

GW-49-2

**Corrective Action
Report**

Date:

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OIL CONS. DIV DIST. 3

MAR 15 2012

CORRECTIVE ACTION REPORT

GROUNDWATER DISCHARGE PERMIT GW-049-2

Property:

Blanco Products Storage
Off County Road 4900
Bloomfield, San Juan County, New Mexico

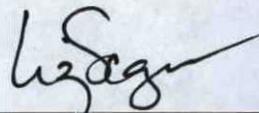
March 6, 2012
Project No. 0107039

Prepared for:

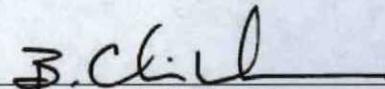
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CORRECTIVE ACTION REPORT

BLANCO PRODUCTS STORAGE
Off County Road 4900
Bloomfield, San Juan County, Texas

GW-049-2

SWG Project No. 0107039

1.0 EXECUTIVE SUMMARY

This Corrective Action Report has been prepared to document the In-Situ Chemical Oxidation (ISCO) corrective actions and subsequent sampling activities that occurred during August, September, and December of 2011 at the Blanco Products Storage facility (Site). The corrective methodologies utilized during these activities were selected based on information presented in Southwest Geosciences' (SWG's) Limited Site Investigation (LSI) dated May 30, 2007, Supplemental Environmental Site Investigation (SESI) dated January 3, 2008 and the Stage 2 Abatement Plan dated March 11, 2009.

Subsequent to the 2006 release of produced water at the Site, the water tank that had overflowed was removed, inspected, and returned to service. An impermeable liner was installed in the secondary containment in 2009, to prevent future release occurrences. Two subsurface investigations were performed at the Site during 2007, and mobile dual-phase extraction (MDPE) was implemented during September 2009 and January 2010. The following paragraphs summarize the most recent corrective action measures implemented at the site, as well as subsequent confirmation sampling results.

The petroleum hydrocarbon constituent which has been previously identified in on-Site soil in exceedance of the OCD *Remediation Action Level* is total benzene, toluene, ethylbenzene and xylenes (total BTEX). Based on SWG's review of the laboratory analytical results, total petroleum hydrocarbon (TPH) GRO/DRO and BTEX concentrations were identified in the soil samples collected from soil borings MW-12, B-15 and B-17 above the OCD's *Remediation Action Levels*; however, the identified TPH GRO/DRO concentrations do not exceed the risk-based screening level (RBSL) calculated using the Site-specific TPH mixture.

After review of the initial corrective action activities, ISCO was selected as the corrective action alternative to further reduce the concentrations of COCs in soil and groundwater relative to the New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD), Oil Conservation Division (OCD) *Remediation Action Levels* (RALs) and the NMWQCC *Ground Water Standards*. During August 2011, a total of forty (40) injection points (IP-1 through IP-40) were installed at the Site to allow the introduction of the ISCO additives to the substrate. Five (5) of the injection points (IP-1 through IP-5) were installed topographically upgradient of the source area while 23 of the injection points (IP-18 through IP-40) were installed in the vicinity of monitoring well MW-12 to treat the primary release area. Twelve (12) of the injection points (IP-6 through IP-17) were installed to create a "barrier wall" or "reactive permeable wall" along the hydrogeologically down-gradient boundary of the historic drainage. During the course of the ISCO activities, approximately 10,000 gallons of injectate were introduced into the substrate.

During September 2011, confirmation groundwater samples were collected from monitoring wells MW-10 through MW-14. Subsequent analysis of the samples

indicate BTEX concentrations for groundwater from monitoring wells MW-10, MW-11, MW-13, and MW-14 were not detected above the laboratory practical quantitative limits (PQLs), which are below the NMWQCC *Ground Water Standards*. The analytical results indicate groundwater in the vicinity of monitoring well MW-12 exhibits benzene (1,600 µg/L) and total xylenes (1,600 µg/L) above the NMWQCC *Ground Water Standards*.

During December 2011, after allowing approximately three months after the ISCO event for equilibration, SWG collected additional groundwater confirmation samples from monitoring wells MW-12 and MW-14, as well as from injection point IP-16 (near former temporary sampling well TSW-18). Analytical results for the samples collected from MW-14 and IP-16 indicate BTEX concentrations that are below laboratory PQLs, which are below the NMWQCC *Ground Water Standards*. The analytical results for the groundwater sample collected from monitoring well MW-12 were virtually identical to the September 2011 results, exhibiting benzene (1,600 µg/L) and total xylenes (1,300 µg/L) concentrations that are above the NMWQCC *Ground Water Standards*.

Also during December 2011, SWG advanced six (six) soil borings, to allow the collection of confirmation soil samples from the treated areas. Soil boring SB-1 and SB-2 were advanced topographically upgradient of the primary release area, adjacent to the berm which houses the produced water tank. Soil borings SB-3, SB-4, SB-5 and SB-6 were each advanced within the primary release area west of the produced water tank. Analytical results indicate that individual BTEX components (benzene, toluene, ethylbenzene, and total xylenes) were not present at concentrations above the OCD RALs. However, the results indicate that soil in the vicinity of SB-4 and SB-5 still exhibit elevated total BTEX concentrations that exceed the OCD RAL. Soil samples from borings SB-2, SB-3, SB-4, SB-5, and SB-6 exhibited TPH GRO and/or DRO concentrations that exceed the default OCD RAL of 100 mg/Kg. However, the identified levels of TPH GRO/DRO do not exceed the site-specific RBSL derived for the site.

Based on the confirmation sampling results, the ISCO activities appear to have achieved moderate results. The soil sampling results indicate no noticeable improvement in BTEX concentrations in the primary release area, while the aqueous sample results indicate modest improvement in the primary release area (40% decrease in benzene at MW-12), and apparent success at the west boundary area with no detectable BTEX concentrations at MW-14 and IP-6.

Soil boring results in the immediate vicinity of the primary release area indicate a narrow basin or buried drainage channel in the sandstone bedrock. Liquids from the 2006 release have apparently settled into this bedrock depression. Numerous active above- and below-grade pipelines, operated by differing entities, traverse the affected area, limiting corrective action options and creating a substantial safety risk for any subsurface activities performed in the vicinity. Although subsurface water in the primary release area remains affected, naturally occurring subsurface boundaries seem to indicate a relatively finite source of recharge, resulting in a somewhat isolated pocket of affected water. Based on SWG's review of the available data, the affected groundwater at the Site may qualify for a *Regulatory Exemption for Groundwater Contamination*, in which case confirmation sampling of groundwater would not be required subsequent to the completion of abatement activities.

Additionally, analytical data from the confirmation soil sampling indicates that some soils in the primary release area are affected with total BTEX concentrations that are above the OCD RALS. These affected soils appear to be localized, with most exceedances only slightly above the default action level, and do not appear to pose a significant risk in the current industrial setting. These soils could be re-assessed when the facility is ultimately decommissioned, or when pipeline and industrial hazards in the vicinity of the release pose less inherent hazard.

2.0 INTRODUCTION

2.1 Site Description & Background

The Site is located off County Road 4900, north-northeast of Bloomfield, in San Juan County, New Mexico. The Site is utilized for storage of condensate and water generated at the adjacent Enterprise Blanco and Val Verde Gas Plants and during pipeline maintenance.

A topographic map is included as Figure 1, and a Site Vicinity Map, composed from a 2011 aerial photograph, is included as Figure 2 in Appendix A.

Subsequent to a precipitation event, Enterprise personnel observed apparent petroleum hydrocarbon staining in association with surface soils located to the northwest of three (3) large volume condensate storage tanks and to the southwest of an open-top storage tank utilized to store water prior to off-Site disposal. The New Mexico Energy, Minerals and Natural Resources Department OCD *Release Notification and Corrective Action* form (Form C-141) was then submitted to the OCD on October 31, 2006, within 24 hours of observing the stained soils. Enterprise then removed the water tank from service and inspected the interior and exterior surfaces of the tank for leaks or defects. Obvious indications of cracks, holes or similar defects in the storage tank were not identified during the inspection. The secondary containment for the water tank was lined with an impermeable liner in 2009.

SWG conducted a LSI on May 30, 2007 to evaluate the presence, magnitude and extent of petroleum hydrocarbons in the on-Site soil and groundwater. SWG advanced nine (9) soil borings during the completion of Site investigation activities. Four (4) of the soil borings were converted to temporary sampling wells. Based on SWG's review of the laboratory analytical results, benzene, toluene, ethylbenzene and/or xylenes concentrations were not identified above the OCD's *Remediation Action Levels*. However, TPH GRO/DRO and total BTEX concentrations were identified in the soil samples above the OCD's *Remediation Action Levels*. The identified TPH GRO/DRO concentrations in the soil samples did not exceed the Risk-Based Screening Level (RBSL) calculated for the Site-specific TPH mixture. Based on SWG's review of the laboratory analytical results, BTEX concentrations in exceedance of the NMWQCC *Ground Water Standards* were identified in groundwater samples collected from the Site.

SWG conducted a Supplemental Environmental Site Investigation (SESI) during September 2007 to further evaluate the magnitude and extent of petroleum hydrocarbons in the on-Site soil and groundwater. Five (5) soil borings were advanced at the Site during the completion of Site investigation activities and each soil boring was converted to a permanent groundwater monitoring well. Soil boring MW-10 was advanced within the historic drainage feature, topographically up-

gradient of the condensate storage tanks. Soil boring MW-11 was advanced along the property boundary to the north of the northern water storage tank. Soil boring MW-12 was advanced immediately to the west in a hydrogeologically down-gradient position from the condensate storage tanks. Soil boring MW-13 was advanced to the south-southwest of the condensate storage tanks, and soil boring MW-14 was advanced within the historic drainage feature to the west in a hydrogeologically down-gradient position from the condensate and water storage tanks.

- Based on the laboratory analytical results, TPH GRO/DRO and total BTEX concentrations were identified above the OCD's *Remediation Action Levels* in the soil sample collected from soil boring MW-12; however, the identified TPH GRO/DRO concentrations do not exceed the RBSL calculated for the Site-specific TPH mixture.
- Groundwater samples were collected from monitoring wells MW-11, MW-12 and MW-14; however, no measurable volume of groundwater recharged into monitoring wells MW-10 and MW-13 during the completion of the Site investigation activities.
- Based on the laboratory analytical results, benzene, toluene and/or xylenes concentrations were identified in the groundwater samples collected from monitoring wells MW-12 and MW-14 in exceedance of the NMWQC *Ground Water Standards*.

The initial corrective action performed at the Site consisted of two (2) High Vacuum Remediation (HVR) events from September 17-24, 2009 and January 14-21, 2010. Monitoring wells MW-12 and MW-14 were utilized to draw a vacuum on the target geologic formation, allowing the recovery of soil vapors (including vapor phase COCs) while pumping fluids to the surface at an increased rate due to the vacuum enhanced recovery.

During the HVR events, the HVR system was connected to monitoring wells MW-12 and MW-14.

- The September 2009 HVR event resulted in the recovery of 59.4 gallons of vapor phase petroleum hydrocarbons and 4,794 gallons of groundwater. Groundwater was depressed in monitoring wells MW-12 and MW-14 6.70 feet and 6.75 feet respectively.
- The January 2010 HVR event resulted in the recovery of 52.6 gallons of vapor phase petroleum hydrocarbons and 4,227 gallons of groundwater. Groundwater was depressed in monitoring wells MW-12 and MW-14 5.96 feet and 6.22 feet respectively.

Following the HVR events, four (4) soil borings (B-15 through TSW-18) were advanced on Site in March 2010, utilizing a direct push Geoprobe® drilling rig. Soil borings B-15 and B-16 were advanced in the vicinity of monitoring well MW-12. Boring B-17 was advanced in the vicinity of B-8, and boring TSW-18 was advanced with the historic topographic drainage along the western boundary of the Site.

- Based on the laboratory analysis, TPH GRO/DRO and total BTEX concentrations were identified in the soil samples collected from soil borings B-15 and B-17 in exceedance of the OCD RALS; however, the identified TPH

GRO/DRO concentrations do not exceed the RBSL calculated for the Site-specific TPH mixture.

- Soil boring TSW-18 was converted to temporary groundwater sampling well to facilitate groundwater sampling at that location. Groundwater samples were collected from monitoring wells MW-10, MW-11, MW-12 and MW-14 and temporary sampling well TSW-18 for laboratory analysis. Based on the laboratory analysis, benzene, toluene and xylenes concentrations were identified in the groundwater samples collected from monitoring wells MW-12 and temporary sampling well TSW-18 above the NMWQC *Ground Water Standards*.

2.2 Site Ranking & Proposed Cleanup Goals

The Site is subject to regulatory oversight by the New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD) Oil Conservation Division (OCD). To address activities related to condensate releases, the NMEMNRD OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the OCD rules, specifically NMAC 19.15.30 *Remediation*. These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

In accordance with the OCD's *Guidelines for Remediation of Leaks, Spills and Releases*, SWG utilized the general site characteristics to determine the appropriate "ranking" for the Site. The ranking criteria and associated scoring are provided in the following table:

Ranking Criteria			Ranking Score
Depth to Groundwater	<50 feet	20	20
	50 to 99 feet	10	
	>100 feet	0	
Wellhead Protection Area • <1,000 feet from a water source, or; <200 feet from private domestic water source.	Yes	20	0
	No	0	
Distance to Surface Water Body	<200 feet	20	0
	200 to 1,000 feet	10	
	>1,000 feet	0	
Total Ranking Score			20

Based on SWG's evaluation of the scoring criteria, the Site would have a Total Ranking Score of 20. This ranking is based on the following:

- The depth to the initial groundwater-bearing zone is unknown at the Site. Groundwater was encountered at the site, but appears limited to the confines of a buried draining channel.
- Nearby drinking water sources were not identified within 1,000 feet of the Site.
- Surface water is greater than 1,000 feet from the Site.

Based on a Total Ranking Score of 20, the default cleanup goals for soil located at the Site include: 10 mg/Kg for benzene, 50 mg/Kg for total BTEX and 100 mg/Kg for TPH GRO/DRO.

In addition, cleanup goals for groundwater located at the Site include the NMWQCC *Water Quality Standards* of: 10 µg/L for benzene, 750 µg/L for toluene, 750 µg/L for ethylbenzene, and 620 µg/L for xylenes.

3.0 CORRECTIVE ACTIONS

Corrective actions were completed at the Site in accordance with the Supplemental Corrective Action Work Plan dated June 13, 2011, subsequent to verbal approval by the OCD.

3.1 Soil

3.1.2 In-Situ Chemical Oxidation

ISCO is a corrective action alternative which involves injecting chemical oxidants into the vadose zone and/or groundwater to oxidize organic contaminants. However, the success of ISCO technologies is often significantly influenced by the ability to successfully contact the organic contaminants with the oxidant solution. Petroleum hydrocarbons sequestered within the interstitial pore space must be adequately contacted with an appropriate oxidant reagent dose for complete destruction. Aromatics and some straight chain alkanes have a particular affinity for strong sequestration between clay platelets (vander Waals force within the lattice structure). Inoculation of an oxidant reagent without proper adjustments for surface tension or ionization will result in inefficient oxidant-contaminant contact.

The in-situ oxidation inoculation procedures are designed with specific sequencing or phases that will maximize oxidative persistence, penetration into interstitial pore space and partially de-ionize clay platelets easing contaminant desorption. A reduction-oxidation (redox) reaction that reaches third order kinetics can be highly exothermic, quickly driving aqueous phase contaminants into the vapor phase. Controlling the reaction kinetics is essential in maximizing contaminant contact persistence. The in-situ oxidation procedures will form Windsor Type 1 micro-emulsion with petroleum hydrocarbons and the aqueous reagent maximizing destruction efficiency.

Initially, the formation was prepared for contaminant oxidation by inoculating the treatment area with an alkaline oxidative de-ionizing solution. This served as a wetting agent, de-ionizing clay platelets and optimizing aqueous reagent contact with contaminants. The initial reagent was delivered through a specifically sequenced treatment train. An aqueous solution containing sodium percarbonate and sodium persulfate was injected through forty (40) injection points. The pre-oxidation alkaline de-ionizing solution also served as a persulfate catalyst (producing sulfate radicals).

The second phase was conducted within twenty four (24) hours after injecting the de-ionizing/catalyst solution. During these activities, the treatment area was inoculated using VeruSolve-HP™ aqueous reagent as a Surfactant-Enhanced In-Situ Chemical Oxidation (S-ISCO™) Coelution Technology™. VeruSOLVE-HP™ is a

stabilized surfactant-cosolvent/oxidant combination effective for surgical destruction of source term contaminants. Because the rate of partitioning of contaminants into the aqueous phase determines the overall rate of reaction, as the concentration of stabilized surfactant-cosolvent fraction is increased, the partitioning and subsequent rate of chemical oxidation is increased. VeruTEK's stabilized surfactant-cosolvent/oxidant blend achieves Winsor Type I solubilization, where the contaminant is solubilized as a single-phase micro-emulsion and dissolution of constituents occur without mobilization. This allows for the destruction of the contaminants that are currently in a non-aqueous phase (i.e. the source term). The resulting redox reaction will occur over a very long period of time. Reaction kinetics are controlled, sustaining a highly oxidative environment for weeks. Extended persistence greatly increases the contaminant-oxidant contact occurrence, thereby producing very favorable results. Manufacturer's information for VeruSOLVE-HP™ is included in Appendix F.

The aqueous reagent was injected through forty (40) injection points installed on approximate twelve foot centers upgradient of the primary release area (Injection Points IP-1 through IP-5), in the vicinity of and immediately down-gradient of the source area (Injection Points IP-18 through IP-40), and along the down-gradient property boundary as a reactive permeable wall (Injection Points IP-6 through IP-17). The injection points were constructed of 1.5-inch diameter schedule 40 PVC with a ten foot screened interval, similar to monitoring well construction.

SWG injected an estimated 10,000 gallons of aqueous reagent, proportionately, through the forty (40) injection wells.

Due to the presumed aquifer properties, the aqueous solution of oxidant reagent was injected at a low flow rate and pressure (<30 psi at the well head) to ensure an effective distribution of oxidant in the subsurface and limit breakthrough to the surface.

Figure 3 indicates the approximate locations of the source phase injection points and existing borings/monitoring wells in relation to pertinent Site features and general Site boundaries.

Groundwater was continuously monitored during injection activities for temperature, electrical conductance, total dissolved solids, dissolved oxygen, pH, oxidation-reduction potential (ORP) and depth during injection through adjacent injection wells using YSI 556 multi-probe monitors and oil/water inter-phase probes.

3.2 Groundwater

The New Mexico OCD requires that corrective actions be taken for leaks, spills or releases of any material which has a reasonable probability to injure or be detrimental to public health, fresh waters, animal or plant life, or property or unreasonably interfere with the public welfare or use of the property. Fresh waters (to be protected) include the water in lakes, playas, surface waters of all streams regardless of the quality of the water within any given reach, and all underground waters containing 10,000 mg/l or less of TDS except for which, after notice and hearing, it is found that there is no present or reasonably foreseeable beneficial use which would be impaired by contamination of such waters.

New Mexico Administrative Code, Title 19, Natural Resources and Wildlife, Chapter 15, Oil & Gas, Part 1, General Provisions and Definitions (19.15.1.7E(1)) states:

Exempted aquifer shall mean an aquifer that does not currently serve as a source of drinking water, and which cannot now and will not in the foreseeable future serve as a source of drinking water because

(b) it is situated at a depth or location which makes the recovery of water for drinking water purposes economically or technologically impractical.

19.15.1.7A(8) states:

Aquifer shall mean a geological formation, group of formations or a part of a formation that is capable of yielding a significant amount of water to a well or spring.

19.15.1.7G(6) states:

Ground water shall mean interstitial water which occurs in saturated earth material and which is capable of entering a well in sufficient amounts to be utilized as a water supply.

Based on SWG's review of the historical aerial photographs and topographic map, an apparent topographic drainage feature historically traversed the Site from the northeast to the southwest, underlying the current storage tanks. The historic drainage feature was likely filled and leveled, along with the surrounding area, during the construction of the facility.

The initial groundwater-bearing unit was encountered at depths ranging from 5 to 8 feet bgs during the advancement of soil borings TSW-1, TSW-2, TSW-5 and TSW-9, which appear to have been installed within the historic drainage feature. The groundwater-bearing unit appears to be associated with perched water which has collected within the historic drainage feature. During the advancement of soil borings B-3, B-4, B-6, B-7 and B-8, the initial impermeable layer (sandstone) was encountered at depths ranging from 6 to 7 feet bgs, which indicates the soil borings were advanced outside of the historic drainage feature.

No measurable volume of groundwater recharged into temporary groundwater sampling well TSW-5 during the completion of Site investigation activities (temporary sampling well was dry). In addition, due to limited recharge, SWG was unable to collect a sufficient groundwater sample volume from temporary sampling well TSW-9.

It is unlikely that the perched water in the historical drainage feature meets the above definition of an aquifer, since it is not capable of yielding a significant amount of water to a well. Further, the water bearing unit does not currently serve as a source of drinking water, and cannot now and will not in the foreseeable future serve as a source of drinking water because it is situated at a laterally confined depth which makes the recovery of water for drinking water purposes economically impractical. The nearest domestic or public use wells are over 600 feet from the Site and the total depth of the wells are over 100 feet.

Therefore, the groundwater at the Site would be exempt from abatement requirements under New Mexico Administrative Code.

4.0 CORRECTIVE ACTION EFFECTIVENESS

To evaluate the effectiveness of the VeruSolve-HP™ aqueous reagent on the COCs identified in the subsurface at the Site, SWG performed confirmation sampling at the site approximately one (1) month after the completion of ISCO activities, and again approximately three (3) months after the ISCO event.

4.1 Soil Confirmation Sampling

During December 2011, SWG advanced six (6) soil borings within the treatment area at the site utilizing a direct push Geoprobe® drilling rig. Soil borings SB-1 and SB-2 were advanced topographically up-gradient of the source area, in the vicinity of former soil borings B-8 and B-17. Soil borings SB-3 and SB-4 were advanced topographically down-gradient of the source area, in the vicinity of former soil borings MW-12 and B-16. Soil borings SB-5 and SB-6 were advanced topographically down-gradient of the source area, in the vicinity of former soil boring B-15.

Reusable sampling and drilling equipment was decontaminated by Alconox® rinse and water prior to commencement of the project and between the advancement of each soil boring.

Soil samples were collected continuously and observed to document soil lithology, color, moisture content and evidence of petroleum hydrocarbon impact. The soil samples were field-screened using a calibrated photoionization detector (PID) to indicate the presence of volatile organic compounds (VOCs).

The lithology encountered during sample collection consisted of clayey sand, silty sand and silty clay overlying sandstone. Detailed lithologic descriptions are presented on the soil boring logs included in Appendix C.

Petroleum hydrocarbon odors were detected in the soil samples collected from each of the confirmation soil borings (SB-1 through SB-6). PID readings ranging up to 1,404 parts per million (ppm) were detected in the soil samples collected from the confirmation soil borings. The highest PID reading was observed in the soil sample collected from a depth of 15 to 16 feet below ground surface (bgs) in soil boring SB-6.

Soil samples collected from soil borings SB-1 through SB-6 were submitted for total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO) analysis utilizing EPA method SW-846# 5030B/8015B-modified and benzene, toluene, ethylbenzene and xylenes (BTEX) analysis using EPA SW-846 method #8021B. Laboratory results are summarized in the tables included in Appendix D. The executed chain-of-custody form and laboratory data sheets are provided in Appendix E.

Based on the laboratory analytical results, benzene concentrations were not identified in soil samples collected from soil borings SB-1 through SB-6 within the treatment area in exceedance of the OCD RALS.

Based on the laboratory analytical results, total BTEX concentrations were identified in the soil samples collected from soil borings SB-4 and SB-5 within the treatment area in exceedance of the OCD RALS.

Based on the laboratory analytical results, the soil samples collected from borings SB-2, SB-3, SB-4, SB-5, and SB-6 exhibited TPH GRO and/or DRO concentrations that exceed the default OCD RAL of 100 mg/Kg. However, the identified levels of TPH GRO/DRO do not exceed the site-specific RBSL derived for the site.

Figure 6 (Appendix A) is a OCD RAL Exceedance Zone Map which depicts the estimated extent of COCs in soil in exceedance of the OCD RALs.

4.2 Groundwater Confirmation Sampling

During September 2011, and again during December 2011, SWG collected groundwater samples from select groundwater monitoring wells to evaluate the effectiveness of the ISCO treatment on groundwater. During the September 2011 sampling event, groundwater samples were collected from monitoring wells MW-10 through MW-14. During the December 2011 sampling event, groundwater samples were collected from monitoring wells MW-12 and MW-14, and injection point IP-16, which is located in close proximity to former temporary sampling well TSW-18.

Prior to sample collection, monitoring wells were micro-purged utilizing low-flow sampling techniques. Low-flow refers to the velocity with which groundwater enters the pump intake and that is imparted to the formation pore water in the immediate vicinity of the well screen. It does not necessarily refer to the flow rate of water discharged at the surface which can be affected by flow regulators or restrictions. Water level drawdown provides the best indication of the stress imparted by a given flow-rate for a given hydrological situation. The objective was to pump in a manner that minimizes stress (drawdown) to the system to the extent practical taking into account established site sampling objectives. Flow rates on the order of 0.1 to 0.5 L/min were maintained during the sampling activities using dedicated sampling equipment.

The utilization of low-flow minimal drawdown techniques enables the isolation of the screened interval groundwater from the overlying stagnant casing water. The pump intake is placed within the screened interval such that the groundwater recovered is drawn in directly from the formation with little mixing of casing water or disturbance to the sampling zone.

The monitoring wells were purged until produced groundwater was consistent in color, clarity, pH, dissolved oxygen (DO), oxidation/reduction potential (ORP), temperature, and conductivity.

The groundwater samples collected in September 2011 were analyzed for TPH GRO/DRO using EPA method SW-846 #8015B and BTEX using EPA method SW-846 method #8021B. The groundwater samples collected in December 2011 were analyzed for BTEX. The laboratory analytical results are summarized in the Table 2 included in Appendix D. The executed chain-of-custody forms and laboratory data sheets are provided in Appendix E.

Please note, based on SWG's review of the available data, the affected groundwater at the Site would qualify for a *Regulatory Exemption for Groundwater Contamination*, in which case confirmation sampling of groundwater would not be required subsequent to the completion of abatement activities.

Based on the laboratory analytical results, the groundwater samples collected from monitoring well MW-12 exhibited benzene concentrations in exceedance of the New Mexico Water Quality Control Commission (NMWQCC) *Groundwater Quality Standard* (GQS) of 10 ug/L.

Based on the laboratory analytical results, the groundwater samples collected from monitoring well MW-12 exhibited xylenes concentrations in exceedance of the NMWQCC GQS of 620 ug/L.

Figure 7 (Appendix A) is a NMWQCC GQS Exceedance Zone Map which depicts the estimated extent of COCs in groundwater in exceedance of the NMWQCC GQSs.

5.0 FINDINGS & RECOMMENDATIONS

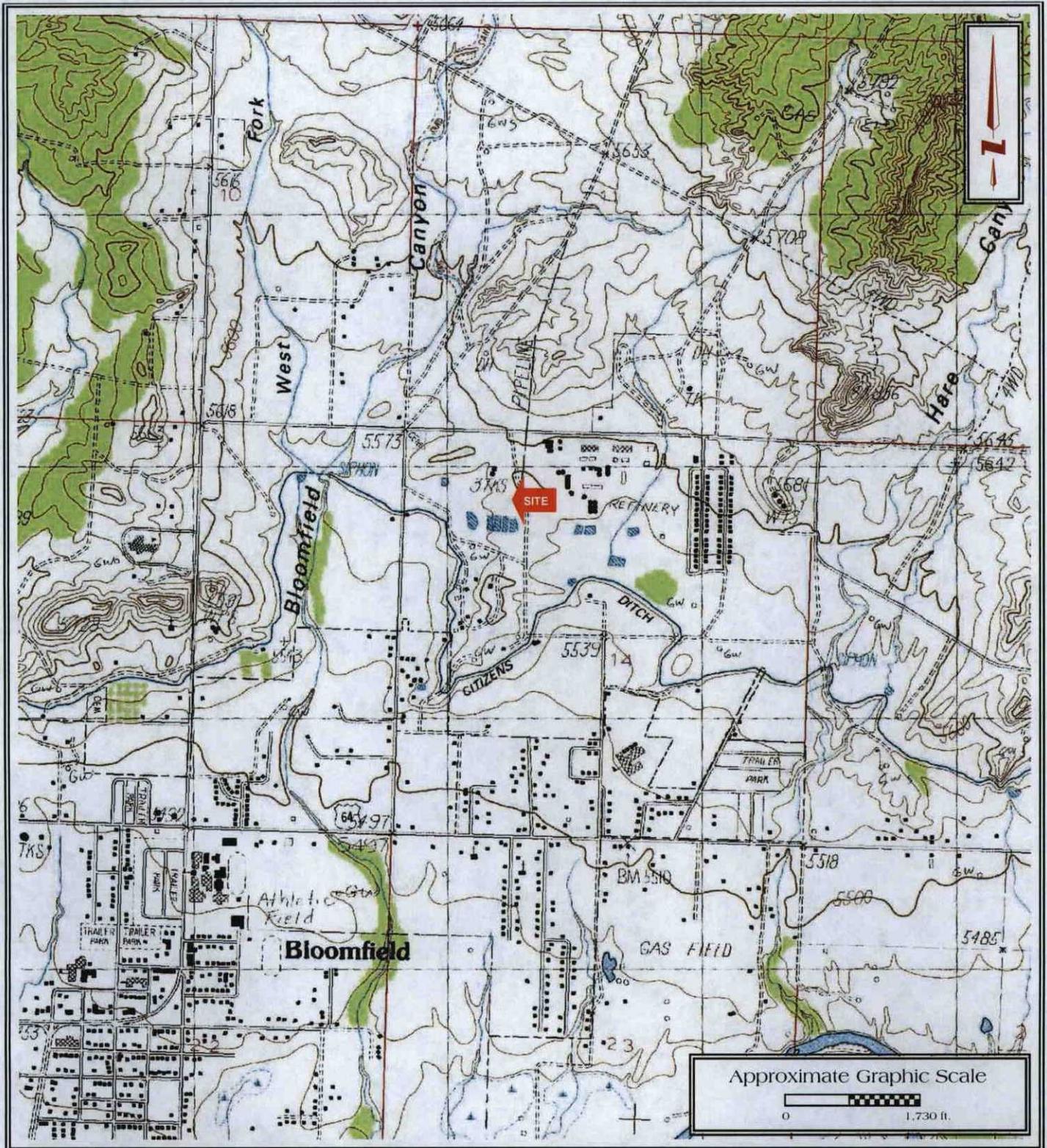
Based on the confirmation sampling results, the ISCO activities appear to have achieved moderate results. The soil sampling results indicate no noticeable improvement in BTEX concentrations in the primary release area, while the aqueous sample results indicate modest improvement in the primary release area (40% decrease in benzene at MW-12), and apparent success at the west boundary area with no detectable BTEX concentrations at MW-14 and IP-6.

Soil boring results in the immediate vicinity of the primary release area indicate a narrow basin or buried drainage channel in the sandstone bedrock. Liquids from the 2006 release have apparently settled into this bedrock depression. Numerous active above- and below-grade pipelines, operated by differing entities, traverse the affected area, limiting corrective action options and creating a substantial safety risk for any subsurface activities performed in the vicinity. Although subsurface water in the primary release area remains affected, naturally occurring subsurface boundaries seem to indicate a relatively finite source of recharge, resulting in a somewhat isolated pocket of affected water.

It is unlikely that the perched water in the historical drainage feature meets the definition of an aquifer in accordance with the New Mexico Administrative Code, Title 19, Natural Resources and Wildlife, Chapter 15, Oil & Gas, Part 1, General Provisions and Definitions (19.15.1.7E(1)), since it is not capable of yielding a significant amount of water to a well. Further, the water bearing unit does not currently serve as a source of drinking water, and cannot now and will not in the foreseeable future serve as a source of drinking water because it is situated at a laterally confined depth which makes the recovery of water for drinking water purposes economically impractical.

Therefore, the groundwater at the Site should be exempt from abatement requirements under New Mexico Administrative Code.

Additionally, analytical data from the confirmation soil sampling indicates that some soils in the primary release area are affected with total BTEX concentrations that are above the OCD RALS. These affected soils appear to be localized, with most exceedances only slightly above the default action level, and do not appear to pose a significant risk in the current industrial setting. These soils could be re-assessed when the facility is ultimately decommissioned, or when pipeline and industrial hazards in the vicinity of the release pose less inherent hazard.



Corrective Action Report
 Enterprise Field Services LLC
 Blanco Storage Facility
 Off San Juan County Road 4900
 Bloomfield, New Mexico
 SWG Project No. 0107039

Southwest
 GEOSCIENCE

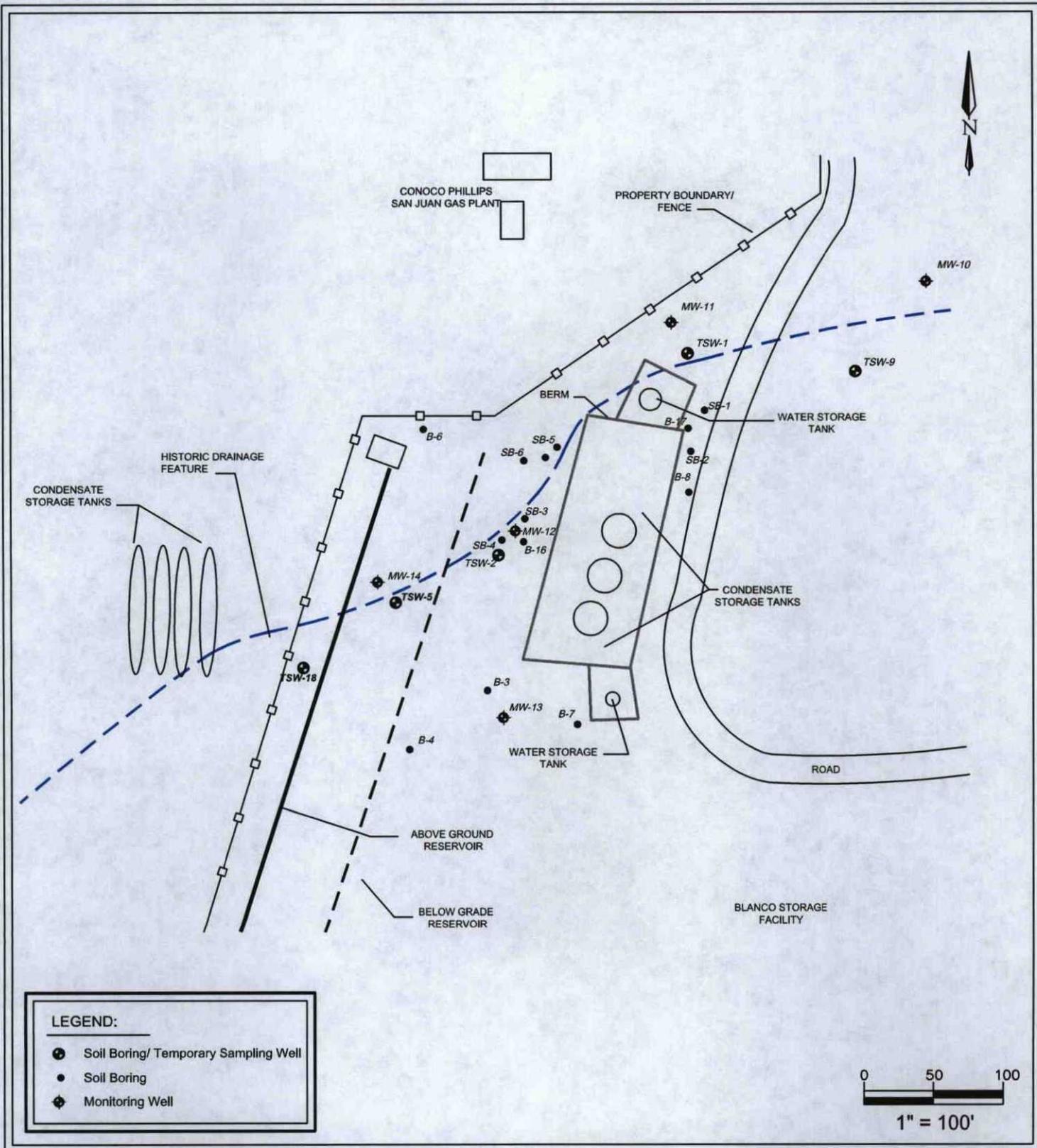
FIGURE 1
 Topographic Map
 Bloomfield, NM Quadrangle
 Contour Interval - 10 Feet
 1985



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 Enterprise Field Services LLC
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FIGURE 2
 Site Vicinity Map

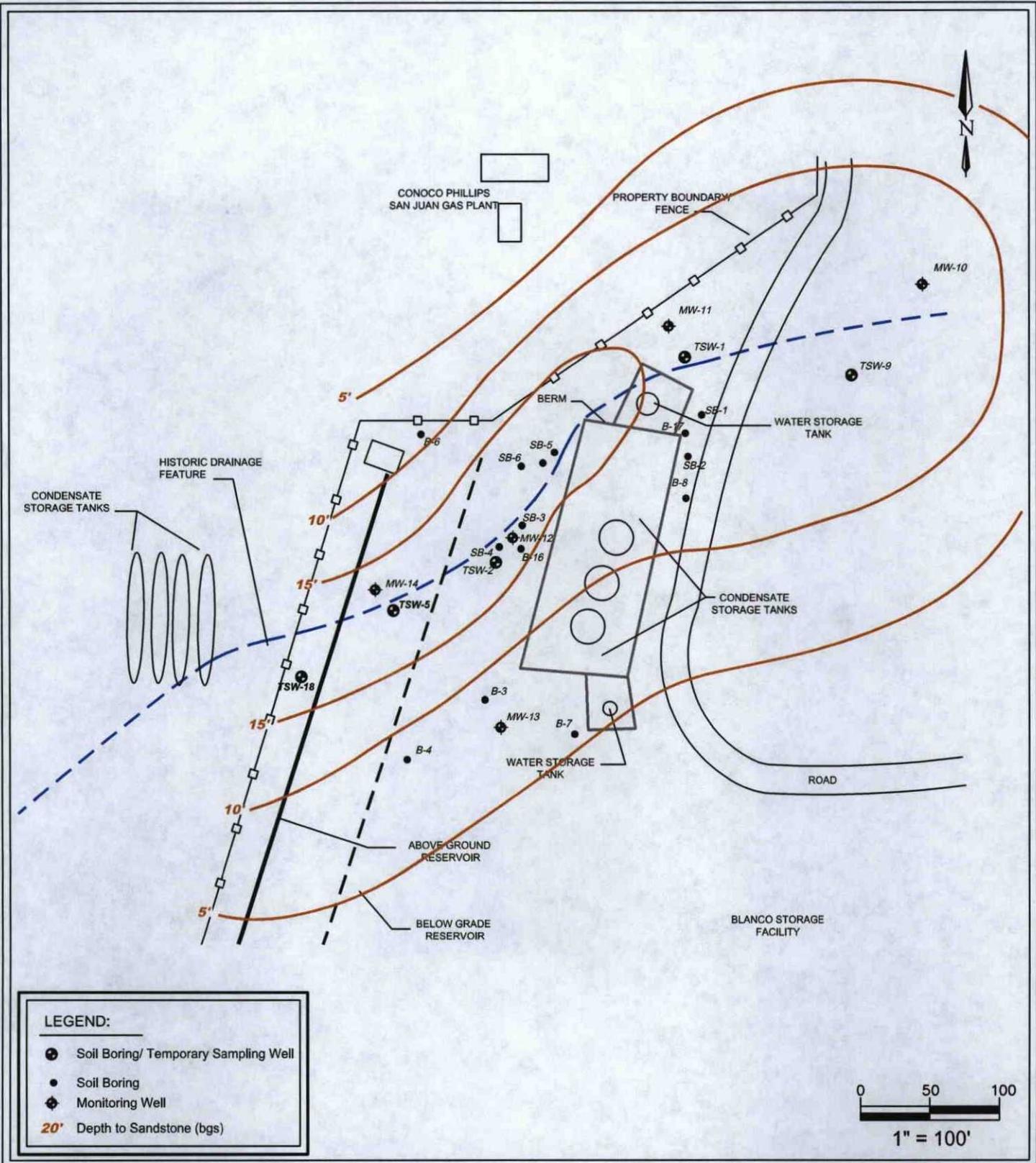


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 Enterprise Field Services LLC
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 Bloomfield, New Mexico

SWG Project No. 0107039



FIGURE 3
 Site Map

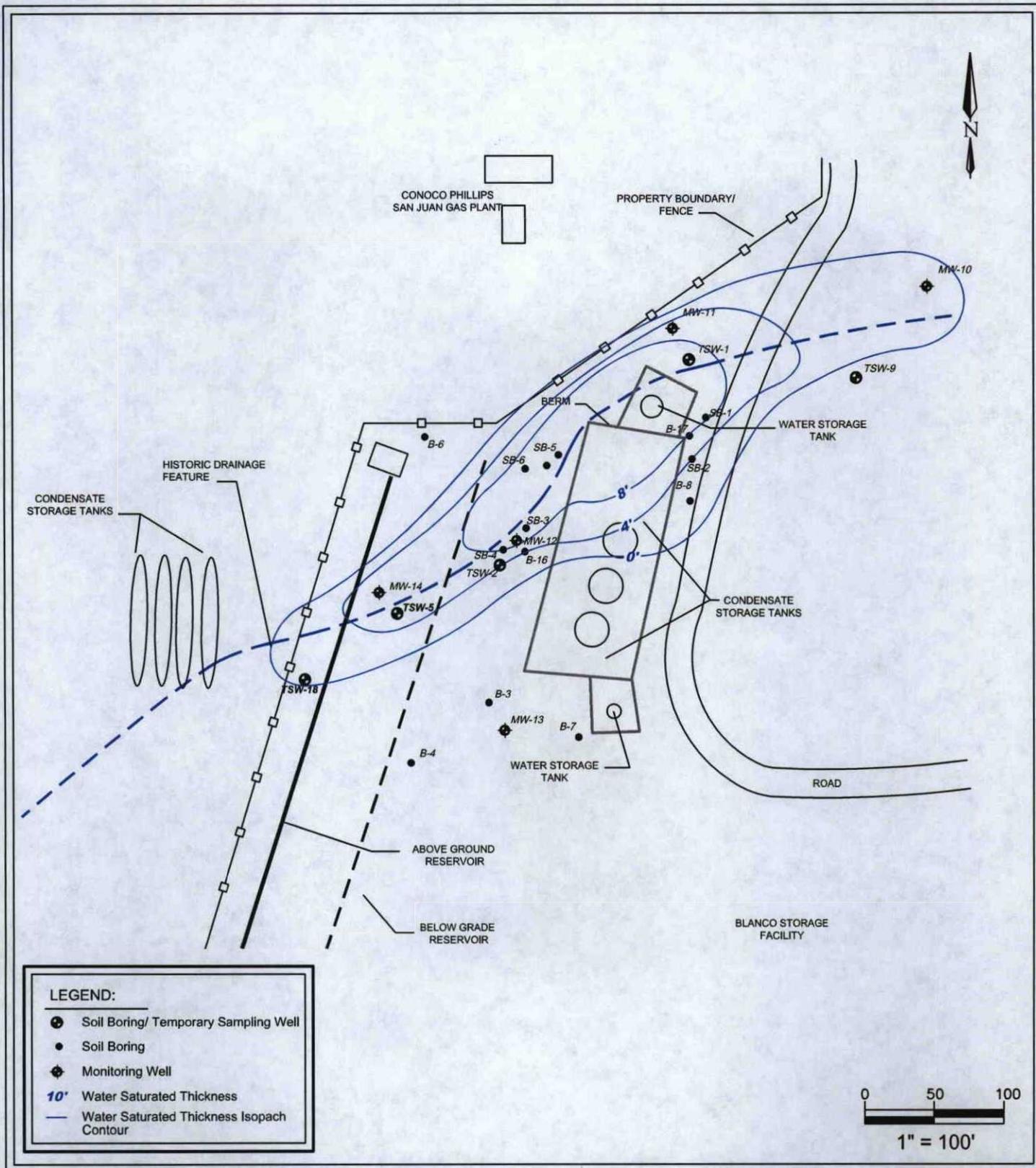


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FIGURE 4
 Sandstone Elevation
 Map



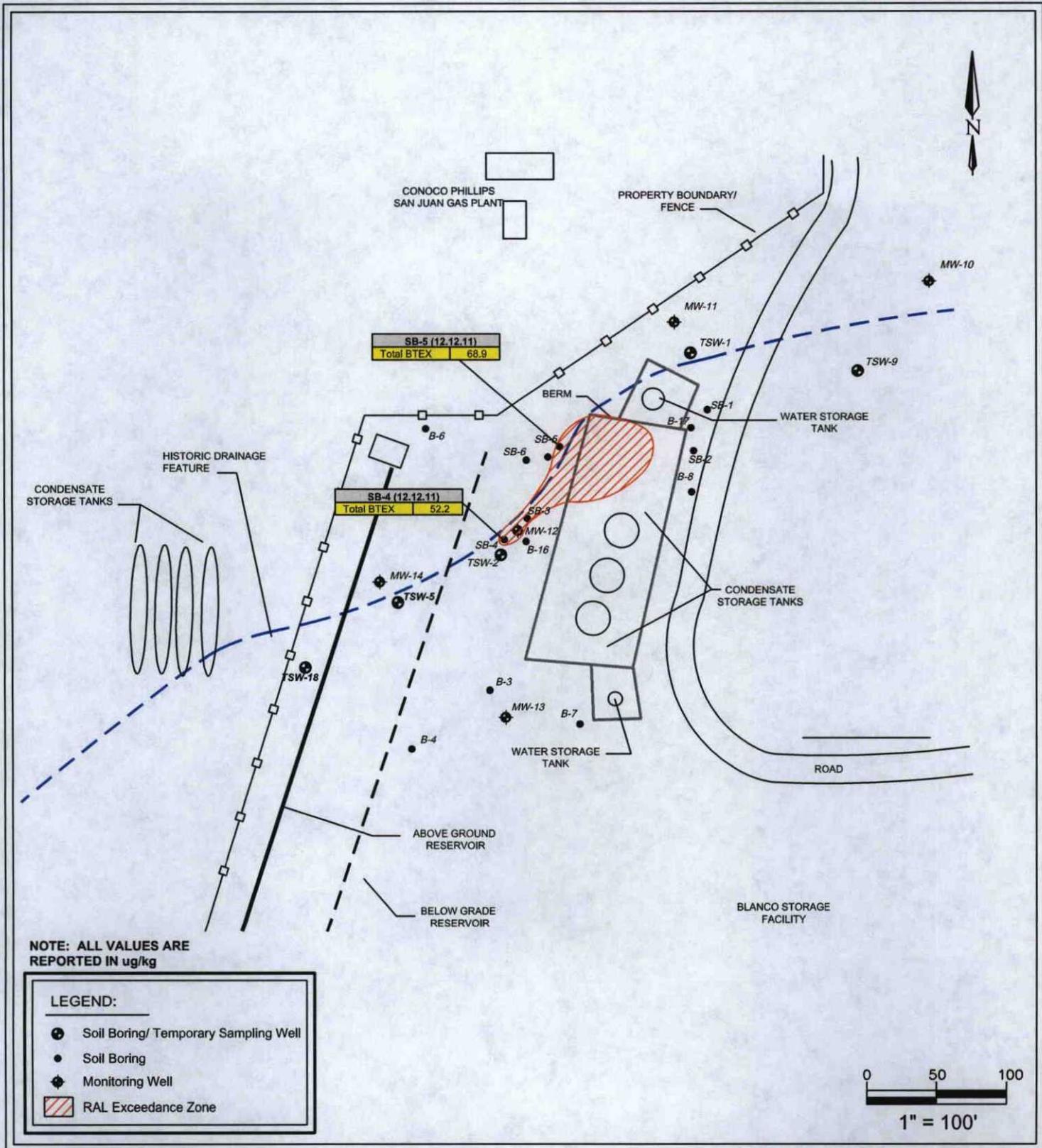
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FIGURE 5
 Groundwater Bearing
 Unit Isopach Map

9.03.2007

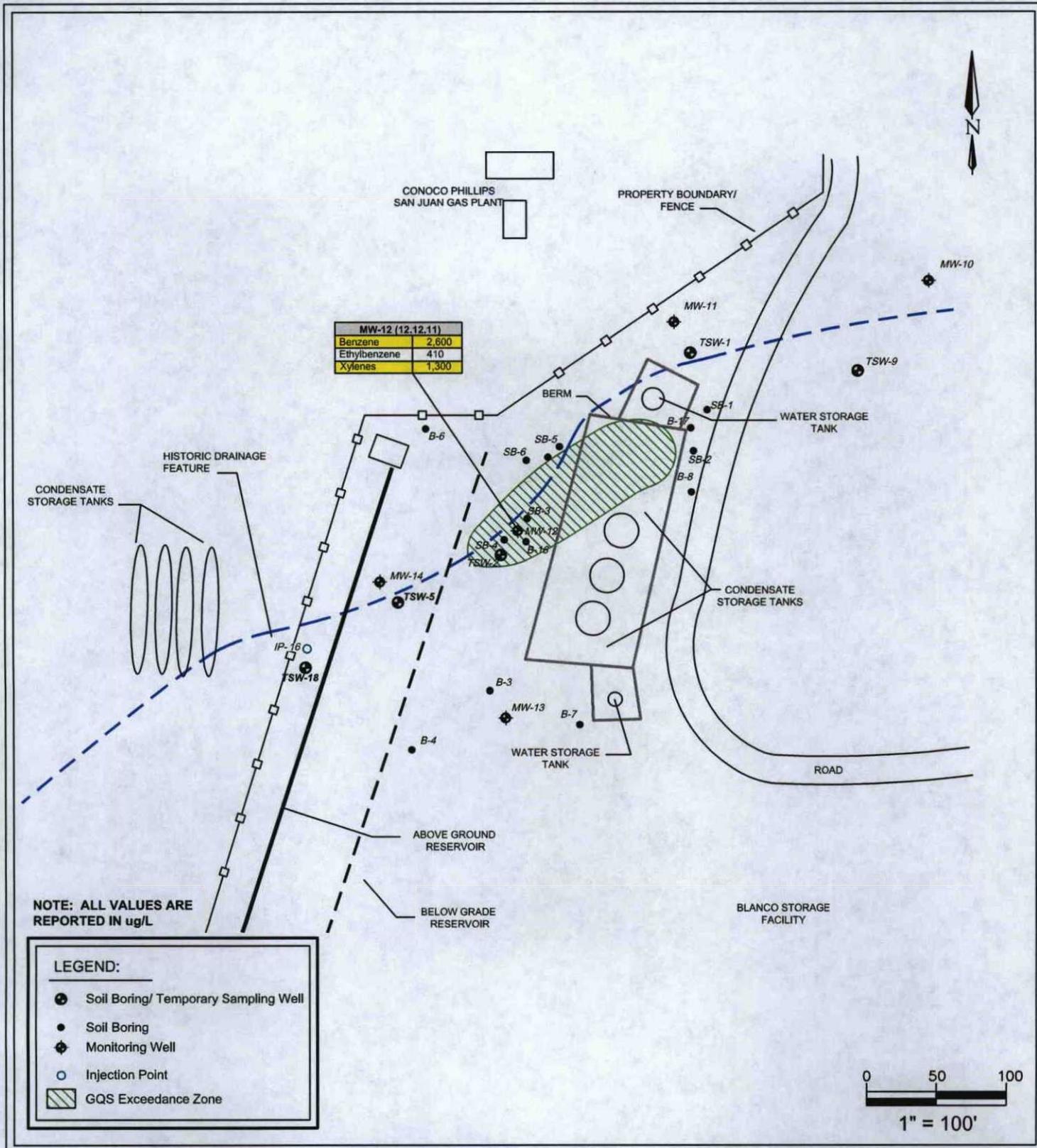


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Enterprise Field Services LLC
Blanco Storage Facility
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Bloomfield, New Mexico

SWG Project No. 0107039

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FIGURE 6
RAL Exceedance
Zone Map
(12.12.11)

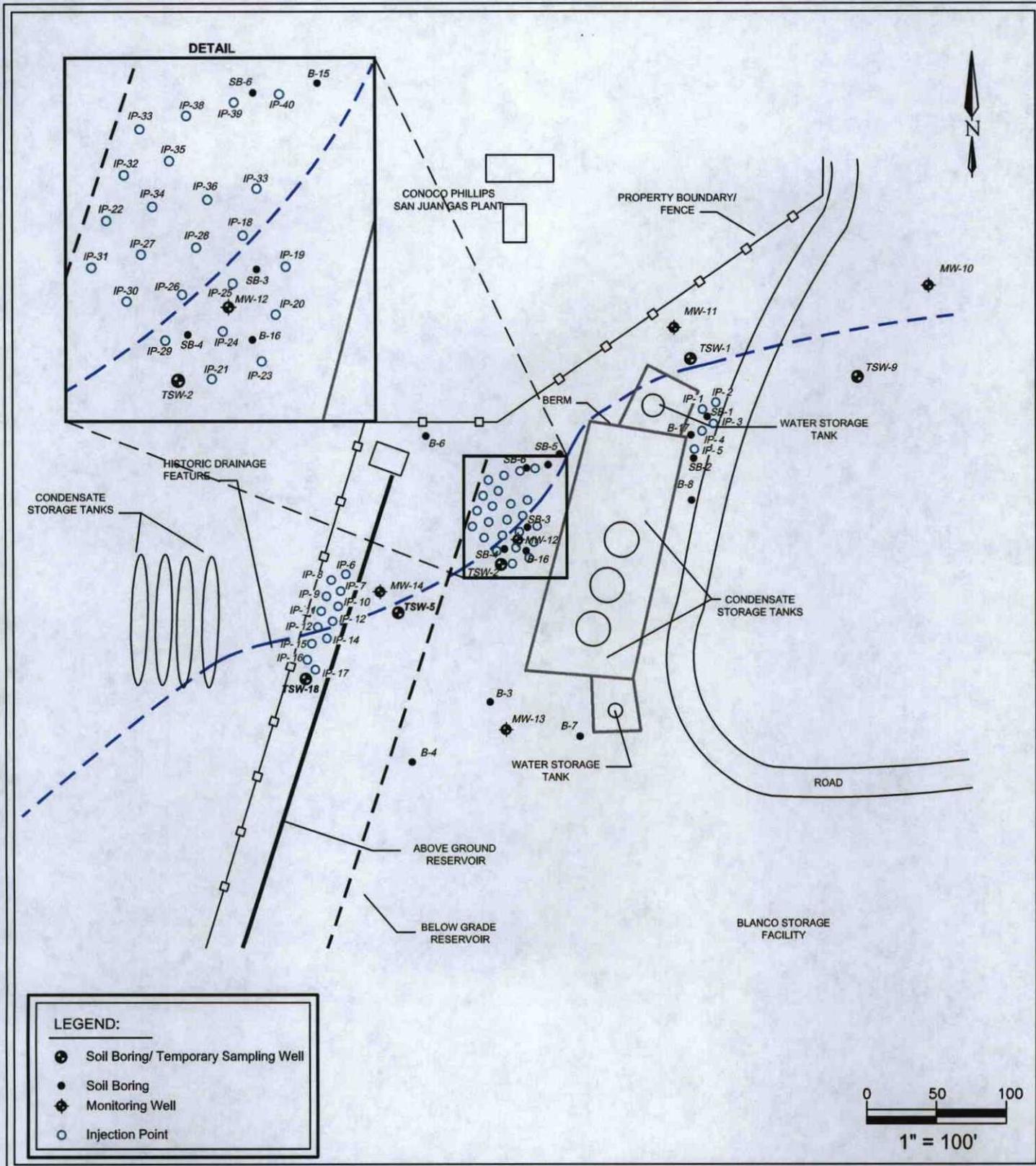


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 Enterprise Field Services LLC
 Blanco Storage Facility
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FIGURE 7
 GQS Exceedance
 Zone Map
 (12.12.11)



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 Enterprise Field Services LLC
 Blanco Storage Facility
 Off San Juan County Road 4900
 Bloomfield, New Mexico

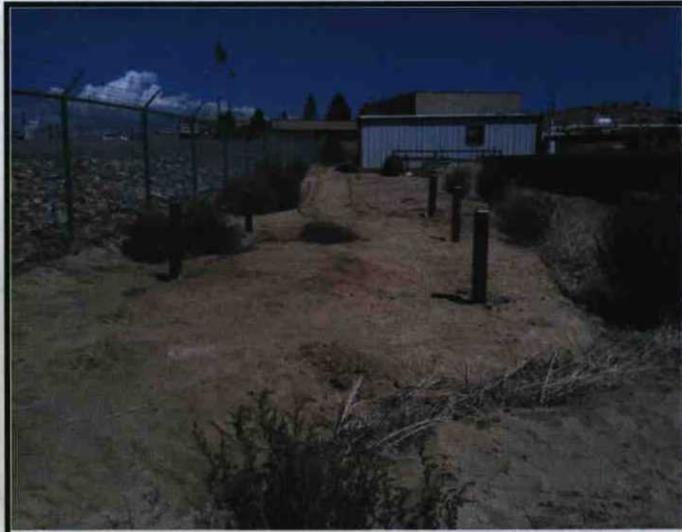
SWG Project No. 0107039

Southwest
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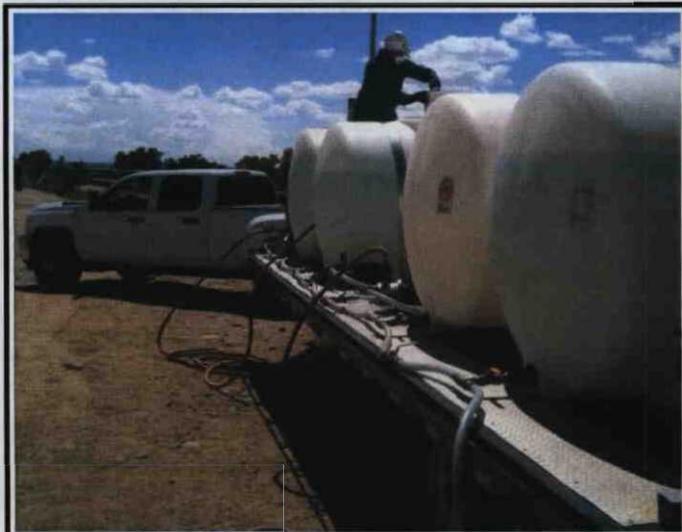
FIGURE 8
 Injection Point
 Location Map



1.) General view of the installation of injection points 6 through 17 along the western property boundary.



2.) Representative view of select injection points along the western boundary subsequent to completion.



3.) Representative view of the preparation of chemical oxidant solution prior to injection activities.



4.) General view of the VeruSOLV-HP prior to mixing and in-situ treatment.



5.) Representative view of the injection of treatment chemicals into select injection points located immediately west of the condensate storage tank containment.



6.) General view of the injection of treatment chemicals into select injection points located along the western boundary of the Site.

Client: Enterprise Field Services LLC
 Project Name: Blanco Storage Facility
 Project Location: Bloomfield, NM
 Project Manager: L. Scaggs

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 12.12.11
 Date Completed: 12.12.11
 Drilling Company: Earthworx
 Driller: L. Trujillo
 Geologist: J. Dubuisson
 Boring Method: GP
 Bore Hole Dia: 3"

Soil Boring Number: SB-1
 Project #: 0107039
 Drawn By: RDH
 Approved By: BCM

Well Diam: NA
 Screen Size: NA
 Screen Length: NA
 Casing Length: NA

BORING METHOD
 HSA - HOLLOW STEM AUGERS
 CFA - CONTINUOUS FLIGHT AUGERS
 GP - GEOPROBE
 AR - AIR ROTARY

SAMPLER TYPE
 CB - FIVE FOOT CORE BARREL
 SS - DRIVEN SPLIT SPOON
 ST - PRESSED SHELBY TUBE

GROUNDWATER DEPTH
 ▼ AT COMPLETION
 ▼ AT WELL STABILIZATION

BORING AND SAMPLING NOTES			

SOIL CLASSIFICATION	
SURFACE ELEVATION:	

NO RECOVERY
SILTY SAND, Grayish Brown, Dry, No Odor
SILTY CLAY, Dark Brown with Gray Mottling, Slightly Moist, No Odor
SILTY CLAY, Dark Gray, Moist, Hydrocarbon Odor, Moderate Amount of Calcareous Inclusions @ 12 - 13 ft bgs
Refusal @ 13 ft bgs

Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	PID/PID Readings (ppm)
	5					
	10	8-9				
	15	12-13				
	20					
	25					
	30					

Hydrovac from 0 - 6 ft bgs
 Begin Direct Push @ 6ft bgs

NOTE: This log is not to be used outside of the original report.

Client: Enterprise Field Services LLC
 Project Name: Blanco Storage Facility
 Project Location: Bloomfield, NM
 Project Manager: L. Scaggs

SOIL BORING LOG

DRILLING & SAMPLING INFORMATION

Date Started: 12.12.11
 Date Completed: 12.12.11
 Drilling Company: Earthworx
 Driller: L. Trujillo

Soil Boring Number: SB-2
 Project #: 0107039
 Drawn By: RDH
 Approved By: BCM

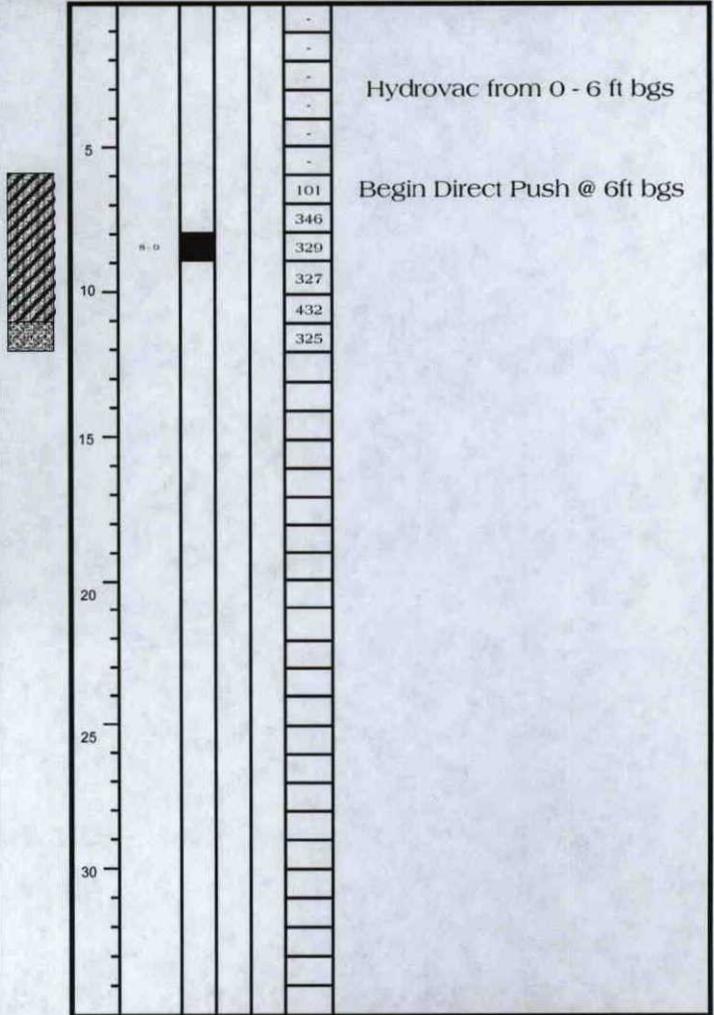
Geologist: J. Dubuisson Well Diam: NA
 Boring Method: GP Screen Size: NA
 Bore Hole Dia: 3" Screen Length: NA
 Casing Length: NA

BORING METHOD	SAMPLER TYPE	GROUNDWATER DEPTH
HSA - HOLLOW STEM AUGERS	CB - FIVE FOOT CORE BARREL	▽ AT COMPLETION
CFA - CONTINUOUS FLIGHT AUGERS	SS - DRIVEN SPLIT SPOON	▽ AT WELL STABILIZATION
GP - GEOPROBE	ST - PRESSED SHELBY TUBE	
AR - AIR ROTARY		

Stratum Depth	Depth Scale	Sample No.	Sample Interval	% Recovery	Groundwater Depth	PH/PI/D Readings (ppm)	BORING AND SAMPLING NOTES

SOIL CLASSIFICATION	
Surface Elevation:	

NO RECOVERY
SILTY CLAY, Dark Brown & Dark Gray, Dry to Slightly Moist, Hydrocarbon Odor @ 8 - 10 ft bgs
SILTY CLAYEY SAND, Light Brown, Moist, No Odor Refusal @ 12 ft bgs



NOTE: This log is not to be used outside of the original report.

TABLE 1
SOIL ANALYTICAL RESULTS

Sample I.D.	Date	Sample Depth (feet)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Xylenes (µg/kg)	Total BTEX (µg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)
New Mexico Energy, Minerals & Natural Resources Department, Oil Conservation Division, Remediation Action Level			10,000	NE	NE	NE	50,000	100	100
Tier 1 Risk-Based Screening Level			-	-	-	-	-	7,400	7,400
TSW-1	4.24.2007	10 - 12	<1.22	97.7	<1.22	52.3	150	2.44	92.6
TSW-2	4.24.2007	7 - 8	1.38	130	<1.14	93.3	224.68	4.47	140
B-3	4.24.2007	4 - 6	<1.10	<1.10	<1.10	<3.31	<6.61	<0.0552	19.5
B-4	4.24.2007	4 - 6	<1.08	<1.08	<1.08	<3.24	<6.48	<0.054	5.39
TSW-5	4.24.2007	12 - 13	<1.12	23.1	17.4	198	238.5	0.52	165
B-6	4.24.2007	4 - 6	<1.11	<1.11	<1.11	<3.32	<6.65	<0.0554	5.17
B-7	4.24.2007	5 - 6	<1.08	9.59	<1.08	6.41	16	0.871	20.6
B-8	4.24.2007	7 - 8	<1.11	<1.11	<1.11	1,240	1,240	134	1,040
TSW-9	4.24.2007	10 - 11	<1.18	<1.18	<1.18	<3.55	<7.09	<0.0592	5.09
MW-10	9.5.2007	7 - 8	<5.0	<5.0	<5.0	<10.0	<25.0	<5.0	<10.0
MW-11	9.5.2007	6 - 7	<5.0	<5.0	<5.0	<10.0	<25.0	<5.0	<10.0
MW-12	9.5.2007	8 - 9	2,200	7,700	3,700	39,000	52,600	580	150
MW-13	9.5.2007		NSC						
MW-14	9.5.2007	11 - 12	<5.0	<5.0	<5.0	<10.0	<25.0	<5.0	<10.0
B-15	3.24.2010	8 - 9	1,600	9,400	4,700	51,000	66,700	620	450
B-16	3.24.2010	10 - 11	<50	<50	<50	<100	<100	11	<10
B-17	3.24.2010	8 - 9	3,900	22,000	12,000	91,000	128,900	1,400	80
Post-ISCO Soil Sampling Results									
SB-1	12.12.2011	8 - 9	<50	<50	<50	<99	<249	<5.0	<9.8
SB-1	12.12.2011	12 - 13	<49	75	51	580	706	17	9.8
SB-2	12.12.2011	8 - 9	<48	86	320	2,600	3,006	88	34
SB-3	12.12.2011	8 - 9	<48	<48	110	1,000	1,110	16	39
SB-3	12.12.2011	14 - 15	<230	<230	520	5,000	5,520	150	360
SB-4	12.12.2011	8 - 9	230	<49	570	4,900	5,700	140	130
SB-4	12.12.2011	14 - 15	1,900	<480	3,300	47,000	52,200	410	290
SB-5	12.12.2011	10 - 11	3,300	<1,000	6,600	59,000	68,900	710	670
SB-6	12.12.2011	8 - 9	<47	<47	<47	<93	<230	<4.7	<9.7
SB-6	12.12.2011	15 - 16	1,100	<480	2,200	17,000	20,300	200	330

NSC=No Sample Collected

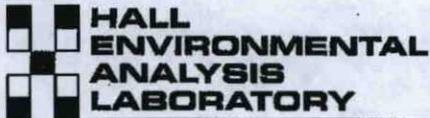
TABLE 2
GROUNDWATER ANALYTICAL RESULTS

Sample I.D.	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH GRO (mg/L)	TPH DRO (mg/L)
New Mexico Water Quality Commission (NMWQC) Ground Water Standards		10	750	750	620	NE	NE
TSW-1	4.25.2007	17.8	<1.0	2.05	<3.0	0.0835	1.29
TSW-2	4.25.2007	5,790	5,190	192	1,160	8.97	19.5
TSW-5	4.25.2007	IVSC					
TSW-9	4.25.2007	446	<1.0	26.7	3.33	0.458	IVSC
MW-10	9.6.2007	IVSC					
	3.24.2010	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.2011	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-11	9.6.2007	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	3.24.2010	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
	9.19.2011	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-12	9.6.2007	2,600	270	620	2,800	19	1.8
	3.24.2010	2,700	<50	230	1,000	13	33
	9.19.2011	1,600	2.2	300	1,600	8	2
	12.12.2011	1,600	<20	410	1,300	NA	NA
MW-13	9.6.2007	IVSC					
	3.24.2010	IVSC					
	9.19.2011	<1.0	<1.0	<1.0	<2.0	<0.050	<1.0
MW-14	9.6.2007	1,400	2,100	400	3,200	18	2.1
	3.24.2010	7.8	<5	<5	<10	<0.25	1.4
	9.19.2011	<1.0	<1.0	<1.0	<2.0	0.16	<1.0
	12.12.2011	<1.0	<1.0	<1.0	<2.0	NA	NA
TSW-18	3.24.2010	4,400	1,500	320	3,000	29	6.3
IP-16	12.14.2011	<1.0	<1.0	<1.0	<2.0	NA	NA

IVSC = Insufficient Volume for Sample Collection

NE = Not Established

NA = Not Analyzed



COVER LETTER

Monday, October 03, 2011

Liz Scaggs
Southwest Geoscience
2351 W. Northwest Hwy Suite 3321
Dallas, TX 75220

TEL:
FAX

RE: Blanco Storage Facility

Order No.: 1109906

Dear Liz Scaggs:

Hall Environmental Analysis Laboratory, Inc. received 5 sample(s) on 9/23/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Oct-11
Analytical Report

CLIENT: Southwest Geoscience
Lab Order: 1109906
Project: Blanco Storage Facility
Lab ID: 1109906-01

Client Sample ID: MW-10
Collection Date: 9/19/2011 1:45:00 PM
Date Received: 9/23/2011
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JB
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/29/2011 2:05:21 PM
Surr: DNOP	133	81.1-147		%REC	1	9/29/2011 2:05:21 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/27/2011 1:32:25 AM
Surr: BFB	74.8	65.4-141		%REC	1	9/27/2011 1:32:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	9/27/2011 1:32:25 AM
Toluene	ND	1.0		µg/L	1	9/27/2011 1:32:25 AM
Ethylbenzene	ND	1.0		µg/L	1	9/27/2011 1:32:25 AM
Xylenes, Total	ND	2.0		µg/L	1	9/27/2011 1:32:25 AM
Surr: 4-Bromofluorobenzene	70.7	76.5-115	S	%REC	1	9/27/2011 1:32:25 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Oct-11
Analytical Report

CLIENT: Southwest Geoscience
Lab Order: 1109906
Project: Blanco Storage Facility
Lab ID: 1109906-02

Client Sample ID: MW-11
Collection Date: 9/19/2011 2:15:00 PM
Date Received: 9/23/2011
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JB
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/29/2011 2:40:00 PM
Surr: DNOP	126	81.1-147		%REC	1	9/29/2011 2:40:00 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/27/2011 2:02:30 AM
Surr: BFB	96.3	65.4-141		%REC	1	9/27/2011 2:02:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	9/27/2011 2:02:30 AM
Toluene	ND	1.0		µg/L	1	9/27/2011 2:02:30 AM
Ethylbenzene	ND	1.0		µg/L	1	9/27/2011 2:02:30 AM
Xylenes, Total	ND	2.0		µg/L	1	9/27/2011 2:02:30 AM
Surr: 4-Bromofluorobenzene	90.9	76.5-115		%REC	1	9/27/2011 2:02:30 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Oct-11
Analytical Report

CLIENT: Southwest Geoscience Client Sample ID: MW-13
 Lab Order: 1109906 Collection Date: 9/19/2011 2:45:00 PM
 Project: Blanco Storage Facility Date Received: 9/23/2011
 Lab ID: 1109906-03 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JB
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/29/2011 3:14:56 PM
Surr: DNOP	125	81.1-147		%REC	1	9/29/2011 3:14:56 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/27/2011 2:32:29 AM
Surr: BFB	103	65.4-141		%REC	1	9/27/2011 2:32:29 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	9/27/2011 2:32:29 AM
Toluene	ND	1.0		µg/L	1	9/27/2011 2:32:29 AM
Ethylbenzene	ND	1.0		µg/L	1	9/27/2011 2:32:29 AM
Xylenes, Total	ND	2.0		µg/L	1	9/27/2011 2:32:29 AM
Surr: 4-Bromofluorobenzene	97.6	76.5-115		%REC	1	9/27/2011 2:32:29 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Oct-11
Analytical Report

CLIENT: Southwest Geoscience	Client Sample ID: MW-14
Lab Order: 1109906	Collection Date: 9/19/2011 3:10:00 PM
Project: Blanco Storage Facility	Date Received: 9/23/2011
Lab ID: 1109906-04	Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JB
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/29/2011 3:50:09 PM
Surr: DNOP	125	81.1-147		%REC	1	9/29/2011 3:50:09 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	0.16	0.050		mg/L	1	9/27/2011 3:02:27 AM
Surr: BFB	106	65.4-141		%REC	1	9/27/2011 3:02:27 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	9/27/2011 3:02:27 AM
Toluene	ND	1.0		µg/L	1	9/27/2011 3:02:27 AM
Ethylbenzene	ND	1.0		µg/L	1	9/27/2011 3:02:27 AM
Xylenes, Total	ND	2.0		µg/L	1	9/27/2011 3:02:27 AM
Surr: 4-Bromofluorobenzene	98.5	76.5-115		%REC	1	9/27/2011 3:02:27 AM

Qualifiers:

- | | |
|--|--|
| * Value exceeds Maximum Contaminant Level | B Analyte detected in the associated Method Blank |
| E Estimated value | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level |
| NC Non-Chlorinated | ND Not Detected at the Reporting Limit |
| PQL Practical Quantitation Limit | S Spike recovery outside accepted recovery limits |

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Oct-11
Analytical Report

CLIENT: Southwest Geoscience Client Sample ID: MW-12
 Lab Order: 1109906 Collection Date: 9/19/2011 3:40:00 PM
 Project: Blanco Storage Facility Date Received: 9/23/2011
 Lab ID: 1109906-05 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JB
Diesel Range Organics (DRO)	2.0	1.0		mg/L	1	9/29/2011 4:24:31 PM
Surr: DNOP	123	81.1-147		%REC	1	9/29/2011 4:24:31 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	8.0	1.0		mg/L	20	9/27/2011 4:03:22 PM
Surr: BFB	102	65.4-141		%REC	20	9/27/2011 4:03:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	1600	20		µg/L	20	9/27/2011 4:03:22 PM
Toluene	2.2	1.0		µg/L	1	9/27/2011 3:32:26 AM
Ethylbenzene	300	20		µg/L	20	9/27/2011 4:03:22 PM
Xylenes, Total	1600	40		µg/L	20	9/27/2011 4:03:22 PM
Surr: 4-Bromofluorobenzene	113	76.5-115		%REC	1	9/27/2011 3:32:26 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- E Estimated value
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- MCL Maximum Contaminant Level
- NC Non-Chlorinated
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitation Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Southwest Geoscience
 Project: Blanco Storage Facility

Work Order: 1109906

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	--------	---------	------	----------	-----------	------	----------	------

Method: EPA Method 8015B: Diesel Range

Sample ID: MB-28582		MBLK									
Diesel Range Organics (DRO)	ND	mg/L	1.0								
Batch ID: 28582											Analysis Date: 9/29/2011 12:20:53 PM
Sample ID: LCS-28582		LCS									
Diesel Range Organics (DRO)	5.207	mg/L	1.0	5	0	104	74	157			
Batch ID: 28582											Analysis Date: 9/29/2011 12:55:16 PM
Sample ID: LCSD-28582		LCSD									
Diesel Range Organics (DRO)	5.654	mg/L	1.0	5	0	113	74	157	8.23	23	
Batch ID: 28582											Analysis Date: 9/29/2011 1:30:12 PM

Method: EPA Method 8016B: Gasoline Range

Sample ID: 1109906-01A MSD		MSD									
Gasoline Range Organics (GRO)	0.4400	mg/L	0.050	0.5	0	88.0	66.1	127	5.42	15.5	
Batch ID: R47994											Analysis Date: 9/26/2011 11:32:44 PM
Sample ID: 5ML-RB		MBLK									
Gasoline Range Organics (GRO)	ND	mg/L	0.050								
Batch ID: R47994											Analysis Date: 9/26/2011 11:01:23 AM
Sample ID: b 1		MBLK									
Gasoline Range Organics (GRO)	ND	mg/L	0.050								
Batch ID: R48017											Analysis Date: 9/27/2011 10:43:15 AM
Sample ID: 2.5UG GRO LCS		LCS									
Gasoline Range Organics (GRO)	0.5722	mg/L	0.050	0.5	0	114	92.1	117			
Batch ID: R47994											Analysis Date: 9/26/2011 1:01:44 PM
Sample ID: 2.5UG GRO LCS		LCS									
Gasoline Range Organics (GRO)	0.5532	mg/L	0.050	0.5	0	111	92.1	117			
Batch ID: R48017											Analysis Date: 9/27/2011 12:39:18 PM
Sample ID: 1109906-01A MS		MS									
Gasoline Range Organics (GRO)	0.4168	mg/L	0.050	0.5	0	83.4	66.1	127			
Batch ID: R47994											Analysis Date: 9/26/2011 11:02:47 PM

Method: EPA Method 8021B: Volatiles

Sample ID: 5ML-RB		MBLK									
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Batch ID: R47994											Analysis Date: 9/26/2011 11:01:23 AM
Sample ID: b 1		MBLK									
Benzene	0.4978	µg/L	1.0								J
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Batch ID: R48017											Analysis Date: 9/27/2011 10:43:15 AM
Sample ID: 100NG BTEX LCS		LCS									
Benzene	19.96	µg/L	1.0	20	0	99.8	80	120			
Toluene	20.08	µg/L	1.0	20	0	100	80	120			
Ethylbenzene	19.66	µg/L	1.0	20	0	98.3	80	120			
Xylenes, Total	60.01	µg/L	2.0	60	0	100	80	120			
Batch ID: R47994											Analysis Date: 9/26/2011 1:31:49 PM
Sample ID: 100NG BTEX LCS		LCS									
Benzene	20.37	µg/L	1.0	20	0.4978	99.4	80	120			
Toluene	20.64	µg/L	1.0	20	0	103	80	120			
Ethylbenzene	20.66	µg/L	1.0	20	0	103	80	120			
Xylenes, Total	62.09	µg/L	2.0	60	0	103	80	120			
Batch ID: R48017											Analysis Date: 9/27/2011 1:08:11 PM

Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **SOUTHWEST GEOSCIENCE**

Date Received: **9/23/2011**

Work Order Number **1109906**

Received by: **DAM**

Checklist completed by:

[Handwritten Signature]
Signature

Sample ID labels checked by:

[Handwritten Initials]
Initials

[Handwritten Date]
Date

Matrix:

Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No	Not Present	
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No	Not Present	Not Shipped
Custody seals intact on sample bottles?	Yes	No	N/A	<input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No		Number of preserved bottles checked for pH:
Water - VOA vials have zero headspace?	No VOA vials submitted	Yes <input checked="" type="checkbox"/>	No	
Water - Preservation labels on bottle and cap match?	Yes <input checked="" type="checkbox"/>	No	N/A	
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No	N/A	<2 >12 unless noted below.
Container/Temp Blank temperature?		<6° C Acceptable		
		If given sufficient time to cool.		

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

CHAIN OF CUSTODY RECORD

Southwest
GEOSCIENCE
 Environmental & Hydrogeologic Consultants

Laboratory: ^{Hall} ~~PAGE~~ Analytical
 Address: Albuquerque, NM

ANALYSIS
 REQUESTED

Lab use only
 Due Date:

Office Location Dallas, TX

Contact: Andy Freeman
 Phone: (505) 345-3975

Temp. of coolers when received (C°): 3.3

1	2	3	4	5
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Page 1 of 1

Project Manager L. Slaggs

PO/SO #:

Sampler's Name

Sampler's Signature

J. Dubuisson

J. Dubuisson

Proj. No. 0107039

Project Name Bianco Storage Facility

No/Type of Containers

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1L	250 ml	P/O	Lab Sample ID (Lab Use Only)	
W	9-19-11	1345		X	MW-10	-	-	4			X	X	1109906-1
		1415			MW-11								-2
		1445			MW-13								-3
		1510			MW-14								-4
		1540			MW-12								-5
<p>No Further Entries</p>													

BTEX 8021
 TPH GRO/PRO 8015

Turn around time Normal 25% Rush 50% Rush 100% Rush

Relinquished by (Signature) <u>J. Dubuisson</u>	Date: <u>9-22-11</u> Time: <u>845</u>	Received by: (Signature) <u>Christie Wooten</u>	Date: <u>9/23/11</u> Time: <u>845</u>
Relinquished by (Signature) <u>Christie Wooten</u>	Date: <u>9/23/11</u> Time: <u>810</u>	Received by: (Signature) <u>David</u>	Date: <u>9/23/11</u> Time: <u></u>
Relinquished by (Signature)	Date: Time:	Received by: (Signature)	Date: Time:
Relinquished by (Signature)	Date: Time:	Received by: (Signature)	Date: Time:

NOTES:

Matrix WW - Wastewater W - Water S - Soil SD - Solid L - Liquid A - Air Bag C - Charcoal tube SL - sludge O - Oil
 Container VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other



COVER LETTER

Wednesday, December 21, 2011

Liz Scaggs
Southwest Geoscience
2351 W. Northwest Hwy Suite 3321
Dallas, TX 75220

TEL:
FAX

RE: Blanco Storage Facility

Order No.: 1112703

Dear Liz Scaggs:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 12/15/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Dec-11
Analytical Report

CLIENT: Southwest Geoscience
Lab Order: 1112703
Project: Blanco Storage Facility
Lab ID: 1112703-01

Client Sample ID: MW-12
Collection Date: 12/12/2011 4:30:00 PM
Date Received: 12/15/2011
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	1600	20		µg/L	20	12/21/2011 7:07:55 AM
Toluene	ND	20		µg/L	20	12/21/2011 7:07:55 AM
Ethylbenzene	410	20		µg/L	20	12/21/2011 7:07:55 AM
Xylenes, Total	1300	40		µg/L	20	12/21/2011 7:07:55 AM
Surr: 4-Bromofluorobenzene	108	76.5-115		%REC	20	12/21/2011 7:07:55 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 21-Dec-11
Analytical Report

CLIENT: Southwest Geoscience
Lab Order: 1112703
Project: Blanco Storage Facility
Lab ID: 1112703-02

Client Sample ID: MW-14
Collection Date: 12/12/2011 5:00:00 PM
Date Received: 12/15/2011
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	12/21/2011 2:36:21 AM
Toluene	ND	1.0		µg/L	1	12/21/2011 2:36:21 AM
Ethylbenzene	ND	1.0		µg/L	1	12/21/2011 2:36:21 AM
Xylenes, Total	ND	2.0		µg/L	1	12/21/2011 2:36:21 AM
Surr: 4-Bromofluorobenzene	90.7	76.5-115		%REC	1	12/21/2011 2:36:21 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Southwest Geoscience
 Project: Blanco Storage Facility

Work Order: 1112703

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles											
Sample ID: 1112703-02A MSD <i>MSD</i> Batch ID: R49750 Analysis Date: 12/21/2011 3:36:34 AM											
Benzene	17.05	µg/L	1.0	20	0.402	83.2	76.6	119	2.13	16.4	
Toluene	18.40	µg/L	1.0	20	0.246	90.8	77.3	118	1.03	13.9	
Ethylbenzene	17.67	µg/L	1.0	20	0.152	87.6	76.6	114	0.316	13.5	
Xylenes, Total	56.49	µg/L	2.0	60	1.48	91.7	82	113	0.568	12.9	
Sample ID: 5ML-RB <i>MBLK</i> Batch ID: R49750 Analysis Date: 12/20/2011 12:57:36 PM											
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100NG BTEX LCS <i>LCS</i> Batch ID: R49750 Analysis Date: 12/20/2011 12:27:19 PM											
Benzene	20.84	µg/L	1.0	20	0.144	103	80	120			
Toluene	21.00	µg/L	1.0	20	0.212	104	80	120			
Ethylbenzene	20.10	µg/L	1.0	20	0.172	99.6	80	120			
Xylenes, Total	62.28	µg/L	2.0	60	0	104	78.6	121			
Sample ID: 1112703-02A MS <i>MS</i> Batch ID: R49750 Analysis Date: 12/21/2011 3:06:31 AM											
Benzene	16.69	µg/L	1.0	20	0.402	81.4	76.6	119			
Toluene	18.21	µg/L	1.0	20	0.246	89.8	77.3	118			
Ethylbenzene	17.73	µg/L	1.0	20	0.152	87.9	76.6	114			
Xylenes, Total	56.82	µg/L	2.0	60	1.48	92.2	82	113			

Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SOUTHWEST GEOSCIENCE

Date Received: 12/15/2011

Work Order Number 1112703

Received by: MMG

Checklist completed by:

[Handwritten Signature]
Signature

12/15/11
Date

Sample ID labels checked by:

[Handwritten Initials]
Initials

Matrix:

Carrier name Courier

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present Not Shipped
- Custody seals intact on sample bottles? Yes No N/A
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Preservation labels on bottle and cap match? Yes No N/A
- Water - pH acceptable upon receipt? Yes No N/A

Number of preserved bottles checked for pH:

<2 >12 unless noted below.

Container/Temp Blank temperature?

1.0°

<6° C Acceptable
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

CHAIN OF CUSTODY RECORD

<h1 style="margin: 0;">Southwest</h1> <h2 style="margin: 0;">GEOSCIENCE</h2> <p style="margin: 0; font-size: small;">Environmental & Hydrogeologic Consultants</p>		Laboratory: <u>HALL</u>		ANALYSIS REQUESTED <div style="border: 1px solid black; width: 100%; height: 100%; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div>										Lab use only				
		Address: _____												Due Date: _____				
Office Location <u>Dallas, TX</u>		Contact: <u>Andy Freeman</u>		Temp. of coolers when received (C°): <u>1.0°</u>					<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20%;">1</td> <td style="width: 20%;">2</td> <td style="width: 20%;">3</td> <td style="width: 20%;">4</td> <td style="width: 20%;">5</td> </tr> </table>					1	2	3	4	5
1	2	3	4						5									
Project Manager <u>L. Scaggs</u>		Phone: <u>(505) 345-3975</u>		Page <u>1</u> of <u>1</u>														
Sampler's Name <u>J. Dubuisson</u>		Sampler's Signature <u>John Daulton</u>		BTEX 8021B														
Proj. No. <u>0107039C</u>		Project Name <u>Blanco Storage Facility</u>												No/Type of Containers				
Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 Lt.	250 ml	P/O	Lab Sample ID (Lab Use Only)						
W	12-12-11	1630		X	MW-12	-	-	4				112703-1						
W	12-12-11	1700		X	MW-14	-	-	4				-2						
No further entries																		
Turn around time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush																		
Relinquished by (Signature) <u>John Daulton</u>		Date: <u>12/13/11</u>	Time: <u>11:15</u>	Received by (Signature) <u>Christina Wootte</u>		Date: <u>12/13/11</u>	Time: <u>1715</u>	NOTES: <u>New Mexico</u>										
Relinquished by (Signature) <u>Christina Wootte</u>		Date: <u>12/14/11</u>	Time: <u>1102</u>	Received by (Signature) <u>Michelle Corwin</u>		Date: <u>12/15/11</u>	Time: <u>9:30</u>											
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:											
Relinquished by (Signature)		Date:	Time:	Received by (Signature)		Date:	Time:											

Matrix: WW - Wastewater W - Water S - Soil SD - Solid L - Liquid A - Air Bag C - Charcoal tube SL - sludge O - Oil
 Container: VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other



COVER LETTER

Wednesday, December 28, 2011

Liz Scaggs
Southwest Geoscience
2351 W. Northwest Hwy Suite 3321
Dallas, TX 75220

TEL:
FAX

RE: Blanco Storage Facility

Order No.: 1112746

Dear Liz Scaggs:

Hall Environmental Analysis Laboratory, Inc. received 10 sample(s) on 12/16/2011 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 27, 2011

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,



Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience Client Sample ID: SB-1 (8'-9')
 Lab Order: 1112746 Collection Date: 12/12/2011 12:05:00 PM
 Project: Blanco Storage Facility Date Received: 12/16/2011
 Lab ID: 1112746-01 Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/21/2011 11:57:47 AM
Surr: DNOP	100	77.4-131		%REC	1	12/21/2011 11:57:47 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/22/2011 1:19:51 PM
Surr: BFB	116	69.7-121		%REC	1	12/22/2011 1:19:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.050		mg/Kg	1	12/22/2011 1:19:51 PM
Toluene	ND	0.050		mg/Kg	1	12/22/2011 1:19:51 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/22/2011 1:19:51 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/22/2011 1:19:51 PM
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	12/22/2011 1:19:51 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience Client Sample ID: SB-1 (12'-13')
 Lab Order: 1112746 Collection Date: 12/12/2011 12:15:00 PM
 Project: Blanco Storage Facility Date Received: 12/16/2011
 Lab ID: 1112746-02 Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	12	9.8		mg/Kg	1	12/21/2011 1:40:58 PM
Surr: DNOP	102	77.4-131		%REC	1	12/21/2011 1:40:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	17	4.9		mg/Kg	1	12/22/2011 1:50:04 PM
Surr: BFB	217	69.7-121	S	%REC	1	12/22/2011 1:50:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.049		mg/Kg	1	12/22/2011 1:50:04 PM
Toluene	0.075	0.049		mg/Kg	1	12/22/2011 1:50:04 PM
Ethylbenzene	0.051	0.049		mg/Kg	1	12/22/2011 1:50:04 PM
Xylenes, Total	0.58	0.097		mg/Kg	1	12/22/2011 1:50:04 PM
Surr: 4-Bromofluorobenzene	116	80-120		%REC	1	12/22/2011 1:50:04 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 NC Non-Chlorinated
 PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience Client Sample ID: SB-2 (8'-9')
 Lab Order: 1112746 Collection Date: 12/12/2011 12:30:00 PM
 Project: Blanco Storage Facility Date Received: 12/16/2011
 Lab ID: 1112746-03 Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	34	9.7		mg/Kg	1	12/21/2011 2:15:23 PM
Surr: DNOP	108	77.4-131		%REC	1	12/21/2011 2:15:23 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	88	48		mg/Kg	10	12/23/2011 3:07:09 PM
Surr: BFB	145	69.7-121	S	%REC	10	12/23/2011 3:07:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	12/22/2011 2:20:25 PM
Toluene	0.086	0.048		mg/Kg	1	12/22/2011 2:20:25 PM
Ethylbenzene	0.32	0.048		mg/Kg	1	12/22/2011 2:20:25 PM
Xylenes, Total	2.6	0.096		mg/Kg	1	12/22/2011 2:20:25 PM
Surr: 4-Bromofluorobenzene	167	80-120	S	%REC	1	12/22/2011 2:20:25 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

50

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience Client Sample ID: SB-3 (8'-9')
 Lab Order: 1112746 Collection Date: 12/12/2011 12:50:00 PM
 Project: Blanco Storage Facility Date Received: 12/16/2011
 Lab ID: 1112746-04 Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	39	9.7		mg/Kg	1	12/21/2011 2:49:47 PM
Surr: DNOP	109	77.4-131		%REC	1	12/21/2011 2:49:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	16	9.6		mg/Kg	2	12/23/2011 4:07:42 PM
Surr: BFB	163	69.7-121	S	%REC	2	12/23/2011 4:07:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	12/22/2011 2:50:45 PM
Toluene	ND	0.048		mg/Kg	1	12/22/2011 2:50:45 PM
Ethylbenzene	0.11	0.048		mg/Kg	1	12/22/2011 2:50:45 PM
Xylenes, Total	1.0	0.096		mg/Kg	1	12/22/2011 2:50:45 PM
Surr: 4-Bromofluorobenzene	127	80-120	S	%REC	1	12/22/2011 2:50:45 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience Client Sample ID: SB-3 (14'-15')
 Lab Order: 1112746 Collection Date: 12/12/2011 1:00:00 PM
 Project: Blanco Storage Facility Date Received: 12/16/2011
 Lab ID: 1112746-05 Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	360	99		mg/Kg	10	12/22/2011 12:33:32 AM
Surr: DNOP	0	77.4-131	S	%REC	10	12/22/2011 12:33:32 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	150	47		mg/Kg	10	12/23/2011 5:08:07 PM
Surr: BFB	134	69.7-121	S	%REC	10	12/23/2011 5:08:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.23		mg/Kg	5	12/22/2011 3:21:02 PM
Toluene	ND	0.23		mg/Kg	5	12/22/2011 3:21:02 PM
Ethylbenzene	0.52	0.23		mg/Kg	5	12/22/2011 3:21:02 PM
Xylenes, Total	5.0	0.47		mg/Kg	5	12/22/2011 3:21:02 PM
Surr: 4-Bromofluorobenzene	123	80-120	S	%REC	5	12/22/2011 3:21:02 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience	Client Sample ID: SB-4 (8'-9')
Lab Order: 1112746	Collection Date: 12/12/2011 1:05:00 PM
Project: Blanco Storage Facility	Date Received: 12/16/2011
Lab ID: 1112746-06	Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	130	9.7		mg/Kg	1	12/21/2011 3:24:11 PM
Surr: DNOP	114	77.4-131		%REC	1	12/21/2011 3:24:11 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	140	49		mg/Kg	10	12/23/2011 6:08:25 PM
Surr: BFB	156	69.7-121	S	%REC	10	12/23/2011 6:08:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	0.23	0.049		mg/Kg	1	12/22/2011 3:51:15 PM
Toluene	ND	0.049		mg/Kg	1	12/22/2011 3:51:15 PM
Ethylbenzene	0.57	0.049		mg/Kg	1	12/22/2011 3:51:15 PM
Xylenes, Total	4.9	0.098		mg/Kg	1	12/22/2011 3:51:15 PM
Surr: 4-Bromofluorobenzene	196	80-120	S	%REC	1	12/22/2011 3:51:15 PM

Qualifiers:

- | | |
|--|--|
| * Value exceeds Maximum Contaminant Level | B Analyte detected in the associated Method Blank |
| E Estimated value | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level |
| NC Non-Chlorinated | ND Not Detected at the Reporting Limit |
| PQL Practical Quantitation Limit | S Spike recovery outside accepted recovery limits |

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience
Lab Order: 1112746
Project: Blanco Storage Facility
Lab ID: 1112746-07

Client Sample ID: SB-4 (14'-15')
Collection Date: 12/12/2011 1:15:00 PM
Date Received: 12/16/2011
Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	290	97		mg/Kg	10	12/22/2011 1:08:04 AM
Surr: DNOP	0	77.4-131	S	%REC	10	12/22/2011 1:08:04 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	410	48		mg/Kg	10	12/23/2011 7:09:06 PM
Surr: BFB	131	69.7-121	S	%REC	10	12/23/2011 7:09:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	1.9	0.48		mg/Kg	10	12/23/2011 7:09:06 PM
Toluene	ND	0.48		mg/Kg	10	12/23/2011 7:09:06 PM
Ethylbenzene	3.3	0.48		mg/Kg	10	12/23/2011 7:09:06 PM
Xylenes, Total	47	0.97		mg/Kg	10	12/23/2011 7:09:06 PM
Surr: 4-Bromofluorobenzene	92.7	80-120		%REC	10	12/23/2011 7:09:06 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience
Lab Order: 1112746
Project: Blanco Storage Facility
Lab ID: 1112746-08

Client Sample ID: SB-5 (10'-11')
Collection Date: 12/12/2011 1:40:00 PM
Date Received: 12/16/2011
Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	670	100		mg/Kg	10	12/22/2011 1:42:17 AM
Surr: DNOP	0	77.4-131	S	%REC	10	12/22/2011 1:42:17 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	710	100		mg/Kg	20	12/23/2011 8:09:31 PM
Surr: BFB	106	69.7-121		%REC	20	12/23/2011 8:09:31 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	3.3	1.0		mg/Kg	20	12/23/2011 8:09:31 PM
Toluene	ND	1.0		mg/Kg	20	12/23/2011 8:09:31 PM
Ethylbenzene	6.6	1.0		mg/Kg	20	12/23/2011 8:09:31 PM
Xylenes, Total	59	2.0		mg/Kg	20	12/23/2011 8:09:31 PM
Surr: 4-Bromofluorobenzene	84.7	80-120		%REC	20	12/23/2011 8:09:31 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience
Lab Order: 1112746
Project: Blanco Storage Facility
Lab ID: 1112746-09

Client Sample ID: SB-6 (8'-9')
Collection Date: 12/12/2011 1:50:00 PM
Date Received: 12/16/2011
Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/21/2011 3:58:35 PM
Surr: DNOP	103	77.4-131		%REC	1	12/21/2011 3:58:35 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/23/2011 2:36:54 PM
Surr: BFB	97.0	69.7-121		%REC	1	12/23/2011 2:36:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.047		mg/Kg	1	12/22/2011 5:51:58 PM
Toluene	ND	0.047		mg/Kg	1	12/22/2011 5:51:58 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/22/2011 5:51:58 PM
Xylenes, Total	ND	0.093		mg/Kg	1	12/22/2011 5:51:58 PM
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	12/22/2011 5:51:58 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
NC Non-Chlorinated
PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 28-Dec-11
Analytical Report

CLIENT: Southwest Geoscience	Client Sample ID: SB-6 (15'-16')
Lab Order: 1112746	Collection Date: 12/12/2011 2:00:00 PM
Project: Blanco Storage Facility	Date Received: 12/16/2011
Lab ID: 1112746-10	Matrix: SOILL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JB
Diesel Range Organics (DRO)	330	9.7		mg/Kg	1	12/21/2011 5:07:13 PM
Surr: DNOP	126	77.4-131		%REC	1	12/21/2011 5:07:13 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	200	48		mg/Kg	10	12/24/2011 12:41:16 AM
Surr: BFB	116	69.7-121		%REC	10	12/24/2011 12:41:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	1.1	0.48		mg/Kg	10	12/24/2011 12:41:16 AM
Toluene	ND	0.48		mg/Kg	10	12/24/2011 12:41:16 AM
Ethylbenzene	2.2	0.48		mg/Kg	10	12/24/2011 12:41:16 AM
Xylenes, Total	17	0.97		mg/Kg	10	12/24/2011 12:41:16 AM
Surr: 4-Bromofluorobenzene	108	80-120		%REC	10	12/24/2011 12:41:16 AM

Qualifiers:

- | | |
|--|--|
| * Value exceeds Maximum Contaminant Level | B Analyte detected in the associated Method Blank |
| E Estimated value | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level |
| NC Non-Chlorinated | ND Not Detected at the Reporting Limit |
| PQL Practical Quantitation Limit | S Spike recovery outside accepted recovery limits |

QA/QC SUMMARY REPORT

Client: Southwest Geoscience
 Project: Blanco Storage Facility

Work Order: 1112746

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range Organics											
Sample ID: 1112746-01AMSD		MSD									
Diesel Range Organics (DRO)	40.14	mg/Kg	10	50.3	4.833	70.2	57.2	146	13.9	26.7	
Sample ID: MB-29829		MBLK									
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Sample ID: LCS-29829		LCS									
Diesel Range Organics (DRO)	43.16	mg/Kg	10	50	0	86.3	62.7	139			
Sample ID: 1112746-01AMS		MS									
Diesel Range Organics (DRO)	46.16	mg/Kg	9.9	49.6	4.833	83.3	57.2	146			

Method: EPA Method 8015B: Gasoline Range											
Sample ID: 1112746-01AMSD		MSD									
Gasoline Range Organics (GRO)	39.75	mg/Kg	5.0	24.88	4.351	142	72.4	149	9.43	19.2	
Sample ID: MB-29827		MBLK									
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: LCS-29827		LCS									
Gasoline Range Organics (GRO)	30.86	mg/Kg	5.0	25	0	123	86.4	132			
Sample ID: 1112746-01AMS		MS									
Gasoline Range Organics (GRO)	36.17	mg/Kg	4.9	24.73	4.351	129	72.4	149			

Method: EPA Method 8021B: Volatiles											
Sample ID: 1112746-02AMSD		MSD									
Benzene	0.9758	mg/Kg	0.048	0.957	0.0067	101	67.2	113	12.5	14.3	
Toluene	1.112	mg/Kg	0.048	0.957	0.0749	108	62.1	116	20.3	15.9	R
Ethylbenzene	1.180	mg/Kg	0.048	0.957	0.0513	118	67.9	127	21.4	14.4	R
Xylenes, Total	4.425	mg/Kg	0.096	2.871	0.58	134	60.6	134	26.9	12.6	R
Sample ID: MB-29827		MBLK									
Benzene	ND	mg/Kg	0.050								
Toluene	ND	mg/Kg	0.050								
Ethylbenzene	ND	mg/Kg	0.050								
Xylenes, Total	ND	mg/Kg	0.10								
Sample ID: LCS-29827		LCS									
Benzene	1.039	mg/Kg	0.050	1	0.0044	103	80	120			
Toluene	1.032	mg/Kg	0.050	1	0.0068	102	80	120			
Ethylbenzene	1.099	mg/Kg	0.050	1	0.0085	109	80	120			
Xylenes, Total	3.415	mg/Kg	0.10	3	0.0192	113	80	120			
Sample ID: 1112746-02AMS		MS									
Benzene	0.8607	mg/Kg	0.048	0.961	0.0067	88.9	67.2	113			
Toluene	0.9066	mg/Kg	0.048	0.961	0.0749	86.6	62.1	116			
Ethylbenzene	0.9522	mg/Kg	0.048	0.961	0.0513	93.8	67.9	127			
Xylenes, Total	3.377	mg/Kg	0.096	2.882	0.58	97.0	60.6	134			

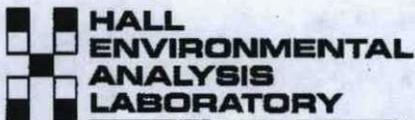
Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

CHAIN OF CUSTODY RECORD

<h1 style="margin: 0;">Southwest</h1> <h2 style="margin: 0;">GEOSCIENCE</h2> <p style="margin: 0; font-size: small;">Environmental & Hydrogeologic Consultants</p>		Laboratory: <u>HAWL</u> Address: _____ _____ _____		ANALYSIS REQUESTED <div style="font-size: 2em; transform: rotate(-45deg); display: inline-block;"> TPH 600/PMO 8015 BTEX 80213 </div>										Lab use only Due Date: _____ Temp. of coolers when received (C°): <u>1.0°</u> 1 2 3 4 5 Page <u>1</u> of <u>1</u>							
		Office Location: <u>Dallas, TX</u> Project Manager: <u>L Scagg</u>												Contact: <u>Andy Freeman</u> Phone: <u>(505) 345-3975</u> PO/SO #: _____							
Sampler's Name: <u>J. Dubuisson</u> Sampler's Signature: <u>[Signature]</u>		Project No.: <u>0107039C</u> Project Name: <u>Blanco Storage Facility</u> No/Type of Containers: _____		Lab Sample ID (Lab Use Only) <div style="font-size: 1.5em;"> 1112746 -1 -2 -3 -4 -5 -6 -7 -8 -9 -10 </div>																	
Matrix	Date	Time	COED											Brand	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1 L	250 ml	P/O
															SB-1 (8'-9')	-	-				
		1205												X	SB-1 (12'-13')						
		1230													SB-2 (8'-9')						
		1250													SB-3 (8'-9')						
		1300													SB-3 (14'-15')						
		1305													SB-4 (8'-9')						
		1315													SB-4 (14'-15')						
		1340													SB-5 (10'-11')						
		1350			SB-6 (8'-9')																
		1400			SB-6 (15'-16')																
Turn around time: <input checked="" type="checkbox"/> Normal <input type="checkbox"/> 25% Rush <input type="checkbox"/> 50% Rush <input type="checkbox"/> 100% Rush																					
Relinquished by (Signature): <u>[Signature]</u> Date: <u>12/13/11</u> Time: <u>1715</u>		Received by (Signature): <u>[Signature]</u> Date: <u>12/13/11</u> Time: <u>1715</u>		NOTES:																	
Relinquished by (Signature): <u>[Signature]</u> Date: <u>12/14/11</u> Time: <u>1602</u>		Received by (Signature): <u>[Signature]</u> Date: <u>12/15/11</u> Time: <u>9:30</u>																			
Relinquished by (Signature): _____ Date: _____ Time: _____		Received by (Signature): _____ Date: _____ Time: _____																			
Relinquished by (Signature): _____ Date: _____ Time: _____		Received by (Signature): _____ Date: _____ Time: _____																			

Matrix: WW - Wastewater W - Water S - Soil SD - Solid L - Liquid A - Air Bag C - Charcoal tube SL - sludge O - Oil
 Container: VOA - 40 ml vial AVG - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other



COVER LETTER

Tuesday, December 27, 2011

Liz Scaggs
Southwest Geoscience
2351 W. Northwest Hwy Suite 3321
Dallas, TX 75220

TEL:
FAX

RE: Blanco Storage Facility

Order No.: 1112762

Dear Liz Scaggs:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 12/16/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682

Hall Environmental Analysis Laboratory, Inc.

Date: 27-Dec-11
Analytical Report

CLIENT: Southwest Geoscience	Client Sample ID: IP-16
Lab Order: 1112762	Collection Date: 12/14/2011 7:00:00 AM
Project: Blanco Storage Facility	Date Received: 12/16/2011
Lab ID: 1112762-01	Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: MMS
Benzene	ND	1.0		µg/L	1	12/23/2011 2:21:54 AM
Toluene	ND	1.0		µg/L	1	12/23/2011 2:21:54 AM
Ethylbenzene	ND	1.0		µg/L	1	12/23/2011 2:21:54 AM
Xylenes, Total	ND	2.0		µg/L	1	12/23/2011 2:21:54 AM
Surr: 1,2-Dichloroethane-d4	106	70-130		%REC	1	12/23/2011 2:21:54 AM
Surr: 4-Bromofluorobenzene	111	73-131		%REC	1	12/23/2011 2:21:54 AM
Surr: Dibromofluoromethane	115	70-130		%REC	1	12/23/2011 2:21:54 AM
Surr: Toluene-d8	98.2	70-130		%REC	1	12/23/2011 2:21:54 AM

Qualifiers:

- | | |
|--|--|
| * Value exceeds Maximum Contaminant Level | B Analyte detected in the associated Method Blank |
| E Estimated value | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level |
| NC Non-Chlorinated | ND Not Detected at the Reporting Limit |
| PQL Practical Quantitation Limit | S Spike recovery outside accepted recovery limits |

QA/QC SUMMARY REPORT

Client: Southwest Geoscience
 Project: Blanco Storage Facility

Work Order: 1112762

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	--------	---------	------	----------	-----------	------	----------	------

Method: EPA Method 8260: Volatiles Short List

Sample ID: b2 MBLK Batch ID: R49796 Analysis Date: 12/22/2011 9:23:51 AM

Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								

Sample ID: 100ng lcs LCS Batch ID: R49796 Analysis Date: 12/22/2011 11:49:53 AM

Benzene	18.46	µg/L	1.0	20	0	92.3	81.1	130			
Toluene	19.72	µg/L	1.0	20	0	98.6	82.3	122			

Qualifiers:

- | | | | |
|----|--|----|--|
| E | Estimated value | H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | NC | Non-Chlorinated |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits |

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SOUTHWEST GEOSCIENCE

Date Received: 12/16/2011

Work Order Number 1112762

Received by: AT

Checklist completed by:

Signature

[Handwritten Signature]

Date

12/16/11

Sample ID labels checked by:

Initials

[Handwritten Initials]

Matrix:

Carrier name Courier

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present Not Shipped
- Custody seals intact on sample bottles? Yes No N/A
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Preservation labels on bottle and cap match? Yes No N/A
- Water - pH acceptable upon receipt? Yes No N/A
- Container/Temp Blank temperature? 1.9° <6° C Acceptable
If given sufficient time to cool.

Number of preserved bottles checked for pH:

<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

CHAIN OF CUSTODY RECORD

Southwest
GEOSCIENCE
 Environmental & Hydrogeologic Consultants

Office Location Dallas, TX

Project Manager L. Slaggs

Sampler's Name
J. Dubutsson

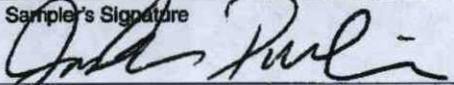
Laboratory: HALL

Address: _____

Contact: Andy Freeman

Phone: (505) 345-3975

PO/SO #: _____

Sampler's Signature


Proj. No. 0107039 C Project Name Blanco Storage facility No/Type of Containers _____

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	VOA	A/G 1L	250 ml	P/O
--------	------	------	------	------	--------------------------------	-------------	-----------	-----	--------	--------	-----

W	12-14-11	1630 0700		X	IP-16	-	-	4			
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ANALYSIS REQUESTED

Lab use only
 Due Date: _____

Temp. of coolers when received (C°): 19

1	2	3	4	5
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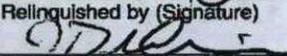
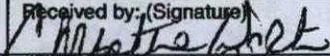
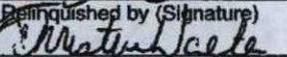
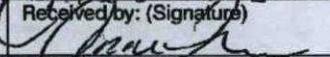
Page 1 of 1

Lab Sample ID (Lab Use Only)
112762-1

BTEX 80218

No Further Entries

Turn around time Normal 25% Rush 50% Rush 100% Rush

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	12/15/11	1945		12/15/11	1945
	12/14/11	0745		12/14/11	1430

NOTES:

Matrix Container: WW - Wastewater, VOA - 40 ml vial
 W - Water, S - Soil, SD - Solid, L - Liquid, A - Air Bag, C - Charcoal tube, SL - sludge, O - Oil
 A/G - Amber / Or Glass 1 Liter, 250 ml - Glass wide mouth, P/O - Plastic or other

VeruSOLVE-HP™

What is VeruSOLVE-HP™?

VeruTEK® Technology's green chemistry platform provides innovative solutions to today's most challenging environmental cleanups. VeruSOLVE-HP™ is a stabilized surfactant/oxidant combination effective for surgical destruction of DNAPLs and source term wastes like MGP waste, creosote, hydrocarbons and chlorinated solvents. Clients apply VeruSOLVE-HP™ in-situ via injection, or ex-situ as a direct spray application.

Why is VeruSOLVE-HP™ better than current methods?

- VeruSOLVE-HP™ safely destroys organic contamination in place such as beneath buildings and structures.
- S-ISCO® is a less expensive process overall and is a far more complete remedy.
- Previous applications of VeruSOLVE-HP™ have demonstrated successful destruction of fuel oil and gasoline constituents to achieve closure of sites in a short duration (less than two weeks).
- Injected in close proximity to homes and high traffic areas safely and without disruption to occupancy.
- VeruSOLVE-HP™ can be used for source removal, enhanced product recovery and as an aerobic biostimulant (for plume control).
- The carbon footprint of S-ISCO® remediation with VeruSOLVE-HP™ is less than 10 percent than that of traditional remedies such as excavation/landfilling.

VeruSOLVE-HP™ application is easy.

- VeruSOLVE-HP™ is shipped ready to inject into the subsurface through geoprobe points, permanent injection wells, or monitoring wells.
- VeruSOLVE-HP™ can be delivered in 55-gallon drums, 1000 L totes, or by tanker truck.
- Ex-situ application can treat stockpiled contaminated soil at rates of 400-800 tons per day.

VeruSOLVE-HP™ is the preferred solution for Engineers, Injection Contractors, and the following Industries:

Real Estate	Industrial	Homeowners	Lawyers
Utilities	Pharmaceutical	State and Federal Government	Insurance Companies
Manufacturing	Municipal	Banks	

VeruSOLVE-HP™ is available for direct purchase. VeruTEK® provides multiple levels of support, based on site specific needs from training to full scale implementation.

Applicators can choose from the following:

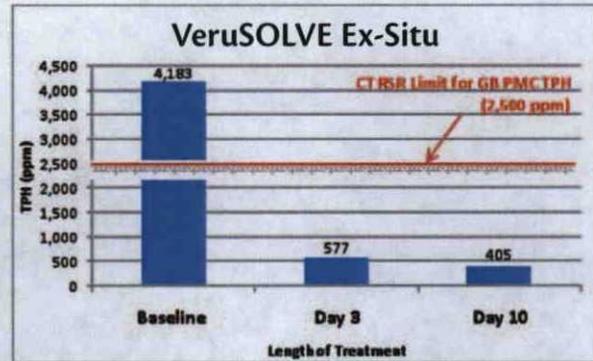
- VeruSOLVE-HP™ *direct purchase*
- VeruSOLVE-HP™ *with technical support*
- VeruSOLVE-HP™ *with ServicePAK™ – full project implementation*

For more information, contact us at: (860) 242-9800 x317
www.verutek.com



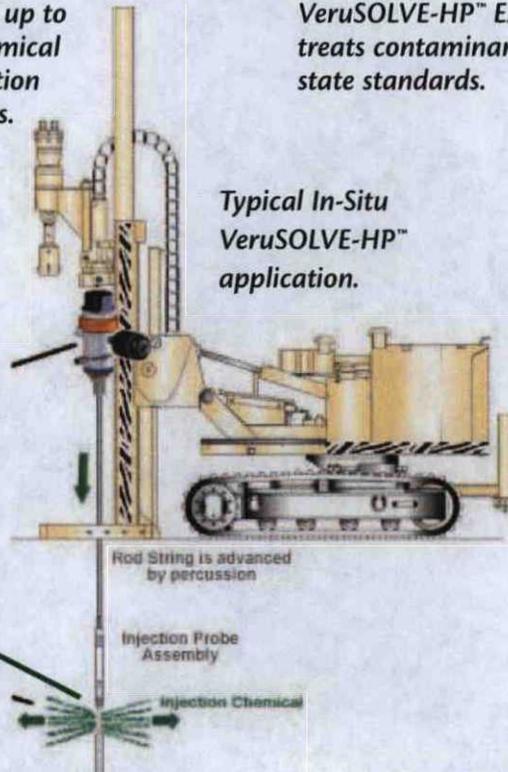
VeruTEK
TECHNOLOGIES

VeruSOLVE-HP™



EX-Situ VeruSOLVE-HP™ can treat up to 400-800 ton per day. More economical and sustainable option to excavation and alternate remedial techniques. On average 25-50% less than dig and haul.

VeruSOLVE-HP™ EX-Situ application successfully treats contaminant concentrations to below state standards.

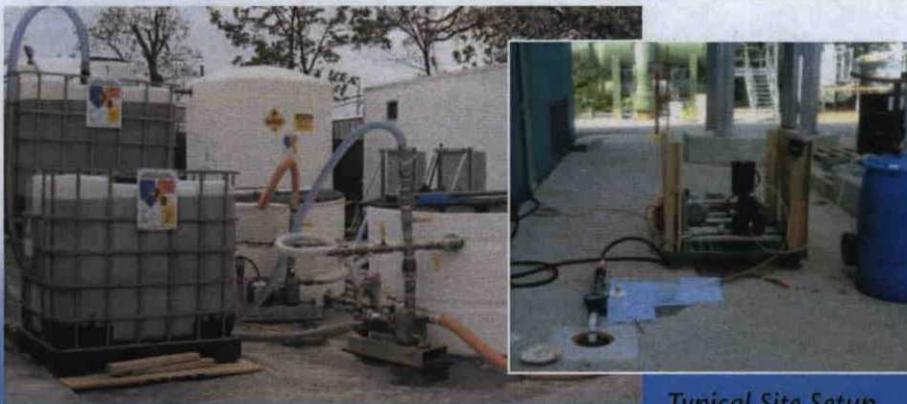


VeruSOLVE-HP™ is applicable to all size sites and available for direct purchase.

VeruTEK® provides multiple levels of support, based on site specific needs from training to full scale implementation.

Complete the Project Survey available on our website to determine the appropriate level of support.

Call or visit our website for more information.
 (860) 242-9800 x317
www.verutek.com



Typical Site Setup



VeruTEK
 TECHNOLOGIES

VeruSOLVE™
MATERIAL SAFETY DATA SHEET

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Manufacturer: VeruTEK Technologies, Inc.
Address: 65 West Dudley Town Road, Suite 100, Bloomfield, CT 06002
Phone Number: (860) 242-9800

Product Name: VeruSOLVE™
Issue Date: January 2010

Section 2: HAZARDS IDENTIFICATION

Emergency Overview

Appearance/Odor: Clear liquid with mild citrus odor.

Stability: Product is stable under normal conditions, but is very sensitive to contamination. Decomposition yields oxygen gas that supports combustion of organic matter and can cause over pressure if confined.

Slippery when spilled.

Potential Health Effects: See Section 11 for more information.

Likely Routes of Exposure: Eye contact, skin contact, inhalation.

Eye: Causes moderate to severe irritation.

Skin: May cause slight redness. Prolonged or repeated exposure may cause drying of the skin.

Inhalation: May cause nose, throat, and respiratory tract irritation, coughing, headache.

Ingestion: Not likely to be toxic, but may cause vomiting, headache, or other medical problems.

Medical Conditions Aggravated By Exposure: May irritate the skin of people with pre-existing skin conditions.

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC, or NTP.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

	Percent	TLV	Carcinogenic (OSHA,TP,IARC)
Hydrogen Peroxide	< 4		No
VeruSOL® 3	1 – 5		No
Water	91-95		No

Section 4: FIRST AID MEASURES

Eye Contact:

Flush with water for at least 15 minutes. If irritation persists, seek medical attention.

Skin Contact:

Wash affected area with copious amounts of soap and water for at least 15 minutes. Remove contaminated clothing. If irritation develops, seek medical attention.

Inhalation:

Move to fresh air immediately. If breathing is difficult or discomfort persists, seek medical attention.

Ingestion:

Seek medical attention.

Section 5: FIRE FIGHTING MEASURES



Material Safety Data Sheet

VeruSOLVE™

Flash Point (Method): N/A

Explosion Limits: Upper: N/A

Lower: N/A

Suitable Extinguishing Media:

Flood area with water. Product is not combustible but during decomposition will produce oxygen gas which may intensify a fire.

Protection of Firefighters:

Vapors may be irritating to eyes, skin and respiratory tract. Firefighters should wear self-contained breathing apparatus (SCBA) and full fire-fighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Methods for Accidental Release:

Combustible materials exposed to product should be immediately submerged or rinsed with water to ensure that all hydrogen peroxide is removed. Residual peroxide that may be left after evaporation may cause certain materials to ignite and result in a fire.

Dike spill area and cap leaking containers as necessary to prevent further spreading of spilled material. Absorb small spills with suitable material and put into approved containers.

Larger spills should be contained by blocking nearby sewers, drains, or bodies of water. Dilute with large amounts of water and hold in a dike for disposal or until all hydrogen peroxide has decomposed.

Waste Disposal:

Manage in accordance with applicable local, State, and Federal solid/hazardous waste regulations. Material is not a listed waste.

Other Information: Follow local, State and Federal release reporting requirements

Section 7: HANDLING AND STORAGE

Handling

Wear chemical splash goggles and full face shield, impervious clothing, gloves, and shoes. Avoid cotton, wool, and leather. Avoid excessive heat and contamination. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Never return unused material to the original container. Empty drums should be triple rinsed with water before discarding. Utensils used for handling should be made of glass, stainless steel, aluminum, or plastic. Do not allow this material to come in contact with eyes. Avoid prolonged contact with skin. Use in well ventilated areas. Do not breathe vapors. Thoroughly wash hands with soap and water after handling this material.

Storage

Store containers in well-ventilated area, out of direct sun-light, and away from combustibles. Keep away from incompatible materials and heat, sparks, and flame. Open container slowly to release pressure caused by temperature variations. Product may be packaged in phenolic-lined, steel containers, or fluorinated plastic containers. Storage temperature should not exceed 110°F (43°C) for extended periods of time. Keep container closed when not in use.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

VeruSOLVE™ N/E (N/E – Not Established)

Engineering Controls:

Provide ventilation to minimize the release of vapors and mist into the work environment. Spills should be minimized or confined to prevent release from work area. Remove contaminated clothing immediately and wash before reuse. Keep away from sparks and flames.

Eye/Face Protection:

Wear chemical splash-type safety glasses or goggles. Use full face mask if severe splashing is expected during use.

Skin Protection:

Wear chemically resistant clothing, gloves and boots as recommended by the manufacturer.



Material Safety Data Sheet

VeruSOLVE™

Respiratory Protection:

If required, use NIOSH approved respiratory protection

Protective Clothing:

Wear impervious clothing as recommended by the manufacturer. (avoid cotton, leather, and wool). Completely submerge any clothing that becomes contaminated with the product in water, before drying. Residual peroxide left to dry on a material such as fabrics, paper, leather, wool, cotton, wood, or other combustible material may cause ignition and result in a fire.

General Hygiene Considerations:

As with any chemical, wash hands thoroughly after handling. Have eyewash facilities immediately available.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Color:	Clear	Odor:	Citrus odor.
Physical State:	Liquid	Boiling Point:	212°F (100°C)
Specific Gravity:	1.0 @ 77°F (25°C)	Vapor Pressure:	N/A
Flash Point:	>120 °F	Solubility in Water:	Soluble.
Volatile Organic Compound (VOC) Content: 1-5% by volume.			

Note: These specifications represent a typical sample of this product, but actual values may vary. Certificates of Analysis and Specification Sheets are available upon request.

Section 10: STABILITY AND REACTIVITY

Stability: Contamination may cause decomposition and production of oxygen gas.

Conditions to Avoid: Keep away from heat, sparks, flames, and contamination.

Incompatible Materials: Strong reducing agents, iron and other heavy metals, galvanized iron, copper alloys and caustics

Hazardous Decomposition Products: Possible hazardous decomposition products formed under fire conditions – Nature of products is unknown.

Possibility of Hazardous Reactions: Possible under extreme conditions or in presence of incompatible material.

Section 11: TOXICOLOGICAL INFORMATION

Acute Effects

May cause irritation to eyes, nose, and throat.

Chronic Effects

N/A

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: N/A

Persistence/Degradability: This product is subject to reduction or oxidation process and decomposes in to water and oxygen.

Bioaccumulation/Accumulation: N/A

Mobility in Environment: N/A

Section 13: DISPOSAL CONSIDERATIONS

Disposal:



Material Safety Data Sheet

VeruSOLVE™

Dispose of in accordance with applicable local, State, and Federal regulations. Material is not a listed hazardous waste.

Section 14: TRANSPORT INFORMATION

US DOT Shipping Classification

Hazard Class: Not regulated
Identification No.: Not applicable
Packing Group: Not applicable
Label/Placard: Not applicable

TDG Status:

Not regulated

IMO Status:

Not regulated

IATA Status:

Not regulated

Section 15: REGULATORY INFORMATION

Global Inventories

The components of this product are included in the following inventories:

USA (TSCA)
Canada (DSL)
Australia (AICS)
Korea (KECL)
Philippines (PICCS)

Proposition 65: California Safe Drinking Water and Toxic Enforcement Act of 1986

This product is not known to contain any chemicals currently listed as carcinogens or reproductive toxins under California Proposition 65 at levels which would be subject to the proposition.

Section 16: OTHER INFORMATION

NFPA 704: National Fire Protection Association

Health – 0 (minimal hazard) Fire – 0 (minimal hazard) Reactivity – 0 (minimal hazard)

Legend

OSHA – United States Occupational Health and Safety Administration
IARC – International Agency for Research on Cancer
NTP – National Toxicology Program
NIOSH – National Institute for Occupational Safety and Health
EPA – United States Environmental Protection Agency

Caution: The user should conduct his/her own experiments and establish proper procedures and control before attempting use on critical parts.

The information contained herein is based on current knowledge and experience: no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information obtained by the user. No warranty is expressed or implied regarding the accuracy of this data, the results to be obtained from the use thereof, or that any such use will not infringe any patent. Users should make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials, the safety and health of employees and customers, and the protection of the environment. This information is furnished upon the condition the person receiving it shall determine the suitability for the particular purpose. This MSDS is to be used as a guideline for safe work practices and emergency response.