GW - 28

WORK PLANS

1991

A PROPOSAL TO CONDUCT A SUBSURFACE INVESTIGATION OF THE HYDROCARBON PLUME AT THE NAVAJO REFINERY, ARTESIA, NEW MEXICO

RECEIVED
MAR 26 1992
OIL CONSERVATION DIV.
SANTA FE

prepared for

Navajo Refinery
501 East Main Street
Artesia, New Mexico 88210

by

K. W. Brown Environmental Services
500 Graham Road
College Station, Texas 77845

December 17, 1991

David G. Boyer
Project Manager

for James A. DeVoe
President

W. Wayne Crawley
Vice President, Operations

1.0 INTRODUCTION

K. W. Brown Environmental Services (KWBES) is pleased to submit this proposal to Navajo Refining Company (Navajo) in response to your inquiry about KWBES providing professional environmental services in hydrogeology, soil and crop science, and site investigation investigation and remedial services.

KWBES is a nationwide environmental consulting firm that specializes in forecasting, identifying and resolving present and potential environmental issues affecting groundwater, soils, and agriculture. KWBES has developed expertise in both problem identification and solutions in the oil and natural gas and the petroleum refining industries. In these technical areas we have had over 10 years of experience in management of refinery waste, and investigation of soil and groundwater contamination at these facilities. Past and present refinery clients we have successfully served include Texaco, BP, Atlantic Refining, Sun, Exxon, Lyondell Petrochemical, ARCO, and most recently Star Enterprises. In New Mexico, KWBES has performed a number of investigations at several natural gas processing plants operated by El Paso Natural Gas. Highlights of our refinery activities are included in Appendix A.

As a result of the recent detection of hydrocarbon contamination adjacent to the Navajo refinery, KWBES proposes a stepwise, phased investigation. The first phase, detailed in the Statement of Work (Section 3.0) will identify the most sensitive areas that have been or are likely to be immediately affected by the contamination, and will define the near-surface hydrogeology and its relationship to deeper fresh water zones. This initial phase will conclude with recommendations to Navajo regarding future actions to be taken to protect groundwater, crops and property including, as appropriate, hydrocarbon recovery, vapor recovery and groundwater modeling to predict the transport and fate of remaining contaminants. Subsequent phases, as necessary, will focus on implementing a hydrocarbon recovery program, monitoring effectiveness, and performing groundwater modeling for use in preparing a risk-based model of future impacts.

Given our company's reputation and background in groundwater, soil science, waste management and knowledge of refinery operations, KWBES is uniquely qualified to provide Navajo Refining Company with environmental assistance on this project. KWBES' abilities are further enhanced with the recent addition of David G. Boyer to the senior technical staff. Prior to joining KWBES, Mr. Boyer was the Chief of the New Mexico Oil Conservation Division's (OCD) Environmental Bureau. During his years with the OCD, Mr. Boyer gained a thorough under-

standing of the New Mexico regulatory and political framework that will be invaluable in addressing concerns during the execution of this project. Moreover, Mr. Boyer has a working knowledge of the local geology and hydrology, which when coupled with his professional certification as a hydrologist, will insure credibility with regulatory agencies and local landowners.

Another strength that KWBES brings to this project is years of litigation experience. While litigation has not been identified as a necessary component of the project at this time, this potential almost always exists when offsite migration has occurred. KWBES will conduct the field investigation in a manner that places Navajo in a defensible position. In the event litigation support services are required, KWBES can provide consistency in data collection, data reporting, and expert testimony.

2.0 TECHNICAL DISCUSSION

Recently, Navajo Refining Company has become aware of a large area of free-phase hydrocarbon adjacent to the east side of the refinery and extending eastward for several thousand feet. The surface land use includes several homes and businesses and a large area of commercial agriculture, including row crops and a young pecan orchard. The extent of the plume, location of human activity, and deep and shallow water wells within the plume area dictate an extensive but well planned investigation to define the current and future impacts of the contamination while keeping in mind that cleanup will be difficult, time consuming and costly. Equally important is the need to recognize the potential for future, expensive litigation if homes, businesses or crops are directly, or perceived to be, impacted by hydrocarbon contamination.

2.1 REGULATORY FRAMEWORK

In New Mexico, regulatory authority for protection of groundwater from refinery spills, leaks or waste management activities is exercised by the OCD which has been delegated responsibility for administrating the state's Water Quality Control Commission (WQCC) Regulations. Additional environmental authority is available to the OCD though the state's Oil and Gas Act which allows the agency to regulate refinery activities to protect human health and the environment. The NM Environmental Department has limited authority for some specific refinery activities under Subtitle C (hazardous waste) provisions of RCRA, but it is believed that this contamination did not result from RCRA activities. The Office of the State Engineer is involved because of well construction and water rights requirements resulting from the refinery location in the Roswell Underground Water Basin. The U.S. EPA (EPA) may be involved if the release occurred from an active or inactive solid waste management unit.

Groundwater cleanup will be required to meet WQCC standards for groundwater unless alternate concentration limits are approved based on extensive technical documentation that complete cleanup is unlikely to be accomplished because of site conditions and remaining concentrations will not adversely impact water supply wells, or that it is unnecessary because of background water quality considerations.

2.2 OBJECTIVES

Phase I of the study will identify the most sensitive areas that have been or are likely to be immediately affected by the contamination and will define the near-surface hydrogeology and its relationship to deeper fresh water zones. This initial phase will conclude with recommendations to Navajo regarding future actions to be taken to protect groundwater, crops and property including, as appropriate, hydrocarbon recovery, vapor recovery and groundwater modeling to predict the transport and fate of remaining contaminants.

2.3 STRATEGY AND METHODOLOGY

To locate and evaluate areas most sensitive to hydrocarbon impacts, KWBES will undertake a thorough review of available information on near-surface hydrology, geology and soils. This will include review and evaluation of USGS and state engineer hydrologic reports, and well and water level information. Soils information will be obtained through published Eddy County soil surveys and discussion with Soil Conservation Service (SCS) and agricultural extension service staff. Available aerial photographs will be obtained to document, to the extent possible, changes in land use and topography in the impacted area. Interviews with landowners will be conducted to obtain an overview of past land use, changes in irrigation and drainage practices and current information on crop production.

The available information will be supplemented by field investigations to define the impact of the pumping of the irrigation wells on the shallow groundwater system. Piezometers will be installed in the vicinity of the irrigation wells to obtain groundwater flow directions prior to and after the start of irrigation pumping. Several monitoring wells will be installed at the outer edge of the known plume to provide advance warning of contamination and, together with the piezometers, will be used in an aquifer test to determine near-surface aquifer characteristics. Interior plume characteristics, including possible impacts around homes and crops will be evaluated using a combination of soil gas measurements and soil borings. To maintain continuity in the stratigraphic descriptions, and to the extent possible, the same geologist will be responsible for logging each borehole.

At the conclusion of this phase, KWBES will present a report of our findings together with recommendations for hydrocarbon recovery/remediation activities which may include recovery wells, collection trenches, vapor extraction and additional subsurface investigation. The report will emphasize future action necessary to protect sensitive receptors. Because actual location and design of a recovery system is dependent on field investigation results, subsequent

phases of the study would include this activity plus groundwater modeling to determine transport and fate of dissolved phase contaminants, and development of a risk-based model to assess future impacts of remaining unrecovered hydrocarbon.

3.0 STATEMENT OF WORK

3.1 WORK PROGRAM

The following scope of work details the professional services that KWBES proposes to provide Navajo Refining Company to meet all objectives as set forth in the previous technical discussion (Section 2.0). Four individual tasks are outlined in the sections below:

- Task 1 — Preliminary Interactions/Information Assembly
- Task 2 — Field Investigation — Sensitive Receptors
- Task 3 — Field Investigation — Plume Characterization
- Task 4 — Presentation of Data.

These tasks will be accomplished over the timeframe outlined in Section 3.2. Because water level data must be obtained prior to the start of the irrigation season to be meaningful, much of the activity in Tasks 2 and 3 will be performed concurrently.

3.1.1 Task 1 — Preliminary Interactions/Information Assembly

3.1.1.1 Objective

This task has the objective of obtaining and evaluating readily available pertinent information prior to beginning the more extensive field investigation. Necessary regulatory interactions will occur and permits obtained as part of this task.

3.1.1.2 Strategy

Several activities will be conducted under this task; they are outlined in the following sections.

Task 1.1 — Kickoff Meetings

Short meetings will be scheduled with key refinery personnel, affected landowners, and OCD and state engineer regulatory staff. The purpose of the meetings will be to explain the problem and present the proposed plan of action. Meetings with citizens may be with individuals or in a group format depending on the refinery's preference. Citizen cooperation will be requested in data collection and a prepared questionnaire will be distributed for completion before detailed individual interviews are conducted. Any landowner obstacles to conducting field work will be

identified so that easements, or other legal impediments can be overcome prior to beginning scheduled field work.

Task 1.2 — Collection of Available Information

Readily available technical information will be obtained from the USGS, SEO and SCS published and nonpublished reports and studies. Well completion files and water level databases will be surveyed for useful information. If available, aerial photographs of the study area will be obtained to document land use changes. Reports of previous investigations at or near the refinery will be reviewed and other sources of past hydrocarbon leaks (e.g., pipeline breaks, transportation spills) will be researched.

Landowners will be interviewed to obtain information on current conditions and past land use history. Examples of current information desired include present water use (domestic, agricultural, or both), problems with water wells or water quality (odor, sheen, taste), any unidentified odors in houses, or other buildings, any impacts on crops or plant life. The landowner will be asked to recall past changes in land topography such as changes in irrigation or drainage channels, and any spills or leaks of petroleum hydrocarbons on or adjacent to his property.

Wells that are on line and pumping at the beginning of the investigation will be sampled for baseline data. Samples will be analyzed for the volatile hydrocarbons benzene, toluene, ethylbenzene, and xylenes (BTEX), major cations and anions, and total dissolved solids (TDS). Field measurements of electrical conductivity (EC) and pH will be recorded for each sample and depth to water measurements obtained where possible.

Task 1.3 — Permits/Agency Notification

The NM Oil Conservation Division has requested to be kept informed of the status of the investigation. With Navajo approval, KWBES will summarize relevant work items and submit them to OCD for information. Because of the time constraints for the beginning of field work and possible delay in agency review, this is proposed to be only a notification document, but agency review and approval will be necessary before installation and operation of a recovery system. State Engineer Office well construction permits must be obtained prior to monitoring/ piezometer well installation.

Task 1.4 — Status Reports

At the completion of the preliminary work, a letter report will be prepared summarizing pertinent information, and presenting results of water quality analyses. Changes in the details of the work plan may be recommended based on the information obtained in the technical review or interviews. The report, modified as necessary, will also be submitted to the regulatory agencies.

3.1.1.3 Client Involvement

As discussed in Task 1.1 above, KWBES expects to schedule a kickoff meeting in Artesia to present the work strategy. Navajo will also be involved in review of the proposed landowner questionnaire, and approval of correspondence with the OCD and SEO. Navajo will be requested to provide copies of pertinent sections of reports previously prepared by consultants and information on any Navajo pipeline or transportation incidents in the study area. To assist in assessing the current status of any hydrocarbon release from the refinery, we expect to request information on possible sources and dates of such releases.

3.1.1.4 Measurable Outcomes

At the conclusion of this task, preexisting conditions will be documented to the extent possible with the available information. The extent and worth of the hydrogeologic information will have been ascertained and gaps in data identified. Final locations for monitoring wells can be established, and any necessary and major changes to the work plan can be made prior to beginning extensive field work.

3.1.2 Task 2 — Field Investigation — Sensitive Receptors

3.1.2.1 Objective

The field investigation for this project has been divided into field work associated with the potential impact on sensitive receptors and field work associated with plume characterization. The objective of Task 2 is to collect data near sensitive receptors to determine if they have been affected by the hydrocarbon plume. Sensitive receptors initially identified in the vicinity are located downgradient of the refinery. These receptors include the homes and businesses, producing wells utilized for irrigation and consumption, and the pecan grove.

3.1.2.2 Strategy

Field work to determine the impact on these sensitive receptors will include piezometer installation, development, and sampling, vertical groundwater flow tests, onsite soil survey, and soil-gas survey. A more detailed description of the field work is presented in the following paragraphs. The field work associated with plume characterization will be discussed in Task 3.

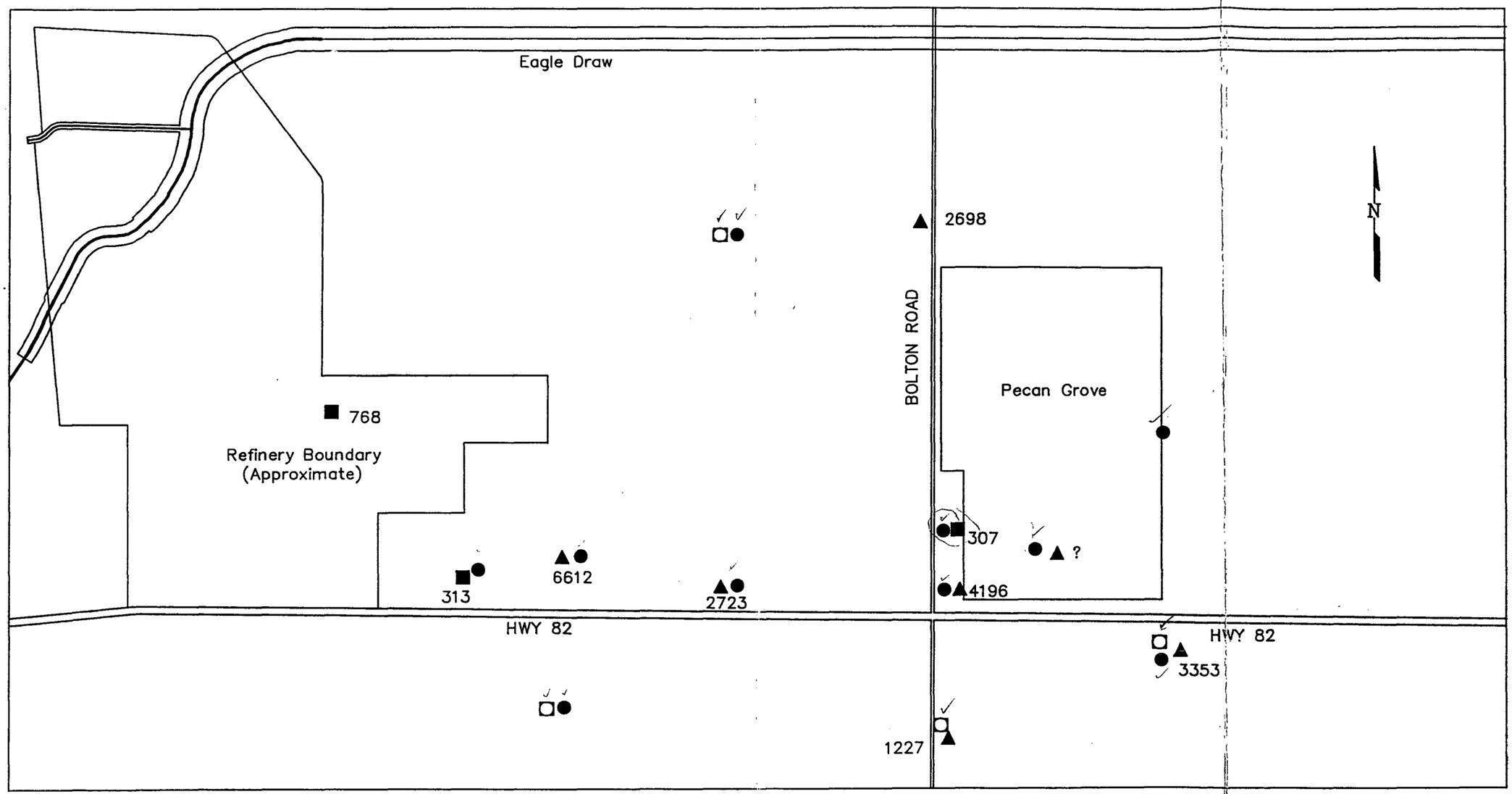
Task 2.1 — Monitoring Wells and Piezometers

Task 2.1.1 — Installation and Development

To determine the impact on the existing producing wells, piezometers will be installed adjacent to each water well located downgradient of the refinery. Locations of the proposed piezometers are presented in Figure 1. A hollow-stem auger rig will be used to drill the boreholes which will be completed as piezometers. In an effort to determine the underlying stratigraphy, continuous core samples will be collected by a Shelby tube or split-spoon sampler. The core samples will be logged by a qualified geologist and recorded in a field log book. The core samples will be screened with a photo-ionization detector (PID) to detect the presence of any volatile hydrocarbons. The PID readings and any additional observations will also be recorded in the field log book. For consistency in the description of the stratigraphy, the same geologist will be responsible for logging each borehole.

A total of seven piezometers will be installed east of the refinery. Six of the piezometers will be constructed of 2-inch diameter, schedule-40 PVC casing. Due to the close proximity of one piezometer to the furthest extent of the plume, this piezometer will be constructed of 4-inch diameter, schedule-40 PVC casing. This piezometer may be converted into a pumping well during remedial action. Each screen will be 10 ft long and slotted over a 9.5-ft interval with 0.010-inch wide slots. Additional 5-ft lengths of screen may be installed if extensive drawdowns near pumping wells are expected. A sand pack will be installed around the entire slotted interval. The sand pack will be topped with a bentonite seal. The annular space above the bentonite seal will be grouted to the surface with cement. Each piezometer will be secured with a lockable protective cover and concrete pad. Completion details for a typical well/piezometer is presented in Figure 2.

The placement of the screen in the borehole will depend on where saturated conditions are first encountered during the drilling. This first saturated zone will be designated as the shallow-most, water-bearing zone. The uppermost portion of the screen will be positioned approximately 2 ft above the top of the saturated zone. Completing the piezometer in this



LEGEND

- ▲ IRRIGATION WELLS–VALLEY FILL AQUIFER
- ■ IRRIGATION WELLS–DEEP ARTESIAN AQUIFER
- □ 4" M.W. LOCATION (PROPOSED)
- ● 2" PIEZOMETER (PROPOSED)

750 0 750 FEET

KWBES

prepared for: Navajo

Monitoring wells & piezometer locations.

PROJECT: 110023012–649 (NAVBASEM)	
LOCATION: ARTESIA, NEW MEXICO	
APPR:	DATE: 12–12–91
DRAWN BY: JW	SCALE: AS SHOWN
DATE: 12–12–91	FIGURE: 1

manner allows for vertical fluctuation in the groundwater level and detection of any free phase, lighter-than-water hydrocarbons.

Upon completion of installation, each piezometer will be developed using a 2-inch diameter pump. The procedure will involve pumping the wells until the water was relatively clear of suspended sediments. Field measurements of EC and pH will be collected periodically during the development to verify that the wells are being properly developed and that fresh groundwater is entering the piezometer.

Task 2.1.2 — Sampling and Analysis

Groundwater samples will be collected from the piezometers using disposable polypropylene bailers. Prior to sampling, three well volumes will be removed from the piezometer to verify that fresh groundwater is being sampled. In addition, to verify that the existing wells are not impacted, groundwater samples will also be collected from these wells (if permission is granted by the landowner). Field measurements of EC and pH will be recorded for each sample.

Sample containers will be supplied by the contracted analytical laboratory. Each sample container will be clearly labeled and will be prepared by the laboratory with any appropriate preservatives. Samples will be collected in the appropriate container and immediately placed on ice. Samples will be shipped to the contracted laboratory in accordance with Department of Transportation (DOT) and commercial carrier regulations. A completed chain-of-custody form will accompany the samples during shipment. The groundwater samples will be analyzed for BTEX, selected cations and anions, and TDS.

Task 2.1.3 — Vertical Groundwater Flow

The piezometers will also be used to obtain measurements of the groundwater level to determine groundwater flow direction and to determine if a hydrogeologic connection exists between the shallow-most, water-bearing zone and the deeper, water-producing zone screened by the producing wells. To determine the hydrogeologic connection, initial groundwater level measurements will be collected from the piezometers and the adjacent producing wells. During the irrigation season (beginning approximately March 1), weekly groundwater level measurements will be collected from both the wells. If connection exists, a decline in groundwater level will be observed in the piezometer and there is the potential for downward migration of the free-phase product into the deeper, water-bearing zone.

Task 2.2 — Onsite Soil Survey

A soil survey will be conducted to the east of the refinery to verify the published soil survey (if available) and obtain additional information as to the physical and chemical properties of the near surface soils (less than 5 ft below the surface). A qualified soil scientist will perform the survey and will prepare a detailed description of the types of soil present in the area of concern.

Soil samples will be collected using a hand auger. At this time we anticipate the soil survey will be limited to preparing a soil description based only on visual observations. If field observations indicate analytical testing is required, a change in the scope of work will be requested.

Task 2.3 — Soil Gas Survey

A soil gas survey may be conducted around the sensitive receptors. These receptors include the wells utilized by the residents for irrigation and consumption and the pecan grove. The soil gas survey, if needed, will be conducted with a soil gas probe mounted on a van. The van will also be equipped with a portable laboratory unit (GC/MS) to analyze the vapor samples at the time of extraction.

Evaluation of soil gas involves driving the sampling equipment to desired depths in the soil profile (above the water table). Once the equipment is at the desired depth, a soil vapor sample is extracted using a vacuum pump. The sample is collected in either sorbent tubes or gas bags and analyzed in the portable laboratory unit (GC/MS).

Soil-gas survey services will be provided by a subcontractor. Navajo may decide that the soil-gas survey is not required. Therefore, this task is considered optional. Initial discussions between KWBES and Navajo personnel during Task 1 will determine if a soil-gas survey is appropriate.

3.1.2.3 Client Involvement

It is expected that Navajo personnel will coordinate activities with local companies and landowners to identify any underground hazards that may be encountered during drilling or installation of soil-gas monitoring points. It is anticipated that any hazards located will be clearly marked.

3.1.2.4 Measurable Outcomes

Measurable outcomes for this task will be limited to field data and observations as well as analytical data for samples collected.

3.1.3 Task 3 — Field Investigation — Plume Characterization

3.1.3.1 Objective

The objective of Task 3 is to characterize the hydrocarbon plume and the physical properties of the shallow aquifer. Specific attention will be given to determining the thickness and lateral extent of the free-phase phase hydrocarbons present on the water table. Additionally, hydrological parameters of the shallow aquifer will be measured.

3.1.3.2 Strategy

Field work to characterize the plume will include exploratory boreholes, well and piezometer installation, development, and sampling, and aquifer tests. A more detailed description of the field work is presented in the following paragraphs.

Task 3.1 — Exploratory Boreholes

To better characterize the extent of the free-product plume, additional exploratory boreholes will be drilled in the fields east of the refinery. A rotary drill rig equipped with a solid auger will be used to drill the exploratory boreholes. At the completion of the drilling, the borehole will be left open for a 24-hour period to allow groundwater to flow into the borehole. The groundwater present in the borehole will be recovered using a disposable bailer and will be inspected for the presence of free-phase product or sheen at the surface of the groundwater sample. The thickness of the hydrocarbon plume will be measured using an oil/water interface probe.

In an effort to determine the underlying stratigraphy, the borehole will be logged from cuttings by a qualified geologist and recorded in a field log book. Cuttings from the boreholes will be monitored using a PID. Any additional observations will also be recorded in the field log book. For consistency in the description of the stratigraphy, the same geologist will be responsible for logging each borehole. All exploratory boreholes will be back-filled to the surface with cuttings.

Task 3.2 — Monitoring Wells and Piezometers

Task 3.2.1 — Installation and Development

To determine the aquifer properties of the shallow-most, water-bearing zone, well clusters consisting of a pumping well and an observation well, will be installed in three areas east of the refinery. An additional well will be installed east of the refinery to determine groundwater flow direction. Locations of the proposed well clusters and the additional well were presented in Figure 1. A hollow-stem auger rig will be used to drill the boreholes which will be completed as wells. In an effort to determine the underlying stratigraphy, continuous core samples will be collected by a Shelby tube or split-spoon sampler. The core samples will be logged by a qualified geologist and recorded in a field log book. The core samples will be screened with a PID to detect the presence of any volatile hydrocarbons. The PID readings and any additional observations will also be recorded in the field log book. For consistency in the description of the stratigraphy, the same geologist will be responsible for logging each borehole.

The pumping wells will be constructed of 4-inch diameter, schedule-40 PVC casing and the observation wells and the additional well will be constructed of 2-inch diameter, schedule-40 PVC casing. Each screen will be 10- to 20-ft long and slotted over a 9.5- to 19-ft interval with 0.010-inch wide slots. A sand pack will be installed around the entire slotted interval. The sand pack will be topped with a bentonite seal. The annular space above the bentonite seal will be grouted to the surface with cement. Each well will be secured with a lockable protective cover and concrete pad. Completion details for a typical well/piezometer were presented in Figure 2.

The placement of the screen in the borehole will depend on where saturated conditions are first encountered during the drilling. This first saturated zone will be designated as the shallow-most, water-bearing zone. The uppermost portion of the screen will be positioned approximately 2 ft above the top of the saturated zone. Completing the well in this manner allows for vertical fluctuation in the groundwater level and detection of any free phase, lighter-than-water hydrocarbons. The pumping well and the adjacent observation well will need to be screened at a similar interval in each well cluster. The additional screen is necessary to allow for the removal and drawdown of a large volume of water during the aquifer test (discussed in Task 3.1.3)

Upon completion of installation, each well will be developed using a 2-inch or 4-inch diameter pump. The procedure will involve pumping the wells until the water was relatively clear of suspended sediments. Field measurements of EC and pH will be collected periodically during

the development to verify that the wells are being properly developed and that fresh groundwater is entering the well.

Task 3.2.2 — Sampling and Analysis

Groundwater samples will be collected from the observation wells and the additional well using disposable polypropylene bailers. Prior to sampling, three well volumes will be removed from the wells to verify that fresh groundwater is being sampled. Field measurements of EC and pH will be recorded for each sample.

Sample containers will be supplied by the contracted analytical laboratory. Each sample container will be clearly labeled and will be prepared by the laboratory with any appropriate preservatives. Samples will be collected in the appropriate container and immediately placed on ice. Samples will be shipped to the contracted laboratory in accordance with Department of Transportation (DOT) and commercial carrier regulations. A completed chain-of-custody form will accompany the samples during shipment. The groundwater samples will be analyzed for BTEX, selected cations and anions, and TDS.

Task 3.2.3 — Aquifer Tests

To determine the aquifer properties of the shallow-most, water-bearing zone, three separate aquifer tests will be performed east of the refinery. The well cluster locations were selected to avoid intercepting the free-product plume. Locating the well clusters out of the plume will eliminate the necessity of collecting and treating impacted groundwater extracted during the aquifer test. Three tests are proposed to determine if varying aquifer properties are present throughout the investigation area.

The performance of an aquifer test involves the installation of the wells, pumps, plumbing, and instrumentation. To gather all the necessary data, an automated data logger will be used to collect water level measurements via a pressure transducer in both the pumping well and the observation well. The aquifer test will consist of two phases; a pumping phase and a recovery phase. Following a period of pumping which will lower the groundwater level, the pumping well will be shut off and the water level will be allowed to recover to an initial level. By evaluating the water level measurements recorded in the data logger, the aquifer properties of transmissivity and storage coefficient can be calculated. These properties define the geometry of the cone-of-depression surrounding the pumping well. A complete understanding of the geometry of the cone-of-depression will be necessary in determining an effective groundwater recovery system.

Task 3.3 — Land Survey

Following the installation of all the piezometers and wells, a limited survey will be necessary to determine the location and elevation of the new piezometers and wells and the existing producing wells. Elevations of interest from the wells include the ground elevation and the top of casing (TOC) elevation. The TOC elevation is necessary to determine the piezometric surface and the groundwater flow direction across the investigation area.

3.1.3.3 Client Involvement

It is expected that Navajo personnel will coordinate activities with local companies and landowners to identify any underground hazards that may be encountered during drilling or installation of soil-gas monitoring points. It is anticipated that any hazards located will be clearly marked.

3.1.3.4 Measurable Outcomes

Measurable outcomes for this task will be limited to field data and observations as well as analytical data for samples collected. Survey information for the location and elevations of the monitoring wells and piezometers will also be available at the end of this task.

3.1.4 Task 4 — Presentation of Data

3.1.4.1 Objective

The objective of Task 4 is to summarize the findings of Tasks 2 and 3 in a final report. This information is then to be presented to the refinery and ultimately to the landowners.

3.1.4.2 Strategy

Upon completion of the field work, all of the data collected will be analyzed and summarized. Specific tasks will include, but not be limited to, preparation of boring logs and geologic cross-sections, interpretation of aquifer test data and groundwater analytical data, preparation of groundwater potentiometric maps and soil-gas contour maps, and presentation of recommendations of future remedial activities.

3.1.4.3 Client Involvement

It is expected that Navajo personnel will have little involvement with this task. At the completion, however, a draft copy can be made available for review and comment. If a draft copy is re-

quested, completion of the final report and the time required to address any comments will be considered an out-of-scope task.

3.1.4.4 Measurable Outcomes

Measurable outcomes for this task will be two copies of a bound final report. Upon request, software versions of all text and figures can be provided. Text will be prepared using Microsoft Word Version 5; tables will be prepared using Microsoft Excel Version 2; maps and figures will be prepared using AutoCAD Version 10 or 11.

3.2 PROJECT SCHEDULE

KWBES recognizes the importance Navajo attaches to the timely completion of the proposed work program. As such, KWBES has allocated the resources needed for execution of the project and plans to employ the strictest management to assure achievement of all milestones of this project (refer to Section 4.0, Management Plan). This section discusses the milestones of schedules specific to each task and provides an overall summary of the master project schedule (Figure 3).

3.2.1 Task 1 Schedule

KWBES anticipates that Task 1 will require nearly 5 weeks to complete. The components and associated milestones that are critical to timely completion of this task include: conducting meetings, reviewing file material, conducting landowner interviews, requesting drilling permits, and preparing a status report. KWBES does not anticipate any changes to this timeline.

3.2.2 Tasks 2 and 3 Schedule

KWBES proposes to initiate Tasks 2 and 3 at the conclusion of Task 1. KWBES anticipates these tasks will require nearly 7 weeks to complete. Task 2 will be initiated first to assess current conditions around sensitive receptors. This will be followed immediately by Task 3 to characterize the plume. Many of the field activities for both of these tasks will be handled concurrently. The components and associated milestones that are critical to timely completion of these tasks include: installation of monitoring wells and piezometers, collection of groundwater samples, characterization of aquifer properties, and conducting a soil-gas survey. KWBES does not anticipate any delays, provided there are no significant weather delays or equipment failures.

Project Timeline

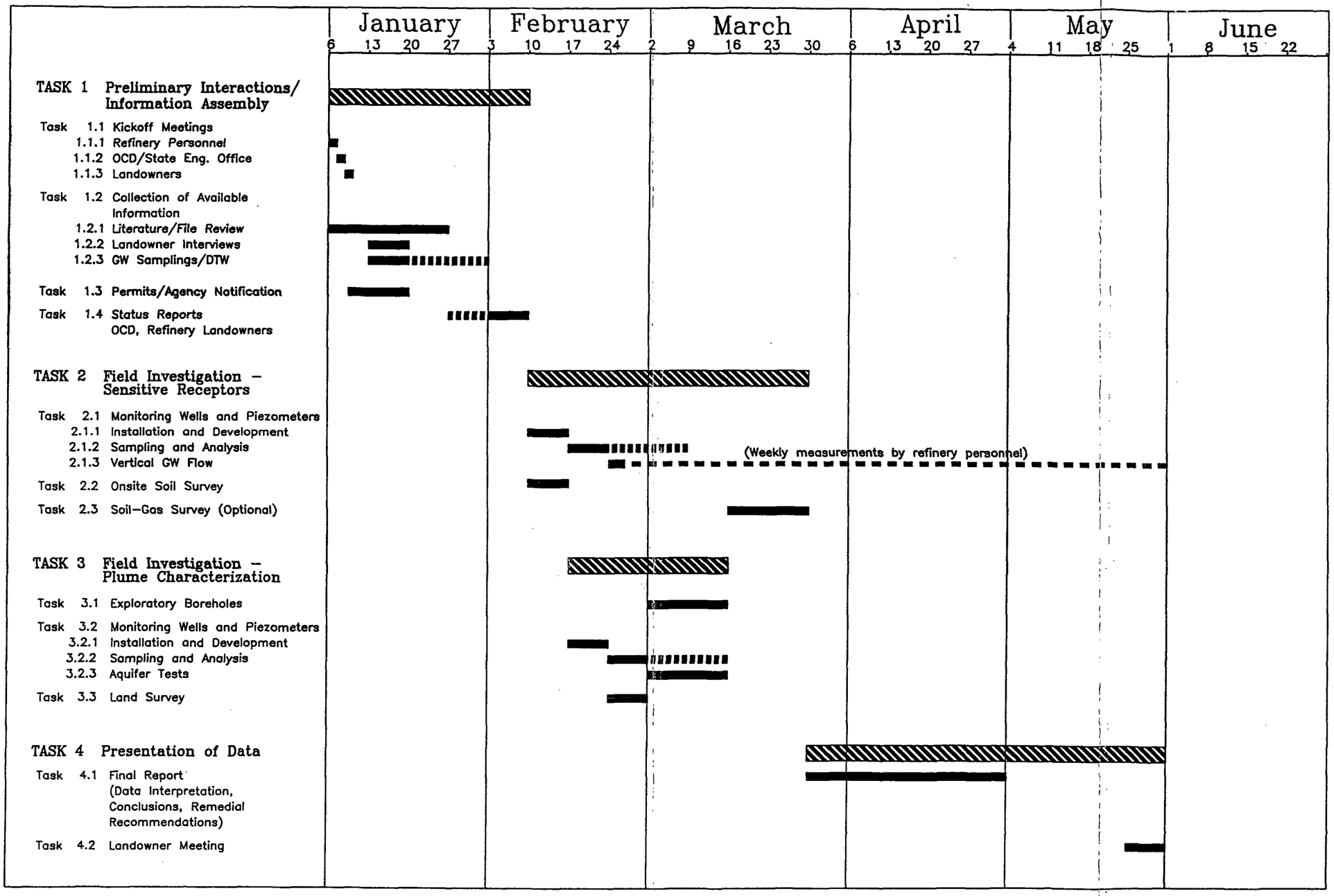


Figure: 3

3.2.3 Task 4 Schedule

KWBES anticipates that Task 4 will require up to 6 weeks to complete (including interpretation of aquifer test data). The components and associated milestones that are critical to timely completion of this task include preparation of the final report.

Subsequent to Navajo's review of the report, KWBES will participate in a meeting with the landowners and the OCD to convey relevant information gathered during the study. KWBES is ready to discuss the particular scope of this task with Navajo during the meetings of Task 1.

3.2.4 Master Project Schedule

The proposed master schedule for this project is outlined in Figure 3. The four project tasks and associated dependencies can be seen in this timeline. In summary, KWBES is confident that the project can be finalized near the end of May 1992.

KWBES is also aware that Navajo may choose to expand the scope of this project to include other related assignments. KWBES does not see additional assignments jeopardizing the overall schedule, provided Navajo can identify such assignments early.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202-2733

MAR 09 1992

RECEIVED
MAR 11 1992
NM ENVIRONMENT DEPARTMENT
OFFICE OF THE SECRETARY

CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Mr. Jack Reid, President
Navajo Refining Company
501 E. Main Street
Artesia, New Mexico 88210

RE: Request for Information - RCRA Chemical Analysis and Toxicity Characteristic Analytical Results for the Dissolved Air Floatation Unit, Trickling filter - Outfall Box, Outfall from 3 mile Wastewater pipe, and Evaporation Lagoons

Dear Mr. Reid:

The U.S. Environmental Protection Agency (EPA) has a statutory mandate to protect public health and the environment from the adverse effects of hazardous wastes. Pursuant to Section 3007 of the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. §6927, any person who generates, stores, treats, transports or otherwise handles, or has handled, hazardous wastes shall, upon request of any officer or employee of EPA, furnish information relating to such wastes. The term "hazardous wastes" is defined in Section 1004(5) of RCRA, 42 U.S.C. §6903(5), and includes those substances listed in 40 CFR Part 261.

As used herein, the term "documents" means writings (handwritten, typed, or otherwise produced or reproduced) and includes, but is not limited to, any invoices, checks, receipts, correspondence, offers, contracts, agreements, manifests, licenses, bills of lading, permits, bids, proposals, policies of insurance, logs, minutes of meetings, memoranda, notes, calendar or diary entries, charts, maps, photographs, drawings, manuals, reports of analyses, analytical studies or investigations, telegraphs, teletypes, magnetic tapes, punch cards, recording disks, computer printouts, or other data compilations from which information can be obtained or translated.

MAR 17 1992

EPA is requesting information to ensure that the requirements of the Toxicity Characteristic (TC) final rule have been met by your company. As a result of this inquiry, EPA is requesting that the following information, with all available supporting documents, be submitted to EPA:

1. Navajo shall submit all analytical data (chemical analysis) associated with the effluent from the Dissolved Air Floatation Unit from the past four years. Navajo shall include all hazardous constituents analysis and all TC analysis on this wastewater/effluent.

2. Navajo shall submit all analytical data (chemical analysis) associated with the effluent/wastewater from the Trickling filter at the outfall box of this unit from the past four years. Navajo shall include all RCRA hazardous constituents analysis and all TC analysis on this wastewater/effluent.

3. Navajo shall submit all analytical data (chemical analysis) associated with the effluent/ wastewater from the outfall pipe (from the 3 mile pipe) into the evaporation lagoons from the past four years. Navajo shall include all RCRA hazardous constituents analysis and all TC analysis on this wastewater/effluent.

4. Navajo shall include all analytical data (chemical analysis) associated with the sludges from all evaporation ponds from the past four years. Navajo shall include all RCRA hazardous constituents analysis and all TC analysis on this sludge/soil material.

All information required by this letter should be submitted to the following:

William K. Honker, P.E., Chief
U.S. Environmental Protection Agency
Hazardous Waste Management Division
RCRA Permits Branch (6H-P)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

In accordance with RCRA, Section 3007, the records, reports, and/or information requested in this letter must be submitted whether or not you regard part or all of it as trade secret or confidential. You may, if you desire, assert a business confidentiality claim for all or part of the information submitted. The information covered by such a claim will be disclosed by EPA only to the extent and by the procedures set forth in 40 CFR Part 2, Subpart B. Unless you make a claim at the time you submit the information, it may be made available to the public by EPA without further notice to you. If

ssert a business confidentiality claim, you must ach page of each document included in your claim with as "trade secret", "proprietary", or "company Such confidential material may be submitted other materials.

ed that if you knowingly omit information or make ial statement or representation in the information ay be subject to criminal penalties under 18 U.S.C. 3008(d) of RCRA.

must be sent to EPA within thirty (30) calendar eipt of this letter. Failure to comply with this lt in an order requiring compliance or a civil oriate relief. Failure to respond could subject ative and civil penalties. The requirements of ot subject to the Paperwork Reduction Act of 1980, seq.

estions or comments concerning this issue, please ver of my staff, at (214) 655-6775.

ector
agement Division (6H)

NMED
v, Holly Corp.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☑ Telephone ☐ Personal	Time 1130	Date 3/2/92

Originating Party	Other Parties
Bill Olson - OCD	Dave Griffin

Subject

Navajo Refinery

Discussion

Requested Navajo send OCD investigation scope of work which was omitted from 2/4/92 Navajo correspondence. Asked whereabouts of Navajo annual report due the end of this last year. He believed sampling was done in December but doesn't know fate of annual report

Conclusions or Agreements

He will send scope of work ASAP and will determine fate of annual report

Distribution
Navajo file

Signed Bill Olson

TELEPHONE
(505) 748-3311

EASYLINK
62905278
FAX
(505) 746-6410

REFINING COMPANY
501 EAST MAIN STREET • P. O. DRAWER 159
ARTESIA, NEW MEXICO 88210

February 7, 1992

Mr. Roger Anderson, Acting Chief
Environmental Bureau
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501

Dear Mr. Anderson:

Please be advised that Mr. Zeke Sherman is no longer an employee of Navajo Refining Company. Mr. Sherman has resigned to take a position with another company and we wish him well.

Please advise your staff that all *ongoing* efforts with Navajo involving Mr. Sherman should be referred to me. Navajo would appreciate your indulgence while we undertake the task of replacing Mr. Sherman. Hopefully there will only be minor interruptions following Mr. Sherman's departure from Navajo.

Sincerely

David G. Griffin
Supt. Environmental
Affairs/Quality Control

DGG/pb