



**NEW MEXICO ENVIRONMENT DEPARTMENT GROUND
WATER QUALITY BUREAU**



UNDERGROUND INJECTION CONTROL

GENERAL DISCHARGE PERMIT

Certified Mail- Return Receipt Requested

Facility Name: Springer Auto UST Site

Facility Location: 824 4th Street, Springer, New Mexico
Section 33, Township 29N, Range 4E
Colfax County

Legally Responsible Party: NMED PSTB
2905 Rodeo Park Drive East, Building 1 , Santa
Fe, NM
(505) 372-8153

Remediation Oversight Agency Contact: Petroleum Storage Tank Bureau
Susan von Gonten
(505) 372-8153

Remediation or Injection Plan Identification: Springer Auto UST Site

Permitting Action: New DP-1943

PPS Contact Andrew Romero
(505) 660-8624

EFFECTIVE DATE: **TERM ENDS:**

Justin D. Ball
Chief, Ground Water Quality Bureau

[Subsection H of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.1]

I. UIC GENERAL DISCHARGE PERMIT

The New Mexico Environment Department (NMED) Ground Water Quality Bureau (GWQB) issues this Underground Injection Control General Discharge Permit (UIC Permit) for the subsurface emplacement of additive fluids through a Class V UIC injection well for the purpose of facilitating vadose zone or groundwater remediation. The GWQB issues this UIC Permit to New Mexico Environment Department Petroleum Storage Tank Bureau (Permittee) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Ground and Surface Water Protection Regulations, 20.6.2 NMAC.

In issuing this UIC Permit, the GWQB has determined that the requirements of Subsection C of 20.6.2.3109 NMAC have been met. The activities authorized by this UIC Permit are principally governed by Springer Auto Injection Plan (Injection Plan), under the authority of NM State Clean up Program, with oversight by the Remedial Oversight Section. Compliance with this UIC Permit requires compliance with the terms, requirements, and conditions of the Injection Plan. The term of this UIC Permit shall be no longer than five years from the effective date of this UIC Permit.

The injection activities, the location of the injection site, the type of injection and quantities of additives being used are briefly described as follows:

Injection Activities (summary: including injection well type, number of wells, and injection frequency)

Copy of the Injection Plan Attached (required): ☒

Summary of Injection Plan: Injection of ORC-Advanced, a proprietary formulation of food-grade calcium oxy-hydroxide, is planned to treat residual dissolved-phase hydrocarbon contamination at this Petroleum Storage Tank Bureau release site. Chemicals will be mixed at the site in a 55-gallon drum and injected into the groundwater using direct-push technology. Steel rods will be driven into the ground using a GeoProbe track-mounted drill rig, and a hydraulic piston pump mounted on the GeoProbe rig will push materials into the subsurface through custom tooling. The amendment material is manufactured by Regenesis, who has participated in remedial action at more than 21,000 sites worldwide, and will consist of ORC-Advanced. The Regenesis design summary is attached.

Injection Site Information

Depth to most shallow groundwater (required): 8 ft

Existing concentration of total dissolved solids (TDS) in groundwater (required): 1,110 to 3,860 mg/L

Location (required): 824 4th Street, Springer, New Mexico

County (required): Colfax

Latitude: 36.361291

Longitude: -104.596557

Map Showing Area of Injection Sites Attached (required): ☒

Additives Being Used (including volumes, manufacturer, and mixing ratios)

ORC Advanced, 260 gal, 1.5 lb/yd³, Regenesis

Anticipated Precipitation, Dissolution, Adsorption, and Desorption Products

Upon contact with groundwater, this calcium oxy-hydroxide based material becomes hydrated, producing a controlled-release of molecular oxygen (17% by weight) for periods of up to 12 months on a single application. No significant precipitation or desorption effects from the amendment are expected.

Public Notice Posting Locations

2 inch by 3 inch Newspaper Ad required for Renewal applications.

Newspaper: The World Journal

3 inch by 4 inch Newspaper Ad required for New, Modification, and Renewal/Modification applications.

Newspaper: The World Journal

2 feet by 3 feet sign posted for 30 days in a location conspicuous to the public at or near the facility required for New, Modification, and Renewal/Modification applications.

Sign Location: On the property fence line facing 4th Street.

8.5 inch by 11 inch or larger posted off-site location conspicuous to the public (e.g. public library). Required for New, Modification, and Renewal/Modification applications.

Flyer Location: Arthur Johnson Memorial Library, 244 Cook Ave., Raton, NM 87740

This UIC Permit consists of the complete and accurate completion of this UIC Permit form as determined by the GWQB.

Issuance of this UIC Permit does not relieve the Permittee of the responsibility to comply with the WQA, WQCC Regulations, and any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

Signatures

Signature must be that of the person listed as the legally responsible party on this application.

I, the applicant, attest under penalty of law to the truth of the information and supporting documentation contained in this application for an Underground Injection Control General Discharge Permit.

Applicant's Signature

Signature:

Lorena Goerger

Digitally signed by Lorena
Goerger
Date: 2022.04.13 11:06:00 -06'00'

Date:

4/13/2022

Printed Name:

Lorena Goerger

Title:

Acting Bureau Chief

Applicant Note that Submissions Must Include:

- 1- One electronic copy of the application delivered to the GWQB via email or other format
- 2- Two hardcopies of the application delivered to: Ground Water Quality Bureau
Harold Runnels Building
1190 Saint Francis Drive
P.O. Box 5469
Santa Fe, NM 87502-5469
- 3- Payment by check or electronic transfer of one application fee of \$100.00

II. FINDINGS

In issuing this UIC Permit, GWQB finds:

1. The Permittee is injecting fluids so that such injections will move directly or indirectly into groundwater within the meaning of Section 20.6.2.3104 NMAC.
2. The Permittee is injecting fluids so that such fluids will move into groundwater of the State of New Mexico which has an existing concentration of 10,000 mg/L or less of TDS within the meaning of Subsection A of 20.6.2.3101 NMAC.
3. The Permittee is using a Class V UIC well as described in 20.6.2.5002(B)(5)(d)(ii) NMAC for in situ groundwater remediation by injecting a fluid that facilitates vadose zone or groundwater remediation.
4. The Permittee is injecting fluids into groundwater in order to achieve the remediation goals identified in the Injection Plan.

III. AUTHORIZATION TO DISCHARGE

The Permittee is authorized to inject chemical additives into groundwater in accordance with this UIC Permit and the Injection Plan under the oversight of Remedial Oversight Section.

[20.6.2.3104 NMAC, Subsection C of 20.6.2.3106 NMAC, Subsection C of 20.6.2.3109 NMAC]

IV. CONDITIONS

The conditions of this UIC Permit shall be complied with by the Permittee and are enforceable by GWQB.

1. The Permittee shall perform remediation activities in accordance with the Injection Plan and shall notify GWQB of any changes prior to making them.

[20.6.2.3107 NMAC]

2. The Permittee shall monitor the injection activities and their effects on groundwater quality as required by the Injection Plan and shall provide GWQB with electronic copies of the required reporting and any pertinent documentation of activities at the site.

[20.6.2.3107.A NMAC, 20.6.2.3109.A NMAC]

3. If the GWQB or the Permittee identifies any failure of the Injection Plan or this UIC Permit to comply with 20.6.2 NMAC not specifically noted herein, GWQB may require the Permittee to submit a corrective action plan and a schedule for completion of corrective actions to address the failure.

Additionally, the GWQB may require the Permittee to submit a proposed modification to the Injection Plan, this UIC Permit, or both.

[20.6.2.3107.A NMAC, 20.6.2.3109.E NMAC]

4. ADDITIONAL MONITORING REQUIREMENTS – (RESERVED)
5. TERMINATION – Within 30 days of completion of activities authorized by this UIC Permit the Permittee shall submit a closure report and a request to terminate the UIC Permit to the GWQB for its approval. The closure report shall identify how the injection well(s) was (were) closed in accordance with the Injection Plan. The Permittee shall provide Remedial Oversight Section with a copy of this closure report.

[20.6.2.5005 NMAC, 19.27.4 NMAC]

6. INSPECTION and ENTRY – The Permittee shall allow a representative of the NMED to inspect the facility and its operations subject to this UIC Permit and the WQCC regulations. The GWQB representative may, upon presentation of proper credentials, enter at reasonable times upon or through any premises in which a water contaminant source is located or in which are located any records required to be maintained by regulations of the federal government or the WQCC.

The Permittee shall allow the GWQB representative to have access to, and reproduce for their use, any copy of the records, and to perform assessments, sampling or monitoring during an inspection for the purpose of evaluating compliance with this UIC Permit and the WQCC regulations.

Nothing in this UIC Permit shall be construed as limiting in any way the inspection and entry authority of GWQB under the WQA, the WQCC Regulations, or any other local, state, or federal regulations.

[20.6.2.3107.D NMAC, NMSA 1978, §§ 74-6-9.B and 74-6-9.E]

7. MODIFICATIONS and/or AMENDMENTS – In the event the Permittee proposes a change to the injection plan that would result in a change in the volume injected; the location of the injections; or the concentration of the additives being injected by the facility, the Permittee shall notify GWQB prior to implementing such changes. The Permittee shall obtain approval (which may require modification of this UIC Permit) by GWQB prior to implementing such changes.

[20.6.2.3107.C NMAC, 20.6.2.3109.E and G NMAC]

8. COMPLIANCE with OTHER LAWS – Nothing in this UIC Permit shall be construed in any way as relieving the Permittee of the obligation to comply with all applicable federal, state, and local laws, regulations, permits, or orders.

[NMSA 1978, § 74-6-5.L]

9. PERMIT FEES – Payment of permit fees is due at the time of UIC Permit approval. Permit fees shall be paid in a single payment remitted to GWQB no later than 30 days after the UIC Permit effective date.

Permit fees are associated with issuance of this UIC Permit. Nothing in this UIC Permit shall be construed as relieving the Permittee of the obligation to pay all permit fees assessed by GWQB. A Permittee that ceases injecting or does not commence injecting during the term of the UIC Permit shall pay all permit fees assessed by GWQB. An approved UIC Permit shall be suspended or terminated if the facility fails to remit a payment by its due date.

[20.6.2.3114.F NMAC, NMSA 1978, § 74-6-5.K]

Work Plan



February 10, 2022

Ms. Susan von Gonten
New Mexico Environment Department
Petroleum Storage Tank Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505

Re: Work Plan for Groundwater Amendment Application and
Pre-Application Groundwater Monitoring Event
Springer Auto Co. UST Site, Springer, New Mexico
Facility #30735, Release ID #1321

Dear Ms. Von Gonten:

Daniel B. Stephens & Associates, Inc. (DBS&A) is pleased to submit the attached work plan and cost estimate for completion of an amendment application program and a single pre-application groundwater monitoring event at the subject site. All activities will be completed in accordance with DBS&A standard operating procedures.

Please contact us at (505) 822-9400 if you have any questions or require additional information.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Jason J. Raucci, P.G.
Project Geologist

Gundar Peterson, P.E.
Vice President

JRB/GP/rpf
Attachment
cc: Lorena Goerger, PSTB

Daniel B. Stephens & Associates, Inc.

6020 Academy Rd. NE, Suite 100

Albuquerque, NM 87109

505-822-9400

FAX 505-822-8877

Work Plan for Groundwater Amendment Application and Pre-Application Groundwater Monitoring Event

Springer Auto Company Underground Storage Tank Site 824 4th Street, Springer, New Mexico Facility ID #30735, Release ID #1321

1. Introduction

At the request of the New Mexico Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB), Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this work plan and cost estimate for completion of an amendment application program and a single pre-application groundwater monitoring event at the Springer Auto Company underground storage tank (UST) site (the site) located in Springer, New Mexico (Figure 1). The work plan was prepared with direction from the NMED PSTB project manager and in accordance with the New Mexico Petroleum Storage Tank Regulations (20.5.119 New Mexico Administrative Code [NMAC]).

2. Background

The site is located at 824 4th Street in Springer, New Mexico (Figure 1), and is currently in use as an auto parts store. The town of Springer is located on the east side of the Cimarron River and the I-25 highway corridor at an approximate elevation of 5,790 feet above mean sea level (feet msl). The site itself is located approximately 600 feet east of the Cimarron River, which forms the principal surface drainage in the site vicinity.

Historical reports indicate that various tank systems were in place at the site between the 1940s and 1992, when the tanks were removed. Any hydrocarbon releases associated with the site are therefore between approximately 30 and 80 years old. The site is surrounded by adjacent properties that also hosted historical UST installations, including the former Cactus Corral and

Lee's Service station sites to the east, the former Cozy Motel and service station to the west, the former Springer Court to the southwest, and a former Chevron station to the southeast.

Previous work at the site consisted of a minimum site assessment and hydrogeologic investigation performed by CERL, Inc. Environmental Consultants (CERL, 1992, 1994). These investigations documented both vadose zone and groundwater contamination resulting from a release of petroleum hydrocarbons from the UST system at the site.

DBS&A has performed periodic groundwater monitoring at the site from October 1998 through the most recent event in May 2021. In February 2005, DBS&A installed three replacement monitor wells at the site (PI2-MW1R, PI4-MW4R, and PI4-MW7R). Benzene has consistently been present at concentrations slightly above the New Mexico Water Quality Control Commission (NMWQCC) standard in monitor well PI2-MW1R, ranging from 5.1 to 43 micrograms per liter ($\mu\text{g/L}$) over the last 10 years. Total naphthalene concentrations also slightly exceeded the NMWQCC standard at this well during the most recent monitoring event (36 $\mu\text{g/L}$). Petroleum hydrocarbon concentrations in other wells associated with the site have been below the applicable standards during all monitoring events since 2006. Analytical results from the most recent groundwater sampling event are summarized in Figure 2.

Site geology is typical of the Springer area, and consists of a thin veneer of alluvial sediments overlying variably weathered limestone and shale bedrock of the Cretaceous-age Pierre Shale. The alluvial materials are approximately 9 feet thick, and are composed of clayey sand and sand with a thin basal gravelly interval. Bedrock materials are considered to be generally impermeable except in the uppermost, weathered zone. Early site investigations conducted in 1994 yielded a low overall hydraulic conductivity estimate on the order of 10^{-6} centimeter per second (cm/s), based on measured specific capacity of monitor wells.

During groundwater monitoring activities conducted in 2021, the depth to groundwater was approximately 8 feet below ground surface (bgs) in the vicinity of the proposed treatment area. Historical water levels in wells near the former Springer Auto facility have ranged from approximately 5 to 11 feet below top of casing (btoc). Prior to 2002, groundwater elevations were approximately 2 to 3 feet higher than current levels. The groundwater flow direction has consistently been to the southwest toward the nearby Cimarron River, with a gradient of approximately 0.01 to 0.015 foot per foot (Figure 3).

3. Scope of Work

The scope of work defined in the accepted project proposal and cost estimate includes completing one pre-application groundwater monitoring event and one amendment application event, along with associated planning and permitting activities. The firm-fixed price for completing the scope of work is provided in Section 4. Activities that will be performed to accomplish the scope of work are outlined in the following subsections. For the purposes of the scope of work detailed in this work plan, it is assumed that all of the monitor wells to be sampled are still in existence, able to be located, and in satisfactory condition, and that they will contain sufficient water for sampling.

3.1 Task 1: Project Planning

Project planning includes the following items:

- Develop this work plan and cost estimate
- Update the site-specific health and safety plan (HASP)
- Coordinate site access
- Obtain subcontractor agreements
- Call for utility locates
- Schedule the project

To ensure a focus on project objectives, an authorized representative of DBS&A will monitor compliance with the approved work plan.

Prior to the performance of fieldwork, the site-specific HASP will be updated to address health and safety issues associated with the proposed project activities, including installation-related safety issues and the Coronavirus (COVID-19) pandemic.

As this is a State lead site, DBS&A understands that we do not represent the State in dealings with property owners. DBS&A therefore assumes that access with the current site property owner has already been negotiated by PSTB for the activities issued with the original request for quotes (RFQ).

Once the project is scheduled, the property owner(s) and the NMED PSTB project manager will be notified four days prior to commencement of field activities. After completion of field

activities, DBS&A will ensure that locations where project activities occurred are restored as close as possible to their original condition.

3.2 Task 2: Pre-Application Groundwater Monitoring Event

Prior to implementing the amendment application activities, one groundwater monitoring event will be conducted according to the procedures and protocols outlined in this section. Per the accepted project proposal and quote, 10 wells associated with the site will be monitored.

Fluid levels will be gauged in each of the 10 selected existing site wells (PI2-MW1R, PI2-MW2, PI2-MW3, PI4-MW1, PI4-MW4R, PI4-MW5, PI4-MW6, PI4-MW7R, PI4-MW10, and PI4-MW11) (Figure 1) using an electronic interface probe to determine if light nonaqueous-phase liquid (LNAPL) is present, and to determine the depth to water. Wells containing a measurable LNAPL thickness will be hand-bailed to recover the LNAPL. The interface probe will be decontaminated using a non-phosphate detergent solution and distilled water rinse prior to collecting each measurement.

Monitor wells that do not contain LNAPL will be purged using a new dedicated, disposable bailer. DBS&A will attempt to sample wells from the least contaminated to the most contaminated well based on data from the previous sampling event. A minimum of three casing volumes will be removed from each well prior to sampling to ensure that a representative sample of groundwater is obtained. If a well is purged dry, it will be sampled once the well has recharged. During purging, groundwater field parameters, including dissolved oxygen, oxidation/reduction potential, electrical conductivity, pH, and temperature, will be measured using a YSI Professional or equivalent device and recorded in the field notes.

Purge and decontamination water will be disposed of on the ground within the site boundaries, preferably on an impervious surface and near the well of origin. Purge water must not contain LNAPL, must not endanger public health or safety, and must not enter a surface water body or tributary, including an arroyo. Any purged fluids containing LNAPL will be containerized for future disposal at a licensed facility.

Once purged, the wells will be sampled for laboratory analysis. To minimize volatilization and ensure sample integrity, new dedicated, disposable polyethylene bottom-emptying devices will be used to transfer groundwater samples from the bailers to the appropriate containers. Samples collected for volatile organic compound (VOC) analysis will be transferred from bailers into laboratory-prepared 40-milliliter (mL) glass sample bottles that contain mercuric chloride as

a preservative. The groundwater samples will be labeled and preserved on ice in an insulated cooler for delivery to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico, for analysis.

Groundwater samples will be analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary-butyl ether (MTBE), 1,2-dichloroethane (EDC), 1,2-dibromoethane (EDB), and total naphthalenes using U.S. Environmental Protection Agency (EPA) method 8260B (full list). Baseline inorganic chemistry parameters to support remedial design and discharge permitting were analyzed for during the most recent monitoring event conducted by DBS&A in May 2021. For the purposes of budgeting, it is assumed that pre-application monitoring will include analysis for dissolved iron and manganese using EPA method 6010C, sulfate using EPA method 300.0, pH using standard method (SM) 4500, and total dissolved solids (TDS) using SM 2540C (modified). Well PI2-MW1R will also be sampled for total petroleum hydrocarbons (TPH) as gasoline range organics (GRO), using EPA method 8015D, to support the remedial design and post-remediation assessment.

Following completion of the groundwater monitoring event and receipt of laboratory analytical reports, DBS&A will prepare and submit to the NMED PSTB project manager a one-page letter report, per the scope of work presented in the accepted quote for remediation services. The report will be submitted to the PSTB in both electronic and hard copy formats and will summarize the analytical data. The laboratory report, chain of custody documentation, and field notes will be provided as attachments. Maps and tables showing current site conditions will be provided in the subsequent final remediation plan (FRP) and FRP implementation report, described below.

3.3 Task 3: Underground Injection Control Discharge Permit

Prior to purchase of amendment materials, DBS&A will obtain an Underground Injection Control (UIC) discharge permit from the NMED Ground Water Quality Bureau (GWQB). DBS&A will submit a groundwater discharge permit application, and will include maps, figures, logs, tables, and other data necessary to ensure that the application is administratively and technically complete. DBS&A will pay the application filing fee, and will pay for the initial public notice required by the NMED GWQB. To complete public notice, DBS&A will post a sign at the facility, post a flyer off-site at a location approved by GWQB, mail a public notice flyer to property owners within one-third mile, and post notice in a GWQB-approved newspaper. For similar activities on other sites, DBS&A and our clients have successfully obtained temporary permission

to discharge for a one-time amendment application event after completion of the initial public notice required by the GWQB.

3.4 Task 4: Develop Final Remediation Plan

3.4.1 FRP Preparation and Submission

DBS&A will prepare an FRP in accordance with 20.5.119.1923 NMAC. The FRP will be prepared under the supervision of a New Mexico-licensed professional engineer. Per the scope of work defined in the RFQ issued for this site, the FRP will minimally include the following:

- A site history summary that includes current soil and groundwater conditions
- Site maps identifying roads, buildings, utilities, existing monitor wells, groundwater contours, dissolved-phase contaminant distribution, and planned amendment application locations
- A discussion of the planned remediation strategy, including a description of the planned amendment material, rationale for the selected amendment, the amendment installation process, target application depth intervals, and calculations supporting planned amendment installation point spacing and volumes
- An implementation schedule
- A discussion of planned observations and monitoring during amendment application
- Copies of required discharge permits and anticipated public and agency notifications
- Copies of sub-contractor's data sheets
- A HASP

The basis for design of the remediation program is presented in the proposal, which was based on the site investigation data issued with the RFQ. If PSTB requests additional site investigation activities, that information will also be incorporated into the FRP.

3.4.2 FRP Public Notice

DBS&A will provide public notice in accordance with 20.5.12.36.D.10 NMAC. Two legal notices will be published of the submission or planned submission of the FRP in a newspaper of general circulation in Guadalupe County. DBS&A will provide the PSTB with a certified affidavit of publication for each legal notice within 21 days after the FRP is submitted. The format for the legal notice will follow that dictated in 20.5.12.36.D.10.b-d NMAC. A notice will be posted at the

site containing the specified information listed in the regulation. DBS&A will also provide notice via certified mail to the owner and adjacent property owners within 7 days of submission of the FRP in accordance with the regulations.

3.5 Task 5: FRP Implementation

DBS&A worked with Regenesis® of Golden, Colorado to develop a site-specific treatment design to achieve the remedial goals with a practical and cost-effective approach. The selected amendment material is ORC Advanced® (ORC-A), an engineered, oxygen-release compound designed specifically for enhanced in situ aerobic bioremediation of petroleum hydrocarbons in groundwater. Upon contact with groundwater, this calcium oxyhydroxide-based material becomes hydrated, producing a controlled release of molecular oxygen (17 percent by weight) for periods of up to 12 months on a single application. ORC-A accelerates degradation rates, making them up to 100 times faster than natural degradation rates. A single ORC-A application can support enhanced aerobic biodegradation for up to 12 months.

This controlled-release oxygen-supplying amendment was selected based on its suitability as a borehole backfill material, applied in contact with the shallow aquifer. This approach enhances natural biodegradation processes over an extended period of time to reduce hydrocarbon contaminant concentrations, and represents a cost-effective solution given the challenging geology of the site, where alternative approaches would require high-pressure injection of chemical oxidants or carbon-based trap-and-treat materials. The site-specific application summary for ORC-A includes the following specifications (depths listed below assume water is present at approximately 8 feet bgs):

- The treatment area is defined as an approximate 1,000-square foot area surrounding monitor well PI-MW1R, coinciding with the current extent of actionable contamination in groundwater (Figure 4). The treatment is specified for 16 total ORC-A installation points on 8-foot spacing, which is appropriate for the soil and weathered bedrock present in the saturated zone at the site. ORC-A will be applied over a 10-foot vertical interval of the alluvial aquifer (approximately 7 to 17 feet bgs). DBS&A is targeting the water table interface and an impacted zone extending into the fractured bedrock aquifer.
- Because ORC-A is a slow-release oxygen source, it is not reliant on high pressure injection to achieve direct contact with aquifer materials. Diffusion of released oxygen within the aquifer will occur over time and the application volume is less dependent on estimated, variable parameters such as effective porosity than with alternative injection approaches. Regenesis

estimates a total quantity of ORC-A of approximately 800 pounds, or approximately 50 pounds per installation point. ORC-A will be installed in accordance with manufacturer instructions as a 30 percent solids slurry. An auger-drilling methodology will be used to penetrate the weathered bedrock interval. DBS&A will coordinate with New Mexico One Call prior to proposed on-site activities to ensure that subsurface utilities are marked. DBS&A intends to subcontract with Envirodrill, Inc. of Albuquerque, New Mexico (EDI), who will provide the drilling and mixing equipment.

- A mechanical mixing pump will be used to mix ORC-A materials with the manufacturer-specified volume of water in a tank to achieve an approximate 30 percent solids slurry. Water will be obtained locally and stored in a water tank for daily use. ORC-A slurry will be installed in 1-foot intervals, alternating with 1 foot of hydrated bentonite seal from total depth to approximately 7 feet bgs. Boreholes will then be backfilled with bentonite and at least 5 feet of bentonite-cement grout, and will be sealed at the surface with a quick-setting, high-early-strength concrete.
- Work areas will be secured from vehicular and pedestrian traffic during drilling activities. Amendment installation locations will be marked during the pre-application monitoring event.

Following completion of the amendment application, a letter report detailing field activities with photographic documentation will be submitted to the NMED PSTB. DBS&A anticipates that VOC concentrations in groundwater will be reduced to below applicable standards within one year from the amendment application. Elevated metals concentrations may take longer to attenuate due to the chemical behavior of manganese, although the treatment strategy using an oxygen release compound may speed this process.

4. Cost Estimate

Table 1 provides the cost to complete the scope of work as described in Section 3. Tasks 1 through 5 will be invoiced upon submittal and acceptance of the amendment application letter report.

Table 1. Cost Estimate

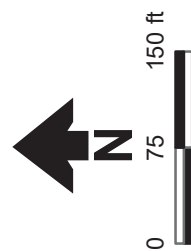
Task(s)	Task Description	Cost	Tax ^a	Total Cost
1, 2	Project planning and pre-application groundwater monitoring	\$5,306.25	\$417.87	\$5,724.12
3	Obtain GWQB UIC discharge permit	\$4,950.00	\$389.81	\$5,339.81
4	Prepare final FRP	\$4,670.00	\$367.76	\$5,037.76
5	Implement FRP and prepare report documenting amendment application activities	\$36,037.45	\$2,837.95	\$38,875.40
Total		\$50,963.70	\$4,013.39	\$54,977.09

^a New Mexico gross receipts tax (7.875%)

Figures



Source: October 31, 2015, aerial imagery from Google Earth Pro



Explanation

- Monitor well
- Deep monitor well
- Covered by debris
- Destroyed by highway construction
- Plugged and abandoned



DBS & A
Daniel B. Stephens & Associates, Inc.
10/20/2021
DB18.1328

SPRINGER AUTO COMPANY
Site Map

Figure 1

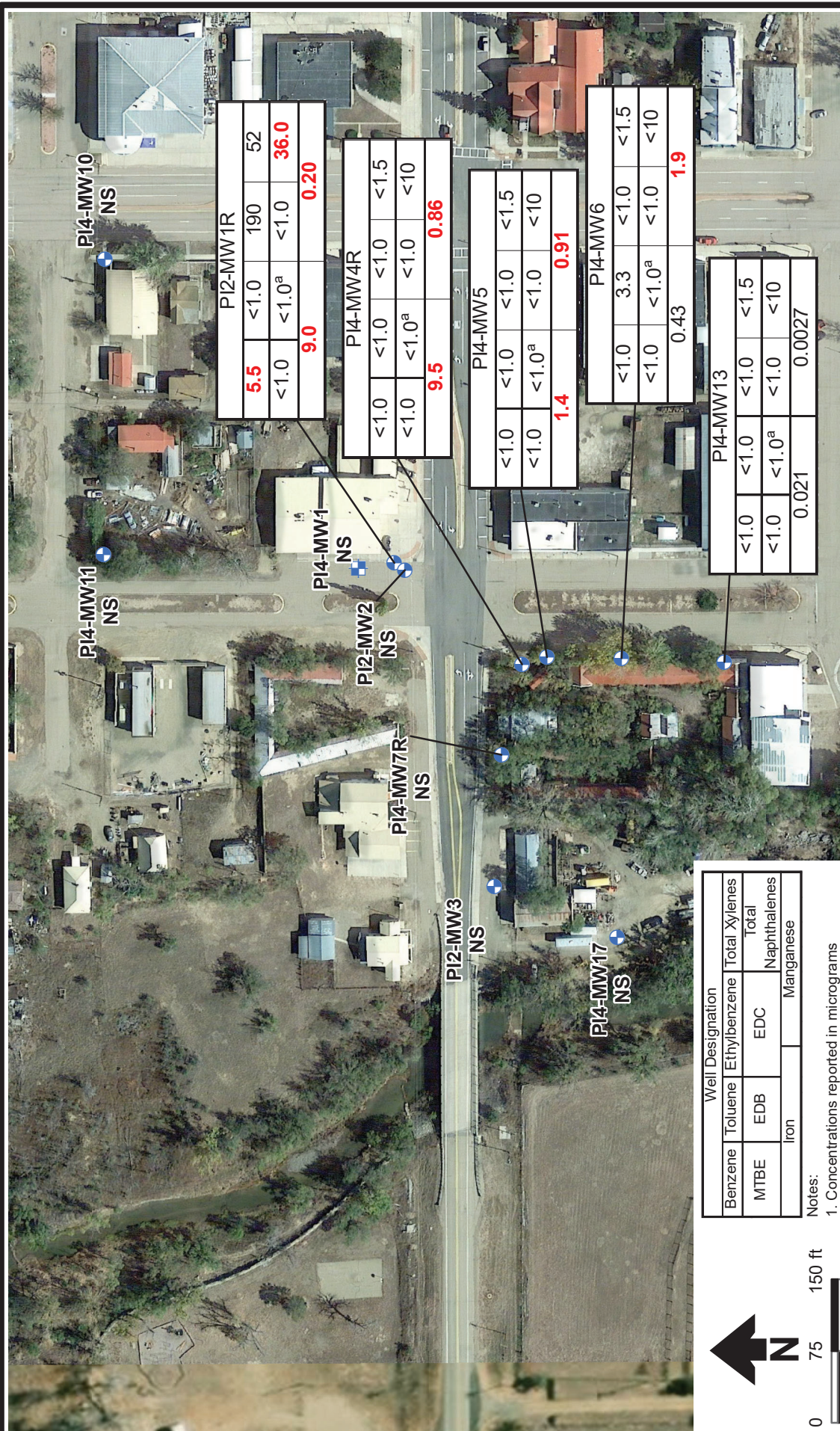


Source: October 31, 2015, aerial imagery from Google Earth Pro

PI2-MW3 Well designation
5779.24 Potentiometric surface elevation (ft msl)
[5774.70] Elevation not used for contouring

SPRINGER AUTO COMPANY **Potentiometric Surface Elevations** **May 18, 2020**

Figure 2



Explanation

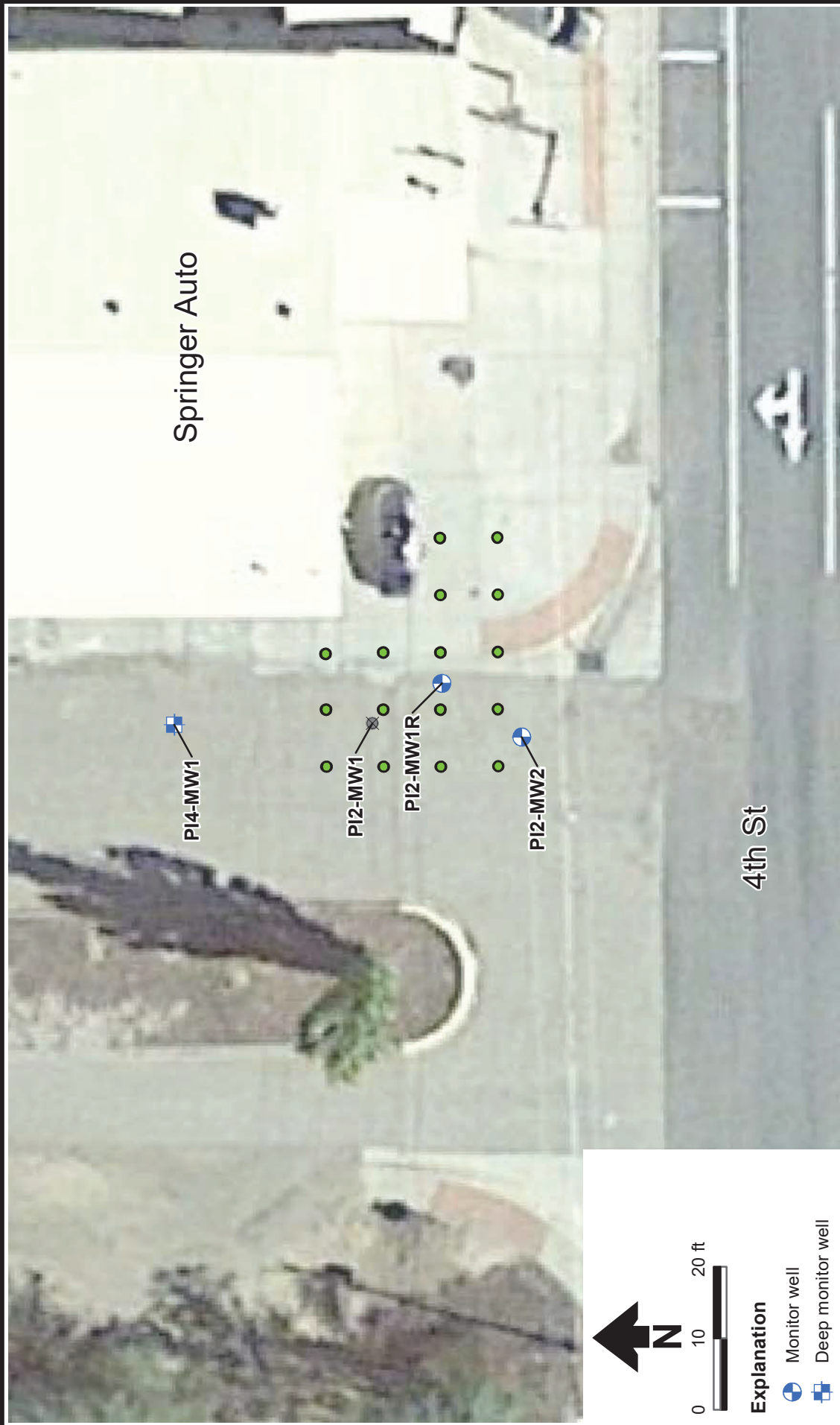
- Monitor well
- Deep monitor well



Daniel B. Stephens & Associates, Inc.
6/10/2021
DB18.1328

SPRINGER AUTO COMPANY
**Distribution of Dissolved-Phase
Hydrocarbons and Metals**
May 18, 2020

Figure 3



Source: October 31, 2015, aerial imagery from Google Earth Pro

Explanation

- Monitor well
- Deep monitor well
- Covered by debris
- Destroyed by highway construction
- Plugged and abandoned
- ORC-Advanced® installation point



DBS & A
Daniel B. Stephens & Associates, Inc.
10/19/2021
DB18.1328

SPRINGER AUTO COMPANY
Proposed Treatment

Figure 1

Specification Sheet



**OXYGEN
RELEASE
COMPOUND**

ORC Advanced® Technical Description

ORC Advanced® is an engineered, oxygen release compound designed specifically for enhanced, *in situ* aerobic bioremediation of petroleum hydrocarbons in groundwater and saturated soils. Upon contact with groundwater, this calcium oxyhydroxide-based material becomes hydrated producing a controlled release of molecular oxygen (17% by weight) for periods of up to 12 months on a single application.

ORC Advanced decreases time to site closure and accelerates degradation rates up to 100 times faster than natural degradation rates. A single ORC Advanced application can support aerobic biodegradation for up to 12 months with minimal site disturbance, no permanent or emplaced above ground equipment, piping, tanks, power sources, etc are needed. There is no operation or maintenance required. ORC Advanced provides lower costs, greater efficiency and reliability compared to engineered mechanical systems, oxygen emitters and bubblers.



Example of ORC Advanced

ORC Advanced provides remediation practitioners with a significantly faster and highly effective means of treating petroleum contaminated sites. Petroleum hydrocarbon contamination is often associated with retail petroleum service stations resulting from leaking underground storage tanks, piping and dispensers. As a result, ORC Advanced technology and applications have been tailored around the remediation needs of the retail petroleum industry and include: tank pit excavations, amending and mixing with backfill, direct-injection, bore-hole backfill, ORC Advanced Pellets for waterless and dustless application, combined ISCO and bioremediation applications, etc.

For a list of treatable contaminants with the use of ORC Advanced, view the [Range of Treatable Contaminants Guide](#)

Chemical Composition

- Calcium hydroxide oxide
- Calcium hydroxide
- Monopotassium phosphate
- Dipotassium phosphate

Properties

- Physical state: Solid
- Form: Powder
- Odor: Odorless
- Color: White to pale yellow
- pH: 12.5 (3% suspension/water)



**OXYGEN
RELEASE
COMPOUND**

ORC Advanced® Technical Description

Storage and Handling Guidelines

Storage

- Store in a cool, dry place out of direct sunlight
- Store in original tightly closed container
- Store in a well-ventilated place
- Do not store near combustible materials
- Store away from incompatible materials
- Provide appropriate exhaust ventilation in places where dust is formed

Handling

- Minimize dust generation and accumulation
- Keep away from heat
- Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces
- Observe good industrial hygiene practices
- Take precaution to avoid mixing with combustibles
- Keep away from clothing and other combustible materials
- Avoid contact with water and moisture
- Avoid contact with eyes, skin, and clothing
- Avoid prolonged exposure
- Wear appropriate personal protective equipment

Applications

- Slurry mixture direct-push injection through hollow rods or direct-placement into boreholes
- *In situ* or *ex situ* slurry mixture into contaminated backfill or contaminated soils in general
- Slurry mixture injections in conjunction with chemical oxidants like RegenOx or PersulfOx
- Filter sock applications in groundwater for highly localized treatment
- *Ex situ* biopiles

Health and Safety

Wash thoroughly after handling. Wear protective gloves, eye protection, and face protection. Please review the [ORC Advanced Safety Data Sheet](#) for additional storage, usage, and handling requirements.



www.regenesis.com
1011 Calle Sombra, San Clemente CA 92673
949.366.8000

©2016 All rights reserved. REGENESIS and ORC Advanced® are registered trademarks of REGENESIS Bioremediation Products. All other trademarks are the property of their respective owners.

Field Form

Amendment Injection Field Sheet

Project Name:		Date:	
Project No.:		Contractor:	
Injection Type: Well <input type="checkbox"/> Direct push <input type="checkbox"/> Other <input type="checkbox"/>		Well ID:	
Injection product:			
Static Water Level:		Observation Wells:	

[illegible][illegible]

Notes:

