District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

I Release Notification

Responsible Party

Responsible Party Hilcorp Energy	OGRID 372171
Contact Name Clara Cardoza	Contact Telephone 505-564-0733
Contact email ccardoza@hilcorp.com	Incident # *(assigned by OCD)* NVF1718155324
Contact mailing address 382 CR 3100 Aztec NM 87410	

Location of Release Source

Latitude 36.7496223 Longitude -108.0189896
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Fifield 5 1	Site Type Well Site (Plugged)
Date Release Discovered	API# *(if applicable)* 30-045-08640

Unit Letter	Section	Township	Range	County
N	05	29N	11W	San Juan

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☒ Other (describe) Historic Hydrocarbon	Volume/Weight Released (provide units) Unknown	Volume/Weight Recovered (provide units) 0

Cause of Release
During BGT closure activities of P&A well, historic contamination was discovered under the North BGT.

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division

Clara,

OCD has reviewed the remediation plan for the Fifield 5 #1 received on July 15, 2019 and have approved the plan with the following conditions of approval:

- HEC will start SVE remediation no later than October 18, 2019
- HEC will achieve a run time of 90% or better of the proposed 12 hours per day.
- HEC will collect an initial gas sample for laboratory analysis shortly after startup of SVE operations after the initial gas sample an annual sample is required. The air sample must be collected prior to the inlet of the vacuum pump but, after the convergence of all SVE wells or alternativity an air sample from each SVE well is acceptable.
    - The gas sample will be analyzed for EPA Method 8260 Full List and include Carbon Dioxide and Oxygen.
- HEC quarterly report will include at a minimum
    - Summary of remediation activity for the quarter
    - SVE Run time
    - SVE mass removal
    - Field notes (VOC readings, water/product recovery, inspection dates etc)
    - Amount of liquids/product recovered if any (This will be recorded from the knock out drum since ground water in not expected to be encountered)
- HEC will submit a detailed closure plan for OCD approval prior to the collection of any confirmation Borehole samples. The Closure plan will include at a minimum bore hole locations, sampling method and frequency.

OCD recommends the installation of an additional “Vent” well with fans or even active air sparging well to increase oxygen levels which would promote biodegradation and assist in air movement for sve remediation.

If you have any questions please give me a call.

Cory Smith
Environmental Specialist
Oil Conservation Division

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Historic release
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? N/A	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☐ The source of the release has been stopped.

☐ The impacted area has been secured to protect human health and the environment.

☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☐ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

This is a historic release and there was no active source at the time of discovery.

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: __Clara Cardoza_____ Title: __Environmental Specialist_____

Signature: _____ Date: __3/5/2019_____

email: __ccardoza@hilcorp.com_____ Telephone: _____505.564.0733_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points
☒ Estimated volume of material to be remediated
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Clara Cardoza Title: Environmental Specialist

Signature: Clara D. Cardoza Date: 7/15/2019

email: ccardoza@hilcorp.com Telephone: 505.564.0733

OCD Only

Received by: OCD Date: 7/15/19

☐ Approved ☒ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Date: 7/18/19

961 CR 233, Ste. B-4
Durango, Colorado 81301
979.324.2139
www.teamtimberwolf.com

June 14, 2019

Ms. Clara Cardoza
Hilcorp Energy Company
382 Road 3100
Aztec, New Mexico 87410

Re: Site Characterization Report and Remedial Action Plan
Fifield 5 No. 1 (SE ¼, SW ¼, Sec. 5, T29N, R11W)
Hilcorp Energy Company
San Juan County, New Mexico
OCD Incident No.: NVF1718155324

Dear Ms. Cardoza:

At the request of Hilcorp Energy Company (Hilcorp), Timberwolf Environmental, LLC (Timberwolf) presents this site characterization report and remedial action plan for the Fifield 5 No. 1 (Site). The Site is located approximately 3.3 miles northwest of Bloomfield, San Juan County, New Mexico (Figures 1 - 3).

The purpose of this document is to present Site characterization activities and outline the preferred remedial option to bring the Site to regulatory closure.

Site History

Historically, the Site has consisted a well head, line heater and separator with associated below-grade tank (BGT) for produced water, sales meter, and tank battery comprised of one above-ground storage tank (AST) and one BGT. On or about 06/01/17, removal and closure of the BGT revealed historical contamination beneath the BGT. All surface equipment was removed and the well was plugged and abandoned. Surface equipment present at the time of Site abandonment is presented in Figure 4.

Initial assessment efforts were conducted by Rule Engineering, LLC (Rule), a subcontractor of ConocoPhillips Company (ConocoPhillips). Hilcorp's acquired the property in 2017 and Rule conducted additional assessments in 2018. All findings by Rule Engineering are documented in Timberwolf's *Site Characterization and Remedial Action Plan*, dated February 28, 2019. The initial assessment identified the following constituents of concern (COCs): benzene, toluene, ethylbenzene, and xylene (BTEX) and total Petroleum Hydrocarbons (TPH).

Site Characterization Report

Timberwolf's characterization of the Site included a review of data collected during Rule's field investigations, a desktop review of publicly available data, a field inspection, and a soil investigation. The environmental setting, applicable regulatory criteria, sampling methodology, Timberwolf soil investigation, and conclusions are presented below.

Environmental Setting

The well has been plugged and all surface equipment has been removed from the Site; however, Hilcorp's Hali Meador #005R is located immediately west of the Site. The surrounding area consists of sparse vegetative cover comprised primarily of scrub brush. Area topography consists of mesas divided by shallow canons and intermittent streams that flow south into the San Juan River. The Site is situated along the eastern edge of an unnamed mesa; average elevation is approximately 5,786 feet (ft) above mean sea level. The nearest water way is an unnamed intermittent stream located approximately 1,350 ft west of the Site. The intermittent stream empties into the San Juan River, approximately 3.4 miles south of the Site.

According to the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS), the Site soil consists of the Gypsiorthids-Badland-Stumble complex, 5 to 30 percent slopes. The surface layer consists of sandy loam, underlain by lithic bedrock encountered between 16 to 20 inches below ground surface (bgs). Native salinity of the soil is very slightly saline to slightly saline (2.0 to 4.0 millimhos per centimeter (mmhos/cm)). Site soil is presented in Figure 5.

Regulatory Criteria

The New Mexico Oil Conservation Division (NMOCD) established remediation action levels for soil impacted by oilfield products or wastes, which are documented under New Mexico Administrative Code (NMAC) Rule 19.15.29. Under Rule 19.15.29, soil cleanup criteria is determined based on the depth to usable groundwater and distances to surface water resources and sensitive features. Regulated groundwater intervals, required laboratory methodology, and soil closure criteria are presented in the following table.

Table 1. Closure Criteria for Soil Impacted by a Release

Depth to Groundwater[1]	Constituent	Method[2]	Regulatory Criteria[3] (mg/kg)
≤ 50 feet	Chloride[4]	EPA 300.0	600
	TPH	EPA SW-846 Method 8015M	100
	Total BTEX	EPA SW-846 Method 8021B or 8260B	50
	Benzene	EPA SW-846 Method 8021B or 8015M	10
51 feet-100 feet	Chloride[4]	EPA 300.0	10,000
	TPH	EPA SW-846 Method 8015M	2,500
	GRO+DRO	EPA SW-846 Method 8015M	1,000
	Total BTEX	EPA SW-846 Method 8021B or 8260B	50
	Benzene	EPA SW-846 Method 8021B or 8260B	10
> 100 feet	Chloride[4]	EPA 300.0	20,000
	TPH	EPA SW-846 Method 8015M	2,500
	GRO+DRO	EPA SW-846 Method 8015M	1,000
	Total BTEX	EPA SW-846 Method 8021B or 8260B	50
	Benzene	EPA SW-846 Method 8021B or 8015M	10

[1] From surface to useable groundwater (i.e., less than 10,000 milligrams per liter (mg/L) total dissolved solids (TDS))
[2] Or other test methods approved by the division
[3] Regulatory limits or background level, whichever is greater
mg/kg – milligrams per kilogram
GRO – gasoline range organics
MRO – motor oil organics
[4] Applies to produced water and fluids containing chloride
TPH = GRO + DRO + MRO
DRO – diesel range organics

Additionally, the most stringent closure criteria as presented in Table 1 (i.e., ≤ 50 feet) are applicable for releases within a municipal boundary, 100-year floodplain, overlying a mine or unstable area, or within the specified protective distances from sensitive features as shown in Table 2.

Table 2. Protective Distances for Sensitive Features

Sensitive Feature	Protective Distance (feet)
Continuously flowing watercourse and its first order tributaries	300
Lakebed, sinkhole, or playa lake	200
Residence, school, hospital, or church	300
Spring or water well for private domestic/livestock water source	500
Any spring or fresh water well	1,000
Wetland	300

To determine depth to groundwater at the Site, Timberwolf reviewed well records maintained by the New Mexico Office of the State Engineer (NMOSE). The review revealed four water wells within a one-mile radius of the Site and that the depth to groundwater in those wells is greater than 51 ft bgs. A copy of relevant water well files are attached.

The nearest water well found in NMOSE records is situated approximately 0.88 mile southwest of the Site. This well is identified by the NMOSE as POD No.: SJ-03749-POD1 and has the following global positioning system (GPS) coordinates: 36.74247° / -108.03251° in North American Datum from 1983 (NAD83). The depth to water is approximately 140 ft bgs with a total well depth of 440 ft. The surface elevation of this well is approximately 5,696 ft above mean sea level.

The shallowest water well found in NMOSE records is situated approximately 1.0 mile southwest of the Site. This well is identified by the NMOSE as POD No.: SJ-00867 and has the following GPS coordinates: 36.73676° / -108.02854°. The depth to water is approximately 55 ft bgs with a total well depth of 75 ft. The surface elevation of this well is approximately 5,722 ft above mean sea level. The differential surface elevation between this water well and the Site plus the depth to groundwater in the well yields a depth to water for the Site of 119 ft. Referenced water wells are mapped in Figure 2.

The Site qualifies soil closure criteria for groundwater depths of >100 ft as presented in Table 1 because the Site is not situated within a municipal boundary, floodplain, mine, or unstable area; or within 1,000 ft of any sensitive feature as shown in Figure 5; and the depth to water at the Site is greater than 100 ft. However, according to BGT permits filed by ConocoPhillips', the closure standards for a release from the BGT are derived from the New Mexico Administrative Code (NMAC) 19.15.17 (Pits, Closed Loop Systems, Below Grade Tanks, and Sumps) Section H (Reclamation of pit locations, onsite burial locations and drying pad locations). The permit specified the most stringent closure criteria for a release occurring from a BGT; consequently, applicable regulatory criteria for the Site are presented in Table 3 below.

Table 3. Closure Criteria for Soils Beneath Below-Grade Tanks, Drying Pads Associated with Closed-Loop Systems and Pits where Contents are Removed

Depth to Groundwater[1]	Constituent	Laboratory Method[2]	Regulatory Criteria[3] (mg/kg)
< 50 feet*	Chloride[4]	EPA 300.0	600
	TPH	EPA SW-846 Method 8015M	100
	Total BTEX	EPA SW-846 Method 8021B or 8260	50
	Benzene	EPA SW-846 Method 8021B or 8260	10

Groundwater is deeper than 50 ft, but per permit, most stringent criteria was used

[1] – Depth below bottom of pit to useable groundwater (i.e., less than 10,000 mg/L TDS)
[2] – Or other test methods approved by the division
[3] – Regulatory limits or background level, whichever is greater
[4] – Applies to produced water and fluids containing chloride
mg/kg – milligrams per kilogram
GRO – gasoline range organics
DRO – diesel range organics
EPA – Environmental Protection Agency
mg/L – milligrams per liter
TDS – total dissolved solids
TPH = GRO + DRO + MRO
MRO – motor oil range organics
SW – solid waste

Sampling Methodology

Soil samples were collected from borings installed using a rotary rig equipped with a hollow stem auger and split spoon barrel or flight augers. Prior to soil boring installation, a clearance request was submitted to New Mexico 811 (i.e., One Call).

During boring installation, soil samples were continuously sampled, logged for morphological characteristics, and field screened for volatile organic compounds (VOCs) using a photoionization detector (PID). PID readings are recorded on the attached soil boring logs.

Samples from each boring exhibiting the highest PID reading were selected for chemical analysis along with the boring terminus. Each boring was plugged with a bentonite seal to prevent vertical migration of constituents. Sample locations are presented in Figure 5.

Soil samples were placed directly into laboratory provided sample containers, labeled, stored on ice, and transported under proper chain-of-custody protocols to Pace Analytical Laboratory in Mt. Juliet, Tennessee for chemical analysis. Selected soil samples were analyzed for one or more of the following constituents of concern (COCs) using the described method:

- BTEX by SW-846 EPA Method 8260B
- TPH (GRO, DRO, and MRO, extended range) by SW-846 EPA Method 8015M

Laboratory results, analytical methods, and chain-of-custody documents are provided in the attached laboratory reports.

Geotechnical samples were collected from two soil borings. The samples were collected by driving a split-spoon fitted with acetate liners with a hydraulic geotechnical hammer. Intact samples were collected within the acetate liners. Samples were submitted under proper chain-of-custody protocol to Gessner Engineering, LLC of Bryan, Texas.

Soil Investigation

On 03/20/19, Timberwolf contracted with GEOMAT, Inc. of Farmington, New Mexico to install soil borings at the Site. Four soil borings (i.e. SB11 – SB14) were installed at and surrounding the former BGT to vertically and horizontally delineate petroleum hydrocarbon impacts in soil. Auger refusal was encountered in SB12 at 51 ft bgs. Groundwater was not encountered in any boring. Eight soil samples were collected from the borings; sample depths ranged from 20 ft bgs to 51 ft bgs.

The analytical results from the soil investigation are summarized in Table 4 below. Cumulative soil analytical results from all Site investigation events at the Site are attached in Table A-1 and presented on Figure 7.

Table 4. Soil Analytical Results – BTEX and TPH

Sample ID	Volatile Organic Compounds (mg/kg)					Total Petroleum Hydrocarbons (mg/kg)			
	B	T	E	X	Total	GRO	DRO	MRO	TPH
SB11 25-26'	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB11 35-36'	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB12 20-21'	0.372	13.9	3.88	58.8	76.95	3,990	471	15.3	4,476.3
SB12 50-51'	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB13 30-31'	< 0.020	1.13	0.407	7.77	9.327	704	314	14	1,032
SB13 40-41'	0.0062	0.0355	< 0.0025	0.0342	0.0759	1.5	< 4.0	< 4.0	1.5
SB14 30-31'	0.00813	0.0256	< 0.0025	0.0294	0.0656	0.12	< 4.0	< 4.0	8.12
SB14 35-36'	< 0.001	< 0.005	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
Remedial Target	**10**	**--**	**--**	**--**	**50**	**--**	**--**	**--**	**100**

TPH – total petroleum hydrocarbons (TPH = GRO+DRO+MRO)
BTEX – benzene, toluene, ethylbenzene, and xylenes
mg/kg – milligrams per kilogram
N/A – constituent not analyzed
– exceeds regulatory criteria

GRO – gasoline range organics
DRO – diesel range organics
MRO – motor oil range organics
-- – no applicable regulatory criteria

A total of six geotechnical samples were collected from SB12 and SB13 to quantify physical and hydrogeologic properties of the various depth intervals within the impacted zones. Geotechnical testing is underway; results will be utilized for remedial system design.

Conclusions of Site Characterization

Based on prior assessments, Timberwolf's Site characterization, the NMOCD regulatory criteria, and findings of the soil investigation, the following is concluded:

- A historical release from a BGT resulted in subsurface impacts at the former tank battery
- The BGT permit stipulates that any release occurring from the BGT is subject to the most stringent criteria

- Total BTEX concentrations exceeded regulatory criteria in one soil sample (i.e., SB12 20-21')
    - SB12 was situated immediately adjacent to the former BGT (i.e., point of release)
    - The total BTEX concentration was 76.95 mg/kg
- TPH concentrations exceeded regulatory criteria in two soil samples (i.e., SB12 20-21' and SB13 30-31')
    - SB13 was situated downgradient and approximately 75 ft southeast from the former GBT
    - TPH concentrations were 4,476.3 mg/kg and 1,032 mg/kg, respectively
    - PID readings indicate vertical extents of impacted soil in SB12 and SB13 to be approximately 45 ft and 35 ft bgs, respectively
- Concentrations of all other COCs were below regulatory criteria
- Each constituent is vertically and horizontally delineated for all COCs
    - Horizontally and vertically extent of each constituent are shown in isoconcentration maps and cross-sectional views (Figures 8 – 10)
    - The horizontal extent of impacted soil is approximately 10,420 square feet (ft^2) or 0.24 acres
    - The vertical extent of impacted soil is approximately 45 ft bgs
    - The volume of impacted soil is approximately 7,500 cubic yards

Remedial Action Plan

The soil investigations revealed the COCs at this Site include total BTEX and TPH; most of the TPH was observed in the gasoline range (i.e., C_6-C_{10}). Because total BTEX and GRO have high volatilization and degradation rates, effective treatment of these constituents can be achieved in situ with a soil-vapor extraction (SVE) system.

To bring Site soils into compliance, Hilcorp will install a SVE system to include approximately 13 SVE wells. Each SVE well will be constructed of 4-inch PVC and screened across the impacted intervals. Wells will be piped to a manifold system in a manner to provide multiple legs (approximately 3). The system will be powered by a vacuum pump or blower. Since electrical power is not available at the Site, the vacuum/blower motors will be powered by a solar panel and battery storage system.

To prevent preferential pathways from developing, the runtime for each leg will be approximately 4 hours. Electric solenoids and timers will control valves on each leg to cycle through each leg of the system. Daily system runtime will be largely dependent on the solar panel power system but is estimated at 12 hours per day. The SVE system will be designed and operated in a manner capable of treating the estimated 7,500 yds^3 of impacted soil.

A detailed SVE system will be designed once geotechnical data is available. A Site Remediation Plan presenting the designed SVE system, operation and maintenance schedule, and anticipated closure timeline will be submitted to the NMOCD for approval prior to system installation.

Quarterly monitoring reports for the system will be submitted to the NMOCD while the system is operational. Additionally, Site soil will be monitored periodically. Once regulatory compliance is achieved, a no further action status request will be made with the NMOCD and the SVE system will be discontinued and dismantled.

Upon NMOCD approval of this remedial technique, system design will begin immediately. The total system runtime is projected to be approximately 3 years. The anticipated timeline for system design, installation, treatment period, soil monitoring schedule, quarterly monitoring reports, and site closure are presented in Table 5.

Table 5. Projected Remedial Tasks and Timeline

Task	2019		2020	2021	2022	2023
	3Q19	4Q19	1Q20 – 4Q20	1Q21 – 4Q21	1Q22 – 4Q22	1Q23 – 4Q23
System Design & O&M Schedule						
System Install						
Start-up, Automation Install & Initial Monitoring						
System Run-time						
Soil Monitoring						
Monitoring Reports						
Site Closure Report						

Timberwolf appreciates the opportunity to provide Hilcorp with our professional consulting services. If you have any questions regarding this proposal, please contact us at (979) 324-2135.

Sincerely,
Timberwolf Environmental, LLC

Preston Kocian
Project Manager

Jim Foster
President

Attachments: Figures
NMOSE Water Well Records
Soil Boring Logs
Attached Tables
Laboratory Reports and Chain-of-Custody Documents

TIMBERWOLF ENVIRONMENTAL

Figures

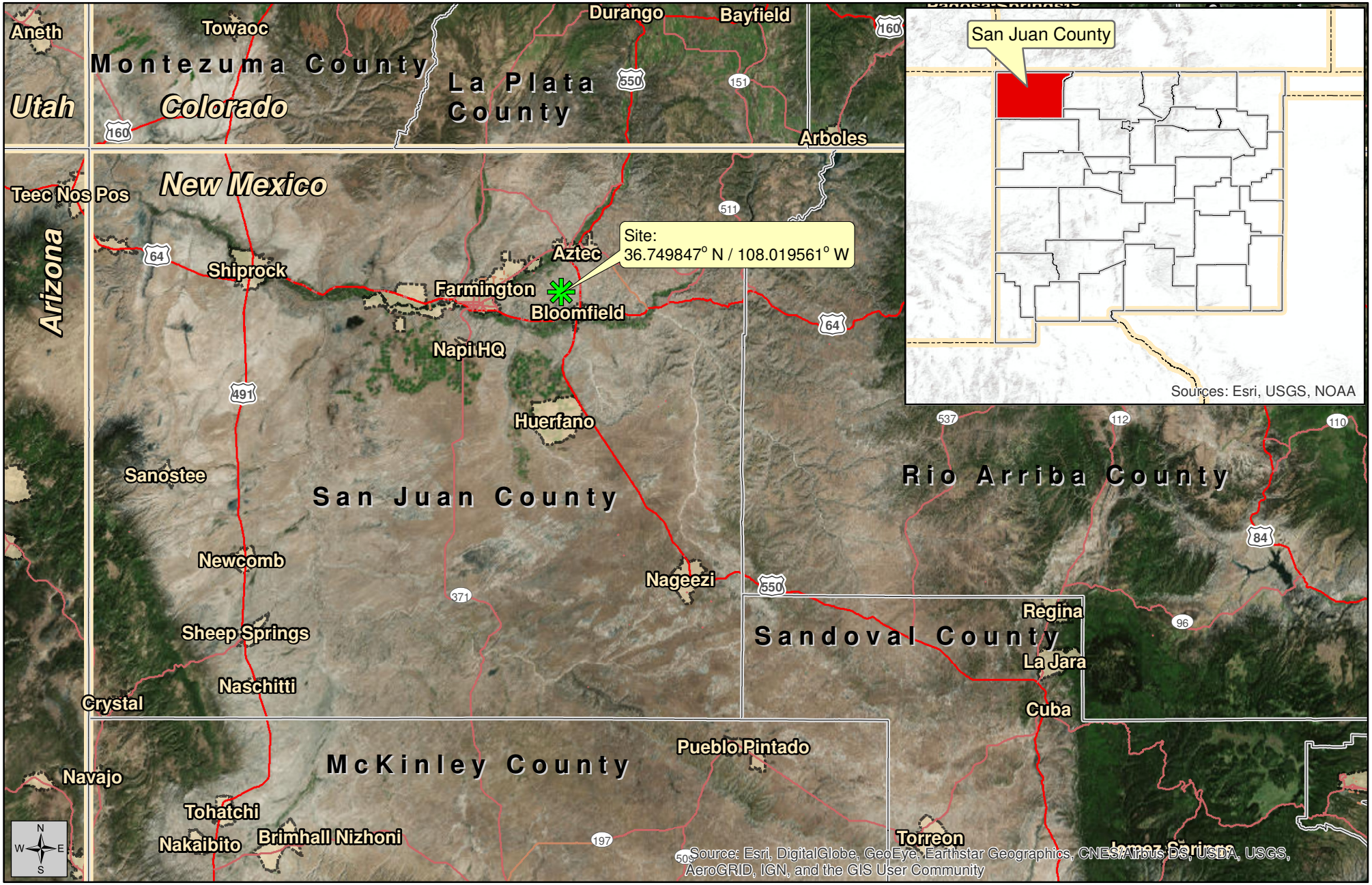


Figure 1 **Site Location Map**	**Site Charactorization Report and Remedial Action Plan**	**June 13, 2019**
TIMBERWOLF ENVIRONMENTAL	1:1,250,000 0 20 40 60 80 100 120 Miles **Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)** **Hilcorp Energy Company** **San Juan County, New Mexico**	* Site
Created By: Kevin Cole TE Project No.: HEC-190009	Datum: NAD83 Imagery Source: ESRI Vector Source: ESRI and TE	

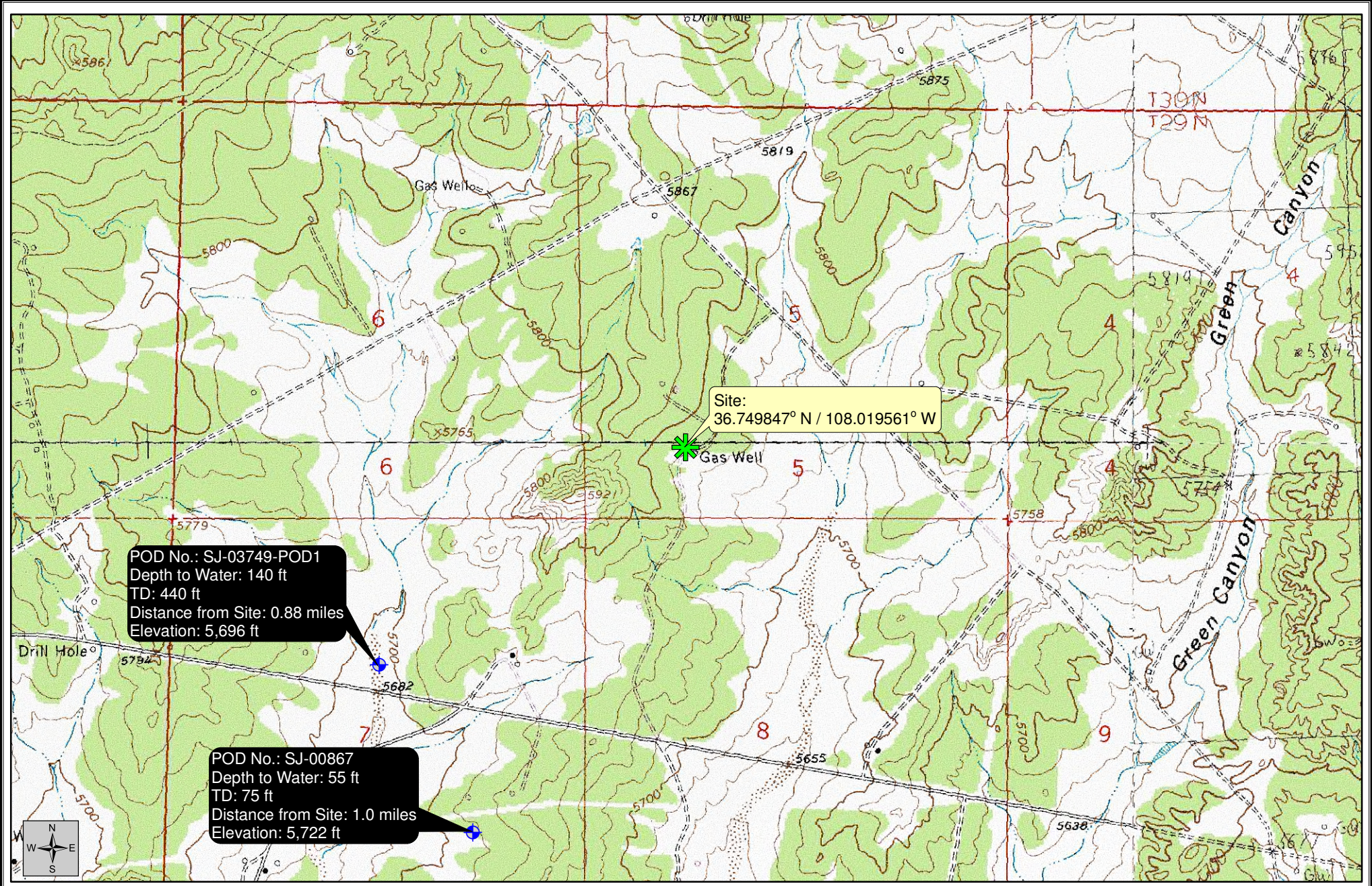


Figure 2
Topographic Map

Site Charactorization Report and Remedial Action Plan

June 13, 2019

TIMBERWOLF ENVIRONMENTAL

1:24,000

0 0.5 1 1.5 2 2.5 Miles

Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Created By:
Kevin Cole
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: USGS
Quads: Aztec, Bloomfield, Flora Vista, Horn Canyon
Vector Source: TE

Site
Water Well

Figure 3 **Aerial Map**	**Site Charactorization Report and Remedial Action Plan**	**June 13, 2019**
TIMBERWOLF ENVIRONMENTAL	1:10,000 0 0.25 0.5 0.75 1 Miles **Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)** **Hilcorp Energy Company** **San Juan County, New Mexico**	Site

Created By:
Kevin Cole
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

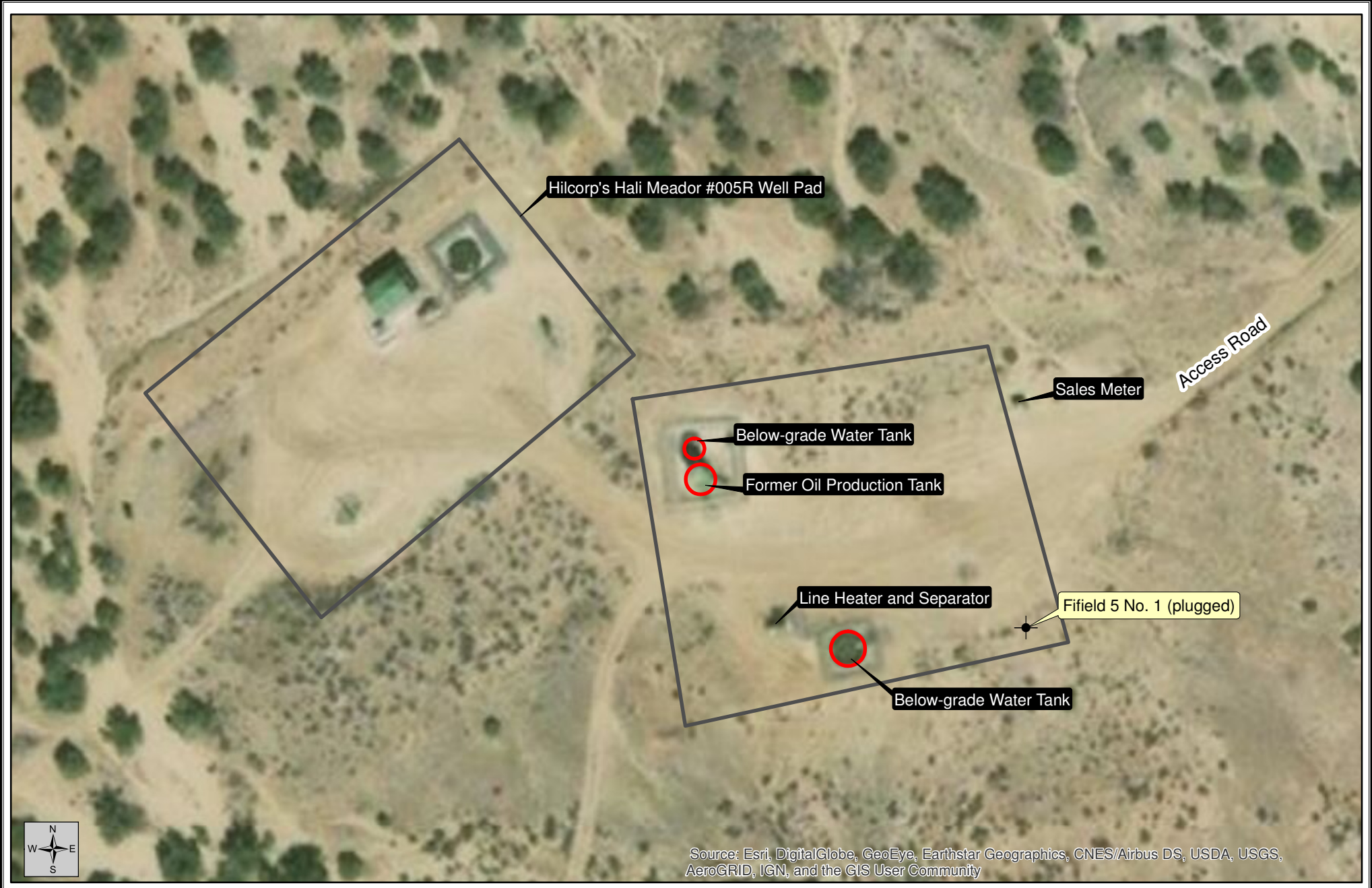


Figure 4
Site Diagram Map
Prior to Abandonment

Site Characterization Report and Remedial Action Plan

June 13, 2019

TIMBERWOLF ENVIRONMENTAL

1:1,000

0 100 200 300 400 500 Feet

Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Created By:
Russell Greer
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

Plugged Well
Former Tanks
Well Pads

Figure 5
Soil Map

Site Charactorization Report and Remedial Action Plan

June 13, 2019

TIMBERWOLF ENVIRONMENTAL

1:1,000

0 100 200 300 400 500 Feet

Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Created By:
Kevin Cole
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

Site

Gypsiorthids-Badland-Stumble complex (GY)

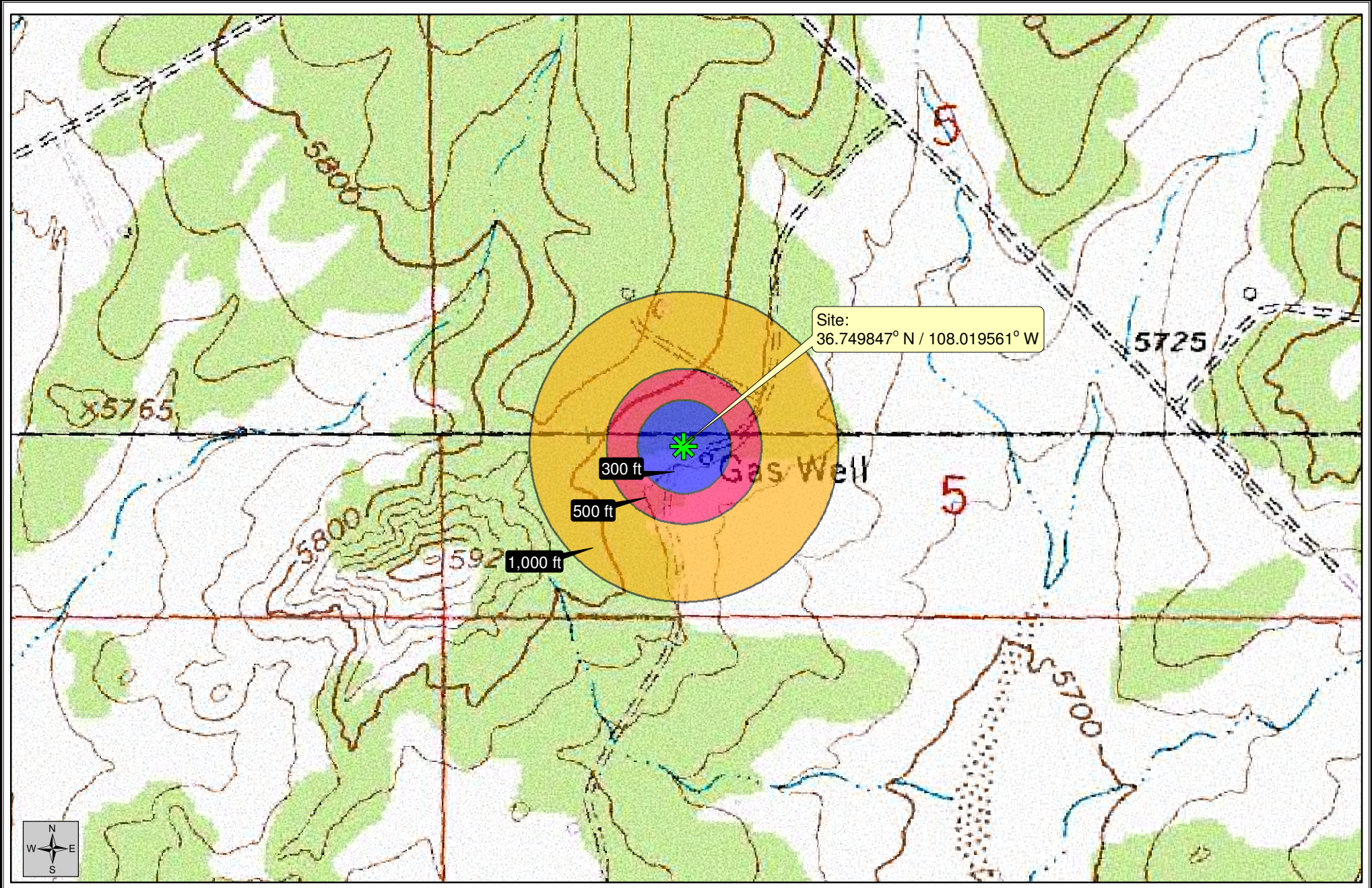


Figure 6
Buffer Map

Site Charactorization Report and Remedial Action Plan

June 13, 2019

1:10,000

0 0.25 0.5 0.75 1 Miles

Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Site
1,000 ft Buffer
500 ft Buffer
300 ft Buffer

TIMBERWOLF ENVIRONMENTAL

Created By:
Kevin Cole
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: USGS
Quads: Flora Vista and Horn Canyon
Vector Source: TE

Sample ID	Sample Date	Volatile Organic Compounds (mg/kg)					Total Petroleum Hydrocarbons (mg/kg)			
		B	T	E	X	Total BTEX	GRO	DRO	MRO	TPH
SB1 27.5-28.5*	12/22/17	3.1	53	9.8	150	216	2,500	710	< 50	3,210
SB1 35-36*	12/22/17	0.36	6.9	1.5	20	29	440	93	< 49	533
SB1 40-41*	12/22/17	< 0.024	0.064	< 0.049	0.34	0.4	18	10	< 48	28
SB2 15-16*	02/05/18	< 0.11	< 0.23	0.41	2	2.4	270	33	< 48	303
SB2 35-36*	02/05/18	0.25	2.7	0.55	7.3	10.8	200	23	<49	232
SB4 22.5-23.5*	02/06/18	0.56	10	2.1	29	42	560	170	< 49	730
SB4 45-46*	02/06/18	0.027	0.22	< 0.037	0.26	0.51	11	< 9.8	< 49	11
SB5 17.5-18.5*	02/07/18	< 0.25	4.4	3.7	56	64	700	260	< 43	960
SB6 25-26*	02/07/18	< 0.12	5.3	1.5	29	36	390	160	< 49	550
SB7 15-16*	02/07/18	< 0.023	< 0.047	< 0.047	0.51	0.51	32	66	< 45	98
SB8 25-26*	02/08/18	0.028	0.37	< 0.046	1.1	1.1	5.5	< 9.5	< 48	5.5
SB9 27.5-28.5*	02/08/18	< 0.025	< 0.049	< 0.049	< 0.098	0.221	< 4.9	< 9.8	< 49	63.7
SB10 27.5-28.5*	02/08/18	0.03	0.13	< 0.049	0.17	0.33	< 4.9	< 9.5	< 48	63.4
SB11 25-26'	03/20/19	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB11 35-36'	03/20/19	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB12 20-21'	03/20/19	0.372	13.9	3.88	58.8	76.95	3,990	471	15.3	4,476.3
SB12 50-51'	03/20/19	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB13 30-31'	03/20/19	< 0.020	1.13	0.407	7.77	9.327	704	314	14	1,032
SB13 40-41'	03/20/19	0.0062	0.0355	< 0.0025	0.0342	0.0759	1.5	< 4.0	< 4.0	1.5
SB14 30-31'	03/20/19	0.00813	0.0256	< 0.0025	0.0294	0.0656	0.12	< 4.0	< 4.0	8.12
SB14 35-36'	03/20/19	< 0.001	< 0.005	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
NMOCD Action Level		10	--	--	--	50	--	--	--	100

Note: Sample Locations SB1-SB10 collected by Rule Engineering; SB11-SB14 collected by Timberwolf

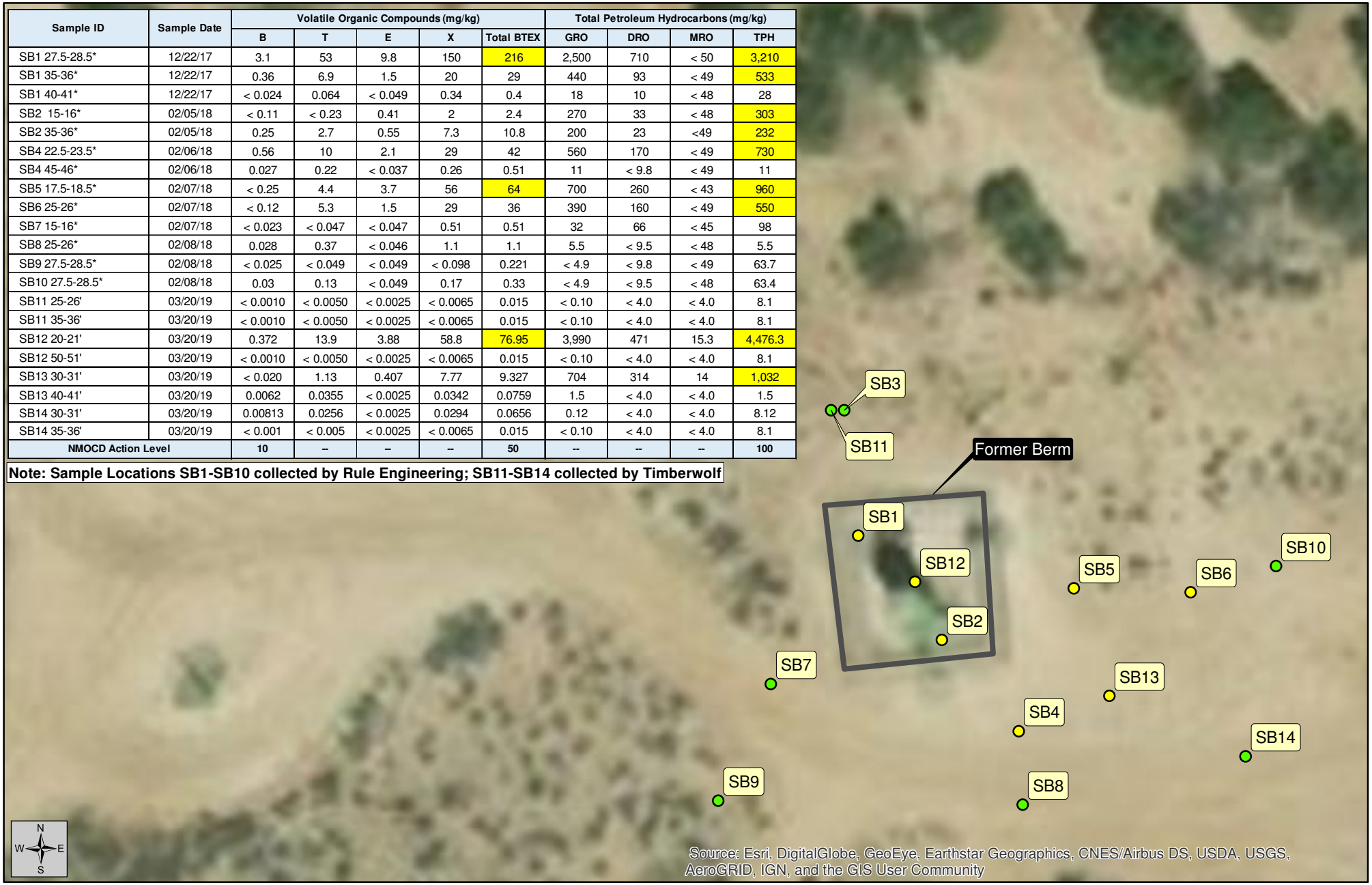


Figure 7
Sample Location Map

Site Charactorization Report and Remedial Action Plan

Sample Dates:
12/22/17, 02/05/18, 02/06/18, 02/07/18, and 03/20/18

TIMBERWOLF ENVIRONMENTAL

1:500

0 50 100 150 200 250 Feet

Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Created By:
Kevin Cole
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

- Sample Location (clean)
- Sample Location (elevated)
- Former Berm

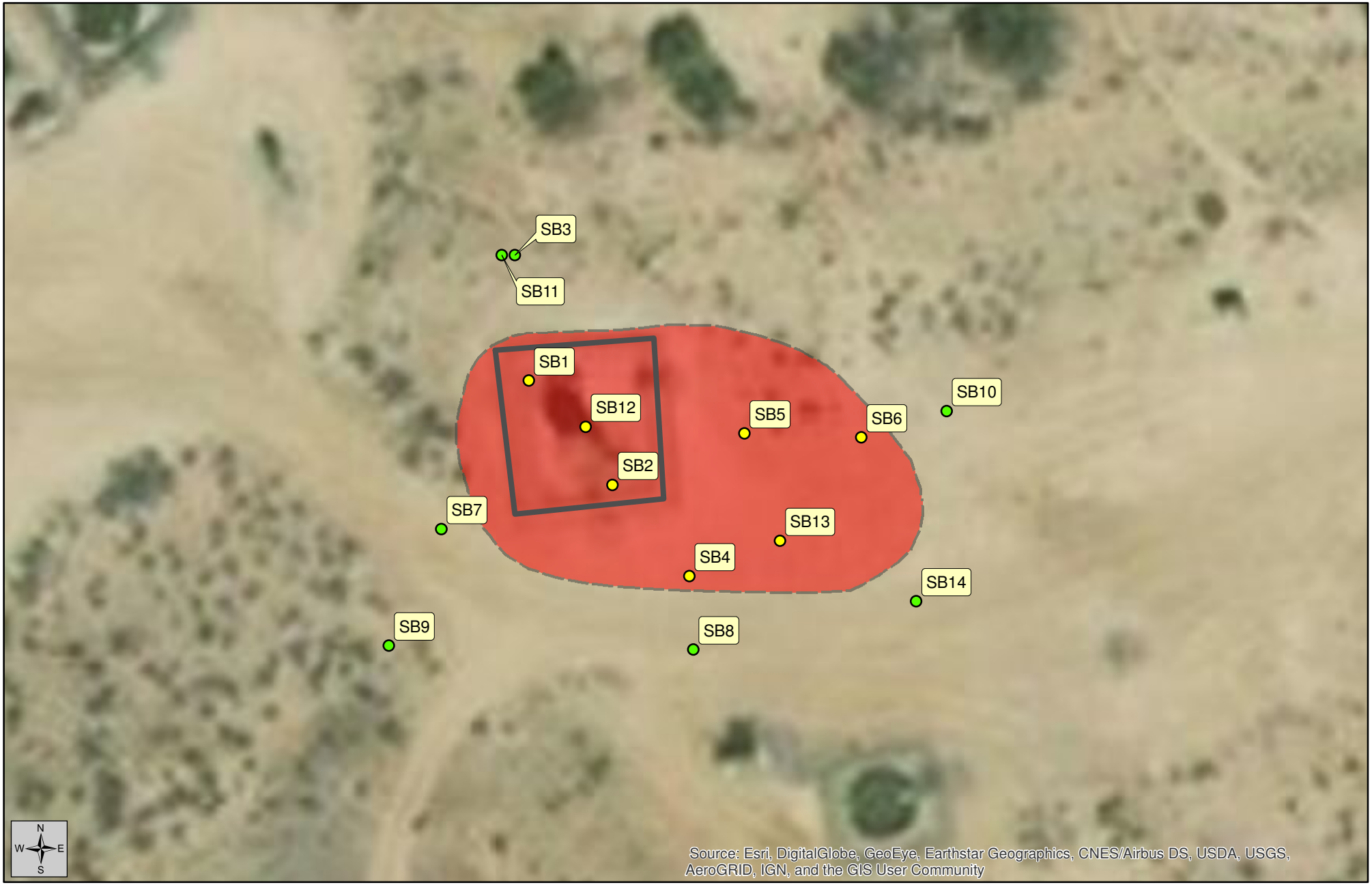


Figure 8
Soil Isoconcentration Map

Site Charactorization Report and Remedial Action Plan

Sample Dates:
12/22/17, 02/05/18, 02/06/18, 02/07/18, and 03/20/18

TIMBERWOLF ENVIRONMENTAL

1:500

0 50 100 150 200 250 Feet

Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Created By:
Russell Greer
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

- Sample Location (elevated)
- Sample Location (clean)
- Benzene Plume
- Former Berm

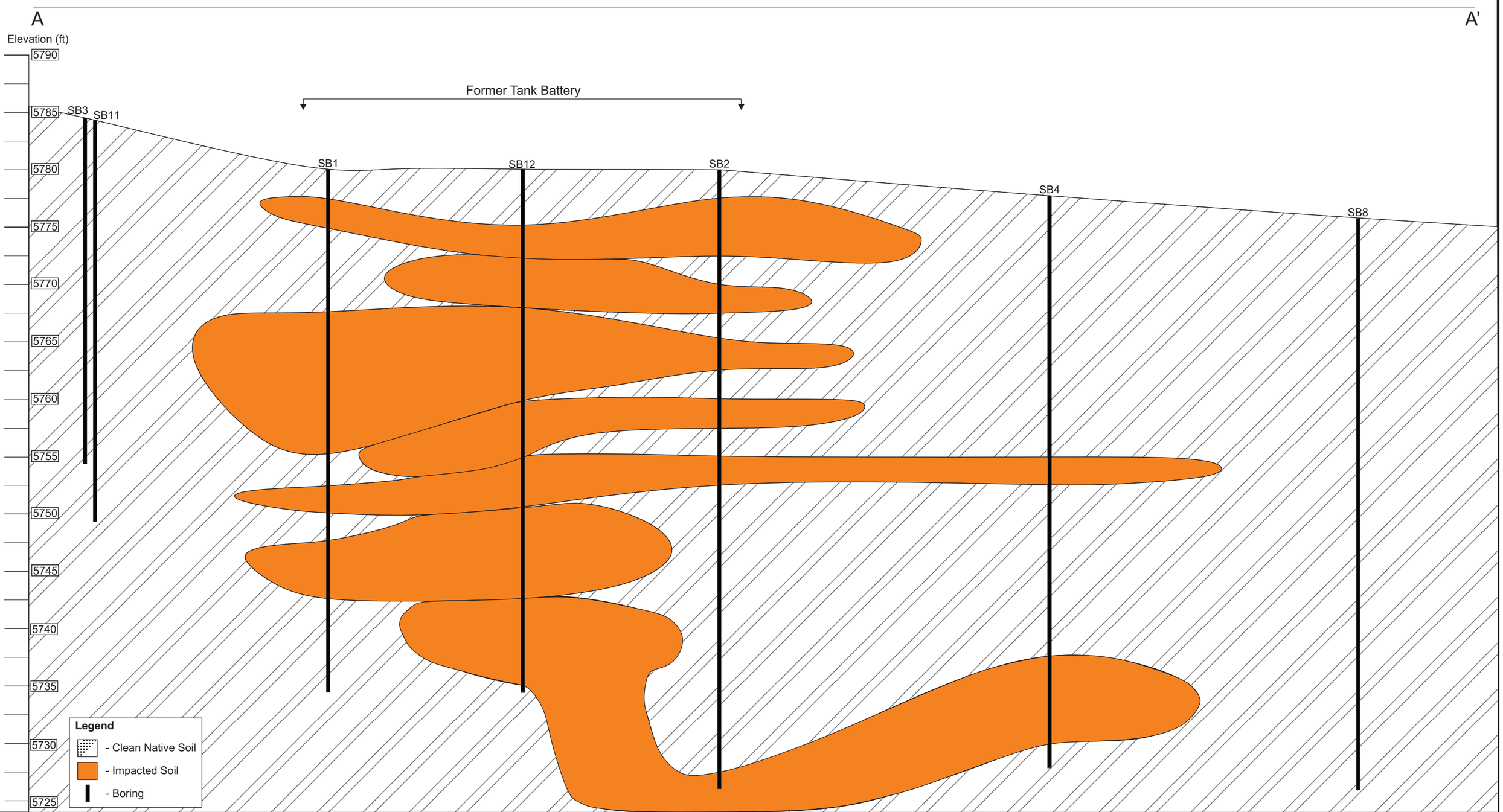


Figure 9 **Cross-Sectional View: A - A'**	**Site Characterization Report and Remedial Action Plan**	**June 14, 2019**
TIMBERWOLF ENVIRONMENTAL Created By: Russell Greer TW Project No.: HEC-190009	Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324) Hilcorp Energy Company San Juan County, New Mexico	X-Axis Not to Scale

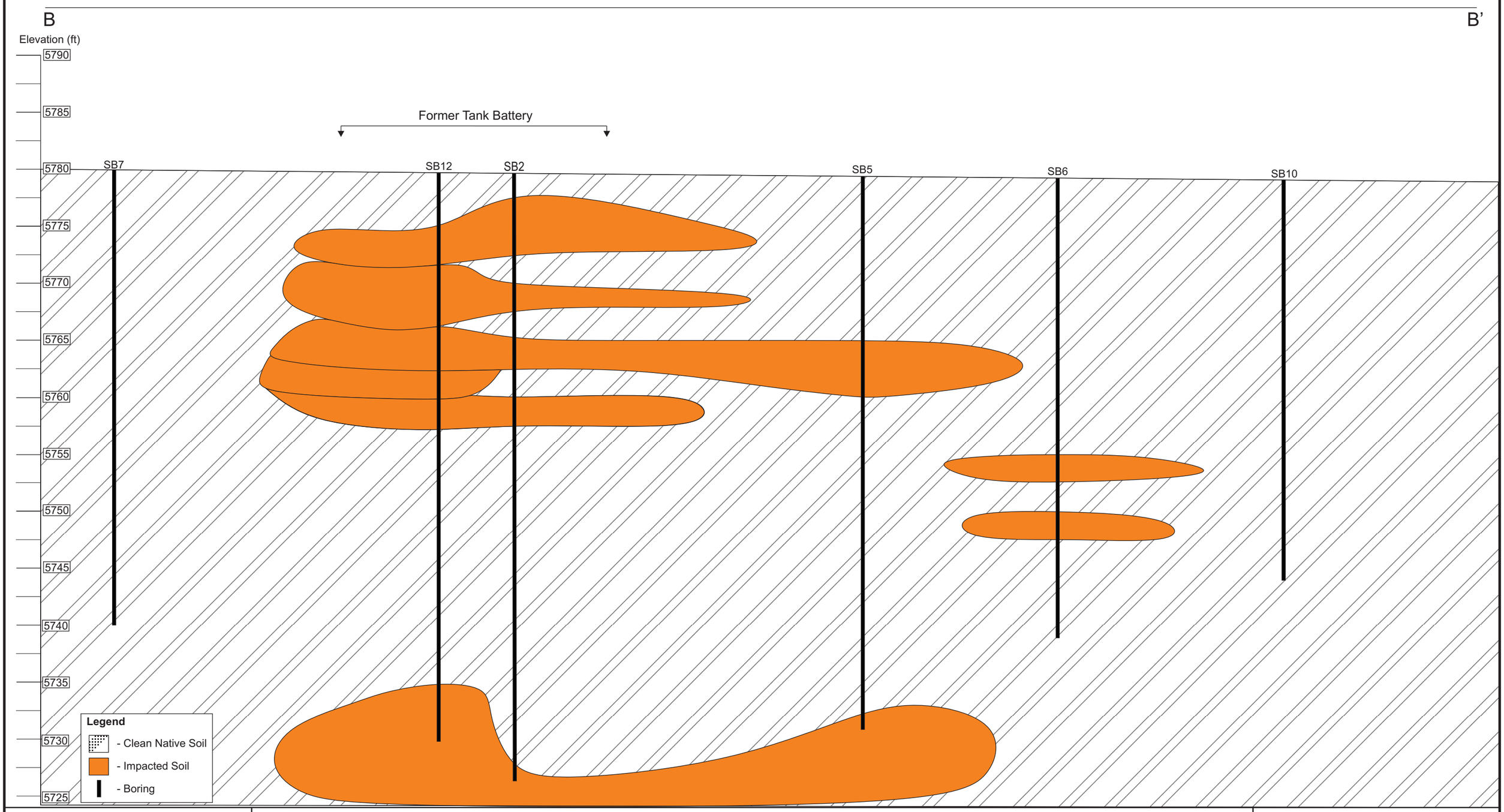


Figure 10 **Cross-Sectional View: B - B'**	**Site Characterization Report and Remedial Action Plan**	**June 14, 2019**
TIMBERWOLF ENVIRONMENTAL Created By: Russell Greer TW Project No.: HEC-190009	Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324) Hilcorp Energy Company San Juan County, New Mexico	X-Axis Not to Scale

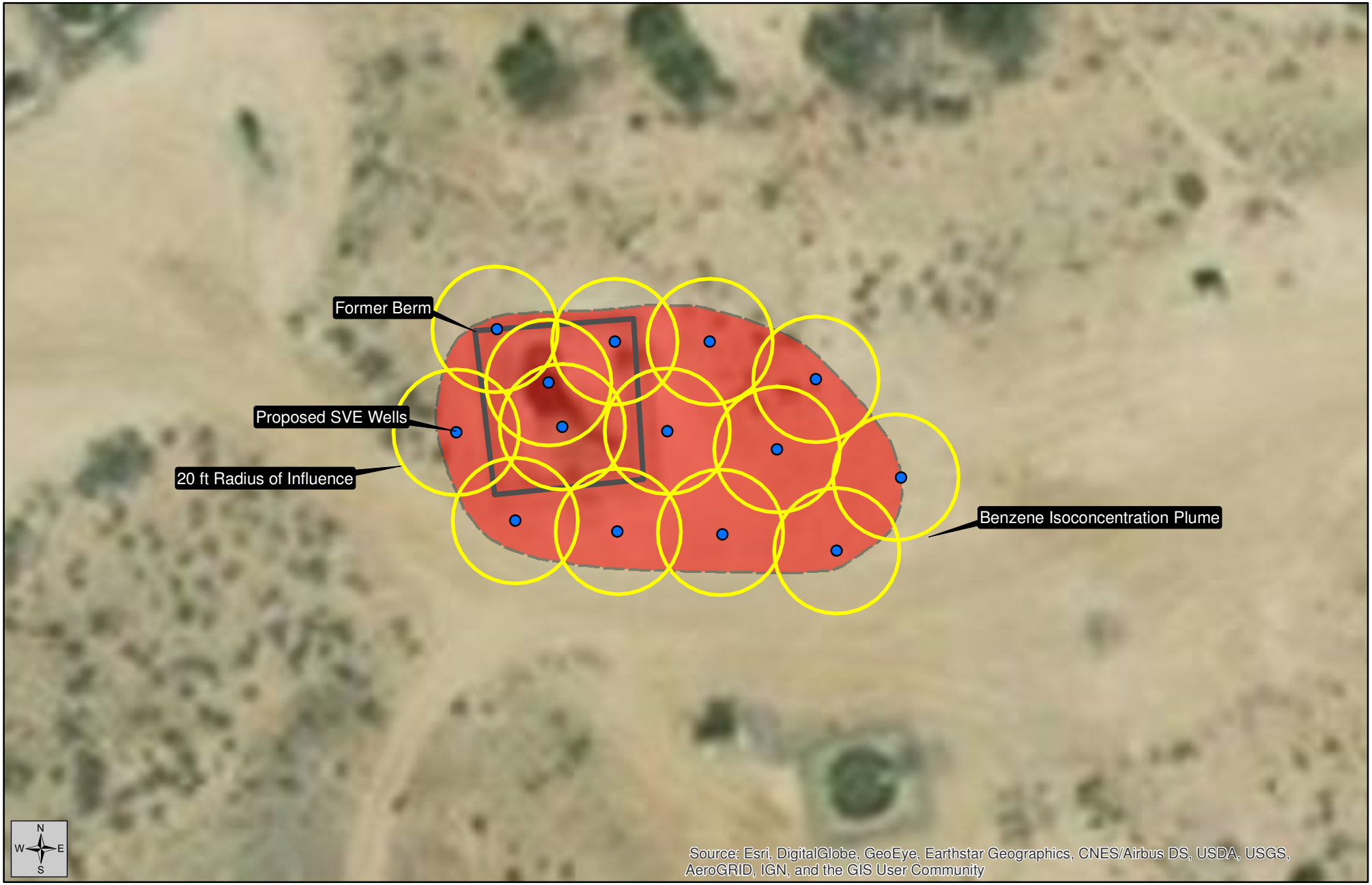


Figure 11
Proposed SVE Well Location Map

Site Charactorization Report and Remedial Action Plan

April 30, 2019

TIMBERWOLF ENVIRONMENTAL

1:500

0 50 100 150 200 250 Feet

Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Created By:
Russell Greer
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

- Proposed SVE Wells
- Former Berm
- 20 ft radius of influence
- Benzene Isoconcentration Plume

NMOSE Water Well Records

New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	SJ 00867			4	07	29N	11W	229570	4069949*

Driller License: 666 **Driller Company:** GILBERT, JOHN G.

Driller Name: JOHN GILBERT

Drill Start Date:	01/26/1979	**Drill Finish Date:**	01/31/1979	**Plug Date:**	
Log File Date:	02/06/1979	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	5 GPM
Casing Size:		**Depth Well:**	77 feet	**Depth Water:**	55 feet

Water Bearing Stratifications:	Top	Bottom	Description
	55	65	Sandstone/Gravel/Conglomerate

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	SJ 03749 POD1	1	3	2	07	29N	11W	229235	4070593

Driller License: **Driller Company:**

Driller Name: HARGIS

Drill Start Date:	07/24/2009	**Drill Finish Date:**	12/01/2009	**Plug Date:**	
Log File Date:	07/12/2010	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	6.00	**Depth Well:**	440 feet	**Depth Water:**	140 feet

Soil Boring Logs

SOIL BORING INSTALLATION

SB11

TIMBERWOLF ENVIRONMENTAL

Client: Hilcorp Energy Company	Completion Date: 03/20/19
Project Name: Fifield 5 No. 1	Logged By: Preston Kocian
Site Location: San Juan County. New Mexico	Drilled By: Geomat, Inc.
Project Number: 190009	Drilling Method & Boring Diameter: Hollow Stem Auger
Boring Coordinates: 36.75001, -108.01962	Total Depth (ft): 36'
Ground Surface Elevation (ft, msl): 5,795 ft	First Water Encountered (ft): NA

Depth (feet)	USCS	PID Reading (ppm)	Drilling Technique	Soil Description	Well Completion
5	SC			TAN CLAYEY SAND	
10		4.9		TAN GREY SHALE	
15	SW				
20		1.7			
25					

Notes:
Groundwater not encountered; no well completion

Legend:

- Hollow-stem auger
- Flight auger
- Split spoon

SOIL BORING INSTALLATION

SB11

TIMBERWOLF ENVIRONMENTAL

Client: Hilcorp Energy Company	Completion Date: 03/20/19
Project Name: Fifield 5 No. 1	Logged By: Preston Kocian
Site Location: San Juan County. New Mexico	Drilled By: Geomat, Inc.
Project Number: 190009	Drilling Method & Boring Diameter: Hollow Stem Auger
Boring Coordinates: 36.75001, -108.01962	Total Depth (ft): 36'
Ground Surface Elevation (ft, msl): 5,795 ft	First Water Encountered (ft): NA

Depth (feet)	USCS	PID Reading (ppm)	Drilling Technique	Soil Description	Well Completion
		3.4		TAN GREY SHALE	
30	SW	2.1		LIGHT GREY SANDSTONE	
35		2.5			
				TD = 36'	
40					
45					

Notes:
Groundwater not encountered; no well completion

Legend:

- Hollow-stem auger
- Flight auger
- Split spoon

SOIL BORING INSTALLATION

SB12

TIMBERWOLF ENVIRONMENTAL

Client: Hilcorp Energy Company	Completion Date: 03/20/19
Project Name: Fifield 5 No. 1	Logged By: Preston Kocian
Site Location: San Juan County. New Mexico	Drilled By: Geomat, Inc.
Project Number: 190009	Drilling Method & Boring Diameter: Hollow Stem Auger
Boring Coordinates: 36.74986, -108.01954	Total Depth (ft): 51'
Ground Surface Elevation (ft, msl): 5,795 ft	First Water Encountered (ft): NA

Depth (feet)	USCS	PID Reading (ppm)	Drilling Technique	Soil Description	Well Completion
5	SW	2,078		TAN SAND	
10		1,205		TAN GREY SHALE	
15	SW	1,805			
20		2,219.0			

Notes:
Groundwater not encountered; no well completion

Legend:
- Hollow-stem auger
- Flight auger
- Split spoon

SOIL BORING INSTALLATION

SB12

TIMBERWOLF ENVIRONMENTAL

Client: Hilcorp Energy Company	Completion Date: 03/20/19
Project Name: Fifield 5 No. 1	Logged By: Preston Kocian
Site Location: San Juan County. New Mexico	Drilled By: Geomat, Inc.
Project Number: 190009	Drilling Method & Boring Diameter: Hollow Stem Auger
Boring Coordinates: 36.74986, -108.01954	Total Depth (ft): 51'
Ground Surface Elevation (ft, msl): 5,795 ft	First Water Encountered (ft): NA

Depth (feet)	USCS	PID Reading (ppm)	Drilling Technique	Soil Description	Well Completion
		1,900		TAN GREY SHALE	
30		1,637		GREY SANDSTONE	
	SW				
35		1,713			
40		1605			
45		401		COARSE GREY SANDSTONE	
50		204			
				TD = 51'	

Notes:
Groundwater not encountered; no well completion

Legend:
- Hollow-stem auger
- Flight auger
- Split spoon

SOIL BORING INSTALLATION

SB13

TIMBERWOLF ENVIRONMENTAL

Client: Hilcorp Energy Company	Completion Date: 03/20/19
Project Name: Fifield 5 No. 1	Logged By: Preston Kocian
Site Location: San Juan County. New Mexico	Drilled By: Geomat, Inc.
Project Number: 190009	Drilling Method & Boring Diameter: Hollow Stem Auger
Boring Coordinates: 36.59821, -107.52118	Total Depth (ft): 41'
Ground Surface Elevation (ft, msl): 5,795 ft	First Water Encountered (ft): NA

Depth (feet)	USCS	PID Reading (ppm)	Drilling Technique	Soil Description	Well Completion
5	SC	6.5		TAN CLAYEY SAND	
10	SW	1.5		TAN GREY SHALE	
15		10.1			
20		14			
25					

Notes:
Groundwater not encountered; no well completion

Legend:
- Hollow-stem auger
- Flight auger
- Split spoon

SOIL BORING INSTALLATION

SB13

TIMBERWOLF ENVIRONMENTAL

Client: Hilcorp Energy Company	Completion Date: 03/20/19
Project Name: Fifield 5 No. 1	Logged By: Preston Kocian
Site Location: San Juan County. New Mexico	Drilled By: Geomat, Inc.
Project Number: 190009	Drilling Method & Boring Diameter: Hollow Stem Auger
Boring Coordinates: 36.59821, -107.52118	Total Depth (ft): 41'
Ground Surface Elevation (ft, msl): 5,795 ft	First Water Encountered (ft): NA

Depth (feet)	USCS	PID Reading (ppm)	Drilling Technique	Soil Description	Well Completion
		586		TAN GREY SHALE	
30		1,312		GREY SANDSTONE	
	SW				
35		579			
40		38			
				TD = 41'	
45					

Notes:
Groundwater not encountered; no well completion

Legend:
- Hollow-stem auger
- Flight auger
- Split spoon

SOIL BORING INSTALLATION

SB14

TIMBERWOLF ENVIRONMENTAL

Client: Hilcorp Energy Company	Completion Date: 03/20/19
Project Name: Fifield 5 No. 1	Logged By: Preston Kocian
Site Location: San Juan County. New Mexico	Drilled By: Geomat, Inc.
Project Number: 190009	Drilling Method & Boring Diameter: Hollow Stem Auger
Boring Coordinates: 36.74972, -108.019221	Total Depth (ft): 36'
Ground Surface Elevation (ft, msl): 5,795 ft	First Water Encountered (ft): NA

Depth (feet)	USCS	PID Reading (ppm)	Drilling Technique	Soil Description	Well Completion
5	SC			TAN CLAYEY SAND	
10				TAN GREY SHALE	
15	SW				
20					
25					

Notes:
Groundwater not encountered; no well completion

Legend:
- Hollow-stem auger
- Flight auger
- Split spoon

SOIL BORING INSTALLATION

SB14

TIMBERWOLF ENVIRONMENTAL

Client: Hilcorp Energy Company	Completion Date: 03/20/19
Project Name: Fifield 5 No. 1	Logged By: Preston Kocian
Site Location: San Juan County. New Mexico	Drilled By: Geomat, Inc.
Project Number: 190009	Drilling Method & Boring Diameter: Hollow Stem Auger
Boring Coordinates: 36.74972, -108.019221	Total Depth (ft): 36'
Ground Surface Elevation (ft, msl): 5,795 ft	First Water Encountered (ft): NA

Depth (feet)	USCS	PID Reading (ppm)	Drilling Technique	Soil Description	Well Completion
		66.2		TAN GREY SHALE	
30	SW	10.8		LIGHT GREY SANDSTONE	
35				TD = 36'	
40					
45					

Notes:
Groundwater not encountered; no well completion

Legend:
- Hollow-stem auger
- Flight auger
- Split spoon

Attached Tables

Table A1. Cumulative Soil Analytical Results
Fifield 5 No. 1 (OCD Incident No. NVF1718155324)
San Juan County, New Mexico
Hilcorp Energy Company

Sample ID	Sample Date	Volatile Organic Compounds (mg/kg)					Total Petroleum Hydrocarbons (mg/kg)			
		B	T	E	X	Total BTEX	GRO	DRO	MRO	TPH
SB1 27.5-28.5*	12/22/17	3.1	53	9.8	150	216	2,500	710	< 50	3,210
SB1 35-36*	12/22/17	0.36	6.9	1.5	20	29	440	93	< 49	533
SB1 40-41*	12/22/17	< 0.024	0.064	< 0.049	0.34	0.4	18	10	< 48	28
SB2 15-16*	02/05/18	< 0.11	< 0.23	0.41	2	2.4	270	33	< 48	303
SB2 35-36*	02/05/18	0.25	2.7	0.55	7.3	10.8	200	23	<49	232
SB4 22.5-23.5*	02/06/18	0.56	10	2.1	29	42	560	170	< 49	730
SB4 45-46*	02/06/18	0.027	0.22	< 0.037	0.26	0.51	11	< 9.8	< 49	11
SB5 17.5-18.5*	02/07/18	< 0.25	4.4	3.7	56	64	700	260	< 43	960
SB6 25-26*	02/07/18	< 0.12	5.3	1.5	29	36	390	160	< 49	550
SB7 15-16*	02/07/18	< 0.023	< 0.047	< 0.047	0.51	0.51	32	66	< 45	98
SB8 25-26*	02/08/18	0.028	0.37	< 0.046	1.1	1.1	5.5	< 9.5	< 48	5.5
SB9 27.5-28.5*	02/08/18	< 0.025	< 0.049	< 0.049	< 0.098	0.221	< 4.9	< 9.8	< 49	63.7
SB10 27.5-28.5*	02/08/18	0.03	0.13	< 0.049	0.17	0.33	< 4.9	< 9.5	< 48	63.4
SB11 25-26'	03/20/19	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB11 35-36'	03/20/19	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB12 20-21'	03/20/19	0.372	13.9	3.88	58.8	76.95	3,990	471	15.3	4,476.3
SB12 50-51'	03/20/19	< 0.0010	< 0.0050	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
SB13 30-31'	03/20/19	< 0.020	1.13	0.407	7.77	9.327	704	314	14	1,032
SB13 40-41'	03/20/19	0.0062	0.0355	< 0.0025	0.0342	0.0759	1.5	< 4.0	< 4.0	1.5
SB14 30-31'	03/20/19	0.00813	0.0256	< 0.0025	0.0294	0.0656	0.12	< 4.0	< 4.0	8.12
SB14 35-36'	03/20/19	< 0.001	< 0.005	< 0.0025	< 0.0065	0.015	< 0.10	< 4.0	< 4.0	8.1
NMOCD Action Level		**10**	**--**	**--**	**--**	**50**	**--**	**--**	**--**	**100**

*- Samples collected by Rule Engineering
BTEX - benzene, toluene, ethylbenzene, and xylene
TPH - total petroleum hydrocarbons
GRO - gasoline range organics
DRO - diesel range organics
MRO - motor oil range organics
mg/kg - milligrams per kilogram

TIMBERWOLF ENVIRONMENTAL

Laboratory Report and Chain-of-Custody Documents

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

March 29, 2019

HilCorp-Farmington, NM

Sample Delivery Group:	L1081533
Samples Received:	03/22/2019
Project Number:	FIEIELD 5 / 190009
Description:	Fiefield

Report To: Clara Cardoza
382 Road 3100
Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

TABLE OF CONTENTS

SB12 20-21' L1081533-01 Solid

Collected by: Preston K.
Collected date/time: 03/20/19 08:50
Received date/time: 03/22/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1256152	500	03/23/19 08:55	03/27/19 15:06	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1254601	40	03/23/19 08:55	03/24/19 04:42	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1255464	1	03/27/19 00:59	03/27/19 05:51	KME	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1255464	5	03/27/19 00:59	03/28/19 02:48	KME	Mt. Juliet, TN

SB12 50-51' L1081533-02 Solid

Collected by: Preston K.
Collected date/time: 03/20/19 10:50
Received date/time: 03/22/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1256152	1	03/23/19 08:55	03/27/19 15:28	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1254601	1	03/23/19 08:55	03/24/19 00:01	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1255464	1	03/27/19 00:59	03/27/19 05:19	KME	Mt. Juliet, TN

SB13 30-31' L1081533-03 Solid

Collected by: Preston K.
Collected date/time: 03/20/19 13:15
Received date/time: 03/22/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1256152	250	03/23/19 08:55	03/27/19 15:50	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1254601	20	03/23/19 08:55	03/24/19 05:01	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1255464	1	03/27/19 00:59	03/27/19 05:35	KME	Mt. Juliet, TN

SB13 40-41' L1081533-04 Solid

Collected by: Preston K.
Collected date/time: 03/20/19 14:00
Received date/time: 03/22/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1256152	1	03/23/19 08:55	03/27/19 16:12	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1254601	1	03/23/19 08:55	03/24/19 00:20	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1255464	1	03/27/19 00:59	03/27/19 06:08	KME	Mt. Juliet, TN

SB11 25-26' L1081533-05 Solid

Collected by: Preston K.
Collected date/time: 03/20/19 13:15
Received date/time: 03/22/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1256152	1	03/23/19 08:55	03/27/19 16:35	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1254601	1	03/23/19 08:55	03/24/19 00:39	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1255464	1	03/27/19 00:59	03/27/19 06:41	KME	Mt. Juliet, TN

SB11 35-36' L1081533-06 Solid

Collected by: Preston K.
Collected date/time: 03/20/19 13:45
Received date/time: 03/22/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1256152	1	03/23/19 08:55	03/27/19 16:57	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1254601	1	03/23/19 08:55	03/24/19 00:57	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1255464	1	03/27/19 00:59	03/27/19 06:24	KME	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	3990		50.0	500	03/27/2019 15:06	WG1256152
(S) a,a,a-Trifluorotoluene(FID)	*95.4*		*77.0-120*		*03/27/2019 15:06*	WG1256152

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.372		0.0400	40	03/24/2019 04:42	WG1254601
Toluene	13.9		0.200	40	03/24/2019 04:42	WG1254601
Ethylbenzene	3.88		0.100	40	03/24/2019 04:42	WG1254601
Total Xylenes	58.8		0.260	40	03/24/2019 04:42	WG1254601
(S) Toluene-d8	*102*		*75.0-131*		*03/24/2019 04:42*	WG1254601
(S) a,a,a-Trifluorotoluene	*98.9*		*80.0-120*		*03/24/2019 04:42*	WG1254601
(S) 4-Bromofluorobenzene	*97.5*		*67.0-138*		*03/24/2019 04:42*	WG1254601
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*03/24/2019 04:42*	WG1254601

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	471		20.0	5	03/28/2019 02:48	WG1255464
C28-C40 Oil Range	15.3		4.00	1	03/27/2019 05:51	WG1255464
(S) o-Terphenyl	*103*		*18.0-148*		*03/28/2019 02:48*	WG1255464
(S) o-Terphenyl	*99.9*		*18.0-148*		*03/27/2019 05:51*	WG1255464

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	03/27/2019 15:28	WG1256152
(S) a,a,a-Trifluorotoluene(FID)	*99.5*		*77.0-120*		*03/27/2019 15:28*	WG1256152

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/24/2019 00:01	WG1254601
Toluene	ND		0.00500	1	03/24/2019 00:01	WG1254601
Ethylbenzene	ND		0.00250	1	03/24/2019 00:01	WG1254601
Total Xylenes	ND		0.00650	1	03/24/2019 00:01	WG1254601
(S) Toluene-d8	*107*		*75.0-131*		*03/24/2019 00:01*	WG1254601
(S) a,a,a-Trifluorotoluene	*95.3*		*80.0-120*		*03/24/2019 00:01*	WG1254601
(S) 4-Bromofluorobenzene	*92.1*		*67.0-138*		*03/24/2019 00:01*	WG1254601
(S) 1,2-Dichloroethane-d4	*101*		*70.0-130*		*03/24/2019 00:01*	WG1254601

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/27/2019 05:19	WG1255464
C28-C40 Oil Range	ND		4.00	1	03/27/2019 05:19	WG1255464
(S) o-Terphenyl	*88.9*		*18.0-148*		*03/27/2019 05:19*	WG1255464

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	704		25.0	250	03/27/2019 15:50	WG1256152
(S) a,a,a-Trifluorotoluene(FID)	*98.6*		*77.0-120*		*03/27/2019 15:50*	WG1256152

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND	J3	0.0200	20	03/24/2019 05:01	WG1254601
Toluene	1.13	J5	0.100	20	03/24/2019 05:01	WG1254601
Ethylbenzene	0.407	J3	0.0500	20	03/24/2019 05:01	WG1254601
Total Xylenes	7.77	J5	0.130	20	03/24/2019 05:01	WG1254601
(S) Toluene-d8	*99.8*		*75.0-131*		*03/24/2019 05:01*	WG1254601
(S) a,a,a-Trifluorotoluene	*98.2*		*80.0-120*		*03/24/2019 05:01*	WG1254601
(S) 4-Bromofluorobenzene	*93.9*		*67.0-138*		*03/24/2019 05:01*	WG1254601
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*03/24/2019 05:01*	WG1254601

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	314		4.00	1	03/27/2019 05:35	WG1255464
C28-C40 Oil Range	14.0		4.00	1	03/27/2019 05:35	WG1255464
(S) o-Terphenyl	*85.8*		*18.0-148*		*03/27/2019 05:35*	WG1255464

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.50		0.100	1	03/27/2019 16:12	WG1256152
(S) a,a,a-Trifluorotoluene(FID)	*93.8*		*77.0-120*		*03/27/2019 16:12*	WG1256152

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00620		0.00100	1	03/24/2019 00:20	WG1254601
Toluene	0.0355		0.00500	1	03/24/2019 00:20	WG1254601
Ethylbenzene	ND		0.00250	1	03/24/2019 00:20	WG1254601
Total Xylenes	0.0342		0.00650	1	03/24/2019 00:20	WG1254601
(S) Toluene-d8	*101*		*75.0-131*		*03/24/2019 00:20*	WG1254601
(S) a,a,a-Trifluorotoluene	*93.5*		*80.0-120*		*03/24/2019 00:20*	WG1254601
(S) 4-Bromofluorobenzene	*87.8*		*67.0-138*		*03/24/2019 00:20*	WG1254601
(S) 1,2-Dichloroethane-d4	*98.4*		*70.0-130*		*03/24/2019 00:20*	WG1254601

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/27/2019 06:08	WG1255464
C28-C40 Oil Range	ND		4.00	1	03/27/2019 06:08	WG1255464
(S) o-Terphenyl	*84.3*		*18.0-148*		*03/27/2019 06:08*	WG1255464

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	03/27/2019 16:35	WG1256152
(S) a,a,a-Trifluorotoluene(FID)	*100*		*77.0-120*		*03/27/2019 16:35*	WG1256152

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/24/2019 00:39	WG1254601
Toluene	ND		0.00500	1	03/24/2019 00:39	WG1254601
Ethylbenzene	ND		0.00250	1	03/24/2019 00:39	WG1254601
Total Xylenes	ND		0.00650	1	03/24/2019 00:39	WG1254601
(S) Toluene-d8	*108*		*75.0-131*		*03/24/2019 00:39*	WG1254601
(S) a,a,a-Trifluorotoluene	*94.6*		*80.0-120*		*03/24/2019 00:39*	WG1254601
(S) 4-Bromofluorobenzene	*97.9*		*67.0-138*		*03/24/2019 00:39*	WG1254601
(S) 1,2-Dichloroethane-d4	*97.4*		*70.0-130*		*03/24/2019 00:39*	WG1254601

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/27/2019 06:41	WG1255464
C28-C40 Oil Range	ND		4.00	1	03/27/2019 06:41	WG1255464
(S) o-Terphenyl	*89.3*		*18.0-148*		*03/27/2019 06:41*	WG1255464

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	03/27/2019 16:57	WG1256152
(S) a,a,a-Trifluorotoluene(FID)	*99.1*		*77.0-120*		*03/27/2019 16:57*	WG1256152

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	03/24/2019 00:57	WG1254601
Toluene	ND		0.00500	1	03/24/2019 00:57	WG1254601
Ethylbenzene	ND		0.00250	1	03/24/2019 00:57	WG1254601
Total Xylenes	ND		0.00650	1	03/24/2019 00:57	WG1254601
(S) Toluene-d8	*106*		*75.0-131*		*03/24/2019 00:57*	WG1254601
(S) a,a,a-Trifluorotoluene	*94.8*		*80.0-120*		*03/24/2019 00:57*	WG1254601
(S) 4-Bromofluorobenzene	*94.5*		*67.0-138*		*03/24/2019 00:57*	WG1254601
(S) 1,2-Dichloroethane-d4	*97.2*		*70.0-130*		*03/24/2019 00:57*	WG1254601

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/27/2019 06:24	WG1255464
C28-C40 Oil Range	ND		4.00	1	03/27/2019 06:24	WG1255464
(S) o-Terphenyl	*85.5*		*18.0-148*		*03/27/2019 06:24*	WG1255464

Method Blank (MB)

(MB) R3395885-3 03/27/19 11:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*105*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3395885-1 03/27/19 09:54 • (LCSD) R3395885-2 03/27/19 10:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.15	5.25	93.6	95.5	72.0-127			1.99	20
(S) a,a,a-Trifluorotoluene(FID)				*101*	*102*	*77.0-120*				

Method Blank (MB)

(MB) R3396249-2 03/23/19 22:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*105*			*75.0-131*
(S) a,a,a-Trifluorotoluene	*97.7*			*80.0-120*
(S) 4-Bromofluorobenzene	*94.1*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*96.8*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3396249-1 03/23/19 21:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.0977	78.2	70.0-123	
Ethylbenzene	0.125	0.110	88.3	74.0-126	
Toluene	0.125	0.0964	77.1	75.0-121	
Xylenes, Total	0.375	0.336	89.6	72.0-127	
(S) Toluene-d8			*103*	*75.0-131*	
(S) a,a,a-Trifluorotoluene			*99.3*	*80.0-120*	
(S) 4-Bromofluorobenzene			*103*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*104*	*70.0-130*	

L1081533-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1081533-03 03/24/19 05:01 • (MS) R3396249-3 03/24/19 05:19 • (MSD) R3396249-4 03/24/19 05:38

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.908	1.87	35.6	74.2	20	10.0-149		J3	69.4	37
Ethylbenzene	0.125	0.407	1.82	3.08	56.4	107	20	10.0-160		J3	51.6	38
Toluene	0.125	1.13	4.58	5.51	138	175	20	10.0-156		J5	18.5	38
Xylenes, Total	0.375	7.77	19.5	23.4	156	209	20	10.0-160	J5	J5	18.4	38
(S) Toluene-d8					*101*	*102*		*75.0-131*				
(S) a,a,a-Trifluorotoluene					*98.6*	*102*		*80.0-120*				
(S) 4-Bromofluorobenzene					*98.3*	*103*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*105*	*108*		*70.0-130*				

Method Blank (MB)

(MB) R3395471-1 03/27/19 02:52

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*89.3*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3395471-2 03/27/19 03:08 • (LCSD) R3395471-3 03/27/19 03:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	40.6	39.0	81.2	78.0	50.0-150			4.02	20
(S) o-Terphenyl				*119*	*119*	*18.0-148*				

L1081494-24 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1081494-24 03/27/19 12:12 • (MS) R3395471-4 03/27/19 12:29 • (MSD) R3395471-5 03/27/19 12:45

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	59.7	4160	1500	1750	0.000	0.000	5	50.0-150	V	V	15.5	20
(S) o-Terphenyl					*338*	*408*		*18.0-148*	J1	J1		

Sample Narrative:

OS: Surrogate failure due to matrix interference

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

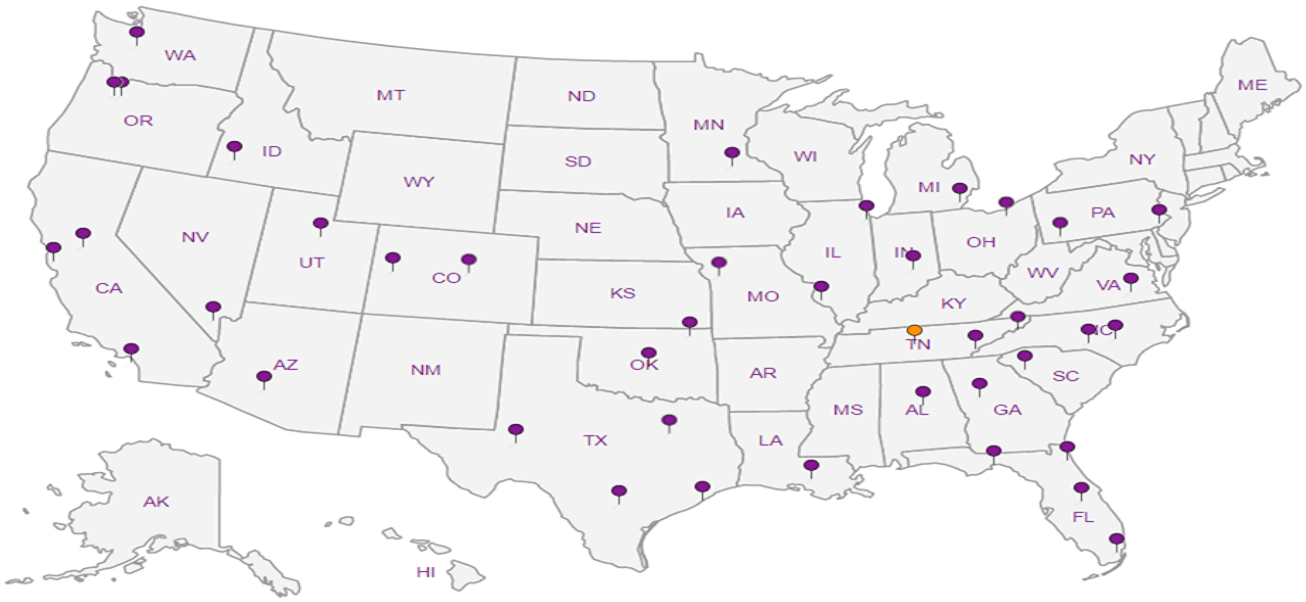
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: **HilCorp-Farmington, NM**	Billing Information:
Address: **382 Road 3100 Aztec, NM 87401**	**PO Box 61529 Houston, TX 77208**
Report To: Clara Cardoza	Email To: CCardoza@hilcorp.com
Copy To: Preston Kocian	Site Collection Info/Address:
Customer Project Name/Number: Fifield 5 / 190009	State: NM County/City: San Juan Time Zone Collected: PT (MT) CT ET
Phone: **505-486-9543** Email:	Site/Facility ID #:
Collected by (print): Preston Kocian	Purchase Order #: Quote #:
Collected by (signature):	Turnaround Date Required: Standard TAT
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive [ ] Hold	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [ ] Yes [ ] No

DW PWS ID #: DW Location Code:

Immediately Packed on Ice: [✓] Yes [ ] No

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

Lab Project Manager: **288 - Daphne Richards**

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	(NA)	
Custody Signatures Present	Y	N	(NA)	
Collector Signature Present	(Y)	N	NA	
Bottles Intact	(Y)	N	NA	
Correct Bottles	(Y)	N	NA	
Sufficient Volume	(Y)	N	NA	
Samples Received on Ice	(Y)	N	NA	
VOA - Headspace Acceptable	Y	N	(NA)	
USDA Regulated Soils	Y	N	(NA)	
Samples in Holding Time	(Y)	N	NA	
Residual Chlorine Present	Y	N	NA	
Cl Strips: _____				
Sample pH Acceptable	Y	N	NA	
pH Strips: _____				
Sulfide Present	Y	N	NA	
Lead Acetate Strips: _____				

LAB USE ONLY:
Lab Sample # / Comments

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	BTEX (8260)	TPH - GRO (8015M)	TPH - DRO (8015M)	TPH - MRO (8015M)	HOLD	Lab Sample # / Comments
SB12 20-21'	SS	Grab	3/20/19	0850				1	X	X	X	X		L1081533-01
SB12 25-26'				0905									H	
SB12 35-36'				0940									H	
SB12 40-41'				1000									H	RAD SCREEN: 0.[illegible]
SB12 45-46'				1020									H	
SB12 50-51'				1050					X	X	X	X		02
SB13 20-21'				1250									H	
SB13 25-26'				1300									H	
SB13 30-31'				1315					X	X	X	X		03
SB13 35-36'				1330									H	

Customer Remarks / Special Conditions / Possible Hazards:
#Error
#Error

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

LAB Tracking #: 4686 6475 5478

Samples received via: (FEDEX) UPS Client Courier Pace Courier

LAB Sample Temperature Info: JH
Temp Blank Received: (Y) N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: 2.0 oC
Cooler 1 Therm Corr. Factor: 1.0 oC
Cooler 1 Corrected Temp: 3.0 oC PD 4/2
Comments:
Trip Blank Received: Y (N) NA
HCL MeOH TSP Other

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
P. Kocian/T-Wolf	3/21/19 1200		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 3/22/19 8:30

E023

Acctnum: **HILCORANM**
Template:
Prelogin:
PM: **288 - Daphne Richards**
PB:

NonConformance(s) YES / NO

Billing Information: ATTN: Clara Cardoza

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: Clara Cardoza

Email To: ccardoza@hilcorp.com;

Project Description: ~~Ashcroft SWD~~ Fiefield

City/State Collected: ~~Aztec, NM~~ San Juan County NM

Phone: 5055640733
Fax:

Client Project # 190009

Lab Project #

L # L1081533

Collected by (print): ~~Clara Cardoza~~ Preston Kocian

Site/Facility ID # ~~Ashcroft SWD~~

P.O. #

Table #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ X ~~Five Day~~
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Acctnum: HILCORANM
Template:
Prelogin:
TSR:
PB:

Immediately Packed on Ice N ___ Y X

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	X ~~RCRA 8 Metals~~	BTEX (8260)	TPH - GRO (8015M)	TPH - DRO (8015M)	TPH - MRO (8015M)	HOLD	Remarks	Sample # (lab only)
~~Dirt Pile - NE~~	~~Comp~~	~~SS~~		~~1/23/2019~~	~~4:33 PM~~	1								
SB13 40-41'	Grab	SS		3/20/19	1400	1		X	X	X	X			
SB11 20-21'					1300							H		-04
SB11 25-26'					1315			X	X	X	X			
SB11 30-31'					1330							H		05
SB11 35-36'					1345			X	X	X	X		RAD SCREEN: <0.5 mR/hr	
SB14 25-26'					1630							H		06
SB14 30-31'					1645							H		
SB14 35-36'					1700							H		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: RAD SCREEN <0.5 mR/hr

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 4686 6475 5478

Sample Receipt Checklist
COC Seal Present/Intact: ___NP ___Y ___N
COC Signed/Accurate: ___Y ___N
Bottles arrive intact: ___Y ___N
Correct bottles used: ___Y ___N
Sufficient volume sent: ___Y ___N
If Applicable
VOA Zero Headspace: ___Y ___N
Preservation Correct/Checked: ___Y ___N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	3/21/19	1200			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 3.0+0=3.0 18	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/22/19 Time: 8:30	Hold: Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 05, 2019

HilCorp-Farmington, NM

Sample Delivery Group:	L1084213
Samples Received:	03/22/2019
Project Number:	190009
Description:	Fiefield

Report To: Clara Cardoza
382 Road 3100
Aztec, NM 87401

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
Project Manager

TABLE OF CONTENTS

SB14 30-31' L1084213-01 Solid

Collected by: Preston K.
Collected date/time: 03/20/19 16:45
Received date/time: 03/22/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1259939	1	04/02/19 16:36	04/03/19 13:38	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1259804	1	04/02/19 16:36	04/03/19 07:17	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1260485	1	04/03/19 16:34	04/03/19 23:11	KME	Mt. Juliet, TN

SB14 35-36' L1084213-02 Solid

Collected by: Preston K.
Collected date/time: 03/20/19 17:00
Received date/time: 03/22/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1259939	1	04/02/19 16:36	04/03/19 13:58	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1259804	1	04/02/19 16:36	04/03/19 07:37	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1260485	1	04/03/19 16:34	04/03/19 22:55	KME	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Project Manager

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.120	B	0.100	1	04/03/2019 13:38	WG1259939
(S) a,a,a-Trifluorotoluene(FID)	*97.4*		*77.0-120*		*04/03/2019 13:38*	WG1259939

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00813		0.00100	1	04/03/2019 07:17	WG1259804
Toluene	0.0256		0.00500	1	04/03/2019 07:17	WG1259804
Ethylbenzene	ND		0.00250	1	04/03/2019 07:17	WG1259804
Total Xylenes	0.0294		0.00650	1	04/03/2019 07:17	WG1259804
(S) Toluene-d8	*108*		*75.0-131*		*04/03/2019 07:17*	WG1259804
(S) a,a,a-Trifluorotoluene	*102*		*80.0-120*		*04/03/2019 07:17*	WG1259804
(S) 4-Bromofluorobenzene	*105*		*67.0-138*		*04/03/2019 07:17*	WG1259804
(S) 1,2-Dichloroethane-d4	*97.2*		*70.0-130*		*04/03/2019 07:17*	WG1259804

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	04/03/2019 23:11	WG1260485
C28-C40 Oil Range	ND		4.00	1	04/03/2019 23:11	WG1260485
(S) o-Terphenyl	*69.3*		*18.0-148*		*04/03/2019 23:11*	WG1260485

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	04/03/2019 13:58	WG1259939
(S) a,a,a-Trifluorotoluene(FID)	*99.3*		*77.0-120*		*04/03/2019 13:58*	WG1259939

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND	J3	0.00100	1	04/03/2019 07:37	WG1259804
Toluene	ND	J3	0.00500	1	04/03/2019 07:37	WG1259804
Ethylbenzene	ND	J3	0.00250	1	04/03/2019 07:37	WG1259804
Total Xylenes	ND	J3	0.00650	1	04/03/2019 07:37	WG1259804
(S) Toluene-d8	*105*		*75.0-131*		*04/03/2019 07:37*	WG1259804
(S) a,a,a-Trifluorotoluene	*102*		*80.0-120*		*04/03/2019 07:37*	WG1259804
(S) 4-Bromofluorobenzene	*105*		*67.0-138*		*04/03/2019 07:37*	WG1259804
(S) 1,2-Dichloroethane-d4	*93.2*		*70.0-130*		*04/03/2019 07:37*	WG1259804

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	04/03/2019 22:55	WG1260485
C28-C40 Oil Range	ND		4.00	1	04/03/2019 22:55	WG1260485
(S) o-Terphenyl	*60.5*		*18.0-148*		*04/03/2019 22:55*	WG1260485

Method Blank (MB)

(MB) R3398107-5 04/03/19 12:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0305	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*104*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3398107-3 04/03/19 11:05 • (LCSD) R3398107-4 04/03/19 11:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.97	5.89	109	107	72.0-127			1.35	20
(S) a,a,a-Trifluorotoluene(FID)				*94.0*	*93.3*	*77.0-120*				

Method Blank (MB)

(MB) R3398075-2 04/03/19 01:14

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*111*			*75.0-131*
(S) a,a,a-Trifluorotoluene	*101*			*80.0-120*
(S) 4-Bromofluorobenzene	*109*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*99.5*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3398075-1 04/02/19 23:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.124	98.8	70.0-123	
Ethylbenzene	0.125	0.130	104	74.0-126	
Toluene	0.125	0.115	92.0	75.0-121	
Xylenes, Total	0.375	0.365	97.3	72.0-127	
(S) Toluene-d8			*102*	*75.0-131*	
(S) a,a,a-Trifluorotoluene			*98.3*	*80.0-120*	
(S) 4-Bromofluorobenzene			*101*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*95.8*	*70.0-130*	

L1084213-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1084213-02 04/03/19 07:37 • (MS) R3398075-3 04/03/19 07:58 • (MSD) R3398075-4 04/03/19 08:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.0751	0.135	60.1	108	1	10.0-149		J3	56.8	37
Ethylbenzene	0.125	ND	0.0815	0.145	65.2	116	1	10.0-160		J3	56.3	38
Toluene	0.125	ND	0.0756	0.137	60.5	109	1	10.0-156		J3	57.6	38
Xylenes, Total	0.375	ND	0.243	0.434	64.8	116	1	10.0-160		J3	56.4	38
(S) Toluene-d8					*109*	*108*		*75.0-131*				
(S) a,a,a-Trifluorotoluene					*101*	*101*		*80.0-120*				
(S) 4-Bromofluorobenzene					*106*	*106*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*94.9*	*94.4*		*70.0-130*				

Method Blank (MB)

(MB) R3398241-1 04/03/19 21:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*60.2*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3398241-2 04/03/19 22:06 • (LCSD) R3398241-3 04/03/19 22:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Extractable Petroleum Hydrocarbon	50.0	33.8	31.3	67.6	62.6	50.0-150			7.68	20
C10-C28 Diesel Range	50.0	32.7	29.9	65.4	59.8	50.0-150			8.95	20
(S) o-Terphenyl				*91.1*	*86.5*	*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

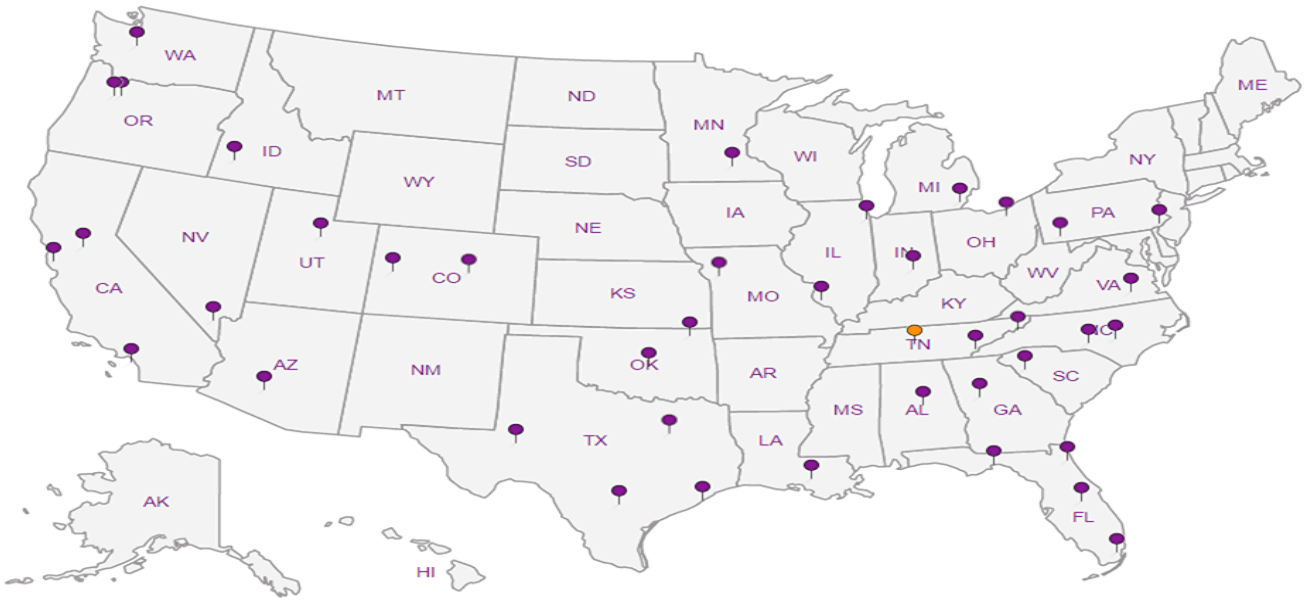
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Billing Information:
ATTN: Clara Cardoza

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: Clara Cardoza

Email To: ccardoza@hilcorp.com;

Project Description: ~~Ashcroft SWD~~ Fiefield

City/State Collected: ~~Aztec, NM~~ San Juan County NM

Phone: 5055640733
Fax:

Client Project # 190009

Lab Project #

L# ~~L1681533~~

Collected by (print): ~~Clara Cardoza~~ Preston Kocian

Site/Facility ID # ~~Ashcroft SWD~~

P.O. #

Table #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

~~Rush?~~ (Lab MUST Be Notified)
___ Same Day X ~~Five Day~~
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Acctnum: HILCORANM
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	~~RCRA 8 Metals~~ PK	BTEX (8260)	TPH - GRO (8015M)	TPH - DRO (8015M)	TPH - MRO (8015M)	HOLD	Remarks	Sample # (lab only)
~~Dirt Pile - NE~~	~~Comp~~	~~SS~~		~~1/23/2019~~	~~4:33 PM~~	1	X							
SB13 40-41'	Grab	SS		3/20/19	1400	1		X	X	X	X			
SB11 20-21'					1300							H		-04
SB11 25-26'					1315			X	X	X	X			
SB11 30-31'					1330							H		-05
SB11 35-36'					1345			X	X	X	X		RAD SCREEN: ≤0.5 mR/hr	
SB14 25-26'					1630							H	L1684213	-06
SB14 30-31'					1645							H		-01
SB14 35-36'					1700							H		-02

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

~~RAD SCREEN: ≤0.5 mR/hr~~

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 4686 6475 5478

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR
	3/21/19	1200		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.0 °C Bottles Received: 18
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/22/19 Time: 8:30
				Hold:

Condition: NCF / OK

L1084213

Jeremy W. Watkins

From: Daphne Richards
Sent: Friday, March 29, 2019 3:33 PM
To: Login
Subject: Taking samples off HOLD 03-0126 HILCORANM

Refer to 03-0126
Please log sample ids:
SB14 30-31
SB14 35-36

For V8260BTEX GRO and DRORLA. Samples OOH 4/3

Thanks