AP - 40

STAGE 1 & 2 WORKPLANS

DATE: 8/2005

ENVIROTECH INC. 3R0401

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

MINIMUM SITE ASSESSMENT WORKPLAN

FOR

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

PROJECT #98094-007

August 2005

5796 U.S. HIGHWAY 64 • FARMINGTON, NM 87401 • (505) 632-0615

ENVIROTECH INC.
PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

August 1, 2005

Project #98094-007

Mr. Ryan Bruner
Richardson Operating
5600 S. Quebec St., Suite. 130B
Greenwood Village, Colorado 80111

Phone (303) 830-8000

Re: **MINIMUM SITE ASSESSMENT**
WORK PLAN
BOB AND BLANCHE NO. 1
KIRTLAND, NEW MEXICO

Dear Mr. Bruner:

Enclosed, please find the *Minimum Site Assessment Work plan* for the Bob and Blanche No. 1 located in Kirtland, New Mexico.

30-045-24743

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

Respectfully Submitted,
ENVIROTECH INC.

David Young
Sr. Environmental Technician
dyoung@envirotech-inc.com

Enclosure Work plan and (1) copy

Cc: Client File No. 98094

DMY:F:\Projects\non-PST\Richardson\B & B 1\Phase 1\MSAworkplan.doc

MINIMUM SITE ASSESSMENT
WORKPLAN

SITE NAME:

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

SUBMITTED TO:

Mr. Ryan Bruner
Richardson Operating
5600 S. Quebec St., Suite. 130B
Greenwood Village, Colorado 80111
(303) 830-8000

SUBMITTED BY:

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

PROJECT NO. 98094-007

AUGUST 1, 2005

MINIMUM SITE ASSESSMENT
WORKPLAN
Bob and Blanche No. 1

TABLE OF CONTENTS

INTRODUCTION

Envirotech Inc. has been retained by Richardson Operating, the owner and responsible party of a well site known as Bob and Blanche No. 1, to prepare a work plan for a Minimum Site Assessment at the above referenced site. In July 2005, a confirmed release of fluids occurred at the above referenced site. Envirotech, Inc. was contracted by the responsible party to provide spill response and remediation services. During the course of remediation activities, it was discovered that groundwater in the area had been impacted and was contaminated with levels of benzene and xylene that do not meet 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 has requested a MSA of the area to delineate the horizontal extent of groundwater contamination. This work plan will meet that request.

PURPOSE AND SCOPE OF SERVICES

The purpose of this work plan is to provide the methodology and cost information for a MSA consisting of soil borings, monitor well installation, on-site investigation activities, laboratory analysis, and reporting of the on-site activities at the subject site. The following scope of services has been designed to meet this objective.

1) A total of five (5) soil borings will be completed to determine the horizontal 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. 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.

2) A report documenting the results of on-site activities will be prepared and submitted to Richardson Operating and the NMOCD.

WORKPLAN FOR MINIMUM SITE ASSESSMENT

The following task oriented work 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. A total of five (5) soil borings will be completed to determine the horizontal 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 borings will be advanced to a depth of approximately 11 feet 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.

b. 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 the static water level. Monitor well completions will meet or exceed the NMED Standard Monitor Well Design included in the. 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.

c. One (1) soil samples will be collected for laboratory analysis from immediately above the water level or at the total depth of the soil boring. Samples to be analyzed for volatile constituents will be extracted in the field using the methanol extraction procedure outlined in the most recent NMED Soil and Water Sampling and Disposal protocols (revised August 2003). 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 most recent NMED Soil and Water Sampling and Disposal Guidelines. Soil samples will be submitted to the laboratory for determination of volatile organic compounds (VOCs) analysis per USEPA

Method 8260. Soil boring logs and monitor well completion logs will be completed in the field.

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 NMED 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 in accordance with the NMED 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 8260B.

In addition, water from the four (4) existing water wells near the area of interest will be sampled and analyzed by USEPA Method 8260B following the protocol previously outlined in this section.

Task 5: Report Preparation

A 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. One (1) copy of the report will be submitted to Richardson Operating and one (1) copy will be submitted to the NMOCD. Administrative and secretarial time is included for report preparation assistance.

COST SUMMARY

A Cost Summary Spreadsheet is included in ***Appendix B*** for each task outlined above. Summarized in ***Table 1*** is the cost estimate associated with each of these tasks:

Table 1
Minimum Site Assessment
Cost Detail Summary

TASK	DESCRIPTION	COST ESTIMATE
Task 1	Project Management	$875.45
Task 2	Soil Borings and Monitor Well Installation	$7,985.15
Task 3 & Task 4	Monitor Well Development & Survey and Groundwater Monitoring & Analysis	$2,085.50
Task 5	Report Preparation	$836.50
	Subtotal	$11,782.60
	NMGRT 6.1875%	$729.05
	Total	$12,511.65

FIXED FEE BASIS

Envirotech proposes to complete the MSA on a fixed fee basis according to the following schedule:

Total Cost.....$12,511.65

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 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 the Responsible Party.

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.

David M. Young
Sr. Environmental Technician
dyoung@envirotech-inc.com

Reviewed by:

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

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

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-XXX | Date Drawn: 07/31/05

ENVIROTECH INC.

ENVIRONMENTAL SCIENTISTS & ENGINEERS

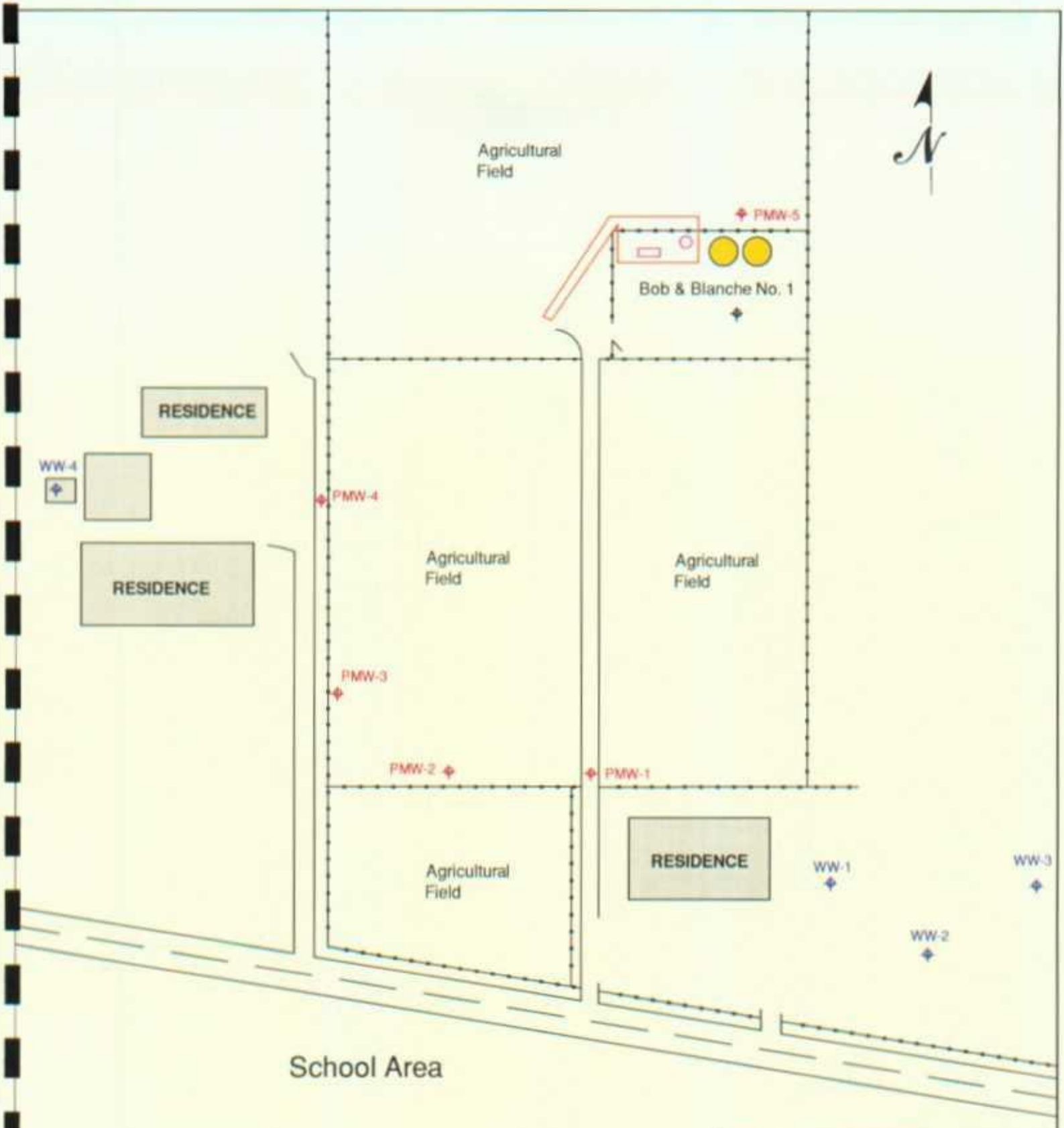
5796 U.S. HIGHWAY 64
FARMINGTON, NEW MEXICO 87401

PHONE (505) 632-0615

Vicinity Map

Figure 1

DRAWN BY: DMY | PROJECT MANAGER:



Richardson Operating
Bob and Blanche No.1
Proposed Monitor Wells

REVISIONS
BY XXX DATE XX/XX/XX
BY XXX DATE XX/XX/XX

JOB/PROJECT #

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

APPENDIX

COST SUMMARY SPREADSHEET

Envirotech Inc., Farmington, New Mexico
COST SUMMARY SPREADSHEET

Richardson Bob & Blanche No. 1
MSA Monitor Well Instalation, and Groundwater Monitoring
Kirtland, New Mexico

07/26/05

Description	RATE/UNIT	Project Management		Installation of Five (5) 10' Monitor Wells	Groundwater Monitoring Event, One (1)	Reporting	TOTAL UNIT	TOTAL COST
1-Services								
Principal	$137.50	0.5				1.0	1.5	$206.25
Senior Scientist/Engineer	$104.50	1.0				1.0	2.0	$209.00
Project Scientist / Engineer	$82.50	2.0				4.0	6.0	$495.00
Staff Scientist / Engineer	$66.00	4.0		32.0	8.0		44.0	$2,904.00
Draftsperson	$51.75	1.0					1.0	$51.75
Administrator	$63.25	2.0				2.0	4.0	$253.00
Secretarial	$34.50	2.0				4.0	6.0	$207.00
Total Labor								$4,326.00
2- Expenses								
Env. Support Vehicle	$70.50			3.0			3.0	$211.50
Env. Support Truck / mile	$0.34			120.0			120.0	$40.80
Drill Rig / w Helper / hour	$140.40			16.0			16.0	$2,246.40
Drill Rig Mobe / Demobe / hour	$105.84			3.0			3.0	$317.52
Support Truck / w Trailer / day	$90.50			3.0			3.0	$271.50
Support Truck / w Trailer / mile	$0.34			120.0			120.0	$40.80
Power Washer / day	$125.00			2.0			2.0	$250.00
Per diem / day	$75.00						0.0	$0.00
Silica Sand 50# Sack	$10.69			12.0			12.0	$128.28
Bentonite Chips 50# Sack	$10.23			5.0			5.0	$51.15
Bentonite Gel 50# Sack	$10.05			1.0			1.0	$10.05
Portland Cement 94# Sack	$14.19			10.0			10.0	$141.90
Redi-Mix Concrete 50# Sack	$7.05			10.0			10.0	$70.50
2" SCHD 40 PVC casing / 5' jt.	$12.22			5.0			5.0	$61.10
2" SCHD 40 PVC Screen / 5' jt.	$19.53			5.0			5.0	$97.65
2" SCHD 40 PVC End Cap	$8.22			5.0			5.0	$41.10
2" Locking Well Plug / each	$19.13			5.0			5.0	$95.65
Well Protector 4' & Guardrails	$113.85			5.0			5.0	$569.25
Carbide Teeth / Conical	$22.00			6.0			6.0	$132.00
Barrel / each	$50.00			2.0			2.0	$100.00
Disposal Charge / bbl	$18.00			2.0			2.0	$36.00
Disposable Bailers / each	$8.75				9.0		9.0	$78.75
Miscellaneous Field Supplies / day	$20.00			2.0	1.0		3.0	$60.00
Copies / each	$0.05	25.0					25.0	$1.25
Report Prep.	$12.50	1.0					1.0	$12.50
Shipping Charge / each	$5.20	1.0					1.0	$5.20
Phone	$0.20	10.0					10.0	$2.00
Fax	$1.00	5.0					5.0	$5.00
Total Expenses								$5,077.85
3- Laboratory Analysis								
Water								
USEPA Method 504.1 EDB	$90.00						0.0	$0.00
USEPA Method 8021 BTEX	$90.00						0.0	$0.00
EPA Method 8260B VOC	$145.00				9.0		9.0	$1,305.00
USEPA Method 8100 VOCs	$200.00						0.0	$0.00
Soil								
EPA Method 8260B VOC	$145.00			5.0			5.0	$725.00
								$2,030.00
4- Equipment Rental								
Interface Probe / day	$75.00				1.0		1.0	$75.00
Survey Equipment / hour	$11.25				3.0		3.0	$33.75
OVM / day	$65.00			3.0			3.0	$195.00
Water Test Kit (pH,Cond, Temp)	$45.00				1.0		1.0	$45.00
Total Equipment Rental								$348.75
SUBTOTAL		$875.45	$0.00	$7,985.15	$2,085.50	$836.50		$11,782.60
NMGRT 6.1875%		$54.17	$0.00	$494.08	$129.04	$51.76		$729.05
TOTAL		$929.62	$0.00	$8,479.23	$2,214.54	$888.26		$12,511.65

$9,408.85 $10,184.55 775.6996875 $2,327.10 $12,511.65

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