GW - 55

WORK PLANS

1-25-10

AES

Animas Environmental Services, LLC

624 E. Comanche . Farmington, NM 87401 . TEL 505-564-2281 . FAX 505-324-2022 . www.animasenvironmental.com

January 25, 2010

Ed Hansen
New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: Interim Groundwater Sampling Plan for the Thriftway Refinery, 626 County Road 5500, Bloomfield, New Mexico

Dear Mr. Hansen:

On behalf of Thriftway Company (Thriftway), Animas Environmental Services, LLC (AES) is providing this Interim Groundwater Sampling Plan in response to the November 9, 2009, meeting between the New Mexico Oil Conservation Division (OCD), Thriftway, and AES.

In the November 9, 2009, meeting, OCD and Thriftway agreed that Thriftway and AES would provide an Interim Groundwater Sampling Plan to OCD. The interim sampling plan was to outline the approach for groundwater sampling to be used during active operation of the Non-Aqueous Phase Liquid (NAPL) remediation system, which was proposed in the May 2009 Corrective Action Plan (CAP) approved by OCD. As outlined in the CAP, the site has been divided into ten discrete NAPL remediation zones in which the mobile remediation system will operate over a period of approximately 3.5 years. The system will operate within each zone for approximately four months at a time.

In this document, AES and Thriftway outline a plan for conducting groundwater sampling and providing regulatory reporting during the operation of the NAPL remediation system. This plan is an interim plan and will only apply during the period of active operation of the approved NAPL remediation system. Upon completion of active NAPL remediation, modification of this groundwater monitoring plan may be necessary.

If you have any questions regarding the attached workplan, please contact me or Ross Kennemer at (505) 564-2281.

Sincerely,

Blaine A. Watson

Blaine A. Watson, P.G.
Sr. Project Manager

Attachment: Interim Groundwater Sampling Plan

cc (with attachments):

Mr. Robert Moss
Thriftway Company
501 Airport Drive
Farmington, NM 87401

Mr. Glenn Von Gotten
New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

AES

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Prepared for:
Edward Hansen
Glenn Von Gotten
New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Prepared on behalf of:
Thriftway Company
501 Airport Drive, Suite 100
Farmington, New Mexico 87401

Interim Groundwater Sampling Plan

Thriftway Refinery

626 Road 5500
Bloomfield, San Juan County
New Mexico

Facility Permit: GW-55

January 25, 2010

Prepared by:
Animas Environmental Services, LLC
624 E. Comanche
Farmington, New Mexico 87401

Blaine Watson

Blaine Watson, P.G.
Sr. Project Manager

Elizabeth McNally

Elizabeth McNally, P.E.
NM Registration #15799

CONTENTS

1.0 Introduction

On behalf of Thriftway Company (Thriftway), Animas Environmental Services, LLC (AES) has prepared this Interim Groundwater Sampling Plan for the groundwater monitoring and sampling program to be conducted during non-aqueous phase liquid (NAPL) remediation at the former Thriftway Refinery located at 626 County Road 5500, Bloomfield, New Mexico. This interim groundwater monitoring plan was prepared in response to discussions during the November 9, 2009, meeting between the New Mexico Oil Conservation Division (OCD), Thriftway, and AES. A general site plan, including the location of existing monitor wells, has been included as Figure 1.

2.0 Most Recent Groundwater Sampling Event

2.1 Groundwater Sample Collection – August 2009

As AES and Thriftway reported to OCD in the Periodic Progress Report, dated October 28, 2009, BioTech Remediation, Inc. (BioTech) personnel measured groundwater elevations at the site on August 12 and 13, 2009, to determine which wells contained free product. Then, groundwater monitoring and sampling was conducted on August 19 through 21, and August 24, 2009.

Free product was measured on August 12 and 13, 2009, in TW-13, TW-19 through TW-22, TW-25, TW-26, TW-28, TW-29, TW-32, TW-33, TW-36, and TW-40. In addition, free product was observed in TW-36 on August 21. Monitor wells containing free product were not sampled during the August 2009 event.

During sampling, once the depth to groundwater was measured in each well to be sampled, the well was purged with a new disposable bailer to remove stagnant water from the well. Groundwater samples were then collected. Samples were collected in order from the least contaminated sampling location to the most contaminated sampling location, as determined by the previous sampling event, in order to reduce the potential for cross-contamination.

In August 2009, samples were collected from twenty-seven wells, including TW-1 through TW-12, TW-15 through TW-18, TW-23, TW-30, TW-31, TW-34, TW-35, TW-37, TW-39, and TW-41 through TW-44. Samples were analyzed for the following:

- Total Petroleum Hydrocarbons (TPH) including Diesel Range Organics (DRO), Gasoline Range Organics (GRO), and Motor Oil Range Organics (MRO) per EPA Method 8015B;
- Volatile Organic Compounds (VOCs) per EPA Method 8260B;
- Eight Resource Conservation and Recovery Act (RCRA) Metals per EPA Method 6010 and 7470;
- Dissolved Metals (Calcium, Magnesium, Potassium, and Sodium) per EPA Method 6010;

- Bromide, Chloride, Fluoride, and Sulfate per EPA Method 300.0;
- Hardness as $CaCO_3$ per EPA Method 6010;
- Total Dissolved Solids (TDS) per Standard Method 2540C; and
- Specific Conductance per EPA 120.1.

All samples were analyzed at Hall Environmental Analysis Laboratories (Hall) in Albuquerque, New Mexico.

2.2 Groundwater Monitoring Data and Analytical Results – August 2009

Groundwater elevations across the site in August 2009 ranged from 5,440.85 feet above mean sea level (AMSL) in TW-1 to 5,427.39 feet AMSL in TW-42. Groundwater elevations generally decreased across the site by an average of 0.25 feet since the last sampling event in December 2008. Groundwater gradient was calculated between TW-3 and TW-41 with a magnitude of 0.007 ft/ft to the northwest for August 2009. Groundwater elevation contours for August 2009 were illustrated in Figure 2 of the Periodic Progress Report dated October 28, 2009.

During purging of the wells prior to sampling, water quality data was recorded until temperature, pH, conductivity, and dissolved oxygen (DO) measurements stabilized. Temperature during the August 2009 sampling event ranged from 14.52°C in TW-8 to 23.34°C in TW-39. Groundwater pH ranged between 6.61 in TW-30 and 7.57 in TW-9, and conductivity ranged between 1.795 mS in TW-1 and 10.81 mS in TW-42. Dissolved oxygen concentrations ranged from 1.33 mg/L in TW-9 to 8.50 mg/L in TW-41.

Free product (NAPL) was measured in 15 monitor wells, including TW-13, TW-19 through TW-22, TW-25 through TW-29, TW-32, TW-33, TW-36, TW-38, and TW-40. Measured NAPL thicknesses ranged from 0.01 feet in TW-38 to 1.53 feet in TW-20. Free product thickness contours for August 2009 were presented in Figure 3 of the Periodic Progress Report dated October 28, 2009.

Groundwater analytical results from August 2009, for areas outside the NAPL zone, are summarized as follows:

- Dissolved phase benzene concentrations exceeded the New Mexico Water Quality Control Commission (WQCC) standard of 10 µg/L in four wells, ranging from 26 µg/L to 250 µg/L;
- Toluene and ethylbenzene concentrations were below laboratory detection limits or below the applicable WQCC standards of 750 µg/L in all sampled wells;
- Xylene concentrations were also below laboratory detection limits or below the applicable WQCC standard of 620 µg/L in all wells sampled, except TW-41 (2,000 µg/L);
- Methyl Tertiary Butyl Ether (MTBE) concentrations were above the WQCC standard (100 µg/L) in three wells sampled, ranging from 180 µg/L to 500 µg/L;

- Total naphthalene concentrations were above the WQCC standard (30 µg/L) in only one well, TW-41 (49 µg/L);
- TPH-GRO concentrations ranged from below laboratory detection limits (0.050 mg/L) to 7.0 mg/L (TW-41);
- TPH-DRO concentrations ranged from below laboratory detection limits (1.0 mg/L) to 1.2 mg/L (TW-37 and TW-44);
- TPH-MRO concentrations were below laboratory detection limits (5.0 mg/L) in all sampled wells;
- Laboratory results for the RCRA 8 metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury) had reported concentrations either below applicable WQCC standards or below laboratory detection limits;
- Although there are no established WQCC standards for evaluation, measured concentrations were reported for the following metals: dissolved calcium ranged from 250 mg/L to 700 mg/L, dissolved magnesium was between 21 mg/L and 88 mg/L, dissolved potassium ranged from 2.3 mg/L to 8.5 mg/L, and dissolved sodium was between 300 mg/L and 1,600 mg/L;
- Dissolved bromide concentrations varied between 0.12 mg/L and 3.9 mg/L (no WQCC standard established); chloride concentrations exceeded the WQCC standard (250 mg/L), ranging from 330 mg/L to 1,700 mg/L; fluoride concentrations were below the WQCC standard of 1.6 mg/L in all wells sampled; sulfate concentrations ranged from below the applicable WQCC standard of 600 mg/L to a high of 4,400 mg/L; and
- Specific conductance ranged from 2,600 µmhos/cm to 6,500 µmhos/cm, and hardness (as $CaCO_3$) ranged from 710 mg/L to 2,000 mg/L; TDS concentrations were above the WQCC standard of 1,000 mg/L in all wells sampled, with the highest TDS concentration measured as 6,700 mg/L.

Benzene, toluene, ethylbenzene, and xylenes (BTEX), MTBE, naphthalene, and TPH analytical data were summarized in Table 2 of the October 2009 Periodic Progress Report. RCRA 8 metals analytical results and groundwater chemistry data were summarized in Tables 3 and 4, respectively, of the same report.

3.0 Proposed Interim Groundwater Sampling Plan

This workplan provides for three Year 1 quarterly groundwater sampling and reporting events and one Year 1 annual groundwater sampling and summary report. In addition, the workplan provides for quarterly groundwater and NAPL gauging events in Years 2 through 4, with status reports submitted quarterly. In addition, semi-annual groundwater monitoring and sampling will also be conducted during active NAPL remediation and summarized in the corresponding quarterly progress report for Years 2 through 4. Quarterly reports will have two formats: 1) for

quarterly groundwater/NAPL monitoring only and 2) for quarterly groundwater/NAPL monitoring and semi-annual groundwater sampling activities. The scope of work for this interim groundwater sampling plan will include the following:

- Workplan Preparation; Health and Safety Plan Preparation (Task 1)
- Additional Baseline MTBE Sampling (Task 2)
- Year 1 Quarterly Groundwater Sampling and NAPL Gauging with Quarterly Report (Task 3)
- Year 1 Annual Groundwater Sampling and NAPL Gauging with Annual Report (Task 4)
- Quarterly Groundwater Gauging and NAPL Gauging with Quarterly Report for Years 2 through 4 (Task 5)
- Semi-Annual Groundwater Monitoring and Sampling Event and Quarterly Reporting for Years 2 through 4 (Task 6)

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.

AES and/or Thriftway will notify the OCD Project Manager by telephone or in writing within seven days, but not less than 96 hours, before each monitoring and sampling event. In addition, AES and Thriftway will make no modification to the approved workplan without consultation and approval of the OCD Project Manager.

3.1 Task 1: Workplan and Site Specific Health and Safety Plan

This document comprises the workplan for all groundwater sampling and gauging to be conducted as part of the Interim Groundwater Sampling Plan for the Former Thriftway Refinery located at 626 CR 5500 in Bloomfield, San Juan County, New Mexico. Thriftway intends that this workplan will only be valid during active NAPL remediation at this facility.

AES has a Health and Safety Program in place, and each employee is required to complete a health and safety orientation prior to practicing 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 on-site 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 address specific health and safety concerns or issues.

3.2 Task 2: Additional Baseline MTBE Sampling

As discussed in the November 9, 2009, meeting between OCD, Thriftway, and AES, OCD noted that additional monitor well analytical data regarding MTBE concentrations would be desirable along the western edge, and near the northwestern corner, of the property. In particular, OCD noted areas near existing monitor wells MW-5 and MW-20 as areas of interest. To address the request for investigating the levels of MTBE dissolved in groundwater in these areas, AES and Thriftway propose to evaluate the existing wells, MW-5, MW-20 and MW-21, for suitability to obtain the requested data.

AES will evaluate the wells by measuring the depth to groundwater in each well, measuring the total depth of each well, determining the screen interval of each well, and bailing the well to ensure that water recharges into the well during sample purging. In order to be acceptable for sampling, each well's construction will have to be such that the depth to water is not above the screened interval and approximately 5 feet of standing water are present within the screened interval. In addition, the wells should not bail dry without producing at least three casing volumes of water.

If monitor wells MW-5, MW-20, and MW-21 are found to be suitably constructed and in generally acceptable condition to collect groundwater samples, Biotech will re-develop the wells following standard development procedures to ensure that a representative groundwater sample can be collected. Standard well development forms and procedures will be used for this activity.

The wells will be sampled within two weeks of being re-developed. In sampling, 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. 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. Purge water will be collected and transferred to the on-site evaporation basin to prevent water from entering the nearby surface water body (Kutz Wash).

Groundwater sample collection will follow standard procedures for sample preservation, quality assurance and quality control (QA/QC), and sample collection procedures. 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 less than 6°C until delivered to the analyzing laboratory (Hall). Groundwater samples will be analyzed for MTBE only, per EPA Method 8021B.

AES will review the MTBE analytical results from MW-5, MW-20, and MW-21 relative to the New Mexico Water Quality Control Commission standard for MTBE (100 µg/L). Based on this review, AES and Thriftway will know whether additional downgradient well installation will be necessary. The analytical results, with a recommendation for further work if needed, will be forwarded to OCD in a letter report summarizing the sampling activity.

AES and Thriftway propose to begin the initial reassessment and sampling of MW-5, MW-20, and MW-21 within 30 days of OCD approving the Interim Groundwater Sampling Plan. If timing permits, AES and Thriftway will conduct the actual sampling of these wells as part of the February 2010 Year 1/Quarter 1 quarterly groundwater sampling and reporting event.

3.3 Task 3: Year 1 Quarterly Groundwater Sampling and NAPL Monitoring

For each of the Year 1 quarterly groundwater sampling events (Quarters #1 through #3), groundwater monitor wells at the site will be monitored and/or sampled by AES or Biotech to provide an indication of the groundwater contaminant concentration levels outside the NAPL plume during remediation and to ensure that migration of the NAPL plume is monitored. Pending the findings obtained as a result of work proposed in Section 3.2 of this plan, Table 1 identifies which wells will be used, and in what capacity, during Year 1 gauging and sampling events.

Table 1: Year 1 Quarterly Gauging/Sampling Monitor Well List

Well Name	Gauging Only	Gauging and Sampling
TW-1 through TW-10	X	
TW-11 through TW-12		X
TW-13 through TW-14		X*
TW-15 through TW-17	X	
TW-18		X
TW-19 through TW-22		X*
TW-23	X	
TW-24		X
TW-25 through TW-29		X*
TW-30 through TW-31		X
TW-32 through TW-33		X*
TW-34 through TW-35		X
TW-36		X*
TW-37		X
TW-38		X*
TW-39		X
TW-40		X*
TW-41 through TW-44		X
MW-5, MW-20, MW-21		X
* Well currently has measurable NAPL, but will be added to the sampling list during the first quarter in which NAPL is not observed.		

Year 1 quarterly monitoring and sampling will be conducted in accordance with the procedures outlined in sections 3.3.1 through 3.3.5.

3.3.1 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 in each monitor well listed in Table 1. Measurements will be recorded onto a field data form. In the event NAPL 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 also be recorded onto the field data form. No analytical groundwater samples will be collected from a well containing more than 0.01 ft of NAPL.

3.3.2 Purging

Prior to sampling, each monitor well being sampled 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. Purge water will be collected and transferred to the on-site evaporation basin to prevent water from entering the nearby surface water body (Kutz Wash).

3.3.3 Sample Collection

Groundwater sample collection will follow standard procedures for sample preservation, QA/QC, and sample collection procedures. 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 less than 6°C until delivered to the analyzing laboratory (Hall).

3.3.4 Groundwater Laboratory Analyses

Based upon the past analytical results at the site and as requested by OCD during the November 9, 2009, site meeting, groundwater samples collected during each Year 1 quarterly groundwater sampling event will be analyzed for the following:

- TPH-DRO and TPH-GRO per EPA Method 8015B;
- BTEX per EPA Method 8021B; and
- Total Dissolved Solids (TDS) per Standard Method 2540C.

Samples will be analyzed at Hall. For QA/QC purposes, a travel blank will also be analyzed for BTEX per EPA Method 8021B.

3.3.5 Deliverables

For each of the three Year 1 quarterly sampling events, AES and Thriftway will prepare and submit a Quarterly Groundwater Monitoring and Sampling Report within 45 calendar days of the end of the quarter. Each quarterly report will include descriptions of 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. Data and figures illustrating the thickness and extent NAPL at the site will also be included.

3.4 Task 4: Year 1 Annual Groundwater Sampling

For the Year 1 annual groundwater sampling event (Quarter #4), groundwater monitor wells at the site will be monitored and/or sampled by AES or Biotech to provide a snapshot of the site groundwater contaminant concentration levels outside the NAPL plume during remediation and to ensure that any migration of the NAPL plume is monitored. Pending the status of individual wells as a result of work proposed in Section 3.2 of this plan and progress during the first three quarters of Year 1, Table 2 identifies which wells will be used, and in what capacity, during the Year 1 annual gauging and sampling event.

Table 2: Year 1 Annual Gauging/Sampling Monitor Well List

Well Name	Gauging Only	Gauging and Sampling
TW-1 through TW-10	X	
TW-11 through TW-14	X*	
TW-15 through TW-17	X	
TW-18 through TW-20		X
TW-21 through TW-22		
TW-23	X	
TW-24		X
TW-25 through TW-29		X**
TW-30 through TW-31		X
TW-32 through TW-33		X**
TW-34	X*	
TW-35		X
TW-36		X**
TW-37		X
TW-38		X**
TW-39		X
TW-40		X**
TW-41 through TW-44		X
MW-5, MW-20, MW-21		X

* Assumes shrinkage of the NAPL plume will have progressed downgradient to the point that these wells will now be located upgradient of other non-NAPL wells.
** Well currently has measurable NAPL, but will be added to the sampling list during the first quarter in which NAPL is not observed.

Year 1 annual monitoring and sampling will be conducted in accordance with the procedures outlined in sections 3.3.1 through 3.3.3 of this plan. The following paragraphs outline additional items to be conducted following sample collection for the Year 1 Annual Groundwater Sampling event. AES or Biotech will conduct the monitoring and sampling fieldwork.

3.4.1 Groundwater Laboratory Analyses

Based upon currently available historical analytical data and as requested by OCD during the November 9, 2009, site meeting, groundwater samples collected as part of the Year 1 Annual Groundwater Sampling event will be analyzed as follows:

- TPH-DRO and TPH-GRO per EPA Method 8015B;
- VOCs per EPA Method 8260B;
- RCRA 8 Metals per EPA Method 6010 and 7470;
- Dissolved Metals (Calcium, Magnesium, Potassium, and Sodium) per EPA Method 6010;
- Bromide, Chloride, Fluoride, and Sulfate per EPA Method 300.0;
- Hardness as $CaCO_3$ per EPA Method 6010;
- Total Dissolved Solids (TDS) per Standard Method 2540C; and
- Specific Conductance per EPA Method 120.1.

Samples will be analyzed at Hall. For QA/QC purposes, a travel blank will also be analyzed for VOCs per EPA Method 8260.

3.4.2 Deliverables

For the Year 1 annual sampling event, AES and Thriftway will prepare and submit an Annual Groundwater Monitoring and Sampling Report within 45 calendar days of the end of the year. The report will include descriptions of 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. Data and figures illustrating the thickness and extent of NAPL at the site will also be included.

3.5 Task 5: Quarterly Groundwater and NAPL Monitoring for Years 2 through 4

In Years 2 through 4, gauging events in Quarters #1 and #3 are intended to provide information about general site conditions. These events will include measuring both groundwater levels and NAPL thickness to ensure that migration of the NAPL plume is monitored.

Pending the status of individual wells as a result of work proposed in Section 3.2 of this plan and remediation progress during Year 1 and later years, Table 3 identifies which wells will be used, and in what capacity, for Quarter #1 and Quarter #3 gauging events in Years 2 through 4.

Table 3: Quarter #1 and Quarter #3 Monitor Well Gauging List for Years 2 through 4

Well Name	Gauging Only	Gauging and Sampling
TW-1 through TW-26	X	*
TW-28 through TW-44	X	*
MW-5, MW-20, MW-21	X	*
* No analytical samples are proposed for quarterly gauging events in the first or third quarters of Years 2 through 4.		

Year 2 through 4 quarterly groundwater level and NAPL thickness monitoring will be conducted in accordance with the procedures outlined in paragraph 3.3.1 of this plan. The following section outlines additional items to be conducted for the quarterly groundwater and NAPL monitoring events in Years 2 through 4.

3.5.1 Deliverables

For each of the Quarter #1 and #3 gauging events in Years 2 through 4, AES and Thriftway will prepare and submit a Quarterly Groundwater and NAPL Monitoring Report within 45 calendar days of the end of the quarter. Each quarterly report will include descriptions of monitoring procedures utilized during the sampling event, along with associated tables and figures. Figures will include groundwater gradient contours, NAPL thickness contours, and comparisons to previously collected data.

3.6 Task 6: Semi-Annual Groundwater Sampling for Years 2 through 4

The semi-annual groundwater sampling events conducted in Years 2 through 4 will consist of two different types: Semi-Annual Event #1 and Semi-Annual Event #2. Each event will include a summary of that year's quarterly events that preceded the semi-annual event being reported. Semi-Annual Event #1 (conducted in Quarter #2) will include data from groundwater and NAPL gauging and monitoring conducted in Quarters #1 and #2 of the current year. Semi-Annual Event #2 will resemble an annual summary, in that it will include data from groundwater and NAPL gauging and monitoring in Quarters #1 through #4 of that year.

The results of the Year 1 annual sampling event will be used to develop a proposed list of wells for sampling during the Year 2 Semi-Annual #1 and #2 groundwater sampling events. Then, in the annual summary presented in each subsequent Semi-Annual #2 sampling event, AES and Thriftway will propose which wells will be used, and in what capacity, during the following year's Semi-Annual #1 and Semi-Annual #2 groundwater sampling events. As a result, the list of wells to be sampled during Years 2 through 4 will vary and is not specifically identified here.

Regardless of which wells are to be sampled, monitoring and sampling of wells for the semi-annual events in Years 2 through 4 will be conducted in accordance with the procedures outlined in sections 3.3.1 through 3.3.3 of this plan. The following paragraphs outline additional items to be conducted following sample collection for the semi-annual groundwater sampling events in Years 2 through 4. AES or Biotech will conduct the monitoring and sampling fieldwork.

3.6.1 Groundwater Laboratory Analyses

In Years 2 through 4, sample analysis for each Semi-Annual #1 event will be limited in nature compared to sample analysis conducted for the Semi-Annual #2 events. Semi-Annual #1 events will be designed to evaluate only a handful of higher priority pollutants, while Semi-Annual #2 events will have the ability to include additional analyses for the purposes of broader comparison with the historical sampling data.

AES and Thriftway propose that samples collected for Semi-Annual #1 groundwater sampling events in Years 2 through 4 will be analyzed as follows:

- BTEX and MTBE per EPA Method 8021B;
- Chloride and Sulfate per EPA Method 300.0; and
- Total Dissolved Solids (TDS) per Standard Method 2540C.

Semi-Annual #1 samples will be analyzed at Hall. For QA/QC purposes, a travel blank will also be analyzed for BTEX per EPA Method 8021B.

For the Semi-Annual #2 groundwater sampling events in Years 2 through 4, AES and Thriftway propose the following analytical procedures:

- TPH-DRO and TPH-GRO per EPA Method 8015B;
- *Collect* for VOCs per EPA Method 8260B;
- RCRA 8 Metals per EPA Method 6010 and 7470;
- Dissolved Metals (Calcium, Magnesium, Potassium, and Sodium) per EPA Method 6010;
- Bromide, Chloride, Fluoride, and Sulfate per EPA Method 300.0;
- Hardness as $CaCO_3$ per EPA Method 6010;
- Total Dissolved Solids (TDS) per Standard Method 2540C; and
- Specific Conductance per EPA Method 120.1.

As noted above, samples will be collected for potential analysis via EPA Method 8260. AES and Thriftway propose to utilize the TPH-DRO analytical result for each well as a guide to determine whether analysis of the full VOC spectrum is warranted, or if running only BTEX/MTBE will be suitable. AES and Thriftway propose that the full VOC spectrum would only be analyzed in the event the reported TPH-DRO value is greater than 100 mg/L. Semi-Annual #2 samples will be analyzed at Hall. A travel blank will also be analyzed for VOCs per EPA Method 8260B.

3.6.2 Deliverables

For the Semi-Annual #1 and #2 sampling events in Years 2 through 4, AES and Thriftway will prepare and submit Semi-Annual Groundwater Monitoring and Sampling Reports within 45 calendar days of the end of the year. The reports will include descriptions of sampling procedures utilized during the sampling events, 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. Data and figures illustrating the thickness and extent NAPL at the site will also be included.

4.0 Schedule

If approved, AES and Thriftway propose to conduct the groundwater monitoring and sampling events according to the following schedule(s):

Year 1 Event Schedule		
Activity	**Sampling Event**	**Reporting Date**
Additional Baseline MTBE and Quarter #1	February 15, 2010	April 30, 2010
Quarter #2 Sampling	May 15, 2010	July 30, 2010
Quarter #3 Sampling	August 15, 2010	September 30, 2010
Annual Sampling	November 15, 2010	December 30, 2010

Year 2 through 4 Event Schedule		
Activity	**Sampling Event**	**Reporting Date**
Quarter #1 Gauging	February 15	April 30
Semi-Annual Sampling #1	May 15	July 30
Quarter #3 Gauging	August 15	September 30
Semi-Annual Sampling #2	November 15	December 30

FIGURE 1
GENERAL SITE PLAN
THRIFTWAY REFINERY
626 ROAD 5500
BLOOMFIELD, NEW MEXICO

Animas Environmental Services, LLC

DRAWN BY:	DATE DRAWN:
N. Willis	February 2, 2009
REVISIONS BY:	**DATE REVISED:**
C. Lameman	January 25, 2010
CHECKED BY:	**DATE CHECKED:**
B. Watson	January 25, 2010
APPROVED BY:	**DATE APPROVED:**
E. McNally	January 25, 2010

LEGEND

- MONITORING WELL LOCATIONS
- TEST WELL LOCATIONS
- FENCE
- OVERHEAD ELECTRIC LINE
- BURIED PHONE LINE
- NATURAL GAS GATHERING LINE
- WATER LINE

SCALE
200 100 0 200
50
(1 INCH = 200 FEET)

S:\ANIMAS 2000\2010 PROJECTS\THRIFTWAY\810 REFINERY\DRAFTING\QMR DRAWINGS\FIGURE 1 GENERAL SITE PLAN