TECHNICAL PROPOSAL - ELECTRONIC



Remedial Action for the Santa Fe County Judicial Complex

State Lead Site

Facility ID #53763, Release ID #4597

RFP# 19 667 3200 0004

December 28, 2018



Prepared for

New Mexico Environment Department Petroleum Storage Tank Bureau 2905 Rodeo Park Drive East, Building I Santa Fe, New Mexico 87505



Prepared by



6020 Academy Road NE, Suite 100 Albuquerque, New Mexico 87109

A. SIGNED LETTER OF TRANSMITTAL

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Letter of Transmittal Form

RFP#: 19 667 3200 0004

Offeror Name: Daniel B. Stephens & Associates, Inc.

Items #1 to #7 EACH MUST BE COMPLETED IN FULL Failure to respond to all seven items WILL RESULT IN THE DISQUALIFICATION OF THE PROPOSAL!

1. Identity (Name) and Mailing Address of the submitting organization:

Daniel B. Stephens & Associates, Inc.	
6020 Academy Road NE, Suite 100	
Albuquerque, New Mexico 87109	

Title	Vice President/New Mexico Operations Manager
E-Mail Address	gpeterson@geo-logic.com
Telephone Number	(505) 353-9134

3. For the person authorized by the organization to negotiate on behalf of this Offer:

Name	Gundar Peterson. P.E.
Title	Vice President/New Mexico Operations Manager
E-Mail Address	gpeterson@geo-logic.com
Telephone Number	(505) 353-9134

4. For the person authorized by the organization to clarify/respond to queries regarding this Offer:

Name	John Bunch, P.G.	
Title	Senior Geologist	
E-Mail Address	jbunch@geo-logic.com	
Telephone Number	(505) 353-9138	

5. Use of Sub-Contractors (Select one)

____ No sub-contractors will be used in the performance of any resultant contract OR

X The following sub-contractors will be used in the performance of any resultant contract:

EnviroDrill, Regenesis, Vista GeoScience, CobbFendley, Southwest Safety Services

(Attach extra sheets, as needed)

6. Please describe any relationship with any entity (other than Subcontractors listed in (5) above) which will be used in the performance of any resultant contract.

<u>DBS&A anticipates contact with Santa F eCounty and its subcontractors, the Journal Santa F e, the Old Santa F eInn and Barker</u> (Attach extra sheets, as needed) Realty, the Santa F eCounty District Attorney, owners and tenants at the 200 West De Vargas Condominium Complex, Saveur Bistro, the Hinkle Law F irm, owners and tenants of the

- 7. X On behalf of the submitting organization named in item #1, above, I accept the Conditions Governing the Procurement as required in Section II, Paragraph C.1. Design Center Santa Fe, the New Mexico Attorney General's
 - X I concur that submission of our proposal constitutes acceptance of the Evaluation Factors contained in Section V of this RFP.
 - X I acknowledge receipt of all amendments to this RFP (if any).

1Ex

<u>December 27</u>, 2018

Authorized Signature and Date (Must be signed by the person identified in item #2, above.)

Office. Relationships were established witl

these entities during

previous work at the

site.

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C. TECHNICAL PROPOSAL SUMMARY

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DBS&A developed this technical approach to address residual petroleum contamination at the Santa Fe County Judicial Complex State Lead site (the site), located at 327 Sandoval Street in historic downtown Santa Fe, New Mexico. The site is a consolidation of several underground storage tank (UST) sites and other potential sources in the vicinity of Montezuma Avenue and Cerrillos Road. The primary objective of future site work will be to develop a site-specific closure strategy.

The areal extent of the dissolved-phase plume has decreased by approximately 25 percent since 2014. However, concentrations of total naphthalenes remain 1 to 2 orders of magnitude above the New Mexico Water Quality Control Commission (NMWQCC) standard in wells within the heart of the dissolved-phase plume. This compound will not degrade in a reasonable timeframe, as specified in the RFP.

The root cause of residual dissolved-phase hydrocarbon contamination at the site is previous construction dewatering activities, which dragged contaminant mass 8 to 12 feet below the static water table and created an extensive smear zone. This trapped mass continues to diffuse into groundwater, and will ultimately lengthen the timeframe necessary for contamination to naturally attenuate.

In addition, most monitor wells with highly elevated dissolvedphase concentrations are currently located in an upgradient location south of Montezuma Avenue. Complicated subsurface geology is controlling contaminant migration south from the former Capitol 66 site. A groundwater divide on the east side of the site partitions the impacted areas. A preferential flowpath across this divide appears to exist at the southern end of the site in the vicinity of monitor wells MW-1R and MW-4R, allowing contaminants to then travel north toward the Judicial Complex. Investigation and remediation of this upgradient residual source area will be a critical component of the site closure strategy.

To effectively characterize the extent of contamination in the vicinity of the groundwater divide at the southern extent of the site, DBS&A proposes to install approximately 14 soil borings southeast of monitor wells MW-1R and MW-4R. In addition to standard soil sample collection and field screening, a hydropunch-type device will be used for collection of a groundwater sample from the bottom of each boring. Field screening of the groundwater samples will be accomplished using a Defiant Technologies Frog 4000 field-portable gas chromatograph.

Following these necessary additional site investigation activities, DBS&A proposes to implement in situ groundwater treatment in four specific areas of the dissolved-phase plume (Montezuma Avenue, Design Center-South Plume, the De Vargas Condominiums - North Plume, and the former Capitol 66 site). A total of 24,000 pounds or Oxygen Release Compound-Advanced (ORC-A) will be applied to a total of 220 injection points across the 4 areas. Amendment activities will cover a total of approximately 18,500 square feet with treatment thicknesses of 12 to 14 feet. Due to adverse drilling conditions, amendments will need to be applied using one of two borehole backfill techniques that will be evaluated during the proposed additional site investigation.

We are well aware of the high profile that this site maintains in the public eye. Safety of the public is of upmost importance. Health and safety issues will be addressed by the Site-Specific Health and Safety Plan to protect workers, nearby property owners, and on-site personnel and the public. All activities at the site will be completed with appropriate safety precautions, including barricading or otherwise separating working areas from the public, as well as ambient air monitoring when necessary. Due to the amount of activity proposed in road right-of-way, a robust Traffic Control Plan and road closures will be essential. DBS&A will also need to work closely with the Old Santa Fe Inn and Saveur Bistro due to the amount of activity proposed in their parking lots. Relationships established through the course of previous project work will be a critical component of future work at the site due to the complicated nature of the work included in this proposal.





D. RESPONSE TO SPECIFICATIONS

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Daniel B. Stephens & Associates, Inc. (DBS&A) shares the objective of the New Mexico Environment Department Petroleum Storage Tank Bureau (NMED PSTB) to reduce threats to public health and the environment by performing Remedial Action at the Santa Fe County Judicial Complex State Lead site as described in the Request for Proposals (RFP) dated November 29, 2018. The residents of Santa Fe, New Mexico, deserve a reliable and sustainable source of clean water. DBS&A proposes time-tested, cost-effective solutions to achieve this goal quickly. Our team offers the following benefits:

- Our team is familiar with the PSTB's expectations and the state's PST regulations, and we know how to achieve success—minimal guidance and oversight will be necessary. DBS&A has a 20-year-long history working with the NMED on multiple sites throughout New Mexico. The NMED can trust DBS&A to perform remedial action at the site in a professional manner and with NMED's goals and interests in mind.
- We can complete the project on an accelerated schedule, if necessary, stay within budget, and minimize life cycle costs of remediation system. DBS&A and the NMED PSTB have accomplished the same goals at sites with similar issues in the past. We are proud of the projects we have partnered on, including the award-winning A-1 Auto and Santa Fe County Judicial Complex (SFCJC) remediation sites. Working in collaboration with the PSTB and numerous stakeholders, we have consistently proven these abilities. Our entire team, including proposed Project Manager, Tom Golden, P.E. has a proven record of success working with stakeholders and providing solutions to complicated issues.

PSTB Project	Budget	Schedule	Team Satisfaction
Chevron 70704 Cimarron, NM	On-Budget	Expedited	\checkmark
Paul's Place Remedial Action Tomé, NM	<u>Under</u> <u>Budget</u> -\$100,000	Expedited	\checkmark
Santa Fe County Judicial Complex Santa Fe, NM	On-Budget	Expedited	\checkmark

 DBS&A streamlines the regulatory process. We obtain regulatory approvals and have open lines of communication with the state's decision-makers based on trust we have gained by helping to resolve technical challenges and supporting the communities we serve. During our firm's 30-year history, we have worked in every corner of the state, with more than 200 municipal officials and community leaders, in more than 60 New Mexico communities. We have presented at or conducted hundreds of public and stakeholder meetings.

- We use appropriate technologies and efficient techniques to make sure the job gets done right the first time. DBS&A prides itself on developing site-specific solutions to expedite site closure.
- We are committed to understanding NMED's priorities to ensure that we make decisions in the field that are in the PSTB's best interest. We will communicate with the PSTB to understand the project goals—time, budget, and risk and implement the solution that best achieves them.

1. Statement of Capabilities and Available Resources

1.1 Company Capabilities

NMED can expect cost-effective results from our team. DBS&A has been supporting the NMED PSTB directly in assessment and remediation activities for more than 20 years, including several large, complex sites throughout the state, such as the SFCJC, A-1 Auto in Peñasco, and Hobbs City Wells Underground Storage Tank (UST) sites. DBS&A successfully completed each of these projects on expedited schedules and under intense public scrutiny.

When a flash fire in the bottom of the excavation for construction of the parking garage caused an emergency response situation at the Santa Fe County Judicial Complex, DBS&A devoted all of its resources to this critical remedial action. DBS&A designed and coordinated installation of a grout barrier to deter light nonaqueous-phase liquid (LNAPL) on-site, and simultaneously designed and coordinated installation of a thermally enhanced soil vapor extraction (SVE) system that used three different phases of equipment operation to expedite cleanup of the site. The system included a combination of horizontal and vertical wells to access contamination under the District Attorney (DA) building and a historic downtown Santa Fe hotel. More than 120,000 pounds of hydrocarbons were recovered from the subsurface, primarily in the first 18 months, and solute concentrations decreased by 2 to 4 orders of magnitude in most wells.

All of the projects that DBS&A has performed for the PSTB have been in accordance with applicable rules and regulations, including the NMED Underground Storage Tank Bureau (USTB) Guidelines for Corrective Action, dated March 13, 2000, and the NMED PST Regulations set forth in Section 20.5.119 of the New Mexico Administrative Code (NMAC).



Credible Expert Testimony

In accordance with the New Mexico Hazardous Waste Act, 74-4-7 NMSA 1978, DBS&A can provide thorough and credible expert testimony to protect NMED's interests in cases where state property has been impacted and/or cost recovery for corrective action is an issue.

Ten DBS&A professionals, including Dr. Stephens, P.G., C.Hg., our Founder and Principal Hydrologist, and Neil Blandford, P.G., have served as expert witnesses in federal and state courts or in administrative hearings on groundwater and soil contamination cases. Our firm has gained in-depth knowledge from supporting attorneys in a wide range of projects at contaminated sites, including sites contaminated with chlorinated solvents, perchlorate, petroleum hydrocarbons, MTBE, oil field brine, wood treating chemicals, heavy metals, and pesticides, and at sites where vapor intrusion was present.

Specific areas of expertise are interpretational hydrogeology, contaminant fate and transport studies, and numerical flow and transport modeling. We can also provide expert testimony during trial, as well as develop specialized courtroom exhibits using GIS, animation, and other visual technologies.

DBS&A's credibility is a result of hands-on experience in a wide variety of projects, highly educated and trained personnel, and ongoing research published in technical journals.

1.2 Resources Available

DBS&A employs approximately 90 people company-wide. As an affiliate of Geo-Logic Associates (GLA), we have access to more than 250 professionals in 27 offices. Dedicated accounting, IT, database, and other support personnel are based in DBS&A's Albuquerque headquarters.

DBS&A's technical professionals are also supported by a production team consisting of technical writers and editors, CAD/GIS specialists, and administrative assistants to ensure that the high-quality data collected during investigations is conveyed in a clear and concise manner to NMED.

The members of our proposed project team have relevant experience in the design, implementation, and O&M of remediation systems for NMED PSTB sites. The organizational chart depicts lines of communication and oversight for the key team members, including project management, QA/QC, and hydrogeology, engineering, and support staff.





2. Site Activities

2.1. Discussion of Site Conditions

Based on our extensive history working at the site, including various phases of site investigation and corrective action, we present the following summary of known site conditions at the Santa Fe County Judicial Complex site (the site) located at 327 Sandoval Street in historic downtown Santa Fe, New Mexico (Figure 1). The site is a consolidation of several former underground storage tank (UST) sites and other potential sources in the vicinity of Montezuma Avenue and Cerrillos Road. The site is currently occupied by the Judge Steve Herrera Judicial Complex, Santa Fe County District Attorney (DA), Old Santa Fe Inn, Saveur Bistro, and a variety of additional commercial and office buildings. The Old Santa Fe Inn has made significant modifications to its facility, including moving the hotel entrance to Montezuma Avenue (through the former Journal North parking lot), and creating new hotel rooms from a large portion of the former Journal North building.

2.1.1 Background

DBS&A experience with this site extends back more than a decade. We performed Phase 1 and 2 activities at the 210 & 218 Montezuma Avenue UST site from 2003 until 2009, when the site was included in a State Lead remediation procurement. Activities performed by DBS&A at the Montezuma Avenue UST site included vapor surveys, monitor well and soil vapor extraction (SVE) well installation, subsurface soil sampling, groundwater monitoring, non-aqueous phase liquid (NAPL) removal, geophysical surveys, NAPL split sampling, and installation of Geoprobe borings.

Corrective action at this site has required extensive coordination with the many stakeholders involved with the project. In addition to the PSTB and a variety of DBS&A subcontractors, DBS&A has coordinated with: Santa Fe County and its subcontractors, the Journal Santa Fe, the Old Santa Fe Inn and Barker Realty, the Santa Fe County District Attorney, owners and tenants at the 200 West De Vargas Condominium Complex, the Hinkle Law Firm, owners and tenants of the Design Center Santa Fe, and the New Mexico Attorney General's Office. The relationships established through the course of previous project work will be a critical component of future work at the site. Following award of the contract to remediate the site, DBS&A coordinated installation of a grout barrier to deter migration of NAPL onto the site during construction of the underground parking garage for the Judicial Complex and partially mitigate impacts from construction dewatering activities. Due to an existing shoring system in place, the barrier required installation of high-pressure jet-grouted



columns to form the majority of the barrier.



As the grout barrier was being installed, DBS&A began implementing the Final Remediation Plan (FRP), which consisted of three separate phases of aggressive SVE system operation. Each phase included different combinations of SVE equipment operating from two separate temporary equipment enclosures, located on the north and south sides of the Santa

Fe County District Attorney (DA) building. A series of vertical and horizontal wells were routed to the enclosures with buried piping that required archaeological oversight during all trenching activities.

DBS&A always prioritizes cost-effective technology selection during engineering design. Use of NMED-owned equipment allowed for immediate corrective action with a significant cost savings to the PSTB. An enclosed thermal flare that allowed for treatment of contaminant vapors at very high concentrations was leased only during the initial period of system operation which provided for additional cost savings. Finally, a thermally enhanced SVE system was installed that included injection of hot air to enhance volatilization of contaminants and extraction of residual hydrocarbon mass and minimize remediation timeframes.

Approximately 128,500 pounds (21,400 gallons of gasoline) of contaminants were removed from the site, with 95 percent of that mass removed in the first 16 months. *The remedial action*



resulted in an almost complete removal of a NAPL plume which had been approximately 500 feet long, 100 feet wide and as thick as 3.5 feet in some wells.



The north SVE system was shut down in February 2012 and dismantled in August 2012. The south SVE system was shut down in August 2013, and system dismantling began February 2, 2015, allowing for repurposing of the NMED-owned equipment.

When contaminant trends indicated that effectiveness of SVE system operation was decreasing, and with a desire to more aggressively address remaining groundwater contamination, ozone injection and subsequent hydrogen peroxide injections were initiated at the site in 2013 and 2014.

Souder Miller & Associates (SMA) was awarded the most recent State Lead remediation services contract in 2015. In an attempt to address dissolved-phase contamination above applicable groundwater standards, SMA completed pumping tests in May 2017, followed by mobile dual-phase extraction (MDPE) events in October 2017 in three different areas of the site (Montezuma Avenue, Design Center-South Plume and the De Vargas Condominiums - North Plume). Following the MDPE events, Oxygen Release Compound-Advanced (ORC-A) socks were installed in a number of wells in the tested areas.

Although dissolved-phase concentrations appeared to attenuate in a few wells (e.g., MW-1R and MW-4R) following the MDPE events, contaminant concentrations rebounded in 6 to 7 months, as evidenced by monitoring results from February 2018. The MDPE events appeared to provide little benefit to the overall site closure strategy.

Quarterly and semi-annual groundwater monitoring has been ongoing since a baseline groundwater monitoring event was conducted in March 2010. There are currently more than 60 wells associated with the site, which were installed by various stakeholders, such as the NMED and Santa Fe County.

2.1.2 Site Hydrogeology

The site is underlain by Quaternary Alluvium (QA) that unconformably overlies the Tesuque Formation. The QA is comprised of light brown to brown, poorly sorted sand and gravel. The Tesuque Formation consists of weak red to red brown, well sorted silty sand/clayey sand and fine-grained sand. Previous site activities have shown that large diameter boulders are present under the site, which prohibit the use of direct push methods for drilling and well installation.

Groundwater is present at the site at different depths on either side of Cerrillos Road. On the west side, depth to water is approximately 30 feet below ground surface (bgs) with a relatively shallow northerly gradient on the order of 0.003 foot per foot (August 2018). On the east side of Cerrillos Road, depth to water is 15 to 25 feet bgs with a steeper gradient to the southwest on the order of 0.02 foot per foot (February 2018). This groundwater divide is associated with a subsurface discontinuity believed to be a fault, based on published reports (Spiegel and Baldwin, 1963).

Seasonal fluctuations have been observed on the east side of Cerrillos Road, with fluctuations more pronounced in former upgradient monitor well CMW-6 (4 to 5 feet) than downgradient monitor well CMW-4 (1 to 2 feet). Groundwater on the east side of Cerrillos Road is believed to be influenced by a combination of flow in the Santa Fe River and landscape irrigation located northeast from existing monitor wells associated with the former Capitol 66 UST site. Groundwater flow is restricted from east to west by the groundwater divide along Cerrillos Road.

Since 2010, groundwater elevations on the west side of Cerrillos Road have been influenced primarily by dewatering activities associated with construction of the Judge Steve Herrera Judicial Complex (Judicial Complex), which occurred from May 2010 through July 2011. Groundwater elevation decreases of 8 to 12 feet were observed site-wide, as far as the Santa Fe River 250 feet north of the Judicial Complex. The ultimate lateral extent of dewatering exceeded the monitor well network in place during construction. When dewatering ceased, groundwater slowly returned to site monitor wells at rates of 1 to 3 feet per year. Recent groundwater elevations have fluctuated, but appear to have generally returned to levels measured during baseline groundwater monitoring conducted in March 2010.

2.1.3 Distribution of Contaminants

Contaminants of Concern

The primary contaminants of concern (COCs) are gasoline fuel constituents, including benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary-butyl ether (MTBE),



1,2-dichlorethane (EDC), 1,2-dibromoethane (EDB), and naphthalenes. Contamination has historically been present in a relatively narrow north-south corridor coincident with the previously known extent of the NAPL plume (Figure 2). Contamination is believed to have been conveyed via more conductive aquifer materials associated with a north-south oriented paleo-channel.

Distribution of Contaminants in Soil

Soil contamination has been well-documented during installation of the more than 60 monitor wells associated with the site. During installation of monitor wells (both prior to and concurrent with construction dewatering), field screening readings as determined with a photoionization detector (PID) exceeded the PSTB action level of 100 parts per million by volume (ppmv) at depths of 25 to 35 feet bgs, or within 5 feet of the water table interface. During various site investigations completed in 2014, field screening and laboratory analytical results for soil samples showed that residual contamination is now typically present at depths of 35 to 45 feet bgs or 5 to 15 feet below the water table interface (Figure 3).

Non-Aqueous Phase Liquid

Measurable NAPL was last observed at the site in December 2012, and contaminant concentrations in wells which previously contained NAPL have decreased significantly.

Distribution of Contaminants in Water

Figure 2 shows the most recent extent of groundwater contamination. The extent of downgradient contamination is defined by historical concentrations in monitor well MW-16. The upgradient extent of contamination is defined by monitor wells TWS-2 and TWS-3. The cross-gradient extent is defined by a variety of other wells, including CMW-5, MW-5, MW-8 through MW-10, MW-12 through MW-14, MW-17 through MW-20, SFCMW-06, SFCMW-08, SFCMW-11, SFCMW-12, SVE-2, SVE-10D, TWN-1, and TWS-1. These wells exhibited existing or historical concentrations of COCs either below laboratory reporting limits or applicable standards. Following aggressive removal of the source area from 2010 through 2013, dissolved-phase concentrations have been reduced by several orders of magnitude in the majority of site monitor wells located north of Montezuma Avenue. Since 2014, the areal extent of the plume has been reduced by approximately 25 percent, but concentrations of total naphthalenes remain 1 to 2 orders of magnitude above the New Mexico Water Quality Control Commission (NMWQCC) standard in wells within the heart of the dissolved-phase plume.

On the former Capitol 66 site southeast of the groundwater divide, the extent of dissolved-phase contamination is defined

upgradient by historical data from former monitor well CMW-6 and cross-gradient by monitor well CMW-2. The concentrations of dissolved-phase contaminants on this part of the site remain low and are not considered indicative of the presence of NAPL. Historical NAPL in former monitor well MW-4 and solute concentrations in current monitor well MW-4R would suggest that contamination from the Capitol 66 site may be crossing the groundwater divide near that location.

Summary of Conceptual Site Model

Aggressive corrective action using multiple phases of SVE and hot air injection has resulted in elimination of measurable NAPL at the site. Combined with focused groundwater treatment, removal of the contaminant source has resulted in a reduction of contaminant concentrations by several orders of magnitude, particularly in wells located north of Montezuma Avenue. Despite these significant improvements in site conditions, the dissolved-phase plume remains above NMWQCC standards in four specific areas (Montezuma Avenue, Design Center-South Plume, De Vargas Condominiums - North Plume, and Former Capitol 66 site).

The root cause of this residual hydrocarbon contamination is previous construction dewatering activities, which dragged contaminant mass 8 to 12 feet below the static water table and created an extensive smear zone. This trapped mass continues to diffuse into groundwater, and will ultimately lengthen the timeframe necessary for contamination to naturally attenuate.

In addition, most monitor wells with the highest dissolved-phase concentrations are currently located in an upgradient location south of Montezuma Avenue. Complicated subsurface geology is controlling contaminant migration south from the former Capitol 66 site. A preferential flowpath across the groundwater divide appears to exist in the vicinity of monitor wells MW-1R and MW-4R, allowing contaminants to then travel north toward the Judicial Complex.

Investigation and remediation of this upgradient source" will be a critical component of the site closure strategy.

Exposure Pathways

Soil vapor intrusion remains a potential exposure pathway due to the presence of occupied structures over the dissolved-phase plume, as indicated in the RFP. DBS&A will work with the PSTB to determine if additional vapor intrusion assessment is needed within the DA Building, or any other occupied buildings, considering public concerns and in compliance with current EPA guidance. DBS&A will coordinate with PSTB and other stakeholders to select appropriate assessment, monitoring and abatement methods, as needed.



Historical data shows dissolved-phase contamination is stable downgradient from the former source areas. The current risk to the Santa Fe River from groundwater hydrocarbon impacts is low, but the threat will remain until the site is closed.

Data Gaps and Additional Site Characterization

The site is relatively well-characterized with regard to the horizontal and vertical extent of contamination. As discussed previously, the primary data gap that remains is defining the extent of contamination upgradient from existing wells MW-1R and MW-4R. Addressing this data gap will be complicated for two reasons:

- 1. Critical drilling locations in the area of concern are within the right-of-way for Cerrillos Road.
- 2. Subsurface geology prohibits the use of direct push drilling methods. Investigation and well installation activities will require the use of a hollow stem auger (HSA) drill rig.

To effectively characterize the extent of contamination in the vicinity of the groundwater divide and assess the extent of the South Plume treatment area, DBS&A proposes to install a series of soil borings across from known contamination present in wells MW-1R and MW-4R. The borings will be installed in a step-out fashion to maximize the areal coverage of the investigation using the least number of borings. An initial layout of 14 soil borings in 2 rows is shown on Figure 4, but the density of borings will ultimately be decided in the field in direct consultation with the PSTB project manager.

In addition to standard soil sample collection and field screening, a hydropunch-type device will be used for collection of a groundwater sample from the bottom of each boring. Field screening of the groundwater samples for hydrocarbon contaminants will be accomplished using a Defiant Technologies Frog 4000 field-portable gas chromatograph calibrated for BTEX constituents (benzene, toluene, ethylbenzene, and total xylenes) and total naphthalenes. This equipment is owned by the NMED, and its use will allow characterization of the extent of groundwater contamination while reducing expenses for well installation and laboratory analyses. Based on the results of field screening, DBS&A anticipates installation of no more than 2 new monitor wells. Soil borings will be backfilled with bentonite and capped with asphalt patch using a thickness similar to the existing pavement.

2.1.4. Technical Approach

Based on our intimate and extensive knowledge with this site, we propose the following technical approach for corrective action at the site:

- Following the additional site investigation activities required to address the primary remaining data gap, prepare an FRP for the site that addresses residual dissolved-phase contamination.
- Implement in situ groundwater treatment in four specific areas of the dissolved-phase plume (Montezuma Avenue, Design Center-South Plume, the De Vargas Condominiums
 North Plume, and the former Capitol 66 site).

2.1.5 Remedial Objectives and Performance Standards

The primary remedial objective is to reduce dissolved-phase hydrocarbon concentrations in site wells below NMWQCC standards in a reasonable timeframe. Active remediation will be required to achieve this goal within the scope of a four-year State Lead contract.

2.2 Cleanup Strategy

2.2.1 Evaluation of Remedial Technologies

This site has experienced an extensive history of active remediation. The stated remedial objective is very achievable, but will be complicated by the following site specific conditions:

- Adverse drilling conditions (consistent thicknesses of gravel, cobbles, and boulders) prohibit the use of direct push technology.
- An extended vertical treatment zone (due to contaminants being drawn down below the water table during construction dewatering activities) will increase the cost of active remediation.
- Contamination will need to be accessed from existing parking lots and the right-of-way for Cerrillos Road and Montezuma Avenue.

DBS&A evaluated remedial technologies relative to both these site-specific challenges and its extensive history with the site. Implementation of a full scale pump and treat system was already attempted during construction of the Judicial Complex; this type of technology would not be able to address the full thickness of the smear zone at the site. As shown during construction dewatering activities, site-wide pumping quickly dewaters the shallow aquifer. Small pumping rates from individual wells generate a deep cone of depression. These activities further smear contaminants in the lower saturated zone, while at the same time leaving contaminants present within the upper saturated zone.

DBS&A also assessed the viability of DPE technology based on the recent MDPE events completed by SMA. Air flow ranged



from 210 to 244 standard cubic feet per minute (scfm) at applied vacuum of 15 to 18 inches mercury. As expected based on extensive history of previous vapor extraction at the site, these events produced low total petroleum hydrocarbon (TPH) vapor concentrations of 11 to 42 micrograms per liter (µg/L). Despite extraction of more than 17,000 gallons of contaminated groundwater, the MDPE events appear to have had limited success with the reduction of dissolved-phase contamination at the site. Assuming that a sustainable pumping regime could be established, full scale DPE would not achieve the stated remedial objective in a reasonable timeframe due to low vapor concentrations observed during recent MDPE events and the low rate of groundwater extraction required to avoid significant dewatering. Full scale DPE or groundwater extraction would also be expensive to implement, operate and maintain, may have a long lasting negative impact on the local community, and may not ultimately address the hydrogelogic complexities of the site.

Due to the amount of contamination present within the right-ofway, and the fact that treatment is needed within three areas of the site that are 600 feet apart and separated by numerous buildings (including an upscale hotel) and other structures, installation of permanent treatment infrastructure is not desirable, regardless of whether it be for a groundwater extraction system or an in situ treatment approach like E-Redox patented by Advanced Environmental Treatment Technologies, LLC (AET).

Despite the adverse drilling conditions, the most cost-effective, site-specific remedial technology will be to implement an in situ amendment injection program in the four target areas using ORC-A to oxidize residual petroleum hydrocarbons and enhance in-situ bioremediation. ORC-A supplies a controlled release of oxygen for 9 to 12 months in the target treatment zone to create and support the geochemical environment necessary for aerobic biodegradation of contaminants. A slow-release compound is necessary for this site due to the relatively low groundwater gradients within the treatment areas.

ORC-A socks had a short-term positive affect on contaminant concentrations, but additional amendment volume is needed with a tighter spacing on application points than socks in existing wells could provide. This type of program can proceed immediately after 1) defining the extent of contamination in the vicinity of MW-4R and 2) collection of groundwater samples for inorganic analyses, such as dissolved iron, manganese, and chemical and biochemical oxygen demand (COD and BOD), during a baseline groundwater monitoring event. Amendment injection also has the advantage that it requires no additional remediation equipment to purchase or operate.

2.2.2 Selected Remedial Alternative

The DBS&A approach presented below is based on available data at the time of the RFP, and our previous successes at similar PSTB sites, such as the S&L Service Station in Belen, New Mexico. Proposed amendment injection areas are shown on Figure 5 and include a 2,500-square foot area north of the Santa Fe County DA building (De Vargas Condominiums - North Plume), a 7,000-square foot area east of the Judicial Complex (Montezuma Avenue), a 6,000-square foot area east of the Design Center (South Plume), and a 3,000-square foot area on the former Capitol 66 site. The treatment thickness would be 12 to 14 feet, which would allow amendments to be applied to the extended smear zone generated during construction dewatering activities. Based on the design document provided by Regenesis, a total of 24,000 pounds would be applied to a total of 220 injection points across the 4 areas. An 8-foot spacing is proposed in the South Plume area where contaminant concentrations are the highest, and a 10-foot spacing is proposed in the other three areas.

As direct push is not feasible in the treatment areas, amendments will need to be applied using one of two borehole backfill techniques. If the borehole will stay open after being drilled with the HSA rig, the amendments can be applied directly to the borehole. If the borehole will not stay open, then it will be backfilled with bentonite. A direct push rig will then be used to re-enter the borehole (through the bentonite) to apply the amendment materials to the subsurface. These two techniques will be evaluated during the proposed additional site investigation activities to determine which will be most successful during implementation of the amendment injection program. The application area for the South Plume may also need to be revised following site investigation activities.

2.3 Scope of Work

This scope of work has been developed to implement the cleanup strategy described above. The general approach for the site includes the tasks described below.

2.3.1 Prepare Final Remediation Plan

This proposal serves as the conceptual remediation plan (CRP) for the site. An FRP will be prepared conforming to New Mexico Administrative Code (NMAC) 20.5.119.1923, and will include at a minimum:

- · Goals of remediation and target concentrations by medium
- A site plan drawn to a scale no less than 1 inch equals 40 feet, showing all existing buildings, structures, paved areas, utilities, buried utility trenches, former and existing



USTs, other sources of contamination, extent and magnitude of contamination, and monitor wells

- Cross-sections showing contaminant mass relative to the proposed remediation system and a topographic map showing the site relative to receptors
- Contaminant concentration contour maps
- An implementation schedule
- Engineered plans and specifications
- A schedule for remediation of the source areas and achieving target concentrations
- A design and schedule for a system optimization
- A contingency plan
- Copies of all permits, permit applications, and access agreements
- Public notice as described below

2.3.2 Locate Utilities, Surveys, Permits, Access Agreements, and PSTB Notice

DBS&A will contact New Mexico One Call to mark utilities for proposed drilling and well installation activities. Due to the density of proposed borings, a subsurface utility engineering (SUE) survey will be required both in the right-of-way and on private property. The following permits will be required to complete the scope of work: (1) New Mexico Office of the State Engineer (OSE) monitor well permits and plugging plan of operations, (2) Groundwater Quality Bureau (GWQB) discharge permit as negotiated through PSTB, and (3) City of Santa Fe permits to cut asphalt pavement and to hood on-street parking meters.

DBS&A anticipates that several meetings will be required with various stakeholders to discuss proposed site activities, particularly with regard to lane closures that will be required along Cerrillos Road and Montezuma Avenue. Relationships developed over the course of the previous decade will be essential in addressing issues as they arise. At a minimum, DBS&A anticipates meeting with representatives of the 200 West De Vargas Condominium Association, the Journal Santa Fe, the Old Santa Fe Inn, Barker Realty, and the Saveur Bistro. Meetings with Santa Fe County will also be required to discuss access to the Judicial Complex parking garage during proposed activities. Notice will be provided to the PSTB a minimum of 96 hours prior to initiating field activities.

2.3.3 Public Notice

Public notice will be completed in accordance with NMAC 20.5.119.1923.D.10. Two legal notices of the submission of a remediation plan will be published in the Santa Fe New Mexican. Certified letters will be sent to adjacent property

owners, and in-person meetings with these owners regarding traffic flow, noise, and vapor control will be conducted to the extent possible. Notices of submission of the remediation plan at the site will be posted in a prominent location where they can be easily seen by the public.

2.3.4 Well Installation and Baseline Groundwater Sampling

On-site wells will be installed using HSA drilling technologies with well materials specified in work plans following consultation with the PSTB Project Manager. Wells will be installed and permitted in accordance with NMED and OSE guidelines. Well construction diagrams will be recorded on a standard boring log, if applicable, and will be included in the as-built report as described below. Wells will be properly purged and developed. Groundwater samples will be collected in accordance with DBS&A SOPs and the PSTB Guidelines for Corrective Action, including well purging and disposal of generated water. Field parameters, including dissolved oxygen (DO), oxidation/ reduction potential (ORP), temperature, pH, and conductivity, will be measured during purging.

Prior to initiation of corrective action, all wells associated with the site will be gauged to the nearest 0.01 foot to determine the presence of NAPL and depth to water. Following the well gauging, the wells will be sampled. Groundwater samples will be analyzed for VOCs in accordance with U.S. EPA methods 8260B (full list) and 504.1. Wells within the proposed in situ amendment areas will also be sampled for dissolved iron, manganese, COD, BOD, and total dissolved solids (TDS). A monitoring report conforming to the requirements of NMAC 20.5.119.1926 will be submitted to the NMED PSTB in paper and electronic form. Any contaminated soil and other investigation-derived waste generated during drilling and well installation will be stored in lined mud (roll-off) boxes and/or 55-gallon drums and transported to a licensed disposal facility after completion of drilling and well installation activities.

2.3.5 Implementation of the FRP

The proposed layout of the amendment injection program and the extent of contamination are depicted on Figure 5. Drilling and injection activities will be performed by contractors with a minimum of 20 years of experience performing similar work at other corrective action sites. The proposed amendment injection program has been sized to clean up the site without the need for ongoing operation and maintenance.

Monitoring of the progress of bioremediation will include traditional VOC contaminants (BTEX, naphthalene, etc.) and groundwater monitoring parameters (pH, temperature, etc.),



as well as parameters specific to biological activity (dissolved oxygen, redox potential, COD, BOD, etc.).

2.3.6 Prepare and Submit As-Built Report

Following completion of fieldwork, record drawings signed and sealed by the DBS&A Engineer of Record for the project will be prepared and submitted to the NMED Project Manager as part of an "as-built" report. The report will be submitted in both paper and electronic form and conform to the requirements of NMAC 20.5.19.1925.D and include at a minimum:

- Area/vicinity map
- Detailed site diagram with locations of all underground utilities and other subsurface structures on or adjacent to the site's property boundaries, buildings, monitor wells, storage tanks and lines, water lines, and other relevant structures, and summary of site conditions
- Any deviations from the drawings and specifications included in the FRP
- Tabulation of pertinent data, including flow rates, pressures, temperatures, contaminant concentrations, fluid levels, and boring logs and well completion diagrams
- Discussion of data collection methods
- Laboratory results with chain-of-custody records and laboratory QA/QC
- Characterization of wastes, including handling and disposal
- Elevation survey results
- Summary and recommendations

Proposed activities do not include an engineered system, so documentation of purchased remediation equipment and discussion of system startup will not be required.

2.4 Operation and Maintenance Strategy

The only ongoing maintenance activities required following implementation of the amendment injection program will be regular groundwater monitoring. DBS&A recommends that monitoring be completed on a quarterly basis for the first year. Pending PSTB and GWQB approval, the monitoring program can be reduced to a semi-annual basis during subsequent years.

2.4.1. Groundwater Monitoring

Groundwater monitoring will be conducted in accordance with approved work plans following successful implementation of the amendment injection program. Groundwater sampling will be conducted on a sampling schedule based on discussions with the PSTB Project Manager. Fluid levels will be measured using an electronic interface probe, which will be decontaminated prior to collecting each measurement. Groundwater samples will be collected in accordance with the PSTB Guidelines for Corrective Action and DBSA's SOPs, including well purging and disposal of generated water, and analyzed for VOCs in accordance with U.S. EPA methods 504.1 and 8260B (full list). Field parameters, including dissolved oxygen (DO), oxidation/reduction potential (ORP), temperature, pH, and conductivity, will be measured during purging.

A monitoring report conforming to the requirements of NMAC 20.5.119.1926 will be submitted to the NMED PSTB after each monitoring event in both paper and electronic form. The report will include at a minimum:

- Maps documenting site conditions, fluid levels, and contaminant concentrations, including individual contaminant contour maps
- Tabulation of current and historical water quality and fluid level data
- Evaluation of the performance and efficiency of each aspect of the remediation, including evidence that site conditions meet performance standards outlined in the FRP
- Verification based on calculations that the schedule is being met for source removal based on achievement of target concentrations
- Records of system operation, if applicable
- Tabulation of NAPL recovery and disposal, if applicable
- Tabulation of vapor concentrations over time, if applicable
- Evaluation and recommendations for improving the performance of the system to achieve the goals of remediation

In addition to groundwater sampling and to ensure vapor intrusion doesn't become a danger to the public, periodic vapor monitoring will be conducted. Vapor samples will be collected from existing monitor wells in a Tedlar bag and field screened using a PID or equivalent device.

2.5 Other Considerations

2.5.1 Health and Safety

Safety of the public is the project's top priority. All work will be completed in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations, including preparing and implementing a site-specific Health and Safety Plan (HASP), conducting daily health and safety meetings with subcontractors and on-site personnel during field activities, and monitoring ambient air quality, as necessary. Personnel who may be in direct contact with petroleum-contaminated



soil will have a minimum of 24-hour OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) training. Ambient air monitoring using a properly calibrated PID will be performed by the Health and Safety Officer on a daily basis where appropriate based on site conditions and observations. Material safety data sheets (MSDSs) will be included in the HASP for the materials to be handled (e.g., cement, bentonite, etc.) and COCs (e.g., BTEX and naphthalenes). Standard safety operating procedures, emergency communication procedures, and route(s) to hospitals will also be included in the HASP.

All activities at the site will be completed with appropriate safety precautions, including barricading or otherwise separating working areas from the public, as well as ambient air monitoring. Due to the amount of activity proposed in road right-of-way, a robust Traffic Control Plan and road closures will be essential. DBS&A will also need to work closely with the Old Santa Fe Inn and Saveur Bistro due to the amount of activity proposed in their parking lots. Based on DBS&A's previous experience with the project, we anticipate work may need to be completed outside of normal business hours to minimize disturbance to and interference from businesses and the general public. These protections are especially important given the site is located in a busy part of downtown Santa Fe.

2.5.2 Disruptions to Nearby Property Owners

As mentioned in Section 3.2, meetings will be held, as needed, to discuss the project details and methods of project implementation to minimize impact to owners and tenants. Progress meetings will be held with stakeholders, as needed, to discuss progress of the selected remedy, scheduled activities, and to hear any comments or concerns. Work will also be scheduled, where practicable, to minimize disruption to businesses where work is scheduled to occur.

2.5.3 Communication with the PSTB

All work completed in this corrective action will be overseen by Thomas Golden, a registered New Mexico Professional Engineer employed by DBS&A, who will be the Engineer of Record and Project Manager for this project. The DBS&A project manager will coordinate and communicate regularly with the PSTB regarding project milestones and other issues as deemed necessary throughout the project. Mr. Peterson will also be available to answer questions and respond to comments from the PSTB, and will interface with PSTB personnel and Mr. Golden through email, conference calls, and project meetings.

2.5.4 Insurance

Our firm and all subcontractors planned for this work are properly licensed and insured. At a minimum, the insurance



2.5.5 Corporate Quality Assurance Plan

DBS&A's commitment to quality starts with our president and extends throughout the entire organization. This commitment is exemplified by our Quality Assurance Program Manual (QAPM). This mature corporate QA program, developed over our 30-year history, includes thorough preparation and planning, establishment of sound procedures, strict adherence to protocol, checks for precision and accuracy, and internal review of documents. In some instances, we use outside review of documents to ensure quality.

Our QAPM, which is updated annually, presents our company QA/QC policy statement, establishes organizational roles and responsibility with regard to QA/QC, outlines our processes, discusses individual performance with regard to QA/QC, and describes our procedures for auditing and recordkeeping.

The QA program is initiated prior to the start of new projects. We have an active Conflict of Interest (COI) Program and plan that ensures that projects or clients that are newly identified do not conflict with our responsibilities toward our existing clients.

Our document review and filing procedures emphasize review of all deliverables and proper maintenance of project files. The program identifies document types and appropriate levels of review required.

2.6 Timetable

The scope of work outlined in this proposal will be completed according to the attached schedule (Figure 6). This timeframe is reasonable given the focus on using MNA to achieve site closure in a timely and cost-effective manner.

2.7 Conclusion

The technical approach outlined above will utilize a robust amendment injection program to reduce contaminant concentrations below applicable groundwater standards. This is the level of effort that is required to close the site within the scope of a 4-year State Lead contract. DBS&A has worked on hundreds of PSTB sites over the past 20 years and on this site for more than a decade, and has a proven record of thorough and detailed analysis of groundwater monitoring data. In addition, the relationships DBS&A developed over the extensive history with this project will be invaluable for working with property owners in a reasonable and cost-effective manner.









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Daniel B. Stephens & Associates, Inc.

South - North Cross Section A-A



Figure 4

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Figure 6. Timetable

			20	19		2020 2021							2022											
Months "	6			10											1 5									67
NOTICE TO PROCEED	•																							
SITE INVESTIGATION AND FRP WORK PLAN													Í						Í					
WORK PLAN APPROVAL																								
SOUTH PLUME INVESTIGATION AND REPORT																								
COMPLETE FRP		Ľ																						
FRP COMMENTS																								
FINAL FRP SUBMITTAL																								
FRP APPROVAL																								
AMENDMENT INJECTION WORK PLAN																								
WORK PLAN APPROVAL																								
BASELINE GROUNDWATER MONITORING EVENT																								
AMENDMENT INJECTION PROGRAM AND REPORT																								
GROUNDWATER MONITORING																								

Task	Calendar Days	Start Date	End Date
Notice to Proceed	0	6/1/2019	6/1/2019
Site Investigation and FRP Work Plan	21	6/1/2019	6/22/2019
Work Plan Approval	28	6/23/2019	7/21/2019
South Plume Investigation and Report	56	7/22/2019	9/16/2019
Complete FRP	90	7/22/2019	10/20/2019
FRP Comments	21	10/21/2019	11/11/2019
Final FRP Submittal	14	11/12/2019	11/26/2019
FRP Approval	14	11/27/2019	12/11/2019
Amendment Injection Work Plan	21	12/12/2019	1/2/2020
Work Plan Approval	28	1/3/2020	1/31/2020
Baseline Groundwater Monitoring Event	7	2/1/2020	2/8/2020
Amendment Injection Program and Report	119	3/1/2020	6/28/2020
Groundwater Monitoring	730	7/1/2020	7/1/2022

SFCJC Remedial Action Schedule



E. OFFEROR'S STATEMENT OF QUALIFICATIONS

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a. Corporate Experience with State Government and Private Sector

Remediation at PST Sites

DBS&A has vast experience working at petroleum hydrocarbon affected sites—we have conducted investigation and/or remediation activities at more than 500 sites throughout the Southwest. We understand the specific conditions that pose a threat to public health and the environment, including potential impacts to drinking water supplies. Key DBS&A personnel identified in the statement of qualifications have worked with the NMED for a decade or more, including proposed Project Manager and Engineer of Record, Tom Golden, P.E.; Principalin-Charge, Gundar Peterson, P.E.

This team has assessed sites contaminated with petroleum hydrocarbons, evaluated remedial alternatives, and where appropriate, designed, operated, and maintained remediation systems that employed multiple technologies to bring the site to closure quickly and cost-effectively. Understanding the subsurface mechanisms that contribute to groundwater flow and contaminant movement are the cornerstones of effectively remediating sites. DBS&A devises solutions tailored to site-, contaminant-, and regulatory-specific conditions and where needed, DBS&A explores and devises innovative approaches for unique situations. For example, corrective action at the SFCJC site used a grout barrier, horizontal wells beneath existing buildings, and thermally enhanced SVE system to achieve project goals. This combination of technologies had never been used before in New Mexico.

Our firm has successfully designed and implemented more than 100 soil and groundwater remediation systems throughout the Southwest. DBS&A's remediation teams draw on corporate and individual expertise in the investigation and remediation of petroleum hydrocarbons, chlorinated solvents, metals, and mine wastes. Remedial actions performed by DBS&A in New Mexico have used a range of remediation technologies, including:

- Soil excavation and land farming
- In situ groundwater treatment programs
- SVE
- Groundwater sparging and extraction system
- Interceptor/cutoff trenches
- Pneumatic phase-separated hydrocarbon pumping systems

- Groundwater treatment by packed column air strippers, low-profile diffusers, reverse osmosis, and granular activated carbon (GAC)
- Vapor treatment by thermal oxidizer, internal combustion engine, catalytic oxidizer, and GAC

DBS&A routinely performs all types of environmental monitoring and conduct sampling consistent with U.S. EPA and ASTM International guidelines and industry standards. Our team is comprised of Registered Professional Geologists (P.G.s) and Professional Engineers (P.E.s). DBS&A's staff is trained in the latest methodologies for monitoring environmental media (i.e., air, soil, vapor, surface water, sediment, groundwater, and waste). All sampling and analysis methods conform to accepted state, federal, and industry-standard QA/QC procedures.

Success with Similar Options and Approaches

DBS&A has a track record of successfully operating remediation equipment consistently, efficiently, and effectively. PST sites in New Mexico managed by DBS&A that currently have remediation equipment installed to remove contamination include Moberg's Garage, Cibola Chevron, S&L Service Station, Yale Auto, Holloman Fina, and Lea County Electric Coop. We strive to keep system uptime at a maximum, and use a datadriven approach to maximize contaminant removal.

At the S&L Service Station site, DBS&A used in situ groundwater treatment to help remediate remaining dissolved phase contaminants which was present within fine-grained soils (silt and clay). The program consisted of 86 temporary soil borings for application of Regenesis products ORC-Advanced® and PersulfOx to subsurface soil and groundwater. DBS&A's approach efficiently and effectively increased subsurface oxygen, flushed sorbed contaminants from the soil, and provided for in situ biological remediation of impacted soil and groundwater to achieve the goal of a 'No Further Action' determination within four years after contract award.

At the Holloman Fina and Lea County Electric Coop sites, DBS&A initiated remediation using equipment already owned by the NMED. This allowed us to start up quickly and resulted in a considerable initial cost savings. As the Lea County system reached the end of its useful life after two years of operation, DBS&A worked with a supplier to secure its replacement with new equipment and coordinated the old system's removal and recycling by the original manufacturer. When the new system was put in place, contaminant removal rates increased. Now, no measurable amount of what was once an extensive LNAPL plume remains.



We also work to make routine maintenance as cost-effective as possible for the NMED. By conducting routine maintenance on the aging Yale Auto SVE system, we were able to remove over 100,000 pounds of petroleum hydrocarbons in 4 years of consistent operations with minimal cost. Routine maintenance prevented the need to replace aging equipment, despite a variety of system shutdowns while awaiting work plan approval or resolution of other administrative issues.

DBS&A has performed groundwater monitoring at hundreds of PST sites in New Mexico in accordance with the NMED Guidelines. Established DBS&A standard operating procedures (SOPs) comply with PSTB regulations, including gauging water levels in monitor wells, appropriately purging the monitor well prior to sampling, and collecting groundwater samples for laboratory analysis.

DBS&A has performed LNAPL containment and removal at many sites throughout New Mexico. Free-product removal from the water table is typically achieved with SVE or skimmer pumps, either working alone or in concert with water table depression pumps. DBS&A has an extensive history of installation and operation of these types of systems. In situations where contaminant-saturated soil is involved, inherent risks exist, such as explosion or creation of a toxic environment. To minimize potential exposure to nearby sensitive receptors, such as day care centers and schools, we modify the time of day when work can be performed and adjust scheduling accordingly when natural factors, such as wind direction and speed, could create potentially dangerous situations.

b. Credentials of Key Personnel

The project team shown below are the proposed key personnel responsible for the completion of the work associated with this contract. Credentials for key personnel include academic degrees and pertinent training information, experience in storage tank site investigations and remediation, and other relevant experience.

Thomas Golden, P.E. Project Manager/Engineer of Record



Mr. Golden will be the Project Manager and Engineer of Record for this contract. He specializes in engineering design for environmental investigations and remediation of soil and groundwater at hazardous waste sites:

water and wastewater projects; design and permitting of landfills and waste disposal facilities; and field and laboratory soil testing. Additionally, he will be responsible for implementation and evaluation of the technical issues of the remedial action. He will coordinate the team of engineers, scientists, graphics professionals, and administrative staff to deliver a high-quality and cost-effective project result for the NMED PSTB.

Academic Degrees:

M.S., Civil Engineering, University of New Mexico B.S., Geological Sciences, University of Texas at Austin

Registration:

Professional Engineer, New Mexico, No. 22750

Pertinent Training:

OSHA Emergency Response to Hazardous Material Incidents (U.S. EPA 165.15), 40-hour, August 2007, and HAZWOPER Refresher (8-hour), current; MSHA Training, current

Experience in Storage Tank Site Investigations:

For more than 10 years, Mr. Golden has been involved with and/or coordinated all phases of implementing engineered systems for the PSTB, including investigation, design, installation, and O&M. Examples include the SFCJC site, Paul's Place (Tomé), Lea County Electric Co-op (Lovington), Moberg's Garage (Watrous), Sandia Fina (Las Cruces), and S&L Service Station (Belen). He has coordinated work that uses a wide variety of remedial technologies, including SVE, multiphase extraction, air sparging, soil excavation and disposal, groundwater pump-and-treat, in situ chemical oxidation, and in situ bioremediation. Mr. Golden has also coordinated site investigation tasks on these projects, specifically when related to engineered systems, such as pilot and bench-scale testing, LNAPL bail down and recovery testing, vapor intrusion studies, and real-time site characterization using HydroPunch and FROG technologies. This experience will be invaluable for effectively implementing this remedial action and addressing any issues that may arise.

Remediation and Other Relevant Experience:

Project Engineer for NMDOT District 4 Headquarters (Las Vegas) Groundwater Remediation; Oil Field Site and Facility Investigations, Occidental Petroleum (New Mexico and Texas); and State Road 114 Superfund Site Remediation System Design (Levelland, Texas) for TCEQ and EPA.

Gundar Peterson, P.E. Principal-in-Charge//Vice President/Senior Engineer



Mr. Peterson has more than 20 years of experience in the environmental industry. He specializes in environmental investigation and remediation of soil and groundwater at hazardous waste sites, and design and

permitting of landfills and waste disposal facilities.



Academic Degree:

B.S., Civil Engineering, University of New Mexico

Registration:

Professional Engineer (Civil and Environmental), New Mexico, No. 16038

Pertinent Training:

International Association for Continuing Education and Training Certified Project Management Training (25-Hour); Mine Safety and Health Administration (MSHA) New Miner Training (24-Hour) and Refresher (8-Hour); OSHA HAZWOPER Training (40-Hour), Refresher (8-Hour), and Construction Safety and Health Certification; Red Cross Basic First Aid/CPR.

Experience in Storage Tank Site Investigations:

Mr. Peterson has 20 years of experience in the investigation and remediation of PST sites in New Mexico. He has completed investigations at numerous sites, which include drilling oversight, and soil and groundwater sampling and reporting. He has designed, overseen construction, and assisted with operations for numerous remediation projects, including excavations at A-1 Auto and Chevron #70704; SVE systems at Yale Auto and Lea County Co-op; and multiphase removal actions at SFCJC and Cibola Chevron.

Remediation and Other Relevant Experience:

Engineer of Record and Lead Engineer for City of Las Cruces/Doña Ana County Griggs-Walnut Groundwater Plume Superfund Remediation Project; New Mexico Transportation Department (NMDOT) District 4 Headquarters (Las Vegas) Groundwater Remediation; NMED Groundwater Quality Bureau Eagle Picher Carefree Battery Superfund Site (Socorro); lead process design engineer for State Road 114 Superfund Site Remedial Action (Levelland, Texas) for Texas Commission of Environmental Quality (TCEQ) and U.S. Environmental Protection Agency (EPA); and Burning Ground SVE system at the Pantex Plant Superfund site (Amarillo, Texas).

John Bunch, P.G. Hydrogeologist



Mr. Bunch has more than 20 years of experience providing geologic, hydrogeologic, and regulatory compliance services. He specializes in managing removal actions and corrective action/ remedial design plans. Mr.

Bunch has managed multiple gasoline-contaminated sites that are regulated by the PSTB.

<u>Academic Degree:</u> B.A., Geology, University of New Mexico

Registrations:

Professional Geologist, Wyoming, No. 3051

Construction Industries Division GS-29 Soil Remediation, New Mexico, No. 943006

Pertinent Training:

OSHA HAZWOPER Training (40-Hour), Supervisor (24-Hour), and Refresher (8-Hour); Project Management Professional Certification (PMPC), Interface Technical Training; New Mexico Risk-based Decision-making Process for Petroleum Releases at UST Sites, RAM Group, Inc.; Principles of Aquifer Testing 3-Day Course, and Principles and Practices of Forced Air Remediation 3-Day Course, National Ground Water Association.

Experience in Storage Tank Site Investigations:

Work has included preliminary and secondary investigations, monitor well installations, free-product removal, soil excavation, natural attenuation monitoring, groundwater modeling, GPS mobile mapping, remediation systems engineering, field analysis, PSTB documentation, report and permit preparation, and coordination with the client and the PSTB to ensure costeffective cleanup and site closure.

Remediation and Other Relevant Experience:

Project Manager for operation of an SVE System at Yale Auto (Albuquerque); Project Manager for remediation and site assessments of petroleum contamination/hazardous materials at multiple sites throughout New Mexico for NMDOT; NMDOT District 4 Patrol Yard remediation system installation; remediation and site assessments of petroleum contamination at multiple sites in New Mexico for Western Refining, Allsups Petroleum, and Bell Gas; excavation of 55,000 cubic yards of petroleum impacted soil at the General Petroleum Superfund Site for New Mexico Oil Conservation Division (NMOCD); Removal Action Supervisor for the TCEQ on multiple sites in Texas.

Jason Raucci, P.G., R.G. Hydrogeologist



Mr. Raucci has served as team leader and Project Manager for site characterization, remediation, and monitoring activities in a variety of settings, including PST sites, chlorinated solvent plume sites, brownfields,

and mining facilities. He specializes in groundwater hydrology, environmental site characterization, stratigraphy, structural geology, and GIS.

Academic Degrees:

M.S., Geology, Northern Arizona University B.S., Geology, Northern Arizona University



Registration:

Professional Geologist, California, No. 8543 Registered Geologist, Arizona, No. 50377

Pertinent Training:

OSHA HAZWOPER [40-Hour]; MSHA Training (24-Hour);

Certified Asbestos Inspector (24-Hour)

Experience in Storage Tank Site Investigations:

Mr. Raucci has over 10 years of experience conducting site investigations, remedial actions, and routine monitoring at PST sites in New Mexico and Arizona. Work has encompassed all stages of site characterization and remediation from initial assessment to closure, including soil sampling, monitor and extraction well installation, aquifer testing, field screening of soil and water samples, free product removal, vapor intrusion risk assessment and mitigation, remediation pilot testing, remediation system design, system installation oversight, remediation system operations and maintenance (O&M), groundwater monitoring, and confirmation sampling in support of site closure. Mr. Raucci has served as hydrogeologist for dozens of sites regulated by the NMED PSTB, including sites characterized by complex bedrock aquifer systems, and complex logistical and administrative settings. He has been responsible for PSTB documentation, report preparation, site access agreements, permit applications, and coordination between responsible parties and the PSTB to facilitate implementation of timely and cost-effective solutions.

Remediation and Other Relevant Experience:

Hydrogeologist for NMED Remedial Investigation and Feasibility Study (RI/FS), Eagle Picher/Carefree Batteries Superfund Site (Socorro), New Mexico; NMDOT Phase I and Phase II Environmental Site Assessments (ESAs) at various locations throughout New Mexico; Post-Closure Groundwater Monitoring, Twin Buttes Properties Inc. (Sahuarita, Arizona); Stage I Abatement Plan, Tyrone Mine (Silver City); and Soil Vapor Plume Characterization, Foothills Landfill (Las Cruces).

c. Subcontractor Information

DBS&A will be utilizing the following subconsultants for this contract:

- EnviroDrill (drilling and MW install)
- Regenesis (amendment materials)
- Vista GeoScience (amendment application)
- CobbFendley (survey)
- Southwest Safety Services (traffic control)

See Tab N for details.

d. Availability and Equipment

We have a number of field staff and project managers who are available to take on this project as soon as it is awarded. The table below lists equipment used by DBS&A during site investigations and remedial action where we have addressed petroleum hydrocarbons found in the soil and groundwater at hundreds of sites in New Mexico and throughout the Southwest. In addition to standard field equipment, DBS&A also possesses specialized equipment for vadose zone monitoring and telemetry.

Typical Equipment Needed for Site Investigations and Remedial Action
Four-wheel drive pickup trucks
Level B, C, and D PPE
Well development pumps
Bennett pump for regional groundwater sampling
Bailers, water level indicators, tripods
EWxplosivity meters
YSI 556 multi-parameter systems
MiniRae 3000 photoionization detectectors
Soil sampling equipment

Generator

e. Health and Safety Plan

DBS&A is committed to the health and safety of our employees, our subcontractors, and the public we are protecting. This commitment is codified in our corporate Health and Safety Program, which is current with all federal requirements.

Our Health and Safety Program meets the requirements set forth by the OSHA in Title 29 of the Code of Federal

Regulations (CFR), Part 1910 and Part 1926 (Safety and Health Regulations for Construction), with the goals of the program being:

- Protecting the safety and health of DBS&A employees and subcontractors by promoting personal awareness and involvement and positive safety behaviors
- Providing training to ensure DBS&A employees can accomplish assigned tasks safely and efficiently
- Identifying areas for improvement and developing strategies to address deficiencies



DBS&A has developed and implemented dozens of supporting health and safety program plans (HASPs) in accordance with OSHA requirements. Examples of these plans include Hazard Communication, Emergency Action and Fire Prevention, First Aid/CPR, Lockout/Tagout, Respiratory Protection, Confined Space Entry, and Chemical Hygiene programs. All of these plans document the specific steps we take to protect worker safety and health in certain situations and serve to support and strengthen the DBS&A Health and Safety Program.

As required, an example site-specific health and safety plan is included behind Tab O.

f. New Mexico Construction Industries Division License

Proof of licensure with the New Mexico Construction Industries Division in the appropriate category for the scope of work being completed for DBS&A and for John Bunch, P.G., DBS&A's qualifying party is included behind Tab Q.

g. Professional Engineering Licensure

Pursuant to 20.5.16.11 NMAC of the New Mexico Engineering and Surveying Practice Act, as revised on July 1, 2017, Gundar Peterson, P.E., has been appointed to the position of Engineer of Record for our business entity and can contractually bind our firm. Thomas Golden, P.E., will serve as Engineer of Record for this project and will be directly responsible for the work when issued. Both engineers are direct employees of DBS&A and are in compliance with Professional Engineering rules found in Title 16, Chapter 39, Parts 8 and 9 of the NMAC. Copies of their current Professional Engineer licenses as issued by the State of New Mexico are included behind Tab P.



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F. RESPONSE TO CONTRACT TERMS AND CONDITIONS

F. CONTRACT TERMS AND CONDITIONS

DBS&A has reviewed the terms and conditions outlined in RFP No. 18 667 3200 0003, as well as the NMED PSTB standard terms and conditions, and agrees to accept all terms and conditions of this contract.



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G. OFFEROR'S ADDITIONAL TERMS AND CONDITIONS

G. OFFEROR'S ADDITIONAL TERMS AND CONDITIONS

DBS&A has no additional terms and conditions.



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H. SIGNED CAMPAIGN CONTRIBUTION FORM
Campaign Contribution Disclosure Form

Pursuant to NMSA 1978, § 13-1-191.1 (2006), any person seeking to enter into a contract with any state agency or local public body for professional services, a design and build project delivery system, or the design and installation of measures the primary purpose of which is to conserve natural resources must file this form with that state agency or local public body. This form must be filed even if the contract qualifies as a small purchase or a sole source contract. The prospective contractor must disclose whether they, a family member or a representative of the prospective contractor has made a campaign contribution to an applicable public official of the state or a local public body during the two years prior to the date on which the contractor submits a proposal or, in the case of a sole source or small purchase contract, the two years prior to the date the contractor signs the contract, if the aggregate total of contributions given by the prospective contractor, a family member or a representative of the prospective contractor, a family member or a representative of the prospective contractor signs the contract, if the aggregate total of contributions given by the public official exceeds two hundred and fifty dollars (\$250) over the two year period.

Furthermore, the state agency or local public body shall void an executed contract or cancel a solicitation or proposed award for a proposed contract if: 1) a prospective contractor, a family member of the prospective contractor, or a representative of the prospective contractor gives a campaign contribution or other thing of value to an applicable public official or the applicable public official's employees during the pendency of the procurement process or 2) a prospective contractor fails to submit a fully completed disclosure statement pursuant to the law.

THIS FORM MUST BE FILED BY ANY PROSPECTIVE CONTRACTOR WHETHER OR NOT THEY, THEIR FAMILY MEMBER, OR THEIR REPRESENTATIVE HAS MADE ANY CONTRIBUTIONS SUBJECT TO DISCLOSURE.

The following definitions apply:

"Applicable public official" means a person elected to an office or a person appointed to complete a term of an elected office, who has the authority to award or influence the award of the contract for which the prospective contractor is submitting a competitive sealed proposal or who has the authority to negotiate a sole source or small purchase contract that may be awarded without submission of a sealed competitive proposal.

"Campaign Contribution" means a gift, subscription, loan, advance or deposit of money or other thing of value, including the estimated value of an in-kind contribution, that is made to or received by an applicable public official or any person authorized to raise, collect or expend contributions on that official's behalf for the purpose of electing the official to either statewide or local office. "Campaign Contribution" includes the payment of a debt incurred in an election campaign, but does not include the value of services provided without compensation or unreimbursed travel or other personal expenses of individuals who volunteer a portion or all of their time on behalf of a candidate or political committee, nor does it include the administrative or solicitation expenses of a political committee that are paid by an organization that sponsors the committee. "Family member" means spouse, father, mother, child, father-in-law, mother-in-law, daughter-in-law or son-in-law.

"Pendency of the procurement process" means the time period commencing with the public notice of the request for proposals and ending with the award of the contract or the cancellation of the request for proposals.

"Person" means any corporation, partnership, individual, joint venture, association or any other private legal entity.

"Prospective contractor" means a person who is subject to the competitive sealed proposal process set forth in the Procurement Code or is not required to submit a competitive sealed proposal because that person qualifies for a sole source or a small purchase contract.

"Representative of a prospective contractor" means an officer or director of a corporation, a member or manager of a limited liability corporation, a partner of a partnership or a trustee of a trust of the prospective contractor.

DISCLOSURE OF CONTRIBUTIONS:

Contribution Made By:		
Relation to Prospective Contractor:		
Name of Applicable Public Official:		
Date Contribution(s) Made:		
Amount(s) of Contribution(s)		
Nature of Contribution(s)		
Purpose of Contribution(s)		
(Attach extra pages if necessary)		
Signature	Date	

Title (position)

—OR—

NO CONTRIBUTIONS IN THE AGGREGATE TOTAL OVER TWO HUNDRED FIFTY DOLLARS (\$250) WERE MADE to an applicable public official by me, a family member or representative.

Signature

<u>December 27, 2018</u> Date

<u>Vice President/NM Operations Manager</u> Title (Position)

I. SIGNED EMPLOYEE HEALTH COVERAGE FORM

New Mexico Employees Health Coverage Form

- 1. For all contracts solicited and awarded on or after January 1, 2008: If the Offeror has, or grows to, six (6) or more employees who work, or who are expected to work, an average of at least 20 hours per week over a six (6) month period during the term of the contract, Offeror must agree to have in place, and agree to maintain for the term of the contract, health insurance for those employees and offer that health insurance to those employees no later than July 1, 2010 if the expected annual value in the aggregate of any and all contracts between Contractor and the State exceed \$250,000 dollars.
- 2. Offeror must agree to maintain a record of the number of employees who have (a) accepted health insurance; (b) decline health insurance due to other health insurance coverage already in place; or (c) decline health insurance for other reasons. These records are subject to review and audit by a representative of the state.
- 3. Offeror must agree to advise all employees of the availability of State publicly financed health care coverage programs by providing each employee with, as a minimum, the following web site link to additional information <u>http://insurenewmexico.state.nm.us/</u>.
- 4. For Indefinite Quantity, Indefinite Delivery contracts (price agreements without specific limitations on quantity and providing for an indeterminate number of orders to be placed against it); these requirements shall apply the first day of the second month after the Offeror reports combined sales (from state and, if applicable, from local public bodies if from a state price agreement) of \$250,000.

Signature of Offeror:

Date_December 27, 2018

J. SIGNED AFFIDAVIT PURSUANT TO GOVERNMENTAL CONDUCT ACT

J. AFFIDAVIT PURSUANT TO GOVERNMENTAL CONDUCT ACT

This affidavit is not applicable.



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GOVERNMENTAL CONDUCT ACT AFFIDAVIT

STATE OF NEW MEXICO)

) ss. COUNTY OF SANTA FE)

I, <u>NOT APPLICABLE</u> (name), being first duly sworn upon my oath, depose and state the following:

- 1. I am a former employee of the ______ (name of Department/Agency), having separated/retired from state employment as of ______ (date).
- 2. I am a current employee of the _______ (name of Department/Agency), or a legislator with the state, or the family member (spouse, parent, child, sibling by consanguinity or affinity) of a current employee or legislator with the state. Being a current employee or legislator or family member of a current employee or legislator of the state, I hereby certify that I obtained this Professional Services Agreement pursuant to Sections 10-16-7 or 10-16-9 NMSA 1978, that is, in accordance with the Procurement Code except that this Professional Services Agreement has NOT been awarded via the sole source or small purchase procurement methods.
- 3. The Department/Agency and I have entered into a professional services agreement in the amount of \$_____.
- 4. Section 10-16-8.A(1) NMSA 1978 of the Governmental Conduct Act does not apply to this Professional Services Agreement because I neither sought a contract with the Department/Agency, nor engaged in any official act which directly resulted in the formation of the Professional Services Agreement while an employee of the Department/Agency.
- To the best of my knowledge, this Professional Services Agreement was awarded in compliance with all relevant provisions of the New Mexico Procurement Code (13-1-28, <u>et. seq.</u>, NMSA 1978).

FURTHER, AFFIANT SAYETH NOT.

name

Subscribed and sworn to before me by _____(name of former employee) this _____day of _____, 2005.

NOTARY PUBLIC

My Commission Expires:

K. RESIDENT VENDOR OR RESIDENT VETERAN CERTIFICATE

K. RESIDENT VENDOR OR RESIDENT VETERAN CERTIFICATE

Our resident vendor certificate is included below.

	STATE OF NEW MEXICO
	TAXATION AND REVENUE DEPARTMENT
	RESIDENT CONTRACTOR CERTIFICATE
	Issued to: DANIEL B STEPHENS & ASSOCIATES, INC. DBA: DANIEL B STEPHENS & ASSOCIATES, INC. 6020 ACADEMY RD NE STE 100 ALBUQUERQUE, NM 87109-3315
	Expires: 24-Jan-2021
	Certificate Number: L0404118320
	Joint Monifold, Acting Cubinet Secretary トーイ THIS CERTIFICATE IS NOT TRANSFERABLE (4) イート イート イート イート イート イート イート イート
~ب٢	



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L. RESIDENT VETERANS PREFERENCE CERTIFICATION

Resident Veterans Preference Certification

NOT APPLICABLE (NAME OF CONTRACTOR) hereby certifies the following in regard to application of the resident veterans' preference to this procurement:

Please check one box only

 \Box I declare under penalty of perjury that my business prior year revenue starting January lending December 31 is less than \$1M allowing me the 10% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

 \Box I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is more than \$1M but less than \$5M allowing me the 8% preference discount on this bid or proposal. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

□ I declare under penalty of perjury that my business prior year revenue starting January 1ending December 31 is more than \$5M allowing me the 7% preference discount on this bid or proposal. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

"I agree to submit a report, or reports, to the State Purchasing Division of the General Services Department declaring under penalty of perjury that during the last calendar year starting January 1 and ending on December 31, the following to be true and accurate:

"In conjunction with this procurement and the requirements of this business' application for a Resident Veteran Business Preference/Resident Veteran Contractor Preference under Sections 13-1-21 or 13-1-22 NMSA 1978, when awarded a contract which was on the basis of having such veterans preference, I agree to report to the State Purchasing Division of the General Services Department the awarded amount involved. I will indicate in the report the award amount as a purchase from a public body or as a public works contract from a public body as the case may be.

"I understand that knowingly giving false or misleading information on this report constitutes a crime."

I declare under penalty of perjury that this statement is true to the best of my knowledge. I understand that giving false or misleading statements about material fact regarding this matter constitutes a crime.

(Signature of Business Representative)* (Date)

*Must be an authorized signatory for the Business. The representations made in checking the boxes constitutes a material representation by the business that is subject to protest and may result in denial of an award or termination of award of the procurement involved if the statements are proven to be incorrect.

M. ANTI-COLLUSION NOTARIZED AFFIDAVIT

ANTI-COLLUSION STATEMENT

I hereby affirm, under penalty of perjury, that I have participated and will continue to participate in the competitive contractor selection process as described in this Request for Proposals, the Petroleum Storage Tank Regulations, 20.5.123.2308 NMAC, and Section 74-6B-7C NMSA 1978 without misrepresentation and without collusion with other contractors during the entire solicitation, evaluation and selection process.

Signature

December 27, 2018 Date

State of <u>New Mexico</u> County of Bernalillo

This instrument was signed and affirmed before me on $\frac{Dec. 27, 2018}{(date)}$

Gundar Peterson

(name)

SEAL



Thurnto

by

Notary Public My commission expires:

N. SUBCONTRACTOR INFORMATION

N. SUBCONTRACTOR INFORMATION

DBS&A has a network of subcontractors statewide with whom we have established trusting working relationships. For the purposes of this proposal, we have identified several firms that we anticipate calling upon to assist with the remedial action at the Fairview Station State Lead Site.

EnviroDrill

Enviro-Drill provides advanced geotechnical and environmental drilling services. The company operates out of Albuquerque, New Mexico and maintains a fleet of specialized drilling rigs and equipment providing support for geotechnical and environmental services. They specialize in meeting the strict requirements of environmental projects, including well sampling, well installations, and well abandonments. Enviro-Drill's personnel are OSHA trained in HAZWOPER. Enviro-Drill's fleet of specialized drilling rigs covers the entire range of capabilities necessary to support geotechnical and environmental investigations. Drilling services include hollow stem auger, rotary, percussion, and core drilling techniques. Enviro-Drill has supported DBS&A on numerous drilling projects throughout New Mexico and continues to provide value and excellent service.

Regenesis

Regenesis was founded in 1995 to bring together pioneering educators in the fields of permaculture and ecological design with thought leaders in the worlds of business planning and organizational development. The founders' early mission was to transform the development industry into one that would contribute to, rather than undermine, the health of the planet. The Regenesis approach quickly attracted leaders in the emerging green building movement, who brought it to diverse project settings around the globe. They are a world leader in the field of regenerative development—an approach to land use, community development, and the built environment that has defined the leading edge of sustainability practice.

Vista GeoScience

The staff at Vista GeoScience has been providing environmental field to the environmental consulting and engineering industry for 30+ years. Key staff members have a combined experience in site investigation and in-situ remediation. Vista GeoScience offers the following services:

- Geoprobe® Direct-Push Drilling
- High Resolution Site Characterization
- Subsurface Imaging Tools (MiHPT, OIP-UV / OiHPT / OIP-G, EC)

- 3-D Modeling of Subsurface Data
- ISCO, ISCR, and In-Situ Bio-Remediation
- ◆ Clean-Inject™ In-Situ Injection Systems
- Active & Passive Soil Gas Surveys

Vista GeoScience operates a field service office at its national headquarters located in Golden, Colorado. Ther main office is centrally located in the Rocky Mountain Region, however, crews work from coast to coast and internationally with all of the major national consulting and engineering firms.

CobbFendley

CobbFendley is a multi-disciplined firm of over 300 professionals established in 1980 with offices in New Mexico, Texas, Arizona, Louisiana, and Utah. CobbFendley provides a variety of integrated civil engineering and surveying services. The firm's core competencies provided out of its local Albuquerque office, Mountain Region, include Subsurface Utility Engineering (SUE), Surveying and Mapping, Utility Coordination, Right- of-Way Acquisitions and Utility Relocation Design Services.

In its 36-year history, the firm has successfully completed thousands of surveys for our clients. CobbFendley has experience in all types of surveying, including boundary, topographic, engineering design, and utility surveys, utilizing innovative techniques, including aerial photogrammetry, real-time kinematic (RTK) GPS, and 3D scanning technology. CobbFendley has eleven Professional Land Surveyors, ten technicians, including two NSPS-ACSM Certified Survey Technicians, four Surveyors-in-Training, and three local survey crews with the capacity for nine survey crews available to collect survey data efficiently and accurately. The stability of CobbFendley's staff—two-thirds of the survey technicians and one-third of the field crew members have been with the firm for more than five years—enhancing the consistency of the firm's quality control procedures and improving efficiency.

CobbFendley 's NMED PSTB experience includes a Monitor Well/Topographic Survey, Bell Gas Station #1186, Alto, New Mexico and Pre-construction/Post-construction Monitor Well Survey, Church Street Chevron, Carlsbad, New Mexico.

Southwest Safety Services

Southwest Safety Services has been serving New Mexico since 1997. They offer a full line of traffic control products and services for sale and rental, as well as underground protective systems and trench shields. They also offer training in areas such as Competant Person and Flagger Certification. Southwest Safety Services have three locations statewide—in Albuquerque, Santa Fe, and Farmington.



O. HEALTH AND SAFETY PLAN

Health and Safety Plan Moberg's Garage/Texaco Station Watrous, NM

February 2, 2016



Daniel B. Stephens & Associates, Inc.

6020 Academy NE, Suite 100 • Albuquerque, New Mexico 87109



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Appendix

- A Health and Safety Forms Health and Safety Plan Acceptance Form Tailgate Safety Meeting Form Daily Site Safety Checklist Accident/Incident Reporting Form Chemical Exposure Report Form
- B Emergency Response Plan



Site Health and Safety Plan Summary

This summary provides critical, site-specific health and safety information that all site workers should be familiar with. This summary is an integral part of the site-specific health and safety plan (HASP) and must be attached to the complete plan.

Site Name and Location

Moberg's Garage/Texaco Station, New Mexico Highway 161, Watrous, NM

Project Personnel (refer to Section 3 for description of duties)

Project Manager (PM)	Tom Golden
Site Safety Officer (SSO)	Jason Raucci
Site Supervisor	Jason Raucci

Emergency Response

Table S-1 lists the Emergency Contacts that might be needed in the event of a site emergency. The complete Emergency Response Plan is contained in Appendix B of this plan.

Site Activities and Hazard Assessment

Table S-2 identifies each of the tasks that will be performed during the field program and the hazards associated with each task. Table S-3 identifies the appropriate personal protective equipment (PPE) to be used for each task, including respiratory protection, and the air monitoring equipment that will be used. Air monitoring is further discussed in Section 7.1 of this plan. In the event that new tasks become necessary or new hazards are encountered, the SSO will update Tables S-2 and S-3 accordingly, and notify all site workers of the changes.

Contaminants of Concern

Tables S-4 and S-5 identify the contaminants of concern that might reasonably be encountered during site activities and respectively provide summaries of the chemical properties and worker exposure/health information. This information is typically summarized from safety data sheets (SDSs) and other sources.



Hospital Route

Figure S-1 depicts the route and provides written instructions from the site to the hospital.

Medical Monitoring (refer to Section 12 of the DBS&A Health and Safety Manual)

All site workers must be currently participating in a medical monitoring program that includes baseline and annual medical evaluation and testing.

Site Control Plan (refer to Section 9 of this plan)

Site control measures will be implemented during any activity that presents a hazard to workers outside the immediate work area or to unauthorized personnel in the vicinity. These measures can range from erecting barricades or barriers to prevent unauthorized entry, to establishing and enforcing work zones to mitigate the spread of contaminants beyond the work area.

Traffic control plans are in place where work activities may impact traffic flow on adjacent roadways. A company has been contracted to set up traffic control.

The railroad crossing onsite has been addressed and BNSF was notified of our tasks. All work on BNSF railroad property will need to be coordinated with the BNSF roadmaster in accordance with our access agreement. All staff and subcontractors will comply with required BNSF railroad safety training. Site-specific BNSF safety issues are addressed in the BNSF Contractor SAP, attached to this HASP. The railroad crossing will be staffed with a flag man and all workers shall stop, look both directions before crossing, cross quickly, and never linger on the railroad tracks.

Confined Spaces (refer to Section 10 of this plan)

No confined space entries will be performed during this investigation. In the event that confined space entries become necessary, this site-specific HASP will be amended. Confined space entries can only be performed by trained personnel in accordance with the DBS&A Confined Space Entry Program.



Figure S-1. Alta Vista Regional Medical Center.









Watrous, NM

Head southwest on NM-161/NM-446 toward Union St

1.0 mi

- Turn left to merge onto I-25 S toward Las vegas 16.5 mi
- Take exit 347 toward NM-65/NM-518/Las Vegas/Taos

0.2 mi ----

Keep right at the fork and merge onto I-25 Business Loop

0.2 mi

➡ Turn right onto Legion Dr

0.2 mi

Alta Vista Regional Hospital

104 Legion Drive, Las Vegas, NM 87701



Table S-1: Emergency Resources

Location and Number of Nearest	Telephone: DBS&A and Cor	tractor Vehicles
In Case of Fire or Explosion (Tele	phone Number):	
Call Fire Dept:		911
Call Police/Sheriff:		<u> </u>
In Case of Personal Injury or Expo	osure (Telephone Number):	
Call Hospital:	Alta Vista Regional Medical Center	<u>(</u> 505) 426-3500
Call Poison Control Center:		(800) 432-6866
Call Ambulance:		911
Call Air Ambulance:		911
DBS&A and Other Contacts		
DBS&A (Albuquerque):		(505) 822-9400
DBS&A Project Manager:	Tom Golden	(505) 249-9402
DBS&A H&S Officer:	Paula Schuh (cell)	(505) 270-6478
DBS&A H&S Coordinator:	Bill Casadevall (cell)	(505) 280-2406
DBS&A Personnel Departmer	nt:Jeanette Gutierrez	(505) 822-9400
Medical Contact:	_WorkCare, Dr. Peter Greaney (Anaheim, CA)	(800) 455-6155
Client Contact:	Ernie Moberg	(505) 425-5878
Regulatory Contact (if approp	riate):Susan von Gonten	(505) 476-4389
Emergency Response Telephone	Numbers	
Local Chemical Emergency R	esponse Team:	911
National Response Center, Oi	il & Toxic Chemical Spills:	(800) 424-8802
CHEMTREC (24-hour):		(800) 424-9300
Other Contacts:		



			Proposed Tasks	S	
	Drilling, well		<u> </u>	SVE System	
	installation, and	Soil	Groundwater	Installation	Trenching and
Potential Hazards	development	Sampling	Sampling	and Operation	Excavations
Heavy equipment	Х			X	Х
Hazardous energy	X			X	X
Pinch points	Х			Х	Х
Unstable ground			X		X
Noise hazards (>85 dbA)	X			X	X
Eye hazards	Х	X	X	Х	Х
Head hazards	Х				Х
Dermal contact	X	X	X	X	X
Slips, trips, and/or falls	Х	X	X	Х	Х
Heavy lifting	X	X	X	X	X
Vehicle traffic	Х	X	Х	X	X
Unauthorized site entry	Х			Х	Х
Buried utilities	Х	X		Х	Х
Overhead utilities	Х			Х	Х
Respiratory Concerns					
Particulates	X	X			Х
Vapors and/or gases	X	X	Х	X	X
Oxygen depletion					
Asbestos					
Contaminated soil or liquids	Х	X	Х	X	Х
Explosive atmospheres					
Heat/cold stress	X	X	Х	X	Х
Sunburn	Х	X	Х	Х	X
Electrical hazards				X	
Compressed air or gases	Х		Х	Х	
Fire hazards (hot work)	Х			X	
Chemical hazards		\Box	X		
(other than COCs)					
Insects and vermin	Х	Х	Х	Х	Х
Confined spaces					
Ionizing Radiation					
Unexploded Ordnance/Munitions					
HAZARD RANKING	Medium	Low	Low	Low-Medium	Medium
(Low, Medium, High)					

Table S-2: Proposed Tasks and Hazard Assessment

Definitions:

dBA A-weighted decibels COCs Contaminants of concern



Table S-3: Requirements for Personal Protective Equipment and Air Monitoring

			Proposed Task	ΓS	
	Drilling, well			SVE System	
Personal Protective	installation, and		Groundwater	Installation and	Trenching and
Equipment	development	Soil Sampling	Sampling	Operation	Excavations
Level D (Long pants, shirt, steel-					
toed boots, and safety glasses)		Minimum	required for all si	te activities	
Hard hat	Х			Х	Х
Hearing Protection	Х			Х	Х
Faceshield	X (decon)				
Respiratory Protection	(Selec	ction matrix and ca	artridge change s	schedule in Project I	-iles)
Half-mask with organic	Х				Х
vapor/HEPA cartridge					
Full-face with organic					
vapor/HEPA cartridge					
Cartridge Change Schedule	Breakthrough,				Breakthrough,
	8 Hours or				8 Hours or
	End of Shift				End of Shift
		I			
Air Monitoring Equipment					
Particulate Monitor	Х				Х
Photo-ionization detector	Х	Х		Х	Х
Flame-ionization detector					
Combustible Gas Indicator	Х				
O ₂ Monitor					
Colorimetric tubes	Х				
H ₂ S Detector					
Methane Gas Monitor					
Other					

Definitions:

 $\begin{array}{lll} \text{HEPA} & \text{High-efficiency particulate air} \\ \text{O}_2 & \text{Oxygen} \\ \text{H}_2 \text{S} & \text{Hydrogen sulfide} \end{array}$

Odor 102 //20

Table S-4. Chemical and Physical Properties for Primary Contaminants of Concern

Composind	Pressure (mm Hn)	Vapor Density ^a (air=1)	Specific Gravity	Threshold ^b (nnm)	LEL-UEL	Potential	Physical Description	
ica, crystalline as	NA	NA	2.66	NA	Unknown	NA	Colorless, odorless solid - a component of many mineral dusts	ſ
nzene [Ca]	75	2.7	0.88	24-119 (P)	1.2-7.8	9.24	Colorless to light yellow liquid with aromatic odor	U U
luene	21	3.18	0.87	1.6 (G)	1.1-7.1	8.82	Colorless liquid with a sweet, pungent, benzene-like odor	t,
Jylbenzene	7	3.66	0.87	0.092-0.6 (G)	0.8-6.7	8.76	Colorless liquid with an aromatic odor	
lene (o-, m-, p-isomers)	6-2	3.66	0.86-0.88	0.62-20 (G)	0.9-1.1	8.44-8.56	Colorless liquid with an aromatic odor (p- Xylene is a solid below 56°F)	1
thyl tertiary butyl ether TBE) [Ca]	8.5-10	3.1	0.74	0.053 (G)	ΝA	NA	Clear, colorless, low viscosity liquid with a terpene-like odor	a
rtiary butyl alcohol 3A)	40-42	2.55	0.79	21.5	2.4-8			
soline [Ca]	38-300	٨A	0.72-0.76	0.3 (G)	1.4-7.6	NA	Clear liquid with a characteristic odor	
esel fuel	NA	<۲	0.81	NA	0.7 ^a	NA	Clear white liquid with kerosene odor	
urces: NIOSH Pocket Guide t	o Chemical Haza	ards (2013 - acc	essed on-line).				mm Hg = Millimeters of mercury	1

Sources: NIOSH Pocket Guide to Chemical Hazards (2013 - accessed on-line).

^a Vapor density data from Groundwater Chemicals Desk Reference (Montgomery, 2000) and product material safety data sheets. ^b Odor threshold data from (1) MSA *RESPONSE[®] Guide*, on-line at http://webapps.msanet.com/responseguide/ChemicalDatabase.aspx, and (2) 3M *Respirator Selection Guide* (2012).

^c PID cannot be used to detect this compound because ionization potential (IP) of compound exceeds energy potential of available lamps.

ppm = Parts per million LEL/UEL = Lower explosive limit/Upper explosive limit % = Percent

eV = Electron volts

NA = Not available or unknown

(P) (G) = Warning properties - poor - good [Ca] = Known or suspected carcinogen

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Table S-5. Exposure Limit, Hazard, and First Aid Information for Primary Contaminants of Concern Page 1 of 2

Compound	Applicable Exposure Limit	IDLH	Primary Acute Symptoms from Inhalation and Dermal Exposures	Target Organs	First Aid
Silica, crystalline as respirable dust [Ca]	0.05 mg/m ^{3 a}	50 mg/m ³	Cough, dyspnea (breathing difficulty), wheezing; decreased pulmonary function, progressive respiratory symptoms (silicosis); irritation eyes	Eyes, respiratory system	<i>Eyes:</i> irrigate immediately; <i>Skin:</i> no recommendation; <i>Breathing:</i> remove to fresh air; <i>Ingestion:</i> no recommendation
Benzene [Ca]	0.1 ppm ^a 1.0 ppm ^b	500 ppm	Irritates eyes, skin, and nose; causes headache, nausea, giddiness, staggered gait, weakness, exhaustion; dermatitis	Eyes, skin, respiratory system, blood, CNS, bone marrow	<i>Eyes:</i> irrigate immediately; <i>Skin:</i> soap wash immediately; <i>Breathing:</i> remove to fresh air, provide respiratory support; <i>Ingestion:</i> medical attention immediately
Toluene	100 ppm ^a 150 ppm ^b	500 ppm	Irritates eyes and nose; causes headache, weakness, fatigue	Eyes, skin, respiratory system, CNS, liver, kidneys	As above
Ethylbenzene	100 ppm ^{a,c} 125 ppm ^b	800 ppm	Irritates eyes, skin and mucous membranes	Eyes, skin, respiratory system, CNS	As above
Xylene, o-, m-, p-	100 ppm ^{a.c} 150 ppm ^b	006	Irritates eyes, skin, nose and throat; causes dizziness, excitement	Eyes, skin, respiratory system, CNS, GI tract, blood, liver, kidneys (o-, m- and p-Xylene)	As above

Sources: NIOSH Pocket Guide to Chemical Hazards (2013- accessed on-line) and manufacturer's safety data sheets (SDS). MSA Response® Guide (2013 - accessed on-line)

^a National Institute of Safety and Health recommended exposure limit (NIOSH REL) - 10-hour time-weighted average (TWA) ^b NIOSH short-term exposure limit (STEL) - 15 minute TWA - not to be exceeded

 $^{\rm c}$ Occupational Safety and Health Administration permissible exposure limit (OSHA PEL) - 8-hour TWA

^d American Conference for Governmental Industrial Hygienists (ACGIH) - 8-hr TWA

 $^{\rm e}$ No exposure limit established; limits for naphthalene presented as a guide only

^f OSHA Ceiling limit - not to be exceeded

^g ACGIH Ceiling limit - not to be exceeded

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mg/m³ = Milligrams per cubic meter ppm = Parts per million

[Ca] = Known or suspected carcinogen

CNS = Central nervous system

CVS = Cardiovascular system NE = None established

Table S-5. Exposure Limit, Hazard, and First Aid Information for Primary Contaminants of Concern Page 2 of 2

	oosure .imit	IDLH	Primary Acute Symptoms from Inhalation and Dermal Exposures	Target Organs	First Aid
Methyl tertiary butyl 50 ether (MTBE) [Ca]	p mqq	В	Irritates eyes, skin, and respiratory tract	Eyes, skin, respiratory system, CNS	As above
Tertiary butyl alcohol 100 (TBA) 150	ppm ^{a,c} ,	1,600 ppm	Irritates eyes, skin, nose, throat; causes drowsiness, narcosis	Eyes, skin, respiratory system, CNS	As above
Gasoline [Ca] 300	ppm ^a	NE	Irritates eyes, skin, mucous membrane; causes dermatitis, headache, weakness, exhaustion, blurred vision, dizziness, slurred speech, confusion, convulsions; possible liver, kidney damage	Eyes, skin, respiratory system, CNS, liver, kidneys	As above
Diesel fuel 10 pl 15 p	pm ^{a,c,e} ppm ^{b,e}	В.	Irritates eyes, skin, and upper respiratory tract; CNS depression	Eyes, skin, respiratory system	As above

Sources: NIOSH Pocket Guide to Chemical Hazards (2013- accessed on-line) and manufacturer's safety data sheets (SDS). MSA Response® Guide (2013 - accessed on-line)

^a National Institute of Safety and Health recommended exposure limit (NIOSH REL) - 10-hour time-weighted average (TWA) ^b NIOSH short-term exposure limit (STEL) - 15 minute TWA - not to be exceeded

 $^{\rm c}$ Occupational Safety and Health Administration permissible exposure limit (OSHA PEL) - 8-hour TWA

^d American Conference for Governmental Industrial Hygienists (ACGIH) - 8-hr TWA

 $^{\rm e}$ No exposure limit established; limits for naphthalene presented as a guide only

^f OSHA Ceiling limit - not to be exceeded

^g ACGIH Ceiling limit - not to be exceeded

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mg/m³ = Milligrams per cubic meter ppm = Parts per million

[Ca] = Known or suspected carcinogen

CNS = Central nervous system

CVS = Cardiovascular system NE = None established



Site-Specific Health and Safety Plan

Project Name: <u>Moberg's Garage</u>
Project Location: Watrous, NM
DBS&A Project Manager: Tom Golden

1. Introduction

This Health and Safety Plan (HASP) establishes the responsibilities, requirements, and procedures for Daniel B. Stephens and Associates, Inc. (DBS&A) personnel while performing surface and subsurface investigations at the above-named site. The Site Summary is an integral part of this HASP and must be attached for the plan to be considered complete.

The objective of this HASP is to establish a safe work environment for all site personnel, provide a uniform and concise plan of action in an emergency, and furnish the necessary guidance to adhere to these policies. This HASP meets the requirements set forth by the Occupational Safety and Health Administration (OSHA) in Title 29 of the Code of Federal Regulations (CFR), Part 1910.120 (Hazardous Waste Operations and Emergency Response) and 29 CFR, Part 1926 (Safety and Health Regulations for Construction). This HASP is designed to augment the health and safety policies and procedures established in the DBS&A Health and Safety Program Manual (H&S Manual) (DBS&A, 2013).

Safety is considered a priority during all field activities. Field personnel will not perform any task for which they have not received adequate training, or which they personally feel is unsafe.

2. Description of Site Activities

During this project, DBS&A will perform a hydrogeologic investigation. This HASP addresses the hazards associated with the following activities:

• drilling, installation, and development of monitor wells



- soil sampling
- groundwater sampling
- air monitoring
- tap sampling

The hazards associated with these activities and the measures that will be employed to protect worker safety are described in Sections 4 and 5. Assuming that the site tasks do not change and that data from follow-up testing do not change the hazard assessment, this HASP will also apply to any subsequent field events. This HASP must be revised to address activities beyond those described in Section 5.

Table S-2 in the site HASP summary identifies the tasks that will be performed during the field program and the hazards associated with those tasks. The measures that will be employed to protect worker safety are described in Table S-3 and Sections 4 and 5 of this plan. Assuming that the site tasks do not change and that data from follow-up testing do not change the hazard assessment, this HASP will also apply to any subsequent field events. This HASP must be revised to address activities beyond those described above and listed in Tables S-2 and S-3.

The specific field activities are described in detail in the Scope of Work and the related Sampling and Analysis Plan. The site-specific field methods and procedures are based on standard procedures established by DBS&A and on applicable regulatory agency guidance.

Special site entry procedures:

- The site is considered an uncontrolled hazardous waste site. All workers and visitors are subject to the OSHA requirements for hazardous waste workers in 29 CFR 1910.120.
- The site is an active automotive garage and nearby an active railroad. Workers must be aware of traffic and pedestrians entering and exiting the site.



Nearest telephone:	DBS&A and Contractor personnel
Nearest water:	Potable water will be supplied
Nearest bathroom facilities:	Moberg's Garage
Nearest fire extinguisher:	DBS&A and Contractor vehicles
Nearest first aid kit:	DBS&A and Contractor vehicles
Warning/method signal for site evacuation:	Verbal

3. Project Personnel

The DBS&A Health and Safety Manual (DBS&A, 2013) establishes the roles and responsibilities for health and safety at various levels within the company. The DBS&A personnel responsible for the activities at the site are listed in the site HASP summary. Their roles are described below.

3.1 Project Manager

The Project Manager (PM) is responsible for implementing the DBS&A H&S Program at the site and designating the Site Safety Officer. The PM will oversee the preparation of this site-specific HASP, ensuring that the hazards associated with each task have been identified and that appropriate protective measures have been established. The PM will approve the final HASP.

3.2 Site Safety Officer

The SSO will be responsible for ensuring that all personnel entering an active work area comply with this HASP, meet appropriate OSHA medical and safety training requirements, and utilize the required level of personal protective equipment (PPE). The SSO will conduct site safety meetings prior to the start of work and before the start of each new activity. Workers will acknowledge their attendance by signing the tailgate safety meeting form (Appendix A). Accidents or incidents at the job site that affect or could potentially affect worker safety will be documented using the DBS&A Injury/Illness Report form and the Accident/Incident Investigation Report form (Appendix A).



In accordance with the Hazard Communication standard (29 CFR 1910.1200), the SSO will coordinate with contractor representatives to identify hazardous materials being used on the site and to ensure that safety data sheets (SDSs, formerly referred to as material safety data sheets or MSDSs) are available for each material. Site workers will be briefed on hazardous materials at the job site. The SSO will maintain SDSs for the hazardous chemicals routinely used on site; the contractor will maintain SDSs for the hazardous chemicals they bring to the site.

In order to maintain a safe job site, all potentially dangerous conditions or practices must be corrected before proceeding with field work. The SSO will notify contractors and the PM of any unsafe work practices, and will stop all work on DBS&A projects if contractors do not abide by this plan.

The SSO will establish the initial level of PPE and respiratory protection and will upgrade or downgrade levels of protection in response to field conditions. Information and guidance concerning the PPE Program and the Respiratory Protection Program are found in the DBS&A H&S Manual (DBS&A, 2013).

The SSO will establish the physical limits of the work areas at the site and shall instruct all personnel and visitors on the boundaries of the exclusion zones. Only authorized personnel will be allowed in active work areas. It is also the responsibility of the SSO to ensure that all personnel enter and leave active work areas through the decontamination station, if necessary. Specific site control measures are addressed in Section 9 of this plan.

3.3 Site Supervisor

The Site Supervisor is responsible for directing all field activities at the site and ensuring that the scope of work is completed. The Site Supervisor will serve as the Site Safety Officer in their absence.

3.4 Site Workers and Visitors

Additional workers and visitors may be authorized to enter the site under the direction of the PM or the SSO. All workers must be properly trained in their assigned duties, including standard


safety procedures. All workers and visitors entering the work zone will be familiar with the contents of this site HASP and will sign the plan acceptance form (Appendix A). Constructive comments regarding the HASP should be directed to the PM, the SSO or the DBS&A Health and Safety (H&S) Program Coordinator.

3.5 Contractors

Contractors to DBS&A are obligated to conform with OSHA regulations and standard industry safety practices for their profession. If a contractor proposes changes in the HASP, the SSO will obtain permission from the H&S Program Coordinator and the DBS&A PM, and this authorization will be documented in the project site log. A modification to the HASP will be issued reflecting the changes. Additional contractor responsibilities are described in Section 14 of the DBS&A H&S Manual (DBS&A, 2013).

4. General Hazard Review and Assessment

The hazard review for the site is based on DBS&A's extensive experience conducting similar field operations at similar sites. Table S-2 in the site HASP summary identifies the hazards associated with each task and provides a hazard ranking (from low to high) for each task. The controls (elimination, substitution, engineering, administrative, or PPE) that will be employed to protect worker safety are described in Sections 4 and 5 of this plan. Table S-3 in the site HASP summary lists the PPE required to protect workers during each task and identifies the air monitoring equipment that will be used on site.

Tables S-4 and S-5 in the site HASP summary provide information on the physical and chemical characteristics, symptoms of exposure, and first aid procedures for each of the contaminants known or suspected to be present at the site. The OSHA permissible exposure limits (PELs) or the National Institute of Occupational Safety and Health (NIOSH) recommended exposure limits (RELs) for each contaminant of concern are also presented in Table S-5. The PEL and REL are levels to which workers may be exposed for 8 hours per day, 5 days per week for one's working lifetime without resulting in adverse health effects.



4.1 Sunburn and Temperature Hazards

Sunburn is perhaps the most common hazard for field site workers. Sunburn is caused by overexposure to ultraviolet (UV) radiation from the sun. Chronic overexposure to sunlight, especially the UV-B component, accelerates skin aging and increases the risk of skin cancer. The following guidelines can be used to avoid overexposure to UV rays from the sun:

- Wear protective clothing (long sleeves, hats with protective brims, and long pants) that provide the most coverage, and are consistent with the job to be performed.
- Protect eyes with UV-absorbing sunglasses or tinted safety glasses.
- Use a commercial sunscreen with a skin protection factor (SPF) of at least 30 and protection against both UV-A and UV-B rays. Sunscreen should be applied 15 to 30 minutes before exposure and reapplied at 60 to 90 minute intervals. If possible, avoid exposure to the sun between 10:00 a.m. and 2:00 p.m., because rays are the most powerful during this period.

Heat stress is often the most critical hazard for field site workers. The effects can range from transient heat fatigue to serious illness and even death. Heat stress is caused by a number of interacting factors including environmental conditions, clothing, workload, and the individual characteristics of the worker. Because heat stress is fairly common during the summer and fall, preventive measures and alertness are especially important during these seasons.

Protective clothing and equipment affect the way the body controls its temperature. A previous heat injury (including sunburn) can also increase an individual's susceptibility to further heat injury. Workers who have suffered a previous heat injury or who have sunburn must be especially vigilant in preventing heat stress and injury.

In order to ensure against heat stress-related problems, personnel should take frequent breaks in shaded areas. Workers should wear loose fitting clothing (except around rotating equipment) and will unzip or remove coveralls during breaks. Cool drinking water with added electrolytes



will be made available and sufficient amounts of fluids should be consumed to avoid dehydration.

During hot weather, heat stress monitoring will be part of the daily regimen. DBS&A personnel will count their pulse rate for 30 seconds as early as possible in the rest period. If the pulse rate exceeds 110 beats per minute, the length of the next work period shall be reduced by 20 minutes and the heat stress parameters will be observed again at that time. If the pulse rate at the beginning of the next test period exceeds 100 and the last reading was over 110, the work cycle shall be reduced by one-third. Whenever the pulse rate is elevated, work should not be resumed until the pulse rate is below 100 beats per minute. These heat stress indicators shall be observed at least once every hour.

During cold weather, DBS&A personnel should wear multilayer, wind-resistant outfits and drink warm fluids. Warm shelter will be available during breaks.

4.2 Weather Hazards

In addition to the hazards of UV radiation from the sun and extreme ambient temperatures, general weather conditions may present a hazard to field workers. Rain and snow may result in muddy, slippery conditions that make foot and vehicle travel hazardous. Lightning and tornadoes, common summertime phenomena, can be extremely hazardous. In the event of adverse weather (e.g., high wind and airborne dust, lightning, extreme cold or heat, or rain) that could compromise worker's health and safety during outdoor activities, the SSO will shut down operations. Additional safety measures for weather-related hazards are described in Section 7.5.2 of the DBS&A H&S Manual (DBS&A, 2013).

If lightning is visible, and the sound of thunder is heard less than 30 seconds after lightning is observed, stop field operations and move to a sturdy, completely enclosed building. If a sturdy shelter is not available, get inside a hardtop automobile and keep the windows up. Automobiles offer excellent lightning protection.

In the event of a tornado, move to a pre-designated shelter. If an underground shelter is not available, move to an interior room or hallway on the lowest floor and get under a sturdy piece



of furniture. Stay away from windows. If caught outside or in a vehicle, do not try to outrun a tornado in your car; instead lie flat in a nearby ditch or depression. Remember that flying debris from tornadoes causes most deaths and injuries.

4.3 Biological Hazards

Venomous snakes and arthropods (e.g., insects, spiders, ticks, scorpions, and centipedes) create a hazard when their habitats are disturbed. Awareness and avoidance are the best defenses. Fieldwork shall be performed in a manner that minimizes disturbances of these creatures. Should a bite or sting occur, first aid shall be immediately applied and medical treatment sought as soon as possible.

The feces and urine of some desert rodents may be carriers of the hantavirus, and fleas on living or dead animals may carry bubonic plague. Both hantavirus and bubonic plague occur in New Mexico and the southwestern United States. Field workers should avoid all contact with rodent nests, droppings, or bodies. Professional medical treatment should be sought immediately if a worker suffers an animal bite of any kind.

 Important Note: Any individual with a known allergy to wasps and bees must notify the SSO and/or PM/task leader prior to working at the project site. If an individual has a history of allergic reactions to insect bites or is subject to attacks of hay fever or asthma, or if they are not promptly relieved of symptoms after first aid is administered, a physician will be called or immediate emergency medical treatment will be sought. In a highly sensitive person, do not wait for symptoms to appear, since delay can be fatal.

4.4 Emergency Response

Table S-1 in the site HASP summary lists the names and telephone numbers of people and agencies that might be contacted in the event of an emergency. The Emergency Response (ER) Plan is included as Appendix B. The ER Plan includes instructions and procedures for emergency vehicular access, evacuation procedures for personnel, methods of containing a fire, and instructions on how to handle a variety of specific medical emergencies.



5. Task-Specific Safety Guidelines

Table S-2 in the site HASP summary identifies each of the tasks that will be performed during the field investigation and the physical and chemical hazards associated with each task. Table S-3 in the site HASP summary identifies the requirements for PPE, and the air monitoring that will be performed. This section identifies the measures that will be taken to eliminate or minimize potential exposures to site workers for each task listed in Tables S-2 and S-3.

5.1 Drilling and Monitor Well Installation

Drilling and monitoring well installation will be conducted using a direct-push drilling method. The direct-push drilling method effectively seals the boring during advancement, and generates little dust or waste material. This results in a much lower potential for exposure to airborne contaminants.

It is anticipated that the hazards associated with drilling operations at this site will be primarily physical (e.g., slips, trips, falls, etc.), as identified in Table S-2. Attention to site conditions, good housekeeping, and use of standard safety procedures will help to control or minimize the physical hazards.

Chemical hazards associated with drilling and monitoring well installation include potential inhalation of dusts and possibly organic vapors, and skin and eye contact with contaminated material. The discharge of dust can be nearly eliminated by using direct-push methods and controlled somewhat by other drilling technologies, such as reverse circulation, where long blooey lines can be used to discharge cuttings away from the work area. Injecting small amounts of water during the drilling process can suppress the amount of airborne dust. Direct-reading personal dust monitors (e.g., Thermo Scientific pDR-1500 personal DataRAM) should be used to identify and quantify airborne dust concentrations that a worker is exposed to while working. A photoionization detector (PID) will be used to screen for organic contaminants during both drilling and monitoring well installation activities. Appropriate PPE for these activities, including respiratory protection, is described in Table S-3.



The following safety guidelines and practices can be used to mitigate some of the hazards associated with drilling activities.

- The state one-call utility notification center (dial 811) must be contacted at least 48 hours before starting work so that local utility owners can be contacted to identify and mark the location of any underground cables, pipes, or utility installations in the area of the proposed excavation. The location of utilities should be discussed with the property owner to identify private utilities. For additional guidance, please refer to DBS&A's *Underground Utility Locating Guidelines.*
- Before starting work, a tailgate safety meeting will be held with all site workers. The DBS&A PM or Site Supervisor should thoroughly instruct the equipment operator as to the nature of the work to be performed and point out any special safety hazards. The SSO should ask the operator to identify and discuss any hazards associated with his particular equipment. All kill switches and safety devices on the drill rig shall be located and tested prior to drilling. Drilling shall not commence without a properly operating kill switch.
- A 15-foot radius work area shall be established around the drill rig. All DBS&A field personnel are to maintain a safe distance from the immediate area of the drill rig, and shall enter this work zone only when absolutely necessary for the performance of the task at hand.
- Appropriate and adequate barricades and/or warning lights shall be used to prevent accidental entry by workers and unauthorized persons, animals or vehicles.
- Under no circumstance shall DBS&A personnel become directly involved in drilling operations, other than those immediately required for sample collection and for the performance of vapor monitoring and geologic logging.
- When appropriate, the contractor will provide an operator's assistant to help watch for safety hazards, such as buried lines, overhead hazards, ditches, or posts.



- All equipment should maintain at least 20 feet of clearance from overhead power lines. Working within less than 20 feet of overhead utilities must be coordinated with the utility.
- Be aware of and monitor for potentially hazardous levels of toxic vapors that can be displaced from the borehole during installation of the monitor well materials.

Additional safety guidelines to be considered when working around heavy equipment are provided in Section 7.5.5 of the H&S Manual (DBS&A, 2013).

5.2 Soil Sampling

Soil samples will be collected using the drilling rig and a modified split-spoon sampler or Shelby tube. Physical hazards may include any of those identified in Table S-2 and Section 5.1 regarding drilling and monitoring well installation. Chemical hazards associated with soil sampling include potential inhalation of dusts and possibly organic vapors, and skin and eye contact with contaminated material. Attention to site conditions, good housekeeping, and use of standard safety procedures will help to control or minimize the physical hazards. A PID will be used to screen for organic contaminants during soil sampling activities. Appropriate PPE for soil sampling is described in Table S-3.

5.3 Well Development and Groundwater Sampling

Groundwater samples will be collected from groundwater monitoring wells. Prior to sampling, water level measurements will be collected using a water level indicator. Physical hazards may include any of those identified in Table S-2. Chemical hazards associated with well development and groundwater sampling include potential skin and eye contact with contaminated groundwater and sample preservatives. Attention to site conditions, good housekeeping, and use of standard safety procedures will help to control or minimize the physical and chemical hazards. Appropriate PPE for well development and groundwater sampling will include that described in Table S-3. Many site wells are located near metallic debris and/or abandoned vehicles. Make sure work areas are clear and overhead hazards do not exist.



5.4 Excavating and Trenching Activities

Excavating and trenching operations will be conducted using a backhoe or a larger excavator (trackhoe). The hazards associated with excavating operations at this site will be primarily physical (e.g., slips, trips, falls, etc.), as identified in Table S-2. Chemical hazards associated with excavating and trenching activities include potential skin and eye contact with airborne particulates and contaminated soil. Attention to site conditions, good housekeeping, and use of standard safety procedures will help to control or minimize the physical and chemical hazards. Appropriate PPE for well development and groundwater sampling will include that described in Table S-3.

Any excavation/trenching operations will be performed in accordance with OSHA regulations in 29 CFR, Part 1926, Subpart P (Excavations). Properly trained contractor personnel will operate excavating equipment; at no time will an employee of DBS&A operate excavating equipment. Personnel should be sure they have eye contact with equipment operators before approaching heavy equipment. Never approach equipment from or work within an operator's blind spots. DBS&A employees will be familiar with and avoid hazards associated with work near or in trenches.

A "competent person" trained to interpret soil conditions and to identify the proper safety protection devices or procedures needed for each particular situation shall be in charge of all excavation and trenching activities at the job site. "Competent person" means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. The DBS&A competent person shall be designated by the PM and will be familiar with their role and responsibilities (refer to Section 3.8 of the DBS&A H&S Manual [DBS&A, 2013]). All site workers should be familiar with basic soil mechanics related to excavations (refer to Section 7.5.6 of the DBS&A H&S Manual [DBS&A, 2013]) and pay particular attention to identify evidences of distress in the excavation.

The following safety guidelines and practices can be used to mitigate some of the hazards associated with excavation activities.



- Contact the local utility locator to identify and mark the location of any underground cables, pipes, or utility installations in the area of the proposed excavation. Discuss the location of utilities with the property owner to identify private utilities.
- Take additional precautions when excavating a backfilled trench, or when working near railroads, highways, or other sources of vibrations.
- Provide appropriate and adequate barricades and warning lights to prevent accidental entry by workers and unauthorized persons, animals, or vehicles.
- Do not leave a hazard unguarded. Secure the site or surround the excavation with plastic high-visibility fencing to prevent accidental entry.
- If personnel are required to enter a trench or excavation that is greater than 5 feet in depth, or excavated in soft or unstable materials, the sides of the excavation will be shored or sloped in accordance with OSHA regulations in 29 CFR Part 1926.652.
- If the excavation cannot be sloped adequately (usually at 1.5 horizontal to 1 vertical), trench boxes, shoring, sheeting, bracing, or other equivalent methods are required to keep the trench wall from collapsing.
- When workers are required to enter trenches that are 4 feet or greater in depth, an adequate means of exit, such as ladders or steps, shall be provided. Exit points shall be spaced no more than 50 feet apart.
- If the trench is 4 feet or more in depth and hazardous atmospheres exist or could reasonably be expected to exist, the trench shall be considered a confined space. Workers entering the trench shall be properly trained in confined space entries, and atmospheric testing for oxygen content, flammability, and organic or other vapors shall be performed before entering the trench. For additional information on the DBS&A Confined Space Program, refer to Section 2.8 of the DBS&A H&S Manual (DBS&A, 2013) or contact the H&S Program Coordinator.



5.5 SVE System Installation and Operations

Site activities will include installation and operation of a full scale soil vapor extraction (SVE) and air sparge system. Chemical hazards associated with this work include inhalation of organic vapors. Physical hazards may include typical construction hazards due to work with and around heavy equipment; heat stress; trips, falls, and slips; and electrical hazards when working in and around open electrical panels. Use caution when working around blower discharge piping; it is insulated but may be hot. Blowers have sound attenuating enclosures, but ear protection may be needed when working around equipment. Remediation well vaults are located in or nearby the highway right-of-way (ROW). Utilize reflective safety vests and traffic cones when working in well vaults.

Appropriate PPE will include safety glasses or goggles, steel-toed boots, and long-legged pants. Air monitoring will be conducted using a PID to monitor organic vapors in the breathing zones of workers and around piping joints. Diligent air monitoring and the use of appropriate PPE and standard safety procedures will minimize the risk of exposure and physical injury. Work in and around electrical panels shall be conducted in accordance with the DBS&A Electrical Safety Program Plan, including locking and tagging of affected equipment.

6. Standard Safe Work Practices

The following guidelines are meant to cover operations by the DBS&A field staff and DBS&A contractors (e.g., the drill crew and support personnel) during field activities at the site. DBS&A contractors may choose to establish and enforce more stringent safety guidelines for personnel under their employ. Health and safety issues for other personnel working or visiting on-site *and not involved in the site activities* are the responsibility of the Client and their respective contractors, not DBS&A.

Prior to the initiation of any on-site activities, the SSO will conduct a safety meeting to discuss the contents of this site-specific HASP, describe the field activities, identify any high-risk activities, and familiarize personnel with emergency procedures, including the route to the hospital. The DBS&A field supervisor will establish that all equipment is in good condition. The



DBS&A supervisor should properly and thoroughly instruct the contractor on exactly what results are to be accomplished and point out all known safety hazards.

During the field activities, all participants will be expected to follow standard safe work practices as outlined below:

- Do not eat, drink, smoke, or chew tobacco in the work area.
- Avoid contact with potentially contaminated substances.
- Report any unsafe conditions to the SSO.
- Be aware of the physical characteristics of investigations, including:
 - Wind direction in relation to the contaminated area
 - Accessibility to associates, equipment, vehicles, etc.
 - Communication
 - Areas of known or suspected contamination
 - Site access
 - Nearest water sources
- Dispose of all wastes generated during field activities in accordance with applicable regulatory guidelines.

7. Air and Noise Monitoring

This section describes the measures that will be taken to protect workers from exposures to hazardous atmospheres and noise during the site activities.

7.1 Air Monitoring

This site is contaminated with fuel-related petroleum hydrocarbons (gasoline) and the potential exists for the development of toxic or explosive atmospheres in or near the borehole, monitor well, or excavation. Drilling and excavating activities also have the potential to create hazardous levels of dust and airborne particulates. Respiratory protection will be used if air



monitoring shows the presence of a hazardous atmosphere at concentrations above occupational exposure limits.

Respiratory protection will be used in accordance with OSHA regulations in 29 CFR 1910.134 and the DBS&A Respiratory Protection Program Plan. All persons using respiratory protection must be medically cleared to do so and should be aware of the following important definitions:

- Assigned Protection Factor (APF) is the level of protection that a respirator or class of respirators is expected to provide to employees and is used to select the appropriate class of respirators. Level C PPE includes an air-purifying respirator (APR). A half-face APR has an APF of 10; a full-facepiece APR has an APF of 50.
- Maximum Use Concentration (MUC) is the maximum atmospheric concentration of a hazardous substance from which an employee can expect to be protected when wearing a respirator. The MUC is calculated by multiplying the occupational exposure limit by the APF. For example, in the case of benzene, OSHA has established a permissible exposure level (PEL) of 1 ppm (for an 8-hour time-weighted average [TWA)]), and a short-term exposure limit (STEL) of 5 ppm. Therefore, the MUC for benzene is 10 ppm for a half-face APR and 50 ppm for a full-facepiece APR. The half-face and full-facepiece APRs may be used for short periods of time (up to 15 minutes) in benzene concentrations up to 50 and 250 ppm, respectively (STEL x APF).

Table S-3 in the site HASP summary identifies each of the tasks to be performed at the site and the air monitoring requirements for each task. Targets of such monitoring may include organic vapors, particulates, combustible gases, and oxygen. Table S-4 lists each of the contaminants of concern for the site. Table 1 lists the types of hazardous atmospheres that could be present at a site, the air monitoring equipment used for each, and the action levels to be used at this site. When in use, all meters will be calibrated daily in accordance with manufacturer's instructions.



Hazard	Equipment	Action Levels in BZ	Action Response	
Organic Vapors	PID, FID	Background	Level D PPE	
		OEL of most toxic contaminant sustained for 5 minutes	Use Level C respiratory protection; evaluate specific compounds.	
		MUC for respiratory protection in use.	Stop work; upgrade to Level B	
	Colorimetric (Drager) Tubes	Chemical specific	Use Level C respiratory	
		>1 ppm for benzene	protection if compounds	
		>1 ppm for vinyl chloride	exceed OELS.	
		>1 ppm for 1,1-DCE		
Particulates	Dust Monitor	Visible dust	Suppress with water	
		<5 mg/m3	Level D PPE	
		>5 mg/m3	Use Level C respiratory protection	
Flammable/Explosive	Explosimeter	<10% scale reading	Proceed with work	
Atmosphere		10 - 15% scale reading	Stop work	
		>15% scale reading	Evacuate site	
Oxygen-deficient Atmosphere	Oxygen Meter	19.5 23.5%	Normal - continue work	
		<19.5%	Evacuate - oxygen deficient	
		>23.5%	Evacuate - fire hazard	
Ionizing Radiation	Gamma radiation meter	>0.1 millirem/hr	Radiation sources may be present	
		>1 millirem/hr	Evacuate - radiation hazard	

Table 1. Air Monitoring Equipment, Action Levels, and Protective Measures

BZ = Breathing zone

PID = Photoionization detector

FID = Flame ionization detector PPE = Personal protective equipment

OEL = Occupational exposure limit

MUC = Maximum use concentration

ppm = Parts per million

 mg/m^3 = Milligrams per cubic meter

1,1-DCE = 1,1-Dichloroethene

The SSO or his/her designee will obtain PID readings of organic vapor concentrations in the breathing zone of the workers. Readings will be made after each section of drill pipe is advanced and at the working face of the excavation as the excavation progresses. The person making the PID measurements will determine the extent of the affected area, record the readings, and advise workers of the results.



7.1.1 Organic Vapors

The need for respiratory protection from toxic vapors is based on the most hazardous constituent that is likely to be present or known to be present, based on soil, soil gas, and/or groundwater sampling. Table S-4 lists each of the volatile contaminants of concern for the site.

A release of gasoline has occurred at this site. Gasoline is a complex mixture of petroleum hydrocarbons, additives, and blending agents, whose composition varies widely. The most hazardous constituent is benzene, a known human carcinogen. A PID will be used to monitor organic vapor concentrations; in the absence of other data, the PID readings are assumed to be due to benzene. If testing shows that benzene is not present or does not occur at significant concentrations, toluene, the next most volatile aromatic hydrocarbon in gasoline would be considered the most hazardous constituent. The OSHA PEL and STEL for benzene are 1 and 5 ppm, respectively. The OSHA PEL for toluene is 200 ppm.

Assuming the presence of benzene, work will stop and workers in the affected area will upgrade to Level C respiratory protection if PID readings exceed 1 meter unit (usually parts per million by volume or ppmv) above background in the breathing zone for 5 minutes, or if unusual or unpleasant odors are detected. Workers will leave the work zone when PID readings exceed the MUC for the respiratory protection being used (10 ppm for a half-face APR; 50 ppm for a full-facepiece APR). All personnel within the work zone will continue to wear respiratory protection until vapor levels dissipate below 1 meter unit. APRs will be equipped with organic vapor cartridges that will be changed at the end of each 8-hour shift.

A benzene-specific colorimetric tube (e.g., Draeger) can be used to determine whether benzene is present and at what concentration. If the colorimetric tube indicates that benzene concentration exceeds 1 ppm, all personnel within the affected area must use respiratory protection. If the colorimetric tube indicates that benzene is not present, exposure levels for toluene will be used to determine the need for respiratory protection. The SSO will periodically check for the presence of benzene using a colorimetric tube.

All personnel should be aware that the detection capabilities of PIDs may be enhanced or dampened by high humidity or by the presence of certain gases, such as methane. Direct



evidence of contamination, such as visible staining of soils or strong odors, should be used to further evaluate these quantitative instrument readings.

7.1.2 Combustible and Oxygen-Deficient Atmospheres

An instrument or instruments capable of detecting combustible gases and oxygen levels will be used during drilling, monitoring well installation, and excavation activities. The instrument(s) shall be placed as close to drill, open borehole, or working face of the excavation, as possible. The Lower Explosive Limit (LEL) and the Upper Explosive Limit (UEL) for benzene are 1.2 percent and 7.8 percent, respectively. Similar values are published for gasoline (NIOSH Pocket Guide). Drilling or excavating operations will be suspended when combustible gas measurements are at or between the LEL and the UEL.

Normal atmosphere contains between 20.8 and 21 percent oxygen. The atmosphere is oxygendeficient if it contains less than 19.5 percent oxygen, and oxygen-enriched if it contains more than 22 percent oxygen. Oxygen-deficient atmospheres may be created when oxygen is displaced by other gases, or consumed by bacterial activities. Oxygen-enriched atmospheres can be created by certain chemical reactions and present a significant fire and explosion risk. Drilling or excavating operations will be suspended when readings indicate oxygen levels at or below 19.5 percent and at or above 22 percent.

7.1.3 Particulates

When respirable dust is considered a potential hazard (e.g., drilling or excavating operations), direct-reading personal dust monitors (e.g., Thermo Scientific pDR-1500 personal DataRAM) should be used to identify and quantify airborne dust concentrations that a worker is exposed to while working. NIOSH has established a recommended exposure limit (REL) for crystalline silica as respirable dust of 0.05 milligrams per cubic meter (mg/m3). This value is 10-hour TWA concentration for a 40-hour workweek. NIOSH recommends the use of N95 or more efficient filters for protection against respirable dust. The MUC for crystalline silica as respirable dust is 0.5 mg/m3 for a half-face APR and 2.5 mg/m3 for a full-facepiece APR. Supplied air respirators must be used if airborne concentrations of crystalline silica exceed 2.5 mg/m3 (NIOSH Pocket Guide, 2013). Respirator cartridges and filters will be changed each day.



7.2 Noise Monitoring

All site personnel who are exposed to average noise levels of 85 A-weighted decibels (dBA) or greater during an 8-hour workday must participate in their companies Hearing Protection Program. Workers must use appropriate hearing protection whenever noise levels exceed 90 dBA. The DBS&A H&S Program Coordinator has used a noise meter to survey a variety of equipment that may be used during the site activities and found that work around heavy equipment is most likely to require hearing protection. Noise levels are highest near the engines and compressors, but generally do not exceed 85 dBA in the typical operator locations (e.g., behind the drill rig). However, impact noise, such as the tripping of a pneumatic or hydraulic hammer on a direct-push rig or driving casing on a dual-tube drill rig, can be considerably higher. When a noise meter is not available, the following rule of thumb should be used: if it seems loud or you cannot carry on a normal conversation, hearing protection should be worn.

8. Protective Equipment

PPE requirements for each task are described in Table S-3. At a minimum, the following PPE shall be used by personnel while working at the site:

- Steel-toed/steel-shanked work boots
- Long pants
- Protective eyewear
- Hard hat (when needed)
- Chemical-resistant gloves (when needed)
- Hearing protection (when needed)

Level C PPE will include Level D equipment plus a full- or half-facepiece air-purifying respirator with appropriate cartridges and prefilters. Workers using respiratory protection should be familiar with guidelines to determine that the equipment being used for respiratory protection is providing adequate protection, as discussed in Section 7.1. Chemical-resistant coveralls and/or



gloves will be worn whenever conditions require DBS&A field personnel to come in direct contact with potentially contaminated materials.

DBS&A will supply employees with PPE that meets requirements established by NIOSH or the American National Standards Institute (ANSI), and which meet current OSHA criteria. Employees will be trained in the selection, care, and use of PPE, as described in the H&S Manual (DBS&A, 2013).

8.1 Disposal of Contaminated Clothing or Equipment

All potentially contaminated clothing, Tyvek coveralls, gloves, paper towels, and other expendable items will be placed in garbage bags for disposal. Fresh Tyvek coveralls and work gloves should be donned at the start of each workday or when otherwise required.

8.2 Decontamination Procedures

Specific personnel decontamination procedures are based on the personal level of protection. When using Level D protection, a personnel decontamination system (PDS) is not required. However, because project personnel wearing Level D protection may need to upgrade to Level C if site conditions change, a PDS may be established based on specific site characteristics.

The decontamination stations for Level C decontamination may include: (1) a segregated equipment drop for hand tools and monitoring equipment; (2) a wash and rinse for gloves and disposable booties (if worn); (3) a removal station for gloves and disposable booties (if worn); (4) a removal station for respiratory protection, hard hat, safety glasses, and Tyvek suits; and (5) a station to wash and rinse hands and face. Specific procedures and the sequence of events will be determined based on the potential hazards identified at the specific site. The stations listed are a guide to the selection of adequate decontamination procedures.

When a PDS is set up, the SSO or their designee has the responsibility for operating the decontamination station. This person will make sure that all personnel enter and leave active work areas through the PDS, that all personnel decontaminate properly, and that disposable



items are bagged. The SSO will assist on-site workers in changing cartridges, masks, gloves, or other pieces of safety equipment, and monitor the length of work periods. Disposable items will be placed in plastic bags and properly disposed of. Non-disposable items will be properly cleaned and dried according to manufacturer's specifications and stored for future use.

Decontamination procedures, which are based on guidelines appropriate for low-level contamination, will be required for all reusable equipment used for drilling, sampling, personal protection, and field monitoring. Drilling equipment will be decontaminated between each borehole. Sampling equipment will be decontaminated between each sample. High-pressure steam cleaners, alconox detergent solution, and deionized water rinses may be used. If necessary, personnel will decontaminate equipment at a specified decontamination area between boreholes and before leaving the site. Field monitoring equipment will be cleaned daily; additional cleaning and recalibration will be performed if contamination affects operation.

9. Site Control

Barricades, caution tape, or other necessary means shall be used when necessary to prevent unauthorized access into the work area. The SSO will establish the physical limits of the work areas at the site and instruct all personnel and visitors concerning the boundaries of the exclusion zones.

At a minimum, a 15-foot wide primary exclusion area will be established around the perimeter of the drill rig or other active machinery. DBS&A personnel will enter the primary exclusion zone only when absolutely necessary for the performance of the task at hand. A secondary exclusion zone will be established around the general work area. If necessary, the work area will be marked off with temporary barriers and caution tape. Only authorized personnel will be allowed in active work areas.

Traffic control plans may be required for all sites where work activities may impact traffic flow on adjacent roadways. These plans must be submitted to and approved by the local traffic control authority. The PM or their designee will be responsible for ensuring that the necessary site control measures and plans are prepared and implemented.



The railroad crossing onsite has been addressed and BNSF was notified of our tasks. All work on BNSF railroad property will need to be coordinated with the BNSF roadmaster in accordance with our access agreement. All staff and subcontractors will comply with required BNSF railroad safety training. Site-specific BNSF safety issues are addressed in the BNSF Contractor SAP, attached to this HASP. The railroad crossing will be staffed with a flag man and all workers shall stop, look both directions before crossing, cross quickly, and never linger on the railroad tracks.

10. Confined Space Entry

No confined spaces have been identified at the site and no confined space entries are anticipated during the field activities. However, any confined spaces identified as the work progresses shall be properly marked and managed accordingly. DBS&A has developed and implemented a Confined Space Entry Program Plan that provides policies and procedures to be followed for confined space entries, including air monitoring, participant training and duties, and authorizing and permitting confined space entries.

If confined space entries become necessary, the SSO will contact the PM and this site-specific HASP will be amended accordingly. The SSO will ensure that entries are performed in accordance with the DBS&A Confined Space Entry Program Plan. If necessary, the SSO will contact the local fire department to coordinate the entry and rescue requirements.

11. Spill Prevention

Minor spills of potentially contaminated soil, residual free product, or groundwater may occur during site work. The area beneath drill rig may be lined with plastic sheeting to control fluid leaks from the equipment. If a spill occurs, site personnel will use best judgement and available materials to contain and prevent it from spreading. All contained soil and liquids will be disposed of in compliance with federal, state, and local requirements.



12. Safety Meetings

A site safety or "tailgate" safety meeting will be held before the start of work for the project and before the start of each new activity. All personnel directly involved in the work are required to attend. This HASP and all pertinent health and safety issues will be discussed during the initial briefing or meetings. The tailgate meeting will also address specific issues regarding on-site health and safety, such as the proposed work and associated hazards, recent problems, and any accidents or incidents. All personnel will acknowledge their attendance by signing the safety meeting form (Appendix A).

13. Training Requirements

Before entering the site, workers will have received the necessary training required by OSHA for workers at potentially hazardous waste sites [29 CFR 1910.120(e)], including 40 hours of formal instruction, and a minimum of 3 days of field experience under the supervision of a trained and experienced worker. Additionally, site supervisors will have completed an 8-hour health and safety supervisor training course. Before starting work, each worker will receive site-specific hazard recognition and emergency response training.

In the event that organic vapor concentrations in the work zone require an upgrade to Level C PPE, only workers who are trained and medically cleared to wear a respirator will be allowed in the work zone.

DBS&A's contractors will certify, by name, that each of their employees who will perform field work at a hazardous waste project site has received the applicable health and safety training listed above.

14. Medical Monitoring Requirements

All medical monitoring will be performed in accordance with 29 CFR 1910.120(f), 29 CFR 1910.134 (Respiratory Protection), and 29 CFR 1910.95 (Occupational Noise Exposure). The



PM must identify any chemicals of concern that might require monitoring (e.g., lead or PCBs) before and after the site activities.

The DBS&A medical monitoring program is directed by WorkCare in Anaheim, California. In the event of a chemical exposure resulting in symptoms or illness, the SSO may contact Dr. Peter Greaney at WorkCare (800-455-6155) to obtain guidance for recommended testing protocols.

15. Hospital and Evacuation Route

If a medical emergency occurs during work at the site, the Alta Vista Regional Medical Center in Las Vegas, NM is the closest medical facility. Figure S-1 in the site HASP summary is a computer-generated route map from the site to the hospital, with driving directions. All workers should be familiar with the location of this facility. The SSO will perform a pre-activity physical route check to determine any planning modifications required. If the evacuation route needs to be modified, this HASP will be corrected, and all workers will be notified of the changes. All workers should be familiar with the location of this facility.

Appendix A

Health and Safety Forms



Health and Safety Plan Acceptance Form

Instructions: This form is to be completed by each person prior to beginning work at the subject hazardous waste site. THIS FORM IS TO BE MAINTAINED IN THE PROJECT FILES.

Project	
Job No.	
Location	

By my signature below, I acknowledge that I have read and understand the contents of the Health & Safety Plan for this project. I agree to perform my work in accordance with the plan.

Signature	Print Name	Company	Date	



Project ID:		Day:		
Location:		Date:		
Project Manager:		Team Leader:		
Health & Safety Officer:		No. of Personnel Present:		
Check Topics Discusse	d			
Scheduled Activities	8:			
Chemical/Physical H Contaminants o	Hazards f Concern	Vehicle/Heavy Equ Drill Rig "KILL"	ipment Switches	
Safety Data She	ets	Operation & Ins	spection	
Extraordinary Site Conditions Lifting/Slips/Trips/Falls		Preventive Maintenance Rotating Augers/Moving Parts		
Heat/Cold Stres	s (Inc. Sunburn)	Sanitation & Hygier	1e /Eluido	
Other		Dhinking water	FIUIUS	
First Aid		Personal Clean	liness	
Facilities/Kits/E	yewashes			
Personal Protective Equipment - Level D Hard Hats/Hearing Protection Steel-Toed Boots Glasses/Goggles/Shields Gloves		Housekeeping Waste Containers Waste Materials Waste Water/Decon. Water		
Contingency: Level C		Fire Prevention		
Respirators & Tyvek/Saranex		Locations of Extinguishers Smoking		
Emergency Procedures/Site Safety		Hot Work		
"Buddy System"	,	Explosive & Flammable Liquids		
Communication Facility-Specific Rally Point	Regulations	Other:		
Emergency Facilitie Name:	s (and Directions)			
Address:				
Tel. No.:				
Safety Meeting Attended	es:			
Name	Signature	Name	Signature	



Injury and Illness Report

1. Employee Information	n			
Full Name:		Sex: M	/ F Date of Birth: _	//
Home Address:				
Job Title:	Date Hired:	_//Super	visor:	
2. Case Information	OSHA Log Case N	umber:	(assigned by Hun	nan Resources)
Date of Injury or Illness: _	// Time Employ	ee Began Work:	AM / PM	
Time of Event:	_AM / PM Treatment Given	: On-site First Aid	Emergency Room Ho	ospitalized
Physician Name:		Treatment Facility	/ Name:	
Where did the incident oc	cur?			
What was employee doir material the employee was usin sprayer"; "daily computer key er	ng just before the incident of g. Be specific. Examples: "climbing htry."	ccurred? Describe th g a ladder while carrying	e activity, as well as the t roofing materials"; "spraying	tools, equipment, or g chlorine from hand
What happened? Describe sprayed with chlorine when gas	bow the injury occurred? Example ket broke during replacement"; "Worl	es: "When ladder slipped ker developed soreness i	on wet floor, worker fell 2 n wrist over time."	0 feet"; Worker was
What was the injury or illr "pain," or "sore." Example: "stra	NESS? Identify the part of the body inned back"; "chemical burn to hand";	that was affected and he carpal tunnel syndrome.	ow it was affected; be more	specific than "hurt,'
What object or substance	directly harmed the employe	e? Examples: "concrete	floor", "chlorine"; radial arr	n saw."
If employee died, when di	id death occur?//_			
Form Completed By:		Signature		
Attention. This form courts	ing information related to arrest	was booth and read	he used is a married	that protects the

Attention: This form contains information related to employee health and must be used in a manner that protects the confidentiality of the employee to the extent possible while the information is being used for occupational safety and health purposes. Original to Human Resources within 24 hours of injury. Copy to H&S Program Coordinator.



Accident/Incident Investigation Report

(Injury and Illness Report Must be Attached)

Full Name:	Date of Injury or Illness://
Incident Location:	
3. Accident Cause(s) Identify the Direct Cause: (e.g., mechanical energy, impact e	nergy, stored energy, electrical energy, chemical energy, etc.)
Identify any Unsafe Acts:	
Identify any Unsafe Conditions:	
Identify the Root Cause(s):	
4. Corrective Action(s) Recommendations to prevent recurrence of a similar	accident?
Has it been done? Yes No If Not, Why? Explain	
Investigator Date	_/ Reviewed and Approved By



Job Name and Number: _____

Person Completing Form: _

Date(s): _

Instructions: Use form for up to five consecutive days. Write in date, place checkmark to indicate item has been completed. Deficiencies must be corrected. Completed form to be maintained with the Project files with copy to H&S Program Coordinator.

	Date			
Checklist Item				
The HASP (including emergency phone numbers) has been reviewed and signed by DBS&A staff, subcontractors, & visitors and is available on site				
Hazardous chemicals have been discussed and SDSs are available for each hazardous chemical on site.				
Tailgate Safety Meeting has been conducted for all site workers and visitors (and updated as necessary)				
Copies of Hospital Route map and emergency phone numbers are available in all vehicles				
DBS&A personnel and subcontractors have discussed hazards associated with Site-specific work				
Potential slips, trips, or fall hazards have been identified and mitigated where possible				
Site control measures have been established for present conditions (e.g., safety cones or caution tape)				
Proper PPE has been identified and is being used for present conditions				
Personnel monitoring is being conducted for present conditions				
An operating, fully-charged cell phone is available on site				
A fully-stocked first aid kit and eye wash bottle are readily available				
Fully-charged fire extinguishers are available for use.				
All workers and visitors have training appropriate for assigned tasks				
Equipment on-site has been inspected and is in safe working order				
Electrical power operated tools are properly grounded and used with a GFCI				
Excavated soils are properly stored and labeled				
Excavations are properly shored/sloped and barricaded				
Used disposable PPE and garbage are bagged for proper disposal				
All Health and Safety concerns have been communicated to the Site H&S Officer and the Project Manager				



The Project Manager and their designated site supervisors and safety officers are responsible for the implementation of the company health and safety program. This form has been designed to help the Project Manager meet the health and safety guidelines established by the company in accordance with OSHA regulations and accepted protocols. If you have any questions, contact Bill Casadevall.

Project Planning

- ___ Do all of the workers at the site have the required or appropriate level of safety training for the site and the assigned tasks (e.g., current 40-hour training, 8-hour Supervisor training, 3-day supervised training)?
- ____ Has an OSHA-trained Supervisor been designated for the site?
- Has a Safety Officer been designated for the site?
- Has a Competent Person been designated for the site (required at construction/excavation sites)?
- ____ Do field personnel have current first aid/CPR training?
- Are there any health hazards at the site that require workers to be medically monitored (e.g., excessive noise, possible respirator use, or potential for exposure to hazardous contaminants)?
- Are there any special health hazards at the site that require baseline testing before and follow-up testing after field activities (e.g., cadmium or PCBs)

Site H&S Plans

- ____ Has a site-specific H&S Plan been prepared? [Required for all Hazwoper sites; Company policy requires completion of the H&S Plan Summary at a minimum.]
- ____ Has the site H&S Plan been reviewed and approved by the PM
- Have all site workers been briefed on the contents of the site H&S Plan and signed-off on the Plan?
- Have Tailgate Safety Meetings been held as necessary (e.g., prior to the start of activities, when activities or conditions change, or when new workers come on site) and have those present signed the attendance sheet?
- _____ Do site workers understand the site hazards and know the route to the hospital?
- ____ Have clearances been obtained for underground utilities?

Documentation

The following documentation should be available at the field site or in the office for inspection:

- ____ Site-specific H&S Plan signed by site workers (must be available at the field site)
- Utility Clearance Form (must be available at the field site)
- ____ MSDSs for hazardous chemicals used on-site (must be available at the field site)
- ____ Tailgate Safety Meeting forms signed by site workers (current one in the field and completed forms in the project file)
- Records of excavation inspections by Competent Person (current one in the field and completed forms in the project file)
- ___ Copies of Accident/Incident or Chemical Exposure reports (submitted to H&S in Albuquerque)
- ___ Results of any safety inspections (project and/or program files)

Appendix B

Emergency Response Plan



Appendix B. Emergency Response Plan

B.1 Purpose and Scope

The following Emergency Response Plan has been developed to include instruction and procedures for emergency vehicular access, evacuation procedures for personnel, methods of containing a fire, and medical emergencies. All extraordinary conditions that require concise and timely action must be dealt with in a manner that minimizes the health and safety risks to the immediate site personnel and the general public.

B.2 General Response Considerations

All on-site personnel shall be familiar with the Emergency Response Plan described herein. This section will be maintained in the field office.

Due to the nature of the "site", the emergencies or extraordinary conditions that may arise are more than likely limited to personnel accidents requiring first aid, exposure to contaminated sediments, and potential fire near mechanical equipment. The following procedures shall be implemented in the event of an emergency:

- First aid or other appropriate initial action will be administered by those closest to the accident/event. This assistance will be coordinated by the Site Safety Officer (SSO) and will be conducted in a manner so that those rendering assistance are not placed in a situation of unacceptable risk. The primary concern is to avoid placing a greater number of workers in jeopardy;
- Personnel shall report all accidents and unusual events to the SSO, the subcontractor Health and Safety representative, and the Project Manager (PM);

The SSO and other on-site personnel are responsible for conducting the emergency response in an efficient, rapid, and safe manner. The SSO will decide if off-site assistance and/or medical treatment is required and shall be responsible for alerting off-site authorities and arranging for



their assistance. The SSO, in coordination with the contractor Health and Safety representative, will provide to the PM, an Accident/Incident Report that includes the following:

- A description of the emergency (including date, time and duration);
- Date, time and names of all persons/agencies notified and their response; and
- A description of corrective actions implemented or other resolution of the incident.

All workers on site are responsible for conducting themselves in a mature, calm manner in the event of an accident/unusual event. All personnel must conduct themselves in a manner to avoid spreading the danger to themselves and to surrounding workers.

B.3 Responsibilities

The SSO shall have responsibility for directing response activities in the event of an emergency. He or she will:

- Assess the situation;
- Determine required response measures;
- Notify appropriate response teams; and
- Determine and direct on-site personnel during the emergency.

The SSO shall coordinate the response activities of on-site personnel with those of public agencies.

B.4 Public Response Agencies

A list of public response agencies to be contacted and who may, depending on the nature of the situation, assume authority for emergency response is included in the site-specific HSP. The HSP presents local emergency numbers, including local hospitals (which includes the poison control center), ambulance service, fire and police departments, and others. In addition,



nationwide hotline numbers for emergency assistance are listed. These phone lists should be retained by all field personnel and posted by the phone in all field trailers.

The hospital location is outlined in the HSP. The SSO will provide directions and/or maps to these facilities to all field personnel.

Prior to the initiation of all on-site work, the local police and fire department will be notified, if deemed necessary. This notification will take the form of a letter describing both on-site and off-site activities. If requested, a briefing will be held to further explain the type of activities and equipment that are associated with each project. Emergency procedures also will be discussed.

B.5 Accidents and Non-Routine Events

Several types of emergencies are outlined in the following subsections. These are not intended to cover all potential situations, and the corresponding response procedures should be followed using common sense. Every accident is a unique event that must be dealt with by trained personnel working in a calm, controlled manner. In the event of an accident/unusual event, the prime consideration is to provide the appropriate initial response to assist those in jeopardy without placing additional personnel at an unnecessary risk. Employees shall be instructed to report all injuries and illnesses to the SSO.

B.5.1 Worker Injury

If a person working on the site is physically injured, appropriate first aid procedures shall be followed. Depending on the severity of the injury, emergency medical response may be sought. If the employee can be moved, he/she will be taken to the edge of the work area where contaminated clothing (if any) will be removed, and emergency first aid administered. If necessary, transportation to local emergency medical facility will be provided as soon as possible.

If a worker can only be moved by emergency medical personnel, the SSO will decide what protective equipment, if any, is required to be worn by emergency personnel. Each work area will have extra equipment available for emergencies.



If the injury to the worker involves chemical exposure, the first aid procedures summarized in Table S-5 should generally be initiated as soon as possible, including the following:

B.5.1.1 Eye Exposure

If contaminated solid or liquid gets into the eyes, wash eyes immediately at the emergency eyewash station using water and lifting the lower and upper lids occasionally. Obtain medical attention immediately if symptoms warrant.

B.5.1.2 Skin Exposure

If contaminated solid or liquid gets on the skin, wash skin immediately at the decontamination station using soap and water. Obtain medical attention immediately if symptoms warrant.

B.5.1.3 Inhalation

If a person inhales large amounts of organic vapor, move him/her to fresh air at once. If breathing has stopped, perform cardiopulmonary resuscitation (CPR), as per American Red Cross standard first aid instruction. Keep the affected person warm and at rest. Obtain medical attention as soon as possible.

B.5.1.4 Ingestion

If contaminated solid or liquid is swallowed, medical attention shall be obtained immediately by consulting the Poison Control Center as outlined in the site-specific HSP.

B.5.2 Temperature-related Problems

Adverse weather conditions are important considerations in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. One or more of the following control measures shall be employed to help control heat stress:

 Provision for adequate non-alcoholic liquids to replace lost body fluids. Employees must replace water and salt lost through perspiration. Employees will be encouraged to drink more than the amount required to satisfy thirst, since thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement;



- Replacement fluids can be a 0.1 percent salt solution, commercial mixes such as GatoradeTM or Quick KickTM, or a combination of these with fresh water;
- Establishment of a work regimen that will provide adequate rest periods for cooling down;
- Rest breaks are to be taken in a cool, shaded area during hot periods;
- Employees shall not be assigned other tasks during rest periods; and
- All employees shall be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress.

B.5.3 Adverse Weather

In addition to the hazards of UV radiation from the sun and extreme ambient temperatures, general weather conditions may present a hazard to field workers. Rain may result in muddy, slippery conditions that make foot and vehicle travel hazardous. Lightning and tornadoes, common summertime phenomena, can be extremely hazardous. In the event of adverse weather (e.g., high wind and airborne dust, lightning, extreme cold or heat, or rain) that could compromise worker's health and safety during outdoor activities, the SSO will shut down operations. Safety precautions for lightning and tornadoes can be found in Sections 7.5.2.1 and 7.5.2.2, respectively, of the Safety Manual (DBS&A, 2013).

B.5.4 Fires

The potential for fires involving hazardous chemicals must be addressed during the preliminary site-specific evaluation of all hazards. Personnel in each work group will be knowledgeable in fire extinguishing techniques. They shall be instructed in proper use and maintenance of the appropriate fire extinguishers supplied at the work site.



B.5.5 Vehicle Accidents

Posted speed limits will be observed. All vehicles will be required to meet applicable state inspection standards. All drivers will be required to have a good driving record and must have all necessary licenses to operate their vehicle.

The phone numbers of the SSO, the field office, and subcontractor Health and Safety representative will be carried in each vehicle on site. These numbers may also be provided to all police, fire, rescue, and emergency agencies in the area.

Upon notification of an accident, the PM will make available any personnel and equipment at his or her disposal to aid in the cleanup. For example, the following equipment may be supplied:

- sorbent materials to contain/control liquids;
- front-end loaders to pick up solids;
- dust-suppression materials to control dust;
- trucks to haul collected material; and
- appropriate protective gear for cleanup workers.

The supervision and operation of all emergency response personnel and equipment will be coordinated through the authorities at the scene of the accident.

P. PROFESSIONAL ENGINEERING LICENSURE
P. PROFESSIONAL ENGINEERING LICENSURE

Pursuant to 20.5.16.11 NMAC of the New Mexico Engineering and Surveying Practice Act, as revised on July 1, 2017, Gundar Peterson, P.E., has been appointed to the position of Engineer of Record for our business entity and can contractually bind our firm. Thomas Golden, P.E., will serve as Engineer of Record for this project and will be directly responsible for the work when issued. Both engineers are direct employees of DBS&A and are in compliance with Professional Engineering rules found in Title 16, Chapter 39, Parts 8 and 9 of the NMAC. Copies of their current Professional Engineer licenses as issued by the State of New Mexico are shown on the following pages.



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Licensee Details

Demog	raphic Inform	ation									
Title:	Mr.	I	First:	Thomas	i				Middle:	Last:	GoldenSuffix:
DOB:		SSN:	Gender:	Male					POB:		
Citizens	hip Status:								Ethnicit	y: Home S	tate:
Name:	I homas Golde	en							Owner:		-
FEIN:											Гуре:
Address	s Information	l									
License	Information										
UBA:	22750	D	rofossior	• Engin	oors & Survovo	vre Tv	<i>(</i>) 0.	Professional Engineer		Secondar	<i>.</i>
Status:	Active	le	supd.	2/6/20	15	//S /) F)	vnirv:	12/31/2018		Effective:	2/6/2015
Reason:	License Iss	uance D	ate:	1/27/2	2015	R	enewed:	12/29/2016		Deg. Suff:	2/0/2010
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Professi	ion: Engineers	s & Surveyors		Туре:	College - Univ	ersity	Major:	Sciences	te: Bache	elor of Sci	ence
Date Fro	om:			Date To:	8/16/1999		Credit Hours:	0 Specialty:			
School:	University	of New Mexico)								
Professi	ion: Engineers	s & Surveyors		Туре:	College - Uni	versity	Мајо	r: Civil Engineering Certific	cate: Mas	ster of Sci	ence
Date Fro	om:			Date To:	5/15/2010		Cred Hour	it 0 Specialty: s:			
Employ	ment Inform	ation									
Profes	sion: E	ingineers & Surveyors	Emplo	oyer: DI	BS&A	Position Na	me: F	Project Engineer Start	Date:		
End Da	ate:		Credit	s:		Credit Unit:		Cred	it Type:		
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Prior Cycle CE Courses							
Course		Title		Credit Hours	Category	Date Completed	
9999 ACEC Ethics \	Nebinar			1.0	Ethics	{0:14}	
9999 Katrina afterm	ath and EPA arseni	ic		2.0	Ethics {0:4}		
9999 Drawdown De	rivatives to Estimate	e Aquifer Propertie		1.0	Board Approved {0:4}		
9999 Severn Trent S	Services - Organics			1.0	Board Approved {0:3}		
9999 ADS Pipe Sup	plies			1.0	Board Approved {0:4}		
9999 ACEC Rio Rai	ncho Update			1.0	Board Approved {0:18}		
9999 InfoWater Den	nonstration			1.0	Board Approved {0:19}		
9999 Project Manag	ement Training - In	tro		1.0	Board Approved	{0:16}	
9999 Project Manag	jement Training - So	cope and Fee Develo	D C	1.0	Board Approved	{0:14}	
9999 Remediation -	Animas River and I	KAFB		1.0	Board Approved	{0:15}	
9999 William Smith'	s Agricultural Impro	vements		1.0	Board Approved	{0:30}	
9999 Project Manag	jement Training - Bi	udgeting		1.0	Board Approved	{0:11}	
9999 Remediation c	ptions for salt wate	r contamination		1.0	Board Approved	{0:13}	
9999 Project Manag	jement Training - Co	ommunication		1.0	Board Approved	{0:13}	
9999 Civil 3D Infras	tructure Design Sui	te		1.0	Board Approved	{0:15}	
9999 1-D and direct	shear soil lab meth	nods		4.0	Board Approved	{0:6}	
9999 1-D and direct	shear soil lab meth	nods	4.0	Board Approved	{0:7}		
9999 Project Manag	ement Training - Co	ontrolling Project		1.0	Board Approved	{0:28}	
9999 High Resolution	on Site Characteriza	ation		1.0	Board Approved	{0:4}	
9999 Stormwater Ca	apture			1.0	Board Approved	{0:14}	
9999 Rio Rancho w	ater reuse and Cab	ezon WRF tour		2.0	Board Approved	{0:29}	
9999 Liquid waste a	nd discharge permi	it regulations		2.0	Board Approved	{0:14}	
Prior CE Cycle Status	0		Comind C	One distant	Marchenter	One dide Data in the	
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ein Mexico	of Aicensure and Arofessional Surveyors	lden	cations, as required by Sections 61-23-1 14 licensed and is hereby authorized to practice	al Engíneer ^{New Mexico}	in Textimony Mhereof, Mitnezz the signature of the Chairman and Secretary under seal of the Board dated 02/06/2015	Chairmbu Secretary
State of Me	Aate Anard 1 Fugineers 2	This is to Certify that $Thomas Go$	having given evidence of necessary qualific through 61-23-33 NMSA (1978), has been du	Profession in the state of 3	NEW MA 0, 2161	Airenze Na. 22750

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SEAL

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State of New Mexico The New Mexico Board of Licensure for Professional Engineers & Professional Surveyors

Santa Fe, New Mexico

This is certify that

Thomas Golden

License No.: 22750

Having given evidence of the necessary qualification, as required by Sections 61-23-1 through 61-23-33 NMSA (1978), has been duly licensed and is hereby authorized to practice in the State of New Mexico as a

Professional Engineer

Issue Date: 02/06/2015

Expiration Date: 12/31/2018

THIS CERTIFICATE IS FOR DISPLAY PURPOSES ONLY.

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Licensee Details

Demograp	phic Information								
Title: Mr.		Firs	st: Gun	dar			Middle	: Last:	PetersonSuffix:
DOB:		SSN: Ge	nder: Male	;			POB:		
Citizenship	o Status:						Ethnici	ty: Home S	State:
Name: Gu	indar Peterson						Owner		_
FEIN:							MID #:		Туре:
Address I	nformation								
License In	nformation								
Lic #	16038	Profession	• Enginee	rs & Surveyors	Type:	Professional Enginee	r	Secondary	
Statue:	Activo	Issued:	1/21/200		Type.		1	Effective	1/21/2002
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Date From:	:		Te	D:		Hours: Specialty:			
Employm	ent Information								
Professio	on: Enginee Surveyo	ers & ors	Employer:	Daniel B. Stephens &	Position Name:	Senior Engineer	Start Date:		
End Date	:		Credits:	Associates inc.	Credit Unit:		Credit Type	:	
Approved	d:		Credit Date:		Primary Employ	er:	Number of	Hours:	
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0000	Ethics - Art	Schwartz, NS	PE Gene	ral Counsel			1.0	1.0 E			{0:13}
0000	Ethics sem	inar - Bruce Th	omson, l	PE - UNM			2.0	Ethics			{0:4}
0000	NMSPE 20	16 Issues Con	ference				3.0	Board Approved		ed	{0:4}
0000	Designing f	for High-Flow v	vith Conc	rete Enhanced	Syn		2.0	Board Approved		{0:27}	
0000	Taking the	risk out of eros	ion contr	ol			2.0		Board Approve	ed	{0:17}
0000	Selecting A	Appropriate Mol	ecular B	iological Tools	(1.0		Board Approve	ed	{0:26}
0000	Erosion Co	ontrol Solutions	for Extre	me Events			1.0 Board Appro		Board Approve	ed	{0:18}
0000	NMSPE 20	15 Issues Con	ference				5.0 Board Approved		{0:13}		
0000	Engineering	g Design Tech	nology				1.0		Board Approved		{0:15}
0000	EWB UNM	- Tacuaral Wa	ter Proje	ct Design Revie	ew		1.0		Board Approved		{0:24}
0000	Managing Project Risk						1.0		Board Approved		{0:19}
0000	apor Intrusion: Fundamentals of Screening, Investi						1.0	.0 Board Approved		{0:13}	
0000	Sanitary Lift Station Standby Generator Systems						1.0		Board Approve	ed	{0:16}
0000	Planning the Project						1.0	Board Approved {0:9}		{0:9}	
0000	SWANA Ar	nnual Meeting/I	Round ta	ble			4.0		Board Approve	ed	{0:11}
0000	Communic	ation Planning					1.0		Board Approve	ed	{0:13}
0000	Quality Ma	nagement and	Impleme	ntation			1.0		Board Approve	ed	{0:11}
0000	Challenging	g Times Ahead	in Hydro	ology			1.0		Board Approve	ed	{0:19}
0000	Water Well	Rehabilitation	Reviewi	ng the Process	a		2.0		Board Approve	d	{0:13}
WI031414 An Introduction to Sediment Transport Modeling Usi							1.0		Board Approve	ed	{0:7}

Prior CE Cycle Status

Category	Credits Taken	Credits Carried Over	Credit Total	Max Usable	Credits Required
Board Approved	30.0	15.0	45.0	45.0	28
Ethics	5.0	0.0	5.0	5.0	2

State of New Mexico The New Mexico Board of Licensure for

Professional Engineers & Professional Surveyors

Santa Fe, New Mexico

This is certify that

Gundar Peterson

License No.: 16038

Having given evidence of the necessary qualification, as required by Sections 61-23-1 through 61-23-33 NMSA (1978), has been duly licensed and is hereby authorized to practice in the State of New Mexico as a

Professional Engineer

Issue Date: 01/21/2003

Expiration Date: 12/31/2018

THIS CERTIFICATE IS FOR DISPLAY PURPOSES ONLY.

Q. CONSTRUCTION INDUSTRIES DIVISION LICENSE



STATE OF NEW MEXICO

CONSTRUCTION INDUSTRIES DIVISION



This card is the property of the CID and shall be surrend ared upon demand



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BUSINESS REFERENCES

BUSINESS REFERENCES

	CLIENT NAME:	Office of Military Base Planning and Support				
	PROJECT DESCRIPTION:	Environmental Assessment of Cannon AFB				
	PROJECT DATES:	August 2012 to August 2012				
	(starting and ending)	August 2012 to August 2015				
	TECHNICAL ENVIRONMENT:	Environmental Investigation				
1	STAFF ASSIGNED TO REFERENCE					
	ENGAGEMENT THAT WILL BE	John Bunch				
	DESIGNATION FOR WORK PER RFP					
	CLIENT PROJECT MANAGER:	Hanson Scott, Director				
	CLIENT TELEPHONE NUMBER:	(505) 827-0226				
	CLIENT FAX NUMBER:	N/A				
	CLIENT EMAIL ADDRESS:	hanson.scott@outlook.com				

	CLIENT NAME:	Bergstein Enterprises				
	PROJECT DESCRIPTION:	Environmental Investigation and Remediation of Brine Production Well				
	PROJECT DATES:	2000 to 2017				
	(starting and ending)	2009 10 2017				
	TECHNICAL ENVIRONMENT:	Environmental Investigation and Remediation				
2	STAFF ASSIGNED TO REFERENCE					
	ENGAGEMENT THAT WILL BE	John Bunch and Jason Raucci				
	DESIGNATION FOR WORK PER RFP					
	CLIENT PROJECT MANAGER:	Susan North, Executive Assistant				
	CLIENT TELEPHONE NUMBER:	(806) 741-1080				
	CLIENT FAX NUMBER:	N/A				
	CLIENT EMAIL ADDRESS:	susan@bergsteinenterprises.com				

	CLIENT NAME:	Lee Engineering				
	PROJECT DESCRIPTION:	City of Albuquerque Environmental Assessments				
	PROJECT DATES:	2000 to 2017				
	(starting and ending)	2009 10 2017				
	TECHNICAL ENVIRONMENT:	Environmental Investigation				
3	STAFF ASSIGNED TO REFERENCE					
	ENGAGEMENT THAT WILL BE	John Bunch and Jason Raucci				
	DESIGNATION FOR WORK PER RFP					
	CLIENT PROJECT MANAGER:	Paul Barricklow, Project Manager				
	CLIENT TELEPHONE NUMBER:	(505) 338-0988				
	CLIENT FAX NUMBER:	(505) 338-0989				
	CLIENT EMAIL ADDRESS:	pbarricklow@lee-eng.com				

