Extracted: 6/23/97

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	MW-4 35.0'	MW-5 8.0'	MW-5 13.0'	MW-5 18.0'
Lab Code:	9706042-27	9706042-28	9706042-29	9706042-30
Date Analyzed:	6/26/97	6/26/97	6/26/97	6/26/97

Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		88	94	99	98
Dilution Factor		1	1	1	1

Client: CH2M Hill
Project Name: Chevron Monument, NM
Project Manager: Sharon Minchak
Sample Matrix: Non-Aqueous

Date Collected: 6/19/97
Date Received: 6/20/97
Date Extracted: 6/23/97

Volatile Organic Compounds
EPA Method **8020**
Units: PPM (mg/kg)

	Sample Name:	**MW-5 23.0'**	**MW-5 28.0'**	**MW-5 33.0'**	**MW-5 38.0'**
	Lab Code:	9706042-31	9706042-32	9706042-33	9706042-34
	Date Analyzed:	6/26/97	6/26/97	6/26/97	6/26/97
Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		102	93	97	87
Dilution Factor		1	1	1	1

Client: CH2M Hill
Project Name: Chevron Monument, NM
Project Manager: Sharon Minchak
Sample Matrix: Non-Aqueous

Date Collected: 6/19,20/97
Date Received: 6/20/97
Date Extracted: 6/23/97

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	MW-5 98-98'	MW-5 99-99'	MW-6 8.0'	Extraction Blank II
Lab Code:	9706042-35	9706042-36	9706042-37	
Date Analyzed:	6/26/97	6/26/97	6/26/97	6/26/97
Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		92	103	95	104
Dilution Factor		1	1	1	1

Client: CH2M Hill
Project Name: Chevron Monument, NM
Project Manager: Sharon Minchak
Sample Matrix: Non-Aqueous

Date Collected: 6/20/97
Date Received: 6/20/97
Date Extracted: 6/23/97

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	MW-6 23.0'	MW-6 13.0'	MW-6 18.0'	MW-6 45.0'
Lab Code:	9706042-38	9706042-39	9706042-40	9706042-41
Date Analyzed:	6/25/97	6/25/97	6/25/97	6/25/97

Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		83	82	86	85
Dilution Factor		1	1	1	1

Client:	CH2M Hill	**Date Collected:**	6/20/97
Project Name:	Chevron Monument, NM	**Date Received:**	6/20/97
Project Manager:	Sharon Minchak	**Date Extracted:**	6/23/97
Sample Matrix:	Non-Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	***MW-6 34.0'***	***MW-6 28.0'***	**Extraction**
Lab Code:	9706042-42	9706042-43	**Blank III**
Date Analyzed:	6/25/97	6/25/97	6/25/97

Compound	MRL	Result	Result	Result
Benzene	0.05	nd	nd	nd
Toluene	0.05	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd
BFB (Surrogate) Recovery		83	84	93
Dilution Factor		1	1	1

Client:	CH2M Hill	**Date Collected:**	6/18/97
Project Name:	Chevron Monument, NM	**Date Received:**	6/20/97
Project Manager:	Sharon Minchak	**Date Extracted:**	6/23/97
Sample Matrix:	Non-Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	MW-1 8.0'	MW-1 13.0'	MW-1 18.0'	MW-1 25.0'
Lab Code:	9706042-1	9706042-2	9706042-3	9706042-4
Date Analyzed:	6/24/97	6/24/97	6/24/97	6/25/97

Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		94	85	81	85
Dilution Factor		1	1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client:	CH2M Hill	**Date Collected:**	6/18/97
Project Name:	Chevron Monument, NM	**Date Received:**	6/20/97
Project Manager:	Sharon Minchak	**Date Extracted:**	6/23/97
Sample Matrix:	Non-Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	**MW-1 30.0'**	**MW-1 35.0'**	**MW-2 8.0'**	**MW-2 13.0'**
Lab Code:	9706042-5	9706042-6	9706042-7	9706042-8
Date Analyzed:	6/25/97	6/25/97	6/25/97	6/25/97

Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		84	85	95	94
Dilution Factor		1	1	1	1

Client: CH2M Hill
Project Name: Chevron Monument, NM
Project Manager: Sharon Minchak
Sample Matrix: Non-Aqueous

Date Collected: 6/19/97
Date Received: 6/20/97
Date Extracted: 6/23/97

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	MW-2 18.0'	MW-2 28.0'	MW-2 23.0'	MW-2 33.0'
Lab Code:	9706042-9	9706042-10	9706042-11	9706042-12
Date Analyzed:	6/25/97	6/25/97	6/25/97	6/25/97

Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		92	96	90	82
Dilution Factor		1	1	1	1

Client:	CH2M Hill	**Date Collected:**	6/18,19/97
Project Name:	Chevron Monument, NM	**Date Received:**	6/20/97
Project Manager:	Sharon Minchak	**Date Extracted:**	6/23/97
Sample Matrix:	Non-Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)

Sample Name:	MW-2 99-99'	MW-3 8.0'	MW-3 13.0'	MW-3 18.0'
Lab Code:	9706042-13	9706042-14	9706042-15	9706042-16
Date Analyzed:	6/25/97	6/25/97	6/25/97	6/25/97

Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		87	101	97	95
Dilution Factor		1	1	1	1

Client: CH2M Hill
Project Name: Chevron Monument, NM
Project Manager: Sharon Minchak
Sample Matrix: Non-Aqueous

Date Collected: 6/18/97
Date Received: 6/20/97
Date Extracted: 6/23/97

Volatile Organic Compounds
EPA Method **8020**
Units: PPM (mg/kg)

Sample Name:	**MW-3 23.0'**	**MW-3 28.0'**	**MW-3 33.0'**	**MW-3 38.0'**
Lab Code:	9706042-17	9706042-18	9706042-19	9706042-20
Date Analyzed:	6/25/97	6/25/97	6/25/97	6/25/97

Compound	MRL	Result	Result	Result	Result
Benzene	0.05	nd	nd	nd	nd
Toluene	0.05	nd	nd	nd	nd
Ethylbenzene	0.05	nd	nd	nd	nd
Total Xylenes	0.05	nd	nd	nd	nd
BFB (Surrogate) Recovery		91	85	86	87
Dilution Factor		1	1	1	1

Client: CH2M Hill
Project Name: Chevron Monument, NM
Project Manager: Sharon Minchak
Sample Matrix: Non-Aqueous

Date Extracted: 6/23/97
Date Analyzed: 6/26/97

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)
9706042-30 MS/MSD

Compound	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
Benzene	<0.05	1.00	0.98	98	1.03	103	5
Toluene	<0.05	1.00	0.99	99	1.04	104	5
Ethylbenzene	<0.05	1.00	1.00	100	1.04	104	4
Total Xylenes	<0.05	3.00	2.99	100	3.12	104	4

Client: CH2M Hill
Project Name: Chevron Monument, NM
Project Manager: Sharon Minchak
Sample Matrix: Aqueous

Date Extracted: NA
Date Analyzed: 6/25/97

Volatile Organic Compounds
EPA Method **8020**
Units: PPB (µg/l)
9706036-5 MS/MSD

Compound	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
Benzene	<0.5	20.0	22.2	111	21.3	107	4
Toluene	<0.5	20.0	21.9	110	20.8	104	5
Ethylbenzene	<0.5	20.0	21.5	108	20.6	103	4
Total Xylenes	<0.5	60.0	65.0	108	62.9	105	3

Hall Environmental Analysis Laboratory

Client:	CH2M Hill	**Project:**	Chevron Monument, NM
Address:	6001 Indian School Rd. NE Suite 300 Albuquerque, NM 87101	**Project Number:**	141823JEDW
		Project Manager:	Sharon Minchak
		Date Collected:	6/18,19,20/97
		Date Received:	6/20/97
Report Date:	6/25/97	**Sample Matrix:**	Soil
Analysis Date:	6/24/97	**Extraction Date**	6/23/97

EPA Method - 418.1

Final volume of Freon-113 used (ml)	20
Sample weight (g)	10

HEAL ID	Client ID	Absorbance	Dilution	T P H (mg/kg)
9706042-1	MW1 8.0	0.010	1	<20
9706042-2	MW1 13.0	0.002	1	<20
9706042-3	MW1 18.0	0.005	1	<20
9706042-4	MW1 25.0	0.010	1	<20
9706042-5	MW1 30.0	0.002	1	<20
9706042-6	MW1 35.0	0.002	1	<20
9706042-7	MW2 8.0	0.004	1	<20
9706042-8	MW2 13.0	0.002	1	<20
9706042-9	MW2 18.0	0.005	1	<20
9706042-10	MW2 28.0	0.002	1	<20
9706042-11	MW2 23.0	0.000	1	<20
9706042-12	MW2 33.0	0.001	1	<20
9706042-13	MW2 99	0.001	1	<20
9706042-14	MW3 8.0	0.012	1	<20
9706042-15	MW3 13.0	0.000	1	<20
9706042-16	MW3 18.0	0.000	1	<20
9706042-17	MW3 23.0	0.002	1	<20
9706042-18	MW3 28.0	0.005	1	<20
9706042-19	MW3 33.0	0.002	1	<20
9706042-20	MW3 38.0	0.001	1	<20
QA/QC				
Ext Blk I 6/23	N/A	0.001	1	<20

Sample ID:	Sample Amount	Spike	Recovery	% Recovery
9706042-7	<20	100	94	94

Sample ID:	Sample Amount	Duplicate	RPD
9706042-7	<20	<20	NA

Sincerely:

Jerry Richardson
Asst. Laboratory Manager

Scott Hallenbeck
Laboratory Manager

4901 Hawkins NE, Albuquerque, NM 87109
Ph (505)345-3975, Fax (505)345-4107

Hall Environmental Analysis Laboratory

Client:	CH2M Hill	**Project:**	Chevron Monument, NM
Address:	6001 Indian School Rd. NE Suite 300 Albuquerque, NM 87101	**Project Number:**	141823JEDW
		Project Manager:	Sharon Minchak
		Date Collected:	6/18,19,20/97
		Date Received:	6/20/97
Report Date:	6/25/97	**Sample Matrix:**	Soil
Analysis Date:	6/24/97	**Extraction Date**	6/23/97

Analytical Results - 418.1

Final volume of Freon-113 used (ml)	20
Sample weight (g)	10

HEAL ID	Client ID	Absorbance	Dilution	T P H (mg/kg)
9706042-21	MW6 33.0	0.002	1	<20
9706042-22	MW4 8.0	0.001	1	<20
9706042-23	MW4 13.0	0.002	1	<20
9706042-24	MW4 20.0	0.000	1	<20
9706042-25	MW4 25.0	0.000	1	<20
9706042-26	MW4 30.0	0.000	1	<20
9706042-27	MW4 35.0	0.008	1	<20
9706042-28	MW5 8.0	0.000	1	<20
9706042-29	MW5 13.0	0.000	1	<20
9706042-30	MW5 18.0	0.000	1	<20
9706042-31	MW5 23.0	0.000	1	<20
9706042-32	MW5 28.0	0.000	1	<20
9706042-33	MW5 33.0	0.001	1	<20
9706042-34	MW5 38.0	-0.002	1	<20
9706042-35	MW5 98	0.000	1	<20
9706042-36	MW5 99	-0.002	1	<20
9706042-37	MW6 8.0	-0.002	1	<20
9706042-38	MW6 23.0	-0.002	1	<20
9706042-39	MW6 13.0	0.000	1	<20
9706042-40	MW6 18.0	0.001	1	<20
QA/QC				
Ext Blk II 6/23	N/A	0.000	1	<20

Sample ID:	Sample Amount	Spike	Recovery	% Recovery
9706042-24	<20	100	99	99

Sample ID:	Sample Amount	Duplicate	RPD
9706042-24	<20	<20	NA

Sincerely:

Jerry Richardson
Asst. Lab Manager

Scott Hallenbeck
Laboratory Manager

4901 Hawkins NE, Suite A, Albuquerque, NM 87109
Ph (505)345-3975, Fax (505)345-4107

Hall Environmental Analysis Laboratory

Client:	CH2M Hill	**Project:**	Chevron Monument, NM
Address:	6001 Indian School Rd. NE	**Project Number:**	141823JEDW
	Suite 300	**Project Manager:**	Sharon Minchak
	Albuquerque, NM 87101	**Date Collected:**	6/18,19,20/97
		Date Received:	6/20/97
Report Date:	6/25/97	**Sample Matrix:**	Soil
Analysis Date:	6/24/97	**Extraction Date**	6/23/97

Analytical Results - 418.1

Final volume of Freon-113 used (ml)	20
Sample weight (g)	10

HEAL ID	Client ID	Absorbance	Dilution	T P H (mg/kg)
9706042-41	MW6 45.0	0.015	1	<20
9706042-42	MW6 34.0	-0.001	1	<20
9706042-43	MW6 28.0	0.000	1	<20

QA/QC

Ext Blk III 6/23	N/A	0.000	1	<20

Sample ID:	Sample Amount	Spike	Recovery	% Recovery
9706042-43	<20	100	97	97

Sample ID:	Sample Amount	Duplicate	RPD
9706042-43	<20	<20	NA

Sincerely:

Jerry Richardson
Asst. Lab Manager

Scott Hallenbeck
Laboratory Manager

4901 Hawkins NE, Suite A, Albuquerque, NM 87109
Ph (505)345-3975, Fax (505)345-4107

Hall Environmental
Analysis Laboratory

Client:	CH2M Hill	**Project:**	Chevron Monument, NM
Address:	6001 Indian School Rd. NE Suite 300 Albuquerque, NM 87101	**Project Number:** **Project Manager:** **Date Collected:** **Date Received:**	141823JEDW Sharon Minchak 6/20/97 6/20/97
Report Date:	6/25/97	**Sample Matrix:**	Aqueous
Analysis Date	6/24/97	**Extraction Date**	6/24/97

EPA Method - 418.1

Final volume of Freon-113 used (ml)	50
Sample volume (ml)	500

HEAL ID	Client ID	Absorbance	Dilution	T P H (mg/l)
9706042-44	FB-1	0.003	1	<1.0

QA/QC

Ext Blk 6/24	N/A	0.001	1	<1.0

Sample ID:	Sample Amount	Spike	Recovery	% Recovery
Blk. Spike 6/24	<1.0	5.0	4.6	92

Sample ID:	Sample Amount	Duplicate	RPD
Blk. Dup. 6/24	<1.0	<1.0	N/A

Sincerely:

Jerry Richardson
Asst. Laboratory Manager

Scott Hallenbeck
Laboratory Manager

4901 Hawkins Ne, Suite A, Albuquerque, NM 87109
Ph (505)345-3975, Fax (505)345-4107

Hall Environmental Analysis Laboratory

Client:	CH2M Hill	**Project:**	Chevron Monument, NM
Address:	6001 Indian School Rd. NE	**Project Number:**	141823.JE.DW
	Suite 300	**Project Manager:**	Sharon Minchak
	Albuquerque, NM 87101	**Date Collected:**	6/18,19,20/97
		Date Received:	6/20/97
Report Date:	7/11/97	**Sample Matrix:**	Soil
Analysis Date:	See Below	**Extraction Date**	NA

EPA Method - 300.0

HEAL ID	Client ID	Chloride mg/L	Analysis Date
9706042-1	MW1 8.0	6.1	6/30/97
9706042-2	MW1 13.0	0.6	6/30/97
9706042-3	MW1 18.0	160	6/30/97
9706042-4	MW1 25.0	360	6/30/97
9706042-5	MW1 30.0	330	6/30/97
9706042-6	MW1 35.0	160	6/30/97
9706042-7	MW2 8.0	<0.5	6/30/97
9706042-8	MW2 13.0	12	6/30/97
9706042-9	MW2 18.0	14	6/30/97
9706042-10	MW2 28.0	280	6/30/97
9706042-11	MW2 23.0	170	6/30/97
9706042-12	MW2 33.0	180	6/30/97
9706042-13	MW2 99	190	6/30/97
9706042-14	MW3 8.0	14	7/2/97
9706042-15	MW3 13.0	0.9	7/2/97
9706042-16	MW3 18.0	0.9	7/2/97
9706042-17	MW3 23.0	94	7/2/97
9706042-18	MW3 28.0	440	7/2/97
9706042-19	MW3 33.0	180	7/2/97
9706042-20	MW3 38.0	160	7/2/97
9706042-21	MW6 33.0	210	7/2/97
9706042-22	MW4 8.0	9.1	7/2/97
9706042-23	MW4 13.0	0.8	7/3/97
9706042-24	MW4 20.0	<0.5	7/3/97
9706042-25	MW4 25.0	0.7	7/3/97
Detection Level		0.5	

4901 Hawkins NE, Albuquerque, NM 87109
Ph (505)345-3975, Fax (505)345-4107

Hall Environmental Analysis Laboratory

Client:	CH2M Hill	**Project:**	Chevron Monument, NM
Address:	6001 Indian School Rd. NE Suite 300 Albuquerque, NM 87101	**Project Number:**	141823.JE.DW
		Project Manager:	Sharon Minchak
		Date Collected:	6/18,19,20/97
		Date Received:	6/20/97
Report Date:	7/11/97	**Sample Matrix:**	Soil
Analysis Date:	See Below	**Extraction Date**	NA

EPA Method - 300.0

HEAL ID	Client ID	Chloride mg/L	Analysis Date
9706042-26	MW4 30.0	280	7/3/97
9706042-27	MW4 35.0	130	7/3/97
9706042-28	MW5 8.0	11	7/3/97
9706042-29	MW5 13.0	0.7	7/3/97
9706042-30	MW5 18.0	<0.5	7/3/97
9706042-31	MW5 23.0	<0.5	7/3/97
9706042-32	MW5 28.0	8.6	7/3/97
9706042-33	MW5 33.0	3.9	7/3/97
9706042-34	MW5 38.0	48	7/3/97
9706042-35	MW5 98	4.5	7/3/97
9706042-36	MW5 99	0.7	7/3/97
9706042-37	MW6 8.0	240	7/7/97
9706042-38	MW6 23.0	890	7/7/97
9706042-39	MW6 13.0	450	7/7/97
9706042-40	MW6 18.0	700	7/7/97
9706042-41	MW6 45.0	210	7/7/97
9706042-42	MW6 34.0	140	7/7/97
9706042-43	MW6 28.0	830	7/7/97
Detection Level		0.5	
QA/QC			
9706042-15 dup		0.9	7/2/97
9706042-30 dup		<0.5	7/7/97
9706042-37 dup		230	7/7/97

4901 Hawkins NE, Albuquerque, NM 87109
Ph (505)345-3975, Fax (505)345-4107

Hall Environmental Analysis Laboratory

Client:	CH2M Hill	**Project:**	Chevron Monument, NM
Address:	6001 Indian School Rd. NE	**Project Number:**	141823.JE.DW
	Suite 300	**Project Manager:**	Sharon Minchak
	Albuquerque, NM 87101	**Date Collected:**	6/18,19,20/97
		Date Received:	6/20/97
Report Date:	7/11/97	**Sample Matrix:**	Soil
Analysis Date:	See Below	**Extraction Date**	NA

EPA Method - 120.1

HEAL ID	Client ID	eC (µS/cm)	Analysis Date
9706042-1	MW1 8.0	866	7/11/97
9706042-2	MW1 13.0	470	7/11/97
9706042-3	MW1 18.0	4,370	7/11/97
9706042-4	MW1 25.0	9,380	7/11/97
9706042-5	MW1 30.0	10,600	7/11/97
9706042-6	MW1 35.0	5,500	7/11/97
9706042-7	MW2 8.0	463	7/11/97
9706042-8	MW2 13.0	437	7/11/97
9706042-9	MW2 18.0	3,350	7/11/97
9706042-10	MW2 28.0	6,170	7/11/97
9706042-11	MW2 23.0	6,350	7/11/97
9706042-12	MW2 33.0	3,540	7/11/97
9706042-13	MW2 99	4,900	7/11/97
9706042-14	MW3 8.0	569	7/11/97
9706042-15	MW3 13.0	506	7/11/97
9706042-16	MW3 18.0	1,240	7/11/97
9706042-17	MW3 23.0	4,020	7/11/97
9706042-18	MW3 28.0	7,800	7/11/97
9706042-19	MW3 33.0	3,270	7/11/97
9706042-20	MW3 38.0	2,900	7/11/97
9706042-21	MW6 33.0	2,680	7/11/97
9706042-22	MW4 8.0	436	7/11/97
9706042-23	MW4 13.0	485	7/11/97
9706042-24	MW4 20.0	472	7/11/97
9706042-25	MW4 25.0	655	7/11/97
Detection Level		1.0	

4901 Hawkins NE, Albuquerque, NM 87109
Ph (505)345-3975, Fax (505)345-4107

Hall Environmental
Analysis Laboratory

Client:	CH2M Hill	**Project:**	Chevron Monument, NM
Address:	6001 Indian School Rd. NE	**Project Number:**	141823.JE.DW
	Suite 300	**Project Manager:**	Sharon Minchak
	Albuquerque, NM 87101	**Date Collected:**	6/18,19,20/97
		Date Received:	35601
Report Date:	7/11/97	**Sample Matrix:**	Soil
Analysis Date:	See Below	**Extraction Date**	NA

EPA Method - 120.1

HEAL ID	Client ID	eC (µS/cm)	Analysis Date
9706042-26	MW4 30.0	3,100	7/11/97
9706042-27	MW4 35.0	3,210	7/11/97
9706042-28	MW5 8.0	1,950	7/11/97
9706042-29	MW5 13.0	472	7/11/97
9706042-30	MW5 18.0	512	7/11/97
9706042-31	MW5 23.0	683	7/14/97
9706042-32	MW5 28.0	781	7/14/97
9706042-33	MW5 33.0	547	7/14/97
9706042-34	MW5 38.0	1,520	7/14/97
9706042-35	MW5 98	508	7/14/97
9706042-36	MW5 99	520	7/14/97
9706042-37	MW6 8.0	3,910	7/14/97
9706042-38	MW6 23.0	12,400	7/14/97
9706042-39	MW6 13.0	8,610	7/14/97
9706042-40	MW6 18.0	13,100	7/14/97
9706042-41	MW6 45.0	3,280	7/14/97
9706042-42	MW6 34.0	1,760	7/14/97
9706042-43	MW6 28.0	15,700	7/14/97
Detection Level		1.0	
QA/QC			
9706042-8 dup		465	7/14/97
9706042-36 dup		513	7/14/97

4901 Hawkins NE, Albuquerque, NM 87109
Ph (505)345-3975, Fax (505)345-4107

CH2M HILL

APPLIED SCIENCES LABORATORY

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M Hill Project #: 114823JB.DW.

Purchase Order #:

Project Name: Chevron Monument, NM

Company Name/CH2M HILL Office:

Project Manager & Phone #: Mr. [ ] Ms. [X] Sharon Minchak Dr. [ ]

Report Copy to: Sharon Minchak (see below)

Requested Completion Date:

Sampling Requirements: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

Sample Disposal: Dispose ☒ Return ☐

LAB TEST CODES

SHADED AREA - FOR LAB USE ONLY

Lab 1 #: Lab 2 #:

Quote #: Kit Request #:

Project #:

No. of Samples: Page ___ of ___

Login: LIMS Ver:

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	ANALYSES REQUESTED: TPH (418.1)	Chloride	Conductivity	BTEX (8020)	REMARKS	LAB 1 ID	LAB 2 ID
6/18	1045		X		X		MW1 8.0'	1	X	X	X	X	9706042-1		
6/18	1100		X		X		MW1 13.0' 13.0	1	X				-2		
	1115		X		X		MW1 18' 18.0	1	X				-3		
	1136		X		X		MW1 25.0	1	X				-4		
	1216		X		X		MW1 30.0	1	X				-5		
	~~1230~~		~~X~~		~~X~~		~~MW1~~	~~1~~	X						
	1330		X		X		MW1 35.0	1	X				-6		
6/19	0830		X		X		MW2 8.0	1	X				-7		
	0840		X		X		MW2 13.0	1	X				-8		
	0855		X		X		MW2 18.0	1	X				-9		
	0910		X		X		MW2 28.0	1	X				-10		

Sampled By & Title (Please sign and print name): Sharon Minchak Hydrogeologist — Date/Time: 6/20/97 1400

Received By (Please sign and print name): JERRY RICHARDSON — Date/Time: 6/20/97 8:30pm

Received By (Please sign and print name): — Date/Time:

Received By (Please sign and print name): — Date/Time:

Work Authorized By (Please sign and print name):

Relinquished By (Please sign and print name): Sharon M. Minchak — Date/Time: 6/20/97 2005

Relinquished By (Please sign and print name): — Date/Time:

Relinquished By (Please sign and print name): — Date/Time:

QC Level: 1 2 3 Other

COC Rec: ___ TCE: ___

Ana Req: ___ TEMP: ___

Cust Seal: ___ pH: ___

Shipped Via: UPS BUS Fed-Ex (Hand) Other Hall Env. Pickup

Shipping #:

Remarks: Sharon Minchak CH2M HILL 6001 Indian School Rd NE Alb, NM 87101

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

Hall Environmental Analysis Laboratory, Inc.

Client:	CH2M Hill	**Date Collected:**	6/20/97
Project Name:	Chevron Monument, NM	**Date Received:**	6/20/97
Project Manager:	Sharon Minchak	**Date Extracted:**	NA
Sample Matrix:	Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPB (µg/L)

Sample Name:	**Field Blank**	**Trip Blank**	**Reagent Blank**
Lab Code:			
Date Analyzed:	6/26/97	6/26/97	6/26/97

Compound	MRL	Result	Result	Result
Benzene	0.5	nd	nd	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate) Recovery		89	96	89
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client:	CH2M Hill	**Date Extracted:**	6/23/97
Project Name:	Chevron Monument, NM	**Date Analyzed:**	6/24/97
Project Manager:	Sharon Minchak		
Sample Matrix:	Non-Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)
9706042-1 MS/MSD

Compound	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
Benzene	<0.05	1.00	0.99	99	1.00	100	1
Toluene	<0.05	1.00	0.97	97	0.99	99	2
Ethylbenzene	<0.05	1.00	0.98	98	0.98	98	0
Total Xylenes	<0.05	3.00	2.94	98	2.99	100	2

Hall Environmental Analysis Laboratory, Inc.

Client:	CH2M Hill	**Date Extracted:**	6/23/97
Project Name:	Chevron Monument, NM	**Date Analyzed:**	6/25/97
Project Manager:	Sharon Minchak		
Sample Matrix:	Non-Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPM (mg/kg)
9706042-12 MS/MSD

Compound	Sample Result	Amount Added	Matrix Spike	MS %	MS Dup	MSD %	RPD
Benzene	<0.05	1.00	1.00	100	0.98	98	2
Toluene	<0.05	1.00	0.99	99	0.98	98	1
Ethylbenzene	<0.05	1.00	1.00	100	0.97	97	3
Total Xylenes	<0.05	3.00	3.00	100	2.95	98	2

CH2M HILL

APPLIED SCIENCES LABORATORY

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M Hill Project # LJW623JE.DM

Purchase Order #

Project Name: Chaiven Monument, NM

Company Name/CH2M HILL Office

Project Manager & Phone #: Mr. [ ] Ms. [X] Sharon Minchak Dr. [ ]

Report Copy to: Sharon Minchak CH2M HILL

Requested Completion Date:

Sampling Requirements: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

Sample Disposal: Dispose ☒ Return ☐

LAB TEST CODES

SHADED AREA – FOR LAB USE ONLY

Lab 1 #: Lab 2 #:

Quote #: Kil Request #:

Project #:

No. of Samples: Page: of

Login: LIMS Ver.:

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	TPH (418.1)	Chloride	Conductivity	BTEX (8020)	REMARKS	LAB 1 ID	LAB 2 ID
6/19	0905		X		X		MW2 230	1	X	X	X	X	9706042-11		
6/19	0940		X		X		MW2 330	1					-12		
6/19	—		X		X		MW2 94-99	1					-13		
6/18	0730		X		X		MW3 80						-14		
6/18	0745		X		X		MW3 130						-15		
6/18	0755		X		X		MW3 180						-16		
6/18	0815		X		X		MW3 230						-17		
6/18	0835		X		X		MW3 280						-18		
6/18	0850		X		X		MW3 330						-19		
6/18	0905		X		X		MW3 380						-20		
6/20	0850		X		X		MW6 330						-21		

Sampled By & Title (Please sign and print name): Sharon Minchak Hydrogeologist — Date/Time: 6/20/97 1400

Received By (Please sign and print name): Jerry Richardson — Date/Time: 6/20/97 8:30pm

Relinquished By (Please sign and print name): Sharon L. Minchak — Date/Time: 6/20/97 2005

Received By (Please sign and print name): — Date/Time:

Relinquished By (Please sign and print name): — Date/Time:

Received By (Please sign and print name): — Date/Time:

Relinquished By (Please sign and print name): — Date/Time:

Work Authorized By (Please sign and print name):

Shipped Via: UPS BUS Fed-Ex (Hand) Other Hall Env. pickup — Shipping #:

Remarks:

QC Level: 1 2 3 Other:

COC Rec ☐ ICE ☐ PO

Ana Req ☐ TEMP ☐ (°C)

Cust Seal ☐ Ph ☐

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

CH2M HILL

APPLIED SCIENCES LABORATORY

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M Hill Project # 141823JEPW

Purchase Order #

Project Name: Chevron Monument, NM

Company Name/CH2M HILL Office

Project Manager & Phone #: Mr. [ ] Ms. [X] Sharon Minchak Dr. [ ]

Report Copy to: Sharon Minchak CH2M HILL

Requested Completion Date:

Sampling Requirements: SDWA [ ] NPDES [ ] RCRA [ ] OTHER ____

Sample Disposal: Dispose [ ] Return [ ]

LAB TEST CODES

SHADED AREA - FOR LAB USE ONLY

Lab 1 #: Lab 2 #:

Quote #: Kit Request #:

Project #:

No. of Samples: Page of

Login: LIMS Ver:

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	TPH (418.1)	Chloride	Conductivity	BTEX (8020)	REMARKS	LAB 1 ID	LAB 2 ID
6/18	1305		X		X		MW4 8.0							9706042-22	
	1315		X		X		MW4 13.0							-23	
	1330		X		X		MW4 20.0							-24	
	1350		X		X		MW4 25.0							-25	
	1440		X		X		MW4 30.0							-26	
	1500		X		X		MW4 35.0							-27	
6/19	1250		X		X		MW5 8.0							-28	
	1300		X		X		MW5 13.0							-29	
	1310		X		X		MW5 18.0							-30	
	1320		X		X		MW5 23.0							-31	
	1355		X		X		MW5 28.0							-32	

ANALYSES REQUESTED

Sampled By & Title (Please sign and print name): Sharon Minchak Hydrogeologist — Date/Time: 6/20/05 1400

Received By (Please sign and print name): Jason Richardson — Date/Time: 6/20/05 8:30pm

Received By (Please sign and print name): — Date/Time:

Received By (Please sign and print name): — Date/Time:

Work Authorized By (Please sign and print name):

Relinquished By (Please sign and print name): Sharon M. Minchak — Date/Time: 6/20/05 2005

Relinquished By (Please sign and print name): — Date/Time:

Relinquished By (Please sign and print name): — Date/Time:

QC Level: 1 2 3 Other

COC Rec: ICE:

Ana Req: TEMP:

Cust Seal: Ph:

Shipped Via: UPS BUS Fed-Ex (Hand) Other Hall Env. Pickup — Shipping #:

Remarks:

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

4/5

CH2M HILL

APPLIED SCIENCES LABORATORY

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M Hill Project #: 141823JE.DW

Purchase Order #:

Project Name: Chevron

Company Name/CH2M HILL Office:

Project Manager & Phone #: Mr. [ ] Ms. [X] Sharon Minchak Dr. [ ]

Report Copy to: Sharon Minchak

Requested Completion Date:

Sampling Requirements: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ___

Sample Disposal: Dispose ☐ Return ☐

LAB TEST CODES

SHADED AREA – FOR LAB USE ONLY

Lab 1 #: Lab 2 #:

Quote #: Kit Request #:

Project #:

No. of Samples: Page 1 of 1

Login: LIMS Ver:

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	TPH (418.1)	Chloride	BTEX (8020)	Conductivity	REMARKS	LAB 1 ID	LAB 2 ID
6/19	1420		X		X		MW5 33.6	1					9706042-33		
6/19	1445		X		X		MW5 38.0	1					-34		
6/19	—		X		X		MW5 98-98	1					-35		
6/19	—		X		X		MW5 99-99	1					-36		
6/20	0720		X		X		MW6 8.0	1					-37		
6/20	0500		X		X		MW6 23.0	1					-38		
	0730		X		X		MW6 13.0	1					-39		
	0745		X		X		MW6 18.0	1					-40		
	0930		X		X		MW6 45.0	1					-41		
	0900		X		X		MW6 34.0	1					-42		
	0830		X		X		MW6 28.0	1					-43		

Sampled By & Title (Please sign and print name): Sharon Minchak Hydrogeologist — Date/Time: 6/20/97 1400

Received By (Please sign and print name): Jerry Richardson — Date/Time: 6/20/97 8:30pm

Received By (Please sign and print name): — Date/Time:

Received By (Please sign and print name): — Date/Time:

Work Authorized By (Please sign and print name):

Relinquished By (Please sign and print name): Sharon Minchak — Date/Time: 6/21/97 2003

Relinquished By (Please sign and print name): — Date/Time:

Relinquished By (Please sign and print name): — Date/Time:

Shipped Via: UPS BUS Fed-Ex Hand Other Fed Exp. — Shipping #:

Remarks:

QC Level: 1 2 3 Other

COC Rec

Ana Req

Cust

CH2M HILL
APPLIED SCIENCES LABORATORY

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M Hill Project # 14823.JE.04 | Purchase Order #

Project Name: Chevron

Company Name/CH2M HILL Office:

Project Manager & Phone #: Mr. [ ] Ms. [ ] Dr. [ ] Sharon Minchak

Report Copy to: Sharon Minchak

Requested Completion Date:

Sampling Requirements: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

Sample Disposal: Dispose ☒ Return ☐

LAB TEST CODES

SHADED AREA – FOR LAB USE ONLY

Lab 1 # | Lab 2 #

Quote # | Kit Request #

Project #

No. of Samples | Page ___ of ___

Login | LIMS Ver.

REMARKS | LAB 1 ID | LAB 2 ID

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	ANALYSES REQUESTED: Chloride	BTEX (8020)	Conductivity	TPH (418.1)	REMARKS	LAB 1 ID	LAB 2 ID
6/20	1000		X	X			FB-1	5	X	X	X	X	9706042-44		
6/20	1200		X	X			TB-1			X			-45		

Sampled By & Title (Please sign and print name): Sharon Minchak — Date/Time: 6/20/97 1400

Received By (Please sign and print name): Jason Richardson — Date/Time: 6/20/97 8:30pm

Received By (Please sign and print name): — Date/Time:

Received By (Please sign and print name): — Date/Time:

Work Authorized By (Please sign and print name):

Relinquished By (Please sign and print name): Sharon M. Minchak — Date/Time: 6/20/97 2005

Relinquished By (Please sign and print name): — Date/Time:

Relinquished By (Please sign and print name): — Date/Time:

Shipped Via: UPS BUS Fed-Ex (Hand) Other YO Hall ENV. — Shipping #:

Remarks:

QC Level: 1 2 3 Other: ____

COC Rec | ICE

Ana Req | TEMP

Cust Seal | Ph

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

APPENDIX E

Groundwater Sample Laboratory Data

Hall Environmental Analysis Laboratory

Hall Environmental Analysis Laboratory
4901 Hawkins, NE Suite A
Albuquerque, NM 87110
(505)345-3975

7/9/97

CH2M Hill
6001 Indian School NE
Albuquerque, NM 87110

Dear Ms. Sharon Minchak,

Enclosed are the results for the analyses that were requested. These were done according to EPA procedures or the equivalent.

Detection limits are determined by EPA methodology. No determination of compounds below these levels (denoted by the nd or < sign) has been made.

Please don't hesitate to contact me for any additional information or clarifications.

Sincerely,

Scott Hallenbeck 7/14/97

Scott Hallenbeck, Lab Manager

Project: 9706042/Chevron Monument, NM

Client:	CH2M Hill	**Date Collected:**	6/25/97
Project Name:	Chevron	**Date Received:**	6/26/97
Project Manager:	Sharon Minchak	**Date Extracted:**	NA
Sample Matrix:	Aqueous		

Volatile Organic Compounds
EPA Method 8020
Units: PPB (µg/l)

	Sample Name:	MW-1	MW-2	MW-3
	Lab Code:	9706055-1	9706055-2	9706055-3
	Date Analyzed:	6/27/97	6/27/97	6/27/97
Compound	MRL	Result	Result	Result
Benzene	0.5	nd	nd	nd
Toluene	0.5	nd	1.3	nd
Ethylbenzene	0.5	nd	5.4	0.5
Total Xylenes	0.5	0.7	0.7	0.6
BFB (Surrogate) Recovery		99	100	101
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client:	CH2M Hill	**Date Collected:**	6/25/97
Project Name:	Chevron	**Date Received:**	6/26/97
Project Manager:	Sharon Minchak	**Date Extracted:**	7/1/97
Sample Matrix:	Aqueous		

Polynuclear Aromatic Hydrocarbon Compounds
EPA Method **8310**
Units: PPB (µg/L)

	Sample Name:	**MW-1**	**MW-2**	**MW-3**
	Lab Code:	9706055-1	9706055-2	9706055-3
	Date Analyzed:	7/2/97	7/3/97	7/3/97
Compound	MRL	Result	Result	Result
Napthalene	2.5	nd	nd	nd
1-Methylnaphthalene	2.5	nd	6.3	nd
2-Methylnaphthalene	2.5	nd	nd	6.6
Acenaphthylene	2.5	nd	nd	nd
Acenaphthene	2.5	nd	nd	nd
Fluorene	0.20	nd	0.78	0.40
Phenanthrene	0.60	nd	nd	nd
Anthracene	0.60	nd	nd	nd
Fluoranthene	0.30	nd	nd	nd
Pyrene	0.30	nd	nd	nd
Benzo(a)anthracene	0.02	nd	nd	nd
Chrysene	0.20	nd	nd	nd
Benzo(b)fluoranthene	0.02	nd	nd	nd
Benzo(k)fluoranthene	0.02	nd	nd	nd
Benzo(a)pyrene	0.02	nd	nd	nd
Dibenz(a,h)anthracene	0.04	nd	nd	nd
Benzo(g,h,i)perylene	0.03	nd	nd	nd
Indeno(1,2,3-cd)pyrene	0.08	nd	nd	nd
Benzo(e)pyrene (Surrogate) Recovery		84	101	112
Dilution Factor		1	1	1

Client: CH2M Hill
Project Name: Chevron
Project Manager: Sharon Minchak
Sample Matrix: Aqueous

Date Collected: 6/25/97
Date Received: 6/26/97
Date Analyzed: See Below

Inorganics
EPA Method See Below
Units: mg/L

	Sample Name:	MW-1	MW-2	MW-3	
	Lab Code:	9706055-1	9706055-2	9706055-3	
Test	Method	MRL	Result	Result	Result	Date Analyzed
TDS	160.1	1.0	7,110	3,220	3,630	7/1/97
pH		0.01	7.38	7.87	7.29	6/27/97
F	300.0	0.5	2.6	2.9	2.9	6/27/97
SO4	300.0	10	3,400	660	830	6/27/97
Cl	300.0	5.0	2,400	1,100	1,100	6/27/97
NO3	300.0	2.5	<2.5	<2.5	<2.5	6/27/97

Client:	CH2M Hill	**Date Collected:**	6/25/97
Project Name:	Chevron	**Date Received:**	6/26/97
Project Manager:	Sharon Minchak	**Date Extracted:**	NA
Sample Matrix:	Aqueous		

Volatile Organic Compounds
EPA Method **8020**
Units: PPB (µg/l)

Sample Name:	**MW-4**	**MW-5**	**MW-6**
Lab Code:	9706055-4	9706055-5	9706055-6
Date Analyzed:	6/27/97	6/27/97	6/27/97

Compound	MRL	Result	Result	Result
Benzene	0.5	nd	3.7	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	1.8	3.1	nd
Total Xylenes	0.5	0.9	1.0	nd
BFB (Surrogate) Recovery		102	104	98
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client:	CH2M Hill	**Date Collected:**	6/25/97
Project Name:	Chevron	**Date Received:**	6/26/97
Project Manager:	Sharon Minchak	**Date Extracted:**	7/1/97
Sample Matrix:	Aqueous		

Polynuclear Aromatic Hydrocarbon Compounds
EPA Method 8310
Units: PPB (µg/L)

	Sample Name:	MW-4	MW-5	MW-6
	Lab Code:	9706055-4	9706055-5	9706055-6
	Date Analyzed:	7/3/97	7/3/97	7/3/97
Compound	MRL	Result	Result	Result
Napthalene	2.5	nd	nd	nd
1-Methylnaphthalene	2.5	nd	nd	nd
2-Methylnaphthalene	2.5	nd	nd	nd
Acenaphthylene	2.5	nd	nd	nd
Acenaphthene	2.5	nd	nd	nd
Fluorene	0.20	0.91	nd	nd
Phenanthrene	0.60	nd	nd	nd
Anthracene	0.60	nd	nd	nd
Fluoranthene	0.30	nd	nd	nd
Pyrene	0.30	nd	nd	nd
Benzo(a)anthracene	0.02	nd	nd	nd
Chrysene	0.20	nd	nd	nd
Benzo(b)fluoranthene	0.02	nd	nd	nd
Benzo(k)fluoranthene	0.02	nd	nd	nd
Benzo(a)pyrene	0.02	nd	nd	nd
Dibenz(a,h)anthracene	0.04	nd	nd	nd
Benzo(g,h,i)perylene	0.03	nd	nd	nd
Indeno(1,2,3-cd)pyrene	0.08	nd	nd	nd
Benzo(e)pyrene (Surrogate) Recovery		101	90	105
Dilution Factor		1	1	1

Client:	CH2M Hill	**Date Collected:**	6/25/97
Project Name:	Chevron	**Date Received:**	6/26/97
Project Manager:	Sharon Minchak	**Date Analyzed:**	See Below
Sample Matrix:	Aqueous		

Inorganics
EPA Method **See Below**
Units: mg/L

Sample Name:	**MW-4**	**MW-5**
Lab Code:	9706055-4	9706055-5

Test	Method	MRL	Result	Result	Date Analyzed
TDS	160.1	1	5,610	7,030	7/1/97
pH		0.01	7.19	7.31	6/27/97
F	300.0	0.5	3.1	3.4	6/27/97
SO4	300.0	10	1,600	2,200	6/27/97
Cl	300.0	5.0	1,500	1,800	6/27/97
NO3	300.0	2.5	<2.5	<2.5	6/27/97

Client:	CH2M Hill	**Date Collected:**	6/25/97
Project Name:	Chevron	**Date Received:**	6/26/97
Project Manager:	Sharon Minchak	**Date Analyzed:**	See Below
Sample Matrix:	Aqueous		

Inorganics
EPA Method **See Below**
Units: mg/L

	Sample Name:	**MW-6**	**Duplicate**	
	Lab Code:	9706055-6	9706055-6	
Test	Method	MRL	Result	Result	Date Analyzed
TDS	160.1	1	2,270	2,270	7/1/97
pH		0.01	7.33	7.36	6/27/97
F	300.0	0.5	3.4	3.4	6/27/97
SO4	300.0	10	410	410	6/27/97
Cl	300.0	5.0	710	750	6/27/97
NO3	300.0	2.5	<2.5	<2.5	6/27/97

Client:	CH2M Hill	**Date Collected:**	6/25/97
Project Name:	Chevron	**Date Received:**	6/26/97
Project Manager:	Sharon Minchak	**Date Extracted:**	NA
Sample Matrix:	Aqueous		

Volatile Organic Compounds
EPA Method **8020**
Units: PPB (µg/l)

Sample Name:	**Field Blank**	**Trip Blank**	**Reagent Blank**
Lab Code:	9706055-7	9706055-8	
Date Analyzed:	6/27/97	6/27/97	6/27/97

Compound	MRL	Result	Result	Result
Benzene	0.5	nd	nd	nd
Toluene	0.5	nd	nd	nd
Ethylbenzene	0.5	nd	nd	nd
Total Xylenes	0.5	nd	nd	nd
BFB (Surrogate) Recovery		99	99	98
Dilution Factor		1	1	1

Hall Environmental Analysis Laboratory, Inc.

Client:	CH2M Hill	**Date Collected:**	6/25/97
Project Name:	Chevron	**Date Received:**	6/26/97
Project Manager:	Sharon Minchak	**Date Extracted:**	7/1/97
Sample Matrix:	Aqueous		

Polynuclear Aromatic Hydrocarbon Compounds
EPA Method **8310**
Units: PPB (µg/L)

	Sample Name:	**Field Blank**	**Extraction**
	Lab Code:	9706055-7	**Blank**
	Date Analyzed:	7/3/97	7/2/97
Compound	MRL	Result	Result
Napthalene	2.5	nd	nd
1-Methylnaphthalene	2.5	nd	nd
2-Methylnaphthalene	2.5	nd	nd
Acenaphthylene	2.5	nd	nd
Acenaphthene	2.5	nd	nd
Fluorene	0.20	nd	nd
Phenanthrene	0.60	nd	nd
Anthracene	0.60	nd	nd
Fluoranthene	0.30	nd	nd
Pyrene	0.30	nd	nd
Benzo(a)anthracene	0.02	nd	nd
Chrysene	0.20	nd	nd
Benzo(b)fluoranthene	0.02	nd	nd
Benzo(k)fluoranthene	0.02	nd	nd
Benzo(a)pyrene	0.02	nd	nd
Dibenz(a,h)anthracene	0.04	nd	nd
Benzo(g,h,i)perylene	0.03	nd	nd
Indeno(1,2,3-cd)pyrene	0.08	nd	nd
Benzo(e)pyrene (Surrogate) Recovery		72	73
Dilution Factor		1	1

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

) : Hall Environmental Analysis Laboratory
ldress : S. Hallenbeck
4901 Hawkins NE
Suite A
Albuquerque, NM 87109

Lab No. : 97-40026 lm
Date : 7/18/97

WATER ANALYSIS REPORT
Chevron, Proj. #141823.SEDW
FB-1

Sample Date : 6/25/97
Sample Time : 1325
Sample Received : 7/01/97

Constituents	Results	Units	Re-marks	Ref.	Method	--Analysis-- Date	Time	By
Sodium	<1	mg/l		EPA	200.7	7/02/97	1708	RLH
Calcium	<1	mg/l		EPA	200.7	7/02/97	1708	RLH
Aluminum,Total	<0.1	mg/l		EPA	200.7	7/02/97	1912	RLH
Arsenic,Total	<0.005	mg/l		EPA	200.8	7/03/97	0221	LH
Barium, Total	<0.1	mg/l		EPA	200.7	7/02/97	1912	RLH
Boron,Total	<0.1	mg/l		EPA	200.7	7/02/97	1912	RLH
Cadmium,Total	<0.001	mg/l		EPA	200.8	7/03/97	0221	LH
Chromium,Total	<0.01	mg/l		EPA	200.7	7/02/97	1912	RLH
Cobalt, Total	<0.01	mg/l		EPA	200.7	7/02/97	1912	RLH
Copper,Total	0.11	mg/l		EPA	200.7	7/02/97	1912	RLH
Iron,Total	<0.03	mg/l		EPA	200.7	7/02/97	1912	RLH
Lead,Total	<0.01	mg/l		EPA	200.8	7/03/97	0221	LH
Manganese,Total	<0.01	mg/l		EPA	200.7	7/02/97	1912	RLH
Mercury, Total	<0.001	mg/l		EPA	200.8	7/03/97	0221	LH
Molybdenum, Total	<0.005	mg/l		EPA	200.8	7/03/97	0221	LH
Nickel, Total	<0.01	mg/l		EPA	200.7	7/02/97	1912	RLH
Selenium,Total	<0.005	mg/l		EPA	200.8	7/03/97	0221	LH
Silver, Total	<0.005	mg/l		EPA	200.8	7/03/97	0221	LH
Uranium, Natural	<0.001	mg/l		EPA	200.8	7/03/97	0221	LH
Zinc, Total	<0.01	mg/l		EPA	200.7	7/02/97	1912	RLH

Lab No(s). 97-40020 - 97-40026

QUALITY ASSURANCE DATA PACKAGE

This report includes the results of quality assurance tests performed with the sample analyses. They are performed to determine if the methodology is in control and to monitor the laboratory's ability to produce accurate and precise results.

stituents	Duplicate Analysis --- mg/l (ppm) --- Original	Duplicate	Spiked Analysis % Recovery	Blank Analysis, mg/l ppm	------ Reference ------ Sample Analysis, mg/l ppm	Accept Range mg/l ppm	Date Analyzed
ium	572	569	99	<1	48	45 - 55	02-JUL-97
cium	108	107	102	<1	48	45 - 55	02-JUL-97
al Metals							
minum	7.9	7.6	99	<0.1	5.1	4.5 - 5.5	03-JUL-97
enic	<0.005	<0.005	104	<0.005	0.049	0.045 - 0.055	03-JUL-97
ium	0.2	0.2	96	<0.1	1.0	0.9 - 1.1	03-JUL-97
on	3.2	3.1	96	<0.1	1.0	0.9 - 1.1	03-JUL-97
nium	<0.001	<0.001	93	<0.001	0.048	0.045 - 0.055	03-JUL-97
omium	0.02	0.02	98	<0.01	1.01	0.90 - 1.10	03-JUL-97
alt	<0.01	<0.01	97	<0.01	1.00	0.90 - 1.10	03-JUL-97
per	0.01	0.01	95	<0.01	1.01	0.90 - 1.10	03-JUL-97
n	7.55	7.50	97	<0.03	4.98	4.50 - 5.50	03-JUL-97
d	<0.01	<0.01	100	<0.01	0.05	0.04 - 0.06	03-JUL-97
ganese	0.51	0.52	95	<0.01	4.90	4.50 - 5.50	03-JUL-97
cury	<0.001	<0.001	98	<0.001	0.004	0.004 - 0.006	03-JUL-97
ybdenum	<0.005	<0.005	98	<0.005	0.048	0.045 - 0.055	03-JUL-97
kel	<0.01	<0.01	96	<0.01	0.96	0.90 - 1.10	03-JUL-97
enium	<0.005	<0.005	101	<0.005	0.047	0.045 - 0.055	03-JUL-97
ver	<0.005	<0.005	91	<0.005	0.181	0.180 - 0.220	03-JUL-97
c	<0.01	<0.01	95	<0.01	1.03	0.90 - 1.10	03-JUL-97
al Recoverable Metals							
lium, Natural	<0.001	<0.001	107	<0.001	0.052	0.045 - 0.055	03-JUL-97

Lab N: 97-40020 - 97-40026

Date: 01-JUL-97

Received by: Pam Fink

Logged In by: Pam Fink

SAMPLE CONDITION QA/QC REPORT

This report provides information about the condition of the sample(s) and associated sample custody information on receipt at the laboratory.

Chain of Custody Form Completed & Signed	Yes	Comments:
Chain of Custody Seal	No	Comments:
Intact	N/A	Comments:
Signature Match Chain of Custody vs. Seal	N/A	Comments:
Samples Received Cold	Yes	Comments:
Samples Received Within Holding Time	Yes	Comments:
Samples Received in Proper Containers	Yes	Comments:
Samples Received Properly Preserved	N/A	Comments:

Samples requiring analysis for volatile organics are tested for proper preservation at the time of analysis. Any preservation problems encountered for these samples are noted on the analytical parameter report pages.

Client notified about sample discrepancies:

Who:_____ By:_____ Date/Time:_____

Method of Shipping: Fed Ex 1221484213

Additional comments:_____

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

: Hall Environmental Analysis Laboratory
ldress : S. Hallenbeck
4901 Hawkins NE
Suite A
Albuquerque, NM 87109

Lab No. : 97-40020 1m
Date : 7/18/97

WATER ANALYSIS REPORT
Chevron, Proj. #141823.SEDW
MW-1

Sample Date : 6/25/97
Sample Time : 1050
Sample Received : 7/01/97

Constituents	Results	Units	Re-marks	Ref.	Method	--Analysis-- Date	Time	By
Sodium	1870	mg/l		EPA	200.7	7/02/97	1650	RLH
Calcium	586	mg/l		EPA	200.7	7/02/97	1650	RLH
Aluminum,Total	27.9	mg/l		EPA	200.7	7/03/97	1409	RLH
Arsenic,Total	0.057	mg/l		EPA	200.8	7/08/97	2326	LH
Barium, Total	0.2	mg/l		EPA	200.7	7/03/97	1409	RLH
Boron,Total	2.4	mg/l		EPA	200.7	7/03/97	1409	RLH
Cadmium,Total	<0.001	mg/l		EPA	200.8	7/08/97	2326	LH
Chromium,Total	0.07	mg/l		EPA	200.7	7/03/97	1409	RLH
Cobalt, Total	<0.01	mg/l		EPA	200.7	7/03/97	1409	RLH
Copper,Total	0.02	mg/l		EPA	200.7	7/03/97	1409	RLH
Iron,Total	25.8	mg/l		EPA	200.7	7/03/97	1409	RLH
Lead,Total	0.01	mg/l		EPA	200.8	7/08/97	2326	LH
Manganese,Total	0.48	mg/l		EPA	200.7	7/03/97	1409	RLH
Mercury, Total	<0.001	mg/l		EPA	245.2	7/14/97	1315	FMB
Molybdenum, Total	0.068	mg/l		EPA	200.8	7/08/97	2326	LH
Nickel, Total	0.02	mg/l		EPA	200.7	7/03/97	1409	RLH
Selenium,Total	0.121	mg/l		EPA	200.8	7/08/97	2326	LH
Silver, Total	<0.005	mg/l		EPA	200.7	7/03/97	1409	RLH
Uranium, Natural	0.045	mg/l		EPA	200.8	7/08/97	2326	LH
Zinc, Total	0.03	mg/l		EPA	200.7	7/03/97	1409	RLH

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

o : Hall Environmental Analysis Laboratory
ddress : S. Hallenbeck
4901 Hawkins NE
Suite A
Albuquerque, NM 87109

Lab No. : 97-40021 lm
Date : 7/18/97

WATER ANALYSIS REPORT
Chevron, Proj. #141823.SEDW
MW-2

Sample Date : 6/25/97
Sample Time : 1445
Sample Received : 7/01/97

Constituents	Results	Units	Re-marks	Ref.	Method	--Analysis-- Date	Time	By
Sodium	870	mg/l		EPA	200.7	7/02/97	1652	RLH
Calcium	212	mg/l		EPA	200.7	7/02/97	1652	RLH
Aluminum,Total	0.5	mg/l		EPA	200.7	7/02/97	1910	RLH
Arsenic,Total	0.014	mg/l		EPA	200.8	7/03/97	0215	LH
Barium, Total	0.2	mg/l		EPA	200.7	7/02/97	1910	RLH
Boron,Total	1.2	mg/l		EPA	200.7	7/02/97	1910	RLH
Cadmium,Total	<0.001	mg/l		EPA	200.8	7/03/97	0215	LH
Chromium,Total	<0.01	mg/l		EPA	200.7	7/02/97	1910	RLH
Cobalt, Total	<0.01	mg/l		EPA	200.7	7/02/97	1910	RLH
Copper,Total	<0.01	mg/l		EPA	200.7	7/02/97	1910	RLH
Iron,Total	0.43	mg/l		EPA	200.7	7/02/97	1910	RLH
Lead,Total	<0.01	mg/l		EPA	200.8	7/03/97	0215	LH
Manganese,Total	0.39	mg/l		EPA	200.7	7/02/97	1910	RLH
Mercury, Total	<0.001	mg/l		EPA	200.8	7/03/97	0215	LH
Molybdenum, Total	0.010	mg/l		EPA	200.8	7/03/97	0215	LH
Nickel, Total	<0.01	mg/l		EPA	200.7	7/02/97	1910	RLH
Selenium,Total	0.012	mg/l		EPA	200.8	7/03/97	0215	LH
Silver, Total	<0.005	mg/l		EPA	200.8	7/03/97	0215	LH
Uranium, Natural	0.010	mg/l		EPA	200.8	7/03/97	0215	LH
Zinc, Total	<0.01	mg/l		EPA	200.7	7/02/97	1910	RLH

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

) : Hall Environmental Analysis Laboratory
ddress : S. Hallenbeck
4901 Hawkins NE
Suite A
Albuquerque, NM 87109

Lab No. : 97-40022 1m
Date : 7/18/97

WATER ANALYSIS REPORT
Chevron, Proj. #141823.SEDW
MW-3

Sample Date : 6/25/97
Sample Time : 1130
Sample Received : 7/01/97

Constituents	Results	Units	Re-marks	Ref.	Method	--Analysis-- Date	Time	By
Sodium	959	mg/l		EPA	200.7	7/02/97	1654	RLH
Calcium	347	mg/l		EPA	200.7	7/02/97	1654	RLH
Aluminum,Total	45.3	mg/l		EPA	200.7	7/03/97	1411	RLH
Arsenic,Total	0.051	mg/l		EPA	200.8	7/08/97	2332	LH
Barium, Total	0.8	mg/l		EPA	200.7	7/03/97	1411	RLH
Boron,Total	1.6	mg/l		EPA	200.7	7/03/97	1411	RLH
Cadmium,Total	<0.001	mg/l		EPA	200.8	7/08/97	2332	LH
Chromium,Total	0.05	mg/l		EPA	200.7	7/03/97	1411	RLH
Cobalt, Total	0.02	mg/l		EPA	200.7	7/03/97	1411	RLH
Copper,Total	0.04	mg/l		EPA	200.7	7/03/97	1411	RLH
Iron,Total	35.7	mg/l		EPA	200.7	7/03/97	1411	RLH
Lead,Total	0.02	mg/l		EPA	200.8	7/08/97	2332	LH
Manganese,Total	1.00	mg/l		EPA	200.7	7/03/97	1411	RLH
Mercury, Total	<0.001	mg/l		EPA	245.2	7/14/97	1315	FMB
Molybdenum, Total	0.005	mg/l		EPA	200.8	7/08/97	2332	LH
Nickel, Total	0.04	mg/l		EPA	200.7	7/03/97	1411	RLH
Selenium,Total	0.010	mg/l		EPA	200.8	7/08/97	2332	LH
Silver, Total	<0.005	mg/l		EPA	200.7	7/03/97	1411	RLH
Uranium, Natural	0.031	mg/l		EPA	200.8	7/08/97	2332	LH
Zinc, Total	0.08	mg/l		EPA	200.7	7/03/97	1411	RLH

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

) : Hall Environmental Analysis Laboratory
ldress : S. Hallenbeck
4901 Hawkins NE
Suite A
Albuquerque, NM 87109

Lab No. : 97-40023 lm
Date : 7/18/97

WATER ANALYSIS REPORT
Chevron, Proj. #141823.SEDW
MW-4

Sample Date : 6/25/97
Sample Time : 1250
Sample Received : 7/01/97

Constituents	Results	Units	Re-marks	Ref.	Method	--Analysis-- Date	Time	By
Sodium	1480	mg/l		EPA	200.7	7/02/97	1656	RLH
Calcium	1070	mg/l		EPA	200.7	7/02/97	1656	RLH
Aluminum,Total	75.7	mg/l		EPA	200.7	7/03/97	1417	RLH
Arsenic,Total	0.049	mg/l		EPA	200.8	7/08/97	2338	LH
Barium, Total	0.8	mg/l		EPA	200.7	7/03/97	1417	RLH
Boron,Total	2.3	mg/l		EPA	200.7	7/03/97	1417	RLH
Cadmium,Total	0.006	mg/l		EPA	200.8	7/08/97	2338	LH
Chromium,Total	0.08	mg/l		EPA	200.7	7/03/97	1417	RLH
Cobalt, Total	0.04	mg/l		EPA	200.7	7/03/97	1417	RLH
Copper,Total	0.06	mg/l		EPA	200.7	7/03/97	1417	RLH
Iron,Total	56.9	mg/l		EPA	200.7	7/03/97	1417	RLH
Lead,Total	0.04	mg/l		EPA	200.8	7/08/97	2338	LH
Manganese,Total	4.24	mg/l		EPA	200.7	7/03/97	1417	RLH
Mercury, Total	<0.001	mg/l		EPA	245.2	7/14/97	1315	FMB
Molybdenum, Total	0.039	mg/l		EPA	200.8	7/08/97	2338	LH
Nickel, Total	0.11	mg/l		EPA	200.7	7/03/97	1417	RLH
Selenium,Total	0.023	mg/l		EPA	200.8	7/08/97	2338	LH
Silver, Total	<0.005	mg/l		EPA	200.7	7/03/97	1417	RLH
Uranium, Natural	0.073	mg/l		EPA	200.8	7/08/97	2338	LH
Zinc, Total	0.15	mg/l		EPA	200.7	7/03/97	1417	RLH

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

o : Hall Environmental Analysis Laboratory
ddress : S. Hallenbeck
4901 Hawkins NE
Suite A
Albuquerque, NM 87109

Lab No. : 97-40024 lm
Date : 7/18/97

WATER ANALYSIS REPORT
Chevron, Proj. #141823.SEDW
MW-5

Sample Date : 6/25/97
Sample Time : 1210
Sample Received : 7/01/97

Constituents	Results	Units	Re-marks	Ref.	Method	--Analysis-- Date	Time	By
Sodium	2030	mg/l		EPA	200.7	7/02/97	1658	RLH
Calcium	361	mg/l		EPA	200.7	7/02/97	1658	RLH
Aluminum,Total	7.9	mg/l		EPA	200.7	7/03/97	1419	RLH
Arsenic,Total	0.028	mg/l		EPA	200.8	7/08/97	2343	LH
Barium, Total	0.2	mg/l		EPA	200.7	7/03/97	1419	RLH
Boron,Total	3.2	mg/l		EPA	200.7	7/03/97	1419	RLH
Cadmium,Total	<0.001	mg/l		EPA	200.8	7/08/97	2343	LH
Chromium,Total	0.02	mg/l		EPA	200.7	7/03/97	1419	RLH
Cobalt, Total	<0.01	mg/l		EPA	200.7	7/03/97	1419	RLH
Copper,Total	0.01	mg/l		EPA	200.7	7/03/97	1419	RLH
Iron,Total	7.55	mg/l		EPA	200.7	7/03/97	1419	RLH
Lead,Total	<0.01	mg/l		EPA	200.8	7/08/97	2343	LH
Manganese,Total	0.51	mg/l		EPA	200.7	7/03/97	1419	RLH
Mercury, Total	<0.001	mg/l		EPA	245.2	7/14/97	1315	FMB
Molybdenum, Total	0.093	mg/l		EPA	200.8	7/08/97	2343	LH
Nickel, Total	0.01	mg/l		EPA	200.8	7/08/97	2343	LH
Selenium,Total	0.024	mg/l		EPA	200.8	7/08/97	2343	LH
Silver, Total	<0.005	mg/l		EPA	200.7	7/03/97	1419	RLH
Uranium, Natural	0.058	mg/l		EPA	200.8	7/08/97	2343	LH
Zinc, Total	<0.01	mg/l		EPA	200.7	7/03/97	1419	RLH

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1120 SOUTH 27TH STREET • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-735-4489

LABORATORY REPORT

) : Hall Environmental Analysis Laboratory
ddress : S. Hallenbeck
4901 Hawkins NE
Suite A
Albuquerque, NM 87109

Lab No. : 97-40025 lm
Date : 7/18/97

WATER ANALYSIS REPORT
Chevron, Proj. #141823.SEDW
MW-6

Sample Date : 6/25/97
Sample Time : 1330
Sample Received : 7/01/97

Constituents	Results	Units	Re-marks	Ref.	Method	--Analysis-- Date	Time	By
Sodium	535	mg/l		EPA	200.7	7/02/97	1705	RLH
Calcium	196	mg/l		EPA	200.7	7/02/97	1705	RLH
Aluminum,Total	6.1	mg/l		EPA	200.7	7/03/97	1423	RLH
Arsenic,Total	0.030	mg/l		EPA	200.8	7/08/97	2354	LH
Barium, Total	0.2	mg/l		EPA	200.7	7/03/97	1423	RLH
Boron,Total	0.7	mg/l		EPA	200.7	7/03/97	1423	RLH
Cadmium,Total	<0.001	mg/l		EPA	200.8	7/08/97	2354	LH
Chromium,Total	0.01	mg/l		EPA	200.7	7/03/97	1423	RLH
Cobalt, Total	<0.01	mg/l		EPA	200.7	7/03/97	1423	RLH
Copper,Total	<0.01	mg/l		EPA	200.7	7/03/97	1423	RLH
Iron,Total	6.39	mg/l		EPA	200.7	7/03/97	1423	RLH
Lead,Total	<0.01	mg/l		EPA	200.8	7/08/97	2354	LH
Manganese,Total	0.31	mg/l		EPA	200.7	7/03/97	1423	RLH
Mercury, Total	<0.001	mg/l		EPA	245.2	7/14/97	1315	FMB
Molybdenum, Total	0.028	mg/l		EPA	200.8	7/08/97	2354	LH
Nickel, Total	<0.01	mg/l		EPA	200.7	7/03/97	1423	RLH
Selenium,Total	0.009	mg/l		EPA	200.8	7/08/97	2354	LH
Silver, Total	<0.005	mg/l		EPA	200.7	7/03/97	1423	RLH
Uranium, Natural	0.015	mg/l		EPA	200.8	7/08/97	2354	LH
Zinc, Total	<0.01	mg/l		EPA	200.7	7/03/97	1423	RLH

CH2M HILL
APPLIED SCIENCES LABORATORY

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M Hill Project # 141823.JE.DW
Purchase Order #
Project Name: Chevron
Company Name/CH2M HILL Office
Project Manager & Phone #: Mr. [ ] Ms. [X] Sharon Minchak Dr. [ ]
Report Copy to:
Requested Completion Date:
Sampling Requirements: SDWA [ ] NPDES [ ] RCRA [ ] OTHER ____
Sample Disposal: Dispose [X] Return [ ]

LAB TEST CODES
SHADED AREA—FOR LAB USE ONLY: Lab 1 # / Lab 2 # / Quote # / Kit Request # / Project # / No. of Samples / Page 1 of / Login / LIMS Ver.

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	BTEX (8020)	PAHs (8310)	Major Cations+Anions (TDS, Na, Ca, sulfate, pH, F, nitrate	Chloride	*Metals (Ar, Ba, Cd, Cr, Pb, Total Hg**, Se, Ag, U, Al, B, Co, Zn, Mo, Ni)	REMARKS	LAB 1 ID	LAB 2 ID
6/25	1050		X	X			MW-1	7	X	X	X	X	X	9706055-1		
	1445		X	X			MW-2	5						-2	* Missing unpres. 25 ml sm. mg. cat/anions, use unpres. portion from PAH bottle	
	1130		X	X			MW-3	7						-3		
	1250		X	X			MW-4	6						-4		
	1210		X	X			MW-5	7						-5		
	1330		X	X			MW-6	6						-6		
	1325		X	X			FB-1	5						-7	** same as above	
			X	X			TB-1	2						-8		

Sampled By & Title (Please sign and print name): Sharon Minchak Hydro.
Date/Time: 6/25/97 1500
Relinquished By (Please sign and print name): Sharon L Minchak
Date/Time: 6/26/97 1100
QC Level: 1 2 3 Other:

Received By (Please sign and print name): Andy Freeman
Date/Time: 6/26/97 4:20
Relinquished By (Please sign and print name):
Date/Time:
COC Rec: ICE:

Received By (Please sign and print name):
Date/Time:
Relinquished By (Please sign and print name):
Date/Time:
Ana Req: TEMP:
Cust Seal #: Ph:

Received By (Please sign and print name):
Date/Time:
Shipped Via: UPS BUS Fed-Ex Hand Other ____
Shipping #:

Work Authorized By (Please sign and print name):
Remarks: ** Total Hg by method 245.2, other metals by ICPMS (200.7)

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite A
Albuquerque, New Mexico 87109
505.345.3975
Fax 505.345.4107

Client: SEE TO RIGHT

Address:

Phone #:

Fax #:

Project Name: CHEVRON

Project #: 141823.3EDW

Project Manager: SHARON MINCHAK

Sampler: S. MINCHAK

Samples Cold?: ☒ Yes ☐ No

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HCl	Preservative HNO3	HEAL No.
6/25/97	1050	AQ	MW-1	1/500mL				
	1445		-2					
	1130		-3					
	1250		-4					
	1210		-5					
	1330		-6					
↓	1325	↓	FB-1	↓			↓	

ANALYSIS REQUEST

BTEX + MTBE (602/8020)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015 MOD (Gas/Diesel)	TPH (Method 418.1)	8010/8020 Volatiles	EDB (Method 504)	EDC (Method 8010)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8080 Pesticides / PCB's	8260 (VOA)	8270 (Semi-VOA)	SEE ATTACHED LIST		Air Bubbles or Headspace (Y or N)
														X		
														X		
														X		
														X		
														X		
														X		
														X		

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
6/30/97	1700		07/01/97 @
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks: 1123

CH2M HILL

APPLIED SCIENCES LABORATORY

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M Hill Project # 141823.JE.DW

Purchase Order #

Project Name: Chevron

Company Name/CH2M HILL Office

Project Manager & Phone #: Mr. [ ] Ms. [ ] Dr. [ ] Sharon Minchak

Report Copy to: Sharon Minchak

Requested Completion Date:

Sampling Requirements: SDWA [ ] NPDES [ ] RCRA [ ] OTHER ____

Sample Disposal: Dispose [X] Return [ ]

LAB TEST CODES

SHADED AREA - FOR LAB USE ONLY

Lab 1 # | Lab 2 #

Quote # | Kit/Request #

Project #

No. of Samples | Page ___ of ___

Login | LIMS Ver

REMARKS | LAB 1 ID | LAB 2 ID

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	ANALYSES REQUESTED: Chloride	BTEX (8020)	Conductivity	TPH (418.1)	REMARKS	LAB 1 ID	LAB 2 ID
6/20	1000		X	X			FB-1	5	X	X	X	X		9706042-44		
6/20	1200		X	X			TB-1			X				-45		

Sampled By & Title (Please sign and print name): Sharon Minchak — Date/Time: 6/20/97 1400

Received By (Please sign and print name): Jerry Richardson — Date/Time: 6/20/97 8:30pm

Received By (Please sign and print name): — Date/Time:

Received By (Please sign and print name): — Date/Time:

Work Authorized By (Please sign and print name):

Relinquished By (Please sign and print name): Sharon M. Minchak — Date/Time: 6/20/97 2005

Relinquished By (Please sign and print name): — Date/Time:

Relinquished By (Please sign and print name): — Date/Time:

Shipped Via: UPS BUS Fed-Ex (Hand) Other YO Hall Env.

Shipping #

QC Level: 1 2 3 Other:

COC Rec | ICE

Ana Req | TEMP

Cust Seal | Ph

Remarks

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original - LAB, Yellow - LAB, Pink - Client

WARREN PETROLEUM COMPANY,
Limited Partnership
An NGC Company

Sept. 29, 1997

Mr. William C. Olson
Hydrogeologist, Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

RE: Ground Water Investigation Work Plan
Pipeline Spill / Unlined Pit
Monument, New Mexico

Dear Mr. Olson,

I am responding to your letter dated June 6, 1997, to Mr. Don Griffin with Chevron. As you know, NGC/Warren Petroleum and Chevron have been completing a joint investigation of the subject site. This letter is confirm my discussion today with you and Mr. Gordon Caskey of Chevron, extending the reporting deadline from Sept. 30, 1997 to Oct. 10, 1997.

My phone number is 713-507-6752, if you have any questions. Thank you for your assistance in this matter.

Sincerely,

J. Dee Morris, PE

cc: Jerry Sexton
NMOCD District Office
1000 W. Broadway
Hobbs, NM 88240

Jeanette Newville - Chevron
Gordon Caskey - Chevron
Bob Boyd - Monument
Cal Wrangham - Monument
Mike Hicks - Monument
Norm King
Bob Langley
File: Env/Waste/Remediation

1000 Louisiana • Suite 5800
Houston, Texas • 77002-5050
Tel 713.507.6590

WARREN PETROLEUM COMPANY,
Limited Partnership
An NGC Company

March 27, 1997

Mr. William C. Olson
Hydrogeologist, Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

RE: Pipeline Spill
Warren Petroleum Monument Gas Plant
Lea County, New Mexico

Dear Mr. Olson,

I am responding to your letter dated January 21, 1997, regarding the subject spill. As we discussed yesterday, Warren has reviewed the situation with Chevron and it is our understanding that you are in receipt of and have approved Chevron's plan to delineate the production pit at the spill location. We have arranged to meet with Chevron to discuss the results of this work the second week in April. At that time we will jointly determine what additional action must be taken and follow up with you according to Chevron's plan.

My phone number is 713-507-6752, if you have any questions. Thank you for your assistance in this matter.

Sincerely,

J. D. Morris

cc: Jerry Sexton
NMOCD District Office
1000 W. Broadway
Hobbs, NM 88240

Gordon Caskey - Chevron
Bob Boyd - Monument
Cal Wrangham - Monument
Wayne Banks - Monument
Mike Hicks - Monument
Norm King
Bob Langley
File: (NM) VII B. 1.

13430 Northwest Freeway • Suite 1200
Houston, Texas • 77040-6095
Tel 713.507.6590 s\envr\llj\385twdb.ltr
Fax 713.507.3715

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 1147	Date 3/10/97

Originating Party	Other Parties
Sharon Hall - Phillip Environmental	Bill Olson - Envir. Bureau voice mail

Subject

Chevron/Warren Monument Site Ground Water Notification

Discussion

During boring for soils investigation hit Ground Water at 38'.
Free phase product on water
Installing monitor well

Conclusions or Agreements

Will send followup written notification

Distribution

file
Wayne Price - OCD Hobbs

Signed Bill Olson

JS→ clwf 7/15/96

Chevron **Warren**

JUL 15 1996
HOBBS OFFICE

Warren Petroleum Company
P. O. Box 1589
Tulsa, OK 74102
1350 South Boulder
Tulsa, OK 74119

Health, Environment and Loss Prevention
Phone 918 560 4000
Fax 918 560 4111

July 9, 1996

Mr. Jerry Sexton
District 1, Hobbs
Oil Conservation Division
P.O. Box 1980
Hobbs, NM 88241

RE: Pipeline Spill Cleanup Report
Monument Gas Plant
N/2, Sec. 14, T20S, R36E, Lea County, New Mexico

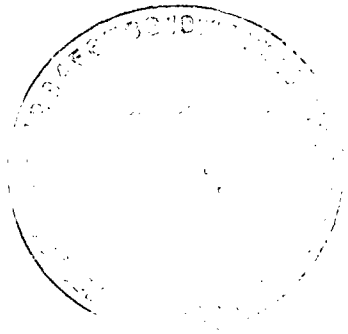
Gentlemen,

The purpose of this letter is to follow-up on activities and previous discussions with your office regarding the subject spill. As you are aware, we have worked closely with your office during all phases of this cleanup project.

Following the discovery of the leak in the natural gas gathering line for the Monument plant, soils impacted from the leak (pipeline condensate) were excavated and removed offsite to the OCD permitted C&C Landfarm. Over 3000 cubic yards were removed even though the delineated area of impact, based on perimeter soil sampling, contained approximately 1200 cubic yards. The excavated area was approximately 150 feet long by 60 feet wide, tapering to a depth of 20 feet, (see Figures 1 and 2). The pipeline was repaired by replacement with poly pipe and the excavation was backfilled with clean soil. From examination of the failed piping, localized exterior corrosion was determined to be the cause of the leak.

The excavation was complicated by the fact that the leak area was also impacted by a former production pit (non-Warren) which had been closed. During excavation, the impact from the former pit became evident, with one corner of the pit crossing over the line. Figure 3 is a 1983 aerial photo of the line where the leak occurred. Figure 4 is a 1949 aerial photo of the same area which shows the pit referred to above when it was still open. Evidently, the pipeline was laid after the pit was closed and was laid through the southeast corner of the closed pit. Impacted soil from the closed pit can be seen on the southwest side of the excavation in Figure 5. The brine in the soil from the closed pit would also account for the increased rate of exterior corrosion which caused the pipe to fail.

Delineation of the impact resulting from the pipeline leak as opposed to the historical impact of the pit was difficult due to the overlap of the two impacts. Due to differences in the impacts, age - 1990's vs. 1940's, and primary contaminants - condensate vs. crude oil, a field HNU meter was utilized during the excavation to determine the impact resulting from the more recent and more volatile condensate leak. Visual observations of the stained soil were also utilized. Final analysis



of the bottom of the excavation indicate that all impacted soils have been removed except for the soils which were under and impacted by the southeast corner of the pit.

Based on discussions with your office and the Santa Fe Office, we believe the guidelines for spill cleanup have been met in relation to this incident. Although we believe that all impacts from the pipeline leak have been recovered as well as some of the impacts from the pit, Warren took no actions to specifically delineate or recover the impacted soil from the historical pit. Figure 6 shows the analytical results and their relationship to the leak excavation and the pit. Lab analysis are also attached.

Please advise if any further information is required. My phone number is 918-560-4114, or you may contact Donnie Wallis at 505-393-2823, if you have any questions. Thank you for your assistance in this matter.

Sincerely,

J. D. Morris

cc: William C. Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

K. A. Peterson - Tulsa
F. C. Noah - Monument
D. E. Wallis - Monument
L. T. Reed - Tulsa
File: (NM) VII B. 3.

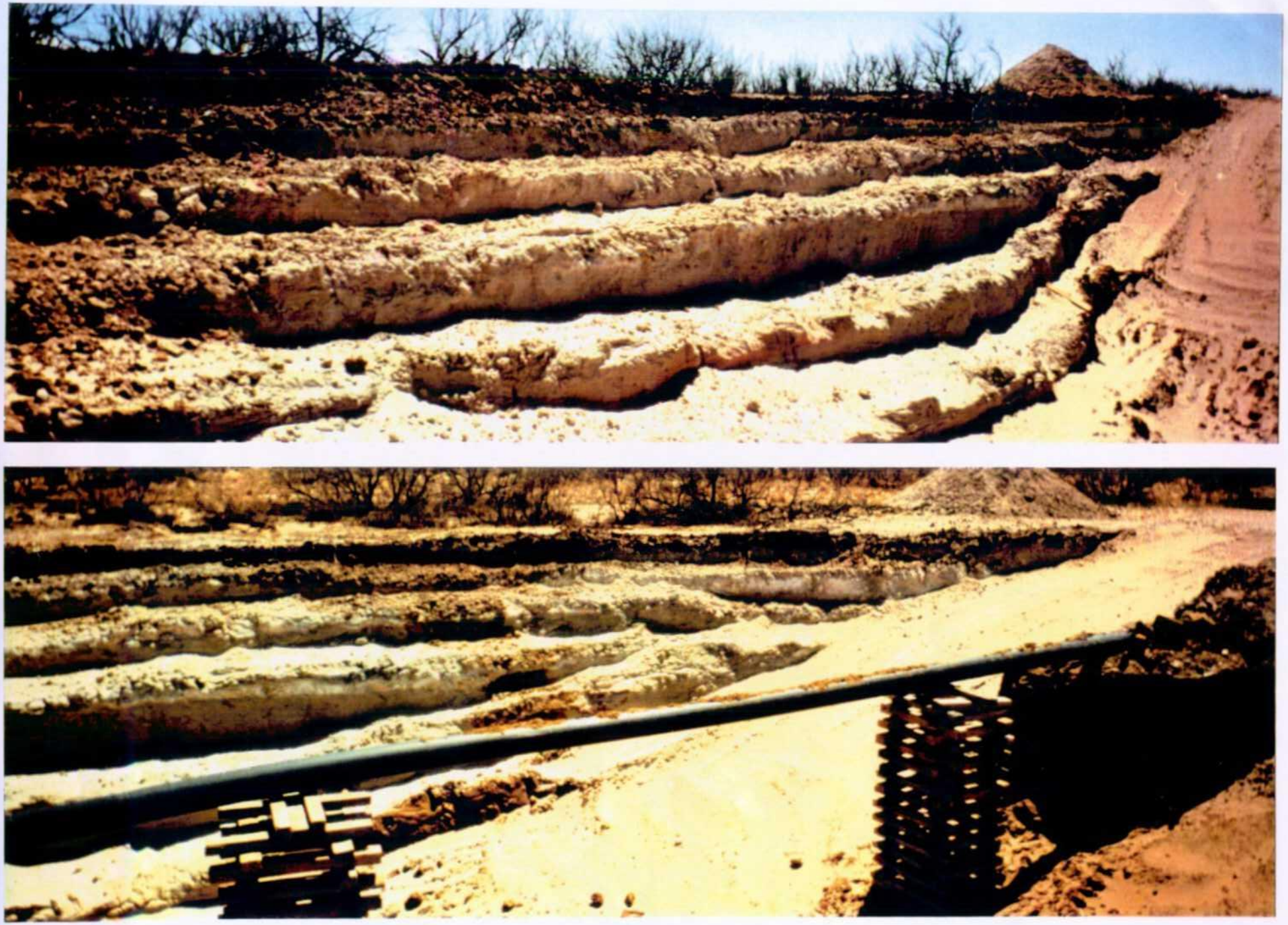


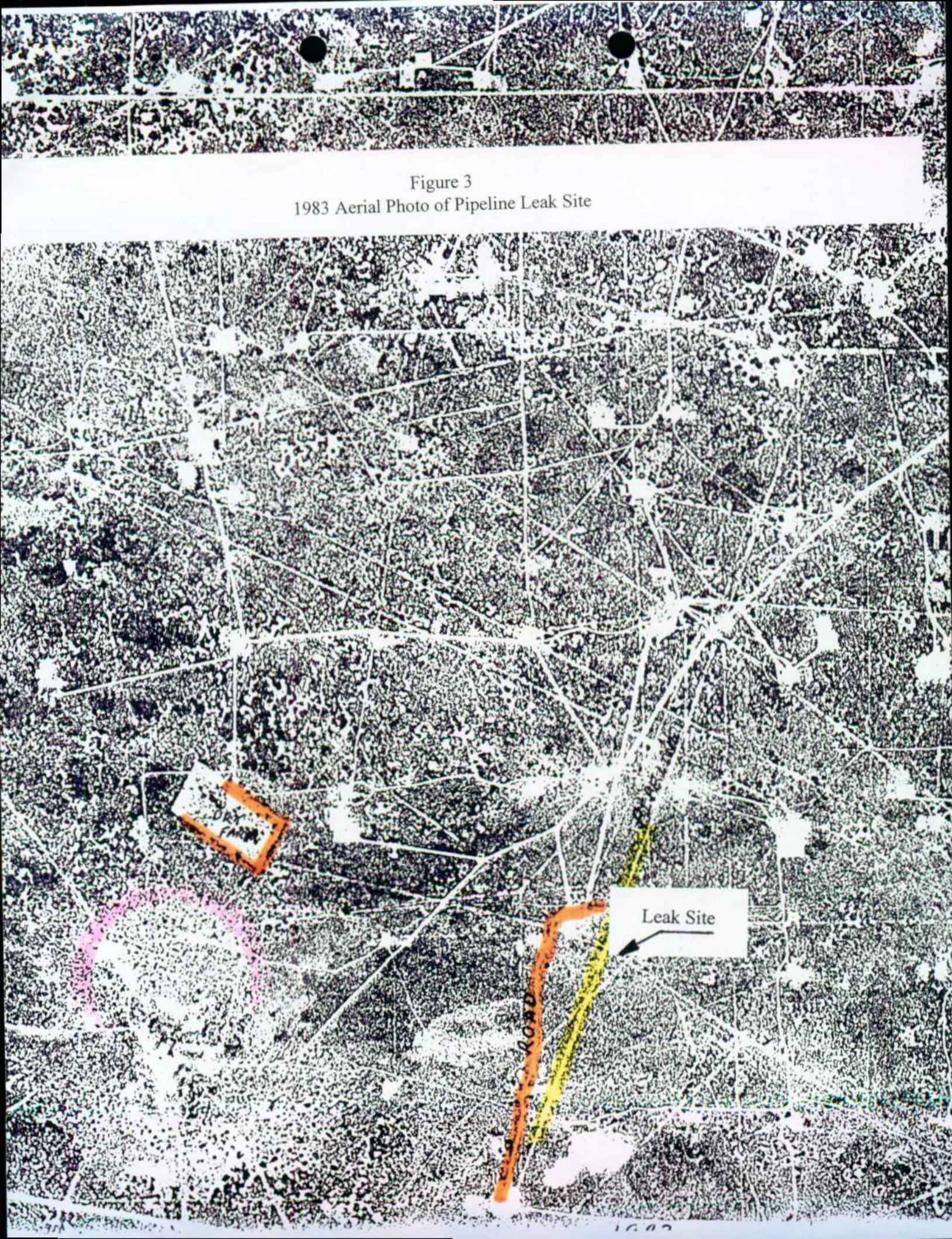
Figure 1
View of Excavated Area


JUL 1996
Received
Hobbs
OCD

Figure 2
View of Excavated Area


JUL 1996
Received
Hobbs
OCD

Figure 3
1983 Aerial Photo of Pipeline Leak Site




JUL 1996
Received
Hobbs
OCD

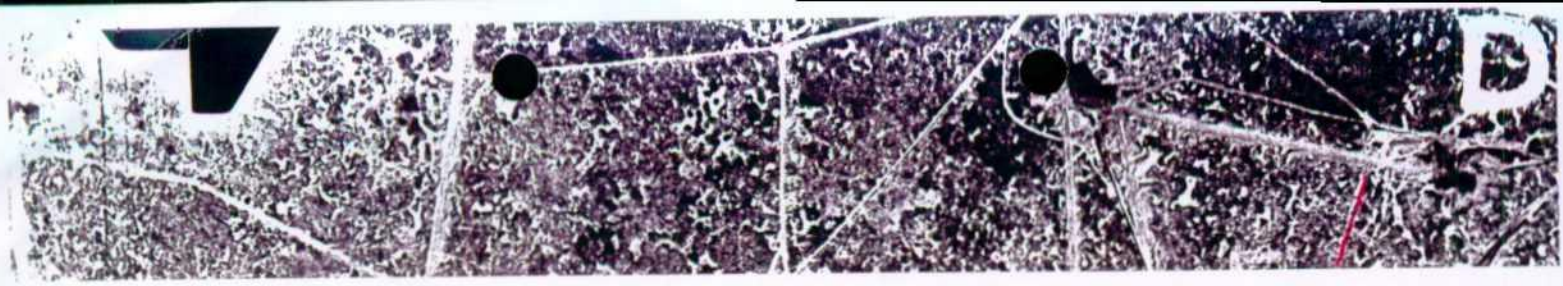
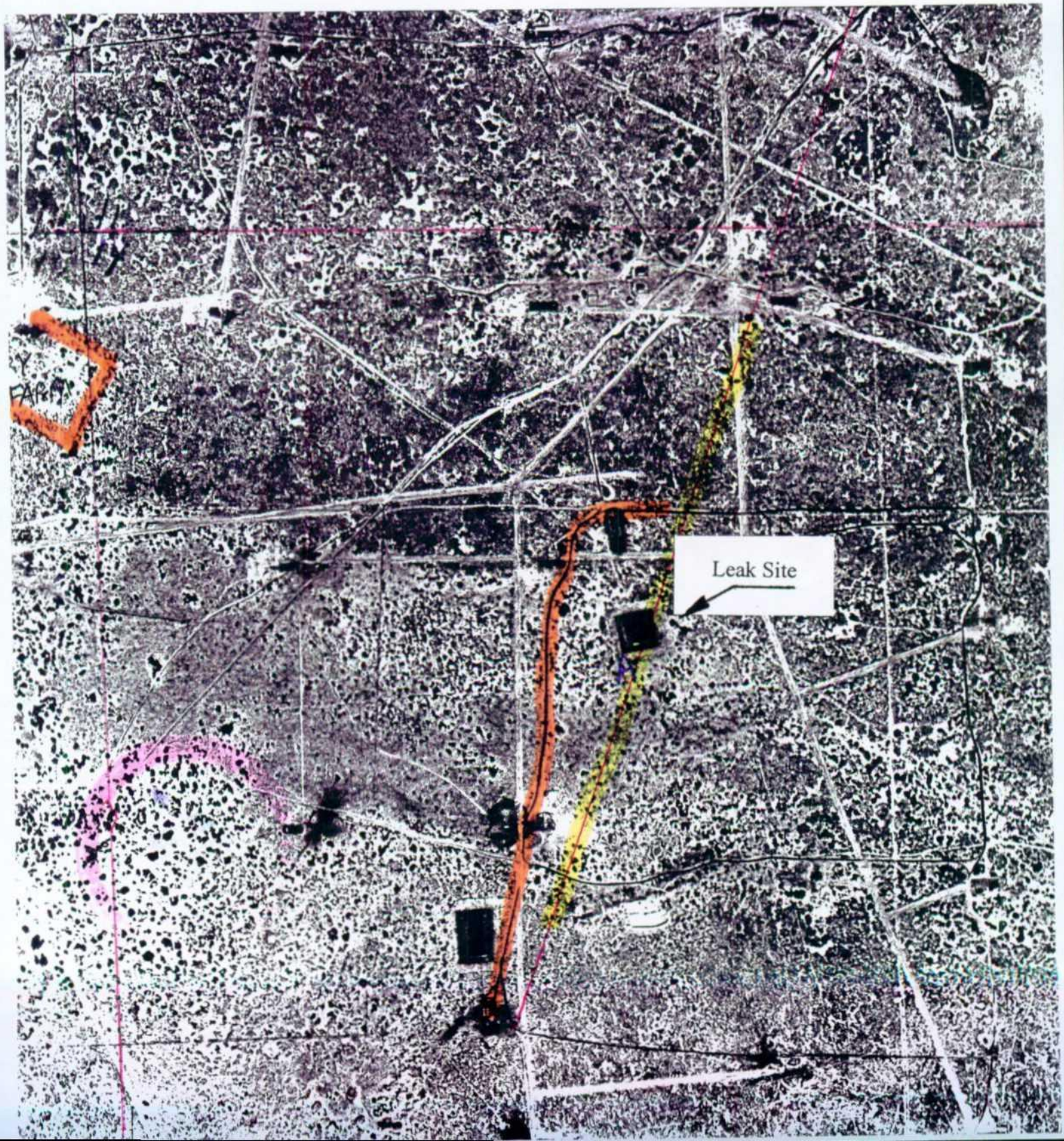


Figure 4
1949 Aerial Photo of Pit at Pipeline Leak Site

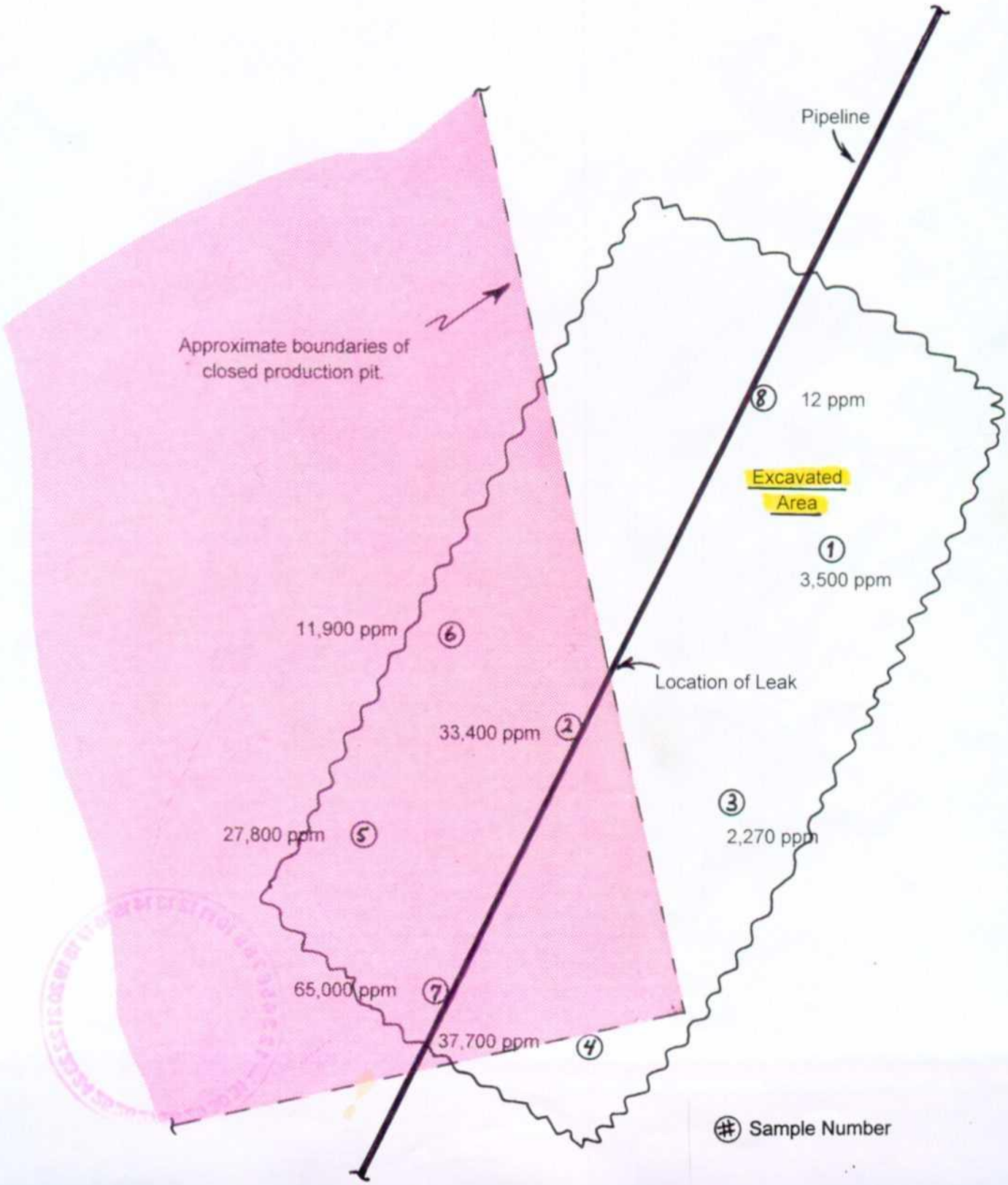



JUL 1996
Received
Hobbs
OCD

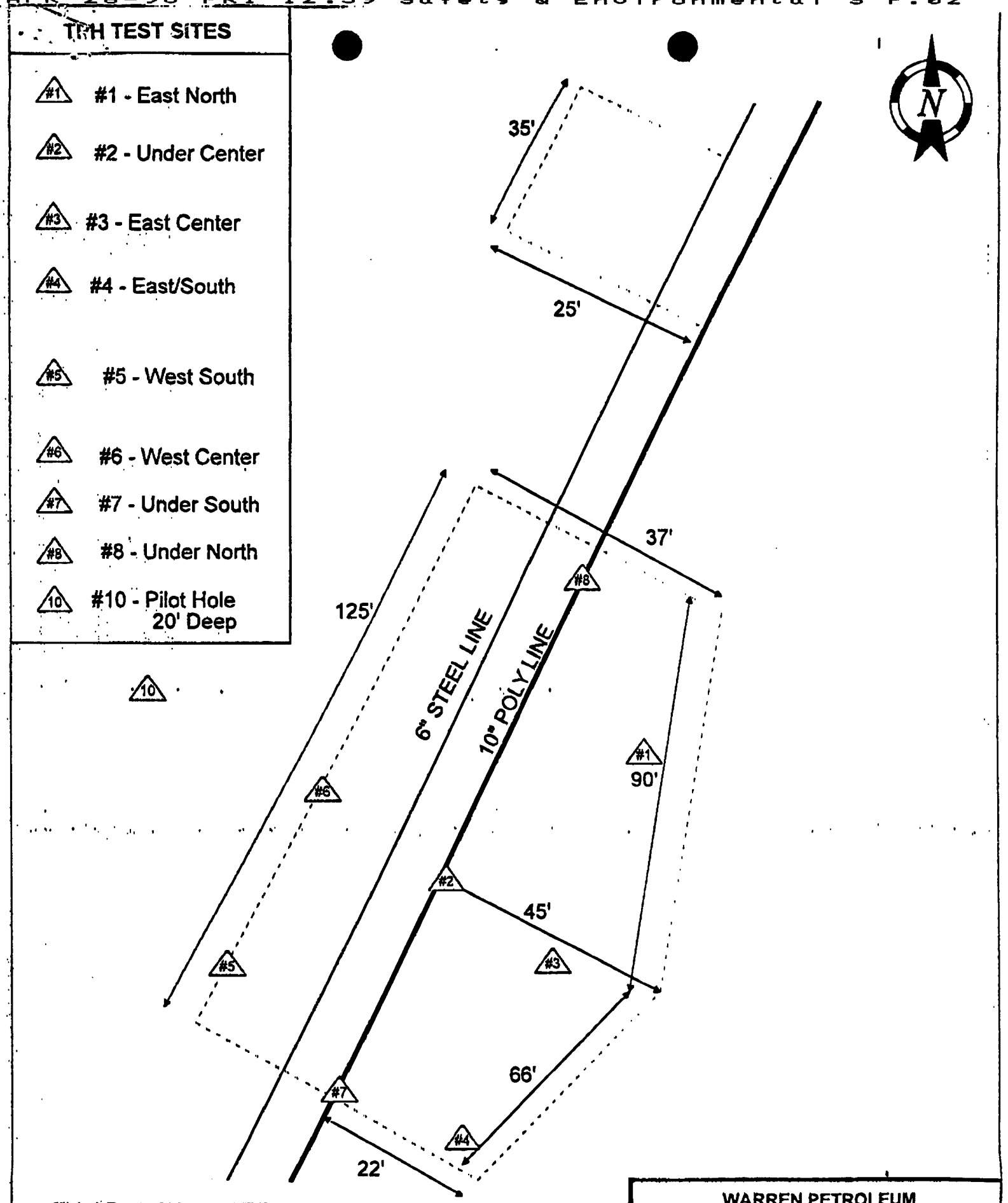
Figure 5
Photos of Impacted Soil from Closed Pit
Adjacent to Excavation Area


JUL 1996
Received
Hobbs
OCD

Figure 6
Plot of TPH Analytical Results




JUL 1996
Received
Hobbs
OCD



Third Party TPH & BTEX
Testing & Sampling
4/22/96

WARREN PETROLEUM
HOBBS, NEW MEXICO

Figure A-2
MONUMENT 10" POLYLINE LEAK SITE

Not to Scale


JUL 1996
Received
Hobbs
OCD

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTION, INC.

April 25, 1996
Receiving Date: 04/24/96
Sample Type: Soil
Project No: Pilot Hole
Project Location: Monument
COC# 10

P. O. Box 1613
Hobbs, NM 88241

Prep Date: 04/24/96
Analysis Date: 04/24/96
Sampling Date: 04/22/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: Monument

TA#	Field Code	TRPHC (ug/kg)	BENZENE (ug/kg)	TOLUENE (ug/kg)	ETHYL-BENZENE (ug/kg)	M,P,O XYLENE (ug/kg)	TOTAL BTEX (ug/kg)
T51498	Pilot Hole #10	32,100,000	<50	<50	<50	392	392
QC	Quality Control	100,857	103	103	102	208	
Reporting Limit		10,000	50	50	50	50	
RPD		1	5	5	5	5	
% Extraction Accuracy		89	106	107	108	108	
% Instrument Accuracy		101	104	104	102	104	

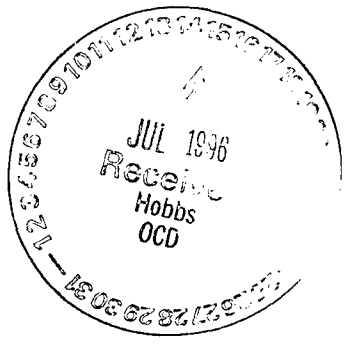
METHODS: EPA SW 846-8020, 5030, 3550 HIGH LEVEL; EPA 418.1.
BTEX SPIKE: 2,500 ug/kg BTEX. BTEX QC: 100 ug/L BTEX.
TRPHC SPIKE: 250,000 ug/kg TRPHC.
TRPHC QC: 100,000 ug/L TRPHC.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-25-96

Date


JUL 1996
Received
Hobbs
OCD

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTION, INC.
P. O. Box 1613
Hobbs, NM 88241

April 25, 1996
Receiving Date: 04/24/96
Sample Type: Soil
Project No: NA
Project Location: Monument
COC# 9

Prep Date: 04/24/96
Analysis Date: 04/24/96
Sampling Date: 04/22/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

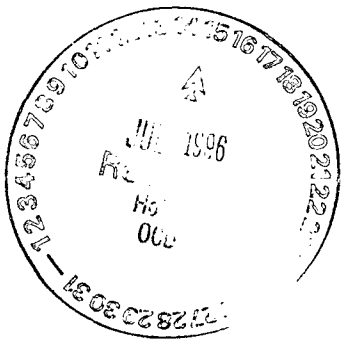
TA#	Field Code	TRPHC (ug/kg)	BENZENE (ug/kg)	TOLUENE (ug/kg)	ETHYL-BENZENE (ug/kg)	M,P,O XYLENE (ug/kg)	TOTAL BTEX (ug/kg)
T51490	#1 - East/North	3,500,000	<100	<100	<100	<100	<100
T51491	#2 - Under Center	33,400,000	<500	1,820	1,970	10,700	14,490
T51492	#3 - East Center	2,270,000	<100	<100	<100	268	268
T51493	#4 - East/South	37,700,000	<500	5,520	2,650	5,880	14,050
T51494	#5 - West/South	27,800,000	1,100	17,000	6,340	52,800	77,240
T51495	#6 - West Center	11,900,000	1,120	14,200	6,260	47,300	68,880
T51496	#7 - Under South	65,000,000	3,650	38,000	14,000	93,200	148,850
T51497	#8 - Under North	12,400	<50	<50	<50	<50	<50
QC	Quality Control	100,857	103	103	102	208	
Reporting Limit		10,000	50	50	50	50	
RPD		1	5	5	5	5	
% Extraction Accuracy		89	106	107	108	108	
% Instrument Accuracy		103	104	104	102	104	

METHODS: EPA SW 846-8020, 5030, 3550 HIGH LEVEL; EPA 418.1.
BTEX SPIKE: 2,500 ug/kg BTEX. BTEX QC: 100 ug/L BTEX.
TRPHC SPIKE: 250,000 ug/kg TRPHC.
TRPHC QC: 100,000 ug/L TRPHC.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-25-96
Date



Chevron Warren

Warren Petroleum Company
P. O. Box 1589
Tulsa, OK 74102
1350 South Boulder
Tulsa, OK 74119

Health, Environment and Loss Prevention
Phone 918 560 4000
Fax 918 560 4111

July 9, 1996

Mr. Jerry Sexton
District 1, Hobbs
Oil Conservation Division
P.O. Box 1980
Hobbs, NM 88241

RE: Pipeline Spill Cleanup Report
Monument Gas Plant
N/2, Sec. 14, T20S, R36E, Lea County, New Mexico

Gentlemen,

The purpose of this letter is to follow-up on activities and previous discussions with your office regarding the subject spill. As you are aware, we have worked closely with your office during all phases of this cleanup project.

Following the discovery of the leak in the natural gas gathering line for the Monument plant, soils impacted from the leak (pipeline condensate) were excavated and removed offsite to the OCD permitted C&C Landfarm. Over 3000 cubic yards were removed even though the delineated area of impact, based on perimeter soil sampling, contained approximately 1200 cubic yards. The excavated area was approximately 150 feet long by 60 feet wide, tapering to a depth of 20 feet, (see Figures 1 and 2). The pipeline was repaired by replacement with poly pipe and the excavation was backfilled with clean soil. From examination of the failed piping, localized exterior corrosion was determined to be the cause of the leak.

The excavation was complicated by the fact that the leak area was also impacted by a former production pit (non-Warren) which had been closed. During excavation, the impact from the former pit became evident, with one corner of the pit crossing over the line. Figure 3 is a 1983 aerial photo of the line where the leak occurred. Figure 4 is a 1949 aerial photo of the same area which shows the pit referred to above when it was still open. Evidently, the pipeline was laid after the pit was closed and was laid through the southeast corner of the closed pit. Impacted soil from the closed pit can be seen on the southwest side of the excavation in Figure 5. The brine in the soil from the closed pit would also account for the increased rate of exterior corrosion which caused the pipe to fail.

Delineation of the impact resulting from the pipeline leak as opposed to the historical impact of the pit was difficult due to the overlap of the two impacts. Due to differences in the impacts, age - 1990's vs. 1940's, and primary contaminants - condensate vs. crude oil, a field HNU meter was utilized during the excavation to determine the impact resulting from the more recent and more volatile condensate leak. Visual observations of the stained soil were also utilized. Final analysis

of the bottom of the excavation indicate that all impacted soils have been removed except for the soils which were under and impacted by the southeast corner of the pit.

Based on discussions with your office and the Santa Fe Office, we believe the guidelines for spill cleanup have been met in relation to this incident. Although we believe that all impacts from the pipeline leak have been recovered as well as some of the impacts from the pit, Warren took no actions to specifically delineate or recover the impacted soil from the historical pit. Figure 6 shows the analytical results and their relationship to the leak excavation and the pit. Lab analysis are also attached.

Please advise if any further information is required. My phone number is 918-560-4114, or you may contact Donnie Wallis at 505-393-2823, if you have any questions. Thank you for your assistance in this matter.

Sincerely,

J. D. Morris

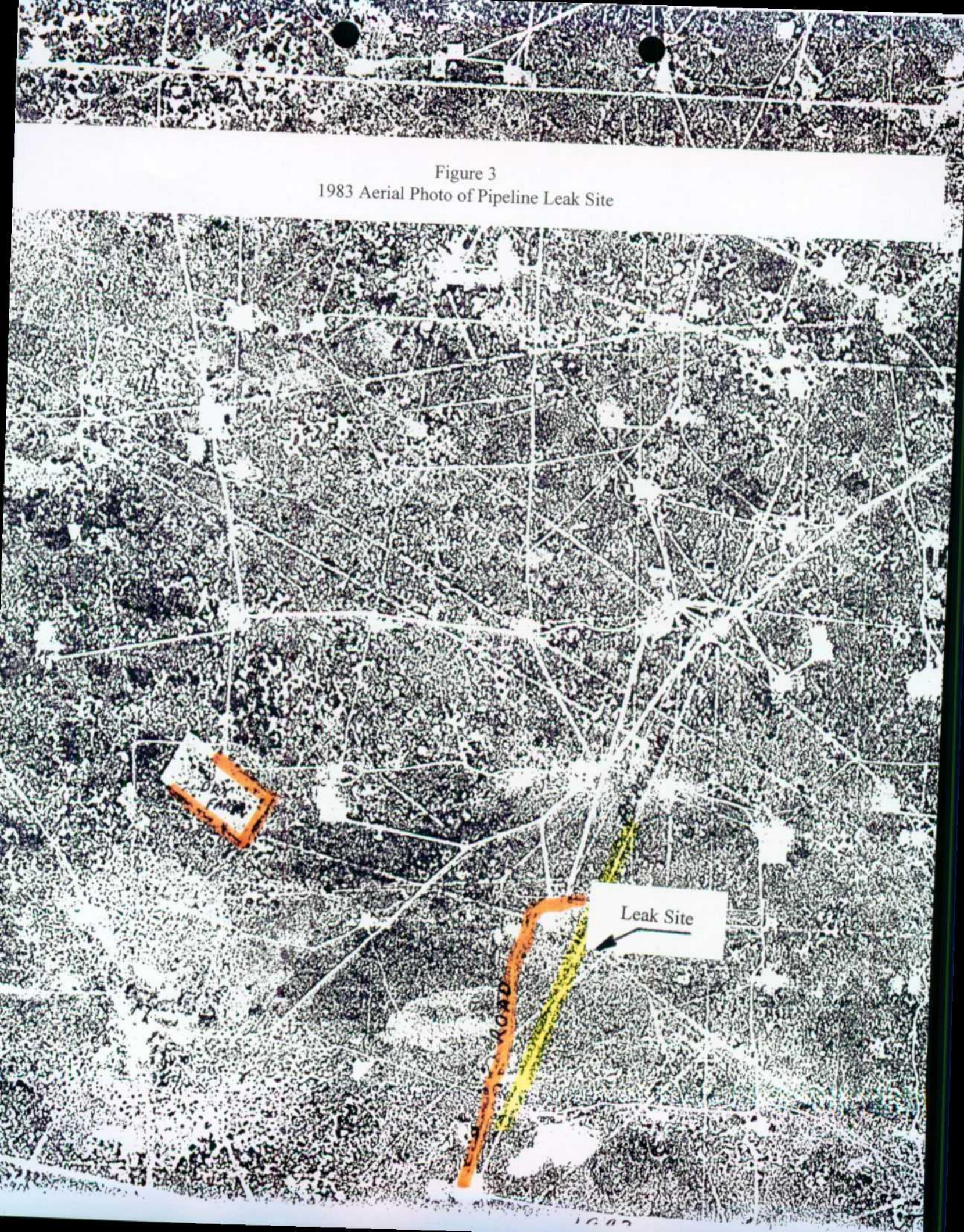
cc: William C. Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

K. A. Peterson - Tulsa
F. C. Noah - Monument
D. E. Wallis - Monument
L. T. Reed - Tulsa
File: (NM) VII B. 3.

Figure 1
View of Excavated Area

Figure 2
View of Excavated Area

Figure 3
1983 Aerial Photo of Pipeline Leak Site



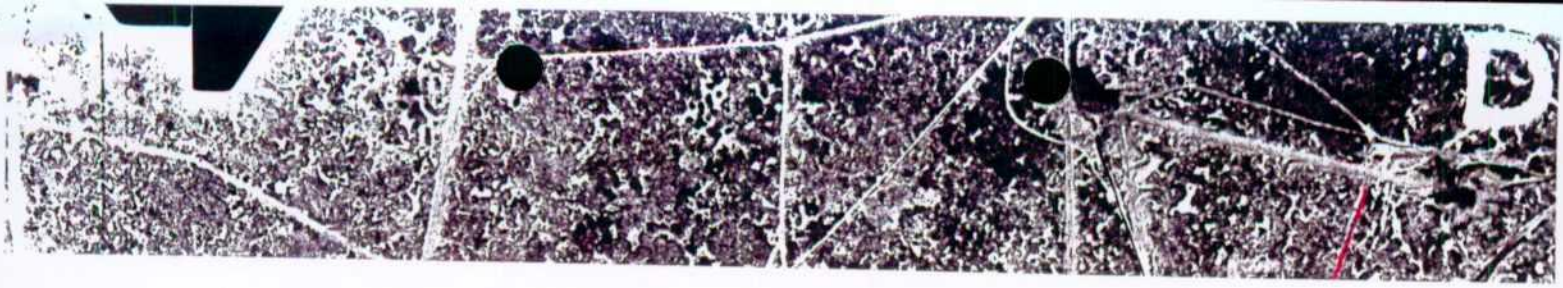


Figure 4
1949 Aerial Photo of Pit at Pipeline Leak Site

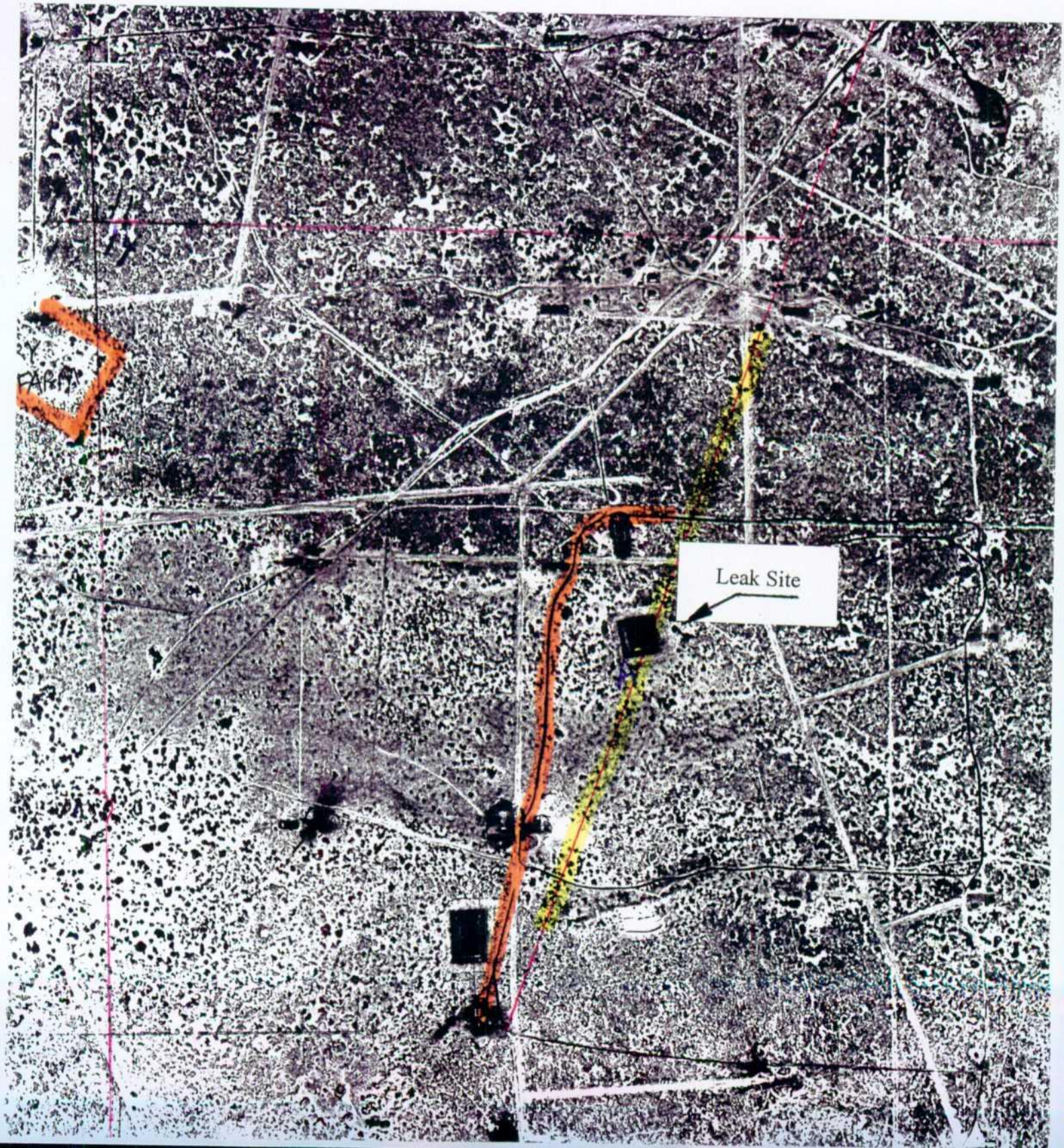
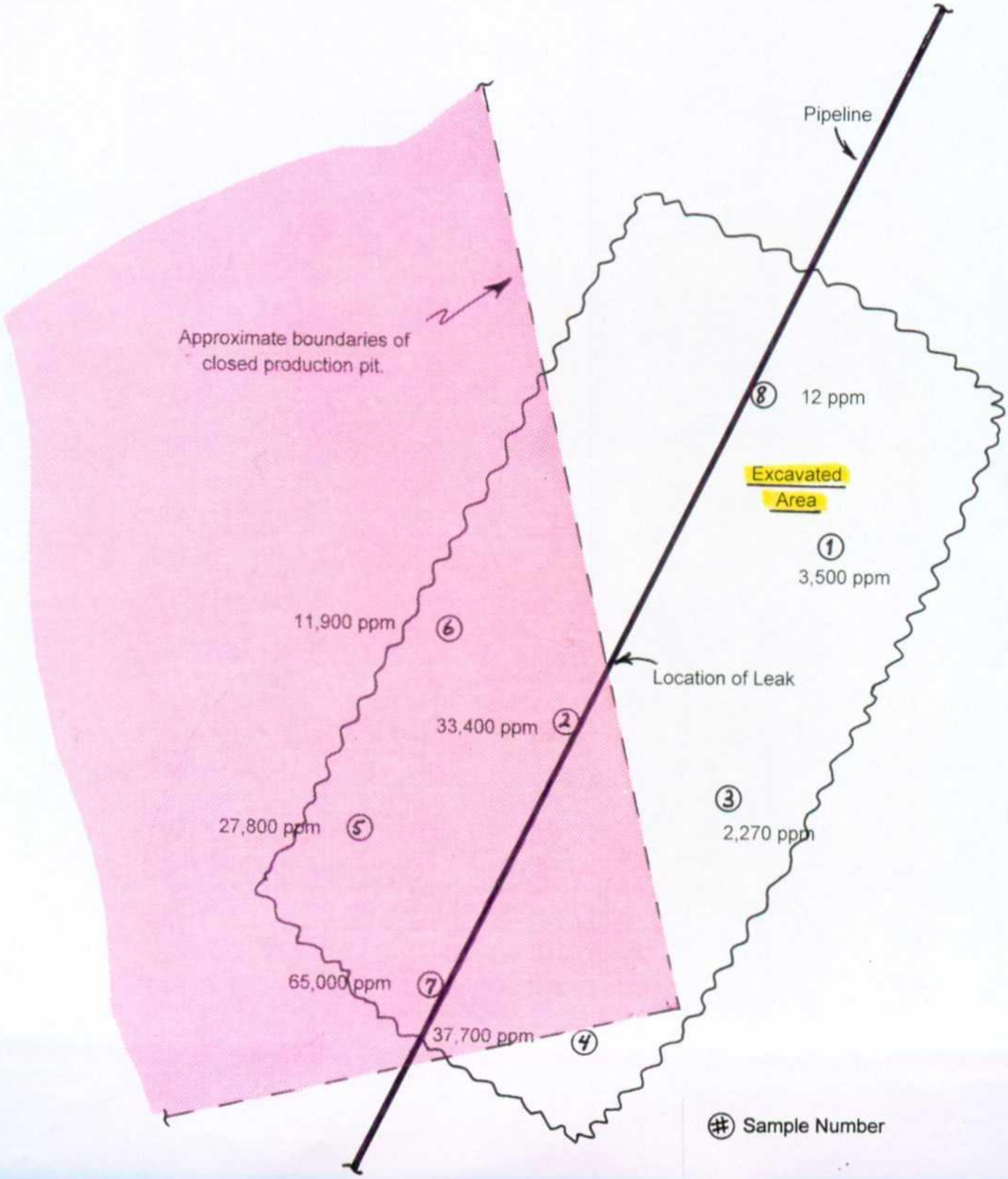
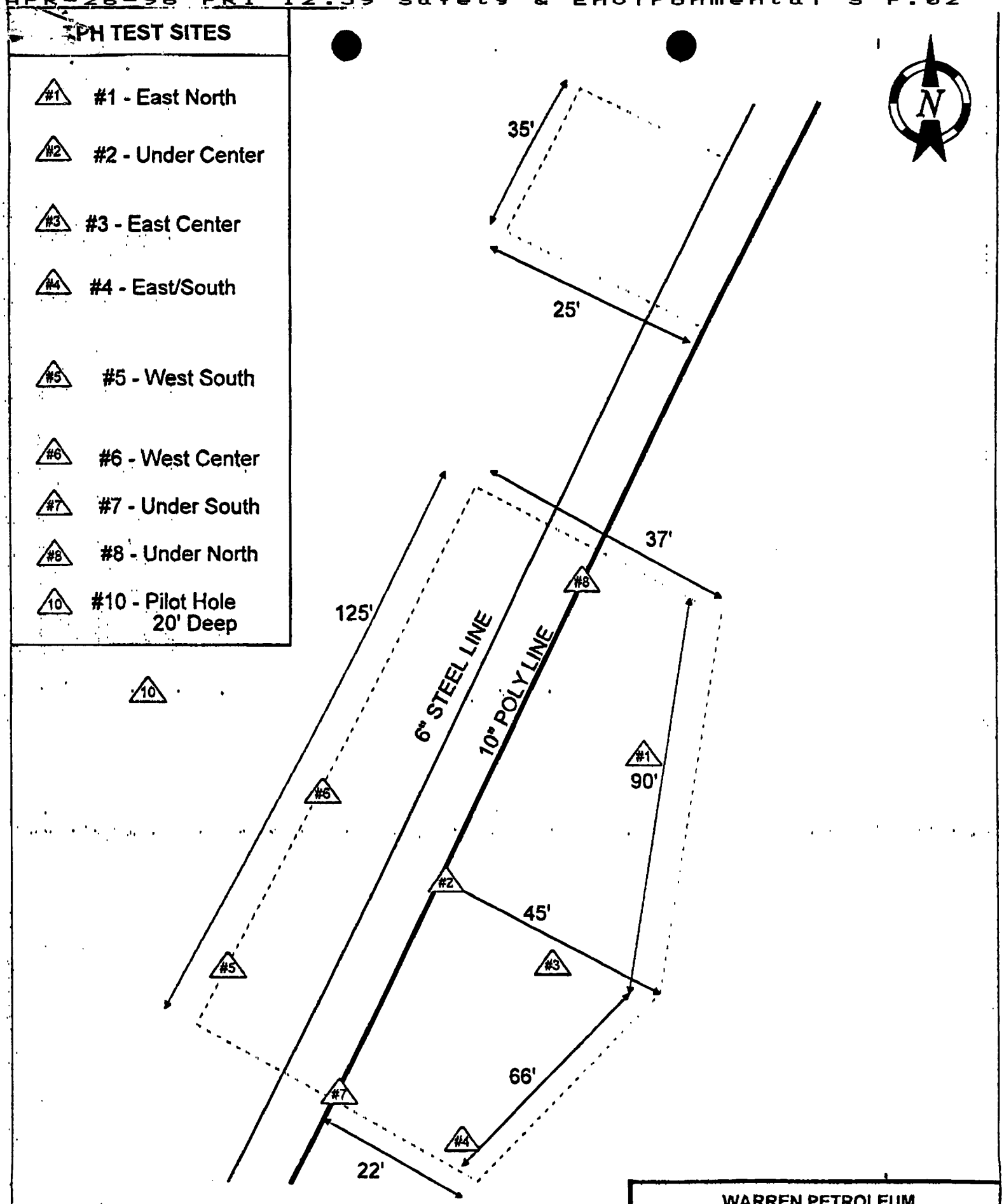


Figure 5
Photos of Impacted Soil from Closed Pit
Adjacent to Excavation Area

Figure 6
Plot of TPH Analytical Results





Third Party TPH & BTEX
Testing & Sampling
4/22/96

WARREN PETROLEUM
HOBBS, NEW MEXICO

Figure A-2
MONUMENT 10" POLYLINE LEAK SITE

Not to Scale

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTION, INC.

April 25, 1996
Receiving Date: 04/24/96
Sample Type: Soil
Project No: Pilot Hole
Project Location: Monument
COC# 10

P. O. Box 1613
Hobbs, NM 88241

Prep Date: 04/24/96
Analysis Date: 04/24/96
Sampling Date: 04/22/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: Monument

TA#	Field Code	TRPHC (ug/kg)	BENZENE (ug/kg)	TOLUENE (ug/kg)	ETHYL-BENZENE (ug/kg)	M,P,O XYLENE (ug/kg)	TOTAL BTEX (ug/kg)
T51498	Pilot Hole #10	32,100,000	<50	<50	<50	392	392
QC	Quality Control	100,857	103	103	102	208	
Reporting Limit		10,000	50	50	50	50	
RPD		1	5	5	5	5	
% Extraction Accuracy		89	106	107	108	108	
% Instrument Accuracy		101	104	104	102	104	

METHODS: EPA SW 846-8020, 5030, 3550 HIGH LEVEL; EPA 418.1.
BTEX SPIKE: 2,500 ug/kg BTEX. BTEX QC: 100 ug/L BTEX.
TRPHC SPIKE: 250,000 ug/kg TRPHC.
TRPHC QC: 100,000 ug/L TRPHC.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-25-96

Date

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTION, INC.
P. O. Box 1613
Hobbs, NM 88241

April 25, 1996
Receiving Date: 04/24/96
Sample Type: Soil
Project No: NA
Project Location: Monument
COC# 9

Prep Date: 04/24/96
Analysis Date: 04/24/96
Sampling Date: 04/22/96
Sample Condition: Intact & Cool
Sample Received by: ML
Project Name: NA

TA#	Field Code	TRPHC (ug/kg)	BENZENE (ug/kg)	TOLUENE (ug/kg)	ETHYL-BENZENE (ug/kg)	M,P,O XYLENE (ug/kg)	TOTAL BTEX (ug/kg)
T51490	#1 - East/North	3,500,000	<100	<100	<100	<100	<100
T51491	#2 - Under Center	33,400,000	<500	1,820	1,970	10,700	14,490
T51492	#3 - East Center	2,270,000	<100	<100	<100	268	268
T51493	#4 - East/South	37,700,000	<500	5,520	2,650	5,880	14,050
T51494	#5 - West/South	27,800,000	1,100	17,000	6,340	52,800	77,240
T51495	#6 - West Center	11,900,000	1,120	14,200	6,260	47,300	68,880
T51496	#7 - Under South	65,000,000	3,650	38,000	14,000	93,200	148,850
T51497	#8 - Under North	12,400	<50	<50	<50	<50	<50
QC	Quality Control	100,857	103	103	102	208	
Reporting Limit		10,000	50	50	50	50	
RPD		1	5	5	5	5	
% Extraction Accuracy		89	106	107	108	108	
% Instrument Accuracy		103	104	104	102	104	

METHODS: EPA SW 846-8020, 5030, 3550 HIGH LEVEL; EPA 418.1.
BTEX SPIKE: 2,500 ug/kg BTEX. BTEX QC: 100 ug/L BTEX.
TRPHC SPIKE: 250,000 ug/kg TRPHC.
TRPHC QC: 100,000 ug/L TRPHC.

BS

Director, Dr. Blair Leftwich
Director, Dr. Bruce McDonell

4-25-96
Date

Chevron

Chevron U.S.A. Production Company
P.O. Box 1150
Midland, TX 79702

August 14, 1997

Mr. William C. Olson
Hydrogeologist, Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

RE: Pipeline Spill
Warren Petroleum Monument Gas Plant
Lea County, New Mexico

Dear Mr. Olson,

Chevron U.S.A. Production Company and NGC are in the final stages of delineating the above area for free phase hydrocarbons on the groundwater and soil contamination. Unfortunately the lab results, which are critical to our decision making process, are still outstanding. Chevron U.S.A. and Warren request a time extension of 45 days (September 30, 1997) to present our plan for your approval.

To date, 7 monitoring wells have been drilled and over 60 soil samples taken and analyzed in our efforts to delineate for free phase hydrocarbons and soil contamination. My phone number is 915 687-7524, if you have any questions. Thank you for your assistance in this matter.

Sincerely,

Gordon R. Caskey

cc: Jerry Sexton
NMOCD District Office
1000 W. Broadway
Hobbs, NM 88240

J. D. Morris - Warren
Don Griffin - Chevron
Dwayne Duncan - Chevron
Buster Hines - Chevron
Bob Boyd - Monument
Mike Hicks - Monument

8/21/97 1000 hrs.
Verbal approval
to Gordon Caskey
Will Olson

Chevron U.S.A. Production Company
P.O. Box 1150, Midland, TX 79702

April 24, 1997

Mr. William C. Olson
Hydrogeologist, Environmental Bureau
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

28

RE: Pipeline Spill/Historic Pit
Monument
Lea County, New Mexico

Fax received on 4/25/97 Will Olson

Dear Mr. Olson,

This letter is intended to convey the results of Chevron U.S.A. Production Company's "PHASE II SITE ASSESSMENT OF A PROPERTY LOCATED NEAR MONUMENT, NEW MEXICO." Attached please find the results of the assessment. The assessment concluded that both soil and groundwater have been impacted by petroleum hydrocarbons in the site assessment area. NGC (Warren) and Chevron have been working together (sharing data, etc) and recommend the following work plans:

- Delineate the groundwater contamination of free phase hydrocarbon product by installing up to five (5) additional sampling wells. At least one of the wells will be installed up-gradient and the others down-gradient of the area.

- Convey a plan for remediating impacted soils based on data obtained from the additional sample wells.

If you have any questions, please call Don Griffin at (505) 394-1237 or me at (915) 687-7524.

Sincerely,

Gordon R. Caskey

Gordon R. Caskey

cc: Jerry Sexton
NMOCD District Office
1000 W. Broadway
Hobbs, NM 88240

J. D. Morris - Warren
Don Griffin - Chevron
Dwayne Duncan - Chevron
Buster Hines - Chevron
Bob Boyd - NGC (Warren), Monument
Mike Hicks - NGC (Warren), Monument

Phase II Site Assessment

Monument, Lea County, New Mexico

April 24, 1997

Prepared for:
Chevron USA Production Company
Midland, Texas

Project Number 17526

Prepared by:
Philip Environmental Services Corporation
7904 Interstate 20 West
Midland, Texas 79706
(915) 563-0118

TABLE OF CONTENTS

1.0 INTRODUCTION

Philip Environmental Services Corporation (Philip) performed a Phase II Site Assessment to gather data in an area of a historic NGC (former Warren) pipeline leak and in an area which a former Conoco pit was located. The subject area is located on Mr. Jimmy Cooper's property approximately 11 miles northwest of Eunice, Lea County, New Mexico. This report details the delineation of the hydrocarbon-impacted soils associated with the subject area. As part of the assessment, one sampling well was installed in the center of the subject area in order to obtain data on the quality of groundwater at the property.

2.0 PROJECT BACKGROUND

The purpose of the site investigation is to identify if soil has been impacted by oil and gas production activities conducted on the property. NGC (formally Warren) had conducted soil remediation operations in this area. Both NGC and the landowner referenced a historic Conoco burn pit located in the same area as the NGC leak. The suspected pit was closed prior to Chevron's operation of the property.

3.0 SUBSURFACE INVESTIGATION

3.1 Horizontal Delineation

As per Philip's Phase II Site Assessment Workplan dated March 3, 1997, Philip field personnel were on-site March 5, 1997 to trench the former Conoco burn pit. Philip personnel dug four (4) trenches (two north/south and two east/west) across the former pit to a maximum depth of five (5) feet below ground level (bgl) (**Figure 1**). Based on stained soils observed, an area estimated to be approximately 125 feet north/south and approximately 110 feet east/west was identified..

Eight soil samples (four from the north/south trenches and four from the east/west trenches) were collected and submitted to Trace Analysis, Inc. (Trace) of Lubbock, Texas for analysis of total petroleum hydrocarbons (TPH) using EPA method 418.1, benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8020, total chlorides using EPA method SM4500-Cl B, and electroconductivity (EC) using EPA method 120.1 (**Table 1**). The soil samples were collected from the backhoe's bucket with stainless steel sampling spoons. The sampling equipment was decontaminated between samplings using an Alconox and deionized water rinse. After trenching and collecting soil samples at the site, Philip personnel backfilled the trenches.

The soil lithology as observed in the trenches was hydrocarbon-stained medium-grain sands extending to a depth of five (5) feet bgl. The heaviest staining was observed approximately 15 feet east of an open hole excavated by the landowner.

Surface soils were screened in the field with a Ludlum Model 3 Survey Meter to determine if the soil had been impacted with Naturally Occurring Radioactive Material

(NORM). All NORM readings were below 50 microroentegen per hour which is below the New Mexico Environment Department's regulated limit for NORM.

3.2 Vertical Delineation

Philip personnel were onsite March 10 and March 11, 1997 to install one (1) sample well (MW-1) and five (5) borings within the boundary of the former burn pit (**Table 2**). The borings were extended to the top of groundwater (approximately 38 feet bgl) or until no photoionization detection (PID) measurements were detected. The sample well was installed approximately 10 feet into the groundwater table.

Soil samples from the five (5) borings and one (1) sample well were obtained at 5-foot intervals using a 2-foot split spoon sampler located on a hollow stem auger rig. The samples from each interval were placed in plastic sealable baggies and field screened using head space analysis. Head space analysis was conducted utilizing a Thermal Environmental 580-B organic vapor meter PID. The PID detects volatile petroleum and non-petroleum organic compounds in parts per million (ppm) isobutylene equivalent.

Subsurface conditions were similar in the five (5) borings and one (1) sample well installed (see **Appendix A** Boring logs). The surface to an approximate depth of 20 feet bgl is tan/brown medium-grain sand with some hydrocarbon staining. (The majority of the staining did not extend beyond 20 feet bgl). From 20 feet to approximately 28 feet bgl is tan/buff clayey sand (medium-grain). From 28 feet to approximately 38 feet bgl is a buff/tan calcareous limestone with medium-grain sand. From approximately 38 feet bgl to the termination of the borings/sample well is a tan/buff medium-grain sand with calcareous limestone fragments.

The sample well (MW-1) was constructed of 4-inch diameter schedule 40 PVC casing with 0.020-inch factory slotted well screen (see **Appendix B** Sample Well Completion). Fifteen feet of screen was placed at the bottom of the boring. A sand pack was then installed from the bottom of the boring to approximately 2-feet above the casing/screen junction. A clean silica sand with a grain size larger than the well screen (sieve size 8 to 16) was used as the sand pack in the annular space between the casing and borehole. Above the sand pack, a 2-foot bentonite plug was installed in the annulus. Above the bentonite plug, a non-shrinking grout with 3 to 5% bentonite was installed in the annulus to two feet bgl. The remaining two feet to the surface was completed with cement. The surface completion included an eight-inch diameter steel surface riser, a four-foot by four-foot by four-inch thick concrete pad, and a locking cap on the outer protective casing.

Twenty-four hours after installation, the sample well was gauged and developed by Philip personnel by removing at least four well volumes of water (approximately 35 gallons). Approximately 0.19 feet of Light Non-aqueous Phase Hydrocarbon Liquids (LNAPL), were measured on the groundwater table. A sample of the LNAPL material

was collected in the field and submitted for a fingerprint analysis to Friedman and Bruya, Inc. of Seattle, Washington.

4.0 SOIL SAMPLE RESULTS

4.1 Excavation Soil Sample Results

A total of eight (8) soil samples were collected and submitted to Trace for analysis of TPH, Total BTEX, Total Chlorides, and Specific Conductance. Soil analytical results were above New Mexico Oil Conservation Division Standards (NMOCD) of 100 ppm TPH and 0.05 parts per billion (ppb) total BTEX in soil samples SS-1 to SS-8 (**Table 1**). In addition, benzene levels were above NMOCD standards of 0.01 ppb benzene in soil samples SS-5, SS-6, and SS-7. No state mandated levels are issued for toluene, ethyl-benzene, xylene, total chlorides, and specific conductance.

Soil analytical results indicate concentrations of TPH ranging from 5,020 ppm at soil sample SS-8 to 164,000 ppm at soil sample SS-5 (**Appendix C** Laboratory Analytical). Benzene levels ranged from <0.050 ppb in several soil samples to 0.927 ppb in SS-7. Total BTEX levels ranged from 0.386 in sample SS-4 to 6.950 ppb in sample SS-1. Total Chlorides were below detection limit (<5.0 ppm) in all soil samples except SS-1 which has a level of 24.0 ppm. Specific Conductance ranged from 550 ohmo's/cm in SS-7 to 1200 ohmo's/cm in SS-6.

4.2 Soil Boring Sample Results

A total of twelve (12) soil samples (2 from each boring) were collected and submitted to Trace for analysis of TPH, Total BTEX, Total Chlorides, and Specific Conductance. Soil analytical results were above NMOCD standards of 100 ppm TPH in SB-1, SB-2, SB-3 and SB-5 (18-20'). Benzene results were above NMOCD standards of 0.01 ppb benzene in SB-1 (8-10'), SB-2 (13-15'), SB-3, and SB-5 (18-20') (**Table 2**). Total BTEX was above NMOCD standards in all samples collected except SB-4 and SB-6 (18-20'). No state mandated levels are issued for toluene, ethyl-benzene, xylene, total chlorides, and specific conductance.

Soil analytical results indicate concentrations of TPH ranging from below detection limit (BDL) in SB-4 to 30,700 ppm in SB-2 (38-40') (**Appendix C** Laboratory Analytical). Benzene results ranged from BDL in several of the samples to 0.773 ppb in SB-1. Total BTEX results ranged from BDL in SB-4 to 30.2 in SB-2 (13-15'). Total chlorides ranged from BDL in SB-3 (13-15') to 540.0 ppm in SB-1 (43-45'). Specific conductance ranged from 230.0 omho's/cm in SB-3 (13-15') to 2900.0 omho's/cm in SB-5 (38-40').

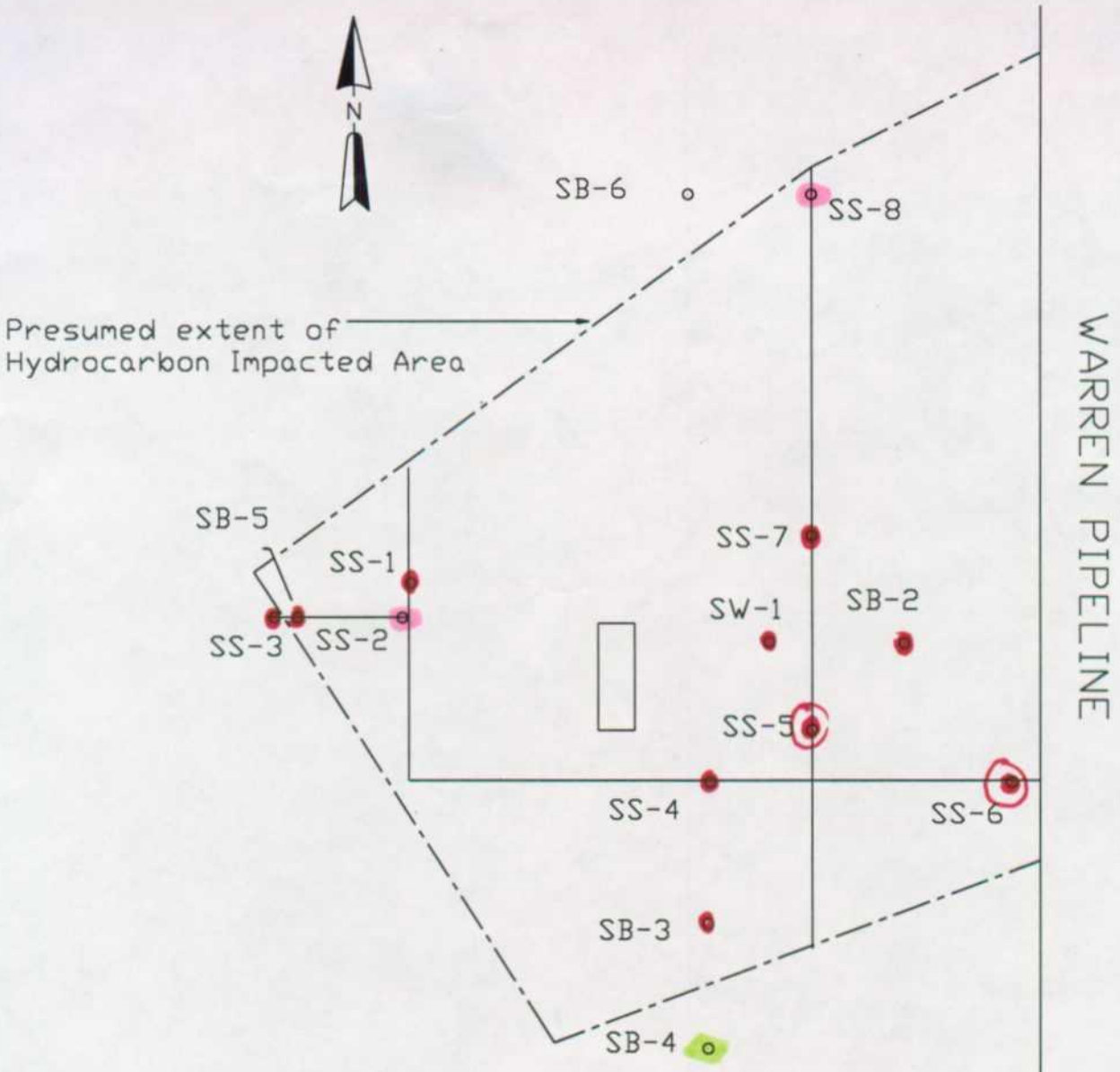
5.0 GROUNDWATER RESULTS

A sample of the LNAPL was collected from sample well MW-1 on March 11, 1997 and submitted to Friedman and Bruya, Inc. of Seattle, Washington for a fingerprint analysis. According to Friedman and Bruya, the LNAPL "showed the presence of low, medium, and high boiling compounds. The patterns displayed by these peaks are indicative of a weathered crude oil. The low, medium, and high boiling compounds appeared as a pattern of peaks eluting from n-C6 to n-C36 showing a maximum near n-C6 (**Appendix C** Laboratory Analytical). A dominant pattern on n-alkanes was not seen for this material. The low, medium, and high boiling material appears to have undergone chemical/biological degradation." According to Mr. Blaire Leftwich of Friedman and Bruya, the LNAPL is at least 10 years old. Specific gravity for the LNAPL is 0.8957.

6.0 CONCLUSIONS

Based on the findings of the Phase II Site Assessment, Philip concludes the following:

- Both soil and groundwater in the vicinity of the subject area has been impacted with petroleum hydrocarbons.
- The dimensions of the subject area are approximately 110-feet wide by 125-feet long and 38-feet deep based on field observation of stained soil.
- Approximately 0.19 feet of hydrocarbon product was measured on the groundwater surface of sample well MW-1.



LEGEND
SB - SOIL BORING
SS - SOIL SAMPLE
SW - SAMPLE WELL

PHILIP ENVIRONMENTAL

NOTES:

DRAWING SCALE: 1" = 25'

TITLE:

CHEVRON PIT
EUNICE, NEW MEXICO

DWN:

REV:

DATE:

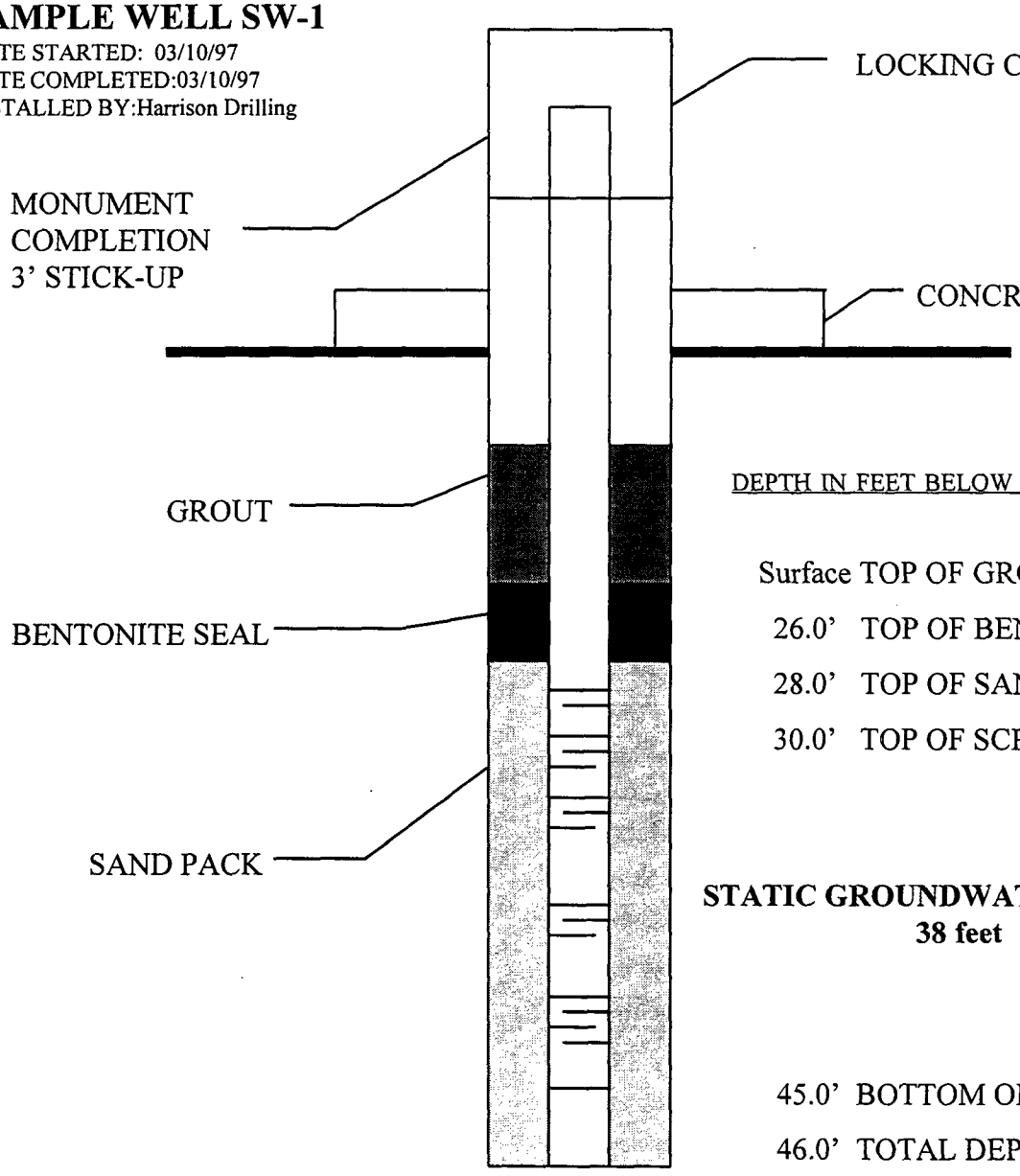
CHKD:

PROJECT NO. Chevron Eunice 17526

FIGURE NO. 1

SAMPLE WELL SW-1

DATE STARTED: 03/10/97
DATE COMPLETED:03/10/97
INSTALLED BY:Harrison Drilling



DEPTH IN FEET BELOW LAND SURFACE

Surface TOP OF GROUT
26.0' TOP OF BENTONITE SEAL
28.0' TOP OF SAND PACK
30.0' TOP OF SCREEN

STATIC GROUNDWATER DEPTH:
38 feet

45.0' BOTTOM OF SCREEN
46.0' TOTAL DEPTH

CASING TYPE: 4" SCH. 40 PVC
SCREEN TYPE: SCH. 40 PVC 0.020 SLOT
GRAVEL PACK: 08/16 VOLUME SILICA SAND

PHILIP ENVIRONMENTAL SERVICES CORPORATION

Sample Well Installation Diagram

CHEVRON U.S.A. PRODUCTION COMPANY
LEA CO., NEW MEXICO
17526

TABLE 1
CHEVRON EXCAVATION SOIL SAMPLE RESULTS
EUNICE, NEW MEXICO

SOIL SAMPLE NUMBER	DATE	TPH (in ppm)	BENZENE (in ppb)	TOLUENE (in ppb)	ETHYL-BENZENE (in ppb)	XYLENE (in ppb)	TOTAL BTEX (in ppb)	TOTAL CHLORIDES (in ppm)	SPECIFIC CONDUCTANCE (in omho's/cm)
SS-1	3/5/97	**31,800**	<0.050	1.460	0.753	4.740	**6.950**	24.00	760.00
SS-2	3/5/97	**6,350**	<0.050	0.408	0.691	3.530	**4.630**	<5.0	830.00
SS-3	3/5/97	**22,800**	<0.050	0.192	0.116	1.060	**1.370**	<5.0	690.00
SS-4	3/5/97	**26,400**	<0.050	0.133	<0.050	0.253	**0.386**	<5.0	890.00
SS-5	3/5/97	**164,000**	**0.274**	0.110	0.114	0.518	**1.020**	<5.0	560.00
SS-6	3/5/97	**93,500**	**0.329**	0.250	0.235	1.290	**2.100**	<5.0	1200.00
SS-7	3/5/97	**42,100**	**0.927**	0.574	0.195	1.220	**2.920**	<5.0	550.00
SS-8	3/5/97	**5,020**	<0.050	0.361	<0.050	0.115	**0.476**	<5.0	830.00
New Mexico Oil Conservation Division Standards		100	0.01	NA	NA	NA	0.05	NA	NA

TABLE 2
CHEVRON DRILLING SOIL SAMPLES
EUNICE, NEW MEXICO

SOIL SAMPLE NUMBER	DATE	TPH (in ppm)	BENZENE (in ppb)	TOLUENE (in ppb)	ETHYL-BENZENE (in ppb)	XYLENE (in ppb)	TOTAL BTEX (in ppb)	TOTAL CHLORIDES (in ppm)	SPECIFIC CONDUCTANCE (in omho's/cm)
SB-1 (8-10')	3/10/97	**19400**	**0.773**	2.250	0.483	2.320	**5.830**	9.4	410.0
SB-1 (43-45')	3/10/97	**7940**	<0.050	<0.050	0.606	2.640	**3.250**	540.0	2400.0
SB-2 (13-15')	3/10/97	**27200**	**1.230**	10.500	3.480	15.000	**30.200**	24.0	450.0
SB-2 (38-40')	3/10/97	**30700**	<0.100	<0.100	3.120	10.000	**13.100**	450.0	1800.0
SB-3 (13-15')	3/10/97	**23400**	**0.555**	1.550	0.220	1.070	**3.400**	<5.0	230.0
SB-3 (38-40')	3/10/97	**1190**	<0.090	0.104	0.104	0.582	**0.890**	300.0	1300.0
SB-4 (3-5')	3/10/97	<10.0	<0.050	<0.050	<0.050	<0.050	<0.050	24.0	380.0
SB-4 (18-20')	3/10/97	<10.0	<0.050	<0.050	<0.050	<0.050	<0.050	24.0	490.0
SB-5 (18-20')	3/10/97	**25700**	**0.620**	1.820	0.335	0.953	**3.810**	24.0	410.0
SB-5 (38-40')	3/10/97	56.6	<0.050	0.070	<0.050	0.079	**0.149**	500.0	2900.0
SB-6 (8-10')	3/10/97	21.5	<0.050	0.386	<0.050	0.054	**0.440**	24.0	500.0
SB-6 (18-20')	3/10/97	22.6	<0.050	<0.050	<0.050	<0.050	<0.050	24.0	680.0
New Mexico Oil Conservation Division Standards		100	0.01	NA	NA	NA	0.05	NA	NA

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Borehole No. SW-1
Well No. SW-1

Project Name: Chevron U.S.A Production — Project No. 17526
Borehole Location: 11 miles northwest of Eunice, New Mexico — Logged By: Jeffrey Kindley
Drilled By: Harrision Drilling — Drilling/Rig Methods: Air Rotary 6 1/4"
Date/Time Started: 03/10/97 @ 930 — Date/Time Completion(s): 03/10/97 @ 1330
Air Monitoring Type: Not Applicable — GWL Depth: 38 feet

Depth (feet)	OVM Readings (in ppm)	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							
-							
-	1000	3-5'	S.S.	Dark brown/black medium-grain sand		SW	Hydrocarbon-stained
5							
-							
-							
-	1302	8-10'	S.S.				
--10							
-							
-							
-	340	13-15'	S.S.				
--15							
-							
-							
-	243	18-20'	S.S.				
--20					20		
-				Tan/buff clayey sand (medium grain)		SC	hydrocarbon odor
-							
-	1000	23-25'	S.S.				
--25							
-							
-							
-	1000	28-30'	S.S.				
--30							
-							
-							
-	900	33-35'	S.S.				
--35							
-							Water on rods at 38'
-					38		
-				Tan/buff medium-grain sand (moist) with calcareous limestone fragments			hydrocarbon odor
-	1000	38-40'	S.S.				
--40							

Comments:: Boring terminated at 46 feet and converted into a sample well. Samples were collected from intervals (8-10' and 43-45') and submitted for analysis of TPH, BTEX, Total Chlorides and Electroconductivity
Water encountered at 38 feet
S.S.--Split Spoon

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Project Name: Chevron U.S.A Production — Project No. 17526
Borehole Location: 11 miles northwest of Eunice, New Mexico — Logged By: Jeffrey Kindley
Drilled By: Harrision Drilling — Drilling/Rig Methods: Air Rotary 4 3/4"
Date/Time Started: 03/10/97 @ 1354 — Date/Time Completion(s): 03/10/97 @ 1448
Air Monitoring Type: Not Applicable — GWL Depth: 38 feet

Depth (feet)	OVM Readings (in ppm)	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							
-							
-	151	3-5'	S.S.	Tan/brown medium-grain sand		SW	hydrocarbon odor
5							
-							
-							
-	240	8-10'	S.S.				
--10							
-							
-							
-	283	13-15'	S.S.				
--15							
-							
-							
-	280	18-20'	S.S.				
--20					20		
-				Tan/buff clayey sand (medium-grain)		SC	hydrocarbon odor
-							
-	138	23-25'	S.S.				
--25							
-							
-					28		
-	193	28-30'	S.S.	Buff/tan calcareous limestone with some medium-grain sand		Lm	hydrocarbon odor
--30							
-							
-							
-	295	33-35'	S.S.				
--35							
-							Water on rods at 38'
-					38		
-				Tan/buff medium-grain sand (moist) with calcareous limestone fragments			hydrocarbon odor
-	300	38-40'	S.S.				
--40							

Comments:: Boring terminated at 40 feet. Samples were collected from intervals (13-15' and 38-40') and submitted for analysis of TPH, BTEX, Total Chlorides and Electroconductivity
Water encountered at 38 feet
S.S.--Split Spoon

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Borehole No. SW-1
Well No. SW-1

Project Name: Chevron U.S.A Production
Project No. 17526
Borehole Location: 11 miles northwest of Eunice, New Mexico
Logged By: Jeffrey Kindley
Drilled By: Harrision Drilling
Drilling/Rig Methods: Air Rotary 6 1/4"
Date/Time Started: 03/10/97 @ 930
Date/Time Completion(s): 03/10/97 @ 1330
Air Monitoring Type: Not Applicable
GWL Depth: 38 feet

Depth (feet)	OVM Readings (in ppm)	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
45 --50	1000	44-46'	S.S.	Red clay with high plasticity Boring terminated at 46 feet	44	CH	Hydrocarbon odor

Comments:: Boring terminated at 46 feet and converted into a sample well. Samples were collected from intervals (8-10' and 43-45') and submitted for analysis of TPH, BTEX, Total Chlorides and Electroconductivity
Water encountered at 38 feet
S.S.--Split Spoon

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Project Name: Chevron U.S.A Production — Project No. 17526
Borehole Location: 11 miles northwest of Eunice, New Mexico — Logged By: Jeffrey Kindley
Drilled By: Harrision Drilling — Drilling/Rig Methods: Air Rotary 4 3/4"
Date/Time Started: 03/10/97 @ 1450 — Date/Time Completion(s): 03/10/97 @ 1545
Air Monitoring Type: Not Applicable — GWL Depth: 38 feet

Depth (feet)	OVM Readings (in ppm)	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							
-							
-	78	3-5'	S.S.	Tan/brown medium-grain sand		SW	hydrocarbon odor
5							
-							
-							
-	80	8-10'	S.S.				
--10							
-							
-							
-	142	13-15'	S.S.				
--15							
-							
-							
-	25	18-20'	S.S.				
--20					20		
-				Tan/buff clayey sand (medium-grain)		SC	slight hydrocarbon odor
-							
-	45	23-25'	S.S.				
--25							
-							
-					28		
-	100	28-30'	S.S.	Buff/tan calcareous limestone with some medium-grain sand		Lm	slight hydrocarbon odor
--30							
-							
-							
-	80	33-35'	S.S.				
--35							
-							Water on rods at 38'
-					38		
-				Tan/buff medium-grain sand (moist) with calcareous limestone fragments			slight hydrocarbon odor
-	50	38-40'	S.S.				
--40							

Comments:: Boring terminated at 40 feet. Samples were collected from intervals (13-15' and 38-40') and submitted for analysis of TPH, BTEX, Total Chlorides and Electroconductivity
Water encountered at 38 feet
S.S.--Split Spoon

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Project Name: Chevron U.S.A Production Project No. 17526
Borehole Location: 11 miles northwest of Eunice, New Mexico Logged By: Jeffrey Kindley
Drilled By: Harrision Drilling Drilling/Rig Methods: Air Rotary 4 3/4"
Date/Time Started: 03/11/97 @ 0815 Date/Time Completion(s): 03/11/97 @ 0915
Air Monitoring Type: Not Applicable GWL Depth: NA

Depth (feet)	OVM Readings (in ppm)	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							
5	22	3-5'	S.S.	Tan/brown medium-grain sand		SW	no hydrocarbon odor
--10	3	8-10'	S.S.				
--15	3	13-15'	S.S.				
--20	0	18-20'	S.S.	Tan/buff clayey sand (medium-grain) Boring terminated at 20 feet	18	SC	slight hydrocarbon odor
--25							
--30							
--35							
--40							

Comments:: Boring terminated at 20 feet. Samples were collected from intervals (3-5' and 18-20') and submitted for analysis of TPH, BTEX, Total Chlorides and Electroconductivity

S.S.--Split Spoon

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Borehole No.SB-5

Project Name: Chevron U.S.A Production
Project No. 17526
Borehole Location: 11 miles northwest of Eunice, New Mexico
Logged By: Jeffrey Kindley
Drilled By: Harrision Drilling
Drilling/Rig Methods: Air Rotary 4 3/4"
Date/Time Started: 03/11/97 @ 0921
Date/Time Completion(s): 03/11/97 @ 1256
Air Monitoring Type: Not Applicable
GWL Depth: 38 feet

Depth (feet)	OVM Readings (in ppm)	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0- - - - 5	0	3-5'	S.S.	Tan/brown medium-grain sand		SW	no hydrocarbon odor
- - - --10	25	8-10'	S.S.	Dark brown hydrocarbon stained sand (medium-grain)			hydrocarbon odor
- - - --15	220	13-15'	S.S.				
- - - --20	650	18-20'	S.S.				
- - - --25	560	23-25'	S.S.	Tan medium-grain sand			slight hydrocarbon odor
- - - --30	84	28-30'	S.S.				
- - - --35	305	33-35'	S.S.	Tan/buff calcareous limestone with some medium-grain sand	33	Lm	slight hydrocarbon odor
- - - --40	0	38-40'	S.S.				Water on the rods at 38'

Comments:: Boring terminated at 40 feet. Samples were collected from intervals (18-20' and 38-40') and submitted for analysis of TPH, BTEX, Total Chlorides and Electroconductivity
Water on the rods at 38 feet
S.S.--Split Spoon

Geologist Signature Jeffrey Kindley

PHILIP ENVIRONMENTAL

RECORD OF SUBSURFACE EXPLORATION

Project Name: Chevron U.S.A Production — Project No. 17526
Borehole Location: 11 miles northwest of Eunice, New Mexico — Logged By: Jeffrey Kindley
Drilled By: Harrision Drilling — Drilling/Rig Methods: Air Rotary 4 3/4"
Date/Time Started: 03/11/97 @ 1320 — Date/Time Completion(s): 03/11/97 @ 1347
Air Monitoring Type: Not Applicable — GWL Depth: NA

Depth (feet)	OVM Readings (in ppm)	Sample Interval	Sample Type	Sample Description	Depth Change (feet)	USCS Symbol	Comments
0-							
5	0	3-5'	S.S.	Tan/brown medium-grain sand		SW	no hydrocarbon odor
--10	3	8-10'	S.S.				
--15	2	13-15'	S.S.				
--20	650	18-20'	S.S.	Buff/tan calcareous limestone with medium-grain sand	18	Lm	
				Boring terminated at 20 feet			

Comments:: Boring terminated at 20 feet. Samples were collected from intervals (8-10' and 18-20') and submitted for analysis of TPH, BTEX, Total Chlorides and Electroconductivity

S.S.--Split Spoon

Geologist Signature Jeffrey Kindley

FRIEDMAN & BRUYA, INC.
ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Beth M. Albertson, M.S.
Bradley T. Benson
Kelley D. Wilt

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044

March 25, 1997

Jeff Kindley, Project Manager
Philip Environmental Services
7904 Interstate 20 West
Midland, TX 79706

Dear Mr. Kindley:

Included are the results from the testing of material submitted on March 20, 1997 from your 17526 Chevron project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kelley Wilt

Kelley Wilt
Chemist

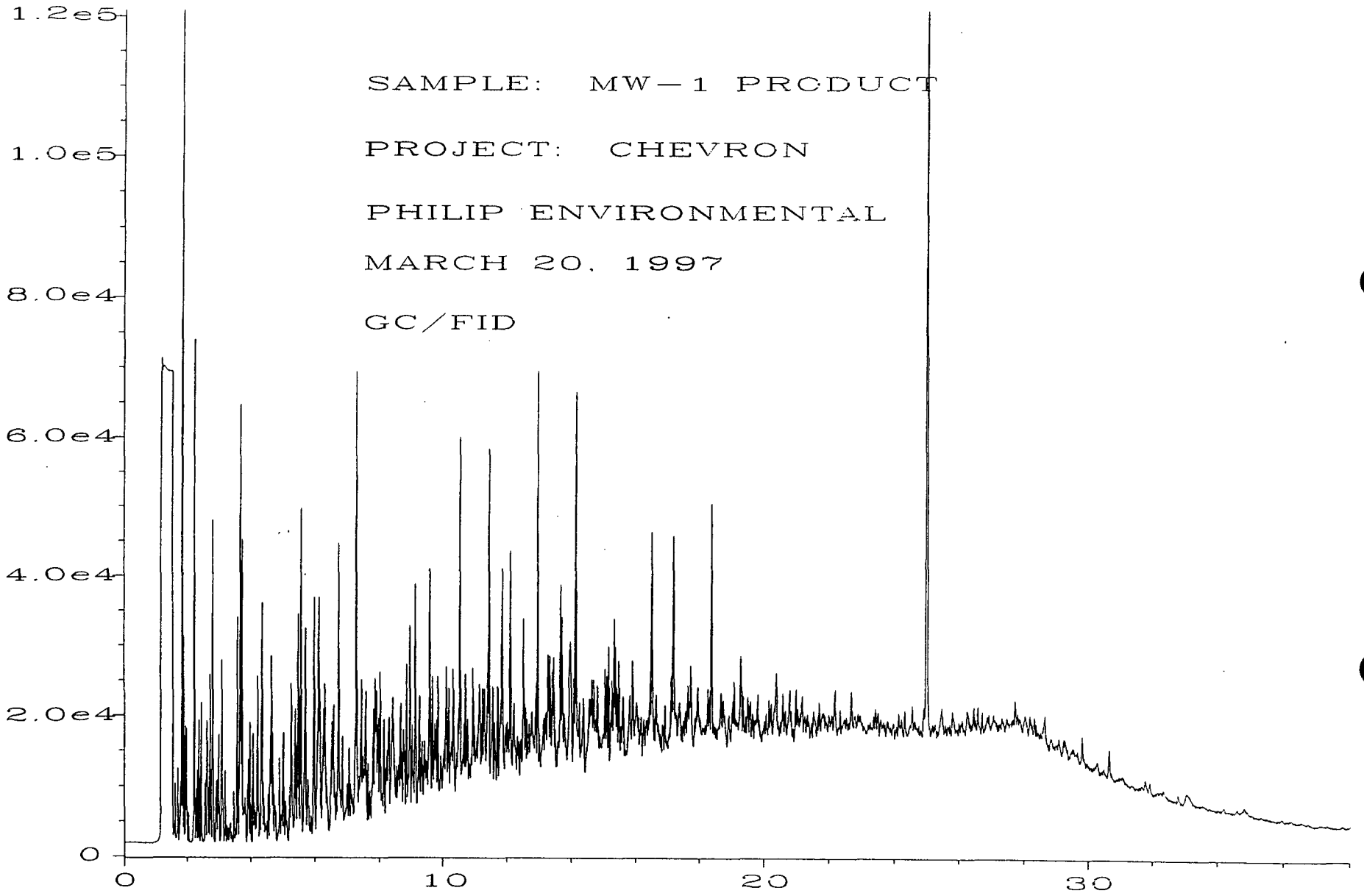
keh
Enclosures
FAX: (915) 563-9526
NAA0325R.DOC

FRIEDMAN & BRUYA, INC
ENVIRONMENTAL CHEMISTS

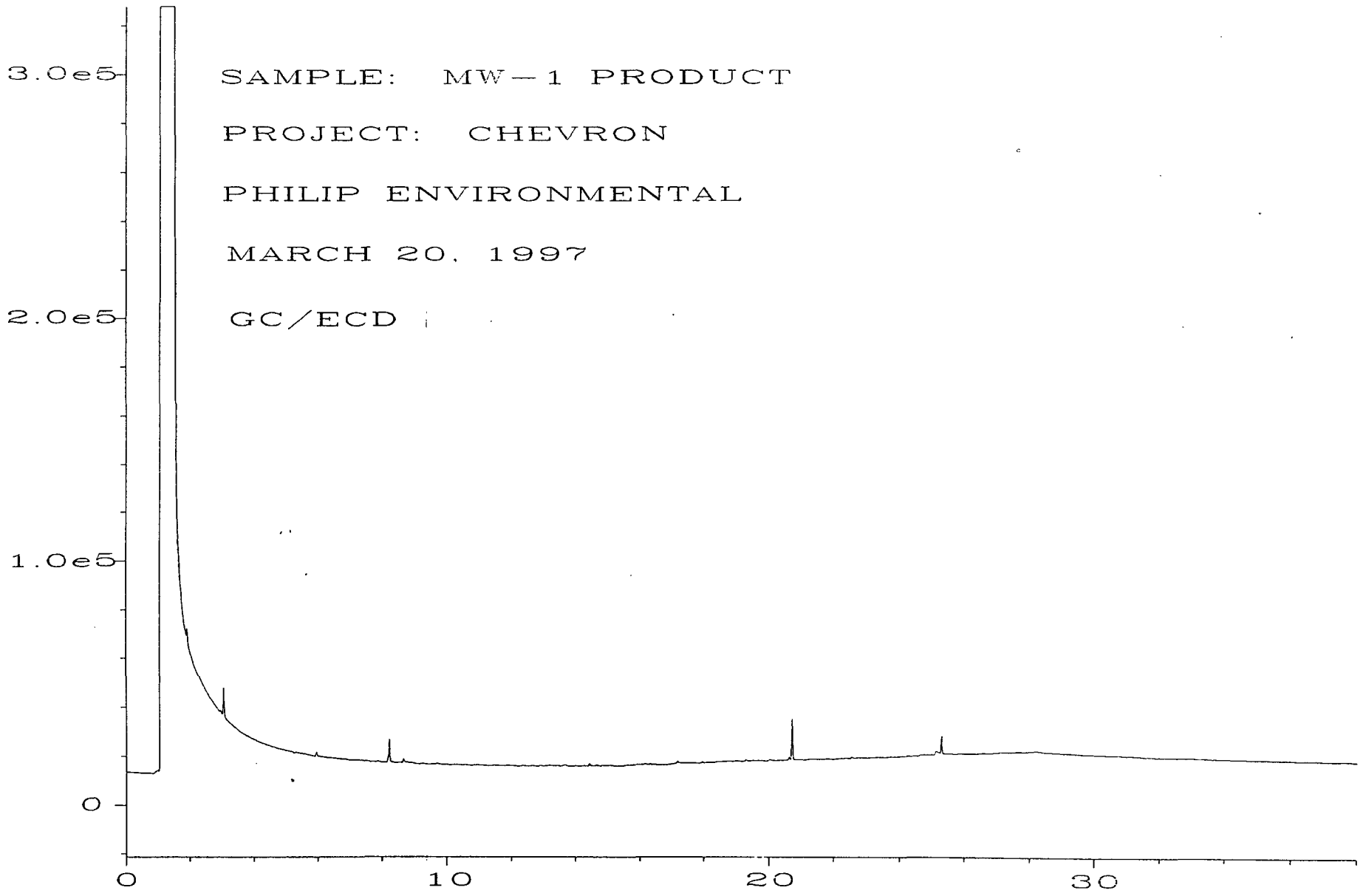
Date of Report: March 25, 1997
Date Received: March 20, 1997
Project: 17526 Chevron
Date Samples Extracted: March 20, 1997
Date Extracts Analyzed: March 20, 1997

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

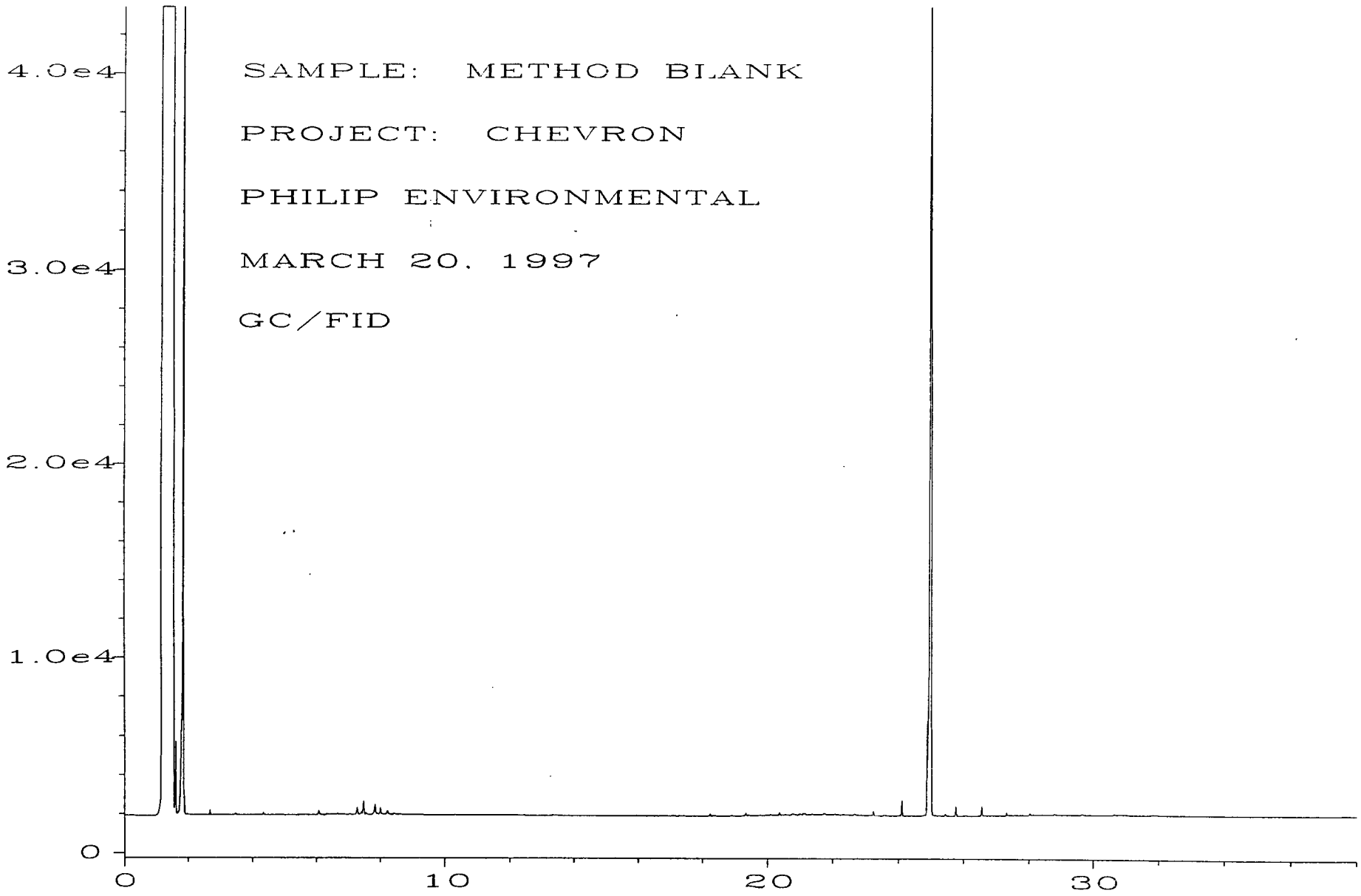
Sample ID	GC Characterization
MW-1 Product	The GC trace using the flame ionization detector (FID) showed the presence of low, medium, and high boiling compounds. The patterns displayed by these peaks are indicative of a weathered crude oil. The low, medium, and high boiling compounds appeared as a pattern of peaks eluting from *n*-C_6 to *n*-C_{36} showing a maximum near *n*-C_6. A dominant pattern of *n*-alkanes was not seen for this material. The low, medium, and high boiling material appears to have undergone chemical/biological degradation. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.



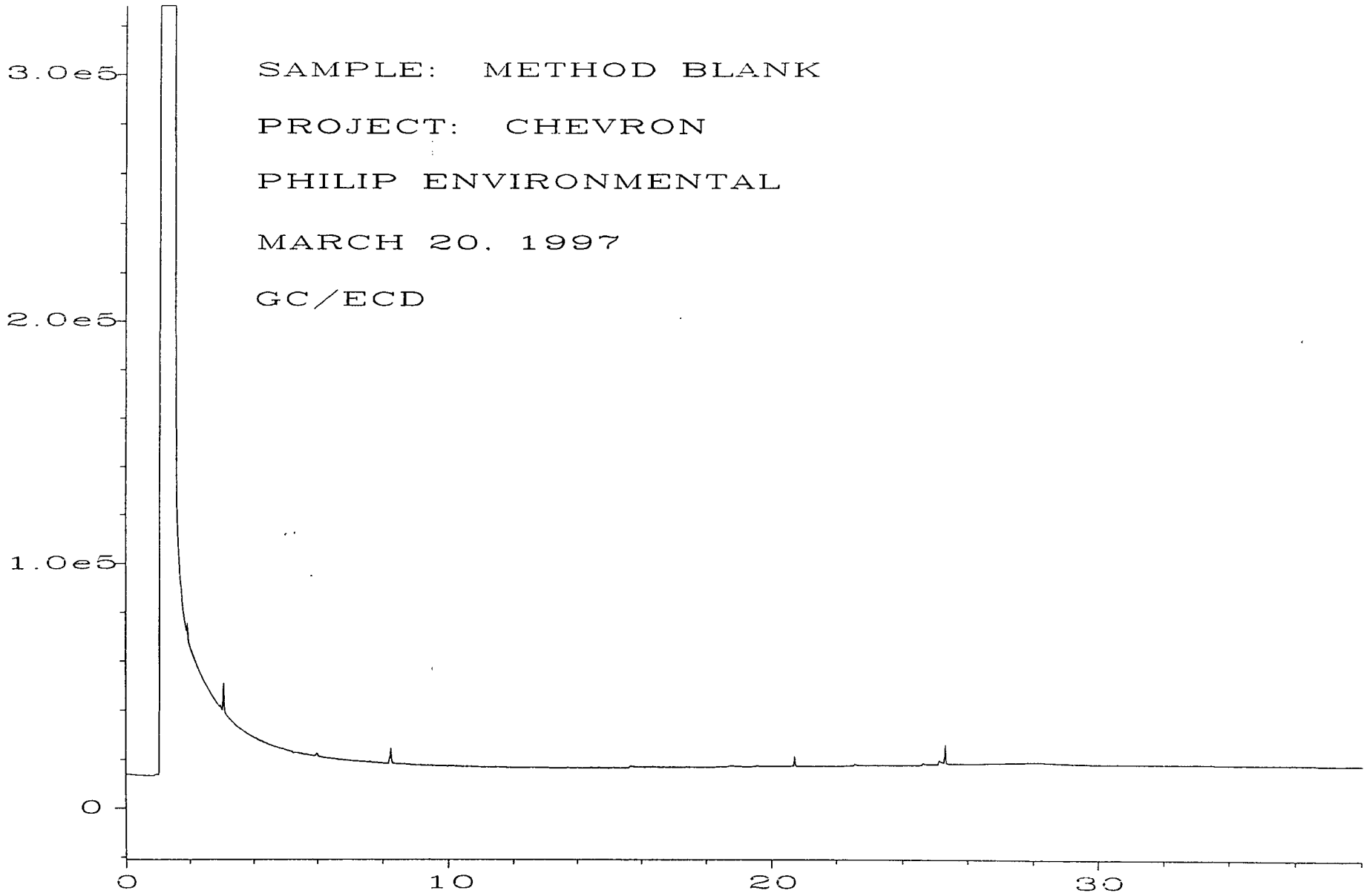
Sig. 1 in C:\HPCHEM\4\DATA\03-20-97\010F0601.D



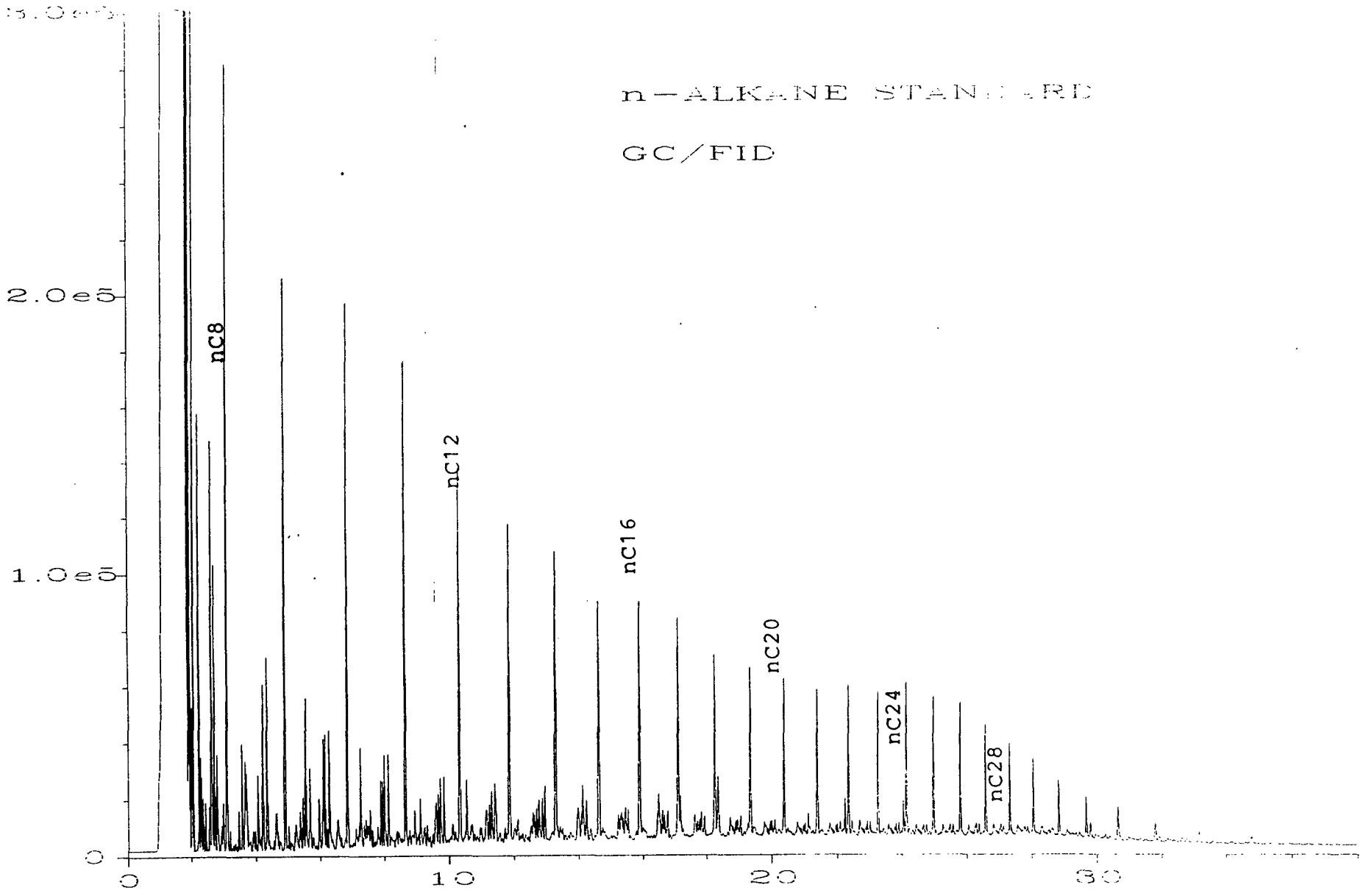
Sig. 2 in C:\HPCHEM\4\DATA\03-20-97\010R0601.D



Sig. 1 in C:\HPCHEM\4\DATA\03-20-97\009F0601.D



Sig. 2 in C:\HPCHEM\4\DATA\03-20-97\009R0601.D



Sig. 1 in C:\HPCHEM\4\DATA\03 [illegible] 0307F1.D

BLM NM
~~KS~~ 3/24/97 AD
March 20, 1997 10:20

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Jeff Kindley

Phone #: 915-563-0118

FAX #: 915-563-9526

Company Name & Address: Philip Environmental Services
7904 Interstate 20 west, Midland, TX 79706

Project #: 17526

Project Name: Chevron

Project Location: Eunice, NM

Sampler Signature:

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	Lia/Product	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME	BTEX, MTBE	TPH	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	8240 / 8260	8270	Finger Print
76763-4	MW-1 Product 69104	2	40ML					✓				✓	3/11/97	1210										✓

SPECIAL HANDLING: Turn around # of days; Fax ASAP; Hold

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
J. D. Haydell	3/19/97	3:05p	[signature]	3/20/97	10:10
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:

REMARKS

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
PHILIP ENVIRONMENTAL
Attention: Jeffrey Kindley
7904 IH-20 West
Midland, TX 79706

March 26, 1997
Receiving Date: 03/13/97
Sample Type: Liquid
Project No: 17526
Project Location: Eunice, NM

Prep Date: 03/18/97
Analysis Date: 03/18/97
Sampling Date: 03/11/97
Sample Condition: Intact & Cool
Sample Received by: JH
Project Name: Chevron Pit

TA#	FIELD CODE	SPECIFIC GRAVITY (gm/ml)
T69104	MW-1 Product	0.8957
RPD		1

CHEMIST: MS

Director, Dr. Blair Leftwich

3-26-97
DATE

68703-10

099

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Jeffrey Kindley

Phone #: (915) 563-0118

FAX #: (915) 563-9526

Company Name & Address: Philip Environmental Services
7904 Interstate 20 West, Midland, Tx 79706

Project #: 17526

Project Name: Chevron Pit

Project Location: Chevron, Eunice, N.M.

Sampler Signature: Jeffrey Kindley

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: NONE	SAMPLING: DATE	SAMPLING: TIME	BTEX, MTBE	TPH	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	8240 / 8260	8270	Total Chlorides	Electrical Conductivity
68703	SS-6	1			✓					✓		03/05/97	1437	✓	✓								✓	✓
04	SS-8	1			✓					✓		03/05/97	1400	✓	✓								✓	✓
05	SS-2	1			✓					✓		03/05/97	1059	✓	✓								✓	✓
06	SS-5	1			✓					✓		03/05/97	1430	✓	✓								✓	✓
07	SS-4	1			✓					✓		03/05/97	1300	✓	✓								✓	✓
08	SS-3	1			✓					✓		03/05/97	1145	✓	✓								✓	✓
09	SS-7	1			✓					✓		03/05/97	1345	✓	✓								✓	✓
10	SS-1	1			✓					✓		03/05/97	1050	✓	✓								✓	✓

ANALYSIS REQUEST

SPECIAL HANDLING

Turn around # of days
Fax ASAP
Hold

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Jeffrey Kindley	03/06/97	11:18	Helen Shelton	3-6-97	2:05 PM
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Helen Shelton	3-6-97	9:30PM			
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
			D.O. Hartsell	3/7/97	9:25

REMARKS

F 3-26-97 20H

Normal Turnaround

CT & 2 samples - HS

InInAC

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
PHILIP ENVIRONMENTAL
Attention: Jeffrey Kindley
7904 IH-20 West
Midland, TX 79706

March 26, 1997
Receiving Date: 03/07/97
Sample Type: Soil
Project No: 17526
Project Location: Eunice, NM

Prep Date: 03/25/97
Analysis Date: 03/25/97
Sampling Date: 03/05/97
Sample Condition: Intact & Cool
Sample Received by: JH
Project Name: Chevron Pit

TA#	FIELD CODE	CHLORIDE (mg/kg)	SPECIFIC CONDUCTANCE (uMHOs/cm)
T68703	SS-6	<5.0	1,200
T68704	SS-8	<5.0	830
T68705	SS-2	<5.0	830
T68706	SS-5	<5.0	560
T68707	SS-4	<5.0	890
T68708	SS-3	<5.0	690
T68709	SS-7	<5.0	550
T68710	SS-1	24	760
QC	Quality Control	520	1,430
RPD		0	0
% Extraction Accuracy		99	---
% Instrument Accuracy		104	101
Reporting Limit		5.0	---

METHODS: EPA 120.1; SM4500 Cl-B
CHEMIST: MS
CHLORIDE SPIKE: 100,000 mg/kg CHLORIDE.
CHLORIDE QC: 500 mg/L CHLORIDE.

3-26-97

Director, Dr. Blair Leftwich — DATE

TRACE ANALYSIS, INC.
A Laboratory for Advanced Environmental Research and Analysis

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
Philip Environmental
Attention Jeff Kindley
7904 I-20 West
Midland TX 79706

Date: Mar 11, 1997
Date Rec: 3/7/97
Project: 17526
Proj Name: Chevron Pit
Proj Loc: Chevron, Eunice,NM

Lab Receiving # : 9703000099
Sampling Date: 3/5/97
Sample Condition: Intact and Cool
Sample Received By: JH

TA#	Field Code	MATRIX	TRPHC (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	M,P,O XYLENE (mg/Kg)	TOTAL BTEX mg/Kg
T68703	SS-6	Soil	93,500	0.329	0.250	0.235	1.29	2.10
T68704	SS-8	Soil	5,020	<0.050	0.361	<0.050	0.115	0.476
T68705	SS-2	Soil	6,350	<0.050	0.408	0.691	3.53	4.63
T68706	SS-5	Soil	164,000	0.274	0.110	0.114	0.518	1.02
T68707	SS-4	Soil	26,400	<0.050	0.133	<0.050	0.253	0.386
T68708	SS-3	Soil	22,800	<0.050	0.192	0.116	1.06	1.37
T68709	SS-7	Soil	42,100	0.927	0.574	0.195	1.22	2.92
T68710	SS-1	Soil	31,800	<0.050	1.46	0.753	4.74	6.95
QC			100	0.097	0.098	0.101	0.300	
RPD			1	2	2	1	1	
% Extraction Accuracy			109	96	98	101	98	
% Instrument Accuracy			100	97	98	101	100	
Reporting Limit:			10.000	0.050	0.050	0.050	0.050	

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: mg/Kg
BTEX	EPA 5030	3/9/97	EPA 8020	3/9/97	RW	0.100 ea	5 ea
TRPHC	EPA 3550	3/7/97	EPA 418.1	3/10/97	AG	100	250

Director, Dr. Blair Leftwich

3-11-97
Date

69092-104

214/215

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Jeffrey Kindley

Phone #: (915) 563-0118
FAX #: (915) 563-9526

Company Name & Address: Philip Environmental Services
7904 Interstate 20 West, Midland, Tx 79706

Project #: 17526

Project Name: Chevron

Project Location: Eunice, New Mexico

Sampler Signature: Jeffrey Kindley

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	MATRIX: SOIL	MATRIX: AIR	MATRIX: SLUDGE	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: NONE	SAMPLING: DATE	SAMPLING: TIME	ANALYSIS REQUEST: BTEX, MTBE	ANALYSIS REQUEST: TPH	ANALYSIS REQUEST: Total Metals Ag As Ba Cd Cr Pb Hg Se	ANALYSIS REQUEST: TCLP Metals Ag As Ba Cd Cr Pb Hg Se	ANALYSIS REQUEST: TCLP Volatiles	ANALYSIS REQUEST: TCLP Semi Volatiles	ANALYSIS REQUEST: RCI	ANALYSIS REQUEST: 8240 / 8260	ANALYSIS REQUEST: 8270	ANALYSIS REQUEST: Total Chlorides	ANALYSIS REQUEST: Electrical conductivity
69092	SB-6 (8-10')	1			✓					✓		03/11/97	1430	✓	✓								✓	✓
93	SB-6 (18-20')	1			✓					✓		03/11/97	1446	✓	✓								✓	✓
94	SB-5 (38-40')	1			✓					✓		03/11/97	1356	✓	✓								✓	✓
95	SB-4 (18-20')	1			✓					✓		03/11/97	1008	✓	✓								✓	✓
96	SB-2 (38-40')	1			✓					✓		03/10/97	1545	✓	✓								✓	✓
97	SB-3 (13-15')	1			✓					✓		03/10/97	1605	✓	✓								✓	✓
98	SB-1 (mw-1) (8-10')	1			✓					✓		03/10/97	1035	✓	✓								✓	✓
99	SB-3 (38-40')	1			✓					✓		03/10/97	1620	✓	✓								✓	✓
100	SB-2 (13-15')	1			✓					✓		03/10/97	1508	✓	✓								✓	✓
101	SB-1 (mw-1) (43-45')	1			✓					✓		03/10/97	1210	✓	✓								✓	✓
102	SB-5 (18-20')	1			✓					✓		03/10/97	1056	✓	✓								✓	✓

SPECIAL HANDLING: Turn around # of days; Fax ASAP; Hold

Relinquished by: Jeffrey Kindley Date: March 12, 1997 Time: 5:00 PM

Received by: Helen Shelton Date: 3-12-97 Time: 5:00 PM

Relinquished by: Helen Shelton Date: 3-12-97 Time: 6:00 PM

Received by: Date: Time:

Relinquished by: Date: Time:

Received at Laboratory by: J. O'Donnell Date: 3/18/97 Time: 9:30A

REMARKS: F 3-26-97 JH

Normal Turnaround.

Do not run fingerprint on 69104 per Jeff 3-18-97

Fingerprint sent out Seattle

CT. 11 samples - HS

7DAA

214/215

TraceAnalysis, Inc.

6701 Aberdeen Avenue Lubbock, Texas 79424
Tel (806) 794 1296 Fax (806) 794 1298
1 (800) 378 1296

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Jeffrey Kindley

Phone #: (915) 563-0118
FAX #: (915) 563-9526

Company Name & Address: Philip Environmental Services
7904 Interstate 20 west
Midland, Texas 79706

Project #: 17526

Project Name: Chevron

Project Location: Eunice N.M.

Sampler Signature: Jeffrey Kindley

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume/Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	SAMPLING: DATE	TIME
69103	SB-4 (3-5')	1			✓					✓		03/11/97	0942
104	MW-1 Product	1		✓							✓	03/11/97	1210

ANALYSIS REQUEST

BTEX, ~~MTBE~~	TPH	Total Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	8240 / 8260	8270	Total Chlorides	EC Conductivity	Fingerprint Analysis Cumene pH TK 3/19/97	Spot Fix County
✓	✓								✓	✓	✓	✓

SPECIAL HANDLING

Turn around # of days
Fax ASAP
Hold

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Jeffrey Kindley	March 13, 1997	5:00PM	Helen Shelton	8-12-97	5:00 PM
Helen Shelton	3-12-97	6:00PM	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received at Laboratory by:	Date:	Time:
				8/13/97	930A

REMARKS

Normal Turnaround

B

1/12 samples - HS

72AA

TRACE ANALYSIS, INC.
6701 Aberdeen Avenue Lubbock, Texas 79424 806•794•1296 FAX 806•794•1298

ANALYTICAL RESULTS FOR
Philip Environmental
Attention Jeff Kindley
7904 I-20 West
Midland TX 79706

Date: Mar 17, 1997
Date Rec: 3/13/97
Project: 17526
Proj Name: Chevron Pit
Proj Loc: Chevron, Eunice,NM

Lab Receiving # : 9703000214
Sampling Date: 3/10/97 - 3/11/97
Sample Condition: Intact and Cool
Sample Received By: JH

TA#	Field Code	MATRIX	TRPHC (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	M,P,O XYLENE (mg/Kg)	TOTAL BTEX mg/Kg
T69092	SB-6 (8-10')	Soil	21.5	<0.050	0.386	<0.050	0.054	0.440
T69093	SB-6 (18-20')	Soil	22.6	<0.050	<0.050	<0.050	<0.050	<0.050
T69094	SB-5 (38-40')	Soil	56.6	<0.050	0.070	<0.050	0.079	0.149
T69095	SB-4 (18-20')	Soil	<10.0	<0.050	<0.050	<0.050	<0.050	<0.050
T69096	SB-2 (38-40')	Soil	30,700	<0.100	<0.100	3.12	10.0	13.1
T69097	SB-3 (13-15')	Soil	21,400	0.555	1.55	0.220	1.07	3.40
T69098	SB-1 (MW-1) (8-10')	Soil	19,400	0.773	2.25	0.483	2.32	5.83
T69099	SB-3 (38-40')	Soil	1,190	<0.050	0.104	0.104	0.582	0.890
T69100	SB-2 (13-15')	Soil	27,200	1.23	10.5	3.48	15.0	30.2
T69101	SB-1 (MW-1) (43-45')	Soil	7,940	<0.050	<0.050	0.606	2.64	3.25
T69102	SB-5 (18-20')	Soil	25,700	0.620	1.82	0.335	0.953	3.81
T69103	SB-4 (3-5')	Soil	<10.0	<0.050	<0.050	<0.050	<0.050	<0.050
QC			100	0.099	0.100	0.101	0.295	
RPD			1	5	5	5	5	
% Extraction Accuracy			99	114	117	117	117	
% Instrument Accuracy			100	99	100	101	98	
Reporting Limit:			10.000	0.050	0.050	0.050	0.050	

TEST	PREP METHOD	PREP DATE	ANALYSIS METHOD	ANALYSIS COMPLETED	CHEMIST	QC: (mg/L)	SPIKE: mg/Kg
BTEX		3/14/97	EPA 8020	3/13/97	RW	0.100 ea	5 ea
TRPHC	EPA 3550	3/13/97	EPA 418.1	3/14/97	AG	100	250

Director, Dr. Blair Leftwich

3-17-97
Date

6701 Aberdeen Avenue
Lubbock, Texas 79424
806•794•1296
FAX 806•794•1298

ANALYTICAL RESULTS FOR
PHILIP ENVIRONMENTAL
Attention: Jeffrey Kindley
7904 IH-20 West
Midland, TX 79706

March 26, 1997
Receiving Date: 03/13/97
Sample Type: Soil
Project No: 17526
Project Location: Eunice, NM

Prep Date: 03/25/97
Analysis Date: 03/25/97
Sampling Date: 03/10-11/97
Sample Condition: Intact & Cool
Sample Received by: JH
Project Name: Chevron Pit

TA#	FIELD CODE	CHLORIDE (mg/kg)	SPECIFIC CONDUCTANCE (uMHOs/cm)
T69092	SB-6 (8-10')	24	500
T69093	SB-6 (18-20')	24	680
T69094	SB-5 (38-40')	500	2,900
T69095	SB-4 (18-20')	24	490
T69096	SB-2 (38-40')	450	1,800
T69097	SB-3 (13-15')	<5.0	230
T69098	SB-1 (MW1) (8-10')	9.4	410
T69099	SB-3 (38-40')	300	1,300
T69100	SB-2 (13-15')	24	450
T69101	SB-1 (MW1) (43-45')	540	2,400
T69102	SB-5 (18-20')	24	410
T69103	SB-4 (3-5')	24	380
QC	Quality Control	520	1,420
RPD		1	5
% Extraction Accuracy		102	---
% Instrument Accuracy		104	101
Reporting Limit		5.0	---

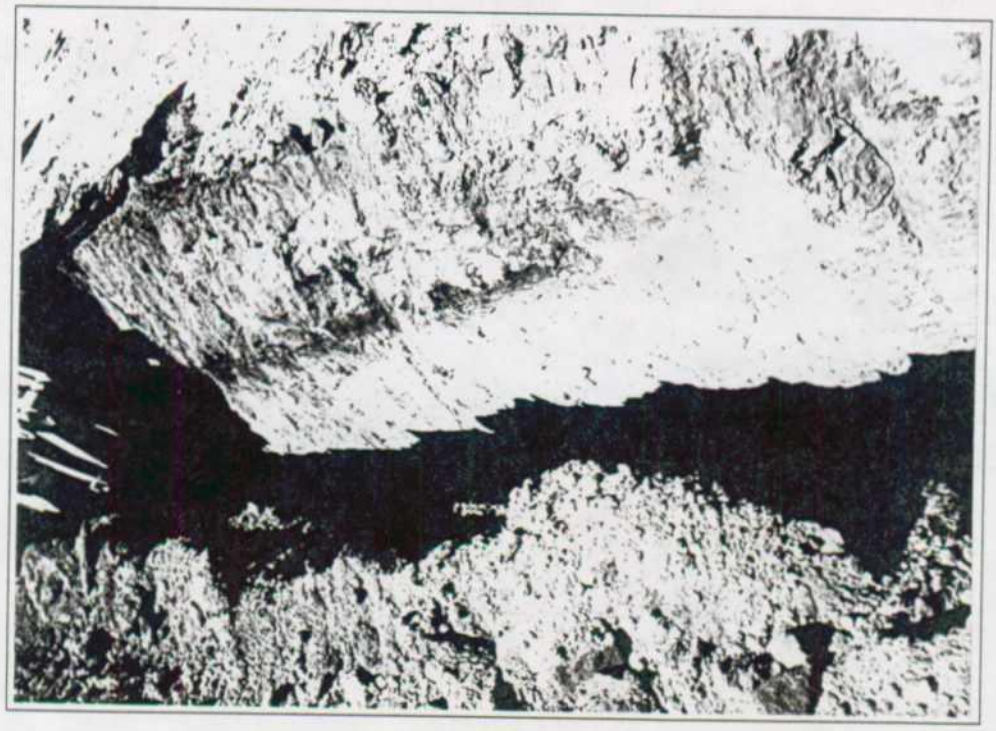
METHODS: EPA 120.1; SM4500 Cl-B
CHEMIST: MS
CHLORIDE SPIKE: 1,000 mg/kg CHLORIDE.
CHLORIDE QC: 500 mg/L CHLORIDE.

Director, Dr. Blair Leftwich

3-26-97
DATE

Trench trending north/south.

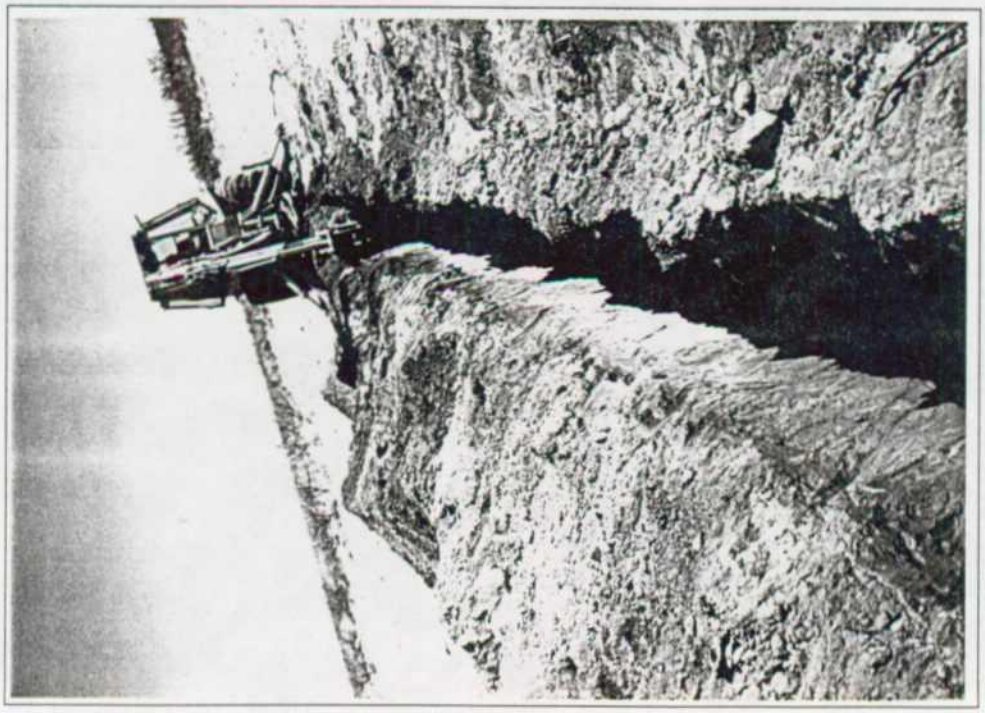
Trench trending north/south.



Staining in trench trending north/south.

Trench trending north/south.

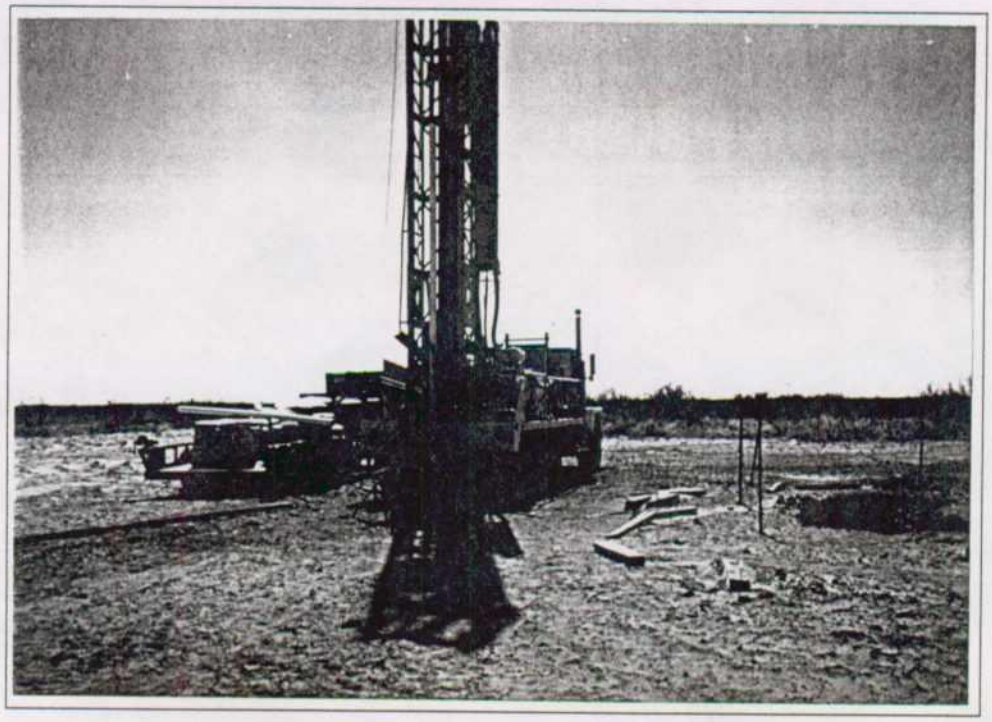
Trench trending north/south.



Trench trending east/west.

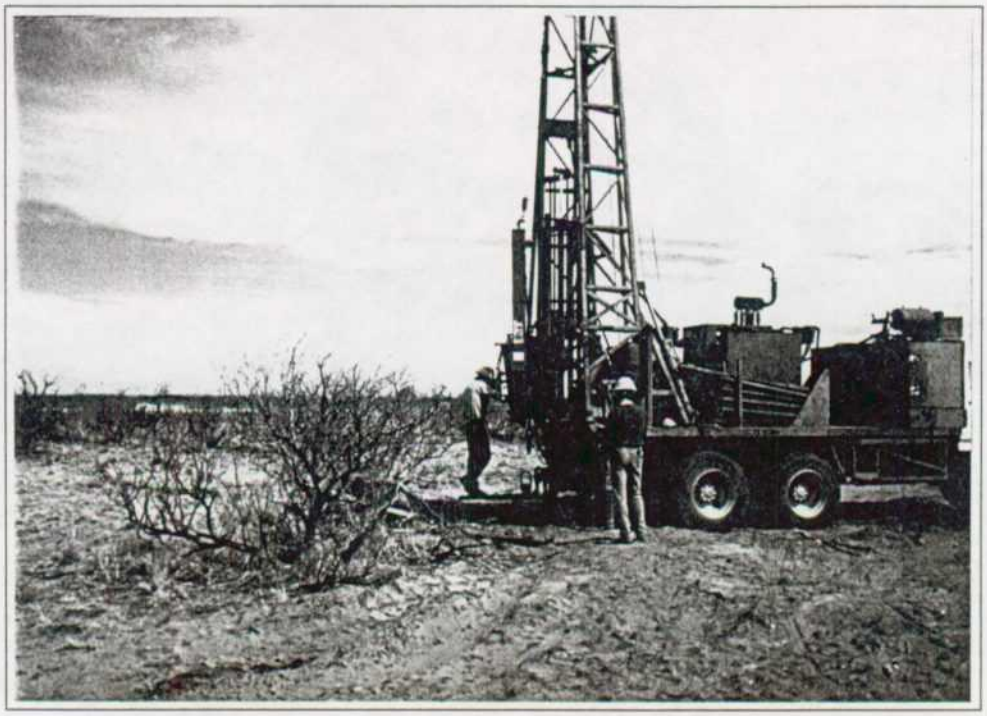
Backfilling of trenches.

Backfilled trench.



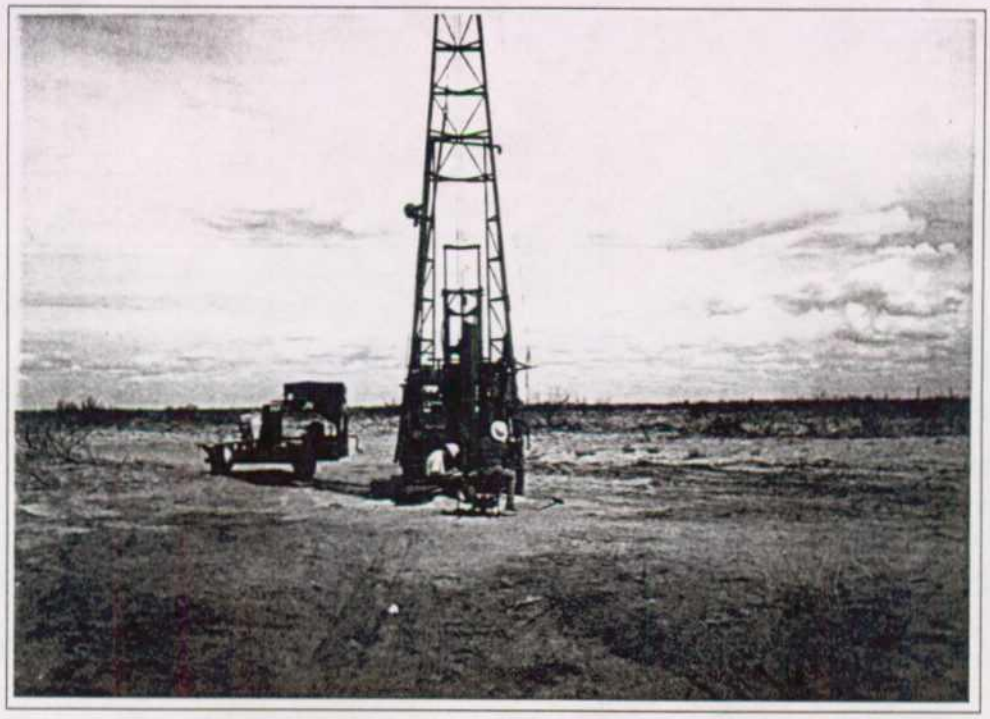
Installation of MW-1.

Drilling of boring SB-4.



Drilling SB-5.

Drilling SB-5.



Drilling SB-6.

Completed MW-1 with sample drum.

Completed boring SB-3.

Drill cuttings stockpiled on plastic.

Chevron

P.O. Box 1949
Eunice, NM 88231

March 12, 1997

Mr. William C. Olson
State of New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

RE: Notification of Groundwater Impact

Dear Mr. Olson,

This written notification of groundwater impacts follows the verbal notification given to you by Sharon Hall of Philip Environmental Services corporation on March 10, 1997. Philip Environmental was onsite at the Monument, New Mexico suspected pipeline spill/unlined pit location, and performed the scope of work described in the work plan approved by you on February 26, 1997.

One of the six soil borings installed at this site was advanced to a depth 45 feet below ground surface (bgs). Ground water and free phase hydrocarbons were present in the borehole, and the borehole was converted to a 4-inch monitoring well. Initial observation of the borehole indicated that the thickness of the free phase hydrocarbons appeared to be approximately two feet thick, (evidenced by staining of the measuring tape) as Ms. Hall reported in her verbal notification to you. Drilling of the borehole was witnessed by Mr. Wayne Price of the OCD Hobbs office.

The monitoring well was developed and the groundwater level was measured at a depth of 38.54 bgs, with a free phase product thickness of 0.19 feet. A sample of the free phase hydrocarbons has been collected and is being submitted for finger-print analysis.

Following receipt of the analytical data collected during this investigation, Chevron will submit a report of field activities and results.

Sincerely,

Donald R. Griffin

cc: Sharon Hall, Philip Environmental
Wayne Price, OCD Hobbs office

cc: B OLSON
J SEXTON

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

INSPECTION	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS

Name WAYNE PRICE Date 3-10-97 Miles _____ District I

Time of Departure 7 AM Time of Return 4 PM Car No. G 047

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature Wayne Price

CHEVRON PIT - COOPER RANCH

DON GRIFFIN CHEVRON - SHARON HALL PHILLIPS ENVR.

CAL WRANGHAM - WARREN PET

WITNESS MW DRILLING - SEE ATTACHED LOG

FOUND PSH ≈ 2' ON TOP of GROUND WATER

Mileage		Per Diem		Hours	
UIC		UIC		UIC	
RFA		RFA		RFA	
Other		Other		Other	

TYPE INSPECTION PERFORMED

H = Housekeeping
P = Plugging
C = Plugging Cleanup
T = Well Test
R = Repair/Workover
F = Waterflow
M = Mishap or Spill
W = Water Contamination
O = Other

INSPECTION CLASSIFICATION

U = Underground Injection Control - Any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, 2ndry injection and production wells, water flows or pressure tests, surface injection equipment, plugging, etc.)

R = Inspections relating to Reclamation Fund Activity

O = Other - Inspections not related to injection or The Reclamation Fund

E = Indicates some form of enforcement action taken in the field (know immediately below the letter U, R or O)

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D = Drilling
P = Production
I = Injection
C = Combined prod. inj. operations
S = SWD
U = Underground Storage
G = General Operation
F = Facility or location
M = Meeting
O = Other

Company Drilled for: CHEVRON

Location: SW of MONUMENT N.M. C-C OF OLD PIT

Drilling Log

Well/Bore Number:	Date Drilled:	Driller:	Logged By:
BH-1	3-10-97	HARRISON	PHILLIP

Drilling Method:	Depth of Boring:	Depth of Well:	Length of Casing:	Length of Screen:
ROTARY AIR	45'			

Bore Diameter:	Casing Diameter:	Screen Diameter:	Slot Size:	Well Material:
≈ 6"				

Depth	Lithology	Sample Type	OVA (PPM)	Remarks	Well Design	Depth
0	cuttings DARK STAINED OILY SOIL	SPLIT SPOON	PID	PHILLIP ENVR.		0
30	CAL/LIMESTONE/SAND	lt CREAM color	>2000	PID ODOR/VISUAL YES		30
35	CAL SAND	BROWN	900	PID ODOR		35
40	CAL SAND - MOIST	BROWN	1000	PID ODOR YES		40
45	RED BED CLAY	OILY				45

LET HOLE SET CHECKED WATER LEVEL - FOUND ≈ 2' OIL (PSH) ON WATER TABLE - OIL AT 36', WATER AT 38'

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 1147	Date 3/10/97

Originating Party	Other Parties
Sharon Hall - Phillips Environmental	Bill Olson - Envir. Bureau voice mail

Subject

Chevron/Warren Monumant Site Ground Water Notification

Discussion

During boring for soils investigation hit Ground Water at 38'.
Free phase product on water
Installing monitor well

Conclusions or Agreements

Will send followup written notification

Distribution

file
Wayne Price - OCD Hobbs

Signed Bill Olson

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

February 26, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-269-269-265

Mr. Don Griffin
Chevron USA Production Co.
P.O. Box 670
Hobbs, New Mexico 88240

RE: INVESTIGATION WORK PLAN
PIPELINE SPILL/UNLINED PIT
MONUMENT, NEW MEXICO

Dear Mr. Griffin:

The New Mexico Oil Conservation Division (OCD) has reviewed Chevron U.S.A. Production Company's (Chevron) February 24, 1997 "PHASE II SITE ASSESSMENT OF A PROPERTY LOCATED NEAR EUNICE, NEW MEXICO" which was submitted on behalf of Chevron by their consultant Philip Environmental. This document contains Chevron's work plan for investigation of the extent of contamination related to a former unlined pit near Monument, New Mexico.

The above referenced work plan is approved with the following conditions:

1. All soil sampling and analysis will be conducted using EPA approved methods and quality assurance/quality control.

2. The report on the investigation activities will be submitted to the OCD by April 25, 1997. The report will include:

   a. A description of all activities which occurred during the investigation, including conclusions and recommendations.

   b. A map showing all pertinent site features and sampling locations.

   c. Litholgic logs of the boreholes.

   d. A summary of the soil sampling results as well as the copies of all laboratory analyses and associated quality assurance quality control data.

3. Chevron will notify the OCD at least 48 hours in advance of all scheduled activities such that the OCD has the opportunity to witness the events and/or split samples.

4. All documents submitted for approval will be submitted to the OCD Santa Fe Office with copies provided to the OCD Hobbs District Office.

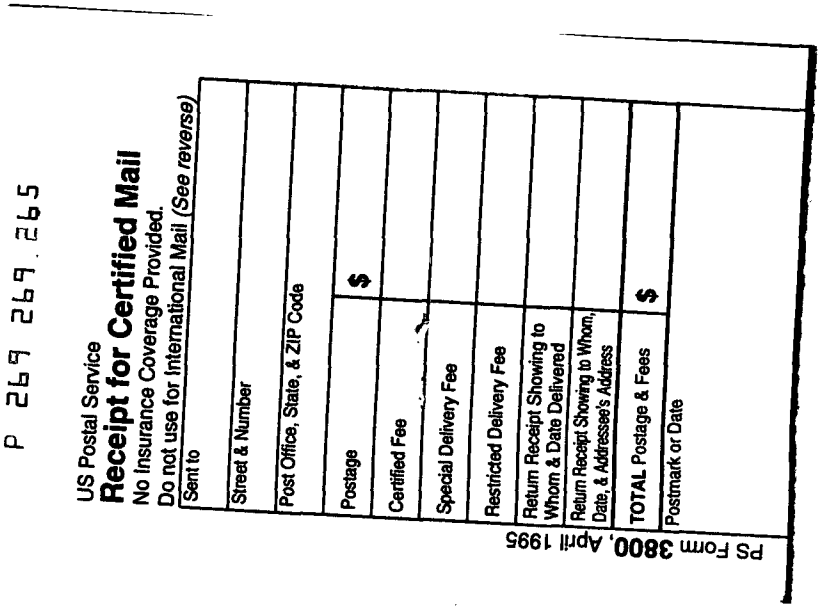
Please be advised that OCD approval does not relieve Chevron of liability should contamination exist which is outside the scope of work plan, or if the proposed work plan fails to the adequately investigate the extent of contamination related to Chevron's pit. In addition, OCD approval does not relieve Chevron of responsibility for compliance with any other federal, state or local laws and/or regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

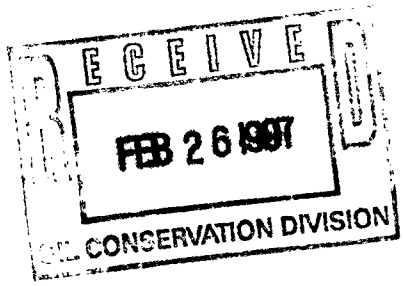
William C. Olson
Hydrogeologist
Environmental Bureau

xc: Jerry Sexton, OCD Hobbs District Supervisor
Wayne Price, OCD Hobbs Office
Sharon Hall, Philip Environmental



PHILIP
ENVIRONMENTAL

Environmental Services Group
Southern Region



February 24, 1997
Project Number 17526

Mr. Donald R. Griffin
Chevron U.S.A. Production Company
2401 Avenue O
Eunice, New Mexico 88231

SUBJECT: PHASE II SITE ASSESSMENT OF A PROPERTY LOCATED NEAR EUNICE, NEW MEXICO

Dear Mr. Griffin,

Philip Environmental Services Corporation (Philip) is pleased to submit this proposed workplan for the above-referenced site. The following proposal is based on a site walk and discussions between Mr. Donald Griffin of Chevron U.S.A. Production Company (Chevron) and Ms. Sharon Hall of Philip.

PROJECT BACKGROUND

Chevron has requested a proposed workplan to perform site investigation activities at a former suspected pit location. The purpose of the site investigation is to identify if soil has been impacted by oil and gas production activities that have been conducted at the subject property. The suspected pit was reported by the landowner to have been used as a burn pit. The site was purchased by Chevron from Conoco, and the suspected pit was closed prior to Chevron's purchase of the property.

SCOPE OF WORK

Based on the information available, Philip proposes the following Scope of Work:

Task 1 Aerial Photography and Development of a Site Map

Philip will obtain available aerial photographs of the subject site, and will develop a site map identifying the locations of visible surface impacts and areas of operations. The scale and number of aerial photos used to develop the site map will depend on the availability of aerial photographs of the subject property.

Task 2 Assessment of Former Suspected Pit Area

Prior to assessment of the subject area, Philip will perform a NORM screening of surface soils. Following NORM screening of the surface, Philip will utilize a backhoe to trench the area of concern. The area will be trenched lengthwise and crosswise to a depth of approximately five feet, or a depth practicable using the backhoe. Four soil samples from each of the trenches will be collected using the bucket of the backhoe. The samples will be submitted for laboratory analysis for Total Petroleum Hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), total chlorides, and electrical conductivity (EC).

In addition to the trenching described above, six boreholes will be advanced in the subject area. The borings will be continuously sampled during drilling. The soil samples will be screened in the field for volatile organic compounds (VOCs) by a Philip representative using a photoionization detector (PID), and

PHILIP ENVIRONMENTAL SERVICES CORPORATION
7904 Interstate 20 West • Midland, TX 79706
(915) 563-0118 • Fax (915) 563-9526

will be inspected visually for evidence of staining. Borings will be advanced to a depth where no VOCs are detected and no staining is observed. Two soil samples from each borehole, the soil sample exhibiting the highest PID value and the soil sample collected from total depth of the boring, will be submitted for laboratory analysis for TPH, BTEX, total chlorides, and EC.

Task 3 Data Evaluation and Report Preparation

Philip will prepare a report that includes a summary of field activities and sampling methodologies, lithologic description of the boreholes (and monitoring wells), field screening results, water level information (if determined), site photographs, and laboratory analytical results.

SCHEDULE

Philip will initiate project activities immediately and will mobilize to the site within one week of notification by Chevron to begin work. Field activities are expected to be completed in five 10-hour days. Philip will submit the report to Chevron within three weeks of receipt of the final laboratory results. This schedule is negotiable based on time constraints.

Thank you for the opportunity to submit a proposal for this project. If you have any questions or would like additional information, please call me at (915) 563-0118.

Sincerely,

PHILIP ENVIRONMENTAL
SERVICES CORPORATION

Sharon E. Hall
Operations Manager

PHILIP ENVIRONMENTAL

Environmental Services Group
Southern Region

February 24, 1997
Project Number 17526

Mr. Donald R. Griffin
Chevron U.S.A. Production Company
2401 Avenue O
Eunice, New Mexico 88231

SUBJECT: PHASE II SITE ASSESSMENT OF A PROPERTY LOCATED NEAR EUNICE, NEW MEXICO

Dear Mr. Griffin,

Philip Environmental Services Corporation (Philip) is pleased to submit this proposed workplan for the above-referenced site. The following proposal is based on a site walk and discussions between Mr. Donald Griffin of Chevron U.S.A. Production Company (Chevron) and Ms. Sharon Hall of Philip.

PROJECT BACKGROUND

Chevron has requested a proposed workplan to perform site investigation activities at a former suspected pit location. The purpose of the site investigation is to identify if soil has been impacted by oil and gas production activities that have been conducted at the subject property. The suspected pit was reported by the landowner to have been used as a burn pit. The site was purchased by Chevron from Conoco, and the suspected pit was closed prior to Chevron's purchase of the property.

SCOPE OF WORK

Based on the information available, Philip proposes the following Scope of Work:

Task 1 Aerial Photography and Development of a Site Map

Philip will obtain available aerial photographs of the subject site, and will develop a site map identifying the locations of visible surface impacts and areas of operations. The scale and number of aerial photos used to develop the site map will depend on the availability of aerial photographs of the subject property.

Task 2 Assessment of Former Suspected Pit Area

Prior to assessment of the subject area, Philip will perform a NORM screening of surface soils. Following NORM screening of the surface, Philip will utilize a backhoe to trench the area of concern. The area will be trenched lengthwise and crosswise to a depth of approximately five feet, or a depth practicable using the backhoe. Four soil samples from each of the trenches will be collected using the bucket of the backhoe. The samples will be submitted for laboratory analysis for Total Petroleum Hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), total chlorides, and electrical conductivity (EC).

In addition to the trenching described above, six boreholes will be advanced in the subject area. The borings will be continuously sampled during drilling. The soil samples will be screened in the field for volatile organic compounds (VOCs) by a Philip representative using a photoionization detector (PID), and

PHILIP ENVIRONMENTAL SERVICES CORPORATION
7904 Interstate 20 West • Midland, TX 79706
(915) 563-0118 • Fax (915) 563-9526

will be inspected visually for evidence of staining. Borings will be advanced to a depth where no VOCs are detected and no staining is observed. Two soil samples from each borehole, the soil sample exhibiting the highest PID value and the soil sample collected from total depth of the boring, will be submitted for laboratory analysis for TPH, BTEX, total chlorides, and EC.

Task 3 Data Evaluation and Report Preparation

Philip will prepare a report that includes a summary of field activities and sampling methodologies, lithologic description of the boreholes (and monitoring wells), field screening results, water level information (if determined), site photographs, and laboratory analytical results.

SCHEDULE

Philip will initiate project activities immediately and will mobilize to the site within one week of notification by Chevron to begin work. Field activities are expected to be completed in five 10-hour days. Philip will submit the report to Chevron within three weeks of receipt of the final laboratory results. This schedule is negotiable based on time constraints.

Thank you for the opportunity to submit a proposal for this project. If you have any questions or would like additional information, please call me at (915) 563-0118.

Sincerely,

PHILIP ENVIRONMENTAL SERVICES CORPORATION

Sharon E. Hall

Sharon E. Hall
Operations Manager

PHILIP ENVIRONMENTAL

FAX TRANSMITTAL
FROM THE OFFICE OF:

SHARON HALL
OPERATIONS MANAGER

7904 Interstate 20 West
Midland, Texas 79706
Telephone: (915) 563-0118
Fax: (915) 563-9526

TO: Wayne Price / Bill Olson
DATE :2/25/97 FAX # 505 393-0720 / 505 827-~~7193~~ 8177

NUMBER OF PAGES INCLUDING COVER 3

MESSAGE: Attached is a copy of the workplan for assessment activities to be performed at Chevron's former suspected pit location located near Eunice. Hard copies will be sent in overnight mail tonight. If you have any questions, please call Don Griffin (Chevron) at (505) 394-1237 or Sharon Hall (Philip Environmental) at (915) 563-0118.

IF TRANSMISSION IS NOT COMPLETE, PLEASE CALL:
(915) 563-0118