ENVIROMENTAL SITE ASSESSMENT WORKPLAN

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 0830	Date 10/24/96

Originating Party	Other Parties
Sam Small - Amerada Hess	Bill Olson - Envir. Bureau

Subject

NMGSAU Battery No. 5

Discussion

He requested approval for 10/10/96 plan to landfarm soil from above site at the Monument site

Conclusions or Agreements

I gave verbal approval with following condition
1) Report will be submitted upon completion of landfarming

Distribution
file < ~~NMGSAU Battery #5~~ AHC Monument
OCD Hobbs Office
Sam Small - Amerada Hess

Signed Bill Olson

AMERADA HESS CORPORATION

SAMUEL W. SMALL, PE
OFFICE 915/758-6741
FAX 915/758-6768

P.O. BOX 840
SEMINOLE, TEXAS 79360
915/758-6700

October 10, 1996

New Mexico Oil Conservation Division
Environmental Bureau
2040 S. Pacheco
Santa Fe, New Mexico 87505

Attn: Mr. William C. Olson

Re: **REQUEST FOR OFFSITE REMEDIATION**
NMGSAU Battery No. 5
Monument Field
Lea County, New Mexico

Amerada Hess Corporation (AHC) requests permission to move hydrocarbon contaminated 'soil' from the abandoned NMGSAU battery #5 site (Chevron Kutter 'C') to the recently closed trash pit site located southwest of AHC's Monument Area Office for the purpose of offsite remediation. (see plat for site locations) Moving the 'soil' is necessary to expedite clean up of the abandoned site so that a NMGSAU satellite facility can be installed at the location and also to prevent disturbing additional surface acreage in the vicinity of the abandoned battery. The #5 battery site is located on State land and the closed trash pit is located on land owned by AHC; both sites being situated within the AHC operated NMGSA Unit boundary. There is approximately 453 cubic yards of material to move and field tests indicate TPH concentrations ranging from 29,800 ppm to 13,800 ppm. The 'soil' is contaminated with San Andres oil produced from Chevron's Kutter 'C' lease before it was incorporated into the Unit. There is no reason to suspect contamination with any RCRA non-exempt or regulated substances. BTEX concentrations will be determined after the 'soil' is moved because the 'soil' has been excavated and is currently exposed to the atmosphere. BTEX concentrations will be decreasing and current concentrations will not accurately reflect the concentrations when the 'soil' is relocated.

The AHC trash pit site was closed during 1995. Prior to commencing cleanup work at the pit site an assessment was performed which included the drilling of 3 boreholes to evaluate the condition of any subsurface water beneath the site. The results and Environmental contractor's evaluation are attached and indicate that there is little or no groundwater movement and that a significant quantity of clay exists between the surface and the water table. Remediation will be by natural attenuation with some nutrients added to reduce the amount of time required. Lifts will be kept to 12" or less and the 'soil' will be disced and watered at regular intervals. The 'soil' will be remediated to a TPH concentration below 5000 ppm and BTEX concentration below 100 ppm. AHC anticipates leaving the remediated material on site. No more than 1400 cubic yards of material will be moved to the site so all conditions for a Rule 711 permit exemption are met.

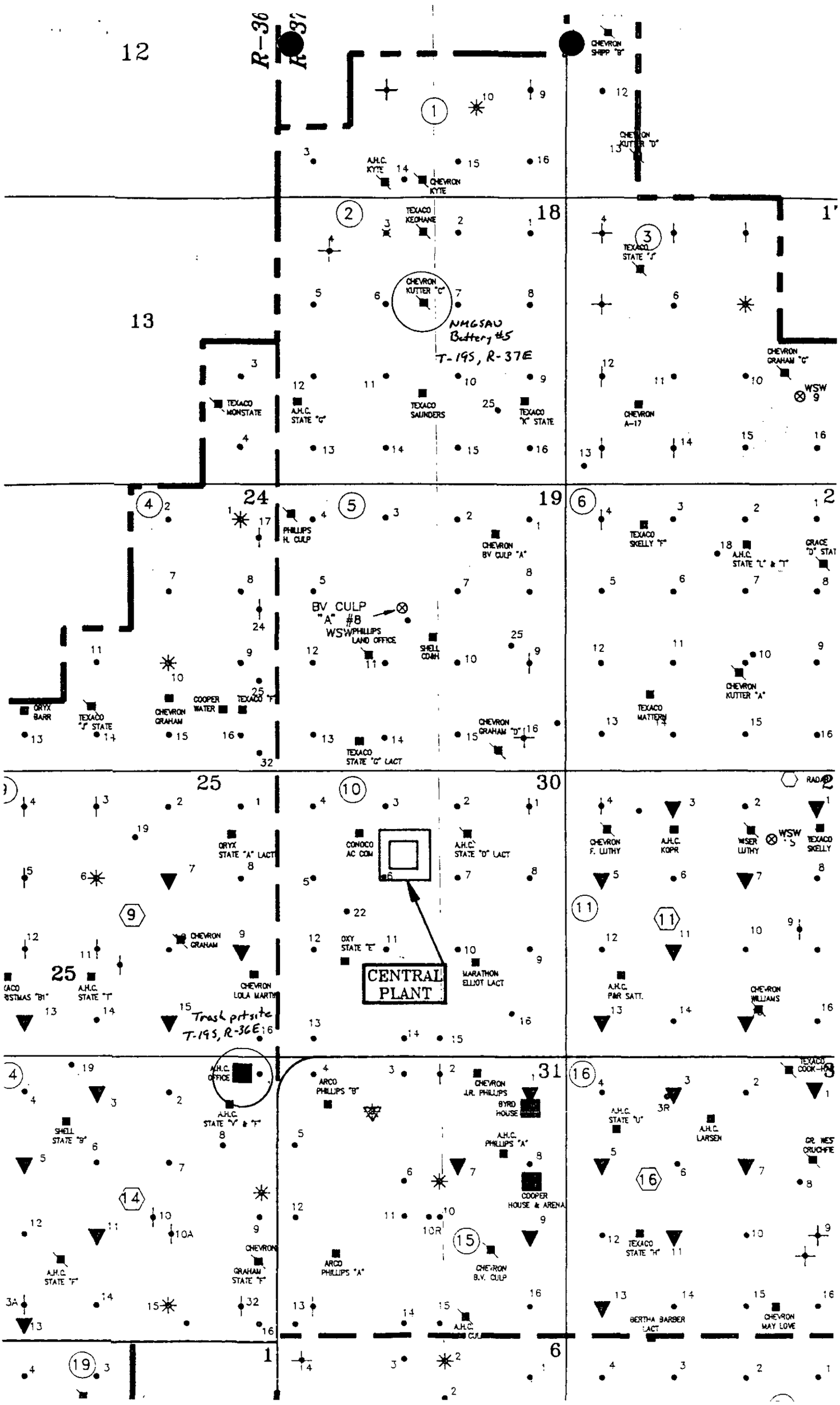
AHC believes that moving the 'soil' offsite for remediation is preferable to remediationg onsite and the trash pit site provides an ideal and safe location for performing the remediation activities. This remediation option has been discussed with the Hobbs District NMOCD representative and he had no objections.

If you have any questions please call the undersigned at (915) 758-6741. Your timely consideration of this request is appreciated as construction of the satellite is to commence as soon as approval is received.

Sincerely,

Samuel W. Small, PE
Environmental Coordinator

xc: NMOCD - Hobbs District
Houston Environmental File
Seminole District File
Monument Area File


R-36
R-37
12
13
18
19
24
25
30
31
1
6
CHEVRON SHIPP "B"
CHEVRON KUTTER "D"
A.H.C. KYTE
CHEVRON KYTE
TEXACO KEOHANE
CHEVRON KUTTER "C"
NMGSAU Battery #5
T-19S, R-37E
TEXACO STATE "J"
CHEVRON GRAHAM "C"
WSW 9
TEXACO MONSTATE
A.H.C. STATE "G"
TEXACO SAUNDERS
TEXACO "K" STATE
CHEVRON A-17
PHILLIPS H. CULP
CHEVRON BV CULP "A"
BV CULP "A" #8
WSW PHILLIPS LAND OFFICE
SHELL COM
TEXACO SKELLY "F"
A.H.C. STATE "L" & "T"
GRACE "D" STAT
ORYX BARR
TEXACO "J" STATE
CHEVRON GRAHAM
COOPER WATER
TEXACO "F"
TEXACO STATE "G" LACT
CHEVRON GRAHAM "D"
CHEVRON KUTTER "A"
TEXACO MATTERN
ORYX STATE "A" LACT
CONOCO AC COM
A.H.C. STATE "D" LACT
A.H.C. KOPR
WISER LUTHY
WSW 5
TEXACO SKELLY
CHEVRON F. LUTHY
CHEVRON GRAHAM
OXY STATE "E"
CENTRAL PLANT
MARATHON ELLIOT LACT
A.H.C. P&R SATT.
CHEVRON WILLIAMS
A.H.C. STATE "T"
CHEVRON LOLA MARTIN
Trash pit site
T-19S, R-36E
A.H.C. OFFICE
A.H.C. STATE "V" & "T"
SHELL STATE "B"
ARCO PHILLIPS "B"
CHEVRON J.R. PHILLIPS
BYRD HOUSE
A.H.C. PHILLIPS "A"
COOPER HOUSE & ARENA
A.H.C. STATE "U"
A.H.C. LARSEN
A.H.C. STATE "F"
CHEVRON GRAHAM STATE "F"
ARCO PHILLIPS "A"
CHEVRON B.V. CULP
TEXACO STATE "H"
BERTHA BARBER LACT
CHEVRON MAY LOVE

similar product. Drums 20 and 23 were found to contain virgin Scale Preventive which can be either water or solvent based, but contains highly flammable components. Drum 19 is believed to contain virgin Breaxit which is an organic acid. The contents of Drums 13 and 21 could not be classified, based on the information available.

D. Subsurface Investigation

Drilling and monitor well installation during this investigation was conducted by Eades Water Well Drilling & Pump Service of Hobbs, New Mexico. On December 9, 1992, three soil borings were advanced using rotary air drilling techniques. Drill cuttings and returns were monitored continuously while drilling. Soil samples were collected for examination approximately every 10 feet.

The lithology was determined based primarily on visual observation, drilling characteristics, and the examination of returns. Selected soil samples were placed in zip-lock plastic bags, sealed and screened for hydrocarbon vapor concentrations with an Hnu photo-ionization detector (PID). No volatile compounds were detected during drilling operations, and no soil samples were retained for laboratory analysis. Drilling and sampling equipment was decontaminated after each soil boring to eliminate the potential for cross-contamination.

The locations for the three soil borings were selected based on the apparent regional groundwater gradient. Regional groundwater flow was anticipated to be southeasterly based on topography, regional stratigraphy, and local sources knowledgeable in subsurface conditions. Since the precise boundary of the pit was unknown, borings were located outside the suspected boundary of the pit to avoid disturbing possible buried materials, or penetrating any

impermeable strata beneath the pit which could create a vertical migration pathway. Therefore, one boring (MW-1) was positioned in a upgradient position at the northwest corner spoils area, while the other two borings (B-2 and B-3) were positioned in a relative downgradient position.

One of the soil borings, soil boring B-1, was converted to monitor well MW-1. Monitor well MW-1 was completed 60 feet below the surface, using 4-inch diameter flush joint schedule 40 PVC well material. A 15 foot screened interval was set from 45 to 60 feet below the surface using 0.020-inch slotted well screen with 45 feet of solid riser to the surface. The well was completed in an upright fashion within a four foot square concrete pad. The Monitor Well Construction Diagram is provided in Appendix 4.

The relative elevations between the borings were surveyed using a level. The top of the concrete pad was given the arbitrary elevation of 100 feet above sea level, and the two other borings elevations were measured in relation to it. The relative ground elevation at soil boring B-2 was 97.67 feet, and 99.60 feet at B-3.

TABLE 2
Relative Elevations of MW-1, B-2, B-3

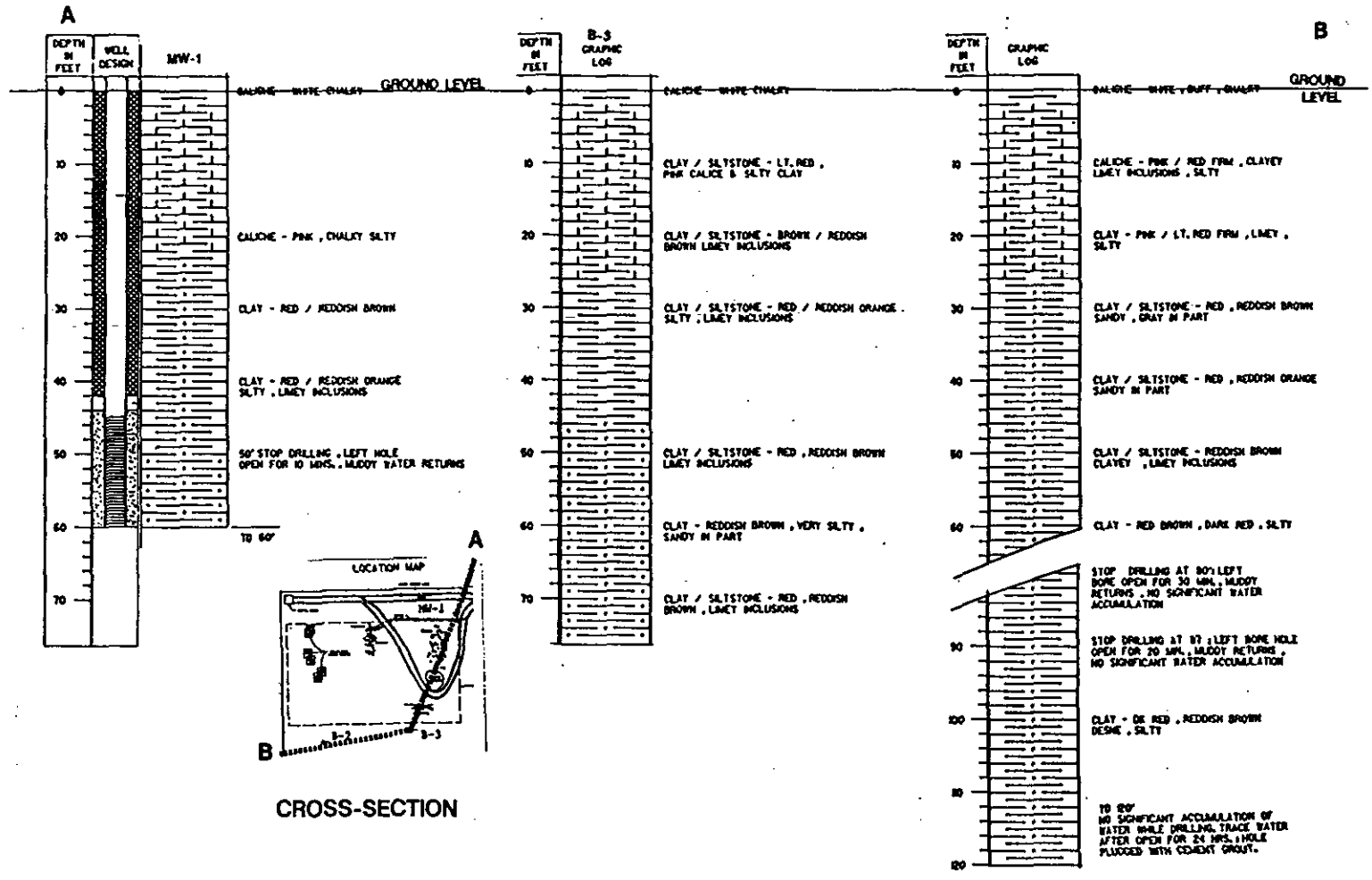
MW-1	100.00 ft
B-2	97.67 ft
B-3	99.60 ft

A cross-section constructed from the boring logs appears on the next page. Since there was only a minor relative difference in surface elevations between the borings no corrections were made. The cross-section does not reveal any significant correlation between the borings. There is no correlation of water-

bearing zones between MW-1 and B-2, and B-3. Boring B-3 exhibited the greater sand content but it did not correlate to either of the other borings.

Monitor Well MW-1 / Soil Boring B-1

Soil boring B-1 was drilled to 60 feet below the surface. Caliche was encountered from approximately 1 to 20 feet below the surface. Red silty clay was encountered from approximately 20 to 60 feet below the surface. The returns were dry from 0 to 50 feet. An increase in sand content was observed in samples collected from 50 to 60 feet. Also, a water-bearing zone was encountered at approximately 50 feet below the surface as indicated by muddy returns. To confirm the presence of a viable water-bearing zone, drilling and air circulation were halted, the drill string was raised approximately 10 feet off-bottom, and the hole was left static to allow for possible groundwater infiltration. After approximately 10 minutes, the hole was reamed and air circulation was begun which resulted in watery returns confirming the presence of a water-bearing zone. The boring was advanced to 60 feet below the surface and the same procedure was performed to allow for water infiltration. Again, the watery returns indicated that the water-bearing zone was viable for completion of a monitoring well. Sand pack and bentonite were used to set well screen and casing, and the concrete grout was set around the cased portion of the well the following day.



CROSS-SECTION

CROSS-SECTION AT MONUMENT

Carter-Burgess

CARTER & BURGESS, INC.

SHEET

OF SHEETS

C & B PROJECT NO. 92139701F

Soil Boring B-2

Soil boring B-2 was drilled to a depth of 120 feet below the surface. In general, caliche was encountered from 1 to 20 feet below the surface and red to reddish brown silty clay was encountered from 20 to 120 feet. The formation became increasingly dense and darker in color from 90 to 120 feet below the surface. Drilling and air circulation was halted at two different intervals to determine if water-bearing zones were present in B-2.

Dry returns were observed from 0 to 80 feet below the surface, but increased moisture and stiff muddy returns at 80 feet indicated the presence of a possible water-bearing zone. Circulation was halted, the drill string was raised off bottom, and the hole was left static for 30 minutes. Returns after 30 minutes consisted of stiff mud clumps, but no significant indication of a water-bearing zone were observed. The hole was advanced to 87 feet and circulation was again halted, the drill string raised and the hole left static. Again, no significant indications of a water-bearing zone were observed. The hole was advanced to a total depth of 120 feet below the surface with relatively dry returns and no water-bearing zones encountered.

Soil boring B-2 was allowed to stand open overnight. On the morning of December 10, 1992, a hand bailer was lowered into the bore hole, but only minor amounts of muddy water were present in the bore hole. There was no significant accumulation of water and approximately the lower 30 feet of the borehole had collapsed. The hole was subsequently grouted to the surface.

Soil Boring B-3

Soil boring B-3 was drilled to a depth of 80 feet below the surface. In general, caliche was encountered from 1 to 20 feet below the surface and red

to reddish brown silty clay was encountered from 20 to 80 feet. The formation became increasingly silty and sandy in the interval from 50 to 80 feet below the surface. Dry returns were observed from 0 to the total depth of 80 feet below the surface when drilling was halted. No moisture or muddy returns were observed, and no significant indications of a water-bearing zone were observed. Soil boring B-3 was left to stand open overnight. A hand bailer was lowered into the bore hole on the morning of December 10, 1992, and only minor amounts of mud and silt were present on the bailer and in the bore hole. The hole was subsequently grouted to the surface.

E. Analytical Results

On December 10, 1991, monitor well MW-1 was purged using a submersible (Grundfos) pump and allowed to recharge in preparation for sampling. The well was producing approximately 2-3 gallons per minute without a significant reduction in the water level. Approximately 200 gallons of groundwater were purged into a trailer-mounted steel tank by Eades Drilling. Static water level was measured prior to purging with an electronic water level indicator at 37.0 feet from the top of casing (34.0 feet below the surface). Subsequent water level measurements were within 1/10 of a foot.

Groundwater samples were obtained using a teflon bailer lowered into the well with a clean (virgin) nylon rope. Groundwater samples were placed in clean, laboratory-supplied containers, stored on ice, and transported to Analytical Laboratories Inc. in Albuquerque, New Mexico within twenty-four hours of the sampling event. A summary of analytical results appear in Table 3. The analytical report is included as Appendix 5.

TABLE 3
MW-1 Groundwater Sample Results

PARAMETER	LABORATORY RESULT	FIELD RESULT
Total Organic Carbon	6.9 mg/l	--
Carbonate ($CaCO_3$)	<1 mg/l	--
Bicarbonate ($CaCO_3$)	477 mg/l	--
Hydroxide ($CaCO_3$)	<1 mg/l	--
Total Alkalinity (as $CaCO_3$)	477 mg/l	--
Chloride (EPA 325.2)	460 mg/l	--
Conductivity (uMhos/cm)	2790	3200
Fluoride (EPA 353.2)	1.6 mg/l	--
Nitrate (EPA 353.2)	25.4 mg/l	--
Sulfate (EPA 375.2)	280 mg/l	--
pH (EPA 150.1)	7.3 units	6.9
Total Dissolved Solids (160.1)	2000 mg/l	2200 mg/l

III. CONCLUSIONS AND RECOMMENDATIONS

Of the materials that were observed, the pit was found to contain varying quantities of oil field waste materials which are nonhazardous.

Based on observations made at the site the investigation and subsequent laboratory results, there does not appear to be a significant threat to groundwater resulting from the surface and near surface debris. The water-bearing zone encountered in MW-1 was not encountered in either soil boring B-1 or B-2 which indicates lateral migration beneath the site in a water-bearing zone is unlikely. Furthermore, vertical migration appears unlikely based on the apparent impermeable nature of the "red-bed" clay strata which lie beneath the area.

Although, a water-bearing zone was encountered in MW-1, groundwater monitoring wells were not installed at soil boring B-2 and B-3 because field observations indicated that a well would not produce sufficient recharge to adequately sustain sampling, monitoring, or accurately reflect groundwater conditions. As a result, a groundwater gradient map cannot be made. Laboratory results of groundwater sampled from MW-1 do not indicate unusual groundwater conditions, and there were no significant hydrocarbon vapors detected in any of the three soil borings which would indicate the presence of volatile hydrocarbon-based materials.

It is recommended, however, that Amerada Hess remove the waste materials for proper disposal and cap the area with native soils. The presence of the pit creates an attractive nuisance and encourages continued dumping of waste materials. Eventually, hazardous materials could be deposited in the pit which would require more costly clean-up in the future and expose Amerada Hess to potential liability as owner of the property.