

Prepared for:

New Mexico Environment Department Petroleum Storage Tank Bureau
5500 San Antonio Drive NE
Albuquerque, New Mexico 87109

Prepared on behalf of:

Foutz & Bursum Construction Company, Inc.
P.O. Box 187
Bloomfield, New Mexico 87413

Annual Groundwater Monitoring
and Sampling Workplan

Former Foutz & Bursum
Construction Yard

3620 E. Main
Farmington, New Mexico
Facility ID# 28155/3661001, Site ID# 3098

February 20, 2008

Prepared by:

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1.0 Introduction

Animas Environmental Services, LLC (AES) has prepared this fixed-price workplan which details one annual groundwater monitoring and sampling of 14 monitor wells along with non-aqueous phase liquid (NAPL or “free product”) recovery, if necessary, at the former Foutz and Bursum Construction Yard, 3620 E. Main Street, Farmington, New Mexico. This workplan was prepared on behalf of Foutz and Bursum Construction (Foutz and Bursum) per New Mexico Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB) verbal request by Project Manager Tom Williams on January 30, 2008, as part of the continued Phase I Site Investigation. A site plan, including the location of the monitoring wells, has been included as Figure 1.

2.0 Site History

Currently, the site is part of Plaza Farmington, a large shopping center that includes a Home Depot, a Safeway grocery store, and other commercial facilities. The Home Depot opened in May 2001, and the Safeway and other commercial sites opened in October 2001. The portion of the former Foutz and Bursum Construction Yard that has been impacted by petroleum hydrocarbon contamination is located primarily in newly constructed parking areas east of the Home Depot and adjacent to East Main.

Four 8,000-gallon capacity underground storage tanks (USTs) were removed from the Foutz and Bursum Construction Yard site in November 1996, and a release was subsequently confirmed. Two of the USTs held diesel fuel, and the remaining two held unleaded gasoline. Subsequent site investigations, including a Minimum Site Assessment and a Hydrogeological Investigation, were completed, and 14 replacement groundwater monitor wells were installed in May 2001.

Based upon further record reviews and interviews with Foutz and Bursum personnel, the source area of petroleum hydrocarbon contamination at this site appears to be possibly associated with the previous location of the pump dispenser island, which dispensed product from the USTs removed in 1996. The dispenser island was located approximately 50 feet south of the USTs and is within the upgradient portion of the currently defined free product and dissolved phase contaminant plume.

A Free Product Recovery Pilot Study was conducted by AES in October and November 2000. Based on available site data, the initial free product volume within the formation was estimated to range from about 14,000 gallons to about 20,500 gallons. Based on a potential recoverable rate of twenty-five percent, approximately 3,500 to 5,000 gallons were estimated to be available for free product recovery under ideal site conditions. A second Free Product Recovery Pilot Study was conducted by AES during January 2002 in MW-19 and MW-25. A full report was submitted to the NMED-PSTB under separate cover in February 2002.

2.1 Semi-Annual Groundwater Monitoring and Sampling, 2003 - 2005

Semi-annual groundwater monitoring and sampling was conducted at the site between 2003 and 2005. During the last semi-annual monitoring and sampling event in October 2005,

dissolved phase contaminant concentrations decreased slightly across the site.

It was also found that groundwater elevations were at the highest levels recorded since site investigation work began in 2001. Hydraulic gradient was estimated at approximately 0.0027 ft/ft in a southern direction across the site. NAPL, consisting primarily of diesel fuel, was found in five wells at the site (compared with eight wells in April 2005), including MW-18, MW-19, MW-21, MW-24, and MW-25. Free product thickness in the monitor wells ranged from 0.10 ft in MW-24 up to 0.34 ft in MW-25. Measured free product thickness decreased significantly and is correlated directly to the dramatic increases in groundwater elevations at the site (the highest recorded elevations since quarterly monitoring and sampling began at the site in 2001). The second semi-annual monitoring and sampling report was submitted to the NMED-PSTB by AES on November 16, 2005.

2.2 Free Product Recovery Pilot Study, April 2006

In April and May 2006, AES completed a free product recovery pilot study at the site. The pilot study included both free product recovery with and without vacuum enhancement on five site wells, including RW-1, RW-3, MW-19, MW-21, and MW-25.

During each pilot test, a Xitech Instruments Model ADJ200 skimmer pump with a skimmer float travel of 24 inches was used. During the first part of the pilot study, the skimmer pump was installed in each well and allowed to pump free product from the well under atmospheric pressure. Recovered volumes were recorded at 10 minute increments.

The second part of the pilot study included applying a small vacuum ranging from 0.50 to 3.0 in-H₂O to each well during skimmer pump operations. Vacuum pressures and recovered volumes were recorded at 10 minute increments. During each pumping event on RW-1, RW-3, MW-19, and MW-25, product thickness measurements within adjacent wells were monitored and recorded.

During the pilot study a combined total of 18 gallons of free product, primarily diesel fuel, was recovered. Product thickness measurements taken prior to the start of the pilot study ranged from 0.77 feet in RW-1, 0.76 feet in RW-3, 0.76 feet in MW-19, 0.34 feet in MW-21, and 0.74 feet in MW-25. After pumping each well under atmospheric conditions, free product within each well did not recover to the pre-pumping thickness, even after several days.

2.3 Most Recent Sampling Event

Based on the analytical results of groundwater samples collected during the April 11, 2007, sampling event, benzene, toluene, ethylbenzene, and xylene (BTEX), methyl-t-butyl ether (MTBE), 1,2-dichloroethane (EDC), and naphthalene concentrations were below analytical laboratory detection limits in all wells sampled.

NAPL or "free product", consisting primarily of diesel fuel, was found in seven wells at the site, including MW-5, MW-18, MW-19, MW-20, MW-21, MW-23, and MW-24. Free product thickness in the monitor wells ranged from 0.06 ft in MW-5 up to 1.70 ft in MW-24. No NAPL was detected within MW-14, a well which historically had minimal measured free product thickness. More significantly, free product was present in MW-20 for the first time with 0.66 ft (note that a sheen was detected on MW-20 in October 2006). Measured free product thickness has

increased at the site and is correlated to the decreasing groundwater elevations in the area.

3.0 Workplan Tasks

AES will conduct all work in strict accordance with 20 NMAC 5.12 and NMED-PSTB Guidelines for Corrective Action, dated March 2000. This workplan provides for one annual groundwater monitoring and sampling of 14 groundwater monitor wells and NAPL (or “free product”) recovery, if necessary, at the Foutz and Bursum site. The scope of work will include the following:

- Workplan Preparation; Health and Safety Plan Preparation (Task 1)
- Annual Groundwater Monitoring and Sampling Event and Reporting (Task 2)

3.1 *Qualified Personnel*

All work will be completed under the direct responsible supervisory control of Ross Kennemer, Project Manager, and Elizabeth McNally, New Mexico registered Professional Engineer #15799.

3.2 *Department Notification*

AES will notify the Responsible Party (RP) and the NMED-PSTB Project Manager by telephone or in writing within seven days, but not less than 96 hours, before each monitoring and sampling event. Additionally, AES will make no modification to the approved workplan without consultation and full approval of the NMED-PSTB Project Manager and the RP.

3.3 *Site Specific Health and Safety Plan*

AES has a Health and Safety Program in place, and each employee is required to complete a health and safety orientation prior to participating in field operations for the first time at the site to ensure the health and safety of all AES employees. The Health and Safety Program defines safety practices and procedures to be instituted in all AES work places, as applicable. All onsite personnel are 40-hour HazWoper trained in accordance with OSHA regulations outlined in 29 CFR 1910.120(e). A site specific health and safety plan (HASP) will be developed for this site and will be updated to address groundwater sampling and monitoring tasks and NAPL recovery events.

All employees will be required to read and sign the HASP to acknowledge their understanding of the information contained in it. The HASP will be implemented and enforced on site by the assigned Site Safety and Health Officer. Daily tailgate safety meetings will be held and documented and will address specific health and safety concerns or issues.

3.4 *Annual Groundwater Monitoring and Sampling (Task 2)*

Groundwater monitor wells MW-5, MW-12, MW-13, MW-14, MW-16, MW-18 through MW-25 and MW-1QL will be monitored and sampled in accordance with the following procedures:

3.4.1 *Depth to Groundwater Measurements*

A Keck water level meter will be utilized to record the distance from the top of the well casing to the top of groundwater. Measurements will be recorded onto a Water Sample Collection Form. In the event that free product is found to be present, an interface probe will be used to measure the depth to the top of product and the depth to the top of water. This data will be recorded onto a Water Sample Collection Form, and no analytical groundwater samples will be collected from

the well. The presence of new NAPL in any of the monitor wells will be reported to the NMED-PSTB Project Manager immediately.

3.4.2 Purging

Each well will be purged with a new disposable bailer. Purging data, including pH, temperature, and conductivity, will be documented on a Water Sample Collection Form along with purged water volume. Purged water will be allowed to evaporate from the site surfacing and will not be allowed to enter storm drains or other conveyances leading to the Waters of the United States.

3.4.3 Sample Collection

Groundwater sample collection will follow NMED-PSTB Guidelines for sample preservation, quality assurance and quality control (QA/QC), and sample collection procedures. Duplicate groundwater samples will be collected from each monitoring well and held in the event that further laboratory analyses are required. All sample collection data, including sample collection depth, will be documented on a Water Sample Collection Form. A Chain of Custody Record will be completed in the field as samples are being collected. Samples will be stored in an insulated cooler at 4°C until delivered to the analyzing laboratory, Pinnacle Laboratories, Albuquerque, New Mexico.

3.4.4 Groundwater Laboratory Analyses

Based upon the past analytical results at the site, groundwater samples collected from the 14 wells will be analyzed for volatile organics per EPA Method 8260 (including 1- and 2-methyl naphthalene for total naphthalene concentrations) for the annual event. Samples will be analyzed at Pinnacle Laboratories in Albuquerque, New Mexico. For QA/QC purposes, a travel blank will also be analyzed for volatile organics per EPA Method 8260.

3.5 Non-Aqueous Phase Liquid (NAPL) Recovery

The NMED-PSTB Project Manager, Mr. Tom Williams, recommended that measurable amounts of free product be bailed during the sampling event, if necessary. In the event that wells that historically had NAPL, which include monitor wells MW-5, MW-14, MW-18 through MW-21, MW-23, MW-24, and MW-25, are found to contain "free product", the "free product" will be bailed off from the well(s) during site activities and stored for proper disposal. NAPL recovery thicknesses and volumes will be recorded on the Water Sampling Record. Corrected groundwater elevations for wells with NAPL will be calculated as well as NAPL thickness.

3.6 NAPL Disposal

Recovered NAPL will be transferred into labeled DOT-approved barrels and transported to the AES yard until disposal at an approved facility. Disposal will occur once a DOT barrel is completely full of NAPL and will follow guidelines as outlined in the NMED-PSTB Soil and Groundwater Sampling and Disposal Guidelines. Please note that no water will be recovered during NAPL recovery events. PSTB will only be billed for actual disposal costs, when they are incurred.

3.7 Property Access and Restoration

AES will obtain permission for property access before conducting field activities. Any property damaged or destroyed during site sampling and monitoring or during site decommissioning will be repaired to its original condition by AES within 30 calendar days after the damage or destruction has occurred.

3.8 Deliverables

The annual groundwater monitoring and sampling report will be prepared according to PSTB Quarterly Monitoring Form 1216 and will include descriptions of all sampling procedures utilized during the sampling event, along with the laboratory analyses and associated tables and figures. Figures will include groundwater gradient contours, contaminant concentration contours, and comparisons to previously collected data and analytical results. Results of any NAPL thicknesses at the site and amount bailed will also be included. Two copies of the report will be completed and submitted to the RP and to NMED-PSTB.

4.0 Insurance

AES will maintain the following insurance during the term of the contract covering the services to be performed within the workplan:

- Workers compensation insurance-statutory
- Employers liability insurance in the minimum amount of \$500,000.00 per occurrence with a \$1,000,000.00 aggregate.
- Comprehensive general liability insurance of \$1,000,000.00 per occurrence with a \$2,000,000.00 aggregate.
- Vehicle liability (property damage and bodily injury combined) \$1,000,000.00 per occurrence.

5.0 Costs

AES estimates that costs associated with tasks outlined in this workplan are as follows:

Services Description – Annual Groundwater Monitoring and Sampling		Costs
Task 1 (Workplan Preparation)		
PROFESSIONAL SERVICES		
Principal (\$137.50/hr) 1 hr	Workplan review	\$137.50
Project Mgr (\$82.50/hr) 4 hr	Workplan preparation; HASP review	\$330.00
Staff Scientist (\$66/hr) 6 hr	File review; Project costing; Workplan preparation	\$396.00
Draftsperson (\$51.75/hr) 1 hr	Workplan preparation	\$51.75
Administrative (\$63.25/hr) 2 hr	Workplan time & cost reviews; Coordination w/ RP	\$126.50
Secretarial (\$34.50/hr) 2 hr	Workplan secretarial tasks; workplan assembly oversight	\$69.00
Clerical (\$28.75/hr) 2 hr	Workplan clerical tasks; copying & assembly	\$57.50
OFFICE EXPENSES – includes copies, postage, and all office expenses		\$98.00
Subtotal Task 1		\$1,266.25
New Mexico Gross Receipts Tax (7.00%)		\$88.64
TOTAL TASK 1		\$1,354.89

Services Description – Annual Groundwater Monitoring and Sampling		Costs
Task 2 (Annual Groundwater Monitoring and Sampling Report)		
PROFESSIONAL SERVICES		
Principal (\$137.50/hr) 1 hr	Annual report review	\$137.50
Project Mgr (\$82.50/hr) 1 hr 4 hr	Field notifications Project Management and annual report preparation	\$412.50
Staff Scientist (\$66/hr) 13 hr 1 hr 6 hr	Field preparation, sample six groundwater monitor wells, and NAPL recovery Sample preparation/transportation to analytical lab Annual monitoring report preparation	\$1,320.00
Draftsperson (\$51.75/hr) 4 hr	Generate all figures and contour maps for annual report	\$207.00
Administrative (\$63.25/hr) 3 hr	Time and cost reviews for annual report; report preparation oversight; Coordination w/ RP	\$189.75
Secretarial (\$34.50/hr) 3 hr	Annual report secretarial tasks; report assembly oversight	\$103.50
Clerical (\$28.75/hr) 3 hr	Annual report clerical tasks; copying & assembly	\$86.25
OFFICE EXPENSES & FIELD EXPENSES – includes disposable bailers, field equipment, & all field expenses, mileage (10 miles RT), all field sampling and monitoring equipment, all office expenses (including copies and postage), and all subcontracted services (laboratory analyses)		\$2,855.06
Subtotal Task 2		\$5,311.56
New Mexico Gross Receipts Tax (7.00%)		\$371.81
TOTAL TASK 2		\$5,683.37

The total cost for workplan preparation (Task 1) and the annual groundwater monitoring and sampling in addition to NAPL recovery and bailing for nine monitoring wells, if necessary (Task 2), is **\$7,038.26**, including New Mexico Gross Receipts Tax of 7 percent, which was effective July 1, 2005.

6.0 Project Schedule

AES proposes the following schedule for annual groundwater monitoring and sampling at the former Foutz and Bursum Construction Yard:

<i>Months from Workplan Approval</i>	<i>Action or Deliverable Due</i>
0	NMED-PSTB Approval of this Workplan (Task 1)
1	Conduct Annual Groundwater Sampling Event (Task 2)
2	Prepare and Submit Annual Monitoring and Sampling Report to NMED-PSTB (Task 2)

7.0 Qualified Personnel

The scope of services outlined within this Annual Monitoring and Sampling Workplan for the former Foutz and Bursum Construction Yard, located at 3620 E. Main Street, Farmington, New Mexico, will be completed under the direct responsible supervisory control of Ross Kennemer, Project Manager, and Elizabeth McNally, P.E. A Statement of Qualifications is enclosed with this workplan.

Respectfully Submitted,

Elizabeth McNally, PE
NM Registration #15799

Ross Kennemer
Project Manager

**NM CORRECTIVE ACTION FUND COST DETAIL FORM
SUMMARY SHEET**

Site: Facility ID 28155/3661001 - Foutz and Bursum Construction	Site Address: 3620 E. Main, Farmington, NM
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Check one only: <input checked="" type="checkbox"/> Work Plan <input type="checkbox"/> Claim	Check one only: <input type="checkbox"/> Minimum Site Assessment <input checked="" type="checkbox"/> Ph 1 Hydrogeo Investigation <input type="checkbox"/> Ph 2 Free Product/Saturated Soil Recovery <input type="checkbox"/> Ph 3 Reclamation Proposal <input type="checkbox"/> Ph 4 Reclamation Implementation <input type="checkbox"/> Ph 5 Operations and Maintenance
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Task #	Brief description from workplan approval: Task 1. Workplan Preparation	NMED USE ONLY
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SUMMARY SHEET	TOTAL	PROJECT MANAGER	AUDITOR
PROFESSIONAL SERVICES	\$1,168.25		
TAXABLE EXPENSES	\$98.00		
TAXABLE SUBCONTRACTORS	\$0.00		
TAXABLE SUBTOTAL	\$1,266.25		
NM GRT RATE: 7.0000%	\$88.64		
TOTAL	\$1,354.89		
NONTAXABLE EXPENSES			
NONTAXABLE SUBCONTRACTORS			
NONTAXABLE SUBTOTAL	\$0.00		
GRAND TOTAL OF CLAIM	\$1,354.89		

**NM CORRECTIVE ACTION FUND COST DETAIL FORM
SUMMARY SHEET**

Site: Facility ID 28155/3661001 - Foutz and Bursum Construction	Site Address: 3620 E. Main, Farmington, NM
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Check one only: <input checked="" type="checkbox"/> Work Plan <input type="checkbox"/> Claim	Check one only: <input type="checkbox"/> Minimum Site Assessment <input checked="" type="checkbox"/> Ph 1 Hydrogeo Investigation <input type="checkbox"/> Ph 2 Free Product/Saturated Soil Recovery <input type="checkbox"/> Ph 3 Reclamation Proposal <input type="checkbox"/> Ph 4 Reclamation Implementation <input type="checkbox"/> Ph 5 Operations and Maintenance
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Task #	Brief description from workplan approval: Task 2. Annual Groundwater Monitoring/Sampling and Reporting	NMED USE ONLY
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SUMMARY SHEET	TOTAL	PROJECT MANAGER	AUDITOR
PROFESSIONAL SERVICES	\$2,588.50		
TAXABLE EXPENSES	\$507.50		
TAXABLE SUBCONTRACTORS	\$2,347.56		
TAXABLE SUBTOTAL	\$5,443.56		
NM GRT RATE: 7.0000%	\$381.05		
TOTAL	\$5,824.61		
NONTAXABLE EXPENSES			
NONTAXABLE SUBCONTRACTORS			
NONTAXABLE SUBTOTAL	\$0.00		
GRAND TOTAL OF CLAIM	\$5,824.61		