AP - 40

STAGE 1 & 2 WORKPLANS

DATE:

10/7/2005

RICHARDSON OPERATING COMPANY

5600 South Quebec Street, Suite 130B
Greenwood Village, CO 80111
(303) 830-8000 Fax (303) 830-8009

October 7, 2005

Mr. Glenn Von Gonten
Senior Hydrologist
New Mexico Energy, Minerals & Natural Resources
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Mr. Denny Foust
New Mexico Energy, Minerals & Natural Resources
OCD – Aztec District Office
1000 Rio Bravos Road
Aztec, NM 87410

RE: Stage 1 Abatement Plan for Richardson Operating Company & PETRO MEX LLC

Gentlemen:

On behalf of Richardson Operating Company and PETRO MEX LLC please find the enclosed Stage 1 Abatement Plan.

Please do not hesitate to contact me if you have any questions or desire any additional information regarding this matter.

Sincerely,

RICHARDSON OPERATING COMPANY

John Heinle
Land Management / Engineering

RECEIVED

OCT 06 2005

Oil Conservation Division
Environmental Bureau
Project # 98094-009

October 4, 2005

Mr. Roger Anderson
Environmental Bureau Chief
NMOCD
1220 South St. Francis Dr.
Santa Fe, NM 87505

Phone (505) 476-3490

Re: **STAGE 1 ABATEMENT PLAN FOR THE BOB AND BLANCHE NO. 1 SPILL 3R0401 KIRTLAND, NEW MEXICO**

Dear Mr. Anderson:

Enclosed, please find the *Stage 1 Abatement Plan for the Bob and Blanche No. 1* 3R0401 located in Kirtland, New Mexico. This plan complies with the NMOCD requirements for a Joint Abatement Plan per Rule 19 NMAC.

If you have any questions or need additional information, please do not hesitate to contact me at (505) 632-0615.

Respectfully Submitted,
ENVIROTECH INC.

C. Jack Collins
Chief Environmental Scientist / Hydrogeologist
NMCES # 038
jcollins@envirotech-inc.com

Enclosure Stage 1 Abatement Plan

cc: Tom Bergin – Richardson Operating
Tim Foster – Landowner
Patty Davis – Richardson Operating
John Heinle – Richardson Operating
Jesus Villalobos – PETRO MEX LLC

Client File No. 98094

Stage I Abatement Plan Proposal

FOR

Richardson Operating & Petro MEX LLC
BOB & BLANCHE NO. 1
576 COUNTY ROAD 6100
KIRTLAND, NEW MEXICO

PROJECT #98094-009

October 2005

STAGE 1 ABATEMENT PLAN PROPOSAL

SITE NAME:

BOB AND BLANCHE NO. 1
COUNTY ROAD 6100
KIRTLAND, NEW MEXICO

SUBMITTED TO:

Mr. Roger Anderson
Environmental Bureau Chief
NMOCD
1220 South ST. Francis Dr.
Santa Fe, NM 87505

SUBMITTED BY:

Richardson Operating
5600 S. Quebec St., Suite. 130B
Greenwood Village, Colorado 80111
(303) 830-8000
AND
PETRO MEX LLC
P.O. BOX 6724
FARMINGTON, NM 87499

PREPARED BY:

ENVIROTECH INC.
5796 U.S. HIGHWAY 64
FARMINGTON, NEW MEXICO 87401
(505) 632-0615

PROJECT NO. 98094-009

OCTOBER, 2005

Stage 1 Abatement Plan
Bob and Blanche No. 1
SPILL 3R0401

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INTRODUCTION

Envirotech Inc. has been retained by Richardson Operating Company and Petro Mex LLC, the owners and responsible parties of a well site known as Bob and Blanche No. 1, to prepare a Stage 1 Remediation Plan to investigate any groundwater and soil contamination at the above referenced site. In July 2005, a confirmed release of fluids occurred at the above referenced site. Envirotech, Inc. was contracted by Richardson Operating to provide spill response and remediation services. During the course of remediation activities, water samples collected from the open excavation indicate that groundwater in the area may have been impacted with levels of benzene and xylene that are above New Mexico Groundwater Quality Standards. The site is located on County Road 6100 in Kirtland, New Mexico see ***Figure 1, Vicinity Map.***

Due to the site location and depth to groundwater, the New Mexico Oil Conservation Division (NMOCD) has requested a Stage 1 Abatement Plan.

Abatement Plan Proposal

The purpose of this abatement plan is to provide the methodology for an investigation consisting of soil borings, monitor well installation, on-site investigation activities, site geology and hydrogeology, laboratory analysis, reporting of the on-site activities at the subject site, public notice and participation. The following scope of services has been designed to meet this objective.

1) Initially five (5) soil borings will be completed to determine site geology and hydrogeology, the horizontal and vertical extent of contamination on-site. All five (5) of these soil borings will be completed as monitor wells. Proposed monitor wells will be located down gradient, south and southwest, of the former release, and one (1) up gradient near the source area will be installed to establish background conditions. In addition, four (4) existing shallow water wells near the site will be sampled with the monitor wells to provide additional information. Proposed monitor well locations (PMW-1 thru PMW-5) and water wells (WW-1 thru WW-4) are shown on ***Figure 2, Site Map.*** Final monitor well locations will be negotiated with the NMOCD. Additional step out monitor wells will be constructed as required to complete the investigation.
2) An inventory of water wells inside and within one (1) mile from the perimeter of the contamination that exceeds state standards. As well as the location and number of wells actually or potentially impacted.
3) Monitoring stations and sampling schedule will be established. A quality assurance plan consistent with the sampling and analytical techniques will be utilized in order to meet the state water quality standards.
4) A schedule for all Stage 1 Abatement Plan activities, including quarterly progress reports and a detailed final site investigation report documenting the results of on-site activities, will be prepared and submitted to Richardson Operating, Petro Mex LLC and the NMOCD.

The following task oriented abatement plan has been prepared to meet the requirements set forth by the NMOCD.

Task 1: Project Management

Sundry and diverse duties are associated with management, maintenance, and reporting. This includes project scheduling, conference with the NMOCD and Responsible Party, work plan development, cost estimating, field and laboratory data review, management of operation and maintenance, and review of all reports and specifications. Administrative and secretarial time is included for project file research and maintenance as well as project administrative duties.

Task 2: Soil Borings and Monitor Well Installation

a. Initially, a total of five (5) soil borings will be completed to determine the horizontal and vertical extent of groundwater contamination underlying the site. Four (4) proposed monitor wells will be located down gradient, south and southwest, of the former release, and one (1) up gradient near the source area. Soil boring locations will need to be modified in the field so as to minimize the impact on the land owner's agricultural actives. Soil borings will be advanced to a minimum depth of approximately 5 feet below the air water interface using a hollow stem auger drill rig and will be continuously sampled using a split spoon sampler. All drilling and sampling tools will be thoroughly decontaminated between samples. Field personnel will conduct field screening continuously to evaluate, describe, and record lithology, hydrocarbon vapors, odor, and all other observations pertinent to the geology of the site. Any contamination detected during drilling activities will be noted. Proposed soil boring locations (PMW-1 thru PMW-5) are shown on ***Figure 2.*** Final soil boring locations will be negotiated with the NMOCD Environmental Officer and the landowner. If it is found that five (5) monitor wells have not fully delineated the soil and any groundwater contamination, additional monitor wells may be required. If it is determined that seasonal variations in water levels are greater than five (5) feet, additional monitor wells with longer screens may be required to account for these variations.

b. A minimum of one (1) soil sample will be collected for laboratory analysis from immediately above the water level, or the highest visual or PID headspace reading or at every major change of lithology, or at the total depth of the soil boring if no contamination is encountered. The sample location and number of samples will be determined in the field so as to best characterize the extent of the soil contamination. Samples will be analyzed for volatile organic constituents using EPA method 8021 (formally EPA Method 8020) for BTEX and EPA method 8015 modified for TPH. All soil samples will be preserved on ice in a chilled, insulated cooler until delivered to the analyzing laboratory. All sample collection, screening, and preservation protocols will adhere to the 1993 NMOCD Soil and Water Sampling and Disposal Guidelines. Soil

boring lithologic logs and monitor well completion logs will be prepared for each monitor well.

c. In order to determine where groundwater has been impacted, all five (5) soil borings will be completed across the air/water interface. Monitor wells will be constructed of 2-inch Schedule 40 PVC threaded flush joint casing with 0.010 slot screen. The screens will be gravel packed with #10–20 Colorado silica sand to one (1) foot above the screened interval, followed by two (2) feet of bentonite chips. Above ground steel well protector completions will be cemented in place at the surface. The screened interval will be placed to allow a minimum of five (5) feet of screen below and above the static water level. Monitor well Cuttings resulting from the soil borings will be drummed and removed for off-site disposal in accordance with all local, state, and federal statutes and regulations.

Task 3: Monitor Well Development and Survey

Each monitor well will be surveyed to provide control for latitude, longitude, and U.S.G.S. elevation. Upon completion of the monitor wells, the top of casing elevations will be surveyed into the site benchmark in order to provide 0.01 foot vertical control and 0.1 foot horizontal control. The site benchmark will be established, identified, documented, and referenced to latitude, longitude, and the appropriate U.S.G.S. 7.5 minute topographic map. Each well casing will be permanently marked to indicate the point from which the depth to groundwater is determined. The survey will include all monitor wells.

The newly completed monitor wells will be developed by purging with a new disposable bailer or pump until the produced water is clear and the pH, conductivity, and temperature have stabilized pursuant to the most recent NMOCD Sampling and Disposal Guidelines. Within 48 hours of development the monitor wells will be sampled. Water generated from the development and sampling of these monitor wells will be disposed of at permitted disposal facility in accordance with the NMOCD Sampling and Disposal Guidelines.

Task 4: Groundwater Monitoring and Analysis

Water samples will be submitted to the laboratory for determination of VOCs analysis including benzene, toluene, ethylbenzene, and total xylenes (BTEX). The sample procedures will follow USEPA SW-846 protocol. Water levels will be measured prior to bailing each well. A minimum of three (3) well volumes will be removed from each well prior to sampling using a new disposable bailer. Conductivity, pH, and temperature will be measured and recorded. Samples will be collected into 40 ml VOA vials with Teflon closures, preserved with $HgCl_2$, capped headspace free, labeled and stored on ice in an ice chest. Samples will be delivered to Envirotech Laboratory for analysis by USEPA Method 8021B, Major Cations and Anions, Heavy Metals by USEPA Method 6010, and Polynuclear Aromatic Hydrocarbons by EPA Method 8100.

In addition, water from the four (4) existing water wells near the area of interest will be sampled and analyzed by the above methods following the protocol previously outlined in this section.

Purge water and development water will be disposed of at Envirotech's NMOCD Permitted Facility

Task 5: Report Preparation

A detailed final site investigation report will be prepared upon completion of drilling, development, survey, and sampling activities. The report will address the methods and procedures, analytical results, survey calculations, and other information related to the on-site activities. The report will include geologic cross sections and iso-concentration maps of each contaminate of concern above WQCC Abatement Standards. One (1) copy of the report will be submitted to Richardson Operating, one (1) copy will be submitted to Petro Mex LLC, one (1) copy will be submitted to the landowner, and one (1) copy will be submitted to the NMOCD.

Task 6: Public Notice

Following approval of the Stage 1 Abatement Plan proposal, written notice in a format approved by the NMOCD to the following persons within one (1) mile of the contaminated area will be made:

a.) surface owners of record
b.) county commissioners
c.) city officials of Fruitland and Kirtland
d.) other persons who have requested notification
e.) the New Mexico trustee for natural resources and any local, state of federal agency as identified by the NMOCD
f.) The president of the Navajo Nation

In addition, within fifteen days following approval by the NMOCD, public notice will be made in a format approved by the NMOCD, in the local and general circulation state newspaper of the Stage 1 Abatement Plan.

CLOSURE AND LIMITATIONS

The scope of Envirotech's services will be limited to project management, monitor well installation, sampling, laboratory analysis, and reporting at the Richardson's Bob and Blanche No. 1 on County Road 6100, Kirtland, New Mexico. All work will be performed in accordance with accepted practices in geotechnical, environmental and petroleum engineering, and hydrogeology.

Envirotech will not perform work beyond the Scope of Services outlined herein without first obtaining approval from Richardson Operating and PETRO MEX LLC.

We appreciate the opportunity to be of service. For additional information or to schedule the services outlined in this work plan, please contact us at (505) 632-0615.

Sincerely,

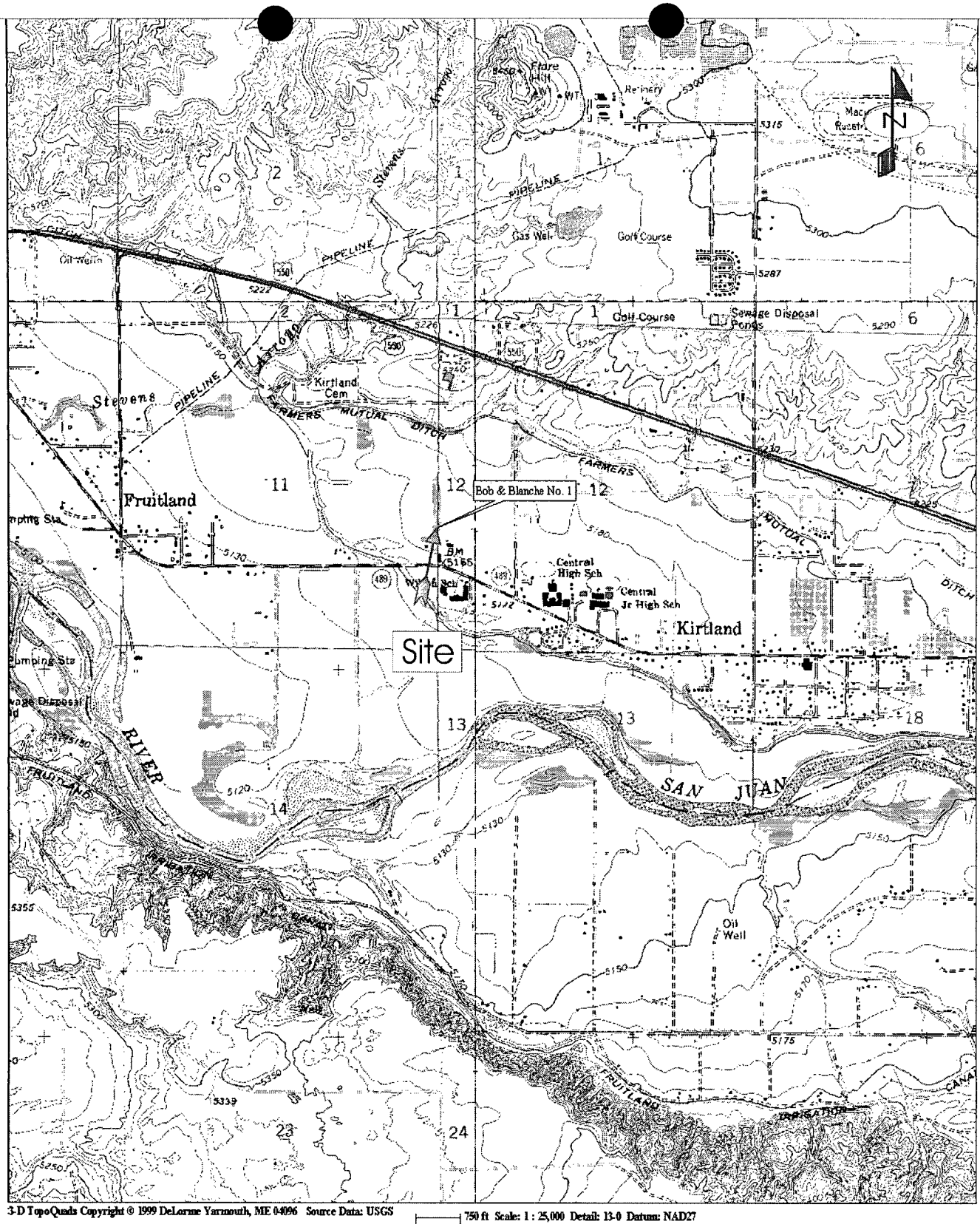
ENVIROTECH INC.

Reviewed by:

C. Jack Collins, PG #1822
Chief Environmental Scientist/Hydrogeologist
NMCES #038
jcollins@envirotech-inc.com

Morris D. Young
President
NMCES #098
myoung@envirotech-inc

FIGURES



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 750 ft Scale: 1 : 25,000 Detail: 13-0 Datum: NAD27

Bob & Blanche No. 1
Richardson Operating
Kirtland, New Mexico

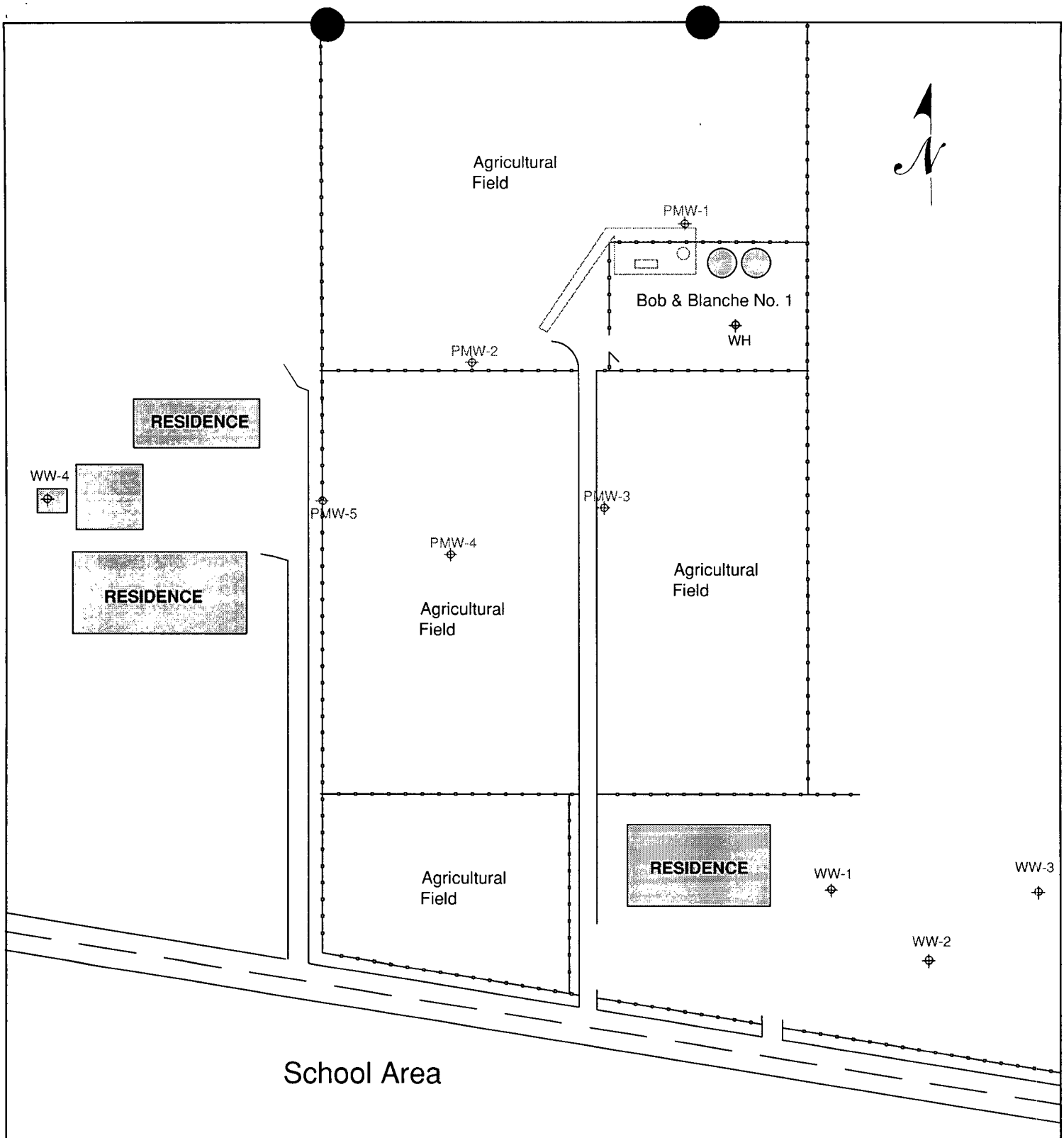
PROJECT No 98094-007 | Date Drawn: 07/31/05

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64
FARMINGTON, NEW MEXICO 87401
PHONE (505) 632-0615

Vicinity Map

Figure 1

DRAWN BY: DMY | PROJECT MANAGER:



Richardson Operating and Petro Mex LLC
Bob and Blanche #1 Spil 3R0401
Stage 1 Abatement Proposal

REVISIONS
BY CJC DATE 09/26/05
BY ___ DATE ___

Project # 98094-009

ENVIROTECH INC.
ENVIRONMENTAL SCIENTISTS & ENGINEERS
5796 U.S. HIGHWAY 64-3014
FARMINGTON, NEW MEXICO 87401
(505) 632-0615

SITE MAP

DATE 07/31/05 DRAWN DMY
SCALE 1cm = 67' APPROVED MDY

FIGURE 2