AP - 002

STAGE 1 & 2 WORKPLANS

DATE:

July 20, 1998

PHILIP SERVICES
CORP.
INDUSTRIAL SERVICES
GROUP
Central Region

July 20, 1998

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

SUBJECT: Grimes Lease Stage 1 Abatement Workplan, Hobbs New Mexico

Dear Mr. Olson,

Philip Services (Philip) respectfully submits this response to your request for additional requirements and information for the above-referenced Stage 1 Abatement Workplan on behalf of Shell Exploration and Production Technology Company (Shell). As requested, please note the following modifications to the May 1998 Workplan *Westgate Subdivision, Grimes Battery, and Tasker Road Stage 1 Abatement Plan (Site Assessment Investigation).*

A. Westgate Subdivision

1. Soil Gas Sampling Stations

   a. Soil gas sample locations will be spaced at approximately 100 foot intervals

   b. Soil gas samples within the developed residential areas of the subdivision will be collected just outside of the sidewalks on each side of Cobb Drive and Tasker Road and down the center of the alley behind residences, including the alley east of Tasker Road (as practicable based on the locations of utilities).

2. Soil gas samples will be taken from a depth of 2-3 feet below ground surface (bgs).

3. Soil gas samples will be collected by manually or hydraulically driven (as applicable) soil probes. The probes will be driven to a depth of 2-3 feet bgs, and retracted slightly to expose the sampling port. The probe is equipped with inert nylaflow tubing. Soil vapor is withdrawn from the inert nylaflow tubing using a gas-tight glass syringe. Gas analysis will be performed on site. Details of sampling and analysis methodology are attached (*Soil Vapor Surveys Standard Operating Procedures,* TEG).

B. Grimes Battery Pit

1. In addition to the proposed sample (the sample exhibiting the highest PID reading), one sample will be collected from the bottom interval of the soil auger boring in the backyard of the 1341 North Cobb Street residence. The sample will be analyzed for the compounds listed in New Mexico Water Quality Control Commission (WQCC), Title 20, Chapter 6, Part 2, sections 3103 and 1101.

C. Tasker Road Pit

1. Eleven boreholes will be installed at this site as shown in Figure 9 of the May 1998 Abatement Plan.

2. One additional monitor well be installed directly outside the southeast corner of the former pit as shown in the OCD's attachment of Figure 9 to your letter of request.

3. A groundwater sample from each of the monitor wells will be collected and submitted for analysis for the compounds listed in New Mexico WQCC, Title 20, Chapter 6, Part 2, sections 3103 and 1101 according to EPA approved methods and quality assurance/quality control (QA/QC) procures described below in section D 1.

4. Soil sample analysis will be performed in accordance with the detection limits provided by the OCD.

D. General Requirements

1. Quality Assurance/ Quality Control Plan

   a. Soil Gas Samples.
   Sampling, analytical, and decontamination methodology and QC procedures are attached (*Soil Vapor Surveys, Standard Operating Procedures)*

   b. Soil Samples will be collected and handled according to ASTM standards. All samples will be collected using a stainless steel split-spoon sampler. The sampler and all sampling equipment will be decontaminated prior to sampling and between samples using solvents or detergents and de-ionized water. The augers will be cleaned with detergents and pressure washed prior to installation of each borehole (and monitor well).

One-half of the sample will be placed into a laboratory prepared (decontaminated) glass jar and placed on ice immediately. The other half of the sample will placed into a sealing plastic bag and the headspace will be sampled using a PID. One duplicate sample will be collected per 20 samples. One field blank and one trip blank will be collected per day. Samples will be shipped to the laboratory for analysis daily. A copy of the laboratory QA/QC program is attached.

c. Groundwater samples will be collected using USEPA approved methods. Each well will be purged a minimum of three casing volumes of water prior to sampling. Groundwater samples will be collected using disposable bailers to prevent the possibility of cross contamination. Groundwater samples will be placed into the proper laboratory prepared (preservation solutions added) and decontaminated containers and placed on ice immediately. One duplicate sample will be collected per 20 samples. One field blank and one trip blank will be collected per day. Samples will shipped to the laboratory for analysis daily. A copy of the laboratory QA/QC program is attached.

2. Soil samples will be preserved with methanol to reduce the potential of loss of volatile organics. Preservation methods will follow laboratory procedures.

3. Each monitor well will be surveyed as to their location and elevation such that the groundwater gradient can be mapped.

4. Shell is currently trying to determine if the area off Lorraine Street northwest of the subdivision was owned or operated by Shell. If so, this area will be included in the soil gas survey.

5. In the event that the extent of the soil and groundwater contamination is not defined with the proposed workplan, Shell will make recommendations to the OCD for assessment to continue on Shell operated or formerly operated leases as access allows. If property access is obtained, Shell will continue assessment activities prior to demobilization in consultation with the OCD.

If you have any questions or require additional information, please call Mr. Wayne Hamilton of Shell at (281) 544-2322 or Sharon Hall of Philip at (915) 563-0118.

Sincerely,

PHILIP SERVICES CORPORATION

Sharon E. Hall

Sharon E. Hall
Operations Manager

cc w/attachments:
Chris Williams, OCD Hobbs District Supervisor (2 copies)
Wayne Hamilton, Shell E&P Technology Company

RECEIVED

JUL 21 1998

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

SOIL VAPOR SURVEYS

Standard Operating Procedures

TEG – Texas
306 Sea Willow Drive
Marion, Texas, 78124

[redacted]

State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

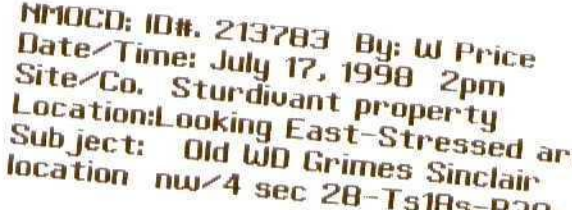
2040 South Pacheco
P.O. Box 6429
Santa Fe, New Mexico 87505-5472

Shell Grimes
7/17/98 Photos

[redacted]

NMOCD: ID#. 213783 By: W Price
Date/Time: July 17, 1998 2pm
Site/Co. Area adj. to Sturdivant
Loc: Old WD Grimes Sinclair location
nw/4 sec 28-Ts18s-R38e; visual old
asphaltic material.

NMOCD: ID#. 213783 By: W Price
Date/Time: July 17, 1998 2pm
Site/Co. Sturdivant property
Location: Looking SW
Subject: Old WD Grimes Sinclair
location nw/4 sec 28-Ts18s-R38e


NMOCD: ID#. 213783 By: W Price
Date/Time: July 17, 1998 2pm
Site/Co. Sturdivant property
Location:Looking East-Stressed area
Subject: Old WD Grimes Sinclair
location nw/4 sec 28-Ts18s-R38e


LORENE
COBB

NMOCD: ID#. 213783 By: W Price
Date/Time: July 17, 1998 2pm
Site/Co. Sturdivant property
Location: 1700 Lorene St.
Subject: Old WD Grimes Sinclair
location nw/4 sec 28-Ts18s-R38e

PRE-MOBILIZATION ACTIVITIES

Initial Contact/Customer Coordination

During the initial contact phase of a soil gas survey, TEG – Texas gathers information that will dictate the scope of the investigation. Such information may include:

- Site location
- Desired time frame
- Site history/Expected contaminants
- Desired depth of samples
- Geology/Depth to ground water

With this information, TEG prepares for the project. A chemist and lab are designated, and a sampling crew is chosen.

Final customer coordination includes utility clearance and discussions regarding the sampling grid.

Project Preparation

The chemist prepares by checking the instruments and running an initial calibration curve for each detector that will be needed for the project. The mobile lab and sampling rig are checked for necessary supplies. Site maps are provided to each crew.

ON-SITE ACTIVITIES

Initial Meeting

All parties meet for a site safety discussion. Utility clearances are confirmed, and the sampling grid is confirmed. The chemist proceeds with his mid-point calibration check, while the field crew lays out the sampling grid using either GPS or manual measuring tapes and wheels, as desired by the customer. In most cases, the customer has the grid marked out prior to TEG's arrival on site.

Probe Construction and Insertion

Manually-Driven Probes

TEG's manually driven soil vapor probes are constructed of 1.0 inch outside diameter steel and equipped with a hardened steel drop-off tip. The probes are 4 feet long and threaded together to reach multiple depths. An inert 1/8 inch nylaflow tube is threaded down the center of the probe and connected to a sampling port just above the tip. This internal sample tubing design eliminates any contact between the probe and the gas sample.

The probe is driven into the ground by an electric rotary hammer. Once inserted to the desired depth, the probe is retracted approximately 1/2 inch to open the tip and exposes the vapor sampling port. This design prevents clogging of the probe and cross-contamination from soils during insertion.

Hydraulically-Driven Probes

TEG's hydraulically-driven soil vapor probes are constructed of either 1.0 or 1.5 inch outside diameter steel and equipped with a hardened drop-off steel tip. The probes are nominally 4 feet long and threaded together to reach multiple depths. An inert 1/8 inch nylaflow tube is threaded down the center of the probe and connected to a sampling port just above the tip. This internal sample tubing design eliminates any contact between the sample port and the gas sample.

The probe is driven into the subsurface with TEG's *STRATAPROBE*™ system. Once inserted to the desired depth, the probe is retracted slightly to expose the vapor sampling port. After a sample is obtained, the probe advanced to the next depth or removed. This design prevents clogging of the sampling port and cross-contamination from soils during insertion.

Soil Gas Sampling

Soil vapor is withdrawn from the inert nylaflow tubing using a 5 cubic centimeter (cc) gas-tight glass syringe connected with an on-off valve. An in-line digital pressure/vacuum gauge is used to determine relative permeability of the sample interval (optional for low permeability sampling). The dead volume of gas in the tubing (1 cc per foot) is withdrawn and discarded to flush the probe and fill it with in-situ soil vapor. The next 20cc of gas are withdrawn in four syringes, plugged, and immediately transferred to the mobile lab for analysis within minutes of sample collection. The use of small, calibrated syringes allowed for careful monitoring of purge and sample volumes.

Low Permeability Sampling

While attempting to collect vapor, if the gauge shows increasing vacuum, with values exceeding 3-5" hg (suggesting low soil permeability), the sample is not collected and the probe is advanced to the next deeper discrete (usually 1 foot) sample depth, where the process is repeated. If it is not possible to collect vapors (due to low soil permeability) as the probe is advanced down to the deepest discrete sampling target depth, the probe can be slowly withdrawn until the vacuum finally breaks when a permeable zone is encountered. An interval sample will then be taken for that interval of open hole.

Continuity Checks

A continuity check of the sample train is conducted at each depth interval by gently pulling on the 1/8" tubing to ensure that it is connected to the probe tip. If a strong vacuum develops while taking the vapor sample, an additional continuity check is performed by pulling up slightly on the probe rod with the syringe plunger open 2-3cc. Continuity is confirmed if the plunger on the syringe retracts as the probe is pulled up.

Field Records

The field technician maintains a log sheet summarizing:

- Sample identification
- Date and time of sample collection
- Sampling depth
- Identity of samplers
- Soil gas purge volumes
- Observation of soil or subsurface characteristics (any condition that affects sample integrity)
- Chain of custody protocols and records used to track samples from sampling point to analysis.

Completion

After sampling, each boring is backfilled with granular bentonite and hydrated with water. Concrete and asphalt surfaces are appropriately patched.

Analytical Methodology

Operating Conditions and Instrumentation

Methane & TPH by EPA Modified 8015

Instrument: Shimadzu GC-14
Column 1: 30 meter DB-5, megabore capillary.
Column 2: 1 meter packed alumina
Carrier flow: Helium at 15 ml/min.
Detectors: Flame ionization detectors on separate columns.
Column oven: 40°C for 4 min, 45°C to 200°C at 10°C/min.

Volatile Halogenated and Aromatic Hydrocarbons by EPA 8021

Instrument: Shimadzu GC-14
Column 1: 75 meter DB-624, megabore capillary.
Carrier flow: Helium at 15 ml/min.
Detectors: PID and ELCD in series.
Column oven: 40°C for 4 min, 45°C to 200°C at 10°C/min.

Fixed and Biogenic Gases (O2, CO2, and Methane)

Instrument: SRI 8610 Gas Chromatograph
Column: 3 foot CTR
Carrier flow: Helium at 30 ml/min.
Detectors: Thermoconductivity (TCD) detectors.

Standard Preparation

Primary (stock) standards: Made from certified neat components or from traceable standards purchased from certified suppliers.

Secondary (working) Standards: Made by diluting primary standard. Typical concentrations are 2 µg/l, 10 µg/l, 50 µg/l and 200 µg/l.
Lot numbers and preparations of all standards are recorded on a log sheet and kept in the mobile laboratory.

Initial Multi-Point Calibration Curve

An initial calibration curve of a minimum of 3 points is performed:

- At the start of the project
- When the GC column or operating conditions have changed
- When the daily mid-point calibration check cannot meet the requirements as specified below.

Calibration curves for each target component are prepared by analyzing low, mid, and high calibration standards covering the expected concentration range.

A linearity check of the calibration curve for each compound is performed by computing a correlation coefficient and an average response factor. If a correlation coefficient of 0.990 or a percent relative standard deviation (%RSD) of ± 25% is obtained, an average response factor is used over the entire calibration range. If the linearity criteria are not obtained, quantitation for that analyte is performed using a calibration curve.

Continuing Calibration (Daily Mid-point Calibration Check)
Continuing calibration standards prepared from a traceable source are analyzed at the beginning and end of each day at a minimum. Acceptable continuing calibration agreement is set at ± 20% to the average response factor from the calibration curve. When calibration checks fall outside this acceptable range for analytes detected on the site, corrective action, consisting of verification of the standard and/or a new calibration curve for the analytes out of specifications is performed by the on-site chemist.

Injection of Soil Gas Samples

Vapor samples are injected directly into a sampling port on the gas chromatograph. Syringes are triple rinsed with Alconox, distilled water, and de-ionized water between samples.

Compound Identification and Quantification

All analyses are performed following EPA Method 8000 protocols, modified for soil vapor. Modifications from the EPA methods consist of a site-specific analyte list, lack of matrix spike samples, lack of surrogates, and changes in calibration protocols as described in this SOP. All compounds detected in the soil gas samples are identified by chromatographic retention time and quantified using the average response factor from the active calibration curve. The analytical configuration provides the required compound separation as well as dual-detector confirmation. Further confirmation is provided by a second analysis on all samples using a second column with a flame ionization detector (FID).

Laboratory Data Logs
The field chemist maintains analytical records including date and time of analysis, sampler's name, chemist's name, sample id number, concentrations of compounds detected, calibration data, and any unusual conditions.

Data Spreadsheets

All data generated on site are entered into Excel spreadsheets by the project chemist. Printouts of the data are available to the customer throughout the project duration.

Quality Control Procedures

Sampling Quality Control

Method Blanks
Prior to sampling each day, all components of the sampling system are checked for contamination by drawing ambient air from above ground through the sampling equipment, and injecting a sample into a gas chromatograph. The analysis results are compared to that of the ambient air and recorded in the data tables as blanks.

Sample Quality Control
Each sample is given a unique identification number specifying location and depth. Purge and sample volumes are monitored closely using small calibrated syringes to assure a proper flow of soil gas. This ensures a representative sample is obtained from the sample zone without excessive pumping, which could result in sampling of surface air.

Decontamination Procedures
To minimize the potential for cross-contamination between sites, all external soil vapor probe parts are steam-cleaned or washed cleaned of excess dirt and moisture with solvents or de-ionized water as appropriate. The probe's internal nylaflow tubing is purged with clean air between sampling locations or replaced as necessary.

Corrective Action
Corrective action is taken when unexpected contaminant levels are detected. First duplicate samples are taken to verify the initial detection of contaminants. If equipment contamination is suspected, then the sample probes are disassembled, wiped cleaned of excess dirt and moisture, rinsed with deionized water, washed with Alconox and water, and rinsed again with deionized water. The sample tubing in the probe is replaced.

Data Handling and Final Report

After the completion of field activities, the project chemist submits his file for review. The file includes all hand written and electronic log sheets, qa/qc information, chain of custody documentation, and other documents generated on site. The laboratory director reviews this information, then submits the file to data processing for printing the final report.

cc: BOLSON

NEW MEXICO OIL CONSERVATION COMMISSION
FIELD TRIP REPORT

2 PM

Name WAYNE PRICE Date 7/17/98 Miles _____ District I

Time of Departure 7 AM Time of Return 4 PM Car No. G 04

INSPECTION	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS

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

SHELL - WESTGATE LORENE ST. AREA

TOURED AREA WITH BBC INTL.

TOOK PICTURES!

LANDOWNER (LINDA STURDIVANT) INDICATED THEY HAVE 3 AREAS THAT NEED CHECKING

1. ALONG FRONT FENCE - THEY FOUND OILY DIRT
2. EAST SIDE BURIED VAULT
3. NORTH SIDE VISUAL CONTAMINATION (TOOK PICTURES THIS AREA)

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 (show 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

To: Bill Olson - for your review & comment prior to providing to public. It would be very helpful for OCD to also write a letter that regrets public cooperation w/ Shell's field work

Wayne Hamilton 7/9/98

281-544-2322

DRAFT

Because We Want You to Know

- **Oil Field Hydrocarbons** have been found near Shell's former Tank Battery west of Tasker Road. Shell is working with the State of New Mexico regulators to correct the problem.

- **The First Step** to understanding the problem is a thorough site assessment to define the full extent of soil and groundwater hydrocarbons.

- **Shell has worked closely with the State** to develop a site assessment plan that meets all regulatory criteria. Such a plan was completed and submitted to the State on May 18.

- **Shell published a Public Notice** of this plan on June 1 in the Hobbs and Albuquerque newspapers and sent letters to the surrounding community. The announcement describes the planned work and provided an opportunity for public comment through July 1, 1998.

- **The State of New Mexico has approved Shell's plan** with some minor modifications. We will begin field work July 27, 1998. Here's what we plan to do:

  - **Grimes Tank Battery** -- install a series of borings and monitoring wells near the site of the battery to determine the possible extent of the water table hydrocarbon.

  - **Tasker Street pit** – drill borings and monitoring wells to define the pit boundaries and depth that hydrocarbons have moved.

  - **Westgate Neighborhood** – install five-foot deep soil gas probes in front yards and alleys of many homes to determine if there are any unknown buried hydrocarbons. Investigate site of abandoned well between Berry and Princess Jeanne. Investigate residence's yards and adjacent property for possible oil field hydrocarbons.

  - **Monument Development property** – install soil gas probes across entire property.

- **Shell Contractors** will be in the area for several weeks performing these tests. Soil and water samples will be sent to commercial laboratories for analysis. It will probably be October when we have a finished report ready to discuss with the State. At that point we will determine if additional site sampling is required or if it is time to develop a site cleanup plan.

- **Thank You for your Patience.** If you have any questions, please call us on our toll free number (800) 489-8109.

Shell Oil Company
200 North Dairy Ashford
Houston, TX 77079

July 9, 1998

Post-It® Fax Note 7671	Date	# of pages ▶
To Bill Olson	From Wayne Hamilton	
Co./Dept.	Co.	
Phone #	Phone # 281-544-2322	
Fax # 505-827-8177	Fax #	

NMOCD INTER-OFFICE CORRESPONDENCE

TO: File Westgate

From: Wayne Price-Environmental Engineer

Date: 7/13/98 approx. 4:30 pm

Reference: Shell-Westgate Project

Subject: Inquiry from Pat McMahon attorney for Westgate Residence.

Comments:

Mr. McMahon had received calls concerning construction activity in area.

W. Price went to area. BBC Intl. An Environmental Contractor for Shell was clearing vegetation for future soil-gas vapor survey.

Meet with BBC Cliff Brunson on 7/14/98. Requested they contact NMOCD in future so as NMOCD may communicate progress to any concerned citizens.

Mr. Brunson indicated all work was done only on Los Quatros property only in which they had permission.

Called Mr. McMahon and gave progress report of activity.

cc: Chris Williams-NMOCD District I Supervisor

attachments-