TIMBERWOLF ENVIRONMENTAL

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REVIEWED
By NVelez at 11:11 am, May 16, 2025

Continue with work under "*Soil Monitoring Methodology*" along with the appropriate and adjusted "*Scheduling and Report*" sections of this report.

April 30, 2025

Mr. Nelson Velez
Environmental Specialist-Advanced
New Mexico Oil Conservation Division
1000 Rio Brazos Road
Aztec New Mexico, 87410

Re: Soil Monitoring Work Plan
Fifield 5 No. 1 (SE ¼, SW ¼, Sec. 5, T29N, R11W)
San Juan County, New Mexico
OCD Incident No.: NVF1718155324

Dear Mr. Velez:

At the request of Hilcorp Energy Company (Hilcorp), Timberwolf Environmental, LLC (Timberwolf) presents this soil monitoring work plan to evaluate subsurface petroleum hydrocarbon concentrations in soil and evaluate the progress of ongoing remediation at the Fifield 5 No. 1 (Site). The Site is a plugged well site located approximately 3.3 miles northwest of Bloomfield, in San Juan County, New Mexico (Figures 1 – 3).

The Site is currently being remediated with soil vapor extraction (SVE); the SVE system includes 18 SVE wells, 6 vent wells, and a SVE trailer. The SVE well and vent locations are shown in Figure 4. Findings of the proposed work will be used evaluate remedial actions conducted to date and to inform and identify remedial strategies going forward.

Regulatory Closure 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. The Rule was officially promulgated by Oil Conservation Commission Order No.: R-14751, dated June 21, 2018.

Under Rule 19.15.29, soil cleanup criteria is determined based on the depth to usable groundwater, 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
DRO – diesel range organics
[4] Applies to produced water and fluids containing chloride
TPH = GRO + DRO + ORO
ORO – motor oil range organics

Additionally, the most stringent closure criteria as presented in Table 1 (i.e., ≤ 50 feet) are applicable for sites 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

Review of New Mexico Office of the State Engineer (NMOSE) well records revealed the closest water well is 1.36 miles west of the Site adjacent to Carrizo Creek. The differential elevation between the Site and the depth to water in the referenced water well provides a depth to groundwater for the Site 385 ft. A Site-specific groundwater determination conducted during the 2019 Site characterization revealed that groundwater at the Site is deeper than 51 ft.

The Site is not situated within a municipal boundary, floodplain, mine, or unstable area, or within 1,000 ft of any sensitive feature; therefore, soil closure criteria applicable to this Site is the 51 ft – 100 ft depth to groundwater criteria presented in Table 1 in bold font.

Soil Monitoring Methodology

Timberwolf will collect samples from five (5) soil borings to evaluate the effectiveness and remedial progress of the SVE treatment system. Soil borings will be installed using a rotary rig and hollow-stem auger. Soil samples will be collected from the surface to 35 feet (ft) below ground surface (bgs) at each boring. All depth intervals will be field-screened for volatile organic compounds (VOCs) using a photoionization detector (PID). The following sample intervals from each boring will be selected for laboratory analysis:

- the highest PID readings from the unconsolidated zone (i.e., 0-10 ft)
- highest PID reading from the consolidated zone (i.e., 10 – 35 ft)
- the boring terminus (i.e., 34 - 35 ft)

The proposed soil boring location map is provided in Figure 5.

All soil samples selected for laboratory analysis will be placed into laboratory-provided containers, stored on ice, and transported under chain-of-custody protocol to Eurofins of Albuquerque, New Mexico. Samples will be analyzed for the following constituents: TPH-GRO, TPH-DRO and TPH-MRO using EPA Method 8015 and benzene, toluene, ethylbenzene, and xylene (BTEX) EPA Method 8260 or 8021.

Scheduling and Reporting

Timberwolf plans to begin work on Wednesday May 7th, 2025, beginning at 8:30 am. The work is anticipated to be concluded by May 8th, 2025. Timberwolf will submit a report to the NMOCD which documents sampling methods, laboratory detection limits and analytical methods, and findings of the monitoring event.

If you have any questions regarding this report or need further assistance, do not hesitate to contact us.

Sincerely,
Timberwolf Environmental, LLC

Jim Foster
President

Attachments: Figures

CC: Mitch Killough - Hilcorp Energy Company
Trey Charanza - Timberwolf Environmental

Figures

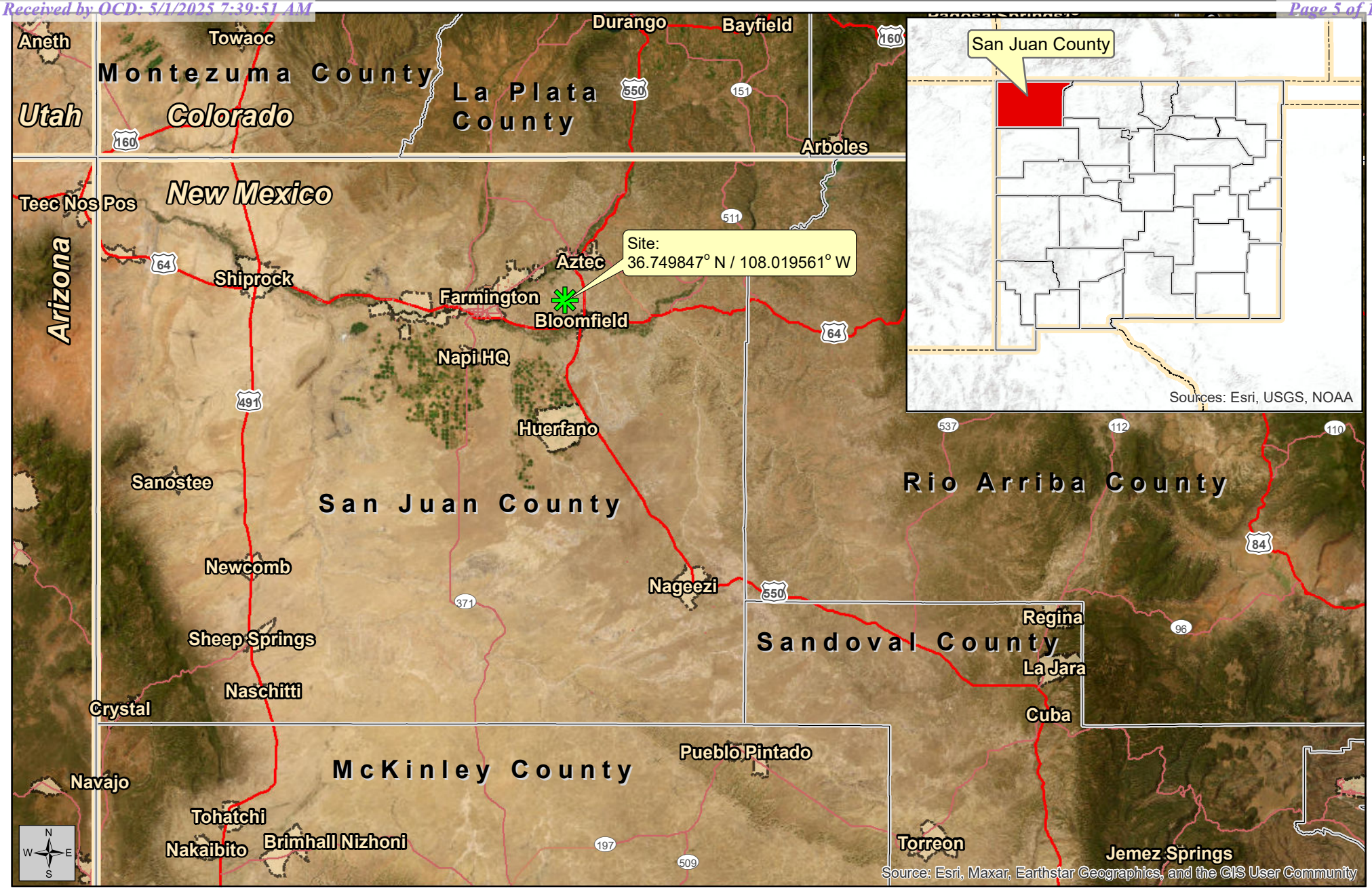

Figure 1 **Site Location Map**	**Soil Monitoring Work Plan**	**April 30, 2025**
TIMBERWOLF ENVIRONMENTAL	1:1,250,000 0 20 40 60 80 100 120 Miles **Fifield 5 No. 1 (OCD Incident No. NVF1718155324)** **Hilcorp Energy Company** **San Juan County, New Mexico**	Site
Created By: Brandon Wiesinger TE Project No.: HEC-190009	Datum: NAD83 Imagery Source: ESRI Vector Source: ESRI and TE	

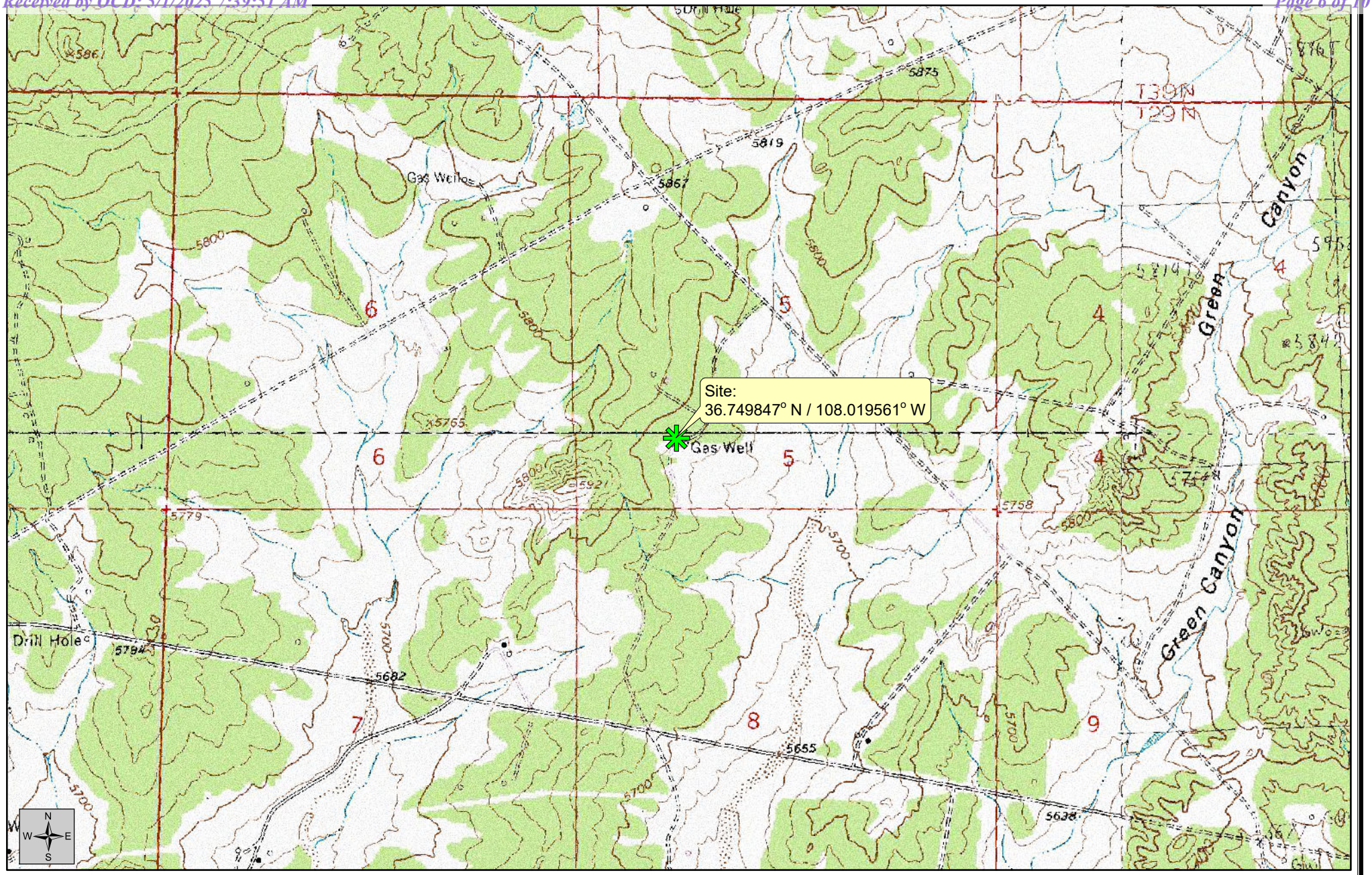

Figure 2 **Topographic Map**	**Soil Monitoring Work Plan**	**April 30, 2025**

TIMBERWOLF ENVIRONMENTAL

1:24,000

0 0.5 1 1.5 2 Miles

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

Created By:
Brandon Wiesinger
TE Project No.: HEC-190009

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

Site

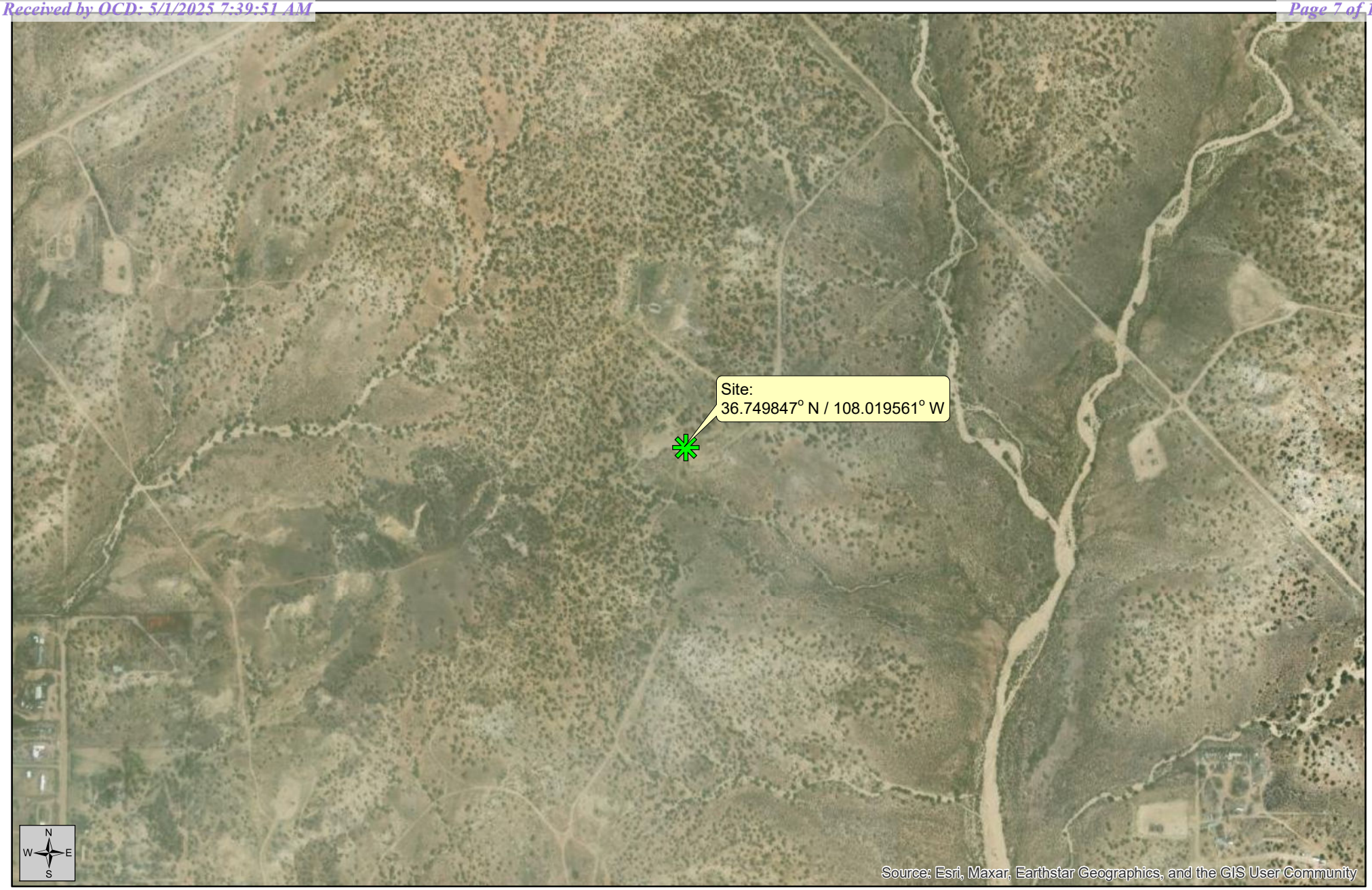

Figure 3 **Aerial Map**	**Soil Monitoring Work Plan**	**April 30, 2025**
TIMBERWOLF ENVIRONMENTAL	1:10,000 0 0.25 0.5 0.75 1 Miles **Fifield 5 No. 1 (OCD Incident No. NVF1718155324)** **Hilcorp Energy Company** **San Juan County, New Mexico**	Site

Created By:
Brandon Wiesinger
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

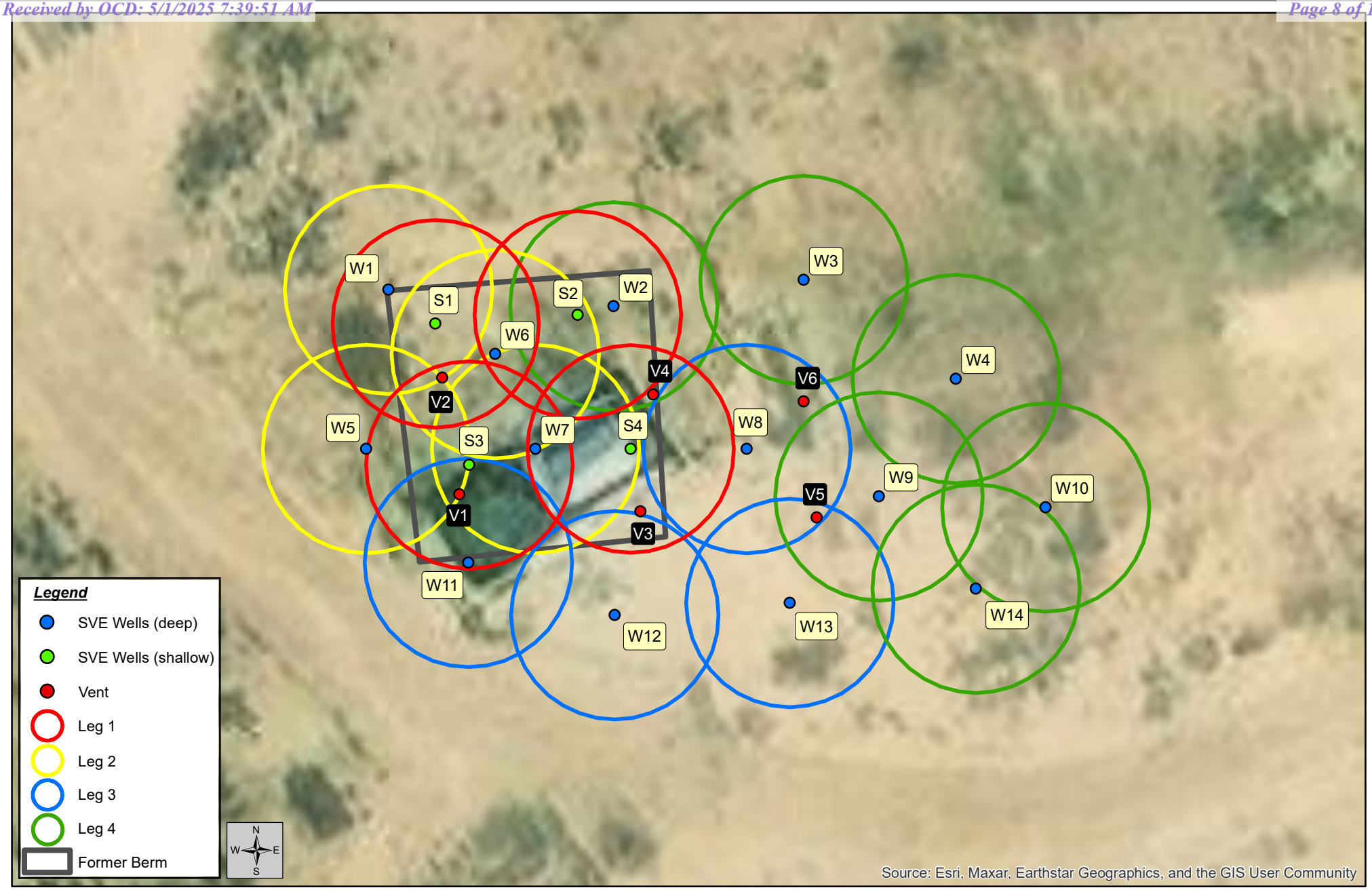

Figure 4 **SVE Well** **Location Map**	**Soil Monitoring Work Plan**	**April 30, 2025**
TIMBERWOLF ENVIRONMENTAL Created By: Kevin Cole TE Project No.: HEC-190009	1:300 0 25 50 75 100 Feet **Fifield 5 No. 1 Release (OCD Incident No. NVF1718155324)** **Hilcorp Energy Company** **San Juan County, New Mexico**	Datum: NAD83 Imagery Source: ESRI Vector Source: TE

Sample ID	Sample Date	VOCs (mg/kg)		Total Petroleum Hydrocarbons (mg/kg)			
		B	Total BTEX	GRO	DRO	MRO	TPH
SB1 27.5-28.5*	12/22/17	3.1	216	2,500	710	< 50	3,210
SB1 35-36*	12/22/17	0.36	29	440	93	< 49	533
SB1 40-41*	12/22/17	< 0.024	0.4	18	10	< 48	28
SB2 15-16*	02/05/18	< 0.11	2.4	270	33	< 48	303
SB2 35-36*	02/05/18	0.25	10.8	200	23	<49	232
SB4 22.5-23.5*	02/06/18	0.56	42	560	170	< 49	730
SB4 45-46*	02/06/18	0.027	0.51	11	< 9.8	< 49	11
SB5 17.5-18.5*	02/07/18	< 0.25	64	700	260	< 43	960
SB6 25-26*	02/07/18	< 0.12	36	390	160	< 49	550
SB7 15-16*	02/07/18	< 0.023	0.51	32	66	< 45	98
SB8 25-26*	02/08/18	0.028	1.1	5.5	< 9.5	< 48	5.5
SB9 27.5-28.5*	02/08/18	< 0.025	0.221	< 4.9	< 9.8	< 49	63.7
SB10 27.5-28.5*	02/08/18	0.03	0.33	< 4.9	< 9.5	< 48	63.4
SB11 25-26'	03/20/19	< 0.0010	0.015	< 0.10	< 4.0	< 4.0	8.1
SB11 35-36'	03/20/19	< 0.0010	0.015	< 0.10	< 4.0	< 4.0	8.1
SB12 20-21'	03/20/19	0.372	76.95	3,990	471	15.3	4,476.3
SB12 50-51'	03/20/19	< 0.0010	0.015	< 0.10	< 4.0	< 4.0	8.1
SB13 30-31'	03/20/19	< 0.020	9.327	704	314	14	1,032
SB13 40-41'	03/20/19	0.0062	0.0759	1.5	< 4.0	< 4.0	1.5
SB14 30-31'	03/20/19	0.00813	0.0656	0.12	< 4.0	< 4.0	8.12
SB14 35-36'	03/20/19	< 0.001	0.015	< 0.10	< 4.0	< 4.0	8.1
NMOCD Action Level		10	50	--	--	--	1,000

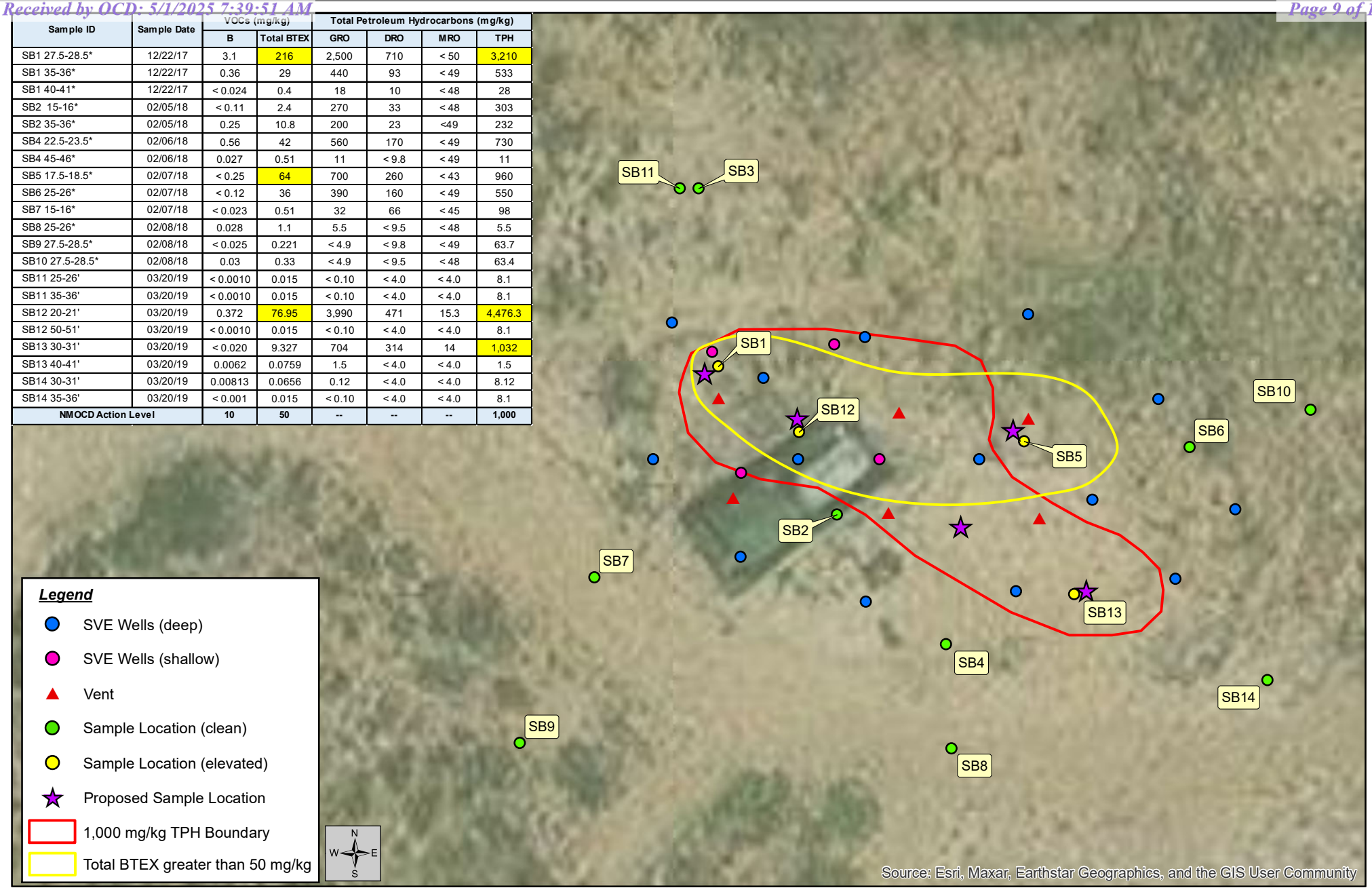

Figure 5
Proposed Soil Monitoring Location Map

Soil Monitoring Work Plan

April 30, 2025

1:350
0 50 100 150 Feet

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

Created By:
Brandon Wiesinger
TE Project No.: HEC-190009

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

TIMBERWOLF ENVIRONMENTAL

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 457432
	Action Type: [REPORT] Alternative Remediation Report (C-141AR)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Continue with work under "Soil Monitoring Methodology" along with the appropriate and adjusted "Scheduling and Report" sections of this report.	5/16/2025