AP - 002

STAGE 1 & 2 WORKPLANS

DATE:

April 1998

GRIMES BATTERY and TASKER ROAD
STAGE 1 ABATEMENT WORKPLAN

April 1998

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1.0 INTRODUCTION

The subjects sites are located in west Hobbs, New Mexico. The Grimes site is a former tank battery location that was decommissioned in 1993. The Tasker site consists of two residential properties; one currently occupied and one under construction (**Figure 1**). Assessment activities were recently performed at each of the sites, and the results of the assessment activities were submitted to the New Mexico Oil Conservation Division (NMOCD).

2.0 SITE HISTORY

2.1 GRIMES BATTERY

The subject site is a former tank battery location on the Grimes Lease, currently operated by Altura Energy LTD. According to Altura Energy LTD's remediation workplan submitted for this property, the site has been in use as an oilfield tank battery since 1946. The tank battery was decommissioned in 1993. In September 1997, Altura Energy LTD. submitted a workplan for the remediation of oil impacted soil at the subject site. Following removal of tanks and equipment at the battery location, Altura Energy LTD. representatives excavated soils in an area that was suspected to have been a former emergency pit. Soils were excavated to a depth of approximately 14 feet below ground surface (bgs). A total of 4,259.58 cubic yards of soil were excavated and transported to Sundance Services, Inc., Parabo Disposal Facility located in Eunice, New Mexico. According to Altura Energy LTD. personnel, the soils were screened on-site for total petroleum hydrocarbons (TPH). Removal of these soils is likely to have removed a potential source of groundwater impacts.

Philip representatives were on-site December 5 and December 8, 1997, to oversee the installation of a temporary monitor well and monitor well at the former battery site (**Figure 2**).

The groundwater sample collected from temporary monitor well TMW-1 exhibited concentrations in excess of Human Health Standards for groundwater as outlined in New Mexico Water Quality Control Commission, Title 20, Chapter 6, Part 2 (20 NMAC 6.2), section 3103 for benzene (0.044 mg/L), methylene chloride (0.110 mg/L) and phenols (0.14 mg/L). The 20 NMAC 6.2 Human Health Standards for these constituents are 0.01 mg/L, 0.10 mg/L, and 0.005 mg/L, respectively. Methylene chloride is a commonly used cleaning agent for the decontamination of laboratory equipment, and may have been detected as a result of laboratory procedures.

The groundwater sample collected from monitor well MW-1 exhibited a phenols concentration of 0.15 mg/L, which is in excess of the 20 NMAC 6.2 Human Health Standard of 0.005 mg/L.

No other analytes exhibited concentrations in excess of 20 NMAC 6.2 Human Health Standards in either of the groundwater samples. Of a total 83 compounds analyzed, 52 were not detected in the samples.

Analytical results and details of assessment activities can be found in the report prepared by Philip Services Corporation entitled *Grimes Battery Soil and Groundwater Assessment Report.*

2.2 TASKER ROAD

The subject site is located at 1331 and 1329 Tasker Road, Hobbs, New Mexico. The site consists of two residential properties; one currently occupied and one under construction. As a result of the construction activities, an asphalt-like layer was observed to be present at the site. The layer occurs at a depth of approximately one to two feet below ground surface (bgs) and varies in thickness from several inches to several feet across the properties. The asphalt-like substance appears to be oil that may have been spread on the ground under normal operating practices in the 1940's.

Shell representatives sampled the material in November 1997, and analyzed the samples for total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, and xylenes (BTEX); total chlorides, and TCLP metals.

Analysis of TCLP metals indicates that all constituents analyzed are below detection limits. Total chlorides were detected at a concentration of 128 milligrams per kilogram (mg/kg). Benzene, toluene, and ethylbenzene concentrations were below detection limits, and minor concentrations of total xylenes were detected at a concentration of 0.017 mg/kg. TPH compounds were analyzed using GC/MS scan to identify and quantify the analytes present in the sample, providing a chemical fingerprint of the compounds. Analytical results indicate the presence of n-Alkanes C13-C40. The chromatography exhibited characteristics described by the laboratory as those of weathered oil. The value for numerous branched alkanes and cyclic hydrocarbons (unresolved, 4122 mg/kg) are representative of USEPA Method 8015 analysis.

A subsurface investigation was performed by Philip representatives January 20 and 26, 1998. As approved by the NMOCD, the scope of the subsurface investigation was to collect two samples at each of five sample locations (**Figure 3**). The sample locations consisted of each of the four corners and the center of the suspected area of asphaltic material. The sample locations were selected based on the use of an aerial photograph and on accessibility of a backhoe. One sample was collected from the asphaltic material at a depth of approximately 1-2 feet bgs, and one sample was collected from soil beneath the asphaltic material at a depth of 5-6 feet bgs in each location.

Two soil samples were collected from each of five sample locations and submitted for analysis to Trace Analysis in Lubbock, Texas. The samples were analyzed for the compounds listed in 20 NMAC 6.2, sections 1101 and 3103 as requested by NMOCD.

No pesticides, chlorinated compounds, polycyclic aromatic hydrocarbons (PAHs), or semi-volatile compounds (SVOCs) were detected. With the exception of tetrachlorethane, ethylbenzene and m&p-xylenes, no volatile organic compounds were detected. Metals identified in the samples include barium, nickel, zinc, aluminum, iron, manganese, copper, cadmium,

selenium, and arsenic. Minor concentrations of radium 226 or radium 228 were detected in some of the samples.

TPH concentrations were detected in each of the samples and range from 1,800 mg/kg to 200,000 mg/kg. Ethylbenzene was detected in six of the ten samples at concentrations ranging from 0.1 mg/kg to 9.7 mg/kg. M&p-Xylenes were detected in six samples at concentrations ranging from 0.13 to 39 mg/kg. Tetrachloroethane was detected in sample SS-3, 5.5 feet at a concentration of 0.54 mg/kg.

Of a total of 1,790 compounds analyzed, 1,630 were not detected in the samples.

In addition to the sampling performed at this site, the area was trenched using a backhoe to identify the horizontal extent of the asphaltic material. The extent of asphaltic material as observed in the field is shown in **Figure 3.**

Analytical results and details of assessment activities can be found in the report prepared by Philip Services Corporation entitled *Tasker Road Site Assessment Report.*

3.0 STAGE 1 ABATEMENT WORKPLAN

The following Stage 1 Abatement Workplan is based on the results of the assessment activities performed to date, and addresses additional work requested by NMOCD in their letter dated March 23, 1998. In addition to the site activities described below, a one-mile radius water well inventory will be conducted for each site. The availability of original or quality aerial photographs will be investigated, and aerial photographs that can be easily interpreted will be provided if available. Furthermore, lease information will be provided in the final Stage 1 Abatement Report.

3.1 GRIMES BATTERY

Five boreholes will be installed in the area of the excavated pit. Proposed borehole locations are shown in **Figure 4**. The boreholes will be placed to identify if contaminant concentrations are present in the base and sidewalls of the pit excavation. The pit area has been partially filled with clean backfill material. No samples will be collected from the backfill material. When soils beneath the backfill are encountered, the soils will be sampled at five-foot intervals. Soil samples will be screened in the field for volatile organic compounds (VOC's) using a photoionization detector (PID), and will be inspected for the presence of staining or odor. Drilling and sampling will continue until no PID readings, staining, and odor are observed. The sample exhibiting the highest PID reading and the sample collected from the bottom of the borehole will be submitted for laboratory analysis for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), and chlorides. In the event that PID

readings do not coincide with visual observation of staining, one representative composite sample of stained material will be collected and submitted for analysis.

Two monitor wells will be installed in the pit area in order to identify the groundwater gradient at the site and identify the downgradient extent of groundwater impacts. One monitor well will be installed northwest of the pit (assumed to be upgradient) and one monitor well will be installed southeast of existing monitor well MW-1 (assumed to be downgradient). Proposed monitor well locations are shown in **Figure 4**. Soil samples at five-foot intervals will be screened in the field for volatile organic compounds (VOC's) using a photoionization detector (PID), and will be inspected for the presence of staining or odor. The sample exhibiting the highest PID reading and the sample collected from the interval where groundwater is encountered will be submitted for laboratory analysis for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylenes (BTEX), and chlorides.

A groundwater sample from each of the monitor wells and from MW-1 will be collected and submitted for analysis for compounds listed in New Mexico Water Quality Control Commission, Title 20, Chapter 6, Part 2, sections 3103 and 1101 (20 NMAC 6.2 3103 and 1101) as requested by the NMOCD.

NMOCD has requested that permanent monitoring wells be installed in the pit area in order to monitor groundwater constituent concentrations in the source area. Proposed locations for the requested monitoring wells will be submitted to NMOCD based on the results of this proposed Stage 1 Abatement Workplan. Monitor well locations will be selected in conjunction with remedial design.

Additionally, the area north of the tank battery where stained soils were observed by a NMOCD representative will be sampled. The stained soils will be trenched using a backhoe or other equipment and a representative soil sample will be screened in the field for naturally occurring radioactive material (NORM) and submitted for analysis for compounds listed in 20 NMAC 6.2 3103 and 1101. Further delineation of this area will be conducted, if necessary, based on the analytical results.

3.2 TASKER ROAD

Four boreholes will be installed at the Tasker Road site in order to identify the horizontal and vertical extent of hydrocarbon impacts. The proposed borehole locations are shown in **Figure 5**. The locations have been selected based on field observation of the edge of the asphaltic material. The soils will be sampled at five-foot intervals. Soil samples will be screened in the field for volatile organic compounds (VOC's) using a photoionization detector (PID), and will be inspected for the presence of staining or odor. Drilling and sampling will continue until no PID readings, staining, and odor are observed. The sample exhibiting the highest PID reading and the sample collected from the bottom of the borehole will be submitted for laboratory analysis for TPH and for the compounds listed in 20 NMAC 6.2 3103 and 1101. In the event that PID

readings do not coincide with visual observation of staining, one representative composite sample of stained material will be collected and submitted for analysis

In addition to the identification of the extent of hydrocarbon impacts described above, soils will be sampled using an auger, trenching, or excavating equipment as near to the foundation of the occupied residence as practicable. Three proposed sample locations are shown in **Figure 5** and will be sampled at a depth of 2-3 feet below ground surface to determine if the asphaltic material is present. The samples will be submitted for laboratory analysis for TPH and for the compounds listed in 20 NMAC 6.2 3103 and 1101.

One monitor well will be installed to identify if groundwater has been impacted at the site. The monitor well will be installed at the location shown in **Figure 5.** Soil samples at five-foot intervals will be screened in the field for volatile organic compounds (VOC's) using a photoionization detector (PID), and will be inspected for the presence of staining or odor. The sample exhibiting the highest PID reading and the sample collected from the interval where groundwater is encountered will be submitted for laboratory analysis for the compounds listed in 20 NMAC 6.2 3103 and 1101.

Additional monitor wells will be installed, if necessary, to identify the extent of groundwater impacts based on the results of this Stage 1 Abatement Workplan.

Two background samples will be collected from a depth of three feet below ground surface. One will be collected from west of the alley, and one will be collected from east of the alley (**Figure 5**). The sample will be analyzed for metals to identify background concentrations in native soils in this area.

As requested by the NMOCD, detection of metals and napthalenes's by the NMOCD's laboratory in soil samples collected at sample locations SS-1 and SS-2 will be addressed with the results of this Stage 1 Abatement Workplan. Following completion of these Stage 1 Abatement Workplan activities, a report of field activities and results will be submitted to NMOCD. The report will include recommendations for further Stage 1 activities or a Stage 2 Abatement Workplan based on assessment results from this and previous work, including constituent concentrations detected by NMOCD's laboratory and a table comparing detection limits of the laboratories that performed the analysis. Shell requests that the NMOCD indicate in their response to this workplan the acceptable detection limit for each compound to be analyzed, and Shell will contract a laboratory to meet the detection limit requirements.

4.0 QUALITY ASSURANCE

All sampling and analysis will be performed consistent with the standards outlined in 20 NMAC 6.3107 B.

5.0 SCHEDULE

Field activities will be scheduled following written approval of the Stage 1 Abatement Workplan by the NMOCD. Field activities will be initiated immediately, subject to the availability of a qualified and experienced driller. It is anticipated that field activities will require a minimum of 10 work days. In order to minimize the noise disturbance to area residents, field activities will be scheduled Monday through Friday, 8:00 am - 5:00 pm. The results of the Stage 1 Abatement Workplan and recommendations for remediation of the sites will be submitted within 60 days of the completion of field activities. This will allow sufficient time for laboratory analysis, evaluation of the data, and remedial design.

6.0 REFERENCES

Grimes Battery Soil and Groundwater Assessment Report; Philip Services Corporation; February, 1998

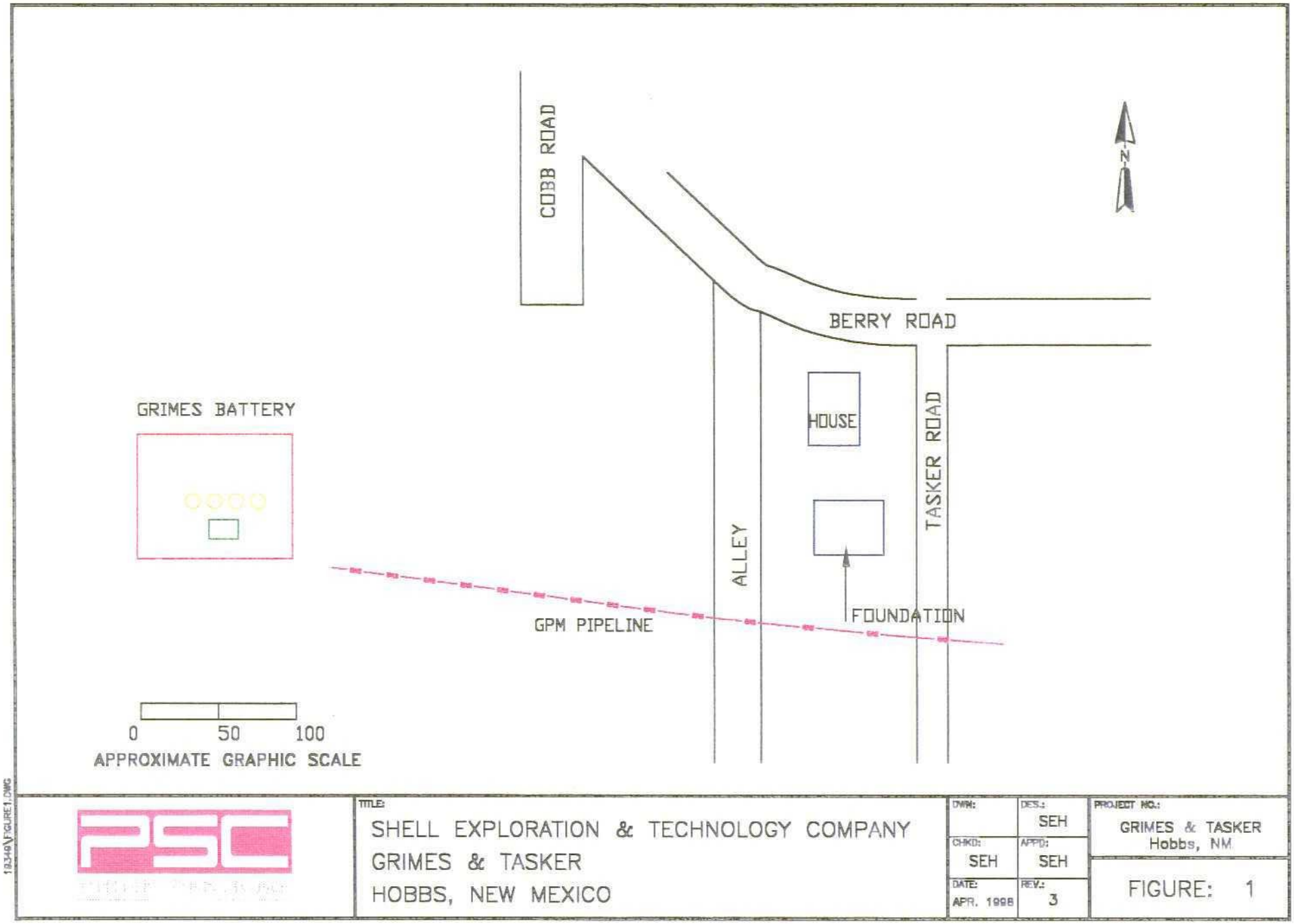
Groundwater Handbook; United States Environmental Protection Agency, Office of Research and Development, Center for Environmental Research Information; 1992

Hydrology and Hydrochemistry of the Ogallala Aquifer, Southern High Plains, Texas Panhandle and Eastern New Mexico; Report Number 177; Bureau of Economic Geology; 1988

Hydrogeochemistry and Water Resources of the Lower Dockum Group in the Texas Panhandle and Eastern New Mexico; Report Number 161: Bureau of Economic Geology; 1986

New Mexico Water Quality Control Commission, Title 20 Chapter 6, Part 2, Subpart I

Tasker Road Site Assessment Report; Philip Services Corporation; February, 1998



PSC

TITLE:
SHELL EXPLORATION & TECHNOLOGY COMPANY
GRIMES & TASKER
HOBBS, NEW MEXICO

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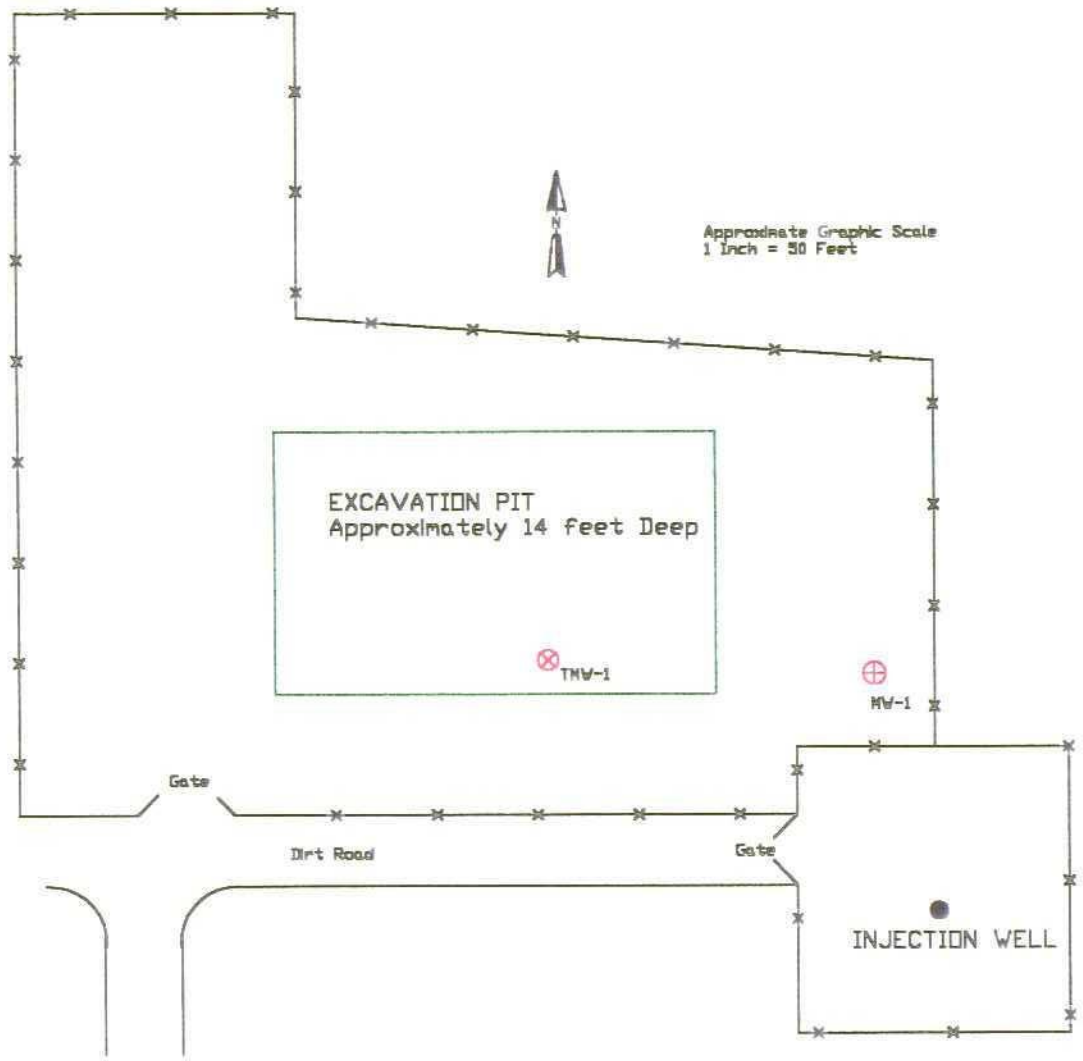
12349\FIGURE1.DWG



PSC

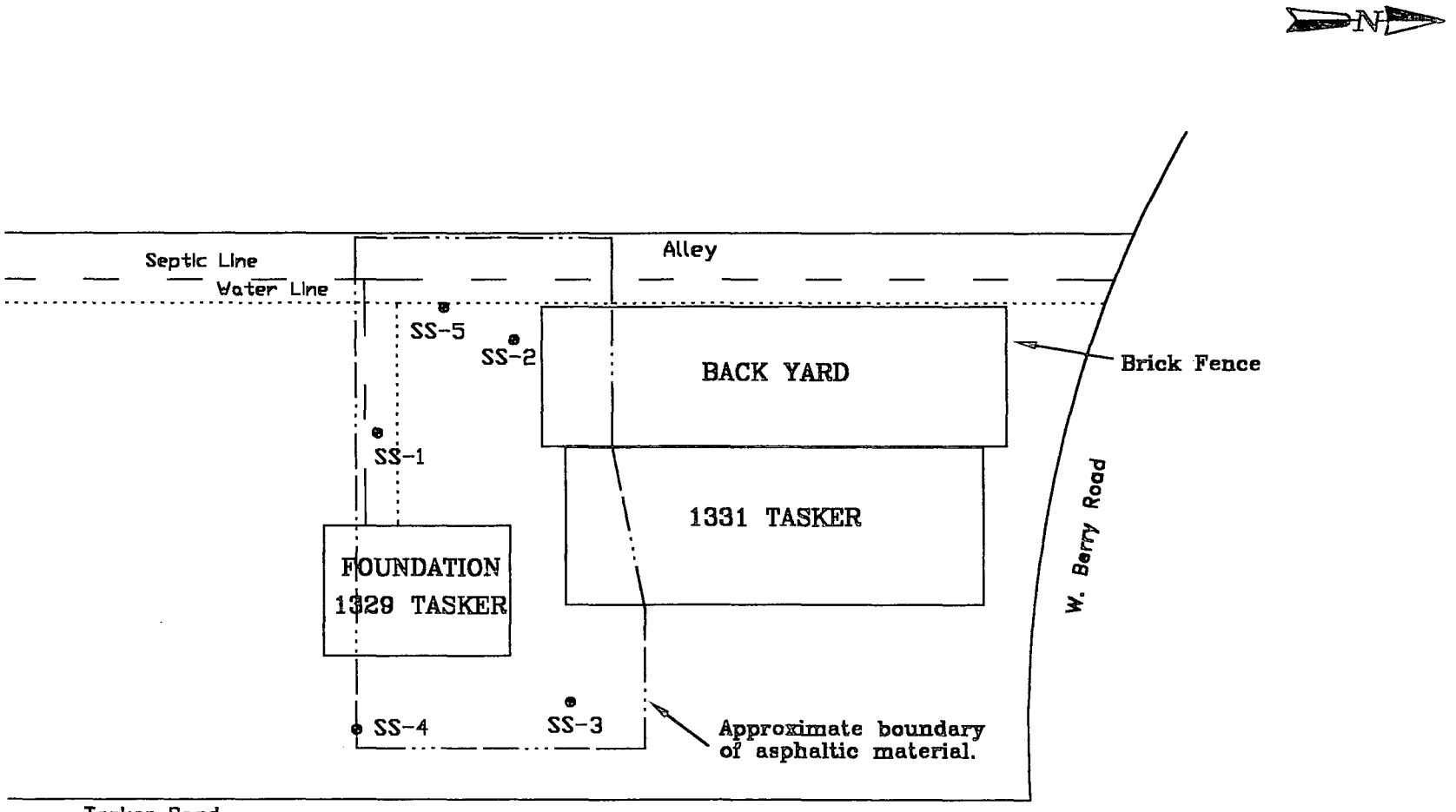
TITLE:
SHELL EXPLORATION & TECHNOLOGY COMPANY
GRIMES BATTERY
MONITOR WELL LOCATIONS

DWN:	DES.: seh
CHKD: seh	APPD: seh
DATE: Mar. 1998	REV.: 4

PROJECT NO.: 19349
GRIMES & TASKER
Hobbs, NM

FIGURE: 2

19349\figure2.dwg



TITLE:
SHELL EXPLORATION & TECHNOLOGY COMPANY
TASKER ROAD
VISIBLE EXTENT OF ASPHALTIC MATERIAL

DWN:	DES.:	PROJECT NO.: 19350
koa	jwk	TASKER ROAD Hobbs, New Mexico
CHKD:	APPD:	
seh	seh	FIGURE 3
DATE:	REV.:	
Jan 1998	2	

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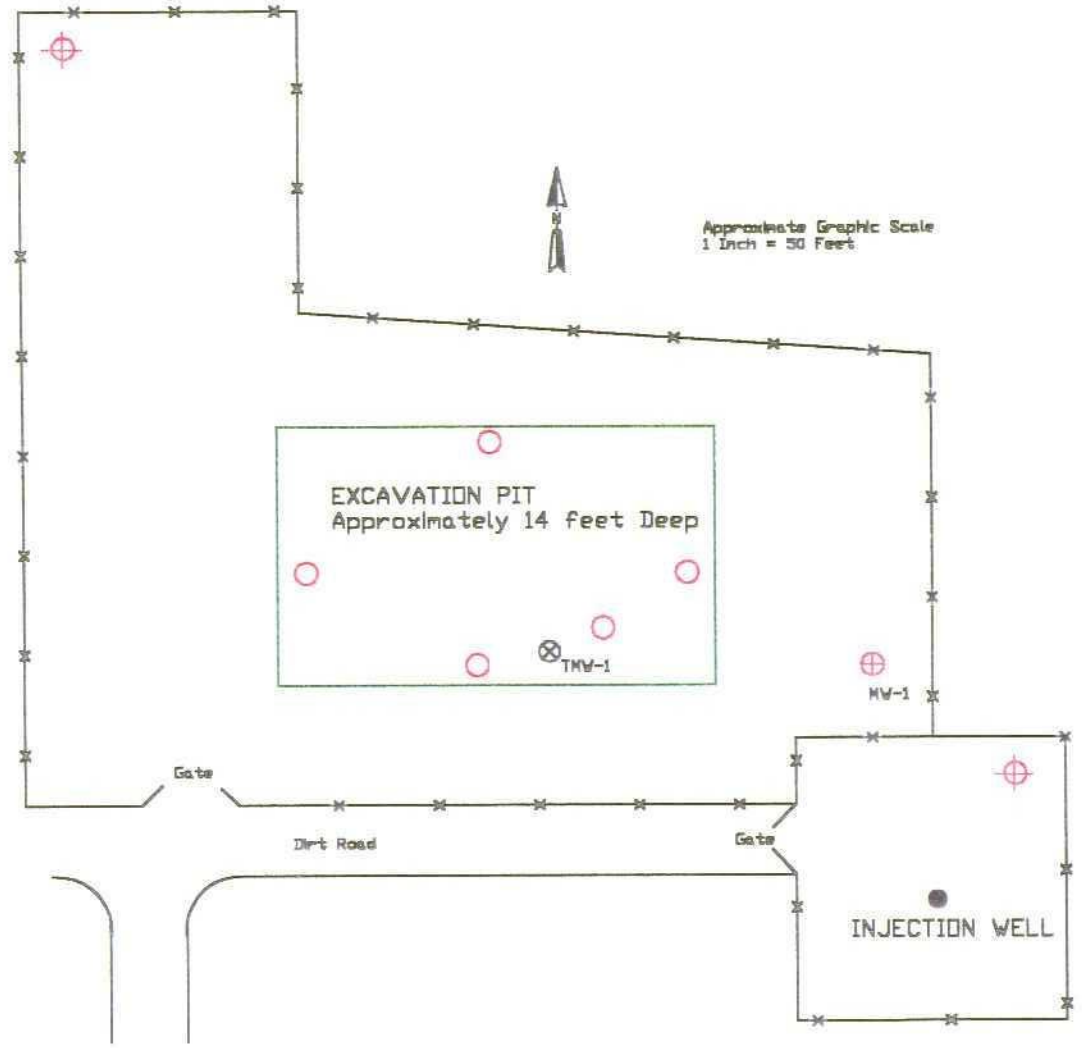


PSC

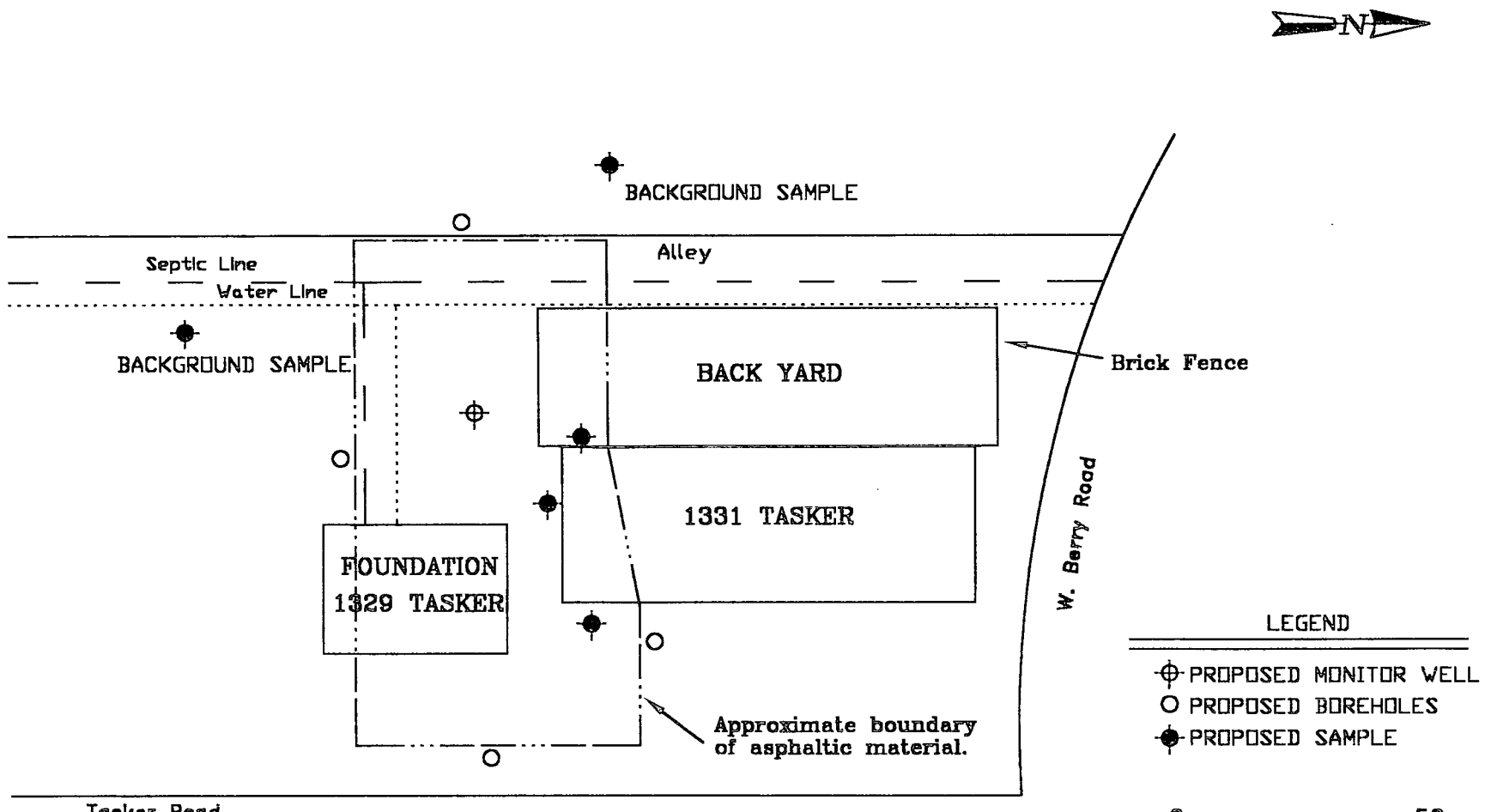
TITLE:

SHELL EXPLORATION & TECHNOLOGY COMPANY
GRIMES BATTERY
Proposed Monitor Well & Borehole Locations

DWN:	DES.: seh
CHKD: seh	APPD: seh
DATE: Mar. 1998	REV.: 5

PROJECT NO.: 19350
TASKER ROAD
Hobbs, NM

FIGURE: 4



PSC

TITLE:
SHELL EXPLORATION & TECHNOLOGY COMPANY
TASKER ROAD
PROPOSED SAMPLE LOCATIONS

DWN:	DES.:	PROJECT NO.: 19350
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CHKD:	APPD:	
seh	seh	FIGURE 5
DATE:	REV.:	
Jan 1998	2	

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